SIEMENS

Data sheet 3RT2035-1NF30



power contactor, AC-3e/AC-3, 41 A, 18.5 kW / 400 V, 3-pole, 83-155 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S2

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 	6.6 W
 at AC in hot operating state per pole 	2.2 W
 without load current share typical 	1 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 AC	7.7g / 5 ms, 4.5g / 10 ms
• at DC	7.7g / 5 ms, 4.5g / 10 ms
shock resistance with sine pulse	
• at AC	12g / 5 ms, 7g / 10 ms
• at DC	12g / 5 ms, 7g / 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)	10/01/2014
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	1.119 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
during storage relative humidity minimum	-55 +60 C
relative numidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	107 kg
global warming potential [CO2 eq] during manufacturing	5.88 kg
global warming potential [CO2 eq] during operation	102 kg
global warming potential [CO2 eq] after end of life	-0.988 kg
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
at AC-3e rated value maximum	690 V
operational current	
 at AC-1 at 400 V at ambient temperature 40 °C rated value 	60 A
• at AC-1	00.4
— 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-3	
— at 400 V rated value	41 A
— at 500 V rated value	41 A
— at 690 V rated value	24 A
• at AC-3e	
— at 400 V rated value	41 A
— at 500 V rated value	41 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 mm²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	22 A
• at 690 V rated value	18.5 A
operational current	
at 1 current path at DC-1	
— at 24 V rated value	55 A
— at 60 V rated value	23 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 24 V rated value — at 60 V rated value	45 A
— at ou v rateu value	7U N

— 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 60 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 60 V rated value	6 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 60 V rated value	45 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 60 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	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
• at AC-3e	
— 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
operating apparent power at AC-6a	
 up to 230 V for current peak value n=20 rated value 	14.5 kVA
 up to 400 V for current peak value n=20 rated value 	25.2 kVA
 up to 500 V for current peak value n=20 rated value 	31.6 kVA
 up to 690 V for current peak value n=20 rated value 	28.6 kVA
operating apparent power at AC-6a	
• up to 230 V for current peak value n=30 rated value	9.6 kVA
• up to 400 V for current peak value n=30 rated value	16.8 kVA
up to 500 V for current peak value n=30 rated value	21 kVA
up to 690 V for current peak value n=30 rated value	28.6 kVA
short-time withstand current in cold operating state up to 40 °C	
Iimited to 1 s switching at zero current maximum	843 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 5 s switching at zero current maximum	596 A; Use minimum cross-section acc. to AC-1 rated value

Iimited to 10 s switching at zero current maximum	400 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	241 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 60 s switching at zero current maximum	196 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	1 500 1/h
• 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-3e	
— maximum	1 000 1/h
• at AC-4 maximum	300 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
at 50 Hz rated value	83 155 V
at 60 Hz rated value	83 155 V
control supply voltage at DC rated value	83 155 V
operating range factor control supply voltage rated value of	
magnet coil at DC	
• initial value	0.8
• full-scale value	1.1
operating range factor control supply voltage rated value of	
magnet coil at AC	
● at 50 Hz	0.8 1.1
• at 60 Hz	0.8 1.1
design of the surge suppressor	with varistor
inrush current peak	1.5 A
duration of inrush current peak	50 μs
locked-rotor current mean value	0.45 A
locked-rotor current peak	0.8 A
duration of locked-rotor current	230 ms
holding current mean value	12 mA
apparent pick-up power of magnet coil at AC	
• at 50 Hz	40 VA
• at 60 Hz	40 VA
apparent holding power	
at minimum rated control supply voltage at DC	2 VA
at maximum rated control supply voltage at DC	2 VA
apparent holding power	
at minimum rated control supply voltage at AC	
— at 50 Hz	2 VA
— at 60 Hz	2 VA
	4 VA
at maximum rated control supply voltage at AC ot 50 Hz	2 VA
— at 50 Hz	
— at 60 Hz	2 VA
apparent holding power of magnet coil at AC	OVA
• at 50 Hz	2 VA
• at 60 Hz	2 VA
inductive power factor with the holding power of the coil	0.05
• at 50 Hz	0.95
• at 60 Hz	0.95
closing power of magnet coil at DC	23 W
holding power of magnet coil at DC	1 W
closing delay	
• at AC	35 110 ms
• at DC	35 110 ms
at DC opening delay	35 110 ms
	35 110 ms 30 55 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	1
number of NO contacts for auxiliary contacts instantaneous	1
contact operational current at AC-12 maximum	10 A
operational current at AC-15	10 A
at 230 V rated value	10 A
at 400 V rated value	3 A
at 500 V rated value at 500 V rated value	2 A
at 690 V rated value at 690 V rated value	1A
operational current at DC-12	1 A
• at 24 V rated value	10 A
at 48 V rated value	6 A
at 48 V rated value at 60 V rated value	6 A
at 110 V rated value	3 A
at 110 V rated value at 125 V rated value	2 A
	1 A
 at 220 V rated value at 600 V rated value 	0.15 A
operational current at DC-13	0.10 A
at 24 V rated value	10 A
at 24 V rated value at 48 V rated value	2 A
at 60 V rated value	2 A
at 60 V rated value at 110 V rated value	1 A
at 175 V rated value 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	Tradity Switching per 100 million (17 V, 1 mA)
full-load current (FLA) for 3-phase AC motor	
at 480 V rated value	40 A
at 600 V rated value at 600 V rated value	41 A
yielded mechanical performance [hp]	417
• for single-phase AC motor	
— at 110/120 V rated value	3 hp
— at 230 V rated value	7.5 hp
• for 3-phase AC motor	7.5 πρ
— at 200/208 V rated value	10 hp
— at 220/230 V rated value	15 hp
— at 460/480 V rated value	30 hp
— at 575/600 V rated value	40 hp
contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	7,000 / 1 000
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA
design of the fuse link	
for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 160 A (690 V, 100 kA), aM: 80 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA)
 — with type of coordination 2 required 	gG: 80 A (690 V, 100 kA), aM: 50 A (690 V, 100 kA), BS88: 63 A (415 V, 80 kA)
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 side-by-side mounting	Yes
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
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	O THIN
type of electrical connection	corow typo terminals
for main current circuit for publicational control circuit	screw-type terminals
for auxiliary and control 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	
— solid or stranded	2x (1 35 mm²), 1x (1 50 mm²)
 finely stranded with core end processing 	2x (1 25 mm²), 1x (1 35 mm²)
for AWG cables 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	
solid or stranded	0.5 2.5 mm ²
finely stranded with core end processing	0.5 2.5 mm²
type of connectable conductor cross-sections	
 for auxiliary contacts 	
— solid or 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)
 for AWG cables for auxiliary contacts 	2x (20 16), 2x (18 14)
AWG number as coded connectable conductor cross section for main contacts	18 1
AWG number as coded connectable conductor cross section for auxiliary contacts	20 14
Safety related data	
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	, 55
with low demand rate according to SN 31920	40 %
-	73 %
with high demand rate according to SN 31920 R10 value with high demand rate according to SN 31920	
B10 value with high demand rate according to SN 31920	1 000 000
failure rate [FIT] with low demand rate according to SN 31920 ISO 13849	100 FIT
	2
device type according to ISO 13849-1	3
overdimensioning according to ISO 13849-2 necessary	Yes
IEC 61508	Time A
safety device type according to IEC 61508-2	Type A
Electrical Safety	IDOO
protection class IP on the front according to IEC 60529	IP20

Approvals Certificates

General Product Approval









<u>Miscellaneous</u>

KC

General Product Approval

EMV

Test Certificates

Maritime application





Special Test Certificate

Type Test Certificates/Test Report





Maritime application





LRS









other

other

Railway

Environment

Confirmation

Confirmation

Special Test Certificate



Environmental Confirmations

Further information

Information on the packaging

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

Information for data generation and storage

https://support.industry.siemens.com/cs/ww/en/view/109995012

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=3RT2035-1NF30

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2035-1NF30

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2035-1NF30

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

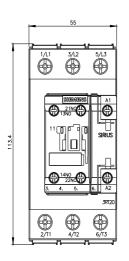
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2035-1NF30&lang=en

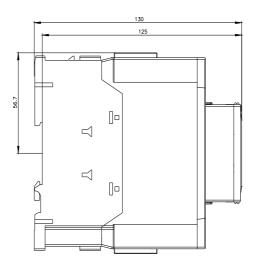
Characteristic: Tripping characteristics, I²t, Let-through current

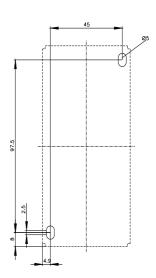
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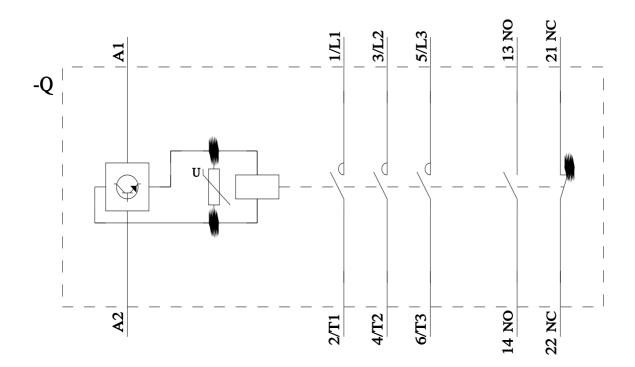
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2035-1NF30&objecttype=14&gridview=view1









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