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Data sheet 3RT1456-6AV36



power contactor AC-1 275 A / 690 V / 40 °C 3-pole, Uc: 380-420 V AC(50-60 Hz) / DC drive: conventional auxiliary contacts 2 NO + 2 NC main circuit: busbar control and auxiliary circuit: screw terminal

product brand name	SIRIUS
product designation	Contactor
product type designation	3RT14
General technical data	
size of contactor	S6
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	86.4 W
● at AC in hot operating state per pole	28.8 W
● without load current share typical	5.2 W
type of calculation of power loss current-dependent	quadratic
insulation voltage	
● of main circuit with degree of pollution 3 rated value	1 000 V
● of auxiliary circuit with degree of pollution 3 rated value	500 V
surge voltage resistance	
● of main circuit rated value	8 kV
● of auxiliary circuit rated value	6 kV
shock resistance at rectangular impulse	
● at AC	8,5 g / 5 ms, 4,2 g / 10 ms
● at DC	8,5 g / 5 ms, 4,2 g / 10 ms
shock resistance with sine pulse	
● at AC	13,4 g / 5 ms, 6,5 g / 10 ms
● at DC	13,4 g / 5 ms, 6,5 g / 10 ms
mechanical service life (operating cycles)	
● of contactor typical	10 000 000
● 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 (day/month/year)	05/01/2012
SVHC substance name	Lead CAS-No. 7439-92-1
Net Weight	3.206 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

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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
number of NC contacts for main contacts	0
type of voltage for main current circuit	AC
operational current	
● at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	275 A
— up to 690 V at ambient temperature 55 °C rated value	250 A
— up to 690 V at ambient temperature 60 °C rated value	250 A
● at AC-3	
— at 400 V rated value	97 A
— at 690 V rated value	97 A
minimum cross-section in main circuit at maximum AC-1 rated value	140 mm²
operational current	
● at 1 current path at DC-1	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	18 A
— at 220 V rated value	3.4 A
— at 440 V rated value	0.8 A
— at 600 V rated value	0.5 A
● with 2 current paths in series at DC-1	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	250 A
— at 220 V rated value	20 A
— at 440 V rated value	3.2 A
— at 600 V rated value	1.6 A
● with 3 current paths in series at DC-1	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	250 A
— at 220 V rated value	250 A
— at 440 V rated value	11.5 A
— at 600 V rated value	4 A
● at 1 current path at DC-3 at DC-5	
— at 24 V rated value	250 A
— at 60 V rated value	7.5 A
— at 110 V rated value	2.5 A
— at 220 V rated value	0.6 A
— at 440 V rated value	0.17 A
— at 600 V rated value	0.12 A
● with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	250 A
— at 60 V rated value	250 A
— at 110 V rated value	250 A
— at 220 V rated value	2.5 A
— at 440 V rated value	0.65 A
— at 600 V rated value	0.37 A
● with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	250 A
— at 60 V rated value	250 A

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— at 110 V rated value	250 A
— at 220 V rated value	250 A
— at 440 V rated value	1.4 A
— at 600 V rated value	0.75 A
no-load switching frequency	
● at AC	2 000 1/h
● at DC	2 000 1/h
operating frequency	
● at AC-1 maximum	600 1/h
Control circuit/ Control	
type of voltage	AC/DC
type of voltage of the control supply voltage	AC/DC
control supply voltage at AC	
● at 50 Hz rated value	380 ... 420 V
● at 60 Hz rated value	380 ... 420 V
control supply voltage at DC rated value	380 ... 420 V
operating range factor control supply voltage rated value of magnet coil at DC	
● initial value	0.8
● full-scale value	1.1
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
design of the surge suppressor	with varistor
apparent pick-up power	
● at minimum rated control supply voltage at AC	
— at 50 Hz	250 V·A
— at 60 Hz	250 V·A
● at maximum rated control supply voltage at AC	
— at 60 Hz	300 V·A
— at 50 Hz	300 V·A
apparent pick-up power of magnet coil at AC	
● at 50 Hz	300 V·A
inductive power factor with closing power of the coil	
● at 50 Hz	0.9
apparent holding power	
● at minimum rated control supply voltage at DC	4.3 V·A
● at maximum rated control supply voltage at DC	5.2 V·A
apparent holding power	
● at minimum rated control supply voltage at AC	
— at 50 Hz	4.8 V·A
— at 60 Hz	4.8 V·A
● at maximum rated control supply voltage at AC	
— at 50 Hz	5.8 V·A
— at 60 Hz	5.8 V·A
apparent holding power of magnet coil at AC	
● at 50 Hz	5.8 V·A
inductive power factor with the holding power of the coil	
● at 50 Hz	0.8
closing power of magnet coil at DC	360 W
holding power of magnet coil at DC	5.2 W
closing delay	
● at AC	20 ... 95 ms
● at DC	20 ... 95 ms
opening delay	
● at AC	40 ... 60 ms
● at DC	40 ... 60 ms
arcing time	10 ... 15 ms

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control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts	2
● attachable	4
● instantaneous contact	2
number of NO contacts for auxiliary contacts	2
● attachable	4
● instantaneous contact	2
operational current at AC-12 maximum	10 A
operational current at AC-15	
● at 230 V rated value	6 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-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)
Short-circuit protection	
design of the miniature circuit breaker for short-circuit protection of the auxiliary circuit up to 230 V	C characteristic: 10 A; 0.4 kA
design of the fuse link	
● for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 355 A (690 V, 100 kA)
— with type of coordination 2 required	gR: 350 A (690 V, 100 kA)
● for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	
mounting position	with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back
fastening method side-by-side mounting	Yes
fastening method	screw fixing
height	172 mm
width	120 mm
depth	170 mm
required spacing	
● with side-by-side mounting	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
● for grounded parts	
— forwards	20 mm
— upwards	10 mm
— at the side	10 mm
— downwards	10 mm
● for live parts	
— forwards	20 mm
— upwards	10 mm
— downwards	10 mm
— at the side	10 mm
Connections/ Terminals	
type of electrical connection	
● for main current circuit	Connection bar
● for auxiliary and control circuit	screw-type terminals

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● at contactor for auxiliary contacts	Screw-type terminals
● of magnet coil	screw terminal
width of connection bar	17 mm
thickness of connection bar	3 mm
diameter of holes	9 mm
number of holes	1
type of connectable conductor cross-sections	
● for AWG cables for main contacts	4 ... 250 kcmil
connectable conductor cross-section for main contacts	
● solid or stranded	25 ... 120 mm²
● stranded	25 ... 120 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	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²), max. 2x (0.75 ... 4 mm²)
— solid or stranded	2x (0,5 ... 1,5 mm²), 2x (0,75 ... 2,5 mm²), max. 2x (0,75 ... 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), 1x 12
AWG number as coded connectable conductor cross section for auxiliary contacts	18 ... 14

Safety related data

product function	
● **mirror contact according to IEC 60947-4-1**	Yes
● **positively driven operation according to IEC 60947-5-1**	No
service life maximum	20 a

Electrical Safety

protection class IP on the front according to IEC 60529	IP00; IP20 with box terminal/cover
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front with box terminal/cover

Approvals Certificates

Environment	General Product Approval				
Environmental Confirmations	CCC	cULus	KC	EAC	CE EG-Konf.

General Product Approval	EMV	Functional Saftey	Test Certificates		Maritime application
UKCA	RCM	Type Examination Certificate	Type Test Certificates/Test Report	Special Test Certificate	DNV

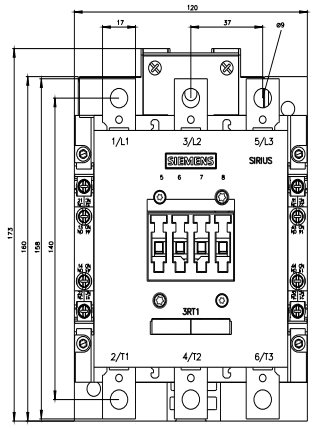
Maritime application	other				Railway
LRS	Confirmation	Miscellaneous	Confirmation	产品合格 QC PASS	Special Test Certificate

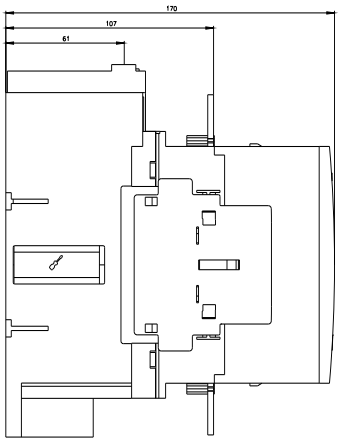
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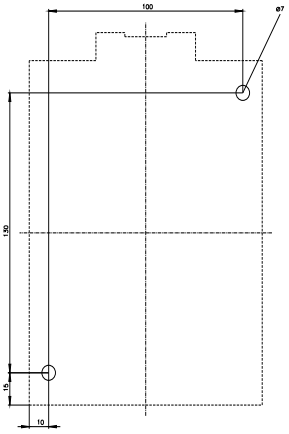
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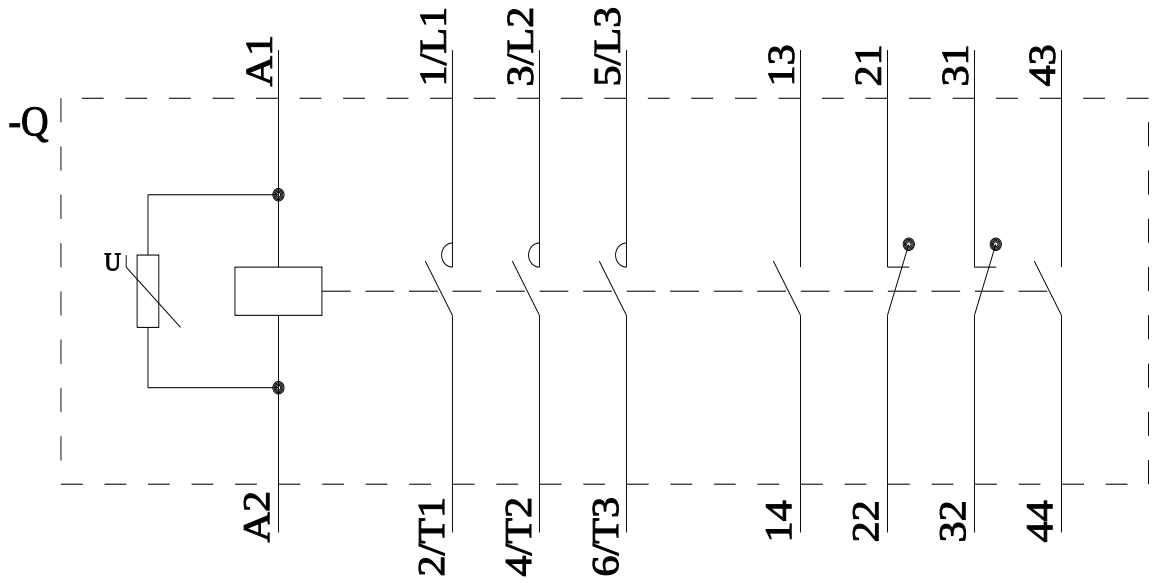
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