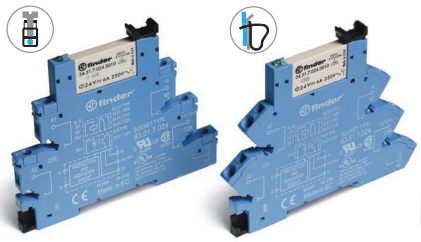
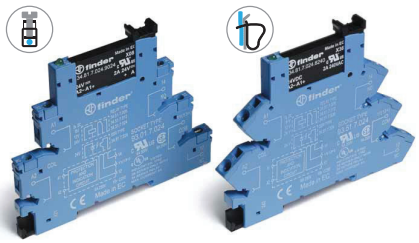
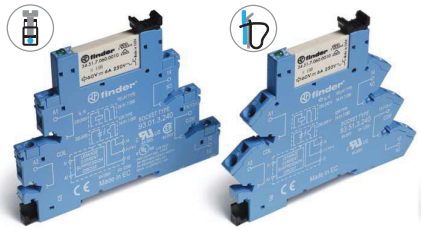
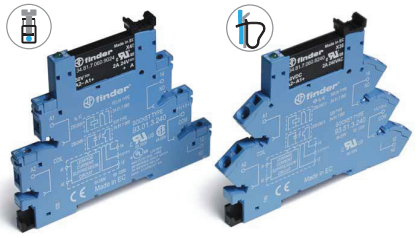
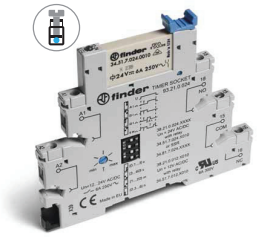
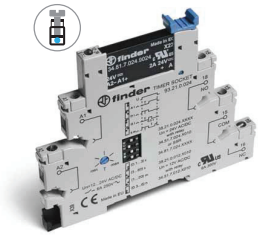
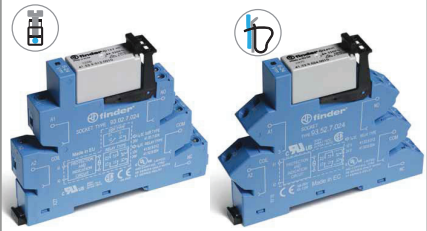
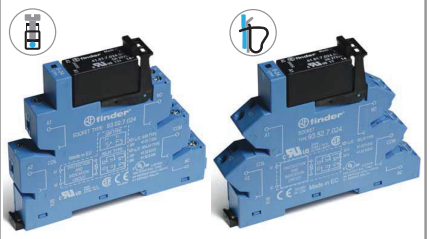
B

Common features	EMR Electromechanical Relays	SSR Solid State Relays
• Instant ejection of relay by plastic retaining clip • Integral coil indication and protection circuit • 35 mm rail (EN 60715) mounting		
6.2 mm wide • **EMR - DC, AC or AC/DC coil versions** • **SSR - DC or AC/DC input versions** • Screw and Screwless terminal options	**38.51/38.61**  • **1 CO - 6 A 250VAC** **Page 1**	**38.81/38.91**  • Single solid state output: Options **0.1A 48VDC, 2A 24VDC, 2A 240VAC** • Silent, high speed switching • Long electrical life **Page 2**
6.2 mm wide • **Special coil / input leakage current suppression types** • **EMR - AC or AC/DC coil versions** • **SSR - AC or AC/DC input versions** • Screw and Screwless terminal options	**38.51.3... - 38.61.3...**  • **1 CO - 6 A 250VAC** **Page 1**	**38.81.3... - 38.91.3...**  • Single solid state output: Options **0.1A 48VDC, 2A 24VDC, 2A 240VAC** • Silent, high speed switching • Long electrical life **Page 2**
6.2 mm wide • **Timed Interface module** • **4 functions & 4 time scales 0.1s ... 6h** • **EMR - AC/DC (12 or 24V) supply versions** • **SSR - AC/DC (24V) supply** • Screw terminals	**38.21**  • **1 CO - 6 A 250VAC** **Page 3**	**38.21...9024-8240**  • Single solid state output: Options **2A 24VDC, 2A 240VAC** • Silent, high speed switching • Long electrical life **Page 3**
14 mm wide • **2 pole 8 A or 1 pole 16 A** • **EMR - DC or AC/DC coil versions** • **SSR - DC input versions** • Screw and Screwless terminal options	**38.01/38.52/38.11/38.62**  • **1 CO - 16 A 250VAC** • **2 CO - 8 A 250VAC** **Page 4**	**38.31/38.41**  • Single solid state output: Options **5A 24VDC, 3A 240VAC** • Silent, high speed switching • Long electrical life **Page 5**

B

Features

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

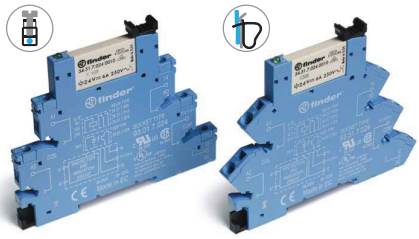
Ideal interface for PLC and electronic systems

- 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

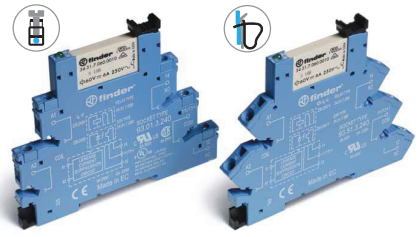
38.61 / 38.61.3
Screwless terminal

38.51/61

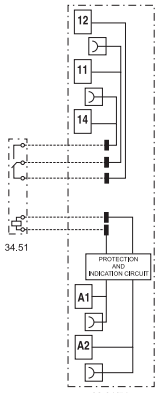


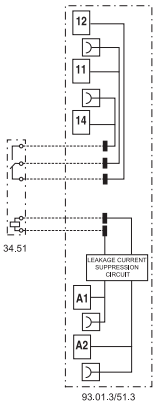
- 1 pole electromechanical relay
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting

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	6/0.2/0.12	6/0.2/0.12	
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	$10 \cdot 10^6$	$10 \cdot 10^6$	
Electrical life at rated load AC1	cycles	$60 \cdot 10^3$	$60 \cdot 10^3$	
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 ($U_N \leq 60$ V/>60V)	°C	–40...+70/–40...+55	—/–40...+55	
Protection category		IP 20	IP 20	
Approvals relay (according to type)		CE SP EAC PG RINA cULus		

Features

Single output - solid state relay interface modules, 6.2 mm wide.

Ideal interface for PLC and electronic systems

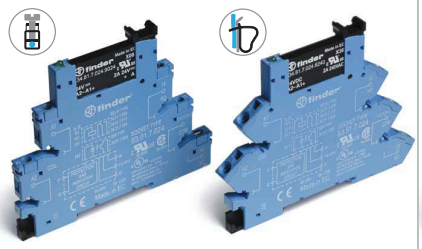
- DC, AC or AC/DC input versions
- Supplied with integral coil indication and protection circuit
- Silent, high switching speed and long electrical life
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

B

38.81 / 38.81.3
Screw terminal

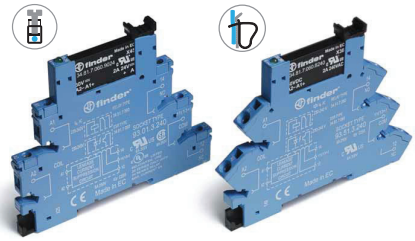
38.91 / 38.91.3
Screwless terminal

38.81/38.91

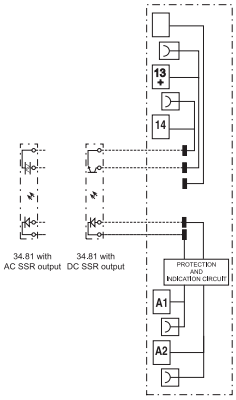


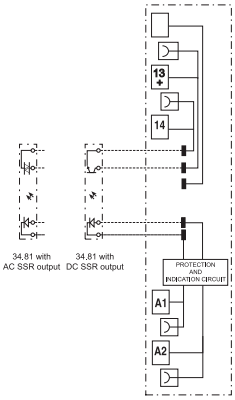
- AC or DC output switching
- SSR relay - DC input voltage
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting

38.81.3/38.91.3



- Leakage current suppression
- AC or DC output
- SSR relay - AC or AC/DC input voltage
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting





For outline drawing see page 12

Output specification							
Contact configuration		1 NO (SPST-NO)			1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20	0.1/0.5	2/40	2/20	0.1/0.5	2/40
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24)DC	(1.5...48)DC	(12...275)AC	(1.5...24)DC	(1.5...48)DC	(12...275)AC
Repetitive peak off-state voltage	V_{pk}	—	—	600	—	—	600
Minimum switching current	mA	1	0.05	22	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6	0.12	1	1.6
Input specification							
Nominal voltage (U_N)	V AC	—			230...240		
	V DC	6 - 24 - 60			—		
	V AC/DC	(110...125) - (220...240)			110...125		
Operating range	V DC	See page 10			See page 10		
Control current	mA	See page 10			See page 10		
Release voltage	V DC	See page 10			See page 10		
Technical data							
Operate/release time: ON/OFF (DC input)	ms	0.2/0.6	0.04/0.11	12/12	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500			2,500		
Ambient temperature range	°C	–20...+55			–20...+55		
Environmental protection		IP20			IP20		
Approvals relay (according to type)		CE SP EAC PG RINA cULus					

II-2014, www.findernet.com

Features

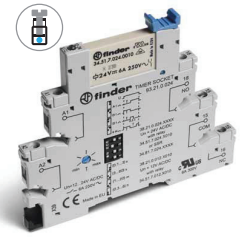
Slim timed interface module, 6.2 mm wide.
1 pole, 6 A - electromechanical relay
1 output, 2 A DC or AC - solid state relay

- Electromechanical or solid state output
- Multi-functions timer
- AC/DC supply
- 4 time scales from 0.1s to 6h
- Instant ejection of relay using plastic retaining clip
- 6.2 mm wide, 35 mm rail (EN 60715) mounting

38.21
Screw terminal

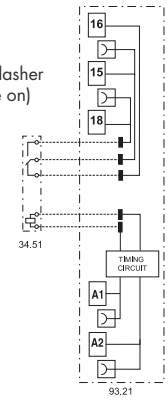
For outline drawing see page 12

38.21

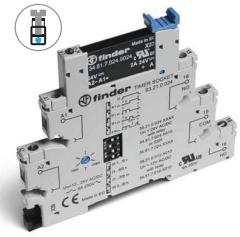


- 1 pole electromechanical output relay
- 12 or 24 V AC/DC supply
- Screw terminal
- 35 mm rail (EN 60715) mounting

AI: On-delay
DI: Interval
GI: Pulse delayed
SW: Symmetrical flasher (starting pulse on)

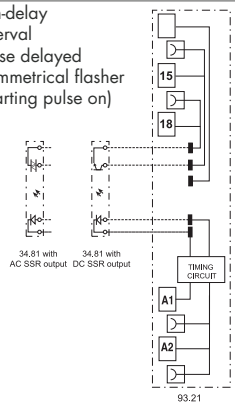


38.21...9024-8240



- DC or AC solid state output relays
- 24V AC/DC supply voltage
- Screw terminal
- 35 mm rail (EN 60715) mounting

AI: On-delay
DI: Interval
GI: Pulse delayed
SW: Symmetrical flasher (starting pulse on)



Contact specification				
Contact configuration		1 CO (SPDT)	–	
Rated current/Maximum peak current	A	6/10	–	
Rated voltage/Maximum switching voltage	V AC	250/400	–	
Rated load AC1	VA	1,500	–	
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12	–	
Minimum switching load	mW (V/mA)	500 (12/10)	–	
Standard contact material		AgNi	–	
Output specification			**DC output (...9024)**	**AC output (...8240)**
Output configuration		–	1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current	A	–	2/20	2/40
Rated voltage/Maximum blocking voltage	V	–	(24/33)DC	(240/–)AC
Switching voltage range	V	–	(1.5...24)DC	(12...275)AC
Repetitive peak off-state voltage	V_{pk}	–	–	600
Minimum switching current	mA	–	1	22
Max. "OFF-state" leakage current	mA	–	0.001	1.5
Max. "ON-state" voltage drop	V	–	0.12	1.6
Supply specification				
Nominal voltage (U_N)	V AC (50/60Hz)/DC	12 - 24	24	
Rated power	VA/W	0.5	0.5	
Operating range	AC	(0.8...1.1)U_N	(0.8...1.1)U_N	
	DC	(0.8...1.1)U_N	(0.8...1.1)U_N	
Technical data				
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h		
Repeatability	%	± 1		
Recovery time	ms	≤ 50		
Setting accuracy-full range	%	5%		
Ambient temperature	°C	–40...+70	–20...+55	
Protection category		IP 20		
Approvals relay (according to type)				

Features

Electromechanical relay interface modules, 14 mm wide.
38.01 and 38.11 - 1 Pole 16 A
38.52 and 38.62 - 2 Pole 8 A

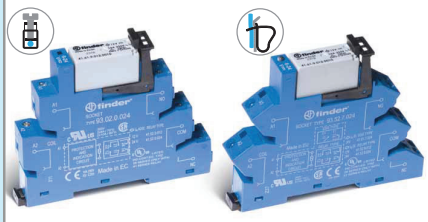
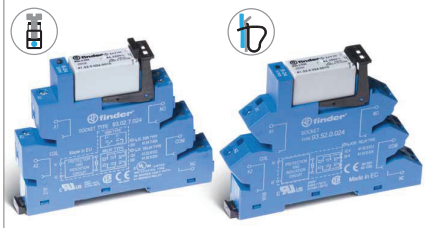
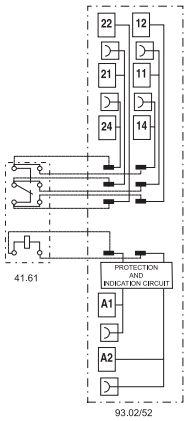
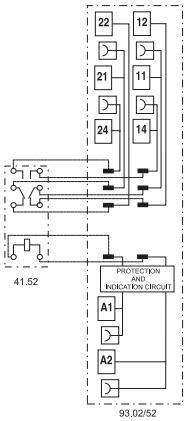
Ideal interface for PLC and electronic systems

- 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

B

38.01/52
Screw terminal

38.11/62
Screwless terminal

38.01/38.11	38.52/38.62
	
• Screw terminal and screwless terminal • 1 pole electromechanical relay • 35 mm rail (EN 60715) mounting	• Screw terminal and screwless terminal • 2 pole electromechanical relay • 35 mm rail (EN 60715) mounting
	
* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).	

For outline drawing see page 12

Contact specification			
Contact configuration		1 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16*/30	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	4,000	2,000
Rated load AC15 (230 V AC)	VA	750	400
Single phase motor rating (230 V AC)	kW	0.5	0.3
Breaking capacity DC1: 30/110/220 V	A	16/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC/DC	24 - 60 - (110...125) - (220...240)	24 - 60 - (110...125) - (220...240)
	V AC	230...240	230...240
	V DC	12 - 24 - 60	12 - 24 - 60
Rated power AC/DC	VA (50 Hz)/W	See page 9	See page 9
Operating range	AC/DC	0.8...1.1	0.8...1.1
	DC	(0.8...1.2)U_N	(0.8...1.2)U_N
Holding voltage	AC/DC	0.6 / 0.6 U_N	0.6 / 0.6 U_N
Must drop-out voltage	AC/DC	0.1 / 0.05 U_N	0.1 / 0.05 U_N
Technical data			
Mechanical life AC/DC	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$50 \cdot 10^3$	$60 \cdot 10^3$
Operate/release time	ms	8 / 10	8 / 10
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 ($U_N \leq 60$ V/>60V)	°C	–40...+70 / –40...+55	–40...+70 / –40...+55
Protection category		IP 20	IP 20
Approvals relay (according to type)		CE SP EAC PG RINA cULus	

B

Features

Single output - solid state relay interface modules, 14 mm wide.

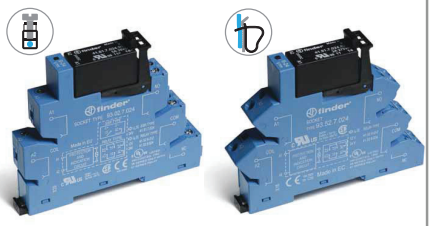
Ideal interface for PLC and electronic systems

- DC input versions
- Supplied with integral coil indication and protection circuit
- Silent, high switching speed and long electrical life
- Instant ejection of relay using plastic retaining clip
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

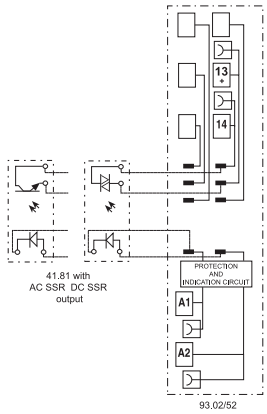
38.31
Screw terminal

38.41
Screwless terminal

38.31/38.41



- Screw terminal and screwless terminal
- AC or DC output switching
- SSR relay - DC input voltage
- 35 mm rail (EN 60715) mounting



For outline drawing see page 12

Output specification			
Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current (10 ms)	A	5/40	3/40
Rated voltage/Maximum blocking voltage	V	(24/35)DC	(240/—)AC
Switching voltage range	V	(1.5...24)DC	(12...275)AC
Repetitive peak off-state voltage	V_{pk}	—	600
Minimum switching current	mA	1	50
Max. "OFF-state" leakage current	mA	0.01	1
Max. "ON-state" voltage drop	V	0.3	1.1
Input specification			
Nominal voltage (U_N)	V AC/DC	24	
	V DC	12 - 24	
Operating range	V DC	See page 10	
Control current	mA	See page 10	
Release voltage	V DC	See page 10	
Technical data			
Operate/release time: ON/OFF (DC input)	ms	0.05/0.25	12/12
Dielectric strength between input/output	V AC	2,500	
Ambient temperature range	°C	–20...+55	
Environmental protection		IP20	
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.

Series

Type
0 = Electromechanical 16 A relay, with screw terminal
1 = Electromechanical 16 A relay, with screwless terminal
2 = Timer multifunction (AI, DI, GI, SW), with screw terminal
5 = Electromechanical relay, with screw terminal
6 = Electromechanical relay, with screwless terminal

No. of poles
1 = 1 pole, 6 or 16 A
2 = 2 pole, 8 A

Coil version
0 = AC (50/60 Hz)/ DC
3 = Leakage current suppression for (110...125)V AC/DC - (230...240)V AC
7 = Sensitive DC, (6, 12, 24, 48, 60)V only
8 = AC (50/60 Hz)

Coil voltage
See coil specifications

A: Contact material
0 = AgNi Standard
4 = $AgSnO_2$
5 = AgNi + Au

B: Contact circuit
0 = CO (nPDT)

C: Options
5 = Standard DC
6 = Standard AC or AC/DC

D: Special versions
0 = Standard

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

Type	Coil version	A	B	C	D
38.01/11	7	0 - 4	0	5	0
38.01/11	0 - 8	0 - 4	0	6	0
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 - 5	0	5	0
38.52/62	0 - 8	0 - 5	0	6	0
38.21	0	0	0	6	0

B

Ordering information

Solid state relay - Single output - 6.2 & 14 mm wide

Example: 38 series screw terminal SSR relay interface module, 6.2 mm wide, 2 A output, 24 V DC input.

3 8 . 8 1 . 7 . 0 2 4 . 9 0 2 4

Series

Type
21 = Timer SSR 6.2mm wide, with screw terminal
31 = SSR 14mm wide, with screw terminal
41 = SSR 14mm wide, with screwless terminal
81 = SSR 6.2mm wide, with screw terminal
91 = SSR 6.2mm wide, with screwless terminal

Input version
0 = AC/DC
3 = Leakage current suppression for (110...125)V AC/DC and (230...240)V AC SSR only
7 = DC, (6, 24, 60)V SSR only

Input voltage
See input specifications

Output version
9024 = 2 A - 24 V DC (38.21, 38.81 & 38.91)
9024 = 5 A - 24 V DC (38.31 & 38.41)
7048 = 0.1 A - 48 V DC (38.81 & 38.91)
8240 = 2 A - 240 V AC (38.21, 38.81 & 38.91)
8240 = 3 A - 240 V AC (38.31 & 38.41)

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

Type	Input version	Output version
38.81/91	7	9024 - 7048 - 8240
38.81/91	0 - 3	9024 - 7048 - 8240
38.31/41	0 - 7	9024 - 8240
38.21	0	9024 - 8240

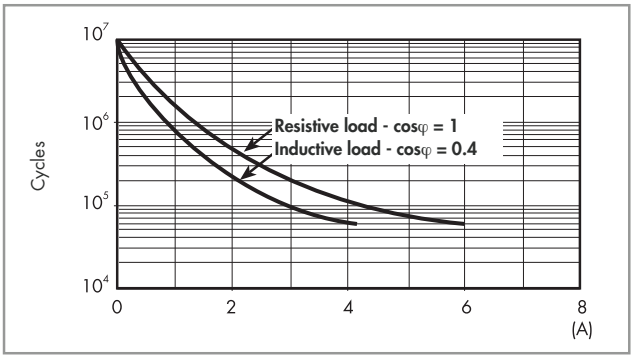
B

Technical data - 1 & 2 Pole Electromechanical Relays

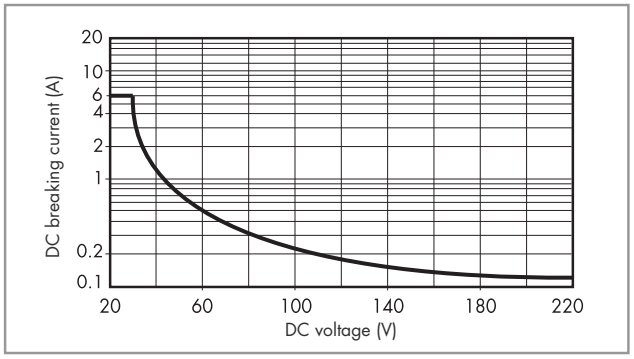
Insulation						
Insulation according to EN 61810-1	insulation rated voltage	V	250		400	
	rated impulse withstand voltage	kV	4		4	
	pollution degree		3		2	
	overvoltage category		III		III	
Insulation between coil and contacts (1.2/50 µs)		kV	6 (8 mm)			
Dielectric strength between open contacts		V AC	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 µs) on A1 - A2 (differential mode)			EN 61000-4-5		level 3 (2 kV)	
Other data			**1 Pole 6 A**		**1 Pole 16 A - 2 Pole 8 A**	
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)		0.5 (24 V) - 0.9 (240 V)	
	with rated current	W	0.5 (12 V) - 1.5 (240 V)		1.3 (24 V) - 1.7 (240 V)	
Terminals			**38.21 / 38.51**		**38.61**	
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
			38.01 / 38.52		**38.11 / 38.62**	
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

Contact specification - 1 & 2 Pole Electromagnetic Relays

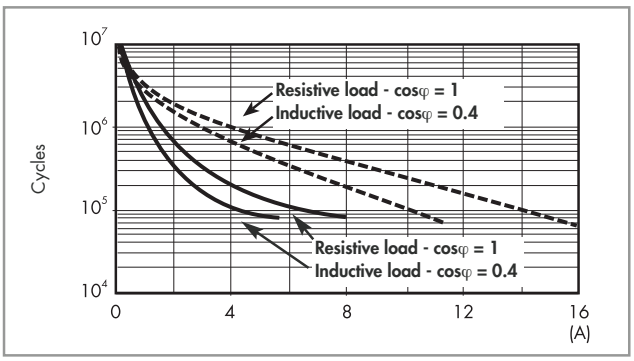
F 38 - Electrical life (AC) v contact current, 1 Pole 6 A



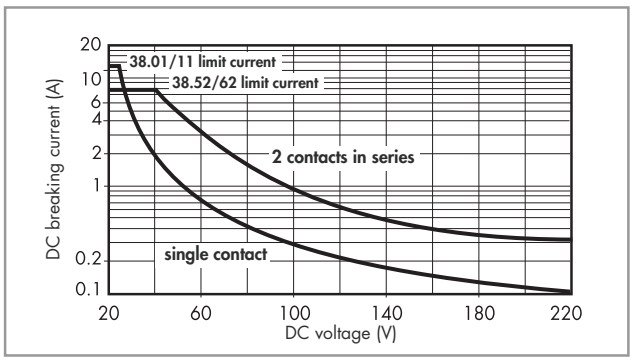
H 38 - Maximum DC1 breaking capacity, 1 Pole 6 A



F 38 - Electrical life (AC) v contact current, 1 Pole 16 A and 2 Pole 8 A



H 38 - Maximum DC1 breaking capacity, 1 Pole 16 A and 2 Pole 8 A



——— : 2 Pole 8 A
--------- : 1 Pole 16 A

- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ $60 \cdot 10^3$ (1 Pole) or ≥ $80 \cdot 10^3$ (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.

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Coil specifications - 1 Pole 6 A Electromechnical Relay

Coil data sensitive DC, 1 Pole

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	W
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	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	VA/W
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	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	VA/W
(230...240) AC	**8**.240	184	264	3	0.7/0.3

Coil data, leakage current suppression types, 1 Pole

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	VA/W
(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 - 1 Pole 16 A and 2 Pole 8 A Electromechanical Relay

Coil data sensitive DC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	W
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, 1 Pole 16 A and 2 Pole 8 A

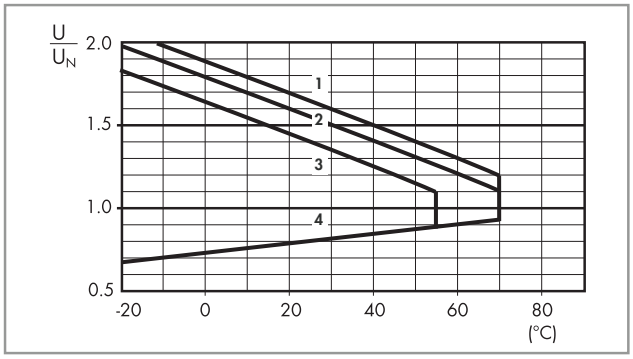
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	VA/W
24	**0**.024	19.2	26.4	20	0.5/0.5
60	**0**.060	48	66	7.1	0.5/0.5
110...125	**0**.125	88	138	4.6	0.6/0.6
220...240	**0**.240	184	264	3.8	0.9/0.9

Coil data AC, 1 Pole 16 A and 2 Pole 8 A

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N	Power consumption P at U_N
V		V	V	mA	VA/W
230...240	**8**.230	184	264	5.3	1.2/0.6

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 ≤ 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

B

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 U_{min}	Operating range U_{max}	Release voltage U	Rated coil consumption I at U_N	Power consumption P
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 U_{min}	Operating range U_{max}	Release voltage U	Rated coil consumption I at U_N	Power consumption P
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 U_{min}	Operating range U_{max}	Release voltage U	Rated coil consumption I at U_N	Power consumption P at U_N
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 U_{min}	Operating range U_{max}	Release voltage U	Rated coil consumption I at U_N	Power consumption P
V		V	V	V	mA	W
12	**7**.012	9.6	18	5	9	0.2
24	**7**.024	16.8	30	5	12	0.3

Input data AC/DC

Nominal voltage U_N	Supply code	Operating range U_{min}	Operating range U_{max}	Release voltage U	Rated coil consumption I at U_N	Power consumption P
V		V	V	V	mA	W
24	**0**.024	16.8	30	9	16.5	0.3

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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 ÷ 1,000 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	0.1
	with rated current	W	0.6	0.5
Terminals			**38.21**	
Wire strip length		mm	10	
Screw torque		Nm	0.5	
Max. wire size			solid cable	stranded cable
		mm²	1x2.5 / 2x1.5	1x2.5 / 2x1.5
		AWG	1x14 / 2x16	1x14 / 2x16

Times scales

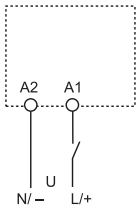
(0.1...3)s (3...60)s (1...20)min (0.3...6)h

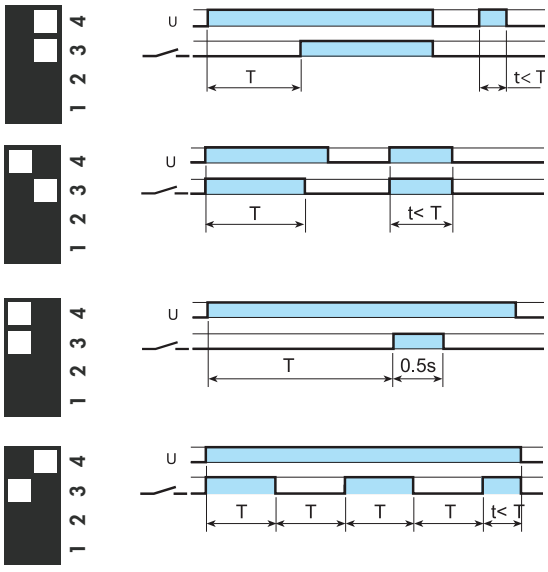
Functions

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

Wiring diagram

U = Supply voltage — = Output contact





(AI) On-delay.
Apply power to timer.
Output contacts transfer after preset time has elapsed.
Reset occurs when power is removed.

(DI) Interval.
Apply power to timer.
Output contacts transfer immediately.
After the preset time has elapsed, contacts reset.

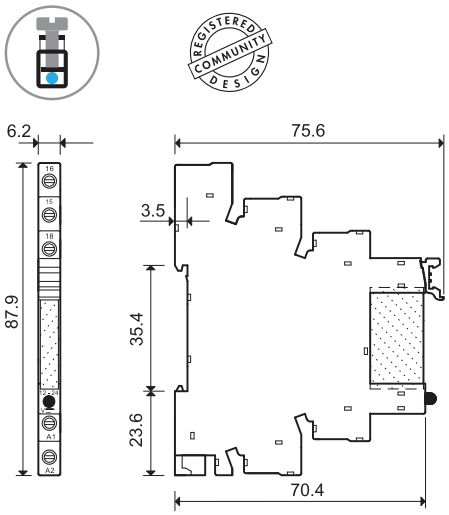
(GI) Pulse delayed.
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.

(SW) Symmetrical flasher (starting pulse on).
Apply power to timer.
Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied.
The ratio is 1:1 (time on = time off).

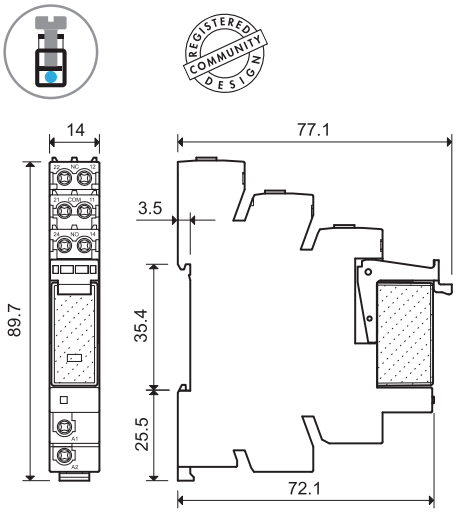
B

Outline drawings

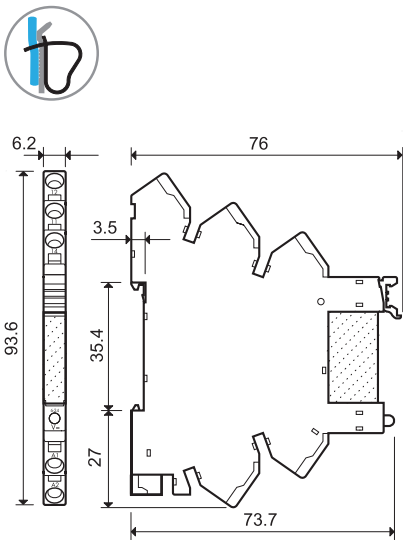
38.21
38.51 / 38.51.3
38.81 / 38.81.3
Screw terminal



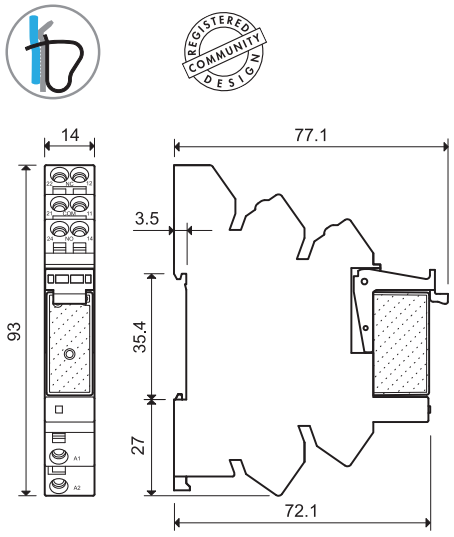
38.01
38.31
38.52
Screw terminal



38.61 / 38.61.3
38.91 / 38.91.3
Screwless terminal



38.11
38.41
38.62
Screwless terminal



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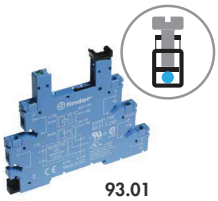
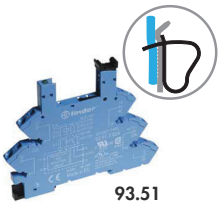
Electromechanical Relay & Socket Combinations


93.01

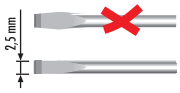

93.51


93.02


93.52

Approvals (according to type):

Certain relay/socket combinations



Screw terminal - 1 Pole relay 6 A

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 6 A

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 - 1 Pole relay 16 A

Interface Module Code	Coil voltage	Relay	Socket
38.01.7.012.0050	12 V DC	41.61.9.012.0010	93.02.7.024
38.01.7.024.0050	24 V DC	41.61.9.024.0010	93.02.7.024
38.01.7.060.0050	60 V DC	41.61.9.060.0010	93.02.7.060
38.01.0.024.0060	24 V AC/DC	41.61.9.024.0010	93.02.0.024
38.01.0.060.0060	60 V AC/DC	41.61.9.060.0010	93.02.0.060
38.01.0.125.0060	125 V AC/DC	41.61.9.110.0010	93.02.0.125
38.01.0.240.0060	240 V AC/DC	41.61.9.110.0010	93.02.0.240
38.01.8.230.0060	230 V AC	41.61.9.110.0010	93.02.8.230

Screwless terminal - 1 Pole relay 16 A

Interface Module Code	Coil voltage	Relay	Socket
38.11.7.012.0050	12 V DC	41.61.9.012.0010	93.52.7.024
38.11.7.024.0050	24 V DC	41.61.9.024.0010	93.52.7.024
38.11.7.060.0050	60 V DC	41.61.9.060.0010	93.52.7.060
38.11.0.024.0060	24 V AC/DC	41.61.9.024.0010	93.52.0.024
38.11.0.060.0060	60 V AC/DC	41.61.9.060.0010	93.52.0.060
38.11.0.125.0060	125 V AC/DC	41.61.9.110.0010	93.52.0.125
38.11.0.240.0060	240 V AC/DC	41.61.9.110.0010	93.52.0.240
38.11.8.230.0060	230 V AC	41.61.9.110.0010	93.52.8.230

Screw terminal - 2 Pole relay 8 A

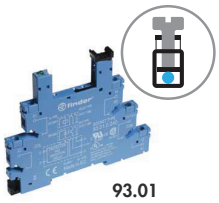
Interface Module Code	Coil voltage	Relay	Socket
38.52.0.024.0060	24 V AC/DC	41.52.9.024.0010	93.02.0.024
38.52.0.060.0060	60 V AC/DC	41.52.9.060.0010	93.02.0.060
38.52.0.125.0060	(110...125)V AC/DC	41.52.9.110.0010	93.02.0.125
38.52.0.240.0060	(220...240)V AC/DC	41.52.9.110.0010	93.02.0.240
38.52.7.012.0050	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
38.52.8.230.0060	(230...240)V AC	41.52.9.110.0010	93.02.8.230

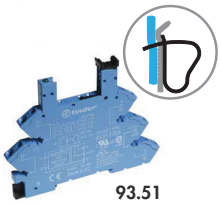
Screwless terminal - 2 Pole relay 8 A

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
38.62.8.230.0060	(230...240)V AC	41.52.9.110.0010	93.52.8.230

B

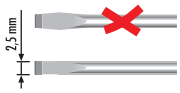
Solid State Relay & Socket Combinations - 6.2 mm wide


93.01


93.51

Approvals (according to type):

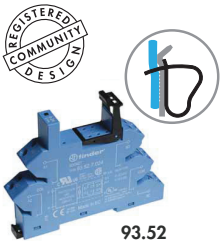
Certain relay/socket combinations



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

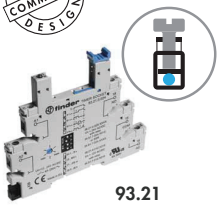
Solid State Relay & Socket Combinations - 14 mm wide


93.52

Approvals (according to type):

Screw terminal			
Interface Module Code	**Input voltage**	**Relay**	**Socket**
38.31.0.024.xxxx	24 V AC/DC	41.81.7.024.xxxx	93.02.0.024
38.31.7.012.xxxx	12 V DC	41.81.7.012.xxxx	93.02.7.024
38.31.7.024.xxxx	24 V DC	41.81.7.024.xxxx	93.02.7.024
Screwless terminal			
Interface Module Code	**Input voltage**	**Relay**	**Socket**
38.41.0.024.xxxx	24 V AC/DC	41.81.7.024.xxxx	93.52.0.024
38.41.7.012.xxxx	12 V DC	41.81.7.012.xxxx	93.52.7.024
38.41.7.024.xxxx	24 V DC	41.81.7.024.xxxx	93.52.7.024

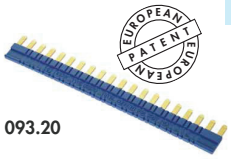
SSR / EMR & Timer Socket Combinations


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.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.21.0.024

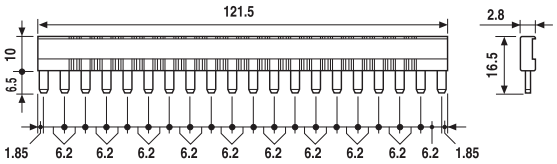
Accessories



093.20

Approvals (according to type):

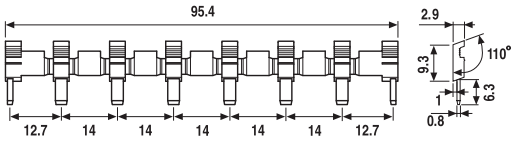
20-way jumper link for 38.21/51/61/81/91	093.20 (blue)	093.20.0 (black)	093.20.1 (red)
Rated values	36 A - 250 V		



093.08

Approvals (according to type):

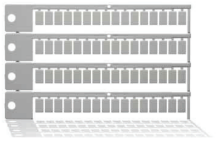
8-way jumper link for 38.01/11/31/41/52/62	093.08 (blue)	093.08.0 (black)	093.08.1 (red)
Rated values	10 A - 250 V		



093.01

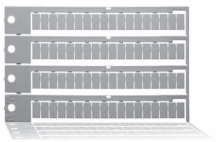
Plastic separator	093.01

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 38.21/51/61/81/91, plastic, 64 tags, 6x10 mm	093.64

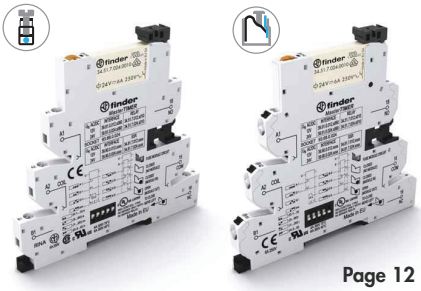
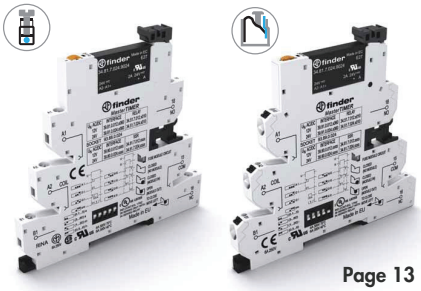


060.72

Sheet of marker tags for 38.01/11/31/41/52/62, plastic, 72 tags, 6x12 mm	060.72

B

B

Common features • Space saving 6.2 mm wide • Connections for 16-way jumper link • Integral coil indication and protection circuit • Secure retention and easy ejection by plastic clip • Dual screw head (blade+cross) terminals and Push-in terminals versions • 35 mm rail mounting (EN 60715)	**EMR** **Electromechanical Relays** • **1 CO 6 A 250 V AC** • High switching capability	**SSR** **Solid State Relays** • 1 solid state output (options **0.1 A 48 V DC, 2 A 24 V DC, 2 A 240 V AC**) • Silent, high speed switching, long electrical life
Master**BASIC • For general use in any type of system • **EMR: 6 to 24 and 125 V AC/DC, 230 V AC upply** • **SSR: 6 to 24 V DC, 125 V AC/DC, 230 V AC supply** • Screw terminal and Push-in terminal	**39.11/39.01**  Page 4	**39.10/39.00**  Page 5
Master**PLUS • Accepts the output fuse module, for the easy and space efficient protection of output circuits • **EMR: 6 to 125 V AC/DC, 125 and 220 V DC, 230 V AC and 24...240 V AC/DC supply** • **SSR: 24 - 125 V AC/DC, 6 to 220 V DC, 230 V AC and 24...240 V AC/DC supply** • **Special 125 V AC/DC and 230 V AC leakage current suppression types (39.31.3, 39.61.3 EMR and 39.30.3, 39.60.3 SSR)** • Screw terminal and Push-in terminal	**39.31 - 39.31.3/39.61 - 39.61.3**  Page 6	**39.30 - 39.30.3/39.60 - 39.60.3**  Page 7
Master**INPUT • Jumper link option for the quick and easy distribution of supply voltage to proximity switches and similar input devices • **EMR: 6 to 24 V and 125 V AC/DC, 230 V AC supply** • **SSR: 6 - 24 V DC, 24 - 125 V AC/DC, 230 V AC supply** • Screw terminal and Push-in terminal	**39.41/39.71**  Page 8	**39.40/39.70**  Page 9
Master**OUTPUT • Jumper link option for the quick and easy distribution of supply voltage to output side and its connection to electromagnetic valves and similar output devices • **EMR: 6 to 24 V and 125 V AC/DC, 230 V AC supply** • **SSR: 6 to 24 V DC, 125 V AC/DC, 230 V AC supply** • Screw terminal and Push-in terminal	**39.21/39.51**  Page 10	**39.20/39.50**  Page 11
Master**TIMER • Timer adjustment via top mounted rotary knob accessible after assembly • Control signal terminal • DIP-switch for selection of 4 time scales and 8 functions • Output with fuse module option • **EMR and SSR: 12 to 24 V AC/DC supply** • Screw terminal and Push-in terminal	**39.81/ 39.91**  Page 12	**39.80/39.90**  Page 13

Typical Applications

*Master**BASIC***

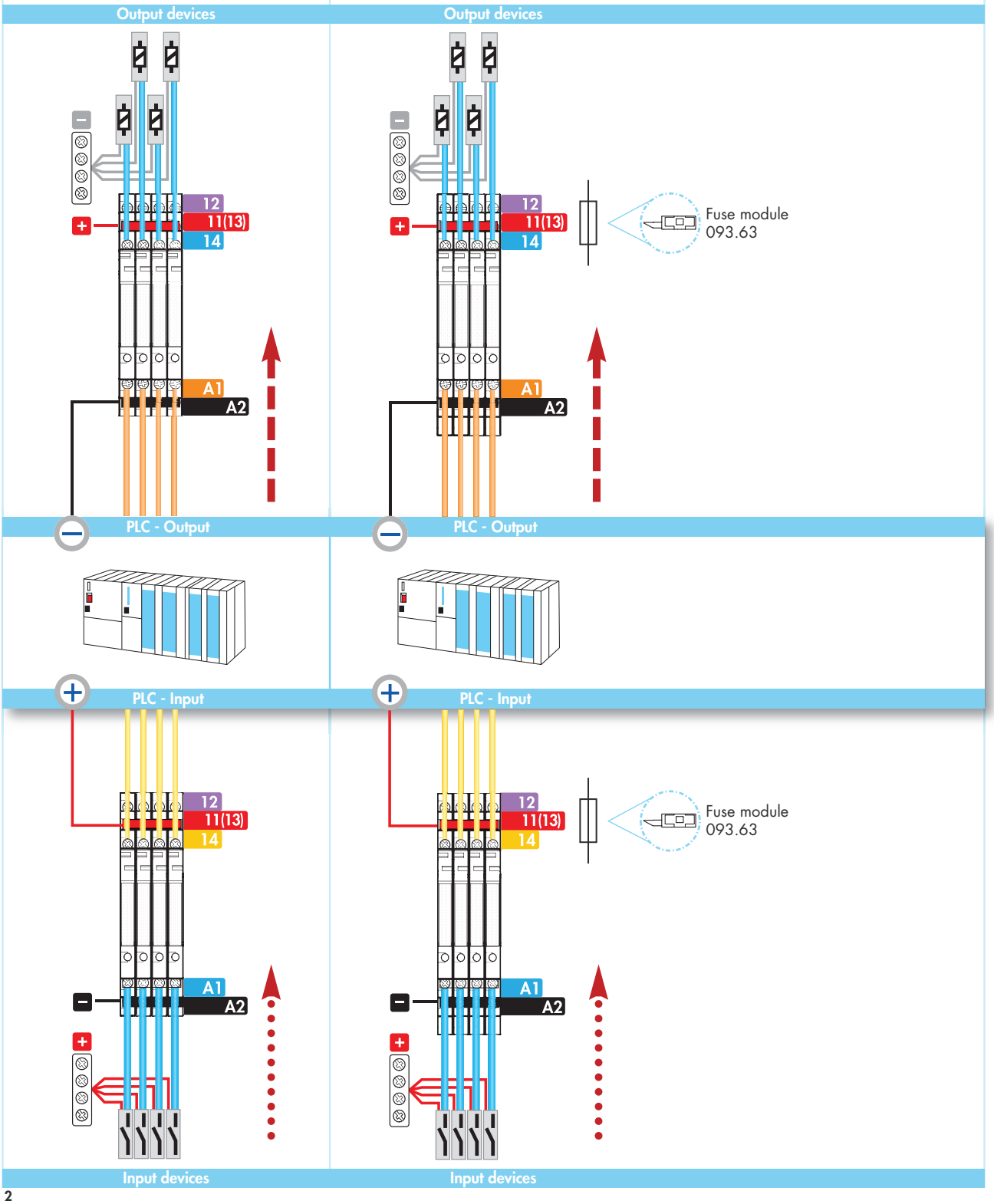
39.11 - 39.10 - 39.01 - 39.00

- For general interface use in any type of system and application.
- Can be used for input interface applications between auxiliary contacts, sensors etc. and controllers, PLCs' or motors. Or for output interface between PLC's controllers and relays, solenoids etc.

*Master**PLUS***

39.31 - 39.30 - 39.31.3 - 39.30.3 - 39.61 - 39.60 - 39.61.3 - 39.60.3

- This special version provides extra protection for the output circuit thanks to the replaceable fuse module.
- For general interface use in any type of system and application.
- Can be used for input interface applications between auxiliary contacts, sensors etc. and controllers, PLCs' or motors. Or for output interface between PLC's controllers and relays, solenoids etc.



B

*Master**INPUT***
39.41 - 39.40 - 39.71 - 39.70

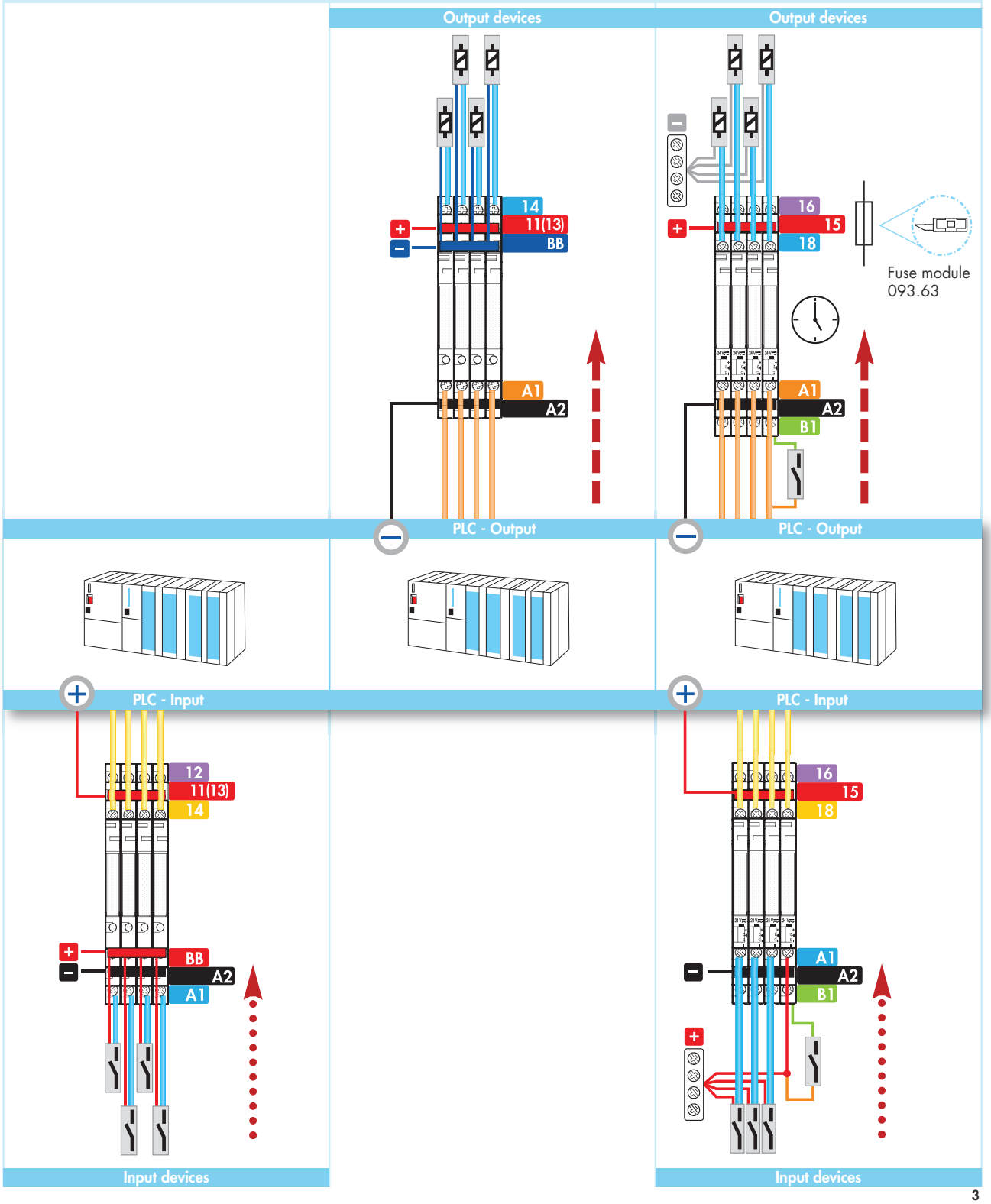
- These models allow the full termination of input device to the interface without the need for additional terminals - saving component cost, time and panel space.
- Quick and easy distribution of supply voltage through the jumper link on the Bus-Bar (BB) connection.
- Ideal for interface applications between the auxiliary contacts, sensors, limit switches and Controllers or PLC's.

*Master**OUTPUT***
39.21 - 39.20 - 39.51 - 39.50

- These models allow the full termination of output device to the interface without the need for additional terminals - saving component cost, time and panel space.
- Quick and easy distribution of supply voltage through the jumper link on the Bus-Bar (BB) connection.
- Ideal for interface applications between the PLC's or Controllers and output devices such as electomagnetic valves or motors etc..

*Master**TIMER***
39.81 - 39.80 - 39.91 - 39.90

- Slim and Multifunction Timed Interface modules.



*Master**BASIC*** - EMR

Features

1 Pole interface module, 6.2 mm wide, ideal for PLC and electronic systems

B

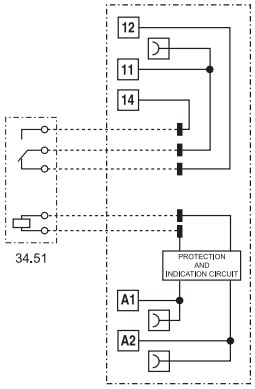
- Common connection possible with optional jumper links (terminals A1, A2 and 11)
- UL Listing (certain relay/socket combinations)

NEW **39.11/39.01**

- 6 A electromechanical relay
- 6 to 24 and 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.11
Screw terminal

39.01
Push-in terminal



93.60 / 93.61

For outline drawing see page 20, 21

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi
Supply specification		
Nominal voltage (U_N)	V AC/DC	6 - 12 - 24 - 110...125
	V AC (50/60 Hz)	220...240
Rated power	VA (50 Hz)/W	See page 16
Operating range		$(0.8...1.1)U_N$
Holding voltage		0.6 U_N
Must drop-out voltage		0.1 U_N
Technical data		
Mechanical life AC/DC	cycles	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$60 \cdot 10^3$
Operate/release time	ms	5/6
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	–40...+70
Protection category		IP 20
Approvals relay (according to type)		CE EAC RINA cULus VDE

B

*Master***BASIC** - SSR

Features

1 Pole interface module, 6.2 mm wide, ideal for PLC and electronic systems

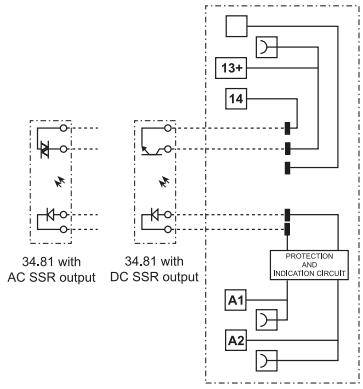
- Common connection possible with optional jumper links (terminals A1, A2 and 13+)
- UL Listing (certain relay/socket combinations)

NEW **39.10/39.00**

- 0.1 or 2 A solid state relay
- 6 to 24 V DC, 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.10
Screw terminal

39.00
Push-in terminal



93.60 / 93.61

For outline drawing see page 20, 21

Output specification (SSR)		**39.x0.x.xxx.9024**	**39.x0.x.xxx.7048**	**39.x0.x.xxx.8240**
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...275) AC
Repetitive peak off-state voltage	V_{pk}	—	—	600
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U_N)	V AC/DC	110...125		
	V AC (50/60 Hz)	220...240		
	V DC	6 - 12 - 24		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U_N		
Must drop-out voltage		0.1 U_N		
Technical data				
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500		
Ambient temperature range	°C	–20...+55		
Protection category		IP20		
Approvals relay (according to type)		CE EAC cULus		

39 Series - Relay interface modules 0.1 - 2 - 6 A

*Master**PLUS*** - EMR

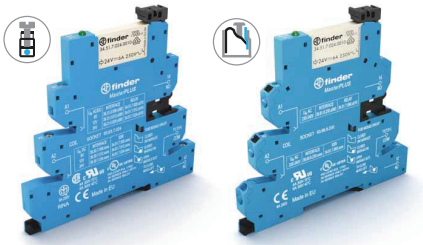
Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

B

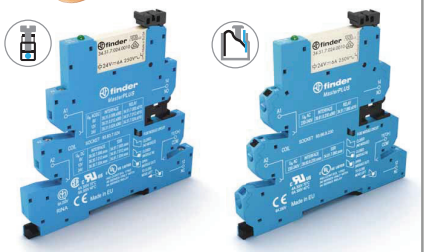
- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 24
- Common connection possible with optional jumper links (terminals A1, A2 and 11)
- UL Listing (certain relay/socket combinations)

NEW **39.31/39.61**



- 6 A electromechanical relay
- 6 to 125 V AC/DC, 125 and 220 V DC, 230 V AC, 24...240 V AC/DC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

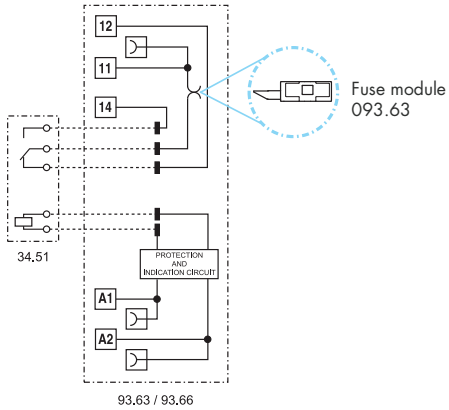
NEW **39.31.3/39.61.3**



- 6 A electromechanical relay
- Leakage current suppression version, 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal

39.31 / 39.31.3
Screw terminal

39.61 / 39.61.3
Push-in terminal



For outline drawing see page 20, 21

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	6/0.2/0.12	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)	500 (12/10)
Standard contact material		AgNi	AgNi
Supply specification			
Nominal voltage (U_N)	V AC/DC	6 - 12 - 24 - 60 - 110...125 - 24...240	110...125
	V AC (50/60 Hz)	220...240	220...240
	V DC	110...125 - 220	–
Rated power	VA (50 Hz)/W	See page 16	See page 16
Operating range		(0.8...1.1) U_N	(0.8...1.1) U_N
Holding voltage		0.6 U_N	0.6 U_N
Must drop-out voltage		0.1 U_N	0.3 U_N
Technical data			
Mechanical life AC/DC	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$60 \cdot 10^3$	$60 \cdot 10^3$
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	°C	–40...+70 (+55 for 220 V DC)	–40...+70
Protection category		IP20	IP20
Approvals relay (according to type)			

B

*Master**PLUS*** - SSR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 24
- Common connection possible with optional jumper links (terminals A1, A2 and 13+)
- UL Listing (certain relay/socket combinations)

NEW **39.30/39.60**

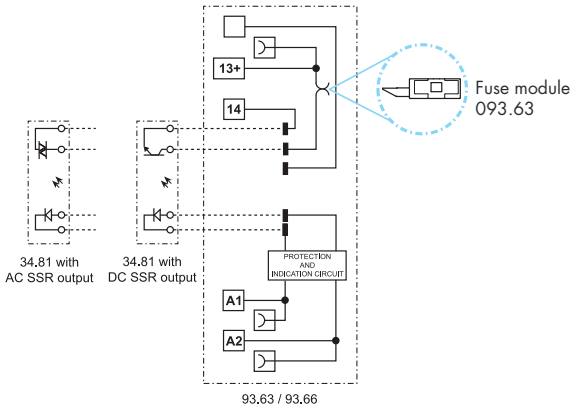
- 0.1 or 2 A solid state relay
- 24 - 125 V AC/DC, 6 to 220 V DC and 230 V AC, 24...240 V AC/DC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

NEW **39.30.3/39.60.3**

- 0.1 or 2 A solid state relay
- Leakage current suppression version, 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal

39.30 / 39.30.3
Screw terminal

39.60 / 39.60.3
Push-in terminal



For outline drawing see page 20, 21

Output specification (SSR)		**39.x0.x.xxx.9024**	**39.x0.x.xxx.7048**	**39.x0.x.xxx.8240**	**39.x0.3.xxx.9024**	**39.x0.3.xxx.7048**	**39.x0.3.xxx.8240**
Contact configuration		1 NO (SPST-NO)			1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24) DC	(1.5...48)DC	(12...275) AC	(1.5...24) DC	(1.5...48)DC	(12...275) AC
Repetitive peak off-state voltage	V_{pk}	—	—	600	—	—	600
Minimum switching current	mA	1	0.05	22	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6	0.12	1	1.6
Supply specification							
Nominal voltage (U_N)	V AC/DC	24 - 110...125 - 24...240			110...125		
	V AC (50/60 Hz)	220...240			220...240		
	V DC	6 - 12 - 24 - 60 - 110...125 - 220			—		
Rated power	VA (50 Hz)/W	See page 17			See page 17		
Operating range		(0.8...1.1) U_N			(0.8...1.1) U_N		
Must drop-out voltage		0.1 U_N			0.3 U_N		
Technical data							
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500			2,500		
Ambient temperature range	°C	–20...+55			–20...+55		
Protection category		IP20			IP20		
Approvals relay (according to type)		CE EAC cULus					

*Master**INPUT*** - EMR

Features

1 Pole interface module, 6.2 mm wide, ideal for PLC and electronic systems

B

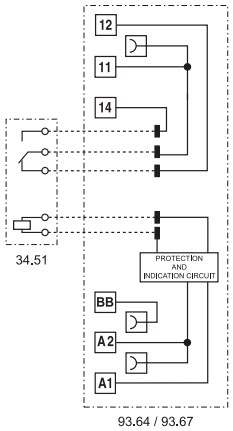
- Jumper link option for the quick and easy distribution of supply voltage to proximity switches and similar input devices (Bus-bar connection BB)
- Gold plated output contact as standard, for better compatibility with low energy PLC inputs
- UL Listing (certain relay/socket combinations)

NEW **39.41/39.71**

- 6 A electromechanical relay
- 6 - 12 - 24 - 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.41
Screw terminal

39.71
Push-in terminal



93.64 / 93.67

For outline drawing see page 20, 21

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	50 (5/2)
Standard contact material		AgNi + Au
Supply specification		
Nominal voltage (U_N)	V AC/DC	6 - 12 - 24 - 110...125
	V AC (50/60 Hz)	220...240
Rated power	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1) U_N
Holding voltage		0.6 U_N
Must drop-out voltage		0.1 U_N
Technical data		
Mechanical life AC/DC	cycles	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$60 \cdot 10^3$
Operate/release time	ms	5/6
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	–40...+70
Protection category		IP20
Approvals relay (according to type)		CE cULus RINA

B

*Master**INPUT*** - SSR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

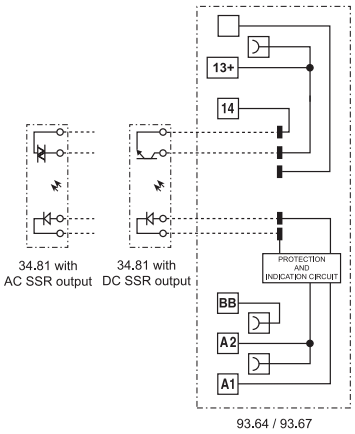
- Jumper link option for the quick and easy distribution of supply voltage to proximity switches and similar input devices (Bus-bar connection BB)
- UL Listing (certain relay/socket combinations)

NEW **39.40/39.70**

- 0.1 or 2 A solid state relay
- 6 - 12 - 24 V DC, 24 - 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.40
Screw terminal

39.70
Push-in terminal



93.64 / 93.67

For outline drawing see page 20, 21

Output specification (SSR)		**39.x0.x.xxx.9024**	**39.x0.x.xxx.7048**	**39.x0.x.xxx.8240**
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...275) AC
Repetitive peak off-state voltage	V_{pk}	—	—	600
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U_N)	V AC/DC	24 - 110...125		
	V AC (50/60 Hz)	220...240		
	V DC	6 - 12 - 24		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U_N		
Must drop-out voltage		0.1 U_N		
Technical data				
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500		
Ambient temperature range	°C	–20...+55		
Protection category		IP20		
Approvals relay (according to type)		CE EAC cULus		

*Master**OUTPUT*** - EMR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

B

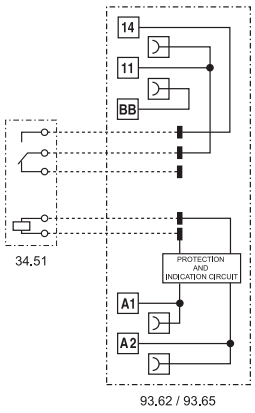
- Jumper link option for the quick and easy distribution of supply voltage to output side (Bus-bar connection BB) and its connection to electromagnetic valves and similar output devices
- UL Listing (certain relay/socket combinations)

NEW **39.21/39.51**

- 6 A electromechanical relay
- 6 - 12 - 24 - 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.21
Screw terminal

39.51
Push-in terminal



For outline drawing see page 20, 21

Contact specification		
Contact configuration		1 NO (SPST-NO)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi
Supply specification		
Nominal voltage (U_N)	V AC/DC	6 - 12 - 24 - 110...125
	V AC (50/60 Hz)	220...240
Rated power	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1) U_N
Holding voltage		0.6 U_N
Must drop-out voltage		0.1 U_N
Technical data		
Mechanical life AC/DC	cycles	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$60 \cdot 10^3$
Operate/release time	ms	5/6
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	–40...+70
Protection category		IP20
Approvals relay (according to type)		CE cULus VDE

B

*Master**OUTPUT*** - SSR

Features

1 Pole interface modules, 6.2 mm wide, ideal for PLC and electronic systems

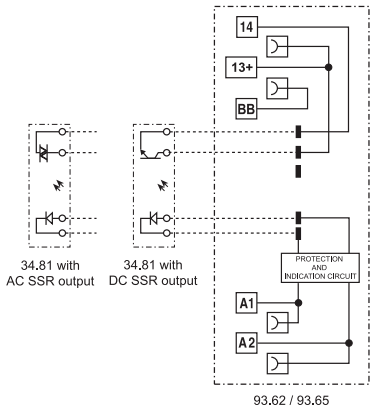
- Jumper link option for the quick and easy distribution of supply voltage to output side (Bus-bar connection BB) and its connection to electromagnetic valves and similar output devices
- UL Listing (certain relay/socket combinations)

NEW **39.20/39.50**

- 0.1 or 2 A solid state relay
- 6 to 24 V DC, 125 V AC/DC and 230 V AC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.20
Screw terminal

39.50
Push-in terminal



For outline drawing see page 20, 21

Output specification (SSR)		**39.x0.x.xxx.9024**	**39.x0.x.xxx.7048**	**39.x0.x.xxx.8240**
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...275) AC
Repetitive peak off-state voltage	V_{pk}	—	—	600
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U_N)	V AC/DC	110...125		
	V AC (50/60 Hz)	220...240		
	V DC	6 - 12 - 24		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U_N		
Must drop-out voltage		0.1 U_N		
Technical data				
Operate/release time	ms	0.2/0.6	0.04/0.11	12/12
Dielectric strength between input/output	V AC	2,500		
Ambient temperature range	°C	–20...+55		
Protection category		IP20		
Approvals relay (according to type)		CE EAC cULus		

B

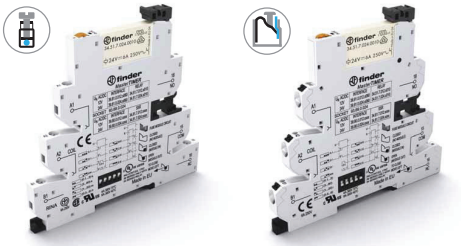
*Master**TIMER*** - EMR

Features

Slim timed interface module, 6.2 mm wide, ideal for space-saving timing solutions in panels

- Timer adjustment via top mounted rotary knob, accessible after assembly
- Control signal terminal
- DIP-switch for selection of 4 time scales and 8 functions
- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 24
- Common connection possible with optional jumper links (terminals A1, A2 and 15)
- UL Listing (certain relay/socket combinations)

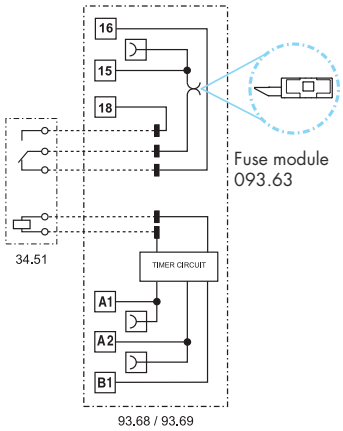
NEW **39.81/39.91**



- 6 A electromechanical relay
- 12 - 24 V AC/DC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.81
Screw terminal

39.91
Push-in terminal



AI: On-delay
DI: Interval
GI: Pulse (0.5 s) delayed
SW: Symmetrical flasher (starting pulse on)
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on
EE: Interval with control signal off

For outline drawing see page 20, 21

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	6/10
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,500
Rated load AC15 (230 V AC)	VA	300
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.2/0.12
Minimum switching load	mW (V/mA)	500 (12/10)
Standard contact material		AgNi
Supply specification		
Nominal voltage (U_N)	V AC/DC	12 - 24
Rated power AC/DC	VA (50 Hz)/W	See page 16
Operating range		(0.8...1.1) U_N
Holding voltage		0.6 U_N
Must drop-out voltage		0.1 U_N
Technical data		
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h
Repeatability	%	± 1
Recovery time	ms	≤ 50
Minimum control impulse	ms	50
Setting accuracy – full range	%	5
Electrical life at rated load AC1	cycles	$60 \cdot 10^3$
Ambient temperature range	°C	–20...+50
Protection category		IP20
Approvals relay (according to type)		CE EAC RINA cULus VDE

B

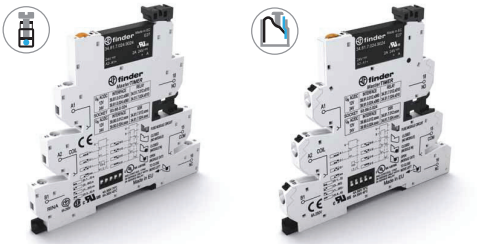
*Master**TIMER*** - SSR

Features

Slim timed interface module, 6.2 mm wide, ideal for space-saving timing solutions in panels

- Timer adjustment via top mounted rotary knob; accessible after assembly
- Start terminal
- DIP-switch for selection of 4 time scales and 8 functions
- Accepts output fuse module **093.63** (for 5 x 20 mm fuses) for quick and easy load protection, see page 24
- Common connection possible with optional jumper links (terminals A1, A2 and 15+)
- UL Listing (certain relay/socket combinations)

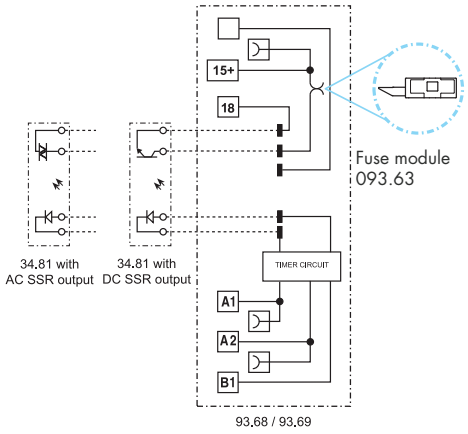
NEW **39.80/39.90**



- 0.1 or 2 A solid state relay
- 12 - 24 V AC/DC supply
- Screw terminal and push-in terminal
- 35 mm rail (EN 60715) mounting

39.80
Screw terminal

39.90
Push-in terminal



AI: On-delay
DI: Interval
GI: Pulse (0.5 s) delayed
SW: Symmetrical flasher (starting pulse on)
BE: Off-delay with control signal
CE: On- and off-delay with control signal
DE: Interval with control signal on
EE: Interval with control signal off

For outline drawing see page 20, 21

Output specification (SSR)		**39.x0.x.xxx.9024**	**39.x0.x.xxx.7048**	**39.x0.x.xxx.8240**
Contact configuration		1 NO (SPST-NO)		
Rated current/Maximum peak current (10 ms)	A	2/20 DC	0.1/0.5 DC	2/40 AC
Rated voltage/Maximum blocking voltage	V	24/33 DC	48/60 DC	240/— AC
Switching voltage range	V	(1.5...24) DC	(1.5...48) DC	(12...275) AC
Repetitive peak off-state voltage	V_{pk}	—	—	600
Minimum switching current	mA	1	0.05	22
Max. "OFF-state" leakage current	mA	0.001	0.001	1.5
Max. "ON-state" voltage drop	V	0.12	1	1.6
Supply specification				
Nominal voltage (U_N)	V AC/DC	12 - 24		
Rated power	VA (50 Hz)/W	See page 17		
Operating range		(0.8...1.1) U_N		
Holding voltage		0.6 U_N		
Must drop-out voltage		0.1 U_N		
Technical data				
Specified time range		(0.1...3)s, (3...60)s, (1...20)min, (0.3...6)h		
Repeatability	%	± 1		
Recovery time	ms	≤ 50		
Minimum control impulse	ms	50		
Setting accuracy – full range	%	5		
Ambient temperature range	°C	–20...+50		
Protection category		IP20		
Approvals relay (according to type)		CE EAC cULus		

B

Ordering information

Example: *Master**PLUS*** 39 series screw terminal interface module, electromechanical relay output, 1 CO (SPDT), 24 V AC/DC coil.

3	9	.	3	1	.	0	.	0	2	4	.	A	B	C	D
												0	0	6	0

Series

Type
1 = *Master**BASIC***, screw terminal
0 = *Master**BASIC***, push-in terminal
3 = *Master**PLUS***, screw terminal, fuse-protectable output
6 = *Master**PLUS***, push-in terminal, fuse-protectable output
4 = *Master**INPUT***, screw terminal
7 = *Master**INPUT***, push-in terminal
2 = *Master**OUTPUT***, screw terminal
5 = *Master**OUTPUT***, push-in terminal
8 = *Master**TIMER*** multifunction, screw terminal, fuse-protectable output
9 = *Master**TIMER*** multifunction, push-in terminal, fuse-protectable output

No. of poles
1 = 1 CO (only EMR, except 39.21/51, 1 NO)
0 = 1 NO (only SSR)

Coil version, EMR / Input version, SSR
0 = AC (50/60 Hz)/DC
3 = Leakage current suppression AC (50/60 Hz)
7 = DC sensitive
8 = AC (50/60 Hz)

Coil voltage, EMR / Input voltage, SSR
See page 16

D: Special Version, EMR
0 = Standard

C: Options, EMR
6 = Standard

B: Contact circuit, EMR
0 = CO (except 39.21/51, 1 NO)

A: Contact material, EMR
0 = AgNi Standard
4 = $AgSnO_2$
5 = AgNi + Au

ABCD: Output version, SSR
7048 = 0.1 A - 48 V DC
8240 = 2 A - 230 V AC
9024 = 2 A - 24 V DC

EMR - Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

Type	Coil version	A	B	C	D
39.11/01	0.006 - 0.012	**0** - 4 - 5	**0**	**6**	**0**
	0.024 - 0.125 - **8.230**				
39.31/61	0.006 - 0.012	**0** - 4 - 5	**0**	**6**	**0**
	0.024 - 0.060				
	0.125 - 0.240 - **8.230**				
	7.125 - 7.220				
	3.125 - 3.230				
39.41/71	0.006 - 0.012	0 - 4 - **5**	**0**	**6**	**0**
	0.024 - 0.125				
	8.230				
39.21/51	0.006 - 0.012	**0** - 4 - 5	**0**	**6**	**0**
	0.024 - 0.125				
	8.230				
39.81/91	0.012 - **0.024**	**0**	**0**	**6**	**0**

SSR - Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold**.

Type	Input version	Output version, ABCD
39.10/00	7.006 - 7.012	7048 - 8240 - **9024**
	7.024 - 0.125 - **8.230**	
39.30/60	7.006 - 7.012	7048 - 8240 - **9024**
	7.024 - 7.060	
	7.125 - 7.220	
	0.024 - 0.125 - 0.240	
	8.230	
	3.125 - 3.230	
39.40/70	7.006 - 7.012	7048 - 8240 - **9024**
	7.024 - 0.024 - 0.125	
	8.230	
39.20/50	7.006 - 7.012	7048 - 8240 - **9024**
	7.024 - 0.125	
	8.230	
39.80/90	0.012 - **0.024**	7048 - 8240 - **9024**

Technical data

Insulation according to EN 61810-1				
Nominal voltage of supply system		V AC	230/400	
Rated insulation voltage		V AC	250	400
Pollution degree			3	2
Insulation between coil and contact set				
Type of Insulation			Reinforced	
Overvoltage category			III	
Rated impulse voltage		kV (1.2/50) µs	6	
Dielectric strength		V AC	4,000	
Insulation between open contacts (EMR)				
Type of disconnection			Micro-disconnection	
Dielectric strength		V AC/kV (1.2/50) µs	1,000/1.5	

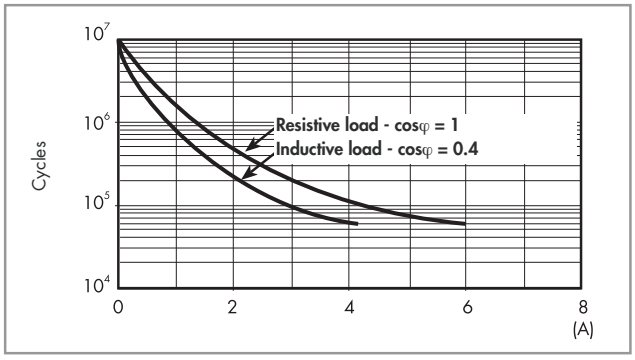
Conducted disturbance immunity		**$U_N \leq 60$ V**	**$U_N = 125$ V**	**$U_N = 230$ V**
Fast transients (burst 5/50 ns, 5 kHz) according to EN 61000-4-4 at supply terminals	kV	4	4	4
Voltage pulses (surge 1.2/50 µs) according to EN 61000-4-5 at supply terminals (differential mode)	kV	0.8	2	4

Other data			
Bounce time (EMR) : NO/NC		ms	1/6
Vibration resistance (EMR,10..55 Hz): NO/NC		g	10/15
Power lost to the environment	without contact current	W	0.2 (24 V) – 0.4 (230 V)
	with rated current	W	0.6 (24 V) – 0.9 (230 V)

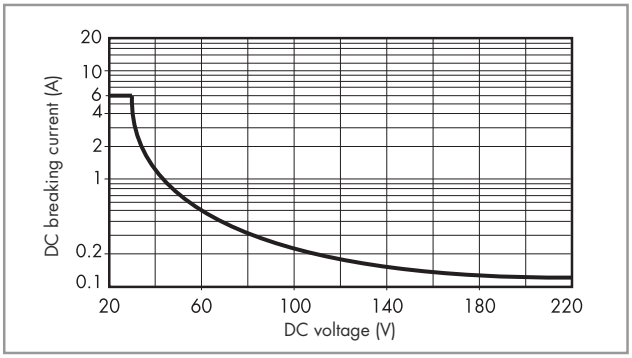
Terminals				
			Screw terminal	**Push-in terminal**
Wire strip length		mm	10	8
Screw torque		Nm	0.5	–
			Solid and stranded cable	**Solid and stranded cable**
Max. wire size		mm^2	1 x 2.5/2 x 1.5	1 x 2.5
		AWG	1 x 14/2 x 16	1 x 14
Min. wire size		mm^2	1 x 0.2	1 x 0.2
		AWG	1 x 24	1 x 24

Contact specification (EMR)

F 39 - Electrical life (AC) v contact current



H 39 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ $60 \cdot 10^3$ 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 - Electromechanical Relay

Coil data DC, type 39.31/61

Nominal Voltage	Coil code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	W
125 (110...125)	**7**.125	88	138	12.5	4.6	0.6
220	**7**.220	176	242	22	3.0	0.6

Coil data AC/DC, type 39.11/21/31/41/01/51/61/71

Nominal Voltage	Coil code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	VA/W
6	**0**.006	4.8	6.6	0.6	35	0.2/0.2
12	**0**.012	9.6	13.2	1.5	15	0.2/0.2
24	**0**.024	19.2	26.4	2.4	11	0.25/0.25
60[1]	**0**.060	48	66	6.0	5.7	0.35/0.35
125 (110...125)	**0**.125	88	138	12.5	5.6	0.7/0.7
240 (24...240)[2]	**0**.240	20.4	264	2.4	19	1.5/0.3

[1] 60 V AC/DC for type 39.31/61 only
[2] 24...240 V AC/DC for type 39.31/61 only

Coil data AC, type 39.11/21/31/41/01/51/61/71

Nominal Voltage	Coil code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	VA/W
230 (230...240)	**8**.230	184	264	23	4.3	1/0.4

Coil data leakage current suppression versions, type 39.31.3/61.3

Nominal Voltage	Coil code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	VA/W
125 (110...125)	**3**.125	88	138	44	8.4	1.1/1
230 (230...240)	**3**.230	184	264	72	5.9	1.4/0.5

The 39 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/DC 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 data AC/DC timer, type 39.81/91

Nominal Voltage	Coil code	Operating range (AC/DC)		Must drop-out voltage	Rated input current at U_N		Rated power at U_N	
U_N		U_{min}	U_{max}	U_r	DC	AC	DC	AC
V		V	V	V	mA	mA	W	VA/W
12	**0**.012	9.6	13.2	1.2	15	23	0.2	0.3/0.2
24	**0**.024	19.2	26.4	2.4	11	19	0.25	0.4/0.3

Input specifications - Solid State Relay

Input data DC, type 39.10/20/30/40/00/50/60/70

Nominal Voltage	Input code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	W
6	**7**.006	4.8	6.6	0.6	7.5	0.2
12	**7**.012	9.6	13.2	1.2	20.7	0.25
24	**7**.024	19.2	26.4	2.4	10.5	0.25
60 (1)	**7**.060	48	66	6.0	6.4	0.4
125 (1) (110...125)	**7**.125	88	138	12.5	4.6	0.6
220 (1)	**7**.220	176	242	22	3.0	0.6

(1) 60 V DC, 125 V DC and 220 V DC for type 39.30/60 only

Input data AC/DC, type 39.10/20/30/40/00/50/60/70

Nominal Voltage	Input code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	VA/W
24 (2)	**0**.024	19.2	26.4	2.4	17.5	0.4/0.3
125 (110...125)	**0**.125	88	138	12.5	5.5	0.7/0.7
240 (24...240)(3)	**0**.240	20.4	264	2.4	17.5	1.5/0.3

(2) 24 V AC/DC for type 39.30/40/60/70 only
(3) 24...240 V AC/DC for type 39.30/60 only

Input data AC, type 39.10/20/30/40/00/50/60/70

Nominal Voltage	Input code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	VA/W
230 (230...240)	**8**.230	184	264	23	4.2	1/0.4

Input data leakage current suppression versions, type 39.30.3/60.3

Nominal Voltage	Input code	Operating range		Must drop-out voltage	Rated input current at U_N	Rated power
U_N		U_{min}	U_{max}	U_r	I_N	at U_N
V		V	V	V	mA	VA/W
125 (110...125)	**3**.125	88	138	44	8.4	1.1/1
230 (230...240)	**3**.230	184	264	72	5.9	1.4/0.5

The 39 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/DC 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 data AC/DC timer, type 39.80/90

Nominal Voltage	Input code	Operating range (AC/DC)		Must drop-out voltage	Rated input current at U_N		Rated power at U_N	
U_N		U_{min}	U_{max}	U_r	DC	AC	DC	AC
V		V	V	V	mA	mA	W	VA/W
12	**0**.012	9.6	13.2	1.2	15	23	0.2	0.3/0.2
24	**0**.024	19.2	26.4	2.4	11	19	0.25	0.4/0.3

B

Timer specifications

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 ÷ 1,000 MHz)	EN 61000-4-3	10 V/m
	(1,400 ÷ 2,700 MHz)	EN 61000-4-3	10 V/m
Fast transients (burst) (5-50 ns, 5 and 100 kHz)	on Supply terminals	EN 61000-4-4	4 kV
	on control signal terminals	EN 61000-4-4	4 kV
Surges (1.2/50 µs) on supply and control signal terminals	common mode	EN 61000-4-5	2 kV
	differential mode	EN 61000-4-5	0.8 kV
Radio-frequency common mode (0.15 ÷ 80 MHz)	on Supply terminals	EN 61000-4-6	10 V
	on control signal terminals	EN 61000-4-6	3 V
Radiated and conducted emission		EN 55022	class B

Other data			
Bounce time (EMR) : NO/NC		ms	1/6
Vibration resistance (EMR,10..55 Hz): NO/NC		g	10/15
Power lost to the environment	without contact current	W	0.3
	with rated current	W	0.8

Terminals			
		Screw terminal	**Push-in terminal**
Wire strip length	mm	10	8
Screw torque	Nm	0.5	–
		Solid and stranded cable	**Solid and stranded cable**
Max. wire size	mm^2	1 x 2.5/2 x 1.5	1 x 2.5
	AWG	1 x 14/2 x 16	1 x 14
Min. wire size	mm^2	1 x 0.2	1 x 0.2
	AWG	1 x 24	1 x 24

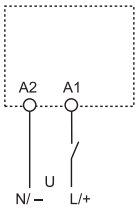
Times scales

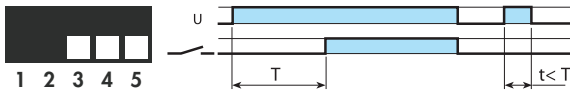
Functions

LED	Supply voltage	NO contact/output
	OFF	Open
	ON	Open
	ON	Open (timing to close in progress)
	ON	Closed

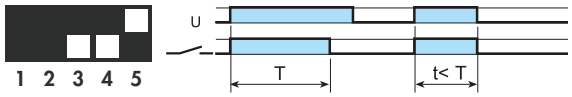
Wiring diagram | **U** = Supply voltage | **S** = Signal switch | = Output contact

Without control signal

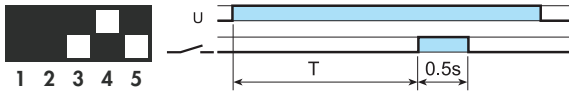




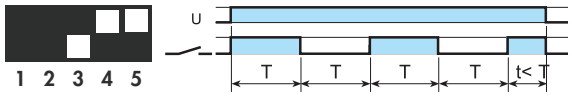
(AI) On-delay
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs when power is removed.



(DI) Interval
Apply power to timer. Output contacts transfer immediately. After the preset time has elapsed, contacts reset.

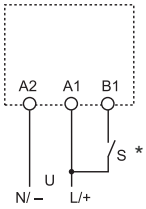


(GI) Pulse (0.5s) delayed
Apply power to timer. Output contacts transfer after preset time has elapsed. Reset occurs after a fixed time of 0.5s.

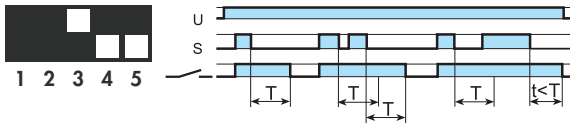


(SW) Symmetrical flasher (starting pulse on)
Apply power to timer. Output contacts transfer immediately and cycle between ON and OFF for as long as power is applied. The ratio is 1:1 (time on = time off).

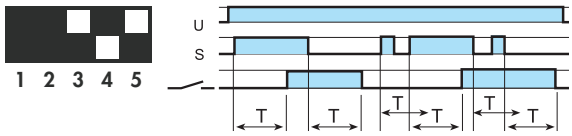
With control signal



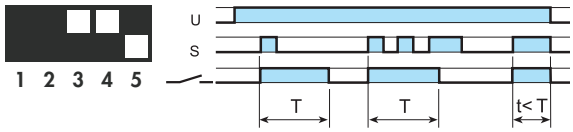
*With DC supply, positive polarity has to be conneted to B1, terminal (according to EN 60204-1).



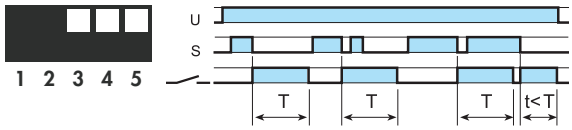
(BE) Off-delay with control signal
Power is permenently applied to the timer. The output contacts transfer immediately on closure of the Signal Switch (S). Opening the Signal Switch initiates the preset delay, after which time the output contacts reset.



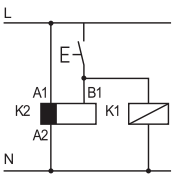
(CE) On- and off-delay with control signal
Power is permenently applied to the timer. Closing the Signal Switch (S) initiates the preset delay, after which time the output contacts transfer. Opening the Signal switch initiates the same preset delay, after which time the output contacts reset.



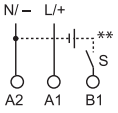
(DE) Interval with control signal on
Power is permenently applied to the timer. On momentary or maintained closure of Signal Switch (S), the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.



(EE) Interval with control signal off
Power is permenently applied to the timer. On opening of the Signal Switch (S) the output contacts transfer, and remain so for the duration of the preset delay, after which they reset.



- Possible to control an external load, such as another relay coil or timer, connected to the control signal terminal B1.

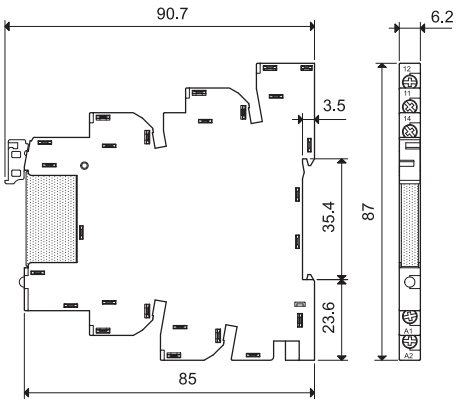


** A voltage other than the supply voltage can be applied to the command Start (B1), example:
A1 - A2 = 24 V AC
B1 - A2 = 12 V DC

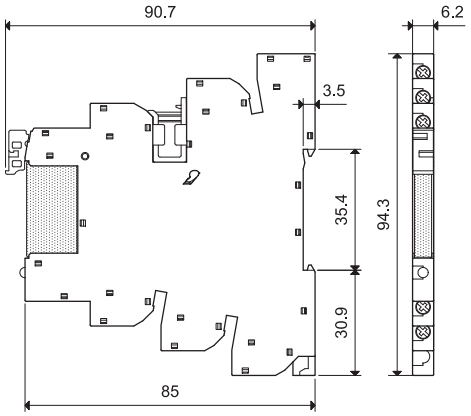
B

Outline drawings - Screw terminal sockets

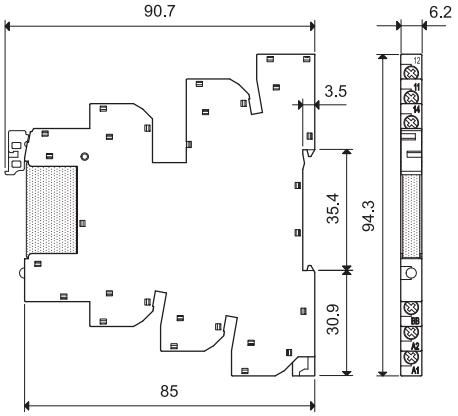
39.10 / 39.20
39.11 / 39.21
Screw terminal



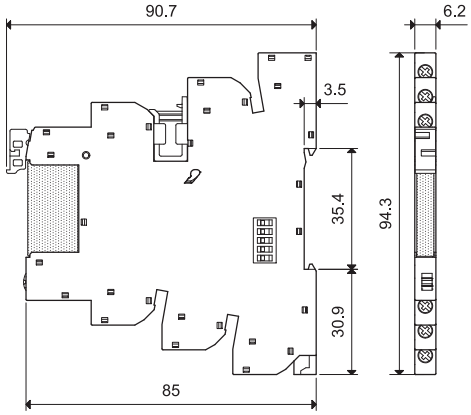
39.30 / 39.30.3
39.31 / 39.31.3
Screw terminal



39.40
39.41
Screw terminal



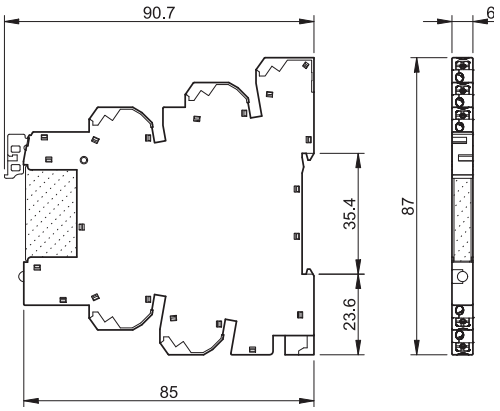
39.80
39.81
Screw terminal



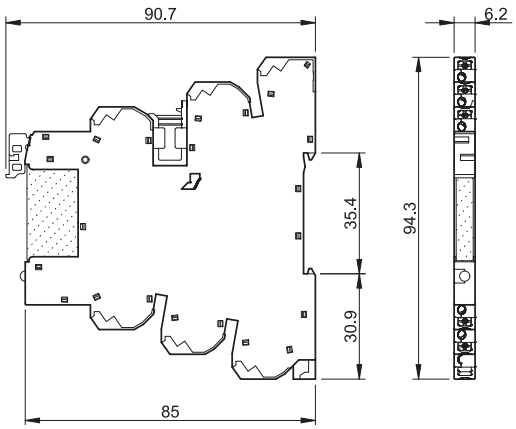
B

Outline drawings - Push-in terminal sockets

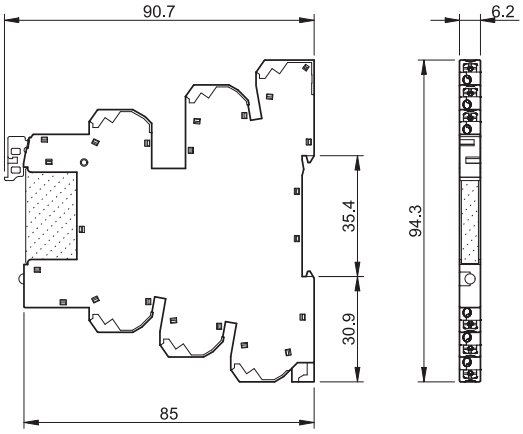
39.00 / 39.01
39.50 / 39.51
Push-in terminal



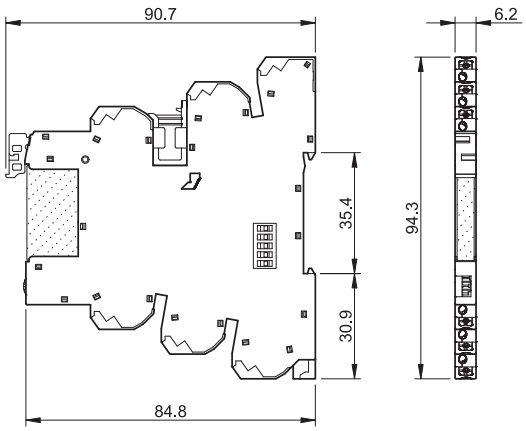
39.60 / 39.60.3
39.61 / 39.61.3
Push-in terminal



39.70
39.71
Push-in terminal



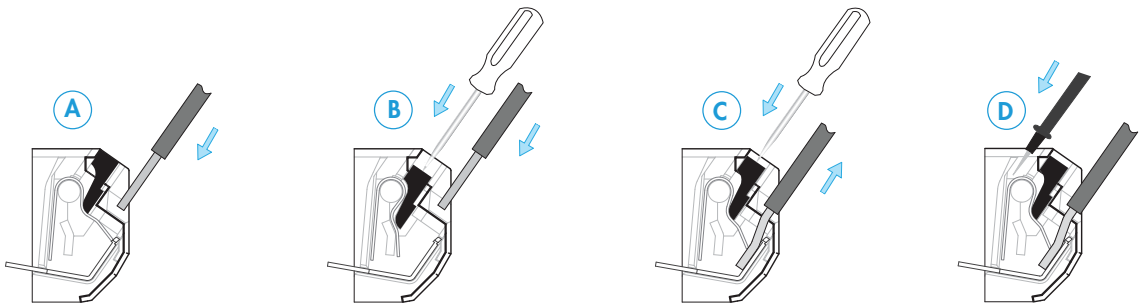
39.90
39.91
Push-in terminal



Main features

Push-in terminals

The push-in terminals permit the quick connection of solid wires or ferrules by their simple insertion into the terminal (A).
It is possible to open the terminal to extract the wire by first pushing down on the push-button using a screwdriver (C).
For stranded cable it is necessary first to open the terminal using the push button, both for the extraction (C) and insertion (B).
It is possible at any time to check the connection via the test aperture, using a 2mm diameter test probe (D).



Electromechanical Relay (1 Pole 6 A) & Screw Socket Combinations

Interface Module Code	Coil voltage	Relay	Socket
*Master**BASIC***			
39.11.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.61.7.024
39.11.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.61.7.024
39.11.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.61.7.024
39.11.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.61.0.125
39.11.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.61.8.230
*Master**PLUS***			
39.31.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.63.7.024
39.31.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.63.7.024
39.31.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.63.7.024
39.31.0.060.0060	60 V AC/DC	34.51.7.060.0010	93.63.7.060
39.31.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.63.0.125
39.31.0.240.0060	(24...240)V AC/DC	34.51.7.024.0010	93.63.0.240
39.31.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.63.8.230
39.31.7.125.0060	(110...125)V DC	34.51.7.060.0010	93.63.7.125
39.31.7.220.0060	220 V DC	34.51.7.060.0010	93.63.7.220
39.31.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.63.3.125
39.31.3.230.0060	(230...240)V AC	34.51.7.060.0010	93.63.3.230
*Master**INPUT***			
39.41.0.006.5060	6 V AC/DC	34.51.7.005.5010	93.64.7.024
39.41.0.012.5060	12 V AC/DC	34.51.7.012.5010	93.64.7.024
39.41.0.024.5060	24 V AC/DC	34.51.7.024.5010	93.64.7.024
39.41.0.125.5060	(110...125) V AC/DC	34.51.7.060.5010	93.64.0.125
39.41.8.230.5060	(230...240)V AC	34.51.7.060.5010	93.64.8.230
*Master**OUTPUT*** 1 NO, 6 A only			
39.21.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.62.7.024
39.21.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.62.7.024
39.21.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.62.7.024
39.21.0.125.0060	(110...125) V AC/DC	34.51.7.060.0010	93.62.0.125
39.21.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.62.8.230
*Master**TIMER***			
39.81.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.68.0.024
39.81.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.68.0.024

Solid State Relay (1 Pole 0.1 or 2 A) & Screw Socket Combinations

Interface Module Code	Input voltage	Relay	Socket
*Master**BASIC***			
39.10.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.61.7.024
39.10.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.61.7.024
39.10.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.61.7.024
39.10.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.61.0.125
39.10.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.61.8.230
*Master**PLUS***			
39.30.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.63.7.024
39.30.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.63.7.024
39.30.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.63.7.024
39.30.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.63.7.060
39.30.7.125.xxxx	(110...125)V DC	34.81.7.060.xxxx	93.63.7.125
39.30.7.220.xxxx	220 V DC	34.81.7.060.xxxx	93.63.7.220
39.30.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.63.0.024
39.30.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.63.0.125
39.30.0.240.xxxx	(24...240)V AC/DC	34.81.7.024.xxxx	93.63.0.240
39.30.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.63.8.230
39.30.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.63.3.125
39.30.3.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.63.3.230
*Master**INPUT***			
39.40.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.64.7.024
39.40.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.64.7.024
39.40.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.64.7.024
39.40.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.64.0.024
39.40.0.125.xxxx	(110...125) V AC/DC	34.81.7.060.xxxx	93.64.0.125
39.40.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.64.8.230
*Master**OUTPUT***			
39.20.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.62.7.024
39.20.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.62.7.024
39.20.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.62.7.024
39.20.0.125.xxxx	(110...125) V AC/DC	34.81.7.060.xxxx	93.62.0.125
39.20.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.62.8.230
*Master**TIMER***			
39.80.0.012.xxxx	12 V AC/DC	34.81.7.012.xxxx	93.68.0.024
39.80.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.68.0.024

Example: .xxxx
.9024
.7048
.8240

B

Electromechanical Relay (1 Pole 6 A) & Push-in Socket Combinations

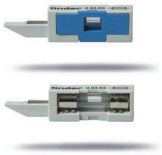
Interface Module Code	Coil voltage	Relay	Socket
*Master**BASIC***			
39.01.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.60.7.024
39.01.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.60.7.024
39.01.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.60.7.024
39.01.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.60.0.125
39.01.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.60.8.230
*Master**PLUS***			
39.61.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.66.7.024
39.61.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.66.7.024
39.61.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.66.7.024
39.61.0.060.0060	60 V AC/DC	34.51.7.060.0010	93.66.7.060
39.61.0.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.66.0.125
39.61.0.240.0060	(24...240) V AC/DC	34.51.7.024.0010	93.66.0.240
39.61.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.66.8.230
39.61.7.125.0060	(110...125)V DC	34.51.7.060.0010	93.66.7.125
39.61.7.220.0060	220 V DC	34.51.7.060.0010	93.66.7.220
39.61.3.125.0060	(110...125)V AC/DC	34.51.7.060.0010	93.66.3.125
39.61.3.230.0060	(230...240)V AC	34.51.7.060.0010	93.66.3.230
*Master**INPUT***			
39.71.0.006.5060	6 V AC/DC	34.51.7.005.5010	93.67.7.024
39.71.0.012.5060	12 V AC/DC	34.51.7.012.5010	93.67.7.024
39.71.0.024.5060	24 V AC/DC	34.51.7.024.5010	93.67.7.024
39.71.0.125.5060	(110...125) V AC/DC	34.51.7.060.5010	93.67.0.125
39.71.8.230.5060	(230...240)V AC	34.51.7.060.5010	93.67.8.230
*Master**OUTPUT*** 1 NO, 6 A only			
39.51.0.006.0060	6 V AC/DC	34.51.7.005.0010	93.65.7.024
39.51.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.65.7.024
39.51.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.65.7.024
39.51.0.125.0060	(110...125) V AC/DC	34.51.7.060.0010	93.65.0.125
39.51.8.230.0060	(230...240)V AC	34.51.7.060.0010	93.65.8.230
*Master**TIMER***			
39.91.0.012.0060	12 V AC/DC	34.51.7.012.0010	93.69.0.024
39.91.0.024.0060	24 V AC/DC	34.51.7.024.0010	93.69.0.024

Solid State Relay (1 Pole 0.1 or 2 A) & Push-in Socket Combinations

Interface Module Code	Input voltage	Relay	Socket
*Master**BASIC***			
39.00.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.60.7.024
39.00.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.60.7.024
39.00.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.60.7.024
39.00.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.60.0.125
39.00.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.60.8.230
*Master**PLUS***			
39.60.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.66.7.024
39.60.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.66.7.024
39.60.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.66.7.024
39.60.7.060.xxxx	60 V DC	34.81.7.060.xxxx	93.66.7.060
39.60.7.125.xxxx	(110...125)V DC	34.81.7.060.xxxx	93.66.7.125
39.60.7.220.xxxx	220 V DC	34.81.7.060.xxxx	93.66.7.220
39.60.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.66.0.024
39.60.0.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.66.0.125
39.60.0.240.xxxx	(24...240)V AC/DC	34.81.7.024.xxxx	93.66.0.240
39.60.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.66.8.230
39.60.3.125.xxxx	(110...125)V AC/DC	34.81.7.060.xxxx	93.66.3.125
39.60.3.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.66.3.230
*Master**INPUT***			
39.70.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.67.7.024
39.70.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.67.7.024
39.70.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.67.7.024
39.70.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.67.0.024
39.70.0.125.xxxx	(110...125) V AC/DC	34.81.7.060.xxxx	93.67.0.125
39.70.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.67.8.230
*Master**OUTPUT***			
39.50.7.006.xxxx	6 V DC	34.81.7.005.xxxx	93.65.7.024
39.50.7.012.xxxx	12 V DC	34.81.7.012.xxxx	93.65.7.024
39.50.7.024.xxxx	24 V DC	34.81.7.024.xxxx	93.65.7.024
39.50.0.125.xxxx	(110...125) V AC/DC	34.81.7.060.xxxx	93.65.0.125
39.50.8.230.xxxx	(230...240)V AC	34.81.7.060.xxxx	93.65.8.230
*Master**TIMER***			
39.90.0.012.xxxx	12 V AC/DC	34.81.7.012.xxxx	93.69.0.024
39.90.0.024.xxxx	24 V AC/DC	34.81.7.024.xxxx	93.69.0.024

Example: .xxxx
.9024
.7048
.8240

Accessories



B

093.63

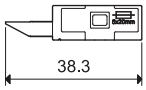
Approvals (according to type):

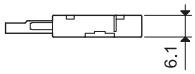
Output fuse module for 39.31/30/81/80/61/60/91/90 types	093.63

- For 5 x 20 mm fuses up to 6 A, 250 V
- Easy visibility of the fuse condition through the window
- Quick connection to socket

Notes

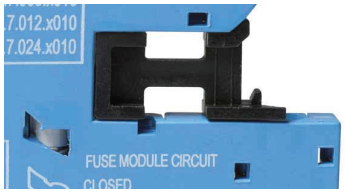
Safety: Because the output circuit can be reinstated (point 3 below), even with the fuse removed, it is important not to consider the removal of the fuse as a "safety disconnect". Always isolate elsewhere before working on the circuit.
UL: According to UL508A, the fuse module cannot be installed in power circuits (in which it is mandatory that a fuse certified according to UL category JDDZ be fitted). However, where the MasterInterface is connected as an output interface to a PLC no such restrictions apply, and the fuse module can be usefully employed.



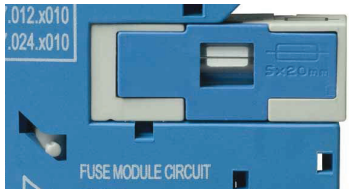


Multi-state fuse module

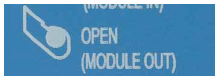
0. As delivered, the socket comes without a fuse module. However, the absent fuse is internally replaced with an electrical link - which allows the interface relay to be used without a fuse module.
In this state, the peg/indicator is visually hidden and the connection is protected by a special cap.

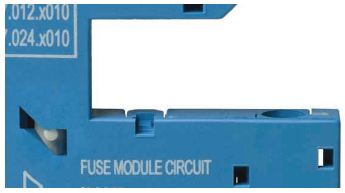


1. With fuse module inserted after removing the cap, the fuse is positioned electrically in series with the common output terminal of the interface module (11 for EMR versions, 13+ for SSR versions, 15 for EMR timer, 15+ for SSR timer).
This state is indicated by the peg/indicator.



2. If the fuse module is extracted (for example; because the fuse element has blown) the output circuit will be locked open, as this will generally be the "safe option".
This state is indicated by the peg/indicator.





3. In order to reinstate the output circuit it is necessary to either re-insert the fuse module (complete with functional fuse), or alternatively, return the peg/indicator to position **0** by gently applying pressure in the direction of the arrow.

Accessories

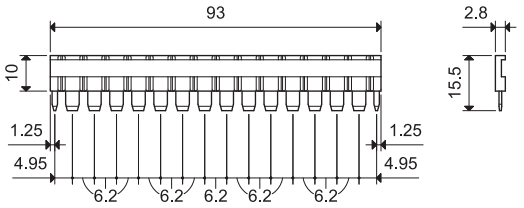
093.16

093.16.0

093.16.1

Approvals (according to type):

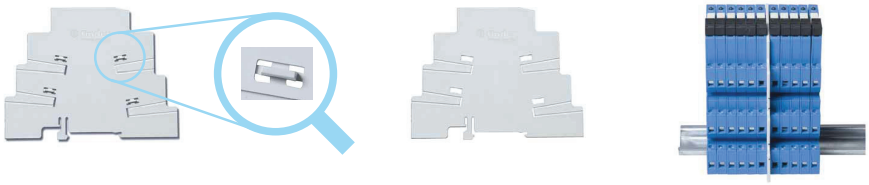
16-way jumper link	093.16 (blue)	093.16.0 (black)	093.16.1 (red)
Rated values	6 A - 250 V		
Possibility of multiple connection, side by side			



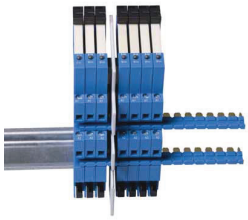
093.60

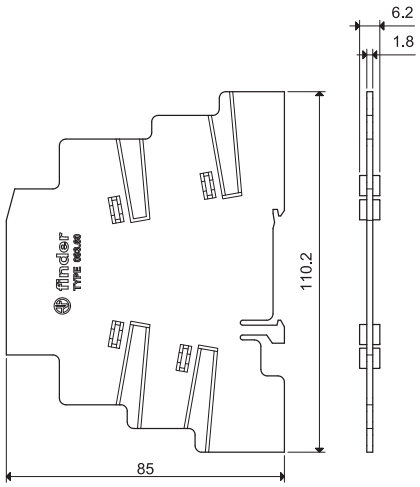
Dual-purpose plastic separator (1.8 mm or 6.2 mm separation)	093.60

1. By breaking off the protruding ribs (by hand), the separator becomes only 1.8 mm thick; useful for the visual separation of different groups of interfaces, or necessary for the protective separation of different voltages of neighbouring interfaces, or for the protection of cut ends of jumper links.



2. Leaving the ribs in place provides 6.2mm separation. Simply cutting (with scissors) the relevant segment(s) permits the interconnection across the separator of 2 different groups of interface relays, using the standard jumper link.





060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm	060.72

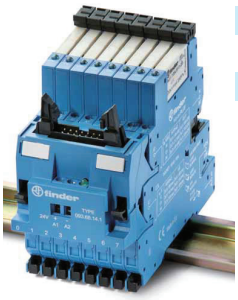
093.62

Terminal doubler (for socket Push-in only)		093.62
Total load		6 A - 300 V
Max. wire size		Solid and stranded cable
	mm²	2 x 1.5
	AWG	2 x 16

Accessories

B

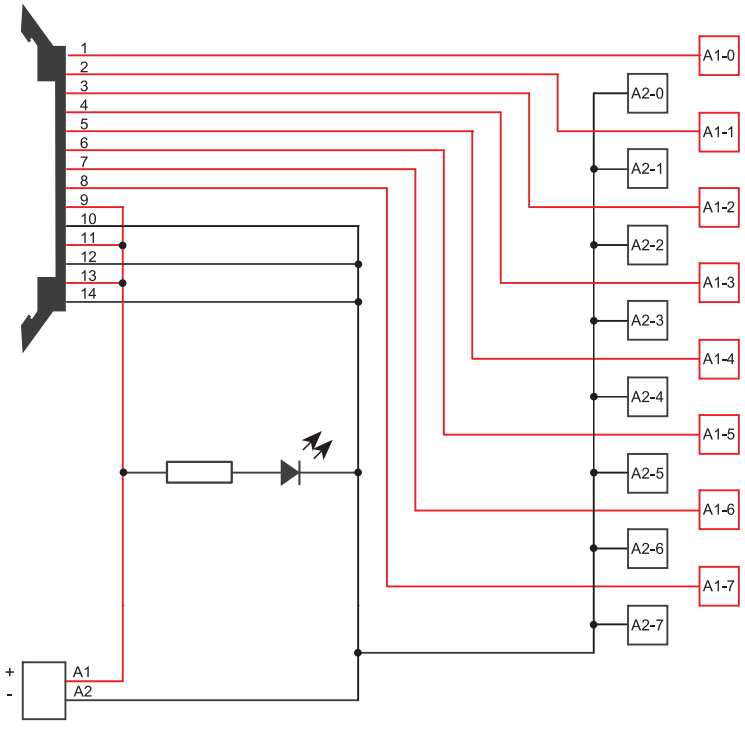
093.68.14.1
Approvals
(according to type):



Connected *MasterADAPTER*

MasterADAPTER			093.68.14.1
The ***MasterADAPTER*** permits the easy connection of A1/A2 terminals of up to ***MasterINTERFACE*** modules to PLC outputs via a 14-Pole ribbon cable, plus simple 2-wire power supply connection.			
Technical data			
Rated current (per signal path)		A	1
Minimum required supply power		W	3
Nominal voltage (U_N)		V DC	24
Operating range			(0.8...1.1) U_N
Control logic			Positive switching (to A1)
Power supply status indication			Green LED
Ambient temperature range		°C	–40...+70
Terminals for 24 V control logic			
Type of connector			14 pole, according to IEC 60603-13
Terminals for 24 V power supply			
Wire strip length		mm	9.5
Screw torque		Nm	0.5
Max. wire size			
	solid wire	mm^2	1 x 4/2 x 1.5
		AWG	1 x 12/2 x 16
	stranded wire	mm^2	1 x 2.5/2 x 1.5
		AWG	1 x 14/2 x 16

Wiring diagram



B

Features

2 Pole, forcibly guided contacts, relay interface modules,15.8 mm wide

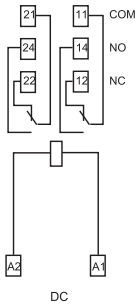
48.12 - 2 Pole 8 A (screw terminal)

- DC sensitive coils
- Relay with forcibly guided contacts according to EN 50205 Type B
- 35 mm rail (EN 60715) mounting

48.12
Screw terminal

48.12

- 2 pole, 8 A
- Forcibly guided contacts relay
- Screw terminal
- 35 mm rail (EN 60715) mounting



According to EN 50205 only 1 NO and 1 NC (11-14 and 21-22 or 11-12 and 21-24) shall be used as forcibly guided contacts.

For outline drawing see page 7

Contact specification		
Contact configuration		2 CO (DPDT)
Rated current/Maximum peak current	A	8/15
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	2,000
Rated load AC15 (230 V AC)	VA	500
Single phase motor rating (230 V AC)	kW	0.37
Breaking capacity DC1: 30/110/220V	A	8/0.65/0.2
Minimum switching load	mW (V/mA)	500 (10/10)
Standard contact material		AgNi
Coil specification		
Nominal voltage (U_N)	V AC (50/60 Hz)	–
	V DC	12 - 24
Rated power AC/sens. DC	VA (50 Hz)/W	–/0.7
Operating range	AC	–
	sens. DC	(0.75...1.2)U_N
Holding voltage	AC/DC	– /0.4 U_N
Must drop-out voltage	AC/DC	– /0.1 U_N
Technical data		
Mechanical life AC/DC	cycles	–/10 · 10^6
Electrical life at rated load AC1	cycles	100 · 10^3
Operate/release time	ms	10/4
Insulation between coil and contacts (1.2/50 µs)	kV	6 (8 mm)
Dielectric strength between open contacts	V AC	1,500
Ambient temperature range	°C	–40...+70
Protection category		IP 20
Approvals relay (according to type)		CE EAC cULus

48 Series - Relay interface modules 8 - 10 - 16 A

finder

B

Features

1 & 2 Pole relay interface modules, 15.8 mm wide

Ideal interface for PLC and electronic systems

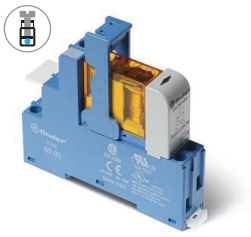
48.31 - 1 Pole 10 A (screw terminal)
48.52 - 2 Pole 8 A (screw terminal)
48.72 - 2 Pole 8 A (screwless terminal)

- AC coils or DC sensitive coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

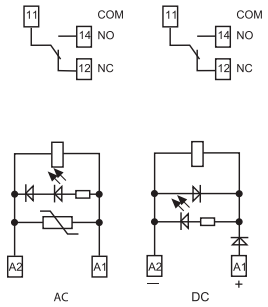
48.31 / 48.52
Screw terminal

48.72
Screwless terminal

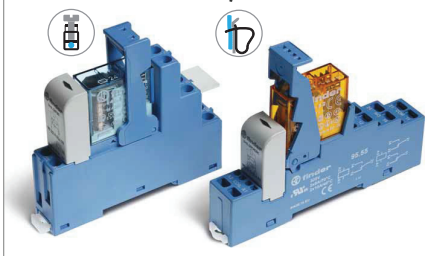
48.31



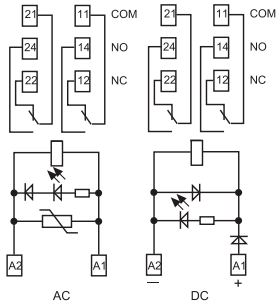
- 1 pole, 10 A
- Screw terminal
- 35 mm rail (EN 60715) mounting



48.52/72



- 2 pole, 8 A
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



For outline drawing see page 7

Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	400
Single phase motor rating (230 V AC)	kW	0.37	0.3
Breaking capacity DC1: 30/110/220V	A	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/sens. DC	VA (50 Hz)/W	1.2/0.5	1.2/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	sens. DC	$(0.73...1.5)U_N$	$(0.73...1.5)U_N$
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$200 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
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	°C	–40...+70	–40...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

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B

Features

1 & 2 Pole relay interface modules, 15.8 mm wide

Ideal interface for PLC and electronic systems

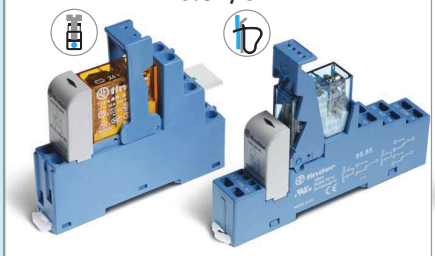
48.61 - 1 Pole 16 A (screw terminal)
48.81 - 1 Pole 16 A (screwless terminal)
48.62 - 2 Pole 10 A (screw terminal)
48.82 - 2 Pole 10 A (screwless terminal)

- AC coils or DC sensitive coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and EMC coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

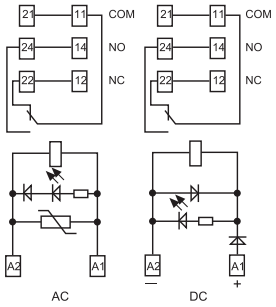
48.61 / 48.62
Screw terminal

48.81 / 48.82
Screwless terminal

48.61/81

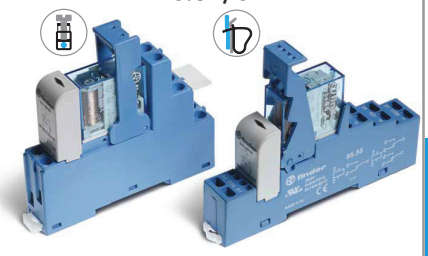


- 1 pole, 16 A
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting

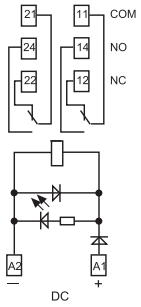


* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

48.62/82



- 2 pole, 10 A
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



For outline drawing see page 7

		48.61/81	48.62/82
Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16*/30	10/20
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	4,000	2,500
Rated load AC15 (230 V AC)	VA	750	500
Single phase motor rating (230 V AC)	kW	0.55	0.37
Breaking capacity DC1: 30/110/220V	A	16/0.3/0.12	10/0.3/0.12
Minimum switching load	mW (V/mA)	500 (10/5)	300 (5/5)
Standard contact material		AgCdO	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	–
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/sens. DC	VA (50 Hz)/W	1.2/0.5	–/0.5
Operating range	AC	(0.8...1.1)U_N	–
	sens. DC	(0.8...1.5)U_N	(0.8...1.5)U_N
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	–/0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	–/0.1 U_N
Technical data			
Mechanical life	cycles	$10 \cdot 10^6$	$20 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	12/12 (DC)
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	°C	–40...+70	–40...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

B

Ordering information

Example: 48 series, 35 mm rail (EN 60715) mount, screw terminal relay interface module, 2 CO (DPDT) 8 A contacts, 24 V sensitive DC coil, green LED + diode, 99.02 coil indication.

4	8	.	5	2	.	7	.	0	2	4	.	0	0	5	0
												A	B	C	D

Series

Type
Screw terminal
1 = 35 mm rail (EN 60715) mount, forcibly guided contacts relay
3 = 35 mm rail (EN 60715) mount
5 = 35 mm rail (EN 60715) mount
6 = 35 mm rail (EN 60715) mount
Screwless terminal
7 = 35 mm rail (EN 60715) mount
8 = 35 mm rail (EN 60715) mount

No. of poles
1 = 1 pole for 48.31, 10 A; 48.61,48.81, 16 A
2 = 2 pole for 48.12, 48.52, 48.72, 8 A; 48.62, 48.82, 10 A (48.62, 48.82 DC only)

Coil version
7 = Sensitive DC
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgNi for 48.31/52/62/72/82 AgCdO, Standard for 48.61/81
1= AgNi, for 48.12
4 = $AgSnO_2$, for 48.61/62/81/82 only
5 = AgNi + Au, for 48.31/52/72 only

B: Contact circuit
0 = CO (nPDT)

D: Special versions
0 = Standard
2 = Standard (for 48.12 only)

C: Options
0 = Standard (for 48.12 only)
5 = Standard for DC: green LED + diode (polarity +A1)
6 = Standard for AC: green LED + Varistor

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold.**

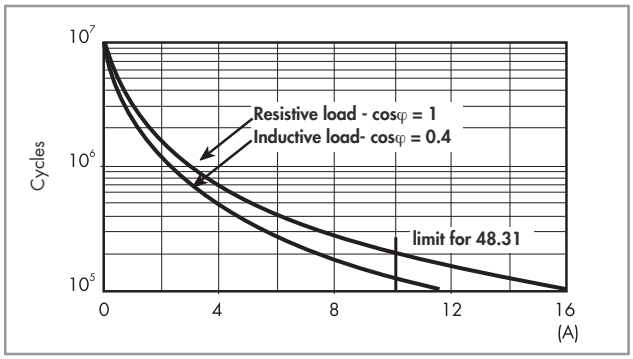
Type	Coil version	A	B	C	D
48.12	DC	**1**	**0**	**0**	**2**
48.31/52/72	AC	**0** - 5	0	**6**	0
48.31/52/72	Sensitive DC	**0** - 5	0	**5**	0
48.61/81	AC	**0** - 4	0	**6**	0
48.61/81	Sensitive DC	**0** - 4	0	**5**	0
48.62/82	Sensitive DC	**0** - 4	0	**5**	0

Technical data

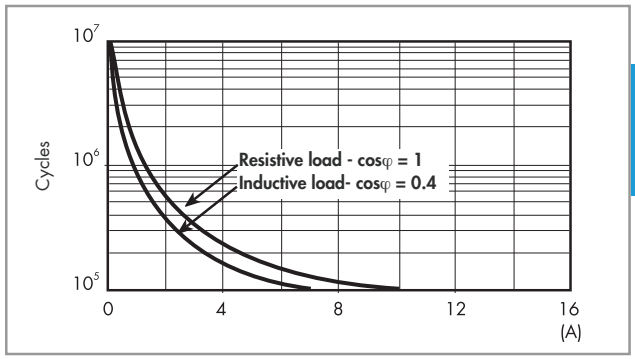
Insulation			**48.12/31/61/62**	**48.52/72**	**48.12/31/61/62/81/82**	
Insulation according to EN 61810-1	insulation rated voltage	V	250	250	400	
	rated impulse withstand voltage	kV	4	4	4	
	pollution degree		3	2	2	
	overvoltage category		III	III	III	
Insulation between coil and contacts (1.2/50 µs)		kV	6 (8 mm)			
Dielectric strength between open contacts		V AC	1,000; 1,500 (48.12)			
Dielectric strength between adjacent contacts		V AC	2,000 (48.52); 2,500 (48.12/62)			
Conducted disturbance immunity						
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5		level 3 (2 kV)	
Other data						
Bounce time: NO/NC		ms	2/5; 2/10 (48.12)			
Vibration resistance (10...200)Hz: NO/NC		g	20/5 (for 1 pole)		15/3; 20/6 (48.12) for 2 pole	
Power lost to the environment	without contact current	W	0.7			
	with rated current	W	1.2 (48.12/31)	1.3 (48.52/72)	1.2 (48.61/62/81/82)	
Wire strip length		mm	8			
Screw torque		Nm	0.5			
Max. wire size			**Screw terminal**		**Screwless terminal**	
			solid cable	stranded cable	solid cable	stranded cable
		mm^2	1x6 / 2x2.5	1x4 / 2x2.5	2x(0.2...1.5)	2x(0.2...1.5)
		AWG	1x10 / 2x14	1x12 / 2x14	2x(24...18)	2x(24...18)

Contact specification

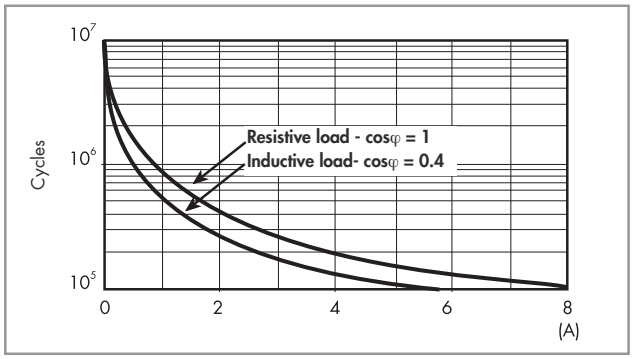
F 48 - Electrical life (AC) v contact current
Types 48.31/61/81



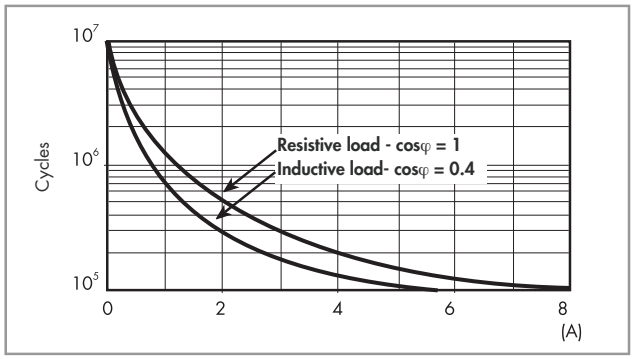
F 48 - Electrical life (AC) v contact current
Types 48.62/82



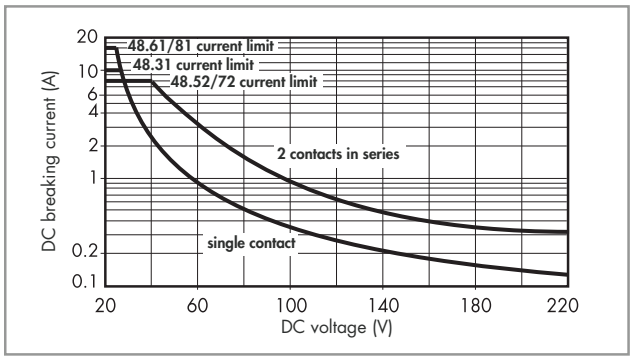
F 48 - Electrical life (AC) v contact current
Types 48.52/72



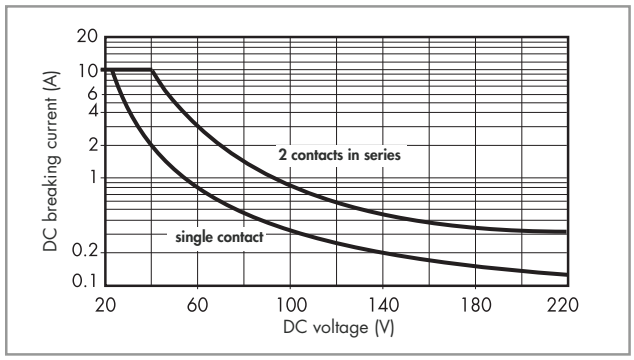
F 48 - Electrical life (AC) v contact current
Type 48.12



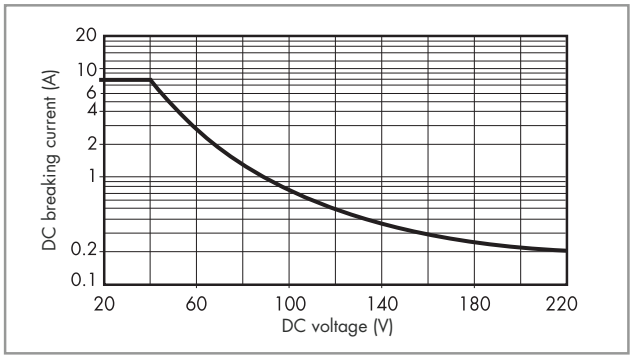
H 48 - Maximum DC1 breaking capacity
Types 48.31/52/61/72/81



H 48 - Maximum DC1 breaking capacity
Types 48.62/82



H 48 - Maximum DC1 breaking capacity
Type 48.12



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ $100 \cdot 10^3$ 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.

B

Coil specifications

DC coil data (0.5 W sensitive)

Nominal voltage U_N	Coil code	Operating range U_{min}*	Operating range U_{max}	Rated coil consumption I at U_N
V		V	V	mA
12	**7**.012	8.8	18	41
24	**7**.024	17.5	36	22.2
125	**7**.125	91	188	4

*U_{min} = 0.8 U_N for 48.61, 48.62, 48.81 and 48.82

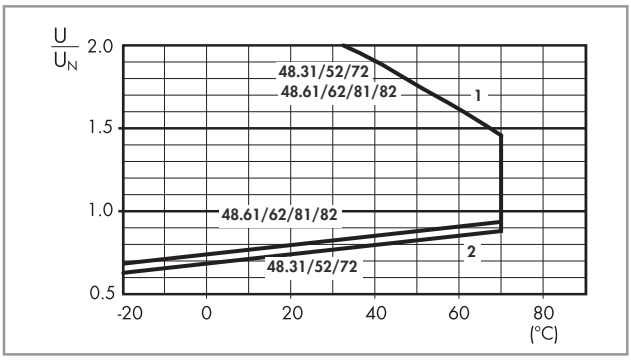
AC coil data

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N (50Hz)
V		V	V	mA
12	**8**.012	9.6	13.2	90.5
24	**8**.024	19.2	26.4	46
110	**8**.110	88	121	10.1
120	**8**.120	96	132	11.8
230	**8**.230	184	253	7.0

DC coil data, 2 pole relay - Type 48.12

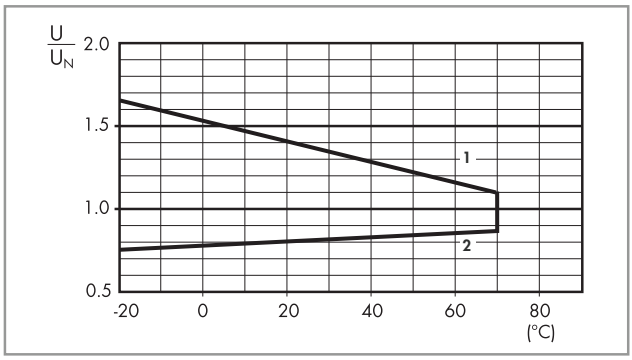
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N
V		V	V	Ω	mA
12	**9**.012	9	14.4	205	58.5
24	**9**.024	18	28.8	820	29.3

R 48 - DC coil operating range v ambient temperature



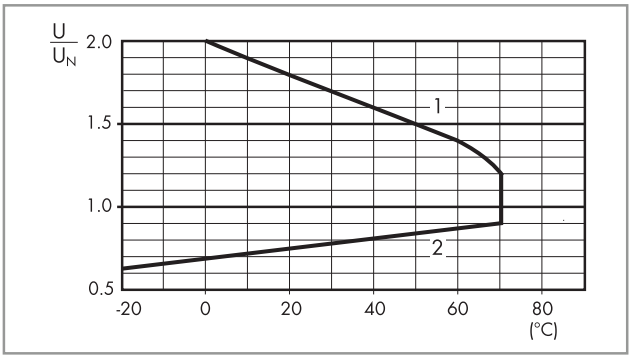
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 48 - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 48 - DC coil operating range v ambient temperature
Type 48.12



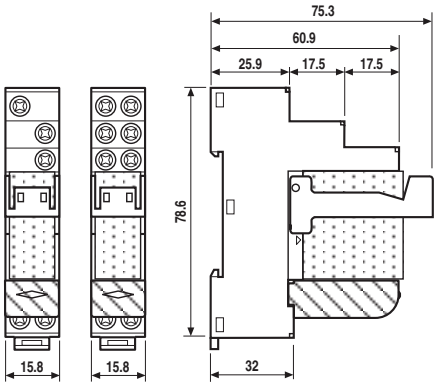
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Combinations

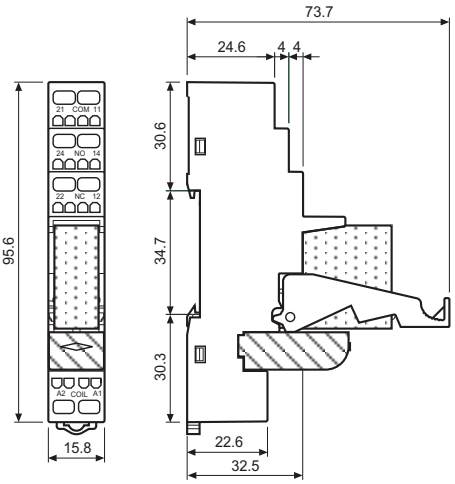
Code	Type of socket	Type of relay	Module	Retaining clip
48.12	95.05.0	50.12	–	095.71
48.31	95.03	40.31	99.02	095.01
48.52	95.05	40.52	99.02	095.01
48.61	95.05	40.61	99.02	095.01
48.62	95.05	44.62	99.02	095.01
48.72	95.55	40.52	99.02	095.91.3
48.81	95.55	40.61	99.02	095.91.3
48.82	95.55	44.62	99.02	095.91.3

B

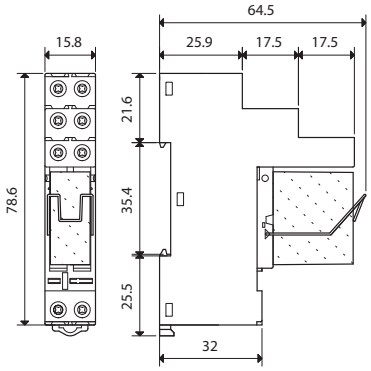
Outline drawing



48.31 48.52 / 48.61 / 48.62
Screw terminal



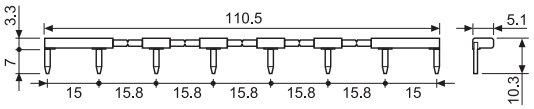
48.72 / 48.81 / 48.82
Screwless terminal



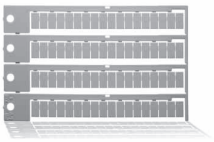
48.12
Screw terminal

Accessories

095.18



8-way jumper link for screw terminal version	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	



060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm	060.72

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

4	8	.	5	2	.	7	.	0	2	4	.	0	0	5	0	S	P	A

A	Standard packaging
B	Blister packaging

SP	Plastic retaining clip

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B

Features

1 & 2 Pole relay interface modules

5 µm Gold plate contacts for low level switching capability

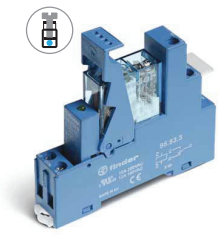
49.31-50x0 - 1 Pole 10 A (screw terminal)
49.52-50x0 - 2 Pole 8 A (screw terminal)
49.72-50x0 - 2 Pole 8 A (screwless terminal)

- 15.5 mm wide
- Ideal interface for PLC and electronic systems
- AC coils & DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module
- Identification labels
- 35 mm rail (EN 60715) mounting

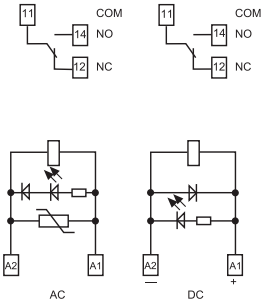
49.31-50x0 / 49.52
Screw terminal

49.72-50x0
Screwless terminal

49.31-50x0

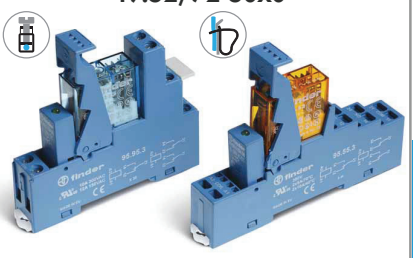


- 1 pole, 10 A
- AgNi + Au contact material
- Screw terminal
- 35 mm rail (EN 60715) mounting

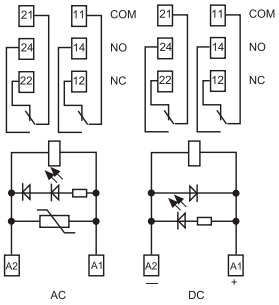


8.xxx.5060
7.xxx.5050
9.xxx.5050

49.52/72-50x0



- 2 pole, 8 A
- AgNi + Au contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



8.xxx.5060
7.xxx.5050
9.xxx.5050

* By external parallel connection of the contacts the values within [1 (0.1/1)] can be acheived.

For outline drawing see page 8

Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	400
Single phase motor rating (230 V AC)	kW	0.37	0.3
Breaking capacity DC1: 30/110/220V	A	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	50 (5/2)	50 (5/2) - [1 (0.1/1)]*
Standard contact material		AgNi + Au	AgNi + Au
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC/sensitiv DC	$(0.73...1.5)U_N/(0.73...1.5)U_N$	$(0.73...1.5)U_N/(0.73...1.5)U_N$
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$200 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
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	°C	–40...+70	–40...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

49 Series - Relay interface modules 8 - 10 - 16 A

Features

1 & 2 Pole relay interface modules

AgNi contacts for medium duty switching

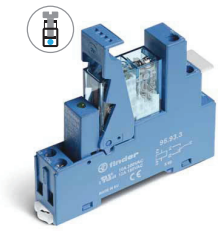
49.31-00x0 - 1 Pole 10 A (screw terminal)
49.52-00x0 - 2 Pole 8 A (screw terminal)
49.72-00x0 - 2 Pole 8 A (screwless terminal)

- 15.5 mm wide
- Ideal interface for PLC and electronic systems
- AC coils & DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module
- Identification labels
- 35 mm rail (EN 60715) mounting

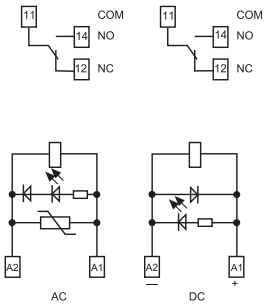
49.31-00x0 / 49.52
Screw terminal

49.72-00x0
Screwless terminal

49.31-00x0

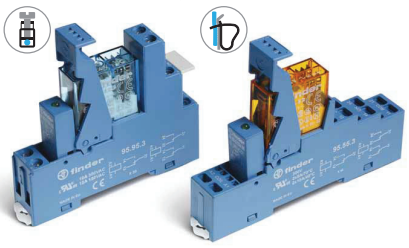


- 1 pole, 10 A
- AgNi contact material
- Screw terminal
- 35 mm rail (EN 60715) mounting

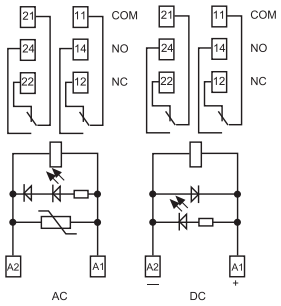


8.xxx.0060 | 7.xxx.0050 9.xxx.0050

49.52/72-00x0



- 2 pole, 8 A
- AgNi contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



8.xxx.0060 | 7.xxx.0050 9.xxx.0050

For outline drawing see page 8

Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	400
Single phase motor rating (230 V AC)	kW	0.37	0,3
Breaking capacity DC1: 30/110/220V	A	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC/sensitiv DC	$(0.73...1.5)U_N/(0.73...1.5)U_N$	$(0.73...1.5)U_N/(0.73...1.5)U_N$
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$200 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
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	°C	–40...+70	–40...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

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Features

1 & 2 Pole relay interface modules

AgCdO contacts for heavy duty switching

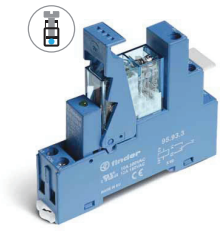
49.31-20x0 - 1 Pole 10 A (screw terminal)
49.52-20x0 - 2 Pole 8 A (screw terminal)
49.72-20x0 - 2 Pole 8 A (screwless terminal)

- 15.5 mm wide
- Ideal interface for PLC and electronic systems
- AC coils & DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module
- Identification labels
- 35 mm rail (EN 60715) mounting

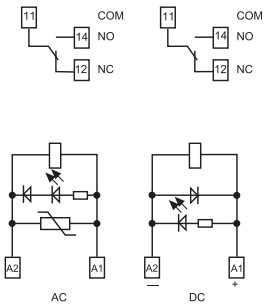
49.31-20x0 / 49.52
Screw terminal

49.72-20x0
Screwless terminal

49.31-20x0

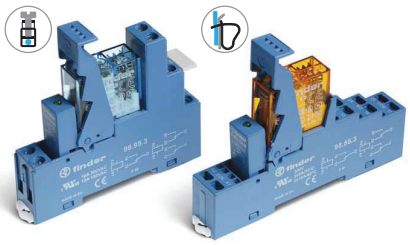


- 1 pole, 10 A
- AgCdO contact material
- Screw terminal
- 35 mm rail (EN 60715) mounting

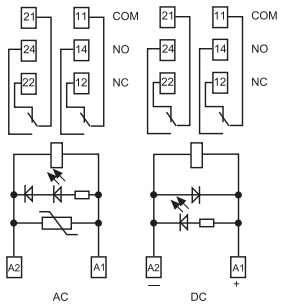


8.xxx.2060 | 7.xxx.2050 9.xxx.2050

49.52/72-20x0



- 2 pole, 8 A
- AgCdO contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



8.xxx.2060 | 7.xxx.2050 9.xxx.2050

For outline drawing see page 8

Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	400
Single phase motor rating (230 V AC)	kW	0.37	0.3
Breaking capacity DC1: 30/110/220V	A	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material		AgCdO	AgCdO
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC/sensitiv DC	$(0.73...1.5)U_N/(0.73...1.5)U_N$	$(0.73...1.5)U_N/(0.73...1.5)U_N$
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$200 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
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	°C	–40...+70	–40...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

49 Series - Relay interface modules 8 - 10 - 16 A

Features

1 Pole relay interface module

AgCdO contacts for heavy duty switching

49.61-00x0 - 1 Pole 16 A (screw terminal)
49.81-00x0 - 1 Pole 16 A (screwless terminal)

$AgSnO_2$ contacts for heavy duty, high current inrush switching

49.61-40x0 - 1 Pole 16 A (screw terminal)
49.81-40x0 - 1 Pole 16 A (screwless terminal)

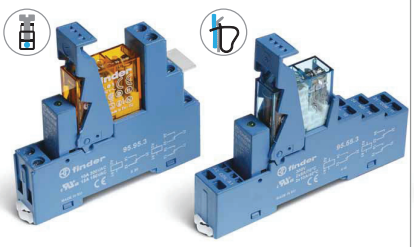
- 15.5 mm wide
- Ideal interface for PLC and electronic systems
- AC coils & DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module
- Identification labels
- 35 mm rail (EN 60715) mounting

49.61
Screw terminal

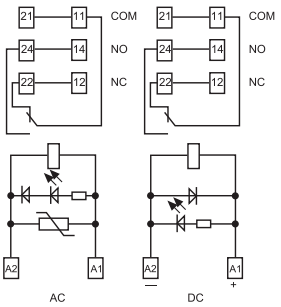
49.81-00x0/40x0
Screwless terminal

For outline drawing see page 8

49.61/81-00x0



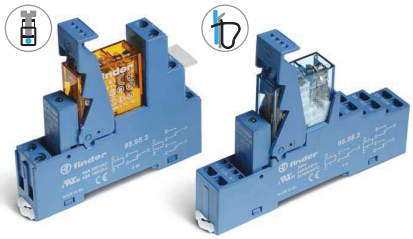
- 1 pole, 16 A*
- AgCdO contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



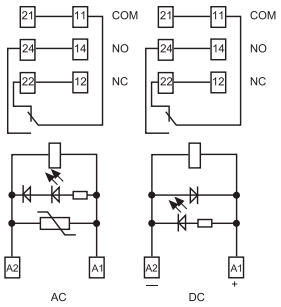
8.xxx.0060 7.xxx.0050 9.xxx.0050

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

49.61/81-40x0



- 1 pole, 16 A*
- $AgSnO_2$ contact material
- Screw terminal and screwless terminal
- 35 mm rail (EN 60715) mounting



8.xxx.4060 7.xxx.4050 9.xxx.4050

* For currents >10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

Contact specification			
Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	16*/30	16*/100 (5 ms)
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	4,000	4,000
Rated load AC15 (230 V AC)	VA	750	750
Single phase motor rating (230 V AC)	kW	0.55	0.55
Breaking capacity DC1: 30/110/220V	A	16/0.3/0.12	16/0.3/0.12
Minimum switching load	mW (V/mA)	500 (5/5)	1,000 (10/10)
Standard contact material		AgCdO	$AgSnO_2$
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC/sens.DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC/sensitiv DC	$(0.73...1.5)U_N/(0.8...1.5)U_N$	$(0.73...1.5)U_N/(0.8...1.5)U_N$
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	7/4 (AC) - 12/12 (DC)	7/4 (AC) - 12/12 (DC)
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	°C	–40...+70	–40...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

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B

Ordering information

Example: 49 series, 35 mm rail (EN 60715) mount screw terminal relay interface module, 2 CO (DPDT) 8 A contacts, 24 V sensitive DC coil, green LED + diode (polarity +A1), 99.80 coil indication.

									A	B	C	D	
4	9	.	5	2	.	7	.	0	2	4	.	0	0	5	0

Series

Type
3, 5, 6 = 35 mm rail (EN 60715) mount, screw terminal
7, 8 = 35 mm rail (EN 60715) mount, screwless terminal

No. of poles
1 = 1 pole for 49.31, 10 A
49.61, 49.81, 16 A
2 = 2 pole for 49.52, 49.72, 8 A

Coil version
7 = Sensitive DC (500 mW)
8 = AC (50/60 Hz)
9 = DC (650 mW)

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgNi for 49.31/52/72, AgCdO for 49.61/81
2 = AgCdO for 49.31/52/72
4 = $AgSnO_2$ for 49.61/81 only
5 = AgNi + Au not for 49.61/81

B: Contact circuit
0 = CO (nPDT)

C: Options
5 = Standard for DC: green LED + diode (polarity +A1)
6 = Standard for AC: green LED + Varistor

D: Special versions
0 = Standard

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold.**

Type	Coil version	A	B	C	D
49.31/52/72	AC	**0** - 2 - 5	0	**6**	0
49.31/52/72	DC - sens. DC	**0** - 2 - 5	0	**5**	0
49.61/81	AC	**0** - 4	0	**6**	0
49.61/81	DC - sens. DC	**0** - 4	0	**5**	0

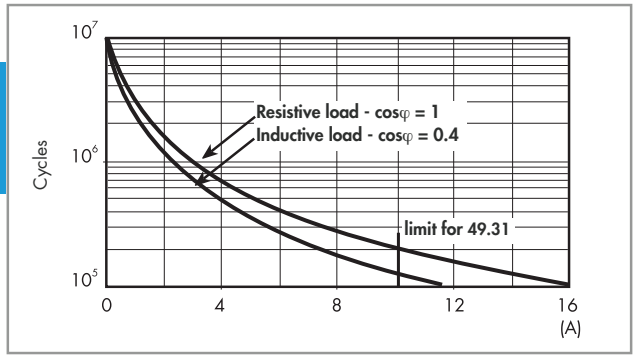
Technical data

Insulation			**49.31/61**	**49.52/72**	**49.31/61/81**	
Insulation according to EN 61810-1	insulation rated voltage	V	250	250	400	
	rated impulse withstand voltage	kV	4	4	4	
	pollution degree		3	2	2	
	overvoltage category		III	III	III	
Insulation between coil and contacts (1.2/50 µs)		kV	6 (8 mm)			
Dielectric strength between open contacts		V AC	1,000			
Dielectric strength between adjacent contacts		V AC	2,000 (49.52/72)			
Conducted disturbance immunity						
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5		level 3 (2 kV)	
Other data						
Bounce time: NO/NC		ms	2/5			
Vibration resistance (10...200)Hz: NO/NC		g	20/5 (for 1 pole)		15/3 (for 2 pole)	
Power lost to the environment	without contact current	W	0.7			
	with rated current	W	1.2 (49.31/61/81)		1.3 (49.52/72)	
Wire strip length		mm	8			
Screw torque		Nm	0.5			
Max. wire size			**Screw terminal**		**Screwless terminal**	
			solid cable	stranded cable	solid cable	stranded cable
		mm^2	1x6 / 2x2.5	1x4 / 2x2.5	2x(0.2...1.5)	2x(0.2...1.5)
		AWG	1x10 / 2x14	1x12 / 2x14	2x(24...18)	2x(24...18)

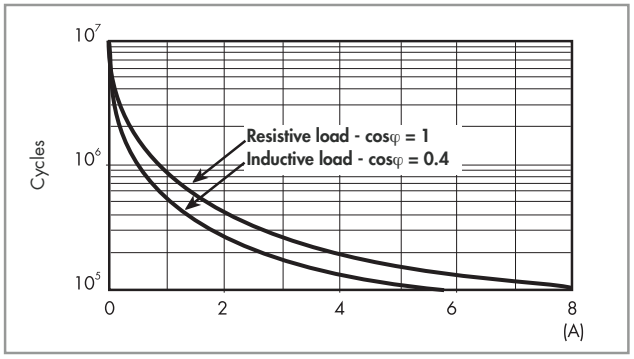
B

Contact specification

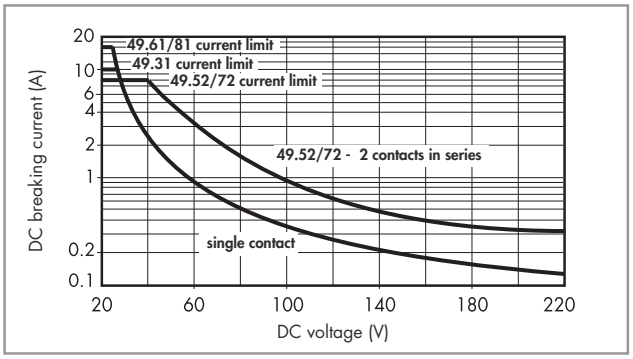
F 49 - Electrical life (AC) v contact current
Types 49.31/61/81



F 49 - Electrical life (AC) v contact current
Types 49.52/72



H 49 - Maximum DC1 breaking capacity
Types 49.31/52/61/72/81



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ 100·10³ 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.

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Coil specifications

DC coil data (0.5 W sensitive)

Nominal voltage U_N	Coil code	Operating range U_{min}*	Operating range U_{max}	Rated coil consumption I at U_N
V		V	V	mA
12	**7**.012	8.8	18	41
24	**7**.024	17.5	36	22.2
125	**7**.125	91.2	188	4

*U_{min} = 0.8 U_N for 49.61 and 49.81

AC coil data

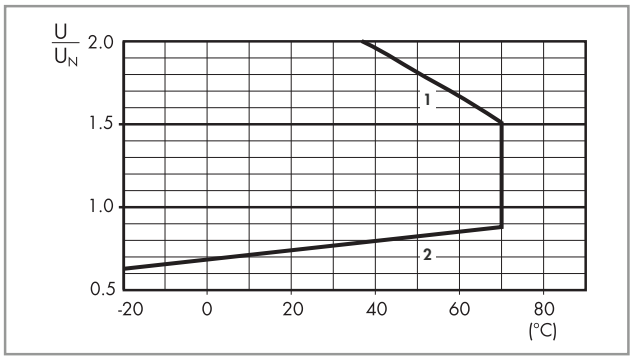
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N (50Hz)
V		V	V	mA
12	**8**.012	9.6	13.2	90.5
24	**8**.024	19.2	26.4	46
110	**8**.110	88	121	10.1
120	**8**.120	96	132	11.8
230	**8**.230	184	253	7.0

B

DC coil data (0.65 W)

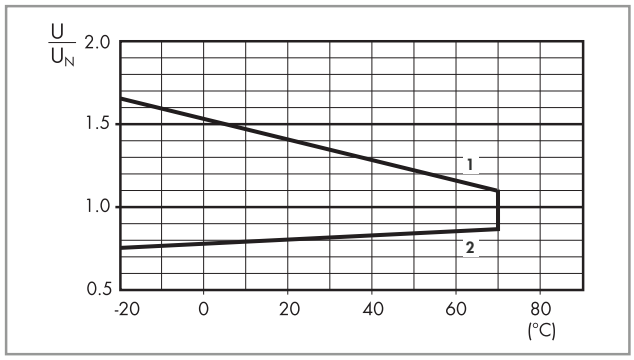
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Rated coil consumption I at U_N
V		V	V	mA
12	**9**.012	8.8	18	56
24	**9**.024	17.5	36	29
125	**9**.125	91.2	188	6

R 49 - DC coil operating range v ambient temperature
Standard (650 mW)



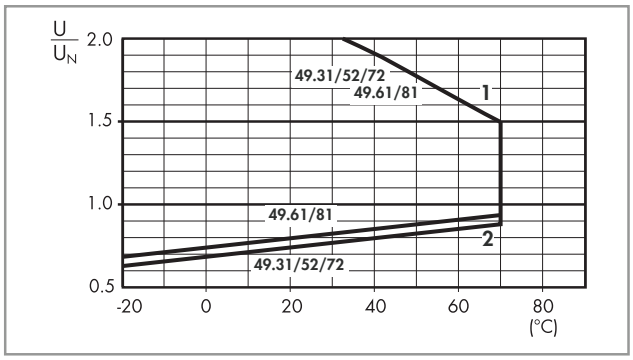
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 49 - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 49 - DC coil operating range v ambient temperature
Sensitive coil (500 mW)



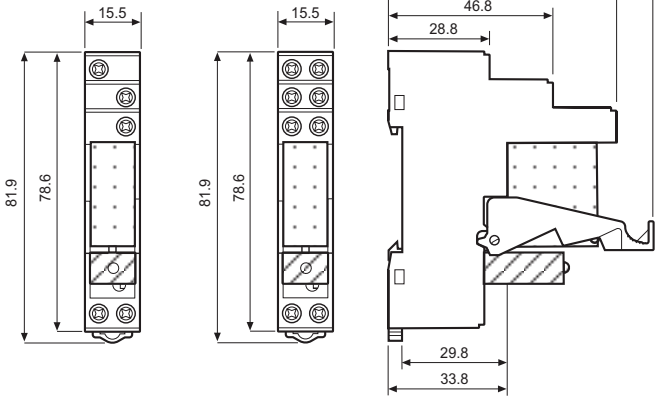
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

B

Combinations

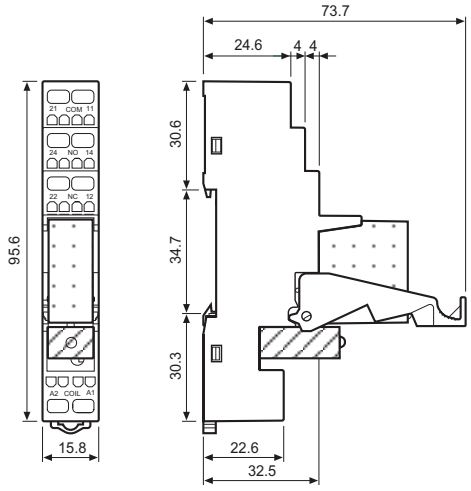
Code	Type of socket	Type of relay	Module	Retaining clip
49.31	95.93.3	40.31	99.80	095.91.3
49.52	95.95.3	40.52	99.80	095.91.3
49.61	95.95.3	40.61	99.80	095.91.3
49.72	95.55.3	40.52	99.80	095.91.3
49.81	95.55.3	40.61	99.80	095.91.3

Outline drawing



49.31 49.52 49.61

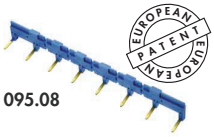
49.31-50x0 / 49.31-00x0 /
49.31-20x0 / 49.52 / 49.61
Screw terminal



49.72 49.81

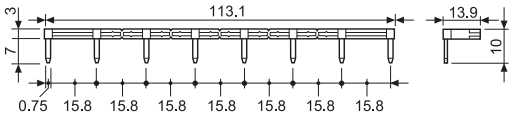
49.72-50x0 / 49.72-00x0 / 49.72-20x0
49.81-00x0 / 49.81-40x0
Screwless terminal

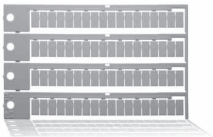
Accessories



095.08

8-way jumper link for screw terminal versions	095.08 (blue)	095.08.0 (black)
Rated values	10 A - 250 V	





060.72

Sheet of marker tags, plastic, retaining clip 095.91.3, 72 tags, 6x12 mm	060.72

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

4	9	.	5	2	.	7	.	0	2	4	.	0	0	5	0	S	P	A

A Standard packaging
B Blister packaging

SP Plastic retaining clip

B

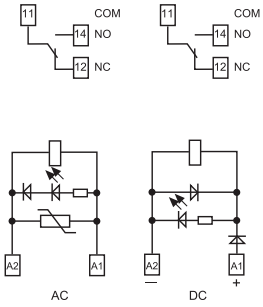
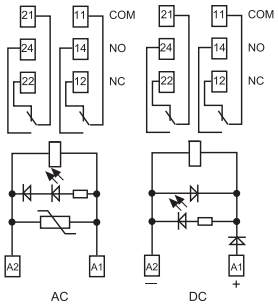
Features

1 & 2 pole relay interface modules, screw terminal socket, 15.8 mm wide.

Ideal interface for PLC and electronic systems
4C.01 - 1 Pole 16 A
4C.02 - 2 Pole 8 A

- AC coils or DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

4C.01 / 4C.02
Screw terminal

4C.01	4C.02
	
• 1 pole, 16 A • Screw terminal connection • 35 mm rail (EN 60715) mounting	• 2 pole, 8 A • Screw terminal connection • 35 mm rail (EN 60715) mounting
	

For outline drawing of 4C.01/02 see page 5

		4C.01	4C.02
Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	16/25	8/15
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	4,000	2,000
Rated load AC15 (230 V AC)	VA	750	350
Single phase motor rating (230 V AC)	kW	0.55	0.37
Breaking capacity DC1: 30/110/220V	A	16/0.5/0.15	6/0.5/0.15
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC	VA (50 Hz)/W	1.2/0.5	1.2/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC	$(0.73...1.1)U_N$	$(0.73...1.1)U_N$
Holding voltage	AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage	AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life AC/DC	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	15/5 (AC) - 15/12 (DC)	10/3 (AC) - 10/10 (DC)
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	°C	≤ 12A: –40...+70/>12A: –40...+50	–40...+70
Protection category		IP 20	IP 20
Approvals - relay (according to type)			

4C Series - Relay interface modules 8 - 10 - 16 A

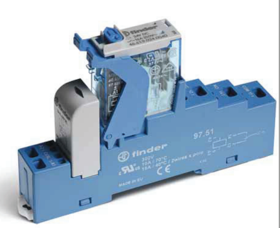
Features

1 & 2 pole relay interface modules, screwless terminal socket, 15.8 mm wide.

Ideal interface for PLC and electronic systems
4C.51 - 1 Pole 10 A
4C.52 - 2 Pole 8 A

- AC coils or DC coils
- Instant ejection of relay using plastic retaining clip
- Supply status indication and coil suppression module as standard
- Identification label
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

4C.51

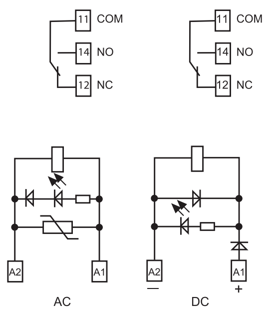


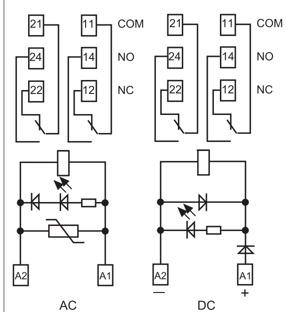
- 1 pole, 10 A
- Screwless terminal connections
- 35 mm rail (EN 60715) mounting

4C.52

- 2 pole, 8 A
- Screwless terminal connections
- 35 mm rail (EN 60715) mounting

4C.51 / 4C.52
Screwless terminal





For outline drawing of 4C.51/52 see page 5

		4C.51	4C.52
Contact specification			
Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	8/15
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	2,500	2,000
Rated load AC15 (230 V AC)	VA	750	350
Single phase motor rating (230 V AC)	kW	0.55	0.37
Breaking capacity DC1: 30/110/220V	A	10/0.5/0.15	6/0.5/0.15
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 110 - 120 - 230	12 - 24 - 110 - 120 - 230
	V DC	12 - 24 - 125	12 - 24 - 125
Rated power AC/DC	VA (50 Hz)/W	1.2/0.5	1.2/0.5
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC	$(0.73...1.1)U_N$	$(0.73...1.1)U_N$
Holding voltage	AC/DC	$0.8\ U_N$ /$0.4\ U_N$	$0.8\ U_N$ /$0.4\ U_N$
Must drop-out voltage	AC/DC	$0.2\ U_N$ /$0.1\ U_N$	$0.2\ U_N$ /$0.1\ U_N$
Technical data			
Mechanical life AC/DC	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	15/5 (AC) - 15/12 (DC)	10/3 (AC) - 10/10 (DC)
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	°C	–25…+70	–25…+70
Protection category		IP 20	IP 20
Approvals - relay (according to type)			

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Ordering information

Example: 4C series, 35 mm rail (EN 60715) mount screw terminal relay interface module, 1 CO (SPDT) 16 A contacts, 24 V DC coil, green LED + diode.

4 C	. 0	1	. 9	. 0 2 4	. A: 0	B: 0	C: 5	D: 0

Series

Type
0 = 35 mm rail (EN 60715) mount screw terminal socket
5 = 35 mm rail (EN 60715) mount screwless terminal socket

No. of poles
1 = 1 pole
2 = 2 pole

Coil version
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

A: Contact material
0 = AgNi
4 = $AgSnO_2$
5 = AgNi + Au

B: Contact circuit
0 = CO (nPDT)

C: Options
5 = Standard for DC: green LED + diode (polarity +A1)
6 = Standard for AC: green LED + Varistor

D: Special version
0 = Standard

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold.**

Type	Coil version	A	B	C	D
4C.02	AC	**0** - 5	**0**	**6**	**0**
4C.52	DC	**0** - 5	**0**	**5**	**0**
4C.01	AC	**0** - 4 - 5	**0**	**6**	**0**
4C.51	DC	**0** - 4 - 5	**0**	**5**	**0**

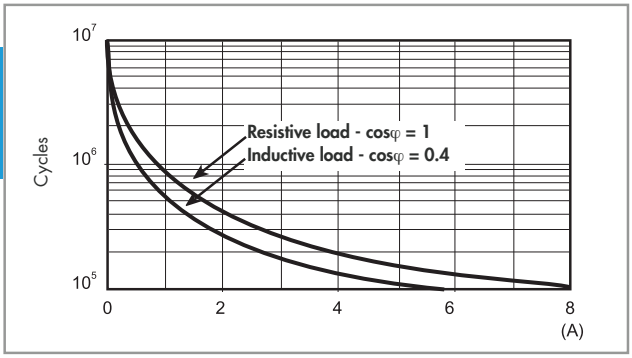
Technical data

Insulation						
Insulation according to EN 61810-1	insulation rated voltage	V	250		440	
	rated impulse withstand voltage	kV	4		4	
	pollution degree		3		2	
	overvoltage category		III		III	
Insulation between coil and contacts (1.2/50 µs)		kV	6 (8 mm)			
Dielectric strength between open contacts		V AC	1,000			
Dielectric strength between adjacent contacts		V AC	2,000			
Conducted disturbance immunity						
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5		level 3 (2 kV)	
Other data						
Bounce time: NO/NC		ms	2/6 (4C.01/51)		1/4 (4C.02/52)	
Vibration resistance (10...150)Hz: NO/NC		g	20/12			
Power lost to the environment	without contact current	W	0.6			
	with rated current	W	1.6 (4C.01/51)		2 (4C.02/52)	
Terminals			**4C.01/4C.02**		**4C.51/4C.52**	
Wire strip length		mm	8		8	
Screw torque		Nm	0.8		—	
Max. wire size			solid cable	stranded cable	solid cable	stranded cable
		mm^2	1x6/2x2.5	1x4/2x2.5	2x(0.2...1.5)	2x(0.2...1.5)
		AWG	1x10/2x14	1x12/2x14	2x(24...18)	2x(24...18)

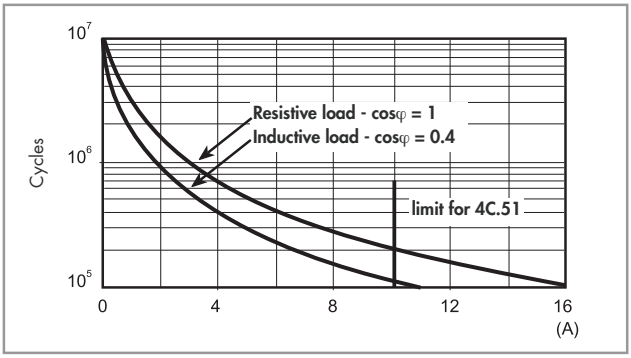
B

Contact specification

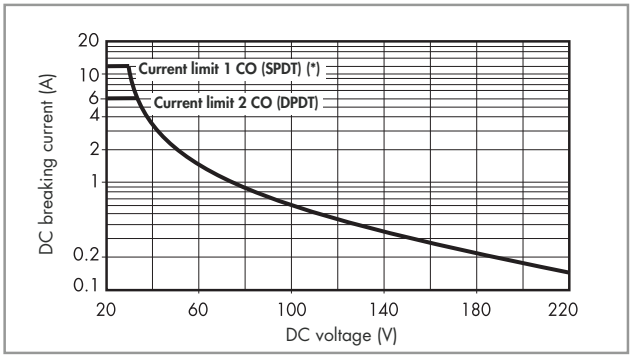
F 4C - Electrical life (AC) v contact current
Types 4C.02/52



F 4C - Electrical life (AC) v contact current
Types 4C.01/51



H 4C - Maximum DC1 breaking capacity



(*) Type 4C.01= 12 A, Type 4C.51= 10 A

- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ $100 \cdot 10^3$ 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

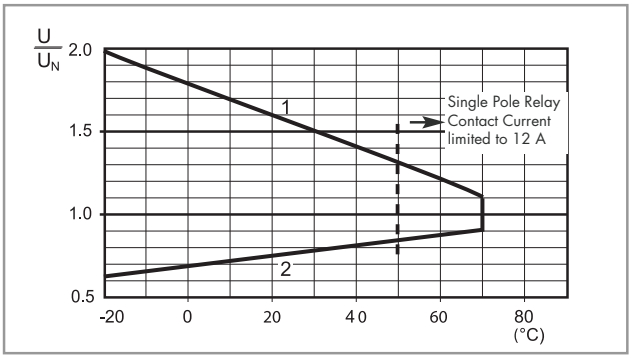
DC coil data

Nominal voltage U_N V	Coil code	Operating range U_{min} V	Operating range U_{max} V	Resistance R Ω	Rated coil consumption I at U_N mA
12	**9**.012	8.8	13.2	300	40
24	**9**.024	17.5	26.4	1,200	20
125	**9**.125	91.2	138	32,000	3.9

AC coil data

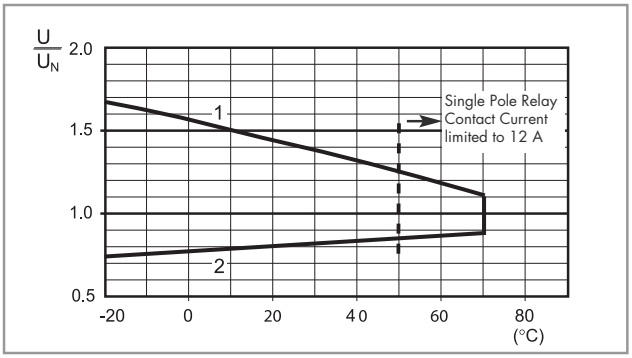
Nominal voltage U_N V	Coil code	Operating range U_{min} V	Operating range U_{max} V	Resistance R Ω	Rated coil consumption I at U_N mA
12	**8**.012	9.6	13.2	80	90
24	**8**.024	19.2	26.4	320	45
110	**8**.110	88	121	6,900	9.4
120	**8**.120	96	132	9,000	8.4
230	**8**.230	184	253	28,000	5

R 4C - DC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 4C - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

------ Temperature limit for the single pole version under full 16 A contact current.

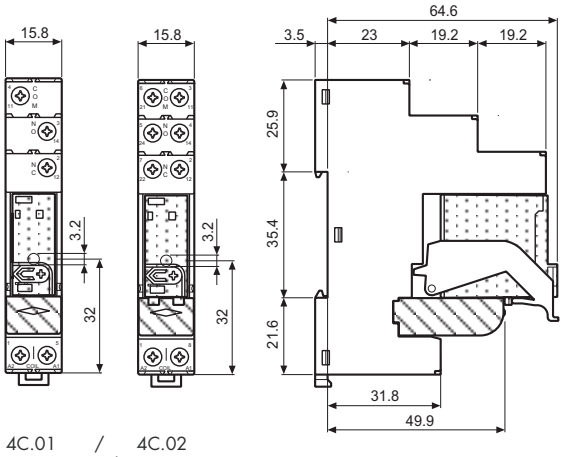
Combinations

Certain relay/socket combinations

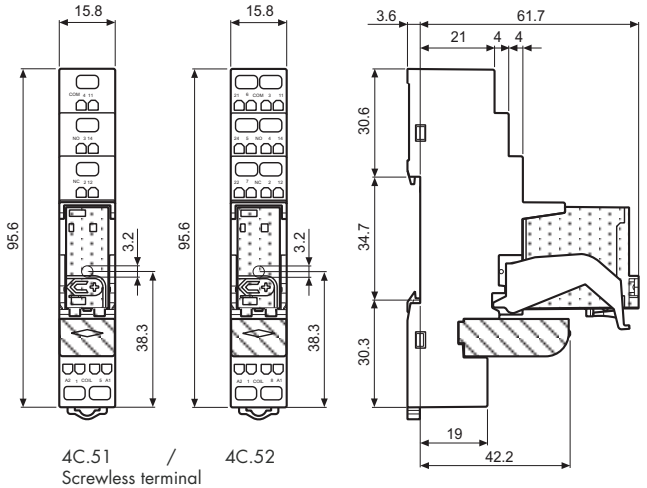
Code	Type of socket	Type of relay	Module	Retaining clip
4C.01	97.01	46.61	99.02	097.01
4C.02	97.02	46.52	99.02	097.01
4C.51	97.51	46.61	99.02	097.01
4C.52	97.52	46.52	99.02	097.01

B

Outline drawing



4C.01 / 4C.02
Screw terminal

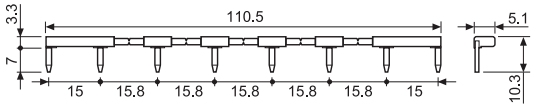


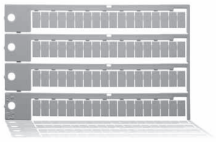
4C.51 / 4C.52
Screwless terminal

Accessories

095.18

8-way jumper link for 4C.01 and 4C.02	095.18 (blue)
Rated values	10 A - 250 V





060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm	060.72

Packaging code

How to code and identify retaining clip and packaging options for relay interface module.

Example:

4	C	.	0	1	.	9	.	0	2	4	.	0	0	5	0	S	P	A

A Standard packaging
B Blister packaging

SP Plastic retaining clip

Features

2, 3 & 4 Pole relay interface modules, 27 mm wide.

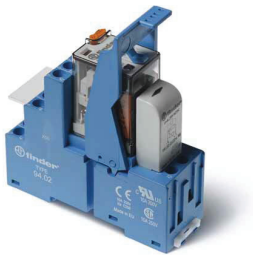
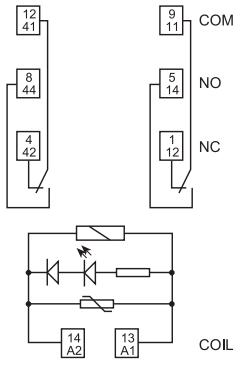
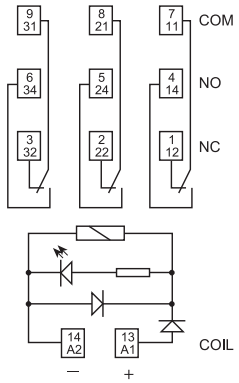
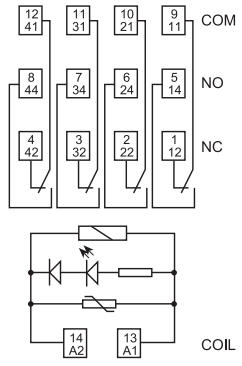
Ideal interface for PLC and electronic systems

58.32 - 2 Pole 10 A (screw terminals)
58.33 - 3 Pole 10 A (screw terminals)
58.34 - 4 Pole 7 A (screw terminals)

- AC coils and DC coils
- Supply status indication and coil suppression module as standard
- Identification label
- Cadmium Free contacts
- UL Listing (certain relay/socket combinations)
- 35 mm rail (EN 60715) mounting

58.32 / 58.33 / 58.34
Screw terminals

B

	58.32	58.33	58.34
			
	• 2 pole, 10 A • Screw terminals • 35 mm rail (EN 60715) mounting	• 3 pole, 10 A • Screw terminals • 35 mm rail (EN 60715) mounting	• 4 pole, 7 A • Screw terminals • 35 mm rail (EN 60715) mounting
			
For outline drawing see page 5	Example: AC	Example: DC	Example: AC
Contact specification			
Contact configuration	2 CO (DPDT)	3 CO (3PDT)	4 CO (4PDT)
Rated current/Maximum peak current A	10/20	10/20	7/15
Rated voltage/Maximum switching voltage V AC	250/400	250/400	250/250
Rated load AC1 VA	2,500	2,500	1,750
Rated load AC15 (230 V AC) VA	500	500	350
Single phase motor rating (230 V AC) kW	0.37	0.37	0.125
Breaking capacity DC1: 30/110/220V A	10/0.25/0.12	10/0.25/0.12	7/0.25/0.12
Minimum switching load mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material	AgNi	AgNi	AgNi
Coil specification			
Nominal voltage (U_N) V AC (50/60 Hz)	12 - 24 - 48 - 110 - 120 - 230	12 - 24 - 48 - 110 - 120 - 230	12 - 24 - 48 - 110 - 120 - 230
V DC	12 - 24 - 48 - 125	12 - 24 - 48 - 125	12 - 24 - 48 - 125
Rated power AC/DC VA (50 Hz)/W	1.5/1	1.5/1	1.5/1
Operating range AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
DC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
Holding voltage AC/DC	0.8 U_N/0.5 U_N	0.8 U_N/0.5 U_N	0.8 U_N/0.5 U_N
Must drop-out voltage AC/DC	0.2 U_N/0.1 U_N	0.2 U_N/0.1 U_N	0.2 U_N/0.1 U_N
Technical data			
Mechanical life AC/DC cycles	$20 \cdot 10^6/50 \cdot 10^6$	$20 \cdot 10^6/50 \cdot 10^6$	$20 \cdot 10^6/50 \cdot 10^6$
Electrical life at rated load AC1 cycles	$200 \cdot 10^3$	$200 \cdot 10^3$	$150 \cdot 10^3$
Operate/release time ms	10/5 (AC) - 10/15 (DC)	10/5 (AC) - 10/15 (DC)	11/3 (AC) - 11/15 (DC)
Insulation between coil and contacts (1.2/50 µs) kV	3.6	3.6	3.6
Dielectric strength between open contacts V AC	1,000	1,000	1,000
Ambient temperature range °C	–40...+70	–40...+70	–40...+70
Protection category	IP 20	IP 20	IP 20
Approvals relay (according to type)	CE SP D EAC FI PG RINA cULus VDE		

Features

4 Pole relay interface modules, 31 mm wide.

Ideal interface for PLC and electronic systems

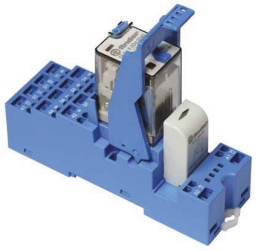
58.54 - 4 Pole 7 A (screwless terminals)

B

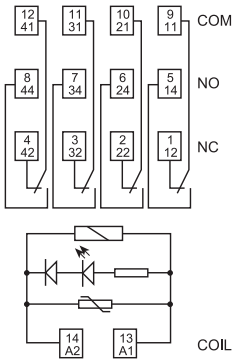
- AC coils and DC coils
- Supply status indication and coil suppression module as standard
- Identification label
- Cadmium Free contacts
- 35 mm rail (EN 60715) mounting

58.54
Screwless terminal

58.54



- 4 pole, 7 A
- Screwless terminals
- 35 mm rail (EN 60715) mounting



For outline drawing see page 5

Example: AC

Contact specification		
Contact configuration		4 CO (4PDT)
Rated current/Maximum peak current	A	7/15
Rated voltage/Maximum switching voltage	V AC	250/250
Rated load AC1	VA	1,750
Rated load AC15 (230 V AC)	VA	350
Single phase motor rating (230 V AC)	kW	0.125
Breaking capacity DC1: 30/110/220V	A	7/0.25/0.12
Minimum switching load	mW (V/mA)	300 (5/5)
Standard contact material		AgNi
Coil specification		
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 48 - 110 - 120 - 230
	V DC	12 - 24 - 48 - 125
Rated power AC/DC	VA (50 Hz)/W	1.5/1
Operating range	AC	(0.8...1.1)U_N
	DC	(0.8...1.1)U_N
Holding voltage	AC/DC	0.8 U_N/0.5 U_N
Must drop-out voltage	AC/DC	0.2 U_N/0.1 U_N
Technical data		
Mechanical life AC/DC	cycles	$20 \cdot 10^6$/$50 \cdot 10^6$
Electrical life at rated load AC1	cycles	$150 \cdot 10^3$
Operate/release time	ms	11/3 (AC) - 11/15 (DC)
Insulation between coil and contacts (1.2/50 µs)	kV	3.6
Dielectric strength between open contacts	V AC	1,000
Ambient temperature range	°C	–25...+70
Protection category		IP 20
Approvals relay (according to type)		

Ordering information

Example: 58 series 35 mm rail (EN 60715) mounting, screw terminals interface module, 4 CO (4PDT), 24 V DC coil, green LED + diode.

5	8	.	3	4	.	9	.	0	2	4	.	A: 0	B: 0	C: 5	D: 0

Series

Type
3 = Screw terminals
35 mm rail (EN 60715) mount
5 = Screwless terminals
35 mm rail (EN 60715) mount

No. of poles
2 = 2 pole, 10 A
3 = 3 pole, 10 A
4 = 4 pole, 7 A

Coil version
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

A: Contact material
0 = AgNi Standard
5 = AgNi + Au

B: Contact circuit
0 = CO (nPDT)

C: Options
5 = Standard DC: green LED + diode (polarity +A1)
6 = Standard AC: green LED + Varistor

D: Special versions
0 = Standard

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold.**

Type	Coil version	A	B	C	D
58.32/33/34/54	AC	**0** - 5	0	**6**	0
58.32/33/34/54	DC	**0** - 5	0	**5**	0

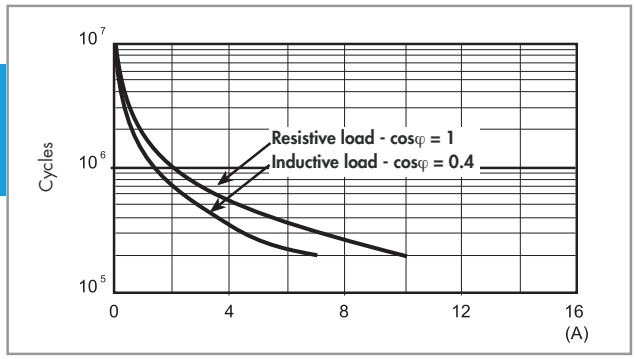
Technical data

Insulation						
Insulation according to EN 61810-1	insulation rated voltage	V	400 (2-3 pole)		250 (4 pole)	
	rated impulse withstand voltage	kV	3.6 (2-3 pole)		2.5 (4 pole)	
	pollution degree		2		2	
	overvoltage category		III		II	
Insulation between coil and contacts (1.2/50 µs)		kV	3.6			
Dielectric strength between open contacts		V AC	1,000			
Dielectric strength between adjacent contacts		V AC	2,000 (58.32,58.33)		1,550 (58.34, 58.54)	
Conducted disturbance immunity						
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4		level 4 (4 kV)	
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5		level 4 (4 kV)	
Other data						
Bounce time: NO/NC		ms	1/3			
Vibration resistance (10...55)Hz: NO/NC		g	6/6			
Power lost to the environment	without contact current	W	1			
	with rated current	W	3 (58.32, 58.34, 58.54)		4 (58.33)	
			58.32/33/34 (screw terminals)		**58.54 (screwless terminals)**	
Wire strip length		mm	8		10	
Screw torque		Nm	0.5		—	
Max. wire size			solid cable	stranded cable	solid cable	stranded cable
		mm^2	1x6 / 2x2.5	1x4 / 2x2.5	2x(0.2...1.5)	2x(0.2...1.5)
		AWG	1x10 / 2x14	1x12 / 2x14	2x(24...14)	2x(24...14)

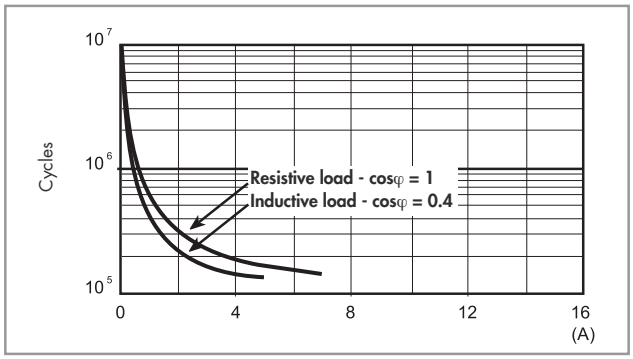
B

Contact specification

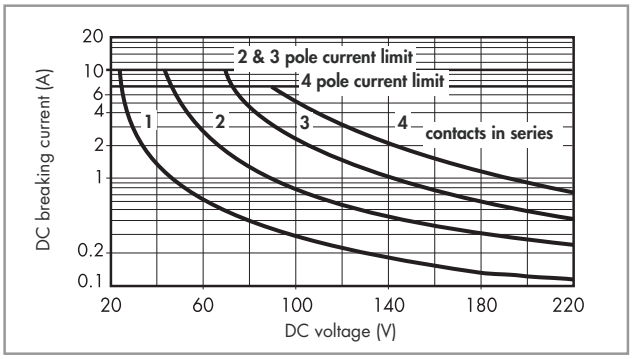
F 58 - Electrical life (AC) v contact current
2 & 3 pole relays



F 58 - Electrical life (AC) v contact current
4 pole relay



H 58 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ $100 \cdot 10^3$ 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

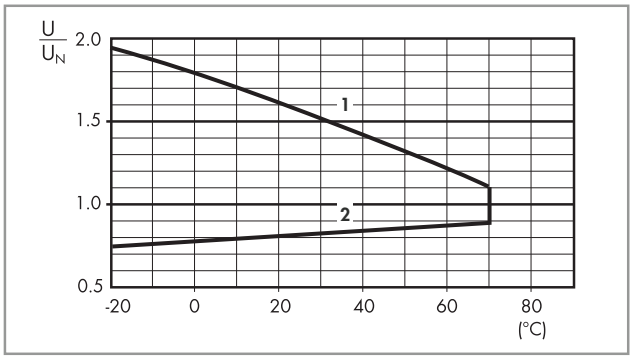
DC coil data

Nominal voltage U_N V	Coil code	Operating range U_{min} V	U_{max} V	Resistance R Ω	Rated coil absorption I at U_N mA
12	**9**.012	9.6	13.2	140	86
24	**9**.024	19.2	26.4	600	40
48	**9**.048	38.4	52.8	2,400	20
125	**9**.125	100	138	17,300	7.2

AC coil data

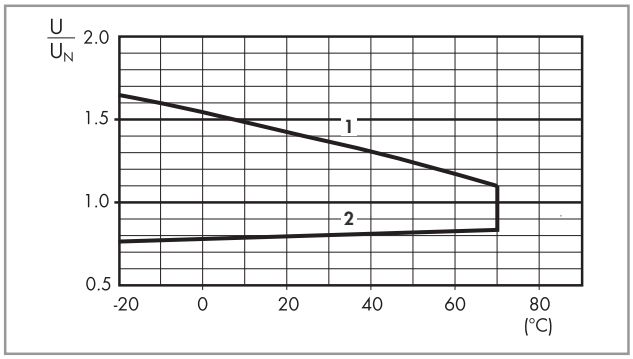
Nominal voltage U_N V	Coil code	Operating range U_{min} V	U_{max} V	Resistance R Ω	Rated coil absorption I at U_N (50Hz) mA
12	**8**.012	9.6	13.2	50	97
24	**8**.024	19.2	26.4	190	53
48	**8**.048	38.4	52.8	770	25
110	**8**.110	88	121	4,000	12.5
120	**8**.120	96	132	4,700	12
230	**8**.230	184	253	17,000	6

R 58 - DC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 58 - AC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

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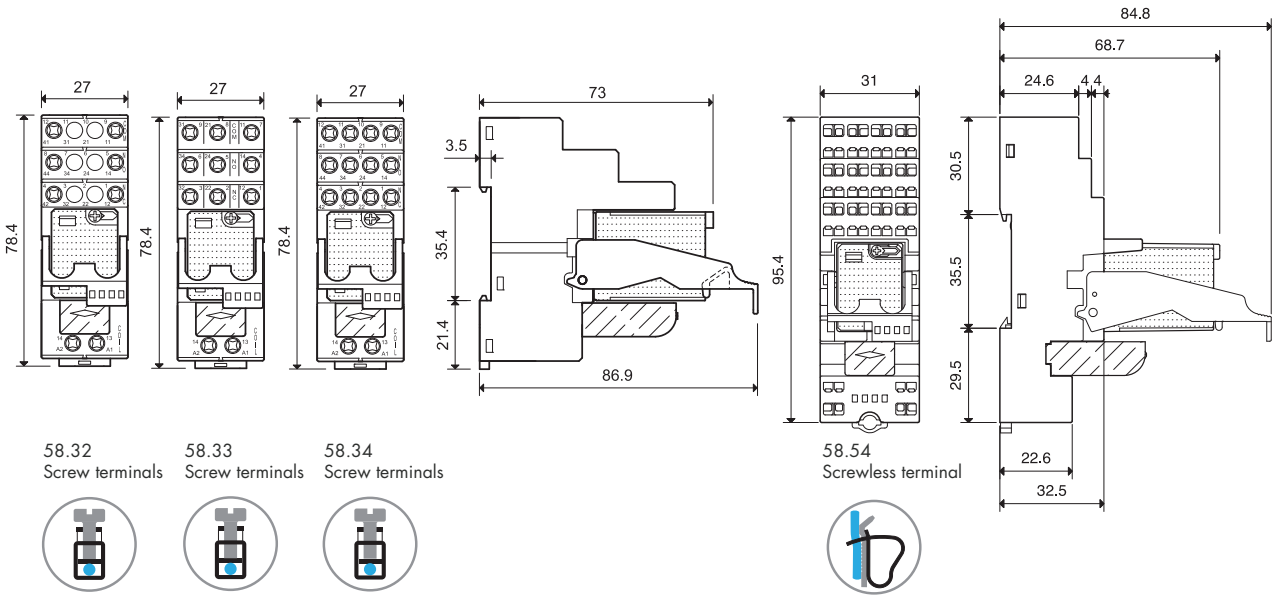
Combinations

Certain relay/socket combinations

Code	Type of socket	Type of relay	Module	Retaining clip
58.32	94.02	55.32	99.02	094.91.3
58.33	94.03	55.33	99.02	094.91.3
58.34	94.04	55.34	99.02	094.91.3
58.54	94.54	55.34	99.02	094.91.3

B

Outline drawing



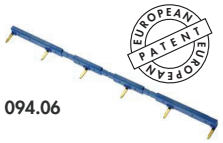
58.32 Screw terminals

58.33 Screw terminals

58.34 Screw terminals

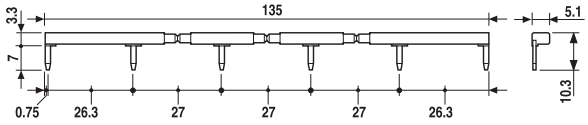
58.54 Screwless terminal

Accessories



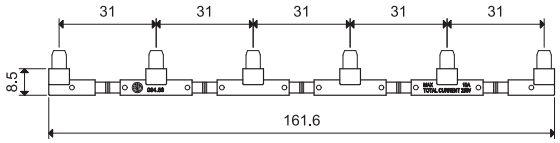
094.06

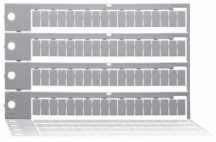
6-way jumper link for type 58.32, 58.33, 58.34	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



094.56

6-way jumper link for type 58.54	094.56 (blue)
Rated values	10 A - 250 V





060.72

Sheet of marker tags, plastic, 72 tags, 6x12 mm	060.72

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

5	8	.	3	4	.	9	.	0	2	4	.	0	0	5	0	S	P	A

A Standard packaging
B Blister packaging

SP Plastic retaining clip

B

Features

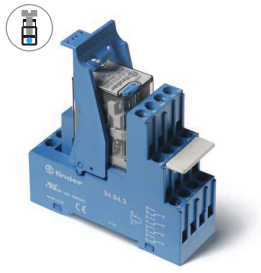
2 & 4 Pole relay interface modules, 27 mm wide.

Ideal interface for PLC and electronic systems

59.32 - 2 Pole 10 A (screw terminals)
59.34 - 4 Pole 7 A (screw terminals)

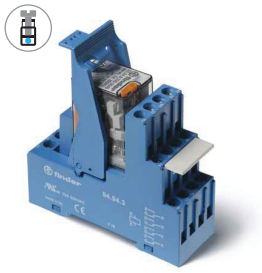
- AC coils and DC coils
- Supply status indication and coil suppression module as standard
- Identification labels
- Cadmium Free contact material options
- 35 mm rail (EN 60715) mount

59.32



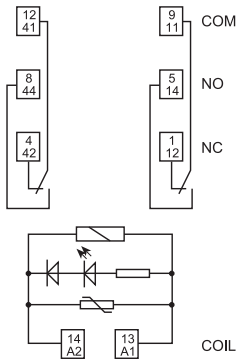
- 2 pole, 10 A
- Screw terminals
- 35 mm rail (EN 60715) mount

59.34

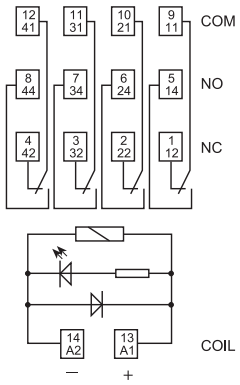


- 4 pole, 7 A
- Screw terminals
- 35 mm rail (EN 60715) mount

59.32 / 59.34
Screw terminals



Example: AC



Example: DC

For outline drawing see page 4

Contact specification			
Contact configuration		2 CO (DPDT)	4 CO (4PDT)
Rated current/Maximum peak current	A	10/20	7/10
Rated voltage/Maximum switching voltage	V AC	250/400	250/250
Rated load AC1	VA	2,500	1,750
Rated load AC15 (230 V AC)	VA	500	350
Single phase motor rating (230 V AC)	kW	0.37	0.125
Breaking capacity DC1: 30/110/220V	A	10/0.25/0.12	7/0.25/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	12 - 24 - 230	12 - 24 - 230
	V DC	12 - 24	12 - 24
Rated power AC/DC	VA (50 Hz)/W	1.5/1	1.5/1
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
Holding voltage	AC/DC	0.8 U_N/0.5 U_N	0.8 U_N/0.5 U_N
Must drop-out voltage	AC/DC	0.2 U_N/0.1 U_N	0.2 U_N/0.1 U_N
Technical data			
Mechanical life AC/DC	cycles	$20 \cdot 10^6/50 \cdot 10^6$	$20 \cdot 10^6/50 \cdot 10^6$
Electrical life at rated load AC1	cycles	$200 \cdot 10^3$	$150 \cdot 10^3$
Operate/release time	ms	10/5 (AC) - 9/15 (DC)	10/5 (AC) - 9/15 (DC)
Insulation between coil and contacts (1.2/50 µs)	kV	3.6	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	–25...+70	–25...+70
Protection category		IP 20	IP 20
Approvals relay (according to type)			

B

Ordering information

Example: 59 series 35 mm rail (EN 60715) mounting, screw terminal, interface module, 4 CO (4PDT), 24 V DC coil, green LED + diode.

5	9	.	3	4	.	9	.	0	2	4	.	0	0	5	0
												A	B	C	D

Series

Type
3 = Screw terminals,
35 mm rail (EN 60715) mount

No. of poles
2 = 2 pole, 10 A
4 = 4 pole, 7 A

Coil version
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

A: Contact material
0 = AgNi Standard
5 = AgNi + Au

B: Contact circuit
0 = CO (nPDT)

D: Special versions
0 = Standard

C: Options
5 = Standard DC: green LED + diode (polarity +A1)
6 = Standard AC: green LED + Varistor

Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold.**

Type	Coil version	A	B	C	D
59.32/34	AC	**0** - 5	0	**6**	0
59.32/34	DC	**0** - 5	0	**5**	0

Technical data

Insulation				
Insulation according to EN 61810-1	insulation rated voltage	V	400 (2 pole)	250 (4 pole)
	rated impulse withstand voltage	kV	3.6 (2 pole)	2.5 (4 pole)
	pollution degree		2	2
	overvoltage category		III	II
Insulation between coil and contacts (1.2/50 µs)		kV	3.6	
Dielectric strength between open contacts		V AC	1,000	
Dielectric strength between adjacent contacts		V AC	2,000 (59.32)	1,550 (59.34)
Conducted disturbance immunity				
Burst (5...50)ns, 5 kHz, on A1 - A2			EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)			EN 61000-4-5	level 4 (4 kV)
Other data				
Bounce time: NO/NC		ms	1/3	
Vibration resistance (10...55)Hz: NO/NC		g	6/6	
Power lost to the environment	without contact current	W	1	
	with rated current	W	3	
			59.32/34 (screw terminals)	
Wire strip length		mm	8	
Screw torque		Nm	0.5	
Max. wire size			solid cable	stranded cable
		mm^2	1x6 / 2x2.5	1x4 / 2x2.5
		AWG	1x10 / 2x14	1x12 / 2x14

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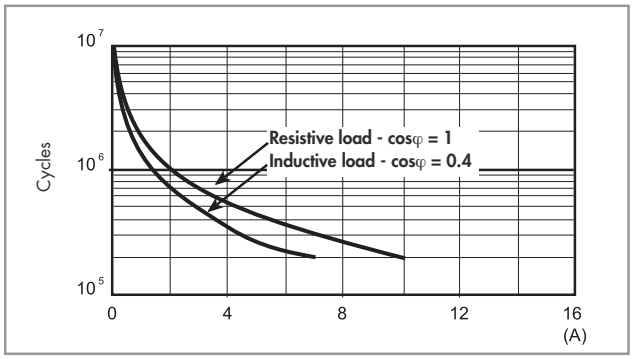
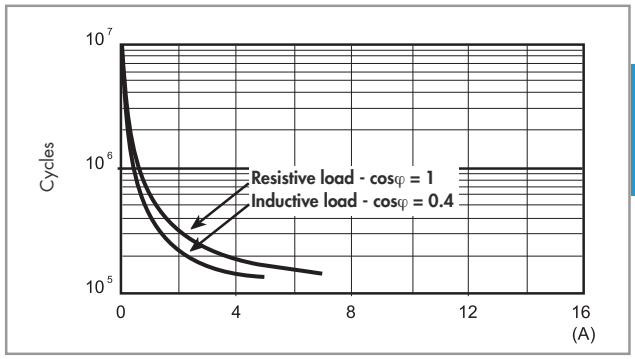
Contact specification

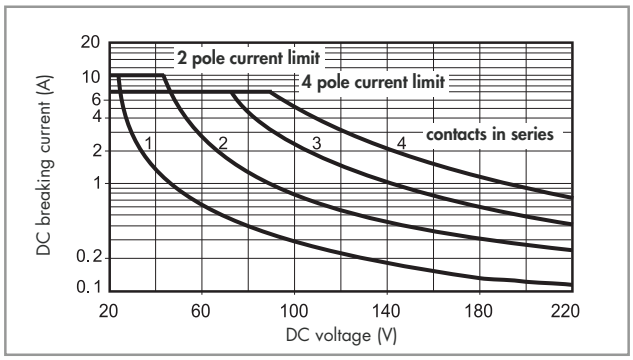
F 59 - Electrical life (AC) v contact current
2 pole relay



F 59 - Electrical life (AC) v contact current
4 pole relay



H 59 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ $100 \cdot 10^3$ 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

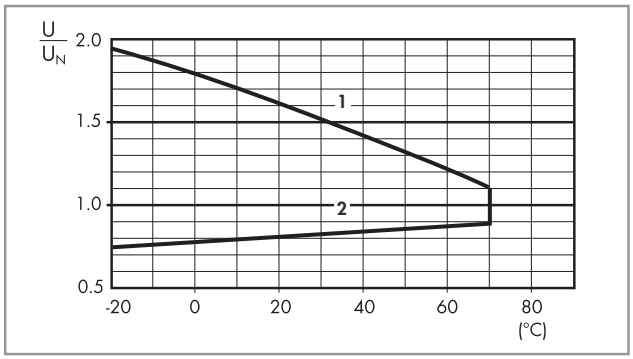
DC coil data

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil absorption I at U_N
V		V	V	Ω	mA
12	**9**.012	9.6	13.2	140	86
24	**9**.024	19.2	26.4	600	40

AC coil data

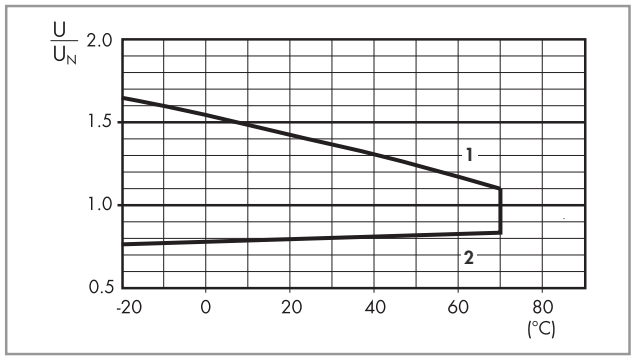
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil absorption I at U_N (50Hz)
V		V	V	Ω	mA
12	**8**.012	9.6	13.2	50	97
24	**8**.024	19.2	26.4	190	53
230	**8**.230	184	253	17,000	6

R 59 - DC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 59 - AC coil operating range v ambient temperature



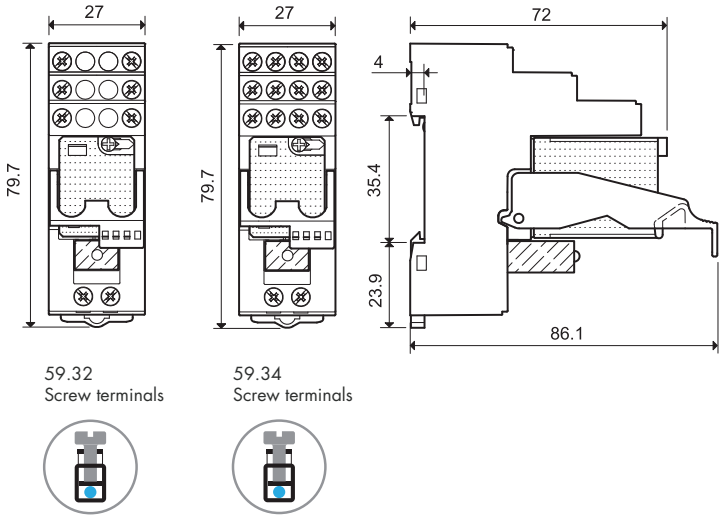
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

B

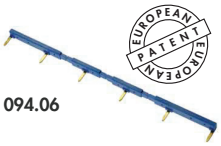
Combinations

Code	Type of socket	Type of relay	Module	Retaining clip
59.32	94.92.3	55.32	99.80	094.91.3
59.34	94.94.3	55.34	99.80	094.91.3

Outline drawing

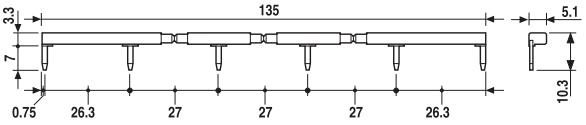


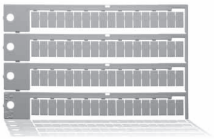
Accessories



094.06

6-way jumper link for 59.32 and 59.34	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	





060.72

Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm	060.72

Packaging codes

How to code and identify retaining clip and packaging options for sockets.

Example:

5	9	.	3	4	.	9	.	0	2	4	.	0	0	5	0	S	P	A

A Standard packaging
B Blister packaging

SP Plastic retaining clip

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B

Features

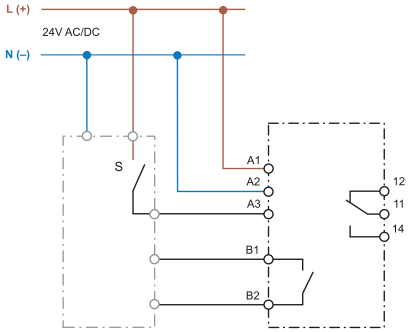
Auto/Off/On output module 10 A

- Auto/Off/On output module intended to permit the automatic control of pumps, blowers or motor groups. Or, in the case of installation, maintenance or failure, to permit the load equipment to be turned "Off" or controlled under "On" control
- Ideal interface for PLC and electronic systems
- Only 11.2 mm wide
- 3 function selector switch:
  - Auto: works as a monostable relay (following A3 input)
  - Off: relay permanently OFF
  - On: relay permanently ON
- 24V AC/DC supply and module input
- 35 mm rail (EN 60715) mounting

Application examples:

- control of pumps, blowers or motor groups
- primarily suited to Industrial control systems

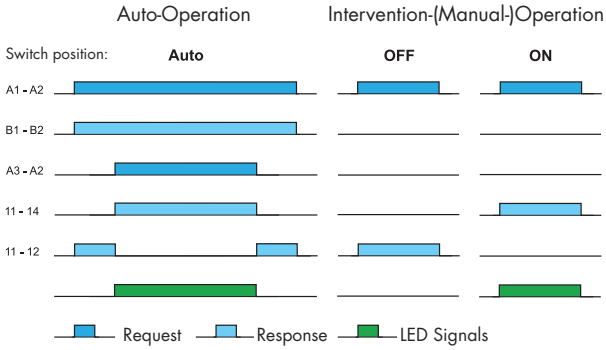
Wiring diagram



For outline drawing see page 8

19.21.0.024.0000

- 1 CO output contact
- 11.2 mm wide
- Feedback contact



B1-B2 feed back information to the controller for Auto-operation
A3-A2 From the controller requested operation

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	10/15
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	2,500
Rated load AC15 (230 V AC)	VA	500
Single phase motor rating (230 V AC)	kW	0.44
Breaking capacity DC1 (24/110/220 V)	A	10/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)
Standard contact material		$AgSnO_2$
Feedback contact specification (terminals B1-B2)		
Contact configuration		1 NO (SPST-NO)
Maximum current	mA	300
Rated voltage	V AC/DC	24
Supply & Input specification		
Nominal voltage (U_N)	V AC (50/60 Hz)	24
	V DC	24
Rated power	VA (50 Hz)/W	0.6 (50 Hz)/0.4
Operating range	AC	(0.8...1.1) U_N
	DC	(0.8...1.1) U_N
Technical data		
Ambient temperature range	°C	–20...+50
Protection category		IP 20
Approvals (according to type)		CE EAC

B

Features

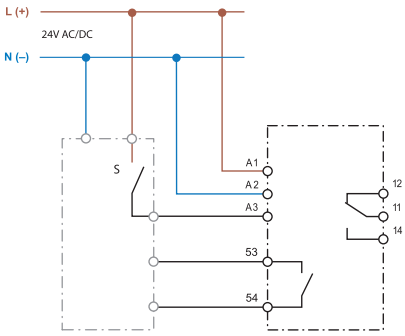
Override module - Auto/Off/Hand

- Auto/Off/Hand override module intended to permit the automatic control of pumps, blowers or motor groups. Or, in the case of installation, maintenance or failure, to permit the load equipment to be turned "Off" or controlled under "Hand" control
- 3 function selector switch:
  - Auto: work as a monostable relay relay (following A3 input)
  - Off: relay output permanently Off
  - Hand: relay output permanently On
- 24V AC/DC supply & input
- 35 mm rail (EN 60715) mounting

Application examples:

- control of pumps, blowers or motor groups commonly associated with building management systems

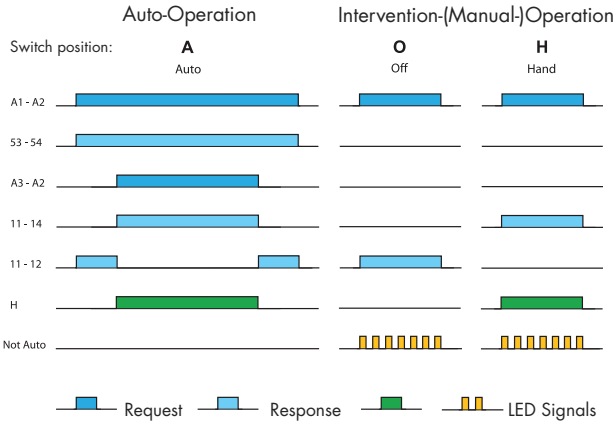
Wiring diagram



For outline drawing see page 8

NEW **19.41.0.024.0000**

- 1 CO output contact
- 1 feedback output contact
- 17.5 mm wide
- LED indicator



53-54 feed back information to the controller for Auto-operation
A3-A2 Requested operation

Output specification (terminals 12-11-14)		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	5/15
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,250
Rated load AC15 (230 V AC)	VA	250
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1 (24/110/220 V)	A	3/0.35/0.2
Minimum switching load	mW (V/mA)	500 (10/5)
Standard contact material		AgCdO
Feedback output specification (terminals 53-54)		
Contact configuration		1 NO (SPST-NO)
Maximum / Minimum current	mA AC/DC	100/10
Rated voltage	V AC/DC	24
Supply & Input specification		
Nominal voltage (U_N)	V AC (50/60 Hz)	24
	V DC	24
Rated power	VA (50 Hz)/W	1 (50 Hz)/0.6
Operating range	AC	(0.8...1.1) U_N
	DC	(0.8...1.1) U_N
Technical data		
Ambient temperature range		–20...+50
Protection category		IP20
Approvals (according to type)		CE EAC

B

Features

Override module - Auto/Off/Low/High

- Override output module intended to permit the automatic control of two-speed pumps, blowers or motor groups. Or, in the case of installation, maintenance or failure, to permit the load equipment to be turned "Off" or to run in "Low speed" or "High speed" under "Hand" control
- 4 function selector switch:
  - Auto: directly controlled by the BMS or PLC
  - Off: relays permanently Off
  - Hand Low: Low speed relay output permanently On
  - Hand High: High speed relay output permanently On
- 24V AC/DC supply and module inputs
- 35 mm rail (EN 60715) mounting

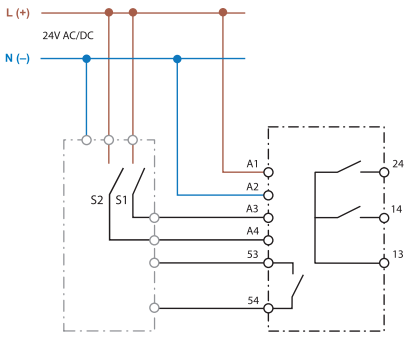
Application examples:

- control of two-speed pumps, blowers or motor groups commonly associated with building management systems

NEW **19.42.0.024.0000**

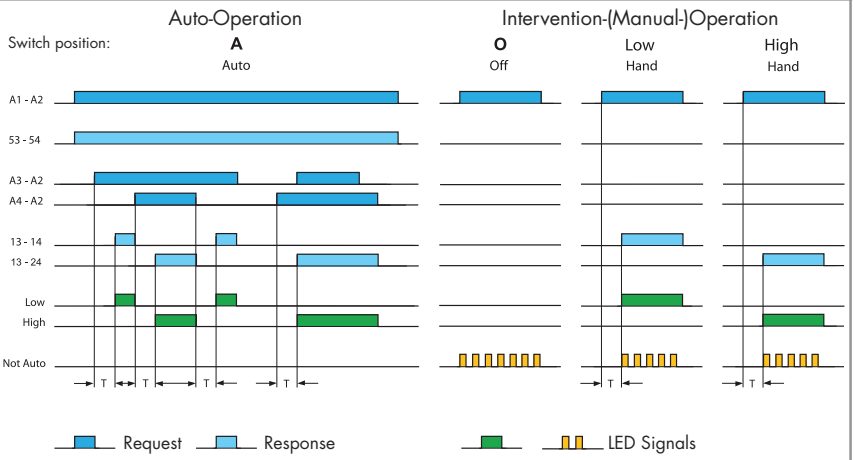
- Low and High output contacts
- 1 feedback output contact
- 35 mm wide
- LED indicator

Wiring diagram



Controller, PLC Type 19.42

For outline drawing see page 8



53-54 feed back information to the controller for Auto-operation
A3-A2 Low speed or power operation
A4-A2 High speed or power operation (dominating again low speed or low power operation)
T = ON delay for 13-14 and 13-24 is approx. 100 ms as pause for the speed shift.
By reserving motors with big moments of inertia (inertia force) from high speed to low speed an additional ON delay of approx. 20 s is recommended.

Output specification (terminals 13-14-24)		
Contact configuration		2 NO (DPST-NO)
Rated current/Maximum peak current	A	5/15
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	1,250
Rated load AC15 (230 V AC)	VA	250
Single phase motor rating (230 V AC)	kW	0.185
Breaking capacity DC1 (24/110/220 V)	A	3/0.35/0.2
Minimum switching load	mW (V/mA)	500 (10/5)
Standard contact material		AgCdO
Feedback output specification (terminals 53-54)		
Contact configuration		1 NO (SPST-NO)
Maximum / Minimum current	mA	100/10
Rated voltage	V AC/DC	24
Supply & Input specification		
Nominal voltage (U_N)	V AC (50/60 Hz)	24
	V DC	24
Rated power	VA (50 Hz)/W	1.6 (50 Hz)/0.8
Operating range	AC	(0.8...1.1) U_N
	DC	(0.8...1.1) U_N
Technical data		
Ambient temperature range	°C	–20...+50
Protection category		IP20
Approvals (according to type)		CE EAC

B

Features

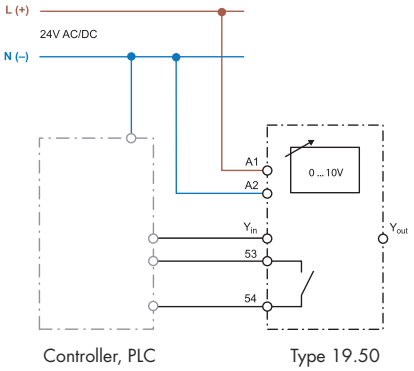
Analogue override module - Auto/Hand (0...10)V

- Analogue output module intended to provide, by the selection switch on the front panel, a (0…10) V output, automatically or by hand. With the selector switch in position "A" (Automatic) the (0…10) V signal is derived from the controller.
  In position "H" (Hand) the controller signal is ignored and the (0…10) V signal is derived directly from the potentiometer setting on the facia of the module
- The level of the (0…10) V output signal is displayed by 3 green LEDs, set at >25%, >50% and >75%.
- 24V AC/DC supply
- 35 mm rail (EN 60715) mounting

Application examples:

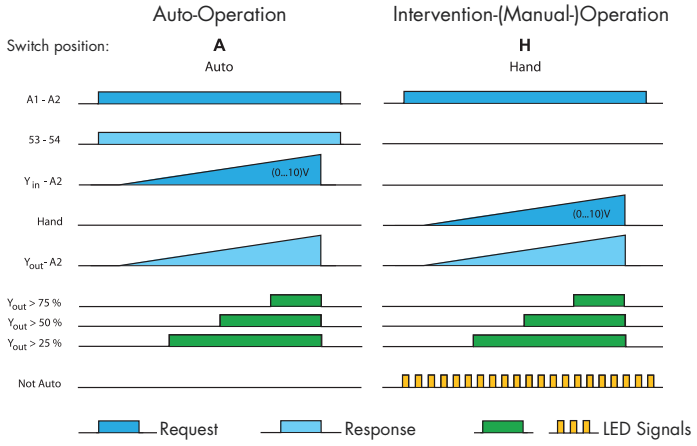
- permits the direct control of proportional valves under exceptional circumstances or where the automatic controller has failed

Wiring diagram



NEW **19.50.0.024.0000**

- Analogue output (0…10)V, plus 1 feedback output contact
- 17.5 mm wide
- LED indicator



53-54 feed back information to the controller for Auto-operation
Y_{in}-A2 / Hand = Set point (set value) (0…10) V DC;
requested by the controller or manual

For outline drawing see page 8

(0...10)V Signal specification (terminal Y-in)		
Input control signal	V DC	0…10 (Imax 20mA - short-circuit protected)
Green LED 25%		>2.5 V
Green LED 50%		> 5 V
Green LED 75%		>7.5 V
Feedback output specification (terminals 53-54)		
Output configuration		1 NO (SPST-NO)
Maximum / Minimum current	mA	100 /10
Rated voltage	V AC/DC	24
Supply & Input specification		
Nominal voltage (U_N)	V AC (50/60 Hz)	24
	V DC	24
Rated power AC/DC	VA (50 Hz)/W	0.9 / 0.7
Operating range	AC	(0.8...1.1) U_N
	DC	(0.8...1.1) U_N
Technical data		
Ambient temperature range		–20…+50 °C
Protection category		IP20
Approvals (according to type)		CE EAC

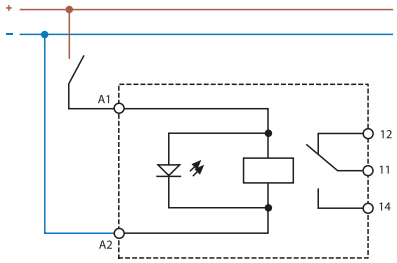
B

Features

Power relay module 16 A

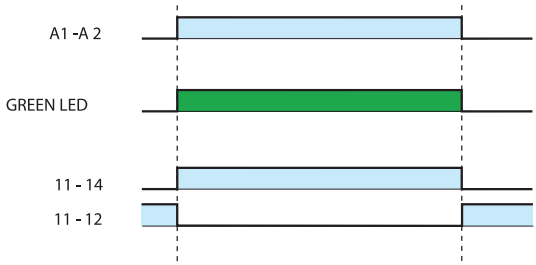
- Suitable for Lamps load
- $AgSnO_2$ contacts for heavy duty, high inrush current loads
- DC supply (12 or 24 V)
- LED indicator
- Reinforced insulation between supply and contacts
- Cadmium Free contacts
- 35 mm rail (EN 60715) mounting

Wiring diagram



NEW **19.91.9.0xx.4000**

- 1 Pole changeover contact
- 17.5 mm



For outline drawing see page 8

Contact specification		
Contact configuration		1 CO (SPDT)
Rated current/Maximum peak current	A	16/30 (120 A – 5 ms)
Rated voltage/Maximum switching voltage	V AC	250/440
Rated load AC1	VA	4,000
Rated load AC15 (230 V AC)	VA	750
Nominal lamp rating (230 V): incandescent	W	2,000
compensated fluorescent	W	750
Minimum switching load	mW	300 (5 V/ 5 mA)
Standard contact material		$AgSnO_2$
Coil specification		
Nominal voltage (U_N)	V DC	12 - 24
Rated power AC/DC	VA (50 Hz)/W	1.2 / 0.5
Operating range		(0.8 ... 1.1) U_N
Technical data		
Mechanical life AC/DC	cycles	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$80 \cdot 10^3$
Operate/release time	ms	12/8
Ambient temperature range	°C	–20...+50
Protection category		IP 20
Approvals (according to type)		CE EAC

B

Ordering information

Example: 19 series Auto/Off/Hand override module, 1 CO (SPDT) 5 A contact, 24 V AC/DC supply.

1 9	.	4	1	.	0	.	0 2 4	.	0	0	0	0

Series

Type
21= Auto/Off/On output module, 11.2mm
41= Override module - Auto/Off/Hand
42= Override module - Auto/Off/Low/High
50= Analogue override module (0...10) V
91= Power relay module

Supply version
0 = AC (50/60 Hz) / DC
9 = DC

Supply voltage
012 = 12 V
024 = 24 V

Contact material
0= Standard for 19.21/41/42/50
4= Standard for 19.91

Codes / Module width
19.21.0.024.0000 / 11.2 mm
19.41.0.024.0000 / 17.5 mm
19.42.0.024.0000 / 35.0 mm
19.50.0.024.0000 / 17.5 mm
19.91.9.012.4000 / 17.5 mm
19.91.9.024.4000 / 17.5 mm

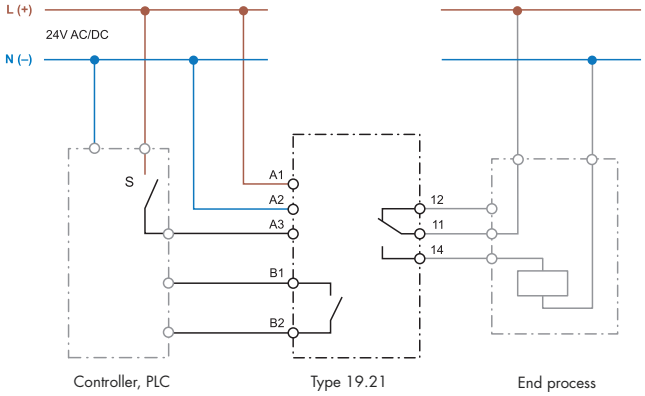
Technical data

Insulation		**19.21**	**19.41/42**	**19.50**	**19.91**
Dielectric strength (V AC)	between supply and contacts	3,000	2,000	–	4,000
	between open contacts	1,000	1,000	–	1,000
	between supply and feedback output	2,000	1,500	1,500	–
EMC specifications					
Type of test		**Reference standard**	**19.21/42/91**		**19.41/50**
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV		
	air discharge	EN 61000-4-2	8 kV		
Radiated electromagnetic field (80 ... 1,000 MHz)		EN 61000-4-3	30 V/m		
Fast transients (burst) (5-50 ns, 5 kHz)		EN 61000-4-4	4 kV		
Voltage pulses (1.2/50 µs)	common mode	EN 61000-4-5	2 kV		1 kV
on supply terminals	differential mode	EN 61000-4-5	1 kV		0.5 kV
Terminals		**19.21**		**19.41/42/91**	
Screw torque		0.5 Nm		0.8 Nm	
Max. wire size	solid cable	1x6/2x2.5 mm^2	1x10/2x14 AWG	1x6/2 x 4 mm^2	1x10/2x12 AWG
	stranded cable	1x4/2x1.5 mm^2	1x12/2x16 AWG	1x4/2x2.5 mm^2	1x12/2x14 AWG
Wire strip length		7 mm		9 mm	

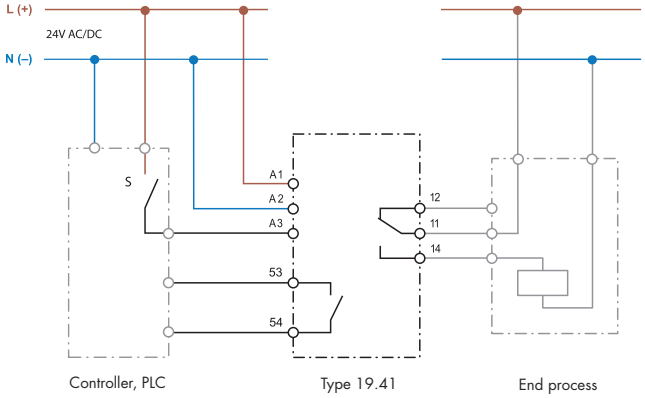
B

Wiring diagrams - *Application examples*

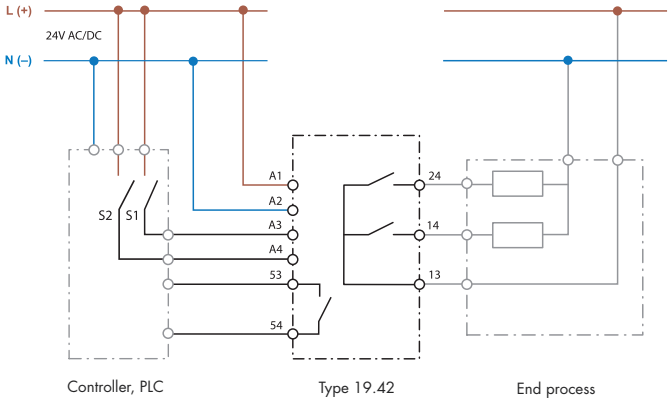
Type 19.21



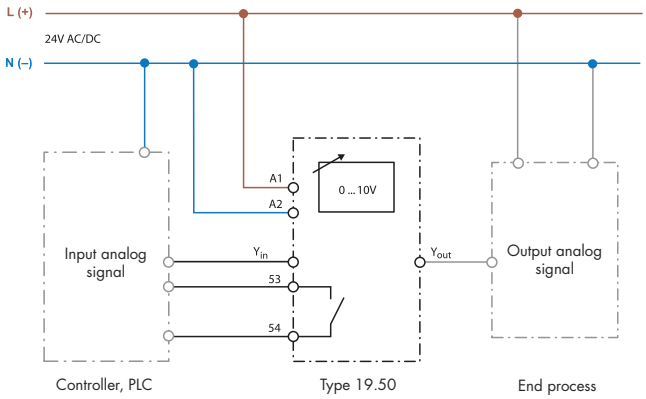
Type 19.41



Type 19.42



Type 19.50

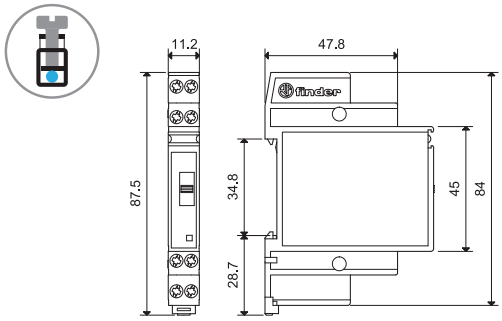


In the selector position A (Automatic) the 0...10 V set point of Yin - A2 is leaded, through Yout, to the end process;
in the selector position H (Hand) the 0...10 V value set with the regulator is leaded, through Yout, to the end process.

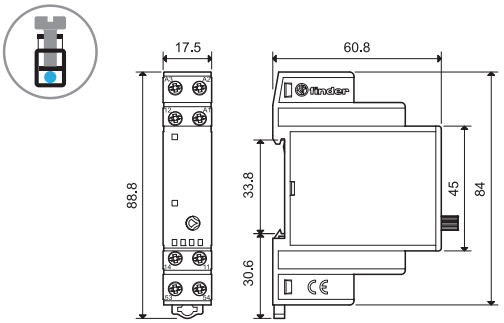
B

Outline drawings

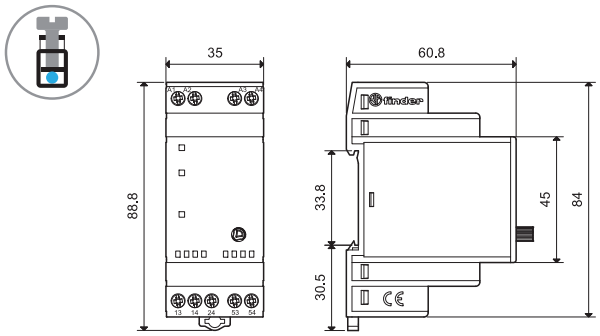
Type 19.21
Screw terminal



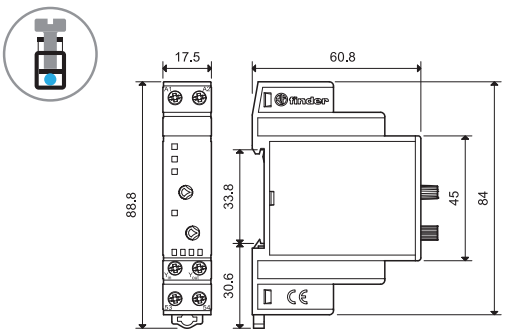
Type 19.41
Screw terminal



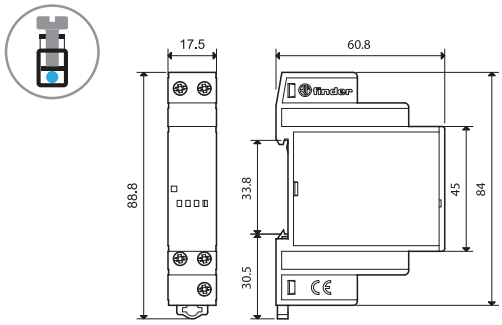
Type 19.42
Screw terminal



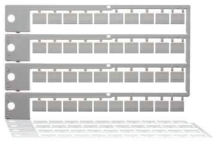
Type 19.50
Screw terminal



Type 19.91
Screw terminal

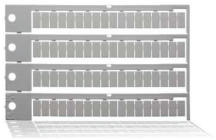


Accessories



019.40

Sheet of marker tags, for 19.21 type, plastic, 40 tags, 8x10 mm	019.40



060.72

Sheet of marker tags, for 19.41/42/50/91 types, plastic, 72 tags, 6x12 mm	060.72

019.01

Identification tag, for 19.41/42/50 types, plastic, 1 tag, 17x25.5 mm	019.01

020.01

Adaptor for panel mounting, for 19.41/50/91 types, plastic, 17.5 mm wide	020.01

011.01

Adaptor for panel mounting, for 19.42 type, plastic, 35 mm wide	011.01

B

Application notes

Intervention Modules
The demand for security apparatus, heating, air conditioning or efficient energy use in offices, hotels, and private homes or in industrial space is growing constantly, leading to the installation of increasingly complex electronic systems. But what happens if these systems malfunction and a qualified service technician will only be available in a few hours, or even days?

With the use of carefully installed intervention modules, a trained caretaker or security guard can be in a position to recognize interruptions in service, and by manual intervention perform the necessary override actions to maintain system operation until a repair can be effected.

Digital Override control module
Auto-Off-On output module (Type 19.21)
Many processes or systems are automatically controlled by an electronic control system or by a Programmable Logic Controller. In the event of an electronic system malfunction it is important, in order to avoid damage or downtime, to plan for the possibility of controlling the process manually. An Auto-Off-On Module can provide this, located between the output of the electronic system (Controller) and the process to be controlled (End Process) - bypassing the malfunctioning control unit in a planned way. For malfunctioning electronic systems, the process to be controlled can be manually switched On or Off, as needed, using the switch on the front of the unit. Under healthy functioning of the electronic system, the switch is left in the Auto position. In this configuration the process is controlled by the normal functioning of the electronic system and its output. It may be important to know (remotely) if the process is being controlled manually or automatically, in which case the feedback contact on the Auto–Off–On module 19.21 can provide this.

Override Control Modules (Type 19.41 and 19.42) may be installed if, in the event of a electronic system malfunction, emergency working has to be restored by means of manual intervention. On notice of a malfunctioning system, perhaps through a feedback contact from a Status Indicating Module, the caretaker on-site can then go to control panel housing the appropriate Override module and respond to the malfunction by manipulation of the Auto-Off-Hand switch. The 19.41 module has a three-position switch marked A-O-H. A= Automatic operation, O=OFF and H=Hand (or Manual operation).
Moving away for the Auto position means that the module's output relay is no longer under the control of the defective electronic Control System. Turning the switch to "H" energizes the output relay, whilst selecting the "O" position ensures the relay is de-energized.
For example: a defective heating control system can be manually overridden to be On in the "H" position or Off in the "O" position. In this way heating can be maintained until the faulty controller can be replaced.
The module's green LED will indicate that the Heating is On, whilst the flashing Yellow LED is a reminder that the task is under manual control, and that on the replacement of the defective electronic control system the Auto-Off-Hand switch should be returned to the "A" position.

The 19.42 override module is similar in principle to the 19.41 module except that it is intended for use with two-stage operations as associated with star-delta motor starting, two-speed fan motors, or forward/reverse motor switching. In these applications it is usually necessary to incorporate a "dead" time of > 50ms between the two On states. Consequently, when manually switching with the 19.42, between the "Low" and "High" state and vice versa, a "dead" time of > 80ms is provided for, within the module.

Note of caution: Where the reversal of motor direction is achieved by dual motor windings and a switched capacitor, an interval of approximately 300 ms should be provided. This will need to be provided by the inclusion of a separate timer in the control circuitry. To protect motors with a high moment of inertia (such as large fans and flywheels); when switching from high speed to lower speed, the lower speed should only be switched on when the motor has come nearly to a complete halt.

Analogue Override control module
Analogue output module (0…10)V (Type 19.50)
This module can be installed where there is need to give a manually adjustable analog signal (0…10)V priority over an analog signal from a electronic control unit or PLC, or to override and replace a malfunctioning signal.
The Analogue override module provides, by the selection switch on the front panel, a (0…10)V output signal either generated automatically or by hand. With the selector switch in position "A" (Automatic) the (0…10)V signal at Yout-A2 is derived from the controller signal applied to terminals Yin-A2. In position "H" (Hand) the controller signal is ignored and the (0…10) V signal is derived directly from the potentiometer setting on the module front panel.
Operation in switch position H is indicated by a blinking yellow LED, and by the opening of contact 51-52 – which could be used to report the override condition to the central control room.
The level of the (0…10) V output signal is displayed by 3 green LEDs, set at >25%, >50% and >75%.