SIEMENS

Data sheet 3RT2018-2AN21



power contactor, AC-3e/AC-3, 16 A, 7.5 kW / 400 V, 3-pole, 220 V AC, 50/60 Hz, auxiliary contacts: 1 NO, spring-loaded terminal, size: S00

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 	3 W
 at AC in hot operating state per pole 	1 W
 without load current share typical 	1.5 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 AC	7,3g / 5 ms, 4,7g / 10 ms
shock resistance with sine pulse	
• at AC	11,4g / 5 ms, 7,3g / 10 ms
mechanical service life (operating 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 according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2009
Weight	0.258 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 maximum	95 %

Main circuit number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	6 kg 8 kg 5 kg 55 kg
global warming potential [CO2 eq] total global warming potential [CO2 eq] during manufacturing 1.18 global warming potential [CO2 eq] during operation 38.5 global warming potential [CO2 eq] after end of life -0.15 Main circuit number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	6 kg 8 kg 5 kg 55 kg
global warming potential [CO2 eq] during manufacturing global warming potential [CO2 eq] during operation 38.5 global warming potential [CO2 eq] after end of life -0.15 Main circuit number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	8 kg 5 kg 55 kg
global warming potential [CO2 eq] during operation global warming potential [CO2 eq] after end of life -0.15 Main circuit number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	5 kg 55 kg
global warming potential [CO2 eq] after end of life -0.15 Main circuit number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	55 kg
Main circuit number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	
number of poles for main current circuit number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	
number of NO contacts for main contacts operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current	
operating voltage • at AC-3 rated value maximum • at AC-3e rated value maximum operational current 690 \ 090	A.V.
at AC-3 rated value maximum at AC-3e rated value maximum operational current 690 \ 690 \ 700 700 700 700 700 700 700	
operational current	/ V
•	V
 at AC-1 at 400 V at ambient temperature 40 °C rated value at AC-1 	A
— up to 690 V at ambient temperature 40 °C rated value	A
— up to 690 V at ambient temperature 60 °C rated value	A
• at AC-3	
— at 400 V rated value 16 A	A
— at 500 V rated value 12.4	
— at 690 V rated value 8.9 A	A
• at AC-3e	
— at 400 V rated value	
— at 500 V rated value 12.4	
— at 690 V rated value 8.9 A	
• at AC-4 at 400 V rated value 11.5	
 at AC-5a up to 690 V rated value at AC-5b up to 400 V rated value 13.2 	
at AC-5b up to 400 V rated valueat AC-6a	2 A
— up to 230 V for current peak value n=20 rated value 9.6 A	Δ
— 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	A
— up to 400 V for current peak value n=30 rated value 6.4 A	A
— up to 500 V for current peak value n=30 rated value 6.4 A	A
— up to 690 V for current peak value n=30 rated value 6.4 A	A
minimum cross-section in main circuit at maximum AC-1 rated value 4 mm	m ²
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	A
operational current	
• at 1 current path at DC-1	۸
— at 24 V rated value 20 A	
- at 60 V rated value 20 A	
 — at 110 V rated value — at 220 V rated value 0.8 A 	
— at 440 V rated value 0.6 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	A
— at 60 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 60 V rated value	20 A
	20 A
— at 110 V rated value	
— at 220 V rated value	20 A
— at 440 V rated value	1.3 A
— at 600 V rated value	1A
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 60 V rated value	0.5 A
— at 110 V rated value	0.15 A
with 2 current paths in series at DC-3 at DC-5	00.4
— at 24 V rated value	20 A
— at 60 V rated value	5 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 60 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-2 at 400 V rated value	7.5 kW
• 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
• at AC-3e	
— 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-	
at 400 V rated value	2.5 kW
at 690 V rated value	3.5 kW
operating apparent power at AC-6a	C.C.NT
up to 230 V for current peak value n=20 rated value	3.8 kVA
up to 400 V for current peak value n=20 rated value up to 400 V for current peak value n=20 rated value	6.6 kVA
up to 500 V for current peak value n=20 rated value up to 500 V for current peak value n=20 rated value	8.3 kVA
up to 690 V for current peak value n=20 rated value up to 690 V for current peak value n=20 rated value	10.6 kVA
operating apparent power at AC-6a	
up to 230 V for current peak value n=30 rated value	2.5 kVA
up to 400 V for current peak value n=30 rated value up to 400 V for current peak value n=30 rated value	4.4 kVA
up to 500 V for current peak value n=30 rated value up to 500 V for current peak value n=30 rated value	5.5 kVA
up to 690 V for current peak value n=30 rated value up to 690 V for current peak value n=30 rated value	7.6 kVA
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 AC	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-2 maximum	750 1/h

at AC 2a marriage	750.4/b
at AC-3e maximum	750 1/h
at AC-4 maximum Control circuit/ Control	250 1/h
	AC
type of voltage of the control supply voltage	AC
control supply voltage at AC	220 V
at 50 Hz rated value	220 V
at 60 Hz rated value	220 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	37 VA
• at 60 Hz	33 VA
inductive power factor with closing power of the coil	
• at 50 Hz	0.8
• at 60 Hz	0.75
apparent holding power of magnet coil at AC	
• at 50 Hz	5.7 VA
● at 60 Hz	4.4 VA
inductive power factor with the holding power of the coil	
● at 50 Hz	0.25
• at 60 Hz	0.25
closing delay	
• at AC	9 35 ms
opening delay	
• at AC	4 15 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	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	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
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
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

1 hp
2 hp
3 hp
5 hp
10 hp
10 hp
A600 / Q600
gG: 50A (690V,100kA), aM: 25A (690V,100kA), BS88: 50A (415V,80kA)
gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA)
gG: 10 A (500 V, 1 kA)
+/-180° rotation possible on vertical mounting surface; can be tilted forward and
backward by +/- 22.5° on vertical mounting surface
Yes
screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
70 mm
45 mm
73 mm
10 mm
10 mm
10 mm
0 mm
10 mm
10 mm
6 mm
10 mm
10 mm
10 mm
10 mm
6 mm
spring-loaded terminals
spring-loaded terminals
Spring-type terminals
Spring-type terminals
Spring-type terminals Spring-type terminals
Spring-type terminals
Spring-type terminals 2x (0.5 4 mm²)
Spring-type terminals 2x (0.5 4 mm²) 2x (0,5 4 mm²)
2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 2.5 mm²)
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2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 2.5 mm²) 2x (0.5 2.5 mm²) 2x (20 12)
2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 2.5 mm²) 2x (0.5 2.5 mm²) 2x (0.5 2.5 mm²) 2x (20 12)
Spring-type terminals 2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 2.5 mm²) 2x (0.5 2.5 mm²) 2x (20 12) 0.5 4 mm² 0.5 4 mm²
Spring-type terminals 2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 2.5 mm²) 2x (0.5 2.5 mm²) 2x (20 12) 0.5 4 mm² 0.5 4 mm² 0.5 2.5 mm²
Spring-type terminals 2x (0.5 4 mm²) 2x (0.5 4 mm²) 2x (0.5 2.5 mm²) 2x (0.5 2.5 mm²) 2x (20 12) 0.5 4 mm² 0.5 4 mm² 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)
 for AWG cables for auxiliary contacts 	2x (20 12)
AWG number as coded connectable conductor cross section	
• for main contacts	20 12
for auxiliary contacts	20 12
Safety related data	
product function	
 mirror contact according to IEC 60947-4-1 	Yes; with 3RH29
 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

General Product Approval





Confirmation





<u>KC</u>

General Product Approval

EMV

Test Certificates

Marine / Shipping





Special Test Certificate

Type Test Certificates/Test Report





Marine / Shipping







Environment



Miscellaneous

other

other Railway



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=3RT2018-2AN21

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2018-2AN21

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-2AN21

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

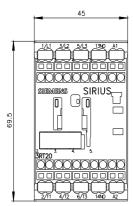
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2018-2AN21&lang=en

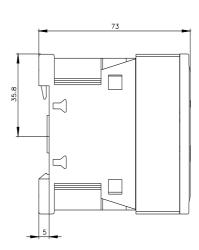
Characteristic: Tripping characteristics, I²t, Let-through current

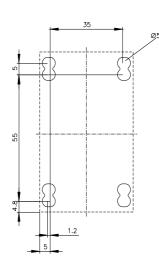
https://support.industry.siemens.com/cs/ww/en/ps/3RT2018-2AN21/char

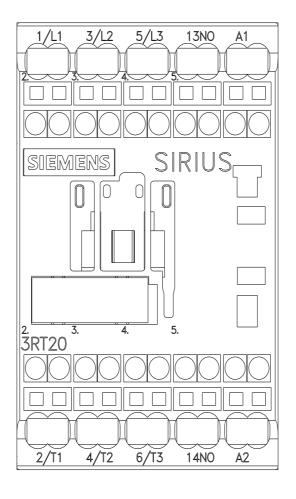
Further characteristics (e.g. electrical endurance, switching frequency)

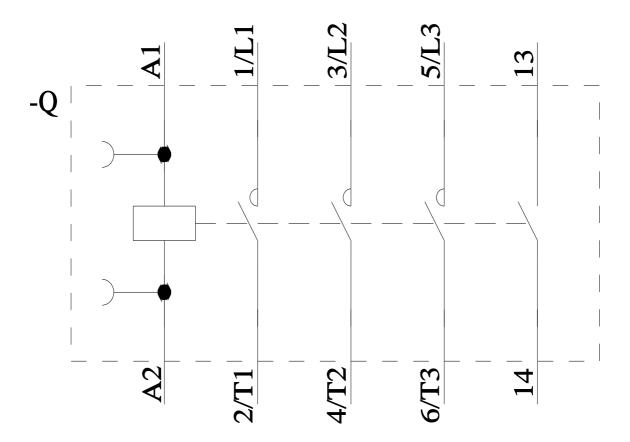
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