SIEMENS

Data sheet 3RF3320-1AA24

Siemens EcoTech

solid-state contactor 1-pole 3RF33 AC-1 20 A 40 °C / 48-460 V / 110-230 V AC / screw terminal



product brand name	SIRIUS
product designation	solid-state contactor
product type designation	3RF33
manufacturer's article number	
• _1 of the accessories that can be ordered	3RF2900-3PA88
product designation	
• _1 of the accessories that can be ordered	terminal cover
General technical data	
product function	zero-point switching
power loss [V·A] maximum	18.6 V·A
power loss [W] for rated value of the current	
• at AC in hot operating state	18.5 W
• at AC in hot operating state per pole	18.5 W
• without load current share typical	3.5 W
type of calculation of power loss current-dependent	linear
insulation voltage rated value	600 V
degree of pollution	3
surge voltage resistance of main circuit rated value	6 kV
protection class IP	IP20
protection class IP on the front according to IEC 60529	IP20
shock resistance according to IEC 60068-2-27	15 g / 11 ms
vibration resistance according to IEC 60068-2-6	2 g
reference code according to IEC 81346-2	Q
Substance Prohibitance (day/month/year)	01/15/2024
SVHC substance name	Lead CAS-No. 7439-92-1 Lead monoxide (lead oxide) CAS-No. 1317-36-8 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one CAS-No. 71868-10-5 Melamine CAS-No. 108-78-1 Dibutylbis(pentane-2,4-dionato-O,O')tin CAS-No. 22673-19-4
Net Weight	0.168 kg
Main circuit	
number of poles for main current circuit	1
number of NO contacts for main contacts	1
number of NC contacts for main contacts	0
type of voltage of the operating voltage	AC
operating voltage	

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● at AC	
— at 50 Hz rated value	48 ... 460 V
— at 60 Hz rated value	48 ... 460 V
operating frequency rated value	50 ... 60 Hz
relative symmetrical tolerance of the operating frequency	10 %
operating range relative to the operating voltage at AC	
● at 50 Hz	40 ... 506 V
● at 60 Hz	40 ... 506 V
operational current rated value maximum	20 A
operational current	
● at AC-1 at 400 V rated value	20 A
● at AC-51 rated value	20 A
● at AC-51 according to IEC 60947-4-3	20 A
● according to UL 508 rated value	16 A
ampacity maximum	20 A
operational current minimum	500 mA
rate of voltage rise at the thyristor for main contacts maximum permissible	1 000 V/µs
blocking voltage at the thyristor for main contacts maximum permissible	1 200 V
reverse current of the thyristor	10 mA
derating temperature	40 °C
surge current resistance rated value	600 A
I2t value maximum	1 800 A²·s
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
● at 50 Hz	110 ... 230 V
● at 60 Hz	110 ... 230 V
control supply voltage 1 at AC	
● at 50 Hz	110 ... 230 V
● at 60 Hz	110 ... 230 V
control supply voltage at AC	
● at 50 Hz full-scale value for signal<0> recognition	40 V
● at 60 Hz full-scale value for signal<0> recognition	40 V
● initial value for signal <1> detection	90 V
control supply voltage frequency	
● 1 rated value	50 Hz
● 2 rated value	60 Hz
symmetrical line frequency tolerance	5 Hz
operating range factor control supply voltage rated value at AC at 50 Hz	
● initial value	0.82
operating range factor control supply voltage rated value at AC at 60 Hz	
● initial value	0.82
control current at minimum control supply voltage	
● at AC	2 mA
control current at AC rated value	15 mA
ON-delay time	40 ms; additionally max. one half-wave
OFF-delay time	40 ms; additionally max. one half-wave
Installation/ mounting/ dimensions	
fastening method side-by-side mounting	Yes
fastening method	screw fixing and snap-on mounting on standard mounting rail 35 mm according to IEC 60715
design of the thread of the screw for securing the equipment	M4
height	95 mm
width	22.5 mm
depth	121 mm

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Connections/ Terminals	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection	
● for main current circuit	screw-type terminals
● for auxiliary and control circuit	screw-type terminals
type of connectable conductor cross-sections	
● for main contacts	
— solid	2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²)
— finely stranded with core end processing	2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm²
● for AWG cables for main contacts	2x (14 ... 10), 1x 8
connectable conductor cross-section for main contacts	
● solid or stranded	1.5 ... 6 mm²
● finely stranded with core end processing	1 ... 10 mm²
type of connectable conductor cross-sections	
● for auxiliary and control contacts	
— solid	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)
— finely stranded with core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)
— finely stranded without core end processing	1x (0.5 ... 2.5 mm²), 2x (0.5 ... 1 mm²)
● for AWG cables for auxiliary and control contacts	1x (20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	14 ... 8
tightening torque	
● for main contacts with screw-type terminals	2 ... 2.5 N·m
● for auxiliary and control contacts with screw-type terminals	0.5 ... 0.6 N·m
tightening torque [lbf·in]	
● for main contacts with screw-type terminals	18 ... 22 lbf·in
● for auxiliary and control contacts with screw-type terminals	4.5 ... 5.3 lbf·in
design of the thread of the connection screw	
● for main contacts	M4
● of the auxiliary and control contacts	M3
stripped length of the cable	
● for main contacts	10 mm
● for auxiliary and control contacts	7 mm
type of grounding	grounding by snapping onto grounded DIN rails
UL/CSA ratings	
operational current according to UL 508 rated value	16 A
Electrical Safety	
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
Ambient conditions	
installation altitude at height above sea level maximum	1 000 m
ambient temperature	
● during operation	-25 ... +60 °C
● during storage	-55 ... +80 °C
Electromagnetic compatibility	
conducted interference	
● due to burst according to IEC 61000-4-4	2 kV / 5 kHz, behavior criterion 2
● due to conductor-earth surge according to IEC 61000-4-5	2 kV, behavior criterion 2
● due to conductor-conductor surge according to IEC 61000-4-5	1 kV, behavior criterion 2
● due to high-frequency radiation according to IEC 61000-4-6	140 dBuV in the frequency range 0.15 ... 80 MHz, behavior criterion 1
field-based interference according to IEC 61000-4-3	80 MHz ... 1 GHz 10 V/m, behavior criterion 1
electrostatic discharge according to IEC 61000-4-2	4 kV contact discharging / 8 kV air discharging, behavior criterion 2
conducted HF interference emissions according to CISPR11	Class A for industrial environment
field-bound HF interference emission according to CISPR11	Class B for the domestic, business and commercial environments
Short-circuit protection, design of the fuse link	
manufacturer's article number	

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● of full range R fuse link for semiconductor protection at NH design usable	3NE8714-1
● of gS fuse for semiconductor protection at NH design usable	3NE1814-0
● of full range R fuse link for semiconductor protection at cylindrical design usable	5SE1325
● of back-up R fuse link for semiconductor protection at NH design usable	3NE8814-0MK
● of back-up R fuse link for semiconductor protection at cylindrical design 10 x 38 mm usable	3NC1032
● of back-up R fuse link for semiconductor protection at cylindrical design 14 x 51 mm usable	3NC1450
● of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable	3NC2263
manufacturer's article number of the gG fuse	
● at NH design usable	3NA6807
● at cylindrical design 10 x 38 mm usable	3NW6007-1
● at cylindrical design 14 x 51 mm usable	3NW6105-1; These fuses have a smaller rated current than the semiconductor relays
● at cylindrical design 14 x 51 mm usable note	These fuses have a smaller rated current than the semiconductor relays
● at cylindrical design 22 x 58 mm usable	3NW6205-1; These fuses have a smaller rated current than the semiconductor relays
● at cylindrical design 22 x 58 mm usable note	These fuses have a smaller rated current than the semiconductor relays
manufacturer's article number	
● of DIAZED fuse usable	5SB2711
● of NEOZED fuse usable	5SE2320

Approvals Certificates

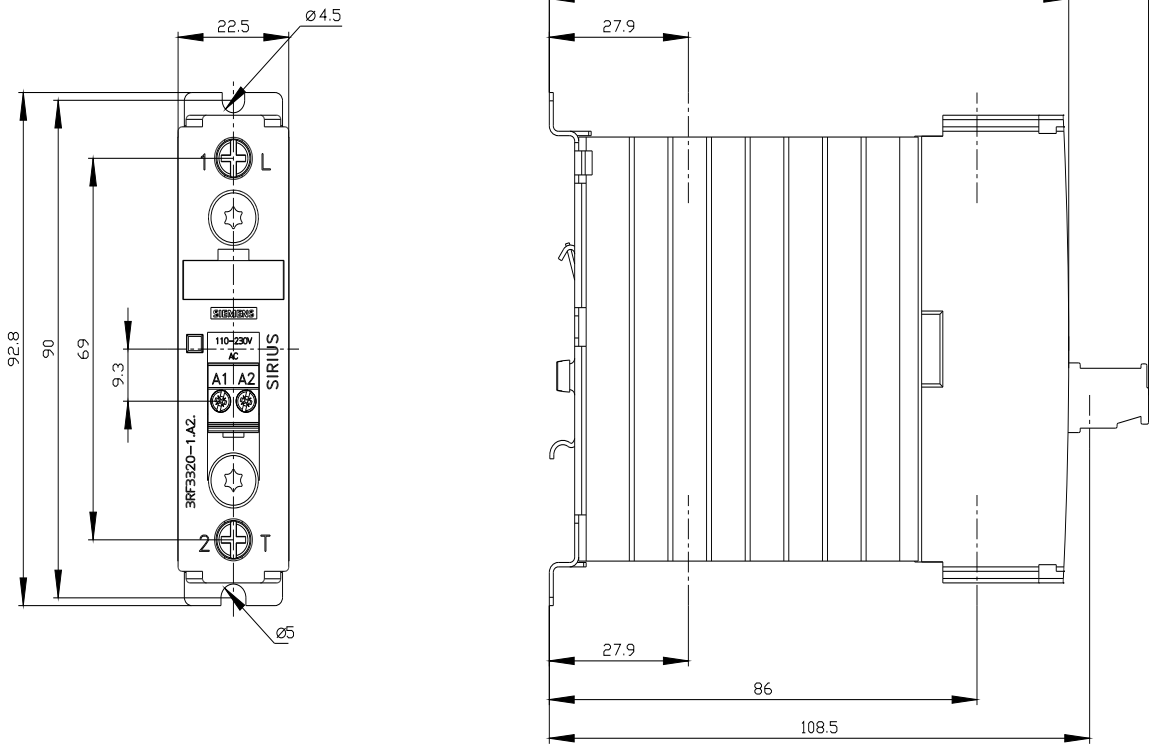
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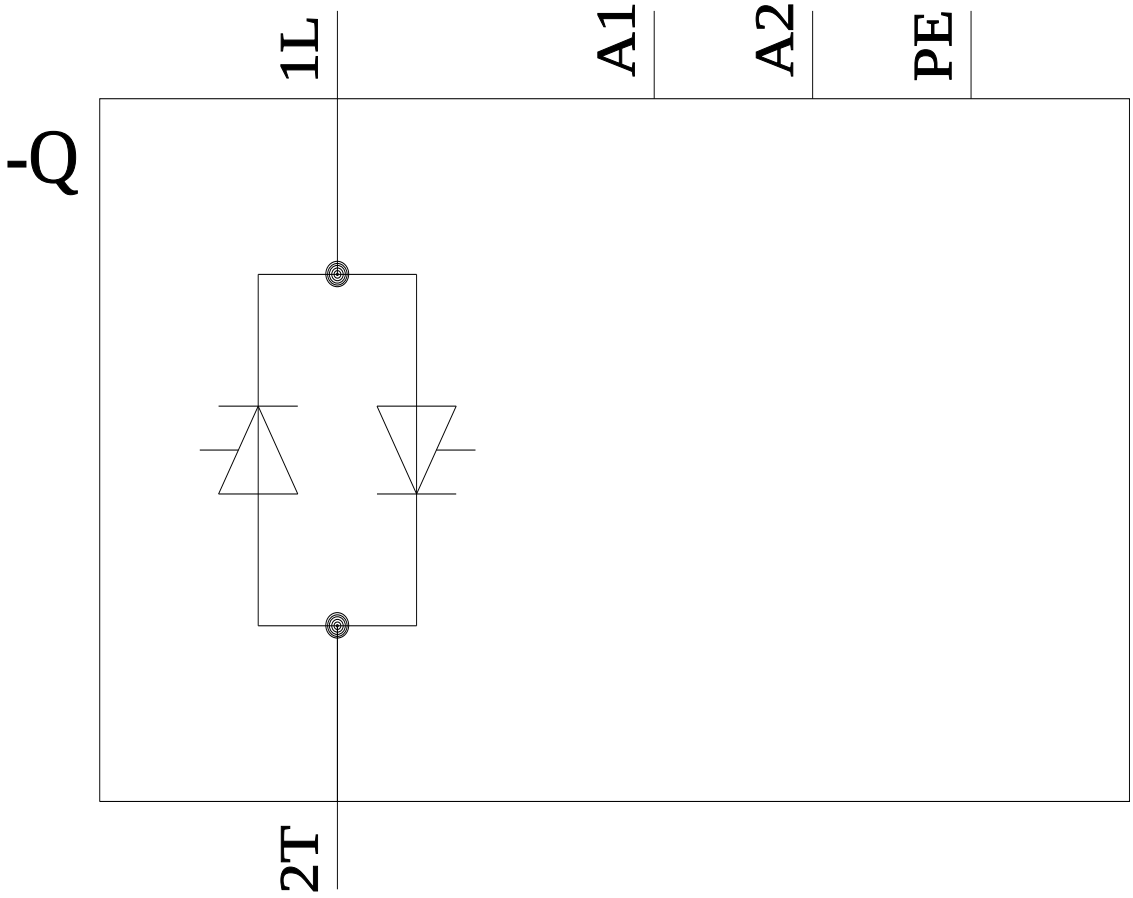
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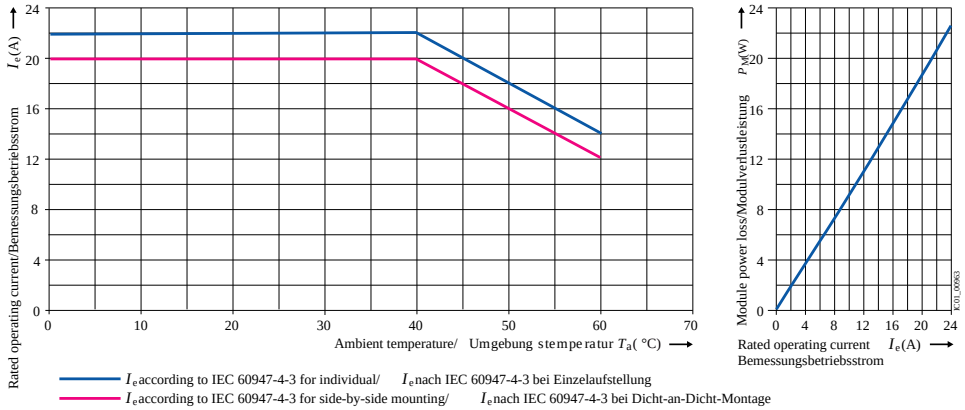
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