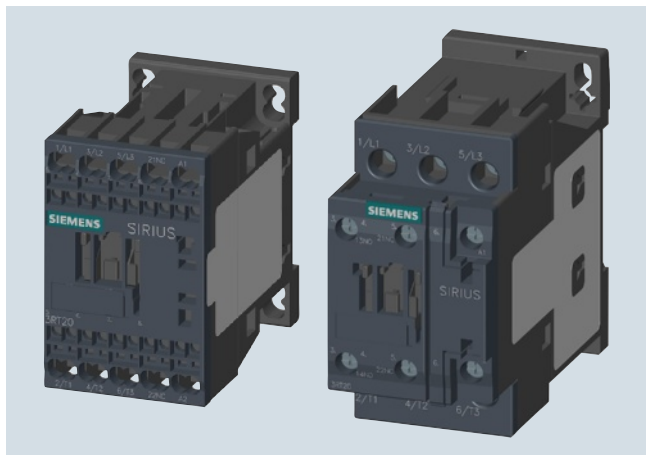


**Overview****Sizes S00 and S0, up to 18.5 kW**

Contactor size S00 with spring-type terminals and contactor size S0 with screw terminals

Compared to the former 3RT1 series, the 3RT2 series is notable for its higher rating: size S00 with up to 7.5 kW and size S0 with up to 18.5 kW.

Standards

IEC 60947-1, EN 60947-1,  
IEC 60947-4-1, EN 60947-4-1,  
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

The 3RT2 contactors are climate-proof and are suitable and tested for use worldwide.

If the devices are used in ambient conditions which deviate from common industrial conditions (IEC 60721-3-3 "Stationary Use, Weather-Protected"), information must be obtained about possible restrictions with regard to the reliability and endurance of the device and possible protective measures. In this case contact our Technical Assistance.

3RT2 contactors are finger-safe according to EN 50274. The devices with ring terminal lug connection comply with degree of protection IP20 when fitted with the related terminal cover.

Auxiliary contact complement

Size S00 contactors have an auxiliary contact integrated in the basic unit. The basic units size S0 contain two integrated auxiliary contacts (1 NO + 1 NC).

All basic units (except coupling contactors) can be extended with auxiliary switch blocks:

- Additional auxiliary switches with a maximum of four auxiliary contacts can be mounted. The combination of a 2-pole auxiliary switch for mounting on the front and an auxiliary switch for mounting on the side is not permitted.
- Of the maximum number of auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted for both sizes.

In addition, complete units with permanently mounted auxiliary switch block (2 NO + 2 NC) are offered for sizes S00 and S0.

Contact reliability

If voltages  $\leq 110$  V and currents  $\leq 100$  mA are to be switched, the auxiliary contacts of the 3RT2 contactor or 3RH21 contactor relay should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are suitable for electronic circuits with currents  $\geq 1$  mA at a voltage  $\geq 17$  V.

Connection methods

The 3RT2 contactors are available with screw terminals, spring-type terminals or ring terminal lug connections.

Short-circuit protection of the contactors

For short-circuit protection of contactors without overload relays see "Technical specifications" on pages 3/17 and 3/22. For short-circuit protection of the contactors with overload relay, see Configuration Manual "Configuring SIRIUS Innovations" <http://support.automation.siemens.com/WW/view/en/39714188>.

To assemble fuseless motor feeders, you must select combinations of motor starter protector and contactor as explained in "SIRIUS 3RA2 Load Feeders" (see Chapter 8 "Load Feeders and Motor Starters").

Motor protection

3RU21 thermal overload relays or 3RB30 solid-state overload relays can be fitted to the 3RT2 contactors for protection against overload. The overload relays must be ordered separately (see Chapter 7, "Protection Equipment" → "Overload relays").

Ratings of three-phase motors

The quoted rating (in kW) refers to the output power on the motor shaft (according to the nameplate).

Control supply voltage

All contactors are available with AC or DC operation. For size S0 contactors, a UC operating mechanism is also available, which can be controlled with both AC (50 to 60 Hz) and DC.

Surge suppression

3RT2 contactors can be retrofitted with RC elements, varistors or diode assemblies (assembly of diode and Zener diode for short break times) for damping opening surges in the coil.

The surge suppressors are plugged onto the front of size S00 contactors. Space is provided for them next to a snap-on auxiliary switch block.

The surge suppressors can be plugged onto the front of size S0 contactors.

Note:

The OFF-delay of the NO contact and the ON-delay of the NC contact are increased if the contactor coils are attenuated against voltage peaks (noise suppression diode 6 to 10 times; diode assembly 2 to 6 times, varistor and suppressor diode +2 to 5 ms).

**S00 and S0 contactors with communication interface**

The S00 and S0 contactors with communication interface are special versions for mounting the SIRIUS function modules for connection to the control system through IO-Link or AS-Interface (see page 3/188 and 3/193).

When a function module is fitted, no additional auxiliary switches can be mounted. Without a function module, the contactors can be used like the standard versions.

Further information on IO-Link and AS-Interface see Chapter 2 "Industrial Communication".

**Manuals**

For more information, see

- System manual "SIRIUS Innovations – System Overview", <http://support.automation.siemens.com/WW/view/en/60311318>
- Manual "SIRIUS Innovations – SIRIUS 3RT2 Contactors/ Contactor Assemblies", <http://support.automation.siemens.com/WW/view/en/60306557>

# Power Contactors for Switching Motors

## SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

### Article No. scheme

Digit of the Article No.	1st - 3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
	□□□	□	□	□	□	-	□	□	□	□	-	□	□	□
<b>SIRIUS power contactors</b>	<b>3 R T</b>													
<b>2nd generation</b>	<b>2</b>													
<b>Device type (e. g. 0 = 3-pole motor contactor, 3 = 4-pole AC-1 contactor)</b>	□													
<b>Contactor size (1 = S00, 2 = S0)</b>	□													
<b>Power dependent on size (e. g. 27 = 15 kW)</b>	□													
<b>Connection type (1 = screw, 2 = spring)</b>	□													
<b>Operating range / solenoid coil circuit (e. g. A = AC standard / without)</b>	□													
<b>Rated control supply voltage (e. g. P0 = 230 V, 50 Hz)</b>	□ □													
<b>Auxiliary switches (e. g. S0: 0 = 1 NO + 1 NC integrated)</b>	□													
<b>Special version</b>	□ □ □ □													
<b>Example</b>	<b>3 R T 2 0 2 7 - 1 A P 0 0</b>													

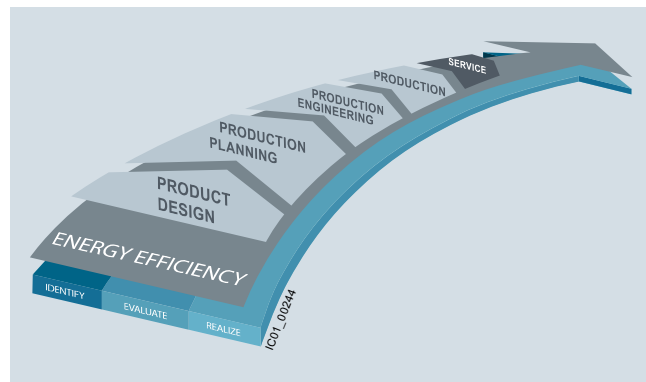
### Note:

The Article No. scheme is presented here merely for information purposes and for better understanding of the logic behind the article numbers.

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

## Benefits

### Advantages through energy efficiency



Overview of the energy management process

We offer you a unique portfolio for industrial energy management, using an energy management system that helps to optimally define your energy needs. We split up our industrial energy management into three phases – identify, evaluate, and realize – and we support you with the appropriate hardware and software solutions in every process phase.

The innovative products of the SIRIUS industrial controls portfolio can also make a substantial contribution to a plant's energy efficiency (see [www.siemens.com/sirius/energysaving](http://www.siemens.com/sirius/energysaving)).

3RT20 contactors contribute to energy efficiency throughout the plant as follows:

- UC coils with electric control for reduced power consumption when closing and in the closed state
- Smaller power supply units in the control circuit through lower power consumption in the closed state with 24 V DC
- Reduced heating of control cabinet: Technology-reduced inherent power loss of the contactors, resulting in lower cooling costs and a more compact design

## Accessories

### Auxiliary switch blocks

Terminal designations according to EN 50012 or EN 50005.

Size S00 contactors have an auxiliary contact (NO or NC) integrated in the basic unit. Size S0 contactors have 2 auxiliary contacts (1 NO and 1 NC) integrated in the basic unit.

The contactors can be expanded with front-mounting 3RH2911 auxiliary switch blocks to form contactors with up to 5 auxiliary contacts (S00) or up to 6 auxiliary contacts (S0). Of the auxiliary contacts (integrated plus mountable) possible on the device, no more than four NC contacts are permitted.

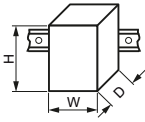
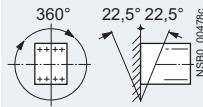

Single- or 2-pole auxiliary switch blocks with connection options from above or below enable easy and clearly arranged wiring especially for the installation of feeders. These auxiliary switch blocks are offered only with screw terminals.

All the previously mentioned auxiliary switch variants can be snap-fitted onto the front of the contactor. The auxiliary switch block has a centrally positioned release lever for disassembly.

If the installation space is limited in depth, 2-pole auxiliary switch blocks can be attached laterally on the left or on the right. These auxiliary switch blocks can be used only when no 4-pole auxiliary switch blocks are snapped onto the front.

The solid-state compatible 3RH2911-.NF. auxiliary switch blocks include 2 enclosed contacts. They are suitable in particular for switching small voltages and currents (hard gold-plated contacts) and for operation in dusty atmospheres. The front NC auxiliary contacts are not mirror contacts. There are also versions for mounting on the side.

For details of selecting the auxiliary switches see pages 3/47 to 3/52.

Type	3RT20 15, 3RT20 16		3RT20 17, 3RT20 18	
Size	<b>S00</b>		<b>S00</b>	
Dimensions (W x H x D) <sup>1)</sup>		mm	45 x 57.5 x 73 / 45 x 70 x 73	
• With mounted auxiliary switch block		mm	45 x 57.5 x 116 / 45 x 70 x 121	
• With mounted function module		mm	45 x 57.5 x 142 / 45 x 70 x 142	
<b>General technical specifications</b>				
<b>Permissible mounting position</b>				
The contactors are designed for operation on a vertical mounting surface.				
				
Upright mounting position				
 Special version required				
<b>Mechanical endurance</b>				
• Basic units	Operating cycles	30 million		
• Basic units with snap-on auxiliary switch block	Operating cycles	10 million		
• Solid-state compatible auxiliary switch block	Operating cycles	5 million		
<b>Electrical endurance</b>				
2)				
<b>Rated insulation voltage <math>U_i</math></b> (pollution degree 3)		V	690	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV	6	
<b>Protective separation</b> between the coil and the main contacts acc. to IEC 60947-1, Appendix N		V	400	
<b>Mirror contacts</b>				
A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact.				
• 3RT201.., 3RT231. (removable auxiliary switch block)				
• 3RT201.., 3RT231. (permanently mounted auxiliary switch block)				
• 3RH2919-.NF.. solid-state compatible auxiliary switch blocks				
Yes, this applies to both the basic unit as well as to between the basic unit and the mounted auxiliary switch block acc. to IEC 60947-4-1, Appendix F Yes, acc. to IEC 60947-4-1, Appendix F, and SUVA Have no mirror contact for size S00				
<b>Ambient temperature</b>				
• During operation	°C	-25 ... +60		
• During storage	°C	-55 ... +80		
<b>Degree of protection</b> acc. to IEC 60947-1, Appendix C				
IP20				
<b>Touch protection</b> acc. to EN 50274				
Finger-safe				
<b>Shock resistance</b> rectangular pulse				
• AC operation	g/ms	6.7/5 and 4.2/10		7.3/5 and 4.7/10
• DC operation	g/ms	6.7/5 and 4.2/10		7.3/5 and 4.7/10
<b>Shock resistance</b> sine pulse				
• AC operation	g/ms	10.5/5 and 6.6/10		11.4/5 and 7.3/10
• DC operation	g/ms	10.5/5 and 6.6/10		11.4/5 and 7.3/10
<b>Conductor cross-sections</b>				
3)				
<b>Short-circuit protection for contactors without overload relays</b>				
<b>Main circuit</b>				
• Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1/EN 60947-4-1				
- Type of coordination "1"	A	35	50	
- Type of coordination "2"	A	20	25	
- Weld-free <sup>4)</sup>	A	10	10	
• Miniature circuit breakers (up to 230 V) with C characteristic Short-circuit current 1 kA, type of coordination "1"	A	10	10	
<b>Auxiliary circuit</b>				
Short-circuit test acc. to IEC 60947-5-1/EN 60947-5-1				
• With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k = 1$ kA	A	10		
• With 230 V miniature circuit breakers, C characteristic with short-circuit current $I_k = 400$ A	A	6		
Short-circuit protection for contactors with overload relays				
See Configuration Manual "Configuring SIRIUS Innovations" <sup>5)</sup>				
Short-circuit protection for fuseless load feeders				
See Chapter 8 "Load Feeders and Motor Starters for Use in the Control Cabinet" → "SIRIUS 3RA2 Load Feeders"				

1) Dimensions for devices with screw terminals / spring-type terminals.

2) For contact endurance of the main contacts see page 3/16.

3) For conductor cross-sections, see page 3/21.

4) Test conditions according to IEC 60947-4-1.

5) See <http://support.automation.siemens.com/WWW/view/en/39714188>.

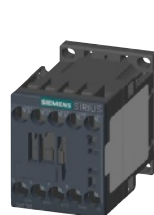
# Power Contactors for Switching Motors

## SIRIUS 3RT20 contactors, 3-pole, 3 ... 18.5 kW

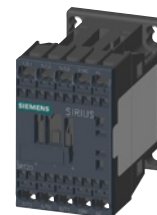
### Selection and ordering data

#### AC operation

PU (UNIT, SET, M) = 1  
 PS\* = 1 unit  
 PG = 41B



3RT201.-1A...



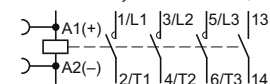
3RT201.-2A...

Rated data		Auxiliary contacts		Rated control supply voltage	DT	Screw terminals		DT	Spring-type terminals	
AC-2 and AC-3, $T_u$ : Up to 60 °C		AC-1, $T_u$ : 40 °C		Up to 50/60 Hz		Configurator			Configurator	
Operational current $I_e$ up to 400 V	Rating <sup>1)</sup> of three-phase motors at 50 Hz and <b>400 V</b>	Operational current $I_e$ up to 690 V	Ident. No.			Version	Article No.		Price per PU	Article No.
A	<b>kW</b>	A	NO	NC	V AC					

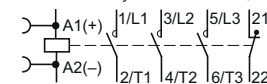
For screw and snap-on mounting onto TH 35 standard mounting rail

#### Size S00<sup>2)3)</sup>

• With auxiliary contact 1 NO, Ident. No. **10**



• With auxiliary contact 1 NC, Ident. No. **01**



7	3	18	10	1	--	24	▶	3RT2015-1AB01	▶	3RT2015-2AB01
						110	▶	3RT2015-1AF01	▶	3RT2015-2AF01
						230	▶	3RT2015-1AP01	▶	3RT2015-2AP01
			<b>01</b>	--	1	24	▶	3RT2015-1AB02	▶	3RT2015-2AB02
						110	▶	3RT2015-1AF02	▶	3RT2015-2AF02
						230	▶	3RT2015-1AP02	▶	3RT2015-2AP02
9	4	22	10	1	--	24	▶	3RT2016-1AB01	▶	3RT2016-2AB01
						110	▶	3RT2016-1AF01	▶	3RT2016-2AF01
						230	▶	3RT2016-1AP01	▶	3RT2016-2AP01
			<b>01</b>	--	1	24	▶	3RT2016-1AB02	▶	3RT2016-2AB02
						110	▶	3RT2016-1AF02	▶	3RT2016-2AF02
						230	▶	3RT2016-1AP02	▶	3RT2016-2AP02
12	5.5	22	10	1	--	24	▶	3RT2017-1AB01	▶	3RT2017-2AB01
						110	▶	3RT2017-1AF01	▶	3RT2017-2AF01
						230	▶	3RT2017-1AP01	▶	3RT2017-2AP01
			<b>01</b>	--	1	24	▶	3RT2017-1AB02	▶	3RT2017-2AB02
						110	▶	3RT2017-1AF02	▶	3RT2017-2AF02
						230	▶	3RT2017-1AP02	▶	3RT2017-2AP02
16	7.5	22	10	1	--	24	▶	3RT2018-1AB01	▶	3RT2018-2AB01
						110	▶	3RT2018-1AF01	▶	3RT2018-2AF01
						230	▶	3RT2018-1AP01	▶	3RT2018-2AP01
			<b>01</b>	--	1	24	▶	3RT2018-1AB02	▶	3RT2018-2AB02
						110	▶	3RT2018-1AF02	▶	3RT2018-2AF02
						230	▶	3RT2018-1AP02	▶	3RT2018-2AP02

For online configurator see [www.siemens.com/sirius/configurators](http://www.siemens.com/sirius/configurators).

<sup>1)</sup> Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be switched must be considered when selecting the units.

<sup>2)</sup> The 3RT20 contactors are also available with ring terminal lug connection. Please contact your local Siemens representative for information about these special versions.

<sup>3)</sup> For size S00: Coil operating range at 50 Hz: 0.8 ... 1.1 ×  $U_s$ , at 60 Hz: 0.85 ... 1.1 ×  $U_s$ .

Other voltages according to page 3/39 on request.

For accessories see page 3/48.

## Options

**Rated control supply voltages, possible on request  
(change of 10th and 11th digit of the Article No.)**

Rated control supply voltage $U_s$	Contactor type	3RT201	3RT202	3RT231, 3RT251	3RT232, 3RT252
	Size	S00	S0	S00	S0

## Sizes S00 and S0

AC operation<sup>1)</sup>

**Solenoid coils for 50 Hz** (exception: Size S00: 50 and 60 Hz<sup>2)</sup>)

24 V AC	B0	B0	B0	B0
42 V AC	D0	D0	D0	--
48 V AC	H0	H0	H0	--
110 V AC	F0	F0	F0	F0
230 V AC	P0	P0	P0	P0
240 V AC	U0	U0	--	--
400 V AC	V0	V0	V0	V0

**Solenoid coils for 50 and 60 Hz<sup>2)</sup>**

24 V AC	B0	C2	B0	C2
42 V AC	D0	D2	D0	D2
48 V AC	H0	H2	H0	H2
110 V AC	F0	G2	F0	G2
220 V AC	N2	N2	N2	N2
230 V AC	P0	L2	P0	L2

**Solenoid coils (for USA and Canada<sup>3)</sup>)**

50 Hz	60 Hz				
110 V AC	120 V AC	K6	K6	K6	K6
220 V AC	240 V AC	P6	P6	P6	P6

**Solenoid coils (for Japan)**

50/60 Hz <sup>4)</sup>	60 Hz <sup>5)</sup>				
100 V AC	110 V AC	G6	G6	G6	G6
200 V AC	220 V AC	N6	N6	N6	N6
400 V AC	440 V AC	R6	R6	R6	R6

DC operation<sup>1)</sup>

12 V DC	A4	--	A4	--
24 V DC	B4	B4	B4	B4
42 V DC	D4	D4	D4	D4
48 V DC	W4	W4	W4	W4
60 V DC	E4	E4	--	--
110 V DC	F4	F4	F4	F4
125 V DC	G4	G4	G4	G4
220 V DC	M4	M4	M4	M4
230 V DC	P4	P4	P4	--

## Examples

<b>AC operation</b>	3RT2023-1AP00	Contactors with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC
	3RT2023-1AG20	Contactors with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC
<b>DC operation</b>	3RT2025-2BB40	Contactors with spring-type terminals; for rated control supply voltage 24 V DC
	3RT2025-2BG40	Contactors with spring-type terminals; for rated control supply voltage 125 V DC

Rated control supply voltage	Contactor type	--	3RT2. 2.-.N
$U_{s \min} \dots U_{s \max}$ <sup>6)</sup>	Size	S00	S0

## Size S0

## UC operation (AC 50 up to 60 Hz, DC)

21 ... 28 V AC/DC	--	B3
95 ... 130 V AC/DC	--	F3
200 ... 280 V AC/DC <sup>7)</sup>	--	P3

<sup>1)</sup> For deviating coil voltages and coil operating ranges of sizes S00 and S0, the SITOP power 24 V DC power supply unit with wide range input (93 to 264 V AC; 30 to 264 V DC) can be used for coil excitation (see Chapter 15, "Products for Specific Requirements" → "SITOP Power Supplies").

<sup>2)</sup> Coil operating range  
at 50 Hz: 0.8 ... 1.1 x  $U_s$   
at 60 Hz: 0.85 ... 1.1 x  $U_s$ .

<sup>3)</sup> Coil operating range  
Size S00: at 50 Hz: 0.85 ... 1.1 x  $U_s$   
at 60 Hz: 0.8 ... 1.1 x  $U_s$   
Size S0: at 50 Hz and 60 Hz: 0.8 ... 1.1 x  $U_s$ .

<sup>4)</sup> Coil operating range  
Size S00: at 50/60 Hz: 0.85 ... 1.1 x  $U_s$   
Size S0: at 50 Hz: 0.8 ... 1.1 x  $U_s$   
at 60 Hz: 0.85 ... 1.1 x  $U_s$ .

<sup>5)</sup> Coil operating range  
at 60 Hz: 0.8 ... 1.1 x  $U_s$ .

<sup>6)</sup> Coil operating range: 0.7 x  $U_{s \min}$  ... 1.3 x  $U_{s \max}$ .

<sup>7)</sup> The following applies to  $U_{s \max} = 280$  V: Upper limit = 1.1 x  $U_{s \max}$ .