SIEMENS

Data sheet 3RT2018-2FB42

Power contactor, AC-3 16 A, 7.5 kW / 400 V 1 NC, 24 V DC with integrated diode, 3-pole, Size S00 Spring-type terminals

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
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	6.6 W
● per pole	2.2 W
power loss [W] for rated value of the current without load current share typical	4 W
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 acc. to EN 60947-1	400 V
shock resistance at rectangular impulse	
● at DC	7.3g / 5 ms, 4.7g / 10 ms
shock resistance with sine pulse	
● at DC	11,4g / 5 ms, 7,3g / 10 ms
mechanical service life (switching cycles)	
● of contactor typical	30 000 000
● 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 acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	01.10.2009 00:00:00
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
● ambient temperature during operation	-25 ... +60 °C
● ambient temperature 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

operational current	
● at AC-1 at 400 V at ambient temperature 40 °C rated value	22 A
● at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
● at AC-3	
— at 400 V rated value	16 A
— at 500 V rated value	12.4 A
— at 690 V rated value	8.9 A
● at AC-4 at 400 V rated value	11.5 A
● at AC-5a up to 690 V rated value	19.4 A
● at AC-5b up to 400 V rated value	13.2 A
● at AC-6a	
— up to 230 V for current peak value n=20 rated value	9.6 A
— up to 400 V for current peak value n=20 rated value	9.6 A
— up to 500 V for current peak value n=20 rated value	9.6 A
— up to 690 V for current peak value n=20 rated value	8.9 A
● at AC-6a	
— up to 230 V for current peak value n=30 rated value	6.6 A
— up to 400 V for current peak value n=30 rated value	6.4 A
— up to 500 V for current peak value n=30 rated value	6.4 A
— up to 690 V for current peak value n=30 rated value	6.4 A
minimum cross-section in main circuit at maximum AC-1 rated value	4 mm²
operational current for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	5.5 A
● at 690 V rated value	4.4 A
operational current	
● at 1 current path at DC-1	
— at 24 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
● with 2 current paths in series at DC-1	
— at 24 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
● with 3 current paths in series at DC-1	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1 A
operational current	
● at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A

— at 110 V rated value	0.1 A
● with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	0.35 A
● with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value	1.5 A
— at 440 V rated value	0.2 A
— at 600 V rated value	0.2 A
operating power	
● at AC-3	
— at 230 V rated value	4 kW
— at 400 V rated value	7.5 kW
— at 500 V rated value	7.5 kW
— at 690 V rated value	7.5 kW
operating power for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	2.5 kW
● at 690 V rated value	3.5 kW
operating apparent power at AC-6a	
● up to 230 V for current peak value n=20 rated value	3.8 kV·A
● up to 400 V for current peak value n=20 rated value	6.6 kV·A
● up to 500 V for current peak value n=20 rated value	8.3 kV·A
● up to 690 V for current peak value n=20 rated value	10.6 kV·A
operating apparent power at AC-6a	
● up to 230 V for current peak value n=30 rated value	2.5 kV·A
● up to 400 V for current peak value n=30 rated value	4.4 kV·A
● up to 500 V for current peak value n=30 rated value	5.5 kV·A
● up to 690 V for current peak value n=30 rated value	7.6 kV·A
short-time withstand current in cold operating state up to 40 °C	
● limited to 1 s switching at zero current maximum	300 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 5 s switching at zero current maximum	169 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 10 s switching at zero current maximum	128 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 30 s switching at zero current maximum	92 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 60 s switching at zero current maximum	74 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
● at DC	10 000 1/h
operating frequency	
● at AC-1 maximum	1 000 1/h
● at AC-2 maximum	750 1/h
● at AC-3 maximum	750 1/h
● at AC-4 maximum	250 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	1.1
design of the surge suppressor	with diode
closing power of magnet coil at DC	4 W
holding power of magnet coil at DC	4 W
closing delay	
● at DC	30 ... 100 ms
opening delay	
● at DC	7 ... 13 ms

arcing time	10 ... 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC 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	1 A
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	1 A
● at 600 V rated value	0.15 A
operational current at DC-13	
● 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
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
● at 480 V rated value	14 A
● 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	
— at 200/208 V rated value	3 hp
— at 220/230 V rated value	5 hp
— at 460/480 V rated value	10 hp
— at 575/600 V rated value	10 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	
● for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 50A (690V,100kA), aM: 25A (690V,100kA), BS88: 50A (415V,80kA)
— with type of assignment 2 required	gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)
● 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
fastening method	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
● side-by-side mounting	Yes
height	70 mm
width	45 mm
depth	73 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	spring-loaded terminals
● for auxiliary and control circuit	spring-loaded terminals
● at contactor for auxiliary contacts	Spring-type terminals
● of magnet coil	Spring-type terminals
type of connectable conductor cross-sections	
● for main contacts	
— solid	2x (0.5 ... 4 mm²)
— solid or stranded	2x (0,5 ... 4 mm²)
— finely stranded with core end processing	2x (0.5 ... 2.5 mm²)
— finely stranded without core end processing	2x (0.5 ... 2.5 mm²)
● at AWG cables for main contacts	2x (20 ... 12)
connectable conductor cross-section for main contacts	
● solid	0.5 ... 4 mm²
● stranded	0.5 ... 4 mm²
● finely stranded with core end processing	0.5 ... 2.5 mm²
● finely stranded without core end processing	0.5 ... 2.5 mm²
connectable conductor cross-section for auxiliary contacts	
● solid or stranded	0.5 ... 4 mm²
● finely stranded with core end processing	0.5 ... 2.5 mm²
● finely stranded without core end processing	0.5 ... 2.5 mm²
type of connectable conductor cross-sections	
● for auxiliary contacts	
— solid or stranded	2x (0,5 ... 4 mm²)
— finely stranded with core end processing	2x (0.5 ... 2.5 mm²)
— finely stranded without core end processing	2x (0.5 ... 2.5 mm²)
● at AWG cables for auxiliary contacts	2x (20 ... 12)
● AWG number as coded connectable conductor cross section for main contacts	20 ... 12
● AWG number as coded connectable conductor cross section for auxiliary contacts	20 ... 12
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
T1 value for proof test interval or service life acc. to IEC 61508	20 y

protection class IP on the front acc. to IEC 60529	IP20
touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front
suitability for use safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval

CSA CCC UL KC EAC RCM

EMC

Declaration of Conformity

Miscellaneous CE EG-Konf.

Test Certificates

Special Test Certificate

Type Test Certificates/Test Report

Marine / Shipping

ABS BUREAU VERITAS

Marine / Shipping

Lloyd's Register LRS PRS RINA RMRS DNV·GL

other

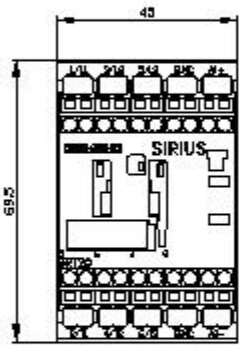
Confirmation

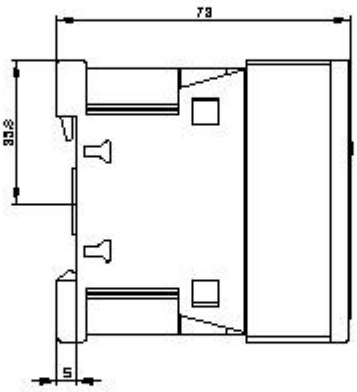
other

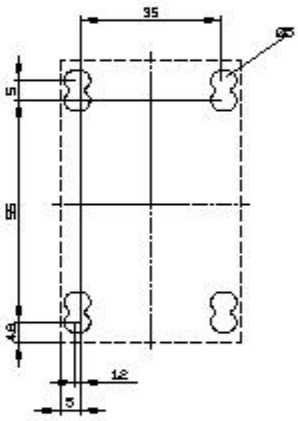
VDE

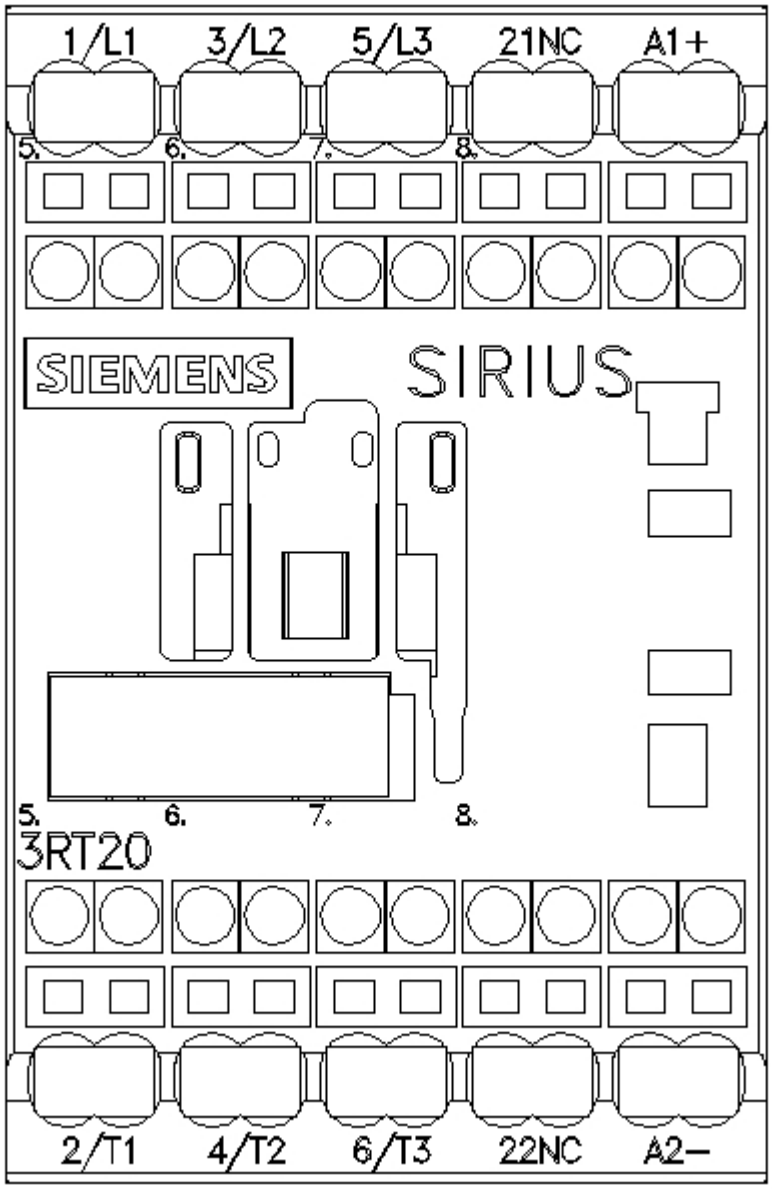
Further information

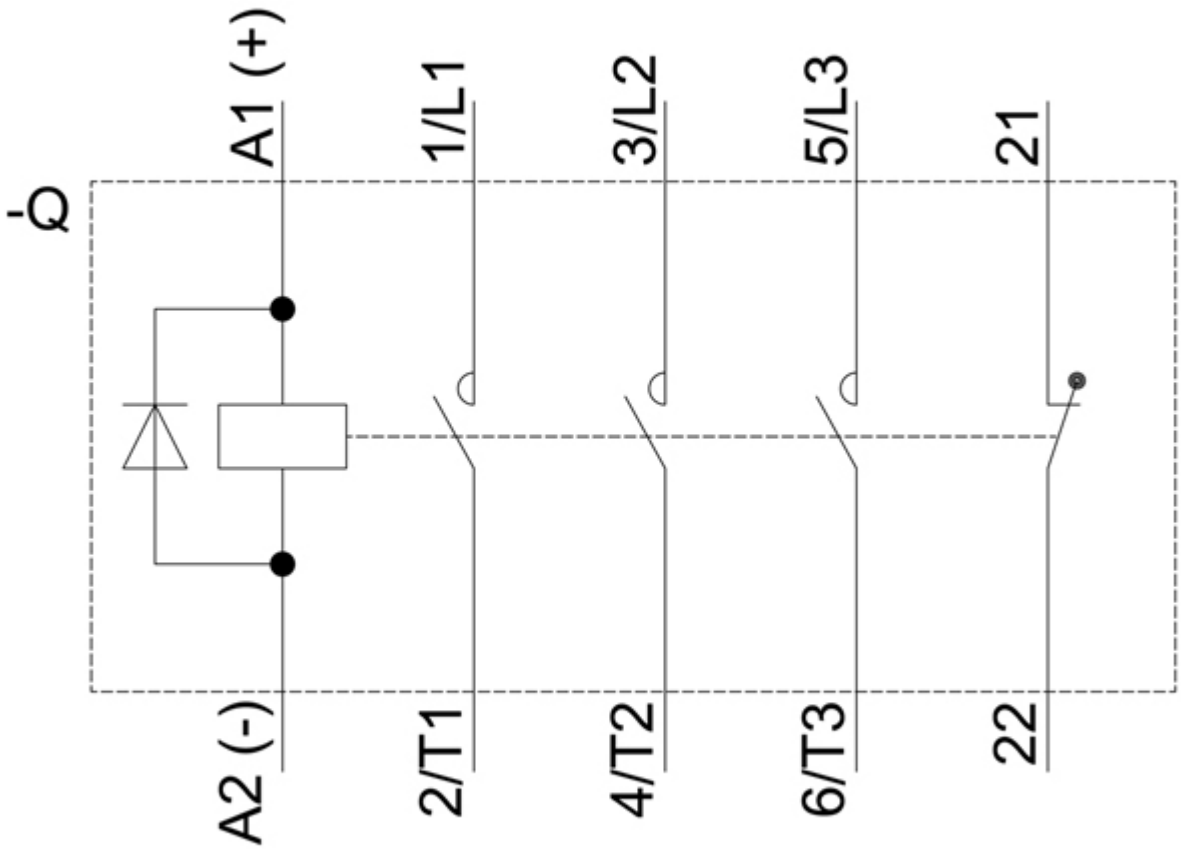
Information- and Downloadcenter (Catalogs, Brochures,…)
https://www.siemens.com/ic10
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2018-2FB42
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2018-2FB42
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-2FB42
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2018-2FB42&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-2FB42/char
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2018-2FB42&objecttype=14&gridview=view1











last modified: 1/18/2021