SIEMENS

Data sheet

3RT2016-1AK64-3MA0



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 2 NO+2 NC 110 V AC, 50 Hz 120 V, 60 Hz 3-pole, frame size S00 screw terminal captive auxiliary switch

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 	No
power loss [W] for rated value of the current	
 at AC in hot operating state 	0.9 W
 at AC in hot operating state per pole 	0.3 W
 without load current share typical 	4.4 W
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 safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	6,7g / 5 ms, 4,2g / 10 ms
shock resistance with sine pulse	
• at AC	10,5g / 5 ms, 6,6g / 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)	10/01/2009
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 poles for main current circuit number of NO contacts for main contacts	3
operating voltage	3
at AC-3 rated value maximum	690 V
at AC-3e rated value maximum	690 V
operational current	000 V
at AC-1 at 400 V at ambient temperature 40 °C rated value	22 A
• at AC-1	
 up to 690 V at ambient temperature 40 °C rated value 	22 A
 up to 690 V at ambient temperature 60 °C rated value at AC-3 	20 A
at A0-3 — at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	0.7 A
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value — at 690 V rated value	6.7 A
at AC-4 at 400 V rated value	8.5 A
at AC-4 at 400 V rated value at AC-5a up to 690 V rated value	19.4 A
at AC-5b up to 490 V rated value at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	
up to 230 V for current peak value n=20 rated value	5.3 A
 up to 400 V for current peak value n=20 rated value 	5.3 A
 up to 500 V for current peak value n=20 rated value 	5.3 A
 up to 690 V for current peak value n=20 rated value at AC-6a 	5 A
up to 230 V for current peak value n=30 rated value	3.5 A
 up to 400 V for current peak value n=30 rated value 	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value minimum cross-section in main circuit at maximum AC-1	3.3 A 4 mm ²
rated value operational current for approx. 200000 operating	
cycles at AC-4	
• at 400 V rated value	4.1 A
• at 690 V rated value	3.3 A
operational current	
at 1 current path at DC-1	
— at 24 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 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
— 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	00.4
— at 24 V rated value	20 A
— at 110 V rated value	20 A
— at 220 V rated value — at 440 V rated value	20 A 1.3 A
— at 440 v rateu value	1.0 A

10001/	
— at 600 V rated value	1 A
• at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 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 110 V rated value	0.35 A
with 3 current paths in series at DC-3 at DC-5	00.4
— at 24 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	4 kW
at AC-2 at 400 V rated valueat AC-3	4 KVV
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 400 V rated value	4 kW
— at 690 V rated value	5.5 kW
at AC-3e	O.O KIT
— at 230 V rated value	2.2 kW
— at 400 V rated value	4 kW
— at 500 V rated value	4 kW
— at 690 V rated value	5 kW
operating power for approx. 200000 operating cycles	
at AC-4	
 at 400 V rated value 	2 kW
 at 690 V rated value 	2.5 kW
operating apparent power at AC-6a	
 up to 230 V for current peak value n=20 rated value 	2 kVA
 up to 400 V for current peak value n=20 rated value 	3.6 kVA
 up to 500 V for current peak value n=20 rated value 	4.6 kVA
 up to 690 V for current peak value n=20 rated value 	5.9 kVA
operating apparent power at AC-6a	
 up to 230 V for current peak value n=30 rated value 	1.3 kVA
 up to 400 V for current peak value n=30 rated value 	2.4 kVA
 up to 500 V for current peak value n=30 rated value 	3.1 kVA
 up to 690 V for current peak value n=30 rated value 	4 kVA
short-time withstand current in cold operating state	
up to 40 °C	
Iimited to 1 s switching at zero current maximum	155 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 5 s switching at zero current maximum	111 A; Use minimum cross-section acc. to AC-1 rated value
Ilimited to 10 s switching at zero current maximum	86 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	66 A; Use minimum cross-section acc. to AC-1 rated value
Iimited to 60 s switching at zero current maximum no load switching frequency.	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	10 000 1/b
at AC aperating frequency	10 000 1/h
operating frequency • at AC-1 maximum	1 000 1/h
at AC-1 maximum at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
at AC-3 maximum	750 1/h
at AC-3e maximum at AC-4 maximum	250 1/h
Control circuit/ Control	230 1/11
	AC
type of voltage of the control supply voltage	AC
control supply voltage at AC • at 50 Hz rated value	110 V
at 60 Hz rated value at 60 Hz rated value	110 V 120 V
● at 60 Hz rated value operating range factor control supply voltage rated	120 V
value of magnet coil at AC	
• at 50 Hz	0.8 1.1
• at 60 Hz	0.8 1.1
apparent pick-up power of magnet coil at AC	

● at 50 Hz	26.4 VA
● at 60 Hz	26.4 VA
inductive power factor with closing power of the coil	
● at 50 Hz	0.81
● at 60 Hz	0.81
apparent holding power of magnet coil at AC	
● at 50 Hz	4.4 VA
● at 60 Hz	4.4 VA
inductive power factor with the holding power of the	
coil	
● at 50 Hz	0.24
● at 60 Hz	0.24
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	
	2
number of NC contacts for auxiliary contacts instantaneous contact	2
number of NO contacts for auxiliary contacts instantaneous contact	2
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 40 V rated value at 60 V rated value	6 A
at 110 V rated value at 110 V rated value	3 A
	2 A
at 125 V rated value at 220 V rated value	1 A
at 220 V rated value at 600 V rated value	0.15 A
• at 600 V rated value	0.13 A
operational current at DC-13	C A
at 24 V rated value	6 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	7.6 A
at 600 V rated value	9 A
yielded mechanical performance [hp]	
for single-phase AC motor	
— at 110/120 V rated value	0.33 hp
— at 230 V rated value	1 hp
• for 3-phase AC motor	
— at 200/208 V rated value	2 hp
— at 220/230 V rated value	3 hp
— at 460/480 V rated value	5 hp
— at 450/460 V rated value	7.5 hp
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link	
 for short-circuit protection of the main circuit 	
 — with type of coordination 1 required 	gG: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)

— with type of assignment 2 required	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (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
fastening method	forward and backward by +/- 22.5° on vertical mounting surface screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
side-by-side mounting	Yes
height	58 mm
width	45 mm
depth	117 mm
required spacing	
with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
 for grounded parts 	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
for live parts	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 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	Corew type terminals
• for main contacts	
— solid	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²
solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²
— finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
at AWG cables for main contacts	2x (20 16), 2x (18 14), 2x 12
connectable conductor cross-section for main contacts	ZA (ZU 10), ZA (10 1 1) , ZA 1Z
• solid	0.5 4 mm²
• stranded	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm ²
connectable conductor cross-section for auxiliary contacts	
 solid or stranded 	0.5 4 mm²
 finely stranded with core end processing 	0.5 2.5 mm²
type of connectable conductor cross-sections	
for auxiliary contacts	
— solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²
 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
 at AWG cables for auxiliary contacts 	2x (20 16), 2x (18 14), 2x 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
 positively driven operation according to IEC 60947- 	No

B10 value with high demand rate according to SN 31920

1 000 000

proportion of dangerous failures

• with low demand rate according to SN 31920

• with high demand rate according to SN 31920

failure rate [FIT] with low demand rate according to SN 31920

T1 value for proof test interval or service life according to IEC 61508

protection class IP on the front according to IEC 60529

touch protection on the front according to IEC 60529 suitability for use

safety-related switching OFF

40 %

73 %

100 FIT

20 y

IP20

finger-safe, for vertical contact from the front

Yes

Certificates/ approvals

General Product Approval



Confirmation





<u>KC</u>



EMC

Functional Safety/Safety of Machinery

Declaration of Conformity

Test Certificates



Type Examination Certificate





Special Test Certificate Type Test Certificates/Test Report

Marine / Shipping













Marine / Shipping

other

Railway



Confirmation



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=3RT2016-1AK64-3MA0

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1AK64-3MA0

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AK64-3MA0

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

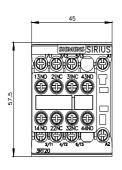
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1AK64-3MA0&lang=en

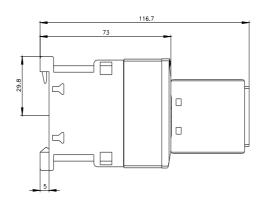
Characteristic: Tripping characteristics, I2t, Let-through current

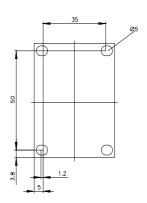
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1AK64-3MA0/char

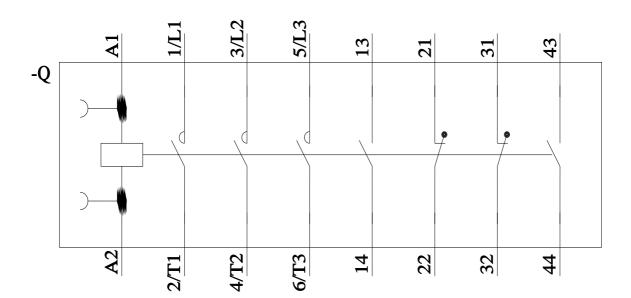
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1AK64-3MA0&objecttype=14&gridview=view1









last modified: 11/21/2022 🖸

