3RT2024-2AL24-3MA0

Data sheet



power contactor, AC-3e/AC-3, 12 A, 5.5 kW / 400 V, 3-pole, 230 V AC, 50/60 Hz, auxiliary contacts: 2 NO + 2 NC, spring-loaded terminal, size: S0, captive auxiliary switch, no surge suppressor retrofittable

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S0
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	7.9 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 protective separation between coil and main contacts according to EN 60947-1	400 V
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 (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 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	
 at AC-1 at 400 V at ambient temperature 40 °C rated 	40 A
value	
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated	40 A
value	05.4
 up to 690 V at ambient temperature 60 °C rated value 	35 A
• at AC-3	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
— at 690 V rated value	9 A
• at AC-3e	
— at 400 V rated value	12 A
— at 500 V rated value	12 A
	9 A
— at 690 V rated value	
at AC-4 at 400 V rated value at AC-5 aug to 600 V rated value	12.5 A
at AC-5a up to 690 V rated value	35.2 A
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 rated value	11.4 A
— up to 400 V for current peak value n=20 rated value	11.4 A
 up to 500 V for current peak value n=20 rated value 	11.3 A
 up to 690 V for current peak value n=20 rated value 	9 A
• at AC-6a	
 up to 230 V for current peak value n=30 rated value 	7.6 A
 up to 400 V for current peak value n=30 rated value 	7.6 A
 up to 500 V for current peak value n=30 rated value 	7.6 A
 up to 690 V for current peak value n=30 rated value 	7.6 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm ²
operational 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
operational current	
at 1 current path at DC-1	
— at 24 V rated value	35 A
— at 60 V rated value	20 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	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 110 V rated value — 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	05.4
— at 24 V rated value	35 A
— at 60 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 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 	

— at 24 V rated value	20 A		
— at 60 V rated value	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 60 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 60 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-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		
at AC-3e	1.0 (0)		
— 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		
	7.5 KVV		
operating power for approx. 200000 operating cycles at AC-			
• at 400 V rated value	2.6 kW		
at 690 V rated value	4.6 kW		
operating apparent power at AC-6a			
up to 230 V for current peak value n=20 rated value	4.5 kVA		
• up to 400 V for current peak value n=20 rated value	7.8 kVA		
• up to 500 V for current peak value n=20 rated value	9.8 kVA		
• up to 690 V for current peak value n=20 rated value	10.7 kVA		
operating apparent power at AC-6a			
up to 230 V for current peak value n=30 rated value	3 kVA		
 up to 400 V for current peak value n=30 rated value 	5.2 kVA		
up to 500 V for current peak value n=30 rated value up to 500 V for current peak value n=30 rated value	6.5 kVA		
up to 690 V for current peak value n=30 rated value up to 690 V for current peak value n=30 rated value	9 kVA		
short-time withstand current in cold operating state up to	·		
40 °C			
• limited to 1 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value		
Iimited to 5 s switching at zero current maximum	210 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 10 s switching at zero current maximum 	170 A; Use minimum cross-section acc. to AC-1 rated value		
 limited to 30 s switching at zero current maximum 	126 A; Use minimum cross-section acc. to AC-1 rated value		
Iimited to 60 s switching at zero current maximum	105 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-3e maximum	1 000 1/h		
acrie e manimum			
at AC-4 maximum	300 1/h		
at AC-4 maximum Control circuit/ Control	300 1/h		
at AC-4 maximum Control circuit/ Control type of voltage of the control supply voltage	300 1/h 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
apparent pick-up power of magnet coil at AC	
• at 50 Hz	68 VA
• at 60 Hz	67 VA
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 VA
• at 60 Hz	6.5 VA
inductive power factor with the holding power of the coil	
● at 50 Hz	0.25
• at 60 Hz	0.28
closing delay	
• at AC	8 40 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
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	1A
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	1A
at 110 V rated value at 125 V rated value	0.9 A
at 125 V rated value at 220 V rated value	0.3 A
at 220 V rated value at 600 V rated value	0.3 A 0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	riadity switching per 100 million (17 V, 1 ma)
full-load current (FLA) for 3-phase AC motor	
• at 480 V rated value	11 A
at 600 V rated value at 600 V rated value	11 A
yielded mechanical performance [hp]	117
for single-phase AC motor— at 110/120 V rated value	1 hp
— at 230 V rated value	2 hp

• for 3-phase AC motor			
— 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		
Short-circuit protection			
design of the fuse link			
 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)		
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	102 mm		
width	45 mm		
depth	144 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	spring-loaded 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			
• solid	2x (1 10 mm²)		
solid or stranded	2x (1 10 mm²)		
 finely stranded with core end processing 	2x (1 6 mm²)		
finely stranded without core end processing	2x (1 6 mm²)		
connectable conductor cross-section for main contacts			
• solid	1 10 mm²		
• stranded	1 10 mm²		
finely stranded with core end processing	1 6 mm²		
finely stranded without core end processing	1 6 mm²		
connectable conductor cross-section for auxiliary contacts			
solid or stranded	0.5 2.5 mm ²		
finely stranded with core end processing	0.5 1.5 mm ²		
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 14)
AWG number as coded connectable conductor cross section	
for main contacts	18 8
 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
B10 value with high demand rate according to SN 31920	450 000
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
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 OFF 	Yes
Certificates/ approvals	

General Product Approval



Confirmation





<u>KC</u>



EMC Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates	Marine / Shipping
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Type Examination Certificate





Type Test Certificates/Test Report



Marine / Shipping













other Railway Environment

Confirmation



Confirmation

Vibration and Shock

Environmental Confirmations

Further information

Siemens has decided to exit the Russian market (see here).

 $\underline{\text{https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business}}$

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)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2024-2AL24-3MA0

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-2AL24-3MA0

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AL24-3MAC

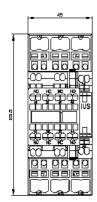
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...) http://www.automation.siemens.com/bilddb/cax de.aspx?mlfb=3RT2024-2AL24-3MA0&lang=en

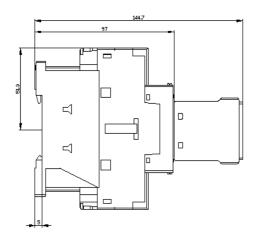
Characteristic: Tripping characteristics, I2t, Let-through current

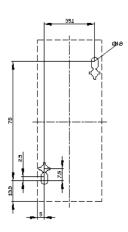
https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AL24-3MA0/char

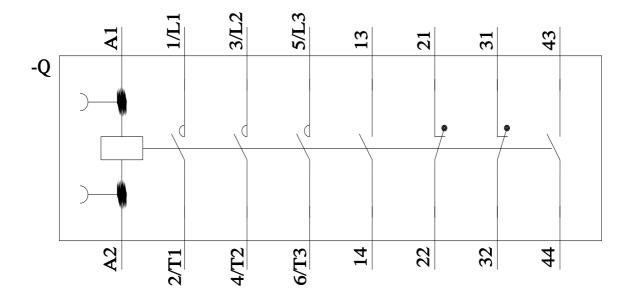
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-2AL24-3MA0&objecttype=14&gridview=view1









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