SIEMENS

Data sheet 3RT2446-1AN20



contactor AC-1, 140 A, 690 V / 40 $^{\circ}$ C, 3-pole, 220 V AC, 50/60 Hz, auxiliary contacts: 1 NO + 1 NC, main circuit: box terminal, control and auxiliary circuit: screw terminal, size: S3

product brand name	SIRIUS
product designation	Contactor
product type designation	3RT24
General technical data	
size of contactor	S3
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 	29.4 W
 at AC in hot operating state per pole 	9.8 W
 without load current share typical 	8.8 W
type of calculation of power loss depending on pole	quadratic
insulation voltage	
 of main circuit with degree of pollution 3 rated value 	1 000 V
 of auxiliary circuit with degree of pollution 3 rated value 	690 V
surge voltage resistance	
 of main circuit rated value 	8 kV
of auxiliary circuit rated value	6 kV
shock resistance at rectangular impulse	
• at AC	10.3g / 5 ms, 6,.g / 10 ms
shock resistance with sine pulse	
• at AC	16.3g / 5 ms, 10.g / 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)	03/01/2017
Weight	1.716 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	3

number of NO contacts for main contacts	3
number of NC contacts for main contacts	0
type of voltage for main current circuit	AC
operational current	
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	140 A
— up to 690 V at ambient temperature 55 $^{\circ}\text{C}$ rated value	130 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	130 A
— up to 1000 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	60 A
— up to 1000 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	60 A
• at AC-3	
— at 400 V rated value	44 A
— at 690 V rated value	44 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm²
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	130 A
— at 60 V rated value	80 A
— at 110 V rated value	12 A
— at 220 V rated value	2.5 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.48 A
 with 2 current paths in series at DC-1 	
— at 24 V rated value	130 A
— at 60 V rated value	130 A
— at 110 V rated value	130 A
— at 220 V rated value	13 A
— at 440 V rated value	2.4 A
— at 600 V rated value	1.3 A
with 3 current paths in series at DC-1	1.5 Λ
•	120 A
— at 24 V rated value	130 A
— at 60 V rated value	130 A
— at 110 V rated value	130 A
— at 220 V rated value	130 A
— at 440 V rated value	6 A
— at 600 V rated value	3.4 A
at 1 current path at DC-3 at DC-5	
— at 24 V rated value	6 A
— at 60 V rated value	3 A
— at 110 V rated value	1.25 A
— at 220 V rated value	0.35 A
— at 440 V rated value	0.15 A
— at 600 V rated value	0.1 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	130 A
— at 60 V rated value	130 A
— at 110 V rated value	130 A
— at 220 V rated value	1.75 A
— at 440 V rated value	0.42 A
— at 600 V rated value	0.27 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	130 A
— at 60 V rated value	130 A
— at 110 V rated value	130 A
— at 220 V rated value	4 A
— at 440 V rated value	0.8 A

— at 600 V rated value	0.45 A
no-load switching frequency	
• at AC	5 000 1/h
operating frequency at AC-1 maximum	650 1/h
Control circuit/ Control	
type of voltage	AC
type of voltage of the control supply voltage	AC
control supply voltage at AC	
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	348 VA
• at 60 Hz	296 VA
inductive power factor with closing power of the coil	0.00
• at 50 Hz	0.62
• at 60 Hz	0.55
apparent holding power of magnet coil at AC	25 \/A
• at 50 Hz	25 VA
• at 60 Hz	18 VA
inductive power factor with the holding power of the coil • at 50 Hz	0.35
• at 50 Hz	0.41
● at our iz	0.71
• at AC	13 50 ms
opening delay	.5 55 1110
• 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	1
• attachable	2
• instantaneous contact	1
number of NO contacts for auxiliary contacts	1
attachable	2
instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
• at 230 V rated value	6 A
• at 400 V rated value	3 A
at 400 V rated valueat 500 V rated value	3 A 2 A
 at 400 V rated value at 500 V rated value at 690 V rated value 	3 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13	3 A 2 A 1 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value 	3 A 2 A 1 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value 	3 A 2 A 1 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value 	3 A 2 A 1 A 10 A 2 A 2 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value 	3 A 2 A 1 A 10 A 2 A 2 A 1 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value 	3 A 2 A 1 A 10 A 2 A 2 A 1 A 0.9 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 125 V rated value 	3 A 2 A 1 A 10 A 2 A 2 A 1 A 0.9 A 0.3 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value 	3 A 2 A 1 A 10 A 2 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A
 at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value oat 600 V rated value at 600 V rated value oat 600 V rated value at 600 V rated value contact reliability of auxiliary contacts	3 A 2 A 1 A 10 A 2 A 2 A 1 A 0.9 A 0.3 A
at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value standard reliability of auxiliary contacts Short-circuit protection	3 A 2 A 1 A 10 A 2 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A 1 faulty switching per 100 million (17 V, 1 mA)
at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value contact reliability of auxiliary contacts Short-circuit protection product function short circuit protection design of the miniature circuit breaker for short-circuit protection	3 A 2 A 1 A 10 A 2 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A
at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value tontact reliability of auxiliary contacts Short-circuit protection product function short circuit protection design of the miniature circuit breaker for short-circuit protection of the auxiliary switch required	3 A 2 A 1 A 10 A 2 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A 1 faulty switching per 100 million (17 V, 1 mA)
at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value contact reliability of auxiliary contacts Short-circuit protection product function short circuit protection design of the miniature circuit breaker for short-circuit protection	3 A 2 A 1 A 10 A 2 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A 1 faulty switching per 100 million (17 V, 1 mA)
at 400 V rated value at 500 V rated value at 690 V rated value operational current at DC-13 at 24 V rated value at 48 V rated value at 60 V rated value at 110 V rated value at 125 V rated value at 220 V rated value at 600 V rated value contact reliability of auxiliary contacts Short-circuit protection product function short circuit protection design of the miniature circuit breaker for short-circuit protection of the auxiliary switch required design of the fuse link	3 A 2 A 1 A 10 A 2 A 2 A 2 A 1 A 0.9 A 0.3 A 0.1 A 1 faulty switching per 100 million (17 V, 1 mA)

with home of the state of the s	-D-050 A (000 V 400 IA)	
— with type of assignment 2 required	gR: 250 A (690 V, 100 kA)	
for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)	
Installation/ mounting/ dimensions	44000 4 11 11 11 11 11 11 11 11 11 11 11	
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	140 mm	
width	70 mm	
depth	152 mm	
required spacing		
with side-by-side mounting		
— forwards	20 mm	
— upwards	10 mm	
— downwards	10 mm	
— at the side	0 mm	
for grounded parts		
— forwards	20 mm	
— upwards	10 mm	
— at the side	10 mm	
— downwards	10 mm	
• for live parts		
— forwards	20 mm	
— upwards	10 mm	
— downwards	10 mm	
— at the side	10 mm	
Connections/ Terminals		
type of electrical connection		
for main current circuit	box terminal	
 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	2x (2.5 16 mm²)	
• stranded	2x (2,5 16 mm²), 2x (10 50 mm²), 1x (10 70 mm²)	
 solid or stranded 	2x (2.5 16 mm²), 2x (10 50 mm²), 1x (10 70 mm²)	
 finely stranded with core end processing 	2x (2.5 35 mm²), 1x (2.5 50 mm²)	
connectable conductor cross-section for main contacts		
• solid	2.5 16 mm²	
solid or stranded	4 70 mm²	
• stranded	6 70 mm²	
 finely stranded with core end processing 	2.5 50 mm²	
connectable conductor cross-section for auxiliary contacts		
 solid or stranded 	0.5 2.5 mm²	
 finely stranded with core end processing 	0.5 2.5 mm²	
type of connectable conductor cross-sections		
• for auxiliary contacts		
— solid	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)	
— 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)	
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	
proportion of dangerous failures		
 with low demand rate according to SN 31920 	40 %	
3		

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
Approvals Certificates	

General Product Approval







Confirmation



<u>KC</u>

General	Product	Ар-
proval		

EMV

Test Certificates

Marine / Shipping





Type Test Certificates/Test Report Special Test Certificate





Marine / Shipping other Railway









Confirmation

Special Test Certificate

Dangerous goods

Environment

Transport Information

Environmental Confirmations

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=3RT2446-1AN20

Cax online generator

 $\underline{\text{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT2446-1AN20}$

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AN20

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

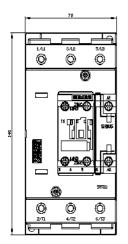
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2446-1AN20&lang=en

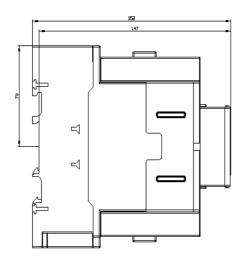
Characteristic: Tripping characteristics, I²t, Let-through current

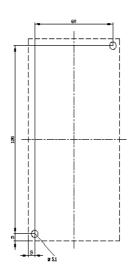
https://support.industry.siemens.com/cs/ww/en/ps/3RT2446-1AN20/char

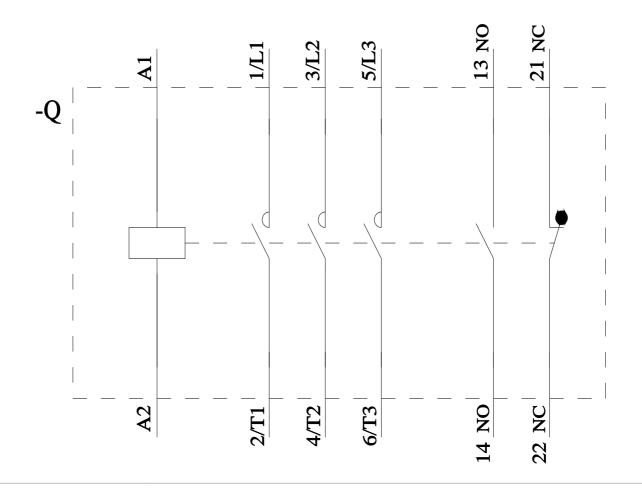
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2446-1AN20&objecttype=14&gridview=view1









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