# **SIEMENS**

Data sheet 3RT2024-1AP60



power contactor, AC-3e/AC-3, 12 A, 5.5 kW / 400 V, 3-pole, 220 V AC, 50 Hz / 240 V, 60 Hz, auxiliary contacts: 1 NO + 1 NC, screw terminal, size: S0

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	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	0.9 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	0.3 W
without load current share typical	2 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
<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)	10/01/2009
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	
<ul> <li>at AC-1 at 400 V at ambient temperature 40 °C rated</li> </ul>	40 A
value	
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated	40 A
value	05.4
<ul> <li>up to 690 V at ambient temperature 60 °C rated value</li> </ul>	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
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	11.3 A
<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 mm <sup>2</sup>
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
<ul> <li>at 1 current path at DC-3 at DC-5</li> </ul>	

— at 24 V rated value	20 A
— at 60 V rated value	5 A
<ul><li>— at 220 V rated value</li></ul>	1 A
— at 440 V rated value	0.09 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	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
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>	
— 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
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	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
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	170 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	126 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	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	220 V
at 60 Hz rated value	240 V
operating range factor control supply voltage rated value of magnet coil at AC	
• at 50 Hz	0.8 1.1
• at 60 Hz	0.8 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	0.0 7/1
• at 50 Hz	0.25
• at 60 Hz	0.28
closing delay	
• at AC	8 40 ms
opening delay	0 40 1115
• at AC	4 16 ms
	4 10 ms
arcing time	Standard A1 - A2
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	4
number of NC contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
• at 230 V rated value	10 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	1 A
at 600 V rated value	0.15 A
operational current at DC-13	
• at 24 V rated value	10 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	11 A
	44.0
• at 600 V rated value	11 A
at 600 V rated value  yielded mechanical performance [hp]	11 A
yielded mechanical performance [hp]	11 A
	1 hp
yielded mechanical performance [hp] • for single-phase AC motor	

• 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 / P600
Short-circuit protection	
design of the fuse link	
• for short-circuit protection of the main circuit	
<ul> <li>— with type of coordination 1 required</li> </ul>	gG: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA)
<ul> <li>— with type of assignment 2 required</li> </ul>	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	85 mm
width	45 mm
depth	97 mm
required spacing	
with side-by-side mounting	40
— 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	corety by no hormainale
for main current circuit     for auxiliary and control circuit	screw-type terminals
for auxiliary and control circuit     at contactor for auxiliary contacts	screw-type terminals
at contactor for auxiliary contacts     of magnet coil	Screw type terminals
of magnet coil      type of connectable conductor cross-sections for main contacts	Screw-type terminals
solid	2v (1 2 5 mm²\ 2v (2 5 10 mm²\
solid     solid or stranded	2x (1 2.5 mm²), 2x (2.5 10 mm²) 2x (1 2.5 mm²), 2x (2.5 10 mm²)
	2x (1 2.5 mm²), 2x (2.5 10 mm²) 2x (1 2.5 mm²), 2x (2.5 6 mm²), 1x 10 mm²
finely stranded with core end processing     connectable conductor cross-section for main contacts	ΔΛ (1 Δ.Ο ΠΙΙΠ ), ΔΛ (Δ.Ο Ο ΠΙΙΠ ), ΤΑ ΤΟ ΠΙΙΠ
solid	1 10 mm²
• stranded	1 10 mm²
finely stranded with core end processing	1 10 mm²
connectable conductor cross-section for auxiliary contacts	1 10 mm
solid or stranded	0.5 2.5 mm²
finely stranded with core end processing	0.5 2.5 mm <sup>2</sup>
type of connectable conductor cross-sections	V.V 2.0 (1)(1)
• for auxiliary contacts	
solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
Solid of stranded     finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)
Innerly stranded with core end processing     for AWG cables for auxiliary contacts	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²) 2x (20 16), 2x (18 14)
AWG number as coded connectable conductor cross section	ZA (20 10), ZA (10 14)
• for main contacts	16 8

• for auxiliary contacts	20 14
Safety related data	
product function	
mirror contact according to IEC 60947-4-1	Yes
suitability for use safety-related switching OFF	Yes
B10 value with high demand rate according to SN 31920	450 000
proportion of dangerous failures	
<ul> <li>with low demand rate according to SN 31920</li> </ul>	40 %
<ul> <li>with high demand rate according to SN 31920</li> </ul>	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

#### Certificates/ approvals

### **General Product Approval**



Confirmation





<u>KC</u>





Type Examination Certificate





Type Test Certificates/Test Report

Special Test Certificate

#### Marine / Shipping













other Railway Environment

Confirmation



Confirmation

Vibration and Shock

Environmental Confirmations

#### Further information

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

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=3RT2024-1AP60

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-1AP60

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

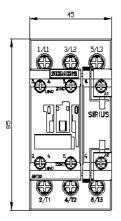
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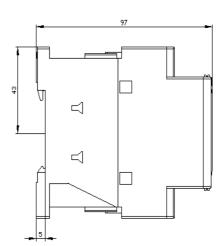
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

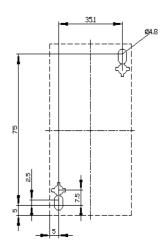
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2024-1AP60&lang=en

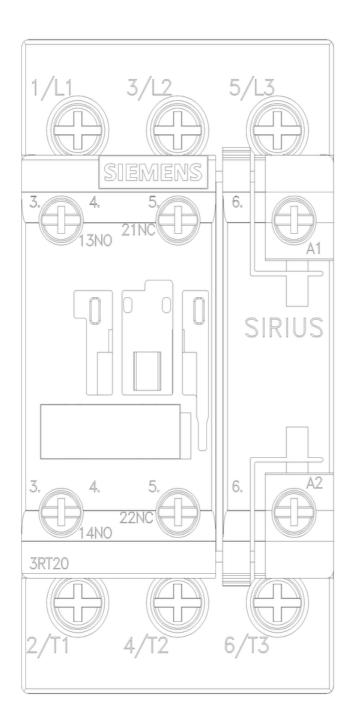
Characteristic: Tripping characteristics, I²t, Let-through current https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-1AP60/chai

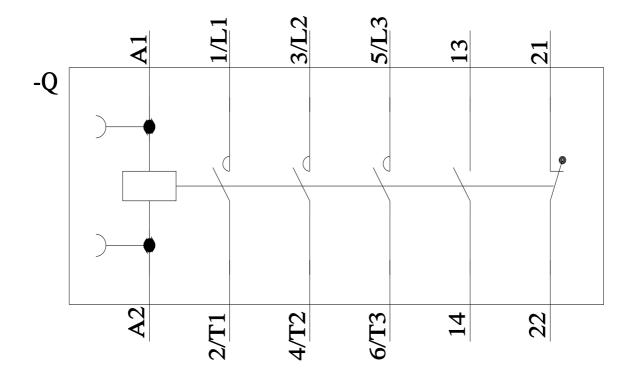
Further characteristics (e.g. electrical endurance, switching frequency)











last modified: 8/15/2023 🖸

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