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Note:

Products with our Siemens EcoTech label are marked in the catalog with this symbol:

Siemens EcoTech

See www.siemens.com/sirius/SiemensEcoTech


**Price groups**

PG 41B, 41C, 41E, 41L, 42G, 42J, 42N, 42S, 53W

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3RW55 soft starters

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3RW55 Failsafe soft starters

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6/162 SIRIUS converters for 3RF3 and 3RF2
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## Introduction

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| Homepage, see www.siemens.com/sirius-soft-starter | SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Sirius3rwFolder | Conversion tool, see www.siemens.com/conversion-tool |



3RW55



3RW55 Failsafe



3RW52



3RW50



3RW40



3RW30

| 3RW soft starters | | Article No. | Page |
|---|---|---|---|
| ***High Performance soft starters*** | | | |
| **3RW55 soft starters** | • TIA integration optional<br>• Plug-in communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• Removable HMI module with color display, local interface and slot for a micro SD memory card<br>• Extended protection functions<br>• Up to 1 200 kW at 400 V (can be used in supply systems up to 690 V)<br>• Automatic parameterization for simple commissioning and reliability even under changing load conditions<br>• Hybrid switching technology for minimum power loss and 3-phase motor control for optimum/symmetrical motor control<br>• Pump stop for reduced mechanical loading and optimum pump stop control<br>• ATEX/IECEx certification<br>• System redundancy S2 (with PROFINET High-Feature communications module) | 3RW55..-.HA.. | 6/15 |
| **3RW55 Failsafe soft starters** | • TIA integration optional<br>• Plug-in communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• Removable HMI module with color display, local interface and slot for a micro SD memory card<br>• Extended protection functions<br>• Up to 560 kW at 400 V (can be used in supply systems up to 480 V)<br>• SIL 1/PL c/STO without additional components<br>• SIL 3/PL e/STO with additional contactor and safety relay<br>• Hybrid switching technology for minimum power loss and 3-phase motor control for optimum/symmetrical motor control<br>• Pump stop for reduced mechanical loading and optimum pump stop control<br>• ATEX/IECEx certification<br>• System redundancy S2 (with PROFINET High-Feature communications module) | 3RW55..-.HF.. | 6/39 |
| ***General Performance soft starters*** | | | |
| **3RW52 soft starters** | • TIA integration optional<br>• Plug-in communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• HMI modules optional<br>• Soft starting and stopping<br>• Current limiting<br>• Motor overload protection (optionally with thermistor motor protection)<br>• Analog output (optional)<br>• Up to 560 kW at 400 V (can be used in supply systems up to 600 V)<br>• Hybrid switching technology for minimum power loss and 3-phase motor control for optimum/symmetrical motor control<br>• Soft Torque for reduced mechanical loading and optimum pump stop<br>• Parameterization using potentiometers | 3RW52 | 6/55 |

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3RW55


3RW55 Failsafe


3RW52


3RW50


3RW40


3RW30

| | | Article No. | Page |
|---|---|---|---|
| **3RW soft starters** | | | |
| ***Basic Performance soft starters*** | | | |
| **3RW50 soft starters** | • TIA integration optional<br>• Communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• HMI modules optional<br>• Soft starting and stopping<br>• Current limiting<br>• Motor overload protection (optionally with thermistor motor protection)<br>• Analog output (optional)<br>• Up to 315 kW at 400 V (can be used in supply systems up to 600 V)<br>• Hybrid switching technology for minimum power loss and 2-phase motor control<br>• Soft Torque for reduced mechanical loading and optimum pump stop<br>• Parameterization using potentiometers<br>• ATEX/IECEx certification | 3RW50 | 6/77 |
| **3RW40 soft starters** | • Soft starting and stopping<br>• Current limiting<br>• Motor overload protection (optionally with thermistor motor protection)<br>• Up to 55 kW at 400 V (can be used in supply systems up to 600 V)<br>• Hybrid switching technology for minimum power loss and 2-phase motor control<br>• ATEX certification | 3RW40 | 6/89 |
| **3RW30 soft starters** | • Soft starting with voltage ramp<br>• Up to 55 kW at 400 V (can be used in supply systems up to 480 V) | 3RW30 | 6/101 |

### *Decision support for motor start – Starting and running three-phase asynchronous motors efficiently*




Decision support tool for motor start

By asking some short questions about the application, this tool provides the optimum individual drive solution.

Based on this approach, you are taken to the correct product configurator where you can select suitable products, see www.siemens.com/motorstart-guide.

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## Introduction

| More information | |
|---|---|
| SiePortal, see www.siemens.com/product_catalog_siep?3RF | Conversion tool, see www.siemens.com/conversion-tool |
| Online configurator, see www.siemens.com/sirius/configurators | |


3RF31


3RF30


3RF22


3RF33


3RF24


3RF39


3RF51


3RF53


3RF34.-.B... (motor)

| | | Article No. | Page |
|---|---|---|---|
| **SIRIUS solid-state switching devices for resistive/inductive loads** | | | |
| ***Solid-state relays*** | | | |
| | • Widths 22.5 and 45 mm<br>• Compact and space-saving design<br>• Versions for "zero-point switching" and "instantaneous switching"<br>• Mounting on existing cooling surfaces | **3RF31**<br>**3RF30**<br>**3RF22** | 6/128<br>6/133<br>6/149 |
| ***Solid-state contactors*** | | | |
| | • Complete units comprising a solid-state relay and an optimized heat sink, "ready to use"<br>• Compact and space-saving design<br>• Versions for resistive loads "zero-point switching" and inductive loads "instantaneous switching"<br>• Special version "short-circuit-proof with B MCB" | **3RF33**<br>**3RF24** | 6/137<br>6/153 |
| ***Function modules*** | | | |
| | For extending the functionality of the 3RF31 1-pole solid-state relays and 3RF33 solid-state contactors for many different applications | | |
| **Converters** | • For converting an analog input signal into an on/off ratio; can also be used on 3RF22 and 3RF24 3-phase switching devices | **3RF3900-0EA18** | 6/162 |
| **Load monitoring** | • Monitoring one or more loads (partial loads) | **3RF39..-0FA08,**<br>**3RF39.0-0GA1.** | 6/163 |
| **Heating current monitoring** | • Monitoring one or more loads (partial loads); Remote Teach | **3RF39..-0JA1.** | 6/164 |
| **Power controllers** | • For setting the current by means of a solid-state switching device depending on a setpoint value set by the power controller. There is a choice of full-wave control and generalized phase control | **3RF39..-0KA1.** | 6/165 |
| **Power regulators** | • For regulating the current by means of a solid-state switching device, depending on a setpoint value set by the power regulator. Closed-loop control: full-wave control or generalized phase control | **3RF39.0-0HA1.** | 6/167 |
| **SIRIUS 3RF5 solid-state switching devices for switching resistive DC loads** | | | |
| ***DC solid-state switching devices*** | | | |
| **Solid-state relays** | • Mounting on existing cooling surfaces<br>• Compact and space-saving design with 22.5 mm width | **3RF51** | 6/169 |
| **Solid-state contactors** | • Complete units comprising a solid-state relay and an optimized heat sink, "ready to use"<br>• Compact and space-saving design with 22.5 mm width | **3RF53** | 6/169 |
| **SIRIUS 3RF34 solid-state switching devices for switching motors** | | | |
| ***Solid-state contactors*** | | | |
| **Solid-state contactors** | • Complete units in the insulated enclosure with optimized heat sink, "ready to use"<br>• Compact and space-saving design<br>• Version for motors, "instantaneous switching" | **3RF34..-.BB..** | 6/178 |
| **Solid-state reversing contactors** | | **3RF34..-.BD..** | 6/180 |

### *Use of SIRIUS 3RF34..-.B... solid-state switching devices in conjunction with IE3 and IE4 motors*

Note:

For the use of SIRIUS 3RF34..-.B... solid-state switching devices for switching motors in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Equipment Manual.

For more information, see page 1/8.

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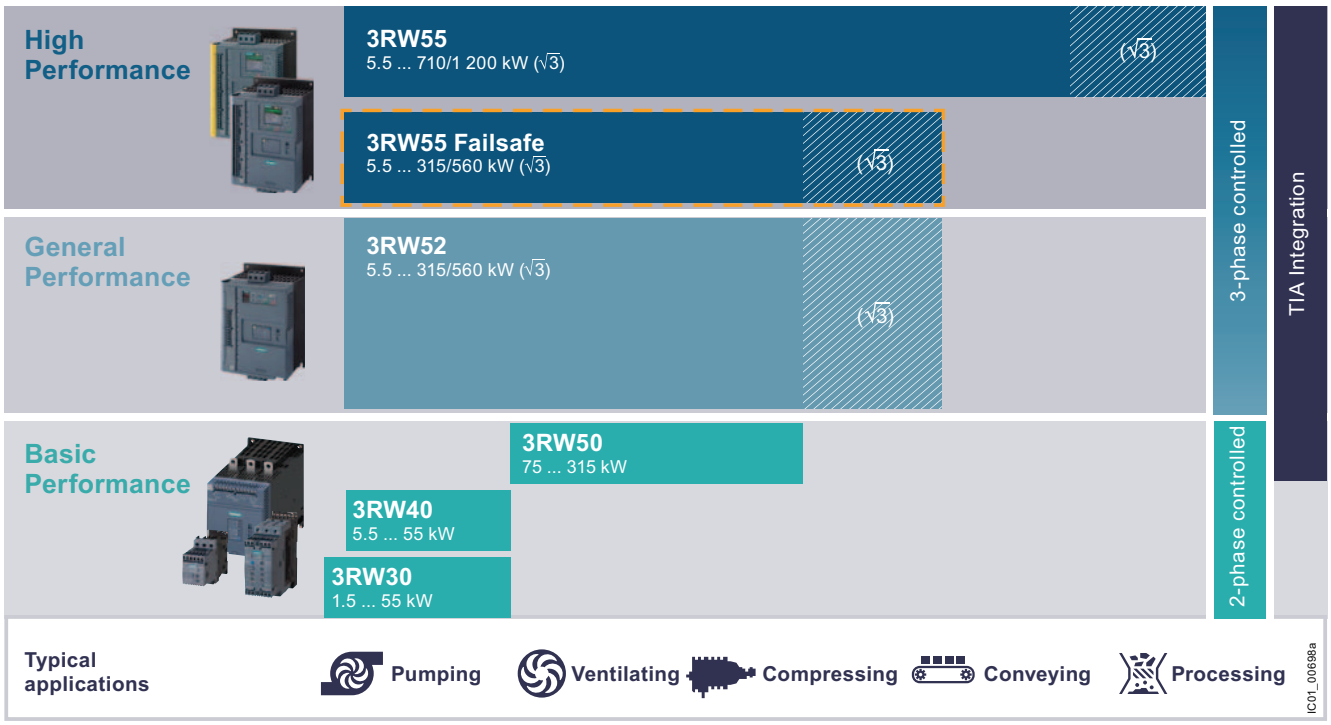
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW | SIRIUS Soft Starter ES (TIA Portal), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Sirius3rwFolder | Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |




Video: Soft starter teaser

***SIRIUS 3RW soft starters – as versatile as your application***




SIRIUS 3RW soft starters

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## General data







| Applications | High Performance | General Performance | Basic Performance | | |
|---|---|---|---|---|---|
| SIRIUS soft starters | 3RW55/3RW55-F | 3RW52 | 3RW50 | 3RW40 | 3RW30 |
| **Selection aid for soft starters** | | | | | |
| ***Normal starting (Class 10)*** | | | | | |
| Pumps | ● | ● | ● | ● | ● |
| Pumps with special pump stop (to prevent water hammer) | ● | ❍ | ❍ | | |
| Heat pumps | ● | ● | ● | ● | ● |
| Hydraulic pumps | ● | ● | ● | ● | ❍ |
| Presses | ● | ● | ● | ● | ❍ |
| Conveyor belts | ● | ● | ● | ● | ❍ |
| Roller conveyors | ● | ● | ● | ● | ❍ |
| Screw conveyors | ● | ● | ● | ● | ❍ |
| Escalators | ● | ● | ● | ● | |
| Piston compressors | ● | ● | ● | ● | |
| Screw compressors | ● | ● | ● | ● | |
| Small fans[1] | ● | ● | ● | ● | |
| Centrifugal blowers | ● | ● | ● | ● | |
| Bow thrusters | ● | ● | ● | ● | |
| ***Heavy starting (Class 20)*** | | | | | |
| Agitators | ● | ❍ | ❍ | ❍ | |
| Extruders | ● | ❍ | ❍ | ❍ | |
| Turning machines | ● | ❍ | ❍ | ❍ | |
| Milling machines | ● | ❍ | ❍ | ❍ | |
| ***Heavy starting (Class 30)*** | | | | | |
| Large fans[2] | ● | | | | |
| Circular saws/bandsaws | ● | | | | |
| Centrifuges | ● | | | | |
| Mills | ● | | | | |
| Crushers | ● | | | | |

● Recommended soft starter
❍ Possible soft starter

[1] The mass inertia of the fan is <10 times the mass inertia of the motor.
[2] The mass inertia of the fan is ≥10 times the mass inertia of the motor.

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| Applications | | High Performance | | General Performance | Basic Performance | | |
|---|---|---|---|---|---|---|---|
| **SIRIUS soft starters** | | **3RW55** | **3RW55-F** | **3RW52** | **3RW50** | **3RW40** | **3RW30** |
| **General technical specifications** | | | | | | | |
| **Operational current at 40 °C** | A | 13 ... 2 217 | 13 ... 987 | 13 ... 987 | 143 ... 570 | 12.5 ... 106 | 3 ... 106 |
| **Operational voltage** | V | 200 ... 690[1] | 200 ... 480 | 200 ... 600 | 200 ... 600 | 200 ... 600 | 200 ... 480 |
| **Operating power for three-phase motors** | | | | | | | |
| • At 400 V, at 40 °C | | | | | | | |
| - Standard (inline) circuit | kW | 5.5 ... 710 | 5.5 ... 315 | 5.5 ... 315 | 75 ... 315 | 5.5 ... 55 | 1.5 ... 55 |
| - Inside-delta circuit | kW | 11 ... 1 200 | 11 ... 560 | 11 ... 560 | -- | -- | -- |
| • At 460/480 V at 50 °C | | | | | | | |
| - Standard (inline) circuit | hp | 7.5 ... 1 000 | 7.5 ... 400 | 7.5 ... 400 | 100 ... 400 | 7.5 ... 75 | 1.5 ... 75 |
| - Inside-delta circuit | hp | 10 ... 1 700 | 10 ... 750 | 10 ... 750 | -- | -- | -- |
| **Ambient temperature**[2] | °C | -25 ... +60 | -25 ... +60 | -25 ... +60 | -25 ... +60 | -25 ... +60 | -25 ... +60 |
| **Soft starting/stopping** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓[3] |
| **Voltage ramp** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Starting voltage** | % | 20 ... 100 | 20 ... 100 | 30 ... 100 | 30 ... 100 | 40 ... 100 | 40 ... 100 |
| **Ramp-up and ramp-down time** | s | 0 ... 360 | 0 ... 360 | 0 ... 20 | 0 ... 20 | 0 ... 20 | 0 ... 20[3] |
| **Pump stop (torque control)**[4] | | ✓ | ✓ | -- | -- | -- | -- |
| • Starting torque | % | 10 ... 100 | 10 ... 100 | -- | -- | -- | -- |
| • Torque limit | % | 20 ... 200 | 20 ... 200 | -- | -- | -- | -- |
| **Soft Torque (torque limit)** | | -- | -- | ✓ | ✓ | -- | -- |
| **Integral bypass contact system** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Intrinsic device protection** | | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| **Motor overload protection** | | ✓[5] | ✓[5] | ✓ | ✓[5] | ✓[5] | -- |
| **Thermistor motor protection evaluation** | | ✓ | ✓ | ✓[6] | ✓[6] | ✓[6] | -- |
| **Analog output** | | ✓ | ✓ | ✓[6] | ✓[6] | -- | -- |
| **Remote RESET** | | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| **Adjustable current limiting** | | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| **Inside-delta circuit**[1] | | ✓ | ✓ | ✓ | -- | -- | -- |
| **Breakaway pulse** | | ✓ | ✓ | -- | -- | -- | -- |
| **Automatic parameterization** | | ✓ | ✓ | -- | -- | -- | -- |
| **Pump cleaning** | | ✓ | ✓ | -- | -- | -- | -- |
| **Condition monitoring** | | ✓ | ✓ | -- | -- | -- | -- |
| **User account administration**[7] | | ✓ | ✓ | -- | -- | -- | -- |
| **Creep speed in both directions of rotation** | | ✓ | -- | -- | -- | -- | -- |
| **Reversing operation** | | ✓ | ✓ | -- | -- | -- | -- |
| **Reversing DC braking**[4][8] | | ✓ | -- | -- | -- | -- | -- |
| **DC braking**[4][8] | | ✓ | -- | -- | -- | -- | -- |
| **Dynamic DC braking**[4][8] | | ✓ | -- | -- | -- | -- | -- |
| **Motor heating** | | ✓ | -- | -- | -- | -- | -- |
| **Communication function**[9] | | ✓ | ✓ | ✓ | ✓ | -- | -- |
| **HMI module installable in the control cabinet door** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Operating measured value display** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Logbooks** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Statistical data and min/max pointer function** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Trace function**[7] | | ✓ | ✓ | -- | -- | -- | -- |
| **Programmable control inputs and outputs** | | ✓ | ✓ | -- | -- | -- | -- |
| **Number of parameter sets** | | 3 | 3 | 1 | 1 | 1 | 1 |
| **Configurable via software**[7] | | ✓ | ✓ | -- | -- | -- | -- |
| **Number of controlled phases** | | 3 | 3 | 3 | 2 | 2 | 2 |
| **Heavy starting Class 30**[4] | | ✓ | ✓ | -- | -- | -- | -- |

✓ Function available
-- Function not available

1) Inside-delta circuit only up to operational voltage 600 V.
2) Observe derating above 40 °C.
3) Only soft starting available for 3RW30.
4) Calculate soft starter and motor with overdimension where required.
5) When using the motor overload protection according to ATEX/IECEx, an upstream contactor may be required, see page 6/13.
6) Special device versions only.
7) With Soft Starter ES software (TIA Portal).
8) Not possible in inside-delta circuit.
9) Only in conjunction with special accessories.

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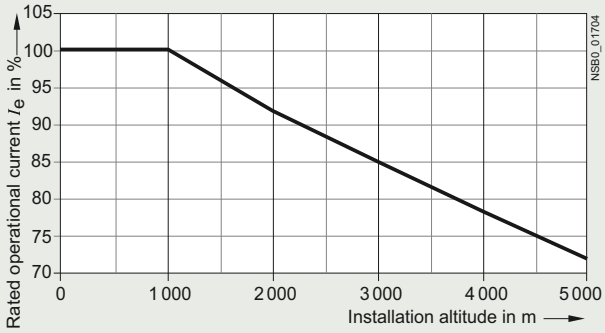
## General data

### *Constraints*

The 3RW soft starters should always be designed on the basis of the required rated operational current of the motor.
The motor ratings listed in the selection and ordering data are rough guide values and designed for basic starting conditions (Class 10). For other starting conditions, we recommend the Simulation Tool for Soft Starters (STS).

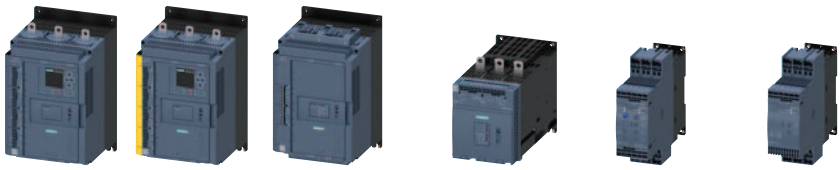
Motor rating data in kW and hp are based on IEC 60947-4-1.

At an installation altitude above 2 000 m, the max. permissible operational voltage is reduced to 480 V.




Installation altitude for SIRIUS 3RW soft starters

The selection and ordering data were determined for the following constraints (stand-alone installation without auxiliary fan)



| Applications | | High Performance | General Performance | Basic Performance | | |
|---|---|---|---|---|---|---|
| **SIRIUS soft starters** | | **3RW55/3RW55-F** | **3RW52** | **3RW50** | **3RW40** | **3RW30** |
| **Constraints** | | | | | | |
| **Maximum starting time** | s | 20 | 10 | | | 3 |
| **Maximum starting current in % of motor current** | $I_e$ | 300 | | | | |
| **Maximum number of starts per hour** | 1/h | 5 | | | | 20 |

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***Simulation Tool for Soft Starters (STS)*** (see page 14/4)



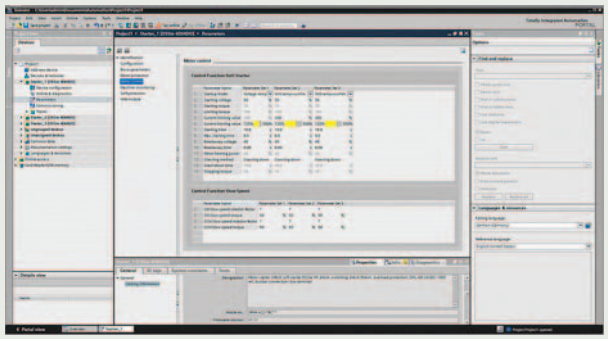

Easy input of motor and load data

The Simulation Tool for Soft Starters (STS) provides a convenient means of designing soft starters using a simple, quick and easy-to-use interface. Entering the motor and load data will simulate the application and prompt suggestions for suitable soft starters.

- Simple, quick and user-friendly interface
- Detailed and up-to-date Siemens motor database, including IE3 and IE4 motors
- Simulation of heavy starting up to Class 30
- Update-capable (e.g. motors, load types, functions)
- Fast simulations with minimum input data
- Immediate, graphical curve charts of start operations with limit values
- Table view of suitable soft starters for the application

The Simulation Tool for Soft Starters (STS) is available as a free download for Windows and as an app (for Android and iOS).

***SIRIUS Soft Starter ES (TIA Portal)*** (see page 14/5 onwards)



Easy and clearly arranged parameter setting of the SIRIUS 3RW55 soft starter with SIRIUS Soft Starter ES (TIA Portal)

The SIRIUS Soft Starter ES (TIA Portal) software permits quick and easy parameterization, monitoring and diagnostics of SIRIUS 3RW5 soft starters for service purposes.

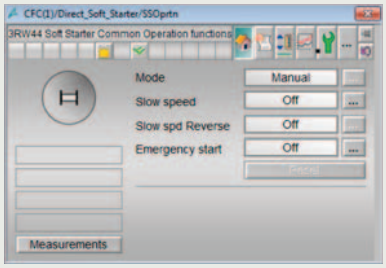
- Transparent setting of the device functions and their parameters – online and offline
- Effective diagnostics functions on the soft starter and display of the most important measured values
- Trace function (oscilloscope function) for recording measured values and events (only in the Professional software version)
- Time savings through shorter commissioning times
- Fast, low-cost licensing using a simple licensing procedure (also available online)

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## General data

***SIRIUS 3RW soft starter block library for SIMATIC PCS 7***
(see page 14/8 onwards)

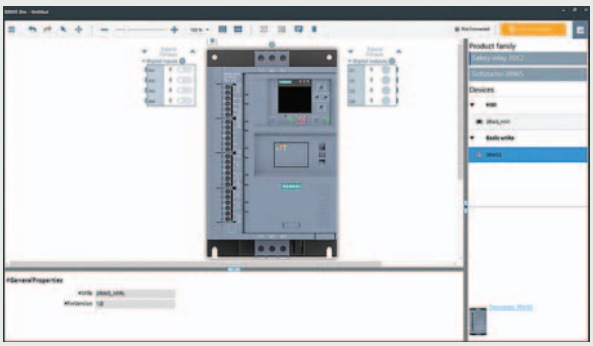



Faceplate of the motor block

The SIRIUS 3RW soft starter PCS 7 block library can be used for simple and convenient integration of SIRIUS 3RW52 and 3RW55 soft starters into the SIMATIC PCS 7 process control system.

The SIRIUS 3RW soft starter block library for PCS 7 contains the diagnostics and driver blocks that correspond to the SIMATIC PCS 7 diagnostics and driver concept as well as the elements (symbols and faceplates) required for operator control and process monitoring.

***SIRIUS Sim*** (see page 14/27 onwards)



SIRIUS Sim 3RW55

The SIRIUS simulation tool can be used to quickly and easily test functions and configurations in an office environment. These configurations can then be loaded directly into real devices.

SIRIUS Sim integrates the SIRIUS 3RW55 and SIRIUS 3RW55 Failsafe soft starters with the following features:

- Complete parameterization of the SIRIUS 3RW55 High Performance and SIRIUS 3RW55 Failsafe soft starters
- Complete navigation with the same menu structure as on the HMI
- Optional storage of the parameterization on a micro SD memory card for transfer to the real soft starter
- Simulation of startup and shutdown, including operating phases
- Simulation of different fault states
- Interface between SIRIUS Sim from V2.5 and the simulation tool for soft starters (STS) from V6. This allows users to transfer the soft starter devices recommended in STS and their parameters directly into SIRIUS Sim and simulate them in a virtual environment.

SIRIUS Sim is available as a free download.

***SIRIUS 3RW55 and 3RW55 Failsafe system redundancy S2 with PROFINET High-Feature communications module***
(see pages 6/37 and 6/53)



PROFINET High-Feature communications module 3RW5950-0CH00

The PROFINET High-Feature communications module for the SIRIUS 3RW55 and SIRIUS 3RW55 Failsafe soft starters supports the S2 system redundancy mechanisms of PROFINET IO from firmware version 3.0 and can therefore be operated directly on fault-tolerant systems, such as SIMATIC S7-400H and S7-1500H. As such, 3RW55 and 3RW55 Failsafe soft starters can provide decisive added value also for the field level of plants in which plant availability and control system redundancy are priorities.

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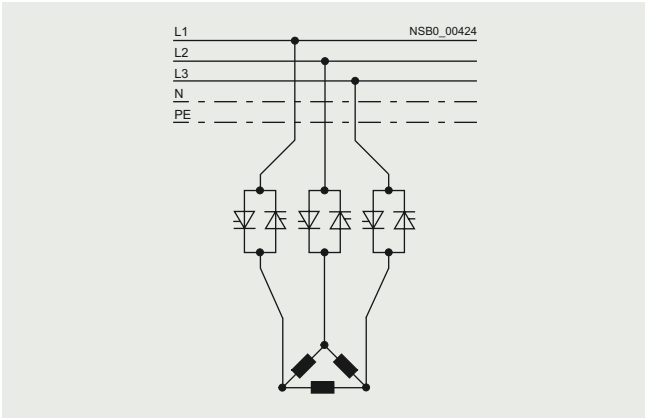


### *Circuit concept*

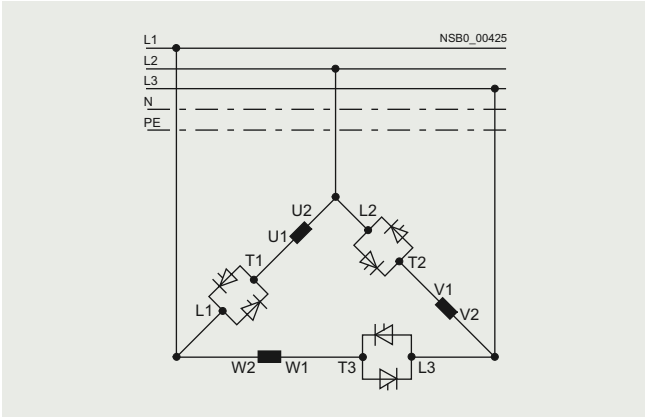
3-phase controlled SIRIUS 3RW soft starters can be operated in two different connection methods:

- Standard (inline) circuit
  The controls for isolating and protecting the motor are simply connected in series with the soft starter. The motor is connected to the soft starter with three cables.
- Inside-delta circuit
  The wiring is similar to that of star-delta (wye-delta) starters. The phases of the soft starter are connected in series with the individual motor windings. The soft starter then only has to carry the phase current, amounting to about 58% of the rated motor current (conductor current).

Comparison of the connection methods




Standard (inline) circuit: Rated current $I_e$ corresponds to the rated motor current $I_n$, three cables to the motor




Inside-delta circuit: Rated current $I_e$ corresponds to approx. 58% of the rated motor current $I_n$, six cables to the motor (as for star-delta (wye-delta) starters)

Which circuit?

Using the standard (inline) circuit involves the lowest wiring outlay. If the soft starter to motor connections are long, this circuit is preferable.

The wiring complexity is twice as high when using the inside-delta circuit, but a smaller device can be used with the same rating. Thanks to the choice of operating mode between the standard (inline) circuit and inside-delta circuit, it is always possible to select the most favorable solution.

The braking function is possible only in the standard (inline) circuit. The inside-delta circuit cannot be used in 690 V line supplies.

### *Configuration*

The solid-state 3RW soft starters are designed for normal starting. In case of heavy starting or increased starting frequency, a larger unit must be selected. The 3RW50 and 3RW52 soft starters may be used in isolated supply networks (IT systems) up to 600 V AC and the 3RW55 soft starters even up to 690 V.

For long starting times it is recommended to have a PTC thermistor or temperature switch in the motor. This also applies for the ramp-down modes torque control, pump stop and DC braking, because during the ramp-down time in these modes, an additional current loading applies in contrast to free ramp-down.

No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive power compensation equipment). In addition, neither static systems for reactive power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and stopping of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and switching devices) should be dimensioned for direct-on-line starting, following the local short-circuit conditions. Fuses and switching devices must be ordered separately. The harmonic component load of the starting current must be taken into consideration for the selection of motor starter protectors/circuit breakers (selection of release). Please observe the maximum switching frequencies specified in the technical specifications.

Notes:

When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, star-delta (wye-delta) starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

For dimensioning soft starters, we recommend our Simulation Tool for Soft Starters (STS), see page 6/9 or our Technical Support, www.siemens.com/support-request.

Recommended parameters for the initial commissioning of our SIRIUS 3RW soft starters are listed in every report of our Simulation Tool for Soft Starters (STS). In addition, our High Performance soft starters provide support by means of their commissioning wizards.

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## General data

### *Motor feeders with soft starters*

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector/circuit breaker and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, then semiconductor fuses must be fitted in the motor feeder.

ToC 1 Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

ToC 2 Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/circuit breaker, fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

### *Feeder tests and results*

To keep the scope of feeder tests with SIRIUS 3RW soft starters within economically reasonable limits, tests were conducted with feeder components (motor starter protectors/circuit breakers, fuses) that cover the greatest number of use cases (different soft starter versions depending on, for example, line voltage, connection method, or necessary overdimensioning). For the combined tests that were conducted, the values for the short-circuit breaking capacity $I_q$ in kA were determined and documented.

If the short-circuit breaking capacity is the same, of course, smaller motor starter protectors/circuit breakers or fuses can also be used for the selected soft starter provided the dimensioning of the short-circuit components is suitable for the connected three-phase motor and the line protection for the cables used. For type of coordination "2" (with semiconductor protection), it is also necessary to compare the characteristics because the protection function would no longer be completely ensured if too small a fuse were selected. If the soft starter does not have a motor protection function, the motor protection must also be dimensioned appropriately.

Setting the motor current

If circuit breakers with an overload release are used (e.g. SIRIUS 3RV20 motor starter protector), we recommend activating the motor protection function of the SIRIUS 3RW soft starter to protect the motor and setting the soft starter to the rated operational current $I_e$ of the motor. We recommend setting the motor starter protector/circuit breaker in such a way that it provides line protection but does not usually trip before the soft starter when a motor overload occurs.

### *Line protection and motor protection*

Line protection and motor protection are not ensured in all operating cases, depending on:

- How the motor feeder is constructed (e.g. with fuses or motor starter protectors/circuit breakers)
- Whether the SIRIUS 3RW soft starters are operated within the specification relevant for the tests (IEC 60947-4-2)
- Or whether the documented constraints (see page 6/8) have been observed

There are operating states of the thyristors (caused, for example, by high starting frequencies or heavy starting) that do not permit an overload to be disconnected by the SIRIUS 3RW soft starter. These cases are very rare but can not be ruled out in all cases.

In accordance with IEC 60947-4-2, the SIRIUS 3RW soft starters are dimensioned and checked for operation with up to 8 times the rated operational current $I_e$. For currents larger than this, reliable disconnection of an overcurrent by the SIRIUS 3RW soft starter is not ensured. Such large overcurrents have to be disconnected by a switching device at a higher level (e.g. by a circuit breaker or a fuse in conjunction with an optional line contactor).

Motor protection by the SIRIUS 3RW soft starter is ensured for currents up to 8 times the rated operational current $I_e$ in any case. Line protection is covered by the upstream motor starter protector/circuit breaker or fuse.
These motor feeder components must be dimensioned accordingly and the cable cross-sections must be chosen to match.

### *Line protection*

Line protection in motor feeders with soft starters is always covered by a fuse or a motor starter protector/circuit breaker both in case of an overload and in case of a short circuit. The motor starter protector/circuit breaker must have an overload release. That is the case for motor starter protectors (e.g. SIRIUS 3RV20).

Circuit breakers without an overload release (e.g. SIRIUS 3RV23 motor starter protectors) must not be used because they do not provide overload protection. The feeder tests for these were therefore not performed. If the motor feeder with SIRIUS 3RW soft starters is configured without a fuse, motor starter protectors must be used that ensure tripping on an overload in all cases.

### *Motor protection*

If fuses are used to provide protection against overload and short circuit of the cables, the motor is protected by the SIRIUS 3RW soft starter. If the constraints (simple starting conditions Class 10, listed maximum values for starting current, starting time and number of starts per hour) of page 6/8 are observed, the motor feeders can be configured according to IEC as described in the section about soft starters (an optional line contactor is not required). If these preconditions are met, the SIRIUS 3RW soft starters are able to trip on overloads to protect the motor in any case.

In other starting conditions and on heavy starting, the following must be considered:

Trip classes

Tested fuseless switchgear assemblies comprising SIRIUS 3RW soft starters and motor starter protectors only comply with Class 10.
To configure tested motor feeders, for example, for Class 20 or Class 30, fuses must be used together with SIRIUS 3RW soft starters.

Line contactor

In applications with high starting frequencies or heavy starting as of Class 20, we recommend combining fuses with the use of an upstream line contactor so that a motor overload is disconnected by the fault signaling contact of the soft starter in any case (that is, even in rare cases in which disconnection by the SIRIUS 3RW soft starter is no longer possible due to the operating state of the thyristors).

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***ATEX/IECEx – certified motor overload protection***

Ambient temperature during operation

The SIRIUS 3RW soft starters are approved for operation in a temperature range of -25 to +60 °C.

Please take into account derating of the rated operational current for ambient temperatures above 40 °C.

For more information, see Equipment Manuals and the technical product data sheet of the selected soft starter.

Trip class (electronic overload protection)

The motor and cables must be dimensioned for the selected trip class.

The rated data of the soft starters refer to normal starting (Class 10). For heavy starting (> Class 10), the soft starter may need to be overdimensioned as only a rated motor current that is lower than the soft starter rated current can be set.

Short-circuit protection

The SIRIUS 3RW soft starter does not have short-circuit protection. Short-circuit protection must be ensured.

Line protection

Avoid impermissibly high cable surface temperatures by correctly dimensioning the cross-sections.

The cable cross-section must be adequately dimensioned.

Line contactor or additional undervoltage release on the motor starter protector/circuit breaker

In many ATEX/IECEx applications no additional measures (e.g. the use of a line contactor) are necessary with regard to the motor feeder configuration.

The operation of the selected soft starter may, depending on the amplitude of the line voltage and the type of motor connection (standard (inline) circuit or inside-delta circuit), result in the loss of the certified motor overload protection according to ATEX/IECEx if one of the two remedial measures listed below is not implemented.

Remedial measures

- An additional line contactor in the main circuit
- An additional undervoltage release for a motor feeder configuration with a motor starter protector/circuit breaker

The line contactor or the undervoltage release are connected to error outputs 95, 96 and 98 of the selected soft starter.

Note:

For ATEX/IECEx applications, the accompanying information on parameterization and commissioning must be observed in the ATEX/IECEx chapters of the Equipment Manual for the selected soft starter.



***Article number scheme***

| Product versions | | Article number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **High Performance soft starters** | **3RW55** | □ | □ | – | □ | □ | □ | □ | □ | |
| | **General Performance soft starters** | **3RW52** | □ | □ | – | □ | □ | □ | □ | □ | |
| | **Basic Performance soft starters** | **3RW50** | □ | □ | – | □ | □ | □ | □ | □ | |
| | | **3RW40** | □ | □ | – | □ | □ | □ | □ | □ | |
| | | **3RW30** | □ | □ | – | □ | □ | □ | □ | □ | |
| Size/rated operational current $I_e$ | e.g. 15 = 25 A in size S1 | | □ | □ | | | | | | | |
| Connection type | e.g. 1 = screw terminal | | | | | □ | | | | | |
| Soft starter functionality | e.g. AC = with bypass and analog output, 3-phase controlled | | | | | | □ | □ | | | |
| Rated control supply voltage $U_s$ | e.g. 0 = 24 V AC/DC | | | | | | | | □ | | |
| Rated operational voltage $U_e$ | e.g. 4 = 200 ... 480 V AC | | | | | | | | | □ | |
| Example | | **3RW52** | **1** | **5** | **–** | **1** | **A** | **C** | **0** | **4** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## General data

### Benefits

***Can be flexibly deployed in many applications***

**Strong portfolio:
wide range of matching products**

- The right hardware for all requirements,
  soft starters for tasks ranging from simple to demanding starting in Basic, General and High Performance versions
- Extensive portfolio for individual expansion:
  Optional HMIs for installation in the device or mounting on the control cabinet door
- Communication via PROFINET, PROFIBUS, EtherNet/IP and Modbus
- Design enclosure with removable terminals, space-saving thanks to compact design and rugged thanks to coated printed circuit boards
- Sustainable product design (EcoTech-certified)
- Can be used worldwide thanks to numerous certificates and approvals:
  IEC, UL, CSA, CCC, ATEX/IECEx, shipbuilding

**Intelligent operation:
concentrated, application-specific functionality**

- Can be used in a wide variety of applications:
  Pumping, ventilating, compressing, conveying and processing
- Integrated, self-learning automatic parameterization depending on motor starting conditions
- Application-specific functionality such as pump cleaning and pump stop
- Condition monitoring:
  Current and power monitoring with warning and alarm limits, starting time monitoring

**Efficient switching:
hybrid switching technology on board**

- Energy-efficient switching and mechanical protection of the drive train thanks to soft starters with hybrid switching technology
- Low-wear switching extends the service life of the devices
- Soft starting prevents current peaks, thereby increasing the network stability
- Protection against disturbances in the application:
  Mechanical protection for the drive train

**Ready for a digital future:
data available whenever and wherever needed**

- Support from tools and data during engineering
- Simulation Tool for Soft Starters for support during product selection
- Very simple, standardized commissioning and configuration via Soft Starter ES in TIA Portal
- Integration in the automation system via communication links
- Data availability and analysis:
  Large volumes of data at any time and anywhere, even in Insights Hub

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SIRIUS Soft Starter ES (TIA Portal), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW55 | SIRIUS 3RW soft starter block library for SIMATIC PCS 7, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109770336 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw55 | Decision support for motor start - Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | SIRIUS Sim, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109763750 |
| Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 | Conversion tool, see www.siemens.com/conversion-tool |

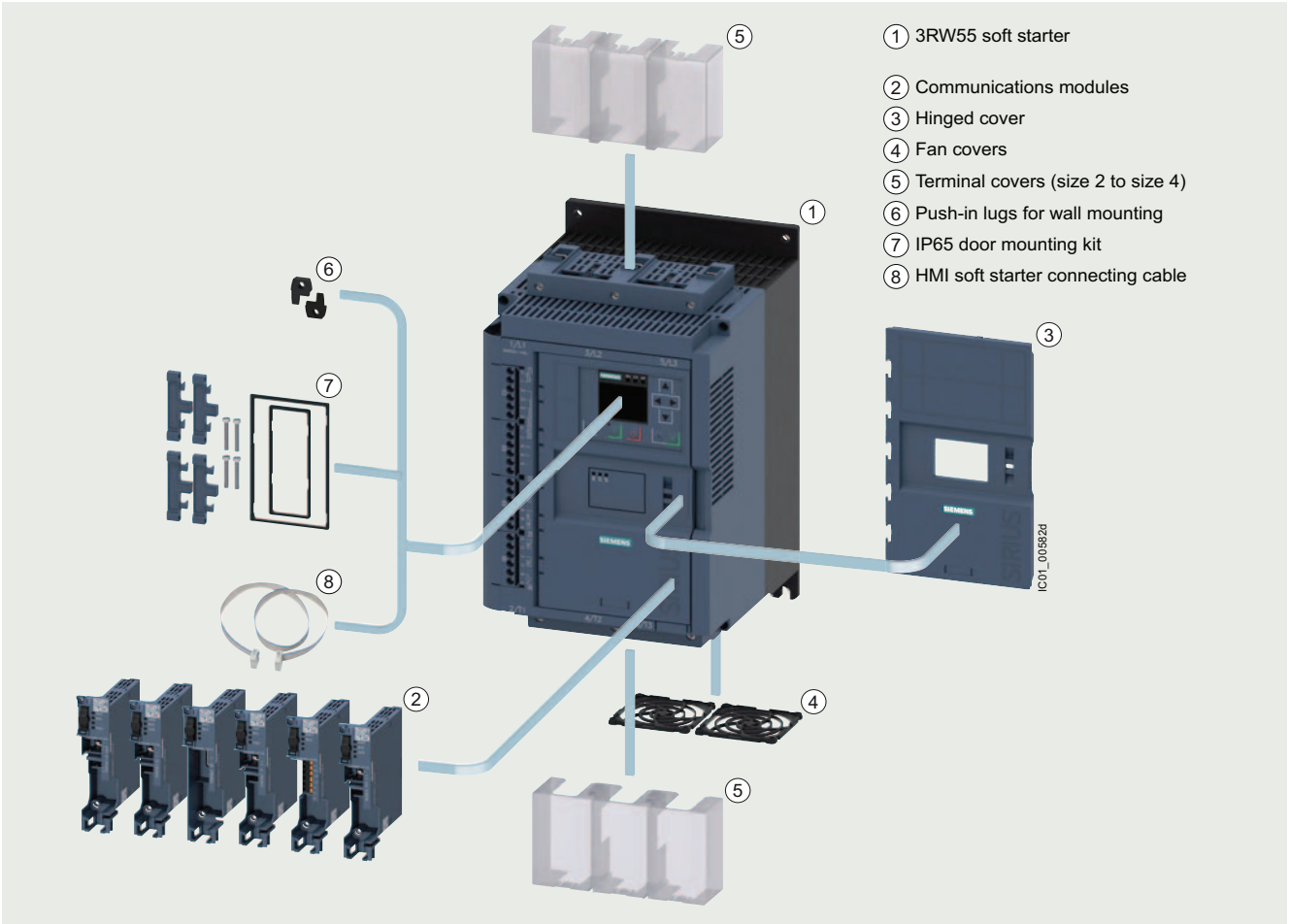


SIRIUS 3RW55 soft starters device family

Equipped with the utmost functionality, the SIRIUS 3RW55 High Performance soft starters confidently handle even difficult starting and stopping operations. Thanks to innovative torque control, the device can be used for drives with an output of between 5.5 kW and 1 200 kW (at 400 V).

The functions have been specially designed to offer maximum user friendliness. The HMI (with color display, local interface and a slot for micro SD memory card) and plug-in communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) ensure maximum flexibility.

With their modern hybrid switching technology, the SIRIUS 3RW55 soft starters offer efficient switching for long-term, energy-saving use.




SIRIUS 3RW55 High Performance soft starter with accessories (see page 6/37 onwards)

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## Benefits



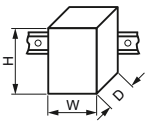

| Product characteristics/function | Performance features/benefits |
|---|---|
| Automatic parameterization | Extremely easy commissioning and reliability even under changing load conditions |
| Hybrid switching technology and 3-phase motor control | Minimum power loss and optimum/symmetrical motor control |
| TIA integration – communications modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Removable HMI with color display, local interface, slot for micro SD memory card | Maximum flexibility with regard to user interface and intuitive menu guidance |
| Pump stop and torque control | Reduced mechanical loading and optimum pump stop control |
| Certified according to ATEX/IECEx Directive | Suitable for the starting of explosion-proof motors |
| System redundancy S2 | Simple and straight-forward integration into fault-tolerant automation systems |
| Direct integration in Insights Hub via the OPC UA server | Worldwide data availability for optimal plant operation |

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25099/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753752 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25099/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Article number | | 3RW551. | | 3RW552., 3RW553. | | 3RW554. | | 3RW555. | |
|---|---|---|---|---|---|---|---|---|---|
| | | -.HA.4 | -.HA.5 | -.HA.4 | -.HA.6 | -.HA.4 | -.HA.6 | -.HA.4 | -.HA.6 |
| **Installation/fixing/dimensions** | | | | | | | | | |
| **Width x height x depth** | mm | 170 x 275 x 152 | | 185 x 306 x 203 | | 210 x 393 x 203 | | 478 x 764 x 241 | |
|  | | | | | | | | | |
| **Type of mounting** | | Screw fixing | | | | | | | |
| **Mounting position** | | Vertical (can be rotated +/- 90° and tilted +/- 22.5° forward or backward) | | | | | | | |
| **Distance to be maintained with side-by-side mounting** | | | | | | | | | |
| • Above | mm | 100 | | | | | | | |
| • At the side | mm | 5 | | | | | | | |
| • Below | mm | 75 | | | | | | | |
| **Installation altitude at height above sea level, maximum**[1] | m | 5 000 | | 2 000 | | 5 000 | 2 000 | 5 000 | 2 000 |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00; IP20 with cover | | | | IP00 | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | Finger-safe for vertical touching from the front with cover | | | | -- | |
| **Ambient conditions** | | | | | | | | | |
| **Ambient temperature** | | | | | | | | | |
| • During operation[2] | °C | -25 ... +60 | | | | | | | |
| • During storage and transport | °C | -40 ... +80 | | -25 ... +80 | | -40 ... +80 | | | |
| **Environmental category according to IEC 60721** | | | | | | | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | | | | | | | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | | | | | | | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | | | | | | | |

1) Derating from 1 000 m, see characteristic curve on page 6/8.
2) Observe derating above 40 °C.

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| Article number | | 3RW55..-.HA0. | 3RW55..-.HA1. |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| • Relative negative tolerance/relative positive tolerance with AC | % | -20/20 | -15/10 |
| • Relative negative tolerance/relative positive tolerance with DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

[1] Not included in scope of supply.

| Article number | | 3RW551.-.HA.4 | 3RW552.-.HA.4<br>3RW553.-.HA.4<br>3RW554.-.HA.4<br>3RW555.-.HA.4 | 3RW551.-.HA.5 | 3RW552.-.HA.6<br>3RW553.-.HA.6<br>3RW554.-.HA.6<br>3RW555.-.HA.6 |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Operational voltage** | V | 200 ... 480 | | 200 ... 600 | 200 ... 690 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | | |
| **Operational voltage for inside-delta circuit** | V | 200 ... 480 | | 200 ... 600 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | | |
| **Operating frequency** | Hz | 50 ... 60 | | | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | | | |
| **Blocking voltage of thyristor, maximum** | V | 1 600 | 1 400 | 1 600 | 1 800 |
| **Minimum load [%]**[1] | % | 10 | | | |
| **Maximum cable length between soft starter and motor** | m | 800 | | | |

[1] Relative to set $I_e$.

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| Type | | 3RW5513 | 3RW5514 | 3RW5515 | 3RW5516 | 3RW5517 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 13 | 18 | 25 | 32 | 38 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (Class 10A)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 29.6/27.2/23.6 | 33.5/30.5/27.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 26/23.6/21.2 | 29/26/23 |
| • 300% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 2.5/13 | 3.5/18 | 5/25 | 6.5/32 | 7.5/38 |
| • Minimum/maximum in inside-delta circuits | A | 4.3/22.5 | 6.1/31.1 | 8.7/43.3 | 11.3/55.4 | 13/65.8 |

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| Type | | 3RW5521 | 3RW5524 | 3RW5525 | 3RW5526 | 3RW5527 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 25 | 47 | 63 | 77 | 93 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (Class 10A)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 43.4/38/34.4 | 53/48/43 | 68/62/56 | 82.5/75.5/65 |
| • 300% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 5/25 | 10/47 | 13/63 | 16/77 | 19/93 |
| • Minimum/maximum in inside-delta circuits | A | 8.7/43.3 | 17.3/81.4 | 22.5/109 | 27.7/133 | 32.9/161 |

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| Type | | 3RW5534 | 3RW5535 | 3RW5536 |
|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 113 | 143 | 171 |
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 113/101/89 | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | | |
| **Normal starting (Class 10A)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 |
| • 350% $I_M$ | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 |
| • 350% $I_M$ | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 109/97/85 | 128/113/103 | 141/129/117 |
| • 300% $I_M$ | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 |
| • 350% $I_M$ | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 89/81/74 | 108/98/88 | 117/105/93 |
| • 300% $I_M$ | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 |
| • 350% $I_M$ | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | |
| • Minimum/maximum | A | 23/113 | 29/143 | 34/171 |
| • Minimum/maximum in inside-delta circuits | A | 39.8/195 | 50.2/247 | 58.9/296 |

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| Type | | 3RW5543 | 3RW5544 | 3RW5545 | 3RW5546 | 3RW5547 | 3RW5548 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (Class 10A)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 40 | 20 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 17 | 6 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 | 26 | 9 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 | 1 |
| **Normal starting (Class 10E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 551/490/445 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 17 | 8 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 6 | 1 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 | 10 | 2 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 | 2 | -- |
| **Heavy starting (Class 20E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 231/207/183 | 258/230/202 | 272/254/236 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 138/122/106 | 160/140/120 | 183/159/135 | 202/174/160 | 210/190/170 | 220/200/180 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 42/210 | 50/250 | 63/315 | 74/370 | 94/470 | 114/570 |
| • Minimum/maximum in inside-delta circuits | A | 72.7/363 | 86.6/433 | 109.1/545 | 128.2/640 | 162.8/814 | 197.5/987 |

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| Type | | 3RW5552 | 3RW5553 | 3RW5554 | 3RW5556 | 3RW5558 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 630 | 720 | 840 | 1 100 | 1 280 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 630/561/510 | 720/641/580 | 840/748/670 | 1 100/979/890 | 1 280/1 139/1 030 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (Class 10A)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 630/561/510 | 720/641/580 | 840/748/670 | 1 100/979/890 | 1 280/1 139/1 030 |
| • 300% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 42 | 43 | 32 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 12 |
| • 350% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 25 | 27 | 17 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 9 | 4 |
| **Normal starting (Class 10E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 630/561/510 | 720/641/580 | 840/748/670 | 1 100/979/890 | 1 225/1 130/1 030 |
| • 300% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 19 | 18 | 15 |
| - Startup time 20 s | 1/h | 8 | 8 | 7 | 7 | 5 |
| • 350% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 10 | 9 | 1 |
| - Startup time 20 s | 1/h | 4 | 4 | 2 | 2 | 1 |
| **Heavy starting (Class 20E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 500/450/400 | 520/470/420 | 570/520/470 | 920/840/760 | 980/900/810 |
| • 300% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 380/340/300 | 400/360/320 | 420/380/340 | 740/670/600 | 790/720/650 |
| • 300% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 114/630 | 144/720 | 168/840 | 220/1 100 | 258/1 280 |
| • Minimum/maximum in inside-delta circuits | A | 197.5/987 | 249.4/1 247 | 291/1 454 | 381.1/1 905 | 446.9/2 217 |

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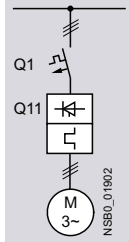


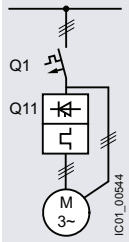
***Motor feeders according to IEC with 3RV2 motor starter protectors/3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", Class 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors/circuit breakers | | | | Motor starter protectors/circuit breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | |
| **3RW5513** | 3RV2032-4TA10 | 65 | 3RV2032-4TA10 | 18 | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 18 |
| **3RW5514** | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 15 | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 |
| **3RW5515** | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 15 |
| **3RW5516** | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 10 | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 |
| **3RW5517** | 3RV2032-4WA10 | 65 | 3RV2032-4WA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5521** | -- | -- | -- | -- | -- | -- | -- | -- |
| **3RW5524** | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5525** | 3VA2163-7MN32-0AA0 | 65 | 3VA2163-7MN32-0AA0 | 20 | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 |
| **3RW5526** | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 | 3VA2216-7MN32-0AA0 | 65 | 3VA2216-7MN32-0AA0 | 20 |
| **3RW5527** | 3VA2216-7MN32-0AA0 | 15 | 3VA2216-7MN32-0AA0 | 10 | 3VA2220-7MN32-0AA0 | 15 | 3VA2220-7MN32-0AA0 | 10 |
| **3RW5534** | 3VA2216-7MN32-0AA0 | 65 | -- | -- | 3VA2220-7MN32-0AA0 | 65 | -- | -- |
| **3RW5535** | 3VA2220-7MN32-0AA0 | 65 | -- | -- | 3VA2325-7MN32-0AA0 | 65 | -- | -- |
| **3RW5536** | 3VA2325-7MN32-0AA0 | 30 | 3VA2325-7MN32-0AA0 | 10 | 3VA2440-7MN32-0AA0 | 30 | 3VA2440-7MN32-0AA0 | 10 |
| **3RW5543** | 3VA2325-7MN32-0AA0 | 65 | 3VA2325-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5544** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 |
| **3RW5545** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5546** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5547** | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5548** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5552** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 |
| **3RW5553** | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 |
| **3RW5554** | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 |
| **3RW5556** | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | -- | -- | -- | -- |
| **3RW5558** | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | -- | -- | -- | -- |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

When using braking functions, the use of fuses is recommended to avoid the risk of false tripping of 3VA circuit breakers with electronic motor protection function during braking.

In motor feeder tests with soft starters conducted in 690 V systems, demonstrable short-circuit breaking capacities could only be achieved using fuses ($I_q$ > 5 to 10 kA).

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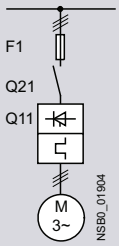
***Motor feeders according to IEC with 3NA3 fuses***

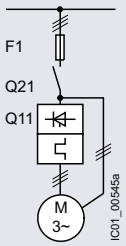
gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

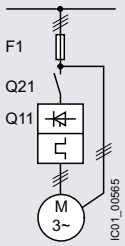
Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **Line contactor (optional)** | | **gG class fuse** | **Line contactor (optional)** | | | |
|---|---|---|---|---|---|---|---|---|
| | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | Q21 | Q21 | F1 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | **Inside-delta circuit** | | | | |
| **3RW5513** | 3NA3820-6 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3NA3822-6 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3NA3824-6 | 3RT2027 | 3RT2037 | 3NA3824-6 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3NA3824-6 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3NA3830-6 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3NA3132-6 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3NA3136-6 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5534** | 3NA3244-6 | 3RT1054 | 3RT1054 | 3NA3244-6 | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3RT1055 | 3RT1055 | 3NA3244-6 | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3RT1056 | 3RT1064 | 3NA3365-6 | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5543** | 2 x 3NA3354-6 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5548** | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 2 x 3NA3365-6 | -- | -- | 3TF68 | 3TF68 |
| **3RW5552** | 2 x 3NA3365-6 | 3TF68 | 3TF69 | -- | -- | -- | 3TF68 | 3TF69 |
| **3RW5553** | 2 x 3NA3365-6 | 3TF69 | 3TF69 | -- | -- | -- | 3TF69 | 3TF69 |
| **3RW5554** | 2 x 3NA3365-6 | -- | -- | -- | -- | -- | -- | -- |
| **3RW5556** | 3 x 3NA3365-6 | -- | -- | -- | -- | -- | -- | -- |
| **3RW5558** | 3 x 3NA3365-6 | -- | -- | -- | -- | -- | -- | -- |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, motor feeders with soft starters can only be operated in systems with up to 600 V.

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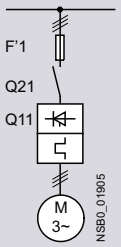
***Motor feeders according to IEC with 3NE1/3NB3 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gR/gS class fuse | Line contactor (optional) | |
|---|---|---|---|
| | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW5513** | 3NE1815-0 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3NE1802-0 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3NE1817-0 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3NE1818-0 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3NE1820-0 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3NE1817-0 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3NE1021-2 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3NE1022-0 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3NE1224-0 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3NE1224-0 | 3RT2046 | 3RT2047 |
| **3RW5534** | 3NE1225-0 | 3RT1054 | 3RT1054 |
| **3RW5535** | 3NE1227-0 | 3RT1055 | 3RT1055 |
| **3RW5536** | 3NE1230-0 | 3RT1056 | 3RT1064 |
| **3RW5543** | 3NE1230-2[1)] | 3RT1064 | 3RT1064 |
| **3RW5544** | 3NE1331-0 | 3RT1065 | 3RT1065 |
| **3RW5545** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5546** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5547** | 3NE1436-2 | 3RT1076 | 3RT1276 |
| **3RW5548** | 3NE1437-2 | 3TF68 | 3TF68 |
| **3RW5552** | 3NB3350-1KK26 | 3TF68 | 3TF69 |
| **3RW5553** | 3NB3351-1KK26 | 3TF69 | 3TF69 |
| **3RW5554** | 3NB3351-1KK26 | -- | -- |
| **3RW5556** | 3NB3354-1KK26 | -- | -- |
| **3RW5558** | 3NB3357-1KK26 | -- | -- |

[1)] For systems up to 500 V.

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, a gR/gS class full-range fuse could not provide the semiconductor protection of the delta-connected soft starter with a short-circuit breaking capacity that is adequate for practical use. In this case, we recommend using aR class partial-range fuses for semiconductor protection for type of coordination "2" (see page 6/27).

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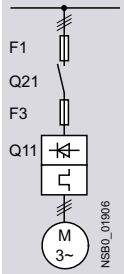
***Motor feeders according to IEC with 3NE8/3NE3/3NC3 fuses***

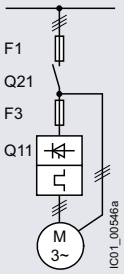
aR class partial-range fuses for semiconductor protection

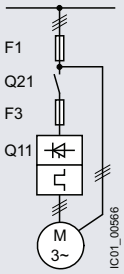
Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | aR class fuse | Line contactor (optional) | | gG class fuse | aR class fuse | Line contactor (optional) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | for systems up to 690 V | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | F3 | Q21 | Q21 | F1 | F3 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | | | |
| **3RW5513** | 3NA3820-6 | 3NE8017-1 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3NE8017-1 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3NE8020-1 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3NE8020-1 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3NA3822-6 | 3NE8021-1 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3NE8021-1 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3NA3824-6 | 3NE8022-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8022-1 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3NA3824-6 | 3NE8024-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3NA3824-6 | 3NE8021-1 | 3RT2027 | 3RT2037 | 3NA3824-6 | 3NE8021-1 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3NA3824-6 | 3NE8024-1 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3NA3830-6 | 3NE3227 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3NE3227 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3NA3132-6 | 3NE3227 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3NE3227 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3NA3136-6 | 3NE3227 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3NE3227 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5534** | 3NA3244-6 | 3NE3231 | 3RT1054 | 3RT1054 | 3NA3244-6 | 3NE3231 | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3NE3233 | 3RT1055 | 3RT1055 | 3NA3244-6 | 3NE3233 | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3NE3334-0B | 3RT1056 | 3RT1064 | 3NA3365-6 | 3NE3334-0B | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5543** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3NE3333 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3NE3335 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3NE3335 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3NE3336 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5548** | 2 x 3NA3365-6 | 3NC3342-1U | 3TF68 | 3TF68 | 2 x 3NA3365-6 | 3NC3342-1U | -- | -- | 3TF68 | 3TF68 |
| **3RW5552** | 2 x 3NA3365-6 | 3NC3343-1U | 3TF68 | 3TF69 | -- | 3NC3343-1U | -- | -- | 3TF68 | 3TF69 |
| **3RW5553** | 2 x 3NA3365-6 | 3NC3343-1U | 3TF69 | 3TF69 | -- | 3NC3343-1U | -- | -- | 3TF69 | 3TF69 |
| **3RW5554** | 2 x 3NA3365-6 | 3NC3343-1U | -- | -- | -- | 3NC3343-1U | -- | -- | -- | -- |
| **3RW5556** | 3 x 3NA3365-6 | 3 x 3NE3340-8 | -- | -- | -- | 3 x 3NE3340-8 | -- | -- | -- | -- |
| **3RW5558** | 3 x 3NA3365-6 | 3 x 3NE3340-8 | -- | -- | -- | 3 x 3NE3340-8 | -- | -- | -- | -- |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For Class 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3RV2 motor starter protectors/3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/24). In these cases, optional line contactors can be dispensed with.

In inside-delta circuits, motor feeders with soft starters can only be operated in systems with up to 600 V.

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### *Reversing operation with reversing contactors*

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.

(Suggested circuit, see 3RW55 Equipment Manual, Appendix A.3)

| Soft starters | Reversing contactor assembly | | Reversing contactor | |
|---|---|---|---|---|
| | for systems up to 480 V | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V |
| Q11 | Q21/Q22 | Q21/Q22 | Q21/Q22 | Q21/Q22 |
| Type | Type | Type | Type | Type |
| **3RW5513** | 3RA2325 | 3RA2325 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3RA2326 | 3RA2327 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3RA2327 | 3RA2337 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3RA2335 | 3RA2337 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3RA2335 | 3RA2337 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3RA2327 | 3RA2337 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3RA2336 | 3RA2337 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3RA2337 | 3RA2346 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3RA2338 | 3RA2346 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3RA2346 | 3RA2347 | 3RT2046 | 3RT2047 |
| **3RW5534** | -- | -- | 3RT1054 | 3RT1054 |
| **3RW5535** | -- | -- | 3RT1055 | 3RT1055 |
| **3RW5536** | -- | -- | 3RT1056 | 3RT1064 |
| **3RW5543** | -- | -- | 3RT1064 | 3RT1064 |
| **3RW5544** | -- | -- | 3RT1065 | 3RT1065 |
| **3RW5545** | -- | -- | 3RT1075 | 3RT1075 |
| **3RW5546** | -- | -- | 3RT1075 | 3RT1075 |
| **3RW5547** | -- | -- | 3RT1076 | 3RT1276 |
| **3RW5548** | -- | -- | 3TF68 | 3TF68 |
| **3RW5552** | -- | -- | 3TF68 | 3TF69 |
| **3RW5553** | -- | -- | 3TF69 | 3TF69 |
| **3RW5554** | -- | -- | -- | -- |
| **3RW5556** | -- | -- | -- | -- |
| **3RW5558** | -- | -- | -- | -- |

### *DC braking with braking contactors*

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.

(Suggested circuit, see 3RW55 Equipment Manual, Appendix A.3)

| Soft starters | DC braking contactor | DC braking contactor assembly | | | |
|---|---|---|---|---|---|
| | for systems up to 400 V | for systems up to 480 V | | for systems up to 690 V | |
| | with 2 NC contacts + 2 NO contacts parallel | with 3 NO contacts parallel | with 3 NO contacts parallel | with 3 NO contacts parallel | with 3 NO contacts parallel |
| Q11 | Q93 | Q91 | Q92 | Q91 | Q92 |
| Type | Type | Type | Type | Type | Type |
| **3RW5513** | 3RT2517 | 3RT2015 | 3RT2016 | 3RT2015 | 3RT2016 |
| **3RW5514** | 3RT2518 | 3RT2015 | 3RT2017 | 3RT2015 | 3RT2023 |
| **3RW5515** | 3RT2526 | 3RT2015 | 3RT2025 | 3RT2015 | 3RT2025 |
| **3RW5516** | 3RT2526 | 3RT2015 | 3RT2025 | 3RT2015 | 3RT2027 |
| **3RW5517** | 3RT2535 | 3RT2015 | 3RT2027 | 3RT2015 | 3RT2027 |
| **3RW5521** | 3RT2526 | 3RT2015 | 3RT2025 | 3RT2015 | 3RT2025 |
| **3RW5524** | 3RT2535 | 3RT2016 | 3RT2027 | 3RT2016 | 3RT2035 |
| **3RW5525** | -- | 3RT2024 | 3RT2027 | 3RT2024 | 3RT2037 |
| **3RW5526** | -- | 3RT2025 | 3RT2035 | 3RT2025 | 3RT2037 |
| **3RW5527** | -- | 3RT2027 | 3RT2036 | 3RT2027 | 3RT2037 |
| **3RW5534** | -- | 3RT2035 | 3RT2037 | 3RT2035 | 3RT2038 |
| **3RW5535** | -- | 3RT2036 | 3RT2038 | 3RT2036 | 3RT2046 |
| **3RW5536** | -- | 3RT2037 | 3RT2046 | 3RT2037 | 3RT2047 |
| **3RW5543** | -- | 3RT2045 | 3RT2047 | 3RT2045 | 3RT1054 |
| **3RW5544** | -- | 3RT2045 | 3RT1055 | 3RT2045 | 3RT1055 |
| **3RW5545** | -- | 3RT2446 | 3RT1056 | 3RT2446 | 3RT1056 |
| **3RW5546** | -- | 3RT1055 | 3RT1056 | 3RT1055 | 3RT1064 |
| **3RW5547** | -- | 3RT1456 | 3RT1065 | 3RT1456 | 3RT1065 |
| **3RW5548** | -- | 3RT1456 | 3RT1066 | 3RT1456 | 3RT1075 |
| **3RW5552** | -- | 3RT1065 | 3RT1075 | 3RT1065 | 3RT1075 |
| **3RW5553** | -- | 3RT1065 | 3RT1075 | 3RT1065 | 3RT1075 |
| **3RW5554** | -- | 3RT1466 | 3RT1076 | 3RT1466 | 3RT1076 |
| **3RW5556** | -- | 3RT1476 | 3TF68 | 3RT1476 | 3TF68 |
| **3RW5558** | -- | 3RT1476 | 3TF69 | 3RT1476 | 3TF69 |

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## Selection and ordering data

### *For normal starting (Class 10E)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-3HA04


3RW552.-1HA04


3RW553.-2HA04


3RW554.-6HA04


3RW555.-2HA04

| At 40 °C | | | | | At 50 °C | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5513-1HA04** | | **3RW5513-3HA04** | |
| 18 | 4 | **7.5** | -- | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5514-1HA04** | | **3RW5514-3HA04** | |
| 25 | 5.5 | **11** | -- | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5515-1HA04** | | **3RW5515-3HA04** | |
| 32 | 7.5 | **15** | -- | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5516-1HA04** | | **3RW5516-3HA04** | |
| 38 | 11 | **18.5** | -- | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5517-1HA04** | | **3RW5517-3HA04** | |
| 47 | 11 | **22** | -- | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5524-1HA04** | | **3RW5524-3HA04** | |
| 63 | 18.5 | **30** | -- | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5525-1HA04** | | **3RW5525-3HA04** | |
| 77 | 22 | **37** | -- | -- | 68 | 20 | 25 | **50** | -- | **3RW5526-1HA04** | | **3RW5526-3HA04** | |
| 93 | 22 | **45** | -- | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5527-1HA04** | | **3RW5527-3HA04** | |
| 113 | 30 | **55** | -- | -- | 101 | 30 | 30 | **75** | -- | **3RW5534-6HA04** | | **3RW5534-2HA04** | |
| 143 | 37 | **75** | -- | -- | 128 | 40 | 40 | **100** | -- | **3RW5535-6HA04** | | **3RW5535-2HA04** | |
| 171 | 45 | **90** | -- | -- | 153 | 50 | 50 | **100** | -- | **3RW5536-6HA04** | | **3RW5536-2HA04** | |
| 210 | 55 | **110** | -- | -- | 186 | 60 | 60 | **150** | -- | **3RW5543-6HA04** | | **3RW5543-2HA04** | |
| 250 | 75 | **132** | -- | -- | 220 | 60 | 75 | **150** | -- | **3RW5544-6HA04** | | **3RW5544-2HA04** | |
| 315 | 90 | **160** | -- | -- | 279 | 75 | 100 | **200** | -- | **3RW5545-6HA04** | | **3RW5545-2HA04** | |
| 370 | 110 | **200** | -- | -- | 328 | 100 | 125 | **250** | -- | **3RW5546-6HA04** | | **3RW5546-2HA04** | |
| 470 | 132 | **250** | -- | -- | 416 | 150 | 150 | **350** | -- | **3RW5547-6HA04** | | **3RW5547-2HA04** | |
| 570 | 160 | **315** | -- | -- | 504 | 150 | 200 | **400** | -- | **3RW5548-6HA04** | | **3RW5548-2HA04** | |
| 630 | 200 | **355** | -- | -- | 561 | 200 | 200 | **450** | -- | **3RW5552-6HA04** | | **3RW5552-2HA04** | |
| 720 | 200 | **400** | -- | -- | 641 | 200 | 250 | **500** | -- | **3RW5553-6HA04** | | **3RW5553-2HA04** | |
| 840 | 250 | **450** | -- | -- | 748 | 250 | 300 | **600** | -- | **3RW5554-6HA04** | | **3RW5554-2HA04** | |
| 1 100 | 315 | **560** | -- | -- | 979 | 350 | 400 | **850** | -- | **3RW5556-6HA04** | | **3RW5556-2HA04** | |
| 1 280 | 400 | **710** | -- | -- | 1 139 | 400 | 450 | **1 000** | -- | **3RW5558-6HA04** | | **3RW5558-2HA04** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-3HA14


3RW552.-1HA14


3RW553.-2HA14


3RW554.-6HA14


3RW555.-2HA14

| At 40 °C | | | | | At 50 °C | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5513-1HA14** | | **3RW5513-3HA14** | |
| 18 | 4 | **7.5** | -- | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5514-1HA14** | | **3RW5514-3HA14** | |
| 25 | 5.5 | **11** | -- | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5515-1HA14** | | **3RW5515-3HA14** | |
| 32 | 7.5 | **15** | -- | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5516-1HA14** | | **3RW5516-3HA14** | |
| 38 | 11 | **18.5** | -- | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5517-1HA14** | | **3RW5517-3HA14** | |
| 47 | 11 | **22** | -- | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5524-1HA14** | | **3RW5524-3HA14** | |
| 63 | 18.5 | **30** | -- | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5525-1HA14** | | **3RW5525-3HA14** | |
| 77 | 22 | **37** | -- | -- | 68 | 20 | 25 | **50** | -- | **3RW5526-1HA14** | | **3RW5526-3HA14** | |
| 93 | 22 | **45** | -- | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5527-1HA14** | | **3RW5527-3HA14** | |
| 113 | 30 | **55** | -- | -- | 101 | 30 | 30 | **75** | -- | **3RW5534-6HA14** | | **3RW5534-2HA14** | |
| 143 | 37 | **75** | -- | -- | 128 | 40 | 40 | **100** | -- | **3RW5535-6HA14** | | **3RW5535-2HA14** | |
| 171 | 45 | **90** | -- | -- | 153 | 50 | 50 | **100** | -- | **3RW5536-6HA14** | | **3RW5536-2HA14** | |
| 210 | 55 | **110** | -- | -- | 186 | 60 | 60 | **150** | -- | **3RW5543-6HA14** | | **3RW5543-2HA14** | |
| 250 | 75 | **132** | -- | -- | 220 | 60 | 75 | **150** | -- | **3RW5544-6HA14** | | **3RW5544-2HA14** | |
| 315 | 90 | **160** | -- | -- | 279 | 75 | 100 | **200** | -- | **3RW5545-6HA14** | | **3RW5545-2HA14** | |
| 370 | 110 | **200** | -- | -- | 328 | 100 | 125 | **250** | -- | **3RW5546-6HA14** | | **3RW5546-2HA14** | |
| 470 | 132 | **250** | -- | -- | 416 | 150 | 150 | **350** | -- | **3RW5547-6HA14** | | **3RW5547-2HA14** | |
| 570 | 160 | **315** | -- | -- | 504 | 150 | 200 | **400** | -- | **3RW5548-6HA14** | | **3RW5548-2HA14** | |
| 630 | 200 | **355** | -- | -- | 561 | 200 | 200 | **450** | -- | **3RW5552-6HA14** | | **3RW5552-2HA14** | |
| 720 | 200 | **400** | -- | -- | 641 | 200 | 250 | **500** | -- | **3RW5553-6HA14** | | **3RW5553-2HA14** | |
| 840 | 250 | **450** | -- | -- | 748 | 250 | 300 | **600** | -- | **3RW5554-6HA14** | | **3RW5554-2HA14** | |
| 1 100 | 315 | **560** | -- | -- | 979 | 350 | 400 | **850** | -- | **3RW5556-6HA14** | | **3RW5556-2HA14** | |
| 1 280 | 400 | **710** | -- | -- | 1 139 | 400 | 450 | **1 000** | -- | **3RW5558-6HA14** | | **3RW5558-2HA14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

© Siemens 2026



***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S



3RW551.-1HA.5



3RW551.-3HA.5

| At 40 °C | | | | | At 50 °C | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | -- | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5513-1HA05** | | **3RW5513-3HA05** | |
| 18 | 4 | **7.5** | 11 | -- | 15.9 | 3 | 5 | **10** | 10 | **3RW5514-1HA05** | | **3RW5514-3HA05** | |
| 25 | 5.5 | **11** | 15 | -- | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5515-1HA05** | | **3RW5515-3HA05** | |
| 32 | 7.5 | **15** | 18.5 | -- | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5516-1HA05** | | **3RW5516-3HA05** | |
| 38 | 11 | **18.5** | 22 | -- | 33.5 | 10 | 10 | **20** | 30 | **3RW5517-1HA05** | | **3RW5517-3HA05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | -- | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5513-1HA15** | | **3RW5513-3HA15** | |
| 18 | 4 | **7.5** | 11 | -- | 15.9 | 3 | 5 | **10** | 10 | **3RW5514-1HA15** | | **3RW5514-3HA15** | |
| 25 | 5.5 | **11** | 15 | -- | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5515-1HA15** | | **3RW5515-3HA15** | |
| 32 | 7.5 | **15** | 18.5 | -- | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5516-1HA15** | | **3RW5516-3HA15** | |
| 38 | 11 | **18.5** | 22 | -- | 33.5 | 10 | 10 | **20** | 30 | **3RW5517-1HA15** | | **3RW5517-3HA15** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

© Siemens 2026



***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW552.-1HA.6


3RW553.-2HA.6


3RW554.-6HA.6


3RW555.-2HA.6

| At 40 °C | | | | | At 50 °C | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 690 V** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 25 | 5.5 | **11** | 15 | 22 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5521-1HA06** | | **3RW5521-3HA06** | |
| 47 | 11 | **22** | 30 | 45 | 41.6 | 10 | 10 | **30** | 40 | **3RW5524-1HA06** | | **3RW5524-3HA06** | |
| 63 | 18.5 | **30** | 37 | 55 | 55.5 | 15 | 20 | **40** | 50 | **3RW5525-1HA06** | | **3RW5525-3HA06** | |
| 77 | 22 | **37** | 45 | 75 | 68 | 20 | 25 | **50** | 60 | **3RW5526-1HA06** | | **3RW5526-3HA06** | |
| 93 | 22 | **45** | 55 | 90 | 82.5 | 25 | 30 | **60** | 75 | **3RW5527-1HA06** | | **3RW5527-3HA06** | |
| 113 | 30 | **55** | 75 | 110 | 101 | 30 | 30 | **75** | 100 | **3RW5534-6HA06** | | **3RW5534-2HA06** | |
| 143 | 37 | **75** | 90 | 132 | 128 | 40 | 40 | **100** | 125 | **3RW5535-6HA06** | | **3RW5535-2HA06** | |
| 171 | 45 | **90** | 110 | 160 | 153 | 50 | 50 | **100** | 150 | **3RW5536-6HA06** | | **3RW5536-2HA06** | |
| 210 | 55 | **110** | 132 | 200 | 186 | 60 | 60 | **150** | 150 | **3RW5543-6HA06** | | **3RW5543-2HA06** | |
| 250 | 75 | **132** | 160 | 250 | 220 | 60 | 75 | **150** | 200 | **3RW5544-6HA06** | | **3RW5544-2HA06** | |
| 315 | 90 | **160** | 200 | 315 | 279 | 75 | 100 | **200** | 250 | **3RW5545-6HA06** | | **3RW5545-2HA06** | |
| 370 | 110 | **200** | 250 | 355 | 328 | 100 | 125 | **250** | 300 | **3RW5546-6HA06** | | **3RW5546-2HA06** | |
| 470 | 132 | **250** | 315 | 400 | 416 | 150 | 150 | **350** | 450 | **3RW5547-6HA06** | | **3RW5547-2HA06** | |
| 570 | 160 | **315** | 355 | 560 | 504 | 150 | 200 | **400** | 500 | **3RW5548-6HA06** | | **3RW5548-2HA06** | |
| 630 | 200 | **355** | 400 | 630 | 561 | 200 | 200 | **450** | 600 | **3RW5552-6HA06** | | **3RW5552-2HA06** | |
| 720 | 200 | **400** | 500 | 710 | 641 | 200 | 250 | **500** | 700 | **3RW5553-6HA06** | | **3RW5553-2HA06** | |
| 840 | 250 | **450** | 560 | 800 | 748 | 250 | 300 | **600** | 800 | **3RW5554-6HA06** | | **3RW5554-2HA06** | |
| 1 100 | 315 | **560** | 710 | 1 000 | 979 | 350 | 400 | **850** | 1 100 | **3RW5556-6HA06** | | **3RW5556-2HA06** | |
| 1 280 | 400 | **710** | 900 | 1 200 | 1 139 | 400 | 450 | **1 000** | 1 250 | **3RW5558-6HA06** | | **3RW5558-2HA06** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 25 | 5.5 | **11** | 15 | 22 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5521-1HA16** | | **3RW5521-3HA16** | |
| 47 | 11 | **22** | 30 | 45 | 41.6 | 10 | 10 | **30** | 40 | **3RW5524-1HA16** | | **3RW5524-3HA16** | |
| 63 | 18.5 | **30** | 37 | 55 | 55.5 | 15 | 20 | **40** | 50 | **3RW5525-1HA16** | | **3RW5525-3HA16** | |
| 77 | 22 | **37** | 45 | 75 | 68 | 20 | 25 | **50** | 60 | **3RW5526-1HA16** | | **3RW5526-3HA16** | |
| 93 | 22 | **45** | 55 | 90 | 82.5 | 25 | 30 | **60** | 75 | **3RW5527-1HA16** | | **3RW5527-3HA16** | |
| 113 | 30 | **55** | 75 | 110 | 101 | 30 | 30 | **75** | 100 | **3RW5534-6HA16** | | **3RW5534-2HA16** | |
| 143 | 37 | **75** | 90 | 132 | 128 | 40 | 40 | **100** | 125 | **3RW5535-6HA16** | | **3RW5535-2HA16** | |
| 171 | 45 | **90** | 110 | 160 | 153 | 50 | 50 | **100** | 150 | **3RW5536-6HA16** | | **3RW5536-2HA16** | |
| 210 | 55 | **110** | 132 | 200 | 186 | 60 | 60 | **150** | 150 | **3RW5543-6HA16** | | **3RW5543-2HA16** | |
| 250 | 75 | **132** | 160 | 250 | 220 | 60 | 75 | **150** | 200 | **3RW5544-6HA16** | | **3RW5544-2HA16** | |
| 315 | 90 | **160** | 200 | 315 | 279 | 75 | 100 | **200** | 250 | **3RW5545-6HA16** | | **3RW5545-2HA16** | |
| 370 | 110 | **200** | 250 | 355 | 328 | 100 | 125 | **250** | 300 | **3RW5546-6HA16** | | **3RW5546-2HA16** | |
| 470 | 132 | **250** | 315 | 400 | 416 | 150 | 150 | **350** | 450 | **3RW5547-6HA16** | | **3RW5547-2HA16** | |
| 570 | 160 | **315** | 355 | 560 | 504 | 150 | 200 | **400** | 500 | **3RW5548-6HA16** | | **3RW5548-2HA16** | |
| 630 | 200 | **355** | 400 | 630 | 561 | 200 | 200 | **450** | 600 | **3RW5552-6HA16** | | **3RW5552-2HA16** | |
| 720 | 200 | **400** | 500 | 710 | 641 | 200 | 250 | **500** | 700 | **3RW5553-6HA16** | | **3RW5553-2HA16** | |
| 840 | 250 | **450** | 560 | 800 | 748 | 250 | 300 | **600** | 800 | **3RW5554-6HA16** | | **3RW5554-2HA16** | |
| 1 100 | 315 | **560** | 710 | 1 000 | 979 | 350 | 400 | **850** | 1 100 | **3RW5556-6HA16** | | **3RW5556-2HA16** | |
| 1 280 | 400 | **710** | 900 | 1 200 | 1 139 | 400 | 450 | **1 000** | 1 250 | **3RW5558-6HA16** | | **3RW5558-2HA16** | |

Note:

For the constraints for the motor outputs specified here, see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

### *For normal starting (Class 10E)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-3HA04


3RW552.-1HA04


3RW553.-2HA04


3RW554.-6HA04


3RW555.-2HA04

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5513-1HA04** | | **3RW5513-3HA04** | |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5514-1HA04** | | **3RW5514-3HA04** | |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5515-1HA04** | | **3RW5515-3HA04** | |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5516-1HA04** | | **3RW5516-3HA04** | |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5517-1HA04** | | **3RW5517-3HA04** | |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5524-1HA04** | | **3RW5524-3HA04** | |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5525-1HA04** | | **3RW5525-3HA04** | |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5526-1HA04** | | **3RW5526-3HA04** | |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5527-1HA04** | | **3RW5527-3HA04** | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5534-6HA04** | | **3RW5534-2HA04** | |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5535-6HA04** | | **3RW5535-2HA04** | |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5536-6HA04** | | **3RW5536-2HA04** | |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5543-6HA04** | | **3RW5543-2HA04** | |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5544-6HA04** | | **3RW5544-2HA04** | |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5545-6HA04** | | **3RW5545-2HA04** | |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5546-6HA04** | | **3RW5546-2HA04** | |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5547-6HA04** | | **3RW5547-2HA04** | |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5548-6HA04** | | **3RW5548-2HA04** | |
| 1 091 | 355 | **630** | -- | 972 | 350 | 400 | **850** | -- | **3RW5552-6HA04** | | **3RW5552-2HA04** | |
| 1 247 | 400 | **710** | -- | 1 110 | 400 | 450 | **950** | -- | **3RW5553-6HA04** | | **3RW5553-2HA04** | |
| 1 454 | 450 | **800** | -- | 1 295 | 450 | 550 | **1 150** | -- | **3RW5554-6HA04** | | **3RW5554-2HA04** | |
| 1 905 | 560 | **1 000** | -- | 1 695 | 600 | 700 | **1 500** | -- | **3RW5556-6HA04** | | **3RW5556-2HA04** | |
| 2 217 | 710 | **1 200** | -- | 1 973 | 700 | 850 | **1 700** | -- | **3RW5558-6HA04** | | **3RW5558-2HA04** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-3HA14


3RW552.-1HA14


3RW553.-2HA14


3RW554.-6HA14


3RW555.-2HA14

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5513-1HA14** | | **3RW5513-3HA14** | |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5514-1HA14** | | **3RW5514-3HA14** | |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5515-1HA14** | | **3RW5515-3HA14** | |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5516-1HA14** | | **3RW5516-3HA14** | |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5517-1HA14** | | **3RW5517-3HA14** | |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5524-1HA14** | | **3RW5524-3HA14** | |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5525-1HA14** | | **3RW5525-3HA14** | |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5526-1HA14** | | **3RW5526-3HA14** | |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5527-1HA14** | | **3RW5527-3HA14** | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5534-6HA14** | | **3RW5534-2HA14** | |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5535-6HA14** | | **3RW5535-2HA14** | |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5536-6HA14** | | **3RW5536-2HA14** | |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5543-6HA14** | | **3RW5543-2HA14** | |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5544-6HA14** | | **3RW5544-2HA14** | |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5545-6HA14** | | **3RW5545-2HA14** | |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5546-6HA14** | | **3RW5546-2HA14** | |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5547-6HA14** | | **3RW5547-2HA14** | |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5548-6HA14** | | **3RW5548-2HA14** | |
| 1 091 | 355 | **630** | -- | 972 | 350 | 400 | **850** | -- | **3RW5552-6HA14** | | **3RW5552-2HA14** | |
| 1 247 | 400 | **710** | -- | 1 110 | 400 | 450 | **950** | -- | **3RW5553-6HA14** | | **3RW5553-2HA14** | |
| 1 454 | 450 | **800** | -- | 1 295 | 450 | 550 | **1 150** | -- | **3RW5554-6HA14** | | **3RW5554-2HA14** | |
| 1 905 | 560 | **1 000** | -- | 1 695 | 600 | 700 | **1 500** | -- | **3RW5556-6HA14** | | **3RW5556-2HA14** | |
| 2 217 | 710 | **1 200** | -- | 1 973 | 700 | 850 | **1 700** | -- | **3RW5558-6HA14** | | **3RW5558-2HA14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

© Siemens 2026



***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-3HA0.


3RW552.-1HA0.


3RW553.-2HA0.


3RW554.-6HA0.


3RW555.-2HA0.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5513-1HA05** | | **3RW5513-3HA05** | |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5514-1HA05** | | **3RW5514-3HA05** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5515-1HA05** | | **3RW5515-3HA05** | |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5516-1HA05** | | **3RW5516-3HA05** | |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5517-1HA05** | | **3RW5517-3HA05** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5521-1HA06** | | **3RW5521-3HA06** | |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5524-1HA06** | | **3RW5524-3HA06** | |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5525-1HA06** | | **3RW5525-3HA06** | |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5526-1HA06** | | **3RW5526-3HA06** | |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5527-1HA06** | | **3RW5527-3HA06** | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5534-6HA06** | | **3RW5534-2HA06** | |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5535-6HA06** | | **3RW5535-2HA06** | |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5536-6HA06** | | **3RW5536-2HA06** | |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5543-6HA06** | | **3RW5543-2HA06** | |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5544-6HA06** | | **3RW5544-2HA06** | |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5545-6HA06** | | **3RW5545-2HA06** | |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5546-6HA06** | | **3RW5546-2HA06** | |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5547-6HA06** | | **3RW5547-2HA06** | |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5548-6HA06** | | **3RW5548-2HA06** | |
| 1 091 | 355 | **630** | 710 | 972 | 350 | 400 | **850** | 1 050 | **3RW5552-6HA06** | | **3RW5552-2HA06** | |
| 1 247 | 400 | **710** | 800 | 1 110 | 400 | 450 | **950** | 1 250 | **3RW5553-6HA06** | | **3RW5553-2HA06** | |
| 1 454 | 450 | **800** | 900 | 1 295 | 450 | 550 | **1 150** | 1 450 | **3RW5554-6HA06** | | **3RW5554-2HA06** | |
| 1 905 | 560 | **1 000** | 1 200 | 1 695 | 600 | 700 | **1 500** | 1 900 | **3RW5556-6HA06** | | **3RW5556-2HA06** | |
| 2 217 | 710 | **1 200** | 1 500 | 1 973 | 700 | 850 | **1 700** | 2 200 | **3RW5558-6HA06** | | **3RW5558-2HA06** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-3HA1.


3RW552.-1HA1.


3RW553.-2HA1.


3RW554.-6HA1.


3RW555.-2HA1.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5513-1HA15** | | **3RW5513-3HA15** | |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5514-1HA15** | | **3RW5514-3HA15** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5515-1HA15** | | **3RW5515-3HA15** | |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5516-1HA15** | | **3RW5516-3HA15** | |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5517-1HA15** | | **3RW5517-3HA15** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5521-1HA16** | | **3RW5521-3HA16** | |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5524-1HA16** | | **3RW5524-3HA16** | |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5525-1HA16** | | **3RW5525-3HA16** | |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5526-1HA16** | | **3RW5526-3HA16** | |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5527-1HA16** | | **3RW5527-3HA16** | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5534-6HA16** | | **3RW5534-2HA16** | |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5535-6HA16** | | **3RW5535-2HA16** | |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5536-6HA16** | | **3RW5536-2HA16** | |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5543-6HA16** | | **3RW5543-2HA16** | |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5544-6HA16** | | **3RW5544-2HA16** | |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5545-6HA16** | | **3RW5545-2HA16** | |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5546-6HA16** | | **3RW5546-2HA16** | |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5547-6HA16** | | **3RW5547-2HA16** | |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5548-6HA16** | | **3RW5548-2HA16** | |
| 1 091 | 355 | **630** | 710 | 972 | 350 | 400 | **850** | 1 050 | **3RW5552-6HA16** | | **3RW5552-2HA16** | |
| 1 247 | 400 | **710** | 800 | 1 110 | 400 | 450 | **950** | 1 250 | **3RW5553-6HA16** | | **3RW5553-2HA16** | |
| 1 454 | 450 | **800** | 900 | 1 295 | 450 | 550 | **1 150** | 1 450 | **3RW5554-6HA16** | | **3RW5554-2HA16** | |
| 1 905 | 560 | **1 000** | 1 200 | 1 695 | 600 | 700 | **1 500** | 1 900 | **3RW5556-6HA16** | | **3RW5556-2HA16** | |
| 2 217 | 710 | **1 200** | 1 500 | 1 973 | 700 | 850 | **1 700** | 2 200 | **3RW5558-6HA16** | | **3RW5558-2HA16** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

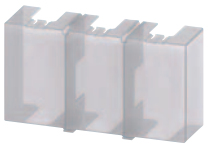


*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

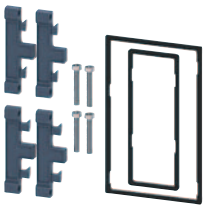
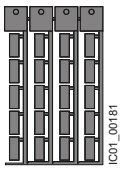
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
|  3RW5983-0FC00 | **Fan cover** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | -- | **3RW5984-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW555 (3x) | -- | -- | **3RW5985-0FC00** | | 1 | 1 unit | 42S |
| **Terminal covers** | | | | | | | | | |
|  3RW5983-0TC20 | **Terminal cover** | 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0TC20** | | 1 | 1 unit | 42S |
|  3RW5984-0TC20 | | 3RW554 (2x) | -- | -- | **3RW5984-0TC20** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | | |
|  3RW5950-0GL20 | **Hinged cover** | 3RW55 | Without cutout | -- | **3RW5950-0GL20** | | 1 | 1 unit | 42S |
| **Communications modules** | | | | | | | | | |
|  3RW5980-0CS00 | **Communications module**[1] | 3RW55 | PROFINET High-Feature with integral switch | -- | **3RW5950-0CH00** | | 1 | 1 unit | 42S |
| | | | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | -- | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
|  3RW5980-0CE00 | | | EtherNet/IP | -- | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| | | | Modbus RTU | -- | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
|  3RW5980-0CR00 | | | Modbus TCP | -- | **3RW5980-0CT00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connection cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW55 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
|  3UF793.-0BA00-0 | **HMI connecting cable** | 3RW55 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
|  3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**[1] | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SIRIUS Soft Starter ES (TIA Portal), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW55Failsafe | Decision support for motor start - Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw55 | SIRIUS Sim, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109763750 |
| SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |
| Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 | |




Video: Animation 3RW5 Failsafe soft starter

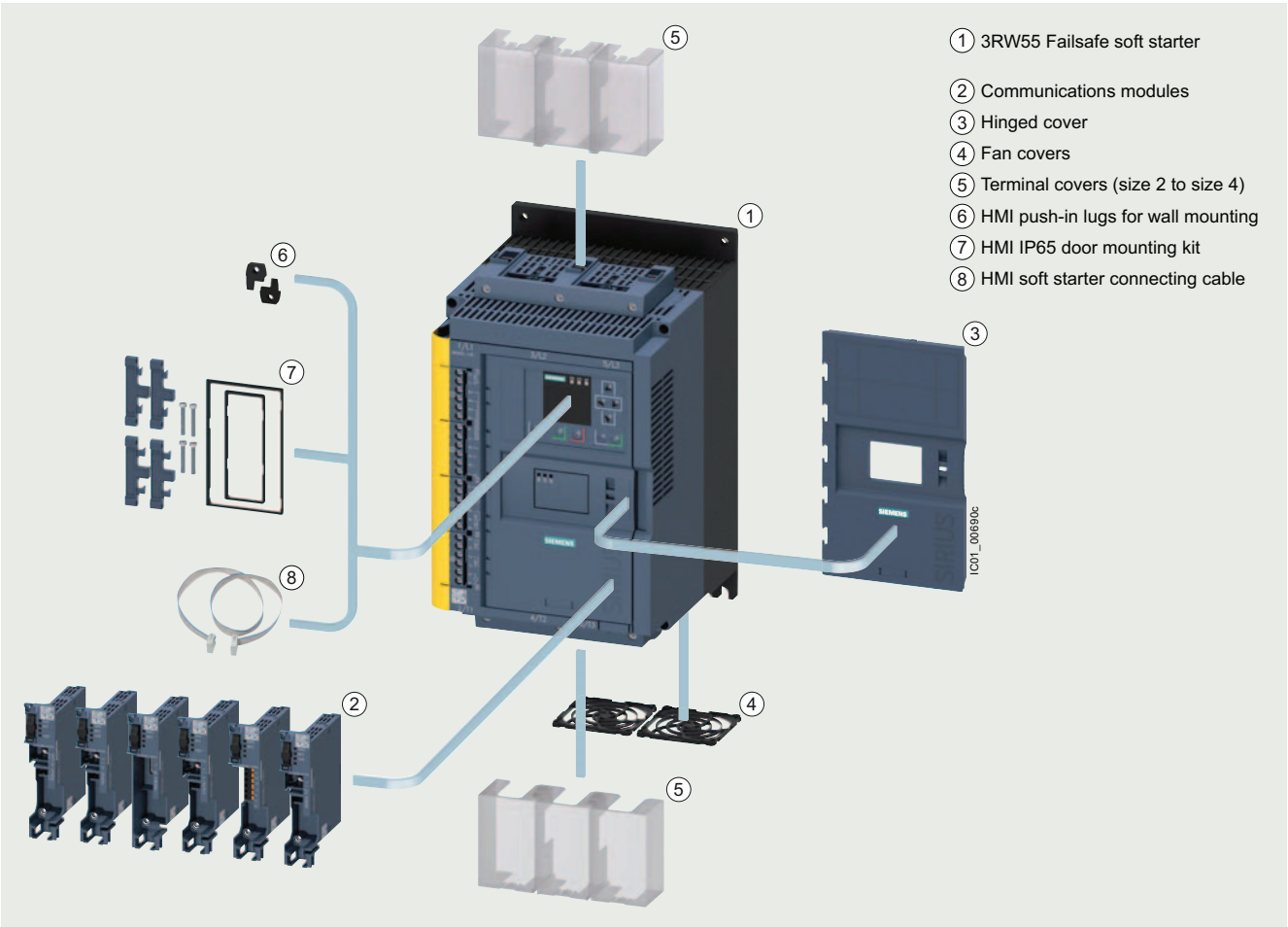


SIRIUS 3RW55 Failsafe soft starters device family

Equipped with the utmost functionality, the SIRIUS 3RW55 Failsafe High Performance soft starters confidently handle even difficult starting and stopping operations. Thanks to innovative torque control, the device can be used for drives with an output of between 5.5 kW and 560 kW (at 400 V).

The innovative 3RW55 Failsafe soft starter features an integrated fail-safe digital input for directly connecting the EMERGENCY STOP, and thus covers SIL 1 STO applications. The HMI (with color display, local interface and a slot for micro SD memory card) and plug-in communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) ensure maximum flexibility.

With their modern hybrid switching technology, the 3RW55 Failsafe soft starters offer efficient switching for long-term, energy-saving use.



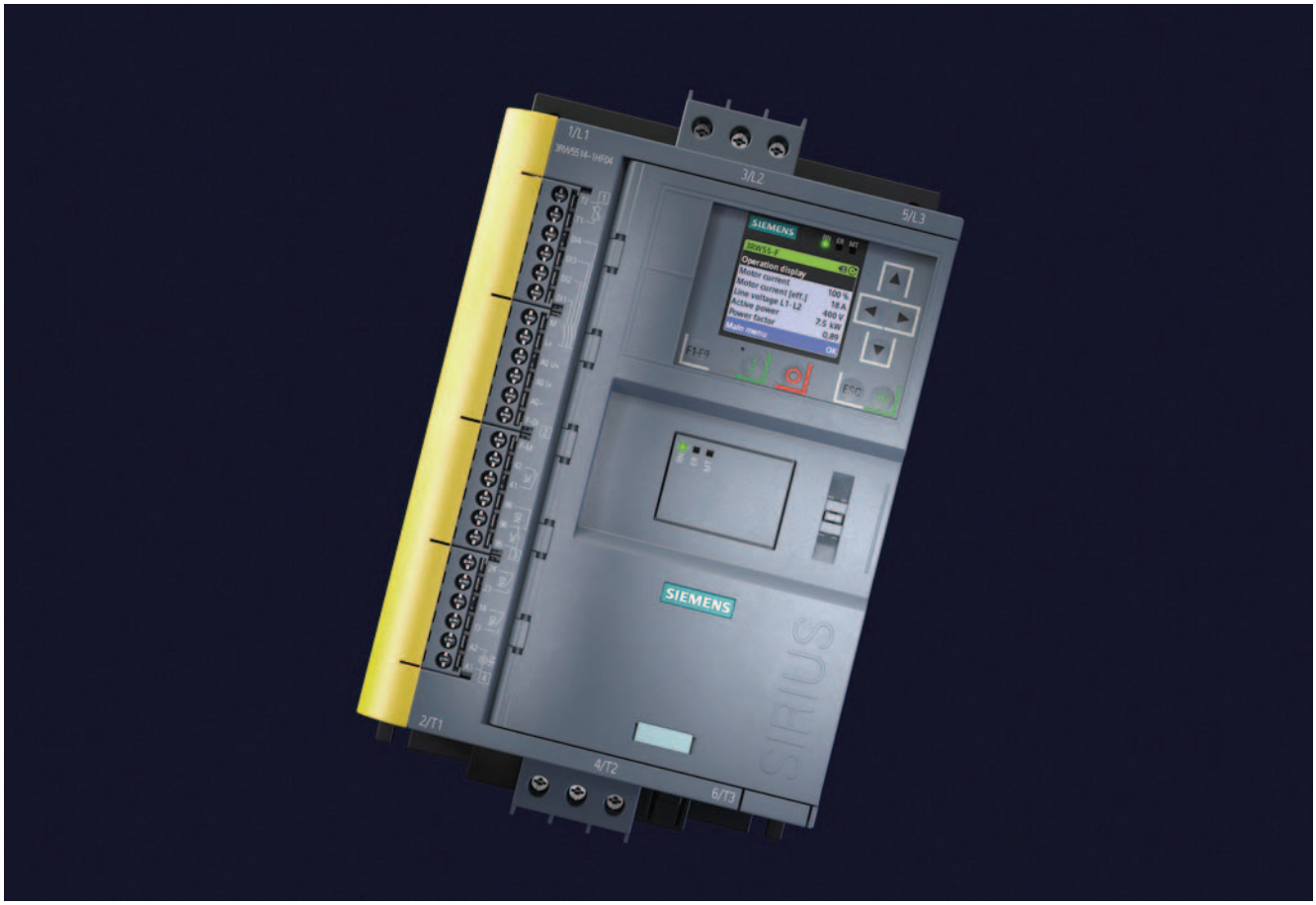

SIRIUS 3RW55 Failsafe High Performance soft starter with accessories (see page 6/53 onwards)

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## Benefits



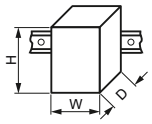

| Product characteristics/function | Performance features/benefits |
|---|---|
| Automatic parameterization | Extremely easy commissioning and reliability even under changing load conditions |
| Hybrid switching technology and 3-phase motor control | Minimum power loss and optimum/symmetrical motor control |
| TIA integration – communications modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Removable HMI with color display, local interface, slot for micro SD memory card | Maximum flexibility with regard to user interface and intuitive menu guidance |
| Pump stop and torque control | Reduced mechanical loading and optimum pump stop control |
| Certified according to ATEX/IECEx Directive | Suitable for the starting of explosion-proof motors |
| Fail-safe disconnection up to SIL 3/PL e/STO | Reduced costs and space requirements thanks to direct wiring of the EMERGENCY-STOP mushroom pushbutton to the soft starter for SIL 1/PL c |
| System redundancy S2 | Simple and straight-forward integration into fault-tolerant automation systems |
| Direct integration in Insights Hub via the OPC UA server | Worldwide data availability for optimal plant operation |

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25776/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753752 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25776/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Article number | | 3RW551.-.HF.4 | 3RW552.-.HF.4<br>3RW553.-.HF.4 | 3RW554.-.HF.4 |
|---|---|---|---|---|
| **Installation/fixing/dimensions** | | | | |
| **Width x height x depth**   | mm | 170 x 275 x 152 | 185 x 306 x 203 | 210 x 393 x 203 |
| **Type of mounting** | | Screw fixing | | |
| **Mounting position** | | Vertical (can be rotated +/- 90° and tilted +/- 22.5° forward or backward) | | |
| **Distance to be maintained with side-by-side mounting** | | | | |
| • Above | mm | 100 | | |
| • At the side | mm | 5 | | |
| • Below | mm | 75 | | |
| **Installation altitude at height above sea level, maximum**[1] | m | 2 000 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | IP00; IP20 with cover | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | Finger-safe for vertical touching from the front with cover | |
| **Ambient conditions** | | | | |
| **Ambient temperature** | | | | |
| • During operation[2] | °C | -25 ... +60 | | |
| • During storage and transport | °C | -40 ... +80 | | |
| **Environmental category according to IEC 60721** | | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | | |

1) Derating from 1 000 m, see characteristic curve on page 6/8.
2) Observe derating above 40 °C.

| Article number | | 3RW55..-.HF04 | 3RW55..-.HF14 |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| **Relative negative tolerance/relative positive tolerance of the control supply voltage** | | | |
| • At AC | % | -20/20 | -15/10 |
| • At DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

1) Not included in scope of supply.

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| Article number | | 3RW551.-.HF.4 | 3RW552.-.HF.4<br>3RW553.-.HF.4<br>3RW554.-.HF.4 |
|---|---|---|---|
| **Power electronics** | | | |
| **Operational voltage** | V | 200 ... 480 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | |
| **Operational voltage for inside-delta circuit** | V | 200 ... 480 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | |
| **Operating frequency** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Blocking voltage of thyristor, maximum** | V | 1 600 | 1 400 |
| **Minimum load [%]**[1)] | % | 10 | |
| **Maximum cable length between soft starter and motor** | m | 800 | |

1) Relative to set $I_e$.

| Type | | 3RW5513 | 3RW5514 | 3RW5515 | 3RW5516 | 3RW5517 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 13 | 18 | 25 | 32 | 38 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 25/22.3/19.6 | 38/33.5/30.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (Class 10A)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 29.6/27.2/23.6 | 33.5/30.5/27.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 26/23.6/21.2 | 29/26/23 |
| • 300% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 2.5/13 | 3.5/18 | 5/25 | 6.5/32 | 7.5/38 |
| • Minimum/maximum in inside-delta circuits | A | 4.3/22.5 | 6.1/31.1 | 8.7/43.3 | 11.3/55.4 | 13/65.8 |

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| Type | | 3RW5524 | 3RW5525 | 3RW5526 | 3RW5527 |
|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 47 | 63 | 77 | 93 |
| **Power electronics** | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| ***Permissible rated motor current and starts/h*** | | | | | |
| **Normal starting (Class 10A)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 0 | 0 | 0 |
| **Heavy starting (Class 30E)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 43.4/38/34.4 | 53/48/43 | 68/62/56 | 82.5/75.5/65 |
| • 300% $I_M$ | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | |
| • Minimum/maximum | A | 10/47 | 13/63 | 16/77 | 19/93 |
| • Minimum/maximum in inside-delta circuits | A | 17.3/81.4 | 22.5/109 | 27.7/133 | 32.9/161 |

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| Type | | 3RW5534 | 3RW5535 | 3RW5536 |
|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 113 | 143 | 171 |
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 113/101/89 | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | | |
| **Normal starting (Class 10A)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 35 |
| - Startup time 10 s | 1/h | 18 | 18 | 13 |
| • 350% $I_M$ | | | | |
| - Startup time 5 s | 1/h | 28 | 17 | 10 |
| - Startup time 10 s | 1/h | 10 | 4 | 0 |
| **Normal starting (Class 10E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 14 |
| - Startup time 20 s | 1/h | 8 | 7 | 4 |
| • 350% $I_M$ | | | | |
| - Startup time 10 s | 1/h | 13 | 4 | 0 |
| - Startup time 20 s | 1/h | 4 | 0 | 0 |
| **Heavy starting (Class 20E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 109/97/85 | 128/113/103 | 141/129/117 |
| • 300% $I_M$ | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 |
| • 350% $I_M$ | | | | |
| - Startup time 20 s | 1/h | 7 | 6 | 6 |
| - Startup time 40 s | 1/h | 0 | 0 | 0 |
| **Heavy starting (Class 30E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 89/81/74 | 108/98/88 | 117/105/93 |
| • 300% $I_M$ | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 |
| • 350% $I_M$ | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | |
| • Minimum/maximum | A | 23/113 | 29/143 | 34/171 |
| • Minimum/maximum in inside-delta circuits | A | 39.8/195 | 50.2/247 | 58.9/296 |

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| Type | | 3RW5543 | 3RW5544 | 3RW5545 | 3RW5546 | 3RW5547 | 3RW5548 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (Class 10A)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 38 | 43 | 32 | 13 |
| - Startup time 10 s | 1/h | 13 | 18 | 14 | 18 | 13 | 3 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 14 | 28 | 19 | 28 | 19 | 4 |
| - Startup time 10 s | 1/h | 0 | 10 | 5 | 10 | 6 | 0.4 |
| **Normal starting (Class 10E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 551/490/445 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 13 | 21 | 14 | 20 | 13 | 5 |
| - Startup time 20 s | 1/h | 2 | 8 | 4 | 8 | 3 | -- |
| • 350% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 0 | 13 | 5 | 12 | 6 | 1 |
| - Startup time 20 s | 1/h | 0 | 4 | 0 | 3 | 0.4 | -- |
| **Heavy starting (Class 20E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 231/207/183 | 258/230/202 | 272/254/236 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (Class 30E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 138/122/106 | 160/140/120 | 183/159/135 | 202/174/160 | 210/190/170 | 220/200/180 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Startup time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| - Startup time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 42/210 | 50/250 | 63/315 | 74/370 | 94/470 | 114/570 |
| • Minimum/maximum in inside-delta circuits | A | 72.7/363 | 86.6/433 | 109.1/545 | 128.2/640 | 162.8/814 | 197.5/987 |

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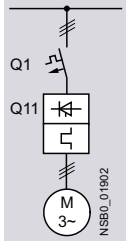


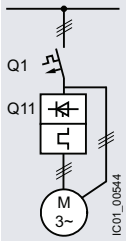
***Motor feeders according to IEC with 3RV2 motor starter protectors/3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", Class 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors/circuit breakers | | | | Motor starter protectors/circuit breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | for 400 V systems | | for 480 V systems | | for 400 V systems | | for 480 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | |
| **3RW5513** | 3RV2032-4TA10 | 65 | 3RV2032-4TA10 | 18 | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 18 |
| **3RW5514** | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 15 | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 |
| **3RW5515** | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 15 |
| **3RW5516** | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 10 | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 |
| **3RW5517** | 3RV2032-4WA10 | 65 | 3RV2032-4WA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5524** | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5525** | 3VA2163-7MN32-0AA0 | 65 | 3VA2163-7MN32-0AA0 | 20 | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 |
| **3RW5526** | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 | 3VA2216-7MN32-0AA0 | 65 | 3VA2216-7MN32-0AA0 | 20 |
| **3RW5527** | 3VA2216-7MN32-0AA0 | 15 | 3VA2216-7MN32-0AA0 | 10 | 3VA2220-7MN32-0AA0 | 15 | 3VA2220-7MN32-0AA0 | 10 |
| **3RW5534** | 3VA2216-7MN32-0AA0 | 65 | -- | -- | 3VA2220-7MN32-0AA0 | 65 | -- | -- |
| **3RW5535** | 3VA2220-7MN32-0AA0 | 65 | -- | -- | 3VA2325-7MN32-0AA0 | 65 | -- | -- |
| **3RW5536** | 3VA2325-7MN32-0AA0 | 30 | 3VA2325-7MN32-0AA0 | 10 | 3VA2440-7MN32-0AA0 | 30 | 3VA2440-7MN32-0AA0 | 10 |
| **3RW5543** | 3VA2325-7MN32-0AA0 | 65 | 3VA2325-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5544** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 |
| **3RW5545** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5546** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5547** | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5548** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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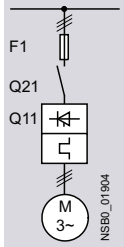
***Motor feeders according to IEC with 3NA3 fuses***

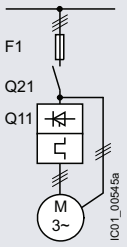
gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

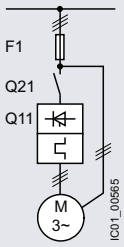
Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** for systems up to 480 V | **Line contactor (optional)** for systems up to 480 V | **gG class fuse** for systems up to 480 V | **Line contactor (optional)** for systems up to 480 V in the supply cable | for systems up to 480 V in the delta |
|---|---|---|---|---|---|
| Q11 | F1 | Q21 | F1 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | **Inside-delta circuit** | | |
| **3RW5513** | 3NA3820-6 | 3RT2025 | 3NA3820-6 | 3RT2027 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3RT2026 | 3NA3820-6 | 3RT2027 | 3RT2026 |
| **3RW5515** | 3NA3822-6 | 3RT2027 | 3NA3822-6 | 3RT2036 | 3RT2027 |
| **3RW5516** | 3NA3824-6 | 3RT2035 | 3NA3824-6 | 3RT2037 | 3RT2035 |
| **3RW5517** | 3NA3824-6 | 3RT2035 | 3NA3824-6 | 3RT2038 | 3RT2035 |
| **3RW5524** | 3NA3824-6 | 3RT2036 | 3NA3824-6 | 3RT2046 | 3RT2036 |
| **3RW5525** | 3NA3830-6 | 3RT2037 | 3NA3830-6 | 3RT2047 | 3RT2037 |
| **3RW5526** | 3NA3132-6 | 3RT2038 | 3NA3132-6 | 3RT1055 | 3RT2038 |
| **3RW5527** | 3NA3136-6 | 3RT2046 | 3NA3136-6 | 3RT1056 | 3RT2046 |
| **3RW5534** | 3NA3244-6 | 3RT1054 | 3NA3244-6 | 3RT1064 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3RT1055 | 3NA3244-6 | 3RT1065 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3RT1056 | 3NA3365-6 | 3RT1066 | 3RT1056 |
| **3RW5543** | 2 x 3NA3354-6 | 3RT1064 | 2 x 3NA3354-6 | 3RT1075 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3RT1065 | 2 x 3NA3354-6 | 3RT1076 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | 3RT1075 | 2 x 3NA3365-6 | 3TF68 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | 3RT1075 | 2 x 3NA3365-6 | 3TF69 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3RT1076 | 2 x 3NA3365-6 | 3TF69 | 3RT1076 |
| **3RW5548** | 2 x 3NA3365-6 | 3TF68 | 2 x 3NA3365-6 | -- | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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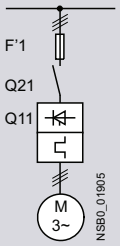
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gR/gS class fuse | Line contactor (optional) |
|---|---|---|
| | for systems up to 480 V | for systems up to 480 V |
| Q11 | F'1 | Q21 |
| Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | |
| **3RW5513** | 3NE1815-0 | 3RT2025 |
| **3RW5514** | 3NE1802-0 | 3RT2026 |
| **3RW5515** | 3NE1817-0 | 3RT2027 |
| **3RW5516** | 3NE1818-0 | 3RT2035 |
| **3RW5517** | 3NE1820-0 | 3RT2035 |
| **3RW5524** | 3NE1021-2 | 3RT2036 |
| **3RW5525** | 3NE1022-0 | 3RT2037 |
| **3RW5526** | 3NE1224-0 | 3RT2038 |
| **3RW5527** | 3NE1224-0 | 3RT2046 |
| **3RW5534** | 3NE1225-0 | 3RT1054 |
| **3RW5535** | 3NE1227-0 | 3RT1055 |
| **3RW5536** | 3NE1230-0 | 3RT1056 |
| **3RW5543** | 3NE1230-2 | 3RT1064 |
| **3RW5544** | 3NE1331-0 | 3RT1065 |
| **3RW5545** | 3NE1334-2 | 3RT1075 |
| **3RW5546** | 3NE1334-2 | 3RT1075 |
| **3RW5547** | 3NE1436-2 | 3RT1076 |
| **3RW5548** | 3NE1437-2 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, a gR/gS class full-range fuse could not provide the semiconductor protection of the delta-connected soft starter with a short-circuit breaking capacity that is adequate for practical use. In this case, we recommend using aR class partial-range fuses for semiconductor protection for type of coordination "2" (see page 6/49).

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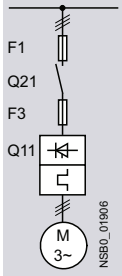
***Motor feeders according to IEC with 3NE8/3NE3/3NC3 fuses***

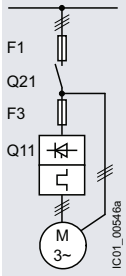
aR class partial-range fuses for semiconductor protection

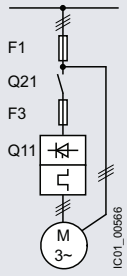
Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | aR class fuse | Line contactor (optional) | gG class fuse | aR class fuse | Line contactor (optional) | |
|---|---|---|---|---|---|---|---|
| | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V in the supply cable | for systems up to 480 V in the delta |
| Q11 | F1 | F3 | Q21 | F1 | F3 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | **Inside-delta circuit** | | | |
| **3RW5513** | 3NA3820-6 | 3NE8017-1 | 3RT2025 | 3NA3820-6 | 3NE8017-1 | 3RT2027 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3NE8020-1 | 3RT2026 | 3NA3820-6 | 3NE8020-1 | 3RT2027 | 3RT2026 |
| **3RW5515** | 3NA3822-6 | 3NE8021-1 | 3RT2027 | 3NA3822-6 | 3NE8021-1 | 3RT2036 | 3RT2027 |
| **3RW5516** | 3NA3824-6 | 3NE8022-1 | 3RT2035 | 3NA3824-6 | 3NE8022-1 | 3RT2037 | 3RT2035 |
| **3RW5517** | 3NA3824-6 | 3NE8024-1 | 3RT2035 | 3NA3824-6 | 3NE8024-1 | 3RT2038 | 3RT2035 |
| **3RW5524** | 3NA3824-6 | 3NE8024-1 | 3RT2036 | 3NA3824-6 | 3NE8024-1 | 3RT2046 | 3RT2036 |
| **3RW5525** | 3NA3830-6 | 3NE3227 | 3RT2037 | 3NA3830-6 | 3NE3227 | 3RT2047 | 3RT2037 |
| **3RW5526** | 3NA3132-6 | 3NE3227 | 3RT2038 | 3NA3132-6 | 3NE3227 | 3RT1055 | 3RT2038 |
| **3RW5527** | 3NA3136-6 | 3NE3227 | 3RT2046 | 3NA3136-6 | 3NE3227 | 3RT1056 | 3RT2046 |
| **3RW5534** | 3NA3244-6 | 3NE3231 | 3RT1054 | 3NA3244-6 | 3NE3231 | 3RT1064 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3NE3233 | 3RT1055 | 3NA3244-6 | 3NE3233 | 3RT1065 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3NE3334-0B | 3RT1056 | 3NA3365-6 | 3NE3334-0B | 3RT1066 | 3RT1056 |
| **3RW5543** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 2 x 3NA3354-6 | 3NE3333 | 3RT1075 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3NE3335 | 3RT1065 | 2 x 3NA3354-6 | 3NE3335 | 3RT1076 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 2 x 3NA3365-6 | 3NE3336 | 3TF68 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1075 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3RT1076 |
| **3RW5548** | 2 x 3NA3365-6 | 3NC3342-1U | 3TF68 | 2 x 3NA3365-6 | 3NC3342-1U | -- | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For Class 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3RV2 motor starter protectors/3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/46). In these cases, optional line contactors can be dispensed with.

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### *Reversing operation with reversing contactors*

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.

(Suggested circuit, see 3RW55 Equipment Manual, Appendix A.3)

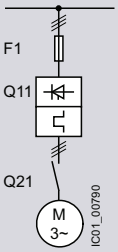
| Soft starters | Reversing contactor assembly | Reversing contactor |
|---|---|---|
| | for systems up to 480 V | for systems up to 480 V |
| Q11 | Q21/Q22 | Q21/Q22 |
| Type | Type | Type |
| **3RW5513** | 3RA2325 | 3RT2025 |
| **3RW5514** | 3RA2326 | 3RT2026 |
| **3RW5515** | 3RA2327 | 3RT2027 |
| **3RW5516** | 3RA2335 | 3RT2035 |
| **3RW5517** | 3RA2335 | 3RT2035 |
| **3RW5524** | 3RA2336 | 3RT2036 |
| **3RW5525** | 3RA2337 | 3RT2037 |
| **3RW5526** | 3RA2338 | 3RT2038 |
| **3RW5527** | 3RA2346 | 3RT2046 |
| **3RW5534** | -- | 3RT1054 |
| **3RW5535** | -- | 3RT1055 |
| **3RW5536** | -- | 3RT1056 |
| **3RW5543** | -- | 3RT1064 |
| **3RW5544** | -- | 3RT1065 |
| **3RW5545** | -- | 3RT1075 |
| **3RW5546** | -- | 3RT1075 |
| **3RW5547** | -- | 3RT1076 |
| **3RW5548** | -- | 3TF68 |

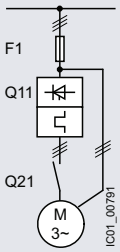
### *Redundant contactors for applications > SIL 1/PL c*

For applications with a Safety Integrity Level > SIL 1 or a Performance Level > PL c in connection with the 3RW55 Failsafe soft starter, a redundant contactor is required.

Note:

For more details about safe disconnection according to IEC 62061 (SIL) or ISO 13849-1 (PL), see FAQ article.




| Soft starters | Standard (inline) circuit | Inside-delta circuit |
|---|---|---|
| | for systems up to 480 V | for systems up to 480 V |
| | according to IEC 62061 (SIL) or ISO 13849-1 (PL) | according to IEC 62061 (SIL) or ISO 13849-1 (PL) |
| Q11 | Q21 | Q21 |
| Type | Type | Type |
| **3RW5513** | 3RT2027 | 3RT2027 |
| **3RW5514** | 3RT2035 | 3RT2035 |
| **3RW5515** | 3RT2036 | 3RT2036 |
| **3RW5516** | 3RT2037 | 3RT2037 |
| **3RW5517** | 3RT2038 | 3RT2038 |
| **3RW5524** | 3RT2046 | 3RT2046 |
| **3RW5525** | 3RT1055 | 3RT1055 |
| **3RW5526** | 3RT1056 | 3RT1056 |
| **3RW5527** | 3RT1064 | 3RT1064 |
| **3RW5534** | 3RT1065 | 3RT1065 |
| **3RW5535** | 3RT1066 | 3RT1066 |
| **3RW5536** | 3RT1075 | 3RT1075 |
| **3RW5543** | 3RT1076 | 3RT1076 |
| **3RW5544** | 3RT1076 | 3RT1076 |
| **3RW5545** | 3TF68 | 3TF68 |
| **3RW5546** | 3TF69 | 3TF69 |
| **3RW5547** | -- | -- |
| **3RW5548** | -- | -- |

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## Selection and ordering data

### *For normal starting (Class 10E)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-1HF.4


3RW552.-3HF.4


3RW553.-6HF.4


3RW554.-2HF.4

| At 40 °C | | | At 50 °C | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | A | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | |
| 13 | 3 | **5.5** | 11.5 | 2 | 3 | **7.5** | **3RW5513-1HF04** | | **3RW5513-3HF04** | |
| 18 | 4 | **7.5** | 15.9 | 3 | 5 | **10** | **3RW5514-1HF04** | | **3RW5514-3HF04** | |
| 25 | 5.5 | **11** | 22.3 | 5 | 7.5 | **15** | **3RW5515-1HF04** | | **3RW5515-3HF04** | |
| 32 | 7.5 | **15** | 28.4 | 7.5 | 10 | **20** | **3RW5516-1HF04** | | **3RW5516-3HF04** | |
| 38 | 11 | **18.5** | 33.5 | 10 | 10 | **20** | **3RW5517-1HF04** | | **3RW5517-3HF04** | |
| 47 | 11 | **22** | 41.6 | 10 | 10 | **30** | **3RW5524-1HF04** | | **3RW5524-3HF04** | |
| 63 | 18.5 | **30** | 55.5 | 15 | 20 | **40** | **3RW5525-1HF04** | | **3RW5525-3HF04** | |
| 77 | 22 | **37** | 68 | 20 | 25 | **50** | **3RW5526-1HF04** | | **3RW5526-3HF04** | |
| 93 | 22 | **45** | 82.5 | 25 | 30 | **60** | **3RW5527-1HF04** | | **3RW5527-3HF04** | |
| 113 | 30 | **55** | 101 | 30 | 30 | **75** | **3RW5534-6HF04** | | **3RW5534-2HF04** | |
| 143 | 37 | **75** | 128 | 40 | 40 | **100** | **3RW5535-6HF04** | | **3RW5535-2HF04** | |
| 171 | 45 | **90** | 153 | 50 | 50 | **100** | **3RW5536-6HF04** | | **3RW5536-2HF04** | |
| 210 | 55 | **110** | 186 | 60 | 60 | **150** | **3RW5543-6HF04** | | **3RW5543-2HF04** | |
| 250 | 75 | **132** | 220 | 60 | 75 | **150** | **3RW5544-6HF04** | | **3RW5544-2HF04** | |
| 315 | 90 | **160** | 279 | 75 | 100 | **200** | **3RW5545-6HF04** | | **3RW5545-2HF04** | |
| 370 | 110 | **200** | 328 | 100 | 125 | **250** | **3RW5546-6HF04** | | **3RW5546-2HF04** | |
| 470 | 132 | **250** | 416 | 150 | 150 | **350** | **3RW5547-6HF04** | | **3RW5547-2HF04** | |
| 570 | 160 | **315** | 504 | 150 | 200 | **400** | **3RW5548-6HF04** | | **3RW5548-2HF04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | |
| 13 | 3 | **5.5** | 11.5 | 2 | 3 | **7.5** | **3RW5513-1HF14** | | **3RW5513-3HF14** | |
| 18 | 4 | **7.5** | 15.9 | 3 | 5 | **10** | **3RW5514-1HF14** | | **3RW5514-3HF14** | |
| 25 | 5.5 | **11** | 22.3 | 5 | 7.5 | **15** | **3RW5515-1HF14** | | **3RW5515-3HF14** | |
| 32 | 7.5 | **15** | 28.4 | 7.5 | 10 | **20** | **3RW5516-1HF14** | | **3RW5516-3HF14** | |
| 38 | 11 | **18.5** | 33.5 | 10 | 10 | **20** | **3RW5517-1HF14** | | **3RW5517-3HF14** | |
| 47 | 11 | **22** | 41.6 | 10 | 10 | **30** | **3RW5524-1HF14** | | **3RW5524-3HF14** | |
| 63 | 18.5 | **30** | 55.5 | 15 | 20 | **40** | **3RW5525-1HF14** | | **3RW5525-3HF14** | |
| 77 | 22 | **37** | 68 | 20 | 25 | **50** | **3RW5526-1HF14** | | **3RW5526-3HF14** | |
| 93 | 22 | **45** | 82.5 | 25 | 30 | **60** | **3RW5527-1HF14** | | **3RW5527-3HF14** | |
| 113 | 30 | **55** | 101 | 30 | 30 | **75** | **3RW5534-6HF14** | | **3RW5534-2HF14** | |
| 143 | 37 | **75** | 128 | 40 | 40 | **100** | **3RW5535-6HF14** | | **3RW5535-2HF14** | |
| 171 | 45 | **90** | 153 | 50 | 50 | **100** | **3RW5536-6HF14** | | **3RW5536-2HF14** | |
| 210 | 55 | **110** | 186 | 60 | 60 | **150** | **3RW5543-6HF14** | | **3RW5543-2HF14** | |
| 250 | 75 | **132** | 220 | 60 | 75 | **150** | **3RW5544-6HF14** | | **3RW5544-2HF14** | |
| 315 | 90 | **160** | 279 | 75 | 100 | **200** | **3RW5545-6HF14** | | **3RW5545-2HF14** | |
| 370 | 110 | **200** | 328 | 100 | 125 | **250** | **3RW5546-6HF14** | | **3RW5546-2HF14** | |
| 470 | 132 | **250** | 416 | 150 | 150 | **350** | **3RW5547-6HF14** | | **3RW5547-2HF14** | |
| 570 | 160 | **315** | 504 | 150 | 200 | **400** | **3RW5548-6HF14** | | **3RW5548-2HF14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

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## Selection and ordering data

### *For normal starting (Class 10E)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW551.-1HF.4


3RW552.-3HF.4


3RW553.-6HF.4


3RW554.-2HF.4

| At 40 °C for inside-delta circuit | | | At 50 °C for inside-delta circuit | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | A | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 19.9 | 5 | 5 | **10** | **3RW5513-1HF04** | | **3RW5513-3HF04** | |
| 31.5 | 7.5 | **15** | 28 | 7.5 | 7.5 | **20** | **3RW5514-1HF04** | | **3RW5514-3HF04** | |
| 43.3 | 11 | **18.5** | 39 | 10 | 10 | **25** | **3RW5515-1HF04** | | **3RW5515-3HF04** | |
| 55.4 | 15 | **22** | 49 | 15 | 15 | **30** | **3RW5516-1HF04** | | **3RW5516-3HF04** | |
| 65.8 | 18.5 | **30** | 58 | 15 | 20 | **40** | **3RW5517-1HF04** | | **3RW5517-3HF04** | |
| 81.4 | 22 | **45** | 72 | 20 | 25 | **50** | **3RW5524-1HF04** | | **3RW5524-3HF04** | |
| 109 | 30 | **55** | 96 | 30 | 30 | **75** | **3RW5525-1HF04** | | **3RW5525-3HF04** | |
| 133 | 37 | **75** | 118 | 30 | 40 | **75** | **3RW5526-1HF04** | | **3RW5526-3HF04** | |
| 161 | 45 | **90** | 143 | 40 | 50 | **100** | **3RW5527-1HF04** | | **3RW5527-3HF04** | |
| 196 | 55 | **110** | 175 | 50 | 60 | **125** | **3RW5534-6HF04** | | **3RW5534-2HF04** | |
| 248 | 75 | **132** | 222 | 75 | 75 | **150** | **3RW5535-6HF04** | | **3RW5535-2HF04** | |
| 296 | 90 | **160** | 265 | 75 | 100 | **200** | **3RW5536-6HF04** | | **3RW5536-2HF04** | |
| 364 | 110 | **200** | 322 | 100 | 125 | **250** | **3RW5543-6HF04** | | **3RW5543-2HF04** | |
| 433 | 132 | **250** | 381 | 125 | 150 | **300** | **3RW5544-6HF04** | | **3RW5544-2HF04** | |
| 546 | 160 | **315** | 483 | 150 | 200 | **400** | **3RW5545-6HF04** | | **3RW5545-2HF04** | |
| 641 | 200 | **355** | 568 | 200 | 200 | **450** | **3RW5546-6HF04** | | **3RW5546-2HF04** | |
| 814 | 250 | **400** | 721 | 250 | 250 | **600** | **3RW5547-6HF04** | | **3RW5547-2HF04** | |
| 987 | 315 | **560** | 873 | 300 | 350 | **750** | **3RW5548-6HF04** | | **3RW5548-2HF04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 19.9 | 5 | 5 | **10** | **3RW5513-1HF14** | | **3RW5513-3HF14** | |
| 31.5 | 7.5 | **15** | 28 | 7.5 | 7.5 | **20** | **3RW5514-1HF14** | | **3RW5514-3HF14** | |
| 43.3 | 11 | **18.5** | 39 | 10 | 10 | **25** | **3RW5515-1HF14** | | **3RW5515-3HF14** | |
| 55.4 | 15 | **22** | 49 | 15 | 15 | **30** | **3RW5516-1HF14** | | **3RW5516-3HF14** | |
| 65.8 | 18.5 | **30** | 58 | 15 | 20 | **40** | **3RW5517-1HF14** | | **3RW5517-3HF14** | |
| 81.4 | 22 | **45** | 72 | 20 | 25 | **50** | **3RW5524-1HF14** | | **3RW5524-3HF14** | |
| 109 | 30 | **55** | 96 | 30 | 30 | **75** | **3RW5525-1HF14** | | **3RW5525-3HF14** | |
| 133 | 37 | **75** | 118 | 30 | 40 | **75** | **3RW5526-1HF14** | | **3RW5526-3HF14** | |
| 161 | 45 | **90** | 143 | 40 | 50 | **100** | **3RW5527-1HF14** | | **3RW5527-3HF14** | |
| 196 | 55 | **110** | 175 | 50 | 60 | **125** | **3RW5534-6HF14** | | **3RW5534-2HF14** | |
| 248 | 75 | **132** | 222 | 75 | 75 | **150** | **3RW5535-6HF14** | | **3RW5535-2HF14** | |
| 296 | 90 | **160** | 265 | 75 | 100 | **200** | **3RW5536-6HF14** | | **3RW5536-2HF14** | |
| 364 | 110 | **200** | 322 | 100 | 125 | **250** | **3RW5543-6HF14** | | **3RW5543-2HF14** | |
| 433 | 132 | **250** | 381 | 125 | 150 | **300** | **3RW5544-6HF14** | | **3RW5544-2HF14** | |
| 546 | 160 | **315** | 483 | 150 | 200 | **400** | **3RW5545-6HF14** | | **3RW5545-2HF14** | |
| 641 | 200 | **355** | 568 | 200 | 200 | **450** | **3RW5546-6HF14** | | **3RW5546-2HF14** | |
| 814 | 250 | **400** | 721 | 250 | 250 | **600** | **3RW5547-6HF14** | | **3RW5547-2HF14** | |
| 987 | 315 | **560** | 873 | 300 | 350 | **750** | **3RW5548-6HF14** | | **3RW5548-2HF14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

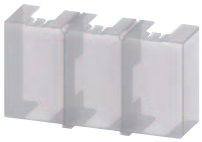
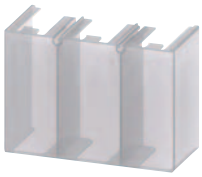


* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
|  3RW5983-0FC00 | **Fan cover** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | -- | **3RW5984-0FC00** | | 1 | 1 unit | 42S |
| **Terminal covers** | | | | | | | | | |
|  3RW5983-0TC20 | **Terminal cover** | 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0TC20** | | 1 | 1 unit | 42S |
|  3RW5984-0TC20 | | 3RW554 (2x) | -- | -- | **3RW5984-0TC20** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | | |
|  3RW5950-0GL20 | **Hinged cover** | 3RW55 | Without cutout | -- | **3RW5950-0GL20** | | 1 | 1 unit | 42S |
| **Communications modules** | | | | | | | | | |
|  3RW5980-0CS00 | **Communications module**[1] | 3RW55 | PROFINET High-Feature with integral switch | -- | **3RW5950-0CH00** | | 1 | 1 unit | 42S |
| | | | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | -- | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
|  3RW5980-0CE00 | | | EtherNet/IP | -- | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| | | | Modbus RTU | -- | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
|  3RW5980-0CR00 | | | Modbus TCP | -- | **3RW5980-0CT00** | | 1 | 1 unit | 42S |

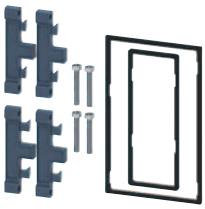
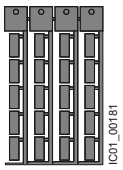
[1] Use the recommended connection plugs for attaching the bus connection cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RW55 Failsafe soft starters > Accessories

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW55 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
|  3UF793.-0BA00-0 | **HMI connecting cable** | 3RW55 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
|  3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates[1)]** | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SIRIUS Soft Starter ES (TIA Portal) for diagnostics, see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW52 | SIRIUS 3RW soft starter block library for SIMATIC PCS 7, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109770336 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw52 | Decision support for motor start - Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |
| Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 | |

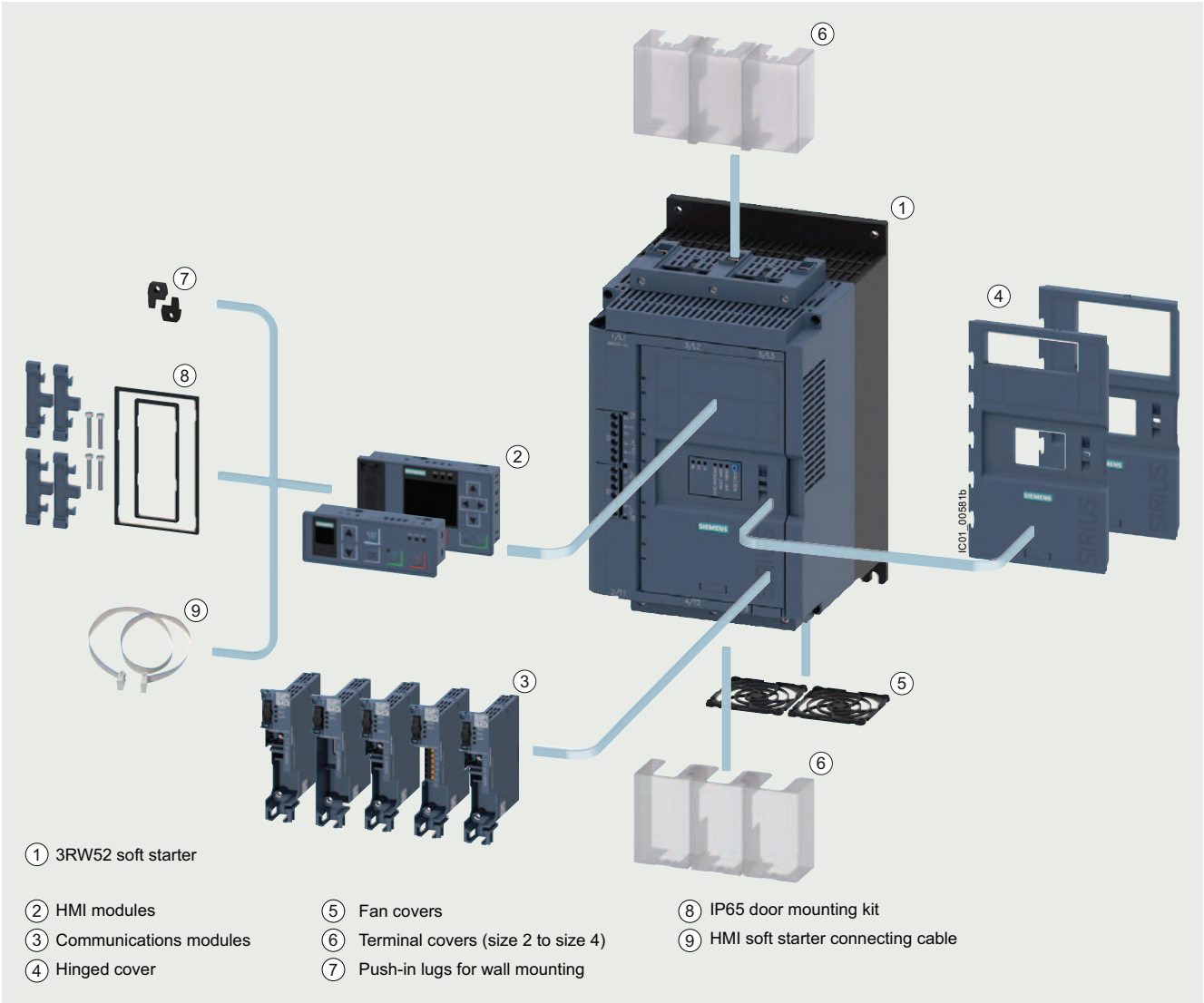


SIRIUS 3RW52 soft starters device family

SIRIUS 3RW52 General Performance soft starters are the ideal solution for standard applications. With ideal 3-phase motor control, they cover the performance range from 5.5 kW to 560 kW (at 400 V).

Optional HMI modules, plug-in communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) and either an analog output or thermistor motor protection ensure maximum flexibility.

With their modern hybrid switching technology, the SIRIUS 3RW52 soft starters offer efficient switching for long-term, energy-saving use.




① 3RW52 soft starter

② HMI modules
③ Communications modules
④ Hinged cover
⑤ Fan covers
⑥ Terminal covers (size 2 to size 4)
⑦ Push-in lugs for wall mounting
⑧ IP65 door mounting kit
⑨ HMI soft starter connecting cable

SIRIUS 3RW52 General Performance soft starter with accessories (see page 6/75 onwards), for expansion with HMI module or communications module

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## Benefits



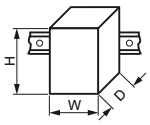

| Product characteristics/function | Performance features/benefits |
|---|---|
| Hybrid switching technology and 3-phase motor control | Minimum power loss and optimum/symmetrical motor control |
| TIA integration – communications modules and HMI modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Soft Torque | Reduced mechanical loading and optimum pump stop |
| Parameterization using potentiometers | Simple and fast commissioning |
| Wide range for control supply and main voltage | Low variance, high system availability even with weak supply networks |

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25100/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753751 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25100/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Article number | | **3RW5213 3RW5214 3RW5215** | **3RW5216 3RW5217** | **3RW5224 3RW5225** | **3RW5226 3RW5227 3RW5234 3RW5235 3RW5236** | **3RW5243 3RW5244 3RW5245 3RW5246 3RW5247 3RW5248** |
|---|---|---|---|---|---|---|
| **Installation/fixing/dimensions** | | | | | | |
| **Width x height x depth**   | mm | 170 x 275 x 152 | | 185 x 306 x 203 | | 210 x 393 x 203 |
| **Type of mounting** | | Screw fixing | | | | |
| **Mounting position** | | For vertical mounting surface can be rotated +/- 10° and tilted forward or backward | For vertical mounting surface can be rotated +/- 90°, for vertical mounting surface can be tilted +/- 22.5° forward or backward | For vertical mounting surface can be rotated +/- 10° and tilted forward or backward | For vertical mounting surface can be rotated +/- 90°, for vertical mounting surface can be tilted +/- 22.5° forward or backward | |
| **Distance to be maintained with side-by-side mounting** | | | | | | |
| • Above | mm | 100 | | | | |
| • At the side | mm | 5 | | | | |
| • Below | mm | 75 | | | | |
| **Installation altitude at height above sea level, maximum**[1] | m | 5 000 | | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00; IP20 with cover | | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | Finger-safe for vertical touching from the front with cover | | |
| **Ambient conditions** | | | | | | |
| **Ambient temperature** | | | | | | |
| • During operation[2] | °C | -25 ... +60 | | | | |
| • During storage and transport | °C | -40 ... +80 | | | | |
| **Environmental category according to IEC 60721** | | | | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | | | | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | | | | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | | | | |

1) Derating from 1 000 m, see characteristic curve on page 6/8.
2) Observe derating above 40 °C.

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| Article number | | 3RW52..-..C0. | 3RW52..-..C1. |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| • Relative negative tolerance/relative positive tolerance with AC | % | -20/20 | -15/10 |
| • Relative negative tolerance/relative positive tolerance with DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

1) Not included in scope of supply.

| Article number | | 3RW521.-..C.4 3RW524.-..C.4 | 3RW522.-..C.4 3RW523.-..C.4 | 3RW521.-..C.5 3RW524.-..C.5 | 3RW522.-..C.5 3RW523.-..C.5 |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Operational voltage** | V | 200 ... 480 | | 200 ... 600 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | | |
| **Operational voltage for inside-delta circuit** | V | 200 ... 480 | | 200 ... 600 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | | |
| **Operating frequency** | Hz | 50 ... 60 | | | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | | | |
| **Blocking voltage of thyristor, maximum** | V | 1 600 | 1 400 | 1 600 | 1800 |
| **Minimum load [%]**[1] | % | 15 | | | |
| **Maximum cable length between soft starter and motor** | m | 800 | | | |

1) Relative to the smallest adjustable $I_e$.

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| Type | | 3RW5213 | 3RW5214 | 3RW5215 | 3RW5216 | 3RW5217 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 13 | 18 | 25 | 32 | 38 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (Class 10A)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 29.6/27.2/23.6 | 33.5/30.5/27.5 |
| • 300% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 5.5/13 | 7.5/18 | 11.5/25 | 14/32 | 15.5/38 |
| • Minimum/maximum in inside-delta circuits | A | 9.5/22.5 | 13/31.2 | 19.9/43.3 | 24.2/55.4 | 26.8/65.8 |

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| Type | | 3RW5224 | 3RW5225 | 3RW5226 | 3RW5227 |
|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 47 | 63 | 77 | 93 |
| **Power electronics** | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| ***Permissible rated motor current and starts/h*** | | | | | |
| **Normal starting (Class 10A)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 10 | 10 | 10 |
| **Normal starting (Class 10E)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | |
| - Startup time 10 s | 1/h | 13 | 13 | 13 | 13 |
| - Startup time 20 s | 1/h | 4 | 4 | 4 | 4 |
| **Heavy starting (Class 20E)** | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 65/59/53 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 3 | 4 | 4 |
| • 350% $I_M$ | | | | | |
| - Startup time 20 s | 1/h | 7 | 4 | 7 | 7 |
| - Startup time 40 s | 1/h | 2 | 0 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | |
| • Minimum/maximum | A | 20/47 | 25.5/63 | 32/77 | 40.5/93 |
| • Minimum/maximum in inside-delta circuits | A | 34.6/81.4 | 44.2/109 | 55.4/133 | 70.1/161 |

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| Type | | 3RW5234 | 3RW5235 | 3RW5236 |
|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 113 | 143 | 171 |
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 113/101/89 | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | | |
| **Normal starting (Class 10A)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 |
| • 350% $I_M$ | | | | |
| - Startup time 5 s | 1/h | 28 | 27 | 20 |
| - Startup time 10 s | 1/h | 10 | 8 | 4 |
| **Normal starting (Class 10E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 139/127/116 | 158/146/129 |
| • 300% $I_M$ | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 |
| • 350% $I_M$ | | | | |
| - Startup time 10 s | 1/h | 13 | 12 | 12 |
| - Startup time 20 s | 1/h | 4 | 1 | 1 |
| **Heavy starting (Class 20E)** | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 109/97/85 | 113/103/93 | 129/117/105 |
| • 300% $I_M$ | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 |
| • 350% $I_M$ | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | |
| • Minimum/maximum | A | 53/113 | 68/143 | 81/171 |
| • Minimum/maximum in inside-delta circuits | A | 91.8/196 | 118/248 | 140/296 |

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| Type | | 3RW5243 | 3RW5244 | 3RW5245 | 3RW5246 | 3RW5247 | 3RW5248 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (Class 10A)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 30 | 20 |
| - Startup time 10 s | 1/h | 18 | 18 | 14 | 18 | 11 | 6 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 16 | 28 | 17 | 9 |
| - Startup time 10 s | 1/h | 5 | 10 | 4 | 10 | 5 | 1 |
| **Normal starting (Class 10E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 197/184/170 | 250/220/200 | 279/255/231 | 370/328/300 | 398/362/326 | 460/416/372 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 | 18 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 | 7 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 12 | 13 | 12 | 13 | 13 | 11 |
| - Startup time 20 s | 1/h | 1 | 4 | 3 | 4 | 4 | 2 |
| **Heavy starting (Class 20E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 195/171/147 | 258/230/202 | 272/236/218 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 90/210 | 100/250 | 135/315 | 160/370 | 200/470 | 240/570 |
| • Minimum/maximum in inside-delta circuits | A | 156/364 | 173/433 | 234/546 | 277/641 | 346/814 | 416/987 |

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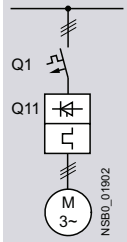


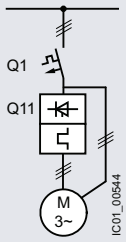
***Motor feeders according to IEC with 3RV2 motor starter protectors/3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", Class 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors/circuit breakers | | | | Motor starter protectors/circuit breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | |
| **3RW5213** | 3RV2032-4TA10 | 65 | 3RV2032-4TA10 | 18 | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 18 |
| **3RW5214** | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 15 | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 |
| **3RW5215** | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 15 |
| **3RW5216** | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 10 | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 |
| **3RW5217** | 3RV2032-4WA10 | 65 | 3RV2032-4WA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5224** | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5225** | 3VA2163-7MN32-0AA0 | 65 | 3VA2163-7MN32-0AA0 | 20 | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 |
| **3RW5226** | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 | 3VA2216-7MN32-0AA0 | 65 | 3VA2216-7MN32-0AA0 | 20 |
| **3RW5227** | 3VA2216-7MN32-0AA0 | 15 | 3VA2216-7MN32-0AA0 | 10 | 3VA2220-7MN32-0AA0 | 15 | 3VA2220-7MN32-0AA0 | 10 |
| **3RW5234** | 3VA2216-7MN32-0AA0 | 65 | -- | -- | 3VA2220-7MN32-0AA0 | 65 | -- | -- |
| **3RW5235** | 3VA2220-7MN32-0AA0 | 65 | -- | -- | 3VA2325-7MN32-0AA0 | 65 | -- | -- |
| **3RW5236** | 3VA2325-7MN32-0AA0 | 30 | 3VA2325-7MN32-0AA0 | 10 | 3VA2440-7MN32-0AA0 | 30 | 3VA2440-7MN32-0AA0 | 10 |
| **3RW5243** | 3VA2325-7MN32-0AA0 | 65 | 3VA2325-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5244** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 |
| **3RW5245** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5246** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5247** | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5248** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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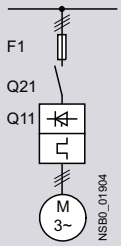
***Motor feeders according to IEC with 3NA3 fuses***

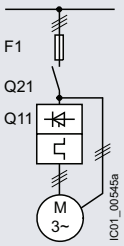
gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

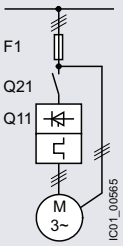
Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | Line contactor (optional) | | gG class fuse | Line contactor (optional) | | | |
|---|---|---|---|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | Q21 | Q21 | F1 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | **Inside-delta circuit** | | | | |
| **3RW5213** | 3NA3820-6 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5214** | 3NA3820-6 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5215** | 3NA3822-6 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5216** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5217** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5224** | 3NA3824-6 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5225** | 3NA3830-6 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5226** | 3NA3132-6 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5227** | 3NA3136-6 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5234** | 3NA3244-6 | 3RT1054 | 3RT1054 | 3NA3244-6 | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5235** | 3NA3244-6 | 3RT1055 | 3RT1055 | 3NA3244-6 | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5236** | 3NA3365-6 | 3RT1056 | 3RT1064 | 3NA3365-6 | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5243** | 2 x 3NA3354-6 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5244** | 2 x 3NA3354-6 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5245** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5246** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5247** | 2 x 3NA3365-6 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5248** | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 2 x 3NA3365-6 | -- | -- | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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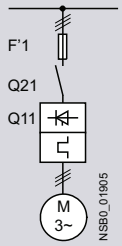
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | |
|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW5213** | 3NE1815-0 | 3RT2025 | 3RT2025 |
| **3RW5214** | 3NE1802-0 | 3RT2026 | 3RT2027 |
| **3RW5215** | 3NE1817-0 | 3RT2027 | 3RT2037 |
| **3RW5216** | 3NE1818-0 | 3RT2035 | 3RT2037 |
| **3RW5217** | 3NE1820-0 | 3RT2035 | 3RT2037 |
| **3RW5224** | 3NE1021-2 | 3RT2036 | 3RT2037 |
| **3RW5225** | 3NE1022-0 | 3RT2037 | 3RT2046 |
| **3RW5226** | 3NE1224-0 | 3RT2038 | 3RT2046 |
| **3RW5227** | 3NE1224-0 | 3RT2046 | 3RT2047 |
| **3RW5234** | 3NE1225-0 | 3RT1054 | 3RT1054 |
| **3RW5235** | 3NE1227-0 | 3RT1055 | 3RT1055 |
| **3RW5236** | 3NE1230-0 | 3RT1056 | 3RT1064 |
| **3RW5243** | 3NE1230-2[1)] | 3RT1064 | 3RT1064 |
| **3RW5244** | 3NE1331-0 | 3RT1065 | 3RT1065 |
| **3RW5245** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5246** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5247** | 3NE1436-2 | 3RT1076 | 3RT1276 |
| **3RW5248** | 3NE1437-2 | 3TF68 | 3TF68 |

1) For systems up to 500 V.

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, a gR/gS class full-range fuse could not provide the semiconductor protection of the delta-connected soft starter with a short-circuit breaking capacity that is adequate for practical use. In this case, we recommend using aR class partial-range fuses for semiconductor protection for type of coordination "2" (see page 6/66).

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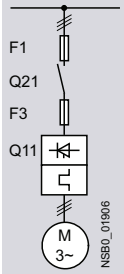
***Motor feeders according to IEC with 3NE8/3NE4/3NE3 fuses***

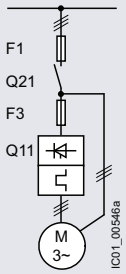
aR class partial-range fuses for semiconductor protection

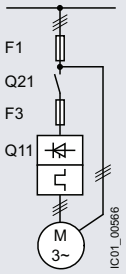
Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | aR class fuse | Line contactor (optional) | | gG class fuse | aR class fuse | Line contactor (optional) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 500 V | for systems up to 480 V | for systems up to 600 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | F3 | Q21 | Q21 | F1 | F3 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | | | |
| **3RW5213** | 3NA3820-6 | 3NE8017-1 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3NE8017-1 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5214** | 3NA3820-6 | 3NE8020-1 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3NE8020-1 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5215** | 3NA3822-6 | 3NE8021-1 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3NE8021-1 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5216** | 3NA3824-6 | 3NE8022-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8022-1 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5217** | 3NA3824-6 | 3NE8024-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5224** | 3NA3824-6 | 3NE8024-1 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5225** | 3NA3830-6 | 3NE8024-1 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3NE8024-1 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5226** | 3NA3132-6 | 3NE8024-1 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3NE8024-1 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5227** | 3NA3136-6 | 3NE4124 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3NE4124 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5234** | 3NA3244-6 | 3NE3332-0B | 3RT1054 | 3RT1054 | 3NA3244-6 | 3NE3332-0B | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5235** | 3NA3244-6 | 3NE3334-0B | 3RT1055 | 3RT1055 | 3NA3244-6 | 3NE3334-0B | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5236** | 3NA3365-6 | 3NE3335 | 3RT1056 | 3RT1064 | 3NA3365-6 | 3NE3335 | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5243** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3NE3333 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5244** | 2 x 3NA3354-6 | 3NE3336 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3NE3336 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5245** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3NE3336 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5246** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3NE3336 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5247** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5248** | 2 x 3NA3365-6 | 3NE3340-8 | 3TF68 | 3TF68 | 2 x 3NA3365-6 | 3NE3340-8 | -- | -- | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For Class 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3RV2 motor starter protectors/3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/63). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

### *For normal starting (Class 10A)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1AC.4


3RW522.-3AC.4


3RW523.-6AC.4


3RW524.-2AC.4

| At 40 °C | | | | At 50 °C | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V Analog output** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5213-1AC04** | | **3RW5213-3AC04** | |
| 18 | 4 | **7.5** | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5214-1AC04** | | **3RW5214-3AC04** | |
| 25 | 5.5 | **11** | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5215-1AC04** | | **3RW5215-3AC04** | |
| 32 | 7.5 | **15** | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5216-1AC04** | | **3RW5216-3AC04** | |
| 38 | 11 | **18.5** | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5217-1AC04** | | **3RW5217-3AC04** | |
| 47 | 11 | **22** | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5224-1AC04** | | **3RW5224-3AC04** | |
| 63 | 18.5 | **30** | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5225-1AC04** | | **3RW5225-3AC04** | |
| 77 | 22 | **37** | -- | 68 | 20 | 25 | **50** | -- | **3RW5226-1AC04** | | **3RW5226-3AC04** | |
| 93 | 22 | **45** | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5227-1AC04** | | **3RW5227-3AC04** | |
| 113 | 30 | **55** | -- | 101 | 30 | 30 | **75** | -- | **3RW5234-6AC04** | | **3RW5234-2AC04** | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | **3RW5235-6AC04** | | **3RW5235-2AC04** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | **3RW5236-6AC04** | | **3RW5236-2AC04** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | **3RW5243-6AC04** | | **3RW5243-2AC04** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | **3RW5244-6AC04** | | **3RW5244-2AC04** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | **3RW5245-6AC04** | | **3RW5245-2AC04** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | **3RW5246-6AC04** | | **3RW5246-2AC04** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | **3RW5247-6AC04** | | **3RW5247-2AC04** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | **3RW5248-6AC04** | | **3RW5248-2AC04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5213-1AC14** | | **3RW5213-3AC14** | |
| 18 | 4 | **7.5** | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5214-1AC14** | | **3RW5214-3AC14** | |
| 25 | 5.5 | **11** | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5215-1AC14** | | **3RW5215-3AC14** | |
| 32 | 7.5 | **15** | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5216-1AC14** | | **3RW5216-3AC14** | |
| 38 | 11 | **18.5** | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5217-1AC14** | | **3RW5217-3AC14** | |
| 47 | 11 | **22** | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5224-1AC14** | | **3RW5224-3AC14** | |
| 63 | 18.5 | **30** | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5225-1AC14** | | **3RW5225-3AC14** | |
| 77 | 22 | **37** | -- | 68 | 20 | 25 | **50** | -- | **3RW5226-1AC14** | | **3RW5226-3AC14** | |
| 93 | 22 | **45** | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5227-1AC14** | | **3RW5227-3AC14** | |
| 113 | 30 | **55** | -- | 101 | 30 | 30 | **75** | -- | **3RW5234-6AC14** | | **3RW5234-2AC14** | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | **3RW5235-6AC14** | | **3RW5235-2AC14** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | **3RW5236-6AC14** | | **3RW5236-2AC14** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | **3RW5243-6AC14** | | **3RW5243-2AC14** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | **3RW5244-6AC14** | | **3RW5244-2AC14** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | **3RW5245-6AC14** | | **3RW5245-2AC14** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | **3RW5246-6AC14** | | **3RW5246-2AC14** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | **3RW5247-6AC14** | | **3RW5247-2AC14** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | **3RW5248-6AC14** | | **3RW5248-2AC14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

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***For normal starting (Class 10A)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S



3RW521.-1TC.4



3RW522.-3TC.4



3RW523.-6TC.4



3RW524.-2TC.4

| At 40 °C | | | | At 50 °C | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V Thermistor motor protection** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5213-1TC04** | | **3RW5213-3TC04** | |
| 18 | 4 | **7.5** | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5214-1TC04** | | **3RW5214-3TC04** | |
| 25 | 5.5 | **11** | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5215-1TC04** | | **3RW5215-3TC04** | |
| 32 | 7.5 | **15** | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5216-1TC04** | | **3RW5216-3TC04** | |
| 38 | 11 | **18.5** | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5217-1TC04** | | **3RW5217-3TC04** | |
| 47 | 11 | **22** | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5224-1TC04** | | **3RW5224-3TC04** | |
| 63 | 18.5 | **30** | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5225-1TC04** | | **3RW5225-3TC04** | |
| 77 | 22 | **37** | -- | 68 | 20 | 25 | **50** | -- | **3RW5226-1TC04** | | **3RW5226-3TC04** | |
| 93 | 22 | **45** | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5227-1TC04** | | **3RW5227-3TC04** | |
| 113 | 30 | **55** | -- | 101 | 30 | 30 | **75** | -- | **3RW5234-6TC04** | | **3RW5234-2TC04** | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | **3RW5235-6TC04** | | **3RW5235-2TC04** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | **3RW5236-6TC04** | | **3RW5236-2TC04** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | **3RW5243-6TC04** | | **3RW5243-2TC04** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | **3RW5244-6TC04** | | **3RW5244-2TC04** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | **3RW5245-6TC04** | | **3RW5245-2TC04** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | **3RW5246-6TC04** | | **3RW5246-2TC04** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | **3RW5247-6TC04** | | **3RW5247-2TC04** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | **3RW5248-6TC04** | | **3RW5248-2TC04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5213-1TC14** | | **3RW5213-3TC14** | |
| 18 | 4 | **7.5** | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5214-1TC14** | | **3RW5214-3TC14** | |
| 25 | 5.5 | **11** | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5215-1TC14** | | **3RW5215-3TC14** | |
| 32 | 7.5 | **15** | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5216-1TC14** | | **3RW5216-3TC14** | |
| 38 | 11 | **18.5** | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5217-1TC14** | | **3RW5217-3TC14** | |
| 47 | 11 | **22** | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5224-1TC14** | | **3RW5224-3TC14** | |
| 63 | 18.5 | **30** | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5225-1TC14** | | **3RW5225-3TC14** | |
| 77 | 22 | **37** | -- | 68 | 20 | 25 | **50** | -- | **3RW5226-1TC14** | | **3RW5226-3TC14** | |
| 93 | 22 | **45** | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5227-1TC14** | | **3RW5227-3TC14** | |
| 113 | 30 | **55** | -- | 101 | 30 | 30 | **75** | -- | **3RW5234-6TC14** | | **3RW5234-2TC14** | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | **3RW5235-6TC14** | | **3RW5235-2TC14** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | **3RW5236-6TC14** | | **3RW5236-2TC14** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | **3RW5243-6TC14** | | **3RW5243-2TC14** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | **3RW5244-6TC14** | | **3RW5244-2TC14** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | **3RW5245-6TC14** | | **3RW5245-2TC14** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | **3RW5246-6TC14** | | **3RW5246-2TC14** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | **3RW5247-6TC14** | | **3RW5247-2TC14** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | **3RW5248-6TC14** | | **3RW5248-2TC14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10A)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1AC.5


3RW522.-3AC.5


3RW523.-6AC.5


3RW524.-2AC.5

| At 40 °C | | | | At 50 °C | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V Analog output** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5213-1AC05** | | **3RW5213-3AC05** | |
| 18 | 4 | **7.5** | 11 | 15.9 | 3 | 5 | **10** | 10 | **3RW5214-1AC05** | | **3RW5214-3AC05** | |
| 25 | 5.5 | **11** | 15 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5215-1AC05** | | **3RW5215-3AC05** | |
| 32 | 7.5 | **15** | 18.5 | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5216-1AC05** | | **3RW5216-3AC05** | |
| 38 | 11 | **18.5** | 22 | 33.5 | 10 | 10 | **20** | 30 | **3RW5217-1AC05** | | **3RW5217-3AC05** | |
| 47 | 11 | **22** | 30 | 41.6 | 10 | 10 | **30** | 40 | **3RW5224-1AC05** | | **3RW5224-3AC05** | |
| 63 | 18.5 | **30** | 37 | 55.5 | 15 | 20 | **40** | 50 | **3RW5225-1AC05** | | **3RW5225-3AC05** | |
| 77 | 22 | **37** | 45 | 68 | 20 | 25 | **50** | 60 | **3RW5226-1AC05** | | **3RW5226-3AC05** | |
| 93 | 22 | **45** | 55 | 82.5 | 25 | 30 | **60** | 75 | **3RW5227-1AC05** | | **3RW5227-3AC05** | |
| 113 | 30 | **55** | 75 | 101 | 30 | 30 | **75** | 100 | **3RW5234-6AC05** | | **3RW5234-2AC05** | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | **3RW5235-6AC05** | | **3RW5235-2AC05** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | **3RW5236-6AC05** | | **3RW5236-2AC05** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | **3RW5243-6AC05** | | **3RW5243-2AC05** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | **3RW5244-6AC05** | | **3RW5244-2AC05** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | **3RW5245-6AC05** | | **3RW5245-2AC05** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | **3RW5246-6AC05** | | **3RW5246-2AC05** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | **3RW5247-6AC05** | | **3RW5247-2AC05** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | **3RW5248-6AC05** | | **3RW5248-2AC05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5213-1AC15** | | **3RW5213-3AC15** | |
| 18 | 4 | **7.5** | 11 | 15.9 | 3 | 5 | **10** | 10 | **3RW5214-1AC15** | | **3RW5214-3AC15** | |
| 25 | 5.5 | **11** | 15 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5215-1AC15** | | **3RW5215-3AC15** | |
| 32 | 7.5 | **15** | 18.5 | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5216-1AC15** | | **3RW5216-3AC15** | |
| 38 | 11 | **18.5** | 22 | 33.5 | 10 | 10 | **20** | 30 | **3RW5217-1AC15** | | **3RW5217-3AC15** | |
| 47 | 11 | **22** | 30 | 41.6 | 10 | 10 | **30** | 40 | **3RW5224-1AC15** | | **3RW5224-3AC15** | |
| 63 | 18.5 | **30** | 37 | 55.5 | 15 | 20 | **40** | 50 | **3RW5225-1AC15** | | **3RW5225-3AC15** | |
| 77 | 22 | **37** | 45 | 68 | 20 | 25 | **50** | 60 | **3RW5226-1AC15** | | **3RW5226-3AC15** | |
| 93 | 22 | **45** | 55 | 82.5 | 25 | 30 | **60** | 75 | **3RW5227-1AC15** | | **3RW5227-3AC15** | |
| 113 | 30 | **55** | 75 | 101 | 30 | 30 | **75** | 100 | **3RW5234-6AC15** | | **3RW5234-2AC15** | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | **3RW5235-6AC15** | | **3RW5235-2AC15** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | **3RW5236-6AC15** | | **3RW5236-2AC15** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | **3RW5243-6AC15** | | **3RW5243-2AC15** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | **3RW5244-6AC15** | | **3RW5244-2AC15** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | **3RW5245-6AC15** | | **3RW5245-2AC15** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | **3RW5246-6AC15** | | **3RW5246-2AC15** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | **3RW5247-6AC15** | | **3RW5247-2AC15** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | **3RW5248-6AC15** | | **3RW5248-2AC15** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10A)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1TC.5


3RW522.-3TC.5


3RW523.-6TC.5


3RW524.-2TC.5

| At 40 °C | | | | At 50 °C | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V Thermistor motor protection** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5213-1TC05** | | **3RW5213-3TC05** | |
| 18 | 4 | **7.5** | 11 | 15.9 | 3 | 5 | **10** | 10 | **3RW5214-1TC05** | | **3RW5214-3TC05** | |
| 25 | 5.5 | **11** | 15 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5215-1TC05** | | **3RW5215-3TC05** | |
| 32 | 7.5 | **15** | 18.5 | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5216-1TC05** | | **3RW5216-3TC05** | |
| 38 | 11 | **18.5** | 22 | 33.5 | 10 | 10 | **20** | 30 | **3RW5217-1TC05** | | **3RW5217-3TC05** | |
| 47 | 11 | **22** | 30 | 41.6 | 10 | 10 | **30** | 40 | **3RW5224-1TC05** | | **3RW5224-3TC05** | |
| 63 | 18.5 | **30** | 37 | 55.5 | 15 | 20 | **40** | 50 | **3RW5225-1TC05** | | **3RW5225-3TC05** | |
| 77 | 22 | **37** | 45 | 68 | 20 | 25 | **50** | 60 | **3RW5226-1TC05** | | **3RW5226-3TC05** | |
| 93 | 22 | **45** | 55 | 82.5 | 25 | 30 | **60** | 75 | **3RW5227-1TC05** | | **3RW5227-3TC05** | |
| 113 | 30 | **55** | 75 | 101 | 30 | 30 | **75** | 100 | **3RW5234-6TC05** | | **3RW5234-2TC05** | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | **3RW5235-6TC05** | | **3RW5235-2TC05** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | **3RW5236-6TC05** | | **3RW5236-2TC05** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | **3RW5243-6TC05** | | **3RW5243-2TC05** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | **3RW5244-6TC05** | | **3RW5244-2TC05** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | **3RW5245-6TC05** | | **3RW5245-2TC05** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | **3RW5246-6TC05** | | **3RW5246-2TC05** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | **3RW5247-6TC05** | | **3RW5247-2TC05** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | **3RW5248-6TC05** | | **3RW5248-2TC05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5213-1TC15** | | **3RW5213-3TC15** | |
| 18 | 4 | **7.5** | 11 | 15.9 | 3 | 5 | **10** | 10 | **3RW5214-1TC15** | | **3RW5214-3TC15** | |
| 25 | 5.5 | **11** | 15 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5215-1TC15** | | **3RW5215-3TC15** | |
| 32 | 7.5 | **15** | 18.5 | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5216-1TC15** | | **3RW5216-3TC15** | |
| 38 | 11 | **18.5** | 22 | 33.5 | 10 | 10 | **20** | 30 | **3RW5217-1TC15** | | **3RW5217-3TC15** | |
| 47 | 11 | **22** | 30 | 41.6 | 10 | 10 | **30** | 40 | **3RW5224-1TC15** | | **3RW5224-3TC15** | |
| 63 | 18.5 | **30** | 37 | 55.5 | 15 | 20 | **40** | 50 | **3RW5225-1TC15** | | **3RW5225-3TC15** | |
| 77 | 22 | **37** | 45 | 68 | 20 | 25 | **50** | 60 | **3RW5226-1TC15** | | **3RW5226-3TC15** | |
| 93 | 22 | **45** | 55 | 82.5 | 25 | 30 | **60** | 75 | **3RW5227-1AC15** | | **3RW5227-3TC15** | |
| 113 | 30 | **55** | 75 | 101 | 30 | 30 | **75** | 100 | **3RW5234-6TC15** | | **3RW5234-2TC15** | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | **3RW5235-6TC15** | | **3RW5235-2TC15** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | **3RW5236-6TC15** | | **3RW5236-2TC15** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | **3RW5243-6TC15** | | **3RW5243-2TC15** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | **3RW5244-6TC15** | | **3RW5244-2TC15** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | **3RW5245-6TC15** | | **3RW5245-2TC15** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | **3RW5246-6TC15** | | **3RW5246-2TC15** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | **3RW5247-6TC15** | | **3RW5247-2TC15** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | **3RW5248-6TC15** | | **3RW5248-2TC15** | |

Note:

For the constraints for the motor outputs specified here, see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

© Siemens 2026



## Selection and ordering data

### *For normal starting (Class 10A)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1AC.4


3RW522.-3AC.4


3RW523.-6AC.4


3RW524.-2AC.4

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V Analog output** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5213-1AC04** | | **3RW5213-3AC04** | |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5214-1AC04** | | **3RW5214-3AC04** | |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5215-1AC04** | | **3RW5215-3AC04** | |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5216-1AC04** | | **3RW5216-3AC04** | |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5217-1AC04** | | **3RW5217-3AC04** | |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5224-1AC04** | | **3RW5224-3AC04** | |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5225-1AC04** | | **3RW5225-3AC04** | |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5226-1AC04** | | **3RW5226-3AC04** | |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5227-1AC04** | | **3RW5227-3AC04** | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5234-6AC04** | | **3RW5234-2AC04** | |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5235-6AC04** | | **3RW5235-2AC04** | |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5236-6AC04** | | **3RW5236-2AC04** | |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5243-6AC04** | | **3RW5243-2AC04** | |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5244-6AC04** | | **3RW5244-2AC04** | |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5245-6AC04** | | **3RW5245-2AC04** | |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5246-6AC04** | | **3RW5246-2AC04** | |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5247-6AC04** | | **3RW5247-2AC04** | |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5248-6AC04** | | **3RW5248-2AC04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5213-1AC14** | | **3RW5213-3AC14** | |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5214-1AC14** | | **3RW5214-3AC14** | |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5215-1AC14** | | **3RW5215-3AC14** | |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5216-1AC14** | | **3RW5216-3AC14** | |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5217-1AC14** | | **3RW5217-3AC14** | |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5224-1AC14** | | **3RW5224-3AC14** | |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5225-1AC14** | | **3RW5225-3AC14** | |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5226-1AC14** | | **3RW5226-3AC14** | |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5227-1AC14** | | **3RW5227-3AC14** | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5234-6AC14** | | **3RW5234-2AC14** | |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5235-6AC14** | | **3RW5235-2AC14** | |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5236-6AC14** | | **3RW5236-2AC14** | |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5243-6AC14** | | **3RW5243-2AC14** | |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5244-6AC14** | | **3RW5244-2AC14** | |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5245-6AC14** | | **3RW5245-2AC14** | |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5246-6AC14** | | **3RW5246-2AC14** | |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5247-6AC14** | | **3RW5247-2AC14** | |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5248-6AC14** | | **3RW5248-2AC14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10A)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1TC.4


3RW522.-3TC.4


3RW523.-6TC.4


3RW524.-2TC.4

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 480 V Thermistor motor protection** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5213-1TC04** | | **3RW5213-3TC04** | |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5214-1TC04** | | **3RW5214-3TC04** | |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5215-1TC04** | | **3RW5215-3TC04** | |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5216-1TC04** | | **3RW5216-3TC04** | |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5217-1TC04** | | **3RW5217-3TC04** | |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5224-1TC04** | | **3RW5224-3TC04** | |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5225-1TC04** | | **3RW5225-3TC04** | |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5226-1TC04** | | **3RW5226-3TC04** | |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5227-1TC04** | | **3RW5227-3TC04** | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5234-6TC04** | | **3RW5234-2TC04** | |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5235-6TC04** | | **3RW5235-2TC04** | |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5236-6TC04** | | **3RW5236-2TC04** | |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5243-6TC04** | | **3RW5243-2TC04** | |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5244-6TC04** | | **3RW5244-2TC04** | |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5245-6TC04** | | **3RW5245-2TC04** | |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5246-6TC04** | | **3RW5246-2TC04** | |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5247-6TC04** | | **3RW5247-2TC04** | |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5248-6TC04** | | **3RW5248-2TC04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5213-1TC14** | | **3RW5213-3TC14** | |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5214-1TC14** | | **3RW5214-3TC14** | |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5215-1TC14** | | **3RW5215-3TC14** | |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5216-1TC14** | | **3RW5216-3TC14** | |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5217-1TC14** | | **3RW5217-3TC14** | |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5224-1TC14** | | **3RW5224-3TC14** | |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5225-1TC14** | | **3RW5225-3TC14** | |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5226-1TC14** | | **3RW5226-3TC14** | |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5227-1TC14** | | **3RW5227-3TC14** | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5234-6TC14** | | **3RW5234-2TC14** | |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5235-6TC14** | | **3RW5235-2TC14** | |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5236-6TC14** | | **3RW5236-2TC14** | |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5243-6TC14** | | **3RW5243-2TC14** | |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5244-6TC14** | | **3RW5244-2TC14** | |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5245-6TC14** | | **3RW5245-2TC14** | |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5246-6TC14** | | **3RW5246-2TC14** | |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5247-6TC14** | | **3RW5247-2TC14** | |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5248-6TC14** | | **3RW5248-2TC14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***For normal starting (Class 10A)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1AC.5


3RW522.-3AC.5


3RW523.-6AC.5


3RW524.-2AC.5

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V Analog output** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5213-1AC05** | | **3RW5213-3AC05** | |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5214-1AC05** | | **3RW5214-3AC05** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5215-1AC05** | | **3RW5215-3AC05** | |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5216-1AC05** | | **3RW5216-3AC05** | |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5217-1AC05** | | **3RW5217-3AC05** | |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5224-1AC05** | | **3RW5224-3AC05** | |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5225-1AC05** | | **3RW5225-3AC05** | |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5226-1AC05** | | **3RW5226-3AC05** | |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5227-1AC05** | | **3RW5227-3AC05** | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5234-6AC05** | | **3RW5234-2AC05** | |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5235-6AC05** | | **3RW5235-2AC05** | |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5236-6AC05** | | **3RW5236-2AC05** | |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5243-6AC05** | | **3RW5243-2AC05** | |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5244-6AC05** | | **3RW5244-2AC05** | |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5245-6AC05** | | **3RW5245-2AC05** | |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5246-6AC05** | | **3RW5246-2AC05** | |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5247-6AC05** | | **3RW5247-2AC05** | |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5248-6AC05** | | **3RW5248-2AC05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5213-1AC15** | | **3RW5213-3AC15** | |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5214-1AC15** | | **3RW5214-3AC15** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5215-1AC15** | | **3RW5215-3AC15** | |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5216-1AC15** | | **3RW5216-3AC15** | |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5217-1AC15** | | **3RW5217-3AC15** | |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5224-1AC15** | | **3RW5224-3AC15** | |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5225-1AC15** | | **3RW5225-3AC15** | |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5226-1AC15** | | **3RW5226-3AC15** | |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5227-1AC15** | | **3RW5227-3AC15** | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5234-6AC15** | | **3RW5234-2AC15** | |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5235-6AC15** | | **3RW5235-2AC15** | |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5236-6AC15** | | **3RW5236-2AC15** | |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5243-6AC15** | | **3RW5243-2AC15** | |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5244-6AC15** | | **3RW5244-2AC15** | |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5245-6AC15** | | **3RW5245-2AC15** | |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5246-6AC15** | | **3RW5246-2AC15** | |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5247-6AC15** | | **3RW5247-2AC15** | |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5248-6AC15** | | **3RW5248-2AC15** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

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***For normal starting (Class 10A)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW521.-1TC.5


3RW522.-3TC.5


3RW523.-6TC.5


3RW524.-2TC.5

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | **Screw terminals** (only for control circuit) | | **Spring-loaded terminals** (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/ 208 V | at 220/ 230 V | at 460/ 480 V | at 575/ 600 V | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | |
| **Operational voltage 200 ... 600 V Thermistor motor protection** | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5213-1TC05** | | **3RW5213-3TC05** | |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5214-1TC05** | | **3RW5214-3TC05** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5215-1TC05** | | **3RW5215-3TC05** | |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5216-1TC05** | | **3RW5216-3TC05** | |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5217-1TC05** | | **3RW5217-3TC05** | |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5224-1TC05** | | **3RW5224-3TC05** | |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5225-1TC05** | | **3RW5225-3TC05** | |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5226-1TC05** | | **3RW5226-3TC05** | |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5227-1TC05** | | **3RW5227-3TC05** | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5234-6TC05** | | **3RW5234-2TC05** | |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5235-6TC05** | | **3RW5235-2TC05** | |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5236-6TC05** | | **3RW5236-2TC05** | |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5243-6TC05** | | **3RW5243-2TC05** | |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5244-6TC05** | | **3RW5244-2TC05** | |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5245-6TC05** | | **3RW5245-2TC05** | |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5246-6TC05** | | **3RW5246-2TC05** | |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5247-6TC05** | | **3RW5247-2TC05** | |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5248-6TC05** | | **3RW5248-2TC05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5213-1TC15** | | **3RW5213-3TC15** | |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5214-1TC15** | | **3RW5214-3TC15** | |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5215-1TC15** | | **3RW5215-3TC15** | |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5216-1TC15** | | **3RW5216-3TC15** | |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5217-1TC15** | | **3RW5217-3TC15** | |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5224-1TC15** | | **3RW5224-3TC15** | |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5225-1TC15** | | **3RW5225-3TC15** | |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5226-1TC15** | | **3RW5226-3TC15** | |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5227-1AC15** | | **3RW5227-3TC15** | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5234-6TC15** | | **3RW5234-2TC15** | |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5235-6TC15** | | **3RW5235-2TC15** | |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5236-6TC15** | | **3RW5236-2TC15** | |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5243-6TC15** | | **3RW5243-2TC15** | |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5244-6TC15** | | **3RW5244-2TC15** | |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5245-6TC15** | | **3RW5245-2TC15** | |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5246-6TC15** | | **3RW5246-2TC15** | |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5247-6TC15** | | **3RW5247-2TC15** | |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5248-6TC15** | | **3RW5248-2TC15** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

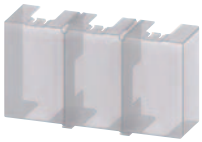
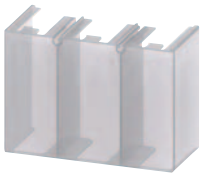


* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

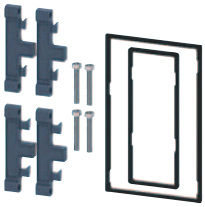
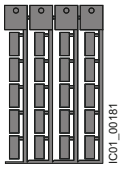
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
|  3RW5983-0FC00 | **Fan cover** | 3RW5216/17 (1x), 3RW5226/27 (2x), 3RW523 (2x) | -- | -- | **3RW5983-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW524 (1x) | -- | -- | **3RW5984-0FC00** | | 1 | 1 unit | 42S |
| **Terminal covers** | | | | | | | | | |
|  3RW5983-0TC20 | **Terminal cover** | 3RW522 (2x), 3RW523 (2x) | -- | -- | **3RW5983-0TC20** | | 1 | 1 unit | 42S |
|  3RW5984-0TC20 | | 3RW524 (2x) | -- | -- | **3RW5984-0TC20** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | | |
|  3RW5950-0GL30 | **Hinged cover** | 3RW52 | With cutout for High-Feature HMI module | -- | **3RW5950-0GL30** | | 1 | 1 unit | 42S |
|  3RW5950-0GL40 | | | With cutout for Standard HMI module | -- | **3RW5950-0GL40** | | 1 | 1 unit | 42S |
| **Communications modules** | | | | | | | | | |
|  3RW5980-0CS00 | **Communications module**[1] | 3RW52 | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | -- | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| | | | EtherNet/IP | -- | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| | | | Modbus RTU | -- | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
|  3RW5980-0CR00 | | | Modbus TCP | -- | **3RW5980-0CT00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connection cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
|  3RW5980-0HF00 | **HMI module** | 3RW52 | High-Feature | -- | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
|  3RW5980-0HS00 | | | Standard | -- | **3RW5980-0HS00** | | 1 | 1 unit | 42S |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW52 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
|  3UF793.-0BA00-0 | **HMI connecting cable** | 3RW52 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
|  3UF7931-0AA00-0 | | | 0.1 m, flat | For mounting in the device | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
|  3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**[1] | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW50 | SIRIUS Soft Starter ES (TIA Portal) for diagnostics, see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw50 | Decision support for motor start - Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |

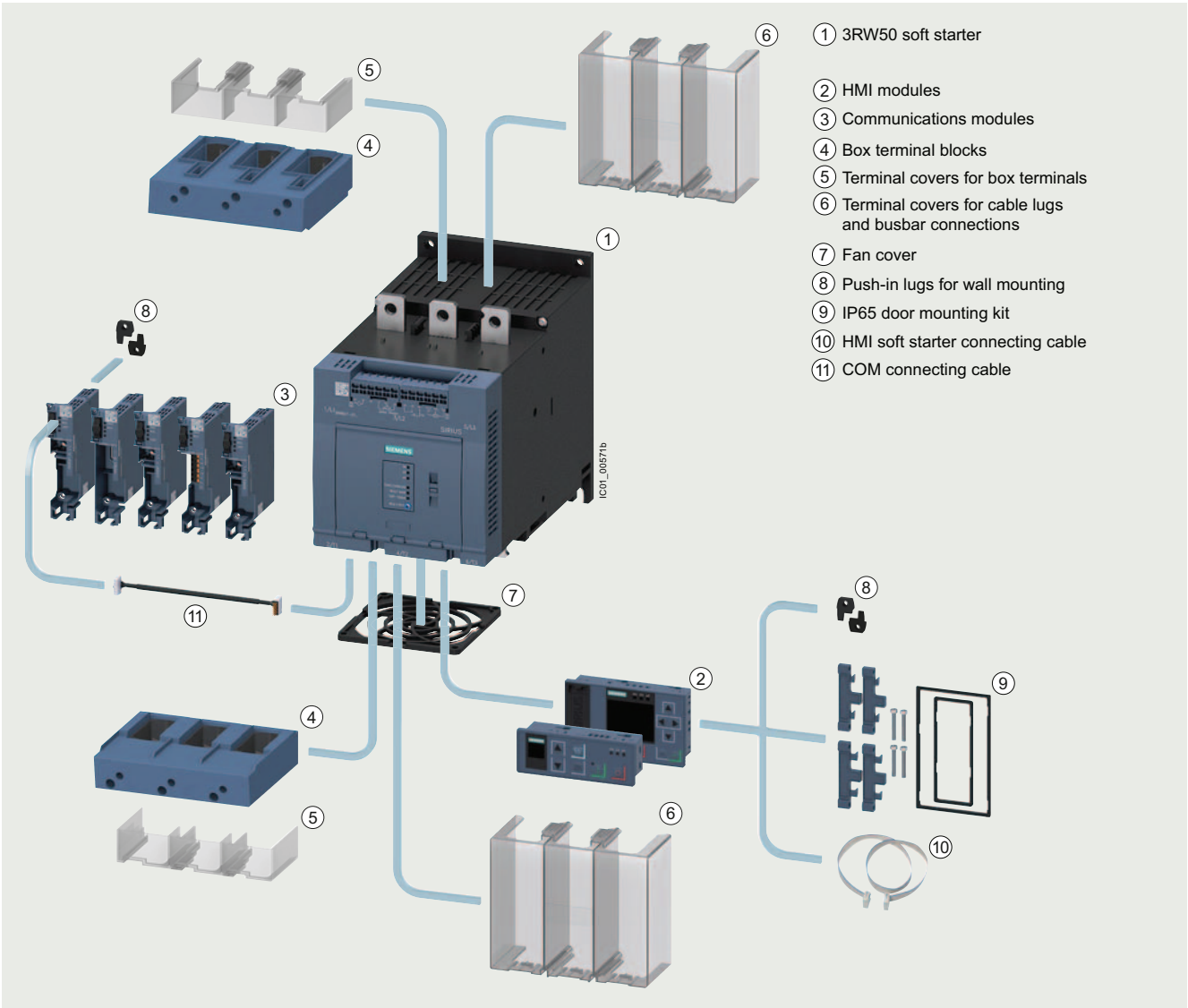


SIRIUS 3RW50 soft starters device family

SIRIUS 3RW50 Basic Performance soft starters are the compact solution for standard applications. They have 2-phase motor control and cover the performance range from 75 to 315 kW (at 400 V).

Optional HMI modules for installation in the control cabinet door, laterally mountable communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) and either an analog output or thermistor motor protection ensure maximum flexibility.

With their modern hybrid switching technology, the SIRIUS 3RW50 soft starters offer efficient switching for long-term, energy-saving use.




SIRIUS 3RW50 Basic Performance soft starter with accessories (see page 6/87 onwards), for expansion with HMI module or communications module

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## Benefits



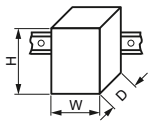

| Product characteristics/function | Performance features/benefits |
|---|---|
| Hybrid switching technology and 2-phase motor control | Minimum power loss and optimized motor control by avoiding DC components |
| Small and compact design | Space-saving, clearly arranged control panel layout |
| TIA integration – communications modules and HMI modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Motor overload and intrinsic device protection without additional wiring | Adjustable trip classes, integrated diagnostics functions |
| Soft Torque | Reduced mechanical loading and optimum pump stop |
| Parameterization using potentiometers | Simple and fast commissioning |
| Wide range for control supply and main voltage | Low variance, high system availability even with weak supply networks |
| Certified according to ATEX/IECEx Directive | Suitable for the starting of explosion-proof motors with "increased safety" type of protection |

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25252/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753750 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25252/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Article number | | **3RW5055**<br>**3RW5056** | **3RW5072**<br>**3RW5073**<br>**3RW5074**<br>**3RW5075**<br>**3RW5076**<br>**3RW5077** |
|---|---|---|---|
| **Installation/fixing/dimensions** | | | |
| **Width x height x depth**   | mm | 120 x 198 x 249 | 160 x 230 x 282 |
| **Type of mounting** | | Screw fixing | |
| **Mounting position** | | For vertical mounting surface can be rotated +/- 90°,<br>for vertical mounting surface can be tilted +/- 22.5° forward or backward | |
| **Distance to be maintained with side-by-side mounting** | | | |
| • Above | mm | 100 | |
| • At the side | mm | 5 | |
| • Below | mm | 75 | |
| **Installation altitude at height above sea level, maximum**[1] | m | 5 000 | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP00; IP20 with cover | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front with cover | |
| **Ambient conditions** | | | |
| **Ambient temperature** | | | |
| • During operation[2] | °C | -25 ... +60 | |
| • During storage and transport | °C | -40 ... +80 | |
| **Environmental category according to IEC 60721** | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | |

[1] Derating from 1 000 m, see characteristic curve on page 6/8.

[2] Observe derating above 40 °C.

| Article number | | **3RW50..-..B0.** | **3RW50..-..B1.** |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| • Relative negative tolerance/relative positive tolerance with AC | % | -20/20 | -15/10 |
| • Relative negative tolerance/relative positive tolerance with DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

[1] Not included in scope of supply.

| Article number | | **3RW505.-..B.4** | **3RW507.-..B.4** | **3RW505.-..B.5** | **3RW507.-..B.5** |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Operational voltage** | V | 200 ... 480 | | 200 ... 600 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | | |
| **Operating frequency** | Hz | 50 ... 60 | | | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | | | |
| **Blocking voltage of thyristor, maximum** | V | 1 400 | 1 600 | 1 800 | 1 600 |
| **Minimum load [%]**[1] | % | 15 | | | |
| **Maximum cable length between soft starter and motor** | m | 800 | | | |

[1] Relative to the smallest adjustable $I_e$.

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| Type | | 3RW5055 | 3RW5056 |
|---|---|---|---|
| **Rated operational current $I_e$** | A | 143 | 171 |
| **Power electronics** | | | |
| **Load rating with rated operational current $I_e$** | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | |
| **Normal starting (Class 10A)** | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | |
| - Startup time 5 s | 1/h | 43 | 43 |
| - Startup time 10 s | 1/h | 18 | 18 |
| • 350% $I_M$ | | | |
| - Startup time 5 s | 1/h | 28 | 28 |
| - Startup time 10 s | 1/h | 10 | 9 |
| **Normal starting (Class 10E)** | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | |
| - Startup time 10 s | 1/h | 21 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 |
| • 350% $I_M$ | | | |
| - Startup time 10 s | 1/h | 12 | 9 |
| - Startup time 20 s | 1/h | 4 | -- |
| **Heavy starting (Class 20E)** | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 108/98/88 | 135/123/111 |
| • 300% $I_M$ | | | |
| - Startup time 20 s | 1/h | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 |
| • 350% $I_M$ | | | |
| - Startup time 20 s | 1/h | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | |
| • Minimum/maximum | A | 68/143 | 81/117 |

| Type | | 3RW5072 | 3RW5073 | 3RW5074 | 3RW5075 | 3RW5076 | 3RW5077 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (Class 10A)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 | 28 |
| - Startup time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 | 11 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 | 16 |
| - Startup time 10 s | 1/h | 8 | 10 | 10 | 10 | 10 | 4 |
| **Normal starting (Class 10E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 21 | 21 | 21 | 21 | 20 | 21 |
| - Startup time 20 s | 1/h | 8 | 8 | 8 | 8 | 7 | 8 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 10 s | 1/h | 8 | 13 | 12 | 13 | 12 | 13 |
| - Startup time 20 s | 1/h | -- | 4 | 4 | 4 | 2 | 4 |
| **Heavy starting (Class 20E)** | | | | | | | |
| Rated motor current $I_M$; $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 219/195/171 | 258/230/202 | 272/254/218 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Startup time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Startup time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Startup time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 90/210 | 100/250 | 135/315 | 160/370 | 200/470 | 240/570 |

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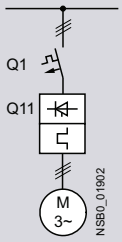


***Motor feeders according to IEC with 3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", Class 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Circuit breakers | | | |
|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | |
| **3RW5055** | 3VA2220-7MN32-0AA0 | 20 | 3VA2220-7MN32-0AA0 | 20 |
| **3RW5056** | 3VA2220-7MN32-0AA0 | 20 | 3VA2220-7MN32-0AA0 | 20 |
| **3RW5072** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5073** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5074** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5075** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5076** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5077** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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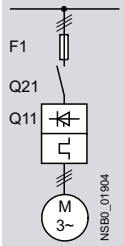
***Motor feeders according to IEC with 3NA3 fuses***

gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | Line contactor (optional) | |
|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | |
| **3RW5055** | 3NA3244-6 | 3RT1055 | 3RT1055 |
| **3RW5056** | 3NA3244-6 | 3RT1056 | 3RT1064 |
| **3RW5072** | 2 x 3NA3354-6 | 3RT1064 | 3RT1064 |
| **3RW5073** | 2 x 3NA3354-6 | 3RT1065 | 3RT1065 |
| **3RW5074** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 |
| **3RW5075** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 |
| **3RW5076** | 2 x 3NA3365-6 | 3RT1076 | 3RT1076 |
| **3RW5077** | 2 x 3NA3365-6 | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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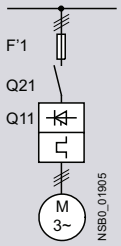
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | |
|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW5055** | 3NE1227-0 | 3RT1055 | 3RT1055 |
| **3RW5056** | 3NE1230-0 | 3RT1056 | 3RT1064 |
| **3RW5072** | 3NE1230-2 | 3RT1064 | 3RT1064 |
| **3RW5073** | 3NE1331-0 | 3RT1065 | 3RT1065 |
| **3RW5074** | 3NE1333-2 | 3RT1075 | 3RT1075 |
| **3RW5075** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5076** | 3NE1436-2 | 3RT1076 | 3RT1076 |
| **3RW5077** | 3NE1437-2 | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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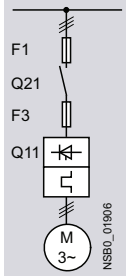
***Motor feeders according to IEC with 3NE3 fuses***

aR class partial-range fuses for semiconductor protection

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | aR class fuse | Line contactor (optional) | |
|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | F3 | Q21 | Q21 |
| Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | |
| **3RW5055** | 3NA3244-6 | 3NE3334-0B | 3RT1055 | 3RT1055 |
| **3RW5056** | 3NA3244-6 | 3NE3335 | 3RT1056 | 3RT1064 |
| **3RW5072** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 3RT1064 |
| **3RW5073** | 2 x 3NA3354-6 | 3NE3335 | 3RT1065 | 3RT1065 |
| **3RW5074** | 2 x 3NA3365-6 | 3NE3335 | 3RT1075 | 3RT1075 |
| **3RW5075** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 |
| **3RW5076** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 3RT1076 |
| **3RW5077** | 2 x 3NA3365-6 | 3NE3340-8 | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For Class 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/81). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

### *For normal starting (Class 10E)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW505.-6AB.4


3RW505.-2TB.4


3RW507.-6AB.4


3RW507.-2TB.4

| At 40 °C | | | | At 50 °C | | | | | Size | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V Analog output** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | S6 | **3RW5055-6AB04** | | **3RW5055-2AB04** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | S6 | **3RW5056-6AB04** | | **3RW5056-2AB04** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | S12 | **3RW5072-6AB04** | | **3RW5072-2AB04** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | S12 | **3RW5073-6AB04** | | **3RW5073-2AB04** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | S12 | **3RW5074-6AB04** | | **3RW5074-2AB04** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | S12 | **3RW5075-6AB04** | | **3RW5075-2AB04** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | S12 | **3RW5076-6AB04** | | **3RW5076-2AB04** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | S12 | **3RW5077-6AB04** | | **3RW5077-2AB04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | S6 | **3RW5055-6AB14** | | **3RW5055-2AB14** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | S6 | **3RW5056-6AB14** | | **3RW5056-2AB14** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | S12 | **3RW5072-6AB14** | | **3RW5072-2AB14** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | S12 | **3RW5073-6AB14** | | **3RW5073-2AB14** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | S12 | **3RW5074-6AB14** | | **3RW5074-2AB14** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | S12 | **3RW5075-6AB14** | | **3RW5075-2AB14** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | S12 | **3RW5076-6AB14** | | **3RW5076-2AB14** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | S12 | **3RW5077-6AB14** | | **3RW5077-2AB14** | |
| **Operational voltage 200 ... 480 V Thermistor motor protection** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | S6 | **3RW5055-6TB04** | | **3RW5055-2TB04** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | S6 | **3RW5056-6TB04** | | **3RW5056-2TB04** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | S12 | **3RW5072-6TB04** | | **3RW5072-2TB04** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | S12 | **3RW5073-6TB04** | | **3RW5073-2TB04** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | S12 | **3RW5074-6TB04** | | **3RW5074-2TB04** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | S12 | **3RW5075-6TB04** | | **3RW5075-2TB04** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | S12 | **3RW5076-6TB04** | | **3RW5076-2TB04** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | S12 | **3RW5077-6TB04** | | **3RW5077-2TB04** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | S6 | **3RW5055-6TB14** | | **3RW5055-2TB14** | |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | S6 | **3RW5056-6TB14** | | **3RW5056-2TB14** | |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | S12 | **3RW5072-6TB14** | | **3RW5072-2TB14** | |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | S12 | **3RW5073-6TB14** | | **3RW5073-2TB14** | |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | S12 | **3RW5074-6TB14** | | **3RW5074-2TB14** | |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | S12 | **3RW5075-6TB14** | | **3RW5075-2TB14** | |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | S12 | **3RW5076-6TB14** | | **3RW5076-2TB14** | |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | S12 | **3RW5077-6TB14** | | **3RW5077-2TB14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***For normal starting (Class 10E)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42S


3RW505.-6AB.5


3RW505.-2TB.5


3RW507.-6AB.5


3RW507.-2TB.5

| At 40 °C | | | | At 50 °C | | | | | Size | Screw terminals (only for control circuit) | | Spring-loaded terminals (only for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V Analog output** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | S6 | **3RW5055-6AB05** | | **3RW5055-2AB05** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | S6 | **3RW5056-6AB05** | | **3RW5056-2AB05** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | S12 | **3RW5072-6AB05** | | **3RW5072-2AB05** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | S12 | **3RW5073-6AB05** | | **3RW5073-2AB05** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | S12 | **3RW5074-6AB05** | | **3RW5074-2AB05** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | S12 | **3RW5075-6AB05** | | **3RW5075-2AB05** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | S12 | **3RW5076-6AB05** | | **3RW5076-2AB05** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | S12 | **3RW5077-6AB05** | | **3RW5077-2AB05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | S6 | **3RW5055-6AB15** | | **3RW5055-2AB15** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | S6 | **3RW5056-6AB15** | | **3RW5056-2AB15** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | S12 | **3RW5072-6AB15** | | **3RW5072-2AB15** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | S12 | **3RW5073-6AB15** | | **3RW5073-2AB15** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | S12 | **3RW5074-6AB15** | | **3RW5074-2AB15** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | S12 | **3RW5075-6AB15** | | **3RW5075-2AB15** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | S12 | **3RW5076-6AB15** | | **3RW5076-2AB15** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | S12 | **3RW5077-6AB15** | | **3RW5077-2AB15** | |
| **Operational voltage 200 ... 600 V Thermistor motor protection** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | S6 | **3RW5055-6TB05** | | **3RW5055-2TB05** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | S6 | **3RW5056-6TB05** | | **3RW5056-2TB05** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | S12 | **3RW5072-6TB05** | | **3RW5072-2TB05** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | S12 | **3RW5073-6TB05** | | **3RW5073-2TB05** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | S12 | **3RW5074-6TB05** | | **3RW5074-2TB05** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | S12 | **3RW5075-6TB05** | | **3RW5075-2TB05** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | S12 | **3RW5076-6TB05** | | **3RW5076-2TB05** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | S12 | **3RW5077-6TB05** | | **3RW5077-2TB05** | |
| ***Control supply voltage 110 ... 250 V AC*** | | | | | | | | | | | | | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | S6 | **3RW5055-6TB15** | | **3RW5055-2TB15** | |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | S6 | **3RW5056-6TB15** | | **3RW5056-2TB15** | |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | S12 | **3RW5072-6TB15** | | **3RW5072-2TB15** | |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | S12 | **3RW5073-6TB15** | | **3RW5073-2TB15** | |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | S12 | **3RW5074-6TB15** | | **3RW5074-2TB15** | |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | S12 | **3RW5075-6TB15** | | **3RW5075-2TB15** | |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | S12 | **3RW5076-6TB15** | | **3RW5076-2TB15** | |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | S12 | **3RW5077-6TB15** | | **3RW5077-2TB15** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

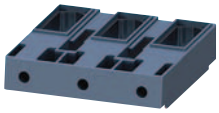


*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

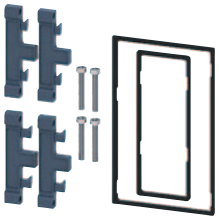
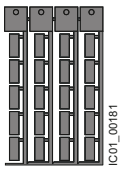
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
|  3RW5985-0FC00 | **Fan cover** | 3RW50 (1x) | -- | -- | **3RW5985-0FC00** | | 1 | 1 unit | 42S |
| **Box terminal blocks** | | | | | | | | | |
|  3RT1956-4G | **Box terminal blocks for round and flat ribbon cables** | 3RW505 (2x) | Up to 70 mm² | -- | **3RT1955-4G** | | 1 | 1 unit | 41B |
| | | | Up to 120 mm² | -- | **3RT1956-4G** | | 1 | 1 unit | 41B |
| | | 3RW5072 (2x), 3RW5073 (2x), 3RW5074 (2x) | Up to 240 mm² (with auxiliary conductor connection) | -- | **3RT1966-4G** | | 1 | 1 unit | 41B |
| **Terminal covers** | | | | | | | | | |
|  3RT1956-4EA2 | **Covers for box terminals** | 3RW505 (2x) | -- | -- | **3RT1956-4EA2** | | 1 | 1 unit | 41B |
| | | 3RW507 (2x) | -- | -- | **3RT1966-4EA2** | | 1 | 1 unit | 41B |
|  3RT1966-4EA1 | **Covers for cable lugs and busbar connections** | 3RW505 (2x) | -- | -- | **3RT1956-4EA1** | | 1 | 1 unit | 41B |
| | | 3RW507 (2x) | -- | -- | **3RT1966-4EA1** | | 1 | 1 unit | 41B |
| **Communications modules** | | | | | | | | | |
|  3RW5980-0CS00 | **Communications module**[1] | 3RW50 | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| | | | EtherNet/IP | | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| | | | Modbus RTU | | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
| | | | Modbus TCP | | **3RW5980-0CT00** | | 1 | 1 unit | 42S |
|  3RW5900-0CC00 | **COM connecting cable** For mounting laterally on the device | 3RW50 | 0.3 m, round | -- | **3RW5900-0CC00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connection cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

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## 3RW50 soft starters > Accessories

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
|  3RW5980-0HF00 | **HMI module** | 3RW50 | High-Feature | -- | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
|  3RW5980-0HS00 | | | Standard | -- | **3RW5980-0HS00** | | 1 | 1 unit | 42S |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW50 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
|  3UF793.-0BA00-0 | **HMI connecting cable** | 3RW50 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
|  3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**[1] | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>SiePortal, see www.siemens.com/product_catalog_siep?3RW40 | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw40<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917<br>Conversion tool, see www.siemens.com/conversion-tool |

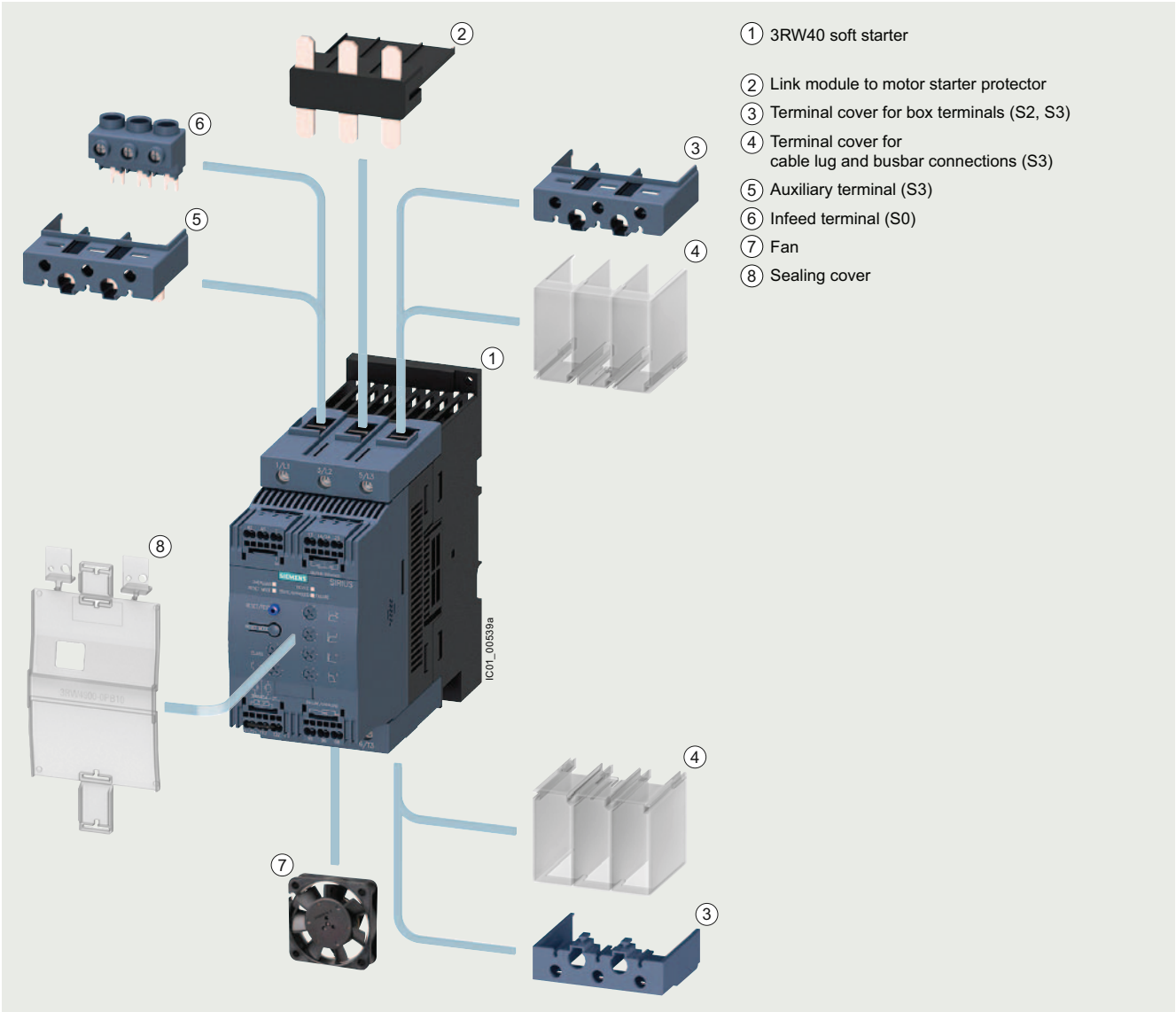


SIRIUS 3RW40 soft starter

The SIRIUS 3RW40 Basic Performance soft starters are suitable for soft starting and stopping of three-phase asynchronous motors.

Thanks to 2-phase control, not only is the current kept at minimum values in all three phases throughout the entire startup time, but disturbing direct current components are also eliminated. This not only enables the 2-phase starting of motors up to 55 kW (at 400 V) but also avoids the current and torque peaks which occur e.g. with star-delta (wye-delta) starters.

The SIRIUS 3RW40 soft starters are suitable for the starting of explosion-proof motors with "increased safety" type of protection EEx e according to ATEX Directive 94/9/EC.




SIRIUS 3RW40 Basic Performance soft starter with accessories (see page 6/99 onwards)

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## Benefits


3RW402.


3RW403.


3RW404.

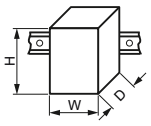
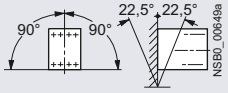
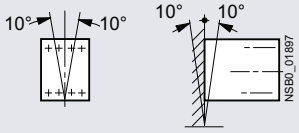
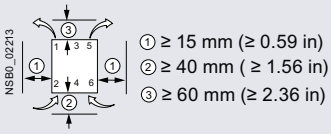
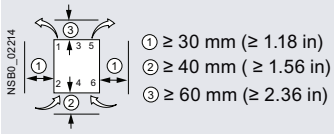
| Product characteristics/function | Performance features/benefits |
|---|---|
| Small and compact design | Space-saving, clearly arranged control panel layout |
| Motor overload and intrinsic device protection without additional wiring | Adjustable trip classes, integrated diagnostics functions |
| Integrated in the SIRIUS modular system | Link modules to motor starter protectors |
| Hybrid switching technology and 2-phase motor control | Minimum power loss and optimized motor control by avoiding DC components |
| Certified according to ATEX Directive 94/9/EC | Suitable for starting explosion-proof motors with "increased safety" type of protection EEx e |
| Optional thermistor motor protection | Full motor protection |

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25251/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/38752095 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25251/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Type | | | 3RW402. | 3RW403. | 3RW404. |
|---|---|---|---|---|---|
| **Installation/fixing/dimensions** | | | | | |
| **Width x height x depth** |  | | | | |
| • Screw terminals | | mm | 45 x 125 x 154 | 55 x 144 x 170 | 70 x 160 x 188 |
| • Spring-loaded terminals | | mm | 45 x 150 x 154 | 55 x 144 x 170 | 70 x 160 x 188 |
| **Ambient temperature** | | | | | |
| • During operation[1] | | °C | -25 ... +60 | | |
| • During storage | | °C | -40 ... +80 | | |
| **Weight** | | kg | 0.77 | 1.35 | 1.9 |
| **Permissible mounting position**[2] | | | | | |
| • With auxiliary fan (for 3RW402. to 3RW404.) |  | | | | |
| • Without auxiliary fan (for 3RW402. to 3RW404.) |  | | | | |
| **Installation type**[2] | Stand-alone installation | |  ① ≥ 15 mm (≥ 0.59 in) ② ≥ 40 mm ( ≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in) |  ① ≥ 30 mm (≥ 1.18 in) ② ≥ 40 mm ( ≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in) | |
| **Permissible installation altitude**[3] | | m | 5 000 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | |

1) Observe derating above 40 °C.

2) In the case of deviations, please observe derating, see Equipment Manual in the chapter Configuration.

3) Derating from 1 000 m, see characteristic curve on page 6/8.

| Type | Terminal | | 3RW402., 3RW403., 3RW404. |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Rated values** | | | |
| Rated control supply voltage | A1/A2 | V | 24 AC/DC / 110 ... 230 AC/DC |
| • Tolerance | | % | ± 20 / -15/+10 |
| Rated frequency | | Hz | 50/60 |
| • Tolerance | | % | ± 10 |

| Type | | 3RW402.-..B.4, 3RW403.-..B.4, 3RW404.-..B.4 | 3RW402.-..B.5, 3RW403.-..B.5, 3RW404.-..B.5 |
|---|---|---|---|
| **Power electronics** | | | |
| **Rated operational voltage** | V AC | 200 ... 480 | 400 ... 600 |
| Tolerance | % | -15/+10 | |
| **Rated frequency** | Hz | 50/60 | |
| Tolerance | % | ± 10 | |
| **Blocking voltage of thyristor, maximum** | V AC | 1 600 | |
| **Uninterrupted duty** at 40 °C (% of $I_e$) | % | 115 | |
| **Minimum load** (% of smallest adjustable rated motor current $I_M$) | % | 20 (at least 2 A) | |
| **Maximum cable length** between soft starter and motor | m | 300 | |

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| Type | | 3RW4024 | 3RW4026 | 3RW4027 | 3RW4028 |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 12.5/11/10 | 25.3/23/21 | 32.2/29/26 | 38/34/31 |
| **Smallest adjustable rated motor current $I_M$** | | | | | |
| For the motor overload protection | A | 5 | 10 | 17 | 23 |
| **Power loss** | | | | | |
| • During operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 2 | 8 | 13 | 19 |
| • During starting with current limiting set to 300% $I_M$ (40 °C) | W | 68 | 188 | 220 | 256 |
| **Permissible rated motor current and starts per hour** | | | | | |
| • For normal starting (Class 10) at 40/50 °C | | | | | |
| - Rated motor current $I_M$[2], startup time 3 s | A | 12.5/11 | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 50/50 | 23/23 | 23/23 | 19/19 |
| - Rated motor current $I_M$[2], startup time 4 s | A | 12.5/11 | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 36/36 | 15/15 | 16/16 | 12/12 |
| • For heavy starting (Class 20) at 40/50 °C | | | | | |
| - Rated motor current $I_M$[2], startup time 6 s | A | 10/9 | 21/19 | 27/24 | 31/28 |
| - Starts per hour[3] | 1/h | 47/47 | 21/21 | 20/20 | 18/18 |
| - Rated motor current $I_M$[2], startup time 8 s | A | 10/9 | 21/19 | 27/24 | 31/28 |
| - Starts per hour[3] | 1/h | 34/34 | 15/15 | 14/14 | 13/13 |

1) Measurement at 60 °C according to UL/CSA not required.

2) Current limiting on soft starter set to 300% $I_M$, $T_u$ = 40/50 °C. Maximum adjustable rated motor current $I_M$ dependent on Class setting.

3) For intermittent duty S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see Equipment Manual in the chapter Configuration.

| Type | | 3RW4036 | 3RW4037 | 3RW4038 | 3RW4046 | 3RW4047 |
|---|---|---|---|---|---|---|
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 45/42/39 | 63/58/53 | 72/62.1/60 | 80/73/66 | 106/98/90 |
| **Smallest adjustable rated motor current $I_M$** | | | | | | |
| For the motor overload protection | A | 23 | 26 | 35 | 43 | 46 |
| **Power loss** | | | | | | |
| • During operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 6 | 12 | 15 | 12 | 21 |
| • During starting with current limiting set to 300% $I_M$ (40 °C) | W | 316 | 444 | 500 | 576 | 768 |
| **Permissible rated motor current and starts per hour** | | | | | | |
| • For normal starting (Class 10) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], startup time 3 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/98 |
| - Starts per hour[3] | 1/h | 38/38 | 23/23 | 22/22 | 22/22 | 15/15 |
| - Rated motor current $I_M$[2], startup time 4 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/98 |
| - Starts per hour[3] | 1/h | 26/26 | 15/15 | 15/15 | 15/15 | 10/10 |
| • For heavy starting (Class 20) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], startup time 6 s | A | 38/34 | 46/42 | 50/46 | 64/58 | 77/70 |
| - Starts per hour[3] | 1/h | 30/30 | 31/31 | 34/34 | 23/23 | 23/23 |
| - Rated motor current $I_M$[2], startup time 8 s | A | 38/34 | 46/42 | 50/46 | 64/58 | 77/70 |
| - Starts per hour[3] | 1/h | 21/21 | 22/22 | 24/24 | 16/16 | 16/16 |

1) Measurement at 60 °C according to UL/CSA not required.

2) Current limiting on soft starter set to 300% $I_M$, $T_u$ = 40/50 °C. Maximum adjustable rated motor current $I_M$ dependent on Class setting.

3) For intermittent operation S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see Equipment Manual in the chapter Configuration.

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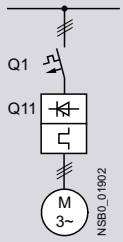


***Motor feeders according to IEC with 3RV2 motor starter protectors (without semiconductor protection)***

Type of coordination "1", Class 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors | | | |
|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | |
| **3RW4024** | 3RV2021-4AA10 | 55 | 3RV2021-4AA10 | 10 |
| **3RW4026** | 3RV2021-4DA10 | 55 | 3RV2021-4DA10 | 10 |
| **3RW4027** | 3RV2021-4EA10 | 55 | 3RV2021-4EA10 | 10 |
| **3RW4028** | 3RV2021-4FA10 | 55 | 3RV2021-4FA10 | 10 |
| **3RW4036** | 3RV2031-4WA10 | 10 | 3RV2031-4WA10 | 10 |
| **3RW4037** | 3RV2031-4JA10 | 10 | 3RV2031-4JA10 | 5 |
| **3RW4038** | 3RV2031-4KA10 | 10 | 3RV2031-4KA10 | 5 |
| **3RW4046** | 3RV2041-4RA10 | 11 | 3RV2041-4YA10 | 5 |
| **3RW4047** | 3RV2041-4MA10 | 11 | 3RV2041-4MA10 | 5 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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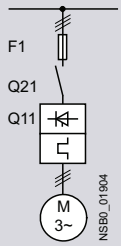
***Motor feeders according to IEC with 3NA3 fuses***

gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | Line contactor (optional) | | |
|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 400 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | |
| **3RW4024** | 3NA3820-6 | 3RT2025 | 3RT2025/ 3RT2018 (in size S00) | 3RT2025 |
| **3RW4026** | 3NA3822-6 | 3RT2026 | 3RT2027 | 3RT2037 |
| **3RW4027** | 3NA3824-6 | 3RT2027 | 3RT2028 | 3RT2037 |
| **3RW4028** | 3NA3824-6 | 3RT2028 | 3RT2035 | 3RT2037 |
| **3RW4036** | 3NA3130-6 | 3RT2036 | 3RT2036 | 3RT2038 |
| **3RW4037** | 3NA3132-6 | 3RT2037 | 3RT2037 | 3RT2046 |
| **3RW4038** | 3NA3132-6 | 3RT2038 | 3RT2038 | 3RT2046 |
| **3RW4046** | 3NA3136-6 | 3RT2045 | 3RT2045 | 3RT2047 |
| **3RW4047** | 3NA3136-6 | 3RT2047 | 3RT2047 | 3RT1054 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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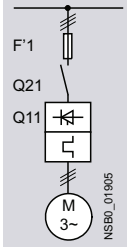
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | | |
|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 400 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F'1 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | |
| **3RW4024** | 3NE1814-0 | 3RT2025 | 3RT2025/ 3RT2018 (in size S00) | 3RT2025 |
| **3RW4026** | 3NE1803-0 | 3RT2026 | 3RT2027 | 3RT2037 |
| **3RW4027** | 3NE1020-2 | 3RT2027 | 3RT2028 | 3RT2037 |
| **3RW4028** | 3NE1020-2 | 3RT2028 | 3RT2035 | 3RT2037 |
| **3RW4036** | 3NE1020-2 | 3RT2036 | 3RT2036 | 3RT2038 |
| **3RW4037** | 3NE1820-0 | 3RT2037 | 3RT2037 | 3RT2046 |
| **3RW4038** | 3NE1820-0 | 3RT2038 | 3RT2038 | 3RT2046 |
| **3RW4046** | 3NE1021-0 | 3RT2045 | 3RT2045 | 3RT2047 |
| **3RW4047** | 3NE1022-0 | 3RT2047 | 3RT2047 | 3RT1054 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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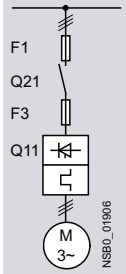
***Motor feeders according to IEC with 3NE8/3NE4/3NE3/3NC fuses***

aR class partial-range fuses for semiconductor protection

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **aR class fuse** | | | **Cylindrical fuse** | **Line contactor (optional)** | | |
|---|---|---|---|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 600 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | F3 | F3 | F3 | F3 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | | | | |
| **3RW4024** | 3NA3820-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2240 | 3RT2025 | 3RT2025/ 3RT2018 (in size S00) | 3RT2025 |
| **3RW4026** | 3NA3822-6 | -- | 3NE4102 | 3NE8017-1 | 3NC2263 | 3RT2026 | 3RT2027 | 3RT2037 |
| **3RW4027** | 3NA3824-6 | -- | 3NE4118 | 3NE8018-1 | 3NC2280 | 3RT2027 | 3RT2028 | 3RT2037 |
| **3RW4028** | 3NA3824-6 | -- | 3NE4118 | 3NE8020-1 | 3NC2280 | 3RT2028 | 3RT2035 | 3RT2037 |
| **3RW4036** | 3NA3130-6 | -- | 3NE4120 | 3NE8020-1 | 3NC2280 | 3RT2036 | 3RT2036 | 3RT2038 |
| **3RW4037** | 3NA3132-6 | -- | 3NE4121 | 3NE8021-1 | -- | 3RT2037 | 3RT2037 | 3RT2046 |
| **3RW4038** | 3NA3132-6 | 3NE3221 | -- | 3NE8022-1 | -- | 3RT2038 | 3RT2038 | 3RT2046 |
| **3RW4046** | 3NA3136-6 | 3NE3222 | -- | 3NE8022-1 | -- | 3RT2045 | 3RT2045 | 3RT2047 |
| **3RW4047** | 3NA3136-6 | 3NE3224 | -- | 3NE8024-1 | -- | 3RT2047 | 3RT2047 | 3RT1054 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For Class 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3RV2 motor starter protectors can also be used, possibly with reduced short-circuit breaking capacity (see page 6/93). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

### *For normal starting (Class 10)*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42G


3RW402.-2BB.4


3RW403.-1TB.4


3RW404.-2BB.4

| At 40 °C | | | | At 50 °C | | | | | Size | Screw terminals | | Spring-loaded terminals (Size S2 or larger only available for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200 V | at 230 V | at 460 V | at 575 V | | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 12.5 | 3 | **5.5** | -- | 11 | 3 | 3 | **7.5** | -- | S0 | **3RW4024-1BB04** | | **3RW4024-2BB04** | |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | S0 | **3RW4026-1BB04** | | **3RW4026-2BB04** | |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | S0 | **3RW4027-1BB04** | | **3RW4027-2BB04** | |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | S0 | **3RW4028-1BB04** | | **3RW4028-2BB04** | |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | S2 | **3RW4036-1BB04** | | **3RW4036-2BB04** | |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | S2 | **3RW4037-1BB04** | | **3RW4037-2BB04** | |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | S2 | **3RW4038-1BB04** | | **3RW4038-2BB04** | |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | S3 | **3RW4046-1BB04** | | **3RW4046-2BB04** | |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | S3 | **3RW4047-1BB04** | | **3RW4047-2BB04** | |
| ***Control supply voltage 110 ... 230 V AC/DC*** | | | | | | | | | | | | | |
| 12.5 | 3 | **5.5** | -- | 11 | 3 | 3 | **7.5** | -- | S0 | **3RW4024-1BB14** | | **3RW4024-2BB14** | |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | S0 | **3RW4026-1BB14** | | **3RW4026-2BB14** | |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | S0 | **3RW4027-1BB14** | | **3RW4027-2BB14** | |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | S0 | **3RW4028-1BB14** | | **3RW4028-2BB14** | |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | S2 | **3RW4036-1BB14** | | **3RW4036-2BB14** | |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | S2 | **3RW4037-1BB14** | | **3RW4037-2BB14** | |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | S2 | **3RW4038-1BB14** | | **3RW4038-2BB14** | |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | S3 | **3RW4046-1BB14** | | **3RW4046-2BB14** | |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | S3 | **3RW4047-1BB14** | | **3RW4047-2BB14** | |
| **Operational voltage 200 ... 480 V Thermistor motor protection** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 12.5 | 3 | **5.5** | -- | 11 | 3 | 3 | **7.5** | -- | S0 | **3RW4024-1TB04** | | **3RW4024-2TB04** | |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | S0 | **3RW4026-1TB04** | | **3RW4026-2TB04** | |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | S0 | **3RW4027-1TB04** | | **3RW4027-2TB04** | |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | S0 | **3RW4028-1TB04** | | **3RW4028-2TB04** | |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | S2 | **3RW4036-1TB04** | | **3RW4036-2TB04** | |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | S2 | **3RW4037-1TB04** | | **3RW4037-2TB04** | |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | S2 | **3RW4038-1TB04** | | **3RW4038-2TB04** | |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | S3 | **3RW4046-1TB04** | | **3RW4046-2TB04** | |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | S3 | **3RW4047-1TB04** | | **3RW4047-2TB04** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

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***For normal starting (Class 10)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42G



3RW402.-2BB.5



3RW403.-1TB.5



3RW404.-2BB.5

| At 40 °C | | | | At 50 °C | | | | | Size | **Screw terminals** | | **Spring-loaded terminals** (Size S2 or larger only available for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200 V | at 230 V | at 460 V | at 575 V | | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 400 ... 600 V** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 12.5 | -- | 5.5 | **7.5** | 11 | -- | -- | 7.5 | **10** | S0 | **3RW4024-1BB05** | | **3RW4024-2BB05** | |
| 25 | -- | 11 | **15** | 23 | -- | -- | 15 | **20** | S0 | **3RW4026-1BB05** | | **3RW4026-2BB05** | |
| 32 | -- | 15 | **18.5** | 29 | -- | -- | 20 | **25** | S0 | **3RW4027-1BB05** | | **3RW4027-2BB05** | |
| 38 | -- | 18.5 | **22** | 34 | -- | -- | 25 | **30** | S0 | **3RW4028-1BB05** | | **3RW4028-2BB05** | |
| 45 | -- | 22 | **30** | 42 | -- | -- | 30 | **40** | S2 | **3RW4036-1BB05** | | **3RW4036-2BB05** | |
| 63 | -- | 30 | **37** | 58 | -- | -- | 40 | **50** | S2 | **3RW4037-1BB05** | | **3RW4037-2BB05** | |
| 72 | -- | 37 | **45** | 62 | -- | -- | 40 | **60** | S2 | **3RW4038-1BB05** | | **3RW4038-2BB05** | |
| 80 | -- | 45 | **55** | 73 | -- | -- | 50 | **60** | S3 | **3RW4046-1BB05** | | **3RW4046-2BB05** | |
| 106 | -- | 55 | **75** | 98 | -- | -- | 75 | **75** | S3 | **3RW4047-1BB05** | | **3RW4047-2BB05** | |
| ***Control supply voltage 110 ... 230 V AC/DC*** | | | | | | | | | | | | | |
| 12.5 | -- | 5.5 | **7.5** | 11 | -- | -- | 7.5 | **10** | S0 | **3RW4024-1BB15** | | **3RW4024-2BB15** | |
| 25 | -- | 11 | **15** | 23 | -- | -- | 15 | **20** | S0 | **3RW4026-1BB15** | | **3RW4026-2BB15** | |
| 32 | -- | 15 | **18.5** | 29 | -- | -- | 20 | **25** | S0 | **3RW4027-1BB15** | | **3RW4027-2BB15** | |
| 38 | -- | 18.5 | **22** | 34 | -- | -- | 25 | **30** | S0 | **3RW4028-1BB15** | | **3RW4028-2BB15** | |
| 45 | -- | 22 | **30** | 42 | -- | -- | 30 | **40** | S2 | **3RW4036-1BB15** | | **3RW4036-2BB15** | |
| 63 | -- | 30 | **37** | 58 | -- | -- | 40 | **50** | S2 | **3RW4037-1BB15** | | **3RW4037-2BB15** | |
| 72 | -- | 37 | **45** | 62 | -- | -- | 40 | **60** | S2 | **3RW4038-1BB15** | | **3RW4038-2BB15** | |
| 80 | -- | 45 | **55** | 73 | -- | -- | 50 | **60** | S3 | **3RW4046-1BB15** | | **3RW4046-2BB15** | |
| 106 | -- | 55 | **75** | 98 | -- | -- | 75 | **75** | S3 | **3RW4047-1BB15** | | **3RW4047-2BB15** | |
| **Operational voltage 400 ... 600 V Thermistor motor protection** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 12.5 | -- | 5.5 | **7.5** | 11 | -- | -- | 7.5 | **10** | S0 | **3RW4024-1TB05** | | **3RW4024-2TB05** | |
| 25 | -- | 11 | **15** | 23 | -- | -- | 15 | **20** | S0 | **3RW4026-1TB05** | | **3RW4026-2TB05** | |
| 32 | -- | 15 | **18.5** | 29 | -- | -- | 20 | **25** | S0 | **3RW4027-1TB05** | | **3RW4027-2TB05** | |
| 38 | -- | 18.5 | **22** | 34 | -- | -- | 25 | **30** | S0 | **3RW4028-1TB05** | | **3RW4028-2TB05** | |
| 45 | -- | 22 | **30** | 42 | -- | -- | 30 | **40** | S2 | **3RW4036-1TB05** | | **3RW4036-2TB05** | |
| 63 | -- | 30 | **37** | 58 | -- | -- | 40 | **50** | S2 | **3RW4037-1TB05** | | **3RW4037-2TB05** | |
| 72 | -- | 37 | **45** | 62 | -- | -- | 40 | **60** | S2 | **3RW4038-1TB05** | | **3RW4038-2TB05** | |
| 80 | -- | 45 | **55** | 73 | -- | -- | 50 | **60** | S3 | **3RW4046-1TB05** | | **3RW4046-2TB05** | |
| 106 | -- | 55 | **75** | 98 | -- | -- | 75 | **75** | S3 | **3RW4047-1TB05** | | **3RW4047-2TB05** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

| For soft starters | | Conductor cross-section | | | Tightening torque | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | | solid or stranded | finely stranded with end sleeve | AWG cables, solid or stranded | | | | | | |
| Type | Size | mm² | mm² | AWG | Nm | | | | | |
| **3-phase infeed terminals** | | | | | | | | | | |
| 3RW402. | **S0** | 2.5 … 25 | 2.5 … 16 | 10 ... 4 | 3 ... 4 | **3RV2925-5AB** | | 1 | 1 unit | 41E |


3RV2925-5AB

| For soft starters | | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Type | Size | | | | | | |
| **Auxiliary conductor terminals** | | | | | | | |
| **Auxiliary conductor terminal, 3-pole** | | | | | | | |
| 3RW404. | **S3** | For connection of auxiliary and control cables (0.5 ... 2.5 mm²) [2] to the main conductor terminals | **3RT2946-4F** | | 1 | 1 unit | 41B |
| **Covers for soft starters** | | | | | | | |
| **Terminal covers for box terminals** | | | | | | | |
| 3RW403. | **S2** | Additional touch protection to be fitted at the box terminals (two units required per device) | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| 3RW404. | **S3** | | **3RT2946-4EA2** | | 1 | 1 unit | 41B |
| **Terminal cover for cable lugs and busbar connections** | | | | | | | |
| 3RW404. | **S3** | For complying with the voltage clearances and as touch protection if box terminal is removed (two units required per device) | **3RT1946-4EA1** | | 1 | 1 unit | 41B |
| **Sealing cover** | | | | | | | |
| 3RW402. to 3RW404. | **S0, S2, S3** | -- | **3RW4900-0PB10** | | 1 | 1 unit | 42G |


3RT2946-4F


3RT2936-4EA2


3RT1946-4EA1


3RW4900-0PB10

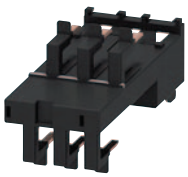
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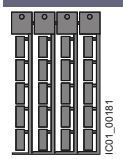


| | For motor starter protectors Size | For soft starters Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **DIN-rail adapters** | | | | | | | | |
|  3RA2932-1CA00 | **S2** | **S2** | For mechanical fixing of motor starter protector and soft starter; for snapping onto DIN rail or for screw fixing<br>**Single-unit packaging** | **3RA2932-1CA00** | | 1 | 1 unit | 41B |

| | For soft starters Type | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Fans (to increase switching frequency and for device mounting in positions different to the standard position)** | | | | | | | |
|  3RW49..-8VB00 | 3RW402. | **S0** | **3RW4928-8VB00** | | 1 | 1 unit | 42G |
| | 3RW403., 3RW404. | **S2, S3** | **3RW4947-8VB00** | | 1 | 1 unit | 42G |

| | For soft starters Type | Size | Motor starter protectors Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Link modules to motor starter protectors**[1] | | | | | | | | |
|  3RA2921-1BA00 | • Screw terminals | | | **Screw terminals** | | | | |
| | 3RW402. | **S0** | **S00/S0** | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| | 3RW4036 | **S2** | **S2** | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| | 3RW404. | **S3** | **S3** | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
| | • Spring-loaded terminals | | | **Spring-loaded terminals** | | | | |
|  3RA2921-2GA00 | 3RW402. | **S0** | **S0** | **3RA2921-2GA00** | | 1 | 1 unit | 41B |

[1] Can be used in size S0 up to maximum 32 A.
Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1CA00 DIN rail adapter (specially for soft starters).
Can be used in size S3 up to maximum 64 A and only with mounting plate.

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals in sizes S00 and S0** | | | | | | |
|  3RA2908-1A | **Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices<br>20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
(see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

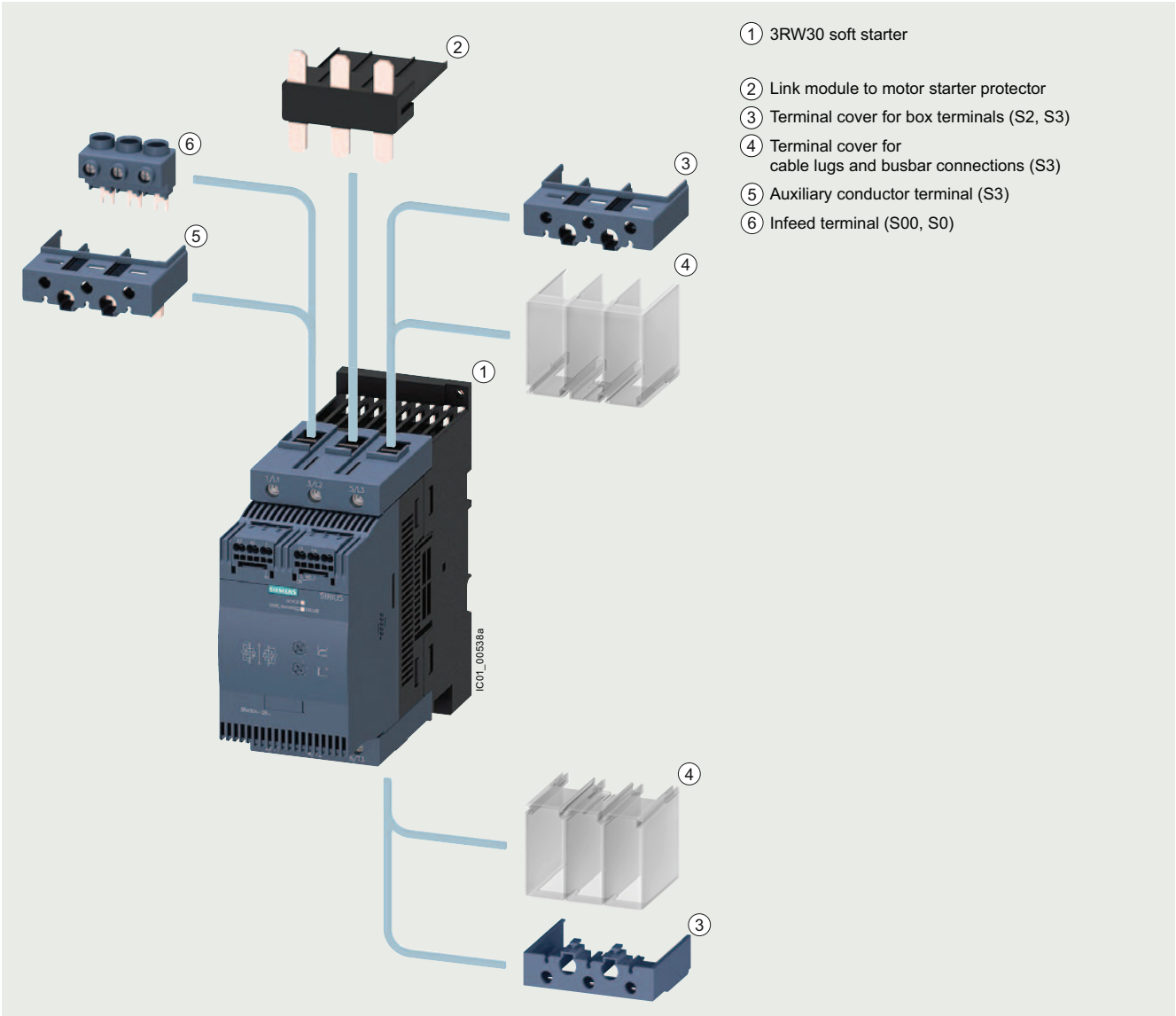
| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>SiePortal, see www.siemens.com/product_catalog_siep?3RW30 | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw30<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917<br>Conversion tool, see www.siemens.com/conversion-tool |



SIRIUS 3RW30 soft starter

The SIRIUS 3RW30 Basic Performance soft starters are suitable for soft starting of three-phase asynchronous motors.

Thanks to 2-phase control, not only is the current kept at minimum values in all three phases throughout the entire startup time, but disturbing direct current components are also eliminated. This not only enables the 2-phase starting of motors up to 55 kW (at 400 V) but also avoids the current and torque peaks which occur e.g. with star-delta (wye-delta) starters.




SIRIUS 3RW30 Basic Performance soft starter with accessories (see page 6/110 onwards)

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## Benefits


3RW301.


3RW302.

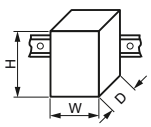
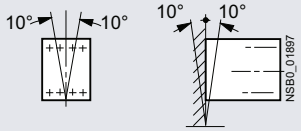
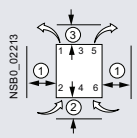

3RW303.


3RW304.

| Product characteristics/function | Performance features/benefits |
|---|---|
| Small and compact design | Space-saving, clearly arranged control panel layout |
| Parameterization using potentiometers | Simple and fast commissioning |
| Integrated in the SIRIUS modular system | Link modules to motor starter protectors |
| Hybrid switching technology and 2-phase motor control | Minimum power loss and optimized motor control by avoiding DC components |

## Technical specifications

| More information | |
|---|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/38752095<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16213/faq | Catalog LV 10, see www.siemens.com/lv10 |

| Type | | | 3RW301. | 3RW302. | 3RW303. | 3RW304. |
|---|---|---|---|---|---|---|
| **Installation/fixing/dimensions** | | | | | | |
| **Width x height x depth**<br>• Screw terminals<br>• Spring-loaded terminals |  | mm<br>mm | 45 x 95 x 151<br>45 x 117 x 151 | 45 x 125 x 151<br>45 x 150 x 151 | 55 x 144 x 168<br>55 x 144 x 168 | 70 x 160 x 186<br>70 x 160 x 186 |
| **Ambient temperature**<br>• During operation[1]<br>• During storage | | °C<br>°C | -25 ... +60<br>-40 ... +80 | | | |
| **Weight** | | kg | 0.58 | 0.69 | 1.20 | 1.71 |
| **Permissible mounting position**[2] (auxiliary fan not possible) |  | | | | | |
| **Installation type**[2] | Stand-alone installation<br> | | | | ① ≥ 15 mm (≥ 0.59 in)<br>② ≥ 40 mm ( ≥ 1.56 in)<br>③ ≥ 60 mm (≥ 2.36 in) | ① ≥ 30 mm (≥ 1.18 in)<br>② ≥ 40 mm ( ≥ 1.56 in)<br>③ ≥ 60 mm (≥ 2.36 in) |
| **Permissible installation altitude**[3] | | m | 5 000 | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | | |

1) Observe derating above 40 °C.
2) In the case of deviations, please observe derating, see Equipment Manual in the chapter Configuration.
3) Derating from 1 000 m, see characteristic curve on page 6/8.

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| Type | Terminal | | 3RW301., 3RW302. | | 3RW303., 3RW304. | |
|---|---|---|---|---|---|---|
| **Control circuit/control** | | | | | | |
| **Rated values** | | | | | | |
| Rated control supply voltage | A1/A2 | V | 24 AC/DC | 110 ... 230 AC/DC | 24 AC/DC | 110 ... 230 AC/DC |
| • Tolerance | | % | ± 20 | -15/+10 | ± 20 | -15/+10 |
| Rated frequency | | Hz | 50/60 | | | |
| • Tolerance | | % | ± 10 | | | |

| **Type** | | 3RW301. | 3RW302. | 3RW303. | 3RW304. |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Rated operational voltage** | V AC | 200 ... 480 | | | |
| Tolerance | % | -15/+10 | | | |
| **Rated frequency** | Hz | 50/60 | | | |
| Tolerance | % | ± 10 | | | |
| **Uninterrupted duty** at 40 °C (% of $I_e$) | % | 115 | | | |
| **Minimum load** (% of $I_e$) | % | 10 (at least 1 A) | | | |
| **Maximum cable length** between soft starter and motor | m | 300 | | | |

| Type | | 3RW3013 | 3RW3014 | 3RW3016 | 3RW3017 | 3RW3018 |
|---|---|---|---|---|---|---|
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 3.6/3.3/3 | 6.5/6/5.5 | 9/8/7 | 12.5/12/11 | 17.6/17/14 |
| **Power loss** | | | | | | |
| • During operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 0.25 | 0.5 | 1 | 2 | 4 |
| • During starting with 300% $I_M$ (40 °C) | W | 24 | 52 | 80 | 80 | 116 |
| **Permissible rated motor current and starts per hour** | | | | | | |
| • For normal starting (Class 10) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], startup time 3 s | A | 3.6/3.3 | 6.5/6.0 | 9/8 | 12.5/12.0 | 17.6/17.0 |
| - Starts per hour[3] | 1/h | 200/150 | 87/60 | 50/50 | 85/70 | 62/46 |
| - Rated motor current $I_M$[2], startup time 4 s | A | 3.6/3.3 | 6.5/6.0 | 9/8 | 12.5/12.0 | 17.6/17.0 |
| - Starts per hour[3] | 1/h | 150/100 | 64/46 | 35/35 | 62/47 | 45/32 |
| **Blocking voltage of thyristor, maximum** | A | 1 200 | | | 1 600 | 1 200 |

[1] Measurement at 60 °C according to UL/CSA not required.
[2] At 300% $I_M$, $T_u$ = 40/50 °C.
[3] For intermittent operation S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

| Type | | 3RW3026 | 3RW3027 | 3RW3028 |
|---|---|---|---|---|
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 25.3/23/21 | 32.2/29/26 | 38/34/31 |
| **Power loss** | | | | |
| • During operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 8 | 13 | 19 |
| • During starting with 300% $I_M$ (40 °C) | W | 188 | 220 | 256 |
| **Permissible rated motor current and starts per hour** | | | | |
| • For normal starting (Class 10) at 40/50 °C | | | | |
| - Rated motor current $I_M$[2], startup time 3 s | A | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 23/23 | 23/23 | 19/19 |
| - Rated motor current $I_M$[2], startup time 4 s | A | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 15/15 | 16/16 | 12/12 |
| **Blocking voltage of thyristor, maximum** | A | 1 600 | | |

[1] Measurement at 60 °C according to UL/CSA not required.
[2] At 300% $I_M$, $T_u$ = 40/50 °C.
[3] For intermittent operation S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency with deviating mounting position, direct mounting, side-by-side mounting, see Equipment Manual in the chapter Configuration.

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| Type | | 3RW3036 | 3RW3037 | 3RW3038 | 3RW3046 | 3RW3047 |
|---|---|---|---|---|---|---|
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 45/42/39 | 65/58/53 | 72/62.1/60 | 80/73/66 | 106/98/90 |
| **Power loss** | | | | | | |
| • During operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 6 | 12 | 15 | 12 | 21 |
| • During starting with 300% $I_M$ (40 °C) | W | 316 | 444 | 500 | 576 | 768 |
| **Permissible rated motor current and starts per hour** | | | | | | |
| • For normal starting (Class 10) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], startup time 3 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/108 |
| - Starts per hour[3] | 1/h | 38/38 | 23/23 | 22/22 | 22/22 | 15/15 |
| - Rated motor current $I_M$[2], startup time 4 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/98 |
| - Starts per hour[3] | 1/h | 26/26 | 15/15 | 15/15 | 15/15 | 10/10 |
| **Blocking voltage of thyristor, maximum** | A | 1 600 | | | | |

1) Measurement at 60 °C according to UL/CSA not required.

2) At 300% $I_M$, $T_u$ = 40/50 °C.

3) For intermittent operation S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

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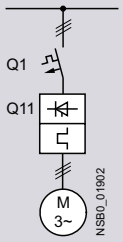


***Motor feeders according to IEC with 3RV2 motor starter protectors (without semiconductor protection)***

Type of coordination "1", Class 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors for 400 V systems | |
|---|---|---|
| Q11 | Q1 | $I_q$ |
| Type | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | |
| **3RW3013** | 3RV2011-1FA10 | 5 |
| **3RW3014** | 3RV2011-1HA10 | 5 |
| **3RW3016** | 3RV2011-1JA10 | 5 |
| **3RW3017** | 3RV2011-1KA10 | 5 |
| **3RW3018** | 3RV2021-4BA10 | 5 |
| **3RW3026** | 3RV2021-4DA10 | 55 |
| **3RW3027** | 3RV2021-4EA10 | 55 |
| **3RW3028** | 3RV2021-4FA10 | 55 |
| **3RW3036** | 3RV2031-4WA10 | 10 |
| **3RW3037** | 3RV2031-4JA10 | 10 |
| **3RW3038** | 3RV2031-4KA10 | 10 |
| **3RW3046** | 3RV2041-4RA10 | 11 |
| **3RW3047** | 3RV2041-4MA10 | 11 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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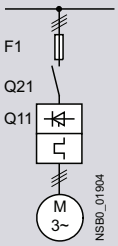
***Motor feeders according to IEC with 3NA3 fuses***

gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | Line contactor (optional) | |
|---|---|---|---|
| | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V |
| Q11 Type | F1 Type | Q21 Type | Q21 Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | |
| **3RW3013** | 3NA3803-6 | 3RT2015 | 3RT2015 |
| **3RW3014** | 3NA3805-6 | 3RT2015 | 3RT2016 |
| **3RW3016** | 3NA3807-6 | 3RT2016 | 3RT2017 |
| **3RW3017** | 3NA3810-6 | 3RT2018 | 3RT2025 |
| **3RW3018** | 3NA3814-6 | 3RT2026 | 3RT2026 |
| **3RW3026** | 3NA3822-6 | 3RT2026 | 3RT2027 |
| **3RW3027** | 3NA3824-6 | 3RT2027 | 3RT2028 |
| **3RW3028** | 3NA3824-6 | 3RT2028 | 3RT2035 |
| **3RW3036** | 3NA3130-6 | 3RT2036 | 3RT2036 |
| **3RW3037** | 3NA3132-6 | 3RT2037 | 3RT2037 |
| **3RW3038** | 3NA3132-6 | 3RT2038 | 3RT2038 |
| **3RW3046** | 3NA3136-6 | 3RT2045 | 3RT2045 |
| **3RW3047** | 3NA3136-6 | 3RT2047 | 3RT2047 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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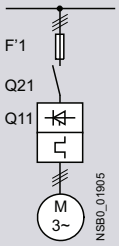
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gR/gS class fuse | Line contactor (optional) | |
|---|---|---|---|
| | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW3013** | 3NE1813-0 | 3RT2015 | 3RT2015 |
| **3RW3014** | 3NE1813-0 | 3RT2015 | 3RT2016 |
| **3RW3016** | 3NE1813-0 | 3RT2016 | 3RT2017 |
| **3RW3017** | 3NE1813-0 | 3RT2018 | 3RT2025 |
| **3RW3018** | 3NE1814-0 | 3RT2026 | 3RT2026 |
| **3RW3026** | 3NE1803-0 | 3RT2026 | 3RT2027 |
| **3RW3027** | 3NE1020-2 | 3RT2027 | 3RT2028 |
| **3RW3028** | 3NE1020-2 | 3RT2028 | 3RT2035 |
| **3RW3036** | 3NE1020-2 | 3RT2036 | 3RT2036 |
| **3RW3037** | 3NE1820-0 | 3RT2037 | 3RT2037 |
| **3RW3038** | 3NE1820-0 | 3RT2038 | 3RT2038 |
| **3RW3046** | 3NE1021-0 | 3RT2045 | 3RT2045 |
| **3RW3047** | 3NE1022-0 | 3RT2047 | 3RT2047 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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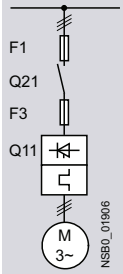
***Motor feeders according to IEC with 3NE8/3NE4/3NE3/3NC fuses***

aR class partial-range fuses for semiconductor protection

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | aR class fuse | | | Cylindrical fuse | Line contactor (optional) | |
|---|---|---|---|---|---|---|---|
| | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V |
| Q11 | F1 | F3 | F3 | F3 | F3 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | | | |
| **3RW3013** | 3NA3803-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2220 | 3RT2015 | 3RT2015 |
| **3RW3014** | 3NA3805-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2220 | 3RT2015 | 3RT2016 |
| **3RW3016** | 3NA3807-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2220 | 3RT2016 | 3RT2017 |
| **3RW3017** | 3NA3810-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2250 | 3RT2018 | 3RT2025 |
| **3RW3018** | 3NA3814-6 | -- | 3NE4101 | 3NE8003-1 | 3NC2263 | 3RT2026 | 3RT2026 |
| **3RW3026** | 3NA3822-6 | -- | 3NE4102 | 3NE8017-1 | 3NC2263 | 3RT2026 | 3RT2027 |
| **3RW3027** | 3NA3824-6 | -- | 3NE4118 | 3NE8018-1 | 3NC2280 | 3RT2027 | 3RT2028 |
| **3RW3028** | 3NA3824-6 | -- | 3NE4118 | 3NE8020-1 | 3NC2280 | 3RT2028 | 3RT2035 |
| **3RW3036** | 3NA3130-6 | -- | 3NE4120 | 3NE8020-1 | 3NC2280 | 3RT2036 | 3RT2036 |
| **3RW3037** | 3NA3132-6 | -- | 3NE4121 | 3NE8021-1 | -- | 3RT2037 | 3RT2037 |
| **3RW3038** | 3NA3132-6 | 3NE3221 | -- | 3NE8022-1 | -- | 3RT2038 | 3RT2038 |
| **3RW3046** | 3NA3136-6 | 3NE3222 | -- | 3NE8022-1 | -- | 3RT2045 | 3RT2045 |
| **3RW3047** | 3NA3136-6 | 3NE3224 | -- | 3NE8024-1 | -- | 3RT2047 | 3RT2047 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For Class 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3RV2 motor starter protectors can also be used, possibly with reduced short-circuit breaking capacity (see page 6/105). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

### *For simple starting conditions*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42G


3RW301.-1BB.4


3RW302.-2BB.4


3RW303.-1BB.4


3RW304.-2BB.4

| At 40 °C | | | | At 50 °C | | | | | Size | Screw terminals | | Spring-loaded terminals (Size S2 or larger only available for control circuit) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Operating power [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| ***Control supply voltage 24 V AC/DC*** | | | | | | | | | | | | | |
| 3.6 | 0.75 | **1.5** | -- | 3 | 0.5 | 0.5 | **1.5** | -- | S00 | **3RW3013-1BB04** | | **3RW3013-2BB04** | |
| 6.5 | 1.5 | **3** | -- | 6 | 1 | 1 | **3** | -- | S00 | **3RW3014-1BB04** | | **3RW3014-2BB04** | |
| 9 | 2.2 | **4** | -- | 8 | 2 | 2 | **5** | -- | S00 | **3RW3016-1BB04** | | **3RW3016-2BB04** | |
| 12.5 | 3 | **5.5** | -- | 12 | 3 | 3 | **7.5** | -- | S00 | **3RW3017-1BB04** | | **3RW3017-2BB04** | |
| 17.6 | 4 | **7.5** | -- | 17 | 3 | 3 | **10** | -- | S00 | **3RW3018-1BB04** | | **3RW3018-2BB04** | |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | S0 | **3RW3026-1BB04** | | **3RW3026-2BB04** | |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | S0 | **3RW3027-1BB04** | | **3RW3027-2BB04** | |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | S0 | **3RW3028-1BB04** | | **3RW3028-2BB04** | |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | S2 | **3RW3036-1BB04** | | **3RW3036-2BB04** | |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | S2 | **3RW3037-1BB04** | | **3RW3037-2BB04** | |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | S2 | **3RW3038-1BB04** | | **3RW3038-2BB04** | |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | S3 | **3RW3046-1BB04** | | **3RW3046-2BB04** | |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | S3 | **3RW3047-1BB04** | | **3RW3047-2BB04** | |
| ***Control supply voltage 110 ... 230 V AC/DC*** | | | | | | | | | | | | | |
| 3.6 | 0.75 | **1.5** | -- | 3 | 0.5 | 0.5 | **1.5** | -- | S00 | **3RW3013-1BB14** | | **3RW3013-2BB14** | |
| 6.5 | 1.5 | **3** | -- | 6 | 1 | 1 | **3** | -- | S00 | **3RW3014-1BB14** | | **3RW3014-2BB14** | |
| 9 | 2.2 | **4** | -- | 8 | 2 | 2 | **5** | -- | S00 | **3RW3016-1BB14** | | **3RW3016-2BB14** | |
| 12.5 | 3 | **5.5** | -- | 12 | 3 | 3 | **7.5** | -- | S00 | **3RW3017-1BB14** | | **3RW3017-2BB14** | |
| 17.6 | 4 | **7.5** | -- | 17 | 3 | 3 | **10** | -- | S00 | **3RW3018-1BB14** | | **3RW3018-2BB14** | |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | S0 | **3RW3026-1BB14** | | **3RW3026-2BB14** | |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | S0 | **3RW3027-1BB14** | | **3RW3027-2BB14** | |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | S0 | **3RW3028-1BB14** | | **3RW3028-2BB14** | |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | S2 | **3RW3036-1BB14** | | **3RW3036-2BB14** | |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | S2 | **3RW3037-1BB14** | | **3RW3037-2BB14** | |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | S2 | **3RW3038-1BB14** | | **3RW3038-2BB14** | |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | S3 | **3RW3046-1BB14** | | **3RW3046-2BB14** | |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | S3 | **3RW3047-1BB14** | | **3RW3047-2BB14** | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

**More information**

Equipment Manual, see
https://support.industry.siemens.com/cs/ww/en/view/38752095

| | Conductor cross-section | | | Tighten-ing torque | For soft starters | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | solid or stranded | finely stranded with end sleeve | AWG cables, solid or stranded | | | | | | | |
| | mm² | mm² | AWG | Nm | Size | | | | | |
| **3-phase infeed terminals** | | | | | | | | | | |
|  3RV2925-5AB | 2.5 … 25 | 2.5 … 16 | 10 ... 4 | 3 ... 4 | S00 (3RW301.), S0 (3RW302.) | **3RV2925-5AB** | | 1 | 1 unit | 41E |

| | For soft starters | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | Type | Size | | | | | |
| **Auxiliary conductor terminals** | | | | | | | |
|  3RT2946-4F | **Auxiliary conductor terminal, 3-pole** | | | | | | |
| | 3RW304. | **S3** | **3RT2946-4F** | | 1 | 1 unit | 41B |
| **Covers for soft starters** | | | | | | | |
|  3RT2936-4EA2 | **Terminal covers for box terminals**<br>Additional touch protection to be fitted at the box terminals (two units required per device) | | | | | | |
| | 3RW303. | **S2** | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| | 3RW304. | **S3** | **3RT2946-4EA2** | | 1 | 1 unit | 41B |
|  3RT1946-4EA1 | **Terminal cover for cable lugs and busbar connections**<br>For complying with the voltage clearances and as touch protection if box terminal is removed (two units required per device) | | | | | | |
| | 3RW304. | **S3** | **3RT1946-4EA1** | | 1 | 1 unit | 41B |

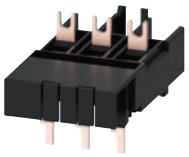
| | For motor starter protectors | For soft starters | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | Size | Size | | | | | | |
| **Mounting rails for mounting contactors for the customer assembly of 3RA21 load feeders with busbar adapters for 60 mm systems** | | | | | | | | |
|  8US1998-7CB45 | | | For the discrete configuration of direct-on-line starters, an additional mounting rail is needed for the contactor in addition to the existing mounting rail on the busbar adapter for the motor starter protector. | | | | | |
| | -- | **S0** | For pushing onto the device adapter, including fixing screws | **8US1998-7CB45** | | 1 | 10 units | 53W |
| **DIN-rail adapters** | | | | | | | | |
|  3RA2932-1CA00 | | | For mechanical fixing of motor starter protector and soft starter; for snapping onto DIN rail or for screw fixing | | | | | |
| | **S2** | **S2** | **Single-unit packaging** | **3RA2932-1CA00** | | 1 | 1 unit | 41B |



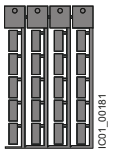
* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| For soft starters Type | Size | Motor starter protectors Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Link modules to motor starter protectors**[1] | | | | | | | |
|  3RA2921-1BA00 | | | | | | | |
| • Screw terminals | | | **Screw terminals** | | | | |
| 3RW301. | **S00** | **S00** | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| 3RW302. | **S0** | **S00/S0** | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| 3RW3036 | **S2** | **S2** | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| 3RW304. | **S3** | **S3** | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
|  3RA2921-2GA00 | | | | | | | |
| • Spring-loaded terminals | | | **Spring-loaded terminals** | | | | |
| 3RW301. | **S00** | **S00** | **3RA2911-2GA00** | | 1 | 1 unit | 41B |
| 3RW302. | **S0** | **S0** | **3RA2921-2GA00** | | 1 | 1 unit | 41B |

[1] Can be used in size S0 up to maximum 32 A.
Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1CA00 DIN-rail adapter (specially for soft starters).
Can be used in size S3 up to maximum 64 A and only on a mounting plate.

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals in sizes S00 and S0** | | | | | |
|  3RA2908-1A | | | | | |
| **Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Unit labeling plates**[1]<br>For SIRIUS devices<br>20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
(see page 16/18).

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## For 3RW55

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW | |

### Selection and ordering data

| Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Power semiconductor modules** | | | | | | | |
|  3RW5952-0SF04 **Power semiconductor modules** | 3RW5524-.HA.4 (3x) | 480 V, 47 A | **3RW5952-0SF04** | | 1 | 1 unit | 42S |
| | 3RW5525-.HA.4 (3x), 3RW5526-.HA.4 (3x) | 480 V, 77 A | **3RW5952-0SH04** | | 1 | 1 unit | 42S |
| | 3RW5527-.HA.4 (3x) | 480 V, 93 A | **3RW5952-0SJ04** | | 1 | 1 unit | 42S |
| | 3RW5534-.HA.4 (3x), 3RW5535-.HA.4 (3x) | 480 V, 143 A | **3RW5953-0SL04** | | 1 | 1 unit | 42S |
|  3RW5953-0SM06 | 3RW5536-.HA.4 (3x) | 480 V, 171 A | **3RW5953-0SM04** | | 1 | 1 unit | 42S |
| | 3RW5543-.HA.4 (3x) | 480 V, 210 A | **3RW5954-0SN04** | | 1 | 1 unit | 42S |
| | 3RW5544-.HA.4 (3x) | 480 V, 250 A | **3RW5954-0SP04** | | 1 | 1 unit | 42S |
| | 3RW5545-.HA.4 (3x), 3RW5546-.HA.4 (3x) | 480 V, 370 A | **3RW5954-0SR04** | | 1 | 1 unit | 42S |
| | 3RW5547-.HA.4 (3x), 3RW5548-.HA.4 (3x) | 480 V, 570 A | **3RW5954-0ST04** | | 1 | 1 unit | 42S |
| | 3RW5552-.HA.4 (3x) | 480 V, 630 A | **3RW5955-0SU04** | | 1 | 1 unit | 42S |
| | 3RW5553-.HA.4 (3x) | 480 V, 720 A | **3RW5955-0SV04** | | 1 | 1 unit | 42S |
| | 3RW5554-.HA.4 (3x) | 480 V, 840 A | **3RW5955-0SW04** | | 1 | 1 unit | 42S |
| | 3RW5556-.HA.4 (3x) | 480 V, 1 100 A | **3RW5955-0SX04** | | 1 | 1 unit | 42S |
| | 3RW5558-.HA.4 (3x) | 480 V, 1 280 A | **3RW5955-0SY04** | | 1 | 1 unit | 42S |
|  3RW5954-0ST06 | 3RW5521-.HA.6 (3x), 3RW5524-.HA.6 (3x) | 690 V, 47 A | **3RW5952-0SF06** | | 1 | 1 unit | 42S |
| | 3RW5525-.HA.6 (3x), 3RW5526-.HA.6 (3x) | 690 V, 77 A | **3RW5952-0SH06** | | 1 | 1 unit | 42S |
| | 3RW5527-.HA.6 (3x) | 690 V, 93 A | **3RW5952-0SJ06** | | 1 | 1 unit | 42S |
| | 3RW5534-.HA.6 (3x), 3RW5535-.HA.6 (3x) | 690 V, 143 A | **3RW5953-0SL06** | | 1 | 1 unit | 42S |
| | 3RW5536-.HA.6 (3x) | 690 V, 171 A | **3RW5953-0SM06** | | 1 | 1 unit | 42S |
| | 3RW5543-.HA.6 (3x) | 690 V, 210 A | **3RW5954-0SN06** | | 1 | 1 unit | 42S |
| | 3RW5544-.HA.6 (3x) | 690 V, 250 A | **3RW5954-0SP06** | | 1 | 1 unit | 42S |
| | 3RW5545-.HA.6 (3x), 3RW5546-.HA.6 (3x) | 690 V, 370 A | **3RW5954-0SR06** | | 1 | 1 unit | 42S |
| | 3RW5547-.HA.6 (3x), 3RW5548-.HA.6 (3x) | 690 V, 570 A | **3RW5954-0ST06** | | 1 | 1 unit | 42S |
| | 3RW5552-.HA.6 (3x) | 690 V, 630 A | **3RW5955-0SU06** | | 1 | 1 unit | 42S |
| | 3RW5553-.HA.6 (3x) | 690 V, 720 A | **3RW5955-0SV06** | | 1 | 1 unit | 42S |
| | 3RW5554-.HA.6 (3x) | 690 V, 840 A | **3RW5955-0SW06** | | 1 | 1 unit | 42S |
| | 3RW5556-.HA.6 (3x) | 690 V, 1 100 A | **3RW5955-0SX06** | | 1 | 1 unit | 42S |
| | 3RW5558-.HA.6 (3x) | 690 V, 1 280 A | **3RW5955-0SY06** | | 1 | 1 unit | 42S |
| **Bypass units** | | | | | | | |
|  3RW5953-0BY00 **Bypass units** | 3RW552.-.HA.., 3RW553.-.HA.. | -- | **3RW5953-0BY00** | | 1 | 1 unit | 42S |
| | 3RW5543.-.HA.., 3RW5544.-.HA.., 3RW5545.-.HA.. | 210 ... 315 A | **3RW5954-0BP00** | | 1 | 1 unit | 42S |
| | 3RW5546.-.HA.., 3RW5547.-.HA.., 3RW5548.-.HA.. | 370 ... 570 A | **3RW5954-0BT00** | | 1 | 1 unit | 42S |
| | 3RW5552, 3RW5553, 3RW5554 | 630 ... 840 A | **3RW5955-0BW00** | | 1 | 1 unit | 42S |
| | 3RW5556, 3RW5558 | 1 100 A, 1 280 A | **3RW5955-0BY00** | | 1 | 1 unit | 42S |



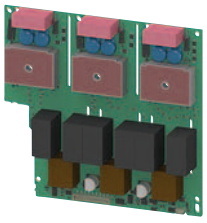
* You can order this quantity or a multiple thereof.
Illustrations are approximate

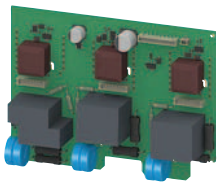
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| Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Control units** | | | | | | | |
| **Control units** | 3RW551..-.HA0., 3RW552..-.HA0., 3RW553..-.HA0., 3RW554..-.HA0. | 24 V | **3RW5950-1UY00** | | 1 | 1 unit | 42S |
| | 3RW555..-.HA0. | | **3RW5955-1UY00** | | 1 | 1 unit | 42S |
| | 3RW551..-.HA1., 3RW552..-.HA1., 3RW553..-.HA1., 3RW554..-.HA1. | 110 ... 250 V | **3RW5950-1UY10** | | 1 | 1 unit | 42S |
| | 3RW555..-.HA1. | | **3RW5955-1UY10** | | 1 | 1 unit | 42S |
| **Printed circuit boards** | | | | | | | |
| **Printed circuit boards** | 3RW5513-.HA.4 | 480 V, 13 A | **3RW5951-0PA04** | | 1 | 1 unit | 42S |
| | 3RW5514-.HA.4 | 480 V, 18 A | **3RW5951-0PB04** | | 1 | 1 unit | 42S |
| | 3RW5515-.HA.4 | 480 V, 25 A | **3RW5951-0PC04** | | 1 | 1 unit | 42S |
| | 3RW5516-.HA.4 | 480 V, 32 A | **3RW5951-0PD04** | | 1 | 1 unit | 42S |
| | 3RW5517-.HA.4 | 480 V, 38 A | **3RW5951-0PE04** | | 1 | 1 unit | 42S |
| | 3RW552.-.HA.4, 3RW553.-.HA.4 | 480 V | **3RW5953-0PY04** | | 1 | 1 unit | 42S |
| | 3RW554.-.HA.4 | 480 V | **3RW5954-0PY04** | | 1 | 1 unit | 42S |
| | 3RW5513-.HA.5 | 600 V, 13 A | **3RW5951-0PA05** | | 1 | 1 unit | 42S |
| | 3RW5514-.HA.5 | 600 V, 18 A | **3RW5951-0PB05** | | 1 | 1 unit | 42S |
| | 3RW5515-.HA.5 | 600 V, 25 A | **3RW5951-0PC05** | | 1 | 1 unit | 42S |
| | 3RW5516-.HA.5 | 600 V, 32 A | **3RW5951-0PD05** | | 1 | 1 unit | 42S |
| | 3RW5517-.HA.5 | 600 V, 38 A | **3RW5951-0PE05** | | 1 | 1 unit | 42S |
| | 3RW552.-.HA.6, 3RW553.-.HA.6 | 690 V | **3RW5953-0PY06** | | 1 | 1 unit | 42S |
| | 3RW554.-.HA.6 | 690 V | **3RW5954-0PY06** | | 1 | 1 unit | 42S |
| **Firing printed circuit boards** | 3RW555.-.HA.4 | 480 V | **3RW5955-0PY14** | | 1 | 1 unit | 42S |
| | 3RW555.-.HA.6 | 690 V | **3RW5955-0PY16** | | 1 | 1 unit | 42S |
| **TSE printed circuit boards** | 3RW555.-.HA.4 | 480 V | **3RW5955-0PY24** | | 1 | 1 unit | 42S |
| | 3RW555.-.HA.6 | 690 V | **3RW5955-0PY26** | | 1 | 1 unit | 42S |
| **Fans** | | | | | | | |
| **Fans** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | **3RW5983-0FF00** | | 1 | 1 unit | 42S |
| | 3RW554 (1x) | -- | **3RW5984-0FF00** | | 1 | 1 unit | 42S |
| | 3RW555 (3x) | -- | **3RW5985-0FF00** | | 1 | 1 unit | 42S |
| **Terminals and terminal covers** | | | | | | | |
| **Box terminal block** | 3RW552 (2x) | -- | **3RW5982-0TB00** | | 1 | 1 unit | 42S |
| **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| | 3RW551.-1H... (2x), 3RW552.-1H... (2x), 3RW553.-6H... (2x), 3RW554.-6H... (2x), 3RW555.-6H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | 3RW551.-3H... (2x), 3RW552.-3H... (2x), 3RW553.-2H... (2x), 3RW554.-2H... (2x), 3RW555.-2H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Terminal cover** | 3RW555 | -- | **3RW5955-0TC20** | | 1 | 1 unit | 42S |


3RW5950-1UY00


3RW5951-0PA04


3RW5954-0PY06


3RW5983-0FF00


3RW5982-0TB00


3RW5980-1TR00


3RW5955-0TC20



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## For 3RW55

| Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Enclosure components** | | | | | | | |
|  3RW5953-0GB00 **Lower part of enclosures** | 3RW552.-.HA.., 3RW553.-.HA.. | -- | **3RW5953-0GB00** | | 1 | 1 unit | 42S |
| | 3RW554.-.HA.. | -- | **3RW5954-0GB00** | | 1 | 1 unit | 42S |
|  3RW5955-0GC00 **Ventilation cover** | 3RW555 (3x) | -- | **3RW5955-0GC00** | | 1 | 1 unit | 42S |
|  3RW5950-0GD20 **Cover for control cable duct** | 3RW55..-.HA.. | Titanium gray | **3RW5950-0GD20** | | 1 | 1 unit | 42S |
|  3RW5954-0GF00 **Front cover** | 3RW554.-.HA.. | -- | **3RW5954-0GF00** | | 1 | 1 unit | 42S |
| | 3RW555 | -- | **3RW5955-0GF00** | | 1 | 1 unit | 42S |
|  3RW5950-0GL30 **Hinged cover** | 3RW55 | With cutout for High-Feature HMI module | **3RW5950-0GL30** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
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**For 3RW55**

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | |
|  3RW5980-0HF00 | **HMI module** | 3RW55 | High-Feature | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
|  3RW5980-0HL00 | **Interface cover** | 3RW55 | -- | **3RW5980-0HL00** | | 1 | 1 unit | 42S |
| **Connecting cables for installing the HMI module in the soft starter** | | | | | | | | |
|  3UF7931-0AA00-0 | **Connecting cable** | -- | Length 0.1 m, flat | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| **Transport packaging** | | | | | | | | |
|  3RW5953-0VY00 | **Transport packaging** | 3RW551 | -- | **3RW5951-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW552, 3RW553 | -- | **3RW5953-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW554 | -- | **3RW5954-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW555 | -- | **3RW5955-0VY00** | | 1 | 1 unit | 42S |



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**Illustrations are approximate**

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## For 3RW55 Failsafe

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW | |

### Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Fans** | | | | | | | | |
|  3RW5983-0FF00 | **Fans** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | **3RW5983-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | **3RW5984-0FF00** | | 1 | 1 unit | 42S |
| **Terminals and terminal covers** | | | | | | | | |
|  3RW5982-0TB00 | **Box terminal block** | 3RW552 (2x) | -- | **3RW5982-0TB00** | | 1 | 1 unit | 42S |
|  3RW5980-1TR00 | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| | | 3RW551.-1H... (2x), 3RW552.-1H... (2x), 3RW553.-6H... (2x), 3RW554.-6H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW551.-3H... (2x), 3RW552.-3H... (2x), 3RW553.-2H... (2x), 3RW554.-2H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | |
|  3RW5950-0GD30 | **Cover for control cable duct** | 3RW55..-.HF.. | Yellow | **3RW5950-0GD30** | | 1 | 1 unit | 42S |
|  3RW5950-0GL30 | **Hinged cover** | 3RW55 | With cutout for High-Feature HMI module | **3RW5950-0GL30** | | 1 | 1 unit | 42S |

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* You can order this quantity or a multiple thereof.
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**For 3RW55 Failsafe**

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | |
|  3RW5980-0HF00 | **HMI module** | 3RW55 | High-Feature | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
|  3RW5980-0HL00 | **Interface cover** | 3RW55 | -- | **3RW5980-0HL00** | | 1 | 1 unit | 42S |
| **Connecting cables for installing the HMI module in the soft starter** | | | | | | | | |
|  3UF7931-0AA00-0 | **Connecting cable** | -- | Length 0.1 m, flat | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| **Transport packaging** | | | | | | | | |
|  3RW5953-0VY00 | **Transport packaging** | 3RW551 | -- | **3RW5951-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW552, 3RW553 | -- | **3RW5953-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW554 | -- | **3RW5954-0VY00** | | 1 | 1 unit | 42S |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## For 3RW52

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |
| SiePortal, see www.siemens.com/product_catalog_siep?3RW | |

### Selection and ordering data

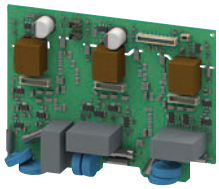
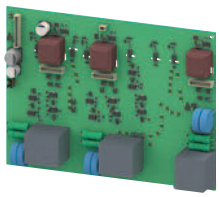
| Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Power semiconductor modules** | | | | | | | |
|  3RW5952-0SF04 **Power semiconductor modules** | 3RW5224-..C.4 (3x) | 480 V, 47 A | **3RW5952-0SF04** | | 1 | 1 unit | 42S |
| | 3RW5225-..C.4 (3x), 3RW5226-..C.4 (3x) | 480 V, 77 A | **3RW5952-0SH04** | | 1 | 1 unit | 42S |
| | 3RW5227-..C.4 (3x) | 480 V, 93 A | **3RW5952-0SJ04** | | 1 | 1 unit | 42S |
| | 3RW5234-..C.4 (3x), 3RW5235-..C.4 (3x) | 480 V, 143 A | **3RW5953-0SL04** | | 1 | 1 unit | 42S |
| | 3RW5236-..C.4 (3x) | 480 V, 171 A | **3RW5953-0SM04** | | 1 | 1 unit | 42S |
| | 3RW5224-..C.5 (3x) | 600 V, 47 A | **3RW5952-0SF05** | | 1 | 1 unit | 42S |
| | 3RW5225-..C.5 (3x), 3RW5226-..C.5 (3x) | 600 V, 77 A | **3RW5952-0SH05** | | 1 | 1 unit | 42S |
| | 3RW5227-..C.5 (3x) | 600 V, 93 A | **3RW5952-0SJ05** | | 1 | 1 unit | 42S |
|  3RW5953-0SM05 | 3RW5234-..C.5 (3x), 3RW5235-..C.5 (3x) | 600 V, 143 A | **3RW5953-0SL05** | | 1 | 1 unit | 42S |
| | 3RW5236-..C.5 (3x) | 600 V, 171 A | **3RW5953-0SM05** | | 1 | 1 unit | 42S |
| | 3RW5243 (3x) | 600 V, 210 A | **3RW5924-0SN05** | | 1 | 1 unit | 42S |
| | 3RW5244 (3x), 3RW5245 (3x) | 600 V, 315 A | **3RW5924-0SQ05** | | 1 | 1 unit | 42S |
| | 3RW5246 (3x), 3RW5247 (3x) | 600 V, 470 A | **3RW5924-0SS05** | | 1 | 1 unit | 42S |
|  3RW5924-0ST05 | 3RW5248 (3x) | 600 V, 570 A | **3RW5924-0ST05** | | 1 | 1 unit | 42S |
| **Bypass units** | | | | | | | |
|  3RW5953-0BY00 **Bypass units** | 3RW522, 3RW523 | -- | **3RW5953-0BY00** | | 1 | 1 unit | 42S |
| | 3RW5243, 3RW5244, 3RW5245 | 210 ... 315 A | **3RW5954-0BP00** | | 1 | 1 unit | 42S |
| | 3RW5246, 3RW5247, 3RW5248 | 370 ... 570 A | **3RW5954-0BT00** | | 1 | 1 unit | 42S |
| **Control units** | | | | | | | |
|  3RW5920-1UA00 **Control units** | 3RW52..-.AC0. | 24 V analog output | **3RW5920-1UA00** | | 1 | 1 unit | 42S |
| | 3RW52..-.AC1. | 110 ... 250 V analog output | **3RW5920-1UA10** | | 1 | 1 unit | 42S |
| | 3RW52..-.TC0. | 24 V thermistor input | **3RW5920-1UT00** | | 1 | 1 unit | 42S |
| | 3RW52..-.TC1. | 110 ... 250 V thermistor input | **3RW5920-1UT10** | | 1 | 1 unit | 42S |



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| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Printed circuit boards** | | | | | | | | |
|  3RW5923-0PY04 | **Printed circuit boards** | 3RW5213-..C.4 | 480 V, 13 A | **3RW5921-0PA04** | | 1 | 1 unit | 42S |
| | | 3RW5214-..C.4 | 480 V, 18 A | **3RW5921-0PB04** | | 1 | 1 unit | 42S |
| | | 3RW5215-..C.4 | 480 V, 25 A | **3RW5921-0PC04** | | 1 | 1 unit | 42S |
| | | 3RW5216-..C.4 | 480 V, 32 A | **3RW5921-0PD04** | | 1 | 1 unit | 42S |
| | | 3RW5217-..C.4 | 480 V, 38 A | **3RW5921-0PE04** | | 1 | 1 unit | 42S |
| | | 3RW522.-..C.4, 3RW523.-..C.4 | 480 V | **3RW5923-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW524.-..C.4 | 480 V | **3RW5924-0PY04** | | 1 | 1 unit | 42S |
|  3RW5924-0PY05 | | 3RW5213-..C.5 | 600 V, 13 A | **3RW5921-0PA05** | | 1 | 1 unit | 42S |
| | | 3RW5214-..C.5 | 600 V, 18 A | **3RW5921-0PB05** | | 1 | 1 unit | 42S |
| | | 3RW5215-..C.5 | 600 V, 25 A | **3RW5921-0PC05** | | 1 | 1 unit | 42S |
| | | 3RW5216-..C.5 | 600 V, 32 A | **3RW5921-0PD05** | | 1 | 1 unit | 42S |
| | | 3RW5217-..C.5 | 600 V, 38 A | **3RW5921-0PE05** | | 1 | 1 unit | 42S |
| | | 3RW522.-..C.5, 3RW523.-..C.5 | 600 V | **3RW5923-0PY05** | | 1 | 1 unit | 42S |
| | | 3RW524.-..C.5 | 600 V | **3RW5924-0PY05** | | 1 | 1 unit | 42S |
| **Fans** | | | | | | | | |
|  3RW5983-0FF00 | **Fan** | 3RW5216/17 (1x), 3RW5226/27 (2x), 3RW523 (2x) | -- | **3RW5983-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW524 (1x) | -- | **3RW5984-0FF00** | | 1 | 1 unit | 42S |
| **Terminals** | | | | | | | | |
|  3RW5982-0TB00 | **Box terminal block** | 3RW522 (2x) | -- | **3RW5982-0TB00** | | 1 | 1 unit | 42S |
| | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
|  3RW5980-1TR00 | | 3RW521.-1.C.., 3RW522.-1.C.., 3RW523.-6.C.., 3RW524.-6.C.. | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW521.-3.C.., 3RW522.-3.C.., 3RW523.-2.C.., 3RW524.-2.C.. | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | |
|  3RW5953-0GB00 | **Lower part of enclosures** | 3RW522, 3RW523 | -- | **3RW5953-0GB00** | | 1 | 1 unit | 42S |
| | | 3RW524 | -- | **3RW5954-0GB00** | | 1 | 1 unit | 42S |
|  3RW5950-0GD20 | **Cover for control cable duct** | 3RW52 | Titanium gray | **3RW5950-0GD20** | | 1 | 1 unit | 42S |

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## For 3RW52

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure components** | | | | | | | | |
|  3RW5954-0GF00 | **Front cover** | 3RW524 | -- | **3RW5954-0GF00** | | 1 | 1 unit | 42S |
|  3RW5950-0GL20 | **Hinged cover** | 3RW52 | Without cutout | **3RW5950-0GL20** | | 1 | 1 unit | 42S |
| **Transport packaging** | | | | | | | | |
|  3RW5953-0VY00 | **Transport packaging** | 3RW521 | -- | **3RW5951-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW522, 3RW523 | -- | **3RW5953-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW524 | -- | **3RW5954-0VY00** | | 1 | 1 unit | 42S |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>SiePortal, see www.siemens.com/product_catalog_siep?3RW | SiePortal topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |

## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Power semiconductor modules** | | | | | | | | |
|  3RW5953-0SL0. | **Power semiconductor modules** | 3RW505.-..B.4 (2x) | 480 V, 171 A | **3RW5953-0SL04** | | 1 | 1 unit | 42S |
| | | 3RW505.-..B.5 (2x) | 600 V, 171 A | **3RW5953-0SL05** | | 1 | 1 unit | 42S |
|  3RW5924-0S.05 | | 3RW5072 (2x) | 600 V, 210 A | **3RW5924-0SN05** | | 1 | 1 unit | 42S |
| | | 3RW5073 (2x), 3RW5074 (2x) | 600 V, 315 A | **3RW5924-0SQ05** | | 1 | 1 unit | 42S |
| | | 3RW5075 (2x), 3RW5076 (2x) | 600 V, 470 A | **3RW5924-0SS05** | | 1 | 1 unit | 42S |
| | | 3RW5077 (2x) | 600 V, 570 A | **3RW5924-0ST05** | | 1 | 1 unit | 42S |
| **Bypass units** | | | | | | | | |
|  3RW5905-0BY00 | **Bypass units** | 3RW505 | -- | **3RW5905-0BY00** | | 1 | 1 unit | 42S |
| | | 3RW5072, 3RW5073, 3RW5074 | 210 ... 315 A | **3RW5907-0BQ00** | | 1 | 1 unit | 42S |
| | | 3RW5075, 3RW5076, 3RW5077 | 370 ... 570 A | **3RW5907-0BY00** | | 1 | 1 unit | 42S |
| **Control units** | | | | | | | | |
|  3RW5905-1UA00 | **Control units** | | | | | | | |
| | Analog output | 3RW505.-.AB0. | 24 V | **3RW5905-1UA00** | | 1 | 1 unit | 42S |
| | | 3RW505.-.AB1. | 110 ... 250 V | **3RW5905-1UA10** | | 1 | 1 unit | 42S |
| | | 3RW507.-.AB0. | 24 V | **3RW5907-1UA00** | | 1 | 1 unit | 42S |
| | | 3RW507.-.AB1. | 110 ... 250 V | **3RW5907-1UA10** | | 1 | 1 unit | 42S |
| | Thermistor input | 3RW505.-.TB0. | 24 V | **3RW5905-1UT00** | | 1 | 1 unit | 42S |
| | | 3RW505.-.TB1. | 110 ... 250 V | **3RW5905-1UT10** | | 1 | 1 unit | 42S |
| | | 3RW507.-.TB0. | 24 V | **3RW5907-1UT00** | | 1 | 1 unit | 42S |
| | | 3RW507.-.TB1. | 110 ... 250 V | **3RW5907-1UT10** | | 1 | 1 unit | 42S |

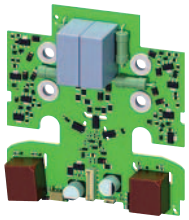


*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## For 3RW50

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Printed circuit boards** | | | | | | | | |
|  3RW5905-0PY04 | **Printed circuit boards** | 3RW505.-..B.4 | 480 V | **3RW5905-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW507.-..B.4 | 480 V | **3RW5907-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW505.-..B.5 | 600 V | **3RW5905-0PY05** | | 1 | 1 unit | 42S |
| | | 3RW507.-..B.5 | 600 V | **3RW5907-0PY05** | | 1 | 1 unit | 42S |
| **Fans** | | | | | | | | |
|  3RW5905-0FF00 | **Fans** | 3RW505 (1x) | -- | **3RW5905-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW507 (1x) | -- | **3RW5907-0FF00** | | 1 | 1 unit | 42S |
| **Terminals** | | | | | | | | |
|  3RW5980-1TR00 | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| | | 3RW50..-6.B.. | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW50..-2.B.. | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | |
|  3RW5905-0GB00 | **Lower part of enclosures** | 3RW505 | -- | **3RW5905-0GB00** | | 1 | 1 unit | 42S |
| | | 3RW507 | -- | **3RW5907-0GB00** | | 1 | 1 unit | 42S |
|  3RW5900-0GL00 | **Hinged cover** | 3RW50 | -- | **3RW5900-0GL00** | | 1 | 1 unit | 42S |
| **Transport packaging** | | | | | | | | |
|  3RW5905-0VY00 | **Transport packaging** | 3RW505 | -- | **3RW5905-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW507 | -- | **3RW5907-0VY00** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| SiePortal, see www.siemens.com/product_catalog_siep?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

***SIRIUS 3RF3 solid-state switching devices***



3RF31 solid-state relay, 1-pole, and 3RF33 solid-state contactor, 1-pole

The SIRIUS 3RF3 1-pole solid-state switching devices reliably switch a wide range of different loads with alternating voltages in 50 and 60 Hz systems.

- 3RF30 and 3RF31 solid-state relays
- 3RF33 solid-state contactors
- 3RF39 function modules

SIRIUS 3RF3 – For virtually infinite activity

Conventional electromechanical switchgear is often overtaxed by the rise in the number of switching operations. A high switching frequency results in frequent failure and short replacement cycles. However, this does not have to be the case, because with the latest generation of our SIRIUS 3RF3 solid-state switching devices we offer solid-state relays and contactors with a particularly long service life – for virtually infinite activity even under the toughest conditions and under high mechanical loading, but also in noise-sensitive areas.

Proven time and again in service

SIRIUS 3RF solid-state switching devices have firmly established themselves in industrial applications. They are used above all in applications where loads are switched frequently – mainly with resistive load controllers, with the control of electrical heat or the control of valves and motors in conveyor systems. In addition to its use in areas with high switching frequencies, their silent switching means that solid-state switching devices are also ideally suited for use in noise-sensitive areas, such as offices or hospitals.

The most reliable solution for any application

Compared to mechanical switchgear, our SIRIUS 3RF3 solid-state switching devices stand out due to their considerably longer service life. Thanks to the high product quality, their switching is extremely precise, reliable and, above all, insusceptible to faults. With its variable connection methods and a wide range of control voltages, the 3RF3 family is universally applicable. Depending on the individual requirements of the application, our modular switchgear can also be easily expanded by the addition of standardized 3RF39 function modules, see page 6/159 onwards.

Always on the sunny side with SIRIUS

Because SIRIUS 3RF3 offers even more:

- The space-saving and compact side-by-side mounting ensures reliable operation up to an ambient temperature of +60 °C.
- Thanks to fast configuration and the ease of mounting and commissioning, not only time but also expenses are saved.

Also for switching motors (see page 6/175 onwards)

In order to achieve higher productivity, the switching frequency is continuously increased in drive technology. This is no problem for our SIRIUS 3RF34..-.B... solid-state contactors for switching motors. With three-phase motors up to 7.5 kW, they can reliably withstand even the highest switching frequencies. Even a continuous change in the direction of rotation is possible with the solid-state reversing contactors. Both versions can be perfectly combined with components from the SIRIUS modular system. Connecting with SIRIUS motor starter protectors/circuit breakers or SIRIUS overload relays can be implemented without any further steps.

Solid-state switching devices for switching motors:

- 3RF34..-.BB.. solid-state contactors
- 3RF34..-.BD.. solid-state reversing contactors

***Connection methods***

The solid-state switching devices are available with screw terminals, spring-loaded terminals or ring cable lug connection.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | Ring cable lug connection |
| | The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds. |

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## General data NEW

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **Solid-state relays** | **3RF30** | □ | □ | – | □ | □ | □ | □ | □ | – | □ | □ | □ | □ | 1-pole, 45 mm width |
| | | **3RF31** | □ | □ | – | □ | □ | □ | □ | □ | – | □ | □ | □ | □ | 1-pole, 22.5 mm width |
| | **Solid-state contactors** | **3RF33** | □ | □ | – | □ | □ | □ | □ | □ | – | □ | □ | □ | □ | 1-pole |
| Maximum current-carrying capacity | e.g. 20 = 20 A | | □ | □ | | | | | | | | | | | | |
| Connection type | Screw terminals | | | | | **1** | | | | | | | | | | |
| | Spring-loaded terminals | | | | | **2** | | | | | | | | | | |
| | Ring cable lug connection | | | | | **3** | | | | | | | | | | |
| Product function | Zero-point switching | | | | | | **A** | | | | | | | | | |
| | Instantaneous switching | | | | | | **B** | | | | | | | | | |
| | Zero-point switching | | | | | | **D** | | | | | | | | | Short-circuit-proof with B MCB |
| Version | 1-pole controlled | | | | | | | **A** | | | | | | | | |
| Control supply voltage | 24 V DC | | | | | | | | **0** | | | | | | | |
| | 24 V AC/DC | | | | | | | | **1** | | | | | | | |
| | 110 ... 230 V AC | | | | | | | | **2** | | | | | | | |
| | 4 ... 30 V DC | | | | | | | | **4** | | | | | | | |
| | 110 V DC | | | | | | | | **6** | | | | | | | |
| Operational voltage | 24 ... 230 V AC | | | | | | | | | **2** | | | | | | |
| | 48 ... 460 V AC | | | | | | | | | **4** | | | | | | |
| | 48 ... 600 V AC | | | | | | | | | **5** | | | | | | Blocking voltage 1 200 V |
| | 48 ... 600 V AC | | | | | | | | | **6** | | | | | | Blocking voltage 1 600 V |
| Special versions | Low power | | | | | | | | | | | **0** | **K** | **N** | **0** | |
| Example | | **3RF31** | **2** | **0** | **–** | **1** | **A** | **A** | **0** | **6** | | | | | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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***Overview of the SIRIUS 3RF3 solid-state switching devices***

| Type | Solid-state relays | | Solid-state contactors | Function modules | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1-pole | | 1-pole | Converters | Load monitoring | | Heating current monitoring | Power controllers | Power regulators |
| | 22.5 mm | 45 mm | | | Basic | Extended | | | |
| | 3RF31 | 3RF30 | 3RF33 | 3RF3900-0EA18 | 3RF39..-0FA | 3RF39..-0GA | 3RF39..-0JA | 3RF39..-0KA | 3RF39..-0HA |
| **Usage** | | | | | | | | | |
| Simple replacement of existing solid-state relays | ❑ | ✓ | ❑ | -- | -- | -- | -- | -- | -- |
| Complete unit "Ready to use" | ❑ | ❑ | ✓ | -- | -- | -- | -- | -- | -- |
| Space-saving | ✓ | -- | ✓ | ✓ | ✓ | -- | -- | -- | -- |
| Can be extended with modular function modules | ✓ | -- | ✓ | -- | -- | -- | -- | -- | -- |
| Frequent switching and monitoring of the load and the solid-state relay or contactor | -- | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monitoring of up to six partial loads | -- | -- | -- | -- | ✓ | -- | ✓ | ✓ | -- |
| Monitoring of more than six partial loads | -- | -- | -- | -- | -- | ✓ | -- | -- | -- |
| Control of the heating power through an analog input | -- | -- | -- | ✓ | -- | -- | -- | ✓ | ✓ |
| Power control | -- | -- | -- | -- | -- | -- | -- | -- | ✓ |
| **Commissioning** | | | | | | | | | |
| Easy setting of setpoint values with "Teach" button | -- | -- | -- | -- | ✓ | ✓ | -- | ✓ | ✓ |
| "Remote Teach" input for setting setpoints | -- | -- | -- | -- | -- | -- | ✓ | -- | -- |
| **Mounting** | | | | | | | | | |
| Mounting on mounting rails or mounting plates | -- | -- | ✓ | -- | -- | -- | -- | -- | -- |
| Can be snapped directly onto a solid-state relay or contactor | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Use on heat sink | ✓ | ✓ | -- | -- | -- | -- | -- | -- | -- |
| **Cable routing** | | | | | | | | | |
| Connection of load circuit as for switchgear | ✓ | -- | ✓ | -- | ✓ | ✓ | ✓ | ✓ | ✓ |
| Connection of load circuit from above | -- | ✓ | -- | -- | -- | -- | -- | -- | -- |

✓ Function available
❑ Function possible
-- Function not possible

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## General data NEW

### Benefits

***Main features***

- Compact and space-saving design
- LED display
- Variety of connection methods, also with high degree of protection
- Plug-in control connection
- Sustainable product design (EcoTech-certified)

***Features***

- Considerable space savings due to versions with a width of only 22.5 mm
- Variety of connection methods: Screw terminal, spring-loaded terminal or ring cable lug, there is no problem – they are all finger-safe
- Flexible for all applications with function modules for retrofitting
- Possibility of fuseless short-circuit-proof design

***Benefits***

- Saves time and costs with fast mounting and commissioning, short startup times and easy wiring
- Extremely long life, low maintenance, rugged and reliable
- Space-saving and safe thanks to side-by-side mounting up to an ambient temperature of +60 °C
- Modular design: Standardized function modules and heat sinks can be used in conjunction with solid-state switching devices to satisfy individual requirements.
- Safety due to lifelong, vibration-resistant and shock-resistant spring-loaded terminals even under tough conditions
- Optimum heat transfer allows small, space-saving heat sinks to be used



### Application

***Applications***

Example: Plastics processing industry

Thanks to their high switching service life, SIRIUS 3RF3 solid-state switching devices are ideal for controlling electrical heat. This is because the more precise the temperature regulation process has to be, the higher the switching frequency.
The accurate regulation of electrical heat is used for example in many processes in the plastics processing industry:

- Band heaters heat the extrudate to the correct temperature in plastic extruders
- Heat emitters heat plastic blanks to the correct temperature
- Heat drums dry plastic granules
- Heating channels keep molds at the correct temperature in order to manufacture different plastic parts without defects.

The powerful 3RF3 solid-state relays and contactors can be used for the simultaneous control of several heating loads. By using a load monitoring module the individual partial loads can easily be monitored, and in the event of a failure a signal is generated to be sent to the controller.

Use in fuseless load feeders

Compared with the fused configuration of load feeders, short-circuit and line protection using miniature circuit breakers is easy to achieve with 3RF3 solid-state relays and contactors.

A special version of the 3RF33 solid-state contactors can be protected against damage in the case of a short circuit with a miniature circuit breaker with type B tripping characteristic. This allows the low-cost and simple design of fuseless load feeders with full protection of the switchgear.

### More information

***Notes on integration in the load feeders***

The SIRIUS solid-state switching devices are very easy to integrate into the load feeders thanks to their industrial connection method and design.

Particular attention must however be paid to the circumstances of the installation and ambient conditions, as the performance capacity of the solid-state switching devices is largely dependent on these. Depending on the version, certain restrictions must be observed. For detailed information, for example in relation to 3RF33 solid-state contactors about the minimum spacing and to 3RF30 and 3RF31 solid-state relays about the choice of heat sink, see technical product data sheets, https://support.industry.siemens.com/cs/ww/en/ps/30002/td.

Short-circuit and overload protection

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor protection fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly. The technical product data sheets contain details both about the solid-state fuse protection itself and about use of the devices with conventional protection equipment.

Electromagnetic compatibility (EMC)

The solid-state switching devices are suitable for interference-free operation in industrial networks without further measures. If they are used in public networks, it may be necessary for the conducted disturbance voltage to be reduced by means of filters.

Standard filters can be used to comply with the limit values. The decisive factors when it comes to selecting the filters are essentially the current loading and the other parameters (operational voltage, design type, etc.) in the load feeder.

Suitable filters can be purchased from TDK Europe GmbH, see page 16/18.

***Product information and technical specifications***

For product data sheets with detailed technical specifications, dimensional drawings and characteristic curves, see https://support.industry.siemens.com/cs/ww/en/ps/30002/td.

For more information, please enter the article number of the required device under the tab "Product List".

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## Overview

***3RF3 solid-state relays (without heat sink)***

Solid-state relays are suitable for mounting on existing cooling surfaces. Mounting is quick and easy, involving just two screws. The special technology of the power semiconductor ensures that there is excellent thermal contact with the heat sink. Depending on the nature of the heat sink, the performance capacity reaches up to 80 A on resistive loads.

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see More information, page 6/126).

The solid-state relays are available in two versions:

- 3RF31 solid-state relay with a width of 22.5 mm
- 3RF30 solid-state relay with a width of 45 mm

Version for resistive loads "zero-point switching"

This standard version is often used for switching heaters on and off.

Version for inductive loads "instantaneous switching"

The version is specially adapted to inductive loads. Whether it is a matter of frequent actuation of the valves in a filling plant or starting and stopping small operating mechanisms in packet distribution systems, operation is carried out safely and noiselessly.

Special "low power" version

This special version for the 3RF31 solid-state relays is optimized for minimal current consumption in the control input. This allows, for example, a very large number of 3RF3 devices to be operated simultaneously from one control output.

Function modules

The 3RF31 solid-state relays can be expanded with various function modules to adapt them to individual applications, see page 6/159 onwards.

***3RF31 1-pole solid-state relays (without heat sink) with a width of 22.5 mm***

With its compact design, which stays the same even at currents of up to 80 A, the 3RF31 solid-state relay with a width of just 22.5 mm offers an ultra-small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

***3RF30 1-pole solid-state relays (without heat sink) with a width of 45 mm***

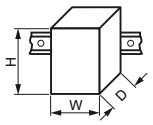
The solid-state relays with a width of 45 mm provide for connection of the power supply lead and the load from above. This makes it easy to replace existing solid-state relays in existing arrangements. The connection of the control cable is as space-saving as the 22.5 mm design, as it is simply plugged on.

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## Technical specifications

| More information | |
|---|---|
| Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/30002/man | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/30002/faq |

| Article number | | 3RF31..-1....,<br>3RF31..-2.... | 3RF31..-3.... |
|---|---|---|---|
| **General technical specifications** | | | |
| **Dimensions (W x H x D)**  | mm | 22.5 x 85 x 48 | |
| **Ambient temperature** | | | |
| • During operation | °C | -25 ... +60 | |
| • During storage | °C | -55 ... +80 | |
| **Derating temperature** | °C | 40 | |
| **Installation altitude at height above sea level, maximum** | m | 1 000 | |
| **Shock resistance according to IEC 60068-2-27** | | 15 *g*/11 ms | |
| **Vibration resistance according to IEC 60068-2-6** | | 2 *g* | |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 | IP00; IP20 with cover |
| **Touch protection on the front according to IEC 60529** | | Finger-safe for vertical touching from the front | Finger-safe for vertical touching from the front with cover |
| **Conducted RF interference emission according to CISPR11** | | Class A for industrial applications | |
| **Radiated RF interference emission according to CISPR11** | | Class B for residential, business and commercial applications | |
| **Electrostatic discharge according to IEC 61000-4-2** | | 4 kV contact-mode discharge/8 kV air discharge, behavior criterion 2 | |
| **Conducted interference** | | | |
| • Due to radio frequency radiation according to IEC 61000-4-6 | | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 | |
| • Due to burst according to IEC 61000-4-4 | | 2 kV/5 kHz, behavior criterion 2 | |
| • Due to conductor-ground surge according to IEC 61000-4-5 | | 2 kV, behavior criterion 2 | |
| • Due to conductor-conductor surge according to IEC 61000-4-5 | | 1 kV, behavior criterion 2 | |

| Article number | | 3RF3125-....2,<br>3RF3150-....2,<br>3RF3190-....2 | 3RF3125-....4,<br>3RF3150-....4,<br>3RF3190-....4 | 3RF3125-....5,<br>3RF3150-....5,<br>3RF3190-....5 | 3RF3150-....6,<br>3RF3190-....6 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Operational voltage at AC** | V | 24 ... 230 | 48 ... 460 | 48 ... 600 | |
| **Operating frequency** | Hz | 50 ... 60 | | | |
| **Blocking voltage at thyristor for main contacts, maximum permissible** | V | 800 | 1 200 | | 1 600 |

| Article number | | 3RF3125-2.... | 3RF3125-1....,<br>3RF3125-3.... | 3RF3150-2....,<br>3RF3190-2.... | 3RF3150-1....,<br>3RF3150-3....,<br>3RF3190-1.... | 3RF3190-3.... |
|---|---|---|---|---|---|---|
| **Main circuit** | | | | | | |
| **Operational current** | | | | | | |
| • At AC-1 at 400 V | A | 20 | 25 | 20 | 50 | 80 |
| • According to UL 508 | A | 20 | 25 | 20 | 50 | 80 |
| • Minimum | mA | 100 | | 500 | | |

| Article number | | 3RF31..-..A0. | 3RF31..-..A4. | 3RF3150-..A1. | 3RF31..-..A2. |
|---|---|---|---|---|---|
| **Control circuit** | | | | | |
| **Type of voltage of the control supply voltage** | | DC | | AC/DC | AC |
| **Control supply voltage** | | | | | |
| • At AC | V | -- | | 14 ... 27 | 110 ... 230 |
| • At DC | V | 15 ... 24 | 4 ... 30 | 15 ... 24 | -- |
| **Frequency of the control supply voltage** | Hz | -- | | 50 ... 60 | |

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| Article number | | 3RF31..-1.... | 3RF31..-2.... | 3RF31..-3.... |
|---|---|---|---|---|
| **Main circuit** | | | | |
| **Type of electrical connection** | | Screw terminals | Spring-loaded terminals | Ring cable lug connection |
| **Connectable conductor cross-section** | | | | |
| • Solid or stranded | $mm^2$ | 1.5 ... 6 | 0.5 ... 2.5 | -- |
| • Finely stranded | | | | |
| - With end sleeve | $mm^2$ | 1 ... 10 | 0.5 ... 1.5 | -- |
| - Without end sleeve | $mm^2$ | -- | 0.5 ... 2.5 | -- |
| **Type of connectable conductor cross-sections** | | | | |
| • Solid | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$) | 2x (0.5 ... 2.5 $mm^2$) | -- |
| • Finely stranded | | | | |
| - With end sleeve | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$), 1 x 10 $mm^2$ | 2x (0.5 ... 1.5 $mm^2$) | -- |
| - Without end sleeve | | -- | 2x (0.5 ... 2.5 $mm^2$) | -- |
| • For AWG cables | | 2x (14 ... 10) | 2x (18 ... 14) | 1x (12 ... 4) |
| • For DIN cable lugs | | -- | | DIN 46234-5-2.5, -5-6, -5-10, -5-16, -5-25 |
| • For JIS cable lugs | | -- | | JIS C 2805 R 2-5, 5.5-5, 8-5, 14-5 |
| **AWG number as coded connectable conductor cross-section** | | 14 ... 8 | 18 ... 14 | 12 ... 4 |
| **Design of thread of terminal screw** | | M4 | -- | M5 |
| **Tightening torque for screw terminals** | Nm | 2 ... 2.5 | -- | 2 ... 2.5 |
| **Control circuit** | | | | |
| **Type of electrical connection** | | Screw terminals | Spring-loaded terminals | Ring cable lug connection |
| **Connectable conductor cross-section** | | | | |
| • Solid | $mm^2$ | 0.5 ... 2.5 | 0.5 ... 1.5 | 0.5 ... 2.5 |
| • Finely stranded | | | | |
| - With end sleeve | $mm^2$ | 0.5 ... 2.5 | | |
| - Without end sleeve | $mm^2$ | 0.5 ... 2.5 | | |
| **Type of connectable conductor cross-sections** | | | | |
| • Solid | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) | 0.5 ... 1.5 $mm^2$ | 1x (0.5 ... 2.5 $mm^2$), 2 x (0.5 ... 1 $mm^2$) |
| • Finely stranded | | | | |
| - With end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) | 0.5 ... 2.5 $mm^2$ | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| - Without end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) | 0.5 ... 2.5 $mm^2$ | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • For AWG cables | | 1x (20 ... 12) | | |
| **AWG number as coded connectable conductor cross-section** | | 20 ... 12 | | |
| **Design of thread of terminal screw** | | M3 | -- | M3 |
| **Tightening torque for screw terminals** | Nm | 0.5 ... 0.6 | -- | 0.5 ... 0.6 |

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## Selection and ordering data

### *Selection notes*

When selecting solid-state relays, in addition to information about the network, the load and the ambient conditions, it is also necessary to know details of the planned design. The solid-state relays can only conform to their specific technical specifications if they are mounted with appropriate care on an adequately dimensioned heat sink.

Mounting solid-state relays directly on a mounting plate made of sheet steel is inadequate in terms of heat dissipation.

The following procedure is recommended:

- Determine the rated current of the load and the line voltage
- Select the relay design and choose a solid-state relay with higher rated current than the load
- Determine the thermal resistance of the proposed heat sink
- Check the correct relay size with the aid of the characteristic curves (see the technical product data sheets of the relevant solid-state relay) taking into account the thermal resistance of the heat sink
- In systems that have high voltage peaks or at voltages of 575 V and higher, use of versions with a high blocking voltage of 1 600 V is recommended.

### *Solid-state relays (without heat sink)*

| Maximum current-carrying capacity | Control supply voltage | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | |
| | ***Zero-point switching*** | | | | | |
| 25 | 24 DC | **3RF3125-1AA02** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | **3RF3125-1AA42** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3125-1AA22** | | 1 | 1 unit | 41C |
| 50 | 24 DC | **3RF3150-1AA02** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | **3RF3150-1AA42** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3150-1AA22** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3190-1AA02** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3190-1AA22** | | 1 | 1 unit | 41C |
| | ***Instantaneous switching*** | | | | | |
| 50 | 110 ... 230 AC | **3RF3150-1BA22** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | |
| | ***Zero-point switching*** | | | | | |
| 25 | 24 DC | **3RF3125-1AA04** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3125-1AA24** | | 1 | 1 unit | 41C |
| 50 | 24 DC | **3RF3150-1AA04** | | 1 | 1 unit | 41C |
| | 24 AC/DC | **3RF3150-1AA14** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3150-1AA24** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3190-1AA04** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3190-1AA24** | | 1 | 1 unit | 41C |
| | ***Instantaneous switching*** | | | | | |
| 25 | 24 DC | **3RF3125-1BA04** | | 1 | 1 unit | 41C |
| 50 | 24 DC | **3RF3150-1BA04** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3190-1BA04** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | |
| | ***Zero-point switching*** | | | | | |
| 25 | 4 ... 30 DC | **3RF3125-1AA45** | | 1 | 1 unit | 41C |
| 50 | 4 ... 30 DC | **3RF3150-1AA45** | | 1 | 1 unit | 41C |
| 90 | 4 ... 30 DC | **3RF3190-1AA45** | | 1 | 1 unit | 41C |
| | ***Zero-point switching, low power*** | | | | | |
| 90 | 24 DC | **3RF3190-1AA05-0KN0** | | 1 | 1 unit | 41C |
| | ***Zero-point switching, high blocking voltage*** | | | | | |
| 50 | 24 DC | **3RF3150-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3150-1AA26** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3190-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3190-1AA26** | | 1 | 1 unit | 41C |
| | ***Instantaneous switching, high blocking voltage*** | | | | | |
| 50 | 24 DC | **3RF3150-1BA06** | | 1 | 1 unit | 41C |


3RF3125-1AA02


3RF3125-1AA04


3RF3125-1AA45


3RF3190-1AA05-0KN0

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state relay. The actual permissible current-carrying capacity may be smaller depending on the connection system and cooling conditions, please observe the selection notes (see above).

Versions with screw terminals can only be used for a maximum current-carrying capacity of approx. 50 A and a conductor cross-section of 10 $mm^2$. Please use the 3RF31 solid-sate relay with ring cable lug connection for these currents, see page 6/132.

Other control supply voltages on request.

Accessories, see page 6/145.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Solid-state relays (without heat sink)***

| | Maximum current-carrying capacity | Control supply voltage | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | V | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | |
| | ***Zero-point switching*** | | | | | | |
|  3RF3125-2AA02 | 25 | 24 DC | **3RF3125-2AA02** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | **3RF3125-2AA42** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3125-2AA22** | | 1 | 1 unit | 41C |
| | 50 | 24 DC | **3RF3150-2AA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3150-2AA22** | | 1 | 1 unit | 41C |
| | 90 | 24 DC | **3RF3190-2AA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3190-2AA22** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | |
| | ***Zero-point switching*** | | | | | | |
|  3RF3125-2AA04 | 25 | 24 DC | **3RF3125-2AA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3125-2AA24** | | 1 | 1 unit | 41C |
| | 50 | 24 DC | **3RF3150-2AA04** | | 1 | 1 unit | 41C |
| | | 24 AC/DC | **3RF3150-2AA14** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3150-2AA24** | | 1 | 1 unit | 41C |
| | 90 | 24 DC | **3RF3190-2AA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3190-2AA24** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | | |
| | ***Zero-point switching*** | | | | | | |
|  3RF3125-2AA45 | 25 | 4 ... 30 DC | **3RF3125-2AA45** | | 1 | 1 unit | 41C |
| | ***Zero-point switching, high blocking voltage*** | | | | | | |
| | 50 | 24 DC | **3RF3150-2AA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3150-2AA26** | | 1 | 1 unit | 41C |
| | 90 | 24 DC | **3RF3190-2AA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | **3RF3190-2AA26** | | 1 | 1 unit | 41C |

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state relay. The actual permissible current-carrying capacity may be smaller depending on the connection system and cooling conditions, please observe the selection notes (see page 6/130).

Versions with spring-loaded terminals can only be used for a maximum current-carrying capacity of approx. 20 A and a conductor cross-section of 2.5 $mm^2$. Higher currents can be achieved by connecting two conductors per terminal, or 3RF31 solid-state relays with screw terminals (see page 6/130) or ring cable lug connections (see page 6/132) are used.

Other control supply voltages on request.

Accessories, see page 6/145.

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***Solid-state relays (without heat sink)***

| Maximum current-carrying capacity | Control supply voltage | Ring cable lug connection | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | |
| ***Zero-point switching*** | | | | | | |
| 25 | 24 DC | **3RF3125-3AA02** | | 1 | 1 unit | 41C |
| 90 | 110 ... 230 AC | **3RF3190-3AA22** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | |
| ***Zero-point switching*** | | | | | | |
| 50 | 110 ... 230 AC | **3RF3150-3AA24** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3190-3AA04** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | **3RF3190-3AA44** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3190-3AA24** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | |
| ***Zero-point switching, high blocking voltage*** | | | | | | |
| 50 | 24 DC | **3RF3150-3AA06** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3190-3AA06** | | 1 | 1 unit | 41C |


3RF3125-3AA02


3RF3150-3AA24


3RF3150-3AA06

Note:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state relay.
The actual permissible current-carrying capacity may be smaller depending on the connection system and cooling conditions, please observe the selection notes (see page 6/130).

Other control supply voltages on request.

Accessories, see page 6/145.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

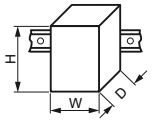
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## Technical specifications

**More information**

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/30002/man FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/30002/faq

| Article number | | 3RF30..-1AA.. |
|---|---|---|
| **General data** | | |
| **Dimensions (W x H x D)**   | mm | 45 x 58 x 48 |
| **Ambient temperature** | | |
| • During operation | °C | -25 ... +60 |
| • During storage | °C | -55 ... +80 |
| **Derating temperature** | °C | 40 |
| **Installation altitude at height above sea level, maximum** | m | 1 000 |
| **Shock resistance according to IEC 60068-2-27** | | 15 *g*/11 ms |
| **Vibration resistance according to IEC 60068-2-6** | | 2 *g* |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 |
| **Touch protection on the front according to IEC 60529** | | Finger-safe for vertical touching from the front |
| **Conducted RF interference emission according to CISPR11** | | Class A for industrial applications |
| **Radiated RF interference emission according to CISPR11** | | Class B for residential, business and commercial applications |
| **Electrostatic discharge according to IEC 61000-4-2** | | 4 kV contact-mode discharge/8 kV air discharge, behavior criterion 2 |
| **Conducted interference** | | |
| • Due to radio frequency radiation according to IEC 61000-4-6 | | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 |
| • Due to burst according to IEC 61000-4-4 | | 2 kV/5 kHz, behavior criterion 2 |
| • Due to conductor-ground surge according to IEC 61000-4-5 | | 2 kV, behavior criterion 2 |
| • Due to conductor-conductor surge according to IEC 61000-4-5 | | 1 kV, behavior criterion 2 |

| Article number | | 3RF30..-1AA.2 | 3RF30..-1AA.4 | 3RF30..-1AA.5 |
|---|---|---|---|---|
| **Main circuit** | | | | |
| **Operational voltage at AC** | V | 24 ... 230 | 48 ... 460 | 48 ... 600 |
| **Operating frequency** | Hz | 50 ... 60 | | |
| **Blocking voltage at thyristor for main contacts, maximum permissible** | V | 800 | 1 200 | |

| Article number | | 3RF3025-1AA.. | 3RF3050-1AA.., 3RF3090-1AA.. |
|---|---|---|---|
| **Main circuit** | | | |
| **Operational current** | | | |
| • At AC-1 at 400 V | A | 25 | 50 |
| • According to UL 508 | A | 25 | 50 |
| • Minimum | mA | 100 | 500 |

| Article number | | 3RF30..-1AA0. | 3RF30..-1AA4. | 3RF3025-1AA22 |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Type of voltage of the control supply voltage** | | DC | | AC |
| **Control supply voltage** | | | | |
| • At AC | V | -- | | 110 ... 230 |
| • At DC | V | 15 ... 24 | 4 ... 30 | -- |
| **Frequency of the control supply voltage** | Hz | -- | | 50 ... 60 |

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## Solid-state relays > SIRIUS 3RF30 solid-state relays, 1-pole, 45 mm NEW

| Article number | | 3RF30..-1AA.. |
|---|---|---|
| **Main circuit** | | |
| **Type of electrical connection** | | Screw terminals |
| **Connectable conductor cross-section** | | |
| • Solid or stranded | $mm^2$ | 1.5 ... 6 |
| • Finely stranded with end sleeve | $mm^2$ | 1 ... 10 |
| **Type of connectable conductor cross-sections** | | |
| • Solid | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$) |
| • Finely stranded with end sleeve | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$), 1x 10 $mm^2$ |
| • For AWG cables | | 2x (14 ... 10) |
| **AWG number as coded connectable conductor cross-section** | | 14 ... 8 |
| **Design of thread of terminal screw** | | M4 |
| **Tightening torque** | Nm | 2 ... 2.5 |
| **Control circuit** | | |
| **Type of electrical connection** | | Screw terminals |
| **Connectable conductor cross-section** | | |
| • Solid | $mm^2$ | 0.5 ... 2.5 |
| • Finely stranded | | |
| - With end sleeve | $mm^2$ | 0.5 ... 2.5 |
| - Without end sleeve | $mm^2$ | 0.5 ... 2.5 |
| **Type of connectable conductor cross-sections** | | |
| • Solid | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • Finely stranded | | |
| - With end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| - Without end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • For AWG cables | | 1x (20 ... 12) |
| **AWG number as coded connectable conductor cross-section** | | 20 ... 12 |
| **Design of thread of terminal screw** | | M3 |
| **Tightening torque** | Nm | 0.5 ... 0.6 |

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## Selection and ordering data

### *Selection notes*

When selecting solid-state relays, in addition to information about the network, the load and the ambient conditions, it is also necessary to know details of the planned design. The solid-state relays can only conform to their specific technical specifications if they are mounted with appropriate care on an adequately dimensioned heat sink.

Mounting solid-state relays directly on a mounting plate made of sheet steel is inadequate in terms of heat dissipation.

The following procedure is recommended:

- Determine the rated current of the load and the line voltage
- Select the relay design and choose a solid-state relay with higher rated current than the load
- Determine the thermal resistance of the proposed heat sink
- Check the correct relay size with the aid of the characteristic curves (see the technical product data sheets of the relevant solid-state relay) taking into account the thermal resistance of the heat sink
- In systems that have high voltage peaks or at voltages of 575 V and higher, use of versions with a high blocking voltage of 1 600 V is recommended.

### *Solid-state relays (without heat sink)*

| Maximum current-carrying capacity | Control supply voltage | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | |
|  3RF3025-1AA02 | | | | | | |
| ***Zero-point switching*** | | | | | | |
| 25 | 24 DC | **3RF3025-1AA02** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | **3RF3025-1AA42** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | **3RF3025-1AA22** | | 1 | 1 unit | 41C |
| 50 | 24 DC | **3RF3050-1AA02** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | **3RF3050-1AA42** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3090-1AA02** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | |
|  3RF3025-1AA04 | | | | | | |
| ***Zero-point switching*** | | | | | | |
| 25 | 24 DC | **3RF3025-1AA04** | | 1 | 1 unit | 41C |
| 50 | 24 DC | **3RF3050-1AA04** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | **3RF3050-1AA44** | | 1 | 1 unit | 41C |
| 90 | 24 DC | **3RF3090-1AA04** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | |
|  3RF3025-1AA45 | | | | | | |
| ***Zero-point switching*** | | | | | | |
| 25 | 4 ... 30 DC | **3RF3025-1AA45** | | 1 | 1 unit | 41C |
| 50 | 4 ... 30 DC | **3RF3050-1AA45** | | 1 | 1 unit | 41C |
| 90 | 4 ... 30 DC | **3RF3090-1AA45** | | 1 | 1 unit | 41C |

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state relay. The actual permissible current-carrying capacity may be smaller depending on the connection system and cooling conditions, please observe the selection notes (see above).

Versions with screw terminals can only be used for a maximum current-carrying capacity of approx. 50 A and a conductor cross-section of 10 $mm^2$.

Other control supply voltages on request.

Accessories, see page 6/145.

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## Overview

***3RF3 solid-state contactors (with integrated heat sink)***

The compact design of the 3RF33 solid-state contactor with optimized heat sink enables small complete units with currents up to 80 A.

These complete units consist of a solid-state relay with optimized heat sink, and are therefore ready to use. They offer defined rated currents to make selection as easy as possible. Like all of our solid-state switching devices, one of their particular advantages is their compact and space-saving design.

Thanks to optimized power electronics, versions of 3RF3306 to 3RF3320 solid-state contactors can be mounted side-by-side without derating, see technical product data sheets for the individual products.

Notes:

Checking the correct solid-state contactor size with the aid of the rated current characteristic curve, taking account of the ambient conditions, is recommended.

Due to a special mounting foot for versions 3RF3310 to 3RF3330, snapping onto grounded DIN rails or mounting on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

With other mounting types, an additional ground connection to the heat sink can be established by means of screw terminals.

***3RF33 1-pole solid-state contactors with heat sink***

Version for resistive loads "zero-point switching"

This standard version is often used for switching heaters on and off.

Version for inductive loads "instantaneous switching"

In this version, the solid-state contactor is specifically matched to inductive loads. Whether it is a matter of frequent actuation of the valves in a filling plant or starting and stopping small operating mechanisms in packet distribution systems, operation is carried out safely and noiselessly.

Special "low power" version

This special version is optimized for minimal current consumption in the control input. This allows, for example, a very large number of 3RF3 devices to be operated simultaneously from one control output.

Special version "short-circuit-proof with B MCB"

Skillful matching of the power semiconductor with the performance capacity of the 3RF33.0-1DA.. solid-state contactor means that "short-circuit strength" can be achieved with a standard miniature circuit breaker. In combination with a B MCB or a conventional line protection fuse, the result is a short-circuit-proof feeder.

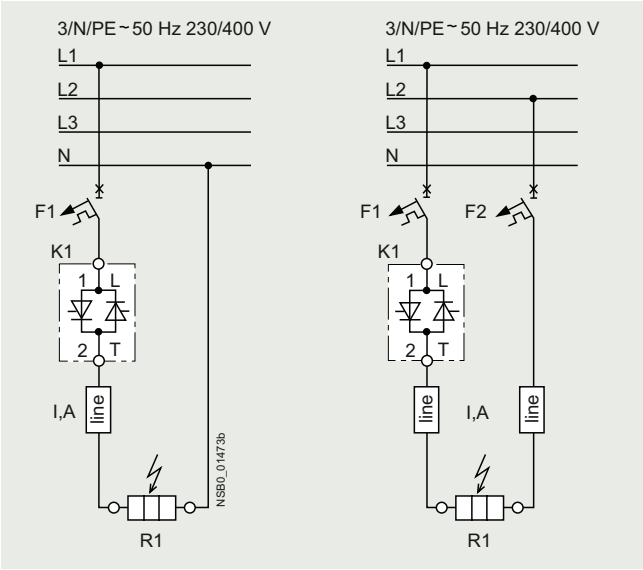
In order to achieve problem-free short-circuit protection by means of miniature circuit breakers, however, certain constraints must be observed. As the magnitude and duration of the short-circuit current are determined not only by the short-circuit breaking response of the miniature circuit breaker but also the properties of the wiring system, such as the internal resistance of the input to the network and damping by switching devices and cables, particular attention must also be paid to these parameters. The necessary cable lengths are therefore shown for the main factor, the line resistance, in the following table.

In systems that have high voltage peaks or at voltages of 575 V and higher, use of versions with a high blocking voltage of 1 600 V is recommended.

The following miniature circuit breakers with a B characteristic and 10 kA or 6 kA breaking capacity protect the 3RF33.0-1DA.. solid-state contactors in the event of short circuits on the load and the specified conductor cross-sections and lengths:

| Rated current of the miniature circuit breaker | Example of type[1)] | Max. conductor cross-section | Minimum cable length from contactor to load |
|---|---|---|---|
| 6 A | 5SY4106-6 | 1 $mm^2$ | 5 m |
| 10 A | 5SY4110-6 | 1.5 $mm^2$ | 8 m |
| 16 A | 5SY4116-6 | 1.5 $mm^2$ | 12 m |
| | | 2.5 $mm^2$ | 20 m |
| 20 A | 5SY4120-6 | 2.5 $mm^2$ | 20 m |
| 25 A | 5SY4125-6 | 2.5 $mm^2$ | 26 m |

1) The miniature circuit breakers can be used up to a maximum rated voltage of 480 V!




Solid-state contactor protection

The setup and installation above can also be used for the solid-state relays with an $I^2t$ value of at least 8 000 $A^2s$.

Function modules

The 3RF33 solid-state contactors can be expanded with various function modules for individual adaptation to applications, see page 6/159 onwards.

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## Technical specifications

**More information**

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/30002/man FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/30002/faq

| Article number | | 3RF3306-..A.. | 3RF3310-..A.. | 3RF3320-..A.., 3RF3330-..A.. | 3RF3340-..A.. | 3RF3350-..A.. | 3RF3365-..A.. | 3RF3380-..A.. |
|---|---|---|---|---|---|---|---|---|
| **Dimensions** | | | | | | | | |
| **Width** | mm | 22.5 | | | 45 | 50 | 70 | 80 |
| **Height** | mm | 95 | | | | 100 | | |
| **Depth** | mm | 82 | 89 | 121 | 114 | 133 | 144 | 160 |

| Article number | | 3RF33..-1.A.., 3RF33..-2.A.. | 3RF33..-3.A.. |
|---|---|---|---|
| **General data** | | | |
| **Ambient temperature** | | | |
| • During operation | °C | -25 ... +60 | |
| • During storage | °C | -55 ... +80 | |
| **Derating temperature** | °C | 40 | |
| **Installation altitude at height above sea level, maximum** | m | 1 000 | |
| **Shock resistance according to IEC 60068-2-27** | | 15 *g*/11 ms | |
| **Vibration resistance according to IEC 60068-2-6** | | 2 *g* | |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 | IP00; IP20 with cover |
| **Touch protection on the front according to IEC 60529** | | Finger-safe for vertical touching from the front | Finger-safe for vertical touching from the front with cover |
| **Conducted RF interference emission according to CISPR11** | | Class A for industrial applications | |
| **Radiated RF interference emission according to CISPR11** | | Class B for residential, business and commercial applications | |
| **Electrostatic discharge according to IEC 61000-4-2** | | 4 kV contact-mode discharge/8 kV air discharge, behavior criterion 2 | |
| **Conducted interference** | | | |
| • Due to radio frequency radiation according to IEC 61000-4-6 | | 140 dBµV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 | |
| • Due to burst according to IEC 61000-4-4 | | 2 kV/5 kHz, behavior criterion 2 | |
| • Due to conductor-ground surge according to IEC 61000-4-5 | | 2 kV, behavior criterion 2 | |
| • Due to conductor-conductor surge according to IEC 61000-4-5 | | 1 kV, behavior criterion 2 | |

| Article number | | 3RF33..-..A.2 | 3RF33..-..A.4 | 3RF33..-..A.5 | 3RF33..-..A.6 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Operational voltage at AC** | V | 24 ... 230 | 48 ... 460 | 48 ... 600 | |
| **Operating frequency** | Hz | 50 ... 60 | | | |
| **Blocking voltage at thyristor for main contacts, maximum permissible** | V | 800 | 1 200 | | 1 600 |

| Article number | | 3RF3306-1AA45 | 3RF3310-.AA.. | 3RF3320-.AA.., 3RF3320-.DA.. | 3RF3330-.AA.., 3RF3330-.DA.. | 3RF3340-.AA.., 3RF3340-.DA.. | 3RF3350-.AA.. | 3RF3365-.AA.. | 3RF3380-.AA.. |
|---|---|---|---|---|---|---|---|---|---|
| **Main circuit** | | | | | | | | | |
| **Operational current** | | | | | | | | | |
| • At AC-1 at 400 V | A | 6 | 10 | 20 | 30 | 40 | 50 | 65 | 80 |
| • According to UL 508 | A | 5 | 8 | 16 | 24 | 34 | 43 | 56 | 69 |
| • Minimum | mA | 100 | | 500 | | | | | |
| **Power loss, maximum** | VA | 5.7 | 9.4 | 18.6 | 25 | 39 | 47 | 65 | 79 |
| **Off-state current of thyristor** | mA | 10 | | | | | | | |

| Article number | | 3RF3310-1BA.. | 3RF3320-1BA.. | 3RF3330-1BA.. | 3RF3340-1BA.. | 3RF3350-1BA.. | 3RF3365-1BA.. | 3RF3365-3BA.. | 3RF3380-1BA.. | 3RF3380-3BA.. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Main circuit** | | | | | | | | | | |
| **Operational current** | | | | | | | | | | |
| • At AC-1 at 400 V | A | 10 | 20 | 30 | 40 | 50 | | 65 | 50 | 80 |
| • According to UL 508 | A | 6 | 12 | 15 | 20 | 25 | 27.5 | | 30 | |
| • At AC-15 | A | 6 | 12 | 15 | 20 | 25 | 27.5 | | | |
| • Minimum | mA | 100 | 500 | | | | | | | |
| **Power loss, maximum** | VA | 9.4 | 18.6 | 25 | 39 | 47 | 65 | | 79 | |
| **Off-state current of thyristor** | mA | 10 | | | | | | | | |

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## Solid-state contactors > SIRIUS 3RF33 solid-state contactors, 1-pole NEW

| Article number | | 3RF33..-..A0. | 3RF33..-..A4. | 3RF3320-1AA65 | 3RF33..-..A1. | 3RF33..-..A2. |
|---|---|---|---|---|---|---|
| **Control circuit** | | | | | | |
| **Type of voltage of the control supply voltage** | | DC | | | AC/DC | AC |
| **Frequency of the control supply voltage** | Hz | -- | | | 50 ... 60 | |
| **Control supply voltage** | | | | | | |
| • At AC | V | -- | | | 14 ... 27 | 110 ... 230 |
| • At DC | V | 15 ... 24 | 4 ... 30 | 77 ... 110 | 15 ... 24 | -- |

| Article number | | 3RF33..-1.A.. | 3RF33..-2.A.. | 3RF33..-3.A.. |
|---|---|---|---|---|
| **Main circuit** | | | | |
| **Type of electrical connection** | | Screw terminals | Spring-loaded terminals | Ring cable lug connection |
| **Connectable conductor cross-section** | | | | |
| • Solid or stranded | $mm^2$ | 1.5 ... 6 | 0.5 ... 2.5 | -- |
| • Finely stranded | | | | |
| - With end sleeve | $mm^2$ | 1 ... 10 | 0.5 ... 1.5 | -- |
| - Without end sleeve | $mm^2$ | -- | 0.5 ... 2.5 | -- |
| **Type of connectable conductor cross-sections** | | | | |
| • Solid | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$) | 2x (0.5 ... 2.5 $mm^2$) | -- |
| • Finely stranded | | | | |
| - With end sleeve | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$), 1 x 10 $mm^2$ | 2x (0.5 ... 1.5 $mm^2$) | -- |
| - Without end sleeve | | -- | 2x (0.5 ... 2.5 $mm^2$) | -- |
| • For AWG cables | | 2x (14 ... 10) | 2x (18 ... 14) | 1x (12 ... 4) |
| • For DIN cable lugs | | -- | -- | DIN 46234-5-2.5, -5-6, -5-10, -5-16, -5-25 |
| • For JIS cable lugs | | -- | -- | JIS C 2805 R 2-5, 5.5-5, 8-5, 14-5 |
| **AWG number as coded connectable conductor cross-section** | | 14 ... 8 | 18 ... 14 | 12 ... 4 |
| **Design of thread of terminal screw for main contacts** | | M4 | -- | M5 |
| **Tightening torque for screw terminals** | Nm | 2 ... 2.5 | -- | 2 ... 2.5 |
| **Control circuit** | | | | |
| **Type of electrical connection** | | Screw terminals | Spring-loaded terminals | Ring cable lug connection |
| **Connectable conductor cross-section** | | | | |
| • Solid | $mm^2$ | 0.5 ... 2.5 | 0.5 ... 1.5 | 0.5 ... 2.5 |
| • Finely stranded | | | | |
| - With end sleeve | $mm^2$ | 0.5 ... 2.5 | | |
| - Without end sleeve | $mm^2$ | 0.5 ... 2.5 | | |
| **Type of connectable conductor cross-sections** | | | | |
| • Solid | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) | 0.5 ... 1.5 $mm^2$ | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • Finely stranded | | | | |
| - With end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) | 0.5 ... 2.5 $mm^2$ | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| - Without end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) | 0.5 ... 2.5 $mm^2$ | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • For AWG cables | | 1x (20 ... 12) | | |
| **AWG number as coded connectable conductor cross-section** | | 20 ... 12 | | |
| **Design of thread of terminal screw of auxiliary and control contacts** | | M3 | -- | M3 |
| **Tightening torque for screw terminals** | Nm | 0.5 ... 0.6 | -- | 0.5 ... 0.6 |

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## Selection and ordering data

### *Selection notes*

The solid-state contactors are selected on the basis of details of the network, the load and the ambient conditions. As the solid-state contactors are already equipped with an optimally matched heat sink, the selection process is considerably simpler than that for solid-state relays.

The following procedure is recommended:

- Determine the rated current of the load and the line voltage
- Select a solid-state contactor with the same or higher rated current than the load

### *Solid-state contactors (with integrated heat sink)*

| Operational current at AC-1 at 400 V | Control supply voltage | Grounding | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | |
| ***Zero-point switching*** | | | | | | | |
| 10 | 24 DC | ✓ | **3RF3310-1AA02** | | 1 | 1 unit | 41C |
| | 24 AC/DC | ✓ | **3RF3310-1AA12** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3310-1AA22** | | 1 | 1 unit | 41C |
| 20 | 24 DC | ✓ | **3RF3320-1AA02** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3320-1AA22** | | 1 | 1 unit | 41C |
| 30 | 24 DC | ✓ | **3RF3330-1AA02** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3330-1AA22** | | 1 | 1 unit | 41C |
| 40 | 24 DC | ❍ | **3RF3340-1AA02** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ❍ | **3RF3340-1AA22** | | 1 | 1 unit | 41C |
| 50 | 24 DC | ❍ | **3RF3350-1AA02** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ❍ | **3RF3350-1AA22** | | 1 | 1 unit | 41C |
| ***Zero-point switching, low power*** | | | | | | | |
| 20 | 24 DC | ✓ | **3RF3320-1AA02-0KN0** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | |
| ***Zero-point switching*** | | | | | | | |
| 10 | 24 DC | ✓ | **3RF3310-1AA04** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | ✓ | **3RF3310-1AA44** | | 1 | 1 unit | 41C |
| | 24 AC/DC | ✓ | **3RF3310-1AA14** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3310-1AA24** | | 1 | 1 unit | 41C |
| 20 | 24 DC | ✓ | **3RF3320-1AA04** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | ✓ | **3RF3320-1AA44** | | 1 | 1 unit | 41C |
| | 24 AC/DC | ✓ | **3RF3320-1AA14** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3320-1AA24** | | 1 | 1 unit | 41C |
| 30 | 24 DC | ✓ | **3RF3330-1AA04** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | ✓ | **3RF3330-1AA44** | | 1 | 1 unit | 41C |
| | 24 AC/DC | ✓ | **3RF3330-1AA14** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3330-1AA24** | | 1 | 1 unit | 41C |
| 40 | 24 DC | ❍ | **3RF3340-1AA04** | | 1 | 1 unit | 41C |
| | 24 AC/DC | ❍ | **3RF3340-1AA14** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ❍ | **3RF3340-1AA24** | | 1 | 1 unit | 41C |
| 50 | 24 DC | ❍ | **3RF3350-1AA04** | | 1 | 1 unit | 41C |
| | 24 AC/DC | ❍ | **3RF3350-1AA14** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ❍ | **3RF3350-1AA24** | | 1 | 1 unit | 41C |
| ***Zero-point switching, low power*** | | | | | | | |
| 10 | 24 DC | ✓ | **3RF3310-1AA04-0KN0** | | 1 | 1 unit | 41C |


3RF3310-1AA02


3RF3350-1AA22


3RF3310-1AA04


3RF3350-1AA24

✓ Grounding by snapping onto grounded DIN rails

❍ Heat sink grounding by means of screw terminal connection

Other control supply voltages on request.

Accessories, see page 6/145.

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state contactor. The actual permissible current-carrying capacity may be smaller depending on the ambient conditions, please observe the selection notes (see above).

For derating characteristics, see technical product data sheets. For more information, see page 6/126.

Versions 3RF3310 to 3RF3330 are equipped with a special mounting foot, see also note on page 6/136.

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***Solid-state contactors (with integrated heat sink)***

| Operational current at AC-1 at 400 V | Control supply voltage | Ground-ing | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | |
| ***Zero-point switching, short-circuit-proof with B MCB*** | | | | | | | |
| 20 | 24 DC | ✓ | **3RF3320-1DA02** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3320-1DA22** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | |
| ***Zero-point switching, short-circuit-proof with B MCB*** | | | | | | | |
| 20 | 24 DC | ✓ | **3RF3320-1DA04** | | 1 | 1 unit | 41C |
| | 4 ... 30 DC | ✓ | **3RF3320-1DA44** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3320-1DA24** | | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | ✓ | **3RF3330-1DA44** | | 1 | 1 unit | 41C |
| ***Zero-point switching, short-circuit-proof with B MCB, low power*** | | | | | | | |
| 30 | 24 DC | ✓ | **3RF3330-1DA04-0KN0** | | 1 | 1 unit | 41C |
| 40 | 24 DC | ❍ | **3RF3340-1DA04-0KN0** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | | |
| ***Zero-point switching*** | | | | | | | |
| 6 | 4 ... 30 DC | ❑ | **3RF3306-1AA45** | | 1 | 1 unit | 41C |
| 10 | 4 ... 30 DC | ✓ | **3RF3310-1AA45** | | 1 | 1 unit | 41C |
| 20 | 4 ... 30 DC | ✓ | **3RF3320-1AA45** | | 1 | 1 unit | 41C |
| | 110 DC | ✓ | **3RF3320-1AA65** | | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | ✓ | **3RF3330-1AA45** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3330-1AA25** | | 1 | 1 unit | 41C |
| 40 | 4 ... 30 DC | ❍ | **3RF3340-1AA45** | | 1 | 1 unit | 41C |
| 50 | 4 ... 30 DC | ❍ | **3RF3350-1AA45** | | 1 | 1 unit | 41C |
| ***Zero-point switching, high blocking voltage*** | | | | | | | |
| 10 | 24 DC | ✓ | **3RF3310-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3310-1AA26** | | 1 | 1 unit | 41C |
| 20 | 24 DC | ✓ | **3RF3320-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3320-1AA26** | | 1 | 1 unit | 41C |
| 30 | 24 DC | ✓ | **3RF3330-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ✓ | **3RF3330-1AA26** | | 1 | 1 unit | 41C |
| 40 | 24 DC | ❍ | **3RF3340-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ❍ | **3RF3340-1AA26** | | 1 | 1 unit | 41C |
| 50 | 24 DC | ❍ | **3RF3350-1AA06** | | 1 | 1 unit | 41C |
| | 110 ... 230 AC | ❍ | **3RF3350-1AA26** | | 1 | 1 unit | 41C |
| ***Zero-point switching, short-circuit-proof with B MCB, high blocking voltage*** | | | | | | | |
| 30 | 24 DC | ✓ | **3RF3330-1DA06** | | 1 | 1 unit | 41C |


3RF3320-1DA02


3RF3320-1DA04


3RF3340-1DA04-0KN0


3RF3306-1AA45


3RF3350-1AA26

✓ Grounding by snapping onto grounded DIN rails
❍ Heat sink grounding by means of screw terminal connection
❑ Plastic heat sink, no grounding required

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state contactor. The actual permissible current-carrying capacity may be smaller depending on the ambient conditions, please observe the selection notes (see page 6/139).

For derating characteristics, see technical product data sheets. For more information, see page 6/126.

Versions 3RF3310 to 3RF3330 are equipped with a special mounting foot, see also note on page 6/136.

Other control supply voltages on request.

Accessories, see page 6/145.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***Solid-state contactors (with integrated heat sink)***

Utilization category AC-15:
Electromagnetic loads, e.g. valves according to IEC 60947-5-1.
Parameters: Switching cycles max. 1 200 1/h,
50% ON period, 10-times inrush current for 60 ms.

| Operational current at AC-1 at 400 V | Operational current at AC-15 | Control supply voltage | Ground-ing | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| A | A | V | | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | | |
| | | ***Instantaneous switching*** | | | | | | |
| 10 | 6 | 24 DC | ✓ | **3RF3310-1BA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3310-1BA22** | | 1 | 1 unit | 41C |
| 20 | 12 | 24 DC | ✓ | **3RF3320-1BA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-1BA22** | | 1 | 1 unit | 41C |
| 30 | 15 | 24 DC | ✓ | **3RF3330-1BA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3330-1BA22** | | 1 | 1 unit | 41C |
| 40 | 20 | 24 DC | ❍ | **3RF3340-1BA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3340-1BA22** | | 1 | 1 unit | 41C |
| 50 | 25 | 24 DC | ❍ | **3RF3350-1BA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3350-1BA22** | | 1 | 1 unit | 41C |
| | 27.5 | 24 DC | ❍ | **3RF3365-1BA02** | | 1 | 1 unit | 41C |
| | | 24 DC | ❍ | **3RF3380-1BA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3380-1BA22** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | | |
| | | ***Instantaneous switching*** | | | | | | |
| 10 | 6 | 24 DC | ✓ | **3RF3310-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3310-1BA24** | | 1 | 1 unit | 41C |
| 20 | 12 | 24 DC | ✓ | **3RF3320-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-1BA24** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | ✓ | **3RF3320-1BA44** | | 1 | 1 unit | 41C |
| 30 | 15 | 24 DC | ✓ | **3RF3330-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3330-1BA24** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | ✓ | **3RF3330-1BA44** | | 1 | 1 unit | 41C |
| 40 | 20 | 24 DC | ❍ | **3RF3340-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3340-1BA24** | | 1 | 1 unit | 41C |
| 50 | 25 | 24 DC | ❍ | **3RF3350-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3350-1BA24** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | ❍ | **3RF3350-1BA44** | | 1 | 1 unit | 41C |
| | 27.5 | 24 DC | ❍ | **3RF3365-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3365-1BA24** | | 1 | 1 unit | 41C |
| | | 24 DC | ❍ | **3RF3380-1BA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3380-1BA24** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | | | |
| | | ***Instantaneous switching, high blocking voltage*** | | | | | | |
| 10 | 6 | 24 DC | ✓ | **3RF3310-1BA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3310-1BA26** | | 1 | 1 unit | 41C |
| 20 | 12 | 24 DC | ✓ | **3RF3320-1BA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-1BA26** | | 1 | 1 unit | 41C |
| 30 | 15 | 24 DC | ✓ | **3RF3330-1BA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3330-1BA26** | | 1 | 1 unit | 41C |
| 40 | 20 | 24 DC | ❍ | **3RF3340-1BA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3340-1BA26** | | 1 | 1 unit | 41C |
| 50 | 25 | 24 DC | ❍ | **3RF3350-1BA06** | | 1 | 1 unit | 41C |
| | 27.5 | 24 DC | ❍ | **3RF3365-1BA06** | | 1 | 1 unit | 41C |
| | | 24 DC | ❍ | **3RF3380-1BA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3380-1BA26** | | 1 | 1 unit | 41C |


3RF3310-1BA02


3RF3310-1BA04


3RF3310-1BA06


3RF3380-1BA26

✓ Grounding by snapping onto grounded DIN rails
❍ Heat sink grounding by means of screw terminal connection

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state contactor. The actual permissible current-carrying capacity may be smaller depending on the ambient conditions, please observe the selection notes (see page 6/139).

For derating characteristics, see technical product data sheets.
For more information, see page 6/126.

Versions 3RF3310 to 3RF3330 are equipped with a special mounting foot, see also note on page 6/136.

Other control supply voltages on request.

Accessories, see page 6/145.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***Solid-state contactors (with integrated heat sink)***

| | Operational current at AC-1 at 400 V | Control supply voltage | Grounding | Spring-loaded terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | V | | Article No. / Price per PU | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | |
| | ***Zero-point switching*** | | | | | | |
|  | 10 | 24 DC | ✓ | **3RF3310-2AA02** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3310-2AA22** | 1 | 1 unit | 41C |
| | 20 | 24 DC | ✓ | **3RF3320-2AA02** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-2AA22** | 1 | 1 unit | 41C |
| | ***Zero-point switching, short-circuit-proof with B MCB*** | | | | | | |
| 3RF3310-2AA02 | 20 | 110 ... 230 AC | ✓ | **3RF3320-2DA22** | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | |
| | ***Zero-point switching*** | | | | | | |
|  | 10 | 24 DC | ✓ | **3RF3310-2AA04** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3310-2AA24** | 1 | 1 unit | 41C |
| | 20 | 24 DC | ✓ | **3RF3320-2AA04** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-2AA24** | 1 | 1 unit | 41C |
| | ***Zero-point switching, short-circuit-proof with B MCB*** | | | | | | |
| 3RF3310-2AA04 | 20 | 24 DC | ✓ | **3RF3320-2DA04** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-2DA24** | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | | |
| | ***Zero-point switching, high blocking voltage*** | | | | | | |
|  | 10 | 24 DC | ✓ | **3RF3310-2AA06** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3310-2AA26** | 1 | 1 unit | 41C |
| | 20 | 24 DC | ✓ | **3RF3320-2AA06** | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3320-2AA26** | 1 | 1 unit | 41C |
| 3RF3320-2AA26 | | | | | | | |

✓ Grounding by snapping onto grounded DIN rails

Other control supply voltages on request.

Accessories, see page 6/145.

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state contactor. The actual permissible current-carrying capacity may be smaller depending on the ambient conditions, please observe the selection notes (see page 6/139).

For derating characteristics, see technical product data sheets. For more information, see page 6/126.

Versions 3RF3310 and 3RF3320 are equipped with a special mounting foot, see also note on page 6/136.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Solid-state contactors (with integrated heat sink)***

| | Operational current at AC-1 at 400 V | Control supply voltage | Grounding | Ring cable lug connection<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | A | V | | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | | |
| | ***Zero-point switching*** | | | | | | | |
|  3RF3310-3AA02 | 10 | 24 DC | ✓ | **3RF3310-3AA02** | | 1 | 1 unit | 41C |
| | 20 | 24 DC | ✓ | **3RF3320-3AA02** | | 1 | 1 unit | 41C |
| | 30 | 24 DC | ✓ | **3RF3330-3AA02** | | 1 | 1 unit | 41C |
| | 40 | 24 DC | ❍ | **3RF3340-3AA02** | | 1 | 1 unit | 41C |
| | 50 | 24 DC | ❍ | **3RF3350-3AA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3350-3AA22** | | 1 | 1 unit | 41C |
| | 65 | 24 DC | ❍ | **3RF3365-3AA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3365-3AA22** | | 1 | 1 unit | 41C |
| | 80 | 24 DC | ❍ | **3RF3380-3AA02** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3380-3AA22** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | | |
| | ***Zero-point switching*** | | | | | | | |
|  3RF3310-3AA04 | 10 | 24 DC | ✓ | **3RF3310-3AA04** | | 1 | 1 unit | 41C |
| | 20 | 24 DC | ✓ | **3RF3320-3AA04** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | ✓ | **3RF3320-3AA44** | | 1 | 1 unit | 41C |
| | 30 | 24 DC | ✓ | **3RF3330-3AA04** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | ✓ | **3RF3330-3AA44** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ✓ | **3RF3330-3AA24** | | 1 | 1 unit | 41C |
| | 40 | 24 DC | ❍ | **3RF3340-3AA04** | | 1 | 1 unit | 41C |
| | 50 | 24 DC | ❍ | **3RF3350-3AA04** | | 1 | 1 unit | 41C |
| | | 4 ... 30 DC | ❍ | **3RF3350-3AA44** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3350-3AA24** | | 1 | 1 unit | 41C |
| | 65 | 24 DC | ❍ | **3RF3365-3AA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3365-3AA24** | | 1 | 1 unit | 41C |
| | 80 | 24 DC | ❍ | **3RF3380-3AA04** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3380-3AA24** | | 1 | 1 unit | 41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | | | |
| | ***Zero-point switching*** | | | | | | | |
|  3RF3340-3AA45 | 40 | 4 ... 30 DC | ❍ | **3RF3340-3AA45** | | 1 | 1 unit | 41C |
| | 65 | 4 ... 30 DC | ❍ | **3RF3365-3AA45** | | 1 | 1 unit | 41C |
| | 80 | 4 ... 30 DC | ❍ | **3RF3380-3AA45** | | 1 | 1 unit | 41C |
| | ***Zero-point switching, high blocking voltage*** | | | | | | | |
| | 20 | 24 DC | ✓ | **3RF3320-3AA06** | | 1 | 1 unit | 41C |
| | 30 | 24 DC | ✓ | **3RF3330-3AA06** | | 1 | 1 unit | 41C |
| | 40 | 24 DC | ❍ | **3RF3340-3AA06** | | 1 | 1 unit | 41C |
| | 50 | 24 DC | ❍ | **3RF3350-3AA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3350-3AA26** | | 1 | 1 unit | 41C |
| | 65 | 24 DC | ❍ | **3RF3365-3AA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3365-3AA26** | | 1 | 1 unit | 41C |
| | 80 | 24 DC | ❍ | **3RF3380-3AA06** | | 1 | 1 unit | 41C |
| | | 110 ... 230 AC | ❍ | **3RF3380-3AA26** | | 1 | 1 unit | 41C |


3RF3380-3AA26

✓ Grounding by snapping onto grounded DIN rails

❍ Heat sink grounding by means of screw terminal connection

Other control supply voltages on request.

Accessories, see page 6/145.

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state contactor. The actual permissible current-carrying capacity may be smaller depending on the ambient conditions, please observe the selection notes (see page 6/139).

For derating characteristics, see technical product data sheets. For more information, see page 6/126.

Versions 3RF3310 to 3RF3330 are equipped with a special mounting foot, see also note on page 6/136.

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***Solid-state contactors (with integrated heat sink)***

Utilization category AC-15:
Electromagnetic loads, e.g. valves according to IEC 60947-5-1.
Parameters: Switching cycles max. 1 200 1/h,
50% ON period, 10-times inrush current for 60 ms.

| | Operational current at AC-1 at 400 V | Operational current at AC-15 | Control supply voltage | Ground-ing | Ring cable lug connection | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | | | |
| | A | | V | | | | | | |
| **Operational voltage 24 ... 230 V AC** | | | | | | | | | |
| | ***Instantaneous switching*** | | | | | | | | |
|  3RF3365-3BA02 | 65 | 27.5 | 24 DC<br>110 ... 230 AC | ❍<br>❍ | **3RF3365-3BA02**<br>**3RF3365-3BA22** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| | 80 | 27.5 | 24 DC<br>110 ... 230 AC | ❍<br>❍ | **3RF3380-3BA02**<br>**3RF3380-3BA22** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| **Operational voltage 48 ... 460 V AC** | | | | | | | | | |
| | ***Instantaneous switching*** | | | | | | | | |
|  3RF3365-3BA04 | 65 | 27.5 | 24 DC<br>110 ... 230 AC | ❍<br>❍ | **3RF3365-3BA04**<br>**3RF3365-3BA24** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| | 80 | 27.5 | 24 DC<br>110 ... 230 AC | ❍<br>❍ | **3RF3380-3BA04**<br>**3RF3380-3BA24** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| **Operational voltage 48 ... 600 V AC** | | | | | | | | | |
| | ***Instantaneous switching, high blocking voltage*** | | | | | | | | |
|  3RF3380-3BA26 | 65 | 27.5 | 24 DC<br>110 ... 230 AC | ❍<br>❍ | **3RF3365-3BA06**<br>**3RF3365-3BA26** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| | 80 | 27.5 | 24 DC<br>110 ... 230 AC | ❍<br>❍ | **3RF3380-3BA06**<br>**3RF3380-3BA26** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |

❍ Heat sink grounding by means of screw terminal connection

Other control supply voltages on request.

Accessories, see page 6/145.

Notes:

The maximum current-carrying capacity provides information about the performance capacity of the solid-state contactor. The actual permissible current-carrying capacity may be smaller depending on the ambient conditions, please observe the selection notes (see page 6/139).

For derating characteristics, see technical product data sheets.
For more information, see page 6/126.

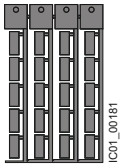


*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

| Version | For solid-state switching devices | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminal covers** | | | | | | |
| | | **Ring cable lug connection** | | | | |
|  3RF2900-3PA88 **Terminal covers** For solid-sate relays and solid-state contactors in ring cable lug connection technology. With this terminal cover, degree of protection IP20 can be achieved on the front with a ring cable lug connection. It can also be used for screw terminals after simple adaptation. | 3RF31, 3RF33 | **3RF2900-3PA88** | | 1 | 10 units | 41C |
| **Control connectors** | | | | | | |
| | | **Screw terminals** | | | | |
|  3RF3900-1TA88 **Replacement control connector** For solid-sate relays and solid-state contactors with screw terminals | 3RF30, 3RF31, 3RF33 | **3RF3900-1TA88** | | 1 | 50 units | 41C |
| | | **Spring-loaded terminals** | | | | |
|  3RF3900-2TB88 **Replacement control connector** For solid-state relays and solid-state contactors with spring-loaded terminals, with two clamping points per contact | 3RF30, 3RF31, 3RF33 | **3RF3900-2TB88** | | 1 | 10 units | 41C |
| **Tools for opening spring-loaded terminals** | | | | | | |
|  3RA2908-1A **Screwdrivers** For all SIRIUS devices with spring-loaded terminals. Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | 3RF31, 3RF33 | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Heat conducting foils** | | | | | | |
|  3RF3900-0WA88 **Heat conducting foils** For solid-state relays | 3RF30, 3RF31 | **3RF3900-0WA88** | | 1 | 20 units | 41C |
| **DIN-rail adapters** | | | | | | |
|  3RF3900-0BA88 **Spare part DIN-rail adapter** 45 mm wide, for solid-state contactors | 3RF33 | **3RF3900-0BA88** | | 1 | 1 unit | 41C |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 **Unit labeling plates** For SIRIUS devices[1] | | | | | | |
| • 10 mm × 7 mm, titanium gray | 3RF30, 3RF31, 3RF33 | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm × 7 mm, titanium gray | | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Self-adhesive labels** For SIRIUS devices | | | | | | |
| 19 mm × 6 mm, titanium gray | 3RF30, 3RF31, 3RF33 | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## General data

### Overview

| More information | |
|---|---|
| SiePortal, see www.siemens.com/product_catalog_siep?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

***SIRIUS 3RF2 solid-state switching devices***



3RF22 solid-state relay, 3-phase, and 3RF24 solid-state contactor, 3-phase

The SIRIUS 3RF2 3-phase solid-state switching devices reliably switch a wide range of different loads with alternating voltages in 50 and 60 Hz systems.

- 3RF22 solid-state relays
- 3RF24 solid-state contactors
- 3RF3900-0EA18 converter function modules

SIRIUS 3RF2 – for almost unending activity

Conventional electromechanical switchgear is often overtaxed by the rise in the number of switching operations. A high switching frequency results in frequent failure and short replacement cycles. However, this does not have to be the case, because with our SIRIUS 3RF2 solid-state switching devices we offer solid-state relays and contactors with a particularly long service life – for almost unending activity even under the toughest conditions and under high mechanical loading, but also in noise-sensitive areas.

Proven time and again in service

SIRIUS 3RF2 solid-state switching devices have firmly established themselves in industrial applications. They are used above all in applications where loads are switched frequently – mainly with resistive load controllers, with the control of electrical heat or the control of valves and motors in conveyor systems. In addition to its use in areas with high switching frequencies, their silent switching means that solid-state switching devices are also ideally suited for use in noise-sensitive areas, such as offices or hospitals.

The most reliable solution for any application

Compared to mechanical switchgear, our SIRIUS 3RF2 solid-state switching devices stand out due to their considerably longer service life. Thanks to the high product quality, their switching is extremely precise, reliable and, above all, insusceptible to faults. With its variable connection methods and a wide range of control voltages, the 3RF2 family is universally applicable. Depending on the individual requirements of the application, our modular switchgear can also be quite easily expanded by the addition of the 3RF3900-0EA18 converter function module (see page 6/162).

Always on the sunny side with SIRIUS

Because SIRIUS 3RF2 offers even more:

- The space-saving and compact side-by-side mounting ensures reliable operation up to an ambient temperature of +60 °C.
- Thanks to fast configuration and the ease of mounting and startup, not only time but also expenses are saved.

Also for switching motors (see page 6/175 onwards)

In order to achieve higher productivity, the switching frequency is continuously increased in drive technology. This is no problem for our SIRIUS 3RF34..-.B... solid-state contactors for switching motors. With three-phase motors up to 7.5 kW, they can reliably withstand even the highest switching frequencies. Even a continuous change in the direction of rotation is possible with the solid-state reversing contactors. Both versions can be perfectly combined with components from the SIRIUS modular system. Connecting with SIRIUS motor starter protectors/circuit breakers or SIRIUS overload relays can be implemented without any further steps.

Solid-state switching devices for switching motors:

- 3RF34..-.BB.. solid-state contactors
- 3RF34-.BD.. solid-state reversing contactors

***Connection methods***

The solid-state switching devices are available with screw terminals, spring-loaded terminals or ring cable lug connection.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | Ring cable lug connection |
| | The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds. |

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### *Article number scheme*

| Product versions | | Article number | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **Solid-state relays** | **3RF22** | ☐ | ☐ | – | ☐ | ☐ | ☐ | ☐ | ☐ | | | | 3-phase, 45 mm width |
| | **Solid-state contactors** | **3RF24** | ☐ | ☐ | – | ☐ | ☐ | ☐ | ☐ | ☐ | | | | 3-phase |
| Type current | e.g. 30 = 30 A | | | ☐ | ☐ | | | | | | | | | |
| Connection type | Screw terminals | | | | | **1** | | | | | | | | |
| | Spring-loaded terminals | | | | | **2** | | | | | | | | |
| | Ring cable lug connection | | | | | **3** | | | | | | | | |
| Product function | Zero-point switching | | | | | | **A** | | | | | | | |
| Version | 2-phase controlled | | | | | | | **B** | | | | | | |
| | 3-phase controlled | | | | | | | **C** | | | | | | |
| Rated control supply voltage $U_S$ | 110 V AC | | | | | | | | **3** | | | | | |
| | 4 ... 30 V DC | | | | | | | | **4** | | | | | |
| | 230 V AC | | | | | | | | **5** | | | | | |
| Rated operational voltage $U_e$ | 48 ... 600 V AC | | | | | | | | | **5** | | | | Blocking voltage 1 200 V |
| Example | | **3RF22** | **3** | **0** | **–** | **1** | **A** | **B** | **3** | **5** | | | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### *Overview of the SIRIUS 3RF22 and 3RF24 solid-state switching devices*

| **Type** | **Solid-state relays**<br>3-phase, 45 mm<br>3RF22 | **Solid-state contactors**<br>3-phase<br>3RF24 | **Function module**<br>Converters<br>3RF3900-0EA18 |
|---|---|---|---|
| **Usage** | | | |
| Simple replacement of existing solid-state relays | ❑ | ❑ | -- |
| Complete unit "Ready to use" | ❑ | ✓ | -- |
| Space-saving | ✓ | ✓ | ✓ |
| Modular extension possible with converters | ✓ | ✓ | -- |
| Control of the heating power through an analog input | -- | -- | ✓ |
| **Mounting** | | | |
| Mounting on mounting rails or mounting plates | -- | ✓ | -- |
| Can be snapped directly onto a solid-state relay or contactor | -- | -- | ✓ |
| Use on heat sink | ✓ | -- | -- |
| **Cable routing** | | | |
| Connection of load circuit as for switchgear | ✓ | ✓ | -- |
| Connection of load circuit from above | -- | -- | -- |

✓ Function available
❑ Function possible
-- Function not possible

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## General data

### Benefits

***Main features***

- Compact and space-saving design
- LED display
- Variety of connection methods, also with high degree of protection
- Plug-in control connection
- Zero-point switching, 2-phase or 3-phase controlled

***Features***

- Variety of connection methods: Screw terminal, spring-loaded terminal or ring cable lug, there is no problem – they are all finger-safe
- Flexible for all applications with function modules for retrofitting

***Benefits***

- Saves time and costs with fast mounting and commissioning, short startup times and easy wiring
- Extremely long life, low maintenance, rugged and reliable
- Space-saving and safe thanks to side-by-side mounting up to an ambient temperature of +60 °C
- Modular design: Combined with the 3RF3900-0EA18 converter function module, more demanding applications can be supported.
- Safety due to lifelong, vibration-resistant and shock-resistant spring-loaded terminals even under tough conditions
- Optimum heat transfer allows small, space-saving heat sinks to be used

### Application

***Applications***

Example: Plastics processing industry

Thanks to their high switching service life SIRIUS 3RF2 solid-state switching devices are ideal for controlling electrical heat. This is because the more precise the temperature regulation process has to be, the higher the switching frequency.
The accurate regulation of electrical heat is used for example in many processes in the plastics processing industry:

- Band heaters heat the extrudate to the correct temperature in plastic extruders
- Heat emitters heat plastic blanks to the correct temperature
- Heat drums dry plastic granules
- Heating channels keep molds at the correct temperature in order to manufacture different plastic parts without defects

The powerful 3RF2 solid-state relays and contactors can be used for the simultaneous control of several heating loads. By using a load monitoring module the individual partial loads can easily be monitored, and in the event of a failure a signal is generated to be sent to the controller.

Use in fuseless load feeders

Compared with the fused configuration of load feeders, short-circuit and line protection using miniature circuit breakers is easy to achieve with 3RF2 solid-state relays and contactors.

### More information

***Notes on integration in the load feeders***

The SIRIUS solid-state switching devices are very easy to integrate into the load feeders thanks to their industrial connection method and design.

Particular attention must however be paid to the circumstances of the installation and ambient conditions, as the performance capacity of the solid-state switching devices is largely dependent on these. Depending on the version, certain restrictions must be observed. For detailed information, for example in relation to 3RF24 solid-state contactors about the minimum spacing and to 3RF22 solid-state relays about the choice of heat sink, see technical product data sheets, https://support.industry.siemens.com/cs/ww/en/ps/16223/td.

Short-circuit and overload protection

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor protection fuses. These fuses also provide protection against destruction in the event of a short circuit even when the 3RF22 solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly. The technical product data sheets contain details both about the solid-state fuse protection itself and about use of the devices with conventional protection equipment.

Electromagnetic compatibility (EMC)

The solid-state switching devices are suitable for interference-free operation in industrial networks without further measures. If they are used in public networks, it may be necessary for the conducted disturbance voltage to be reduced by means of filters.

***Product information and technical specifications***

For product data sheets with detailed technical specifications, dimensional drawings and characteristic curves, see https://support.industry.siemens.com/cs/ww/en/ps/16223/td.

For more information, please enter the article number of the required device under the tab "Product List".

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## Overview

***3RF22 solid-state relays (without heat sink)***

Solid-state relays are suitable for mounting on existing cooling surfaces. Mounting is quick and easy, involving just two screws. The special technology of the power semiconductor ensures that there is excellent thermal contact with the heat sink. Depending on the nature of the heat sink, the performance capacity reaches up to 55 A on resistive loads.

With its compact design, which stays the same even at currents of up to 55 A, the 3RF22 solid-state relay with a width of just 45 mm offers an ultra small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

The 3-phase solid-state relays are available with

- 2-phase control (suitable in particular for circuits without connection to the neutral conductor) and
- 3-phase control (suitable for star circuits with connection to the neutral conductor or for applications in which the system requires all phases to be switched)

Version for resistive loads "zero-point switching"

This standard version is often used for 3RF22 solid-state relays for switching heaters on and off.

Function module

The 3RF22 solid-state relays can be expanded with the 3RF3900-0EA18 converter function module to adapt them to individual applications, see page 6/162.

***Selection notes***

When selecting solid-state relays, in addition to information about the network, the load and the ambient conditions, it is also necessary to know details of the planned design. The solid-state relays can only conform to their specific technical specifications if they are mounted with appropriate care on an adequately dimensioned heat sink.

Mounting solid-state relays directly on a mounting plate made of sheet steel is inadequate in terms of heat dissipation.

The following procedure is recommended:

- Determine the rated current of the load and the line voltage
- Select the relay design and choose a solid-state relay with higher rated current than the load
- Determine the thermal resistance of the proposed heat sink
- Check the correct relay size with the aid of the characteristic curves (see the technical product data sheets of the relevant solid-state relay) taking into account the thermal resistance of the heat sink

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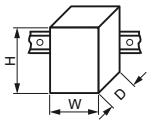


## SIRIUS 3RF22 solid-state relays, 3-phase, 45 mm

### Technical specifications

**More information**

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16223/man FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq

| | | | | |
|---|---|---|---|---|
| Type | | | **3RF22..-1....** | **3RF22..-2....** | **3RF22..-3....** |
| Dimensions (W x H x D) |  | mm | 45 x 95 x 47 | 45 x 95 x 47 | 45 x 95 x 47 |
| **General data** | | | | | |
| **Ambient temperature** | | | | | |
| • During operation, derating from 40 °C | | °C | -25 ... +60 | | |
| • During storage | | °C | -55 ... +80 | | |
| **Installation altitude** | | m | 0 ... 1 000; > 1 000 ask Technical Support | | |
| **Shock resistance** according to IEC 60068-2-27 | | *g*/ms | 15/11 | | |
| **Vibration resistance** according to IEC 60068-2-6 | | *g* | 2 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | IP00 |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | -- |
| **Insulation strength** at 50/60 Hz (main/control circuit to floor) | | V rms | 4 000 | | |
| **Electromagnetic compatibility** (EMC) | | | | | |
| • Emitted interference | | | | | |
| - Conducted disturbance voltage according to IEC 60947-4-3 | | | Class A for industrial applications[1] | | |
| • Interference immunity | | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to test level 3) | | kV | Contact-mode discharge 4; air discharge 8, behavior criterion 2 | | |
| - Induced RF fields according to IEC 61000-4-6 | | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | |
| - Burst according to IEC 61000-4-4 | | kV | 2/5.0 kHz, behavior criterion 2 | | |
| - Surge according to IEC 61000-4-5 | | kV | Conductor-ground 2; conductor-conductor 1, behavior criterion 2 | | |
| **Mounting** | | | | | |
| • Screws (not included in the scope of supply) | | | 2 x M4 | | |
| • Tightening torque | | Nm | 1.5 | | |
| **Connection type** | | | **Screw terminals** | **Spring-loaded terminals** | **Ring cable lug connection** |
| **Connection, main contacts** | | | | | |
| • Conductor cross-sections | | | | | |
| - Solid | | $mm^2$ | 2 x (1.5 ... 2.5)[2], 2 x (2.5 ... 6)[2] | 2 x (0.5 ... 2.5) | -- |
| - Finely stranded with end sleeve | | $mm^2$ | 2 x (1 ... 2.5)[2], 2 x (2.5 ... 6)[2], 1 x 10 | 2 x (0.5 ... 1.5) | -- |
| - Finely stranded without end sleeve | | $mm^2$ | -- | 2 x (0.5 ... 2.5) | -- |
| - Solid or stranded, AWG cables | | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) | -- |
| • Stripped length | | mm | 10 | 10 | -- |
| • Terminal screws | | | M4 | -- | M5 |
| - Tightening torque, ∅ 5 ... 6 mm, PZ 2 | | Nm | 2 ... 2.5 | | 2 ... 2.5 |
| | | lb.in | 18 ... 22 | | 18 ... 22 |
| • Cable lugs | | | | | |
| - According to DIN 46234 | | | -- | -- | 5-2.5 ... 5-25 |
| - According to JIS C 2805 | | | -- | -- | R 2-5 ... R 14-5 |
| - Width, maximum | | mm | -- | -- | 12 |
| **Connection, auxiliary/control contacts** | | | | | |
| • Conductor cross-sections, with or without end sleeve | | mm | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1) | 0.5 ... 2.5 | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1) |
| | | AWG | 20 ... 12 | 20 ... 12 | 20 ... 12 |
| • Stripped length | | mm | 7 | 10 | 7 |
| • Terminal screw | | | M3 | -- | M3 |
| - Tightening torque, ∅ 3.5 mm, PZ 1 | | Nm | 0.5 ... 0.6 | | 0.5 ... 0.6 |
| | | lb.in | 4.5 ... 5.3 | | 4.5 ... 5.3 |

1) These products were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures.

2) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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| Type | $I_{max}$ [1] at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to IEC 60947-4-3 at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to UL/CSA at $R_{thha}/T_u$ = 50 °C | | Power loss at $I_{max}$ | Minimum load current | Max. off-state current |
|---|---|---|---|---|---|---|---|---|---|
| | A | K/W | A | K/W | A | K/W | W | A | mA |
| **Main circuit** | | | | | | | | | |
| **3RF2230-1AB..** | 30 | 0.80 | 30 | 0.80 | 30 | 0.65 | 81 | 0.5 | 10 |
| **3RF2230-2AB..** | | | 20 | 1.36 | 20 | 1.15 | | | |
| **3RF2230-3AB..** | | | 30 | 0.80 | 30 | 0.65 | | | |
| **3RF2255-1AB..** | 55 | 0.25 | 50 | 0.35 | 50 | 0.15 | 151 | 0.5 | 10 |
| **3RF2255-2AB..** | | | 20 | 1.83 | 20 | 1.58 | | | |
| **3RF2255-3AB..** | | | 55 | 0.25 | 55 | 0.15 | | | |
| **3RF2230-1AC..** | 30 | 0.45 | 30 | 0.45 | 30 | 0.35 | 122 | 0.5 | 10 |
| **3RF2230-2AC..** | | | 20 | 0.86 | 20 | 0.72 | | | |
| **3RF2230-3AC..** | | | 30 | 0.45 | 30 | 0.35 | | | |
| **3RF2255-1AC..** | 55 | 0.14 | 50 | 0.20 | 50 | 0.12 | 226 | 0.5 | 10 |
| **3RF2255-2AC..** | | | 20 | 1.19 | 20 | 1.02 | | | |
| **3RF2255-3AC..** | | | 55 | 0.14 | 55 | 0.12 | | | |

[1] The current $I_{max}$ provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see More information, page 6/148). The minimum thickness values for the mounting surface must be observed.

| Type | | 3RF22..-.AB.5 | 3RF22..-.AC.5 |
|---|---|---|---|
| **Main circuit** | | | |
| **Controlled phases** | | 2-phase | 3-phase |
| **Rated operational voltage $U_e$** | V AC | 48 ... 600 | |
| • Operating range | V AC | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | |
| **Rated insulation voltage $U_i$** | V | 600 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | |
| **Blocking voltage** | V | 1 200 | |
| **Rate of voltage rise** | V/µs | 1 000 | |

| Type | | 3RF22..-.A.3. | 3RF22..-.A.4. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | AC operation | DC operation |
| **Control supply voltage $U_s$** | V | 110 | 4 ... 30 |
| **Rated frequency** of the control supply voltage | Hz | 50/60 ± 10% | -- |
| **Control supply voltage, max.** | V | 121 | 30 |
| **Typical actuating current** | mA | 15 | 30 |
| **Response voltage** | V | 90 | 4 |
| **Drop-out voltage** | V | < 40 | 1 |
| **Operating times** | | | |
| • ON-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave |
| • OFF-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave |

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## SIRIUS 3RF22 solid-state relays, 3-phase, 45 mm

### Selection and ordering data

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***2-phase controlled*** | | | | | | |
| 30 | 110 AC | **3RF2230-1AB35** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AB35** | | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | **3RF2230-1AB45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AB45** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | |
| 30 | 110 AC | **3RF2230-1AC35** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AC35** | | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | **3RF2230-1AC45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AC45** | | 1 | 1 unit | 41C |


3RF2230-1AB35

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

[2] Please note that the version with an M4 screw terminal can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm$^2$. Please use the 3RF22 solid-state relays with ring cable lug connections for these currents.

Accessories, see page 6/158.

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Spring-loaded terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***2-phase controlled*** | | | | | | |
| 30[2] | 4 ... 30 DC | **3RF2230-2AB45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-2AB45** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | |
| 30[2] | 4 ... 30 DC | **3RF2230-2AC45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-2AC45** | | 1 | 1 unit | 41C |


3RF2230-2AB45

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

[2] Please note that the version with spring-loaded terminals can only be used for a rated current of up to approx. 20 A and a conductor cross-section of 2.5 mm$^2$. Higher currents can be achieved by connecting two conductors per terminal.

Accessories, see page 6/158.

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Ring cable lug connection | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***2-phase controlled*** | | | | | | |
| 30 | 4 ... 30 DC | **3RF2230-3AB45** | | 1 | 1 unit | 41C |
| 55 | | **3RF2255-3AB45** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | |
| 30 | 4 ... 30 DC | **3RF2230-3AC45** | | 1 | 1 unit | 41C |
| 55 | | **3RF2255-3AC45** | | 1 | 1 unit | 41C |


3RF2230-3AB45

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Accessories, see page 6/158.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***3RF24 solid-state contactors (with integrated heat sink)***

The compact design of the 3RF24 solid-state contactor with optimized heat sink enables small complete units with currents up to 50 A.

The complete units consist of a solid-state relay with optimized heat sink, and are therefore ready to use. They offer defined rated currents to make selection as easy as possible. Like all of our solid-state switching devices, one of their particular advantages is their compact and space-saving design.

The 3-phase solid-state contactors for resistive loads up to 50 A are available with

- 2-phase control (suitable in particular for circuits without connection to the neutral conductor) and
- 3-phase control (suitable for star circuits with connection to the neutral conductor or for applications in which the system requires all phases to be switched)

The 3RF3900-0EA18 converter function module (see page 6/162) can be snapped on for the simple power control of loads in a three-phase network by means of analog signals.

Notes:

Checking the correct solid-state contactor size with the aid of the rated current characteristic curve, taking account of the installation conditions, is recommended, please observe the selection notes (see page 6/149).

Due to a special mounting foot for version 3RF2410, snapping onto grounded DIN rails or mounting on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case. With other mounting types, an additional ground connection to the heat sink can be established by means of a screw terminal connection.

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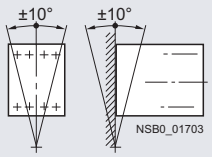


## SIRIUS 3RF24 solid-state contactors, 3-phase

### Technical specifications

**More information**

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16223/man
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq

| Type | | 3RF24..-1.... | 3RF24..-2.... | 3RF24..-3.... |
|---|---|---|---|---|
| Dimensions (W x H x D) | | See page 6/155 | | |
| **General data** | | | | |
| **Ambient temperature** | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Installation altitude** | m | 0 ... 1 000; derating from 1 000 | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00 |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | -- |
| **Insulation strength** at 50/60 Hz (main/control circuit to floor) | V rms | 4 000 | | |
| **Electromagnetic compatibility (EMC)** | | | | |
| • Emitted interference according to IEC 60947-4-3 - Conducted disturbance voltage | | Class A for industrial applications[1] | | |
| • Interference immunity | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to test level 3) | kV | Contact-mode discharge 4; air discharge 8, behavior criterion 2 | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | |
| - Burst according to IEC 61000-4-4 | kV | 2/5.0 kHz, behavior criterion 2 | | |
| - Surge according to IEC 61000-4-5 | kV | Conductor-ground 2; conductor-conductor 1, behavior criterion 2 | | |
| **Connection type** | | **Screw terminals** | **Spring-loaded terminals** | **Ring cable lug connection** |
| **Connection, main contacts** | | | | |
| • Conductor cross-section | | | | |
| - Solid | $mm^2$ | 2 x (1.5 ... 2.5)[2], 2 x (2.5 ... 6)[2] | 2 x (0.5 ... 2.5) | -- |
| - Finely stranded with end sleeve | $mm^2$ | 2 x (1 ... 2.5)[2], 2 x (2.5 ... 6)[2], 1 x 10 | 2 x (0.5 ... 1.5) | -- |
| - Finely stranded without end sleeve | $mm^2$ | -- | 2 x (0.5 ... 2.5) | -- |
| - Solid or stranded, AWG cables | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) | -- |
| • Stripped length | mm | 10 | 10 | -- |
| • Terminal screws | | M4 | -- | M5 |
| - Tightening torque | Nm | 2 ... 2.5 | | 2 ... 2.5 |
| | lb.in | 18 ... 22 | | 18 ... 22 |
| • Cable lugs | | | | |
| - According to DIN 46234 | | -- | -- | 5-2.5 ... 5-25 |
| - According to JIS C 2805 | | -- | -- | R 2-5 ... R 14-5 |
| - Width, maximum | mm | -- | -- | 12 |
| **Connection, auxiliary/control contacts** | | | | |
| • Conductor cross-section | mm | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1) | 0.5 ... 2.5 | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1) |
| | AWG | 20 ... 12 | 20 ... 12 | 20 ... 12 |
| • Stripped length | mm | 7 | 10 | 7 |
| • Terminal screw | | M3 | -- | M3 |
| - Tightening torque, ∅ 3.5 mm, PZ 1 | Nm | 0.5 ... 0.6 | -- | 0.5 ... 0.6 |
| | lb.in | 4.5 ... 5.3 | -- | 4.5 ... 5.3 |
| **Grounding screws** | | Optional, see also note on page 6/153 about the special mounting foot for safe grounding on DIN rails for version 3RF2410 | | |
| • Size (standard screw) | | M5 | | |
| **Permissible mounting position** | |   | | |

[1] These products were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures. The versions 3RF24..-1AC55 comply with Class B for residential, business and commercial applications.

[2] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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| Type | **Type current/ performance capacity**[1] $I_{AC-51}$ at 40 °C | **Rated operational current $I_e$** according to IEC 60947-4-3 at 40 °C | according to UL/CSA at 50 °C | **Power loss** at $I_{AC-51}$ | **Minimum load current** | **Max. off-state current** |
|---|---|---|---|---|---|---|
| | A | A | A | W | A | mA |
| **Main circuit** | | | | | | |
| **3RF2410-.AB.5** | 10.5 | 7 | 7 | 23 | 0.1 | 10 |
| **3RF2420-.AB.5** | 22 | 15 | 15 | 44 | 0.5 | 10 |
| **3RF2430-.AB.5** | 30 | 22 | 22 | 61 | 0.5 | 10 |
| **3RF2440-.AB.5** | 40 | 30 | 30 | 80 | 0.5 | 10 |
| **3RF2450-.AB.5** | 50 | 38 | 38 | 107 | 0.5 | 10 |
| **3RF2410-.AC.5** | 10.5 | 7 | 7 | 31 | 0.5 | 10 |
| **3RF2420-.AC.5** | 22 | 15 | 15 | 66 | 0.5 | 10 |
| **3RF2430-.AC.5** | 30 | 22 | 22 | 91 | 0.5 | 10 |
| **3RF2440-.AC.5** | 40 | 30 | 30 | 121 | 0.5 | 10 |
| **3RF2450-.AC.5** | 50 | 38 | 38 | 160 | 0.5 | 10 |

[1] The type current provides information about the performance capacity of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions.

| Type | **Type current $I_{AC-51}$** | **Dimensions (W x H x D)** (including heat sink) |
|---|---|---|
| | A | mm |
| **Main circuit** | | |
| **3RF2410-.AB..** | 10.5 | 45 x 95 x 92.5 |
| **3RF2410-.AC..** | | |
| **3RF2420-.AB..** | 22 | 45 x 100 x 112 |
| **3RF2420-.AC..** | 22 | 74.5 x 100 x 114.5 |
| **3RF2430-.AB..** | 30 | |

| Type | **Type current $I_{AC-51}$** | **Dimensions (W x H x D)** (including heat sink) |
|---|---|---|
| | A | mm |
| **Main circuit** | | |
| **3RF2430-.AC..** | 30 | 89.5 x 100 x 123 |
| **3RF2440-.AB..** | 40 | |
| **3RF2440-.AC..** | 40 | 120 x 95 x 130 |
| **3RF2450-.AB..** | 50 | |
| **3RF2450-.AC..** | 50 | 120 x 150 x 130 |

| Type | | **3RF24..-.AB.5** | **3RF24..-.AC.5** |
|---|---|---|---|
| **Main circuit** | | | |
| **Controlled phases** | | 2-phase | 3-phase |
| **Rated operational voltage $U_e$** | V AC | 48 ... 600 | |
| • Operating range | V AC | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | |
| **Rated insulation voltage $U_i$** | V | 600 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | |
| **Blocking voltage** | V | 1 200 | |
| **Rate of voltage rise** | V/µs | 1 000 | |

| Type | | **3RF24..-...3.** | **3RF24..-...4.** | **3RF24..-...5.** |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Method of operation** | | AC operation | DC operation | AC operation |
| **Rated control supply voltage $U_s$** | V | 110 | 4 ... 30 | 190 ... 230 |
| **Rated frequency** of the control supply voltage | Hz | 50/60 ± 10% | -- | 50/60 ± 10% |
| **Actuating voltage, max.** | V | 121 | 30 | 253 |
| **Typical actuating current** | mA | 15 | 30 | 15 |
| **Response voltage** | V | 90 | 4 | 180 |
| **Drop-out voltage** | V | < 40 | < 1 | < 40 |
| **Operating times** | | | | |
| • ON-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave | 40 + max. one half-wave |
| • OFF-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave | 40 + max. one half-wave |

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## SIRIUS 3RF24 solid-state contactors, 3-phase

### Selection and ordering data

| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | Screw terminals ⊕ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| ***2-phase controlled*** | | | | | | | |
| 10.5 | 4 ... 30 DC | ✓ | **3RF2410-1AB45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AB45** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AB45** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AB45** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AB45** | | 1 | 1 unit | 41C |
| 10.5 | 110 AC | ✓ | **3RF2410-1AB35** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AB35** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AB35** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AB35** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AB35** | | 1 | 1 unit | 41C |
| 10.5 | 230 AC | ✓ | **3RF2410-1AB55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AB55** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AB55** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AB55** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AB55** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | | |
| 10.5 | 4 ... 30 DC | ✓ | **3RF2410-1AC45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AC45** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AC45** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AC45** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AC45** | | 1 | 1 unit | 41C |
| 10.5 | 110 AC | ✓ | **3RF2410-1AC35** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AC35** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AC35** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AC35** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AC35** | | 1 | 1 unit | 41C |
| 10.5 | 230 AC | ✓ | **3RF2410-1AC55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AC55** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AC55** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AC55** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AC55** | | 1 | 1 unit | 41C |


3RF2410-1AB45


3RF2410-1AC45

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance capacity of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions. For derating characteristic curves, see More information, page 6/148.

Accessories, see page 6/158.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | **Spring-loaded terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| ***2-phase controlled*** | | | | | | | |
| 10 | 4 ... 30 DC | ✓ | **3RF2410-2AB45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AB45** | | 1 | 1 unit | 41C |
| 10 | 230 AC | ✓ | **3RF2410-2AB55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AB55** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | | |
| 10 | 4 ... 30 DC | ✓ | **3RF2410-2AC45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AC45** | | 1 | 1 unit | 41C |
| 10 | 230 AC | ✓ | **3RF2410-2AC55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AC55** | | 1 | 1 unit | 41C |


3RF2410-2AB.5

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance capacity of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions. For derating characteristic curves, see More information, page 6/148.

Accessories, see page 6/158.

| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | **Ring cable lug connection** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| ***2-phase controlled*** | | | | | | | |
| 50 | 4 ... 30 DC | -- | **3RF2450-3AB45** | | 1 | 1 unit | 41C |
| 50 | 230 AC | -- | **3RF2450-3AB55** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | | |
| 50 | 4 ... 30 DC | -- | **3RF2450-3AC45** | | 1 | 1 unit | 41C |
| 50 | 230 AC | -- | **3RF2450-3AC55** | | 1 | 1 unit | 41C |


3RF2450-3AB.5

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance capacity of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions. For derating characteristic curves, see More information, page 6/148.

Accessories, see page 6/158.



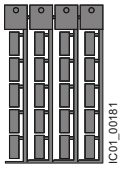
*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories

### Selection and ordering data

| | Version | For solid-state switching devices | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Control connectors** NEW | | | | | | | |
| | | | **Screw terminals** | | | | |
|  3RF3900-1TA88 | **Replacement control connector**<br>For solid-sate relays and solid-state contactors with screw terminals | 3RF22, 3RF24 | **3RF3900-1TA88** | | 1 | 50 units | 41C |
| | | | **Spring-loaded terminals** | | | | |
|  3RF3900-2TB88 | **Replacement control connector**<br>For solid-sate relays and solid-state contactors with spring-loaded terminals, with two clamping points per contact | 3RF22, 3RF24 | **3RF3900-2TB88** | | 1 | 10 units | 41C |
| **Tools for opening spring-loaded terminals** | | | | | | | |
|  3RA2908-1A | **Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | 3RF22, 3RF24 | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **DIN-rail adapters** | | | | | | | |
|  3RF3900-0BA88 | **Spare part DIN-rail adapter**<br>45 mm wide, for solid-state contactors | 3RF24 | **3RF3900-0BA88** | | 1 | 1 unit | 41C |
| **Blank labels** | | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**<br>For SIRIUS devices[1] | | | | | | |
| | 10 mm × 7 mm, titanium gray | 3RF22, 3RF24 | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | 20 mm × 7 mm, titanium gray | | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Self-adhesive labels**<br>For SIRIUS devices | | | | | | |
| | 19 mm × 6 mm, titanium gray | 3RF22, 3RF24 | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Function modules for SIRIUS 3RF3 and 3RF2 solid-state switching devices***

A great variety of applications demand an expanded range of functionality. With our function modules, these requirements can be met really easily. The modules are mounted simply by clicking them into place; straight away the necessary connections are made with the solid-state relay or contactor.

The plug-in connection to control the solid-state switching devices can simply remain in use. The external connections have screw terminals.

For function modules with current measurement, the load cable must be inserted through the straight-through transformer and reconnected to the solid-state switching device.

The following function modules are available:

- Converters (without current measurement)
- Load monitoring
- Heating current monitoring
- Power controllers
- Power regulators

Note:

With the exception of the converter, the function modules can be used only with 3RF31 and 3RF33 1-phase solid-state switching devices.

Recommended assignment of the function modules to the solid-state switching devices:

- 3RF2, see SiePortal
- 3RF3, see SiePortal

## Technical specifications

| More information | |
|---|---|
| SiePortal, see www.siemens.com/product_catalog_siep?3RF | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/30003/faq |
| Online configurator, see www.siemens.com/sirius/configurators | Conversion tool, see www.siemens.com/conversion-tool |
| Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/30003/man | |

| Article number | | 3RF3900-0EA18 | 3RF39..-0FA.. | 3RF39..-0GA.. | 3RF39..-0JA.. | 3RF39..-0KA.. | 3RF39..-0HA.. |
|---|---|---|---|---|---|---|---|
| Product designation | | Converters | Load monitoring Basic | Load monitoring Extended | Heating current monitoring | Power controllers | Power regulators |
| **General data** | | | | | | | |
| **Dimensions (W x H x D)** | mm | 22.5 x 83.5 x 38 | 22.5 x 101.5 x 67 | 45 x 111.5 x 69.5 | | | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | |
| • During storage | °C | -55 ... +80 | | | | | |
| **Derating temperature** | °C | 40 | | | | | |
| **Installation altitude at height above sea level, maximum** | m | 1 000 | | | | | |
| **Shock resistance according to IEC 60068-2-27** | | 15 *g*/11 ms | | | | | |
| **Vibration resistance according to IEC 60068-2-6** | | 2 *g* | | | | | |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 | | | | | |
| **Touch protection on the front according to IEC 60529** | | Finger-safe for vertical touching from the front | | | | | |
| **Conducted RF interference emission according to CISPR11** | | Class A for industrial applications | | | | | |
| **Radiated RF interference emission according to CISPR11** | | Class B for residential, business and commercial applications | | | | | |
| **Electrostatic discharge according to IEC 61000-4-2** | | 4 kV contact-mode discharge/8 kV air discharge, behavior criterion 2 | | | | | |
| **Conducted interference suppression** | | | | | | | |
| • Due to radio frequency radiation according to IEC 61000-4-6 | | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 | | | | | |
| • Due to burst according to IEC 61000-4-4 | | 2 kV/5 kHz, behavior criterion 2 | | | | | |
| • Due to conductor-ground surge according to IEC 61000-4-5 | | 2 kV, behavior criterion 2 | | | | | |
| • Due to conductor-conductor surge according to IEC 61000-4-5 | | 1 kV, behavior criterion 2 | | | | | |

Note:

Note limitations for power controller and power regulator function modules. These modules were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures.

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## General data NEW

| Article number<br>Product designation | | 3RF3900-0EA18<br>Converters | 3RF39..-0.A08<br>Load monitoring<br>Basic | 3RF39..-0.A13<br>Extended | 3RF39..-0.A16 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Operational voltage at AC at 50/60 Hz** | V | -- | | 110 ... 230 | 400 ... 600 |
| **Operating range relative to operational voltage at AC at 50/60 Hz** | V | -- | | 93.5 ... 253 | 340 ... 660 |
| **Operating frequency** | Hz | 50 ... 60 | | | |
| **Insulation voltage** | V | -- | 600 | | |
| **Compensation of line voltage fluctuations** | % | -- | | 20 | |

| Article number<br>Product designation | | 3RF3900-0EA18<br>Converters | 3RF39..-0FA0.<br>Load monitoring<br>Basic | 3RF39..-0GA1.<br>Extended |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Voltage type** | | AC/DC | DC | AC/DC |
| **Control supply voltage** | | | | |
| • At AC at 50/60 Hz | V | 24 | -- | 24 |
| • At DC | V | 24 | | |
| **Control current** | | | | |
| • At AC/DC | mA | 25 | -- | 40 |
| • At minimum control supply voltage | | | | |
| - At AC | mA | -- | | 2 |
| - At DC | mA | -- | 2 | |
| **Supply voltage frequency for auxiliary and control circuit** | Hz | 50 ... 60 | -- | 50 ... 60 |

| Article number<br>Product designation | | 3RF39..-0JA1.<br>Heating current monitoring | 3RF39.0-0HA1.<br>Power regulators | 3RF39..-0KA1.<br>Power controllers |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Voltage type** | | AC/DC | | |
| **Control supply voltage** | | | | |
| • At AC at 50/60 Hz | V | 24 | | |
| • At DC | V | 24 | | |
| **Control current** | | | | |
| • At AC/DC | mA | 40 | | |
| • At minimum control supply voltage at AC/DC | mA | 2 | | |
| **Supply voltage frequency for auxiliary and control circuit** | Hz | 50 ... 60 | | |

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NEW **General data**

| Article number | | 3RF3906-0FA08 | 3RF3920-0FA08 | 3RF3920-0GA.. | 3RF3950-0GA.. | 3RF3990-0GA.. |
|---|---|---|---|---|---|---|
| Product designation | | Load monitoring Basic | | Extended | | |
| **Current measurement** | | | | | | |
| **Operational current at AC-1 at 400 V** | A | 6 | 20 | | 50 | 90 |
| **Teach range current** | A | 0.25 … 6 | 0.65 … 20 | 0.56 … 20 | 1.62 … 50 | 2.93 … 90 |
| **Current measuring range** | A | 0 … 6.6 | 0 … 22 | | 0 … 55 | 0 … 99 |
| **Number of partial loads for load monitoring** | | 6 | | 12 | | |

| Article number | | 3RF3916-0JA1. | 3RF3932-0JA1. | 3RF3920-0HA1. | 3RF3950-0HA1. | 3RF3990-0HA1. |
|---|---|---|---|---|---|---|
| Product designation | | Heating current monitoring | | Power regulators | | |
| **Current measurement** | | | | | | |
| **Operational current at AC-1 at 400 V** | A | 16 | 32 | 20 | 50 | 90 |
| **Teach range current** | A | 0.42 ... 16 | 0.8 ... 32 | 4 ... 20 | 10 ... 50 | 18 ... 90 |
| **Current measuring range** | A | 0 ... 16 | 0 ... 32 | 0 ... 22 | 0 ... 55 | 0 ... 99 |
| **Number of partial loads for load monitoring** | | 6 | | -- | | |

| Article number | | 3RF3904-0KA1.-0K.0 | 3RF3920-0KA1. | 3RF3950-0KA1. | 3RF3990-0KA1. |
|---|---|---|---|---|---|
| Product designation | | Power controllers | | | |
| **Current measurement** | | | | | |
| **Operational current at AC-1 at 400 V** | A | 4 | 20 | 50 | 90 |
| **Teach range current** | A | 0.15 ... 4 | 4 ... 20 | 1.6 ... 50 | 2.9 ... 90 |
| **Current measuring range** | A | 0 ... 4 | 0 ... 22 | 0 ... 55 | 0 ... 99 |
| **Number of partial loads for load monitoring** | | 6 | | | |

| Article number | | 3RF39..-0.A.. |
|---|---|---|
| **Control circuit** | | |
| **Type of electrical connection** | | Screw terminals |
| **Connectable conductor cross-section** | | |
| • Solid | $mm^2$ | 0.5 ... 2.5 |
| • Finely stranded | | |
| - Without end sleeve | $mm^2$ | 0.5 ... 2.5 |
| - With end sleeve | $mm^2$ | 0.5 ... 2.5 |
| **Type of connectable conductor cross-sections** | | |
| • Solid | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • Finely stranded | | |
| - Without end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| - With end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • For AWG cables | | 1x (20 ... 12) |
| **AWG number as coded connectable conductor cross-section** | | 12 ... 20 |
| **Design of thread of terminal screw** | | M3 |
| **Tightening torque** | Nm | 0.5 ... 0.6 |

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**SIRIUS converters for 3RF3 and 3RF2** NEW

## Overview

***Converters for 3RF3 and 3RF2 solid-state switching devices***

These modules are used to convert analog control signals, such as those output from many temperature controllers for example, into a pulse-width-modulated digital signal. The connected solid-state contactors and relays can therefore regulate the output of a load as a percentage.

## Application

The function module is used for converting an analog input signal to an on/off ratio with the time base 1 s.
The module can only be used in conjunction with 3RF31 and 3RF33 1-pole solid-state switching devices or 3RF22 and 3RF24 3-phase devices. It can be clicked onto versions with control supply voltages of 24 V DC, 4 to 30 V DC, and 24 V AC/DC.

Note:

The use of 3RF31 or 3RF33 1-pole solid-state switching devices with converters, power controllers or power regulators of loads in a three-phase network in full-wave control mode is not recommended.
As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50%.

## Selection and ordering data

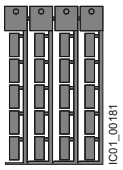
| Control supply voltage at AC at 50/60 Hz | Control supply voltage at DC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| V | V | Article No. | Price per PU | | | |
| **Converters** | | | | | | |
| ***For 3RF3 and 3RF2 solid-state relays/contactors*** | | | | | | |
| 24 | 24 | **3RF3900-0EA18** | | 1 | 1 unit | 41C |



3RF3900-0EA18

## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Blank labels** | | | | | |
| **Unit labeling plates** For SIRIUS devices[1] | | | | | |
| • 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |




3RT2900-1SB20

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**NEW** **SIRIUS load monitoring for 3RF3**

## Overview

***Load monitoring for 3RF3 1-pole solid-state switching devices***

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of load elements (up to six in the basic version or up to twelve in the extended version), alloyed power semiconductors, a lack of voltage or a break in the load circuit. A fault is indicated by one or more LEDs and reported to the controller by way of a PLC-compatible output.

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during commissioning by the simple press of a button.

In order to detect the failure of one of several loads, the current difference must be 1/6 (in the basic version) or 1/12 (in the extended version) of the reference value. In the event of a fault, an output is actuated and one or more LEDs indicate the fault.

## Application

The device is used for monitoring one or more loads (partial loads).

Notes:

The function module can only be used in conjunction with a 3RF31 solid-state relay or a 3RF33 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable for load monitoring!

## Selection and ordering data

| Operational current at AC-1 at 400 V | Operational voltage at AC at 50/60 Hz | Control supply voltage at AC at 50/60 Hz | Control supply voltage at DC | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| A | V | V | V | | | | | |
| **Load monitoring** | | | | | | | | |
| ***For 3RF31 and 3RF33 solid-state relays/contactors*** | | | | | | | | |
| **Basic** | | | | | | | | |
| 6 | -- | -- | 24 | **3RF3906-0FA08** | | 1 | 1 unit | 41C |
| 20 | -- | -- | 24 | **3RF3920-0FA08** | | 1 | 1 unit | 41C |
| • With mounted 3RF2900-0RA88 cover | | | | | | | | |
| 6 | -- | -- | 24 | **3RF3906-0FA08-0KH0** | | 1 | 1 unit | 41C |
| 20 | -- | -- | 24 | **3RF3920-0FA08-0KH0** | | 1 | 1 unit | 41C |
| **Extended** | | | | | | | | |
| 20 | 110 ... 230<br>400 ... 600 | 24 | 24 | **3RF3920-0GA13**<br>**3RF3920-0GA16** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| 50 | 110 ... 230<br>400 ... 600 | 24 | 24 | **3RF3950-0GA13**<br>**3RF3950-0GA16** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |
| 90 | 110 ... 230<br>400 ... 600 | 24 | 24 | **3RF3990-0GA13**<br>**3RF3990-0GA16** | | 1<br>1 | 1 unit<br>1 unit | 41C<br>41C |

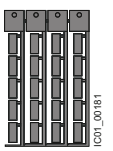

3RF3920-0FA08


3RF3920-0GA13

## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Covers** | | | | | |
| **Sealable covers for function modules**<br>(not for converters)<br>For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | |
| **Unit labeling plates**<br>For SIRIUS devices[1] | | | | | |
| • 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels**<br>For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |


3RF2900-0RA88



3RT2900-1SB20

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS heating current monitoring for 3RF3 NEW

### Overview

***Heating current monitoring for 3RF3 1-pole solid-state switching devices***

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of up to six load elements, alloyed power semiconductors, a lack of voltage, or a break in the load circuit. A fault is indicated by LEDs and reported to the controller via relay output (NC).

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during commissioning. In order to detect the failure of one of several loads, the current difference must be 1/6 of the reference value. In the event of a fault, an output is actuated and the LEDs indicate the fault.

The heating current monitoring has a teach input and therefore differs from the load monitoring. This remote teaching function enables simple adjustment to changing loads without manual intervention.

***Special version with "Standby" mode: Deviations from the standard version***

3RF39..-0JA1.-1KK0

If the current is below 50% of the lower teach current during the teach routine, the device will go into "Standby" mode; the LOAD LED will flicker. The device thus detects a non-connected load, e.g. channels not required for tool heaters, and does not signal a fault. This mode can be reset by re-teaching.

### Application

The device is used for monitoring one or more loads (partial loads).

Notes:

The function module can only be used in conjunction with a 3RF31 solid-state relay or a 3RF33 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable!

### Selection and ordering data

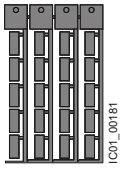
| Operational current at AC-1 at 400 V | Operational voltage at AC at 50/60 Hz | Control supply voltage at AC at 50/60 Hz | Control supply voltage at DC | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| A | V | V | V | | | | | |
| **Heating current monitoring** | | | | | | | | |
| ***For 3RF31 and 3RF33 solid-state relays/contactors*** | | | | | | | | |
| 16 | 110 ... 230 | 24 | 24 | **3RF3916-0JA13** | | 1 | 1 unit | 41C |
| 32 | 400 ... 600 | 24 | 24 | **3RF3932-0JA16** | | 1 | 1 unit | 41C |
| **With standby** | | | | | | | | |
| 16 | 110 ... 230 | 24 | 24 | **3RF3916-0JA13-1KK0** | | 1 | 1 unit | 41C |
| | 400 ... 600 | | | **3RF3916-0JA16-1KK0** | | 1 | 1 unit | 41C |
| 32 | 110 ... 230 | 24 | 24 | **3RF3932-0JA13-1KK0** | | 1 | 1 unit | 41C |
| | 400 ... 600 | | | **3RF3932-0JA16-1KK0** | | 1 | 1 unit | 41C |


3RF3916-0JA13

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Covers** | | | | | |
| **Sealable covers for function modules** (not for converters) For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | |
| **Unit labeling plates** For SIRIUS devices[1] | | | | | |
| • 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |


3RF2900-0RA88



3RT2900-1SB20

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
(see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Power controllers for 3RF3 1-pole solid-state switching devices***

The power controller is a function module for the autonomous power control of complex heating systems and inductive loads.

The following functions have been integrated:

- Power controller
  For adjusting the power of the connected load. The setpoint value is selected via a rotary knob on the module as a percentage of the 100% power value stored as a setpoint.
- Inrush current limiting
  With the aid of an adjustable voltage ramp, the inrush current is limited by means of phase control. This is useful above all with loads such as lamps or infrared sources which have an inrush transient current.
- Load circuit monitoring
  For detecting load failure, partial load faults, alloyed power semiconductors, lack of voltage or a break in the load circuit

Note:

With the phase control operating mode, a partial load fault is detected by cyclic "scanning" of the load; the exact mode of operation is described in the technical product data sheets!

***Special versions:***
***Deviations from the standard version***

3RF3904-0KA13-0KC0 (zero teach)

During the teach routine, the connected solid-state relay or contactor is not activated; i.e. no current will flow. No current reference value is stored. No partial load monitoring!

3RF39..-0KA1.-0KT0 (without partial load monitoring)

No partial load monitoring!

## Application

The power controller can be used for:

- Complex heating systems
- Inductive loads
- Loads with temperature-dependent resistor
- Loads with ageing after long-time service
- Simple indirect control of temperature

Notes:

The function module can only be used in conjunction with a 3RF31 solid-state relay or a 3RF33 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable!

***Power control***

The power controller adjusts the power in the connected load by means of a solid-state switching device depending on the setpoint selection. It does not compensate for changes in the line voltage or load resistance. The setpoint value can be predefined externally as a 0 to 10 V signal or internally by means of a potentiometer. Depending on the setting of the potentiometer ($t_R$), the control is carried out according to the principle of full-wave control or generalized phase control.

Note:

In the case of resistive loads, the power is set linear to the setpoint value. During operation of inductive loads, the power control is no longer proportional and linear due to the phase offset between current and voltage.

***Full-wave control***

In this operating mode the output is adjusted to the required setpoint value by changing the on-to-off period. The period duration is predefined at 1 s.

Notes:

The use of 3RF31 or 3RF33 1-pole solid-state switching devices with converters, power controllers or power regulators of loads in a three-phase network in full-wave control mode is not recommended. As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50%.

***Generalized phase control***

In this operating mode the output is adjusted to the required setpoint value by changing the current flow angle. In order to observe the limit values of the conducted disturbance voltage for industrial networks, at loads up to 20 kVA, the load circuit must include an additional filter, and for loads above 20 kVA, a reactor with a rating of at least 200 µH must be used. You will find details about the filters in the FAQ "Filters for 3RF39 power regulators and power controllers to comply with the limits for electromagnetic emitted interference", see https://support.industry.siemens.com/cs/ww/en/view/109994074.

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## SIRIUS power controllers for 3RF3 NEW

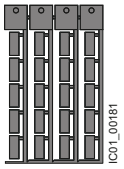
### Selection and ordering data

| Operational current at AC-1 at 400 V | Operational voltage at AC at 50/60 Hz | Control supply voltage at AC at 50/60 Hz | Control supply voltage at DC | Current measuring range | Screw terminals — Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| A | V | V | V | A | | | | | |
| **Power controllers** | | | | | | | | | |
|  3RF3904-0KA13 | | | | | | | | | |
| ***For 3RF31 and 3RF33 solid-state relays/contactors*** | | | | | | | | | |
| 20 | 110 ... 230 | 24 | 24 | 0 ... 22 | **3RF3920-0KA13** | | 1 | 1 unit | 41C |
| | 400 ... 600 | 24 | 24 | 0 ... 22 | **3RF3920-0KA16** | | 1 | 1 unit | 41C |
| 50 | 110 ... 230 | 24 | 24 | 0 ... 55 | **3RF3950-0KA13** | | 1 | 1 unit | 41C |
| | 400 ... 600 | 24 | 24 | 0 ... 55 | **3RF3950-0KA16** | | 1 | 1 unit | 41C |
| 90 | 110 ... 230 | 24 | 24 | 0 ... 99 | **3RF3990-0KA13** | | 1 | 1 unit | 41C |
| | 400 ... 600 | 24 | 24 | 0 ... 99 | **3RF3990-0KA16** | | 1 | 1 unit | 41C |
| **Zero teach** | | | | | | | | | |
| 4 | 110 ... 230 | 24 | 24 | 0 ... 4 | **3RF3904-0KA13-0KC0** | | 1 | 1 unit | 41C |
| **Without partial load monitoring** | | | | | | | | | |
| 4 | 110 ... 230 | 24 | 24 | 0 ... 4 | **3RF3904-0KA13-0KT0** | | 1 | 1 unit | 41C |
| 50 | 400 ... 600 | 24 | 24 | 0 ... 55 | **3RF3950-0KA16-0KT0** | | 1 | 1 unit | 41C |

Note:

For a description of the special design versions, see page 6/165.

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Covers** | | | | | |
|  3RF2900-0RA88 | | | | | |
| **Sealable covers for function modules** (not for converters) For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Unit labeling plates** For SIRIUS devices[1] | | | | | |
| • 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Power regulators for 3RF3 1-pole solid-state switching devices***

The power regulator is a function module for the autonomous power control of complex heating systems.

The following functions have been integrated:

- Power controller with proportional-action control
  For adjusting the power of the connected load. The setpoint value is selected via a rotary knob on the module as a percentage of the 100% power value stored as a setpoint. Changes in the line voltage or in the load resistance are compensated in this case.
- Inrush current limitation
  With the aid of an adjustable voltage ramp, the inrush current is limited by means of phase control. This is useful above all with loads such as lamps which have an inrush transient current.
- Load circuit monitoring
  For detecting load failure, alloyed power semiconductors, lack of voltage or a break in the load circuit. Partial load monitoring is not possible. Load fluctuations are compensated.

## Application

The power regulator can be used for:

- Complex heating systems
- Heating elements with temperature-dependent resistor
- Heating elements with ageing after long-time service
- Simple indirect control of temperature

Notes:

The function module can only be used in conjunction with a 3RF31 solid-state relay or a 3RF33 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable!

***Power control***

The power regulator adjusts the power in the connected load by means of a solid-state switching device depending on the taught power and the selected setpoint. Changes in the line voltage or in the load resistance are thus compensated by the power regulator. The setpoint value can be predefined externally as a 0 to 10 V signal or internally by means of a potentiometer. Depending on the setting of the potentiometer ($t_R$), the adjustment is carried out according to the principle of full-wave control or generalized phase control.

Note:

In the case of resistive loads, the power is set linear to the setpoint value. During operation of inductive loads, the power control is no longer proportional and linear due to the phase offset between current and voltage.

***Full-wave control***

In this operating mode the output is adjusted to the required setpoint value by changing the on-to-off period. The period duration is predefined at 1 s.

Notes:

The use of 3RF31 or 3RF33 1-pole solid-state switching devices with converters, power controllers or power regulators of loads in a three-phase network in full-wave control mode is not recommended. As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50%.

***Generalized phase control***

In this operating mode the output is adjusted to the required setpoint value by changing the current flow angle. In order to observe the limit values of the conducted disturbance voltage for industrial networks, at loads up to 20 kVA, the load circuit must include an additional filter, and for loads above 20 kVA, a reactor with a rating of at least 200 µH must be used. You will find details about the filters in the FAQ "Filters for 3RF39 power regulators and power controllers to comply with the limits for electromagnetic emitted interference", see https://support.industry.siemens.com/cs/ww/en/view/109994074.

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## SIRIUS power regulators for 3RF3 NEW

### Selection and ordering data

| Operational current at AC-1 at 400 V | Operational voltage at AC at 50/60 Hz | Control supply voltage at AC at 50/60 Hz | Control supply voltage at DC | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| A | V | V | V | | | | | |
| **Power regulators** | | | | | | | | |
| ***For 3RF31 and 3RF33 solid-state relays/contactors*** | | | | | | | | |
| 20 | 110 ... 230 | 24 | 24 | **3RF3920-0HA13** | | 1 | 1 unit | 41C |
| | 400 … 600 | | | **3RF3920-0HA16** | | 1 | 1 unit | 41C |
| 50 | 110 ... 230 | 24 | 24 | **3RF3950-0HA13** | | 1 | 1 unit | 41C |
| | 400 … 600 | | | **3RF3950-0HA16** | | 1 | 1 unit | 41C |
| 90 | 110 ... 230 | 24 | 24 | **3RF3990-0HA13** | | 1 | 1 unit | 41C |
| | 400 … 600 | | | **3RF3990-0HA16** | | 1 | 1 unit | 41C |

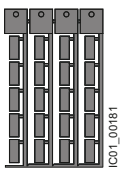

3RF3920-0HA13

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Covers** | | | | | |
| **Sealable covers for function modules**<br>(not for converters)<br>For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | |
| **Unit labeling plates**<br>For SIRIUS devices[1] | | | | | |
| • 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels**<br>For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |



3RT2900-1SB20


3RF2900-0RA88

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| SiePortal, see www.siemens.com/product_catalog_siep?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

***SIRIUS 3RF5 DC solid-state switching devices***



3RF51 solid-state relay, 1-pole, and 3RF53 solid-state contactor, 1-pole

The SIRIUS 3RF5 DC solid-state switching devices reliably switch a wide variety of resistive loads at DC voltages from 24 to 1 350 V.

The following 1-pole versions are available:

- 3RF51 solid-state relays (without heat sink)
- 3RF53 solid-state contactors (integrated heat sink)

The 3RF53 solid-state contactors consist of a solid-state relay with optimized heat sink, and are therefore ready to use. They offer defined operational currents to make selection as easy as possible. Like all of our solid-state switching devices, one of their particular advantages is their compact and space-saving design.

SIRIUS 3RF5 – For virtually infinite activity

Conventional electromechanical switchgear is often overtaxed by the rise in the number of switching operations. A high switching frequency results in frequent failure and short replacement cycles.

However, this does not have to be the case, because with the latest generation of our SIRIUS 3RF5 solid-state switching devices we provide you with solid-state relays and contactors with a particularly long service life – for virtually infinite activity even under the toughest conditions and under high mechanical loading, but also in noise-sensitive areas.

Proven time and again in service

SIRIUS 3RF5 solid-state switching devices are primarily used where loads are switched frequently – mainly with resistive loads, e.g. for controlling electric heat.

In addition to its use in areas with high switching frequencies, their silent switching means that solid-state switching devices are also ideally suited for use in noise-sensitive areas, such as offices or hospitals.

The most reliable solution for any application

Compared to mechanical switchgear, our SIRIUS 3RF5 solid-state switching devices stand out due to their considerably longer service life. Thanks to the high product quality, their switching is extremely precise, reliable and, above all, insusceptible to faults.

Due to several versions with different control supply and operational voltages, the 3RF5 solid-state switching devices are universally applicable.

Always on the sunny side with SIRIUS

Because SIRIUS 3RF5 offers even more:

- The space-saving and compact side-by-side mounting ensures reliable operation up to an ambient temperature of +60 °C.
- Thanks to fast configuration and the ease of mounting and startup, not only time but also expenses are saved.
- The high permissible operational voltages facilitate use in DC industrial networks, and the versions up to 1 350 V are well equipped for future requirements, e.g. for use in PV systems.

***3RF51 solid-state relays (without heat sink) and 3RF53 solid-state contactors (integrated heat sink)***

With its compact design, which stays the same even at currents of up to 23 A, the solid-state relays and contactors with a width of just 22.5 mm offer an ultra-small footprint.

The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet. The control cable can be connected in a space-saving manner by simply plugging it on.

The solid-state relays and contactors are suitable for mounting on existing cooling surfaces. Mounting is quick and easy, involving just two screws. The special technology of the power semiconductor ensures that there is excellent thermal contact with the heat sink. Depending on the nature of the heat sink, the performance capacity reaches up to 23 A on resistive DC loads.

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see More information, page 6/170).

Two operational voltages are available:

- 24 to 1 100 V DC
- 24 to 1 350 V DC

***Connection methods***

The solid-state switching devices are available with screw terminals.

| | |
|---|---|
| ⏚ | Screw terminals |
| | The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds. |

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## SIRIUS 3RF5 DC solid-state switching devices, 1-pole, 22.5 mm NEW

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **Solid-state relays** | **3RF51** | □ | □ | – | □ | □ | □ | □ | □ | 1-pole, 22.5 mm width |
| | **Solid-state contactors** | **3RF53** | □ | □ | – | □ | □ | □ | □ | □ | 1-pole, 22.5 mm width |
| Operational current at DC | e.g. 25 = 23 A | | □ | □ | | | | | | | |
| Connection type | Screw terminals | | | | | **1** | | | | | |
| Product function | Instantaneous switching | | | | | | **B** | | | | |
| Version | 1-pole | | | | | | | **A** | | | |
| Control supply voltage | 24 V DC<br>110 V DC | | | | | | | | **4**<br>**6** | | |
| Operational voltage | 24 ... 1 100 V DC<br>24 ... 1 350 V DC | | | | | | | | | **5**<br>**7** | |
| Example | | **3RF51** | **2** | **5** | **–** | **1** | **B** | **A** | **4** | **5** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

***Main features***

- Compact and space-saving design
- LED display
- Screw terminals with high degree of protection
- Plug-in control connection
- Sustainable product design (EcoTech-certified)

***Features***

- Considerable space savings thanks to a width of only 22.5 mm
- Designed for use at very high line voltages

***Benefits***

- Saves time and costs with fast mounting and commissioning, short startup times and easy wiring
- Extremely long life, low maintenance, rugged and reliable
- Space-saving and safe thanks to side-by-side mounting up to an ambient temperature of +60 °C
- Optimum heat transfer allows small, space-saving heat sinks to be used

## Application

***Applications***

Example: Plastics processing industry

Thanks to their high switching service life, SIRIUS 3RF5 DC solid-state switching devices are ideal for controlling electrical heat. This is because the more precise the temperature regulation process has to be, the higher the switching frequency. The accurate regulation of electrical heat is used for example in many processes in the plastics processing industry:

- Band heaters heat the extrudate to the correct temperature in plastic extruders
- Heat emitters heat plastic blanks to the correct temperature
- Heat drums dry plastic granules
- Heating channels keep molds at the correct temperature in order to manufacture different plastic parts without defects

The powerful 3RF5 solid-state relays and contactors can be used for the simultaneous control of several heating loads.

## More information

***Notes on integration in the load feeders***

The solid-state switching devices for switching resistive DC loads are very easy to integrate into the load feeders thanks to their industrial connection method and design.

Particular attention must however be paid to the circumstances of the installation and ambient conditions, as the performance capacity of the solid-state switching devices is largely dependent on these.

Depending on the version, certain restrictions must be observed. For detailed information, for example in relation to 3RF53 solid-state contactors about the minimum spacing and to 3RF51 solid-state relays about the choice of heat sink, see technical product data sheets, https://support.industry.siemens.com/cs/ww/en/ps/30004/td.

Short-circuit and overload protection

Despite the rugged power semiconductors that are used, DC solid-state switching devices respond sensitively to short circuits and overload currents in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor protection fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Additional overload protection may be necessary depending on the class of the fuse. Further details can be found in the technical product data sheets and FAQs, in the knowledge base, see https://support.industry.siemens.com/cs/ww/en/ps/30004/faq.

Electromagnetic compatibility (EMC)

The solid-state switching devices are suitable for interference-free operation in industrial networks without further measures.

***Product information and technical specifications***

For product data sheets with detailed technical specifications, dimensional drawings and characteristic curves, see https://support.industry.siemens.com/cs/ww/en/ps/30004/td.

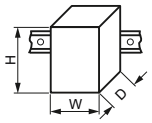
For more information, please enter the article number of the required device under the tab "Product List".

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## Technical specifications

| More information | |
|---|---|
| Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/30004/man | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/30004/faq |

| Article number | | 3RF5125-1BA.. | 3RF5315-1BA.. | 3RF5325-1BA.. |
|---|---|---|---|---|
| **General technical specifications** | | | | |
| **Dimensions (W x H x D)**   | mm | 22.5 x 95 x 51 | 22.5 x 95 x 92 | 22.5 x 95 x 124 |
| **Ambient temperature** | | | | |
| • During operation | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Derating temperature** | °C | 40 | | |
| **Installation altitude at height above sea level, maximum** | m | 1 000 | | |
| **Shock resistance according to IEC 60068-2-27** | | 15 *g*/11 ms | | |
| **Vibration resistance according to IEC 60068-2-6** | | 2 *g* | | |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 | | |
| **Touch protection on the front according to IEC 60529** | | Finger-safe for vertical touching from the front | | |
| **Conducted RF interference emission according to CISPR11** | | Class A for industrial applications | | |
| **Radiated RF interference emission according to CISPR11** | | Class B for residential, business and commercial applications | | |
| **Electrostatic discharge according to IEC 61000-4-2** | | 4 kV contact-mode discharge/8 kV air discharge, behavior criterion 2 | | |
| **Conducted interference** | | | | |
| • Due to radio frequency radiation according to IEC 61000-4-6 | | 140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1 | | |
| • Due to burst according to IEC 61000-4-4 | | 2 kV/5 kHz, behavior criterion 2 | | |
| • Due to conductor-ground surge according to IEC 61000-4-5 | | 2 kV, behavior criterion 2 | | |
| • Due to conductor-conductor surge according to IEC 61000-4-5 | | 1 kV, behavior criterion 2 | | |

| Article number | | 3RF5.15-1BA.5 | 3RF5.25-1BA.5 | 3RF5125-1BA47 | 3RF5315-1BA47 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Operational voltage at DC** | V | 24 ... 1 100 | | 24 ... 1 350 | |
| **Voltage peak, maximum** | V | 1 270 | | 1 500 | |
| **Duration of voltage peak** | ms | 20 | | | |
| **Operational current** | | | | | |
| • Minimum | mA | 1 | | | |
| • At 40 °C | A | 16 | 23 | 17 | 15 |
| • According to UL 508 | A | 15 | 17.5 | 10.5 | |
| • At DC | | | | | |
| - At 600 V | A | 16 | 23 | 17 | 15 |
| - At 1 100 V | A | 16 | 18.5 | 17 | 15 |
| - At 1 350 V | A | -- | | 11 | |

| Article number | | 3RF5..5-1BA4. | 3RF5..5-1BA6. |
|---|---|---|---|
| **Control circuit** | | | |
| **Type of voltage of the control supply voltage** | | DC | |
| **Control supply voltage at DC** | V | 24 | 110 |

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## SIRIUS 3RF5 DC solid-state switching devices, 1-pole, 22.5 mm NEW

| Article number | | 3RF5..5-1BA.. |
|---|---|---|
| **Main circuit** | | |
| **Type of electrical connection** | | **Screw terminals** |
| **Connectable conductor cross-section** | | |
| • Solid or stranded | $mm^2$ | 1.5 ... 6 |
| • Finely stranded with end sleeve | $mm^2$ | 1 ... 10 |
| **Type of connectable conductor cross-sections** | | |
| • Solid | | 2x (1.5 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$) |
| • Finely stranded with end sleeve | | 2x (1 ... 2.5 $mm^2$), 2x (2.5 ... 6 $mm^2$), 1x 10 $mm^2$ |
| • For AWG cables | | 2x (14 ... 10) |
| **AWG number as coded connectable conductor cross-section** | | 14 ... 10 |
| **Tightening torque** | Nm | 2 ... 2.5 |
| **Control circuit** | | |
| **Type of electrical connection** | | **Screw terminals** |
| **Type of connectable conductor cross-sections** | | |
| • Solid | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • Finely stranded | | |
| - With end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| - Without end sleeve | | 1x (0.5 ... 2.5 $mm^2$), 2x (0.5 ... 1 $mm^2$) |
| • For AWG cables | | 1x (20 ... 12) |
| **AWG number as coded maximum connectable conductor cross-section** | | 12 |
| **Tightening torque** | Nm | 0.5 ... 0.6 |

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## Selection and ordering data

### *Selection notes*

In order to select the 3RF5 solid-state switching devices for switching resistive DC loads, knowledge of the planned design is required in addition to information about the network, load, control and ambient conditions.

3RF51 solid-state relays

They can only conform to their specific technical specifications if they are mounted with appropriate care on an adequately dimensioned heat sink.

Mounting solid-state relays directly on a mounting plate made of sheet steel is inadequate in terms of heat dissipation.

The following procedure is recommended:
- Determine the rated current of the load and the line voltage
- Select a solid-state relay with a higher rated current than the load and with a higher rated voltage than the load and the mains
- Determine the thermal resistance of the proposed heat sink
- Check the correct relay size with the aid of the characteristic curves (see the technical product data sheets of the relevant solid-state relay) taking into account the thermal resistance of the heat sink
- Select the desired control supply voltage

3RF53 solid-state contactors

These complete units consist of a solid-state contactor with optimized heat sink, and are therefore ready to use. They offer defined rated currents to make selection as easy as possible.

Solid-state contactors are designed for easy use on mounting plates or DIN rails. The selection is much easier.

The following procedure is recommended:
- Determine the operational current of the load and the line voltage
- Select a solid-state contactor with a higher operational current than the load and with a higher rated voltage than the load and the mains
- Select the desired control supply voltage

### *DC solid-state switching devices (without heat sink)*

| Operational current at DC | Control supply voltage at DC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Operational voltage 24 ... 1 100 V DC** | | | | | | |
| ***3RF51 solid-state relay, instantaneous switching*** | | | | | | |
| 23 | 24 | **3RF5125-1BA45** | | 1 | 1 unit | 42N |
| | 110 | **3RF5125-1BA65** | | 1 | 1 unit | 42N |
| ***3RF53 solid-state contactors, instantaneous switching*** | | | | | | |
| 16 | 24 | **3RF5315-1BA45** | | 1 | 1 unit | 42N |
| | 110 | **3RF5315-1BA65** | | 1 | 1 unit | 42N |
| 23 | 24 | **3RF5325-1BA45** | | 1 | 1 unit | 42N |
| | 110 | **3RF5325-1BA65** | | 1 | 1 unit | 42N |
| **Operational voltage 24 ... 1 350 V DC** | | | | | | |
| ***3RF51 solid-state relay, instantaneous switching*** | | | | | | |
| 17 | 24 | **3RF5125-1BA47** | | 1 | 1 unit | 42N |
| ***3RF53 solid-state contactors, instantaneous switching*** | | | | | | |
| 15 | 24 | **3RF5315-1BA47** | | 1 | 1 unit | 42N |



3RF5125-1BA45 3RF5325-1BA65



3RF5125-1BA47 3RF5315-1BA47

Notes:

Please observe the ambient conditions (see selection notes above).
For derating characteristics, see technical product data sheets.
For more information, see page 6/170.

Other control supply voltages on request.

Accessories, see next page.

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## Accessories

### Control connectors

| | Version | For solid-state switching devices | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | | | **Screw terminals** | | | | |
|  3RF3900-1TA88 | **Replacement control connectors**<br>For solid-sate relays and solid-state contactors<br>With screw terminals | 3RF51, 3RF53 | **3RF3900-1TA88** | | 1 | 50 units | 41C |
| | | | **Spring-loaded terminals** | | | | |
|  3RF3900-2TB88 | **Replacement control connector**<br>For solid-sate relays and solid-state contactors<br>With spring-loaded terminals,<br>With two clamping points per contact | 3RF51, 3RF53 | **3RF3900-2TB88** | | 1 | 10 units | 41C |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| SiePortal, see www.siemens.com/product_catalog_siep?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

### *SIRIUS 3RF34 solid-state contactors for switching motors*




3RF34 solid-state contactors, 3-pole for direct-on-line starting

The solid-state contactors for switching motors are intended for frequently switching on and off three-phase current operating mechanisms up to 7.5 kW and reversing up to 3 kW. The devices are constructed with complete insulation and can be mounted directly on SIRIUS motor starter protectors, overload relays and current monitoring relays, resulting in a very simple integration into motor feeders.

These complete units consist of a solid-state contactor with optimized heat sink, and are therefore ready to use. They offer defined rated currents to make selection as easy as possible. Like all of our solid-state switching devices, one of their particular advantages is their compact and space-saving design.

These 3-pole solid-state contactors are equipped with a 2-pole control which is particularly suitable for typical motor current circuits without connecting to the neutral conductor.

Solid-state contactors for switching motors are available in two versions:

- SIRIUS 3RF34..-.BB.. solid-state contactors, 3-pole:
  These 2-pole controlled, instantaneous switching solid-state contactors in the insulating enclosure are offered in width 45 mm up to 5.2 A – and in width 90 mm up to 16 A. They allow the operation of motors up to 7.5 kW.
- SIRIUS 3RF34..-.BD.. solid-state reversing contactors, 3-pole:
  The integration of four conducting paths to a reverse switch, combined in one enclosure, makes this device a particularly compact solution. Compared to conventional systems, for which two contactors are required, it is possible to save up to 50% in width with the 3-pole solid-state reversing contactors. Devices with a width of 45 mm cover motors up to 2.2 kW – and those with a width of 90 mm cover motors up to 3 kW.

Note:

In accordance with the product standard IEC 60947-4-2, the motor contactors are designed for motors with maximum starting current conditions of $I/I_e \leq 8$. For configuring motors with higher starting current conditions (typically $I/I_e > 8$), the data in the Equipment Manual must be taken into account, see https://support.industry.siemens.com/cs/ww/en/view/60298187.

### *Switching functions*

The solid-state contactors for switching motors are "instantaneous switching", because this method is particularly suited for inductive loads. By distributing the ON point over the entire sine curve of the line voltage, disturbances are reduced to a minimum.

### *Connection methods*

The solid-state contactors are available with screw or spring-loaded terminals.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds. |

### *Motor feeders*

The devices can use a link module to directly connect to a motor starter protector. Also possible is the mounting of a 3RB30/3RB31 electronic overload relay (see page 7/90 onwards) or a 3RR2 current monitoring relay (see pages 10/57 and 10/65) using a link adapter. The simultaneous mounting of a motor starter protector and an overload or current monitoring relay is not recommended for space and heat development reasons.

Rapid-switching fuseless and fused motor feeders can thereby be implemented in a time-saving manner.

### *Short-circuit protection*

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly.

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## General data

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **Solid-state contactors** | **3RF34** | ☐ | ☐ | – | ☐ | ☐ | **B** | ☐ | ☐ | | | | | | | | | | | | 3-pole, 2-pole controlled |
| | **Solid-state reversing contactors** | **3RF34** | ☐ | ☐ | – | ☐ | ☐ | **D** | ☐ | ☐ | | | | | | | | | | | | 3-pole, 2-pole controlled |
| Rated operational current | 3.8 A | | **0** | **3** | | | | | | | | | | | | | | | | | | Only for solid-state reversing contactor |
| | 5.2 A (5.4 A for solid-state reversing contactor) | | **0** | **5** | | | | | | | | | | | | | | | | | | |
| | 9.2 A (7.4 A for solid-state reversing contactor) | | **1** | **0** | | | | | | | | | | | | | | | | | | |
| | 12.5 A | | **1** | **2** | | | | | | | | | | | | | | | | | | Only for solid-state contactor |
| | 16 A | | **1** | **6** | | | | | | | | | | | | | | | | | | Only for solid-state contactor |
| Connection type | Screw terminals | | | | | **1** | | | | | | | | | | | | | | | | |
| | Spring-loaded terminals | | | | | **2** | | | | | | | | | | | | | | | | |
| Product function | Instantaneous switching | | | | | | | **B** | | | | | | | | | | | | | | |
| Rated control supply voltage $U_s$ | 24 V DC | | | | | | | | | | **0** | | | | | | | | | | | |
| | 110 ... 230 V AC | | | | | | | | | | **2** | | | | | | | | | | | |
| Rated operational voltage $U_e$ | 48 ... 480 V AC | | | | | | | | | | | | | | | | | **4** | | | | Blocking voltage 1 200 V |
| | 48 ... 600 V AC | | | | | | | | | | | | | | | | | **6** | | | | Blocking voltage 1 600 V, solid-state contactor only |
| Example | | **3RF34** | **1** | **6** | **–** | **1** | **B** | **B** | **0** | **6** | | | | | | | | | | | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

- Insulated enclosure with integrated heat sink, "ready to use"
- Compact and space-saving design
- Solid-state reversing contactors with integrated interlock
- High degree of protection
- Integrated mounting foot for snapping onto a DIN rail or for mounting on a support plate
- Variety of connection methods
- Plug-in control connection
- Display via LEDs
- Wide voltage range for AC rated control supply voltage

### Application

***Use in load feeders***

There is no typical design of a load feeder with solid-state relays or solid-state contactors; instead, the great variety of connection methods and control voltages offers universal application opportunities.

SIRIUS solid-state relays and solid-state contactors can be installed in fuseless or fused feeders, as required.

See
- Digital Configuration Manual for load feeders
- Configuration Manual for load feeders

***Standards and approvals***

- IEC 60947-4-2
- UL 508, CSA for North America[1)]
- CE marking for Europe
- C-Tick licensing for Australia
- CCC approval for China

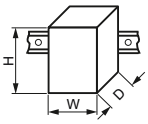
[1)] Please note: Use overvoltage protection device; max. cut-off-voltage 6 000 V; min. energy handling capability 100 J.

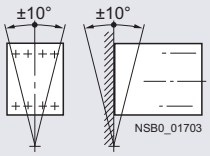
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## Technical specifications

| More information | |
|---|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298187 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16237/faq |

| Type | | | 3RF3405-1BB.., 3RF3403-1BD.., 3RF3405-1BD.. | 3RF3410-1BB.., 3RF3412-1BB.., 3RF3416-1BB.., 3RF3410-1BD.. | 3RF3405-2BB.. | 3RF3410-2BB.., 3RF3412-2BB.., 3RF3416-2BB.. |
|---|---|---|---|---|---|---|
| Dimensions (W x H x D) |  | | | | | |
| • 3RF34..-1BB.. | | mm | 45 x 95 x 96.5 | 90 x 95 x 96.5 | 45 x 95 x 96.5 | 90 x 95 x 96.5 |
| • 3RF34..-1BD.. | | mm | 45 x 95 x 108.5 | 90 x 95 x 108.5 | -- | -- |

| General technical specifications | | | | |
|---|---|---|---|---|
| **Ambient temperature** | | | | |
| • During operation, derating from 40 °C | | °C | -25 ... +60 | |
| • During storage | | °C | -55 ... +80 | |
| **Installation altitude** | | m | 0 ... 1 000; derating over 1 000 m on request | |
| **Shock resistance** according to IEC 60068-2-27 | | *g*/ms | 15/11 | |
| **Vibration resistance** according to IEC 60068-2-6 | | *g* | 2 | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | |
| **Insulation strength** at 50/60 Hz (main/control circuit to floor) | | V rms | 4 000 | |
| **Electromagnetic compatibility (EMC)** | | | | |
| • Emitted interference according to IEC 60947-4-2 | | | | |
| - Conducted disturbance voltage | | | Class A for industrial applications[1] | |
| - Radiated radio frequency disturbance voltage | | | Class A for industrial applications | |
| • Interference immunity | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to test level 3) | | kV | Contact-mode discharge: 4; air discharge: 8; Behavior criterion 2 | |
| - Induced RF fields according to IEC 61000-4-6 | | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | |
| - Burst according to IEC 61000-4-4 | | kV | 2; at 5 kHz, behavior criterion 2 | |
| - Surge according to IEC 61000-4-5[2] | | kV | Conductor-ground 2; conductor-conductor 1, behavior criterion 2 | |
| **Connection type** | | | **Screw terminals** | **Spring-loaded terminals** |
| **Operating device** | | | Standard screwdriver size 2 and Pozidriv 2 | 3.0 x 0.5 and 3.5 x 0.5 |
| **Conductor cross-sections, main contacts** | | | | |
| • Solid | | $mm^2$ | 2 x (1.5 ... 2.5)[3], 2 x (2.5 ... 6)[3] | 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve | | $mm^2$ | 2 x (1 ... 2.5)[3], 2 x (2.5 ... 6)[3], 1 x 10 | 2 x (0.5 ... 1.5) |
| • Finely stranded without end sleeve | | $mm^2$ | -- | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) |
| **Conductor cross-sections, auxiliary/control contacts** | | | | |
| • With/without end sleeve | | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1) | 0.5 ... 2.5 |
| • AWG cables, solid or stranded | | AWG | 20 ... 12 | 20 ... 12 |
| **Permissible mounting position** | | |   | |

[1] These products were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures.

[2] For solid-state reversing contactors: To maintain the values, a 3TX7462-3L surge suppressor should be used between phases L1 and L3 as close as possible to the solid-state reversing contactor.

[3] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

## *More information*

For more detailed information, see Equipment Manual, https://support.industry.siemens.com/cs/ww/en/view/60298187.

Product information and technical specifications

For product data sheets with detailed technical specifications and dimensional drawings, see https://support.industry.siemens.com/cs/ww/en/ps/16237/td.

For more information, please enter the article number of the required device under the tab "Product List".

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## SIRIUS 3RF34 solid-state contactors, 3-pole

### Technical specifications

| More information | |
|---|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298187 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16237/faq |

| Type | | 3RF3405-.BB.. | 3RF3410-.BB.. | 3RF3412-.BB.. | 3RF3416-.BB.. |
|---|---|---|---|---|---|
| **Fuseless design with 3RV2 motor starter protector, Class 10** | | | | | |
| **Rated operational current $I_{AC-53a}$** [1] according to IEC 60947-4-2 | | | | | |
| • At 40 °C | A | 5.2 (4.5) | 9.2 | 12.5 | 16 |
| • UL/CSA, at 50 °C | A | 4.6 (4.0) | 8.4 | 11.5 | 14 |
| • At 60 °C | A | 4.2 (3.5) | 7.6 | 10.5 | 12.5 |
| **Power loss** at $I_{AC-53a}$ | | | | | |
| • At 40 °C | W | 10 (8) | 16 | 22 | 28 |
| **Short-circuit protection with type of coordination "1"** At operational voltage $U_e$ up to 440 V | | | | | |
| • Motor starter protectors/circuit breakers | Type | 3RV2011-1GA10 | 3RV2011-1JA10 | 3RV2011-1KA10 | 3RV2011-4AA10 |
| • Current $I_q$ | kA | 50 | 5 | | 3 |

[1] The reduced values in brackets apply to a directly mounted motor starter protector and simultaneous side-by-side mounting.

| Type | | 3RF3405-.BB.4 | 3RF3405-.BB.6 | 3RF3410-.BB.. | 3RF3412-.BB.4 | 3RF3412-.BB.6 | 3RF3416-.BB.. |
|---|---|---|---|---|---|---|---|
| **Fused design with directly connected 3RB3 overload relay** | | | | | | | |
| **Rated operational current $I_{AC-53a}$** according to IEC 60947-4-2 | | | | | | | |
| • At 40 °C | A | 4 | | 7.8 | 9.5 | | 11 |
| • UL/CSA, at 50 °C | A | 3.6 | | 7 | 8.5 | | 10 |
| • At 60 °C | A | 3.2 | | 6.2 | 7.6 | | 9 |
| **Power loss** at $I_{AC-53a}$ | | | | | | | |
| • At 40 °C | W | 7 | | 13 | 16 | | 18 |
| **Minimum load current** | A | 0.1 | 0.5 | | | | |
| **Max. off-state current** | mA | 10 | | | | | |

| Type | | 3RF34..-.BB.4 | 3RF34..-.BB.6 |
|---|---|---|---|
| **Main circuit** | | | |
| **Controlled phases** | | 2-pole | |
| **Rated operational voltage $U_e$** | V AC | 48 ... 480 | 48 ... 600 |
| • Operating range | V AC | 40 ... 506 | 40 ... 660 |
| • Rated frequency | Hz | 50/60 ± 10% | |
| **Rated insulation voltage $U_i$** | V | 600 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | |
| **Blocking voltage** | V | 1 200 | 1 600 |
| **Rate of voltage rise** | V/µs | 1 000 | |

| Type | | 3RF34..-.BB0. | 3RF34..-.BB2. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | DC operation | AC operation |
| **Rated control supply voltage $U_s$** | V | 24 | 110 ... 230 |
| **Rated frequency** of the control supply voltage | Hz | -- | 50/60 ± 10% |
| **Control supply voltage, max.** | V | 30 | 253 |
| **Typical actuating current** | mA | 20 | 15 |
| **Response voltage** | V | 15 | 90 |
| **Drop-out voltage** | V | 5 | < 40 |
| **Operating times** | | | |
| • ON-delay | ms | 1 | 5 |
| • OFF-delay | ms | 1 + max. one half-wave | 30 + max. one half-wave |

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## Selection and ordering data

### *Selection notes*

The solid-state contactors are selected on the basis of details of the network, the load and the ambient conditions.

The following procedure is recommended:

- Determine the rated current of the load and the line voltage
- Select a solid-state contactor with the same or higher rated current than the load
- Test the maximum permissible switching frequency based on the characteristic curves (see Equipment Manual). To do this, the starting current, the starting time and the motor load in the operating phase must be known.
- If the permissible switching frequency is under the desired frequency, it is possible to achieve an increase only by overdimensioning the motor and the solid-state contactor!

The correct device size can be determined by entering the network and motor data along with the application and ambient conditions.

### *Solid-state contactors*

| Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | 400 V kW | V | Article No. / Price per PU | | | |
| **Rated operational voltage $U_e$ 48 ... 480 V AC** | | | | | | |
| ***Instantaneous switching, 2-pole controlled*** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-1BB04** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB04** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB04** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB04** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-1BB24** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB24** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB24** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB24** | 1 | 1 unit | 41C |
| **Rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***Instantaneous switching, 2-pole controlled, high blocking voltage*** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-1BB06** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB06** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB06** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB06** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-1BB26** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB26** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB26** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB26** | 1 | 1 unit | 41C |


3RF3405-1BB..


3RF341.-1BB..

Other rated control supply voltages on request.

Accessories, see page 6/182.

| Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | **Spring-loaded terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | 400 V kW | V | Article No. / Price per PU | | | |
| **Rated operational voltage $U_e$ 48 ... 480 V AC** | | | | | | |
| ***Instantaneous switching, 2-pole controlled*** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-2BB04** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB04** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB04** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB04** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-2BB24** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB24** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB24** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB24** | 1 | 1 unit | 41C |
| **Rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***Instantaneous switching, 2-pole controlled, high blocking voltage*** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-2BB06** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB06** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB06** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB06** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-2BB26** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB26** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB26** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB26** | 1 | 1 unit | 41C |


3RF3405-2BB..


3RF341.-2BB..

Other rated control supply voltages on request.

Accessories, see page 6/182.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RF34 solid-state reversing contactors, 3-pole

### Technical specifications

| More information | |
|---|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298187 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16237/faq |

| Type | | 3RF3403-.BD.4 | 3RF3405-.BD.4 | 3RF3410-.BD.4 |
|---|---|---|---|---|
| **Fuseless design with 3RV2 motor starter protector, Class 10** | | | | |
| **Rated operational current $I_{AC-53a}$** [1] according to IEC 60947-4-2 | | | | |
| • At 40 °C | A | 3.8 (3.4) | 5.4 (4.8) | 7.4 |
| • UL/CSA, at 50 °C | A | 3.5 (3.1) | 5 (4.3) | 6.8 |
| • At 60 °C | A | 3.2 (2.8) | 4.6 (3.8) | 6.2 |
| **Power loss** at $I_{AC-53a}$ | | | | |
| • At 40 °C | W | 7 (6) | 9 (8) | 13 |
| **Short-circuit protection with type of coordination "1"** At operational voltage $U_e$ up to 440 V | | | | |
| • Motor starter protectors/circuit breakers | Type | 3RV2011-1FA10 | 3RV2011-1GA10 | 3RV2011-1JA10 |
| • Current $I_q$ | kA | 50 | | 10 |

[1] The reduced values in brackets apply to a directly mounted motor starter protector and simultaneous side-by-side mounting.

| Type | | 3RF3403-.BD.4 | 3RF3405-.BD.4 | 3RF3410-.BD.4 |
|---|---|---|---|---|
| **Fused design with directly connected 3RB3 overload relay** | | | | |
| **Rated operational current $I_{AC-53a}$** according to IEC 60947-4-2 | | | | |
| • At 40 °C | A | 3.8 | 5.4 | 7.4 |
| • UL/CSA, at 50 °C | A | 3.5 | 5 | 6.8 |
| • At 60 °C | A | 3.2 | 4.6 | 6.2 |
| Power loss at $I_{AC-53a}$ | | | | |
| • At 40 °C | W | 6 | 8 | 16 |
| **Minimum load current** | A | 0.5 | | |
| **Max. off-state current** | mA | 10 | | |

| Type | | 3RF34..-.BD.4 |
|---|---|---|
| **Main circuit** | | |
| **Controlled phases** | | 2-pole |
| **Rated operational voltage $U_e$** [1] | V AC | 48 ... 480 |
| • Operating range | V AC | 40 ... 506 |
| • Rated frequency | Hz | 50/60 ± 10% |
| **Rated insulation voltage $U_i$** | V | 600 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Blocking voltage** | V | 1 200 |
| **Rate of voltage rise** | V/µs | 1 000 |

[1] To reduce the risk of a phase short circuit due to overvoltage, we recommend using a varistor type 3TX7462-3L between the phases L1 and L3 as close as possible to the switchgear.
We recommend a design with semiconductor protection as short-circuit protection.

| Type | | 3RF34..-.BD0. | 3RF34..-.BD2. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | DC operation | AC operation |
| **Rated control supply voltage $U_s$** | V | 24 | 110 ... 230 |
| **Rated frequency** of the rated control supply voltage | Hz | -- | 50/60 ± 10% |
| **Control supply voltage, maximum** | V | 30 | 253 |
| **Typical actuating current** | mA | 15 | 10 |
| **Response voltage** | V | 15 | 90 |
| **Drop-out voltage** | V | 5 | < 40 |
| **Operating times** [1] | | | |
| • ON-delay | ms | 5 | 20 |
| • OFF-delay | ms | 5 + max. one half-wave | 10 + max. one half-wave |
| • Interlock time | ms | 60 ... 100 | 50 ... 100 |

[1] Notice! Risk of phase short circuit in automatic mode.
The control inputs must not be actuated until a delay of 40 ms has expired after the main voltage is applied.

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## Selection and ordering data

### *Selection notes*

The solid-state reversing contactors are selected based on the details provided regarding network, load and ambient conditions.

The following procedure is recommended:

- Determine the rated current of the load and the line voltage
- Select a solid-state contactor with the same or higher rated current than the load
- Test the maximum permissible switching frequency based on the characteristic curves (see More information, page 6/177). To do this, the starting current, the starting time and the motor load in the operating phase must be known.
- If the permissible switching frequency is under the desired frequency, it is possible to achieve an increase only by overdimensioning the motor and the solid-state contactor!

The correct device size can be determined by entering the network and motor data along with the application and ambient conditions.

### *Solid-state reversing contactors*

| Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | 400 V | | | | | | |
| A | kW | V | Article No. | Price per PU | | | |
| **Rated operational voltage $U_e$ 48 ... 480 V AC** | | | | | | | |
| ***Instantaneous switching, 2-pole controlled*** | | | | | | | |
| 3.8 | **1.5** | 24 DC | **3RF3403-1BD04** | | 1 | 1 unit | 41C |
| 5.4 | **2.2** | | **3RF3405-1BD04** | | 1 | 1 unit | 41C |
| 7.4 | **3** | | **3RF3410-1BD04** | | 1 | 1 unit | 41C |
| 3.8 | **1.5** | 110 ... 230 AC | **3RF3403-1BD24** | | 1 | 1 unit | 41C |
| 5.4 | **2.2** | | **3RF3405-1BD24** | | 1 | 1 unit | 41C |
| 7.4 | **3** | | **3RF3410-1BD24** | | 1 | 1 unit | 41C |



3RF340.-1BD.4



3RF3410-1BD.4

Other rated control supply voltages on request.

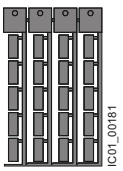
Accessories, see page 6/182.

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## Accessories

### Selection and ordering data

| Version | For solid-state switching devices | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Control connectors** NEW | | | | | | |
| | | **Screw terminals** | | | | |
|  3RF3900-1TA88 **Replacement control connectors** For solid-state contactors with screw terminals | 3RF34..-1B... | **3RF3900-1TA88** | | 1 | 50 units | 41C |
| **Link modules between solid-state contactor and motor starter protector** | | | | | | |
|  3RA2921-1BA00 **Link module** Between solid-state contactor and motor starter protector with screw terminals<br>For 3RV2 motor starter protectors, size S00/S0 | 3RF34..-1B... | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| **Link adapters between solid-state contactor and overload relay** | | | | | | |
|  3RF3900-0QA88 **Link adapter** For direct mounting of 3RB3 overload relays or 3RR2 current monitoring relays onto the solid-state contactor with screw terminals<br>The adapter is snapped onto the enclosure of the 3RF34 solid-state contactor and accommodates the fastening hooks of the 3RB3 overload relays or the 3RR2 current monitoring relays for direct mounting. | 3RF34..-1B... | **3RF3900-0QA88** | | 1 | 1 unit | 41C |
| **Control connectors** NEW | | | | | | |
| | | **Spring-loaded terminals** | | | | |
|  3RF3900-2TB88 **Replacement control connector** For solid-state contactors with spring-loaded terminals, with two clamping points per contact | 3RF34..-2BB.. | **3RF3900-2TB88** | | 10 | 1 unit | 41C |
| **Insulation stops for securely holding back the conductor insulation, on conductors up to 1 mm²** | | | | | | |
|  3RT2916-4JA02 **Insulation stop strips** For all SIRIUS devices with spring-loaded terminals<br>Can be inserted in the cable entry of the spring-loaded terminal (no more than two strips per solid-state contactor required; removable in pairs) for terminals with a conductor cross-section up to 2.5 mm² | 3RF34..-2BB.. | **3RT2916-4JA02** | | 1 | 20 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
|  3RA2908-1A **Screwdriver** For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | 3RF34..-2BB.. | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 **Unit labeling plates** For SIRIUS devices[1] | | | | | | |
| 10 mm x 7 mm, titanium gray | 3RF34..-.B.. | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| 20 mm x 7 mm, titanium gray | | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | | |
| 19 mm x 6 mm, titanium gray | 3RF34..-.B.. | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate