

## Click 'n' Go: SIRIUS Modular System



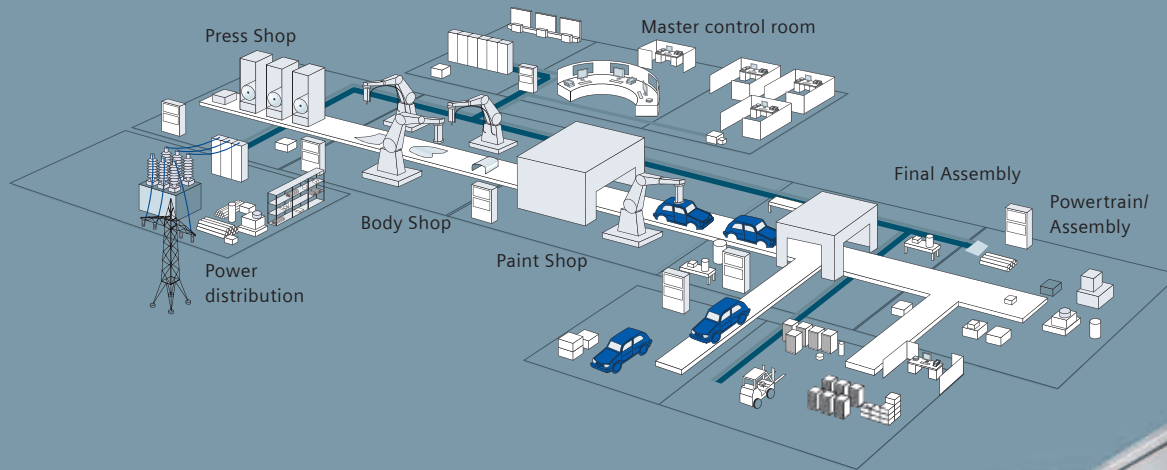
# SIRIUS

Highly flexible system-based switching, protecting and starting.

Answers for industry.

**SIEMENS**

# Everything for the electrical cabinet: SIRIUS Modular System.



## Everything. Easy. SIRIUS

Key functions like Pressing, equipping, transporting run in many automated production environments. You'll find everything that you need to switch, protect and start motors with the extensive portfolio of the modular SIRIUS system.



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# Everything. System-based. SIRIUS Modular System.

How to realize fast, easy, flexible and space-saving control cabinet assembly? With the unique SIRIUS modular system, which offers everything required for the switching, protection and starting of motors and systems. It comprises a modular range of standard components up to 250 kW / 415 V in only seven optimally matched sizes which can be easily combined and utilize largely identical accessories. Switching technology made easy!

The permanent advancement and continuous innovation of SIRIUS optimally prepare our customers for current and future requirements and provide them with efficient solutions. All components of the SIRIUS modular system are characterized by their space-saving design and high degree of flexibility. Configuration, installation, wiring and maintenance can be realized easily and in minimum time. No matter whether you want to assemble load feeders with circuit breakers or overload relays, contactors / solid-state contactors, reversing contactors or soft starters – SIRIUS offers the suitable product for every application.

Thanks to the latest innovations of sizes S00 and S0 up to 40 A, the SIRIUS modular system now offers even more functional diversity:

In addition to the basic components (such as contactors, circuit breakers and overload relays), the innovated SIRIUS modular system offers unprecedented highlights:

- **Spring loaded terminals:** Spring loaded terminals provide the key benefits like less assembly / disassembly time, very high termination reliability, shock and vibration proof terminals
- **Direct mounting of monitoring relays:** First time in industry you have a choice to mount the current monitoring relay directly on the contactor
- **Function Modules:** Function module can be directly mounted onto the contactor for the easy assembly of direct on line, reversing and star delta starters. They replace the need of control wiring and auxiliary contacts
- **Communication capability:** SIRIUS innovation is the first to offer communication capable contactors with open communication protocols like AS-i and IO link

Circuit breakers



Contactors



Overload relays



Soft starters



# Overview of the Numerous Advantages Offered by the SIRIUS Modular System.

With its manifold components, the SIRIUS modular system covers various functions for control cabinet applications and offers numerous advantages in terms of assembly and handling, application monitoring, connection to the control as well as planning and configuration.

## Assembly and handling:

Reduced wiring expenditures and fault avoidance – with maximum flexibility

- **Load feeders:** Easy realization with standard devices up to 250 kW / 415 V
- **Modular system:** All devices in same frame size have same width and terminal orientation that results into a seamless feeder
- **Versions and sizes:** Efficiency and flexibility with only 7 sizes covering upto 250kW
- **Accessories:** Only 2 groups of accessories for 7 frame sizes
- **Assembly:** Easy wiring, short setup time, fast commissioning
- **Mounting:** Choice of screw and DIN rail mounting
- **Spring-loaded connection system:** Fast and safe connection, vibration-proof and with zero maintenance
- **Reduced wiring:** 1) Power wiring - Thanks to 8US and connecting links  
2) Control wiring - Thanks to function module that can replace all control wiring

## Application control:

Improved operational reliability and system availability

- **Maintenance:** Extremely long service life, low maintenance due to high reliability
- **Application monitoring:** Flexibly integrated in the feeder thanks to current monitoring relay

## Connection to the control:

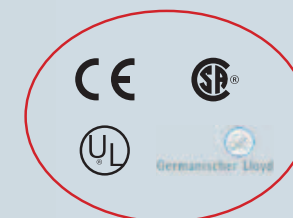
Optimum integration in the automation environment

- **Communication:** Standardized connection to AS-Interface, IO-Link and PROFIBUS DP possible

## Planning and configuration:

Eased system planning and documentation

- **System planning:** Easy and fast thanks to comprehensive CAX data provision
- **Environment:** ROHS compliant
- **Design:** Clear and ergonomic, awarded with the iF Product Design Award
- **Configurator:** For easy product selection, including accessories
- **Global acceptability:** Thanks to comprehensive approvals



# Switching. Protecting. Starting.

## The components of the SIRIUS Modular System.



### Far more than ON/OFF: SIRIUS 3RV motor protection circuit breaker

SIRIUS 3RV motor protection circuit breaker (MPCB) are compact, current-limiting circuit breakers. They guarantee safe reliable shutdown when short circuits occur and protect loads and plants against overload. Furthermore, they are suitable for operationally switching load feeders and safely disconnecting the plant or system from the line supply when service is being carried out or changes are being made. SENTRON 3VL circuit breakers are suitable for applications above 100 A. As infeed and load feeder breaker, they protect plants and motors against short circuit and overload.



### Rugged and reliable: SIRIUS 3RT contactors

You can easily find what you require in this complete family with only seven sizes for the power range up to 250kW/415V. Secondly-you can completely depend on SIRIUS contactors- and we mean completely. These benefits distinguish themselves due to high operational reliability, long lifetime, always the best electrical contacts and the rugged character - even at high ambient temperatures. It goes without saying that the contactors have everything that you expect from the SIRIUS system.



### Tripping when things get tough: SIRIUS 3RU and 3RB overload relays

The overload relays of the SIRIUS family, available as either thermal or solid-state versions, protect loads connected to the main circuit, as a function of the current, and also protect other switching devices in the particular load feeder. The solid-state SIRIUS 3RB2 overload relays guarantee seamless motor and plant protection from 0.1 A to 630 A. Due to the wide setting ranges, the current range is covered with a minimum number of versions.



### Easy application monitoring: SIRIUS 3RR2 current monitoring relays

The SIRIUS current monitoring relays not only monitor the motor, but the entire system or driven process for overcurrent and undercurrent, cable breakage and phase failure. For example, load shedding or overload of an application is promptly detected and signaled at an early stage. Sizes S00 and S0 of the 3RR2 current monitoring relay are directly integrated in the load feeder. They simply have to be plugged onto the contactor.



### Gentle starting: SIRIUS 3RW soft starters

SIRIUS 3RW soft starters offer a seamless range that covers all standard and high-feature motor starting applications. They can be used in the widest range of applications to exploit the advantages of soft starting for the easy and efficient realization of optimum machine concepts. The compact two-phase-controlled 3RW30 facilitates efficient and space-saving soft starting up to 55 kW (@ 415 V). The 3RW40 additionally offers soft stopping as well as integrated intrinsic device and motor protection functions, thanks to which an additional overload relay is unnecessary. Also the complete range of SIRIUS 3RW soft starter has built-in bypass contacts due to which an separate external bypass contactor is not required. Device versions up to a rating of 250 kW (@ 415 V) are available: Thermistor motor protection evaluation, 400–600 V.

## Switching. Protecting. Starting. The components of the SIRIUS Modular System.



Straight ahead:  
The 3RA21 direct starter



Phases interchanged:  
The 3RA22 reversing starter



Two stages – one start:  
The 3RA24 star-delta  
combination

### Ready for immediate use: Pre-wired SIRIUS load feeders

Load feeders start loads using a combination of protective and switching functions. Generally, a multiple number of components is required to implement every type of starter. In order to reduce time and costs – and especially to minimize downtimes – we offer you a wide range of pre-wired starter solutions:

- Direct starters up to 22 kW – the optimum starter combination for all motors.
- Reversing starters up to 45 kW – the matching combination for reversing motors.
- Star-delta combinations up to 75 kW – the solution for running-up motors in stages.
- Soft starters – when soft starting and stopping is required.

# Everything Easy: SIRIUS suitable for every application

## Auxiliary contactors



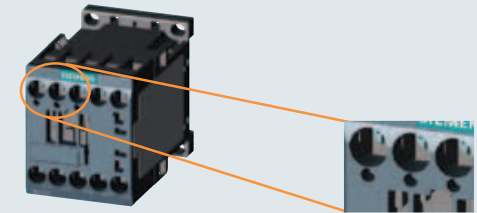
SIRIUS auxiliary contactors reliably control output signals and interlock switching devices in control and auxiliary circuits. Cross-ribbing technique ensures high contact reliability.

## 3-pole contactor



The 3RT 3-Pole AC3 duty contactors are the optimum choice to control three-phase motors. With just two sizes, they cover a power range from 3 to 250kW / 415V for AC and DC control

## 3 Pole contactor with communication interface



The S00 and S0 3P contactors with communication interface are capable to communicate through IO link or AS-Interface. The desired function module can be directly mounted on the communication capable contactor.

## 4-pole contactors



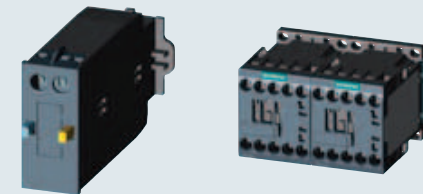
3RT contactor is available in 4NO & 2NO+2NC configuration for power contactors. 4NO configuration is ideally suitable for switching the source requiring neutral isolation. Changing the polarity of hoisting gear motors can be easily met with use of 2NO+2NC configuration with just one contactor. Two separate loads can be switched by 2NO+2NC contactors thus saving cost of additional contactor.

## Low consumption coils



SIRIUS range of low-consumption coil contactors consume power as low as 1.6kW @ 24V DC. Hence, these can be directly driven by PLC output, thus eliminating use of interposing relays. These contactors come with built-in surge suppressor and a wide operating range of 0.7–1.25 x Us.

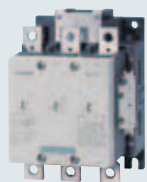
## Latch block & latched contactor relay



Critical applications might require the process to continue even after failure of control voltage. The contactor is designed to remain in ON state even on failure of control voltage ensuring less downtime. This is achieved by mechanical latch.

## Everything Easy: SIRIUS suitable for every application

### 3-pole vacuum contactors



Due to its significant high electrical life 3RT12 vacuum contactors become an ideal choice for applications where low downtime is crucial. Suitability of switching upto 1000V offer another application area for these contactors.

### Capacitor duty contactors



When it comes to switching power capacitors, the 3RT16 capacitor contactors are the best choice.

### 3-pole AC-1 duty contactors



The high performance 3RT14 AC-1 contactors are in their element everywhere resistive rated currents have to be switched. 3RT14 offers an economical choice for applications involving AC-1 duty switching such as heater loads, soft starter bypass or VFD switching. Solid state coil is available for contactors from 9A to 38A and 115A to 500A

### Withdrawable coil



Replacement of the magnetic coil of a contactor can be cumbersome, especially for big contactors. This might lead to larger down times which is not affordable in processing industries. SIRIUS contactors for large sizes viz., S6 to S12 (115A onwards to 500A) have withdrawable coils which can be replaced within no time and without the use of any special tools. Moreover these coils are suitable for AC 50/60Hz or DC. Thus reducing the cost of inventory.

### Solid state coil (Universal coil)



Large size contactors cannot be driven directly by a PLC output as the 'VA' burden of the coil is too large. Generally, a relay board is used as an interface between the PLC and the contactor coil. SIRIUS range of contactors with solid state coil have the required electronics imbedded within the contactor to be controlled directly by the PLC. This eliminates the need of the interface module, thereby saving cost.

### Remaining lifetime indicator (RLT)



The degree of contact erosion is not merely the number of ON/OFF operations, it depends on the loading, operating mode, etc. To avoid unforeseen down times in a plant, the erosion of the contacts have to be monitored regularly. SIRIUS contactor with remaining lifetime indication takes over this task. It electronically identifies, evaluates and stores the actual progress of erosion of the main contacts and outputs a warning when specified limits are reached.

## Everything Easy: SIRIUS suitable for every application

### Function module



The function modules for mounting onto the contactors enable the assembly of starters and contactor assemblies for direct-on-line, reversing and star-delta starting without any additional, complicated wiring of the individual components. They include the key control functions required for the particular feeder, e.g. timing and interlocking, and can be connected to the control system by either parallel wiring or through IO-Link or AS-Interface (available only for S00, S0 contactors 3RT2).

### 3RB micro-processor relay



SIRIUS 3RB range of Microprocessor based motor protection relays offer protection for motors against various faults viz., overload, phase failure, earth fault, etc. The higher end 3RB relays with large setting (1:10) also offer thermistor protection. They are modular in design and can accommodate add on modules such as internal earth fault protection module, analog output module, overload warning module, ground fault signalling module, etc.

### 3RR Current monitoring relays



The 3RR2 current monitoring relays monitor current for overshoot, undershoot and range monitoring without the need of having a separate current transformer. In addition to this, it can be used for phase sequence monitoring, monitoring of phase failure, monitoring of residual current and motor blocking. The load factor over a motor's entire torque range can be evaluated as well. Direct mounting possibility on 3RT2 contactors and variety of the wide supply voltage options make it further attractive solution to the customer.

### Motor protection circuit breaker 3RV



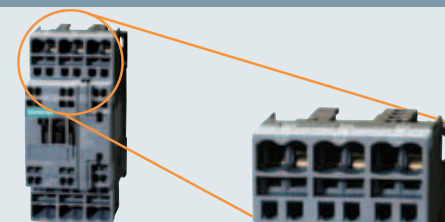
3RV motor protection circuit breakers are available in size S00, S0, S2 and S3 upto 100A. They can protect motors upto 45kW. **The entire range is having rotary knob.** The motor protection circuit breaker is available in 3 types, viz "standard type", "Mag Only" type and "relay function type".

### Coupling link for control by PLC



The output signal of a PLC is not strong enough to switch on a contactor coil. SIRIUS coupling link can be used to overcome this shortfall. The coupling link is mounted onto the coil terminals of the contactor. The PLC signal switches ON coupling link which in turn energizes the coil of the contactor. Thus saving cost of an additional interposing relay.

### Spring type terminals

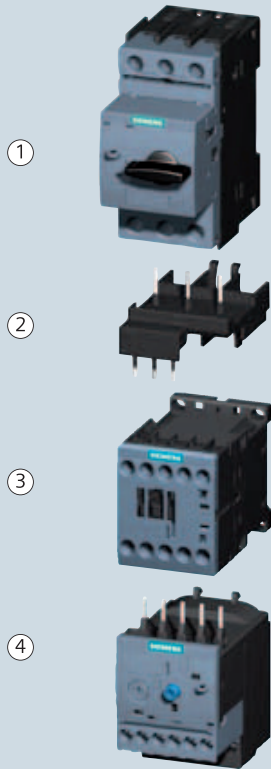


Sirius devices are available with spring type terminals as an option. The key advantage with spring loaded type terminals are :

- Short assembly / disassembly time
- Very high contact reliability
- Shock and vibration proof
- Easy removal of the conductor during maintenance

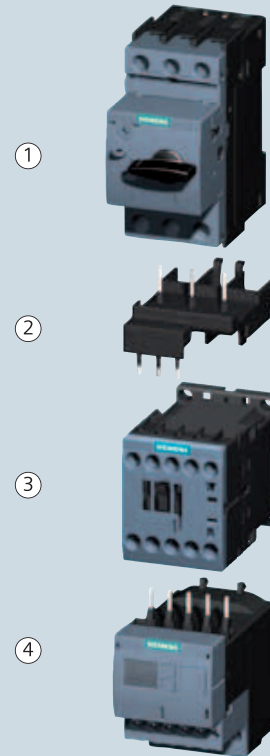
## Design up to 7.5 kW (S00) for non-fused, switching

Starter combinations of motor protection circuit breaker and contactor with overload relay



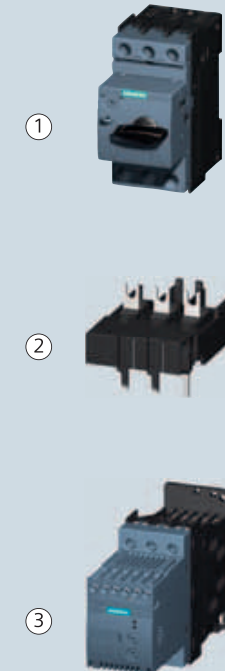
Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module	3RA1921-1DA00	3RA2911-2AA00
③ Contactor (AC / DC)		
④ Overload relay		

Starter combinations of motor protection circuit breaker and contactor with optional current monitoring relay



Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module	3RA1921-1DA00	3RA2911-2AA00
③ Contactor (AC / DC)		
④ Overload relay		

Starter combinations:  
Motor protection circuit breaker and soft starter



Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module	3RA2921-1BA00	3RA2911-2GA00
③ Soft starter		

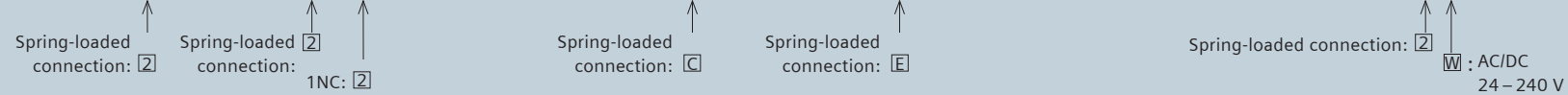
# S00 selection and ordering data

Starter combinations: Motor protection circuit breaker, contactor with overload relay



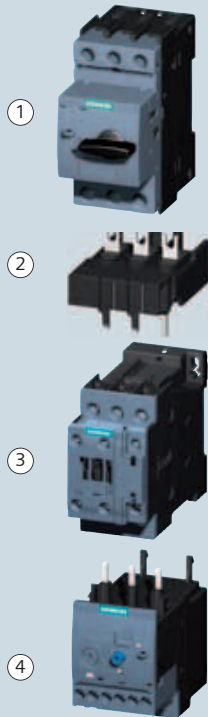
3-ph motor 415 V/AC-3 [kW] [A]	MPCB for starter protection		Contactor	Overload relay <sup>1)</sup> (CLASS 10)			Soft starter <sup>1)</sup>	Current monitoring relay <sup>1)</sup>								
	Setting range [A]	Order no.	Order no. (with 1NO)	Setting range [A]	Order no. Thermal	Order no. Electronic	Order no.	Rated current A	Order no.							
0.04 0.16	0.11 – 0.16	3RV2011-0AA10	AC 230 V, 50/60 Hz	0.11 – 0.16	3RU2116-0A00	3RB3016-1R00 (0.1 – 0.4 A)	AC/DC 110 – 230 V	1.6-16A								
0.06 0.2	0.14 – 0.2	3RV2011-0BA10		0.14 – 0.2	3RU2116-0B00											
0.06 0.25	0.18 – 0.25	3RV2011-0CA10		0.18 – 0.25	3RU2116-0C00											
0.09 0.32	0.22 – 0.32	3RV2011-0DA10		0.22 – 0.32	3RU2116-0D00											
0.09 0.4	0.28 – 0.4	3RV2011-0EA10		0.28 – 0.4	3RU2116-0E00											
0.12 0.5	0.35 – 0.5	3RV2011-0FA10		0.35 – 0.5	3RU2116-0F00											
0.18 0.63	0.45 – 0.63	3RV2011-0GA10		0.45 – 0.63	3RU2116-0G00											
0.18 0.8	0.55 – 0.8	3RV2011-0HA10		0.55 – 0.8	3RU2116-0H00											
0.25 1	0.7 – 1	3RV2011-0JA10		0.7 – 1	3RU2116-0J00											
0.37 1.25	0.9 – 1.25	3RV2011-0KA10		0.9 – 1.25	3RU2116-0K00											
0.55 1.6	1.1 – 1.6	3RV2011-1AA10	DC 24 V	1.1 – 1.6	3RU2116-1A00	3RB3016-1N00 (0.32 – 1.25 A)	AC/DC 110 – 230 V	3RW3014-1BB14 6.5								
0.75 2	1.4 – 2	3RV2011-1BA10		1.4 – 2	3RU2116-1B00											
0.75 2.5	1.8 – 2.5	3RV2011-1CA10		1.8 – 2.5	3RU2116-1C00											
1.1 3.2	2.2 – 3.2	3RV2011-1DA10		2.2 – 3.2	3RU2116-1D00											
1.5 4	2.8 – 4	3RV2011-1EA10		2.8 – 4	3RU2116-1E00											
1.5 5	3.5 – 5	3RV2011-1FA10		3.5 – 5	3RU2116-1F00											
2.2 6.3	4.5 – 6.3	3RV2011-1GA10		4.5 – 6.3	3RU2116-1G00											
3 8	5.5 – 8	3RV2011-1HA10		5.5 – 8	3RU2116-1H00											
4 10	7 – 10	3RV2011-1JA10		7 – 10	3RU2116-1J00											
5.5 12.5	9 – 12.5	3RV2011-1KA10		9 – 12.5	3RU2116-1K00											
7.5 16	11 – 16	3RV2011-4AA10	AC 230 V, 50/60 Hz	11 – 16	3RU2116-4A00	3RB3016-1P00 (1 – 4 A)	AC/DC 110 – 230 V	3RW3016-1BB14 9								
				DC 24 V						3RB3016-1S00 (3 – 12 A)	AC/DC 24 V	3RW3016-1BB04 9				
					AC 230 V, 50/60 Hz									3RB3016-1T00 (4 – 16 A)	AC/DC 110 – 230 V	3RW3017-1BB14 12.5
									DC 24 V							
			AC 230 V, 50/60 Hz					3RB3016-1T00 (4 – 16 A)					AC/DC 110 – 230 V			
				DC 24 V						3RB3016-1T00 (4 – 16 A)	AC/DC 24 V	3RW3018-1BB04 17.6				
					AC 230 V, 50/60 Hz									3RB3016-1T00 (4 – 16 A)	AC/DC 110 – 230 V	3RW3018-1BB14 17.6
						DC 24 V										
			AC 230 V, 50/60 Hz						3RB3016-1T00 (4 – 16 A)				AC/DC 110 – 230 V			
				DC 24 V						3RB3016-1T00 (4 – 16 A)	AC/DC 24 V	3RW3018-1BB04 17.6				
					AC 230 V, 50/60 Hz									3RB3016-1T00 (4 – 16 A)	AC/DC 110 – 230 V	3RW3018-1BB14 17.6
						DC 24 V										
			AC 230 V, 50/60 Hz						3RB3016-1T00 (4 – 16 A)				AC/DC 110 – 230 V			
				DC 24 V						3RB3016-1T00 (4 – 16 A)	AC/DC 24 V	3RW3018-1BB04 17.6				

<sup>1)</sup> Direct mounting on contactor, screw and spring-loaded connection possible



## Design up to 18.5 kW (S0) for non-fused, electromechanical switching

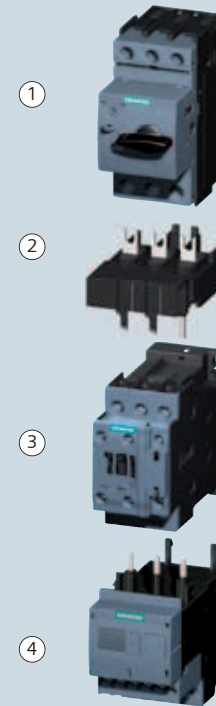
**Starter combinations:**  
Motor protection circuit breaker, contactor and overload relay



Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module <sup>1)</sup>	AC 3RA2921-1AA00 DC 3RA2921-1BA00	3RA2921-2AA00 3RA2921-2AA00
③ Contactor		
④ Overload relay		

<sup>1)</sup> Only suitable up to 32 A

**Starter combinations:**  
Motor protection circuit breaker, contactor with optional current monitoring relay



Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module <sup>1)</sup>	AC 3RA2921-1AA00 DC 3RA2921-1BA00	3RA2921-2AA00 3RA2921-2AA00
③ Contactor		
④ Current monitoring relay		

<sup>1)</sup> Only suitable up to 32 A

# S0 selection and ordering data

**Starter combinations:**  
Motor protection circuit breaker, contactor and overload relay



Three-phase motor 415V/AC-3 [kW] [A]	Motor protection circuit breaker for starter protection		Contactor				Overload relay			
	Thermal overload release	Order no.	Aux. contacts	Order no.	Order no.	Order no.	Setting range CLASS 10 [A]	Order no. Thermal	Setting range CLASS 10 [A]	Order no. Electronic
7.5 16	-	3RV2321-4AC10	1NO+1NC	3RT2025-1BB40	3RT2025-1AL20	3RT2025-1N30	11 - 16	3RU2126-4A0		
7.5 20	-	3RV2321-4BC10					14 - 20	3RU2126-4B0	6 - 25	3RB3026-1Q0
11 22	-	3RV2321-4CC10	1NO+1NC	3RT2026-1BB40	3RT2026-1AL20	3RT2026-1N30	17 - 22	3RU2126-4C0		
11 25	-	3RV2321-4DC10					20 - 25	3RU2126-4D0		
15 28	-	3RV2321-4NC10	1NO+1NC	3RT2027-1BB40	3RT2027-1AL20	3RT2027-1N30	23 - 28	3RU2126-4N0	10 - 40	3RB3026-1V0
15 32	-	3RV2321-4EC10					27 - 32	3RU2126-4E0		
18.5 36	-	3RV2321-4PC10	1NO+1NC	3RT2028-1BB40	3RT2028-1AL20	3RT2028-1N30	30 - 36	3RU2126-4P0		
18.5 40	-	3RV2321-4FC10					34 - 40	3RU2126-4F0		

**Starter combinations:**  
Motor protection circuit breaker, contactor with optional current monitoring relay

Three-phase motor 415V/AC-3 [kW] [A]	Motor protection circuit breaker for motor protection		Contactor				Current monitoring relay		
	Thermal overload release [A]	Order no.	Aux. contacts	Order no.	Order no.	Order no.	Measurement range [A]	Order no. Basic (analog setting)	Order no. Standard (digital setting)
7.5 16	11 - 16	3RV2021-4AA10	1NO+1NC	3RT2025-1BB40	3RT2025-1AL20	3RT2025-1N30			
7.5 20	14 - 20	3RV2021-4BA10							
11 22	17 - 22	3RV2021-4CA10	1NO+1NC	3RT2026-1BB40	3RT2026-1AL20	3RT2026-1N30			
11 25	20 - 25	3RV2021-4DA10							
15 28	23 - 28	3RV2021-4NA10	1NO+1NC	3RT2027-1BB40	3RT2027-1AL20	3RT2027-1N30			
15 32	27 - 32	3RV2021-4EA10							
18.5 36	30 - 36	3RV2021-4PA10	1NO+1NC	3RT2028-1BB40	3RT2028-1AL20	3RT2028-1N30			
18.5 40	34 - 40	3RV2021-4FA10							

<sup>2)</sup> Max. 32 A

Spring-loaded connection <sup>2)</sup>: [Z]

Spring-loaded connection: [Z]

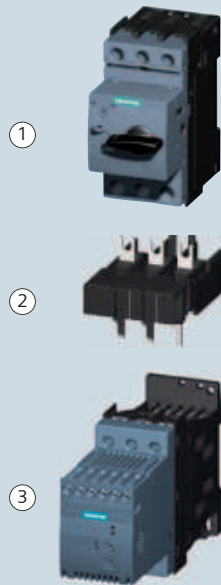
UC 21 - 28 V: [B]  
UC 95 - 130 V: [F]  
UC 200 - 280 V: [P]

Spring-loaded connection: [Z]  
AC/DC 24 V: [A]  
AC/DC 24 - 240 V: [W]

## Design up to 18.5 kW (S0) for non-fused, electronic switching

### Starter combinations:

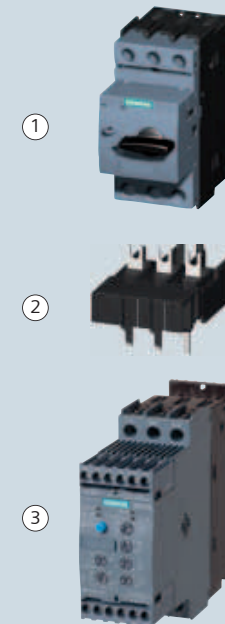
Motor protection circuit breaker and 3RW30 soft starter



Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module <sup>1)</sup>	3RA2921-1BA00	3RA2921-2GA00
③ Soft starter		

### Starter combinations:

Motor protection circuit breaker and 3RW40 soft starter  
(integrated electronic overload relay)



Type	Screw connection	Spring-loaded connection
① Motor protection circuit breaker		
② Link module <sup>1)</sup>	3RA2921-1BA00	3RA2921-2GA00
③ Soft starter		

# S0 selection and ordering data

Starter combinations: Motor protection circuit breaker, 3RW30 soft starter with optional current monitoring relay



Three-phase motor 415 V/AC-3		Motor protection circuit breaker for motor protection		Soft starter <sup>1)</sup>			Current monitoring relay		
[kW]	[A]	Setting range, thermal overload release CLASS 10	Order no.	Rated operating current	Order no.	Order no.	Measurement range	Order no. Basic (analog setting)	Order no. Standard (digital setting)
		[A]		[A]	Control supply voltage		[A]		
					AC/DC 24 V	AC/DC 110 – 230 V			
11	22	17 – 22	3RV2021-4CA10	25	3RW3026-1BB04	3RW3026-1BB14			
11	25	20 – 25	3RV2021-4DA10						
15	28	23 – 28	3RV2021-4NA10	32	3RW3027-1BB04	3RW3027-1BB14			
15	32	27 – 32	3RV2021-4EA10						
18.5	36	30 – 36	3RV2021-4PA10	38	3RW3028-1BB04	3RW3028-1BB14	4 – 40	3RR2142-1A30	3RR2242-1F30
18.5	40	34 – 40	3RV2021-4FA10						
18.5	40	34 – 40	3RV2021-4FA10	45	3RW3036-1BB04	3RW3036-1BB14			

Starter combinations: Motor protection circuit breaker, 3RW40 soft starter (integrated electronic overload relay) with optional current monitoring relay



Spring-loaded connection: up to 32 A

Spring-loaded connection:



Spring-loaded connection: AC/DC 24 V: AC/DC 24 – 240 V:



Three-phase motor 415 V/AC-3		Motor protection circuit breaker for starter protection		Soft starter <sup>1)</sup>			Current monitoring relay		
[kW]	[A]	Setting range of thermal overload release CLASS 10	Order no.	Rated operating current	Order no.	Order no.	Measurement range	Order no. Basic (analog setting)	Order no. Standard (digital setting)
		[A]		[A]	Control supply voltage		[A]		
					AC/DC 24 V	AC/DC 110 – 230 V			
5.5	12.5	–	3RV2311-1KC10	12.5	3RW4024-1BB04	3RW4024-1BB14			
7.5	16	–	3RV2321-4AC10						
7.5	20	–	3RV2321-4BC10						
11	22	–	3RV2321-4CC10	25	3RW4026-1BB04	3RW4026-1BB14			
11	25	–	3RV2321-4DC10						
15	28	–	3RV2321-4NC10						
15	32	–	3RV2321-4EC10	32	3RW4027-1BB04	3RW4027-1BB14	4 – 40	3RR2142-1A30	3RR2242-1F30
18.5	36	–	3RV2321-4PC10						
18.5	40	–	3RV2321-4FC10	38	3RW4028-1BB02	–			

<sup>1)</sup> Operating voltage 200 – 480 V

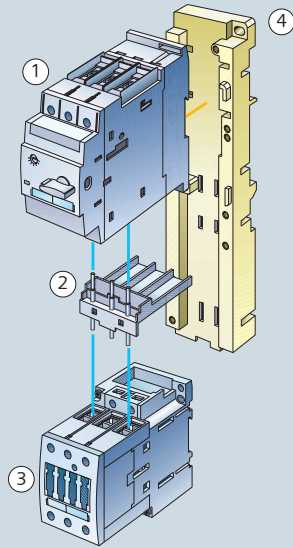
Screw connection: Spring-loaded connection: up to 32 A

Spring-loaded connection:

Spring-loaded connection: AC/DC 24 V: AC/DC 24 – 240 V:

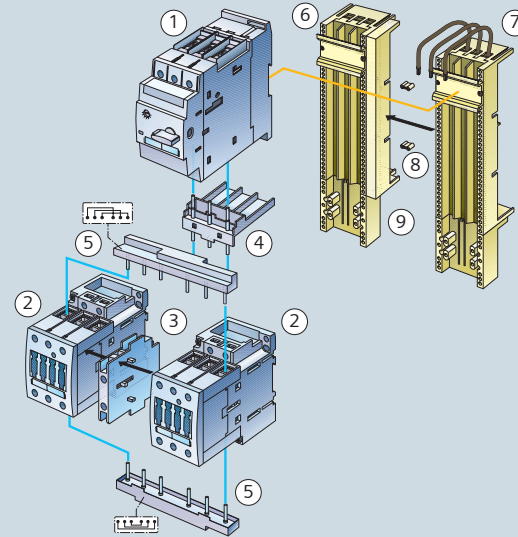
# S2 design

## Direct start



	Version	Order No.
①	Size S2 circuit breaker	
②	Link module AC DC	<b>3RA19 31-1AA00</b> <b>3RA19 31-1BA00</b>
③	Size S2 contactor	
<b>For busbar mounting (alternative)</b>		
Busbar adapter	40 mm 60 mm	<b>8US10 61-5FP08</b> <b>8US12 61-5FP08</b>
<b>For rail mounting (diagram)</b>		
④	Rail adapter	<b>3RA19 32-1AA00</b>

## Reversing start



	Version	Order No.
①	Size S2 circuit breaker	
②	2 Size S2 connectors	
③	Mechanical interlock	<b>3RA19 24-2B</b>
④	Link module AC DC	<b>3RA19 31-1AA00</b> <b>3RA19 31-1BA00</b>
⑤	Wiring kit: upper link module, lower link module	<b>3RA19 33-2A</b>
<b>For busbar mounting (diagram)</b>		
⑥	Controlgear support 60 mm	<b>8US12 60-5AP00</b>
⑦	Busbar adapter 60 mm	<b>8US12 61-5FP08</b>
⑧	Link wedges (1 Order No. = 100 wedges)	<b>8US19 98-1AA00</b>
⑨	Side module	<b>8US19 98-2BM00</b>
<b>For rail mounting (alternative)</b>		
	Rail adapter	<b>3RA19 32-1AA00</b>
	Link wedges (1 Order No. = 100 wedges)	<b>8US19 98-1AA00</b>



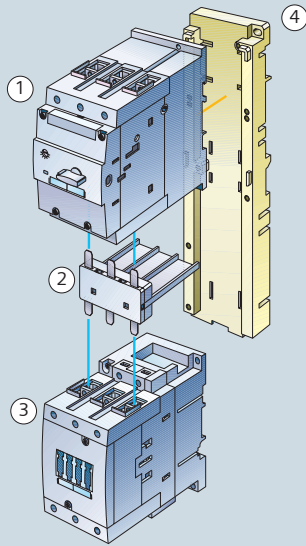
3-phase motor AC-3/415 V [kW] [A]	Circuit breakers (MPCB)		Contactors			Soft starters			Overload relays				
	Setting range Class 10 [A]	Order No.	Control supply voltage	AC3 [A]	Auxiliary contacts	Order No.	Control supply voltage	Rated operating current Ie [A]	Order No.	Setting range Class 10 [A]	Thermal Order No.	Setting range [A]	Electronic Order No.
15 29	22 – 32	3RV10 31-4EA10	AC	32	–	3RT10 34-1A..0	110–230 V AC/DC	32	3RW30 34-1AB14	22 – 32	3RU11 36-4EB0	12,5 – 50	3RB2□3□□UB0
			DC	32	–	3RT10 34-1B..0							
18.5 35	28 – 40	3RV10 31-4FA10	AC	40	–	3RT10 35-1A..0	110–230 V AC/DC	32	3RW30 34-1AB04	28 – 40	3RU11 36-4FB0	12,5 – 50	3RB2□3□□UB0
			DC	40	–	3RT10 35-1B..0							
22 41	36 – 45	3RV10 31-4GA10	AC	50	–	3RT10 36-1A..0	110–230 V AC/DC	45	3RW30 36-1AB14	36 – 45	3RU11 36-4GB0	12,5 – 50	3RB2□3□□UB0
22 41	40 – 50	3RV10 31-4HA10	DC	50	–	3RT10 36-1B..0							

Coil Codes: AC : C2-24V 50/60 Hz, G2-110V 50/60 Hz, L2-230V 50/60 Hz, V0-400V 50 Hz  
 DC : B4-24VDC, F4-110VDC, M4-220VDC

CLASS 10 0 6 1  
 CLASS 5...30\* 1 3 4  
 \* With ground-fault detection (activatable) and electrical remote reset

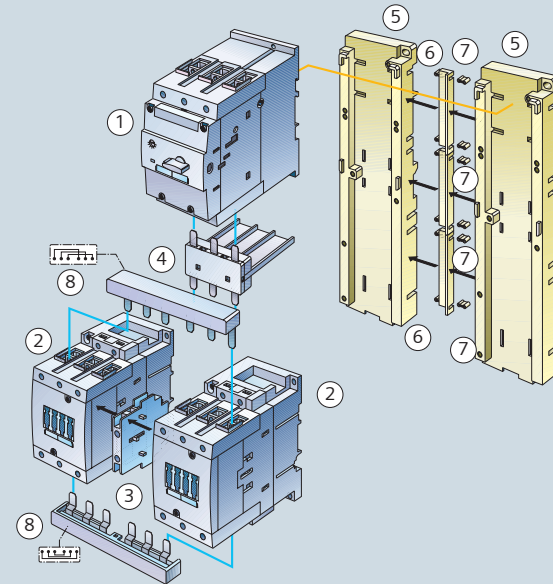
# S3 design

## Direct start



	Version	Order No.
① Size S3 circuit breaker		
② Link module	AC DC	3RA19 41-1AA00 3RA19 41-1BA00
③ Size S3 contactor		
For rail mounting (diagram)		
④ Rail adapter		3RA19 42-1A

## Reversing start



	Version	Order No.
① Size S3 circuit breaker		
② 2 Size S3 connectors		
③ Mechanical interlock		3RA19 24-2B
④ Link module	AC DC	3RA19 41-1AA00 3RA19 41-1BA00
⑤ Rail adapter		3RA19 42-1AA00
⑥ Side modules for rail adapters (1 Order No. = 10 adapters)		3RA19 02-1B
⑦ Link wedges (1 Order No. = 100 wedges)		8US19 98-1AA00
Wiring kit:		
⑧ upper link module, lower link module		3RA19 43-2A

# S3 selection and ordering data



3-phase motor AC-3/415 V [kW] [A]	Circuit breakers (MPCB)		Contactors				Soft starters			Overload relays			
	Setting range Class 10 [A]	Order No.	Control supply voltage	AC3 [A]	Auxiliary contacts	Order No.	Control supply voltage	Rated operating current I <sub>e</sub> [A]	Order No.	Setting range Class 10 [A]	Thermal Order No.	Setting range [A]	Electronic Order No.
30 55	42 – 63	3RV10 41-4JA10	AC 65	65	–	3RT10 44-1A..0	110–230 V AC/DC	63	3RW30 44-1AB14	45 – 63	3RU11 46-4JB0	25 – 100	3RB2□4□□EBO
			DC 65	65	–	3RT10 44-1B..0	24 V AC/DC	63	3RW30 44-1AB04				
37 67	57 – 75	3RV10 41-4KA10	AC 80	80	–	3RT10 45-1A..0	110–230 V AC/DC	63	3RW30 44-1AB04	57 – 75	3RU11 46-4KB0		
			DC 80	80	–	3RT10 45-1B..0	24 V AC/DC	100	3RW30 46-1AB14 <sup>1)</sup>				
45 80	70 – 90	3RV10 41-4LA10	AC 95	95	–	3RT10 46-1A..0	110–230 V AC/DC	100	3RW30 46-1AB04 <sup>1)</sup>	70 – 90	3RU11 46-4LB0		
			DC 95	95	–	3RT10 46-1B..0	24 V AC/DC	100	3RW30 46-1AB04 <sup>1)</sup>				
45 80	80 – 100	3RV10 41-4MA10	AC 95	95	–	3RT10 46-1A..0	110–230 V AC/DC	100	3RW30 46-1AB04 <sup>1)</sup>	80 – 100	3RU11 46-4MB0		
			DC 95	95	–	3RT10 46-1B..0	24 V AC/DC	100	3RW30 46-1AB04 <sup>1)</sup>				

CLASS 10    0   6   1  
 CLASS 5...30\*    1   3   4  
 \* With ground-fault detection (activatable) and electrical remote reset

Coil Codes: AC : C2-24V 50/60 Hz, G2-110V 50/60 Hz, L2-230V 50/60 Hz, V0-400V 50/60 Hz  
 DC : B4-24VDC, F4-110VDC, M4-220VDC

# S6, S10, S12 selection and ordering data



S6		Contactors		Coil operating mechanism		Overload relays <sup>1)</sup>			Soft starters		
3-phase motor AC-3/415 V [kW] [A]		Contactor without coil operating mechanism	Auxiliary contacts	Electromagnetic coil operating mechanism	Order No.	Setting range [A]	Electronic Order No.	Version	Control supply voltage	Rated operating current I <sub>e</sub> [A]	Order No.
55	115	3RT10 54-6LA06	2NO + 2NC	Conventional	3RT19 55-5A.31	50 – 200	3RB2□5□□FW2	with straight-through transformer	230 V AC	134	3RW40 55-6BB44
75	150	3RT10 55-6LA06	2NO + 2NC	OR		50 – 200	3RB2□5□□FC2	with busbar connection	115 V AC	134	3RW40 55-6BB34
90	185	3RT10 56-6LA06	2NO + 2NC	for 24V DC PLC Output	3RT19 55-5N.31				230 V AC	162	3RW40 56-6BB44
									115 V AC	162	3RW40 56-6BB34

CLASS 10    0   6   1

CLASS 5...30\*    1   3   4

\* With ground-fault detection (activatable) and electrical remote reset



S10		Contactors		Coil operating mechanism		Overload relays <sup>1)</sup>			Soft starters		
3-phase motor AC-3/415 V		Contactor without coil operating mechanism	Auxiliary contacts	Electromagnetic coil operating mechanism	Order No.	Setting range	Electronic Order No.	Version	Control supply voltage	Rated operating current I <sub>e</sub> [A]	Order No.
[kW]	[A]					[A]					
110	225	3RT10 64-6LA06	2NO + 2NC	Conventional	3RT19 65-5A.31	55 – 250	3RB2□6□□GC2	with busbar connection	230 V AC	230	3RW40 73-6BB44
132	265	3RT10 65-6LA06	2NO + 2NC	OR		160 – 630	3RB2□6□□MC2	with busbar connection	115 V AC	230	3RW40 73-6BB34
160	300	3RT10 66-6LA06	2NO + 2NC	for 24V DC PLC Output	3RT19 65-5N.31				230 V AC	280	3RW40 74-6BB44
									115 V AC	280	3RW40 74-6BB34



S12		Contactors		Coil operating mechanism		Overload relays <sup>1)</sup>			Soft starters		
3-phase motor AC-3/415 V		Contactor without coil operating mechanism	Auxiliary contacts	Electromagnetic coil operating mechanism	Order No.	Setting range	Electronic Order No.	Version	Control supply voltage	Rated operating current I <sub>e</sub> [A]	Order No.
[kW]	[A]					[A]					
200	400	3RT10 75-6LA06	2NO + 2NC	Conventional	3RT19 75-5A.31	160 – 630	3RB2□6□□MC2	with busbar connection	230 V AC	356	3RW40 75-6BB44
250	500	3RT10 76-6LA06	2NO + 2NC	OR					115 V AC	356	3RW40 75-6BB34
				for 24V DC PLC Output	3RT19 75-5N.31				230 V AC	432	3RW40 76-6BB44
									115 V AC	432	3RW40 76-6BB34

CLASS 10  0  6  1

CLASS 5...30\*  1  3  4

\* With ground-fault detection (activatable) and electrical remote reset

**Coil Codes:** For conventional : B-23...26V 40 to 60 Hz, F-110...127V 40 to 60 Hz, P-220...240V 40 to 60 Hz  
For 24V DC PLC output : B-21...27V 40 to 6 Hz, F-96...127V 40 to 60 Hz, P-200...277V 40 to 60 Hz

1) For thermal overload relay use 3UR6 range

SENTRON 3VL circuit breakers are suitable for the fuseless short-circuit and overload protection of soft starters of size S6 or larger. For further information, please refer to the catalogue.

## Selection and ordering data

### Auxiliary Contactors - 3RH (S00)

Screw terminals				
Operational Current I <sub>e</sub> AC-15 / AC-14 at 230V	Contacts	Contacts	Type	Type
A	NO	NC		
Size S00				
10	4	–	3RH21 40-1A..0	3RH21 40-1B..0
	3	1	3RH21 31-1A..0	3RH21 31-1B..0
	2	2	3RH21 22-1A..0	3RH21 22-1B..0

\$@ Please enter coil codes from table below

#### \$ AC coil voltage

Code	B0	F0	P0
Coil voltage 50/60 Hz	24	110	230

#### @ DC Coil Voltage

Code	B4	F4	M4
Coil voltage	24	110	220

For ordering 3RH (S00) with spring type terminals please replace 8th digit from "1" to "2"

### Latched Contactor Relays - 3RH24

#### Screw terminals

Screw terminals				
Rated operational current I <sub>e</sub> AC-15/ AC-14 at 230V	Contacts	Contacts	AC Coil <sup>§</sup>	DC Coil <sup>@</sup>
A	NO	NC	Type	Type
10	4	–	3RH24 40-1A..0	3RH24 40-1B..0
	3	1	3RH24 31-1A..0	3RH24 31-1B..0
	2	2	3RH24 22-1A..0	3RH24 22-1B..0

\$@ Please enter coil codes from table below

#### \$ AC coil voltage

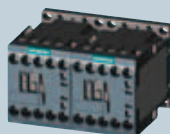
Code	B0	F0	P0
Coil voltage 50/60 Hz	24	110	230

#### @ DC Coil Voltage

Code	B4	F4	M4
Coil voltage	24	110	220

For Latched Power Contactors refer 3RT accessory "Mechanical Latching Blocks"

Spring type terminals are not available for latched contactor relays



### Low power consumption coil contactors

#### Auxiliary Contactor - 3RH21 Coupling Relays

Rated control supply voltage U<sub>s</sub> = 24 V DC, Coil operating range 0.7 to 1.25xU<sub>s</sub>  
Power Consumption of the coils 2.8W at 24V DC (No auxiliary contacts can be mounted)

Screw terminals				
Surge Suppressors	Rated operational current I <sub>e</sub> AC-15/AC-14 at 230 V	Auxiliary contacts		Type
	A	NO	NC	
Size S00				
Built in suppressor	10	4	–	3RH21 40-1KB40
Diode		3	1	3RH21 31-1KB40
		2	2	3RH21 22-1KB40
Built in Diode		4	–	3RH21 40-1JB40
		3	1	3RH21 31-1JB40
		2	2	3RH21 22-1JB40

#### Power Contactors - 3RT20 coupling relays (interface), for switching motors, 3Pole 3.... 15kW

Rated control supply voltage U<sub>s</sub> = 24 V DC, Coil operating range 0.7 to 1.25xU<sub>s</sub>  
Power Consumption of the coils 2.8W at 24V DC (No auxiliary contacts can be mounted)

Screw terminals					
Surge Suppressors	AC-2 & AC-3 Operational Current I <sub>e</sub> upto 415V	Rating of induction motor at 50 Hz and 415V	Auxiliary contacts		Type
	A		NO	NC	
Size S00					
Built in suppressor	7	3	1	–	3RT20 15-1KB41
Diode			–	1	3RT20 15-1KB42
			1	–	3RT20 16-1KB41
			–	1	3RT20 16-1KB42
	12	5.5	1	–	3RT20 17-1KB41
			–	1	3RT20 17-1KB42
Built in Diode	7	3	1	–	3RT20 15-1JB41
			–	1	3RT20 15-1JB42
	9	4	1	–	3RT20 16-1JB41
			–	1	3RT20 16-1JB42
	12	5.5	1	–	3RT20 17-1JB41
			–	1	3RT20 17-1JB42

Rated control supply voltage U<sub>s</sub> = 24 V DC, Coil operating range 0.7 to 1.25xU<sub>s</sub>  
Power Consumption of the coils 4.5W at 24V DC (no auxiliary contacts can be mounted)

Screw terminals					
Size S00					
Varistor integrated	12	5.5	1	1	3RT20 24-1KB40
	17	7.5	1	1	3RT20 25-1KB40
	25	11	1	1	3RT20 26-1KB40
	32	15	1	1	3RT20 27-1KB40

For ordering low power consumption coil contactors with spring type terminals please replace 8th digit from "1" to "2"



## Selection and ordering data

### AC1 duty contactor - 3RT14

Size	AC-1 Operational current I <sub>e</sub> upto 690V A	Electromagnetic coil operating mechanism	Type <sup>#</sup>
S3	140	AC DC	3RT14 46-1A..0 3RT14 46-1B..0
S6	275	AC/DC	3RT14 56-6A.36
S10	400	AC/DC	3RT14 66-6A.36
S12	690	AC/DC	3RT14 76-6A.36

#### # — Coil codes

For S3 — To be substituted for 10th and 11th position

AC : C2 - 24V 50/60Hz, G2 - 110V 50/60Hz, L2 - 230V 50/60Hz, V0 - 400V 50Hz

DC : B4 - 24V, F4 - 110V, M4 - 220V

For S6 to S12 — To be substituted for 10th position

AC(40-60Hz) / DC : B — 23—26V, F — 110—127V, P — 220—240V



### 2NO+2NC Power Contactors - 3RT25

#### Screw terminals

Screw terminals			
Size	AC-1 operational current I <sub>e</sub> upto 415V @ 40 Deg A	AC Coil <sup>§</sup> Type	DC Coil <sup>®</sup> Type
S00	18	3RT25 16-1A..0	3RT25 16-1B..0
	22	3RT25 17-1A..0	3RT25 17-1B..0
S0 <sup>1)</sup>	40	3RT25 26-1A..0	3RT25 26-1B..0
S2	55	3RT15 35-1A..0	3RT15 35-1B..0



§@ Please enter coil codes from below

AC: B0 - 24V 50/60Hz, F0 - 110V 50/60Hz, P0 - 230V 50/60Hz, V0 - 400V 50Hz

DC: B4 - 24V, F4 - 110V, M4 - 220V

### 4 Pole Power Contactors - 3RT23

#### Screw terminals

Size	AC-1 operational current I <sub>e</sub> upto 415V @ 40 Deg A	AC Coil <sup>§</sup> Type	DC Coil <sup>®</sup> Type
S00	18	3RT23 16-1A..0	3RT23 16-1B..0
	22	3RT23 17-1A..0	3RT23 17-1B..0
S0 <sup>1)</sup>	35	3RT23 25-1A..0	3RT23 25-1B..0
	40	3RT23 26-1A..0	3RT23 26-1B..0
	50	3RT23 27-1A..0	3RT23 27-1B..0
S2	60	3RT13 36-1A..0	3RT13 36-1B..0
S3	110	3RT13 44-1A..0	3RT13 44-1B..0
S3	140	3RT13 46-1A..0	3RT13 46-1B..0



§@ Please enter coil codes from below

AC: B0 - 24V 50/60Hz, F0 - 110V 50/60Hz, P0 - 230V 50/60Hz, V0 - 400V 50Hz

DC: B4 - 24V, F4 - 110V, M4 - 220V