3RT2024-1KB40-1AA0

Data sheet



power contactor, AC-3e/AC-3, 12 A, 5.5 kW / 400 V, 3-pole, 24 V DC, 0.7-1.25* Us, with plugged-in varistor, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0, suitable for PLC outputs, not expandable with auxiliary switch , upright mounting position

product brand name	SIRIUS
product designation	Coupling contactor
product type designation	3RT2
General technical data	
size of contactor	S0
product extension	
 function module for communication 	No
auxiliary switch	No
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 	4.5 W
type of calculation of power loss depending on pole	quadratic
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 protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at DC	10g / 5 ms, 7,5g / 10 ms
shock resistance with sine pulse	
• at DC	15g / 5 ms, 10g / 10 ms
mechanical service life (operating 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
SVHC substance name	Lead - 7439-92-1
Weight	0.597 kg
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
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30	95 %

maximum ain circuit	
	3
number of poles for main current circuit	
number of NO contacts for main contacts	3
operating voltage	COOL
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	40 A
value	
— up to 690 V at ambient temperature 60 °C rated	35 A
value	
• 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 mm²
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 60 V rated value	20 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 60 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 60 V rated value	35 A
— at 110 V rated value	35 A
	35 A

— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
 at 1 current path at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 60 V rated value	5 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 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	35 A
— at 60 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
with 3 current paths in series at DC-3 at DC-5	0.1071
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
	0.6 A
— at 440 V rated value — at 600 V rated value	0.6 A
	U.0 A
operating power	E E IAM
at AC-2 at 400 V rated value	5.5 kW
• at AC-3	0.1747
— 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
• at AC-3e	
— 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
operating power for approx. 200000 operating cycles at AC-	
at 400 V rated value	2.6 kW
at 690 V rated value at 690 V rated value	4.6 kW
operating apparent power at AC-6a	4.0 KVV
	4.5 b\/A
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 up to 500 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
operating apparent power at AC-6a	21///
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
short-time withstand current in cold operating state up to 40 °C	
Iimited to 1 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
limited to 1 3 switching at zero current maximum limited to 5 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value
Ilmited to 3 s switching at zero current maximum Iimited to 10 s switching at zero current maximum	170 A; Use minimum cross-section acc. to AC-1 rated value
-	126 A; Use minimum cross-section acc. to AC-1 rated value
Ilmited to 30 s switching at zero current maximum Ilmited to 60 s switching at zero current maximum	
limited to 60 s switching at zero current maximum no load switching frequency.	105 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
	1 500 1/h
• at DC	1 500 1/h
operating frequency	
	1 500 1/h 1 000 1/h 1 000 1/h

1400	4 000 4 //
• at AC-3 maximum	1 000 1/h
• at AC-3e 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	0.7
Initial value full-scale value	0.7
	1.25
design of the surge suppressor	with varistor
closing power of magnet coil at DC	4.5 W
holding power of magnet coil at DC	4.5 W
closing delay	F2
• at DC	52 270 ms
opening delay	45 04
• at DC	15 21 ms
arcing time	10 10 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational 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	1A
operational 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	1A
at 600 V rated value	0.15 A
operational current at DC-13	0.1071
at 24 V rated value	10 A
at 48 V rated value	2 A
at 40 V rated value at 60 V rated value	2 A
at 110 V rated value	1A
at 110 V rated value at 125 V rated value	0.9 A
at 125 V rated value at 220 V rated value	0.3 A
at 220 V rated value at 600 V rated value	0.3 A 0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	riduity Switching per 100 million (17 V, 1 mA)
full-load current (FLA) for 3-phase AC motor	
at 480 V rated value	11 A
at 400 V rated value at 600 V rated value	11 A
yielded mechanical performance [hp]	
• 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	2 np
at 200/208 V rated value	3 hp
— at 200/208 V rated value — 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
contact rating of auxiliary contacts according to UL	A600 / P600

seeing of the ministure circuit breaker for short-circuit protection of the autiliary circuit protection of the faculary circuit protection of the main circuit - with type of coordination 1 required - with type of assignment 2 required - for short-circuit protection of the autiliary switch required - with type of coordination 1 required - for short-circuit protection of the autiliary switch required - for short-circuit protection of the autiliary switch required - for short-circuit protection of the autiliary switch required - for short-circuit protection of the autiliary switch required - for short-circuit protection of the autiliary switch required - fastering method side-by-side mounting - fastering method side-by-side mounting - forwards - upwards - upwards - upwards - upwards - otomication 5 and 10 mm - forwards - upwards - at the side - otomication 5 and 10 mm - otomication 5 and 10 mm - upwards - upwards - otomication 5 and 10 mm - otomication 6	Short-circuit protection	
design of the fuse link • for short-circuit protection of the main circuit — with type of accordination 1 required — with type of accordination the auditishing which required flasheling method side-by-side mounting strategian method side-by-side mounting flasheling method side-by-side mounting flasheling method side-by-side mounting strategian method side-by-side mounting strategian method side-by-side mounting flasheling method side-by-side mounting strategian method side		C characteristic: 10 A; 0.4 kA
• for short-circuit protection of the main circuit		
with type of assignment 2 required with type of assignment 2 required for short-circuit protection of the auxiliary switch required fastening method side-by-side mounting fastening method side-by-side mounting forwards forwards forwards at the side at the side downwards at the side downwards at the side downwards forwards forwards forwards forwards forwards forwards forwards the side downwards the side downwards forwards formands forwards forwards forwards forwards forwards forwards formands forwards -	-	
with type of assignment 2 required 60: 28A (690V, 100kA), BM: 20A (690V, 100kA), BS88: 28A (415V,80kA) 60: 10 A (590 V, 1 kA) 60: 10 A (·	
* of short-circuit protection of the suutileny switch required installation insulating dimensions **mounting position** * tastening method side-by-side mounting of statening method side-by-side mounting of side-by-side mounting side-by-side	• • • • • • • • • • • • • • • • • • • •	
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Sestenting method side-by-side mounting Yes Serew and snap-on mounting onto 35 mm DIN rail according to DIN EN 607 height width 45 mm		
Assening method Series and snap-on mounting onto 35 mm DIN rail according to DIN EN 607* Method		
Medital	· · · · · · · · · · · · · · · · · · ·	
width 45 mm depth 107 mm required spacing 107 mm • with side-by-side mounting 10 mm — forwards 10 mm — downwards 10 mm — at the side 0 mm — forwards 10 mm — upwards 10 mm — at the side 6 mm — downwards 10 mm — forwards 10 mm — downwards 10 mm — for man current circuit screw-type terminals type of electrical connection screw-type terminals type of electrical connection screw-type terminals •	<u> </u>	
depth		
Total spacing		
• with side-by-side mounting	·	107 mm
forwards upwards upwards 10 mm 10		
- upwards - downwards - at the side • for grounded parts - forwards - upwards - upwards - at the side - downwards - forwards - forwards - forwards - forwards - forwards - forwards - upwards - downwards - upwards - upwards - upwards - downwards - upwards - downwards -	-	10 mm
- downwards - at the side		
• for grounded parts - for grounded parts - for grounded parts - upwards - at the side - downwards - for live parts - forwards - for live parts - forwards - upwards - for live parts - forwards - upwards - upwards - upwards - upwards - downwards - for main current circuit • for auxiliary and control circuit • act contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for main contacts - solid - solid or stranded - finely stranded with core end processing • for AWG cables for main contacts • solid • stranded • finely stranded with core end processing • for fawG cables for main contacts • solid • stranded • finely stranded with core end processing • for fawG cables for main contacts • solid • finely stranded with core end processing • for fawG cables for main contacts • solid or stranded • finely stranded with core end processing • for fawG cables for main contacts • solid or stranded • finely stranded with core end processing • for fawG cables for auxiliary contacts • solid or stranded • finely stranded with core end processing • for auxiliary contacts • for fawG cables for auxiliary contacts • for main contacts • for main contacts • for fawG cables for auxiliary c	·	
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- forwards		O THILL
upwards at the side downwards 10 mm downwards 10 mm downwards for live parts forwards 10 mm downwards 10 mm downwards upwards 10 mm downwards 10 mm downwards -		10 mm
- at the side - downwards 10 mm • for live parts - forwards 10 mm - upwards 10 mm - downwards 10 mm - downwards 10 mm - at the side 6 mm Connectables / formais type of electrical connection • for main current circuit screw-type terminals screw-type terminals (screw-type terminals) • for auxiliary and control circuit screw-type terminals (screw-type terminals) • of main current circuit screw-type terminals (screw-type terminals) • for auxiliary and control circuit screw-type terminals (screw-type terminals) • of magnet coil Screw-type terminals (screw-type terminals) • for main contacts (screw-type terminals) • for main contacts (screw-type terminals) • for main contacts (screw-type terminals) • solid (screw-type terminals) • for main contacts (screw-type terminals) • solid or stranded (screw-type terminals) • solid or stranded (screw-type terminals) • solid or stranded with core end processing (screw-type terminals) • solid or stranded (screw-type terminals		
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- downwards — at the side 6 mm Connections/ Terminals type of electrical connection		
Connections/ Terminals type of electrical connection • for main current circuit • at contactor for auxiliary contacts • of magnet coil type of connectable conductor cross-sections • for main contacts — solid — solid or stranded — finely stranded with core end processing • stranded • finely stranded with core end processing • for auxiliary contacts • solid • solid or stranded — finely stranded with core end processing • for auxiliary contacts • solid • solid or stranded • finely stranded with core end processing • for AWG cables for main contacts • solid • solid or stranded • finely stranded with core end processing • for auxiliary contacts • solid or stranded • finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded • finely stranded with core end processing • for AWG cables for auxiliary contacts • solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded • for auxiliary contacts — solid or stranded • for auxiliary contacts — for auxiliary contacts • for auxiliary contacts	·	
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• finely stranded with core end processing connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing • for auxiliary contacts — solid or stranded — finely stranded with core end processing — for auxiliary contacts — solid or stranded — finely stranded with core end processing — for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts • for auxiliary contacts 2x (20 16), 2x (18 14) AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 14	• solid	1 10 mm²
connectable conductor cross-section for auxiliary contacts • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14) AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 14	• stranded	1 10 mm²
 solid or stranded finely stranded with core end processing 0.5 2.5 mm² type of connectable conductor cross-sections for auxiliary contacts solid or stranded finely stranded with core end processing for AWG cables for auxiliary contacts for AWG number as coded connectable conductor cross section for main contacts for auxiliary contacts for auxiliary contacts 16 8 for auxiliary contacts 20 14 Safety related data	 finely stranded with core end processing 	1 10 mm²
finely stranded with core end processing type of connectable conductor cross-sections of or auxiliary contacts	connectable conductor cross-section for auxiliary contacts	
type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 16 8 • for auxiliary contacts 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14) AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 14	 solid or stranded 	0.5 2.5 mm²
for auxiliary contacts — solid or stranded — finely stranded with core end processing • for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts Safety related data 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14) 16 8 20 14	 finely stranded with core end processing 	0.5 2.5 mm²
- solid or stranded - finely stranded with core end processing - finely stranded with core end processing • for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 16 8 • for auxiliary contacts 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14) AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 14	type of connectable conductor cross-sections	
— finely stranded with core end processing • for AWG cables for auxiliary contacts 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14) AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts • for auxiliary contacts 20 14 Safety related data	 for auxiliary contacts 	
for AWG cables for auxiliary contacts AWG number as coded connectable conductor cross section for main contacts for auxiliary contacts for auxiliary contacts Safety related data 2x (20 16), 2x (18 14) 16 8 20 14	— solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
AWG number as coded connectable conductor cross section • for main contacts • for auxiliary contacts 20 14 Safety related data	 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
section • for main contacts • for auxiliary contacts Safety related data	 for AWG cables for auxiliary contacts 	2x (20 16), 2x (18 14)
• for auxiliary contacts 20 14 Safety related data		
Safety related data	• for main contacts	16 8
	for auxiliary contacts	20 14
	Safety related data	
product function	product function	

 mirror contact according to IEC 60947-4-1 	Yes
 positively driven operation according to IEC 60947-5-1 	No
 suitable for safety function 	Yes
suitability for use safety-related switching OFF	Yes
service life maximum	20 a
test wear-related service life necessary	Yes
proportion of dangerous failures	
 with low demand rate according to SN 31920 	40 %
 with high demand rate according to SN 31920 	73 %
B10 value with high demand rate according to SN 31920	1 000 000
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
ISO 13849	
device type according to ISO 13849-1	3
overdimensioning according to ISO 13849-2 necessary	Yes
IEC 61508	
safety device type according to IEC 61508-2	Type A
Electrical Safety	
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
Further information	

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT2024-1KB40-1AA0

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-1KB40-1AA0

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1KB40-1AA0

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

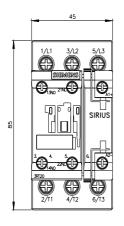
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2024-1KB40-1AA0&lang=en

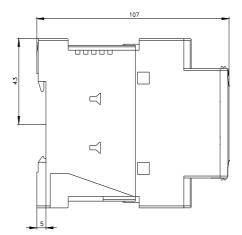
Characteristic: Tripping characteristics, I2t, Let-through current

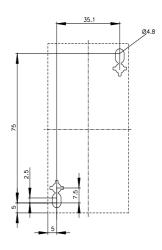
https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1KB40-1AA0/chai

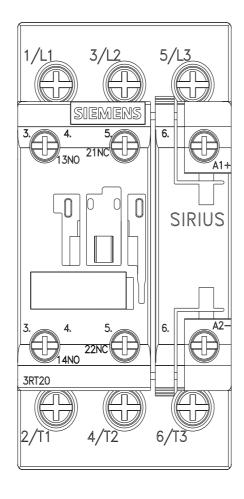
Further characteristics (e.g. electrical endurance, switching frequency)

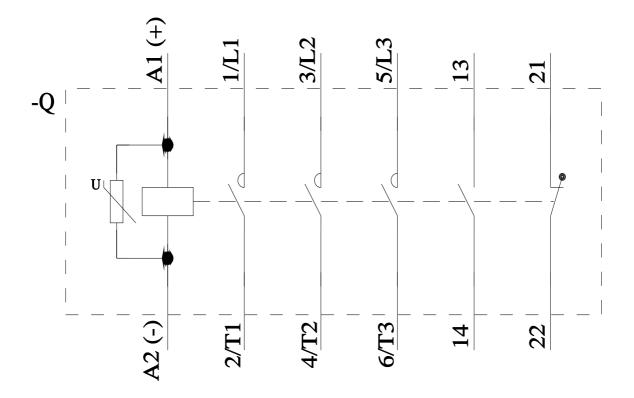
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-1KB40-1AA0&objecttype=14&gridview=view1











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