

SIRIUS SC 3RF23..-AA.. Zero-Switching Solid-State Contactors**Main Characteristics:**

Zero switching.
LED display.
Various connection systems.
Plug-in control terminal.
Degree of protection IP 20.
Double-insulated design.

**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		
○ Conducted interference voltage IEC 60 947-4-3		Class A for industrial applications
○ Radiated, radio-frequency interference voltage IEC 60 947-4-3		Class A for industrial applications
Interference resistance		
○ Electrostatic discharge in acc. with IEC 61 000-4-2 (equivalent to severity 3)	kV	Contact discharge 4; air discharge 8; performance criteria 2
○ Induced HF fields in acc. with IEC 61 000-4-6	MHz	0.15 ... 80; 140 dBµV; performance criteria 1
○ Burst in acc. with IEC 61 000-4-4	kV	2/5.0 kHz; performance criteria 1
○ Surge in acc. with IEC 61 000-4-5	kV	Phase-to-ground 2; phase-to-phase 1; performance criteria 2

Type		3RF23??-1....	3RF23??-2....	3RF23??-3....
Connection, main contacts		Screw connection	Loaded Spring	Ring type cable lug
Conductor cross-section				
○ Solid	mm ²	2 x (1.5 ... 2.5), 2 x (2.5 ... 6)	2x (0.5 ... 2.5)	
○ Stranded with connector sleeve	mm ²	2 x (1 ... 2.5), 2 x (2.5 ... 6), 1 x 10	2x (0.5 ... 1.5)	
○ Stranded w/o connector sleeve	mm ²		2x (0.5 ... 2.5)	
○ Solid or stranded	AWG	2 x (14 ... 10)	2 x (18 ... 14)	
Stripping length	mm	10	10	
Terminal screw		M 4	-	M 5
○ Tightening torque	Nm	2 ... 2.5	-	2.5 ... 2
	lb.in	18 ... 22	-	18 ... 22
Cable lug	DIN	-	-	DIN 46234
	JIS	-	-	-5-2.5, -5-6, -5-10, -5-16, -5-25
				JIS C 2805 R 2-5, 5.5-5, 8-5, 14-5
Connection, auxil. / control contacts				
Conductor cross-section	mm ²	1 x (0,5 ... 2,5)	0,5 ... 1,5	1 x (0,5 ... 2,5)
	mm ²	2 x (0,5 ... 1,0)		2 x (0,5 ... 1,0)
	AWG	20 ... 12	20 ... 12	20 ... 12
Stripping length	mm	7	10	7
Terminal screw		M 3	-	M 3
○ Tightening torque	Nm	0.5 ... 0.6	-	0.5 ... 0.6
	lb.in	4.5 ... 5.3	-	4.5 ... 5.3

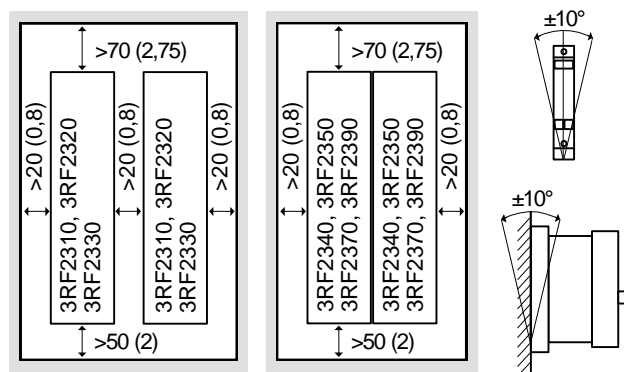
SIRIUS SC 3RF23...-AA.. Zero-Switching Solid-State Contactors

Main Circuit:

Type		3RF23??-?AA?2	3RF23??-?AA?4	3RF23??-?AA?5	3RF23??-?AA?6
Rated operating voltage U_e	V	24 ... 230	230 ... 460	200 ... 600	400 ... 600
	%	-15/+10			
	Hz	50/60			
Rated insulation voltage U_i	V	600			
Blocking voltage	V	800	1200	1200	1600
Slew rate	V/ μ s	1000			

At 40 °C ambient temperature, refer to Characteristic Curves						
Type	I_{max}	I_e in acc. with IEC947-4-3	I_e UL/CSA	Power loss at I_{max}	Min. load current	Leakage current
3RF2310-? A.	10.5	7.5	9.6	11	0.5	0.01
3RF2320-? A.	20	13.2	17.6	20	0.5	0.01
3RF2330-? A.	30	22	27	33	0.5	0.01
3RF2340-? A.	40	33	36	44	0.5	0.01
3RF2350-? A.	50	36	45	54	0.5	0.01
3RF2370-? A.	70	70	62	83	0.5	0.01
3RF2390-? A.	88	88	83	117	0.5	0.01

Type	Rated peak withstand current I_{tsm}	I^2t value
3RF2310-? AA? 2	200	200
3RF2310-? AA? 4	200	200
3RF2310-? AA? 6	400	800
3RF2320-? A.	600	1800
3RF2330-? A.	600	1800
3RF2340-? AA? 2	1200	7200
3RF2340-? AA? 4	1200	7200
3RF2340-? AA? 6	1150	6600
3RF2350-? A.	1150	6600
3RF2370-? A.	1150	6600
3RF2390-? A.	1150	6600

Construction and mounting¹:

Characteristic Curves:

3RF2310-

Upper curves:

 I_{max} thermal limit current

Lower curves:

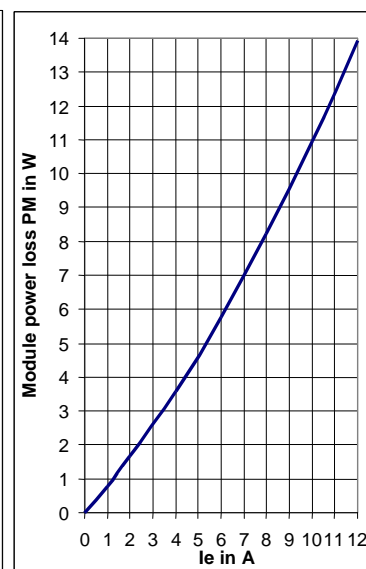
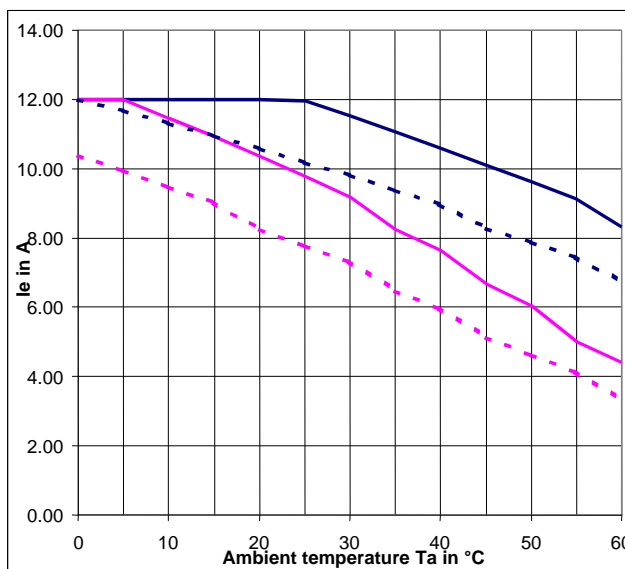
Rated current I_e in acc. with DIN EN 60947-4-3

Continuous lines:

Individual mounting

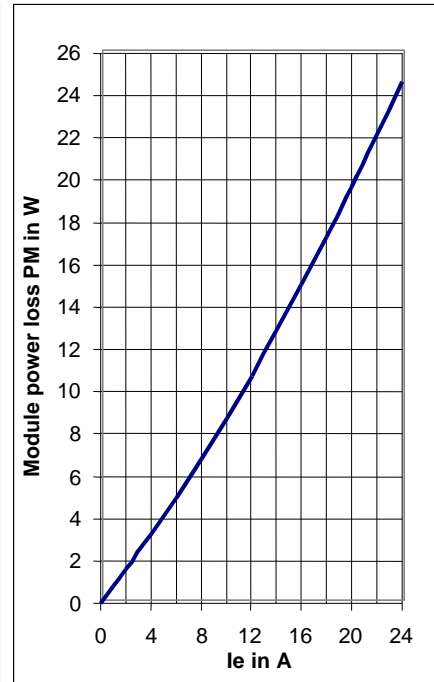
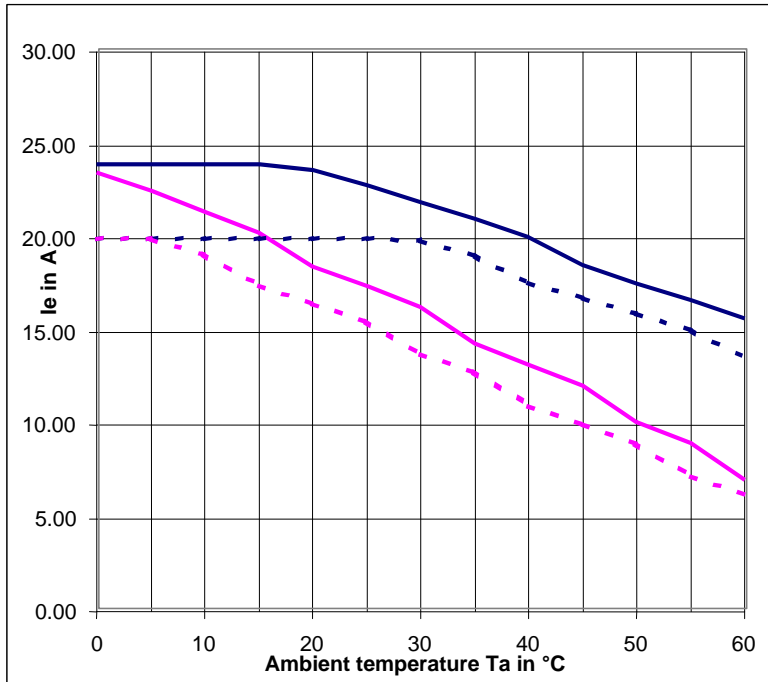
Dashed lines:

Side-by-side mounting

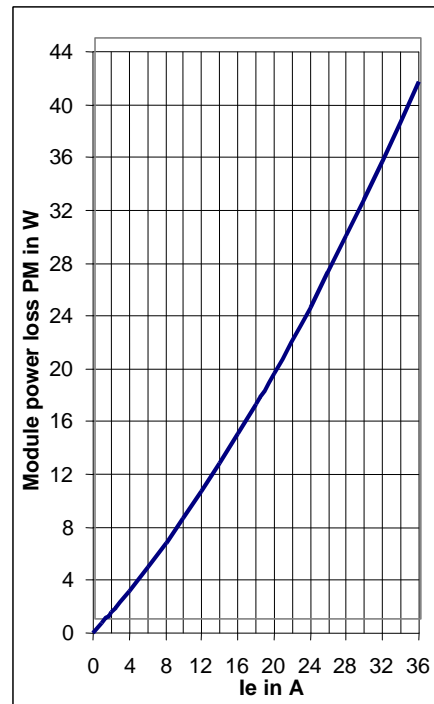
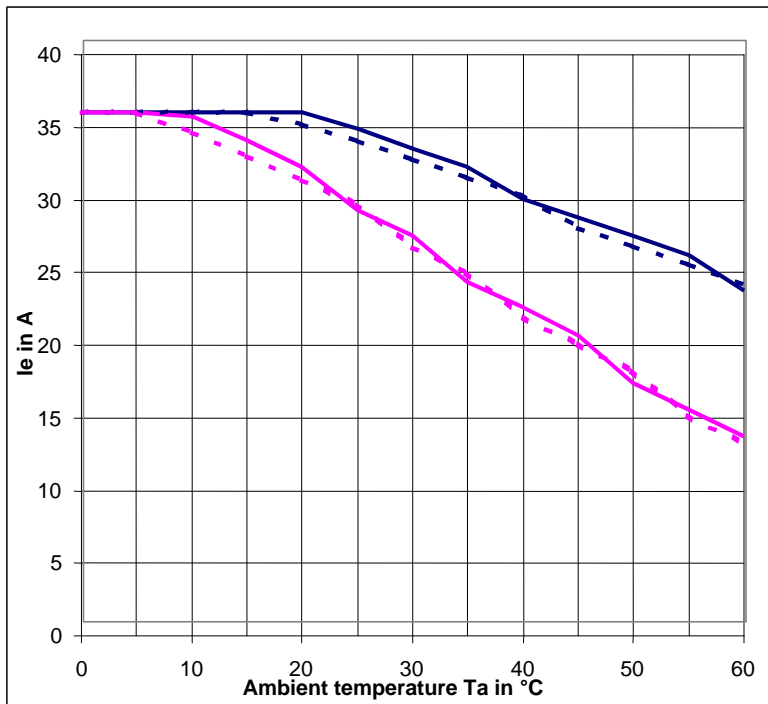
¹ Dimensions in mm, (in)

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3RF2320-.

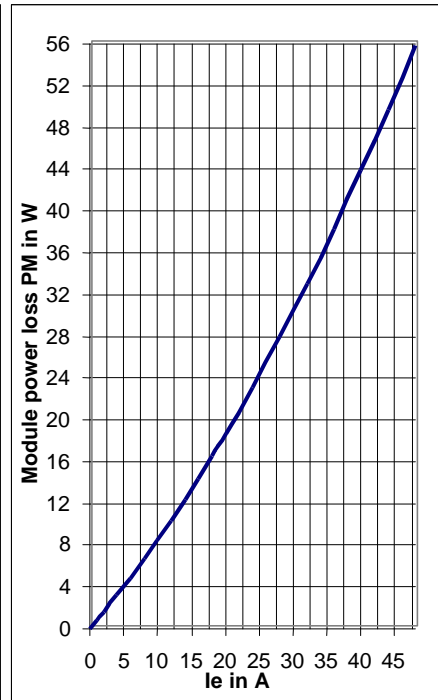
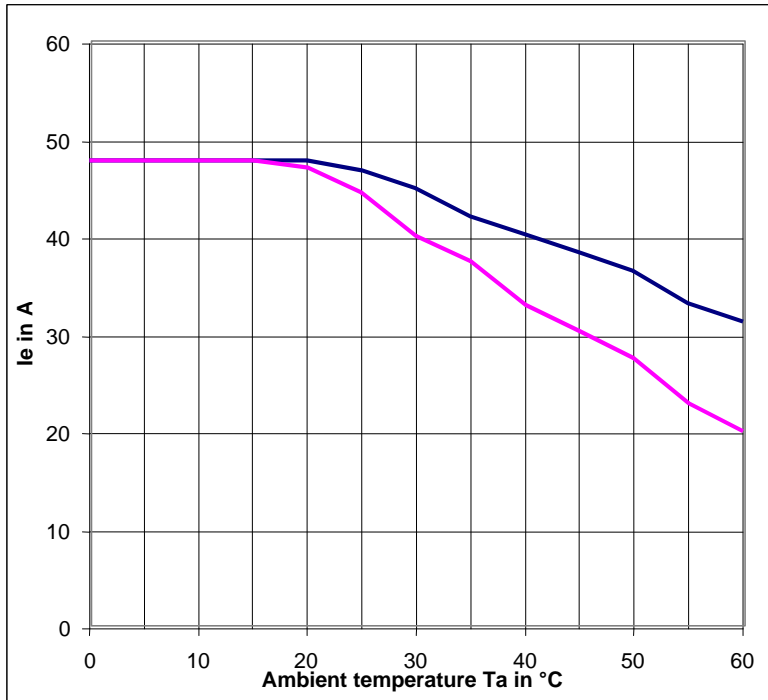


3RF2330-.

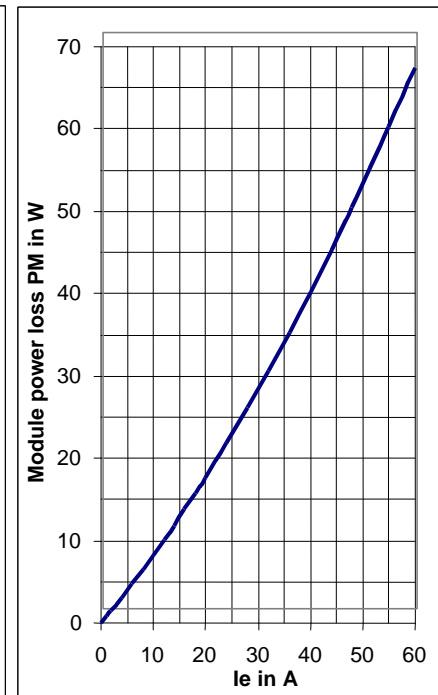
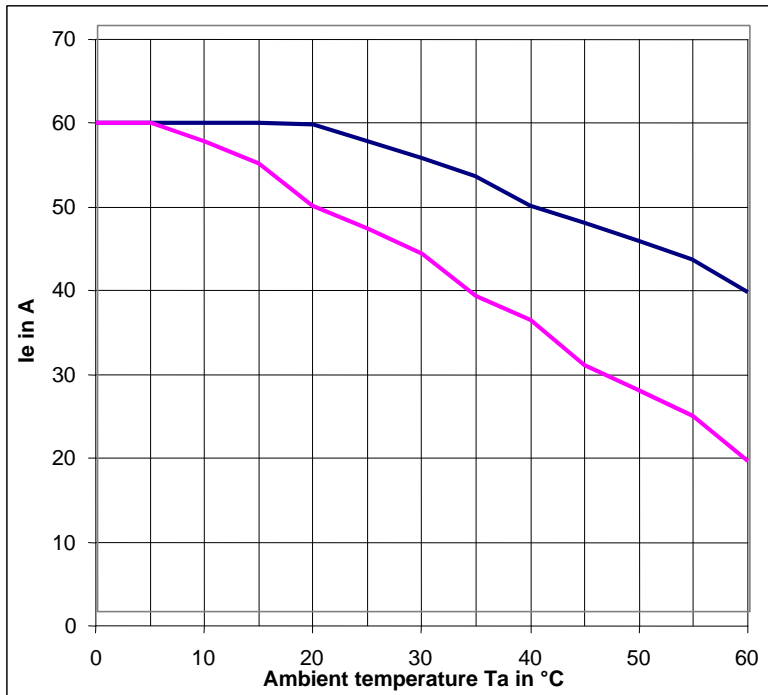


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3RF2340-.

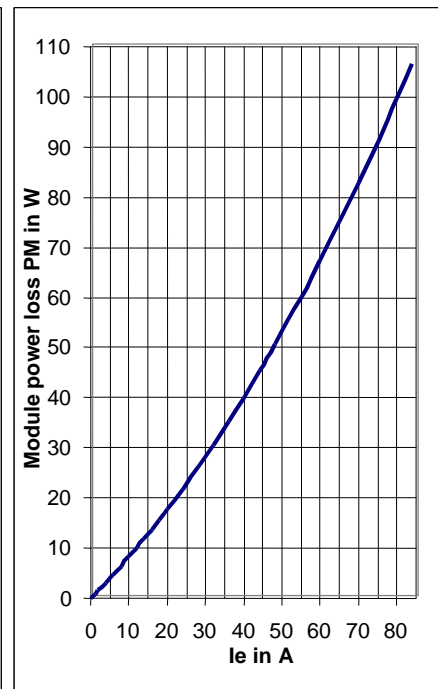
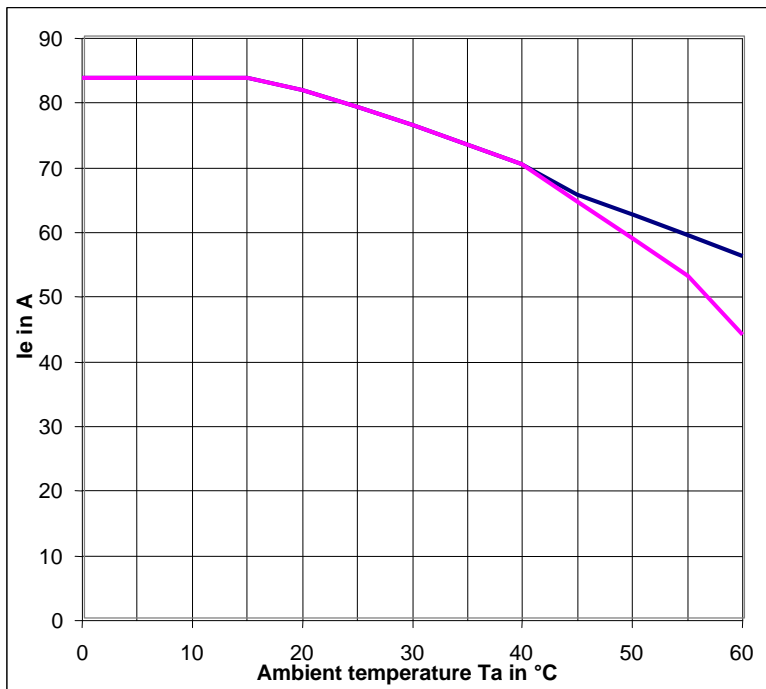


3RF2350-.

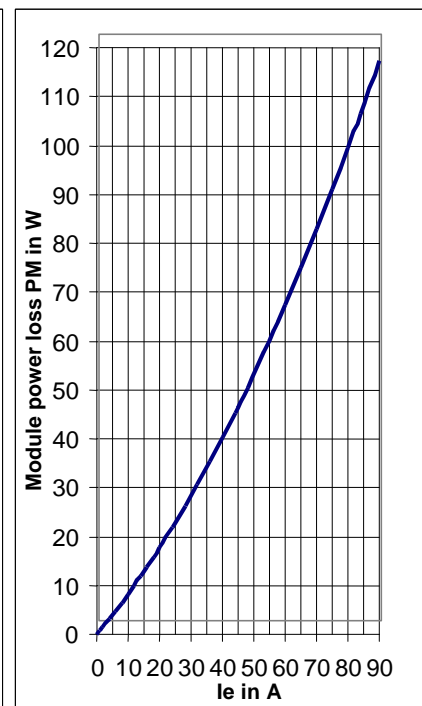
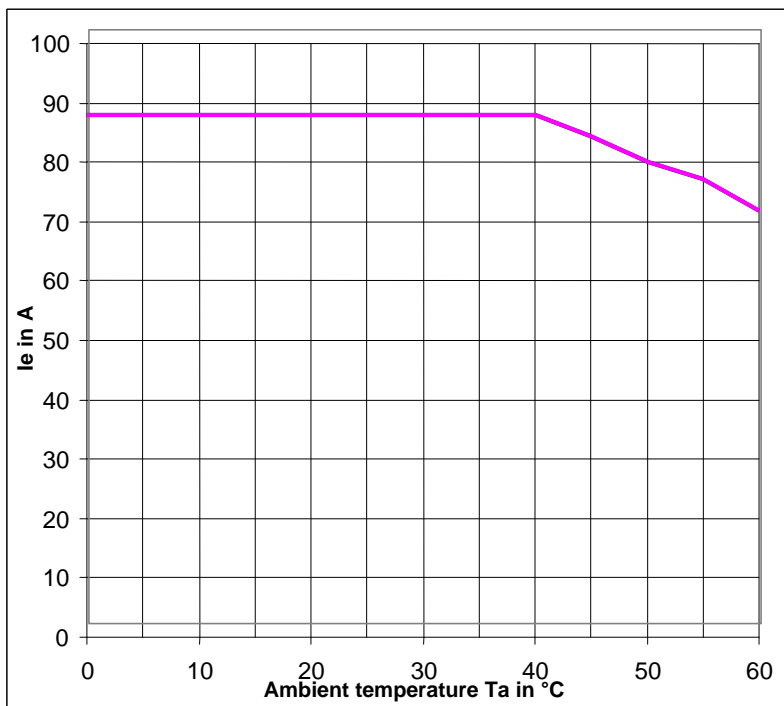


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3RF2370-



3RF2390-

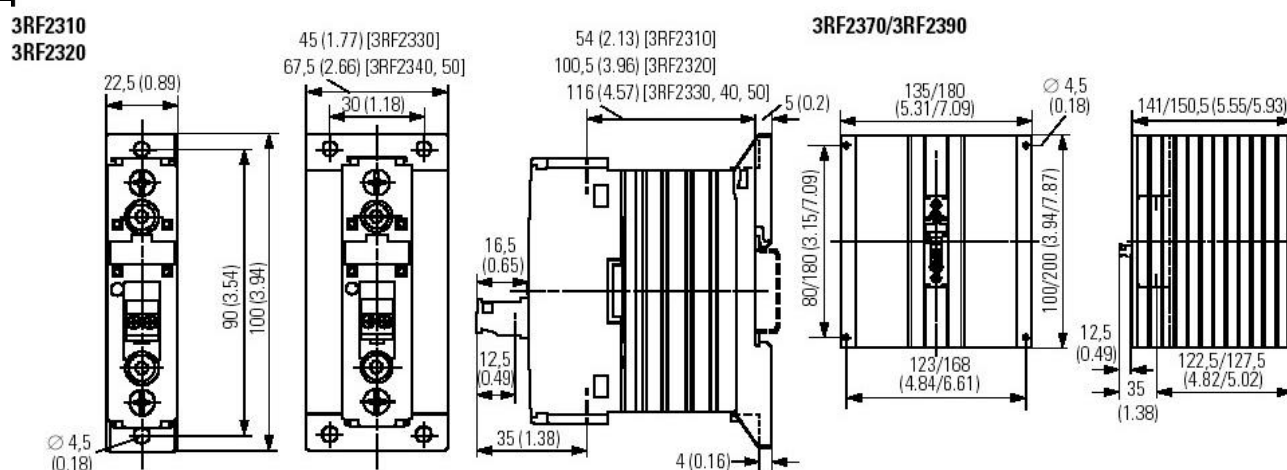


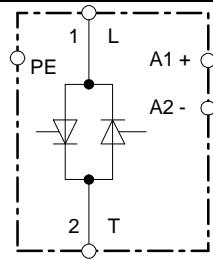
SIRIUS SC 3RF23...-AA.. Zero-Switching Solid-State Contactors**Fused Design with Semiconductor Protection**

Type	General purpose fuse LV HRC design gR/SITOR 3NE 1	Semiconductor ferrule fuse		
		10 x 38 mm aR / SITOR	14 x 51 mm aR / SITOR	22 x 58 mm aR / SITOR
3RF2310-? AA.	3NE1813-0	3NC1010	3NC1410	3NC2220
3RF2320-? AA.	3NE1814-0	3NC1020	3NC1420	3NC2220
3RF2330-? AA.	3NE1803-0	3NC1032	3NC1430	3NC2232
3RF2340-? AA.	3NE1802-0	-	3NC1440	3NC2240
3RF2350-? AA.	3NE1817-0	-	3NC1450	3NC2250
3RF2370-? AA? 2	3NE1820-0	-	-	3NC2280
3RF2370-? AA? 4	3NE1818-0	-	-	3NC2280
3RF2370-? AA? 5	3NE1818-0	-	-	3NC2280
3RF2370-? AA? 6	3NE1818-0	-	-	3NC2280
3RF2390-? AA? 2	3NE1820-0	-	-	3NC2280
3RF2390-? AA? 4	3NE1020-2	-	-	3NC2280
3RF2390-? AA? 5	3NE1020-2	-	-	3NC2280
3RF2390-? AA? 6	3NE1020-2	-	-	3NC2280

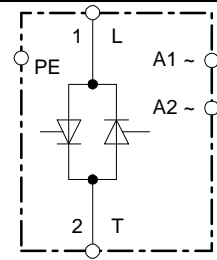
Control Circuit:

Type		3RF23??-? AA0.	3RF23??-? AA2.	3RF23??-? AA4.
Operating type		DC operation	AC operation	DC operation
Rated control supply voltage U_s	V	24 in acc. with EN 61131-2	110 ... 230	24
Rated operating voltage U_c	V	30	253	30
Rated operating current	mA	15	6	15
Rated frequency of the control supply voltage	Hz		50/60	
Threshold voltage	V	15	90	4
• At threshold current	mA	2	2	2
Drop-out voltage	V	5	40	5
Switching times ON delay	ms	1 + add. max. one half wave	40 + add. max. one half wave	1 + add. max. one half wave
OFF delay	ms	1 + add. max. one half wave	40 + add. max. one half wave	1 + add. max. one half wave

Dimension Drawing²:² Dimensions in mm, (in)

SIRIUS SC 3RF23..-AA.. Zero-Switching Solid-State Contactors**Equipment Circuit Diagram:**

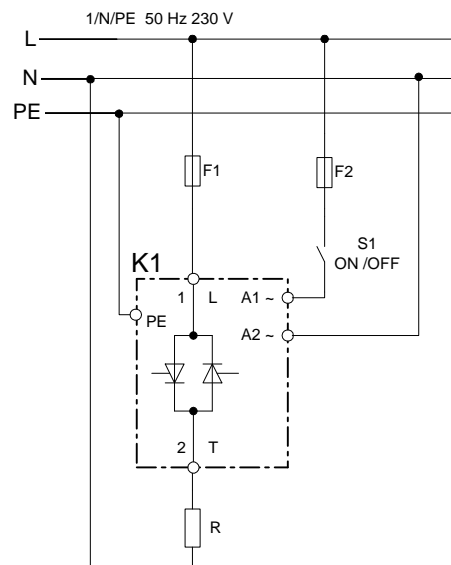
3RF23??-?AA0.
3RF23??-?AA4.
Us = 24 V DC



3RF23??-?AA2.
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

**Accessories:**

Function module	Order No.	Applicable with the following types	Versions
Converter	3RF2900-0EA18	3RF23??-?AA0. 3RF23??-?AA4.	Us = 24 V DC
Basic load monitoring	3RF2920-0FA08	3RF23??-1AA0. 3RF23??-1AA4.	Screw connection, Us = 24 V DC
Extended load monitoring ³	3RF29..-0GA..	3RF23??-1.	Screw connection
		3RF23??-3.	Ring type cable lug
Terminal cover ⁴	3RF2900-3PA88	3RF23??-1.	Screw connection
		3RF23??-3.	Ring type cable lug

³ The exact assignment of function modules is available in the LV 10 catalog.

⁴ The terminal cover can be easily adjusted for screw connection systems.