



contactor AC-1, 160 A, 690 V / 40 °C, 3-pole, 20-33 V AC/DC, 50/60 Hz, with integrated varistor, 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	38.4 W
• at AC in hot operating state per pole	12.8 W
• without load current share typical	1.8 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
• at DC	6.7 g / 5 ms, 4g / 10 ms
shock resistance with sine pulse	
• at AC	16.3g / 5 ms, 10. g / 10 ms
• at DC	10.6 g / 5 ms, 6.3 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)	04/28/2017
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 Melamine - 108-78-1
Weight	1.843 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 °C rated value	160 A
— up to 690 V at ambient temperature 55 °C rated value	140 A
— up to 690 V at ambient temperature 60 °C rated value	140 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	70 mm ²
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	140 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	140 A
— at 60 V rated value	140 A
— at 110 V rated value	140 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	
— at 24 V rated value	140 A
— at 60 V rated value	140 A
— at 110 V rated value	140 A
— at 220 V rated value	140 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	140 A
— at 60 V rated value	140 A
— at 110 V rated value	140 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	140 A
— at 60 V rated value	140 A
— at 110 V rated value	140 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	1 000 1/h
• at DC	1 000 1/h
operating frequency at AC-1 maximum	650 1/h
Control circuit/ Control	
type of voltage	AC/DC
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
• at 50 Hz rated value	20 ... 33 V
• at 60 Hz rated value	20 ... 33 V
control supply voltage at DC rated value	20 ... 33 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	6.5 A
duration of inrush current peak	50 µs
locked-rotor current mean value	3.2 A
locked-rotor current peak	6.5 A
duration of locked-rotor current	150 ms
holding current mean value	75 mA
apparent pick-up power of magnet coil at AC	
• at 50 Hz	163 VA
• at 60 Hz	163 VA
apparent holding power of magnet coil at AC	
• at 50 Hz	3.5 VA
• at 60 Hz	3.5 VA
closing power of magnet coil at DC	76 W
holding power of magnet coil at DC	2.7 W
closing delay	
• at AC	50 ... 70 ms
• at DC	50 ... 70 ms
opening delay	
• at AC	38 ... 57 ms
• at DC	38 ... 57 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 500 V rated value	2 A
• at 690 V rated value	1 A
operational current at DC-13	
• at 24 V rated value	10 A
• at 48 V rated value	2 A

<ul style="list-style-type: none"> • 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 	2 A 1 A 0.9 A 0.3 A 0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
Short-circuit protection	
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 <ul style="list-style-type: none"> • for short-circuit protection of the main circuit <ul style="list-style-type: none"> — with type of coordination 1 required — with type of coordination 2 required • for short-circuit protection of the auxiliary switch required 	gG: 250 A (690 V, 100 kA) gR: 250 A (690 V, 100 kA) gG: 10 A (690 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	140 mm
width	70 mm
depth	152 mm
required spacing <ul style="list-style-type: none"> • with side-by-side mounting <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side • for grounded parts <ul style="list-style-type: none"> — forwards — upwards — at the side — downwards • for live parts <ul style="list-style-type: none"> — forwards — upwards — downwards — at the side 	20 mm 10 mm 10 mm 0 mm 20 mm 10 mm 10 mm 10 mm 20 mm 10 mm 10 mm 10 mm
Connections/ Terminals	
type of electrical connection <ul style="list-style-type: none"> • for main current circuit • for auxiliary and control circuit • at contactor for auxiliary contacts • of magnet coil 	box terminal screw-type terminals Screw-type terminals Screw-type terminals
type of connectable conductor cross-sections <ul style="list-style-type: none"> • for main contacts <ul style="list-style-type: none"> — solid — stranded — solid or stranded — finely stranded with core end processing • for AWG cables for main contacts 	2x (2.5 ... 16 mm²) 2x (2.5 ... 16 mm²), 2x (10 ... 50 mm²), 1x (10 ... 70 mm²) 2x (2.5 ... 16 mm²), 2x (10 ... 50 mm²), 1x (10 ... 70 mm²) 2x (2.5 ... 35 mm²), 1x (2.5 ... 50 mm²) 2x (10 ... 1/0), 1x (10 ... 2/0)
connectable conductor cross-section for main contacts <ul style="list-style-type: none"> • solid • solid or stranded • stranded • finely stranded with core end processing 	2.5 ... 16 mm² 4 ... 70 mm² 6 ... 70 mm² 2.5 ... 50 mm²
connectable conductor cross-section for auxiliary contacts <ul style="list-style-type: none"> • solid or stranded • finely stranded with core end processing 	0.5 ... 2.5 mm² 0.5 ... 2.5 mm²
type of connectable conductor cross-sections <ul style="list-style-type: none"> • 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)
AWG number extended as coded connectable conductor cross section for main contacts	10 ... 2/0
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; safety-related disconnection via A1 A2
service life maximum	20 a
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

Approvals Certificates

General Product Approval



[KC](#)



EMV Test Certificates Maritime application



[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



Maritime application other Railway



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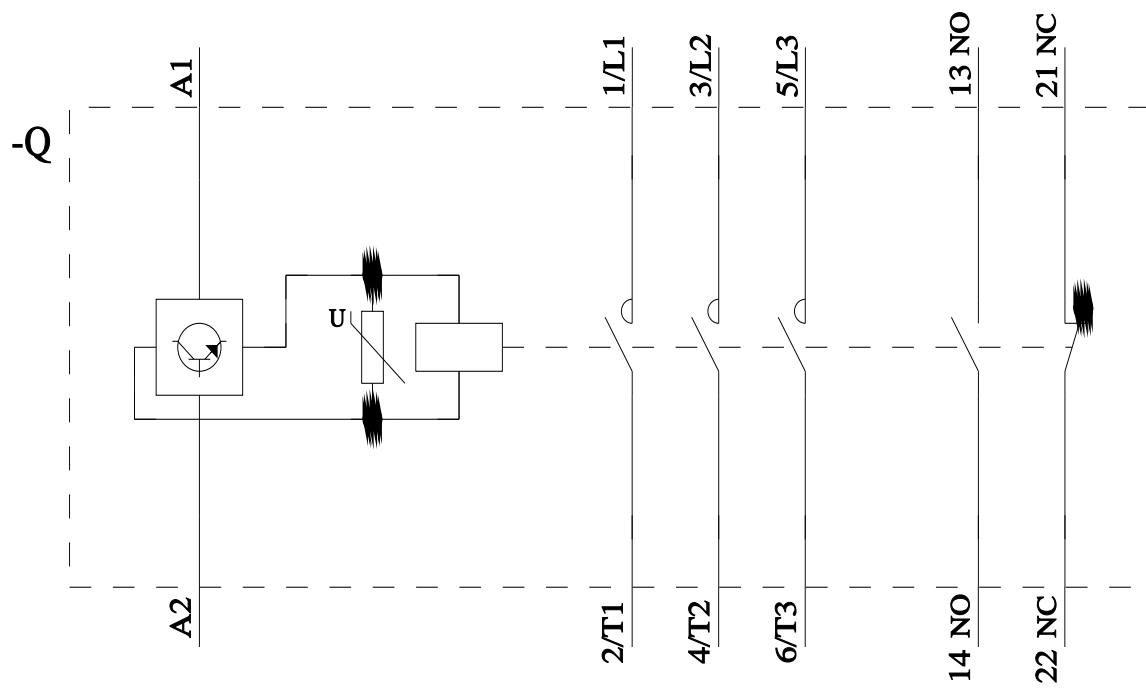
Further information

Information on the packaging

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2448-1NB30&objecttype=14&gridview=view1>





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