



solid-state contactor 1-pole 3RF3 AC-1 / 80 A / 40 °C 48-600 V / 110-230 V AC
ring cable lug connection

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
• _4 of the accessories that can be ordered	3RF3990-0GA36
product designation	
• _1 of the accessories that can be ordered	terminal cover
• _4 of the accessories that can be ordered	load monitoring
General technical data	
product function	zero-point switching
product feature	high blocking voltage
power loss [W] for rated value of the current	
• at AC in hot operating state	79 W
• at AC in hot operating state per pole	79 W
• without load current share typical	3.5 W
insulation voltage rated value	600 V
degree of pollution	3
surge voltage resistance of main circuit rated value	6 kV
protection class IP	IP00
protection class IP on the front according to IEC 60529	IP00
shock resistance according to IEC 60068-2-27	15g / 11 ms
vibration resistance according to IEC 60068-2-6	2g
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	01/15/2024
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 Dibutylbis(pentane-2,4-dionato-O,O')tin - 22673-19-4
Net Weight	0.643 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	
• at AC	
— at 50 Hz rated value	48 ... 600 V
— at 60 Hz rated value	48 ... 600 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 ... 660 V
• at 60 Hz	40 ... 660 V
operational current rated value maximum	80 A
operational current	
• at AC-1 at 400 V rated value	80 A
• at AC-51 rated value	80 A
• at AC-51 according to IEC 60947-4-3	80 A
• according to UL 508 rated value	69 A
rate of voltage rise at the thyristor for main contacts maximum permissible	1 000 V/ μ s
blocking voltage at the thyristor for main contacts maximum permissible	1 600 V
reverse current of the thyristor	10 mA
derating temperature	40 °C
surge current resistance rated value	1 300 A
I²t value maximum	8 000 A ² ·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 frequency	
• 1 rated value	50 Hz
• 2 rated value	60 Hz
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
control supply voltage	
• at AC initial value for signal <1> detection	90 V
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
Auxiliary circuit	
number of CO contacts for auxiliary contacts	0
Installation/ mounting/ dimensions	
fastening method side-by-side mounting	Yes
fastening method	screw fixing
design of the thread of the screw for securing the equipment	M4
height	100 mm
width	80 mm
depth	160 mm
Connections/ Terminals	
product component removable terminal for auxiliary and control circuit	Yes
type of electrical connection	
• for main current circuit	Ring cable lug connection

• for auxiliary and control circuit	screw-type terminals
type of connectable conductor cross-sections • for main contacts for JIS cable lug • for AWG cables for main contacts • for DIN cable lug for main contacts	JIS C 2805 R 2-5, 5,5-5, 8-5, 14-5 1x (12 ... 4) DIN 46234 -5-2,5, -5-6, -5-10, -5-16, -5-25
type of connectable conductor cross-sections • for auxiliary and control contacts — solid — finely stranded with core end processing — finely stranded without core end processing • for AWG cables for auxiliary and control contacts	1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²) 1x (0.5 ... 2.5 mm ²), 2x (0.5 ... 1 mm ²) 1x (20 ... 12)
AWG number as coded connectable conductor cross section for main contacts	12 ... 4
tightening torque • for main contacts with screw-type terminals • for auxiliary and control contacts with screw-type terminals	2 ... 2.5 N·m 0.5 ... 0.6 N·m
tightening torque [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 • of the auxiliary and control contacts	M5 M3
stripped length of the cable • for main contacts • for auxiliary and control contacts	10 mm 7 mm
Electrical Safety	
protection class IP on the front according to IEC 60529	IP00; IP20 with cover
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front with cover
Ambient conditions	
installation altitude at height above sea level maximum	1 000 m
ambient temperature • during operation • during storage	-25 ... +60 °C -55 ... +80 °C
Electromagnetic compatibility	
conducted interference • due to burst according to IEC 61000-4-4 • due to conductor-earth surge according to IEC 61000-4-5 • due to conductor-conductor surge according to IEC 61000-4-5 • due to high-frequency radiation according to IEC 61000-4-6	2 kV / 5 kHz behavior criterion 2 2 kV behavior criterion 2 1 kV behavior criterion 2 140 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 • of full range R fuse link for semiconductor protection at NH design usable • of back-up R fuse link for semiconductor protection at NH design usable • of back-up R fuse link for semiconductor protection at cylindrical design 22 x 58 mm usable	3NE1020-2 3NE8021-1 3NC2280
manufacturer's article number of the gG fuse • at NH design usable	3NA6812; These fuses have a smaller rated current than the semiconductor relays

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