

power contactor, AC-3 95 A, 45 kW / 400 V 1 NO + 1 NC, 400 V AC, 50 Hz 400-440 V/60 Hz 3-pole, 3 NO, Size S3 screw terminal



product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
Size of contactor	S3
• Product extension function module for communication	No
• product extension auxiliary switch	Yes
• power loss [W] for rated value of the current at AC in hot operating state	19.8 W
• power loss [W] for rated value of the current at AC in hot operating state per pole	6.6 W
power loss [W] for rated value of the current without load current share typical	25 W
Surge voltage resistance	
• of main circuit rated value	8 kV
• of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation	

• between coil and main contacts acc. to EN 60947-1	690 V
protection class IP • on the front • of the terminal	IP20 IP00
Shock resistance at rectangular impulse • at AC	6.7 g / 5 ms, 4.0 g / 10 ms
Shock resistance with sine pulse • at AC	10.6 g / 5 ms, 6.3 g / 10 ms
Mechanical service life (switching cycles) • of contactor typical • of the contactor with added electronics-compatible auxiliary switch block typical • of the contactor with added auxiliary switch block typical	10 000 000 5 000 000 10 000 000
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 • ambient temperature during storage	-25 ... +60 °C -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	1 000 V
• Operating current at AC-1 at 400 V — at ambient temperature 40 °C rated value	130 A
• Operating current at AC-1 — up to 690 V at ambient temperature 40 °C rated value — up to 690 V at ambient temperature 60 °C rated value — up to 1000 V at ambient temperature 40 °C rated value — up to 1000 V at ambient temperature 60 °C rated value	130 A 110 A 70 A 60 A
• Operating current at AC-2 at 400 V rated value • — operating current at AC-3 at 400 V rated value — Operating current at AC-3 at 500 V rated value	95 A 95 A 95 A

— Operating current at AC-3 at 690 V rated value	78 A
• Operating current at AC-4 at 400 V rated value	80 A
• Operating current at AC-5a up to 690 V rated value	114 A
• Operating current at AC-5b up to 400 V rated value	95 A
• Operating current at AC-6a	
— up to 230 V for current peak value n=20 rated value	84.4 A
— up to 400 V for current peak value n=20 rated value	84.4 A
— up to 500 V for current peak value n=20 rated value	84.4 A
— up to 690 V for current peak value n=20 rated value	58 A
• Operating current at AC-6a	
— up to 230 V for current peak value n=30 rated value	56.3 A
— up to 400 V for current peak value n=30 rated value	56.3 A
— up to 500 V for current peak value n=30 rated value	56.3 A
— up to 690 V for current peak value n=30 rated value	56.3 A
Minimum cross-section in main circuit	
• at maximum AC-1 rated value	50 mm ²
Operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	42 A
• at 690 V rated value	30 A
Operating current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A

— at 600 V rated value	1 A
• with 3 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	80 A
— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
Operating current	
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.15 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	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 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	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
• Operating power at AC-2 at 400 V rated value	45 kW
•	
— operating power at AC-3 at 230 V rated value	22 kW
— operating power at AC-3 at 400 V rated value	45 kW
— operating power at AC-3 at 500 V rated value	55 kW
— operating power at AC-3 at 690 V rated value	75 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	22 kW
• at 690 V rated value	27.4 kW
Operating apparent output at AC-6a	

• up to 230 V for current peak value n=20 rated value • up to 400 V for current peak value n=20 rated value • up to 500 V for current peak value n=20 rated value • up to 690 V for current peak value n=20 rated value	33 kV·A 58 kV·A 73 kV·A 69 kV·A
Operating apparent output at AC-6a • up to 230 V for current peak value n=30 rated value • up to 400 V for current peak value n=30 rated value • up to 500 V for current peak value n=30 rated value • up to 690 V for current peak value n=30 rated value	22.4 kV·A 39 kV·A 48.7 kV·A 67.3 kV·A
Short-time withstand current in cold operating state up to 40 °C • limited to 1 s switching at zero current maximum • limited to 5 s switching at zero current maximum • limited to 10 s switching at zero current maximum • limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum	1 725 A; Use minimum cross-section acc. to AC-1 rated value 1 297 A; Use minimum cross-section acc. to AC-1 rated value 946 A; Use minimum cross-section acc. to AC-1 rated value 610 A; Use minimum cross-section acc. to AC-1 rated value 486 A; Use minimum cross-section acc. to AC-1 rated value
No-load switching frequency • at AC	5 000 1/h
• Operating frequency at AC-1 maximum • Operating frequency at AC-2 maximum • operating frequency at AC-3 maximum • Operating frequency at AC-4 maximum	900 1/h 350 1/h 850 1/h 250 1/h
Control circuit/ Control	
Type of voltage of the control supply voltage • Control supply voltage at AC at 50 Hz rated value • control supply voltage at AC at 60 Hz rated value	AC 400 V 400 ... 440 V
Operating range factor control supply voltage rated value of magnet coil at AC • at 50 Hz	0.8 ... 1.1

• at 60 Hz	0.85 ... 1.1
Apparent pick-up power of magnet coil at AC	
• at 50 Hz	348 V·A
• at 60 Hz	296 V·A
Inductive power factor with closing power of the coil	
• at 50 Hz	0.62
• at 60 Hz	0.55
Apparent holding power of magnet coil at AC	
• at 50 Hz	25 V·A
• at 60 Hz	18 V·A
Inductive power factor with the holding power of the coil	
• at 50 Hz	0.35
• at 60 Hz	0.41
Closing delay	
• at AC	13 ... 50 ms
Opening delay	
• at AC	10 ... 21 ms
Arcing time	10 ... 20 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
Operating current at AC-12 maximum	10 A
Operating current at AC-15	
• at 230 V rated value	6 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
• operating current at DC-12 at 48 V rated value	6 A
• Operating current at DC-12 at 60 V rated value	6 A
• operating current at DC-12 at 110 V rated value	3 A
• Operating current at DC-12 at 125 V rated value	2 A
• Operating current at DC-12 at 220 V rated value	1 A
• Operating current at DC-12 at 600 V rated value	0.15 A
• Operating current at DC-13 at 24 V rated value	10 A

• operating current at DC-13 at 48 V rated value	2 A
• Operating current at DC-13 at 60 V rated value	2 A
• operating current at DC-13 at 110 V rated value	1 A
• Operating current at DC-13 at 125 V rated value	0.9 A
• Operating current at DC-13 at 220 V rated value	0.3 A
• Operating current at DC-13 at 600 V rated value	0.1 A
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	
• at 480 V rated value	96 A
• at 600 V rated value	77 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	10 hp
— at 230 V rated value	20 hp
• for three-phase AC motor	
— at 200/208 V rated value	30 hp
— at 220/230 V rated value	30 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	75 hp
contact rating of auxiliary contacts according to UL	A600 / P600

Short-circuit protection

• Design of the fuse link for short-circuit protection of the main circuit with type of coordination 1 required	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA)
• Design of the fuse link for short-circuit protection of the main circuit with type of assignment 2 required	gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)
• design of the fuse link for short-circuit protection of the auxiliary switch required	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
• mounting type	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• mounting type side-by-side mounting	Yes
height	140 mm
width	70 mm
depth	152 mm

required spacing	
• with side-by-side mounting — forwards — upwards — downwards — at the side • for grounded parts — forwards — upwards — at the side — downwards • for live parts — forwards — upwards — downwards — at the side	20 mm 10 mm 10 mm 0 mm 20 mm 10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm

Connections/ Terminals	
• type of electrical connection for main current circuit • type of electrical connection for auxiliary and control current circuit • Type of electrical connection at contactor for auxiliary contacts • Type of electrical connection of magnet coil	screw-type terminals Screw-type terminals Screw-type terminals
• type of connectable conductor cross-sections for main contacts finely stranded with core end processing • type of connectable conductor cross-sections at AWG conductors for main contacts	2x (2.5 ... 35 mm ²), 1x (2.5 ... 50 mm ²) 2x (10 ... 1/0), 1x (10 ... 2)
connectable conductor cross-section for main contacts • solid • stranded • finely stranded with core end processing	2.5 ... 16 mm ² 6 ... 70 mm ² 2.5 ... 50 mm ²
connectable conductor cross-section for auxiliary contacts • single or multi-stranded • finely stranded with core end processing • type of connectable conductor cross-sections for auxiliary contacts single or multi-stranded • type of connectable conductor cross-sections for auxiliary contacts finely stranded with core end processing	0.5 ... 2.5 mm ² 0.5 ... 2.5 mm ² 2x (0,5 ... 1,5 mm ²), 2x (0,75 ... 2,5 mm ²) 2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)

type of connectable conductor cross-sections at AWG conductors for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section - for main contacts - for auxiliary contacts	10 ... 2 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 - with high demand rate acc. to SN 31920	40 % 73 %
failure rate [FIT] with low demand rate acc. to SN 31920	100 FIT
Product function - Mirror contact acc. to IEC 60947-4-1 - positively driven operation acc. to IEC 60947-5-1	Yes 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
Suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval	EMC
 CCC	  CSA
 UL	 EAC
	 RCM

Declaration of Conformity	Test Certificates	Marine / Shipping
 EG-Konf.	Miscellaneous Type Test Certificates/Test Report Special Test Certificate	 ABS
		 LRS

Marine / Shipping		other	Railway
 PRS	 RINA	 RMRS	 DNVGL.COM/AF
		Confirmation	Vibration and Shock

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=3RT2046-1AR60>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2046-1AR60>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AR60>

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

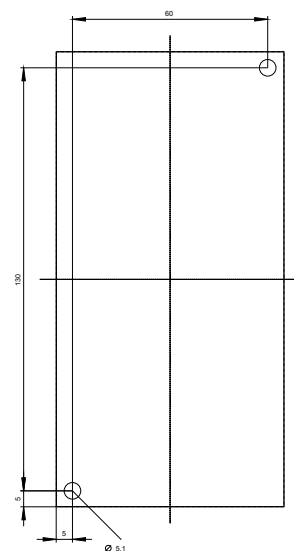
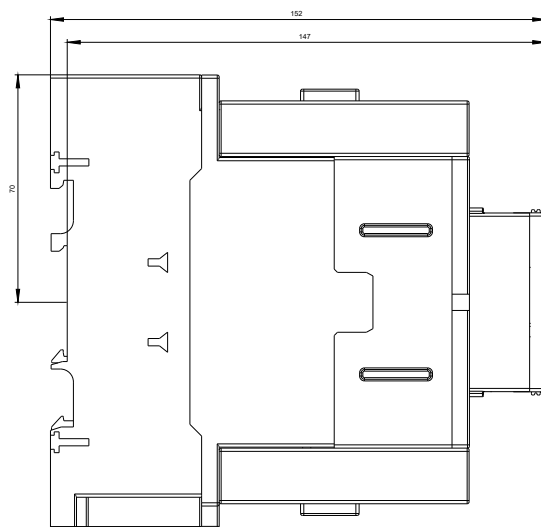
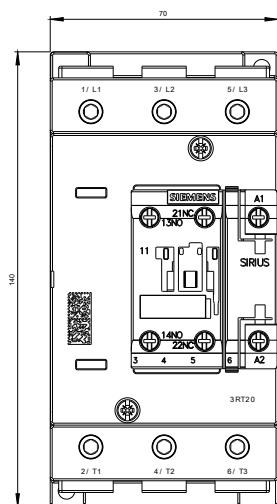
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-1AR60&lang=en

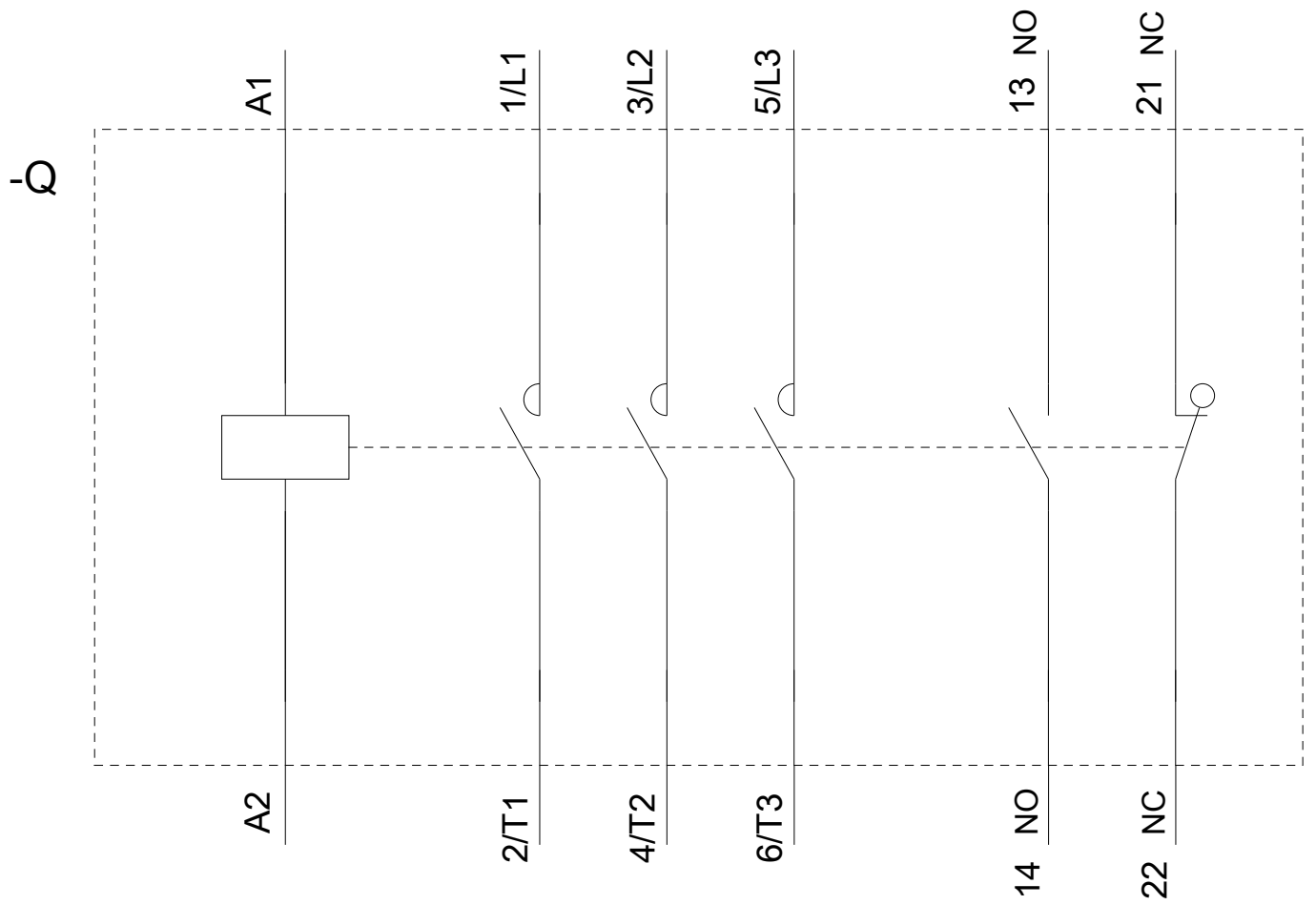
Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-1AR60/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-1AR60&objecttype=14&gridview=view1>





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