SIEMENS

Data sheet

3RT2016-1KB41



power contactor, AC-3 9 A, 4 kW / 400 V 1 NO, 24 V DC, 0.7-1.25*US with integrated suppressor diode 3-pole, size S00, screw terminal 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
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 safe isolation 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 (switching cycles)	
of contactor typical	30 000 000
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

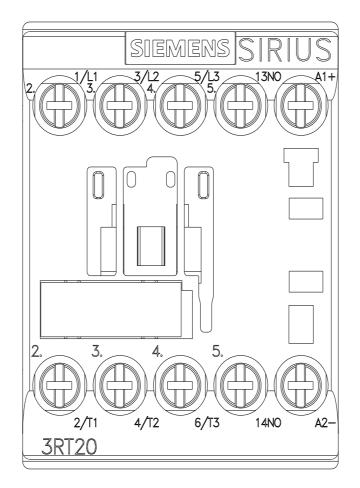
operating voltage	-
at AC-3 rated value maximum	690 V
 at AC-3 rated value maximum at AC-3e rated value maximum 	690 V
operational current	030 V
• at AC-1 at 400 V at ambient temperature 40 °C	22 A
rated value	
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	22 A
— up to 690 V at ambient temperature 60 °C rated value	20 A
• 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	
 — 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 	5.3 A
 — up to 690 V for current peak value n=20 rated value 	5 A
● at AC-6a	
 — 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 value	4 mm ²
operational current for approx. 200000 operating	
cycles at AC-4	
at 400 V rated value	4.1 A
at 690 V rated value	3.3 A
operational current	
at 1 current path at DC-1 — at 24 V rated value	20.4
	20 A 2.1 A
— at 110 V rated value	
— at 220 V rated value — at 440 V rated value	0.8 A 0.6 A
— at 440 V rated value — at 600 V rated value	0.6 A
 with 2 current paths in series at DC-1 	
with 2 current paths in series at DC-1 — at 24 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 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 110 V rated value	0.1 A
 with 2 current paths in series at DC-3 at DC-5 	
— at 24 V rated value	20 A
— at 110 V rated value	0.35 A
 with 3 current paths in series at DC-3 at DC-5 	
— at 24 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 kW
operating power for approx. 200000 operating cycles at AC-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
 up to 690 V for current peak value n=20 rated value 	5.9 kVA
operating apparent power at AC-6a	
 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	
 limited to 1 s switching at zero current maximum 	155 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 30 s switching at zero current maximum 	66 A; Use minimum cross-section acc. to AC-1 rated value
 limited to 60 s switching at zero current maximum 	55 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at DC	10 000 1/h
operating frequency	
• at AC-1 maximum	1 000 1/h
• at AC-2 maximum	750 1/h
• at AC-3 maximum	750 1/h
• at AC-3e maximum	750 1/h
• at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	DC
control supply voltage at DC	
rated value	24 V
operating range factor control supply voltage rated value of magnet coil at DC	
initial value	0.7

• full-scale value	1.25
design of the surge suppressor	suppressor diode 2.8 W
closing power of magnet coil at DC	2.8 W
holding power of magnet coil at DC	2.0 W
elosing delay • at DC	25 130 ms
	25 130 ms
opening delay • at DC	7 20 ms
	10 15 ms
arcing time control version of the switch operating mechanism	Standard A1 - A2
	Standard AT - Az
Auxiliary circuit	
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	1A
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	10 A
at 48 V rated value	2 A
at 60 V rated value	2 A
at 110 V rated value	1A
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	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: 20A (690V,100KA), BS88: 20A (415V,60KA) gG: 20A (690V,100KA), aM: 16A (690V, 100KA), BS88: 20A (415V,
war ope of assignment 2 required	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
meaning position	, ree rotation poolisie on ventical mounting surface, can be litted

	forward and backward by +/- 22.5° on vertical mounting surface		
fastening method	screw and snap-on mounting onto 35 mm standard mounting rail		
5 1 1 1	according to DIN EN 60715		
side-by-side mounting	Yes		
height	58 mm		
width	45 mm		
depth	73 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 	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			
 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)		
 at 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 mm ²		
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 mm ²), 2x (0.75 2.5 mm ²), 2x 4 mm ²		
— finely stranded with core end processing	2x (0.5 1.5 mm ²), 2x (0.75 2.5 mm ²)		
at 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		
Safety related data			
 product function mirror contact according to IEC 60947-4-1 	No		
B10 value with high demand rate according to SN 31920	1 000 000		
proportion of dangerous failures	40 %		
with low demand rate according to SN 31920 with high demand rate according to SN 31920			
with high demand rate according to SN 31920 failure rate [EIT] with low demand rate according to SN	73 % 100 EIT		
failure rate [FIT] with low demand rate according to SN	100 FIT		

T value for proof test interval or service life according to IEC 20 y Protection class IP on the front according to IEC 60529 IP20 suitability for use • safety-related switching OFF Yes Certificates/ approvals Yes Yes Certificates/ approvals Confirmation KC Efficience EMC Functional Safety/Safety of Machinery Declaration of Conformity Test Certificates If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes If yes	31920					
protection class IP on the front according to IEC 60523 IP20 touch protection on the front according to IEC 60523 finger-safe, for vertical contact from the front suitability for use • safety-related switching OFF Yes Confination of Conformation Confination of Conformation Confination of Conformity Confination of Conformity Confination Confination of Conformity Confination Special Test Certificates Marine / Shipping Miscellaneous Special Test Certificates Miscellaneous Sp	T1 value for proof tes	t interval or service life	according to	20 у		
touch protection on the front according to IEC 60529 suitability for use vesterior colspan="2">Ves	protection class IP on the front according to IEC		IP20			
suitability for use • safety-related switching OFF Yes Sector Product Approvals Confirmation EMC Functional Safety/Safety of Safety/Safety of Machinery Declaration of Conformity Test Certificates EMC Functional Safety/Safety of Machinery Declaration of Conformity Test Certificates EMC Functional Safety/Safety of Machinery Declaration of Conformity Test Certificates Image Safety/Safety of Machinery Image Safety/Safety of Machinery Declaration of Conformity Test Certificates Miscellanous Image Safety/Safety of Machinery Image Safety/Safety of Safety Special Test Certificates Image Safety/Safety of Safety Miscellanous Image Safety/Safety of Machinery Image Safety/Safety Image Safety/Safety Image Safety/Safety Miscellanous Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Miscellanous Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety Image Safety/Safety		the front according to	DIEC 60529	finger-safe for vertical co	ntact from the front	
 solicity-related switching OFF ves central Product Approvali General Product Approvali Confirmation Confirmation	-	the front according to				
Confirmation KC EMC Functional Safety/Safety of Machinery Declaration of Conformity Test Certificates EMC Special Test Certificate Special Test Certificate Type Test Certificates Miscellancous Special Test Certificate Special Test Certificate Special Test Certificate Miscellancous Special Test Certificate Special Test Certificate Special Test Certificate Marine / Shipping other Railway Dangerous Good Special Test Certificates Confirmation Special Test Certificate Tensport Informa- ate Miscellancous Special Test Certificate Tensport Informa- ate Tensport Informa- tion Special Test Certificates Confirmation Special Test Certificates Tensport Informa- ate Information- and Downloadcenter (Catalogs, Brochures,) Test Sectificates Tensport Informa- tion Information- an		witching OFF		Yes		
General Product Approval Econfirmation KC Efficiency EMC Functional Safety/Safety of Machinery Declaration of Conformity Test Certificates EMC Safety/Safety of Machinery Declaration of Conformity Test Certificates EMC Safety/Safety of Machinery Declaration of Conformity Test Certificates EMC Type Examination Certificate Econ Special Test Certificates Type Test Certificates Miscellaneous Econ Econ Econ Econ Econ Econ Miscellaneous Econ Econ Econ Econ Econ Econ Econ Marine / Shipping Other Railway Dangerous Good Econ Econ </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Image: Note: See Sec Sec Sec Sec Sec Sec Sec Sec Sec						
EMC Safety/Safety of Machinery Declaration of Conformity Test Certificates Image: Certificate Type Examination Certificate Special Test Certific- ate Type Test Certific- ate	SP CM	CCC	<u>Confirmatio</u>		<u>KC</u>	EHC
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,)	EMC	Safety/Safety of	Declaration o	f Conformity	Test Certificates	
Miscellaneous Image: Control of the	RCM		CE EG-Konf.			<u>Type Test Certific-</u> ates/Test Report
Marine / Shipping other Railway Dangerous Good Marine / Shipping other Railway Dangerous Good Image: State of the s	Test Certificates	Marine / Shipping				
With the information Special Test Certificates Transport Information Information- and Downloadcenter (Catalogs, Brochures,) https://www.siemens.com/ic10 Information- and Downloadcenter (Catalogs, Brochures,) https://www.siemens.com/ic10 Industry Mall (Online ordering system) https://www.siemens.com/mall/en/Catalog/product?mlfb=3RT2016-1KB41 Cax online generator http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41. Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com//S/WW/cp/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/lodb/cax_de.aspx?nlfb=3RT2016-1KB41&// Catalog_eng Characteristic: Tripping characteristics, I²t, Let-through current Care onlice inclustry.siemens.com/lodb/cax_de.aspx?nlfb=3RT2016-1KB41&// Catalog_eng	<u>Miscellaneous</u>	ABS	B D REAU VERITAS		Lloyd's Register LRS	PRS
Image:	Marine / Shipping		other		Railway	Dangerous Good
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=3RT2016-1KB41 Cax online generator http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41 Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en Characteristic: Tripping characteristics, I ² t, Let-through current	RINA	RMRS	Confirmatic			<u>Transport Informa-</u> <u>tion</u>
https://www.siemens.com/ic10 Industry Mall (Online ordering system) https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2016-1KB41 Cax online generator http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41 Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en Characteristic: Tripping characteristics, I ² t, Let-through current		wnloadcenter (Catalo	as. Brochures	.)		
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2016-1KB41 Cax online generator http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41 Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en Characteristic: Tripping characteristics, I ² t, Let-through current	https://www.siemens.	com/ic10	J-,	,		
Cax online generator http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41 Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en Characteristic: Tripping characteristics, I ² t, Let-through current	Industry Mall (Online https://mall industry si	e ordering system) iemens.com/mall/en/en	/Catalog/product	?mlfb=3RT2016-1KB41		
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41 Service&Support (Manuals, Certificates, Characteristics, FAQs,) https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en Characteristic: Tripping characteristics, I ² t, Let-through current						
https://support.industry.siemens.com/cs/ww/en/ps/3RT2016-1KB41 Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en Characteristic: Tripping characteristics, I²t, Let-through current	http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2016-1KB41					
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,) <u>http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2016-1KB41⟨=en</u> Characteristic: Tripping characteristics, I ² t, Let-through current						
Characteristic: Tripping characteristics, I ² t, Let-through current	Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros,)					
Further characteristics (e.g. electrical endurance, switching frequency) http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2016-1KB41&objecttype=14&gridview=view1	Further characterist	ics (e.g. electrical end	durance, switchi	ng frequency)	B41&objecttype=14&gridv	<u>view=view1</u>



last modified:

6/2/2022 🖸