

SIRIUS SC 3RF20... Solid-State Relays**Main Characteristics:**

LED display.
 Plug-in control terminal.
 Degree of protection IP 20.
 Easy replacement of available relays.
 Zero switching.

General Data:**Standards / Approvals**

DIN EN 60947-4-3
 UL 508 / CSA
 CE
 CCC



Ambient temperature		
during operation	°C	-25 ... 60
during storage	°C	-55 ... 80
Installation altitude	m	0 ... 1000; derating starting at 1000
Impact resistance in acc. with DIN IEC 68	g/ms	15/11
Vibration performance	g	2
Degree of protection		IP20
Electromagnetic compatibility (EMC)		
Emitted interference		
o Conducted interference voltage IEC 60 947-4-3		Class A for industrial applications
o Radiated, radio-frequency interference voltage IEC 60 947-4-3		Class A for industrial applications
Interference resistance		
o Electrostatic discharge in acc. with IEC 61 000-4-2 (equivalent to severity 3)	kV	Contact discharge 4; air discharge 8; performance criteria 2
o Induced HF fields in acc. with IEC 61 000-4-6	MHz	0.15 ... 80; 140 dB μ V; performance criteria 1
o Burst in acc. with IEC 61 000-4-4	kV	2/5.0 kHz; performance criteria 1
o Surge in acc. with IEC 61 000-4-5	kV	Phase-to-ground 2; phase-to-phase 1; performance criteria 2

Type		3RF20??-1....
Connection, main contacts		Screw connection
Conductor cross-section		
o Solid	mm ²	2 x (1.5 ... 2.5); 2 x (2.5 ... 6)
o Stranded with connector sleeve	mm ²	2 x (1 ... 2.5); 2 x (2.5 ... 6); 1 x 10
o Stranded w/o connector sleeve	mm ²	
o Solid or stranded	AWG	2 x (14 ... 10)
Stripping length	mm	10
Terminal screw		M 4
o Tightening torque	Nm	2 ... 2.5
	lb.in	18 ... 22
Connection, auxil. / control contacts		
Conductor cross-section	mm ²	0.5 ... 2.5
	AWG	20 ... 12
Stripping length	mm	7
Terminal screw		M 3
o Tightening torque	Nm	0.5 ... 0.6
	lb.in	4.5 ... 5.3

SIRIUS SC 3RF20... Solid-State Relays**Main Circuit**

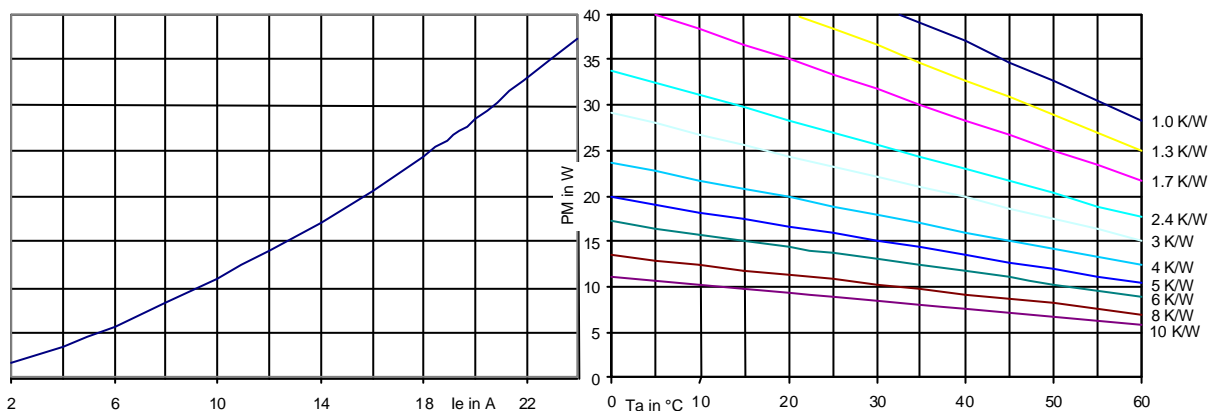
Type		3RF20??-1AA? 2	3RF20??-1AA? 4	3RF20??-1AA? 6
Rated operating voltage U_e	V	24 ... 230	230 ... 460	400 ... 600
	• Tolerance	%	-15/+10	
	• Rated frequency	Hz	50/60	
Rated insulation voltage U_i	V	600		
Blocking voltage	V	800	1200	1600
Slew rate	V/ μ s	1000		

Type	I_{max}		I_e IEC 947-4-3		I_e UL/CSA		Power loss at I_{max} W	Minimum load current A	Leakage current A
	A	at R_{thha} / 40 °C	A	at R_{thha} / 40 °C	A	at R_{thha} / 50 °C			
3RF2020-	20	1.7 K/W	20	1.7 K/W	20	1.3 K/W	28.5	0.5	0.01
3RF2030-	30	0.79 K/W	30	0.79 K/W	30	0.56 K/W	44	0.5	0.01
3RF2050-	50	0.48 K/W	50	0.48 K/W	50	0.33 K/W	66	0.5	0.01
3RF2070-	70	0.25 K/W	50	0.77 K/W	50	0.6 K/W	94	0.5	0.01
3RF2090-	90	0.2 K/W	50	0.94 K/W	50	0.85 K/W	118	0.5	0.01

Type	Rated peak withstand current I_{tsm} A	I^2t value A ² s
3RF2020-	200	200
3RF2030-1AA? 2 3RF2030-1AA? 4 3RF2030-1AA? 6	300	450
3RF2050-	600	1800
3RF2070-1AA? 2 3RF2070-1AA? 4 3RF2070-1AA? 6	1200	7200
3RF2090-	1150	6600

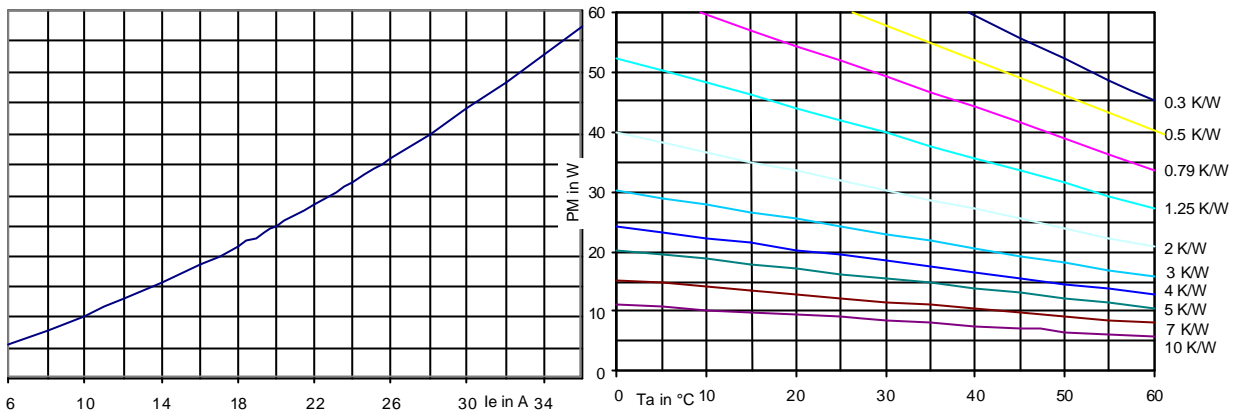
Characteristic Curves

3RF2020-

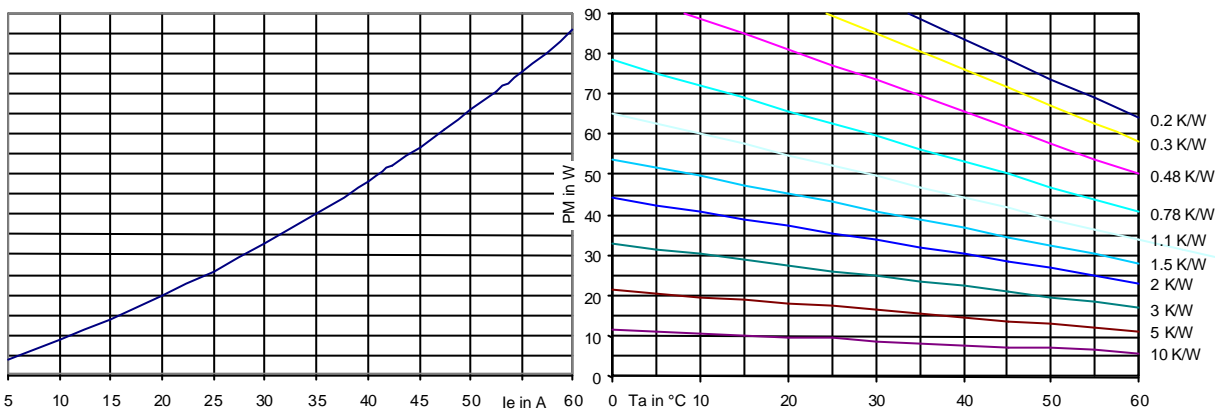


SIRIUS SC 3RF20... Solid-State Relays

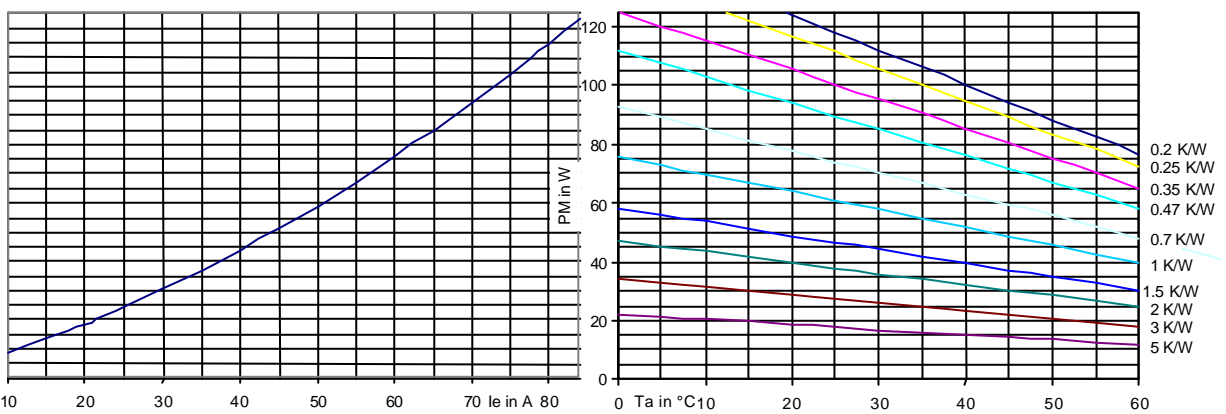
3RF2030-



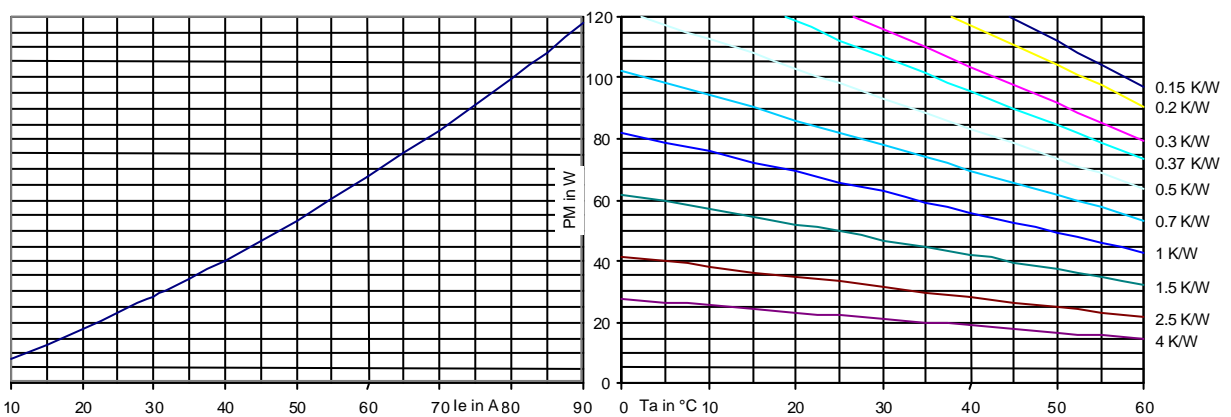
3RF2050-



3RF2070-



3RF2090-

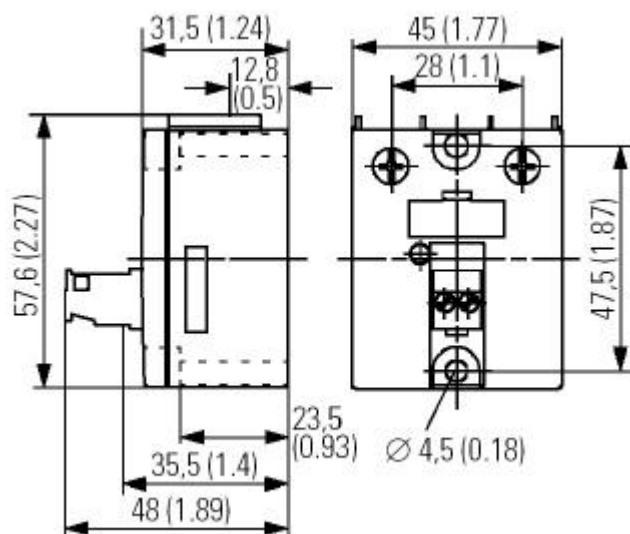


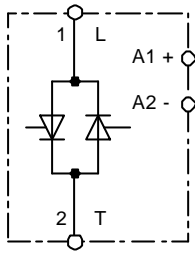
SIRIUS SC 3RF20... Solid-State Relays**Fused Design with Semiconductor Protection**

Type	General purpose fuse LV HRC design gR / SITOR	Semiconductor ferrule fuse		
		10 x 38 mm aR / SITOR	14 x 51 mm aR / SITOR	22 x 58 mm aR / SITOR
3RF20 20-1AA? 2	3NE1814-0	3NC1020	3NC1420	3NC2220
3RF20 20-1AA? 4	3NE1813-0	3NC1016	3NC1420	3NC2220
3RF20 30-1AA? 2	3NE1815-0	3NC1032	3NC1430	3NC2232
3RF20 30-1AA? 4	3NE1815-0	3NC1025	3NC1430	3NC2232
3RF20 30-1AA? 6	3NE1815-0	3NC1032	3NC1430	3NC2232
3RF20 50-1AA? 2	3NE1817-0	-	3NC1450	3NC2250
3RF20 50-1AA? 4	3NE1802-0	-	3NC1450	3NC2250
3RF20 50-1AA? 6	3NE1803-0	-	3NC1450	3NC2250
3RF20 70-1AA? 2	3NE1820-0	-	-	3NC2280
3RF20 70-1AA? 4	3NE1818-0	-	-	3NC2280
3RF20 70-1AA? 6	3NE1817-0	-	-	3NC2280
3RF20 90-1AA? 2	3NE1820-0	-	-	3NC2200
3RF20 90-1AA? 4	3NE1021-2	-	-	3NC2280
3RF20 90-1AA? 6	3NE1020-2	-	-	3NC2280

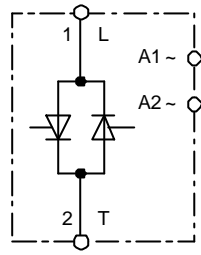
Control Circuit:

Type		3RF20?0-1AA0.	3RF20?0-1AA2.
Operating type		DC operation	AC operation
Rated control supply voltage U_s	V	24 in acc. with EN 61131-2	110 ... 230
Rated operating voltage U_c	V	30	253
Rated operating current	mA	15	6
Rated frequency of the control supply voltage	Hz		50/60
Threshold voltage	V	15	90
• At threshold current	mA	2	2
Drop-out voltage	V	5	40
Switching times ON delay	ms	1 + add. max. one half wave	40 + add. max. one half wave
OFF delay	ms	1 + add. max. one half wave	40 + add. max. one half wave

Dimension Drawing:

SIRIUS SC 3RF20... Solid-State Relays**Equipment Circuit Diagram:**

3RF20?0-1AA0.
Us = 24 V DC



3RF20?0-1AA2.
Us = 110 ... 230 V AC

Sample Circuit Diagram:

- F1 Main circuit fuse
(semiconductor protection
is recommended)
F2 Control circuit fuse
K1 3RF2 solid-state relay
R Load resistance

