SIEMENS

Data sheet 3RT2046-3SF30

Figure similar

power contactor, AC-3e/AC-3, 95 A, 45 kW / 400 V, 3-pole, 83-150 V AC/DC, 50/60 Hz, with integrated varistor, auxiliary contacts: 1 NC, main circuit: screw terminal, control and auxiliary circuit: spring-loaded terminal, size: S3, F-PLC-IN

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	19.8 W
● at AC in hot operating state per pole	6.6 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 protective separation between coil and main contacts according to EN 60947-1	690 V
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	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 according to IEC 81346-2	Q
Substance Prohibitance (Date)	01/29/2021
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 according to IEC 60068-2-30	95 %

maximum	
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	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
— at 1000 V rated value	30 A
● at AC-3e	
— at 400 V rated value	95 A
— at 500 V rated value	95 A
— at 690 V rated value	78 A
— at 1000 V rated value	30 A
● at AC-4 at 400 V rated value	80 A
● at AC-5a up to 690 V rated value	114 A
● at AC-5b up to 400 V rated value	95 A
● at AC-6a	
— up to 230 V for current peak value n=20 rated value	84.4 A
— up to 400 V for current peak value n=20 rated value	84.4 A
— up to 500 V for current peak value n=20 rated value	84.4 A
— up to 690 V for current peak value n=20 rated value	58 A
● at AC-6a	
— up to 230 V for current peak value n=30 rated value	56.3 A
— up to 400 V for current peak value n=30 rated value	56.3 A
— up to 500 V for current peak value n=30 rated value	56.3 A
— up to 690 V for current peak value n=30 rated value	56.3 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	42 A
● at 690 V rated value	30 A
operational current	
● at 1 current path at DC-1	
— at 24 V rated value	100 A
— at 60 V rated value	60 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	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	10 A
— at 440 V rated value	1.8 A
— at 600 V rated value	1 A
● with 3 current paths in series at DC-1	
— at 24 V rated value	100 A
— at 60 V rated value	100 A

— at 110 V rated value	100 A
— at 220 V rated value	80 A
— at 440 V rated value	4.5 A
— at 600 V rated value	2.6 A
● at 1 current path at DC-3 at DC-5	
— at 24 V rated value	40 A
— at 60 V rated value	6 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.15 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	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	7 A
— at 440 V rated value	0.42 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	100 A
— at 60 V rated value	100 A
— at 110 V rated value	100 A
— at 220 V rated value	35 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.35 A
operating power	
● at AC-2 at 400 V rated value	45 kW
● at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
— at 1000 V rated value	37 kW
● at AC-3e	
— at 230 V rated value	22 kW
— at 400 V rated value	45 kW
— at 500 V rated value	55 kW
— at 690 V rated value	75 kW
— at 1000 V rated value	37 kW
operating power for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	22 kW
● at 690 V rated value	27.4 kW
operating apparent power at AC-6a	
● up to 400 V for current peak value n=20 rated value	58 000 VA
● up to 500 V for current peak value n=20 rated value	73 000 VA
● up to 690 V for current peak value n=20 rated value	69 000 VA
operating apparent power at AC-6a	
● up to 230 V for current peak value n=30 rated value	22 400 VA
● up to 400 V for current peak value n=30 rated value	39 000 VA
● up to 500 V for current peak value n=30 rated value	48 700 VA
● up to 690 V for current peak value n=30 rated value	67 300 VA
short-time withstand current in cold operating state up to 40 °C	
● limited to 1 s switching at zero current maximum	1 725 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 5 s switching at zero current maximum	1 297 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 10 s switching at zero current maximum	946 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 30 s switching at zero current maximum	610 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 60 s switching at zero current maximum	486 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
● at AC	1 000 1/h

● at DC	1 000 1/h
operating frequency	
● at AC-1 maximum	900 1/h
● at AC-2 maximum	350 1/h
● at AC-3 maximum	850 1/h
● at AC-3e maximum	850 1/h
● at AC-4 maximum	250 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 ... 150 V
● at 60 Hz rated value	83 ... 150 V
control supply voltage at DC	
● rated value	83 ... 150 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
type of PLC-control input according to IEC 60947-1	Type 1
consumed current at PLC-control input according 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
design of the surge suppressor	with varistor
inrush current peak	25 A
duration of inrush current peak	10 µs
locked-rotor current mean value	1.2 A
locked-rotor current peak	2.7 A
duration of locked-rotor current	150 ms
holding current mean value	0.016 A
apparent pick-up power of magnet coil at AC	
● at 50 Hz	130 VA
● at 60 Hz	130 VA
apparent holding power of magnet coil at AC	
● at 50 Hz	2.4 VA
● at 60 Hz	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	50 ... 70 ms
● at DC	50 ... 70 ms
opening delay	
● at AC	38 ... 57 ms
● at DC	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	77 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	30 hp
— at 460/480 V rated value	75 hp
— at 575/600 V rated value	75 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: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 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	screw and snap-on mounting onto 35 mm DIN 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	spring-loaded terminals
● at contactor for auxiliary contacts	Spring-type terminals
● of magnet coil	Spring-type terminals
type of connectable conductor cross-sections for main contacts	
● 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
● 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
● 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 ... 2.5 mm²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm²)
— finely stranded without core end processing	2x (0.5 ... 2.5 mm²)
● for AWG cables for auxiliary contacts	2x (20 ... 16)
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 according to IEC 60947-4-1	Yes
● positively driven operation according to IEC 60947-5-1	No
safety device type according to IEC 61508-2	Type B
B10 value with high demand rate according to SN 31920	1 000 000
Safety Integrity Level (SIL) according to IEC 61508	2
SIL Claim Limit (subsystem) according to EN 62061	2
performance level (PL) according to EN ISO 13849-1	c
category according to EN ISO 13849-1	2
stop category according to 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 according to SN 31920	40 %
● with high demand rate according to SN 31920	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
PFHD with high demand rate according to EN 62061	7.7E-8 1/h
PFDavg with low demand rate according to IEC 61508	0.0067
MTBF	52 a
hardware fault tolerance according to IEC 61508	0
T1 value for proof test interval or service life according to IEC 61508	20 a
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
suitability for use	
● safety-related switching on	No
● safety-related switching OFF	Yes
Certificates/ approvals	
General Product Approval	

CSA	Confirmation	CCC	UL	KC	EAC

EMC	Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates	
RCM	Type Examination Certificate	UKCA	CE EG-Konf.	Type Test Certificates/Test Report	Special Test Certificate

Marine / Shipping				other	Railway
ABS	LRS	RINA	RMRS	Confirmation	Vibration and Shock

Further information

Siemens has decided to exit the Russian market (see here).
https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business
Siemens is working on the renewal of the current EAC certificates.
Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).
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)
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Cax online generator
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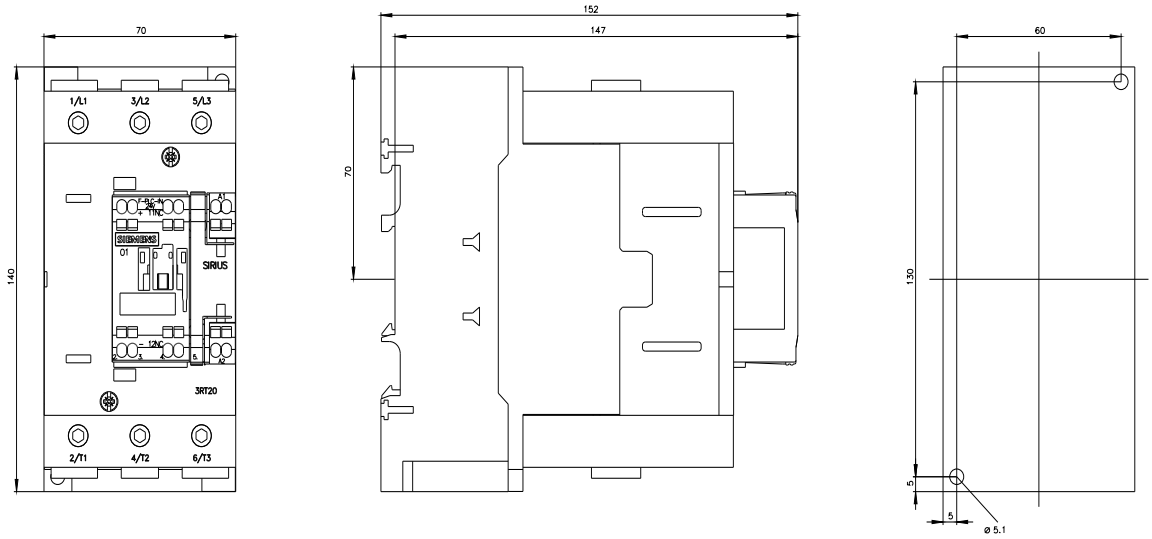
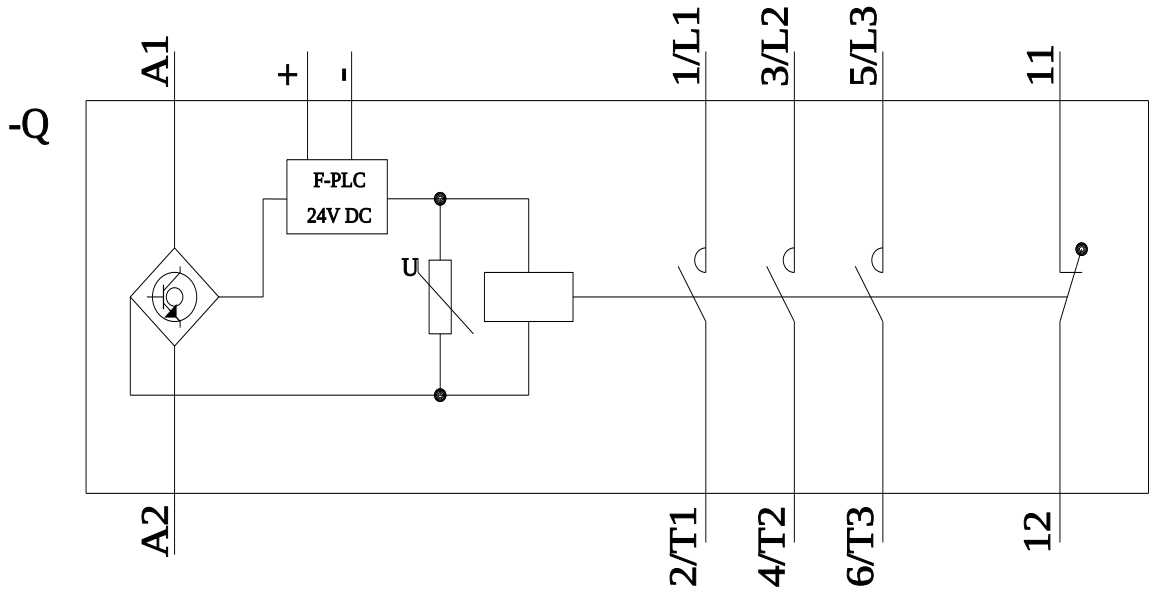
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-3SF30
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2046-3SF30&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RT2046-3SF30/char
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2046-3SF30&objecttype=14&gridview=view1





last modified: 2/10/2023