3RT2038-3XJ44-0LA2

## **Data sheet**



traction contactor, AC-3e/AC-3, 80 A, 37 kW / 400 V, 3-pole, 72 V DC, 0.7-1.25\* Us, electronic drive, with integrated varistor, auxiliary contacts: 2 NO + 2 NC, main circuit: screw terminal, control and auxiliary circuit: spring-loaded terminal, size: S2, removable auxiliary switch

product brand name	SIRIUS
product designation	Power contactor
design of the product	With extended operating range
product type designation	3RT2
General technical data	
size of contactor	S2
product extension	
<ul> <li>function module for communication</li> </ul>	No
auxiliary switch	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	17.1 W
at AC in hot operating state per pole	5.7 W
type of calculation of power loss depending on pole	quadratic
insulation voltage	
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	690 V
• of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
<ul> <li>of main circuit rated value</li> </ul>	6 kV
of auxiliary circuit rated value	6 kV
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at DC	6.1g / 5 ms, 3.7g / 10 ms
shock resistance with sine pulse	
• at DC	9.6g / 5 ms, 5.8g / 10 ms
mechanical service life (operating cycles)	
<ul> <li>of contactor typical</li> </ul>	10 000 000
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	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)	10/01/2014
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8
Weight	1.214 kg
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
during operation	-40 +70 °C
during storage	-55 +80 °C
relative humidity minimum	10 %

relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Environmental footprint	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	107 kg
global warming potential [CO2 eq] during manufacturing	5.88 kg
global warming potential [CO2 eq] during operation	102 kg
global warming potential [CO2 eq] after end of life	-0.988 kg
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	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	90 A
value	30 A
• at AC-1	
— up to 690 V at ambient temperature 40 $^{\circ}\text{C}$ rated value	90 A
— up to 690 V at ambient temperature 60 $^{\circ}\text{C}$ rated value	80 A
<ul><li>at AC-2 at 400 V rated value</li><li>at AC-3</li></ul>	80 A
— at 400 V rated value	80 A
— at 500 V rated value	80 A
— at 690 V rated value	58 A
• at AC-3e	
— at 400 V rated value	80 A
— at 500 V rated value	80 A
— at 690 V rated value	58 A
at AC-4 at 400 V rated value	55 A
minimum cross-section in main circuit	0071
at maximum AC-1 rated value	35 mm²
at maximum Ith rated value	35 mm²
operational current for approx. 200000 operating cycles at AC-4	30 mm
at 400 V rated value	30 A
at 690 V rated value	24 A
operational current	
at 1 current path at DC-1	
— at 24 V rated value	55 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
with 2 current paths in series at DC-1	
— at 24 V rated value	55 A
— at 110 V rated value	45 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
with 3 current paths in series at DC-1	0.07.
— at 24 V rated value	55 A
— at 24 V rated value  — at 110 V rated value	
	55 A
— at 220 V rated value	45 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
• at 1 current path at DC-3 at DC-5	05.4
— at 24 V rated value	35 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A

— at 440 V rated value	0.1 A
— at 600 V rated value	0.06 A
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	55 A
— at 110 V rated value	25 A
— at 220 V rated value	5 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 220 V rated value	25 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.35 A
operating power	
<ul> <li>at AC-2 at 400 V rated value</li> </ul>	37 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	37 kW
— at 500 V rated value	37 kW
— at 690 V rated value	45 kW
• at AC-3e	
— at 230 V rated value	22 kW
— at 400 V rated value	37 kW
— at 500 V rated value	37 kW
— at 690 V rated value	45 kW
operating power for approx. 200000 operating cycles at AC-	
4	
<ul> <li>at 400 V rated value</li> </ul>	15.8 kW
at 690 V rated value	21.8 kW
short-time withstand current in cold operating state up to 40 $^{\circ}\text{C}$	
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	1 298 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	898 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	640 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	414 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	333 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at DC	1 500 1/h
operating frequency	
at AC-2 at AC-3e maximum	350 1/h
at AC-4 maximum	150 1/h
Ratings for railway applications	
thermal current (Ith) up to 690 V	
• up to 40 °C according to IEC 60077 rated value	90 A
• up to 70 °C according to IEC 60077 rated value	75 A
Control circuit/ Control	
	DC
type of voltage	DC
type of voltage of the control supply voltage	72 V
control supply voltage at DC rated value	1 £ V
operating range factor control supply voltage rated value of magnet coil at DC	
• initial value	0.7
• full-scale value	1.25
design of the surge suppressor	with varistor
duration of locked-rotor current	230 ms
closing power of magnet coil at DC	23 W
holding power of magnet coil at DC	1 W
closing delay	
• at DC	35 110 ms
opening delay	33 110 III0
opening delay	

• at DC	30 55 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	2
• instantaneous contact	2
number of NO contacts for auxiliary contacts	2
• instantaneous contact	2
operational current at AC-12 maximum	10 A
operational current at AC-15	
<ul> <li>at 230 V rated value</li> </ul>	6 A
<ul> <li>at 400 V rated value</li> </ul>	3 A
<ul> <li>at 500 V rated value</li> </ul>	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	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
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
at 480 V rated value	65 A
at 600 V rated value	62 A
yielded mechanical performance [hp]	
• for single-phase AC motor	
— at 110/120 V rated value	5 hp
— at 230 V rated value	15 hp
• for 3-phase AC motor	
— at 200/208 V rated value	20 hp
— at 220/230 V rated value	25 hp
— at 460/480 V rated value	50 hp
— at 575/600 V rated value	60 hp
contact rating of auxiliary contacts according to UL Short-circuit protection	A600 / Q600
	Na
product function short circuit protection  design of the fuse link	No
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
with type of assignment 2 required	kA) gG: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A (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 side-by-side mounting	Yes
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
height	114 mm
width	55 mm
depth	178 mm
required spacing	

approvals Certificates	
•	
product function bus communication	No
Communication/ Protocol	
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
protection class IP on the front according to IEC 60529	IP20
Electrical Safety	
safety device type according to IEC 61508-2	Type A
IEC 61508	
overdimensioning according to ISO 13849-2 necessary	Yes
device type according to ISO 13849-1	3
ISO 13849	
31920	100 111
B10 value with high demand rate according to SN 31920 failure rate [FIT] with low demand rate according to SN	1 000 000 100 FIT
with high demand rate according to SN 31920  P10 value with high demand rate according to SN 31920	73 % 1 000 000
with low demand rate according to SN 31920      with high demand rate according to SN 31920	40 %
proportion of dangerous failures	40.0/
test wear-related service life necessary	Yes
service life maximum	20 a
suitability for use safety-related switching OFF	Yes
suitable for safety function	Yes
positively driven operation according to IEC 60947-5-1	No
mirror contact according to IEC 60947-4-1	Yes
product function	
afety related data	
for auxiliary contacts	20 14
• for main contacts	18 1
section	
AWG number as coded connectable conductor cross	
for AWG cables for auxiliary contacts	2x (20 14)
— finely stranded without core end processing	2x (0.5 2.5 mm²)
— finely stranded with core end processing	2x (0.5 1.5 mm²)
— solid or stranded	2x (0.5 2.5 mm²)
• for auxiliary contacts	
type of connectable conductor cross-sections	
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1 25 mm²), 1x (1 35 mm²)
solid or stranded	2x (1 35 mm²), 1x (1 50 mm²)
type of connectable conductor cross-sections for main contacts	
of magnet coil	Spring-type terminals
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Spring-type terminals
<ul> <li>for auxiliary and control circuit</li> </ul>	spring-loaded terminals
• for main current circuit	screw-type terminals
type of electrical connection	
Connections/ Terminals	
— at the side	6 mm
— downwards	10 mm
— upwards	10 mm
— forwards	10 mm
• for live parts	
— downwards	10 mm
— at the side	6 mm
— upwards	10 mm
— forwards	10 mm
for grounded parts	
— at the side	0 mm
— downwards	10 mm
— upwards	10 mm
— forwards	10 mm







Confirmation



<u>KC</u>

General Product Approval

EMV

**Test Certificates** 

Marine / Shipping





Type Test Certificates/Test Report

Special Test Certificate





Marine / Shipping









Confirmation

other

Type Test Certificates/Test Report

Railway

Railway

Environment

Special Test Certificate



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=3RT2038-3XJ44-0LA2

Cax online generator

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-3XJ44-0LA2

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

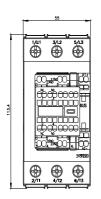
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2038-3XJ44-0LA2&lang=en

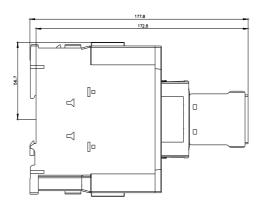
Characteristic: Tripping characteristics, I2t, Let-through current

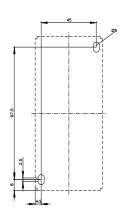
https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-3XJ44-0LA2/char

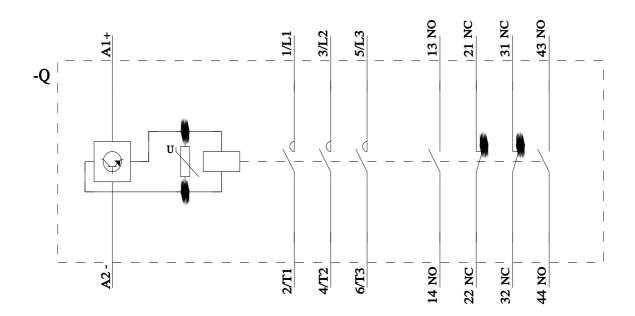
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2038-3XJ44-0LA2&objecttype=14&gridview=view1









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