



Figure similar

contactor, AC-3, 110 A/400 V/60 °C S3, 3-pole, 21-33 V AC/DC, F-PLC-IN, with varistor, 1 NC, screw terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
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	23.7 W
• at AC in hot operating state per pole	7.9 W
• without load current share typical	3.5 W
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
maximum permissible voltage for safe isolation between coil and main contacts acc. to EN 60947-1	690 V
shock resistance at rectangular impulse	
• at AC	6.7 g / 5 ms, 4.0 g / 10 ms
• at DC	6.7 g / 5 ms, 4.0 g / 10 ms
shock resistance with sine pulse	
• at AC	10.6 g / 5 ms, 6.3 g / 10 ms
• at DC	10.6 g / 5 ms, 6.3 g / 10 ms
mechanical service life (switching cycles)	
• of contactor typical	5 000 000
• of the contactor with added electronically optimized auxiliary switch block typical	5 000 000
• of the contactor with added auxiliary switch block typical	5 000 000
reference code acc. to IEC 81346-2	Q
Substance Prohibitance (Date)	29.01.2021
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 acc. 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
operating voltage	
• at AC-3 rated value maximum	1 000 V
• at AC-3e rated value maximum	1 000 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated value	130 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	130 A
— up to 690 V at ambient temperature 60 °C rated value	110 A
• at AC-3	
— at 400 V rated value	110 A
— at 500 V rated value	110 A
— at 690 V rated value	98 A
— at 1000 V rated value	30 A
• at AC-3e	
— at 400 V rated value	110 A
— at 500 V rated value	110 A
— at 690 V rated value	98 A
— at 1000 V rated value	30 A
• at AC-4 at 400 V rated value	97 A
• at AC-5a up to 690 V rated value	120 A
• at AC-5b up to 400 V rated value	110 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated value	98 A
— up to 400 V for current peak value n=20 rated value	98 A
— up to 500 V for current peak value n=20 rated value	98 A
— up to 690 V for current peak value n=20 rated value	98 A
• at AC-6a	
— up to 230 V for current peak value n=30 rated value	65.3 A
— up to 400 V for current peak value n=30 rated value	65.3 A
— up to 500 V for current peak value n=30 rated value	65.3 A
— up to 690 V for current peak value n=30 rated value	65.3 A
minimum cross-section in main circuit at maximum AC-1 rated value	50 mm²
operational current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	46 A
• at 690 V rated value	36 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 110 V rated value	9 A
— at 220 V rated value	2 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.4 A
• with 2 current paths in series at DC-1	

— at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value	100 A 100 A 10 A 1.8 A 1 A
● with 3 current paths in series at DC-1 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value	100 A 100 A 80 A 4.5 A 2.6 A
● at 1 current path at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value	40 A 2.5 A 1 A 0.15 A 0.06 A
● with 2 current paths in series at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value	100 A 100 A 7 A 0.42 A 0.16 A
● with 3 current paths in series at DC-3 at DC-5 — at 24 V rated value — at 110 V rated value — at 220 V rated value — at 440 V rated value — at 600 V rated value	100 A 100 A 35 A 0.8 A 0.35 A
operating power ● at AC-2 at 400 V rated value ● at AC-3 — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value — at 1000 V rated value ● at AC-3e — at 1000 V rated value — at 230 V rated value — at 400 V rated value — at 500 V rated value — at 690 V rated value	55 kW 30 kW 55 kW 75 kW 90 kW 37 kW 37 kW 30 kW 55 kW 75 kW 90 kW
operating power for approx. 200000 operating cycles at AC-4 ● at 400 V rated value ● at 690 V rated value	24.3 kW 32.9 kW
operating apparent power at AC-6a ● up to 400 V for current peak value n=20 rated value ● up to 500 V for current peak value n=20 rated value ● up to 690 V for current peak value n=20 rated value	67 000 VA 84 000 VA 117 000 VA
operating apparent power at AC-6a ● up to 230 V for current peak value n=30 rated value ● up to 400 V for current peak value n=30 rated value ● up to 500 V for current peak value n=30 rated value ● up to 690 V for current peak value n=30 rated value	26 000 VA 45 200 VA 56 500 VA 78 000 VA
short-time withstand current in cold operating state up to 40 °C ● limited to 1 s switching at zero current maximum ● limited to 5 s switching at zero current maximum ● limited to 10 s switching at zero current maximum	1 960 A; Use minimum cross-section acc. to AC-1 rated value 1 502 A; Use minimum cross-section acc. to AC-1 rated value 1 095 A; Use minimum cross-section acc. to AC-1 rated value

• limited to 30 s switching at zero current maximum • limited to 60 s switching at zero current maximum	707 A; Use minimum cross-section acc. to AC-1 rated value 562 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC • at DC	1 000 1/h 1 000 1/h
operating frequency	
• at AC-1 maximum • at AC-2 maximum • at AC-3 maximum • at AC-3e maximum • at AC-4 maximum	900 1/h 350 1/h 850 1/h 850 1/h 200 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 • at 60 Hz rated value	21 ... 33 V 21 ... 33 V
control supply voltage at DC	
• rated value	21 ... 33 V
type of PLC-control input acc. to IEC 60947-1	Type 1
consumed current at PLC-control input acc. to IEC 60947-1 maximum	11 mA
voltage at PLC-control input rated value	24 V
operating range factor of the voltage at PLC-control input	0.8 ... 1.1
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value • full-scale value	0.8 1.1
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz • at 60 Hz	0.8 ... 1.1 0.8 ... 1.1
design of the surge suppressor	with varistor
inrush current peak	2.2 A
duration of inrush current peak	100 µs
locked-rotor current mean value	4 A
locked-rotor current peak	6.5 A
duration of locked-rotor current	150 ms
holding current mean value	0.09 A
apparent pick-up power of magnet coil at AC	
• at 50 Hz • at 60 Hz	130 VA 130 VA
apparent holding power of magnet coil at AC	
• at 50 Hz • at 60 Hz	2.4 VA 2.4 VA
closing power of magnet coil at DC	130 W
holding power of magnet coil at DC	1.8 W
closing delay	
• at AC • at DC	50 ... 70 ms 50 ... 70 ms
opening delay	
• at AC • at DC	38 ... 57 ms 38 ... 57 ms
recovery time after power failure typical	2.1 s
arcing time	10 ... 20 ms
control version of the switch operating mechanism	Fail-safe PLC input (F-PLC-IN)
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	0

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-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
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	96 A
• at 600 V rated value	99 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	10 hp
— at 230 V rated value	20 hp
• for 3-phase AC motor	
— at 200/208 V rated value	30 hp
— at 220/230 V rated value	40 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	100 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: 200A (690V,100kA), aM: 100A (690V,100kA), BS88: 160A (415V,80kA)
• 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	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• side-by-side mounting	Yes
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	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	
— finely stranded with core end processing	2x (2.5 ... 35 mm ²), 1x (2.5 ... 50 mm ²)
• at AWG cables for main contacts	2x (10 ... 1/0), 1x (10 ... 2)
connectable conductor cross-section for main contacts	
• solid	2.5 ... 16 mm ²
• stranded	6 ... 70 mm ²
• finely stranded with core end processing	2.5 ... 50 mm ²
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 mm ²
type of connectable conductor cross-sections	
• for auxiliary contacts	
— solid or stranded	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm ²), 2x (0.75 ... 2.5 mm ²)
• at AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section	
• for main contacts	10 ... 2
• for auxiliary contacts	20 ... 14

Safety related data

product function	
• mirror contact acc. to IEC 60947-4-1	Yes
• positively driven operation acc. to IEC 60947-5-1	No
safety device type acc. to IEC 61508-2	Type B
B10 value with high demand rate acc. to SN 31920	1 000 000
Safety Integrity Level (SIL) acc. to IEC 61508	2
SIL Claim Limit (subsystem) acc. to EN 62061	2
performance level (PL) acc. to EN ISO 13849-1	c
category acc. to EN ISO 13849-1	2
stop category acc. to DIN EN 60204-1	0
Safe failure fraction (SFF)	96 %
diagnostics test interval by internal test function maximum	28 800 s
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
PFHD with high demand rate acc. to EN 62061	0.000000077 1/h
PFDavg with low demand rate acc. to IEC 61508	0.0067
MTBF	52 y
hardware fault tolerance acc. to IEC 61508	0
protection class IP on the front acc. to IEC 60529	IP20

touch protection on the front acc. to IEC 60529	finger-safe, for vertical contact from the front
suitability for use • safety-related switching on • safety-related switching OFF	No Yes
Certificates/ approvals	
General Product Approval	EMC



[Confirmation](#)



[KC](#)



Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates	other	Railway
--	----------------------------------	--------------------------	--------------	----------------

[Type Examination Certificate](#)



[Type Test Certificates/Test Report](#)

[Confirmation](#)

[Vibration and Shock](#)

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=3RT2047-1SB30>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2047-1SB30>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1SB30>

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

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2047-1SB30&lang=en

Characteristic: Tripping characteristics, I²t, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2047-1SB30/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2047-1SB30&objecttype=14&gridview=view1>



