

# SIRIUS contactors and contactor combinations 3RT, 3RH and 3RA

Technical Slides

# SIRIUS contactors and contactor combinations

**1** Overview

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**2** Power contactor for switching motors

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**3** Reversing- and star-delta combinations for switching motors

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**4** Contactors for other applications

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**5** Contactor relays

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**6** Contactors for extended operation range and railway certifications

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**7** Contactors and safety

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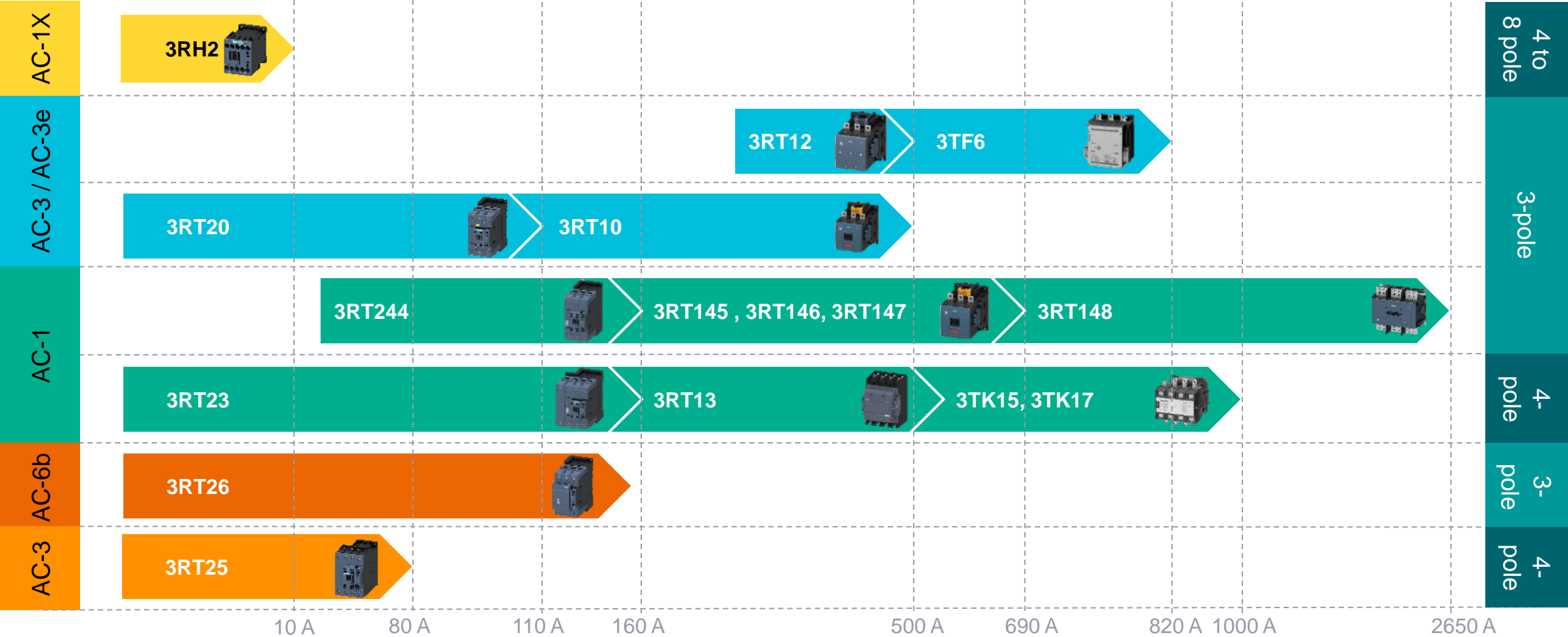
**8** Accessories

# System construction kit



				3 kW / 400 V				Size		250 kW / 400 V		
Function		Products		S00	S0	S2	S3	S6	S10	S12		
Main circuit	Switching	Contactors, contactors for capacitive loads, etc.										
		Electronic contactors										
		Soft starters										
		Load feeders										
	Starting	Compact feeder, motor starters										
		Motor starter protectors, motor circuit breakers										
	Protecting	Overload relays	thermal									
			electronic									
Monitoring	Current monitoring relays											
Control circuit		Function and communication modules										

# Contactors types, current range

New IEC 60947-4-1 standard:  
 New category AC-3e for switching high efficient motors of efficiency class IE3 and IE4.



# Contactor relay and motor contactor types

<p><b>Contactor relay</b></p>	<p><b>3RT20 3RT10 and 3RT12</b></p>	
<p>4- and 8-pole</p>	<p>Direct switching motor loads [AC-3 / AC-3e] up to 500A / 250 kW / 400V</p>	
		
<p><b>3RH2</b></p> <ul style="list-style-type: none"> <li>• Contactor relays with 4 or 8 integrated auxiliary switches</li> </ul>	<p><b>3RT20</b></p> <ul style="list-style-type: none"> <li>• 3-pole contactor for motor switching up to 55kW</li> <li>• Special version: Contactors with voltage tap-off</li> <li>• Coil drives: AC, DC or AC/DC electronic</li> <li>• S2/S3 with F-PLC-IN for simplified Safety-Applications</li> </ul>	<p><b>3RT10 Air breaking / 3RT12 Vacuum cont.</b></p> <ul style="list-style-type: none"> <li>• 3-pole contactor for motor switching up to 250kW</li> <li>• Coil drives: Standard AC/DC, electronic AC /DC with PLC or failsafe PLC</li> </ul>

# Contactors for other applications

<p style="text-align: center;"><b>3RT24 3RT14</b></p>		<p style="text-align: center;"><b>3RT26</b></p>
<p style="text-align: center;">3pole contactors for non- or low inductive loads [AC-1]</p>		<p style="text-align: center;">3pole contactors for capacitive loads [AC-6b]</p>
		
<p>3RT244 up to 160 A 3RT145 up to 275 A 3RT146 up to 400 A 3RT147 up to 690 A</p>	<p>3RT148 up to 2650A</p>	<p>3RT261 up to 12,5 kVAr 3RT262 up to 33 kVAr 3RT263 up to 75 kVAr 3RT264 up to 100 kVAr</p>

# Contactors for other applications

**3RT23  
3RT13**

4pole contactors  
for non- or low inductive loads [AC-1]



3RT231 up to 22 A

3RT232 up to 50 A

3RT233 up to 110 A

3RT234 up to 160 A

3RT135 up to 200 A

3RT136 up to 350A

3RT137 up to 525A

**3RT25**

4pole contactors for switching motors  
[AC-3]










3RT251 up to 16 A

3RT252 up to 25 A

3RT253 up to 41 A

3RT254 up to 80 A




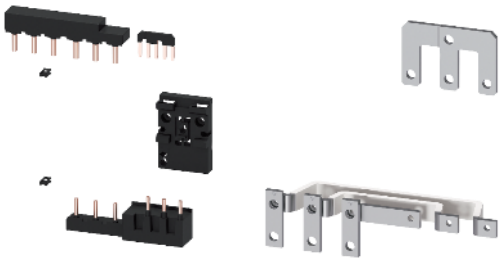
# Contactors with extended operating range and railway certification

<p><b>3RH2...-...-0LA2</b></p>	<p><b>3RT20...-X...-0LA2</b>  <b>3RT10...-X...-0LA2</b>  <b>3RT14...-X...-0LA2</b></p>	<p> <b>Electrical components for the railway industry</b></p> <ul style="list-style-type: none"> <li>• Wide operating range : 0,7 – 1,25 US</li> <li>• Wide operating temperature range: - 40 to 70°C</li> <li>• Additional certified according IEC 60077 for railway business</li> </ul> <p>   </p>
<p>Contactor relays</p>	<p>3RT20 and 3RT10 for motor loads          3RT14 for non- or low inductive loads</p>	
<p></p> <ul style="list-style-type: none"> <li>• Contactor relay with 4 or 8 integrated auxiliary switches</li> </ul>	<p></p> <ul style="list-style-type: none"> <li>• DC-Coil drive, electronic</li> <li>• 3RT1 additionally with optional PLC-IN and 2 operating modes:</li> <li>• direct control A1 / A2 or via PLC-IN 24 ... 110V DC</li> </ul>	



# Contactors combinations

## Factory-built assembly or components for self-assembly

Factory-built assembly		Components for self-assembly	
Reversing combination	Star-delta-combinations	Reversing combination	Star-delta-combinations
			
<ul style="list-style-type: none"> <li>• 3RA23 up to 55kW / 400V</li> <li>• Fully wired, mechanical and electrical interlock for reversing operation</li> </ul>	<ul style="list-style-type: none"> <li>• 3RA24 up to 90kW / 400V</li> <li>• Fully wired, mechanical and electrical interlock for reversing operation and function modules within the control circuit</li> </ul>	<ul style="list-style-type: none"> <li>• Components for self-assembly available for all frame sizes: Wiring kits, mechanical interlock, mounting plates, function modules, etc.</li> </ul>	

## 3RT13

### 4pole contactors for non- or low inductive loads [AC-1]

- 3 frame sizes, 6 current stages, 200 – 525A, AC-1 (40°C)
- Electronic Coil Drives:  
Wide voltage range and integrated coil damping
- Less heating and smaller footprint in the switching cabinet
- Less variants and frame sizes (thanks to AC/DC-wide range)
- Fast access to latest product information and technical data thanks to Data Matrix Code  
(on site via smartphone and the Industry Online Support mobile app)



# 3RT148

## 3pole contactors for non- or low inductive loads [AC-1]

### Highest Switching Capacity

Switching up to 2650A @ 55° C AC-1



### Low number of variants

3 Sizes from 900 to 2650 A



### Tested Combinations

42 kA, 690V Type 2 coordination with ACB / MCCB



### Worldwide use

Fulfills all relevant standards and approvals worldwide



### Low number of variants

electronic AC/DC coils for every supply voltage worldwide



# SIRIUS 3RT2 / 3RH2 contactors customer benefits

## Technical highlights

Spring-loaded terminal with plug-in technology up to 10 mm<sup>2</sup>

All common connectors from motor starter protector to switching device/starter

Increased performance up to 38 A (18.5 kW) in 45 mm width or 80 A (37 kW) in 55 mm and 110 A (55 kW) in 70 mm

Factory-fitted integrated auxiliary switches

Clearly improved contact reliability of the auxiliary switches

Joint series of accessories up to 3RT204

Plug-on function modules for connection without tools

Connection to AS-Interface or IO-Link

## Customer benefits

Operational reliability (vibration-proof, temperature-independent, etc.) and reduction of wiring thanks to plug-in technology

Fast, error-free installation for screw-type and spring-type terminals

Space and cost savings

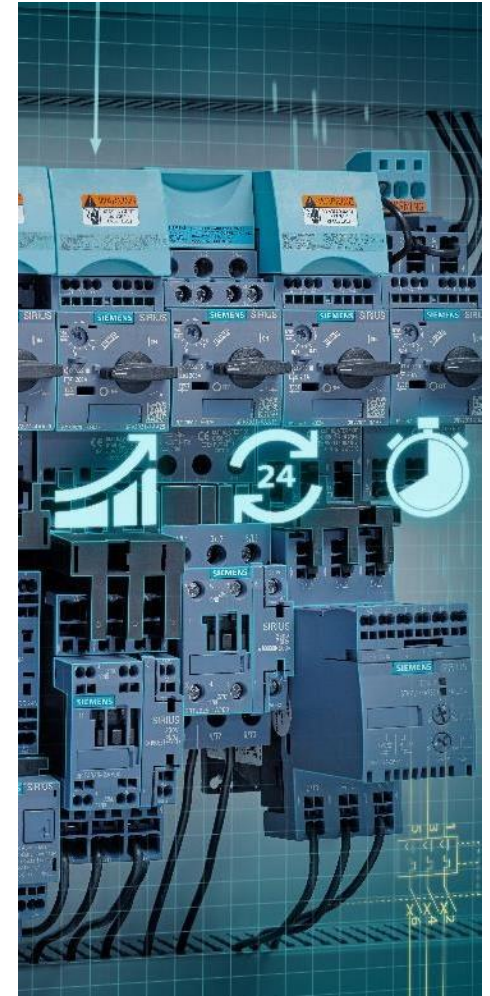
Reduced installation complexity

Enhanced operational reliability (reduction of fault signals)

Easy configuration

Fault avoidance and reduced wiring

Reduced wiring and integration in TIA



# SIRIUS 3RT2/3RH2 contactors

## Top customer benefits

### Technical highlights

Combination of MSP with undervoltage release and contactor reaches category 2 according ISO13849-1

Link modules for safety contactor assemblies

Coil connection at front including cable duct

Variants with electronic coil

Control kit

Data sheets in 11 languages

Extensive CAx data provision

Integrated in the Industry Mall and TIA Selection Tool

### Customer benefits

✓ Safety solution up to PI d / SIL2 can be implemented with just one switching device

✓ Reduced wiring in safety solutions

✓ Well arranged, clean and simple wiring

✓ Saving energy thanks to low power losses and heating

✓ Simplifies testing and commissioning

✓ Technical data available worldwide

✓ Enables and simplifies the digital engineering process

✓ Simple and fast product selection and ordering



# SIRIUS 3RT2+3RH2 contactors 3RA23/24 assemblies

## Functions

- Contactors (switching of motor and resistive loads) as well as contactor relays (switching in the control circuit)
- Rugged conventional and energy-saving electronic operating mechanism options
- Reduction in wiring thanks to link modules and function modules, as well as optimum connection to the automation level for every application (parallel / ASi / IO-Link)
- Expanded range of functions (e.g. integrated auxiliary switches)

## Dimensioning and design

- Space-saving for every performance class:
  - 45 mm 3RT201 up to 7.5 kW/16 A @ 400 V
  - 45 mm 3RT202 up to 18.5 kW/38 A @ 400 V
  - 55 mm 3RT203 up to 37 kW/80 A @ 400 V
  - 70 mm 3RT204 up to 55 kW/110 A @ 400 V
- Integrated auxiliary switches
- Standardized accessories (e.g. same aux. switch up to 3RT204)
- Screw and spring-type terminals, solder pins and busbar



**Contactors and contactor combinations with maximum flexibility in terms of dimensioning, handling and functions.**

# SIRIUS 3RT2+3RH2 contactors 3RA23/24 assemblies

## Mounting advantages

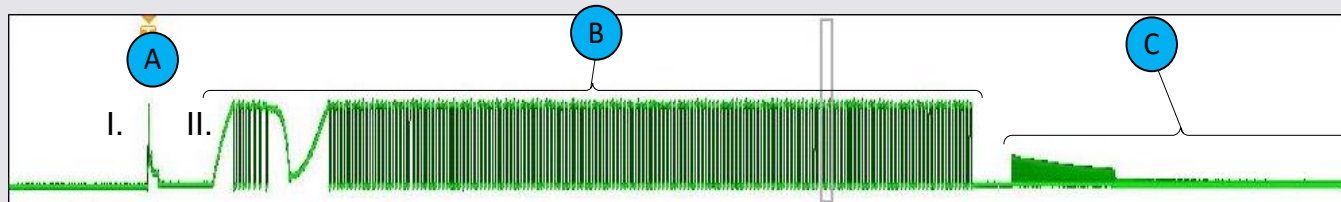
- Reduced wiring effort in the main circuit and the control circuit thanks to link modules, function modules, and pre-assembled contactor assemblies
- Star-delta (wye-delta): up to 90 kW, control circuit wiring including timing relays integrated into function modules
- Easy assembly of contactor assemblies and feeders by means of link modules with screw and spring-type connections
- Integrated cable duct for control panel assembly without visually obtrusive cable routing



**Contactors and contactor combinations with maximum flexibility in terms of dimensioning, handling and functions.**

# Special characteristics of electronic drives

## Course of the current



- A: Voltage is applied to the device
- B: Course of the tightening current
- C: Course of the holding current

## Advantages

- Reduction of the holding current
- Energy saving
- Less warming

## Instructions for the user

- I. Inrush current peak: Knowledge required for design/parameterization of relays or outputs of controllers
- II. Tightening current peak: Knowledge required for design of power supply, must master current peaks
- III. Tightening current or tightening power as well as holding current or holding power: Required for the thermal design of the power supply, since the effective value of the current determines the heating
- IV. Tightening current duration: Knowledge required for the design of the power supply (also thermal) with regard to short-term current load capacity

## Extract from technical data sheet

A	inrush current peak	3 A
	duration of inrush current peak	50 $\mu$ s
B	locked-rotor current mean value	1 A
	locked-rotor current peak	2.6 A
C	duration of locked-rotor current	230 ms
	holding current mean value	40 mA



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2.1 3RT201

2.2 3RT202

2.3 3RT203

2.4 3RT204

2.5 3RT105, 3RT106, 3RT107 (air breaking contactors)

2.6 3RT126, 3RT127, 3TF6 (vacuum contactors)

3 Reversing- and star-delta combinations for switching motors

4 Contactors for other applications

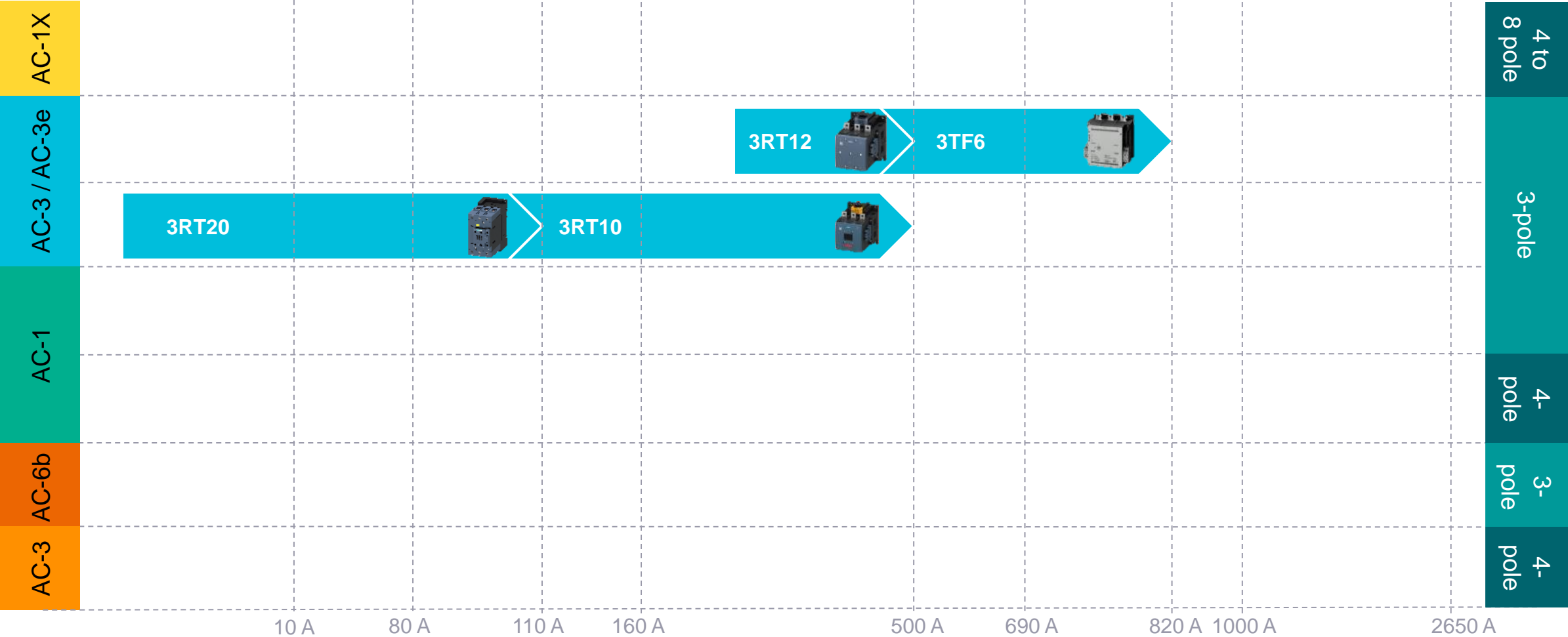
5 Contactor relays

6 Contactors for extended operation range and railway certifications






7 Contactors and safety

8 Accessories

# Contactors types, current range



# Coil options - 3RT20

<b>Standard coil 3RT2.1 – 3RT2.4</b>	<b>Standard coil 3RT2.1, 3RT2.2</b>	<b>Electronic coil 3RT2.1 – 3RT2.4</b>	<b>Electronic coil 3RT2.2 – 3RT2.4</b>	<b>Electronic coil with failsafe PLC-IN 3RT2.3, 3RT2.4</b>
<p>AC control</p>	<p>DC control</p>	<p>DC control reduced power consumption</p>	<p>AC or DC control</p>	<p>AC or DC control</p>
				
<p>Contactor relays and Contactors with AC coil</p>	<p>Contactor relays and Contactors with DC coil</p>	<p>3RT2...-KB4. Contactors with DC coil, optimized for direct control via PLC (coupling relays, auxiliary contactor relays)</p>	<p>Contactors with solid-state AC/DC operating mechanism</p>	<p>Direct failsafe control up to SIL 3 from F control</p>

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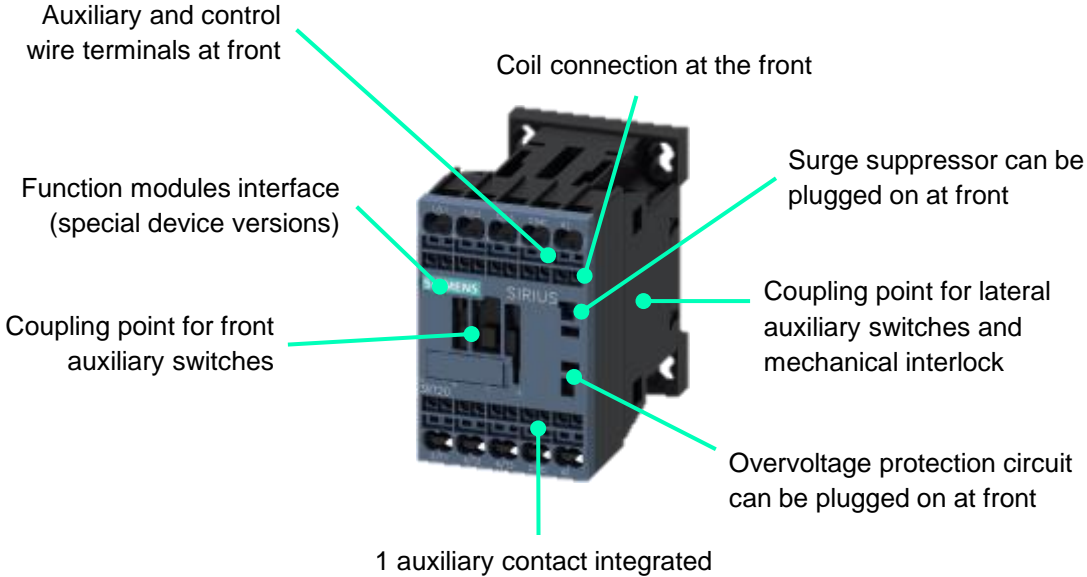
**6** Contactors for extended operation range and railway certifications

**7** Contactors and safety

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# Overview – 3RT201

Power rating up to 7,5 kW (16A) AC-3 / AC-3e, 400V



Other variants (selection):



With non-removeable auxiliary switch


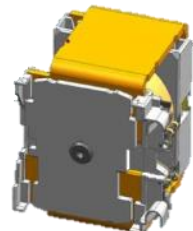



Screw terminal

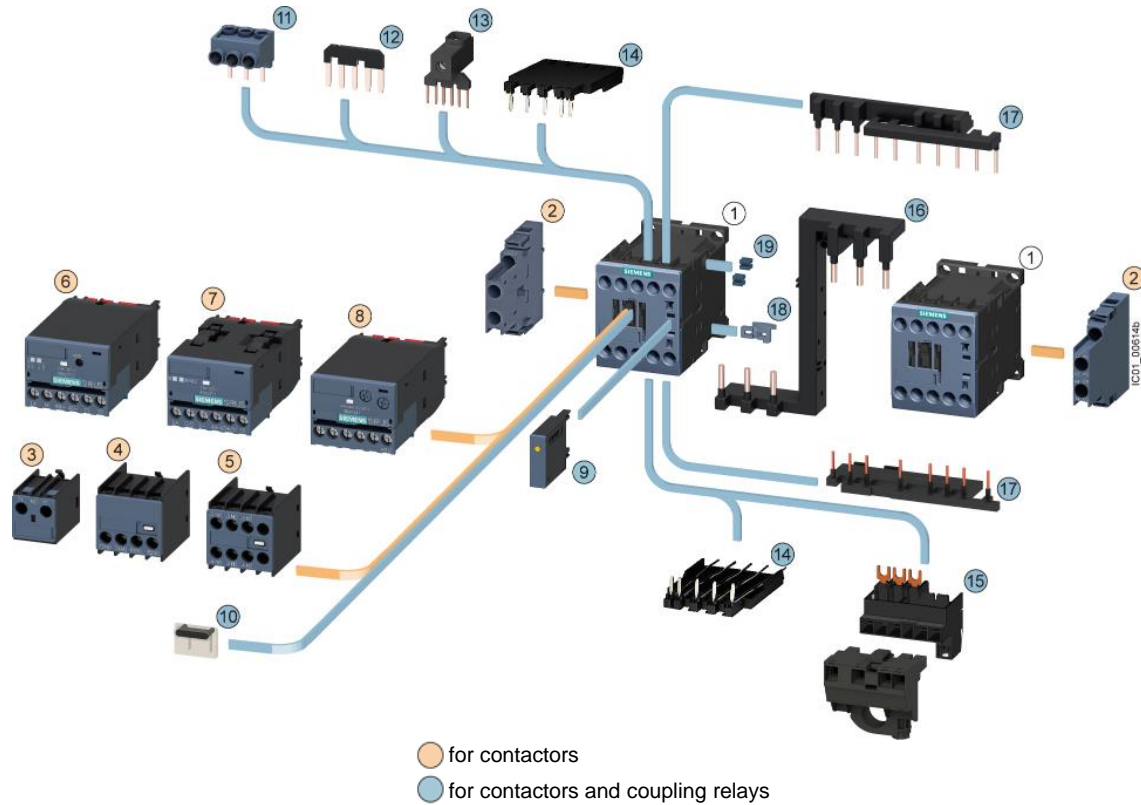


With plugged coil damping

# Operating mechanism options - 3RT201

	Standard type		Electronic type
<b>Control voltage</b>	AC control	DC control	DC control
<b>Voltage range</b>	24 V, 110 V, 230 V <sup>1)</sup>	24 V, 110 V, 230 V <sup>1)</sup>	24 V
<b>Operating range</b>	0.8...1.1 x Us	0.8...1.1 x Us	0.7 ... 1.25 x Us
<b>Coil surge suppressor</b>	Optional	Optional	Varistor integrated
<b>Coil power</b> Switching on: Holding:	AC coil 27/24.3 VA 4.2/3.3 VA	DC coil 4 VA 4 VA	DC mode 2.8 VA 2.8 VA
<b>Figures</b>	 AC	 DC	 DC

# Accessories – 3RT201



1. Contactor, 3RT201
  2. 2-pole auxiliary switch block, laterally mountable
  3. 1-pole auxiliary switch block, for snapping onto the front, cable entry from the top
  4. 2-pole auxiliary switch block, for snapping onto the front, cable entry from the bottom
  5. 4-pole auxiliary switch block, for snapping onto the front
  6. 3RA27 function module for AS-Interface, direct-on-line starting
  7. 3RA27 function module for IO-Link, direct-on-line starting
  8. 3RA28 function module
  9. Surge suppressor with/ without LED
  10. Cover, sealable
  11. Three-phase feeder terminal
  12. Star jumper, 3-pole, without connecting terminal
  13. Link for paralleling, 3-pole, with connecting terminal
  14. Solder pin adapter
  15. Connection module (adapter and connector) for contactors with screw-type connection
  16. Safety main current connector for two contactors
- Assembly kit 3RA2913-2AA1 comprising:**
17. Wiring modules on the top and bottom for connecting the main, auxiliary and control current paths, electrical interlock included, can be broken off (NC contact interlock)
  18. Mechanical interlocks
  19. Two connecting clips for two contactors

# SIRIUS contactors and contactor combinations

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**2** Power contactor for switching motors

**2.1** 3RT201

**2.2** 3RT202

**2.3** 3RT203

**2.4** 3RT204

**2.5** 3RT105, 3RT106, 3RT107 (air breaking contactors)

**2.6** 3RT126, 3RT127, 3TF6 (vacuum contactors)

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**4** Contactors for other applications

**5** Contactor relays

**6** Contactors for extended operation range and railway certifications

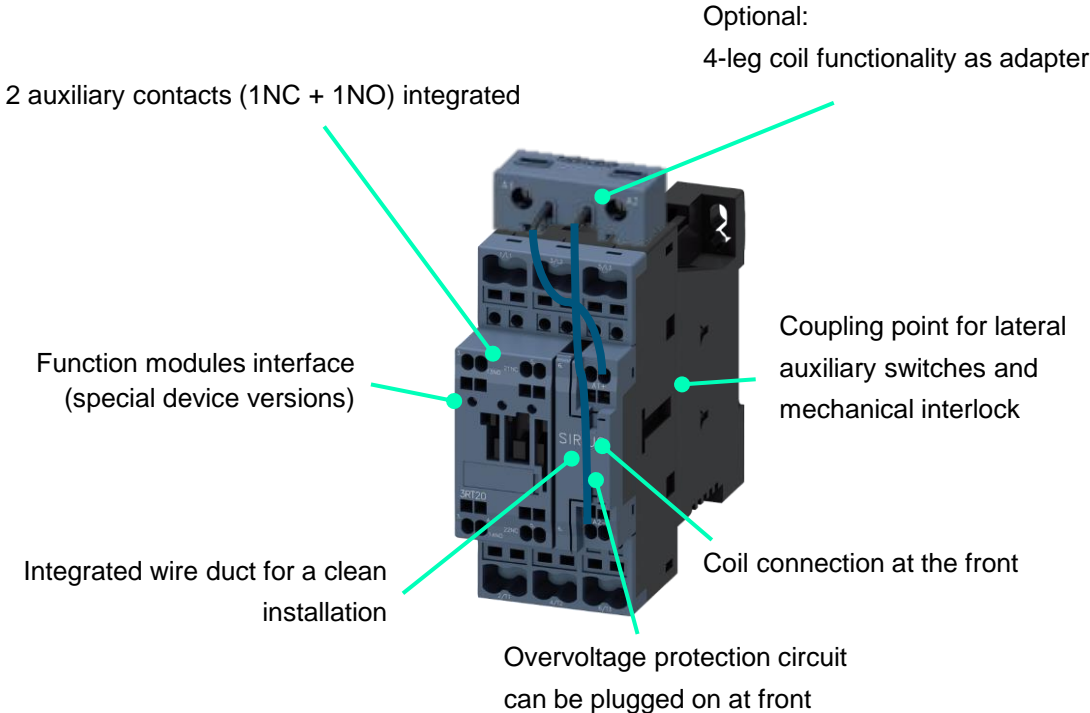
**7** Contactors and safety

**8** Accessories



# Overview – 3RT202

Power rating up to 18,5kW (38A) AC-3 / AC-3e, 400V



Other variants (selection):


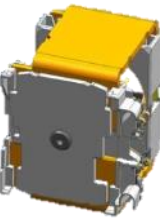




Screw terminal



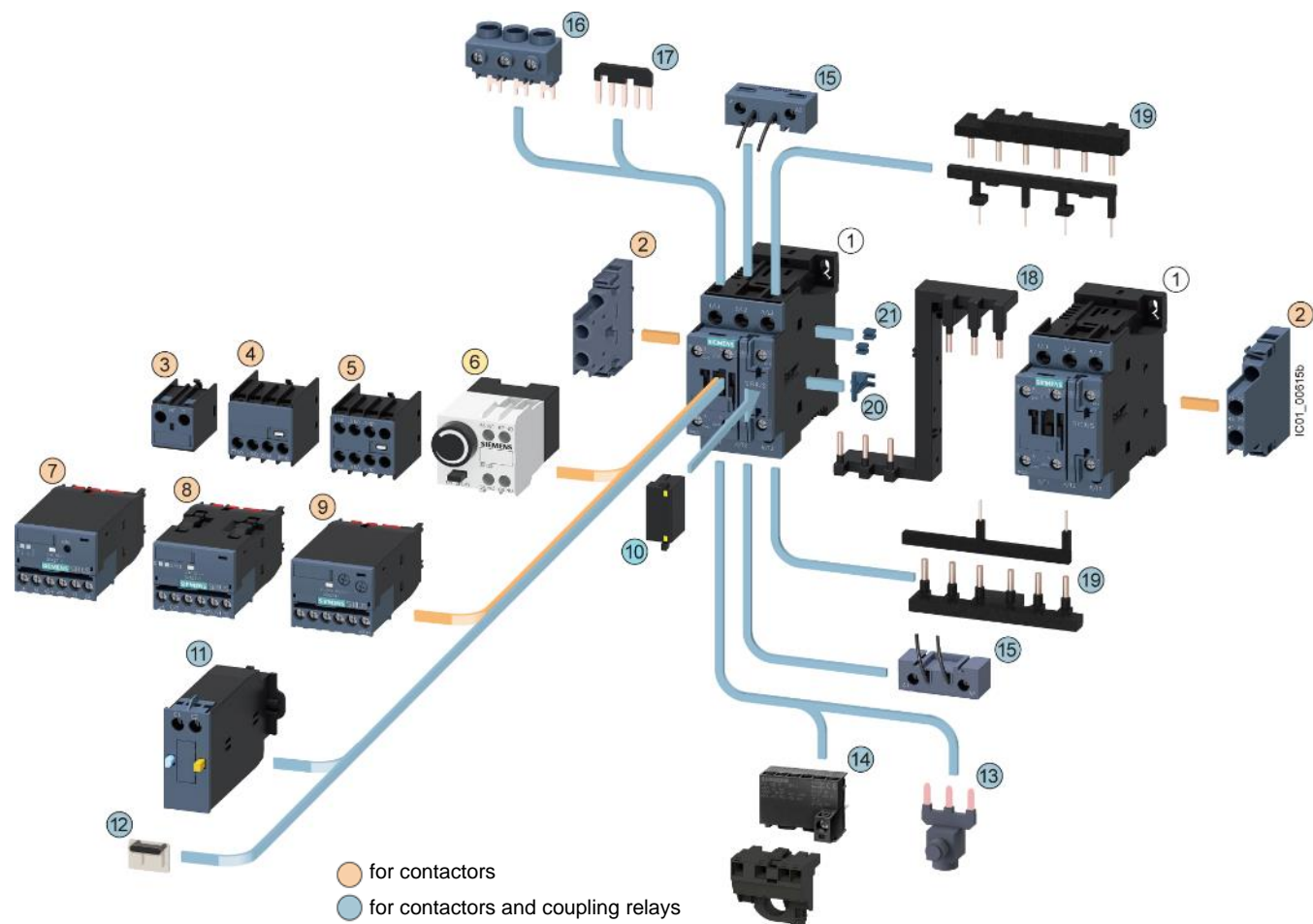
Spring-loaded terminal & non-removeable auxiliary switch

# Operating mechanism options - 3RT202

	Standard type		Electronic type				
<b>Control voltage</b>	AC control	DC control	AC control	DC control	DC control		
<b>Voltage range</b>	24 V, 110 V, 230 V <sup>1)</sup>	24 V, 110 V, 230 V <sup>1)</sup>	21...28 V; 95...130 V; 200...280 V		24 V		
<b>Operating range</b>	0.8...1.1 x U <sub>s</sub>	0.8...1.1 x U <sub>s</sub>	0,8...1,1 x U <sub>s</sub>		0,7 ... 1,3 x U <sub>s</sub>		
<b>Coil surge suppressor</b>	Optional	Optional	Varistor integrated		Varistor integrated		
<b>Coil power</b>	Switching on: Holding:	65 VA 7.6 VA	5.9 VA 5.9 VA	6,6 VA 1,9 VA	5,9 W 1,4 W	4,5 W 4,5 W	
<b>Figures</b>	 AC		 DC		 AC / DC		 DC

1) Further voltage ranges acc. to catalog/available on request

## Accessories – – 3RT202



1. Contactor, 3RT202
  2. 2-pole auxiliary switch block, laterally mountable
  3. 1-pole auxiliary switch block, for snapping onto the front, cable entry from the top
  4. 2-pole auxiliary switch block, for snapping onto the front, cable entry from the bottom
  5. 4-pole auxiliary switch block, for snapping onto the front
  6. Pneumatically delayed auxiliary switch block
  7. 3RA27 function modules for AS-Interface, direct-on-line starting
  8. 3RA27 function modules for IO-Link, direct-on-line starting
  9. 3RA28 function modules
  10. Surge suppressor with/ without LED
  11. Mechanical latching block
  12. Cover, sealable
  13. Link for paralleling, 3-pole, with connecting terminal
  14. Connection module (adapter and plug) for contactors with screw-type connection
  15. Coil terminal module, on the top and bottom
  16. Three-phase feeder terminal
  17. Link for paralleling (star jumper), 3-pole, without connection terminal
  18. Safety main current connector for two contactors
- Assembly kit 3RA2923-2AA1 comprising:**
19. Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock)
  20. Mechanical interlocks
  21. Two connecting clips for two contactors

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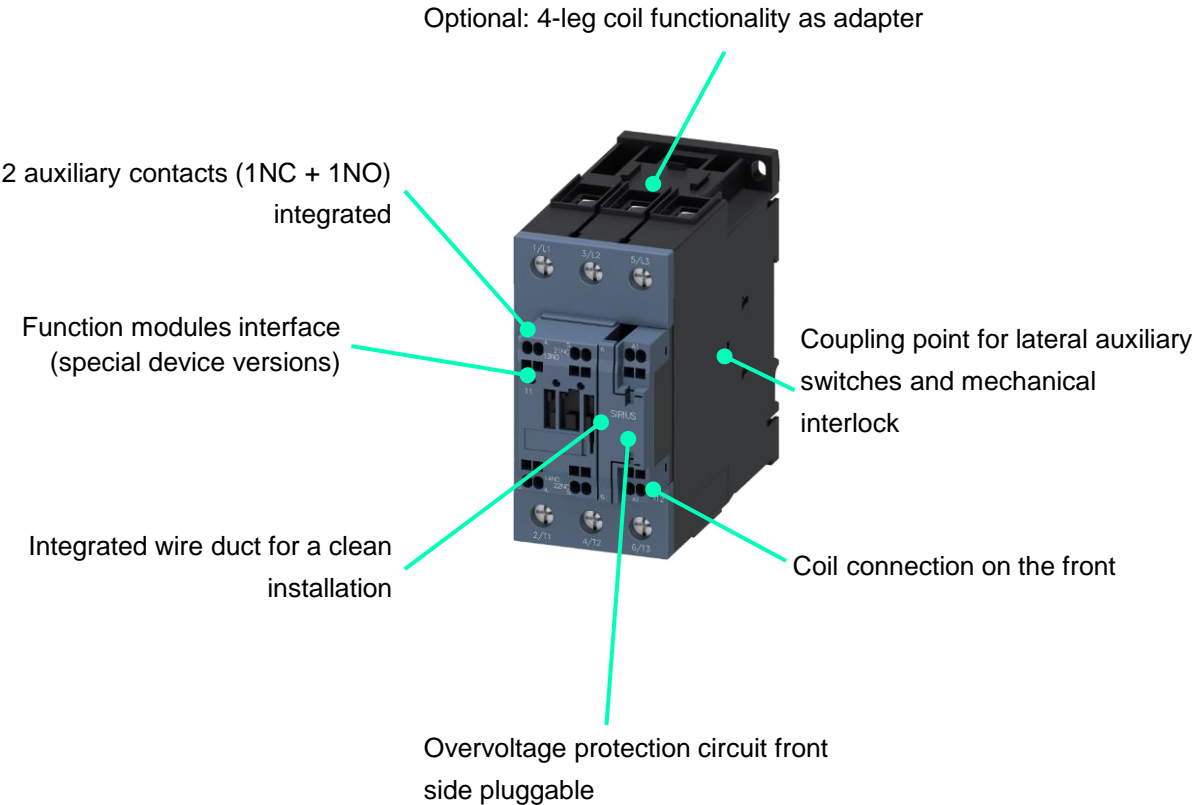
**6** Contactors for extended operation range and railway certifications

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# Overview – 3RT203

Power rating up to 37kW (80A) AC-3 / AC-3e, 400V



Other variants (selection):



Screw terminal



Spring-loaded terminal & non-removeable auxiliary switch

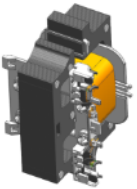
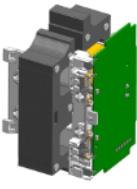
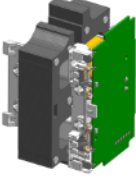
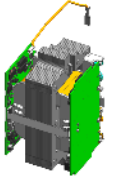


Spring-loaded terminal & lateral auxiliary switch



F-PLC-IN

## Operating mechanism options - 3RT203

	Standard type AC	Electronic type AC/DC		Electronic type DC	Electronic type AC/DC
<b>Control voltage</b>	AC control	AC control	DC control	DC control (optimized for direct control from the PLC)	AC/DC control (optimized for direct control from PLC)
<b>Voltage range</b>	24 V, 110 V, 230 V	20...33 V; 83...155 V; 175...280 V		24V	21...33 V; 83...150 V; 175...280 V
<b>Operating range</b>	0,8...1,1 x U <sub>s</sub>	0,8...1,1 x U <sub>s</sub>		0,8...1,2 x U <sub>s</sub>	0,8...1,2 x U <sub>s</sub>
<b>Protective circuit</b>	Optional	Varistor integrated		Varistor integrated	Varistor integrated
<b>Coil power</b> Switching on: Holding:	190 VA 16 VA	<40 VA 2-3 VA	23 W 1 W	23 W 1 W	23 W 1 W
<b>Operating mechanism concept</b>	E-magnet system with short-circuit rings	E-magnet system with electronics with reduced power consumption		E-magnet system with electronics with reduced power consumption	E-magnetic system with electronics with reduced power consumption
<b>Figures</b>	 AC	 AC/DC		 DC	 AC/DC Not replaceable/ not available as a sparepart

# Operating mechanism options - 3RT203

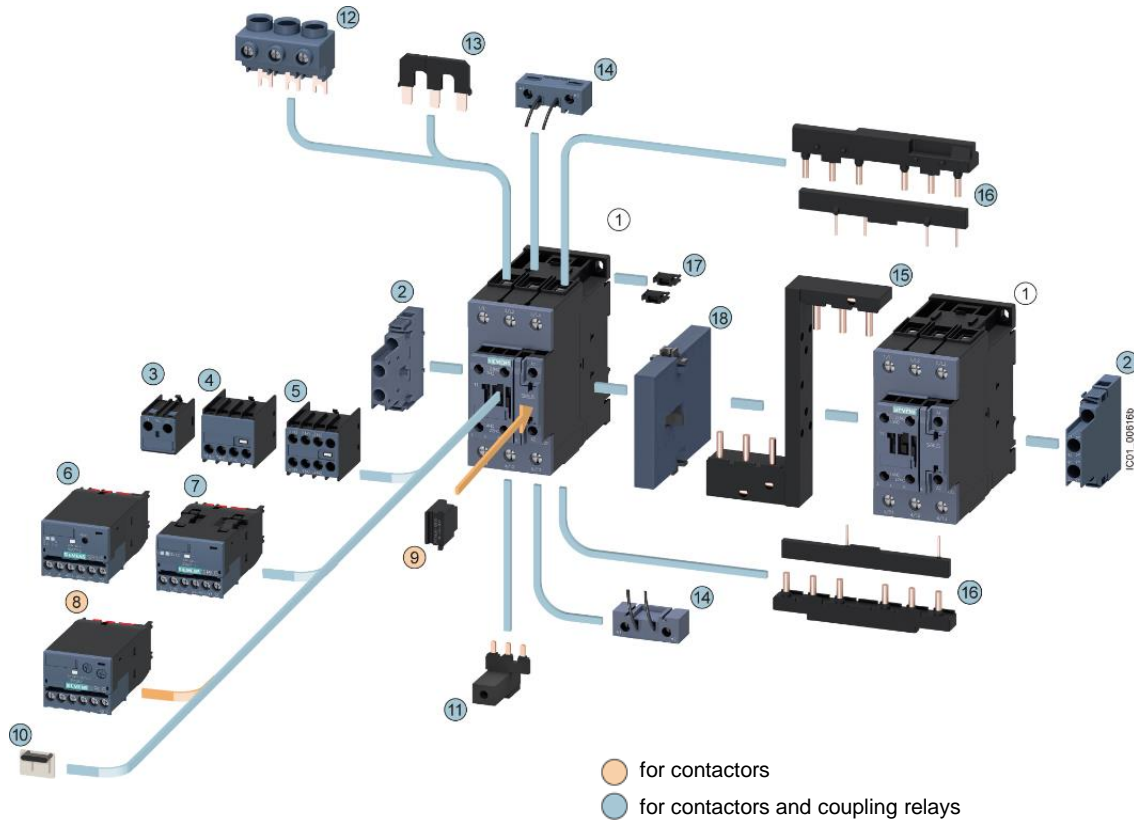
	Standard coil („A-coil“)	Electronic coil („N-coil“)	Electronic coil („K-coil“)	Electronic coil with failsafe control input for PLC („S-coil“)
<b>Product</b>	3RT2	3RT2	3RT2	3RT2
<b>Control and power supply</b>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: F-PLC-IN Both operational and shutdown in case of error</li> </ul>
<b>Rated values PLC-IN</b>	-	-	-	24 V DC, Typ 1

## Operating mechanism - functions - 3RT203

	Standard coil („A-coil“)	Electronic coil („N-coil“)	Electronic coil („K-coil“)	Electronic coil with failsafe control input for PLC („S-coil“)
<b>Product</b>	3RT2	3RT2	3RT2	3RT2
<b>Integrated overvoltage protection</b>	✓	✓	✓	✓
<b>Minimum possible power loss</b>		✓	✓	✓
<b>Direct control from F-PLC to safety application</b>				✓
<b>Achievable SIL level in safety applications</b>	2 contactors SIL 2 or SIL 3	2 contactors SIL 2 or SIL 3	2 contactors SIL 2 or SIL 3	1 contactors: SIL 2 2 contactors SIL 3
<b>Exchangeable converter</b>	✓	✓	✓	



## Accessories – 3RT203



1. Contactor, 3RT203
  2. 2-pole auxiliary switch block, laterally mountable
  3. 1-pole auxiliary switch block, for snapping onto the front, cable entry from above
  4. 2-pole auxiliary switch block, for snapping onto the front, cable entry from below
  5. 4-pole auxiliary switch block, for snapping onto the front
  6. 3RA27 function modules for AS-Interface, direct-on-line starting
  7. 3RA27 function modules for IO-Link, direct-on-line starting
  8. 3RA28 function modules
  9. Surge suppressor with/ without LED
  10. Cover, sealable
  11. Link for paralleling, 3-pole, with connection terminal
  12. Three-phase infeed terminal
  13. Link for paralleling (star jumper), 3-pole, without connection terminal
  14. Coil connection module, top and bottom
  15. Safety main current connector for two contactors
- Assembly kit 3RA2933-2AA1 comprising:**
16. Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock)
  17. Two connecting clips for two contactors
- To be ordered separately:**
18. Mechanical interlocks

# SIRIUS contactors and contactor combinations

**1** Overview

**2** Power contactor for switching motors

**2.1** 3RT201

**2.2** 3RT202

**2.3** 3RT203

**2.4** **3RT204**

**2.5** 3RT105, 3RT106, 3RT107 (air breaking contactors)

**2.6** 3RT126, 3RT127, 3TF6 (vacuum contactors)

**3** Reversing- and star-delta combinations for switching motors

**4** Contactors for other applications

**5** Contactor relays

**6** Contactors for extended operation range and railway certifications

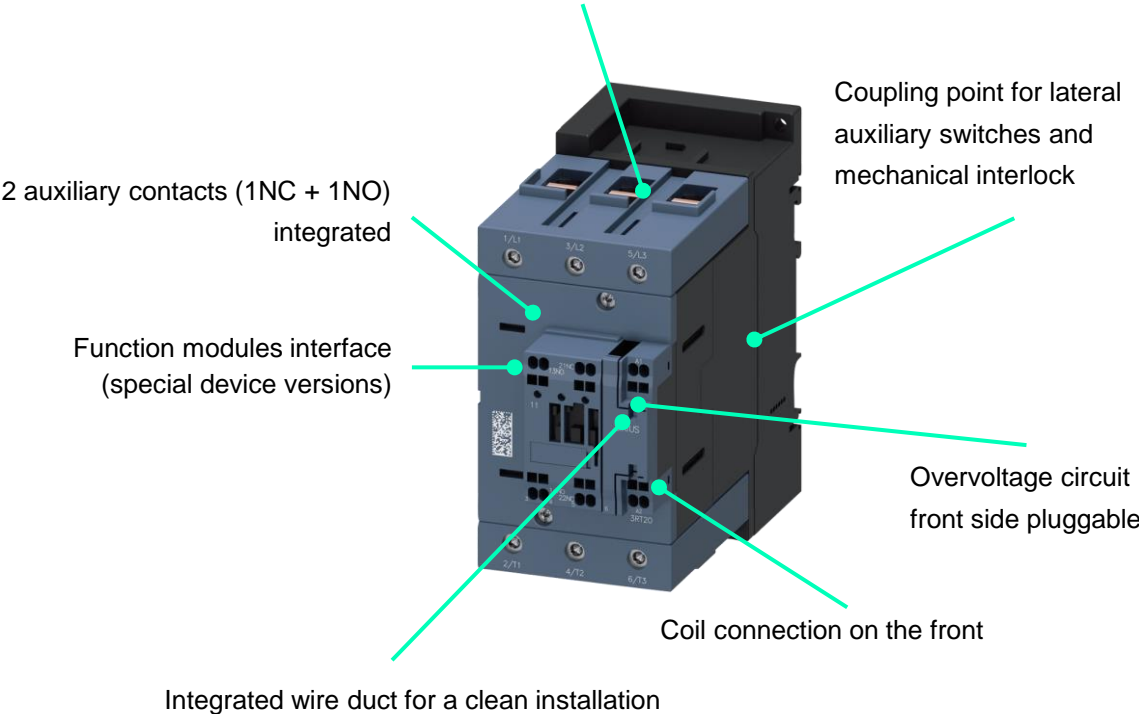
**7** Contactors and safety

**8** Accessories

# Overview – 3RT204

## Power rating up to 55kW (110A) AC-3 / AC-3e, 400V

Optional: 4-leg coil functionality as adapter



## Other variants (selection):



Screw terminal



Spring-loaded terminal & non-removable auxiliary switch

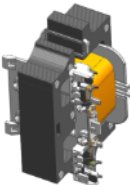
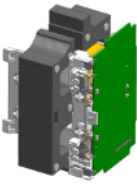
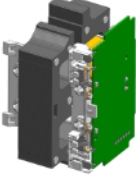
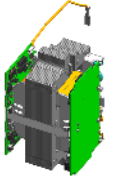


Spring-loaded terminal & lateral auxiliary switch



F-PLC-IN

# Operating mechanism options - 3RT204

	Standard type AC	Electronic type AC/DC		Electronic type DC	Electronic type AC/DC
<b>Control voltage</b>	AC control	AC control	DC control	DC control (optimized for direct control from the PLC)	AC/DC control (optimized for direct control from PLC)
<b>Voltage range</b>	24 V, 110 V, 230 V	20...33 V; 83...155 V; 175...280 V		24V	21...33 V; 83...150 V; 175...280 V
<b>Operating range</b>	0,8...1,1 x U <sub>s</sub>	0,8...1,1 x U <sub>s</sub>		0,8...1,2 x U <sub>s</sub>	0,8...1,2 x U <sub>s</sub>
<b>Protective circuit</b>	Optional	Varistor integrated		Varistor integrated	Varistor integrated
<b>Coil power</b> Switching on: Holding:	296 VA 19 VA	163 VA 3,1 V	76 W 1,8 W	25 W 0,9 W	23 W 1 W
<b>Operating mechanism concept</b>	E-magnet system with short-circuit rings	E-magnet system with electronics with reduced power consumption		E-magnet system with electronics with reduced power consumption	E-magnetic system with electronics with reduced power consumption
<b>Figures</b>	 AC	 AC/DC (UC)		 DC	 AC/DC Not replaceable/ not available as a sparepart

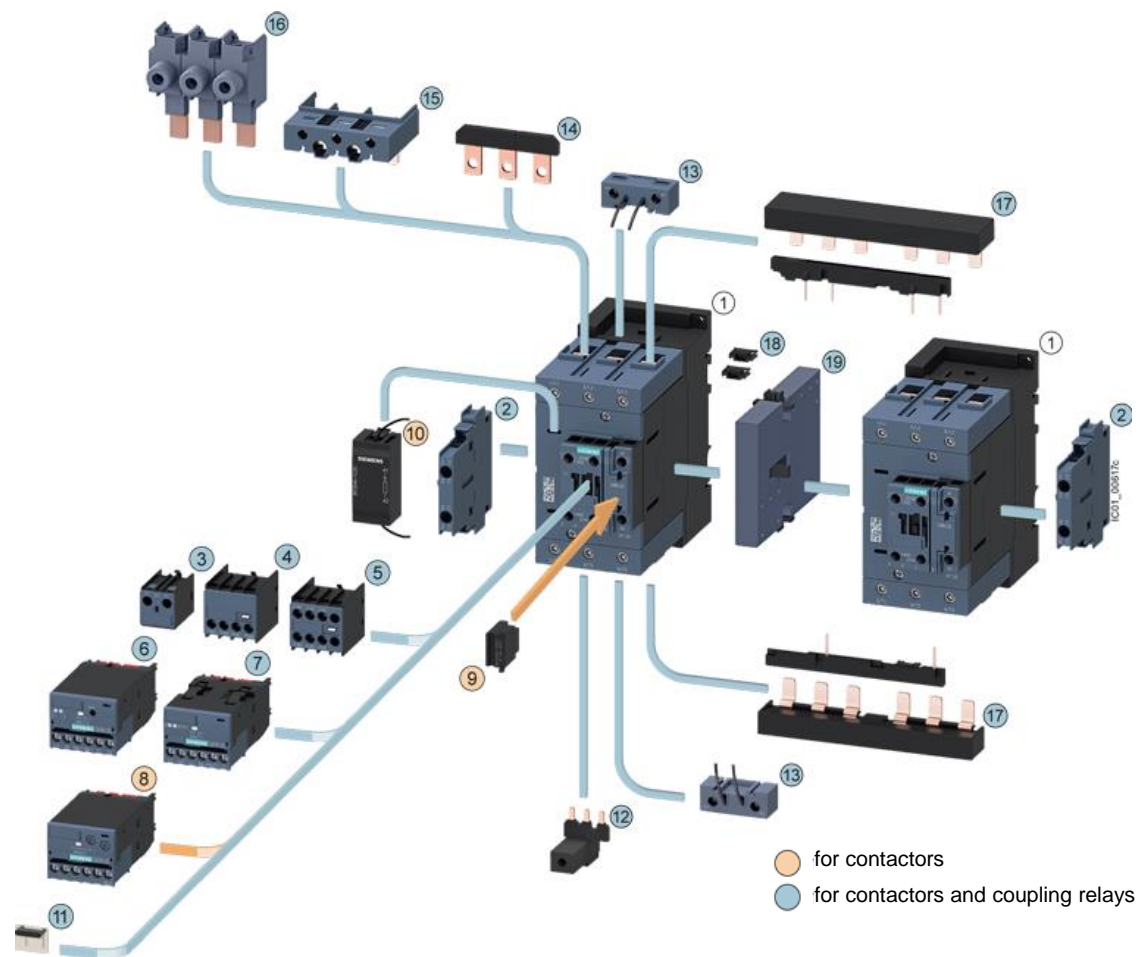
# Operating mechanism options - 3RT204

	Standard coil („A-coil“)	Electronic coil („N-coil“)	Electronic coil („K-coil“)	Electronic coil with failsafe control input for PLC („S-coil“)
<b>Product</b>	3RT2	3RT2	3RT2	3RT2
<b>Control and power supply</b>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>• Power Supply: A1 / A2</li> <li>• Control: F-PLC-IN Both operational and shutdown in case of error</li> </ul>
<b>Rated values PLC-IN</b>	-	-	-	24 V DC, Typ 1

## Operating mechanism - functions - 3RT204

	Standard coil („A-coil“)	Electronic coil („N-coil“)	Electronic coil („K-coil“)	Electronic coil with failsafe control input for PLC („S-coil“)
<b>Product</b>	3RT2	3RT2	3RT2	3RT2
<b>Integrated overvoltage protection</b>	✓	✓	✓	✓
<b>Minimum possible power loss</b>		✓	✓	✓
<b>Direct control from F-PLC to safety application</b>				✓
<b>Achievable SIL level in safety applications</b>	2 contactors SIL 2 or SIL 3	2 contactors SIL 2 or SIL 3	2 contactors SIL 2 or SIL 3	1 contactors: SIL 2 2 contactors SIL 3
<b>Exchangeable converter</b>	✓	✓	✓	

## Accessories – 3RT204



1. Contactor, 3RT204
  2. 2-pole auxiliary switch block, laterally mountable
  3. 1-pole auxiliary switch block, for snapping onto the front, cable entry from above
  4. 2-pole auxiliary switch block, for snapping onto the front, cable entry from below
  5. 4-pole auxiliary switch block, for snapping onto the front
  6. 3RA27 function modules for AS-Interface, direct-on-line starting
  7. 3RA27 function modules for IO-Link, direct-on-line starting
  8. 3RA28 function modules
  9. Surge suppressor with/ without LED
  10. Surge suppressor with/ without LED (RC element), can be inserted at the front into the recess to the left of the terminal block
  11. Cover, sealable
  12. Links for paralleling, 3-pole, with connection terminal
  13. Coil connection module, top and bottom
  14. Links for paralleling (star jumper), 3-pole, without
  15. Auxiliary terminal, 3-pole
  16. Single-phase infeed terminals (3 units)
- Assembly kit 3RA2943-2AA1 comprising:**
17. Wiring modules on the top and bottom for connecting the main, auxiliary and control current paths, electrical interlock included, interruptible (NC contact interlock)
  18. Two connectors for two contactors
- To be ordered separately**
19. Mechanical interlock

# SIRIUS contactors and contactor combinations

1 Overview

2 Power contactor for switching motors

2.1 3RT201

2.2 3RT202

2.3 3RT203

2.4 3RT204

2.5 3RT105, 3RT106, 3RT107 (air breaking contactors)

2.6 3RT126, 3RT127, 3TF6 (vacuum contactors)

3 Reversing- and star-delta combinations for switching motors

4 Contactors for other applications

5 Contactor relays

6 Contactors for extended operation range and railway certifications

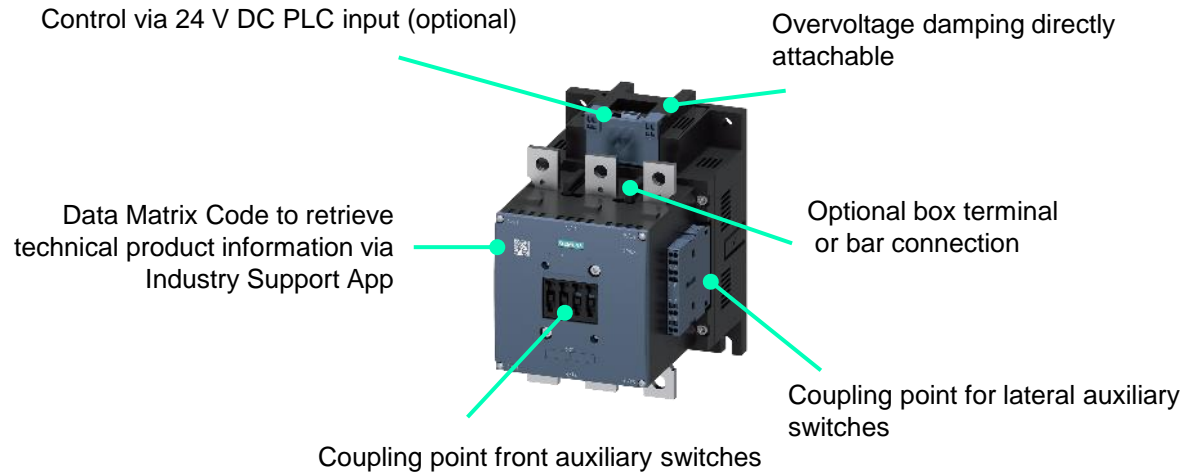
7 Contactors and safety

8 Accessories



# Overview – Contactors 3RT10

Power rating up to 55kW (110A) AC-3 / AC-3e, 400V



Other variants (selection):



**variant:** Standard

**main circuit:** screw terminal

**auxiliary switch:** spring-loaded connection

**coil:** spring-loaded connection



**variant:** electronic, F-PLC-IN non-detachable auxiliary contacts

**main circuit:** screw terminal

**auxiliary switch:** screw terminal

**coil:** screw terminal



**variant:** electronic, PLC-IN

**main circuit:** busbar connection

**auxiliary switch:** screw terminal

**coil:** screw terminal



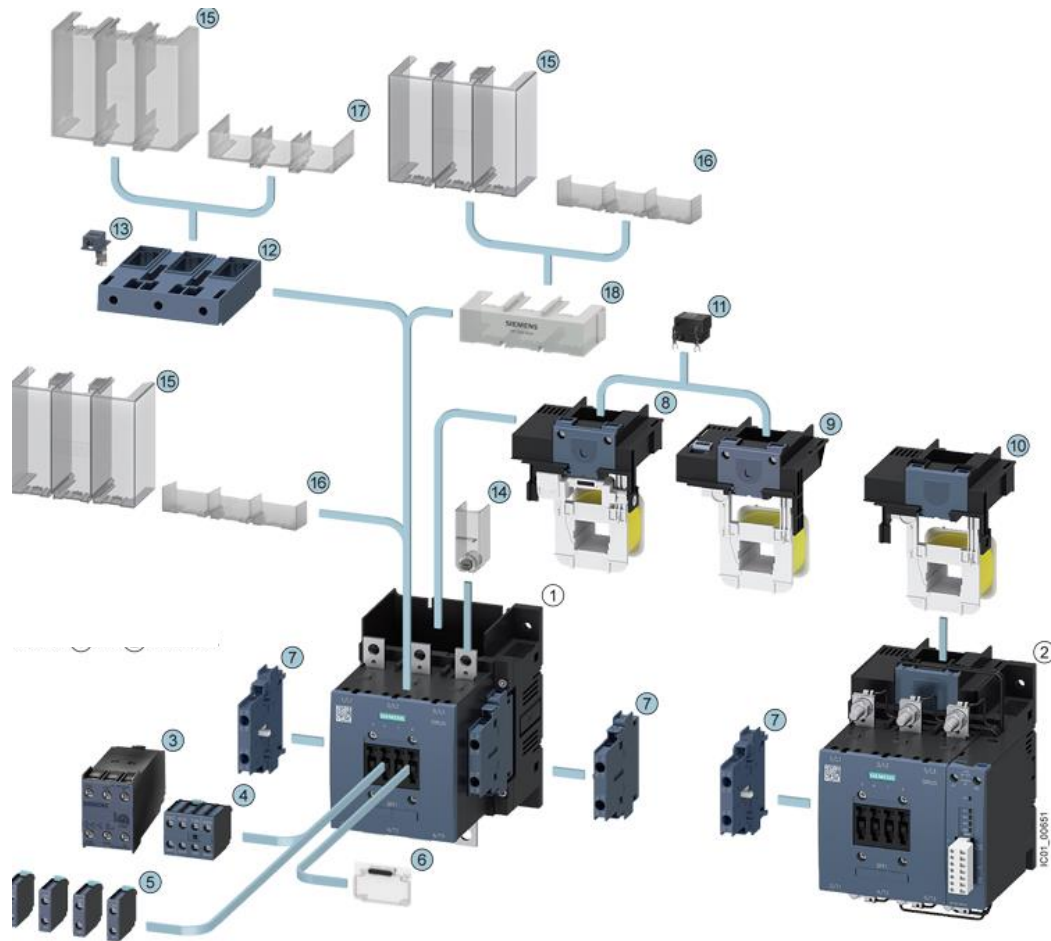
**variant:** electronic, F-PLC-IN

**main circuit:** busbar connection

**auxiliary switch:** Screw terminal

**coil:** spring-loaded connection

## Accessories – 3RT105 & 3RT145



1. Air-break contactor 3RT105 and 3RT145, (version without withdrawable coil)
2. Air-break contactor 3RT105.-.P and 3RT145.-.P with electronic coil and residual life signal, (version with withdrawable coil and side-mounted add-on module)

### Front side attachable to contactors 1. and 2.

3. 3RT1926: Auxiliary switch block, electronically delayed (on or off delay or star-delta start)
4. 3RH192: 4 pole auxiliary contact block
5. 3RH192: 1-pole auxiliary switch block (max. four snap-open)
6. 3RT1926-4MA10: Sealable cover

### Laterally attachable to contactors 1. and 2.

7. 3RH192: 2-pole auxiliary contact block

### Can be inserted into top of contactor

8. 3RT1955-5A.3: withdrawable coil standard coil
9. 3RT1955-5N.3: withdrawable coil el. coil
10. 3RT1955-5P.3: withdrawable coil el. coil and remaining lifetime signal

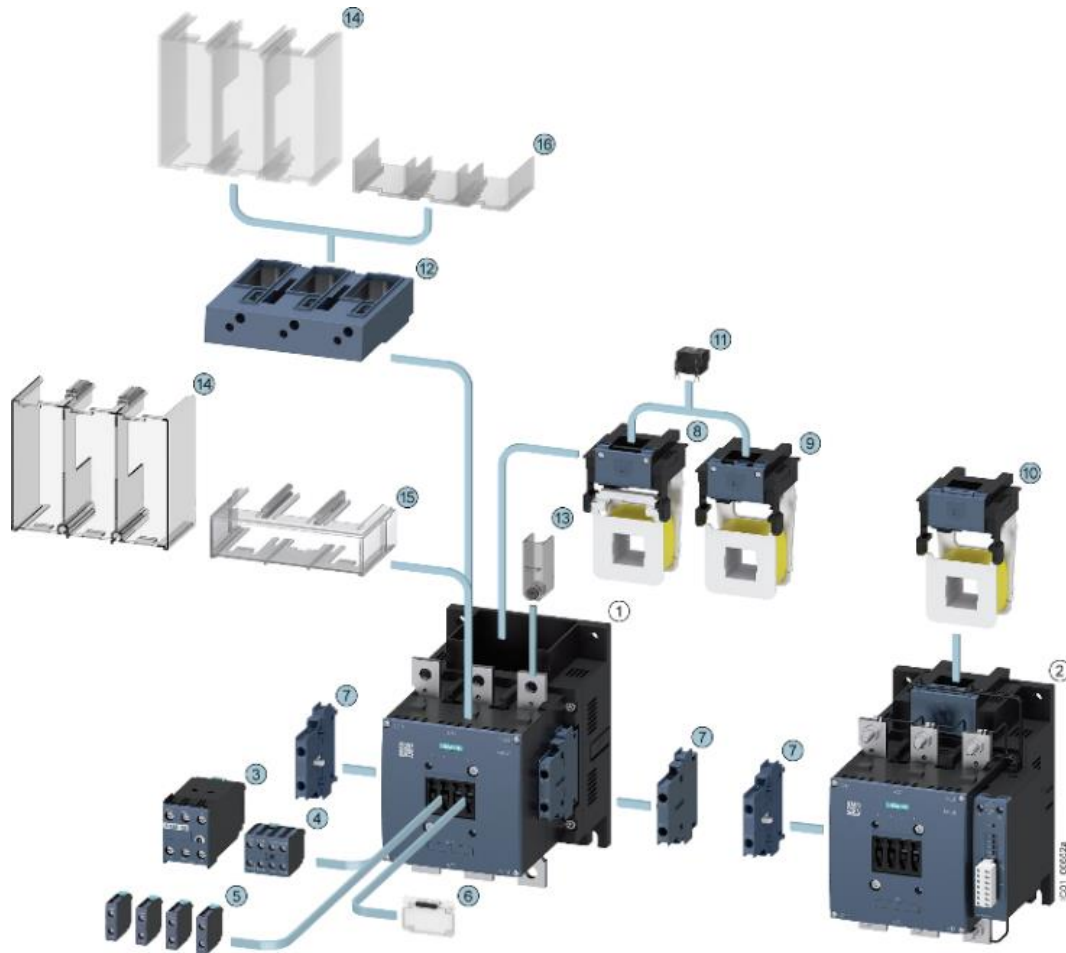
### Can be plugged into contactor coils 8. and 9. at the top

11. 3RT1956-1C: Overvoltage limiter (RC element)

### Can be mounted on top or bottom of rails or frame terminals of contactors 1. and 2.

12. 3RT1956-4G: box terminal block
13. 3TX7500-0A: Auxiliary conductor terminal, 1-pole
14. 3TX6526-3B: Connection cover (screw-on), covers one rail connection
15. 3RT1956-4EA1: Connection cover for rail connection and frame clamp
16. 3RT1956-4EA3: Connection cover for rail connection
17. 3RT1956-4EA2: Connection cover on box terminal
18. 3RT1956-4EA4: Connection covers for rail connection, covers 15, 16 and 18 attachable

## Accessories – 3RT106 & 3RT146



1. Air-break contactor 3RT106 and 3RT146, (version without withdrawable coil)
2. Air-break contactor 3RT106-.P and 3RT146-.P with electronic coil and residual-life signal, (version with withdrawable coil and side-mounted add-on module)

### Front side attachable to contactors 1. and 2.

3. 3RT1926: Auxiliary switch block, electronically delayed (on or off delay or star-delta start)
4. 3RH192: 4 pole auxiliary contact block
5. 3RH192: 1-pole auxiliary switch block (max. four snap-open)
6. 3RT1926-4MA10: Sealable cover

### Laterally attachable to contactors 1. and 2.

7. 3RH192: 2-pole auxiliary contact block

### Can be inserted into top of contactor

8. 3RT1965-5A.3: withdrawable coil standard coil
9. 3RT1965-5N.3: withdrawable coil el. coil
10. 3RT1965-5P.3: withdrawable coil el. coil and remaining lifetime signal

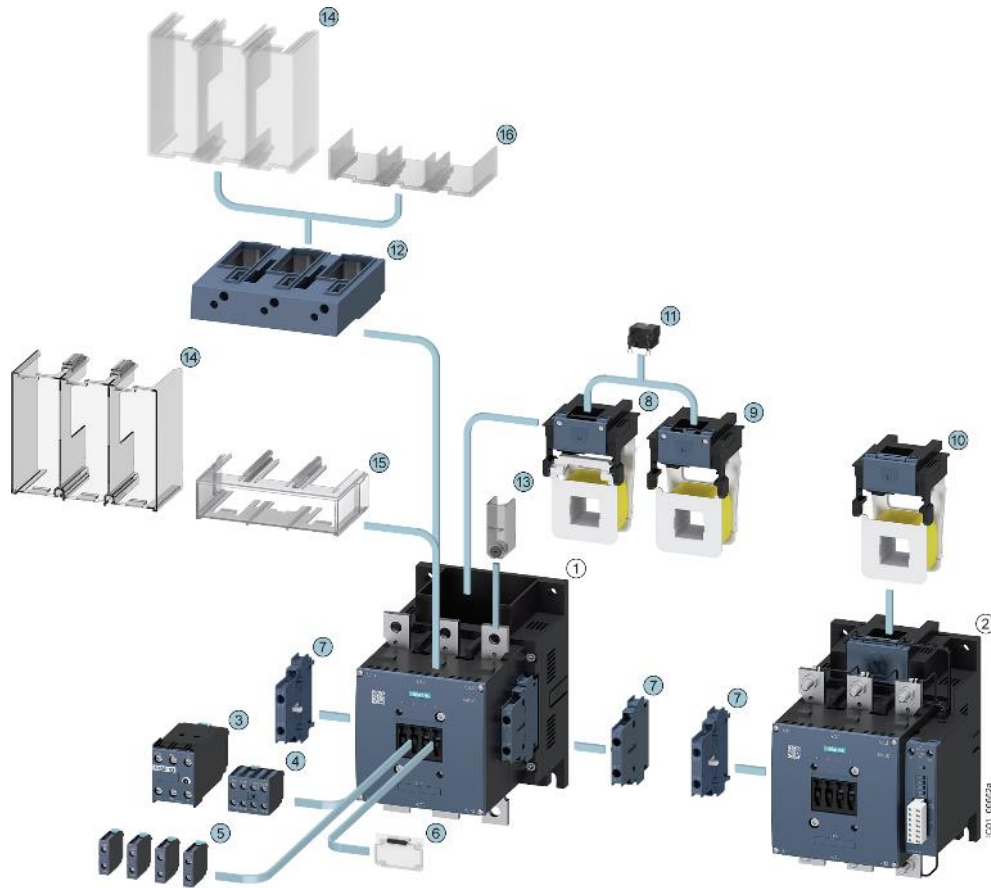
### Can be plugged into contactor coils 8. and 9. at the top

11. 3RT1956-1C: Overvoltage limiter (RC element)

### Can be mounted on top or bottom of rails or frame terminals of contactors 1. and 2.

12. 3RT1966-4G: box terminal block
13. 3TX6546-3B: Connection cover (screw-on), covers one rail connection
14. 3RT1966-4EA1: Connection cover for rail connection and frame clamp
15. 3RT1966-4EA3: Connection cover for rail connection
16. 3RT1966-4EA2: Connection cover on box terminal

# Accessories – 3RT107 & 3RT147



1. Air-break contactor 3RT107 and 3RT147,n(version without withdrawable coil)
2. Air-break contactor 3RT107.-.P and 3RT147.-.P with electronic coil and remaining lifetime signal, (version with withdrawable coil and side-mounted add-on module)

### Front side attachable to contactors 1. and 2.

3. 3RT1926: Auxiliary switch block, electronically delayed (on or off delay or star-delta start)
4. 3RH192: 4 pole auxiliary contact block
5. 3RH192: 1-pole auxiliary switch block (max. four snap-on)
6. 3RT1926-4MA10: Sealable cover

### Laterally attachable to contactors 1. and 2.

7. 3RH192: 2-pole auxiliary contact block

### Can be inserted into top of contactor

8. 3RT1965-5A.3: withdrawable coil standard coil
9. 3RT1965-5N.3: withdrawable coil el. coil
10. 3RT1965-5P.3: withdrawable coil el. coil and remaining lifetime signal

### Can be plugged into contactor coils 8. and 9. at the top

11. 3RT1956-1C: surge suppressor (RC element)

### Can be mounted on top or bottom of rails or frame terminals of contactors 1. and 2.

12. 3RT1966-4G: box terminal block
13. 3TX6546-3B: Connection cover (screw-on), covers one rail connection
14. 3RT1966-4EA1: Connection cover for rail connection and frame clamp
15. 3RT1966-4EA3: Connection cover for rail connection
16. 3RT1966-4EA2: Connection cover on box terminal

# SIRIUS contactors and contactor combinations

1 Overview

2 **Power contactor for switching motors**

2.1 3RT201

2.2 3RT202

2.3 3RT203

2.4 3RT204

2.5 3RT105, 3RT106, 3RT107 (air breaking contactors)

2.6 **3RT126, 3RT127, 3TF6 (vacuum contactors)**

3 Reversing- and star-delta combinations for switching motors

4 Contactors for other applications

5 Contactor relays

6 Contactors for extended operation range and railway certifications

7 Contactors and safety

8 Accessories

# Vacuum contactors 3RT12 and 3TF6

## Vacuum contactors 3RT12 for motor loads with standard coil

- 3RT12...-A...
- Classic control at A1 / A2
- Optimal for switching motor loads (AC-3 / AC-3e)
- 2 frame sizes, 5 current steps up to 250kW/400V



## Vacuum contactors 3RT12 for motor loads with electronic coil

Additional / different to the left

- 3RT12...-N...
- Control to PLC-IN
- Operating mode selection: Direct or PLC-IN-control

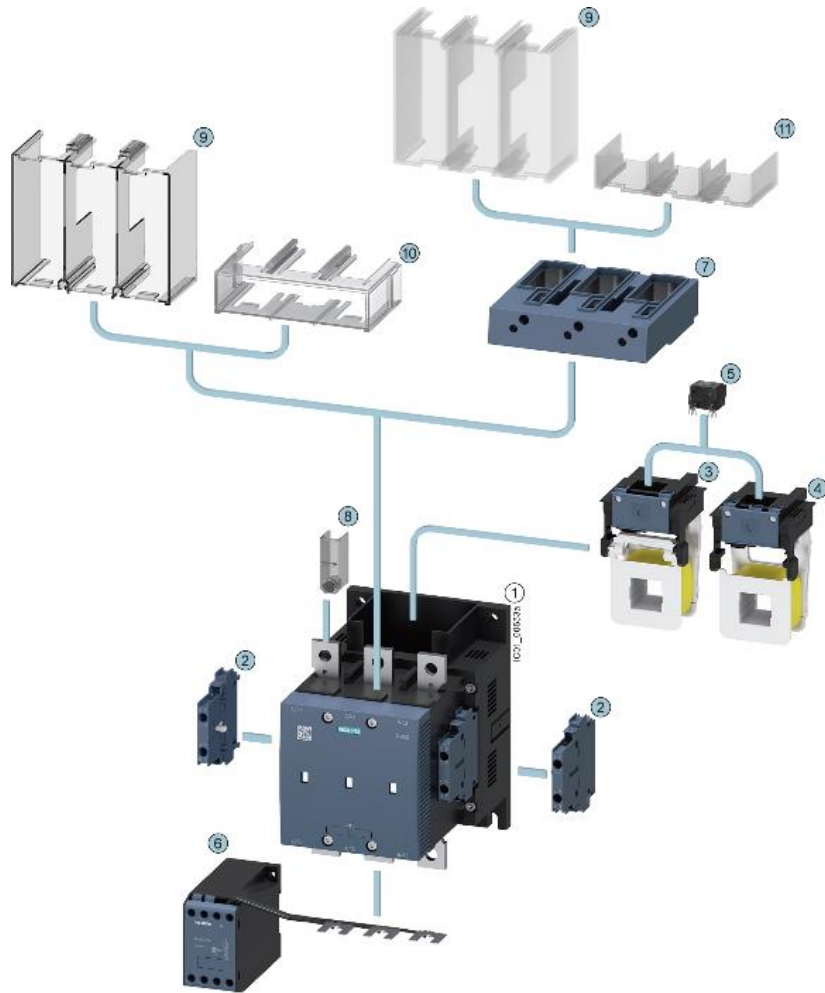


## Vacuum contactors 3TF6 for motor loads

- 3TF68 und 3TF69
- Rounding off the performance range above 3RT12 up to 450kW/400V
- 2 frame sizes, 2 current steps
- Operating modes: AC or DC-operation



## Accessories – 3RT126



1. Vacuum contactor 3RT126 (version without withdrawable coil)

**Can be mounted on side of contactor**

2. 3RH192: 2-pole auxiliary switch block

**Can be inserted in top of contactor**

3. 3RT1966-5A.3: Withdrawable coil, standard operating mechanism

4. 3RT1966-5N.3: Withdrawable coil, solid-state operating mechanism

**Can be plugged onto top of contactor operating mechanisms**

5. 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted at bottom of busbars**

6. 3RT1966-1PV.: Main current path surge suppression module

**Can be mounted on the top or bottom on busbar or box terminals**

7. 3RT1966-4G: Box terminal block

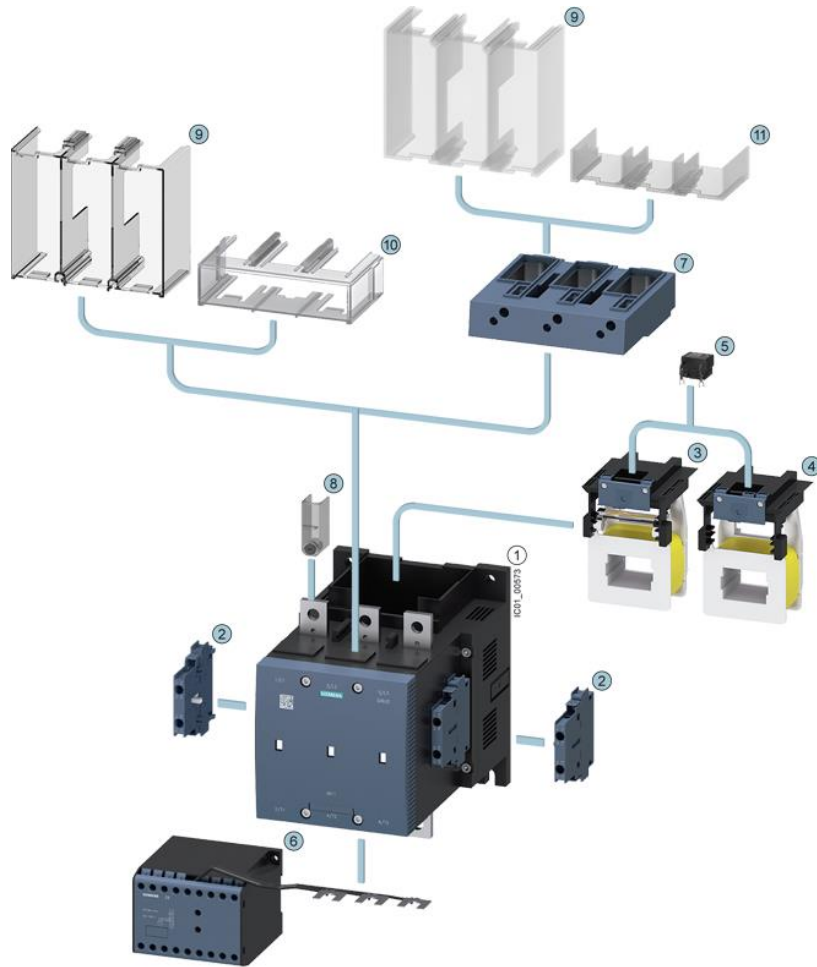
8. 3TX6546-3B: Terminal cover (can be screwed on), cover one busbar connection

9. 3RT1966-4EA1: Terminal cover for busbar connection and on box terminal

10. 3RT1966-4EA3: Terminal cover for busbar connection

11. 3RT1966-4EA2: Terminal cover on box terminal

## Accessories – 3RT127



1. Vacuum contactor 3RT127 (version without withdrawable coil)

**Can be mounted on the side of contactor**

2. 3RH192: 2-pole auxiliary switch block

**Can be inserted in top of contactors**

3. 3RT1975-5A.3: Withdrawable coil, standard operating mechanism

4. 3RT1975-5N.3: Withdrawable coil. Solid-state operating mechanism

**Can be plugged onto the top of contactor operating mechanisms**

5. 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted at bottom on busbars**

6. 3RT1966-1PV.: Main current path surge suppression module

**Can be mounted at the top or bottom on busbars or box terminals**

7. 3RT1966-4G: Box terminal block

8. 3TX6546-3B: Terminal cover (can be screwed on), covers one busbar connection





9. 3RT1966-4EA1: Terminal cover for busbar connection and on box terminal

10. 3RT1966-4EA3: Terminal cover for busbar connection

11. 3RT1966-4EA2: Terminal cover on box terminal



# Contactor coil options 3RT10 and 3RT12

<b>Standard coil</b> <i>3RT105, 3RT1.6, 3RT1.7</i>	<b>Electronic coil with PLC-IN</b> <i>3RT105, 3RT1.6, 3RT1.7</i>	<b>Electronic coil with PLC-IN and RLT indicator</b> <i>3RT105, 3RT1.6, 3RT1.7</i>	<b>Electronic coil with failsafe PLC-IN</b> <i>3RT1.5, 3RT1.6, 3RT1.7</i>
<p>AC (50 / 60 Hz) or DC control</p>	<p>AC (50 / 60 Hz) or DC control / supply</p>	<p>AC (50 / 60 Hz) or DC control / supply</p>	<p>AC (50 / 60 Hz) or DC control / supply</p>
			
<ul style="list-style-type: none"> <li>• 3RT1...-A...</li> </ul>	<ul style="list-style-type: none"> <li>• Wide range A1 / A2</li> <li>• Control via 24V DC PLC-IN or direct control via A1/A2</li> <li>• 3RT1...-N...</li> </ul>	<ul style="list-style-type: none"> <li>• Wide range A1 / A2</li> <li>• Control via 24V DC PLC-IN</li> <li>• RLT</li> <li>• 3RT10-.P...</li> </ul>	<ul style="list-style-type: none"> <li>• Direct failsafe control up to SIL 3 from F-control</li> <li>• Optional: solid auxiliary switches</li> <li>• 3RT10-.S...</li> </ul>

# Contactor coil options 3RT10 and 3RT12

	Standard coil with low power switching („A-coil“)	Electronic coil with separate control input for PLC („N-coil“)	Electronic coil with separate control input for PLC and remaining life time detection („P-coil“)	Electronic coil with fail-safe control input for PLC („S-coil“)
<b>Product</b>	3RT10, 3RT12	3RT10, 3RT12	3RT10	3RT10
<b>Control and power supply</b>	<ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: A1 / A2</li> </ul>	Mode adjustable via selector switch Mode 1: <ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: A1 / A2</li> </ul> Mode 2: <ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: PLC-IN</li> </ul>	<ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: PLC-IN</li> </ul>	<ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: F-PLC-IN</li> </ul>
<b>Rated values A1 / A2</b>	AC 50 - 60 Hz / DC $0,8 \times U_{Smin} - 1,1 \times U_{Smax}$	AC 50 - 60 Hz / DC $0,8 \times U_{Smin} - 1,1 \times U_{Smax}$		
	100 ... 127 V 220 ... 240 V	96 ... 127 V 200 ... 277 V		
<b>Rated values PLC-IN</b>	-	24 V DC, Type 2		24 V DC, Type 1

## Coils – functions – 3RT10 und 3RT12

	Standard coil with low power switching („A-coil“)	Electronic coil with separate control input („N-coil“)	Electronic coil with separate control input for PLC and remaining life time detection („P-coil“)	Electronic coil with fail-safe control input for PLC („S-coil“)
<b>Product</b>	3RT10, 3RT12	3RT10, 3RT12	3RT10	3RT10
<b>Integrated overvoltage protection</b>	✓	✓	✓	✓
<b>Minimum possible power loss</b>		✓	✓	✓
<b>Wide voltage range</b>		✓	✓	✓
<b>Direct control from PLC without coupling level for standard applications</b>		✓	✓	✓
<b>Direct control from F-PLC to safety application</b>				✓
<b>Achievable SIL level in safety applications</b>	2 contactors SIL 2 or SIL 3	2 contactors SIL 2 or SIL 3	2 contactors SIL 2 or SIL 3	1 contactor: SIL 2 2 contactors SIL 3
<b>Predictive maintenance</b>			✓	
<b>Exchangeable converter</b>	✓	✓	✓	

## Coil data - 3RT10 und 3RT12

	Standard coil with low power switching („A-coil“)			Electronic coils with separate control input for PLC (normal PLC-IN, PLC-IN with remaining life time detection and F-PLC-IN) („N-coil“, „P-coil“ and „S-coil“ )		
Type	3RT105	3RT106 3RT126	3RT107 3RT127	3RT105	3RT106 3RT126	3RT107 3RT127
<b>Power consumption AC control [VA]</b>						
Switch on	250 – 300	490 – 590	700 – 830	190 – 280	400 – 530	560 – 750
Holding	4,8 – 5,8	5,6 – 6,7	7,6 – 9,2	3,5 – 4,8	5,5 – 8,5	5,6 – 9
<b>Power consumption DC-control [W]</b>						
Switch on	300 – 360	540 – 650	770 – 920	250 – 320	440 – 580	600 – 800
Holding	4,3 – 5,2	6,1 – 7,4	8,5 – 10	2,1 – 2,8	2,8 – 3,4	3 – 3,6

# SIRIUS contactors and contactor combinations

1 Overview

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2 Power contactor for switching motors

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**3 Reversing- and star-delta combinations for switching motors**

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4 Contactors for other applications

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5 Contactor relays

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6 Contactors for extended operation range and railway certifications

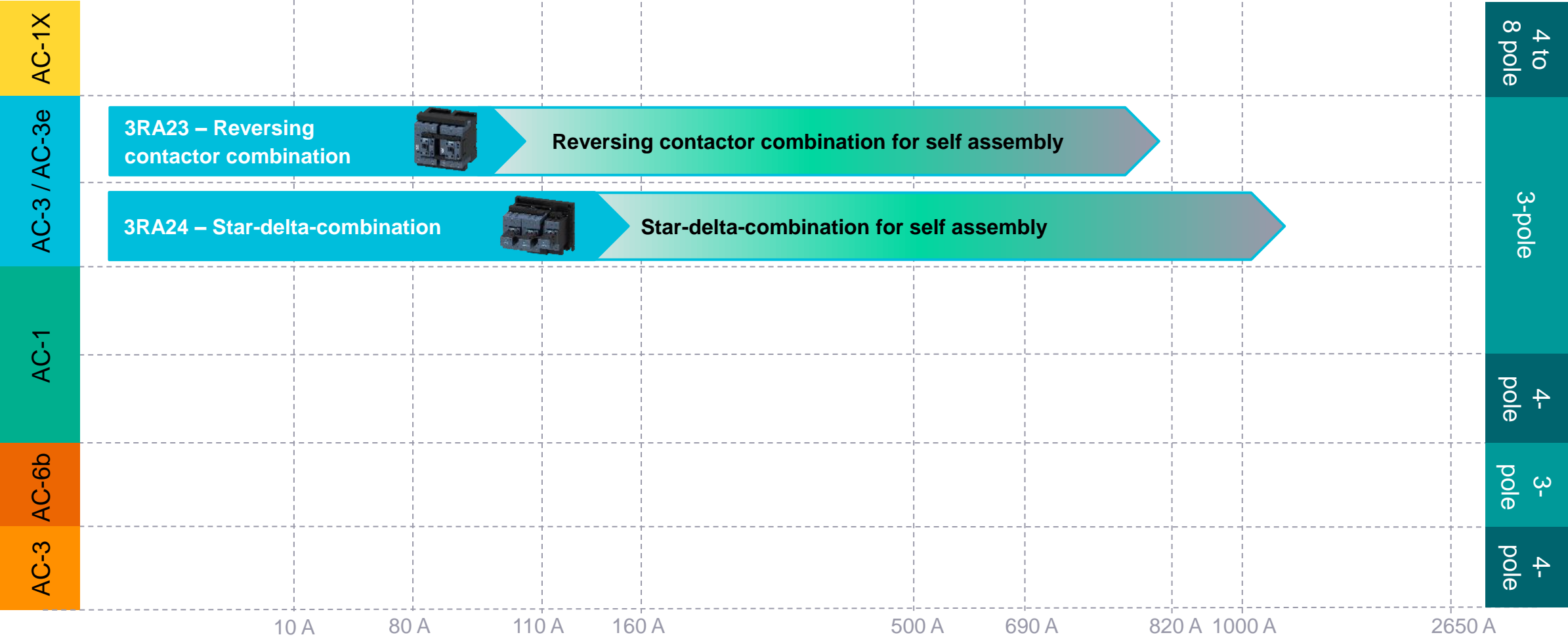
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7 Contactors and safety

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8 Accessories

# Contactors types, current range



# Reversing combinations (preassembled)

## Reversing combinations SIRIUS 3RA23

- Space-saving for every performance class:
  - 3RT201 up to 7,5 kW
  - 3RT202 up to 18,5 kW
  - 3RT203 up to 37 kW
  - 3RT204 up to 55 kW
- Different connection system
  - screw terminal
  - spring-loaded connection system (3RA233/ 3RA234 only control circuit)
- Use of the same star-delta function module for 3RT201 – 3RT204
- Electrically and mechanically locked

3RA231 – up to 7,5 kW



3RA232 – up to 18,5 kW



3RA233 – up to 37 kW



3RA234 – up to 55 kW



# Star-delta combinations (preassembled)

## Star-delta combinations SIRIUS 3RA24

- Space-saving for every performance class
- Different connection system
  - Screw terminal
  - spring-loaded connection system (3RA243/ 3RA244 only control circuit)
- Use of the same star-delta function module for size 3RA241 – 3RA244
- Electrically and mechanically locked

3RA241 – up to 11 kW



3RA242 – up to 22 kW



3RA243 – up to 55 kW



3RA244 – up to 90 kW





## Link modules

- Link modules for simple assembly of contactor combinations:
  - For reversing combinations
  - for Star-delta combinations
  - Connectors in screw and spring-loaded
  
- Link modules for simple assembly of Safety combinations PLe (ISO13849-1) or SIL3 (IEC 62061):
  - for 2 contactors in series (safety-connector)
  - Connector in screw terminal

Wiring kit reverse 3RA231 – 3RA234



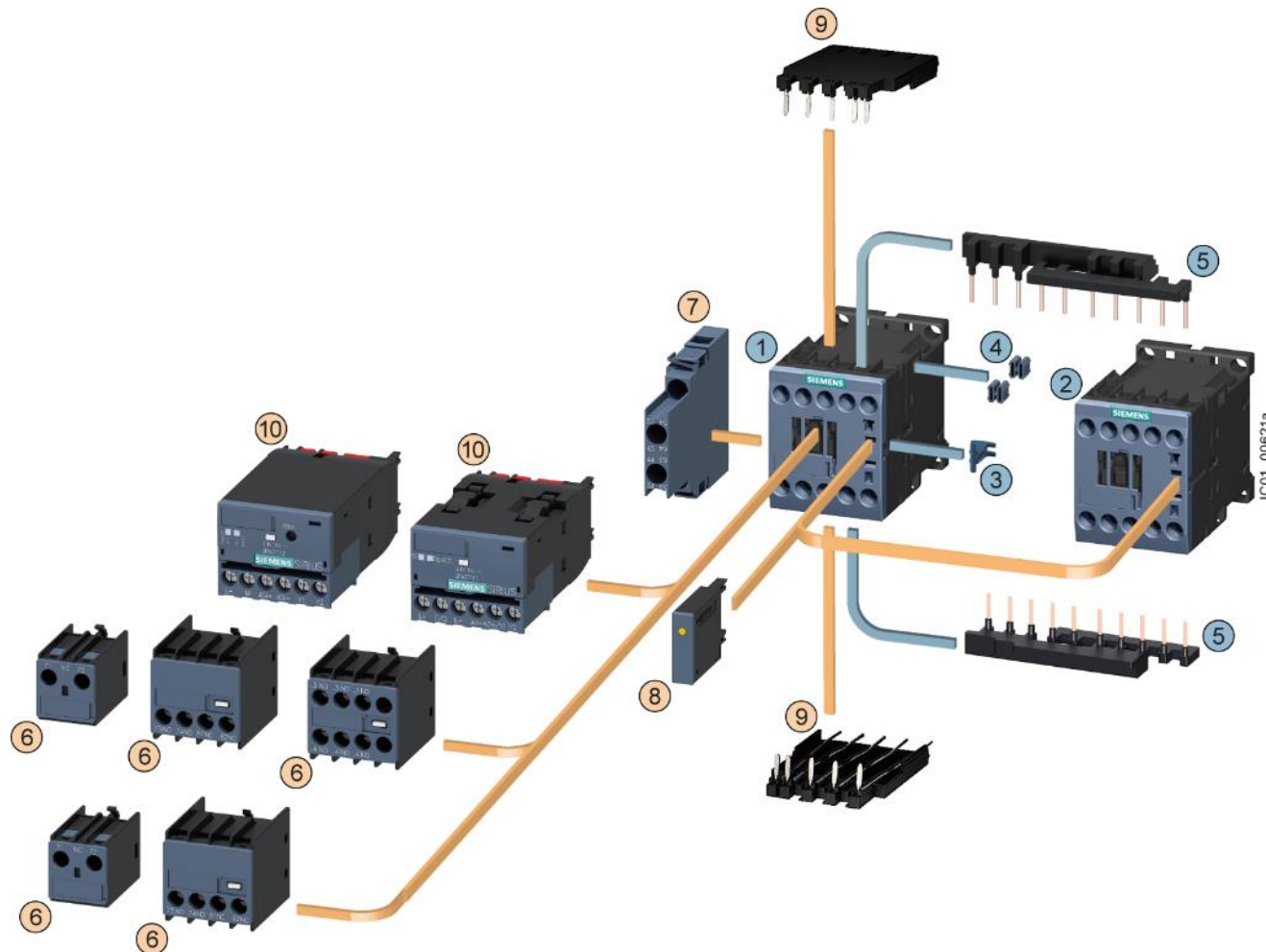
Wiring kit-YD 3RA241 – 3RA244



Link module for 2 contactors in series 3RT2.1 – 3RT203



# Accessories – Reversing contactor assembly 3RT201



## Complete Reversing combination

1.-2. Contactors 3RT201, (3kW-7.5kW)

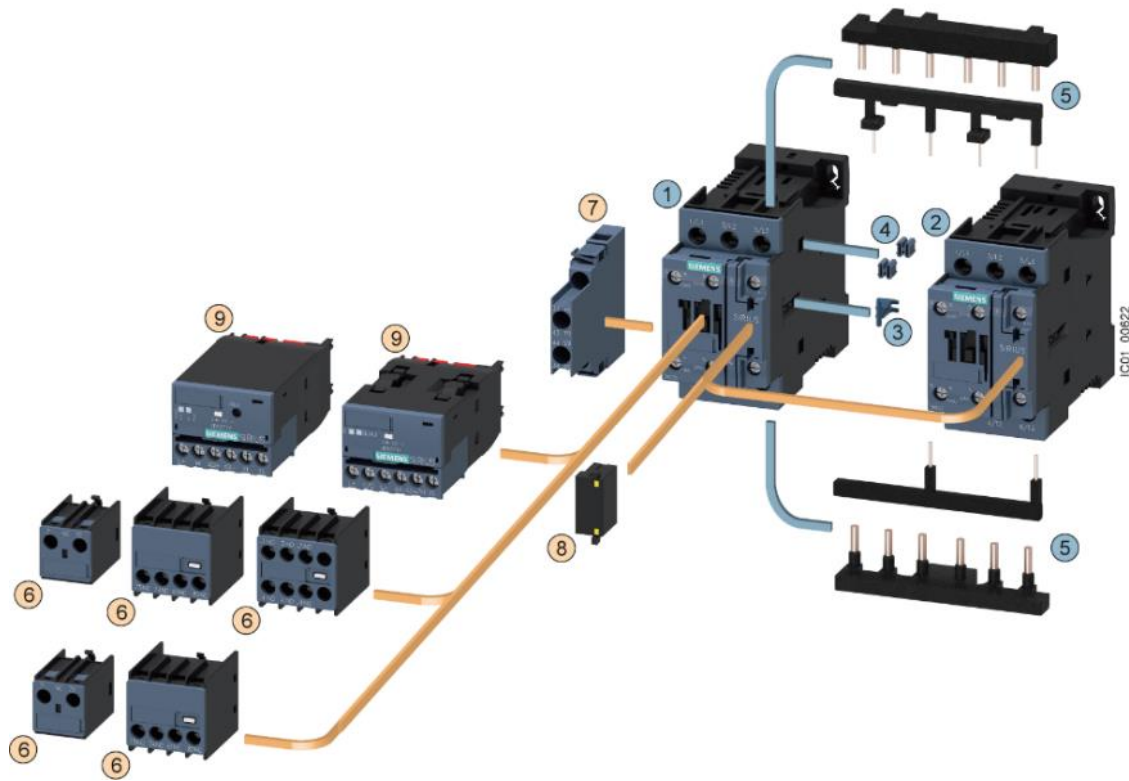
Kit 3RA2913-2AA1:

- 3. Mechanical locking
- 4. Two connection clips for Two contactors
- 5. wiring module top and bottom for connecting the main circuits with electrical interlock, breakable

## Attachable accessories

- 6. auxiliary switch block, on the front 3RH2911
- 7. auxiliary switch block, lateral 3RH2921
- 8. surge suppressor 3RH2916
- 9. solder pin adapter 3RT1916-4KA1
- 10. Function module for connection to the controller 3RT271.-1BA00

# Accessories – Reversing contactor assembly 3RT202



## Complete reversing contactor assembly

1.-2. Contactors 3RT202, (5.5kW-18.5kW)

Assembly kit comprising: 3RA2923-2AA1

3. Mechanical interlock

4. Two connecting clips for two contactors

5. Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock)

## Mountable accessories (optional)

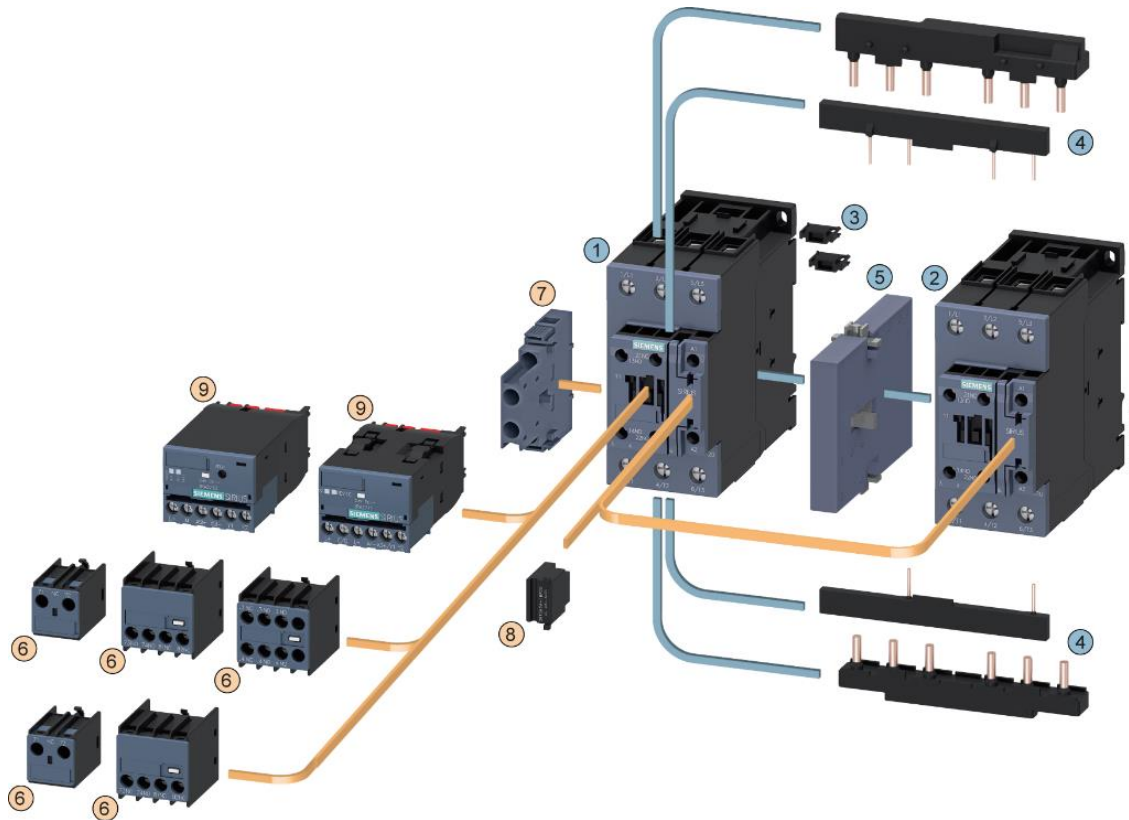
6. Auxiliary switch block, front 3RH2911

7. Auxiliary switch block, lateral 3RH2921

8. Surge suppressors 3RT2926

9. Function module for connection to the control system 3RT271.-1BA00

# Accessories – Reversing contactor assembly 3RT203



## Complete reversing contactor assembly

1.-2. Contactors 3RT203, (18.5kW-37kW)

Assembly kit comprising: 3RA2933-2AA1

3. Two connectors for two contactors

4. Wiring modules on the top and bottom for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock)

5. Mechanical interlock (must be ordered separately)

## Mountable accessories (optional)

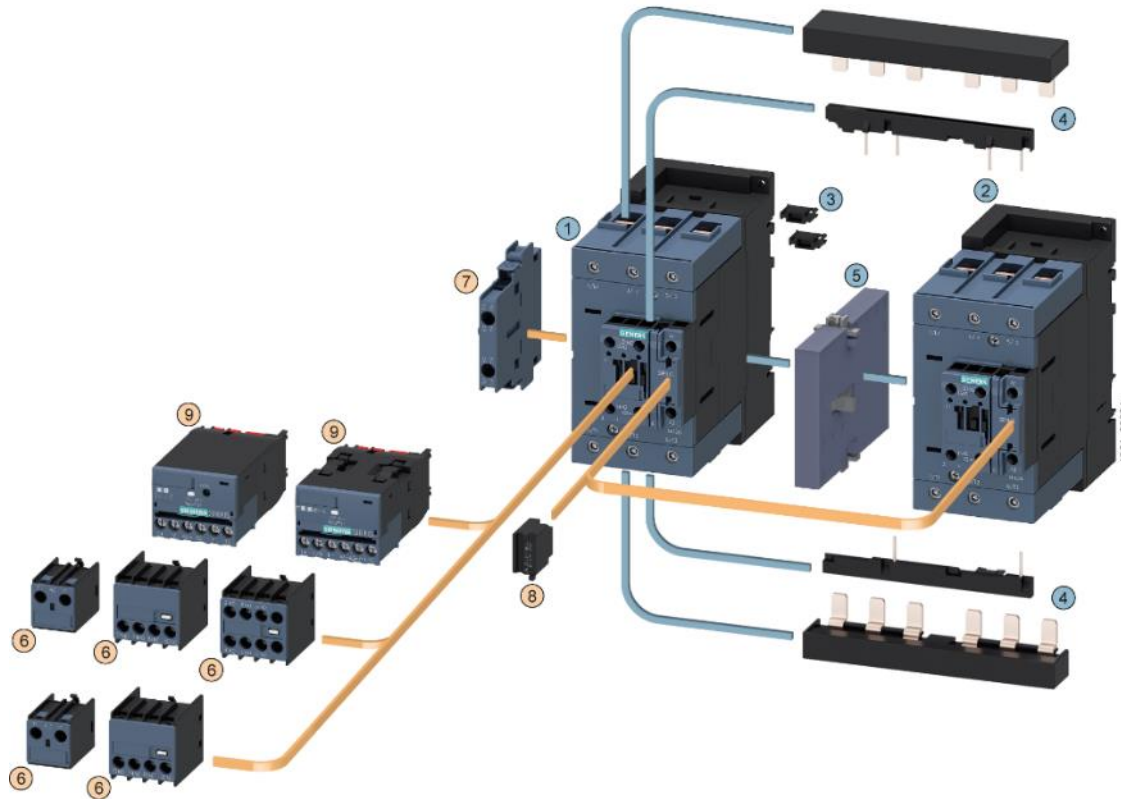
6. Auxiliary switch block, front 3RH2911

7. Auxiliary switch block, lateral 3RH2921

8. Surge suppressors 3RT2936, 3RT2946

9. Function module for connection to the control system 3RT271.-1BA00

# Accessories – Reversing contactor assembly 3RT204



## Complete reversing contactor assembly

1.-2. Contactors 3RT204, (37kW-55kW)

Assembly kit comprising 3RA2943-2AA1:

3. Two connectors for two contactors

4. Wiring modules on the top and bottom for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock)

5. Mechanical interlock (must be ordered separately) 3RA2934-2B

## Mountable accessories (optional)

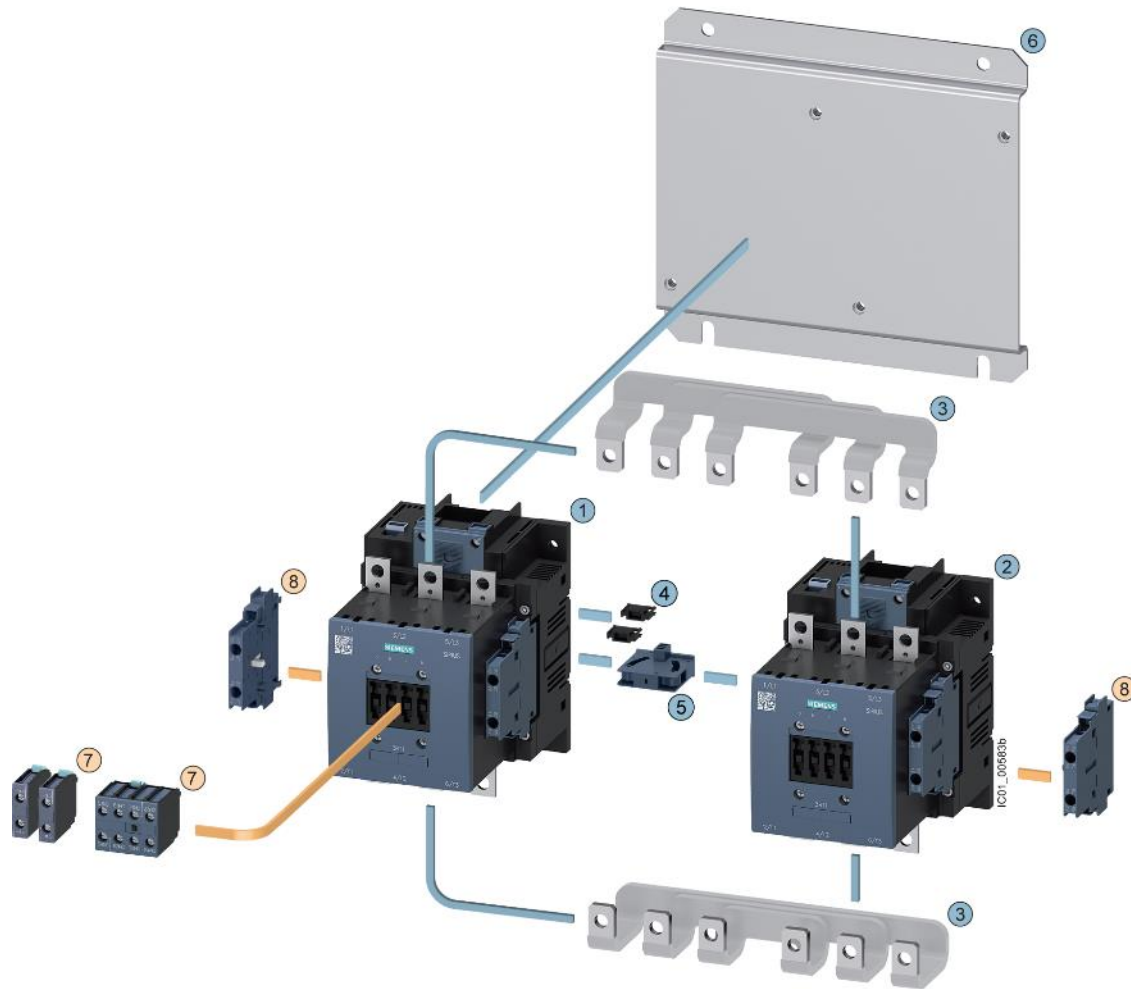
6. Auxiliary switch block, front 3RH2911

7. Auxiliary switch block, lateral 3RH2921

8. Surge suppressors 3RT2936, 3RT2946

9. Function module for connection to the control system (the associated module connectors 3RA2711-0EE17 must be ordered separately) 3RT271.-1BA00

# Accessories – Reversing contactor assembly 3RT1.5



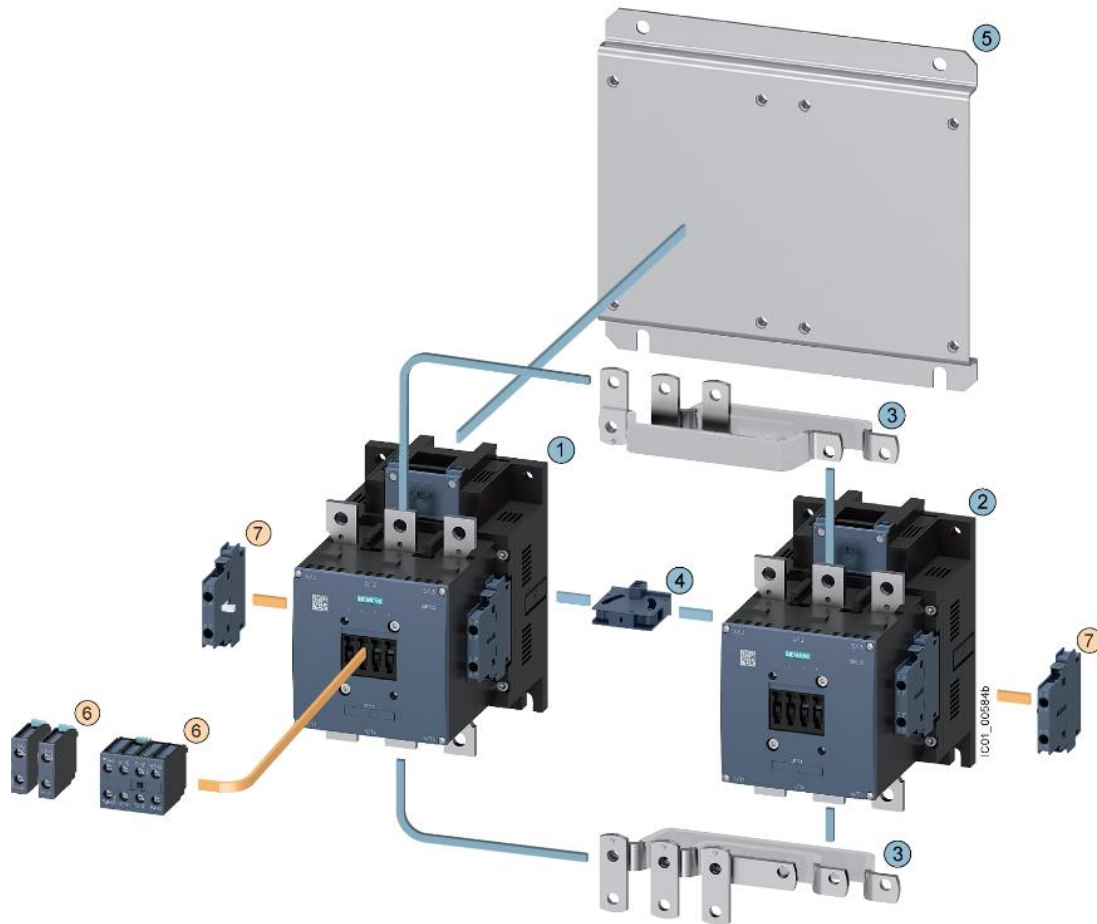
## Reversing contactor assembly for customer assembly:

- 1.-2. Contactors 3RT1.5 (55-90kW)
3. Assembly kit: 3RA1953-2A  
Wiring modules on the top and bottom for contactors without box terminals for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock)
4. Two connectors for two contactors - 3RA1932-2D
5. Mechanical interlock (must be ordered separately) - 3RA1954-2A
6. Base plate for reversing contactor assemblies - 3RA1952-2A

## Mountable accessories (optional)

7. Auxiliary switch block, front - 3RH1921
8. Auxiliary switch block, lateral - 3RH1921

## Accessories – Reversing contactor assembly 3RT1.6



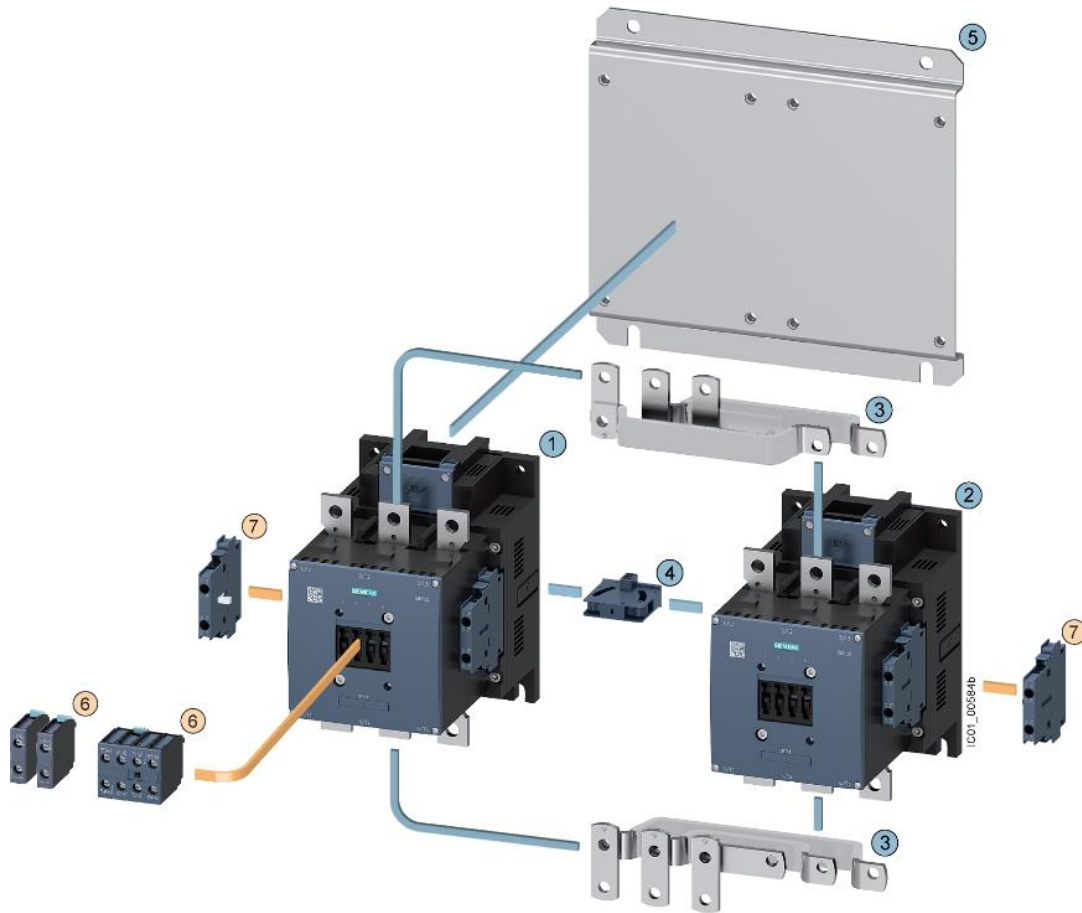
### Reversing contactor assembly for customer assembly:

- 1.-2. Contactors 3RT1.6 (110-160kW)
3. Assembly kit 3RA1963-2A  
Wiring modules on the top and bottom for contactors without box terminals for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock)
4. Mechanical interlock 3RA1954-2A
5. Base plate for reversing contactor assemblies - 3RA1962-2A

### Mountable accessories (optional)

6. Auxiliary switch block, front - 3RH1921
7. Auxiliary switch block, lateral - 3RH1921

# Accessories – Reversing contactor assembly 3RT1.7



## Reversing contactor assembly for customer assembly:

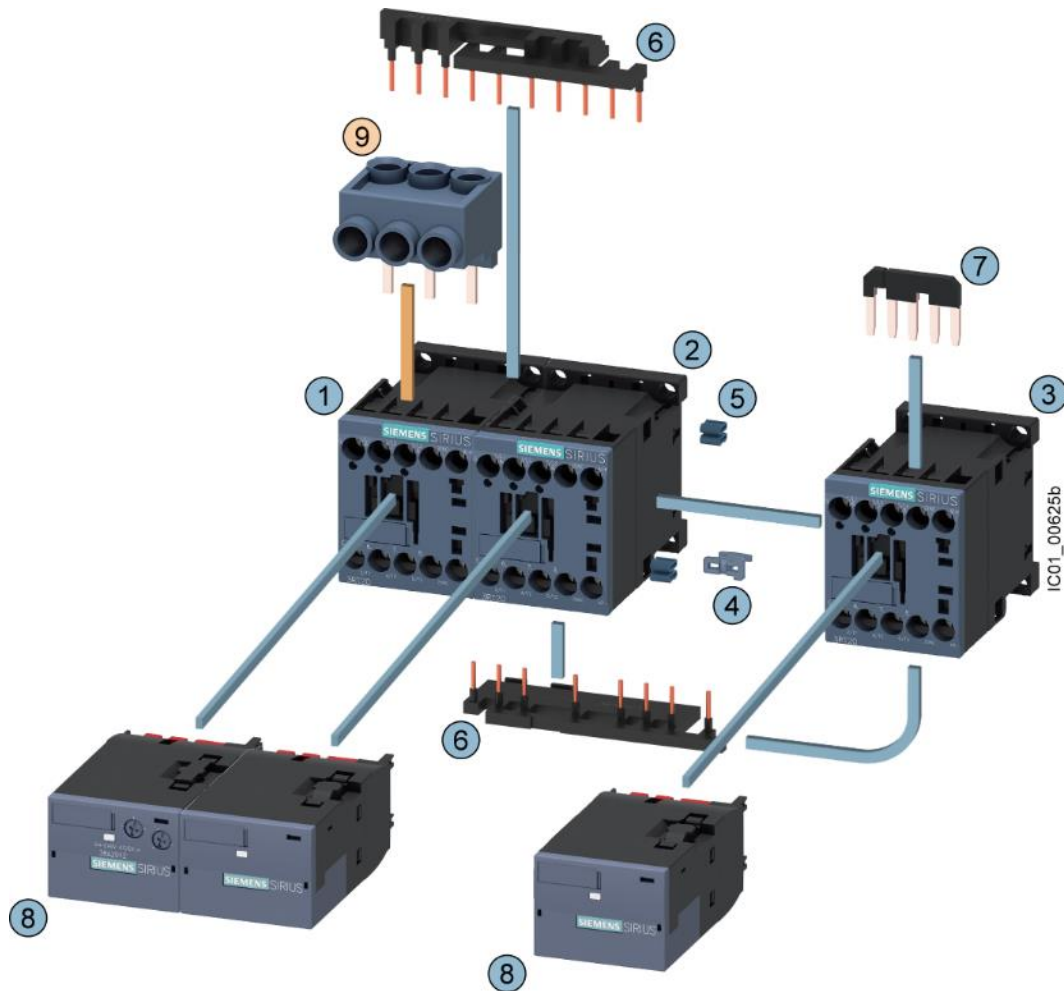
- 1.-2. Contactors 3RT1.7 (200-250kW)
3. Assembly kit 3RA1973-2A  
Wiring modules on the top and bottom for contactors without box terminals for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock)
4. Mechanical interlock 3RA1954-2A
5. Base plate for reversing contactor assemblies - 3RA1972-2A

## Mountable accessories (optional)

6. Auxiliary switch block, front - 3RH1921
7. Auxiliary switch block, lateral - 3RH1921



# Accessories – Star-delta contactor combination 3RT201



## Complete star-delta contactor assembly

1.-3. Contactor 3RT201, (5.5kW-11kW)

Assembly kit S00 (3RA2913-2BB1):

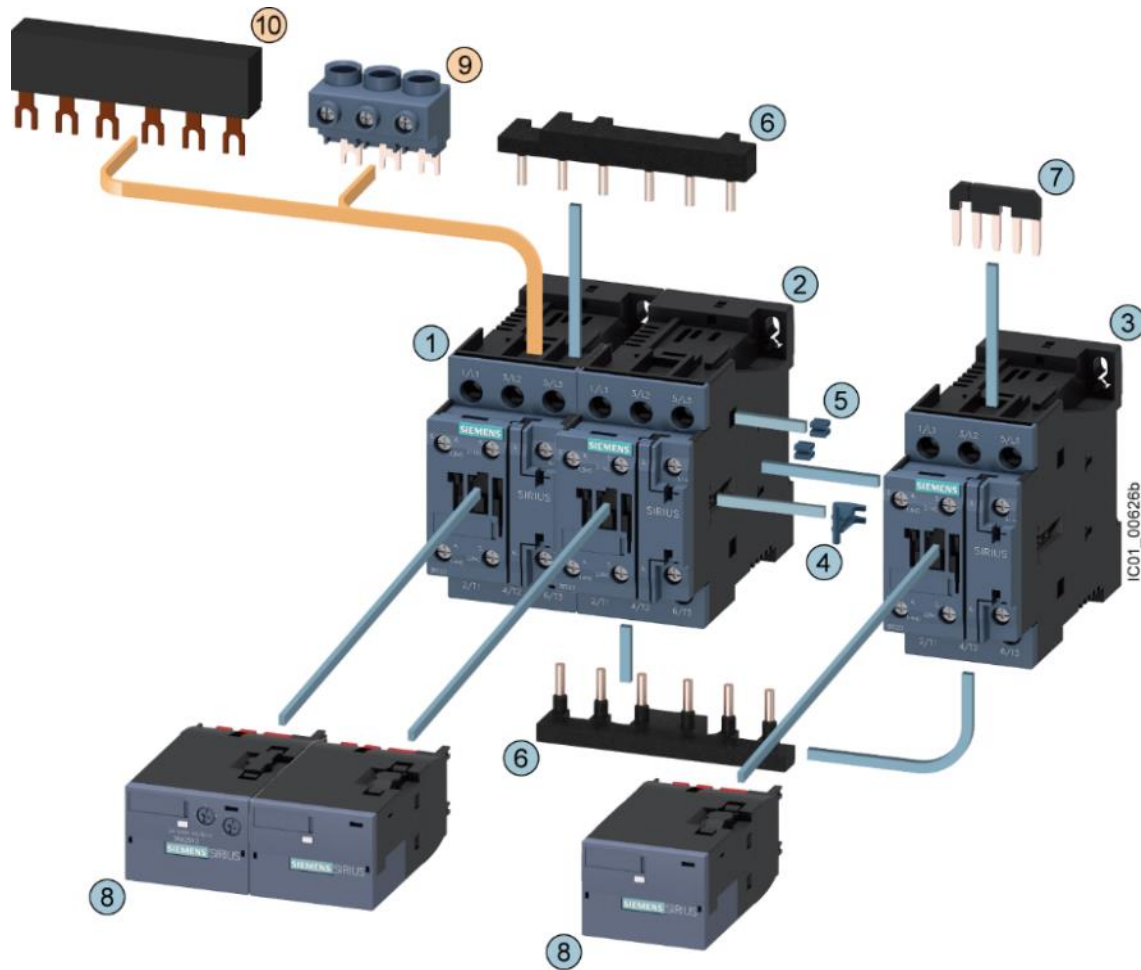
- 4. Mechanical interlock
- 5. Four connection clips for three contactors
- 6. Wiring modules
- 7. Star jumper

8. Function module star-delta 3RA2816-0EW20

## Mountable accessories

9. 3-phase feed-in terminal 3RA2913-3K

# Accessories – Star-delta contactor combination 3RT202



## Complete star-delta contactor assembly

1.-3. Contactor 3RT202, (11kW-22kW)

Assembly kit S0 (3RA2923-2BB1):

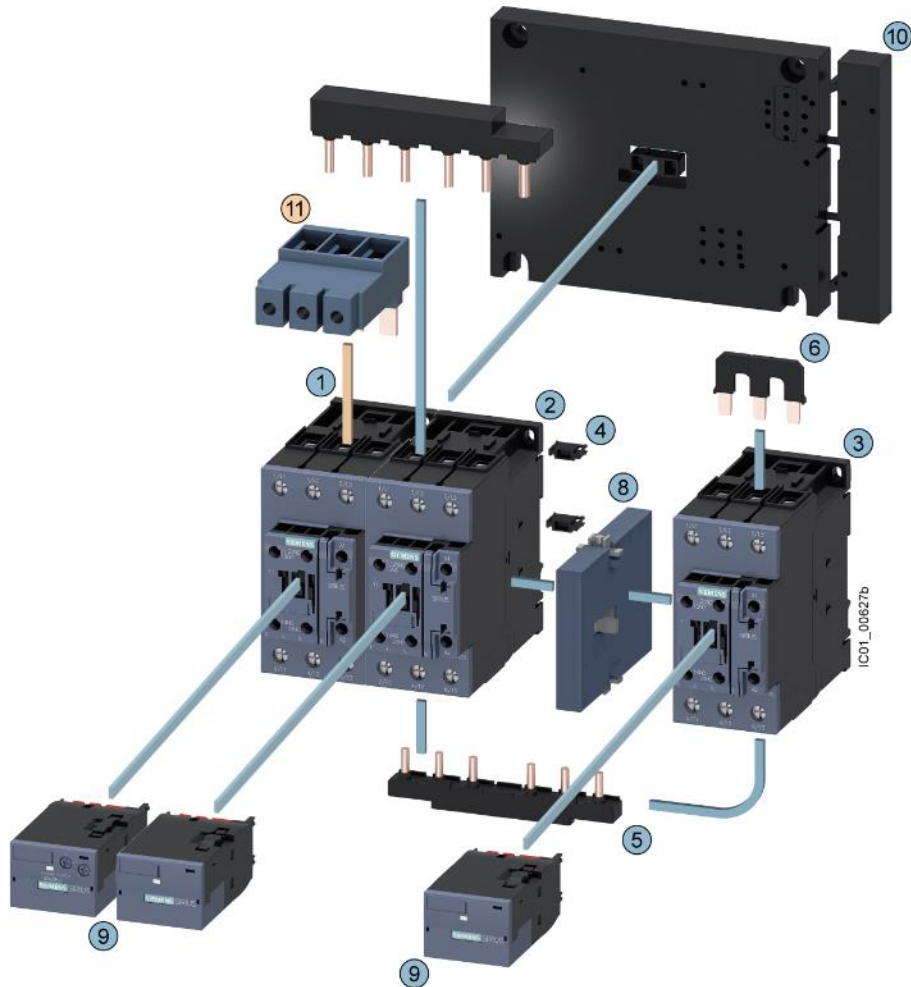
- 4. Mechanical interlock
- 5. Four connection clips for three contactors
- 6. Wiring modules at the top and bottom for connecting the main circuits
- 7. Star jumper

8. Function module star-delta 3RA2816-0EW20

## Mountable accessories

- 9. 3-phase feed-in terminal 3RV2925-5AB
- 10. 3-phase busbar 3RV1915-1AB

# Accessories – Star-delta contactor combination 3RT203



## Complete star-delta contactor assembly

1.-3. Contactor 3RT203, (22kW-55kW)

Assembly kit S2 (3RA2933-2BB1):

- 4. Four connection clips for three contactors
- 5. Top and bottom wiring modules for connecting the main and auxiliary circuits
- 6. Star jumper S2
- 7. Cable for connecting the coil contact A2 of the mains contactor with the coil contact A2 of the delta contactor

8. Mechanical interlock 3RA2934-2B

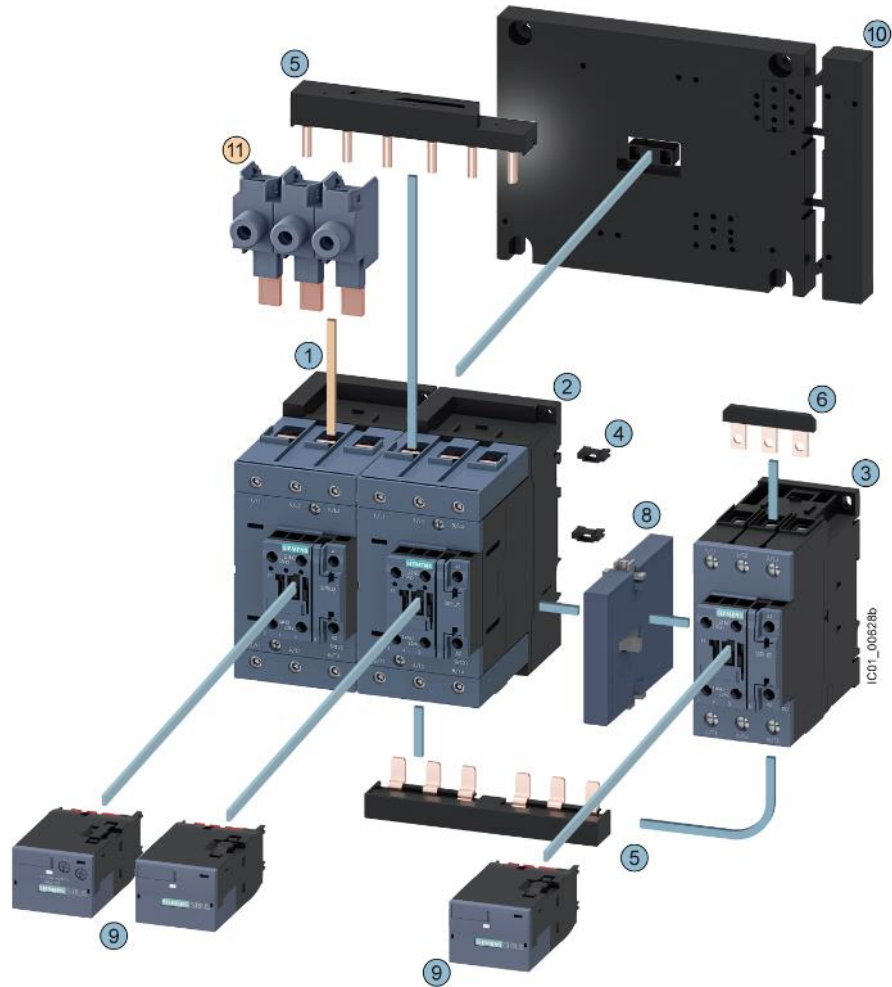
9. Function module star-delta 3RA2816-0EW20

10. Base plate for star-delta 3RA2932-2F

## Mountable accessories

11. 3-phase feed-in terminal 3RV2935-5A

# Accessories – Star-delta contactor combination 3RT204 and 3RT203



## Complete star-delta contactor assembly

1.-3. Contactor 3RT204, (55kW-90kW)

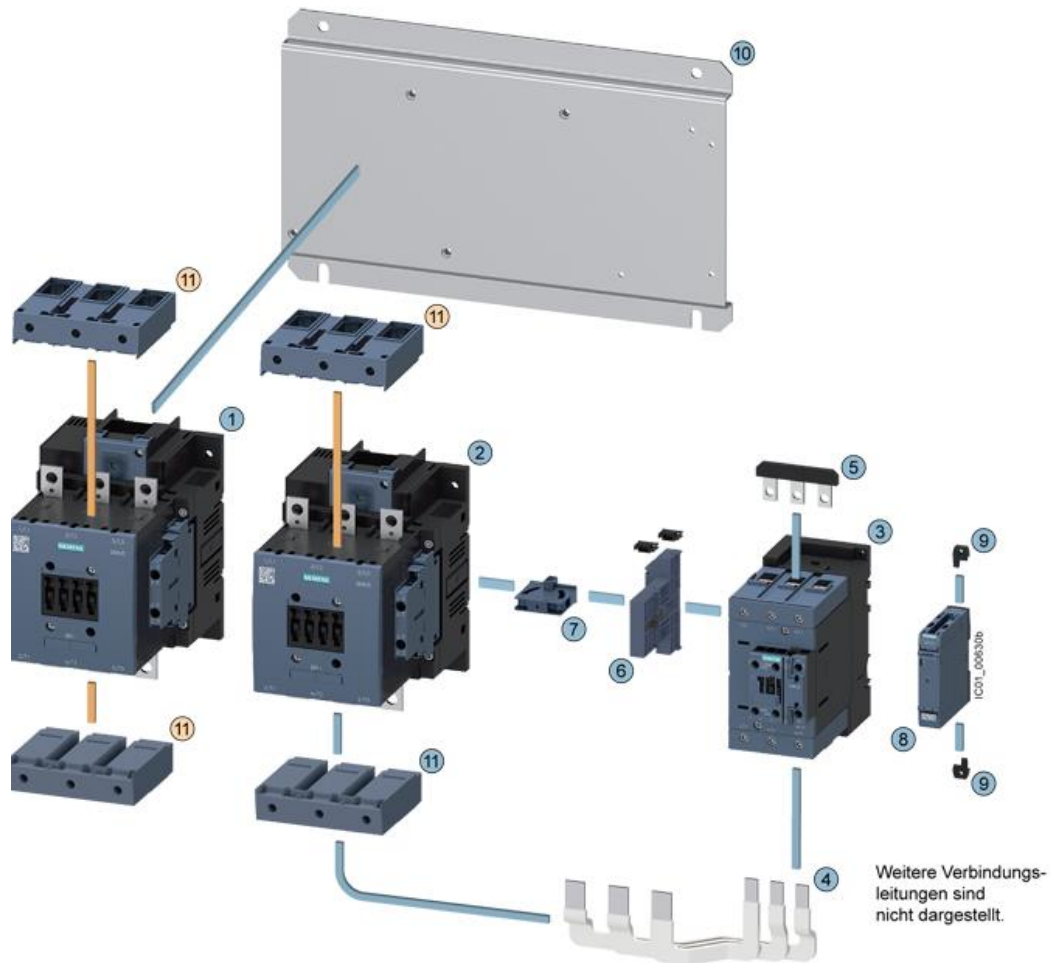
Assembly kit S3 (3RA2933-2BB1):

- 4. Two connection clips for three contactors
- 5. op and bottom wiring modules for connecting the main and auxiliary circuits and a cable set for the auxiliary circuit
- 6. Star jumper S2
- 7. Cable for connecting the coil contact A2 of the mains contactor with the coil contact A2 of the delta contactor
- 8. Mechanical interlock 3RA2934-2B
- 9. Function module star-delta 3RA2816-0EW20
- 10. Base plate for star-delta 3RA2942-2F

## Mountable accessories

- 11. 1-phase feed-in terminal 3RV2943-3L (three are needed)

# Accessories – Star-delta contactor combination 3RT1.5 and 3RT20



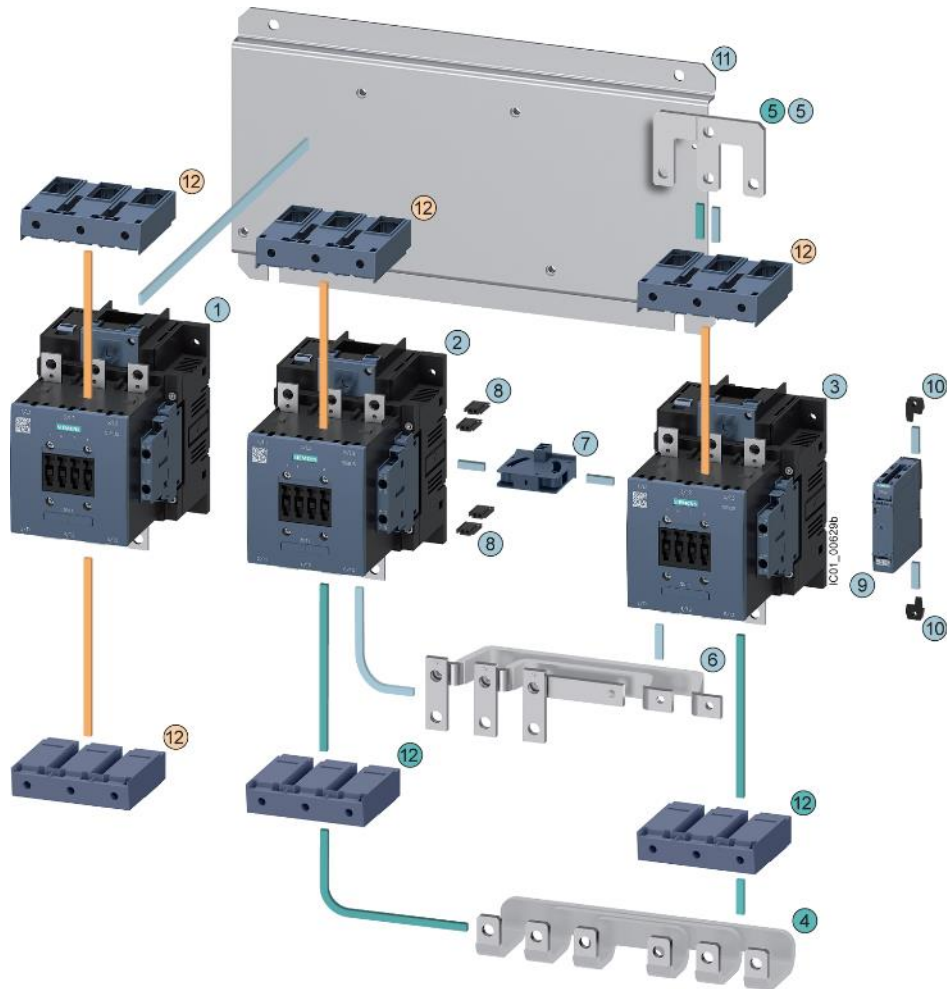
## Complete star-delta contactor assembly

- 1.-3. Contactor 3RT1.5 und 3RT20 (110kW-160kW)
4. Assembly kit 3RA1953-3G:  
wiring module, bottom
5. Star jumper S3 - 3RT1946-4BA31
6. Adapter for mechanical interlock between S6 and S3 – 3RA1954-2G
7. Mechanical interlock between S6 and S3 – 3RA1954-2G
8. Time relay with star-delta-function – 3RP257
9. Push-in lug for star-delta time relays – 3ZY1311-0AA00
10. Base plate star-delta – 3RA1952-2E
11. box terminal block – 3RT1955-4G

## Mountable accessories

11. box terminal block – 3RT1955-4G

## Accessories – Star-delta contactor combination 3RT1.5



### Complete star-delta contactor assembly

1.-3. Contactor 3RT1.5, (110kW-160kW)

Assembly kit S6 3RA1953-2B:

- 4. Link rail, bottom
- 5. Star jumper S6

Assembly kit S6 3RA1953-2N:

- 5. Star jumper S6
- 6. Connecting rails, bottom
- 7. Mechanical interlock 3RA1954-2A
- 8. Four connectors 3RA1932-2D
- 9. Time relays with star-delta-function 3RP257
- 10. Push-in lug for star-delta time relays 3ZY1311-0AA00
- 11. Base plate star-delta 3RA1952-2F
- 12. box terminal block 3RT1955-4G

## Accessories – Star-delta combination 3RT1.5 and 3RT1.6

### Star-delta combination for assembly

1.-3. Contactor 3RT1.5 and 3RT1.6 (200-250kW)

4. Assembly kit 3RA1963-2E

5. Star jumper S6 3RT1956-4BA31

6. Mechanical interlock 3RA1954-2A

7. Time relays with star-delta-function 3RP257

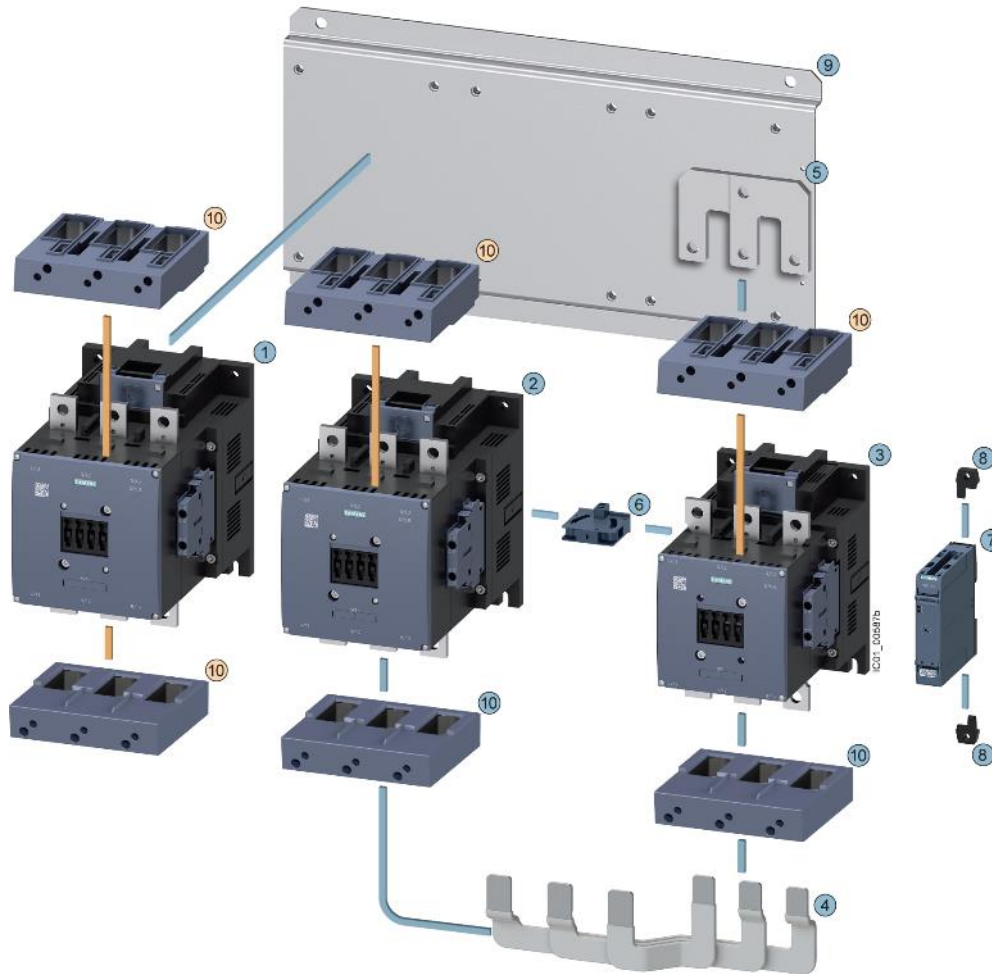
8. Push-in lug for star-delta time relays 3ZY1311-0AA00

9. Base plate star-delta 3RA1962-2E

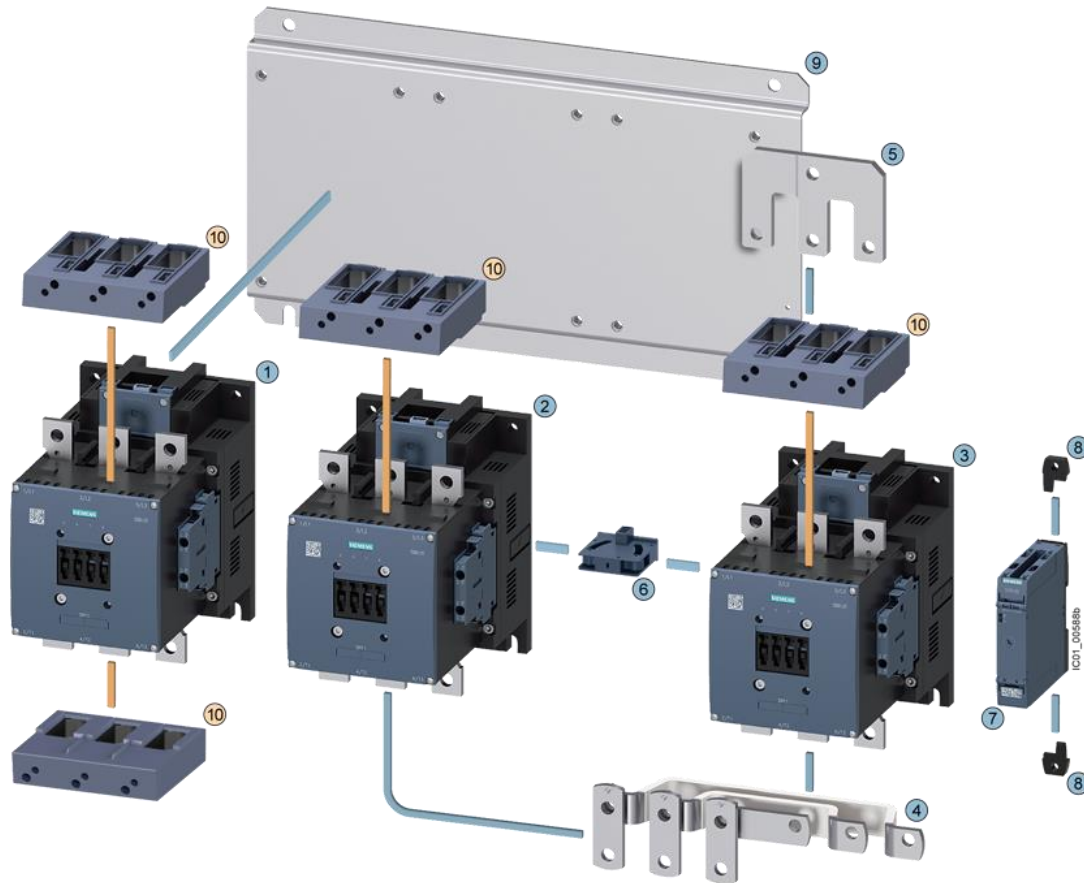
10. box terminal block 3RT1966-4G

### Mountable accessories

10. box terminal block 3RT1966-4G



# Accessories – Star-delta combination 3RT1.6



## Star-delta combination for assembly

1.-3. Contactor 3RT1.6 (200-250kW)

Assembly kit S10 3RA1963-2B

4. Link rail, bottom

5. Star jumper S10

6. Mechanical interlock 3RA1954-2A

7. Time relays with star-delta-function 3RP257

8. Push-in lug for star-delta time relays 3ZY1311-0AA00

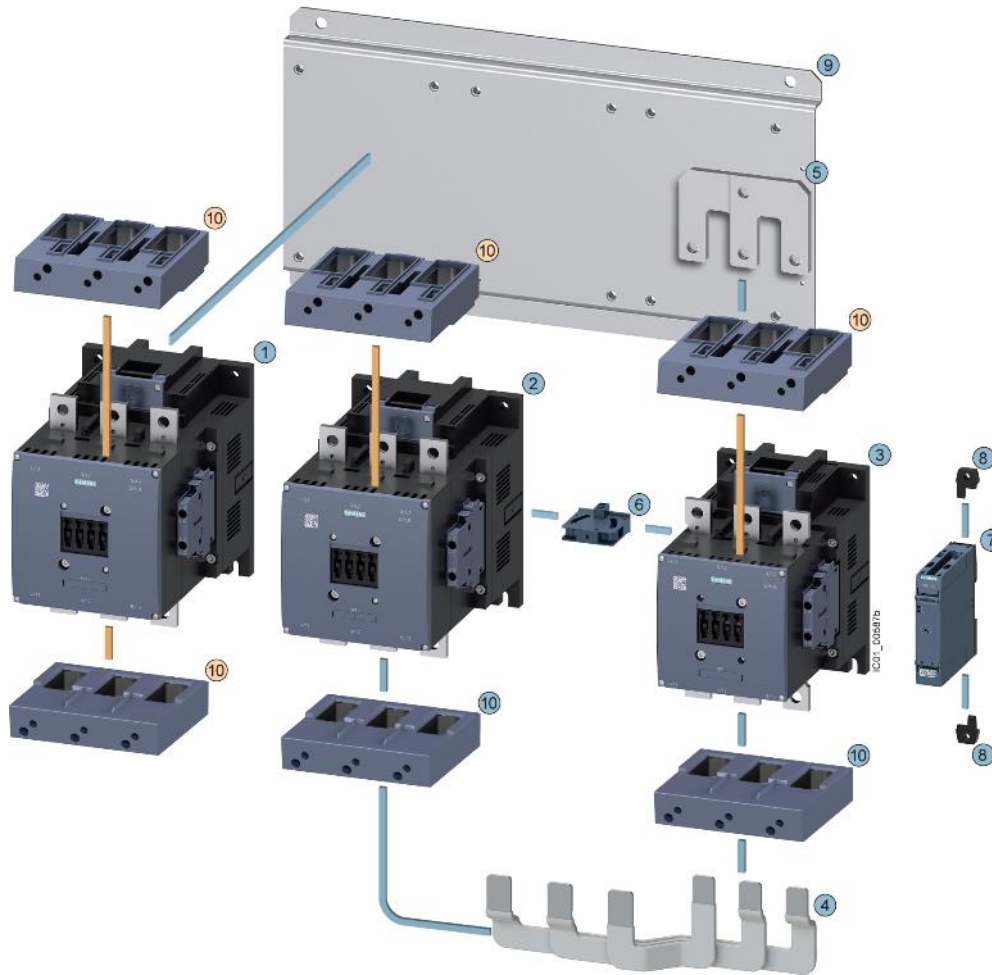
9. Base plate star-delta 3RA1962-2F

## Mountable accessories

10. box terminal block 3RT1966-4G



## Accessories – Star-delta combination 3RT1.6 and 3RT1.7



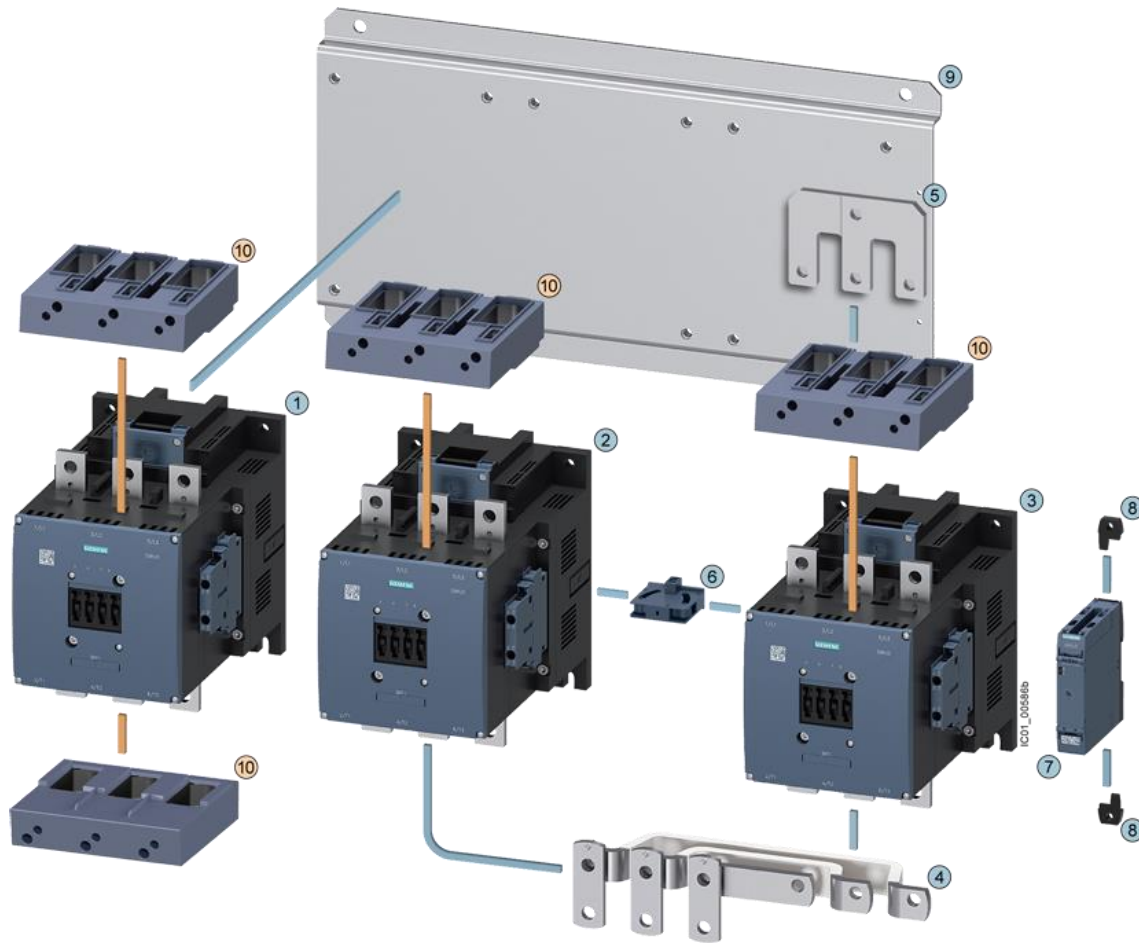
### Star-delta combination for assembly

- 1.-3. Contactor 3RT1.6 und 3RT1.7 (355-500kW)
4. Assembly kit 3RA1963-2E
5. Star jumper S10 3RT1966-4BA31
6. Mechanical interlock 3RA1954-2A
7. Time relays with star-delta-function 3RP257
8. Push-in lug for star-delta time relays 3ZY1311-0AA00
9. Base plate star-delta 3RA1972-2E
10. box terminal block 3RT1966-4G

### Mountable accessories

10. box terminal block 3RT1966-4G

## Accessories – Star-delta combination 3RT1.7



### Star-delta combination for assembly

1.-3. Contactor 3RT1.7 (400-500kW)

Assembly kit S12 3RA1973-2B

4. Link rail, bottom

5. Star jumper S12

6. Mechanical interlock 3RA1954-2A

7. Time relays with star-delta-function 3RP257

8. Push-in lug for star-delta time relays 3ZY1311-0AA00

9. Base plate star-delta 3RA1972-2E

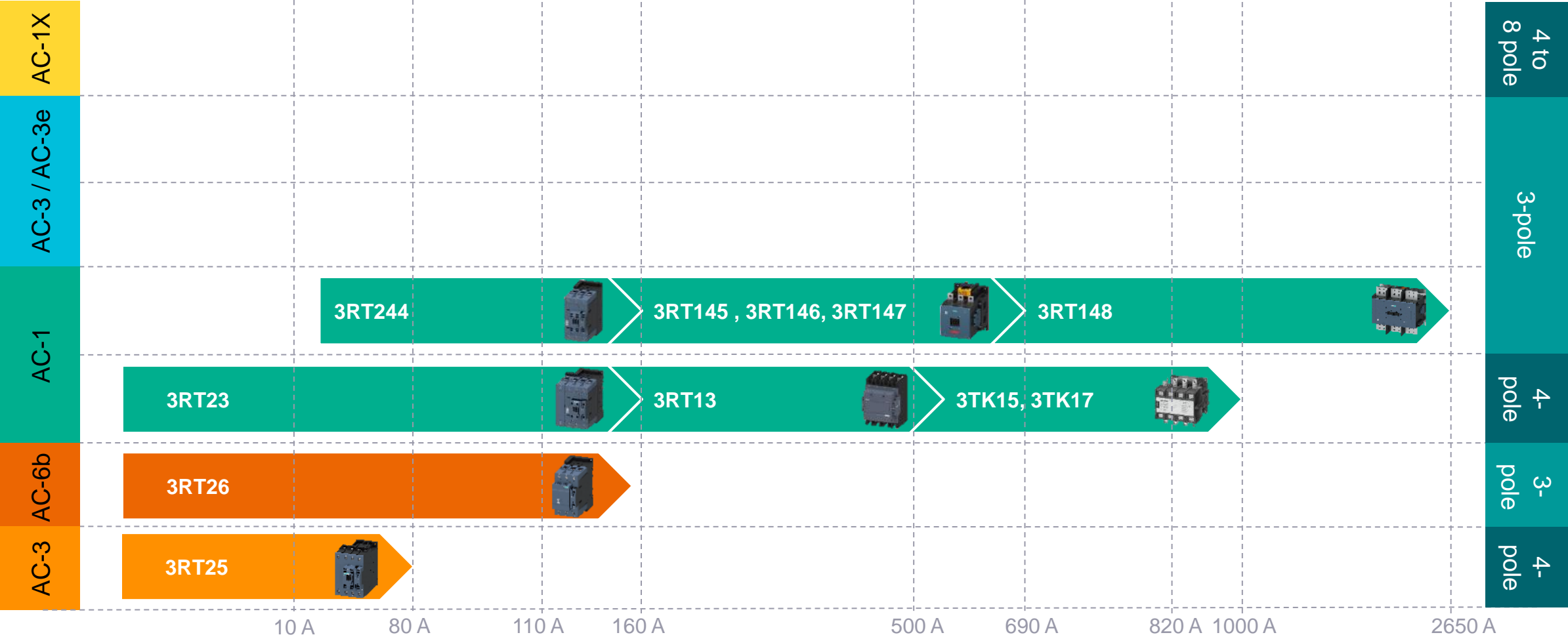
### Mountable accessories

10. box terminal block 3RT1966-4G

# SIRIUS contactors and contactor combinations

- 1 Overview
- 2 Power contactor for switching motors
- 3 Reversing- and star-delta combinations for switching motors
- 4 **Contactors for other applications**
  - 4.1 **3RT.3: 4-pole contactors for non- or low inductive loads (AC-1)**
  - 4.2 **3RT.4: 3-pole contactors for non- or low inductive loads (AC-1)**
  - 4.3 **3RT25: 4-pole contactors for switching motors (AC-3)**
  - 4.4 **3RT26: Contactors for capacitive loads**
- 5 Contactor relays
- 6 Contactors for extended operation range and railway certifications
- 7 Contactors and safety
- 8 Accessories

# Contactors types, current range



# SIRIUS contactors and contactor combinations

1 Overview

2 Power contactor for switching motors

3 Reversing- and star-delta combinations for switching motors

4 **Contactors for other applications**

4.1 **3RT.3: 4-pole contactors for non- or low inductive loads (AC-1)**

4.2 3RT.4: 3-pole contactors for non- or low inductive loads (AC-1)

4.3 3RT25: 4-pole contactors for switching motors (AC-3)

4.4 3RT26: Contactors for capacitive loads

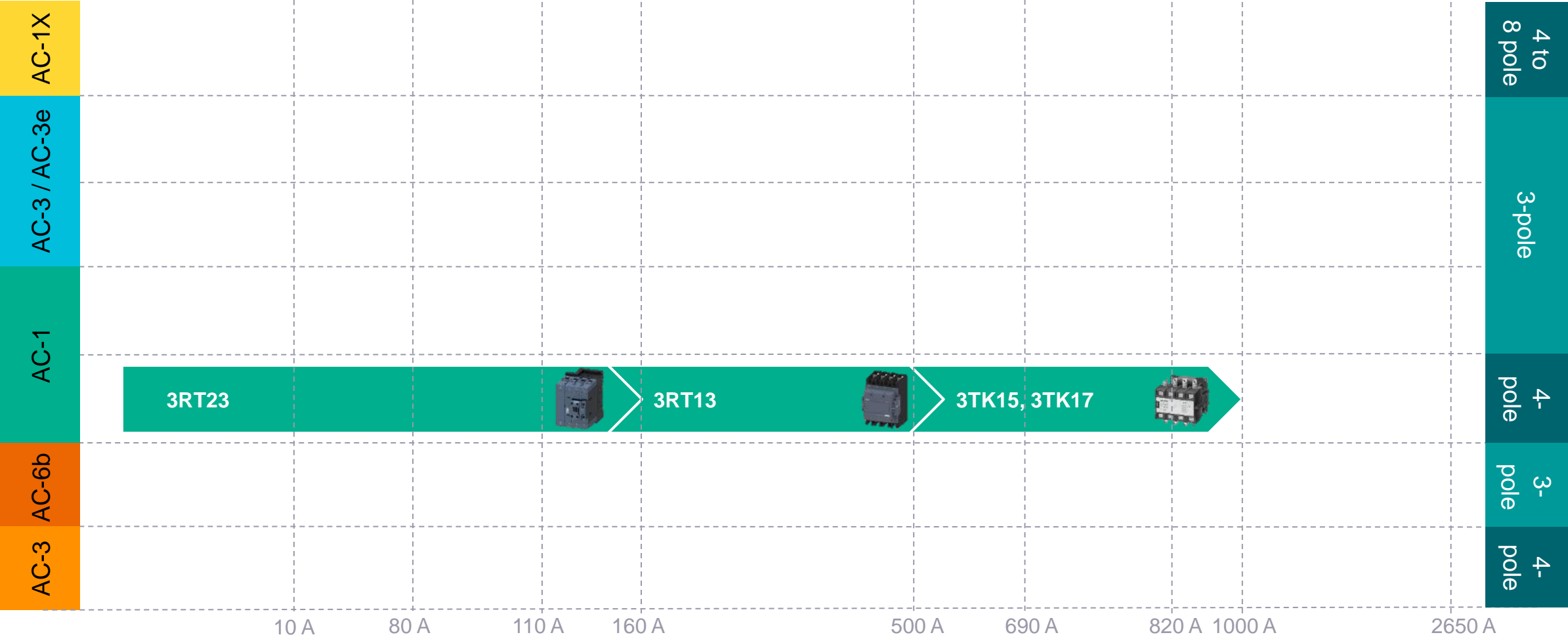
5 Contactor relays

6 Contactors for extended operation range and railway certifications

7 Contactors and safety

8 Accessories

# Contactors types, current range



# 4-pole contactors

## contactors for non- or low inductive loads [AC-1]

### 3RT23 and 3RT13 with 4 NO contacts






3RT231	16A	45mm	AC-1 up to 690V, 40°C
3RT232	25A	60mm	AC-1 up to 690V, 40°C
3RT233	41A	75mm	AC-1 up to 690V, 40°C
3RT234	80A	96 mm	AC-1 up to 690V, 40°C
3RT135	200A	120mm	AC-1 up to 690V, 40°C
3RT136	275, 350A	140mm	AC-1 up to 1000V, 40°C
3RT137	400, 500, 525A	184mm	AC-1 up to 1000V, 40°C

### Features

	3RT23	3RT13
Auxiliary contacts	1NO 1NC	2NO 2NC
Main connections	Screw, spring-loaded	Busbar terminals
Auxiliary connections	Screw, spring-loaded	Screw
Accessories	Same as 3pole 3RT20	



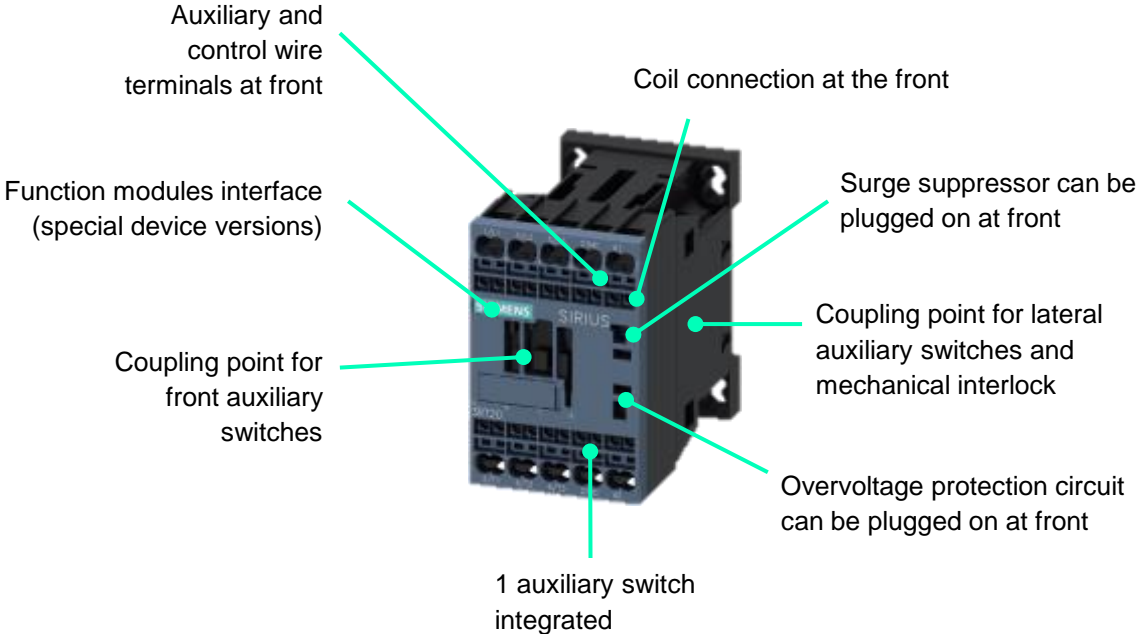
# Coil options - 3RT23 and 3RT13

<b>Standard coil</b> 3RT231 – 3RT234	<b>Standard coil</b> 3RT231, 3RT232	<b>Electronic coil</b> 3RT231 – 3RT234	<b>Electronic coil</b> 3RT232 – 3RT234	<b>Electronic coil</b> 3RT135 – 3RT137
AC control	DC control	DC control reduced power consumption	AC or DC control	AC or DC control
				
Contactor relays and Contactors with AC coil	Contactor relays and Contactors with DC coil	3RT2...-KB4 Contactors with DC coil, optimized for direct control via PLC (coupling relays, auxiliary contactor relays)	Contactors with solid-state AC/DC operating mechanism	Contactors with solid-state AC/DC operating mechanism Wide range



# Overview 3RT231

Current up to 22A AC-1 40° C



Other variants (selection):



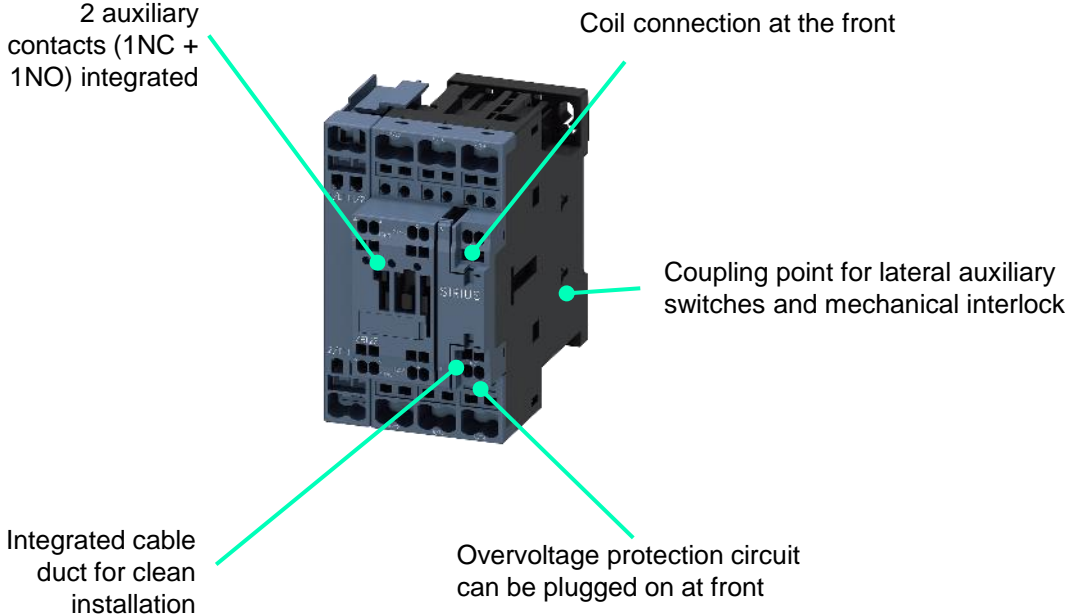
Screw terminal



With plugged coil damping

# Overview 3RT232, 3RT233, 3RT234

Current up to 50A AC-1  
40° C



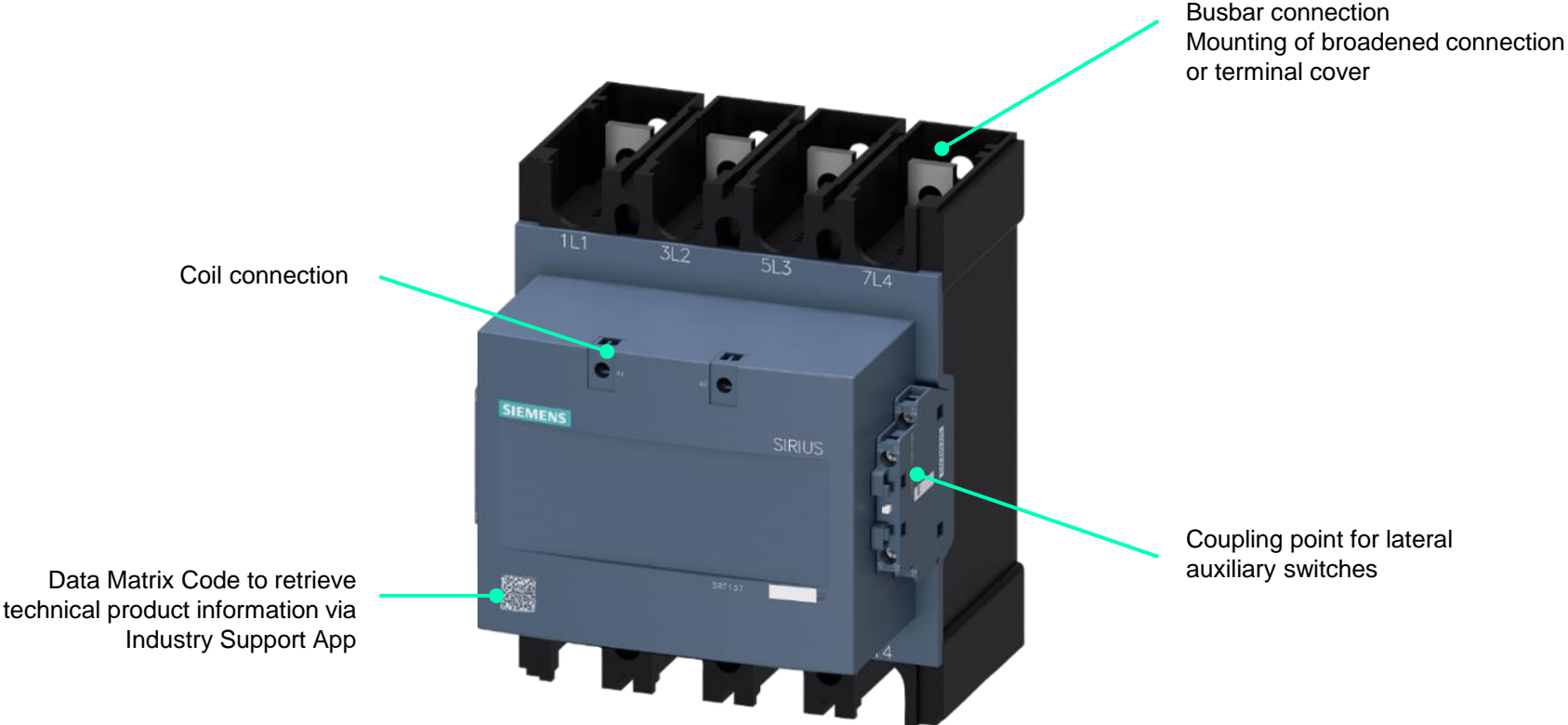
Current up to 110A AC-1  
40° C



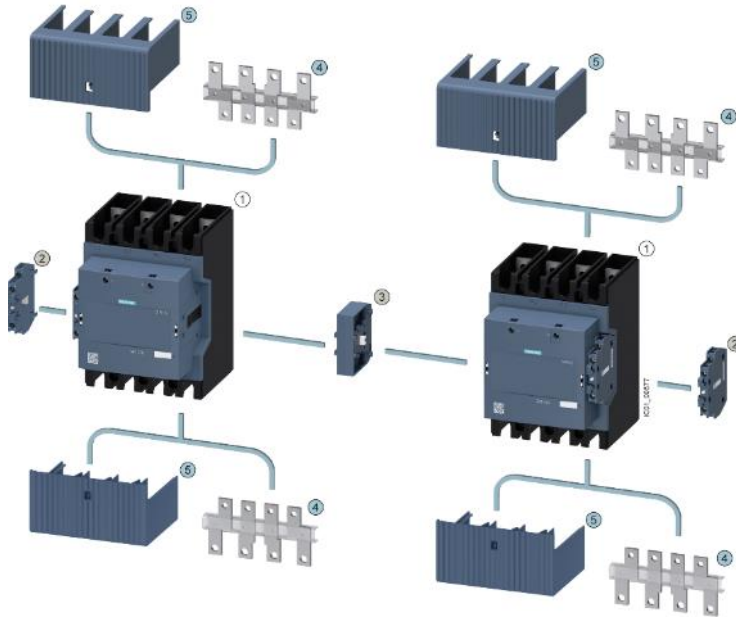
Current up to 140A AC-1  
40° C



# Overview Contactor 3RT13



## Accessories – 3RT13



1. 4-pole contactors 3RT13 (scope of delivery: The contactors are supplied with two laterally mounted auxiliary contact blocks)
2. Second auxiliary contact block 3RH1951-1SA11, laterally left and right mountable
3. Mechanical interlock 3RA1954-3A for the assembly of contactor combinations: Two contactors of the same size can be interlocked with each other; the auxiliary switch blocks on the side of the contactors must first be removed.
4. Bus connectors offset 3RT19.6-4D, top and bottom mountable (if no connection cover (5.) is mounted)
5. Connection cover 3RT19.6-4EB10, top and bottom mountable (if no Bus connectors offset (4.) is mounted)

	Frame size	3RT135	3RT136		3RT137		
1	Contactor	3RT1355	3RT1363	3RT1364	3RT1373	3RT1374	3RT1375
2	Second auxiliary contact block	3RH1951-1SA11					
3	Mechanical interlock	3RA1954-3A					
4	Bus connectors offset	-	3RT1966-4D		3RT1976-4D		
5	Connection cover	3RT1956-4EB10	3RT1966-4EB10		3RT1976-4EB10		

# SIRIUS contactors and contactor combinations

1 Overview

2 Power contactor for switching motors

3 Reversing- and star-delta combinations for switching motors

4 **Contactors for other applications**

4.1 3RT.3: 4-pole contactors for non- or low inductive loads (AC-1)

4.2 **3RT.4: 3-pole contactors for non- or low inductive loads (AC-1)**

4.3 3RT25: 4-pole contactors for switching motors (AC-3)

4.4 3RT26: Contactors for capacitive loads

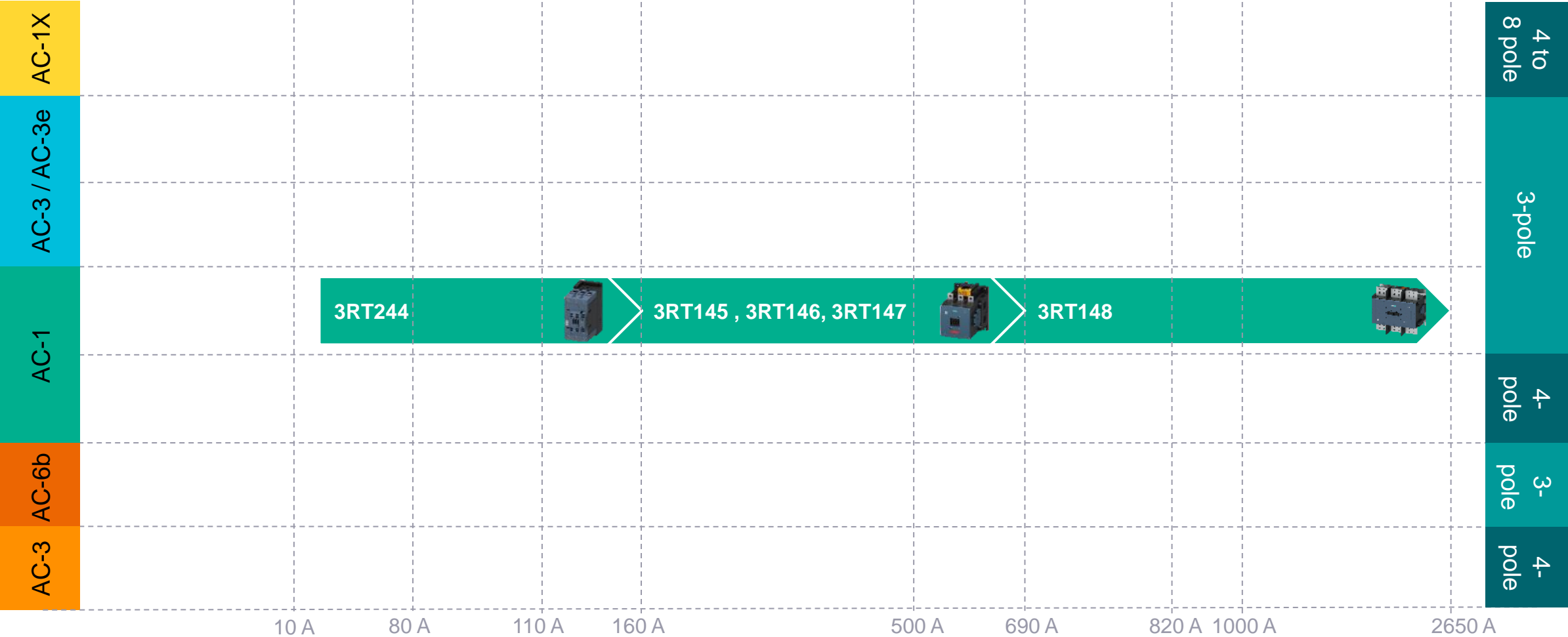
5 Contactor relays

6 Contactors for extended operation range and railway certifications

7 Contactors and safety

8 Accessories

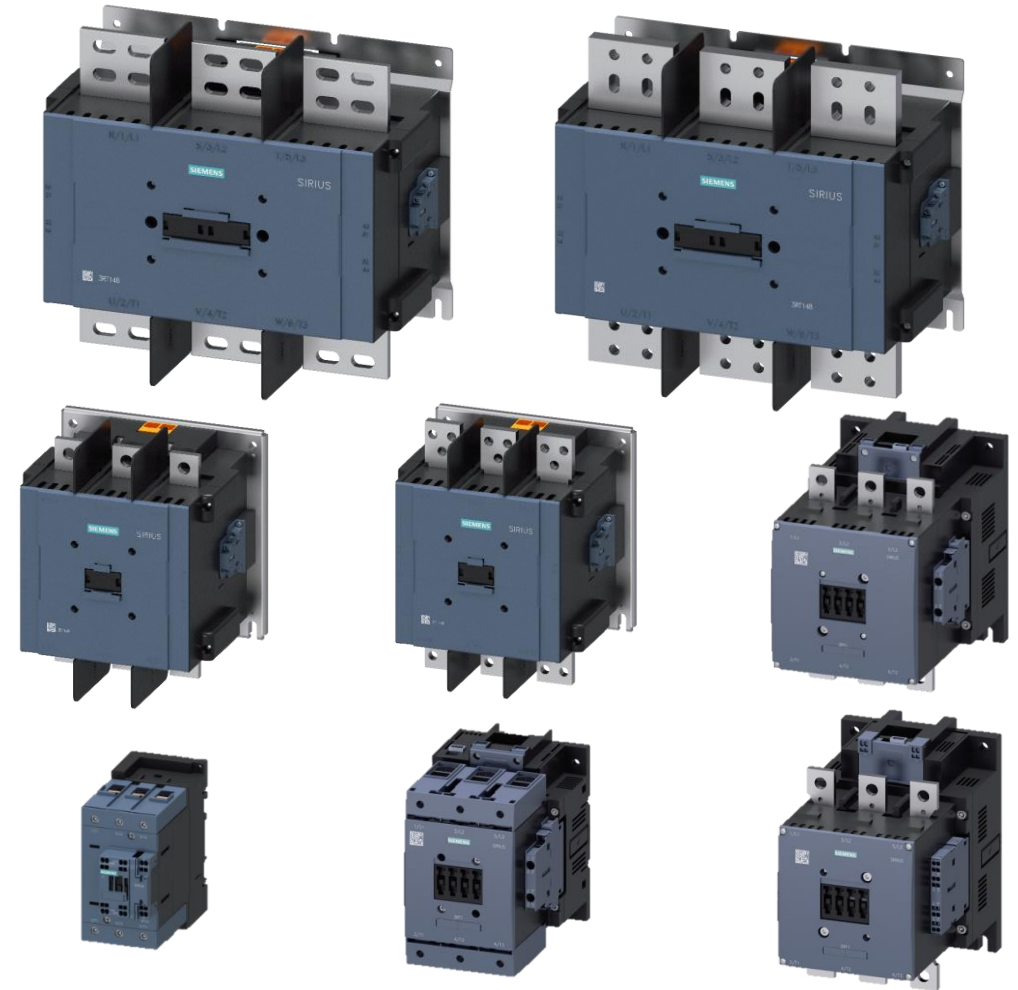
# Contactors types, current range








# Contactors 3RT24 and 3RT14 contactors for non- or low inductive loads

## Product details

3RT244	160A / 40°C
3RT145	275A / 40°C
3RT146	400 A / 40°C
3RT147	690 A / 40°C
3RT1481	900A / 55°C
3RT1482	1050A / 55°C
3RT1483	1260 A / 55°C
3RT1485	1700 A / 55°C
3RT1486	2100 A / 55°C
3RT1487	2650 A / 55°C



# Contactor coil options 3RT24 and 3RT14

<b>Electronic coil 3RT244</b>	<b>Standard coil 3RT1.5, 3RT1.6, 3RT1.7</b>	<b>Electronic coil with PLC-IN 3RT1.5, 3RT1.6, 3RT1.7</b>	<b>Electronic coil with failsafe PLC-IN 3RT1.5, 3RT1.6, 3RT1.7</b>	<b>Electronic coil 3RT148</b>
<p>AC or DC control</p>	<p>AC (50 / 60 Hz) or DC control</p>	<p>AC (50 / 60 Hz) or DC control / supply</p>	<p>AC (50 / 60 Hz) or DC control / supply</p>	<p>AC (50 / 60 Hz) or DC control</p>
				
<p>Contactors with solid-state AC/DC operating mechanism</p>	<ul style="list-style-type: none"> <li>• 3RT1...-A...</li> </ul>	<ul style="list-style-type: none"> <li>• Wide range A1 / A2</li> <li>• Control via 24V DC PLC-IN or direct control via A1/A2</li> <li>• 3RT1...-N...</li> </ul>	<ul style="list-style-type: none"> <li>• Direct failsafe control up to SIL 3 from F-control</li> <li>• Optional: solid auxiliary switches</li> <li>• 3RT10-.S...</li> </ul>	<ul style="list-style-type: none"> <li>• 3RT148.-A...</li> <li>• Wide range A1 / A2</li> </ul>



## Coils – functions – 3RT14

	Standard coil with low power switching („A-coil“)	Electronic wide range („A-coil“)	Electronic coil with separate control input for PLC („N-coil“)	Electronic coil with fail-safe control input for PLC („S-coil“)
<b>Type</b>	3RT14[5,6,7]	3RT148	3RT14[5,6,7]	3RT14[5,6,7]
<b>Integrated overvoltage protection</b>	✓	✓	✓	✓
<b>Minimum possible power loss</b>		✓	✓	✓
<b>Wide voltage range</b>		✓	✓	✓
<b>Direct control from PLC without coupling level for standard applications</b>		✓	✓	✓
<b>Direct control from F-PLC to safety application</b>				✓
<b>Achievable SIL level in safety applications</b>	2 contactors SIL 2 or SIL 3		2 contactors SIL 2 or SIL 3	1 contactor: SIL 2 2 contactors SIL 3
<b>Predictive maintenance</b>				
<b>Exchangeable converter</b>	✓		✓	

# Coils and control options 3RT14

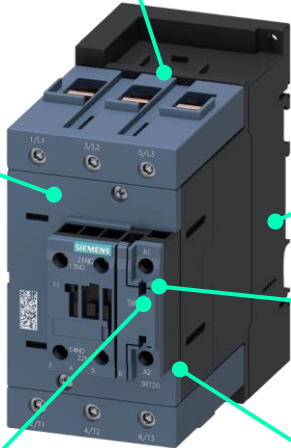
	Standard coil with low power switching („A-coil“)	Electronic wide range („A-coil“)	Electronic coil with separate control input for PLC („N-coil“)	Electronic coil with fail-safe control input for PLC („S-coil“)
<b>Type</b>	3RT14[5,6,7]	3RT148	3RT14[5,6,7]	3RT14[5,6,7]
<b>Control and power supply</b>	<ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: A1 / A2</li> </ul>	<ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: A1 / A2</li> </ul>	Mode adjustable via selector switch Mode 1: <ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: A1 / A2</li> </ul> Mode 2: <ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: PLC-IN</li> </ul>	<ul style="list-style-type: none"> <li>Power supply: A1 / A2</li> <li>Control: F-PLC-IN</li> </ul>
<b>Rated values A1 / A2</b>	AC 50 - 60 Hz / DC $0,8 \times U_{Smin} - 1,1 \times U_{Smax}$	AC 50-60Hz, $0,85 \times U_{Smin} - 1,1 \times U_{Smax}$ DC $0,8 \times U_{Smin} - 1,1 \times U_{Smax}$	AC 50 - 60 Hz / DC $0,8 \times U_{Smin} - 1,1 \times U_{Smax}$	
	100 ... 127 V 220 ... 240 V	24 ... 60 V, 48 ... 130V, 100 ... 250 V, 250 ... 500 V	96 ... 127 V 200 ... 277 V	
<b>Rated values PLC-IN</b>	-	-	24 V DC, Typ 2	24 V DC, Typ 1

# Overview 3RT244

## Current up to 690A AC-1, 40° C

Optional: 4-leg coil functionality as adapter

2 auxiliary contacts  
(1NC + 1NO)  
integrated



Coupling point for lateral  
auxiliary switches and  
mechanical interlock

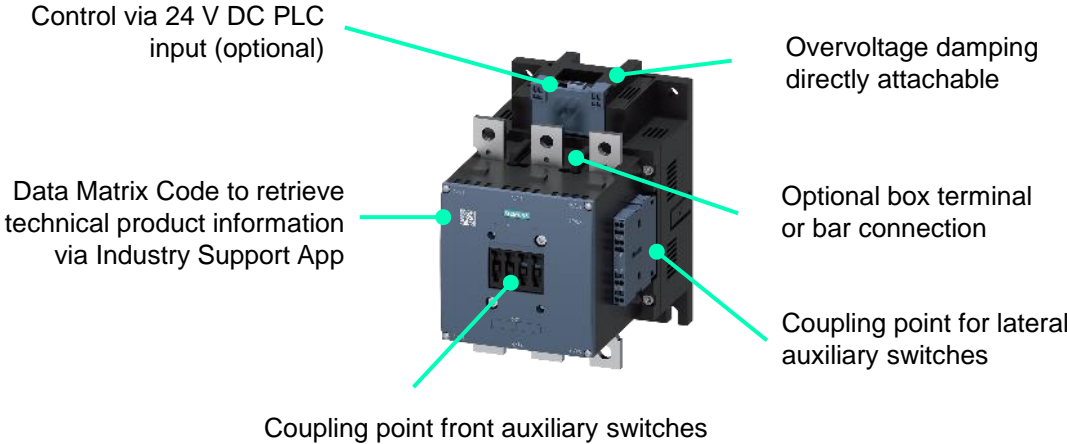
Overvoltage circuit  
front side pluggable

Coil connection on the front

Integrated cable channel for clean installation without optically

# Overview – Contactors 3RT145, 3RT146, 3RT147

Current up to 690A AC-1, 40° C



## Other variants (selection):



- variant:** Standard
- main circuit:** screw terminal
- auxiliary switch:** spring-loaded connection
- coil:** spring-loaded connection



- variant:** electronic, F-PLC-IN non-detachable auxiliary contacts
- main circuit:** screw terminal
- auxiliary switch:** screw terminal
- coil:** screw terminal

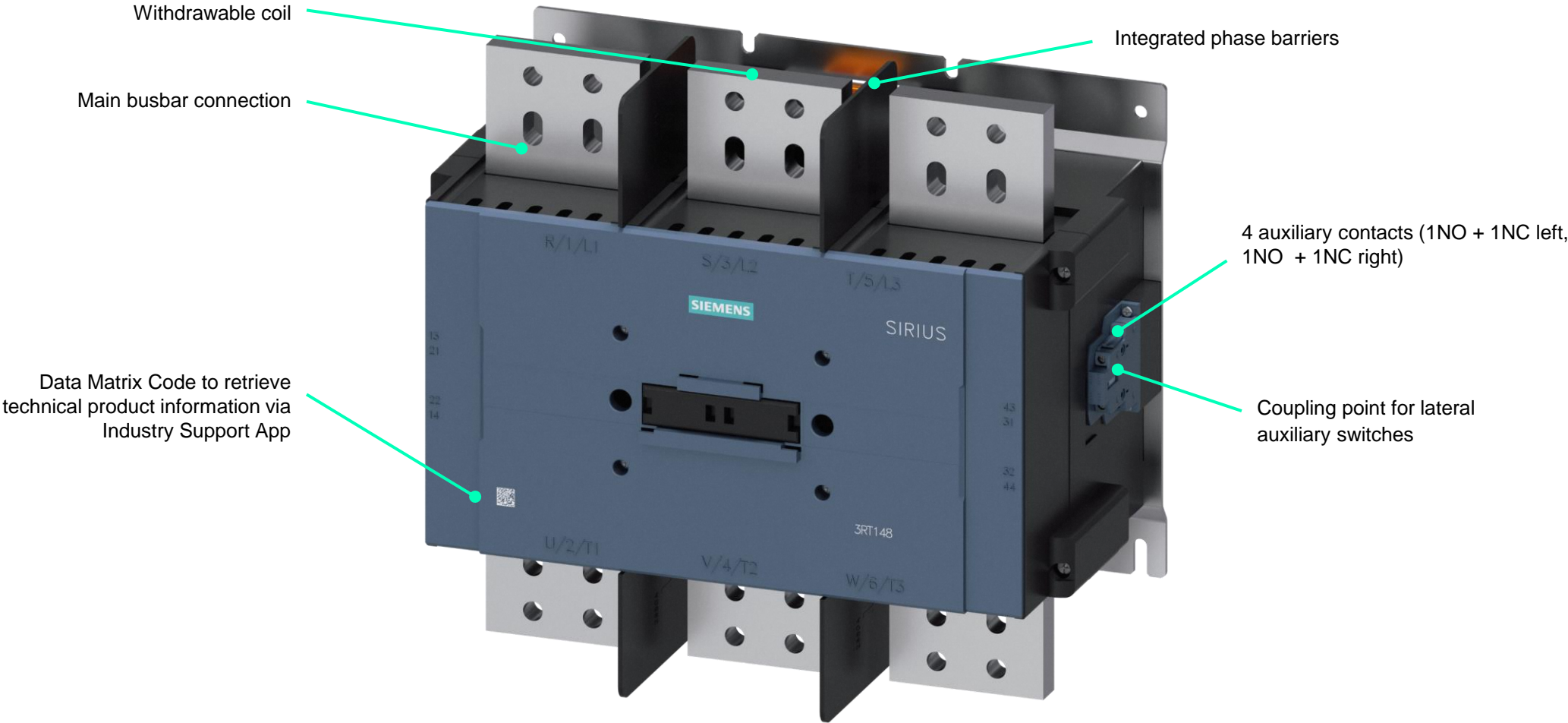


- variant:** electronic, PLC-IN
- main circuit:** busbar connection
- auxiliary switch:** screw terminal
- coil:** screw terminal



- variant:** electronic, F-PLC-IN
- main circuit:** busbar connection
- auxiliary switch:** Screw terminal
- coil:** spring-loaded connection

# Overview Contactor 3RT148



# SIRIUS contactors and contactor combinations

1 Overview

2 Power contactor for switching motors

3 Reversing- and star-delta combinations for switching motors

4 **Contactors for other applications**

4.1 3RT.3: 4-pole contactors for non- or low inductive loads (AC-1)

4.2 3RT.4: 3-pole contactors for non- or low inductive loads (AC-1)

4.3 **3RT25: 4-pole contactors for switching motors (AC-3)**

4.4 3RT26: Contactors for capacitive loads

5 Contactor relays

6 Contactors for extended operation range and railway certifications

7 Contactors and safety

8 Accessories

# Contactors types, current range



## 4-pole contactors for switching motors [AC-3]

### 3RT25 with 2 NC contacts and 2 NO contacts, motor loads AC-3

- 3RT251 (45 mm): 16A AC-3 up to 400V, 60°C
- 3RT252 (60 mm): 25A AC-3 up to 400V, 60°C
- 3RT253 (75 mm): 41A AC-3 up to 400V, 60°C
- 3RT254 (96mm): 80A AC-3 up to 400V, 60°C

### Features

- 1NO + 1NC auxiliary contact integrated (3RT251 – 3RT254)
- Screw-, spring-loaded (3RT253/ 3RT254: main terminal screw), ring cable lug connection (only 3RT251/ 3RT252)
- same accessories as for 3-pole devices





# SIRIUS contactors and contactor combinations

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3 Reversing- and star-delta combinations for switching motors

4 **Contactors for other applications**

4.1 3RT.3: 4-pole contactors for non- or low inductive loads (AC-1)

4.2 3RT.4: 3-pole contactors for non- or low inductive loads (AC-1)

4.3 3RT25: 4-pole contactors for switching motors (AC-3)

4.4 **3RT26: Contactors for capacitive loads**

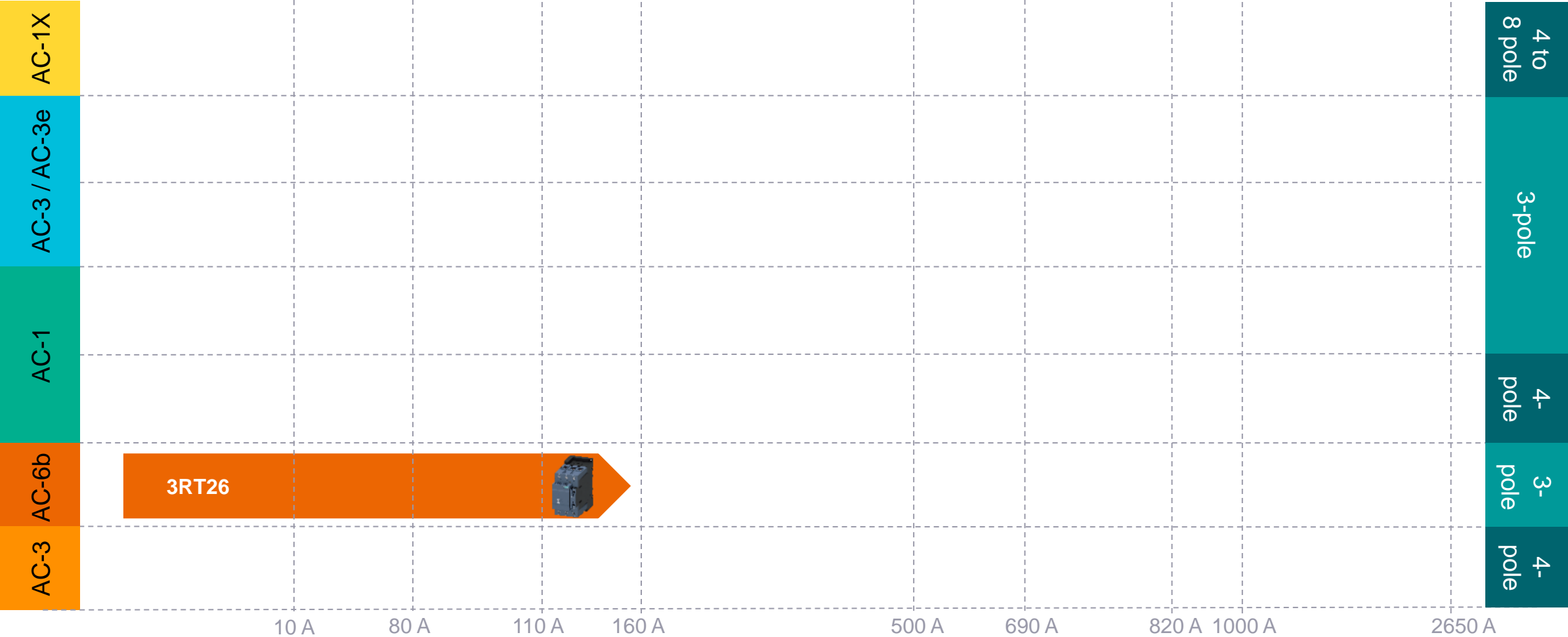
5 Contactor relays

6 Contactors for extended operation range and railway certifications

7 Contactors and safety

8 Accessories

# Contactors types, current range



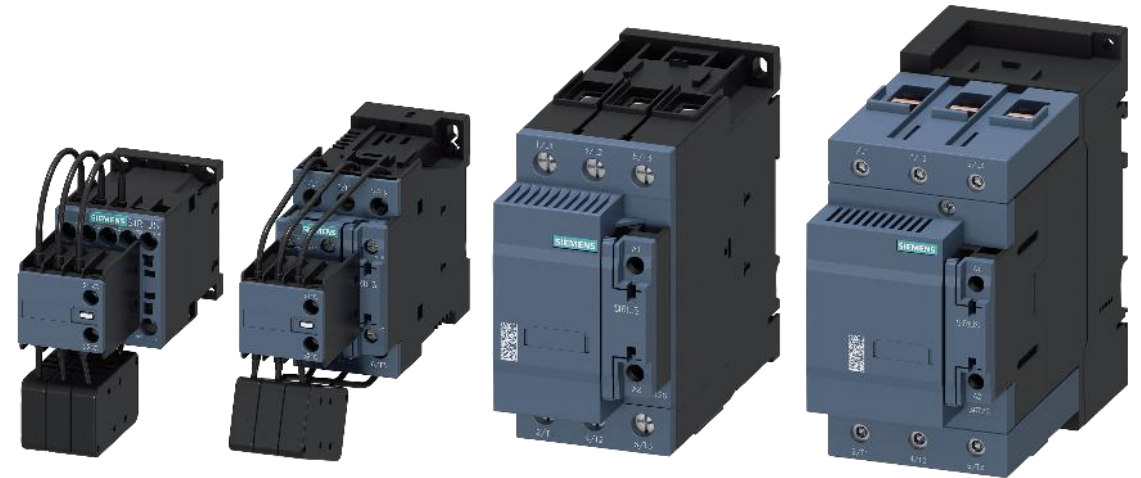
# Contactors for capacitive loads AC6-b

## 3RT26 – Space-saving for every performance class

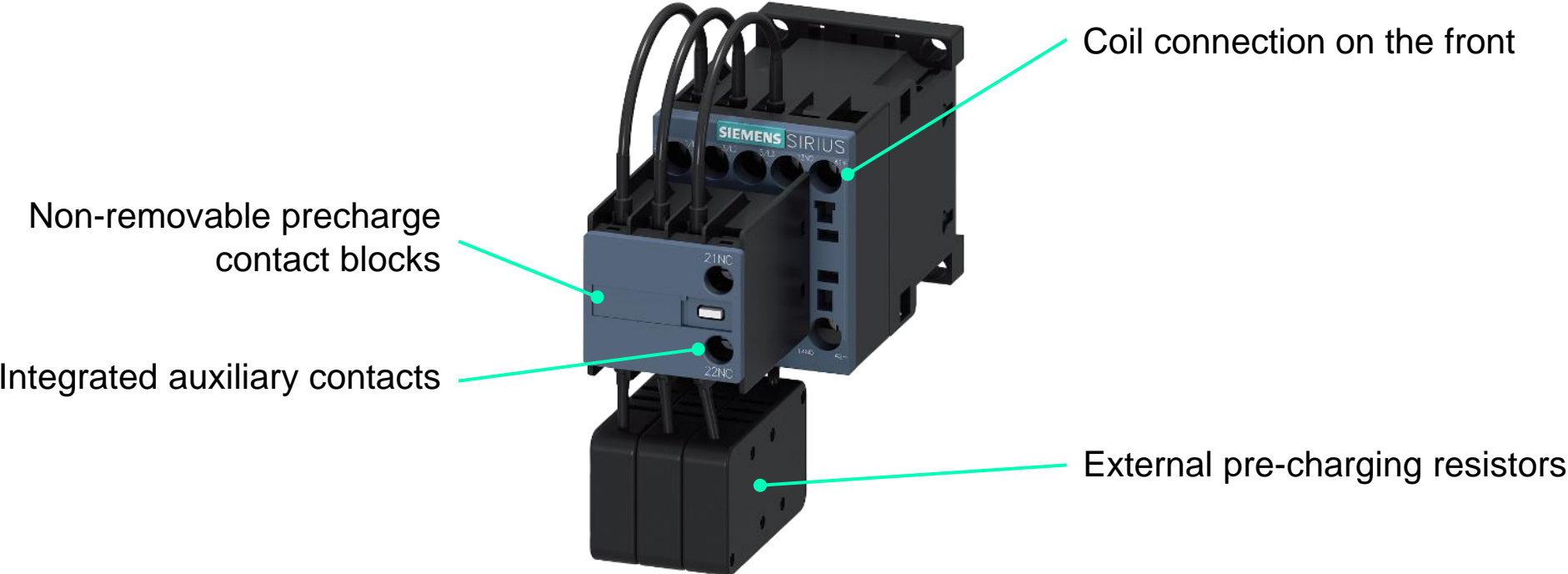
- 3RT261 (45 mm): 16,7 kvar
- 3RT262 (45 mm): 33,3 kvar
- 3RT263 (55 mm): 75 kvar
- 3RT264 (70mm): 100 kvar

## Features

- Standard coil (3RT261 – 3RT264) or electronic coil (3RT262 – 3RT264)
- High flexibility when equipped with auxiliary contacts, e.g. 2NC version available for all sizes
- Long service life due to decoupling of precharging resistors
- Screw-type connection technology
- Accessories such as line terminal of the standard motor contactor 3RT20 can be used



# Overview 3RT261

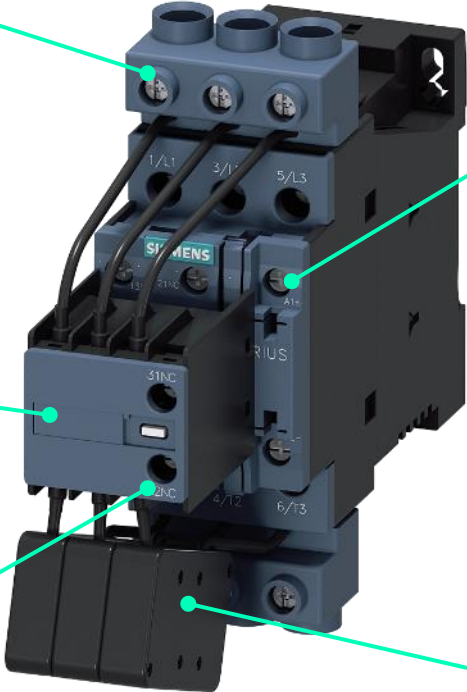


# Overview 3RT262

The 33kvar device comes with line terminal already mounted

Non-removable precharge contact blocks

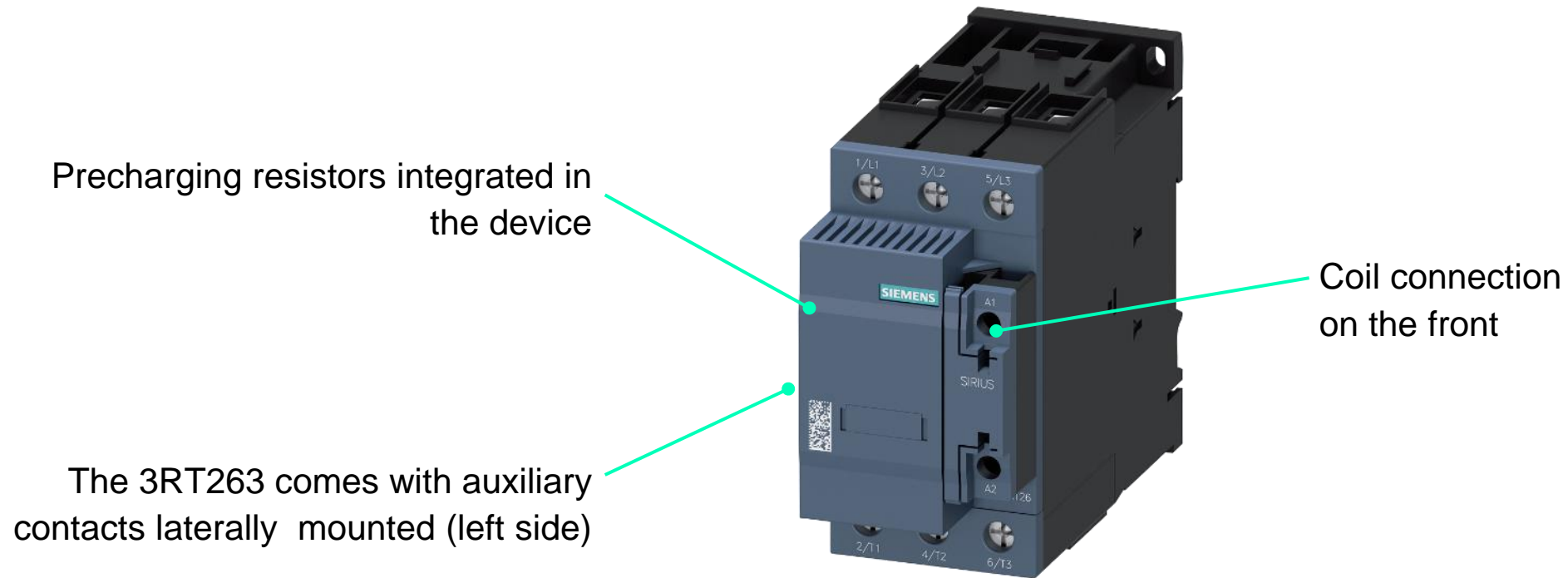
Integrated auxiliary contacts



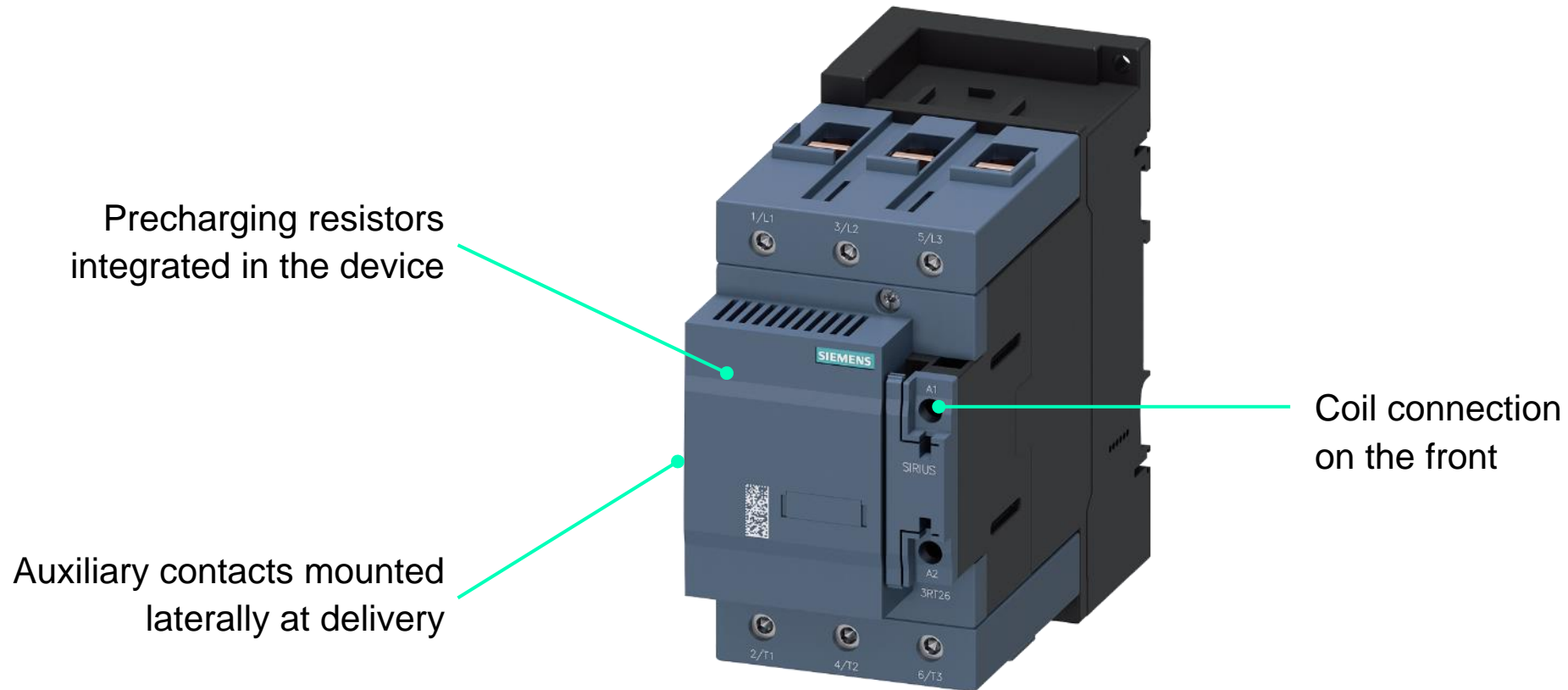
Coil connection on the front

External pre-charging resistors

## Overview 3RT263



## Overview 3RT264



# SIRIUS contactors and contactor combinations

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2 Power contactor for switching motors

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4 Contactors for other applications

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**5 Contactor relays**

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6 Contactors for extended operation range and railway certifications

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7 Contactors and safety

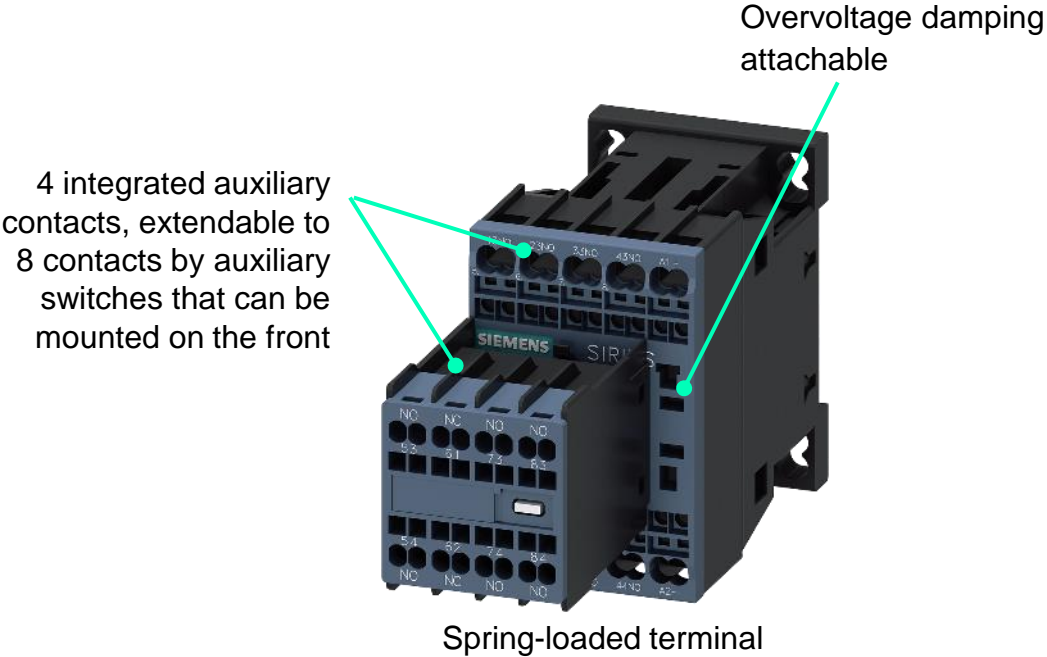
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8 Accessories



# Overview contactor relays 3RH2

Up to 10A rated current



Further variants (selection):



Screw terminal



Screw terminal with 4-pole auxiliary switch & overvoltage damper

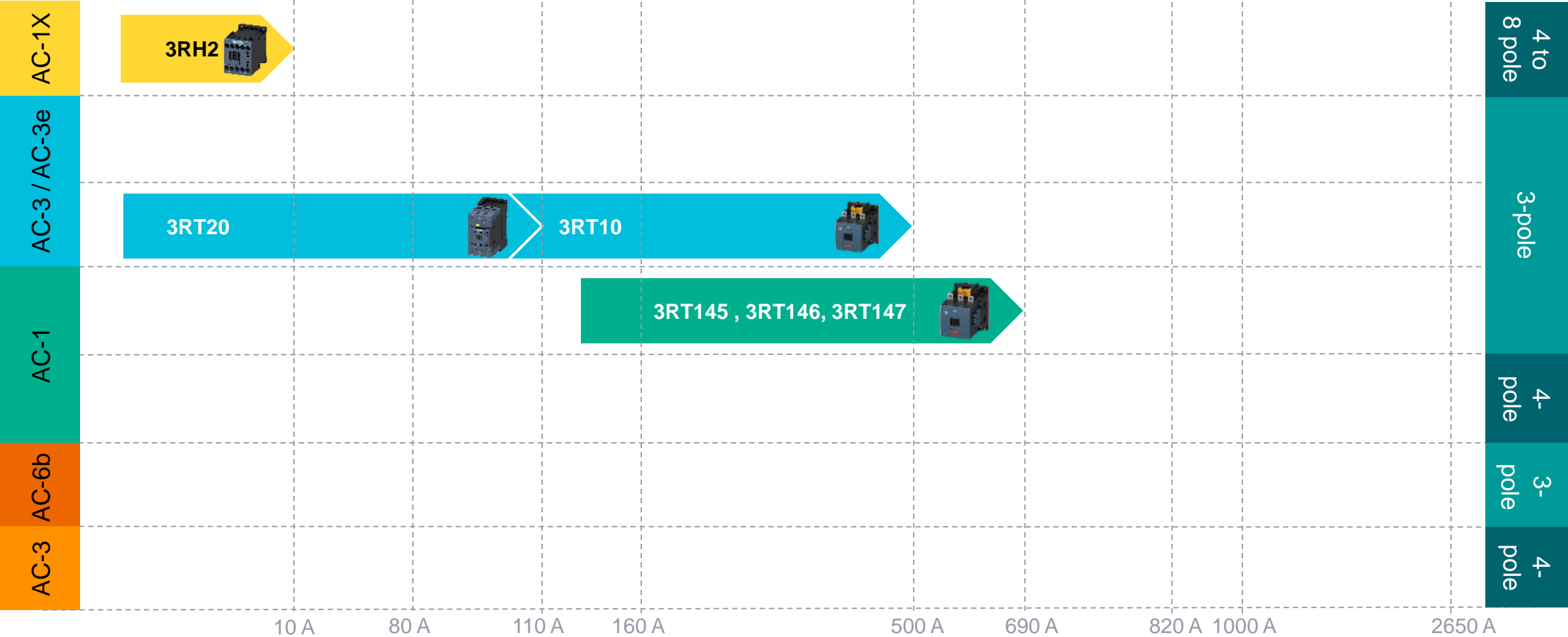


Spring-loaded terminal with 4-pole non-detachable auxiliary contact

# SIRIUS contactors and contactor combinations

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# Contactors types, current range



# Contactors for with extended operating range and railway certification IEC 60077

- Complete portfolio of auxiliary and motor contactors for railway applications up to 250kW
- All sizes meet extended requirements according to IEC 60077-2 (higher resistance to mechanical vibration and oscillation, electromagnetic compatibility, extended temperature range)
- Extended temperature range: - 40°C ...+70°C
- Extended coil operating range: 0,7...1,25 x Us (S3: 0,7...1,2 x Us)
- Accessories of the standard contactors can be used



## Coil options contactors with extended range of application

	DC coil 3RT2 / 3RH2		Electronic DC coils	
			3RH2 / 3RT2	3RT1 S6 - 12
<b>Control voltage</b>	DC control		DC control	DC control with separate control signal input
<b>Voltage range</b>	24 V, 110 V		24 V, 110 V	24V, 72V, 110V
<b>Operating range</b>	0,7 ... 1,25 x U <sub>s</sub>		0,7 ... 1,25 x U <sub>s</sub> (S3: 0,7 ... 1,2 x U <sub>s</sub> )	0,7 x U <sub>s</sub> – 1,25 x U <sub>s</sub>
<b>Protective circuit</b>	Integrated suppressor diode or varistor as desired		Integrated varistor	Integrated varistor
<b>Power consumption</b>	Switch on / Holding	DC operation S00: 13 / 4 VA	DC operation S00: 4,0 / 0,7 VA or 4,5 / 0,75 S0: 6,7 / 0,8 VA or 13,2 / 1,56 VA S2: 23 / 1 VA S3: 76 / 1,8 VA or 64 / 1,0 VA	DC operation S6: 0,32 kW / 2,8 W S10: 0,58 kW / 3,4 W S12: 0,8 kW / 3,6 W
<b>Coil concept</b>	E-magnet system with short-circuit rings		E-magnet system with electronics with reduced power consumption	E-magnet system with electronics with reduced power consumption
<b>Comment</b>	With series resistor 1 auxiliary switch integrated		2 auxiliary switch integrated	2 operating modes (direct A1-A2 or via control signal input 24-110V)

# SIRIUS contactors and contactor combinations

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- 4 Contactors for other applications

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- 5 Contactor relays

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- 6 Contactors for extended operation range and railway certifications

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- 7 Contactors and safety**

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- 7.1 Overview

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- 7.2 Contactors with failsafe control (F-PLC-IN)

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- 8 Accessories

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- 6 Contactors for extended operation range and railway certifications

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- 7 Contactors and safety**

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- 7.1 Overview

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- 7.2 Contactors with failsafe control (F-PLC-IN)

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- 8 Accessories

# Overview – safety switching

The SIRIUS modular system helps to ensure secure applications to build. Our portfolio comprises a large number of safety components, with which fast and simple security solutions can be built up.

Contactors are part of it!

## Contactors with digital input


Schütze kleiner Leistung können problemlos angesteuert werden

Bei größeren Leistungen kann dies problematisch und aufwändiger werden, daher:

Schütze mit zertifiziertem, digitalen F-PLC-Eingang zur Ansteuerung aus fehlersicheren Steuerungen, Standardsteuerungen oder Sicherheitsschaltgeräten

Contactor with fail-safe control

Description	Variants
<ul style="list-style-type: none"><li>• 3-phase series of 3-pole contactors: 3RT20, 3RT19, 3RT14</li><li>• Power range<ul style="list-style-type: none"><li>• Motor contactors: 18.5 to 250kW (AC-3 / AC-3a/AB2V)</li><li>• AC-1 contactor: 275 A to 690 A</li></ul></li><li>• Article number pattern<ul style="list-style-type: none"><li>• 3RT203 - S ... AC-3 / AC-3a</li><li>• 3RT204 - S ... AC-3 / AC-3a</li><li>• 3RT10 8 - S ... AC-3 / AC-3a</li><li>• 3RT10 8 - S ... -3PAD AC-3 / AC-3a</li><li>• non-removable auxiliary switch<ul style="list-style-type: none"><li>• 3RT14 8 - S ... AC-1</li><li>• 3RT14 8 - S ... -3PAD AC-1, non-removable auxiliary switch</li></ul></li></ul></li></ul>	<ul style="list-style-type: none"><li>• Call 3RT1202, 3RT1204<ul style="list-style-type: none"><li>• Wide voltage range AC 50/60 Hz or DC</li><li>• operating range 0.8 – 1.5 x I<sub>N</sub></li><li>• B30 21 – 33 V</li><li>• P30 50 – 100 V</li><li>• P50 150 – 230 V</li><li>• F-PLC AC 24V DC</li><li>• Auxiliary switch options:<ul style="list-style-type: none"><li>• 1 auxiliary switch NC integrated</li><li>• Additional optional auxiliary switches</li></ul></li></ul></li><li>• Call 3RT15 - 3RT17<ul style="list-style-type: none"><li>• Wide voltage range AC 50/60 Hz or DC</li><li>• operating range 0.8 – 1.1 x I<sub>N</sub></li><li>• P30 80 – 27 V</li><li>• P40 200 – 27 V</li><li>• F-PLC AC 24V DC</li><li>• Auxiliary switch options:<ul style="list-style-type: none"><li>• 2 integral AC 25 &amp; 30 non-removable auxiliary switches</li><li>• Safe 30mA</li></ul></li></ul></li></ul>



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## Mirror contact and positive guidance

Mirror contact (motor contactor) or positive driven contact (contactor relay) are standard requirements for contactors

Third-party certifiers (TÜV, formerly also SUVA) confirm this for our customers and thus give even more confidence



## Increased manipulation protection

Possibilities for manipulation protection and space-saving construction:

- contactors with non-removable auxiliary switches
- Accessories like sealable covers
- Z-connector



## Simple calculation and documentation

Free Safety Evaluation Tool (SET) for the standards IEC 62061 and ISO 13849-1: Standards-compliant report as safety verification for machine documentation





# Contactors and safety switchgear

## Feel safe with all these combinations up to SILCL 3

MSS	3SK1	3SK2	S7-1200	ET 200S	ET 200SP	ET 200MP
						
				• Interface- Module/CPU		• Interface- Module/CPU
<p>No overload detection at ON</p> <p>No negative impact on electrical life due to use with relay outputs</p> <p>No short-circuit detection at OFF</p> <p>Compatible with bit pattern test sequence</p>						
<ul style="list-style-type: none"> <li>• DC coil</li> <li>• 3RT2.1.-.B...</li> <li>• 7,5kW / 16A AC-3e</li> </ul>	<ul style="list-style-type: none"> <li>• DC coil</li> <li>• 3RT2.2.-.B...</li> <li>• 15kW / 38A AC-3e</li> </ul>	<ul style="list-style-type: none"> <li>• DC or AC/DC coil</li> <li>• 3RT2.3.-.KB4. / 3RT203.-.S...</li> <li>• 37kW / 80A AC-3e</li> <li>• Only suitable for 2A DQ (1 contactor) with K-coil (DC), with AC/DC (S-coil) 0,5A DQ</li> </ul>	<ul style="list-style-type: none"> <li>• DC or AC/DC coil</li> <li>• 3RT2.4.-.KB4. / 3RT204.-.S...</li> <li>• 55kW / 110A AC-3e</li> <li>• Only suitable for 2A DQ (1 contactor) with K-coil (DC), with AC/DC (S-coil) 0,5A DQ</li> </ul>	<ul style="list-style-type: none"> <li>• DC oder AC 50/60Hz Antrieb</li> <li>• 3RT1.5.-.S...</li> <li>• 90kW / 185A AC-3e</li> </ul> <p>✘ No broken wire detection</p>	<ul style="list-style-type: none"> <li>• DC or AC 50/60Hz coil</li> <li>• 3RT1.5.-.S...</li> <li>• 90kW / 185A AC-3e</li> </ul> <p>✘ No broken wire detection</p>	<ul style="list-style-type: none"> <li>• DC or AC 50/60Hz coil</li> <li>• 3RT1.7.-.S...</li> <li>• 250kW / 500A AC-3e</li> </ul> <p>✘ No broken wire detection</p>
 <b>S00</b>	 <b>S0</b>	 <b>S2</b>	 <b>S3</b>	 <b>S6</b>	 <b>S10</b>	 <b>S12</b>
<b>Contactors 3RT2</b>				<b>Contactors 3RT1</b>		

# SIRIUS contactors and contactor combinations

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- 3 Reversing- and star-delta combinations for switching motors

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- 4 Contactors for other applications

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- 5 Contactor relays

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- 6 Contactors for extended operation range and railway certifications

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- 7 Contactors and safety**

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- 7.1 Overview

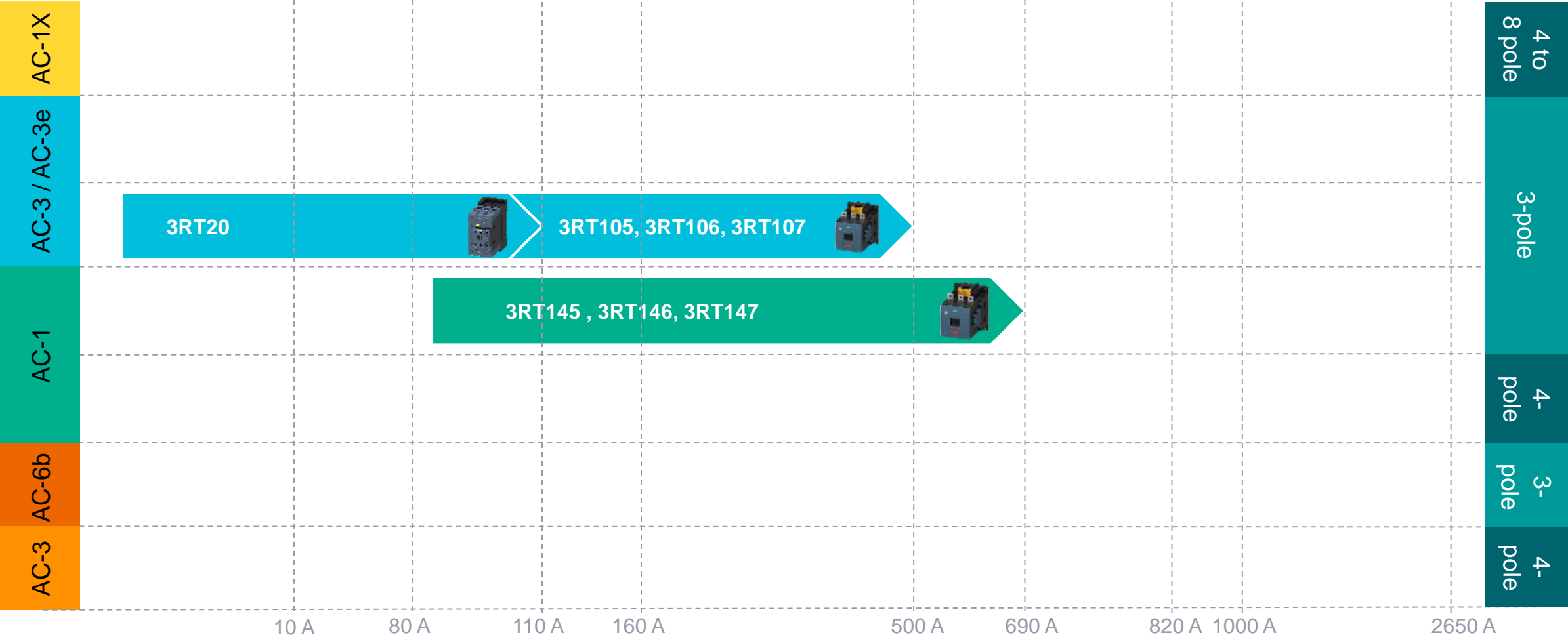
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- 7.2 **Contactors with failsafe control (F-PLC-IN)**

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- 8 Accessories

# Contactors types, current range



# Contactors with fail-safe control

## Description

- 5 frame sizes of 3-pole contactors: 3RT20., 3RT10., 3RT14.
- Power range
  - Motor contactors: 18,5 to 250kW (AC-3 / AC-3e /400V)
  - AC-1 contactor : 275 A to 690 A
- Article number: pattern

• 3RT203.-.S...	AC-3 / AC-3e
• 3RT204.-.S...	AC-3 / AC-3e
• 3RT10.6-.S...	AC-3 / AC-3e
• 3RT10.6-.S...-3PA0	AC-3 / AC-3e, non-removable auxiliary switch
• 3RT14.6-.S...	AC-1
• 3RT14.6-.S...-3PA0	AC-1, non-removable auxiliary switch

## Variants

- **Coil 3RT203, 3RT204**
  - Wide voltage range AC 50/60Hz or DC
  - operating range:  $0,8 - 1,1 \times U_s$
  - B30: 21 ... 33 V
  - F30: 83 ... 150 V
  - P30: 155 ... 280 V
  - F-PLC-IN: 24V DC
- Auxiliary switch options:
  - 1 auxiliary switch NC integrated
  - Additional optional auxiliary switches
- **Coil 3RT1.5 – 3RT1.7**
  - Wide voltage range AC 50/60Hz or DC
  - operating range:  $0,8 - 1,1 \times U_s$
  - F36: 96 ... 127 V
  - P36: 200 ... 277 V
  - F-PLC-IN: 24V DC
- Auxiliary switch options:
  - 2 lateral AUX 2S & 2O detachable, or
  - 2 lateral AUX 2S & 2O non-removable auxiliary switch: Suffix -3PA0

3RT203, 3RT204



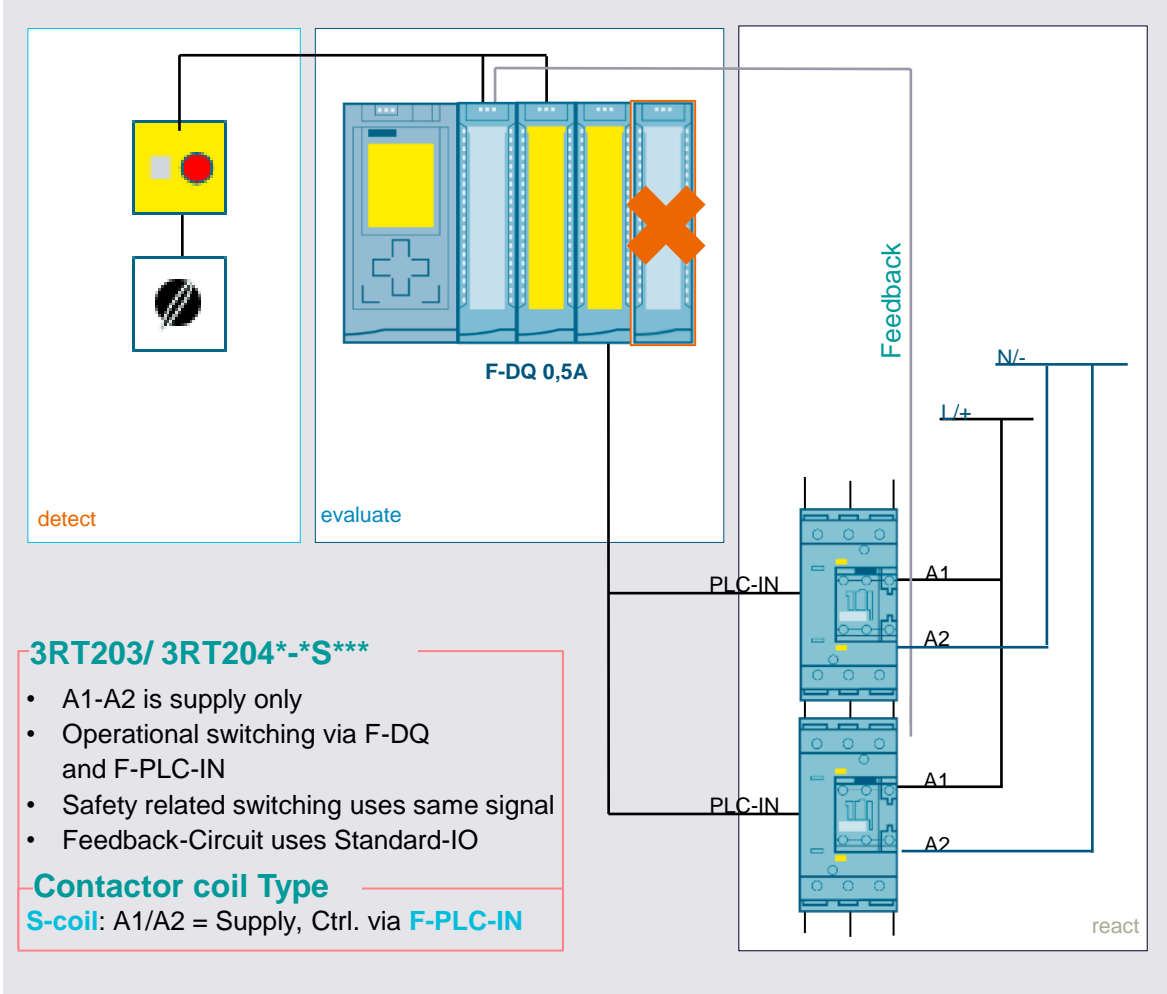
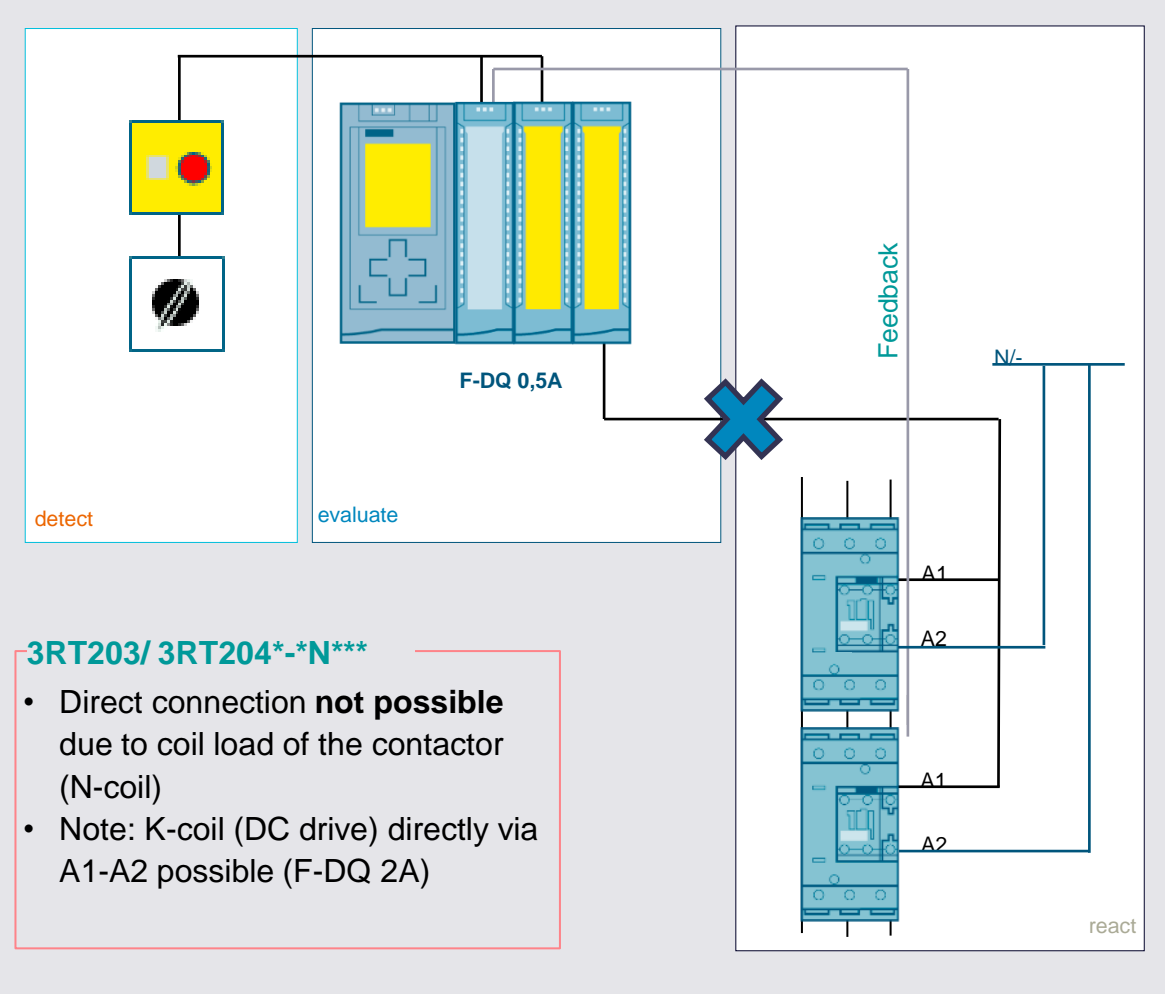
3RT105, 3RT106, 3RT107

3RT145, 3RT146, 3RT147



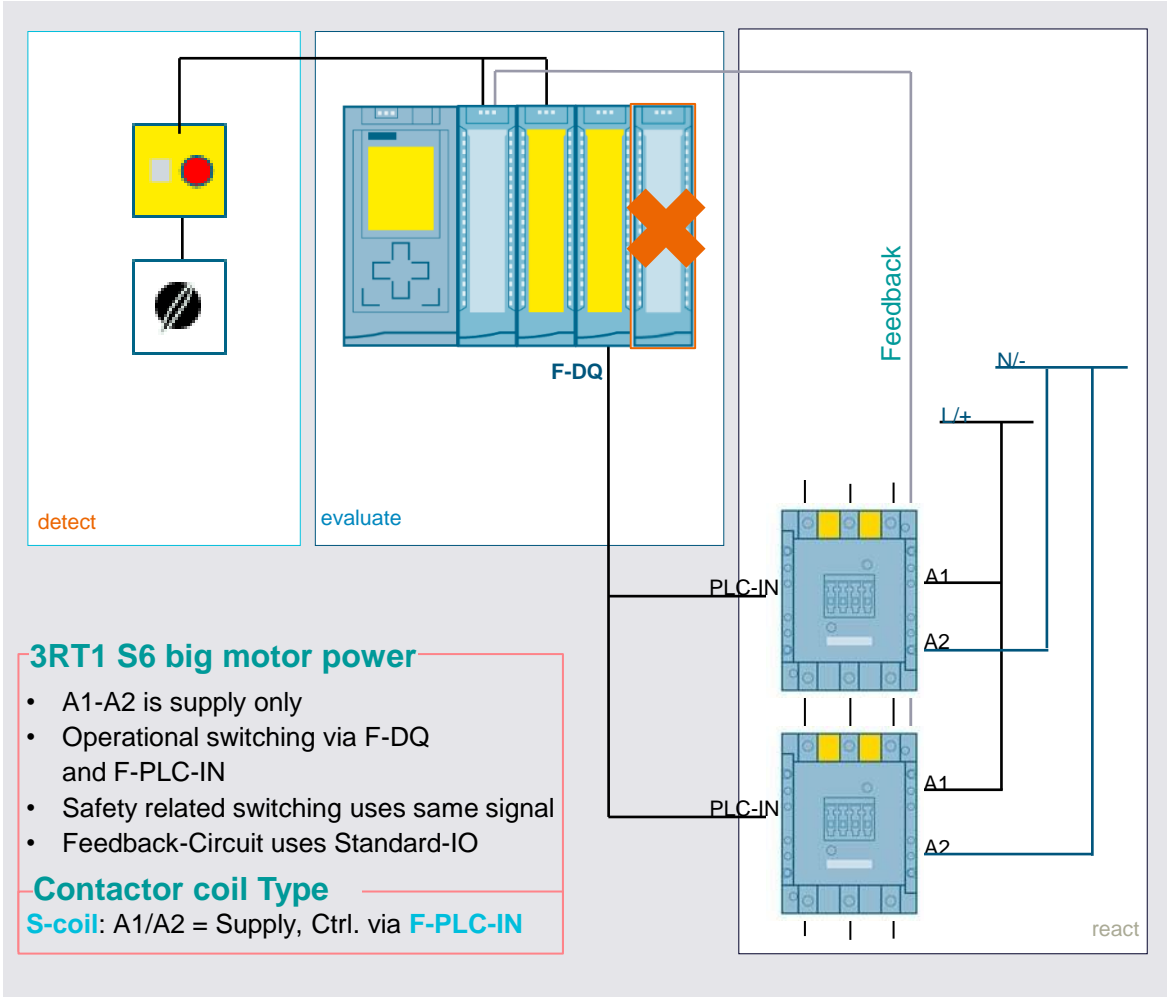
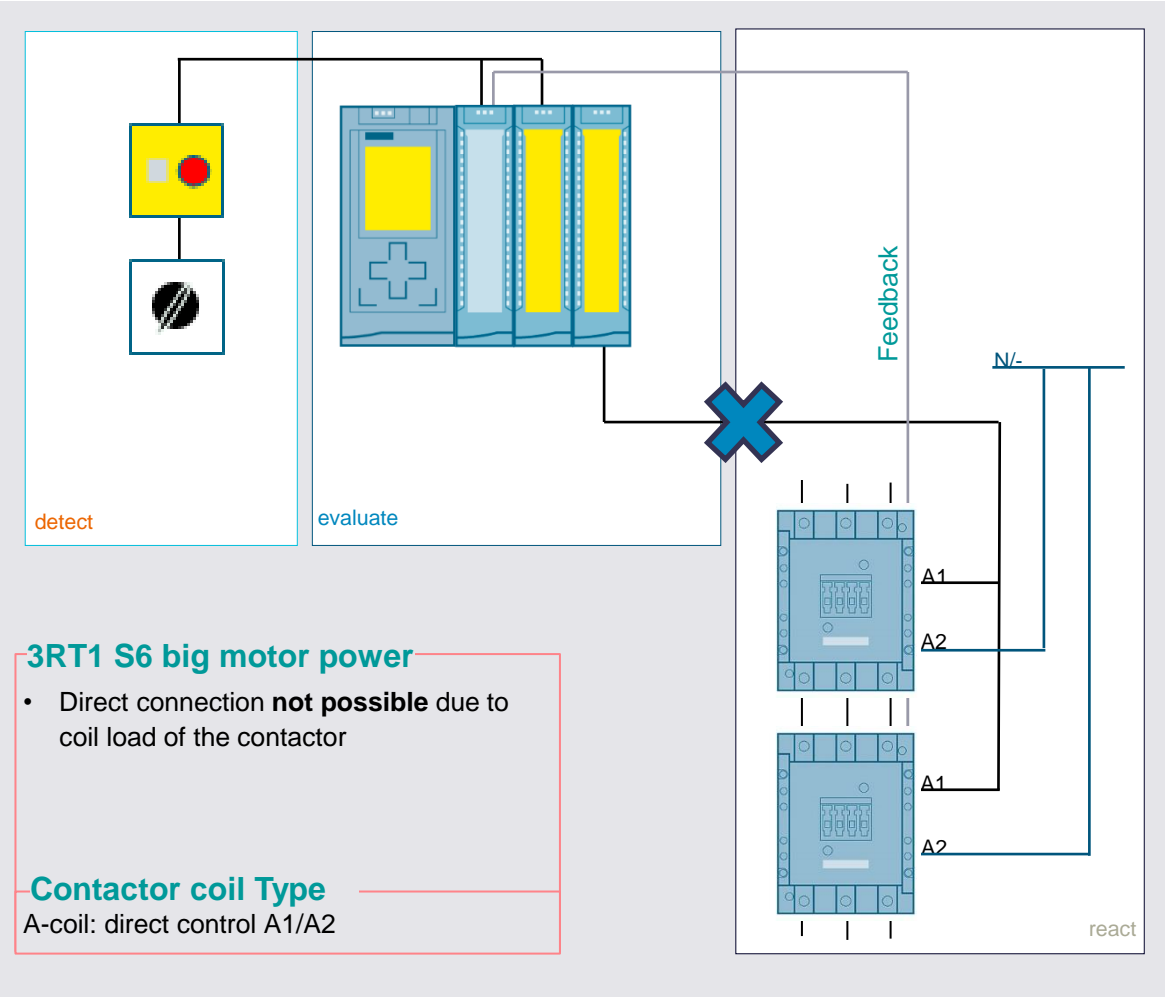
# Contactor with fail-safe control

## Technical details 3RT203, 3RT204



# Contactor with fail-safe control

## Technical details 3RT1.5 – 3RT1.7



# SIRIUS contactors and contactor combinations

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  - 8.1 **Auxilliary contacts**
  - 8.2 **Function module**
  - 8.3 **Other accessories**

# Accessories for contactors SIRIUS 3RT2

## Standard accessories for contactors 3RT201 – 3RT204

- Side and front auxiliary contacts
- Function modules (with time function; Y/D, ASi, IO-Link) for attachment to contactors
- Cover sealing
- Breaking delay device, ...

## Size-specific accessories

- Surge suppressor (with and without LED)
- Solder pin adapter (only 3RT201)
- Control kit
- Pneumatic delay block (only 3RT202)
- Mechanical latch (only 3RT202)
- Compatible with bit pattern test sequence
- Coil connection module (only 3RT202/ 3RT203)

## Accessories for breaking contactor assembly

- Link modules, parallel connector

## Accessories for all sizes












## Size-specific accessories





# Attachment modules for attachment to contactors 3RT2

Auxiliary switches			Snap-on modules for contactor control					
Instantaneous	Time-delayed		Conventional control circuit wiring			Communication connection via AS-i / IO-Link		
Mechanical	Electrical	Pneumatic	Coupling link for direct-on-line start	Snap-on timing relay for direct-on-line start	Star-delta (wye-delta) start	Direct-on-line start	Reversing start	Star-delta (wye-delta) start
3RH29.1	3RA2813 3RA2814 3RA2815	3RT2926-2P	3RH2914-.GP11	3RA2811 3RA2812 3RA2831 3RA2832	3RA2816	3RA271.-.A	3RA271.-.B	3RA271.-.C
								

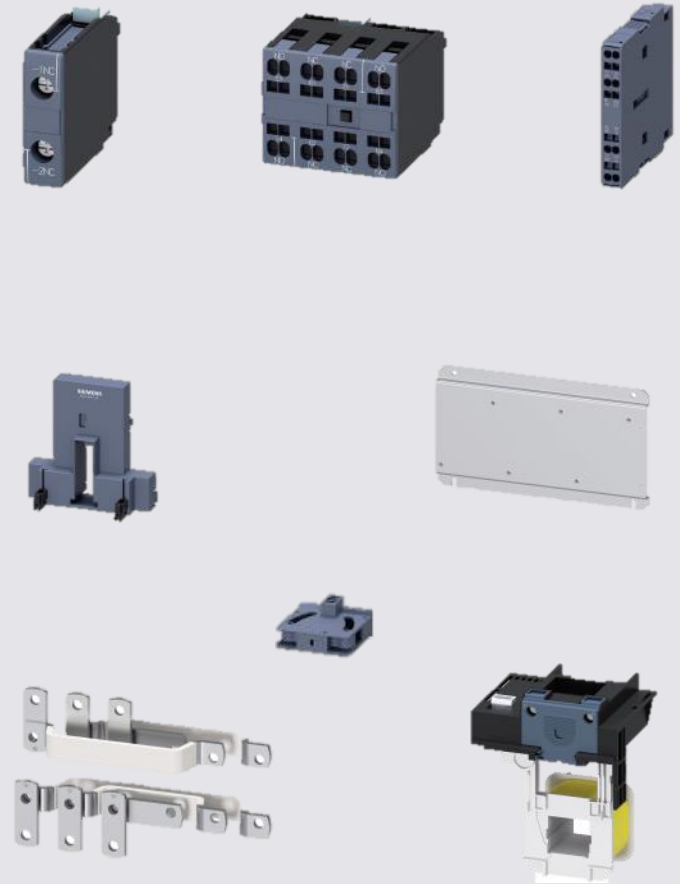
# Accessories for contactors SIRIUS 3RT10, 3RT12 and 3RT14[5,6,7]

## Accessories for all sizes for contactors 3RT10, 3RT12 und 3RT14[5,6,7]

- Side and front auxiliary contacts
- Cover sealing
- Breaking delay device, ...

## Size-specific accessories

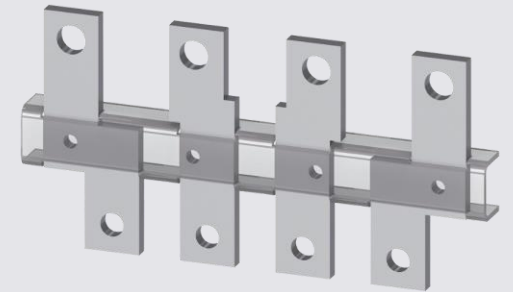
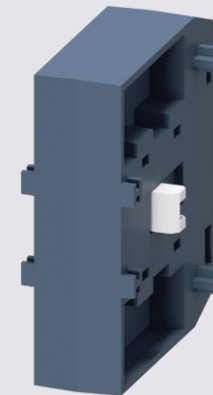
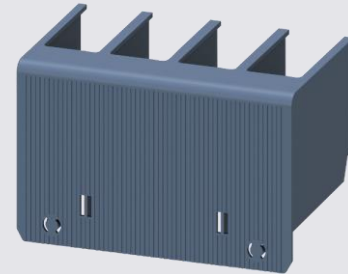
- Mounting plate
- Connecting kits for reversing and star-delta combinations
- Spare contacts
- Coils
- Mechanical interlock and adapter
- Surge suppressor



## Accessories for contactors SIRIUS 3RT13

### Specific accessories for 4-pole contactors 3RT135 – 3RT137

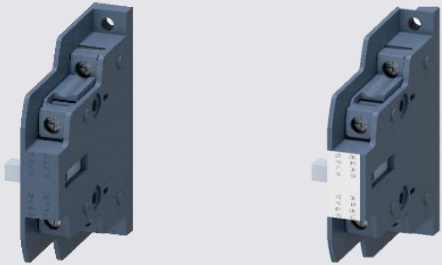
- Terminal cover
- Bus connectors offset
- Mechanical interlock



# Accessories for contactors SIRIUS 3RT148

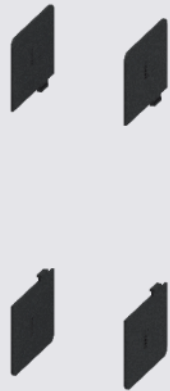
## Auxiliary switch

- First auxiliary switch as spare part, 1NO & 1NC: 3RH1981-1DA11
- Second auxiliary switch as spare part, 1NO & 1NC : 3RH1981-1JA11



## Phase barrier set (4 pieces)

- for 3RT1481, 3RT1482 and 3RT1483 3RT1983-4AA1
- for 3RT1485, 3RT1486 and 3RT1487 3RT1987-4AA1



## Withdrawable drive

- for 3RT1481 & 3RT1482, 100 - 127V 50/60Hz, 100 - 110 V DC: 3RT1982-5AF31
- for 3RT1481 & 3RT1482, 200 - 240V 50/60Hz, 200 - 220 V DC: 3RT1982-5AP31
- for 3RT1483, 100 - 240V 50/60Hz / 100 - 220 V DC: 3RT1983-5AP31
- for 3RT1485 & 3RT1486 & 3RT1487, 100 - 240V 50/60Hz / 100 - 220 V DC: 3RT1987-5AP31



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  - 8.1 **Auxilliary contacts**
  - 8.2 Function module
  - 8.3 Other accessories

# Auxiliary switch blocks for 3RT2

## Front auxiliary contact blocks with screw-type terminals

1 to 4 pole:



## Front auxiliary contact blocks with spring-type terminals

1 to 4 pole:



## Lateral auxiliary contact blocks with screw-type terminals

2 pole:



## Lateral auxiliary contact blocks with spring-type terminals

2 pole:



# Auxiliary switches for contactors 3RT10, 3RT12 and 3RT145 – 3RT147

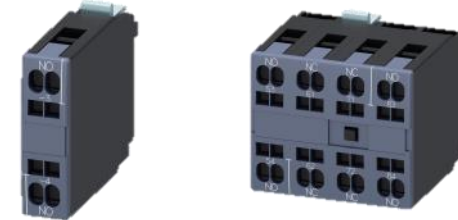
## Front auxiliary contact blocks with screw-type terminals

1 to 4 pole:



## Front auxiliary contact blocks with spring-type terminals

1 to 4 pole:



## Lateral auxiliary contact blocks with screw-type terminals

2 pole:



## Lateral auxiliary contact blocks with spring-type terminals

2 pole:



# Auxiliary switch for contactors 3RT13 – 3RT137 and 3RT148

## Lateral auxiliary switch with screw terminal

2- pole:



## Lateral auxiliary switch with screw terminal 3RT148

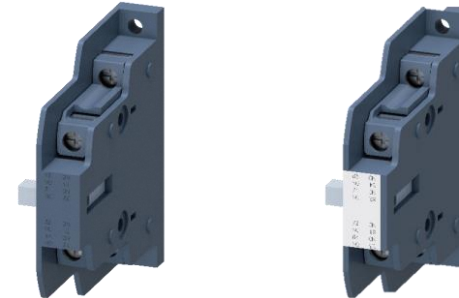
### Auxiliary switch

First auxiliary switch as spare part 1NC & 1NO:

3RH1981-1DA11

Second auxiliary switch as spare part 1NC & 1NO:

3RH1981-1JA11



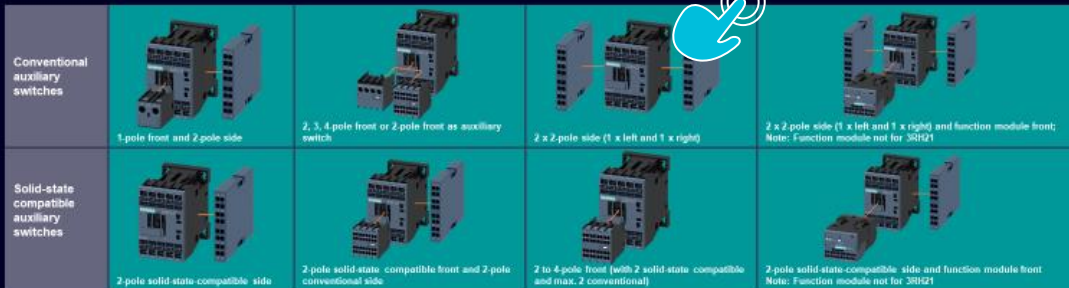


# Possible auxiliary contact combinations

## Permissible combinations of auxiliary contacts

Es ist ein separater Foliensatz mit detaillierten Information zur Kombinierbarkeit von Grundgeräten und Hilfsschaltern erhältlich:

### 3RT201, 3RT231, 3RT251 power contactors



- The sum of all attached auxiliary contacts must not exceed 4
- The sum of all NC contacts from integrated, mounted auxiliary contacts and front-side solid-state compatible NO contacts must not exceed 4
- Each auxiliary contact of a 2-pole front auxiliary switch is to be included as 2 auxiliary contacts each
- No external auxiliary switch permitted for basic units with the following operating mechanism variants: 3RT2.1...H/J/K/M/Q/V/W..

## Selection matrix for auxiliary contact in the IC10 catalogue

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Switching devices – Contactors and contactor assemblies – for switching motors  
Power contactors for switching motors

Accessories for SIRIUS 3RT contactors and SIRIUS 3RH2 contactor relays > Auxiliary switches, instantaneous

Additional auxiliary switches Article number	Auxiliary contacts Version	3-pole contactors			4-pole contactors			Contactor relays				
		S00 3RT201	S0 to S3 3RT202, 3RT203, 3RT204, 3RT244	S0 to S3 3RT231, 3RT251	S0 to S3 3RT232, 3RT252, 3RT254	S0 to S3 3RT231, 3RT251, 3RT254	S0 to S3 3RT232, 3RT252, 3RT254	S00 3RH21, 3RH24	S00 3RH21, 3RH24	S00 3RH21, 3RH24		
NO NC		10 01 11		11 11	40E	31E	22E					
		13 14 12 11	13 14 12 11	13 14 12 11	13 14 12 11	13 14 12 11	13 14 12 11	13 14 12 11	13 14 12 11	13 14 12 11		
		2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14		
		According to EN 50012 <sup>1)</sup>			According to EN 50012 <sup>1)</sup>			According to EN 50011 <sup>1)</sup>				
Auxiliary switches, front												
Without NO contact												
3RH2911-CHA01	1	11	02	12	01	01	12	12	41X	32X	23X	
3RH2911-CHA02	2	11	11	12	03	13	02	02	13	42E	33X	24
3RH2911-CHA03	3	13	04	14	03	—	—	—	43	34	—	
3RH2911-CFA04	4	14	—	—	—	—	—	—	44E	—	—	
With 1 NO contact												
3RH2911-CHA10	1	—	20	11	21	10	10	21	21	50E	41E	32E
3RH2911-CHA11	1	11	12	22	11	11	22	22	51X	42X	33X	
3RH2911-CHA12	2	11	13	23	12	12	23	—	52	43	34	
3RH2911-CHA13	3	11	14	24	13	—	—	—	53X	44X	—	
										51X	42X	
										52	43	
										53	44X	
										53	44X	
										61	52	
										62X	53X	
										71X	62X	

All rules and restrictions taken into account:

- Standards
- Technical reasons
- Maximum NC contact configuration

# SIRIUS contactors and contactor combinations

1 Overview

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2 Power contactor for switching motors

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3 Reversing- and star-delta combinations for switching motors

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4 Contactors for other applications

---

5 Contactor relays

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6 Contactors for extended operation range and railway certifications

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7 Contactors and safety

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8 **Accessories**

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8.1 Auxilliary contacts

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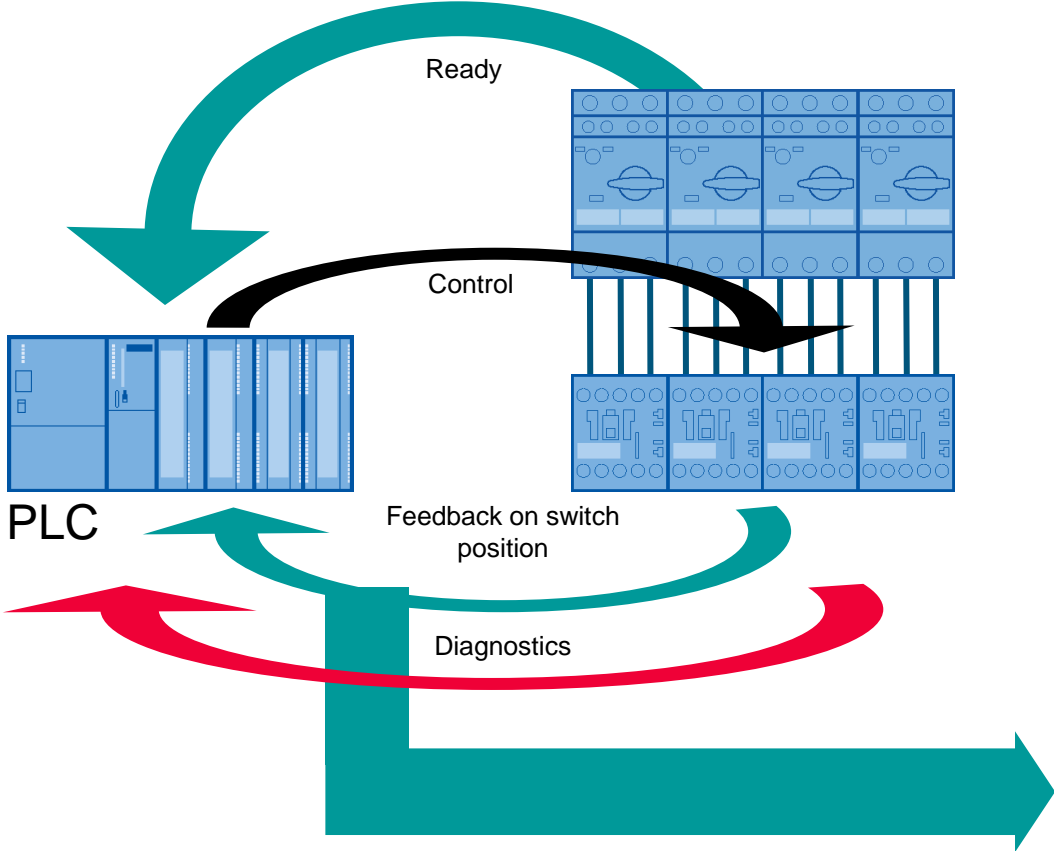
8.2 **Function module**

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8.3 Other accessories

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# 3RA27 function modules for connection to the automation level



**In addition to these three items of information relating to feeders, IO-Link can also transfer diagnostics data.**

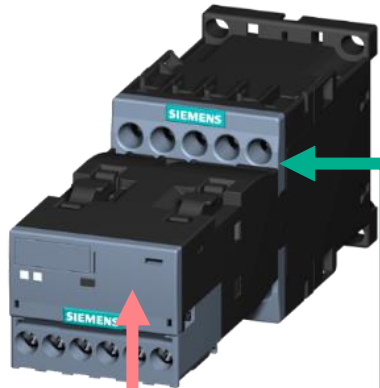
SIRIUS switching devices can be connected to the automation level via AS-Interface or IO-Link, without any additional wiring.



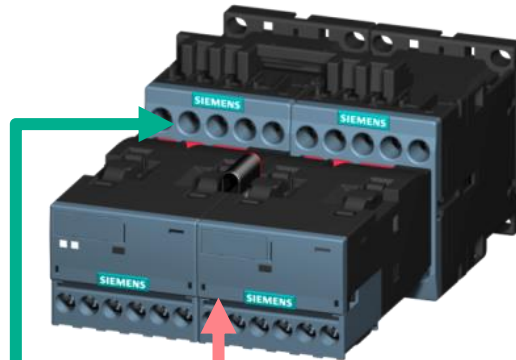
## 3RA27 function modules for connection to the automation level

With the SIRIUS 3RA27 function modules, control functions are realized with contactors and a communication-capable connection is established with a PLC.

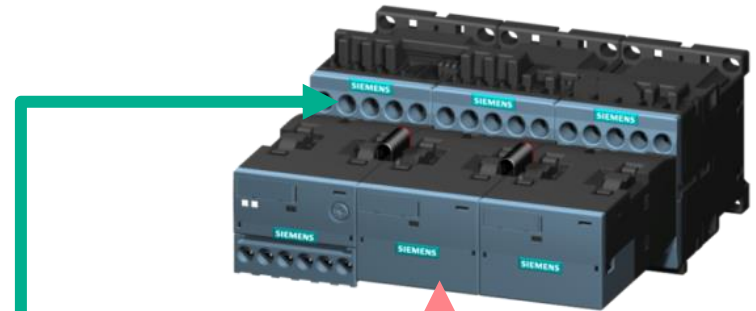
Direct-on-line start



Reversing start



Star-delta start



Contactors

Function modules

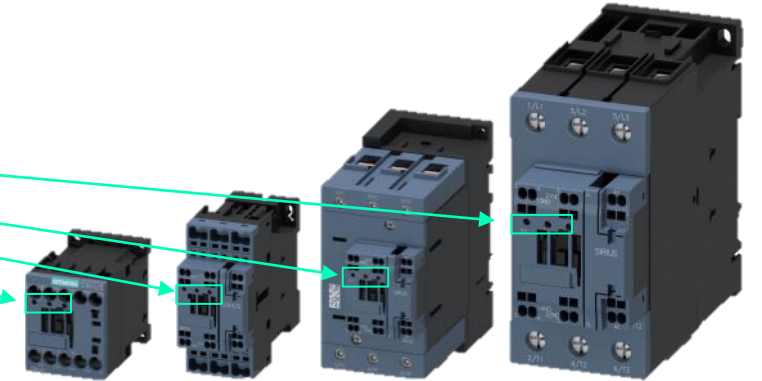
**Extremely simple connection to the PLC via IO-Link or AS-i**

# Technical details – 3RA27 function modules

## Function modules for connection to the control level

- Direct voltage detection on the contactor by using contactors with a voltage tap
  - Frame sizes 3RT2.1 – 3RT2.4
  - Control voltage 24 V DC
- 3RA27 function module:
  - Plugged on the front of the contactor with a voltage tap
  - Connection to the PLC via IO-Link or AS-i
  - The following functions are integrated:
    - Communication (control, feedback and ready signal)
    - Control of the contactors (especially timer control for reversing, star-delta combinations)

Contactor with voltage tap



3RT2.1 basic unit with function module



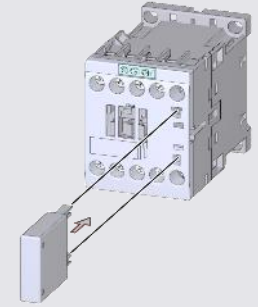
# SIRIUS contactors and contactor combinations

- 1 Overview
- 2 Power contactor for switching motors
- 3 Reversing- and star-delta combinations for switching motors
- 4 Contactors for other applications
- 5 Contactor relays
- 6 Contactors for extended operation range and railway certifications
- 7 Contactors and safety
- 8 **Accessories**
  - 8.1 Auxilliary contacts
  - 8.2 Function module
  - 8.3 **Other accessories**

# Surge suppressor for coils 3RT

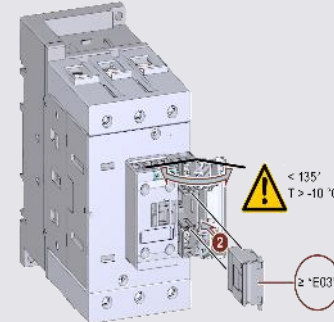
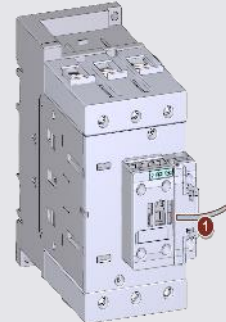
## Surge suppressors 3RT2.1

- Can be plugged on at front
- Versions:
  - Diode, diode combination
  - Varistor, RC element



## Surge suppressors 3RT2.2 – 3RT2.4

- Can be plugged on at front
- Versions:
  - Diode, diode combination
  - Varistor, RC element



## Surge suppressor 3RT10, 3RT12, 3RT14

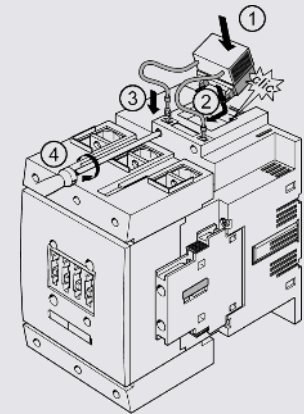
- For plugging into the insertion coil for contactors with standard coil
- RC element
- Variants: for devices with coil connection in
  - Screw technology
  - Spring technology



Spring-loaded terminal



Screw terminal



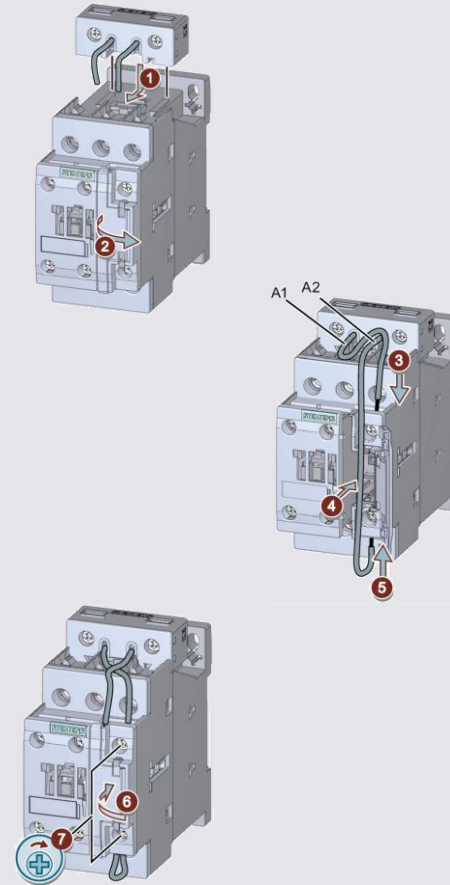
## Coil terminals S0 – S3

Simple device replacement contactor 3RT2.2 – 3RT2.4

"Old" against "New" through

Optional coil connection module:

- 3 Versions:
  - Cable entry from above
  - Cable entry from below
  - Diagonal entry (without coil terminal module)



SIRIUS old – Contactor S0



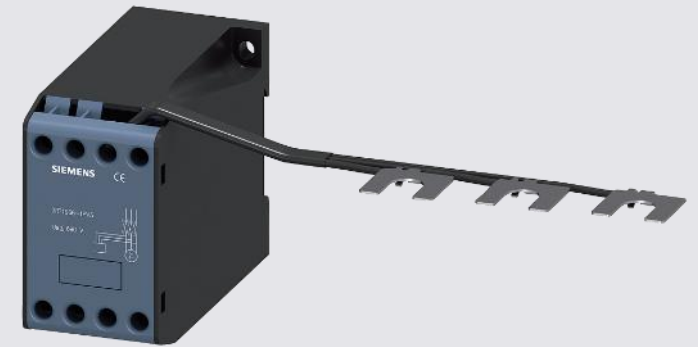
SIRIUS – 3RT201



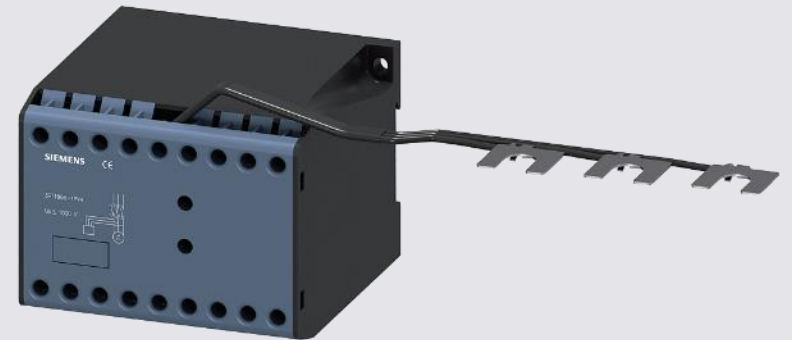


## Surge suppressor for main circuit 3RT12

For attachment to the motor-side main current path connection for damping the switching overvoltage



Up to 690V



Up to 1000V



[siemens.com/sirius-control](https://www.siemens.com/sirius-control)

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