

power contactor, AC-3 40 A, 18.5 kW / 400 V 1 NO + 1 NC, 24 V DC with varistor, 3-pole, Size S2, screw terminal Suitable for 2 A PLC outputs



Product brand name	SIRIUS
Product designation	Coupling relay
Product type designation	3RT2

General technical data	
Size of contactor	S2
Product extension	
<ul style="list-style-type: none"> function module for communication 	No
<ul style="list-style-type: none"> Auxiliary switch 	Yes
Surge voltage resistance	
<ul style="list-style-type: none"> of main circuit rated value 	6 kV
<ul style="list-style-type: none"> of auxiliary circuit rated value 	6 kV
maximum permissible voltage for safe isolation	
<ul style="list-style-type: none"> between coil and main contacts acc. to EN 60947-1 	400 V
Protection class IP	
<ul style="list-style-type: none"> on the front 	IP20
<ul style="list-style-type: none"> of the terminal 	IP00
Shock resistance at rectangular impulse	
<ul style="list-style-type: none"> at DC 	7.7g / 5 ms, 4.5g / 10 ms

Shock resistance with sine pulse	
• at DC	12g / 5 ms, 7g / 10 ms
Mechanical service life (switching cycles)	
• of contactor typical	10 000 000
• of the contactor with added electronics-compatible auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	10 000 000
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	K
Reference code acc. to DIN EN 81346-2	Q

Ambient conditions

Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
• during operation	-25 ... +60 °C
• during storage	-55 ... +80 °C

Main circuit

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
Operating current	
• at AC-1 at 400 V	
— at ambient temperature 40 °C rated value	60 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	60 A
— up to 690 V at ambient temperature 60 °C rated value	55 A
• at AC-2 at 400 V rated value	40 A
• at AC-3	
— at 400 V rated value	40 A
— at 500 V rated value	40 A
— at 690 V rated value	24 A
• at AC-4 at 400 V rated value	35 A
• at AC-5a up to 690 V rated value	52.8 A
• at AC-5b up to 400 V rated value	33.2 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	36.5 A

— up to 400 V for current peak value n=20 rated value	36.5 A
— up to 500 V for current peak value n=20 rated value	36.5 A
— up to 690 V for current peak value n=20 rated value	24 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	24.2 A
— up to 400 V for current peak value n=30 rated value	24.2 A
— up to 500 V for current peak value n=30 rated value	24.2 A
— up to 690 V for current peak value n=30 rated value	24 A
Minimum cross-section in main circuit	
• at maximum AC-1 rated value	16 mm ²
Operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	22 A
• at 690 V rated value	18.5 A
Operating current	
• at 1 current path at DC-1	
— at 24 V rated value	55 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	55 A
— at 110 V rated value	45 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	55 A
— at 110 V rated value	55 A
— at 220 V rated value	45 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
Operating current	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	35 A

— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.1 A
— at 600 V rated value	0.06 A
• with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	55 A
— at 110 V rated value	25 A
— at 220 V rated value	5 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
• with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 220 V rated value	25 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.35 A
Operating power	
• at AC-1	
— at 230 V rated value	23 kW
— at 230 V at 60 °C rated value	21 kW
— at 400 V rated value	39 kW
— at 400 V at 60 °C rated value	36 kW
— at 690 V rated value	68 kW
— at 690 V at 60 °C rated value	62 kW
• at AC-2 at 400 V rated value	18.5 kW
• at AC-3	
— at 230 V rated value	11 kW
— at 400 V rated value	18.5 kW
— at 500 V rated value	22 kW
— at 690 V rated value	22 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	11.6 kW
• at 690 V rated value	16.8 kW
Thermal short-time current limited to 10 s	400 A
Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor	2.2 W
No-load switching frequency	
• at DC	1 500 1/h
Operating frequency	
• at AC-1 maximum	1 200 1/h
• at AC-2 maximum	750 1/h

- at AC-3 maximum 1 000 1/h
- at AC-4 maximum 300 1/h

Control circuit/ Control

Type of voltage of the control supply voltage	DC
Control supply voltage at DC	
• rated value	24 V
Operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.8
• Full-scale value	1.2
Design of the surge suppressor	with varistor
Inrush current peak	
• at 24 V	2 A
Duration of inrush current peak	
• at 24 V	15 μ s
Closing power of magnet coil at DC	21.5 W
Holding power of magnet coil at DC	1 W
Closing delay	
• at DC	45 ... 60 ms
Opening delay	
• at DC	35 ... 55 ms
Arcing time	10 ... 20 ms

Auxiliary circuit

Number of NC contacts for auxiliary contacts	
• instantaneous contact	1
Number of NO contacts for auxiliary contacts	
• instantaneous contact	1
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
• 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
Operating current at DC-12	
• 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

Operating current at DC-13	
<ul style="list-style-type: none"> • at 24 V rated value • at 48 V rated value • at 60 V rated value • at 110 V rated value • at 125 V rated value • at 220 V rated value • at 600 V rated value 	<p>10 A</p> <p>2 A</p> <p>2 A</p> <p>1 A</p> <p>0.9 A</p> <p>0.3 A</p> <p>0.1 A</p>
Contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)

UL/CSA ratings

Full-load current (FLA) for three-phase AC motor	
<ul style="list-style-type: none"> • at 480 V rated value • at 600 V rated value 	<p>40 A</p> <p>41 A</p>
Yielded mechanical performance [hp]	
<ul style="list-style-type: none"> • for single-phase AC motor <ul style="list-style-type: none"> — at 110/120 V rated value — at 230 V rated value • for three-phase AC motor <ul style="list-style-type: none"> — at 200/208 V rated value — at 220/230 V rated value — at 460/480 V rated value — at 575/600 V rated value 	<p>3 hp</p> <p>7.5 hp</p> <p>10 hp</p> <p>15 hp</p> <p>30 hp</p> <p>40 hp</p>
Contact rating of auxiliary contacts according to UL	A600 / P600

Short-circuit protection

Design of the fuse link	
<ul style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — with type of coordination 1 required — with type of assignment 2 required • for short-circuit protection of the auxiliary switch required 	<p>gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)</p> <p>gG: 80A (690V,100kA), aM: 50A (690V,100kA), BS88: 63A (415V,80kA)</p> <p>gG: 10 A (500 V, 1 kA)</p>

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
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
<ul style="list-style-type: none"> • Side-by-side mounting 	Yes
Height	114 mm
Width	55 mm
Depth	130 mm

Required spacing	
<ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side • for grounded parts <ul style="list-style-type: none"> — forwards — upwards — at the side — downwards • for live parts <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side 	<p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>0 mm</p> <p>10 mm</p> <p>10 mm</p> <p>6 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>10 mm</p> <p>6 mm</p>

Connections/ Terminals

Type of electrical connection <ul style="list-style-type: none"> • for main current circuit • for auxiliary and control current circuit • at contactor for auxiliary contacts • of magnet coil 	<p>screw-type terminals</p> <p>screw-type terminals</p> <p>Screw-type terminals</p> <p>Screw-type terminals</p>
Type of connectable conductor cross-sections <ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — single or multi-stranded — finely stranded with core end processing • at AWG conductors for main contacts 	<p>2x (1 ... 35 mm²), 1x (1 ... 50 mm²)</p> <p>2x (1 ... 25 mm²), 1x (1 ... 35 mm²)</p> <p>2x (18 ... 2), 1x (18 ... 1)</p>
Connectable conductor cross-section for main contacts <ul style="list-style-type: none"> • finely stranded with core end processing 	<p>1 ... 35 mm²</p>
Connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> • single or multi-stranded • finely stranded with core end processing 	<p>0.5 ... 2.5 mm²</p> <p>0.5 ... 2.5 mm²</p>
Type of connectable conductor cross-sections <ul style="list-style-type: none"> • for auxiliary contacts <ul style="list-style-type: none"> — single or multi-stranded — finely stranded with core end processing • at AWG conductors for auxiliary contacts 	<p>2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²)</p> <p>2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)</p> <p>2x (20 ... 16), 2x (18 ... 14)</p>
AWG number as coded connectable conductor cross section <ul style="list-style-type: none"> • for main contacts 	<p>18 ... 1</p>

- for auxiliary contacts

20 ... 14

Safety related data

B10 value	
• with high demand rate acc. to SN 31920	1 000 000
Proportion of dangerous failures	
• with low demand rate acc. to SN 31920	40 %
• with high demand rate acc. to SN 31920	73 %
Failure rate [FIT]	
• with low demand rate acc. to SN 31920	100 FIT
Product function	
• Mirror contact acc. to IEC 60947-4-1	Yes
• positively driven operation acc. to IEC 60947-5-1	No
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529

Certificates/ approvals

General Product Approval	EMC	Functional Safety/Safety of Machinery
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[Type Examination Certificate](#)

Declaration of Conformity	Test Certificates	Marine / Shipping
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[Miscellaneous](#)

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)



Marine / Shipping	other
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[Confirmation](#)

Further information

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

www.siemens.com/sirius/catalogs

Industry Mall (Online ordering system)

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mfb=3RT2035-1KB40>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2035-1KB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2035-1KB40>

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

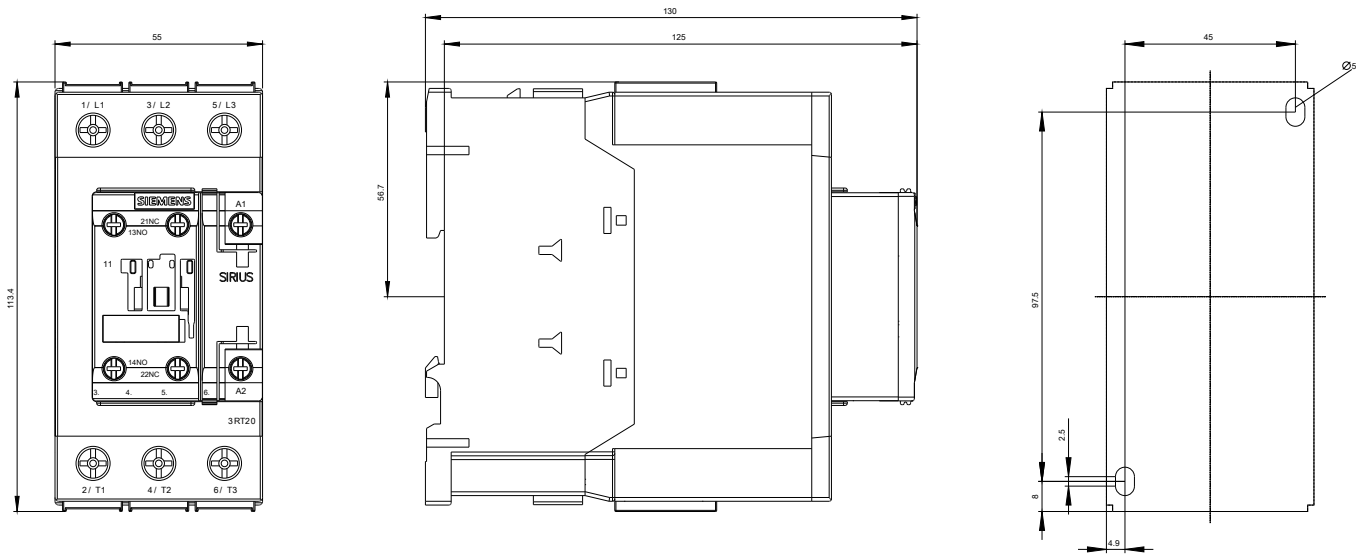
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2035-1KB40&lang=en

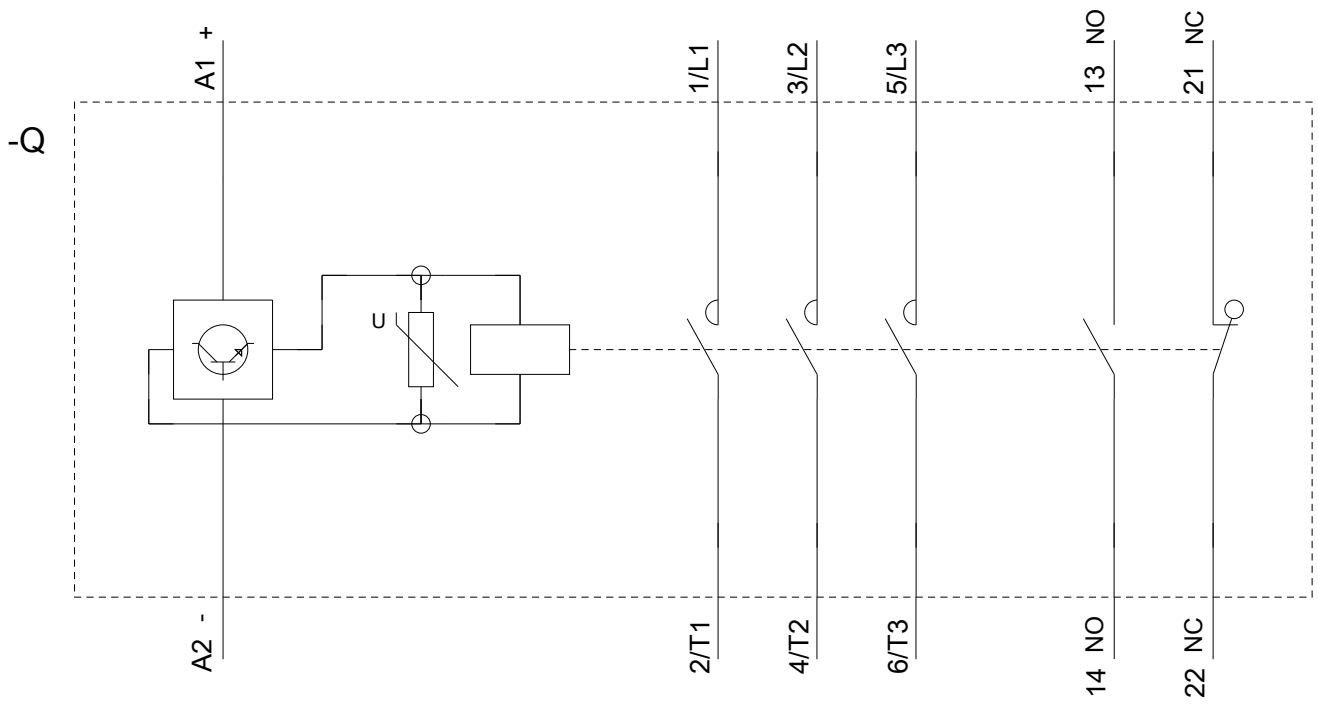
Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2035-1KB40/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2035-1KB40&objectype=14&gridview=view1>





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