## Data sheet

Power contactor, AC-3 12 A, 5.5~kW / 400~V~2~NO+2~NC, 230~V~AC 50 / 60~Hz, with plugged-in varistor, 3-pole, Size S0 Screw terminal Captive auxiliary switch



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

General technical data	
Size of contactor	S0
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>	1.5 W
• at AC in hot operating state per pole	0.5 W
Power loss [W] for rated value of the current without	7.9 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	
• of the terminal	IP20
	IP20
Shock resistance at rectangular impulse	
• at AC	7,5g / 5 ms, 4,7g / 10 ms
Shock resistance with sine pulse	
• at AC	11,8g / 5 ms, 7,4g / 10 ms
Mechanical service life (switching cycles)	
of contactor typical	10 000 000
<ul> <li>of the contactor with added electronics- compatible auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750	К
Reference code acc. to DIN EN 81346-2	Q
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
Main circuit	
Number of poles for main current circuit	3
realiser of polos for main carront ordan	
Number of NO contacts for main contacts	3
-	3
Number of NO contacts for main contacts	3 690 V
Number of NO contacts for main contacts  Operating voltage	
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum	
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current	
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V	690 V
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value	690 V
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • at AC-1  — up to 690 V at ambient temperature 40 °C	690 V 40 A
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • at AC-1  — up to 690 V at ambient temperature 40 °C rated value  — up to 690 V at ambient temperature 60 °C	690 V 40 A 40 A
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • 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	690 V  40 A  40 A  35 A
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • 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  • at AC-2 at 400 V rated value	690 V  40 A  40 A  35 A
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • 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  • at AC-2 at 400 V rated value  • at AC-3	690 V  40 A  40 A  35 A  12 A
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • 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  • at AC-2 at 400 V rated value  • at AC-3  — at 400 V rated value	690 V  40 A  40 A  35 A  12 A
Number of NO contacts for main contacts  Operating voltage  • at AC-3 rated value maximum  Operating current  • at AC-1 at 400 V  — at ambient temperature 40 °C rated value  • 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  • at AC-2 at 400 V rated value  • at AC-3  — at 400 V rated value  — at 500 V rated value	690 V  40 A  40 A  35 A  12 A  12 A  12 A
Number of NO contacts for main contacts	3

• at AC-5b up to 400 V rated value	9.9 A
• at AC-6a	
— up to 230 V for current peak value n=20	11.4 A
rated value	
<ul><li>— up to 400 V for current peak value n=20 rated value</li></ul>	11.4 A
— up to 500 V for current peak value n=20	11.3 A
rated value	
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	9 A
● at AC-6a	
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	7.6 A
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	7.6 A
<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	7.6 A
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	7.6 A
Minimum cross-section in main circuit	
at maximum AC-1 rated value	10 mm²
Operating current for approx. 200000 operating	
cycles at AC-4	
• at 400 V rated value	5.5 A
• at 690 V rated value	5.5 A
Operating current	
• at 1 current path at DC-1	
— at 24 V rated value	35 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	35 A
— at 110 V rated value	35 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	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
1.440.1/	
— at 440 V rated value	2.9 A

— at 600 V rated value	1.4 A
Operating current	
<ul> <li>at 1 current path at DC-3 at DC-5</li> </ul>	
— at 24 V rated value	20 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 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	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 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	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
Operating power	
• at AC-1	
— at 230 V rated value	13.3 kW
— at 230 V at 60 °C rated value	13.3 kW
— at 400 V rated value	23 kW
— at 400 V at 60 °C rated value	23 kW
— at 690 V rated value	40 kW
— at 690 V at 60 °C rated value	40 kW
• at AC-2 at 400 V rated value	5.5 kW
● at AC-3	
— at 230 V rated value	3 kW
— at 400 V rated value	5.5 kW
— at 500 V rated value	5.5 kW
— at 690 V rated value	7.5 kW
Operating power for approx. 200000 operating cycles at AC-4	
• at 400 V rated value	2.6 kW
• at 690 V rated value	4.6 kW
Operating apparent output at AC-6a	
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	4 500 V·A

<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	7 800 V·A
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	9 800 V·A
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	10 700 V·A
Operating apparent output at AC-6a	
up to 230 V for current peak value n=30 rated	3 000 V·A
value	
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	5 200 V·A
<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	6 500 V·A
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	9 000 V·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>	210 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	210 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	162 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	103 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	88 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	1 000 1/h
• at AC-2 maximum	1 000 1/h
• at AC-3 maximum	1 000 1/h
• at AC-4 maximum	300 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	
● at 50 Hz	68 V·A
● at 60 Hz	67 V·A
Inductive power factor with closing power of the coil	
● at 50 Hz	0.72
● at 60 Hz	0.74
Apparent holding power of magnet coil at AC	
● at 50 Hz	7.9 V·A
● at 60 Hz	6.5 V·A
Inductive power factor with the holding power of the coil	
● at 50 Hz	0.25
● at 60 Hz	0.28
Closing delay	
• at AC	9 38 ms
Opening delay	
• at AC	4 16 ms
Arcing time	10 10 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	11 A	
• at 600 V rated value	11 A	
Yielded mechanical performance [hp]		
<ul> <li>for single-phase AC motor</li> </ul>		
<ul> <li>at 110/120 V rated value</li> </ul>	1 hp	
— at 230 V rated value	2 hp	
<ul> <li>for three-phase AC motor</li> </ul>		
— at 200/208 V rated value	3 hp	
— at 220/230 V rated value	3 hp	
— at 460/480 V rated value	7.5 hp	
— at 575/600 V rated value	10 hp	
Contact rating of auxiliary contacts according to UL	A600 / Q600	

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- for short-circuit protection of the main circuit
  - with type of coordination 1 required

gG: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A

(415V,80kA)

— with type of assignment 2 required

gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A

(415V,80kA)

 $\bullet$  for short-circuit protection of the auxiliary switch

required

gG: 10 A (500 V, 1 kA)

nstallation/ 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
<ul> <li>Side-by-side mounting</li> </ul>	Yes
Height	85 mm
Width	45 mm
Depth	141 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

— 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			
— solid	2x (1 2.5 mm²), 2x (2.5 10 mm²)		
<ul><li>— single or multi-stranded</li></ul>	2x (1 2,5 mm²), 2x (2,5 10 mm²)		
— finely stranded with core end processing	2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²		
<ul> <li>at AWG conductors for main contacts</li> </ul>	2x (16 12), 2x (14 8)		
Connectable conductor cross-section for main			
contacts			
• solid	1 10 mm²		
• stranded	1 10 mm²		
<ul> <li>finely stranded with core end processing</li> </ul>	1 10 mm²		
Connectable conductor cross-section for auxiliary contacts			
single or multi-stranded	0.5 2.5 mm²		
• finely stranded with core end processing	0.5 2.5 mm²		
Type of connectable conductor cross-sections			
• for auxiliary contacts			
<ul> <li>single or multi-stranded</li> </ul>	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²)		
— finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
<ul> <li>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	16 8		
<ul> <li>for auxiliary contacts</li> </ul>	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 %
• with high demand rate acc. to SN 31920	73 %
Failure rate [FIT]	
<ul> <li>with low demand rate acc. to SN 31920</li> </ul>	100 FIT
Product function	
<ul> <li>Mirror contact acc. to IEC 60947-4-1</li> </ul>	Yes
• positively driven operation acc. to IEC 60947-5-	No
1	
T1 value for proof test interval or service life acc. to IEC 61508	20 y
Protection against electrical shock	finger-safe

# Certificates/ approvals

#### **General Product Approval**

**EMC** 











Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certific- ates	Marine / Shipping
Type Examination Certificate	Miscellaneous  EG-Konf.	Type Test Certificates/Test Report	ABS VERITAS

## 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=3RT2024-1CL24-3MA0

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-1CL24-3MA0

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

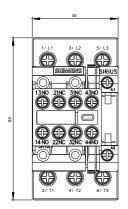
https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1CL24-3MA0

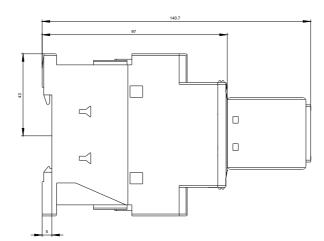
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) <a href="http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2024-1CL24-3MA0&lang=en">http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2024-1CL24-3MA0&lang=en</a>

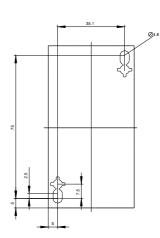
Characteristic: Tripping characteristics, I2t, Let-through current

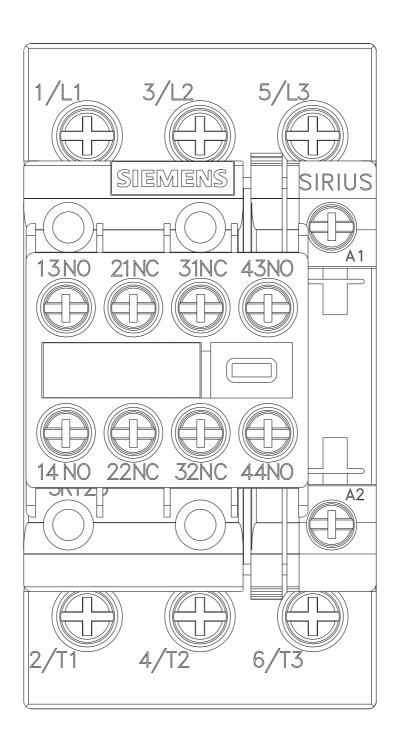
https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1CL24-3MA0/char

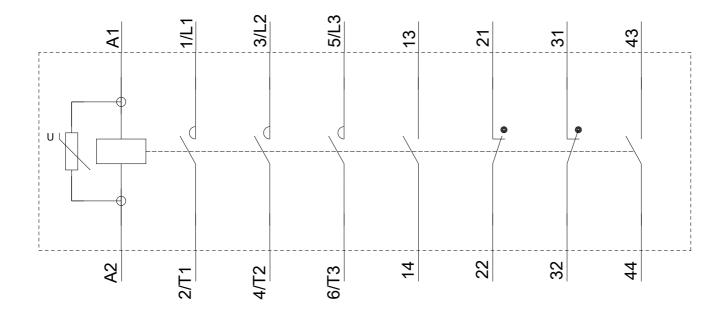
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-1CL24-3MA0&objecttype=14&gridview=view1











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