

Features

1 Pole - 6 A electromechanical relay interface modules, 6.2 mm wide.

Ideal interface for PLC and electronic systems

- Sensitive DC coil or AC/DC coil versions
- Integral coil indication and protection circuit
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

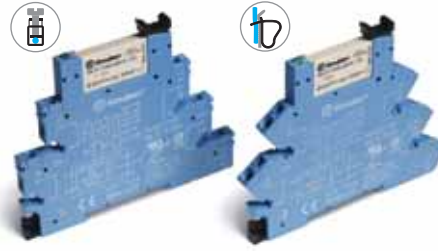
38.51 / 38.51.3
Screw terminal



38.61 / 38.61.3
Screwless terminal



38.51/61

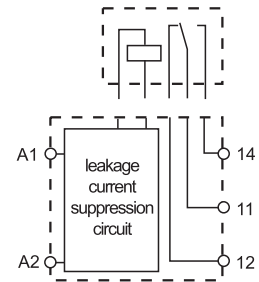
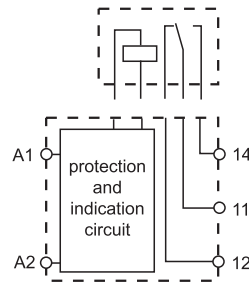


- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting

38.51.3 / 38.61.3



- Leakage current suppression
- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



* Special version for max ambient temperature +70°C.
For outline drawing see page 12

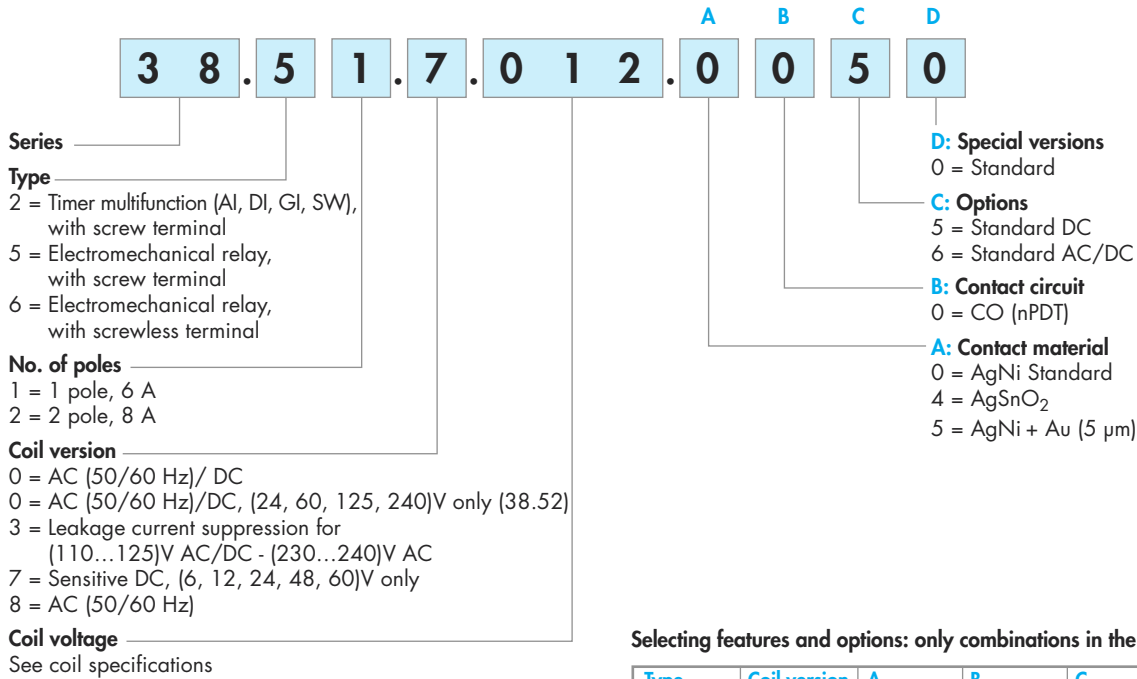
Contact specification					
Contact configuration		1 CO (SPDT)		1 CO (SPDT)	
Rated current/Maximum peak current	A	6/10		6/10	
Rated voltage/Maximum switching voltage	V AC	250/400		250/400	
Rated load AC1	VA	1,500		1,500	
Rated load AC15 (230 V AC)	VA	300		300	
Single phase motor rating (230 V AC)	kW	0.185		0.185	
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.15		6/0.2/0.15	
Minimum switching load	mW (V/mA)	500 (12/10)		500 (12/10)	
Standard contact material		AgNi		AgNi	
Coil specification					
Nominal voltage (U _N)	V AC/DC	12 - 24 - 48 - 60 - (110...125) - (220...240)		(110...125)	—
	V AC	(230...240)*		—	(230...240)
	V DC	6 - 12 - 24 - 48 - 60 (non polarized)		—	—
Rated power AC/DC	VA (50 Hz)/W	See page 9		1/1	0.5/—
Operating range	AC/DC	(0.8...1.1)U _N		(94...138)V	—
	AC	(184...264)V		—	(184...264)V
	DC	(0.8...1.2)U _N		—	—
Holding voltage	AC/DC	0.6 U _N / 0.6 U _N		0.6 U _N / 0.6 U _N	
Must drop-out voltage	AC/DC	0.1 U _N / 0.05 U _N		44 V	72 V
Technical data					
Mechanical life AC/DC	cycles	10 · 10 ⁶		10 · 10 ⁶	
Electrical life at rated load AC1	cycles	60 · 10 ³		60 · 10 ³	
Operate/release time	ms	5/6		5/6	
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)		6 (8 mm)	
Dielectric strength between open contacts	V AC	1,000		1,000	
Ambient temperature range (U _N ≤ 60 V / >60V)	°C	-40...+70 / -40...+55		- / -40...+55	
Protection category		IP 20		IP 20	

Approvals relay (according to type)

Ordering information

Electromechanical relay - 1 or 2 Pole

Example: 38 series screw terminal relay interface module, 1 CO (SPDT), sensitive 12 V DC coil.



Selecting features and options: only combinations in the same row are possible.

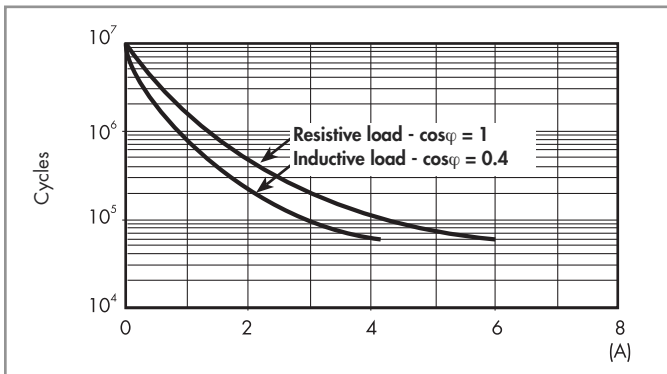
Type	Coil version	A	B	C	D
38.51/61	7	0 - 4 - 5	0	5	0
38.51/61	0 - 3 - 8	0 - 4 - 5	0	6	0
38.52/62	7	0 - 4 - 5	0	5	0
38.52/62	0 - 8	0 - 4 - 5	0	6	0
38.21	0	0	0	6	0

Technical data - 1 & 2 Pole Electromechanical Relays

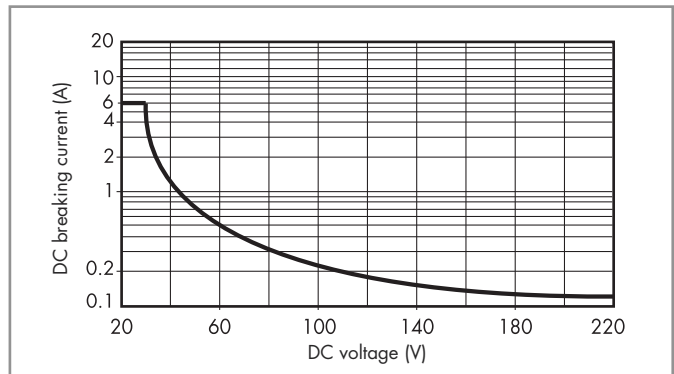
Insulation				
Insulation according to EN 61810-1	insulation rated voltage	V	250	400
	rated impulse withstand voltage	kV	4	4
	pollution degree		3	2
	overvoltage category		III	III
Insulation between coil and contacts (1.2/50 μ s)		kV	6 (8 mm)	
Dielectric strength between open contacts		V AC	1,000	
Conducted disturbance immunity				
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μ s) on A1 - A2 (differential mode)			EN 61000-4-5	level 3 (2 kV)
Other data				
			1 Pole	2 Pole
Bounce time: NO/NC		ms	1/6	2/5
Vibration resistance (10...55)Hz: NO/NC		g	10/5	15/2
Power lost to the environment	without contact current	W	0.2 (12 V) - 0.9 (240 V)	
	with rated current	W	0.5 (12 V) - 1.5 (240 V)	
			0.5 (24 V) - 0.9 (240 V)	1.3 (24 V) - 1.7 (240 V)
Terminals				
			38.51	38.61
Wire strip length		mm	10	
\ominus Screw torque		Nm	0.5	
Max. wire size			solid cable	stranded cable
		mm ²	1x2.5/2x1.5	1x2.5
		AWG	1x14/2x16	1x14
			38.52	38.62
Wire strip length		mm	10	
\ominus Screw torque		Nm	0.5	
Max. wire size			solid cable	stranded cable
		mm ²	1x2.5/2x1.5	1x2.5
		AWG	1x14/2x16	1x14
			1x14	1x14

Contact specification - 1 & 2 Pole Electromagnetic Relays

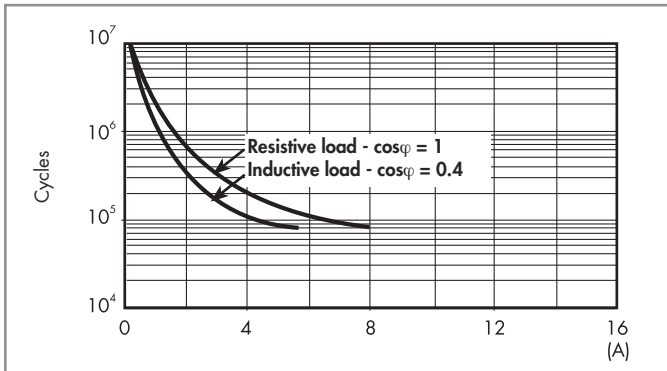
F 38 - Electrical life (AC) v contact current, 1 Pole



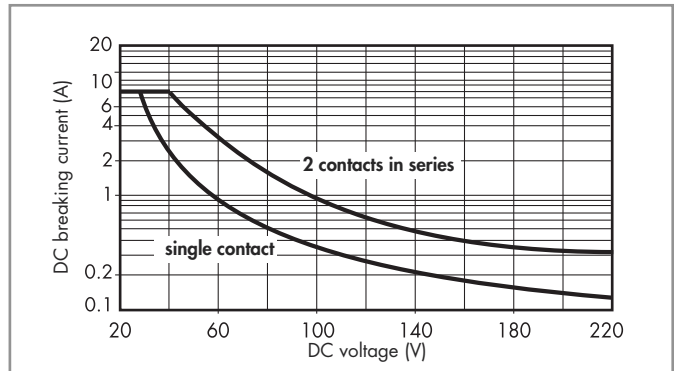
H 38 - Maximum DC1 breaking capacity, 1 Pole



F 38 - Electrical life (AC) v contact current, 2 Pole



H 38 - Maximum DC1 breaking capacity, 2 Pole



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 60 \cdot 10^3$ (1 Pole) or $\geq 80 \cdot 10^3$ (2 Pole) can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load. Note: the release time for the load will be increased.

Coil specifications - 1 Pole Electromechanical Relay

Coil data sensitive DC, 1 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N W
		U_{min} V	U_{max} V		
6	7.006	4.8	7.2	35	0.2
12	7.012	9.6	14.4	15.2	0.2
24	7.024	19.2	28.8	10.4	0.3
48	7.048	38.4	57.6	6.3	0.3
60	7.060	48	72	7	0.4

Coil data AC/DC, 1 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
12	0.012	9.6	13.2	16	0.2/0.2
24	0.024	19.2	26.4	12	0.3/0.2
48	0.048	38.4	52.8	6.9	0.3/0.3
60	0.060	48	66	7	0.5/0.5
110...125	0.125	88	138	5(*)	0.6/0.6(*)
220...240	0.240	176	264	4(*)	1/0.9(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

Coil data AC, 1 Pole (indicated for max ambient temperature +70°C)

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
(230...240) AC	8.240	184	264	3	0.7/0.3

Coil data, leakage current suppression types, 1 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
(110...125) AC/DC	3.125	94	138	8(*)	1/1(*)
(230...240) AC	3.240	184	264	7(*)	1.7/0.5(*)

(*) Rated coil consumption and power consumption values relate to $U_N = 125$ and 240 V.

The 38 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC.

This problem can occur, for example, when connecting the interface modules to PLC,s with triac outputs or when connecting via relatively long cables.

Coil specifications - 2 Pole Electromechanical Relay

Coil data sensitive DC, 2 Pole

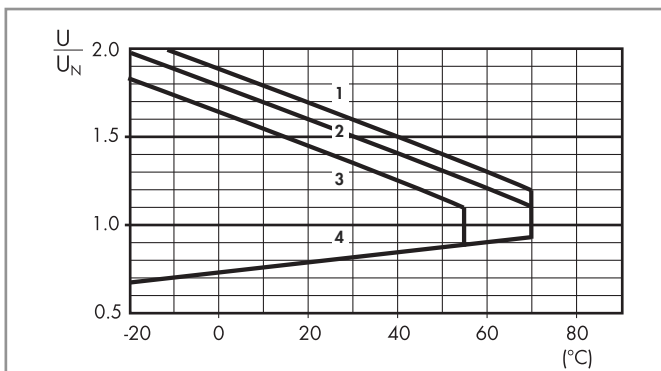
Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N W
		U_{min} V	U_{max} V		
12	7.012	9.6	14.4	41	0.5
24	7.024	19.2	28.8	19.5	0.5
60	7.060	48	72	8	0.5

Coil data AC/DC, 2 Pole

Nominal voltage U_N V	Coil code	Operating range		Rated coil consumption I at U_N mA	Power consumption P at U_N VA/W
		U_{min} V	U_{max} V		
24	0.024	19.2	26.4	20	0.5/0.5
60	0.060	48	66	7.1	0.5/0.5
110...125	0.125	88	138	4.6	0.6/0.6
220...240	0.240	184	264	3.8	0.9/0.9

Coil specification - 1 & 2 Pole Electromagnetic Relays

R 38 - DC coil operating range v ambient temperature
1 Pole and 2 Pole



- 1 - Max. permitted coil voltage at nominal load (DC coil).
- 2 - Max. permitted coil voltage at nominal load (AC/DC coils $U \leq 60$ V).
- 3 - Max. permitted coil voltage at nominal load (AC/DC coils $U > 60$ V).
- 4 - Min pick-up voltage with coil at ambient temperature.

Technical data - Solid State Relays

Other data		38.81/38.91		38.31/38.41	
Power lost to the environment	without output current	W	0.25 (24 V DC)	0.5	
	with rated current	W	0.4	2.2 (DC output) / 3 (AC output)	
Terminals		38.81		38.91	
Wire strip length	mm	10	10		
⊖ Screw torque	Nm	0.5	—		
Max. wire size		solid cable	stranded cable	solid cable	stranded cable
	mm ²	1x2.5 / 2x1.5	1x2.5 / 2x1.5	1x2.5	1x2.5
	AWG	1x14 / 2x16	1x14 / 2x16	1x14	1x14
		38.31		38.41	
Wire strip length	mm	10	10		
⊖ Screw torque	Nm	0.5	—		
Max. wire size		solid cable	stranded cable	solid cable	stranded cable
	mm ²	1x2.5 / 2x1.5	1x2.5 / 2x1.5	1x2.5	1x2.5
	AWG	1x14 / 2x16	1x14 / 2x16	1x14	1x14

Input specifications - Solid State Relays type 38.81 and 38.91 - 6.2 mm wide

Input data DC

Nominal voltage U _N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U _N	Power consumption P
		U _{min}	U _{max}			
V		V	V	V	mA	W
6	7.006	5	7.2	2.4	7	0.2
24	7.024	16.8	30	10	10.5	0.3
60	7.060	35.6	72	20	6.5	0.4

Input data AC/DC

Nominal voltage U _N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U _N	Power consumption P
		U _{min}	U _{max}			
V		V	V	V	mA	VA/W
110...125	0.125	88	138	22	5.5*	0.7/0.7
220...240	0.240	184	264	44	3.5*	1/0.9

(*) Rated coil consumption and power consumption values relate to U_N = 125 and 240 V.

Input data - Leakage current suppression types

Nominal voltage U _N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U _N	Power consumption P at U _N
		U _{min}	U _{max}			
V		V	V	V	mA	W
110...125 AC/DC	3.125	94	138	44	8(*)	1/1(*)
230...240 AC	3.240	184	264	72	6.5(*)	1.6/0.6(*)

(*) Rated coil consumption and power consumption values relate to U_N = 125 and 240 V.

The 38 Series interface modules (supply version 3) have built-in leakage current suppression to address industry concerns of the contacts not dropping-out when there is residual current in the circuit; at (110...125)V AC and (230...240)V AC.

This problem can occur, for example, when connecting the interface modules to PLC,s with triac outputs or when connecting via relatively long cables.

Input specification - Solid State Relay types 38.31 and 38.41 - 14 mm wide

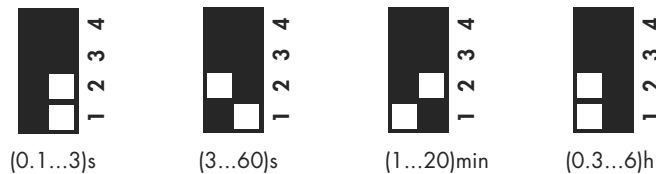
Input data DC

Nominal voltage U _N	Supply code	Operating range		Release voltage U	Rated coil consumption I at U _N	Power consumption P
		U _{min}	U _{max}			
V		V	V	V	mA	W
24	7.024	16.8	30	5	12	0.3

Additional technical data - Timed Interface Module

EMC specifications			
Type of test		Reference standard	
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV
	air discharge	EN 61000-4-2	8 kV
Radio-frequency electromagnetic field (80 ÷ 1000 MHz)		EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 kHz) on Supply terminals		EN 61000-4-4	4 kV
Surges (1.2/50 µs) on Supply terminals	common mode	EN 61000-4-5	4 kV
	differential mode	EN 61000-4-5	4 kV
Radio-frequency common mode (0.15 ÷ 80 MHz) on Supply terminals		EN 61000-4-6	10 V
Radiated and conducted emission		EN 55022	class B
Other data		EMR	SSR
Power lost to the environment	without contact current	W	0.1
	with rated current	W	0.6
Terminals		38.21	
Wire strip length	mm	10	
Screw torque	Nm	0.5	
Max. wire size		solid cable	stranded cable
	mm ²	1x2.5 / 2x1.5	1x2.5 / 2x1.5
	AWG	1x14 / 2x16	1x14 / 2x16

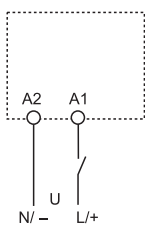
Times scales



Functions

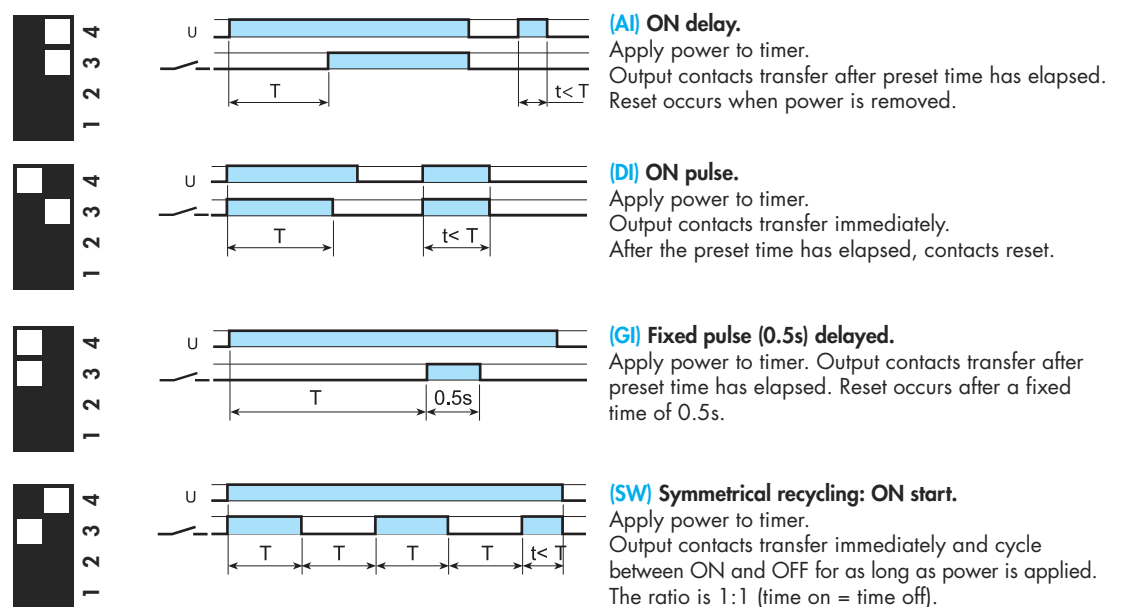
LED	Supply voltage	NO contact/output
	OFF	Open
	ON	Open (time in progress)
	ON	Closed

Wiring diagram



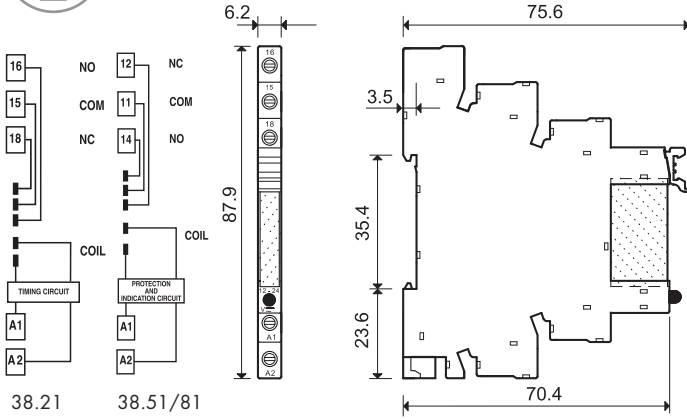
U = Supply voltage

= Output contact

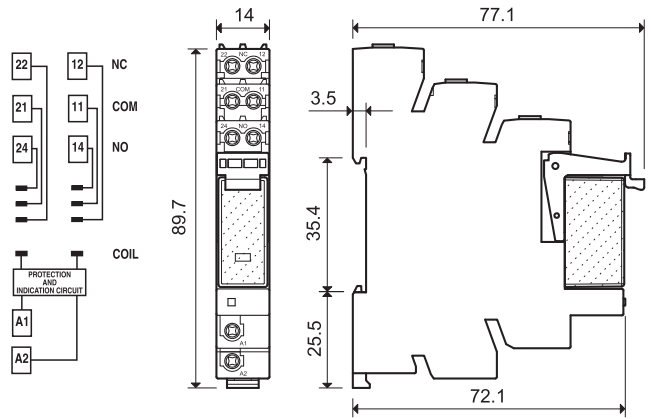


Outline drawings

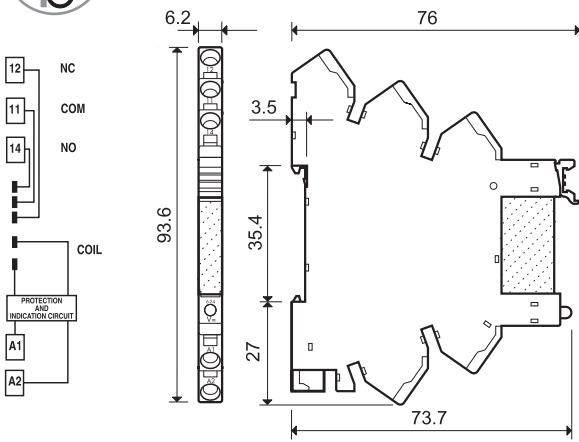
38.21
38.51 / 38.51.3
38.81 / 38.81.3
Screw terminal



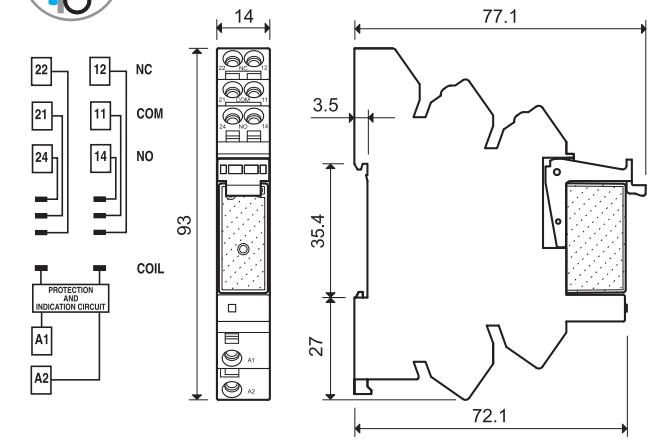
38.31
38.52
Screw terminal



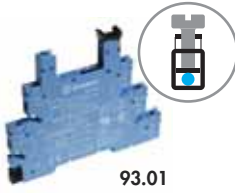
38.61 / 38.61.3
38.91 / 38.91.3
Screwless terminal



38.41
38.62
Screwless terminal



Electromechanical Relay & Socket Combinations



93.01



93.51

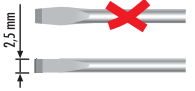


93.02



93.52

Approvals (according to type):



Screw terminal - 1 Pole relay

Interface Module Code	Coil voltage	Relay	Socket
38.51.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.01.0.024
38.51.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.01.0.024
38.51.0.048.0060	48 V AC/DC	34.51.7.048.0010	93.01.0.060
38.51.0.060.0060	60 V AC/DC	34.51.7.060.0010	93.01.0.060
38.51.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.01.0.125
38.51.0.240.0060	(220...240)V AC/DC	34.51.7.060.0010	93.01.0.240
38.51.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.01.3.125
38.51.3.240.0060	(230...240)V AC	34.51.7.060.0010	93.01.3.240
38.51.7.006.0050	6 V DC	34.51.7.005.0010	93.01.7.024
38.51.7.012.0050	12 V DC	34.51.7.012.0010	93.01.7.024
38.51.7.024.0050	24 V DC	34.51.7.024.0010	93.01.7.024
38.51.7.048.0050	48 V DC	34.51.7.048.0010	93.01.7.060
38.51.7.060.0050	60 V DC	34.51.7.060.0010	93.01.7.060
38.51.8.240.0060	(230...240)V AC	34.51.7.060.0010	93.01.8.240

Screwless terminal - 1 Pole relay

Interface Module Code	Coil voltage	Relay	Socket
38.61.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.51.0.024
38.61.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.51.0.024
38.61.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.51.0.125
38.61.0.240.0060	(220...240)V AC/DC	34.51.7.060.0010	93.51.0.240
38.61.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.51.3.125
38.61.3.240.0060	(230...240)V AC	34.51.7.060.0010	93.51.3.240
38.61.7.012.0050	12 V DC	34.51.7.012.0010	93.51.7.024
38.61.7.024.0050	24 V DC	34.51.7.024.0010	93.51.7.024
38.61.8.240.0060	(230...240)V AC	34.51.7.060.0010	93.51.8.240

Screw terminal - 2 Pole relay

Interface Module Code	Coil voltage	Relay	Socket
38.52.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.02.0.024
38.52.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.02.0.060
38.52.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.02.0.125
38.52.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.02.0.240
38.52.7.012.0050	12 V DC	41.52.9.012.0010	93.02.7.024
38.52.7.024.0050	24 V DC	41.52.9.024.0010	93.02.7.024
38.52.7.060.0050	60 V DC	41.52.9.060.0010	93.02.7.060

Screwless terminal - 2 Pole relay

Interface Module Code	Coil voltage	Relay	Socket
38.62.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.52.0.024
38.62.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.52.0.060
38.62.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.52.0.125
38.62.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.52.0.240
38.62.7.012.0050	12 V DC	41.52.9.012.0010	93.52.7.024
38.62.7.024.0050	24 V DC	41.52.9.024.0010	93.52.7.024
38.62.7.060.0050	60 V DC	41.52.9.060.0010	93.52.7.060

Solid State Relay & Socket Combinations - 6.2 mm wide

Screw terminal

Interface Module Code	Input voltage	Relay	Socket
38.81.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.01.7.024
38.81.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.01.7.024
38.81.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.01.7.060
38.81.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.01.0.125
38.81.0.240.xxxx	(220...240)V AC/DC	34.81.7.060.xxxx	93.01.0.240
38.81.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.01.3.125
38.81.3.240.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.01.3.240

Screwless terminal

Interface Module Code	Input voltage	Relay	Socket
38.91.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.51.7.024
38.91.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.51.7.024
38.91.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.51.7.060
38.91.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.51.0.125
38.91.0.240.xxxx	(220...240)V AC/DC	34.81.7.060.xxxx	93.51.0.240
38.91.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.51.3.125
38.91.3.240.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.51.3.240

Example: .xxxx
.9024
.7048
.8240

Solid State Relay & Socket Combinations - 14 mm wide



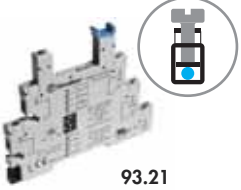
93.52

Approvals
(according to type):



Screw terminal			
Interface Module Code	Input voltage	Relay	Socket
38.31.7.024.9024	24 V DC	41.81.7.024.9024	93.02.7.024
38.31.7.024.8240	24 V DC	41.81.7.024.8240	93.02.7.024
Screwless terminal			
Interface Module Code	Input voltage	Relay	Socket
38.41.7.024.9024	24 V DC	41.81.7.024.9024	93.52.7.024
38.41.7.024.8240	24 V DC	41.81.7.024.8240	93.52.7.024

SSR / EMR & Timer Socket Combinations



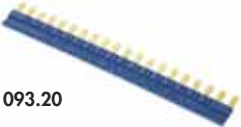
93.21

Approvals
(according to type):



Screw terminal			
Interface Module Code	Input / Coil voltage	Relay	Socket
38.21.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.21.0.024
38.21.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.21.0.024
38.21.0.024.9024	24 V AC/DC	34.81.7.024.9024	93.21.0.024
38.21.0.024.8240	24 V AC/DC	34.81.7.024.8240	93.21.0.024

Accessories

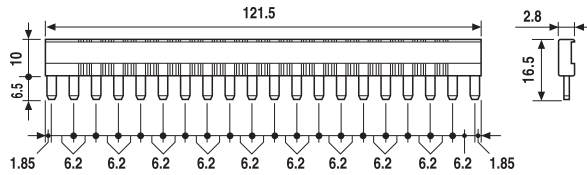


093.20

Approvals
(according to type):



20-way jumper link for 38.x1	093.20 (blue)	093.20.0 (black)	093.20.1 (red)
Rated values	36 A - 250 V		

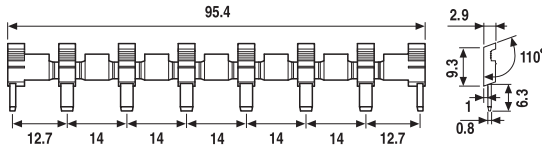


093.08

Approvals
(according to type):



8-way jumper link for 38.x2	093.08 (blue)	093.08.0 (black)	093.08.1 (red)
Rated values	10 A - 250 V		



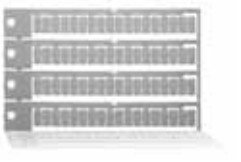
093.01

Plastic separator	093.01
Thickness 2 mm, required at the start and the end of a group of interfaces. Can be used for visual separation group, must be used for:	
- protective separation of different voltages of neighbouring PLC interfaces according to VDE 0106-101	
- protection of cut jumper links	



093.64

Sheet of marker tags for 38.x1, plastic, 64 tags, 6x10 mm	093.64
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060.72

Sheet of marker tags for 38.x2, plastic, 72 tags, 6x12 mm	060.72
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