SIEMENS

Data sheet 3RT2016-1KB42



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 24 V DC, 0.7-1.25* Us, with integrated suppressor diode, auxiliary contacts: 1 NC, screw terminal, size: S00, suitable for PLC outputs, not expandable with auxiliary switch

product brand name	SIRIUS		
product designation	Coupling contactor		
product type designation	3RT2		
General technical data			
size of contactor	S00		
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	2.8 W		
type of calculation of power loss depending on pole	quadratic		
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 DC	6,7g / 5 ms, 4,2g / 10 ms		
shock resistance with sine pulse			
• at DC	10,5g / 5 ms, 6,6g / 10 ms		
mechanical service life (operating cycles)			
of contactor typical	30 000 000		
reference code according to IEC 81346-2	Q		
Substance Prohibitance (Date)	10/01/2009		
SVHC substance name	Lead - 7439-92-1		
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 %		
Environmental footprint			
Environmental Product Declaration(EPD)	Yes		
Global Warming Potential [CO2 eq] total	153 kg		

Global Warming Potential [CO2 eq] during manufacturing	1.42 kg
Global Warming Potential [CO2 eq] during mandacturing	152 kg
Global Warming Potential [CO2 eq] after end of life	-0.305 kg
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	22 A
value	
• at AC-1	00.4
 up to 690 V at ambient temperature 40 °C rated value 	22 A
— up to 690 V at ambient temperature 60 °C rated	20 A
value	
• at AC-3	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-3e	
— at 400 V rated value	9 A
— at 500 V rated value	7.7 A
— at 690 V rated value	6.7 A
• at AC-4 at 400 V rated value	8.5 A
at AC-5a up to 690 V rated value	19.4 A
• at AC-5b up to 400 V rated value	7.4 A
• at AC-6a	504
— up to 230 V for current peak value n=20 rated value	5.3 A
— up to 400 V for current peak value n=20 rated value	5.3 A
 up to 500 V for current peak value n=20 rated value up to 690 V for current peak value n=20 rated value 	5.3 A 5 A
at AC-6a	5 A
— up to 230 V for current peak value n=30 rated value	3.5 A
— up to 400 V for current peak value n=30 rated value	3.5 A
— up to 500 V for current peak value n=30 rated value	3.6 A
— up to 690 V for current peak value n=30 rated value	3.3 A
minimum cross-section in main circuit at maximum AC-1 rated	4 mm²
value	
operational current for approx. 200000 operating cycles at	
AC-4	4.4.0
 at 400 V rated value at 690 V rated value 	4.1 A
operational current	3.3 A
• at 1 current path at DC-1	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	2.1 A
— at 220 V rated value	0.8 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
• with 2 current paths in series at DC-1	
— at 24 V rated value	20 A
— at 60 V rated value	20 A
— at 110 V rated value	12 A
— at 220 V rated value	1.6 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.7 A
 with 3 current paths in series at DC-1 	
— at 24 V rated value	20 A
— at 60 V rated value	20 A

— at 110 V rated value	20 A				
— at 220 V rated value	20 A				
— at 440 V rated value	1.3 A				
— at 600 V rated value	1 A				
 at 1 current path at DC-3 at DC-5 					
— at 24 V rated value	20 A				
— at 60 V rated value	0.5 A				
— at 110 V rated value	0.15 A				
 with 2 current paths in series at DC-3 at DC-5 					
— at 24 V rated value	20 A				
— at 60 V rated value					
— at 110 V rated value	5 A 0.35 A				
with 3 current paths in series at DC-3 at DC-5	0.00 A				
•	20. 4				
— at 24 V rated value	20 A				
— at 60 V rated value	20 A				
— at 110 V rated value	20 A				
— at 220 V rated value	1.5 A				
— at 440 V rated value	0.2 A				
— at 600 V rated value	0.2 A				
operating power					
• at AC-3					
— at 230 V rated value	2.2 kW				
— at 400 V rated value	4 kW				
— at 500 V rated value	4 kW				
— at 690 V rated value	5.5 kW				
• at AC-3e					
— at 230 V rated value	2.2 kW				
— at 400 V rated value	4 kW				
— at 500 V rated value	4 kW				
— at 690 V rated value	5.5 kW				
operating power for approx. 200000 operating cycles at AC-	0.0 KVV				
4					
at 400 V rated value	2 kW				
at 690 V rated value	2.5 kW				
operating apparent power at AC-6a					
up to 230 V for current peak value n=20 rated value	2 kVA				
• up to 400 V for current peak value n=20 rated value	3.6 kVA				
up to 500 V for current peak value n=20 rated value	4.6 kVA				
	5.9 kVA				
• up to 690 V for current peak value n=20 rated value	5.9 KVA				
operating apparent power at AC-6a	4.0.1274				
• up to 230 V for current peak value n=30 rated value	1.3 kVA				
• up to 400 V for current peak value n=30 rated value	2.4 kVA				
 up to 500 V for current peak value n=30 rated value 	3.1 kVA				
up to 690 V for current peak value n=30 rated value	4 kVA				
short-time withstand current in cold operating state up to 40 °C					
	AFF A. Llee minimum evens position and to AC 4 voted value				
■ HUHED ID I S SWIPTING SEZERO PHTANT MOVIMUM	155 A; Use minimum cross-section acc. to AC-1 rated value				
Iimited to 1 s switching at zero current maximum	444 A. H aninimum and a "				
• limited to 5 s switching at zero current maximum	111 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Ino-load switching frequency	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value				
 limited to 5 s switching at zero current maximum limited to 10 s switching at zero current maximum limited to 30 s switching at zero current maximum limited to 60 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Ino-load switching frequency	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Ino-load switching frequency at DC	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Ino-load switching frequency at DC Operating frequency	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value 10 000 1/h				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Ino-load switching frequency at DC Operating frequency at AC-1 maximum	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value 10 000 1/h 1 000 1/h				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Ino-load switching frequency In DC In operating frequency In at AC-1 maximum Imited to 40 s switching at zero current maximum Ino-load switching frequency In at AC-1 maximum In at AC-2 maximum Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 40 s switching at zero current maximum Imited to 40 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imited to 60 s switching at zero current	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value 10 000 1/h 1 000 1/h 750 1/h				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imoload switching frequency Implication at DC Implication of the switching frequency Implication at AC-1 maximum Implication at AC-2 maximum Implication at AC-3 maximum I	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value 10 000 1/h 1 000 1/h 750 1/h 750 1/h				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imoload switching frequency at DC Operating frequency at AC-1 maximum at AC-2 maximum at AC-3 maximum at AC-3 maximum at AC-3 e maximum	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value 10 000 1/h 1 000 1/h 750 1/h 750 1/h				
Imited to 5 s switching at zero current maximum Imited to 10 s switching at zero current maximum Imited to 30 s switching at zero current maximum Imited to 60 s switching at zero current maximum Imoload switching frequency at DC Operating frequency at AC-1 maximum at AC-2 maximum at AC-3 maximum at AC-3 e maximum at AC-4 maximum at AC-4 maximum	86 A; Use minimum cross-section acc. to AC-1 rated value 66 A; Use minimum cross-section acc. to AC-1 rated value 55 A; Use minimum cross-section acc. to AC-1 rated value 10 000 1/h 1 000 1/h 750 1/h 750 1/h				

control cumply voltage at DC rated volu-			
control supply voltage at DC rated value	24 V		
operating range factor control supply voltage rated value of	27 V		
magnet coil at DC			
• initial value	0.7		
• full-scale value	1.25		
design of the surge suppressor	suppressor diode		
closing power of magnet coil at DC	2.8 W		
holding power of magnet coil at DC	2.8 W		
closing delay			
• at DC	25 130 ms		
opening delay			
• at DC	7 20 ms		
arcing time	10 15 ms		
control version of the switch operating mechanism	Standard A1 - A2		
Auxiliary circuit			
number of NC 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	40.4		
at 24 V rated value at 48 V rated value	10 A 2 A		
at 48 V rated value			
at 60 V rated value at 110 V rated value	2 A		
at 110 V rated value at 125 V rated value	1A		
at 125 V rated valueat 220 V rated value	0.9 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	ridary officining per 100 million (17 v, 1 mz)		
full-load current (FLA) for 3-phase AC motor			
at 480 V rated value	7.6 A		
at 600 V rated value	9 A		
yielded mechanical performance [hp]			
• for single-phase AC motor			
— at 110/120 V rated value	0.33 hp		
— at 230 V rated value	1 hp		
• for 3-phase AC motor			
— at 200/208 V rated value	2 hp		
— at 220/230 V rated value	3 hp		
— at 460/480 V rated value	5 hp		
— at 575/600 V rated value	7.5 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: 35A (690V,100kA), aM: 20A (690V,100kA), BS88: 35A (415V,80kA)		
— with type of assignment 2 required	gG: 20A (690V,100kA), aM: 16A (690V, 100kA), BS88: 20A (415V, 80kA)		
• for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)		
<u> </u>			

mounting position	+/ 180° rotation possible on vertical mounting surfaces can be tilted forward on		
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward ar 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		
height	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715		
width	45 mm		
depth	45 mm 73 mm		
•	73 111111		
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		
onnections/ Terminals			
type of electrical connection			
for main current circuit	screw-type terminals		
for auxiliary and control circuit	screw-type terminals		
at contactor for auxiliary contacts	Screw-type terminals		
• of magnet coil	Screw-type terminals		
type of connectable conductor cross-sections	Solon type to him ale		
• for main contacts			
— solid	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²		
— solid or stranded	2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²), 2x 4 mm²		
— finely stranded with core end processing	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
for AWG cables for main contacts	2x (20 16), 2x (18 14), 2x 12		
connectable conductor cross-section for main contacts			
• solid	0.5 4 mm²		
• stranded	0.5 4 mm²		
finely stranded with core end processing	0.5 2.5 mm²		
connectable conductor cross-section for auxiliary contacts			
solid or stranded	0.5 4 mm²		
finely stranded with core end processing	0.5 2.5 mm²		
type of connectable conductor cross-sections			
for auxiliary contacts			
— solid or stranded	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), 2x 4 mm²		
 finely stranded with core end processing 	2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)		
for AWG cables for auxiliary contacts	2x (20 16), 2x (18 14), 2x 12		
AWG number as coded connectable conductor cross section			
• for main contacts	20 12		
for auxiliary contacts	20 12		
afety related data			
product function			
mirror contact according to IEC 60947-4-1	Yes		
 positively driven operation according to IEC 60947-5-1 	No		
suitable for safety function	Yes		
·	Yes		
suitability for use safety-related switching OFF			
service life maximum	20 a		
test wear-related service life necessary	Yes		
proportion of dangerous failures			

 with high demand rate according to SN 31920 	73 %
B10 value with high demand rate according to SN 31920	1 000 000
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
ISO 13849	
device type according to ISO 13849-1	3
overdimensioning according to ISO 13849-2 necessary	Yes
IEC 61508	
safety device type according to IEC 61508-2	Type A
T1 value	
 for proof test interval or service life according to IEC 61508 	20 a
Electrical Safety	
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
Approvals Certificates	
General Product Approval	





Confirmation





<u>KC</u>

General	Prod	luct	Ap-
proval			

EMV

Functional Saftey

Test Certificates

Marine / Shipping





Type Examination Cer**tificate**

Special Test Certificate

Type Test Certificates/Test Report



Marine / Shipping











Miscellaneous

other

other Railway

Dangerous goods

Environment

Confirmation

Special Test Certific-<u>ate</u>

Transport Information



Environmental Con-<u>firmations</u>

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=3RT2016-1KB42

Cax online generator

 $\underline{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT2016-1KB42}$

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB42

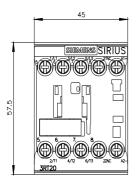
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

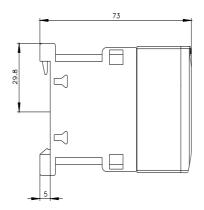
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB42&lang=en

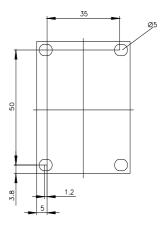
Characteristic: Tripping characteristics, I2t, Let-through current

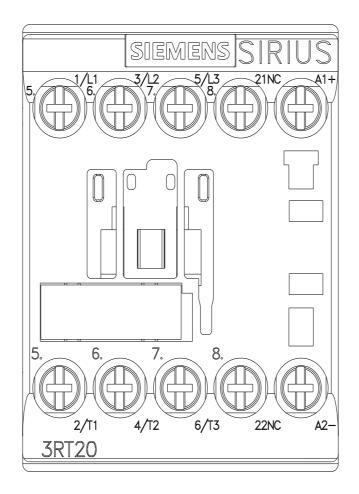
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB42/char

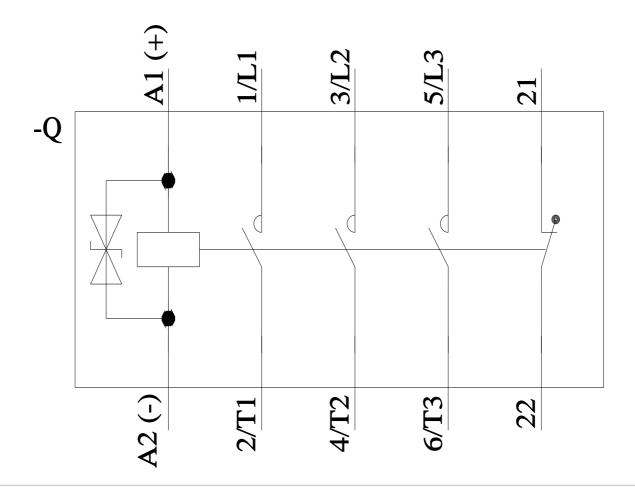
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1KB42&objecttype=14&gridview=view1











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