SIEMENS

Data sheet

3RT2016-2BE41



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 3-pole, 60 V DC, auxiliary contacts: 1 NO, spring-loaded terminal, size: S00 $\,$

and AS	
product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S00
product extension	
 function module for communication 	No
auxiliary switch	Yes
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 	4 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 ∨
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
 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)	
Weight	0.314 kg
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 operation	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 value	22 A
 at AC-1 — up to 690 V at ambient temperature 40 °C rated 	22 A
value — 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 A
— at 24 V rated value — at 60 V rated value	20 A 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

• mit > current paths mores a D-1 aft OV rade value20 A aft OV rade value13 A aft OV rade value13 A aft OV rade value0.5 A aft OV rade value0.2 A aft OV rade value <th>- with 2 overcent active in conics of DC 4</th> <th></th>	- with 2 overcent active in conics of DC 4	
	with 3 current paths in series at DC-1 at 24 V rated value	20.4
- all 40 Vrillet value13.A- all 50 Vrillet value1A- at 24 Vrillet value20.A- at 24 Vrillet value0.5 A- at 24 Vrillet value0.5 A- at 10 Vrillet value20.A- at 10 Vrillet value20.A- at 24 Vrillet value20.A- at 240 Vrillet value22.W- at 250 Vrillet value22.W- at 260 Vrillet value24.W- at 260 Vrillet value24.W- at 260 Vrillet value24.W <trr>- at 260 Vrillet value<td< td=""><td></td><td></td></td<></trr>		
• at 3 / runner path a BC-3 at DC-5		
- af 24 Y died value20 A- af 60 Y rated value0.5 A- af 60 Y rated value0.5 A- af 60 Y rated value20 A- af 60 Y rated value20 A- af 60 Y rated value0.5 A- af 60 Y rated value0.5 A- af 74 Y rated value20 A- af 740 Y rated value22 K W- af 740 Y rated value24 K N- af 740 Y rated value28 K N- af 740 Y rated value28 K N- af 740 Y rated value m20 rated value36 K N- af 740 Y rated value m20 rated value36 K N- af 740 Y rated value m20 rated value36 K N- af 740 Y rated value m20 rated value36 K N- af 740 Y rated value m20 rated value36 K N- af 740 Y rated value m20 rated value36 K N- af 740 Y rated		IA
- af 80 Y rated value0.5 Å- af 110 Y rated value0.15 A- af 24 Y rated value20 Å- af 24 Y rated value20 Å- af 20 V rated value0.55 Å- af 10 V rated value20 Å- af 110 V rated value20 Å- af 24 Y rated value20 Å- af 24 V rated value20 Å- af 240 V rated value22 Å- af 240 V rated value24 Å- af 240 V rated value24 Å- af 240 V rated value25 Å- af 240 V rated value25 Å- af 240 V rated value24 Å- af 240 V rated value25 Å- af 240 V rated value24 Å- af 240 V rated value25 Å- af 250 V rated value25 Å- af 260 V rated value24 Å- af 260 V rated value26 Å- af 260 V rated value<	-	20.4
 		
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operating apparent power at AC-6aI.3 kVA• up to 230 V for current peak value n=30 rated value1.3 kVA• up to 400 V for current peak value n=30 rated value2.4 kVA• up to 500 V for current peak value n=30 rated value3.1 kVA• up to 690 V for current peak value n=30 rated value4 kVAshort-time withstand current in cold operating state up to 40 °C40 °C• limited to 1 s switching at zero current maximum155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 1 s switching at zero current maximum111 A; Use minimum cross-section acc. to AC-1 rated value• limited to 10 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum50 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum50 //h• at DC10 000 1/h• at AC-1 maximum1 000 1/h	 up to 500 V for current peak value n=20 rated value 	4.6 kVA
• up to 230 V for current peak value n=30 rated value1.3 kVA• up to 400 V for current peak value n=30 rated value2.4 kVA• up to 500 V for current peak value n=30 rated value3.1 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 500 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 1 s switching at zero current maximum86 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum10 000 1/h• at DC10 000 1/h• at DC10 000 1/h• at AC-1 maximum1000 1/h• at AC-1 maximum1000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h	 up to 690 V for current peak value n=20 rated value 	5.9 kVA
• up to 230 V for current peak value n=30 rated value1.3 kVA• up to 400 V for current peak value n=30 rated value2.4 kVA• up to 500 V for current peak value n=30 rated value3.1 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• up to 500 V for current peak value n=30 rated value4 kVA• up to 690 V for current peak value n=30 rated value4 kVA• limited to 1 s switching at zero current maximum155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 10 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum10 000 1/h• at DC10 000 1/h• at DC10 000 1/h• at AC-1 maximum1 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h	operating apparent power at AC-6a	
• up to 400 V for current peak value n=30 rated value2.4 kVA• up to 500 V for current peak value n=30 rated value3.1 kVA• up to 690 V for current peak value n=30 rated value4 kVA• abort-time withstand current in cold operating state up to 40°C		1.3 kVA
• up to 500 V for current peak value n=30 rated value3.1 kVA• up to 690 V for current peak value n=30 rated value4 kVAshort-time withstand current in cold operating state up to 40°C4 kVA• limited to 1 s switching at zero current maximum155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 1 s switching at zero current maximum111 A; Use minimum cross-section acc. to AC-1 rated value• limited to 10 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum1000 1/h• at DC10000 1/h• at AC-1 maximum1000 1/h• at AC-1 maximum1000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h		2.4 kVA
• up to 690 V for current peak value n=30 rated value4 kVAshort-time withstand current in cold operating state up to 40 °C4• limited to 1 s witching at zero current maximum155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 5 s witching at zero current maximum111 A; Use minimum cross-section acc. to AC-1 rated value• limited to 10 s witching at zero current maximum86 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s witching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum106 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum1000 1/h• at DC10 000 1/h• at AC-1 maximum1 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h		3.1 kVA
short-time withstand current in cold operating state up to 40 °C155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 1 s switching at zero current maximum155 A; Use minimum cross-section acc. to AC-1 rated value• limited to 5 s switching at zero current maximum111 A; Use minimum cross-section acc. to AC-1 rated value• limited to 10 s switching at zero current maximum86 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching frequency10 000 1/h• at DC10 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h		4 kVA
• limited to 5 s switching at zero current maximum111 A; Use minimum cross-section acc. to AC-1 rated value• limited to 10 s switching at zero current maximum86 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• at DC10 000 1/h• at DC10 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h	short-time withstand current in cold operating state up to	
• limited to 10 s switching at zero current maximum86 A; Use minimum cross-section acc. to AC-1 rated value• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated value• no-load switching frequency55 A; Use minimum cross-section acc. to AC-1 rated value• at DC10 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h	 limited to 1 s switching at zero current maximum 	155 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 30 s switching at zero current maximum66 A; Use minimum cross-section acc. to AC-1 rated value• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated valueno-load switching frequency10 000 1/h• at DC10 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum1 000 1/h• at AC-3 maximum750 1/h• at AC-3 maximum750 1/h	 limited to 5 s switching at zero current maximum 	111 A; Use minimum cross-section acc. to AC-1 rated value
• limited to 60 s switching at zero current maximum55 A; Use minimum cross-section acc. to AC-1 rated valueno-load switching frequency-• at DC10 000 1/hoperating frequency-• at AC-1 maximum1 000 1/h• at AC-2 maximum1 000 1/h• at AC-3 maximum750 1/h• at AC-3 maximum750 1/h	 limited to 10 s switching at zero current maximum 	86 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency 10 000 1/h • 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	 limited to 30 s switching at zero current maximum 	66 A; Use minimum cross-section acc. to AC-1 rated value
• 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	 limited to 60 s switching at zero current maximum 	55 A; Use minimum cross-section acc. to AC-1 rated value
operating frequency1 000 1/h• at AC-1 maximum1 000 1/h• at AC-2 maximum750 1/h• at AC-3 maximum750 1/h	no-load switching frequency	
• at AC-1 maximum 1 000 1/h • at AC-2 maximum 750 1/h • at AC-3 maximum 750 1/h	• at DC	10 000 1/h
• at AC-2 maximum 750 1/h • at AC-3 maximum 750 1/h	operating frequency	
• at AC-3 maximum 750 1/h	• at AC-1 maximum	1 000 1/h
	• at AC-2 maximum	750 1/h
• at AC-3e maximum 750 1/h	• at AC-3 maximum	750 1/h
	● at AC-3e maximum	750 1/h

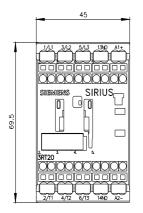
• at AC-4 maximum	250 1/h
	230 1/11
Control circuit/ Control	20
type of voltage of the control supply voltage	DC
control supply voltage at DC rated value	60 V
operating range factor control supply voltage rated value of magnet coil at DC	
 initial value 	0.8
full-scale value	1.1
closing power of magnet coil at DC	4 W
holding power of magnet coil at DC	4 W
closing delay	
• at DC	30 100 ms
opening delay	
• at DC	7 13 ms
arcing time	10 15 ms
control version of the switch operating mechanism	Standard A1 - A2
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	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	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)

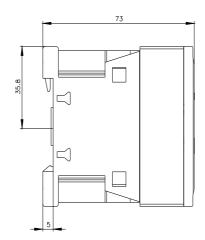
for short-circuit protection of the auxiliary switch required
Installation/mounting/dimensions

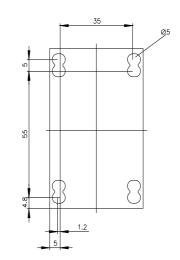
gG: 10 A (500 V, 1 kA)

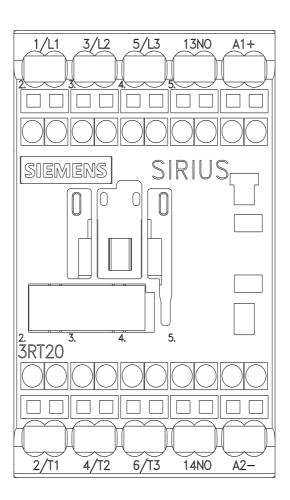
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
height	70 mm
width	45 mm
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	40
— forwards	10 mm
— upwards	10 mm
— at the side — downwards	6 mm 10 mm
 for live parts forwards 	10 mm
— IDIWAIDS — upwards	10 mm
— upwards — 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 (0.5 4 mm²)
— solid or stranded	2x (0,5 4 mm ²)
 finely stranded with core end processing 	2x (0.5 2.5 mm²)
- finely stranded without core end processing	2x (0.5 2.5 mm²)
 for AWG cables for main contacts 	2x (20 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 mm ²
 finely stranded without 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
 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 4 mm ²)
 finely stranded with core end processing 	2x (0.5 2.5 mm ²)
— finely stranded without core end processing	2x (0.5 2.5 mm ²)
for AWG cables for auxiliary contacts	2x (20 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 	Yes; with 3RH29
 mirror contact according to IEC 60947-4-1 positively driven operation according to IEC 60947-5-1 	Yes; with 3RH29 No

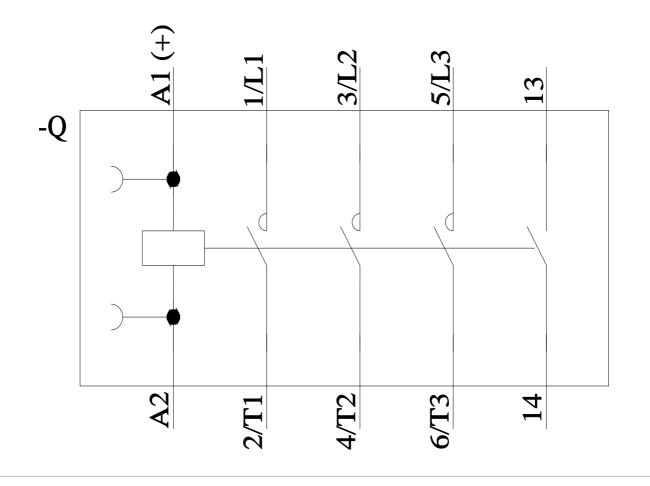
suitability for use safety						
	y-related switching OFF		Yes			
service life maximum	service life maximum		20 a			
test wear-related serv	vice life necessary		Yes			
proportion of danger	ous failures					
 with low demand rate according to SN 31920 		40 %				
 with high demand rate according to SN 31920 		73 %				
	B10 value with high demand rate according to SN 31920		1 000 000			
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		Туре А				
Electrical Safety						
protection class IP on the front according to IEC 60529		IP20				
touch protection on t	he front according to IEC	C 60529	finger-safe, for vertical con	tact from the front		
Approvals Certificates						
	roval					
General Product App	roval					
	CE EG-Konf.	Confirmation	UK		KC	
General Product Ap- proval	EMV	Functional Saft	Test Certificates		Marine / Shipping	
EHC	RCM	<u>Type Examination</u> tificate	n Cer- <u>Special Test Certifi</u> <u>ate</u>	<u>c- Type Test Certific-</u> ates/Test Report	ABS	
Marine / Shipping					other	
B U REAU VERITAS		PRS		RMRS	<u>Miscellaneous</u>	
other	Railway	Dangerous goo	ods Environment			
	Special Test Cartific	Transport Inform	ation	Environmental Con-		
<u>Confirmation</u>	<u>Special Test Certific-</u> <u>ate</u>		EPD	firmations		
Confirmation Further information	ate		EPD	firmations		











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