# **SIEMENS**

Data sheet 3RT2024-2AK60



power contactor, AC-3 12 A, 5.5 kW / 400 V 1 NO + 1 NC, 110 V AC, 50 Hz 120 V, 60 Hz, 3-pole Size S0, Spring-type terminal

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	7.9 W
insulation voltage	
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	690 V
<ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	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 safe isolation 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 (switching 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
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	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	
<ul> <li>during operation</li> </ul>	-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 %

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	40 A
rated value	
• at AC-1	
— up to 690 V at ambient temperature 40 °C	40 A
rated value	
— up to 690 V at ambient temperature 60 °C	35 A
rated value	
• 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
— at 690 V rated value	9 A
<ul> <li>at AC-4 at 400 V rated value</li> </ul>	12.5 A
<ul> <li>at AC-5a up to 690 V rated value</li> </ul>	35.2 A
<ul> <li>at AC-5b up to 400 V rated value</li> </ul>	9.9 A
• at AC-6a	
— up to 230 V for current peak value n=20 rated	11.4 A
value	
<ul> <li>up to 400 V for current peak value n=20 rated</li> </ul>	11.4 A
value	
— up to 500 V for current peak value n=20 rated	11.3 A
value	
<ul> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	9 A
• at AC-6a	
	7.6 A
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	7.0 A
— up to 400 V for current peak value n=30 rated	7.6 A
value	
— up to 500 V for current peak value n=30 rated	7.6 A
value	
<ul> <li>up to 690 V for current peak value n=30 rated</li> </ul>	7.6 A
value	
minimum cross-section in main circuit at maximum AC-1	10 mm²
rated value	
operational current for approx. 200000 operating cycles at AC-4	
at 400 V rated value	5.5 A
at 690 V rated value     at 690 V rated value	5.5 A
operational current	U.U.N.
at 1 current path at DC-1	
- at 24 V rated value	35 A
— at 24 V rated value  — 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 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
<ul> <li>with 3 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	35 A		
— at 440 V rated value	2.9 A		
<ul><li>— at 600 V rated value</li></ul>	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 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		
<ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>			
— 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		
<ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul>			
— 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-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			
— 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			
<ul> <li>at 400 V rated value</li> </ul>	2.6 kW		
at 690 V rated value	4.6 kW		
operating apparent power at AC-6a			
<ul> <li>up to 230 V for current peak value n=20 rated value</li> </ul>	4.5 kVA		
<ul> <li>up to 400 V for current peak value n=20 rated value</li> </ul>	7.8 kVA		
<ul> <li>up to 500 V for current peak value n=20 rated value</li> </ul>	9.8 kVA		
up to 690 V for current peak value n=20 rated value	10.7 kVA		
operating apparent power at AC-6a			
<ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	3 kVA		
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	5.2 kVA		
<ul> <li>up to 500 V for current peak value n=30 rated value</li> </ul>	6.5 kVA		
• 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			
<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		
limited to 60 s switching at zero current maximum	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		

a at AC 2a maying	1 000 1/b
• at AC-3e maximum	1 000 1/h
at AC-4 maximum  Control sirevit/ Control	300 1/h
Control circuit/ Control	40
type of voltage of the control supply voltage	AC
control supply voltage at AC	440.77
at 50 Hz rated value	110 V
at 60 Hz rated value	120 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	0.0 1.1
• 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	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 assument (FLA) for 0 inherent 0	
full-load current (FLA) for 3-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>			
— 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		
<ul> <li>at 220/230 V rated value</li> </ul>	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			
<ul> <li>for short-circuit protection of the main circuit</li> </ul>			
<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	gG: 10 A (500 V, 1 kA)		
required			
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 standard mounting rail according to DIN EN 60715		
side-by-side mounting	Yes		
height	102 mm		
width	45 mm		
depth	97 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		
<ul> <li>for grounded parts</li> </ul>			
— 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  Spring-type terminals		
type of connectable conductor cross-sections	Spining type terminate		
for main contacts			
— solid	2x (1 10 mm²)		
— solid — solid or stranded	2x (1 10 mm²)		
— finely stranded with core end processing			
— finely stranded with core end processing     — finely stranded without core end processing	2x (1 6 mm²)		
art AWG cables for main contacts	2x (1 6 mm²)		
connectable conductor cross-section for main	2x (18 8)		
contacts			
• solid	1 10 mm²		
<ul><li>stranded</li></ul>	1 10 mm <sup>2</sup>		
<ul> <li>finely stranded with core end processing</li> </ul>	1 6 mm²		

finely stranded without core end processing	1 6 mm²
connectable conductor cross-section for auxiliary	
contacts	
<ul> <li>solid or stranded</li> </ul>	0.5 2.5 mm²
<ul> <li>finely stranded with core end processing</li> </ul>	0.5 1.5 mm²
finely stranded without core end processing	0.5 2.5 mm²
type of connectable conductor cross-sections	
<ul> <li>for auxiliary contacts</li> </ul>	
<ul><li>— solid or stranded</li></ul>	2x (0.5 2.5 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm²)
<ul> <li>finely stranded without core end processing</li> </ul>	2x (0.5 2.5 mm²)
at AWG cables for auxiliary contacts	2x (20 14)
AWG number as coded connectable conductor cross section	
<ul> <li>for main contacts</li> </ul>	18 8
<ul> <li>for auxiliary contacts</li> </ul>	20 14
Safety related data	
product function	
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	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 y
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/ approvais

## **General Product Approval**





Confirmation



<u>KC</u>



EMC	Functional Safety/Safety of Machinery	Declaration of Conformity	Test Certificates	
	Type Examination Certificate	C€	Type Test Certificates/Test Report	Special Test Certificate

# Marine / Shipping













Marine / Shipping

other





Confirmation



### Confirmation

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=3RT2024-2AK60

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2024-2AK60

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AK60

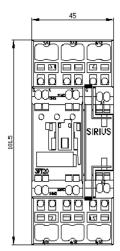
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

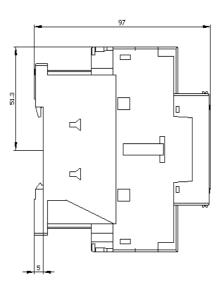
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2024-2AK60&lang=en

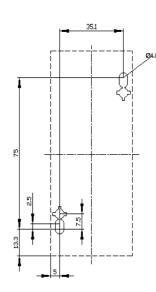
Characteristic: Tripping characteristics, I2t, Let-through current

https://support.industry.siemens.com/cs/ww/en/ps/3RT2024-2AK60/char

Further characteristics (e.g. electrical endurance, switching frequency)
<a href="http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-2AK60&objecttype=14&gridview=view1">http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2024-2AK60&objecttype=14&gridview=view1</a>







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