# Data sheet

Power contactor, AC-3 80 A, 37 kW / 400 V 2 NO + 2 NC, 230 V AC 50/60 Hz, with inserted varistor, 3-pole, Size S2, screw terminals Perm. mounted auxiliary switch



product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2

General technical data	
size of contactor	S2
product extension	
<ul> <li>function module for communication</li> </ul>	No
auxiliary switch	No
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	17.1 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	5.7 W
power loss [W] for rated value of the current without	17.2 W
load current share typical	
surge voltage resistance	
of main circuit rated value	6 kV
<ul> <li>of auxiliary circuit rated value</li> </ul>	6 kV
maximum permissible voltage for safe isolation	
<ul> <li>between coil and main contacts acc. to EN</li> </ul>	400 V
60947-1	

protection class IP	
• on the front	IP20
• of the terminal	IP00
shock resistance at rectangular impulse	
• at AC	9.8g / 5 ms, 6.5g / 10 ms
shock resistance with sine pulse	
• at AC	15.3g / 5 ms, 10.1g / 10 ms
mechanical service life (switching cycles)	
of contactor typical	10 000 000
<ul> <li>of the contactor with added electronics-</li> </ul>	5 000 000
compatible auxiliary switch block typical	
of the contactor with added auxiliary switch	10 000 000
block typical	
reference code acc. to DIN EN 81346-2	Q
Ambient conditions	
• installation altitude at height above sea level	2 000 m
maximum	
ambient temperature	
<ul><li>during operation</li></ul>	-25 +60 °C
during storage	-55 +80 °C
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
operating current	
● at AC-1 at 400 V	
<ul> <li>at AC-1 at 400 V</li> <li>at ambient temperature 40 °C rated value</li> </ul>	90 A
	90 A
— at ambient temperature 40 °C rated value	90 A 90 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C</li> </ul>	
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C</li> </ul>	90 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul>	90 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> </ul>	90 A 80 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> <li>at 400 V rated value</li> </ul>	90 A 80 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul>	90 A 80 A 80 A 80 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1  — up to 690 V at ambient temperature 40 °C rated value  — up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-3  — at 400 V rated value  — at 500 V rated value  — at 690 V rated value</li> <li>at AC-4 at 400 V rated value</li> </ul>	90 A 80 A 80 A 80 A 58 A 55 A
<ul> <li>at ambient temperature 40 °C rated value</li> <li>at AC-1</li> <li>up to 690 V at ambient temperature 40 °C rated value</li> <li>up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> <li>at 400 V rated value</li> <li>at 500 V rated value</li> <li>at 690 V rated value</li> </ul>	90 A 80 A 80 A 80 A 58 A

<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	70 A
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	70 A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	70 A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	58 A
• at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	46.7 A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	46.7 A
<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	46.7 A
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	46.7 A
minimum cross-section in main circuit	
<ul> <li>at maximum AC-1 rated value</li> </ul>	35 mm²
operating current for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	30 A
• at 690 V rated value	24 A
operating 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
<ul><li>with 2 current paths in series at DC-1</li></ul>	
— 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
<ul> <li>with 3 current paths in series at DC-1</li> </ul>	
— at 24 V rated value	55 A
— 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
operating current	

<ul> <li>— at 110 V rated value</li> <li>— at 220 V rated value</li> <li>— at 440 V rated value</li> </ul>	35 A 2.5 A 1 A 0.1 A 0.06 A
<ul> <li>at 110 V rated value</li> <li>at 220 V rated value</li> <li>at 440 V rated value</li> <li>at 600 V rated value</li> </ul>	2.5 A 1 A 0.1 A 0.06 A
— at 220 V rated value  — at 440 V rated value  — at 600 V rated value	1 A 0.1 A 0.06 A
— at 440 V rated value — at 600 V rated value	0.1 A 0.06 A
— at 600 V rated value	0.06 A
• with 2 current paths in series at DC-3 at DC-5	55 A
	55 A
— at 24 V rated value	
— 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
• with 3 current paths in series at DC-3 at DC-5	
— 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	
• at AC-2 at 400 V rated value	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
operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	15.8 kW
● at 690 V rated value	21.8 kW
operating apparent output at AC-6a	
• up to 230 V for current peak value n=20 rated value	27.8 kV·A
• up to 400 V for current peak value n=20 rated value	48.4 kV·A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	60.6 kV·A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	69.3 kV·A
operating apparent output at AC-6a	
• up to 230 V for current peak value n=30 rated value	18.6 kV·A
• up to 400 V for current peak value n=30 rated value	32.3 kV·A

<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	40.4 kV·A
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	55.8 kV·A
short-time withstand current in cold operating state	
up to 40 °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 AC	5 000 1/h
operating frequency	
• at AC-1 maximum	700 1/h
• at AC-2 maximum	350 1/h
• at AC-3 maximum	500 1/h
• at AC-4 maximum	150 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	230 V
• at 60 Hz rated value	230 V
operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.8 1.1
● at 60 Hz	0.85 1.1
design of the surge suppressor	with varistor
apparent pick-up power of magnet coil at AC	

210 V·A 188 V·A

0.69

0.65

17.2 V·A

16.5 V·A

• at 50 Hz

• at 60 Hz

• at 50 Hz

• at 60 Hz

• at 50 Hz • at 60 Hz

inductive power factor with closing power of the coil

apparent holding power of magnet coil at AC

inductive power factor with the holding power of the coil	
● at 50 Hz	0.36
● at 60 Hz	0.39
closing delay	
• at AC	10 80 ms
opening delay	
• at AC	10 18 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	
instantaneous contact	2
number of NO contacts for auxiliary contacts	
instantaneous contact	2
operating current at AC-12 maximum	10 A
operating 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
operating 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
operating 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
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for three-phase AC motor	
• at 480 V rated value	65 A

• at 600 V rated value	62 A
yielded mechanical performance [hp]	
<ul> <li>for single-phase AC motor</li> </ul>	
— at 110/120 V rated value	5 hp
— at 230 V rated value	15 hp
<ul> <li>for three-phase AC motor</li> </ul>	
— 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	A600 / Q600

#### Short-circuit protection

### design of the fuse link

• for short-circuit protection of the main circuit

— with type of coordination 1 required

— with type of assignment 2 required

• for short-circuit protection of the auxiliary switch required

gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200

A (415 V, 80 kA)

gG: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A

(415V,80kA)

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
mounting type	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
• side-by-side mounting	Yes
height	114 mm
width	55 mm
depth	174 mm
required spacing	
<ul><li>with side-by-side mounting</li></ul>	
— 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
<ul> <li>for auxiliary and control current circuit</li> </ul>	screw-type terminals
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Screw-type terminals
• of magnet coil	Screw-type terminals
type of connectable conductor cross-sections	
• for main contacts	
<ul> <li>single or multi-stranded</li> </ul>	2x (1 35 mm²), 1x (1 50 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1 25 mm²), 1x (1 35 mm²)
<ul> <li>at AWG conductors for main contacts</li> </ul>	2x (18 2), 1x (18 1)
connectable conductor cross-section for main	
contacts	
<ul><li>finely stranded with core end processing</li></ul>	1 35 mm²
connectable conductor cross-section for auxiliary	
contacts	
<ul> <li>single or multi-stranded</li> </ul>	0.5 2.5 mm²
<ul><li>finely stranded with core end processing</li></ul>	0.5 2.5 mm²
<ul> <li>type of connectable conductor cross-sections for auxiliary contacts</li> </ul>	
<ul> <li>single or multi-stranded</li> </ul>	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
<ul> <li>type of connectable conductor cross-sections at AWG conductors for auxiliary contacts</li> </ul>	2x (20 16), 2x (18 14)
AWG number as coded connectable conductor cross	
section	
• for main contacts	18 1
• for auxiliary contacts	20 14

Safety related data	
B10 value	
<ul> <li>with high demand rate acc. to SN 31920</li> </ul>	1 000 000
proportion of dangerous failures	
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	40 %
<ul> <li>with high demand rate acc. to SN 31920</li> </ul>	73 %
failure rate [FIT]	
• with low demand rate acc. to SN 31920	100 FIT
product function	
• mirror contact acc. to IEC 60947-4-1	Yes

<ul><li>positively driven operation acc. to IEC 60947-5-</li></ul>	No
T1 value for proof test interval or service life acc. to IEC 61508	20 y
protection against electrical shock	finger-safe when touched vertically from front acc. to IEC 60529
suitability for use safety-related switching OFF	Yes

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## Certificates/ approvals

## **General Product Approval**

**EMC** 











Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates		Marine / Ship- ping
Type Examination  Certificate	C E	Miscellaneous	Special Test Certificate	Type Test Certificates/Test Report	ABS

### Marine / Shipping













# other

Confirmation

#### Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

https://www.siemens.com/ic10

Industry Mall (Online ordering system)

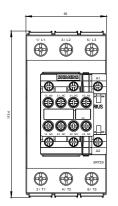
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2038-1CL24-3MA0

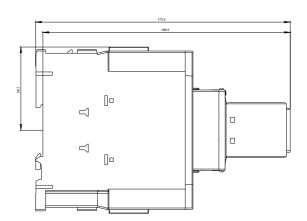
Cax online generator

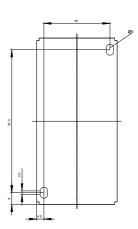
Service&Support (Manuals, Certificates, Characteristics, FAQs,...) https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-1CL24-3MA0

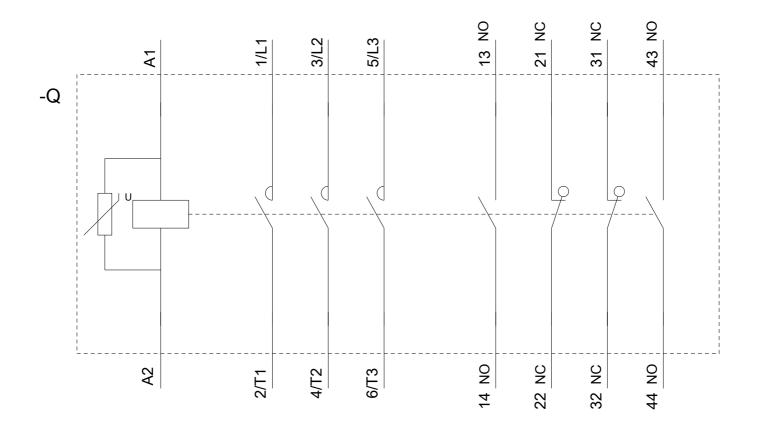
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) <a href="http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2038-1CL24-3MA0&lang=en">http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2038-1CL24-3MA0&lang=en</a>

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2038-1CL24-3MA0&objecttype=14&gridview=view1









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