SIEMENS

Data sheet 3RT2038-1AH20

Power contactor, AC-3 80 A, 37 kW / 400 V 1 NO + 1 NC, 48 V AC, 50/60 Hz 3-pole, size S2 screw terminals



product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2

General technical data	
size of contactor	S2
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 	17.1 W
 at AC in hot operating state per pole 	5.7 W
power loss [W] for rated value of the current without	17.2 W
load current share typical	
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 	400 V
60947-1	

protection class IP	
• on the front	IP20
of the terminal	IP00
shock resistance at rectangular impulse	
● at AC	11.8g / 5 ms, 7.4g / 10 ms
shock resistance with sine pulse	
● at AC	18.5g / 5 ms, 11.6g / 10 ms
mechanical service life (switching cycles)	
of contactor typical	10 000 000
 of the contactor with added electronics- 	5 000 000
compatible auxiliary switch block typical	
of the contactor with added auxiliary switch	10 000 000
block typical	
reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
 installation altitude at height above sea level 	2 000 m
maximum	
ambient temperature	05
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 	90 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	90 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	80 A
·	80 A
rated value	80 A
rated value ● at AC-3	
rated value ■ at AC-3 — at 400 V rated value	80 A
rated value ■ at AC-3 — at 400 V rated value — at 500 V rated value	80 A 80 A
rated value ■ at AC-3 — at 400 V rated value — at 500 V rated value — at 690 V rated value	80 A 80 A 58 A
rated value ■ at AC-3 — at 400 V rated value — at 500 V rated value — at 690 V rated value ■ at AC-4 at 400 V rated value	80 A 80 A 58 A 55 A

 up to 230 V for current peak value n=20 rated value 	70 A
 up to 400 V for current peak value n=20 rated value 	70 A
 up to 500 V for current peak value n=20 rated value 	70 A
up to 690 V for current peak value n=20 rated value	58 A
● at AC-6a	
up to 230 V for current peak value n=30 rated value	46.7 A
 up to 400 V for current peak value n=30 rated value 	46.7 A
 up to 500 V for current peak value n=30 rated value 	46.7 A
 up to 690 V for current peak value n=30 rated value 	46.7 A
minimum cross-section in main circuit	
• at maximum AC-1 rated value	35 mm²
operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	30 A
• at 690 V rated value	24 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

• 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-2 at 400 V rated value	37 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	37 kW
— at 500 V rated value	37 kW
— at 690 V rated value	45 kW
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	15.8 kW
• at 690 V rated value	21.8 kW
operating apparent output at AC-6a	
 up to 230 V for current peak value n=20 rated value 	27.8 kV·A
 up to 400 V for current peak value n=20 rated value 	48.4 kV·A
 up to 500 V for current peak value n=20 rated value 	60.6 kV·A
 up to 690 V for current peak value n=20 rated value 	69.3 kV·A
operating apparent output at AC-6a	
• up to 230 V for current peak value n=30 rated	18.6 kV·A
value	

 up to 500 V for current peak value n=30 rated value 	40.4 kV·A
 up to 690 V for current peak value n=30 rated value 	55.8 kV·A
short-time withstand current in cold operating state	
up to 40 °C	
 limited to 1 s switching at zero current maximum 	1 298 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	898 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	640 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	414 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	333 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	700 1/h
• at AC-2 maximum	350 1/h
• at AC-3 maximum	500 1/h
• at AC-4 maximum	150 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	48 V
• at 60 Hz rated value	48 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	210 V·A
● at 60 Hz	188 V·A
inductive power factor with closing power of the coil	
● at 50 Hz	0.69
● at 60 Hz	0.65
apparent holding power of magnet coil at AC	

coil

• at 50 Hz

• at 60 Hz

inductive power factor with the holding power of the

17.2 V·A

16.5 V·A

● at 50 Hz	0.36
● at 60 Hz	0.39
closing delay	
• at AC	10 80 ms
opening delay	
• at AC	10 18 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	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	
• 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)

OL/OSA fallings	
full-load current (FLA) for three-phase AC motor	
• at 480 V rated value	65 A
• at 600 V rated value	62 A
yielded mechanical performance [hp]	

 for single-phase AC motor 	
— at 110/120 V rated value	5 hp
— at 230 V rated value	15 hp
 for three-phase AC motor 	
— at 200/208 V rated value	20 hp
— at 220/230 V rated value	25 hp
— at 460/480 V rated value	50 hp
— at 575/600 V rated value	60 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)
— with type of assignment 2 required	gG: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A (415V,80kA)
 for short-circuit protection of the auxiliary switch required 	gG: 10 A (500 V, 1 kA)

nstallation/ 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
• side-by-side mounting	Yes
height	114 mm
width	55 mm
depth	130 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	screw-type terminals	
 for auxiliary and control current circuit 	screw-type terminals	
 at contactor for auxiliary contacts 	Screw-type terminals	
• of magnet coil	Screw-type terminals	
type of connectable conductor cross-sections		
• for main contacts		
 single or multi-stranded 	2x (1 35 mm²), 1x (1 50 mm²)	
 finely stranded with core end processing 	2x (1 25 mm²), 1x (1 35 mm²)	
 at AWG conductors for main contacts 	2x (18 2), 1x (18 1)	
connectable conductor cross-section for main		
contacts		
finely stranded with core end processing	1 35 mm²	
connectable conductor cross-section for auxiliary		
contacts	0.5 2.5 mm²	
• single or multi-stranded		
 finely stranded with core end processing 	0.5 2.5 mm²	
 type of connectable conductor cross-sections for auxiliary contacts 		
 single or multi-stranded 	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)	
 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)	
 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	18 1	
• 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-	No			
1				

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











Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates	Marine / Ship- ping
Type Examination Certificate	Miscellaneous EG-Konf.	Type Test Certificates/Test Report Special Test Certificate	ABS

Marine / Shipping













other

Confirmation

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=3RT2038-1AH20

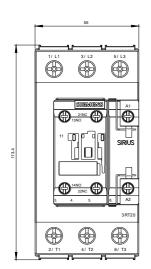
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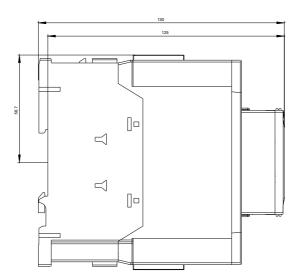
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2038-1AH20

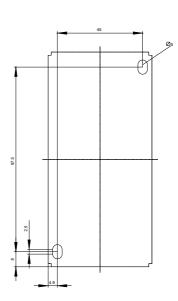
Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AH20

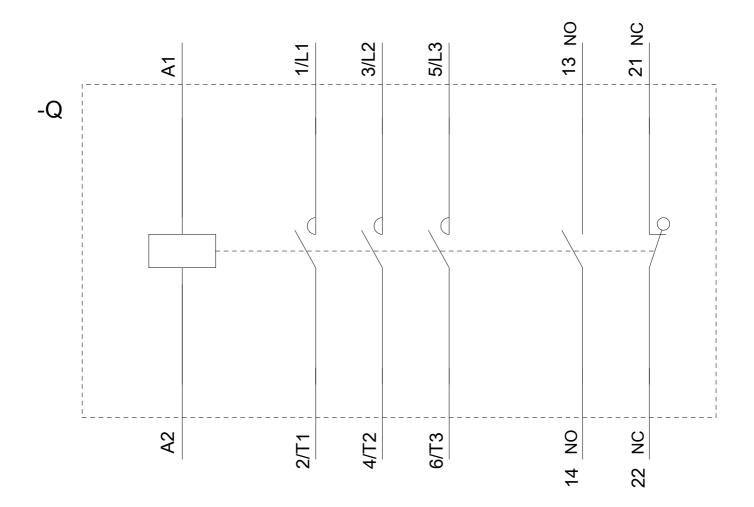
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2038-1AH20&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1AH20/char









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