



power contactor, AC-3e/AC-3, 12 A, 5.5 kW / 400 V, 1 NO + 1 NC, 110 V AC, 50 Hz 120 V, 60 Hz, 3-pole frame size S0, spring-loaded terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
<b>General technical data</b>	
size of contactor	S0
product extension	
• function module for communication	No
• auxiliary switch	Yes
power loss [W] for rated value of the current	
• at AC in hot operating state	0.9 W
• at AC in hot operating state per pole	0.3 W
• without load current share typical	7.9 W
insulation voltage	
• of main circuit with degree of pollution 3 rated value	690 V
• of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
• of main circuit rated value	6 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	7,5g / 5 ms, 4,7g / 10 ms
shock resistance with sine pulse	
• at AC	11,8g / 5 ms, 7,4g / 10 ms
mechanical service life (switching cycles)	
• of contactor typical	10 000 000
• of the contactor with added electronically optimized auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2009
<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
<b>Main circuit</b>	

number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	
• at AC-3 rated value maximum	690 V
• at AC-3e rated value maximum	690 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	40 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	40 A
— up to 690 V at ambient temperature 60 °C rated value	35 A
• at AC-3	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
— at 690 V rated value	9 A
• at AC-3e	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
— at 690 V rated value	9 A
• at AC-4 at 400 V rated value	12.5 A
• at AC-5a up to 690 V rated value	35.2 A
• at AC-5b up to 400 V rated value	9.9 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	11.4 A
— up to 400 V for current peak value n=20 rated value	11.4 A
— up to 500 V for current peak value n=20 rated value	11.3 A
— up to 690 V for current peak value n=20 rated value	9 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	7.6 A
— up to 400 V for current peak value n=30 rated value	7.6 A
— up to 500 V for current peak value n=30 rated value	7.6 A
— up to 690 V for current peak value n=30 rated value	7.6 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm <sup>2</sup>
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	5.5 A
• at 690 V rated value	5.5 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A

— at 600 V rated value	1.4 A
• <b>at 1 current path at DC-3 at DC-5</b>	
— at 24 V rated value	20 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
• <b>with 2 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
• <b>with 3 current paths in series at DC-3 at DC-5</b>	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
<b>operating power</b>	
• <b>at AC-3</b>	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	7.5 kW
• <b>at AC-3e</b>	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	7.5 kW
<b>operating power for approx. 200000 operating cycles at AC-4</b>	
• at 400 V rated value	2.6 kW
• at 690 V rated value	4.6 kW
<b>operating apparent power at AC-6a</b>	
• up to 230 V for current peak value n=20 rated value	4.5 kVA
• up to 400 V for current peak value n=20 rated value	7.8 kVA
• up to 500 V for current peak value n=20 rated value	9.8 kVA
• up to 690 V for current peak value n=20 rated value	10.7 kVA
<b>operating apparent power at AC-6a</b>	
• up to 230 V for current peak value n=30 rated value	3 kVA
• up to 400 V for current peak value n=30 rated value	5.2 kVA
• up to 500 V for current peak value n=30 rated value	6.5 kVA
• up to 690 V for current peak value n=30 rated value	9 kVA
<b>short-time withstand current in cold operating state up to 40 °C</b>	
• limited to 1 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 5 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 10 s switching at zero current maximum	170 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 30 s switching at zero current maximum	126 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum	105 A; Use minimum cross-section acc. to AC-1 rated value
<b>no-load switching frequency</b>	
• at AC	5 000 1/h
<b>operating frequency</b>	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	1 000 1/h
• at AC-3 maximum	1 000 1/h
• at AC-3e maximum	1 000 1/h
• at AC-4 maximum	300 1/h
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage at AC</b>	
• at 50 Hz rated value	110 V
• at 60 Hz rated value	120 V
<b>operating range factor control supply voltage rated</b>	

<b>value of magnet coil at AC</b>	0.8 ... 1.1
• at 50 Hz	0.8 ... 1.1
• at 60 Hz	
<b>apparent pick-up power of magnet coil at AC</b>	68 VA
• at 50 Hz	67 VA
• at 60 Hz	
<b>inductive power factor with closing power of the coil</b>	0.72
• at 50 Hz	0.74
• at 60 Hz	
<b>apparent holding power of magnet coil at AC</b>	7.9 VA
• at 50 Hz	6.5 VA
• at 60 Hz	
<b>inductive power factor with the holding power of the coil</b>	0.25
• at 50 Hz	0.28
• at 60 Hz	
<b>closing delay</b>	8 ... 40 ms
• at AC	
<b>opening delay</b>	4 ... 16 ms
• at AC	
<b>arcing time</b>	10 ... 10 ms
<b>control version of the switch operating mechanism</b>	Standard A1 - A2

#### Auxiliary circuit

number of NC contacts for auxiliary contacts	1
instantaneous contact	
number of NO contacts for auxiliary contacts	1
instantaneous contact	
operational current at AC-12 maximum	10 A
<b>operational current at AC-15</b>	
• at 230 V rated value	10 A
• at 400 V rated value	3 A
• at 500 V rated value	2 A
• at 690 V rated value	1 A
<b>operational current at DC-12</b>	
• at 24 V rated value	10 A
• at 48 V rated value	6 A
• at 60 V rated value	6 A
• at 110 V rated value	3 A
• at 125 V rated value	2 A
• at 220 V rated value	1 A
• at 600 V rated value	0.15 A
<b>operational current at DC-13</b>	
• at 24 V rated value	10 A
• at 48 V rated value	2 A
• at 60 V rated value	2 A
• at 110 V rated value	1 A
• at 125 V rated value	0.9 A
• at 220 V rated value	0.3 A
• at 600 V rated value	0.1 A
<b>contact reliability of auxiliary contacts</b>	1 faulty switching per 100 million (17 V, 1 mA)

#### UL/CSA ratings

<b>full-load current (FLA) for 3-phase AC motor</b>	
• at 480 V rated value	11 A
• at 600 V rated value	11 A
<b>yielded mechanical performance [hp]</b>	
• for single-phase AC motor	
— at 110/120 V rated value	1 hp
— at 230 V rated value	2 hp
• for 3-phase AC motor	
— at 200/208 V rated value	3 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	7.5 hp
— at 575/600 V rated value	10 hp
<b>contact rating of auxiliary contacts according to UL</b>	A600 / P600

## Short-circuit protection

### design of the fuse link

- for short-circuit protection of the main circuit
  - with type of coordination 1 required
  - with type of assignment 2 required
- for short-circuit protection of the auxiliary switch required

gG: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)  
gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)  
gG: 10 A (500 V, 1 kA)

## Installation/ mounting/ dimensions

### mounting position

+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface  
screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715

### fastening method

- side-by-side mounting

### height

102 mm

### width

45 mm

### depth

97 mm

### required spacing

- with side-by-side mounting
  - forwards 10 mm
  - upwards 10 mm
  - downwards 10 mm
  - at the side 0 mm
- for grounded parts
  - forwards 10 mm
  - upwards 10 mm
  - at the side 6 mm
  - downwards 10 mm
- for live parts
  - forwards 10 mm
  - upwards 10 mm
  - downwards 10 mm
  - at the side 6 mm

## Connections/ Terminals

### type of electrical connection

- for main current circuit
- for auxiliary and control circuit
- at contactor for auxiliary contacts
- of magnet coil

spring-loaded terminals  
spring-loaded terminals  
Spring-type terminals  
Spring-type terminals

### type of connectable conductor cross-sections

- for main contacts
  - solid 2x (1 ... 10 mm<sup>2</sup>)
  - solid or stranded 2x (1 ... 10 mm<sup>2</sup>)
  - finely stranded with core end processing 2x (1 ... 6 mm<sup>2</sup>)
  - finely stranded without core end processing 2x (1 ... 6 mm<sup>2</sup>)
- at AWG cables for main contacts 2x (18 ... 8)

2x (1 ... 10 mm<sup>2</sup>)  
2x (1 ... 10 mm<sup>2</sup>)  
2x (1 ... 6 mm<sup>2</sup>)  
2x (1 ... 6 mm<sup>2</sup>)  
2x (18 ... 8)

### connectable conductor cross-section for main contacts

- solid 1 ... 10 mm<sup>2</sup>
- stranded 1 ... 10 mm<sup>2</sup>
- finely stranded with core end processing 1 ... 6 mm<sup>2</sup>
- finely stranded without core end processing 1 ... 6 mm<sup>2</sup>

1 ... 10 mm<sup>2</sup>  
1 ... 10 mm<sup>2</sup>  
1 ... 6 mm<sup>2</sup>  
1 ... 6 mm<sup>2</sup>

### connectable conductor cross-section for auxiliary contacts

- solid or stranded 0.5 ... 2.5 mm<sup>2</sup>
- finely stranded with core end processing 0.5 ... 1.5 mm<sup>2</sup>
- finely stranded without core end processing 0.5 ... 2.5 mm<sup>2</sup>

0.5 ... 2.5 mm<sup>2</sup>  
0.5 ... 1.5 mm<sup>2</sup>  
0.5 ... 2.5 mm<sup>2</sup>

### type of connectable conductor cross-sections

- for auxiliary contacts
  - solid or stranded 2x (0.5 ... 2.5 mm<sup>2</sup>)
  - finely stranded with core end processing 2x (0.5 ... 1.5 mm<sup>2</sup>)
  - finely stranded without core end processing 2x (0.5 ... 2.5 mm<sup>2</sup>)
- at AWG cables for auxiliary contacts 2x (20 ... 14)

2x (0.5 ... 2.5 mm<sup>2</sup>)  
2x (0.5 ... 1.5 mm<sup>2</sup>)  
2x (0.5 ... 2.5 mm<sup>2</sup>)  
2x (20 ... 14)

### AWG number as coded connectable conductor cross section

• for main contacts	18 ... 8
• for auxiliary contacts	20 ... 14

## Safety related data

<b>product function</b>	
• mirror contact according to IEC 60947-4-1	Yes
B10 value with high demand rate according to SN 31920	450 000
<b>proportion of dangerous failures</b>	
• with low demand rate according to SN 31920	40 %
• with high demand rate according to SN 31920	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to IEC 61508	20 y
<b>protection class IP on the front according to IEC 60529</b>	IP20
<b>touch protection on the front according to IEC 60529</b>	finger-safe, for vertical contact from the front
<b>suitability for use</b>	
• safety-related switching OFF	Yes

## Certificates/ approvals

### General Product Approval



[Confirmation](#)



KC



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates
	<a href="#">Type Examination Certificate</a>	EG-Konf.	<a href="#">Type Test Certificates/Test Report</a> <a href="#">Special Test Certificate</a>

## Marine / Shipping



Marine / Shipping	other	Railway
	<a href="#">Confirmation</a>	<a href="#">Confirmation</a> <a href="#">Vibration and Shock</a>

## Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

<https://www.siemens.com/ic10>

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2024-2AK60>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-2AK60>

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AK60>

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

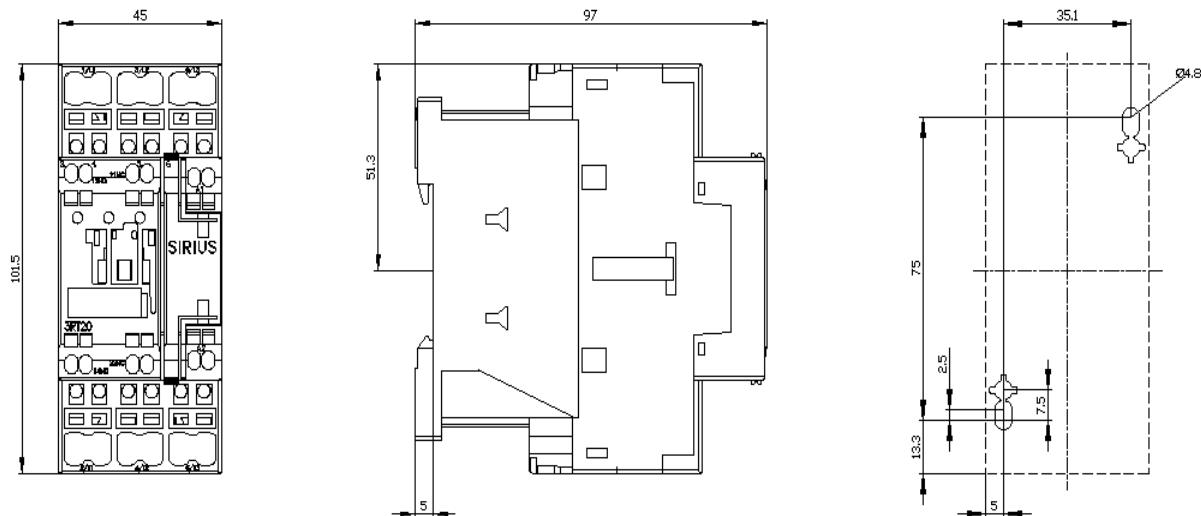
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2024-2AK60&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2024-2AK60&lang=en)

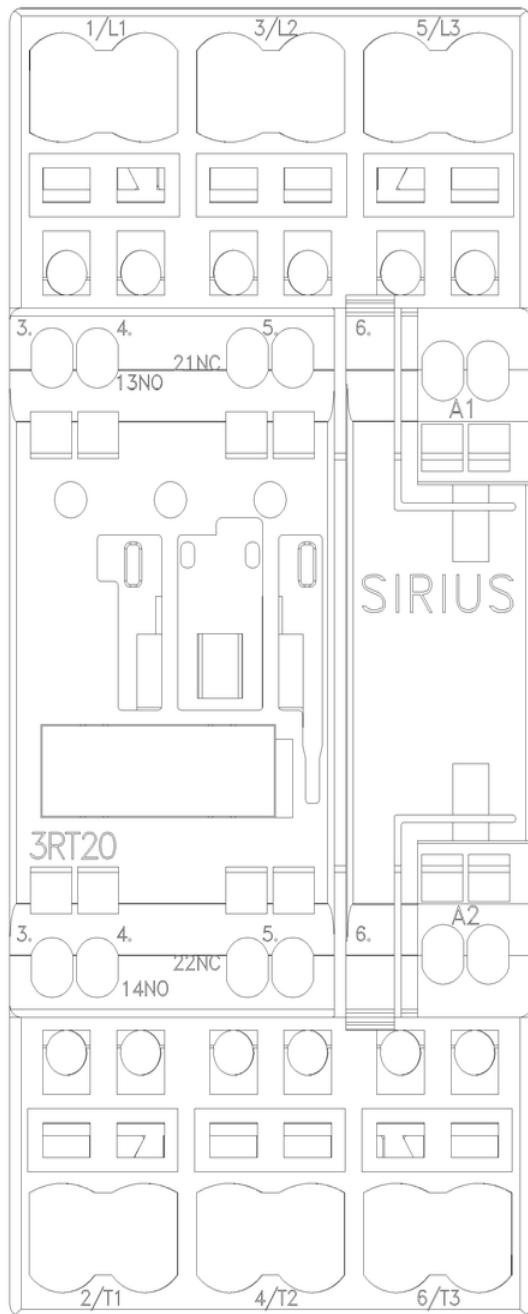
Characteristic: Tripping characteristics,  $I^2t$ , Let-through current

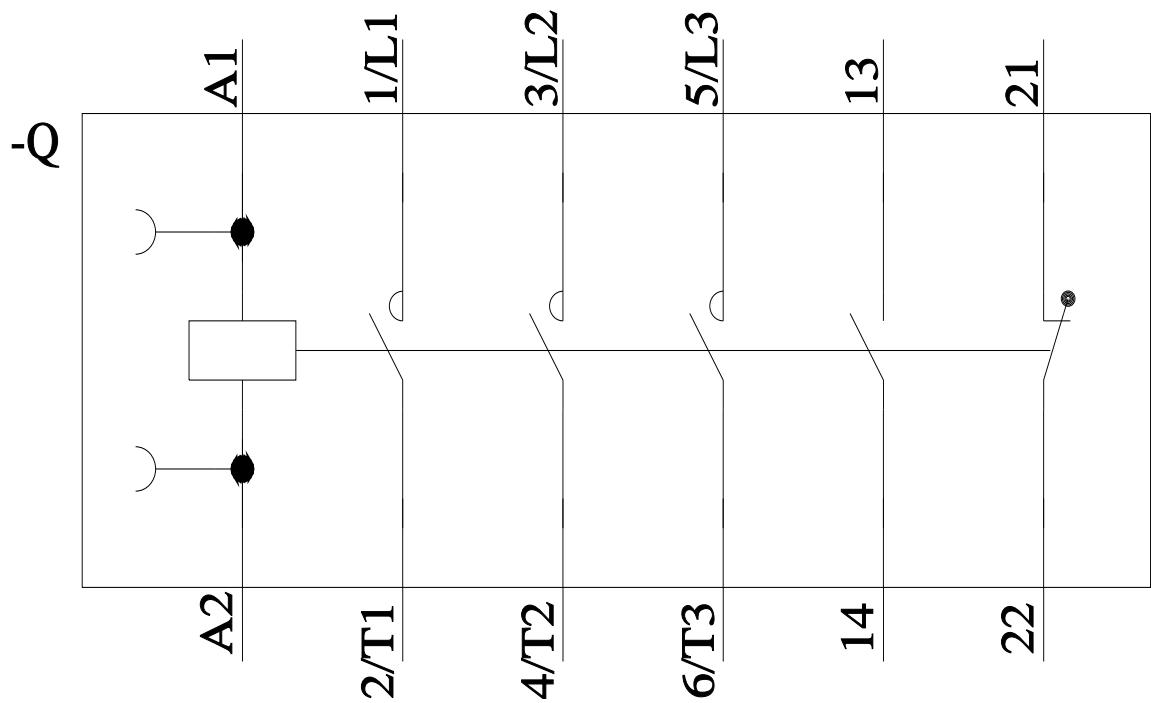
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AK60/char>

Further characteristics (e.g. electrical endurance, switching frequency)

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mfb=3RT2024-2AK60&objecttype=14&gridview=view1>







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