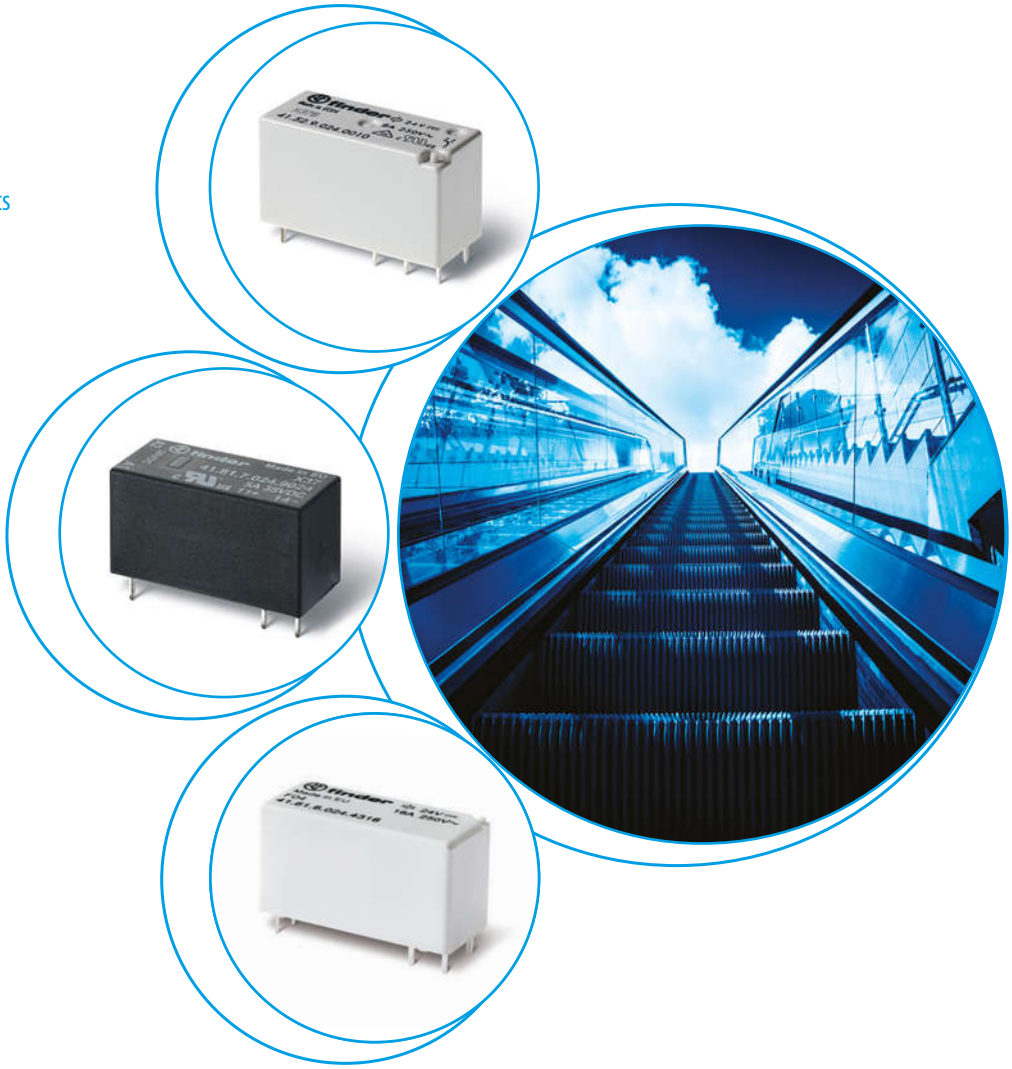
finder®
SWITCH TO THE FUTURE

41
SERIES

Low profile PCB relays
3 - 5 - 8 - 12 - 16 A

- Medical and dentistry
- Industrial robots
- Building automation
- Control systems
- Timers and lighting controls
- Door and gate openers
- Electronic circuit boards
- Vending machines



FINDER reserves the right to alter characteristics at any time without notice. FINDER assumes no liability for damage to persons or property, caused as a result of the incorrect use or application of its products.

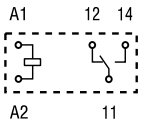
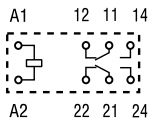
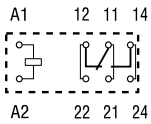
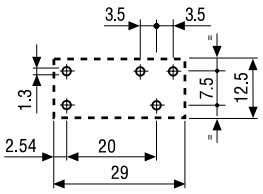
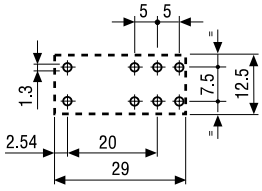
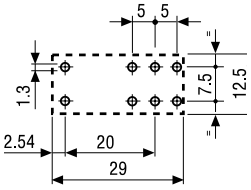
1 & 2 Pole - Low profile (15.7 mm height)
Type 41.31
- 1 Pole 12 A (3.5 mm pin pitch)

Type 41.52
- 2 Pole 8 A (5.0 mm pin pitch)

Type 41.61
- 1 Pole 16 A (5.0 mm pin pitch)

PCB mount
- direct or via PCB socket
35 mm rail mount
- via screw and screwless sockets

- AC and DC coils
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- Cadmium Free contact materials
- Flux proof: RT II standard, (RT III option)

	41.31	41.52	41.61
			
	• 3.5 mm contact pin pitch • 1 Pole 12 A • PCB direct or via socket	• 5.0 mm contact pin pitch • 2 Pole 8 A • PCB direct or via socket	• 5.0 mm contact pin pitch • 1 Pole 16 A • PCB direct or via socket
			
			
	Copper side view	Copper side view	Copper side view

**With the $AgSnO_2$ material the maximum peak current is 80 A - 5 ms on NO contact.

For UL ratings see:
"General technical information" page V
For outline drawing see page 9

Contact specification				
Contact configuration			1 CO (SPDT)	2 CO (DPDT)	1 CO (SPDT)
Rated current/ Maximum peak current	A		12/25	8/15	16/30**
Rated voltage/ Maximum switching voltage	V AC		250/400	250/400	250/400
Rated load AC1	VA		3000	2000	4000
Rated load AC15 (230 V AC)	VA		600	400	750
Single phase motor rating (230 V AC)	kW		0.5	0.3	0.5
Breaking capacity DC1: 30/110/220 V	A		12/0.3/0.12	8/0.3/0.12	16/0.3/0.12
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)		24 - 230	24 - 230	24 - 230
	V DC		5 - 6 - 12 - 24 - 48 - 60 - 110	5 - 6 - 12 - 24 - 48 - 60 - 110	5 - 6 - 12 - 24 - 48 - 60 - 110
Rated power AC/DC	VA (50 Hz)/W		0.75/0.4	0.75/0.4	0.75/0.4
Operating range	AC		$(0.8…1.1)U_N$	$(0.8…1.1)U_N$	$(0.8…1.1)U_N$
	DC		$(0.7…1.5)U_N$	$(0.7…1.5)U_N$	$(0.7…1.5)U_N$
Holding voltage	AC/DC		0.8/0.4 U_N	0.8/0.4 U_N	0.8/0.4 U_N
Must drop-out voltage	AC/DC		0.15/0.1 U_N	0.15/0.1 U_N	0.15/0.1 U_N
Technical data				
Mechanical life AC/DC	cycles		$10 \cdot 10^6$ / $10 \cdot 10^6$	$10 \cdot 10^6$ / $10 \cdot 10^6$	$10 \cdot 10^6$ / $10 \cdot 10^6$
Electrical life at rated load AC1	cycles		$60 \cdot 10^3$	$60 \cdot 10^3$	$50 \cdot 10^3$
Operate/release time	ms		8/6	8/6	8/6
Insulation between coil and contacts (1.2/50 µs)	kV		6 (8 mm)	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC		1000	1000	1000
Ambient temperature range AC/DC	°C		–40…+70/–40… +85	–40…+70/–40… +85	–40…+70/–40… +85
Environmental protection			RT II	RT II	RT II
Approvals (according to type)			EAC 03 RINA cULus VDE		

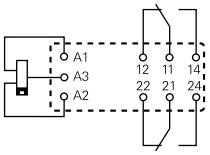
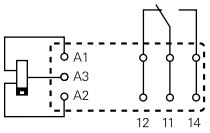
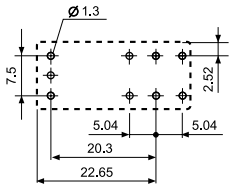
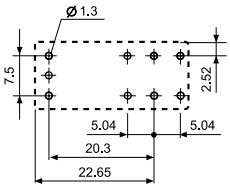
A

1 & 2 Pole - Polarized bistable, Low profile (15.7 mm height)
Type 41.52
- 2 Pole 8 A (5.0 mm pin pitch)

Type 41.61
- 1 Pole 16 A (5.0 mm pin pitch)

Printed Circuit mount

- Polarized bistable relay with 2 coils
- 10 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- Cadmium Free contact materials
- Flux proof: RT II standard

	41.52.6.xxx	**41.61.6.xxx**
		
	• 2 Pole, 8 A • PCB direct mount	• 1 Pole, 16 A • PCB direct mount
		
	2 coil version: A3(+) A2 (–) = Set A3(+) A1 (–) = Reset	2 coil version: A3(+) A2 (–) = Set A3(+) A1 (–) = Reset
		
For outline drawing see page 9	Copper side view	Copper side view
Contact specification		
Contact configuration	2 CO (DPDT)	1 CO (SPDT)
Rated current/ Maximum peak current (I_N/I_{max}) A	8/15	16/30
Rated voltage/ Maximum switching voltage (U_N/U_{max}) V AC	250/400	250/400
Rated load AC1 VA	2000	4000
Rated load AC15 (230 V AC) VA	350	750
Single phase motor rating (230 V AC) kW	0.37	0.55
Breaking capacity DC1: 30/110/220 V A	8/0.3/0.12	16/0.3/0.12
Minimum switching load mW (V/mA)	500 (5/100)	500 (5/100)
Standard contact material	$AgSnO_2$	$AgSnO_2$
Coil specification		
Nominal voltage (U_N) V DC	5 - 12 - 24	5 - 12 - 24
Rated power (P_N) W	0.65	0.65
Operating range DC	$(0.7…1.1)U_N$	$(0.7…1.1)U_N$
Min. impulse duration ms	20	20
Max. impulse duration s	30	30
Technical data		
Mechanical life DC cycles	$5 \cdot 10^6$	$5 \cdot 10^6$
Electrical life at rated load AC1 cycles	$30 \cdot 10^3$	$30 \cdot 10^3$
Operate/release time ms	10/5	10/10
Insulation between coil and contacts (1.2/50 µs) kV	6 (10 mm)	6 (10 mm)
Dielectric strength between open contacts V AC	1000	1000
Ambient temperature range °C	–40…+85	–40…+85
Environmental protection	RT II	RT II
Approvals (according to type)	EAC cULus VDE	

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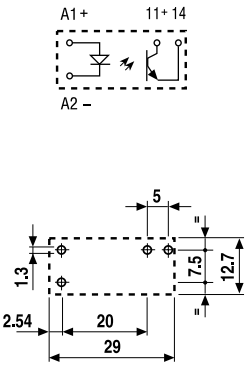
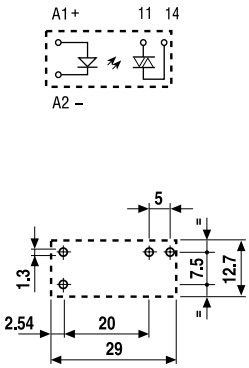
Solid State Relays

Printed circuit mount:
- **direct or via PCB socket**

35 mm rail mount:
- **via screw or screwless sockets**

- Single circuit output switching options
  - 5 A 24 V DC
  - 3 A 240 V AC
- Silent, high speed switching with long electrical life
- LED indicator
- Low profile (15.7 mm)
- Wash tight: RT III
- 2500 V AC insulation, input-output

		41.81 - 9024		41.81 - 8240	
					
		• 5 A, 24 V DC output switching • PCB or 93 Series sockets		• 3 A, 240 V AC output switching • Zero crossing switching • PCB or 93 Series sockets	
					
For outline drawing see page 9		Copper side view		Copper side view	
Output circuit					
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 circuit					
Nominal voltage	V DC	12	24	12	24
Operating range	V DC	8…17	14…32	8…17	14…32
Control current	mA	5.5	9	8.8	9
Release voltage	V DC	4	9	4	9
Impedance	Ω	1550	2600	1030	2600
Technical data					
Operate/release time	ms	0.05/0.25		10/10	
Dielectric strength between input/output	V AC	2500		2500	
Ambient temperature range	°C	–20…+60		–20…+60	
Environmental protection		RT III		RT III	
Approvals (according to type)		CE EAC cULus			

Ordering information

A

Electromechanical relay (EMR)

Example: 41 series low-profile PCB relay, 2 CO (DPDT), 24 V DC coil.

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

Series

Type
3 = PCB - 3.5 mm pinning
5 = PCB - 5.0 mm pinning
6 = PCB - 5.0 mm pinning

No. of poles
1 = 1 pole for
41.31, 12 A
41.61, 16 A
2 = 2 pole for
41.52, 8 A

Coil version
6 = DC bistable, 2 coils
8 = AC
9 = DC

Coil voltage
See coil specifications

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

B: Contact circuit
0 = CO (nPDT)
3 = NO (nPST)

C: Options
0 = Production line 0
1 = Production line 1

D: Special versions
0 = Flux proof (RT II)
1 = Wash tight (RT III)
6 = Bistable version (RT II)

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
41.31	DC	**0** - 4 - 5	**0** - 3	**1**	**0** - 1
41.52	DC	**0** - 5	**0** - 3	**1**	**0** - 1
41.61	DC	**0** - 4	**0** - 3	**1**	**0** - 1
41.31/52/61	AC	**0**	**0**	**0**	**0**
41.52	DC bistable	4	**0**	**1**	**6**
41.61	DC bistable	4	**0** - 3	**1**	**6**

Solid state relay (SSR)

Example: 41 series SSR relay, 5 A output, 24 V DC supply.

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

Series

Type
8 = SSR type

Output
1 = 1 NO (SPST-NO)

Input circuit
See coil specifications

Output circuit
9024 = 5 A - 24 V DC
8240 = 3 A - 240 V AC

XI-2018, www.findernet.com

Electromechanical relay

Technical data

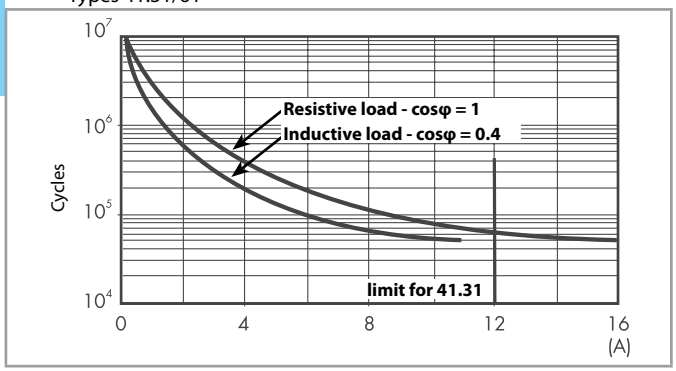
			1 pole		1 pole bistable	2 pole		2 pole bistable
Insulation according to EN 61810-1								
Nominal voltage of supply system		V AC	230/400		230/400	230/400		230/400
Rated insulation voltage		V AC	250	400	250	250	400	250
Pollution degree			3	2	2	3	2	2
Insulation between coil and contact set								
Type of insulation			Reinforced (8 mm)		Reinforced (10 mm)	Reinforced (8 mm)		Reinforced (10 mm)
Overvoltage category			III		III	III		III
Rated impulse voltage		kV (1.2/50 µs)	6		6	6		6
Dielectric strength		V AC	4000		4000	4000		4000
Insulation between adjacent contacts								
Type of insulation			—		—	Basic		Basic
Overvoltage category			—		—	III		III
Rated impulse voltage		kV (1.2/50 µs)	—		—	4		4
Dielectric strength		V AC	—		—	2000		2000
Insulation between open contacts								
Type of disconnection			Micro-disconnection			Micro-disconnection		
Dielectric strength		V AC/kV (1.2/50 µs)	1000/1.5			1000/1.5		
Insulation between coil terminals								
Rated impulse voltage (surge) differential mode (according to EN 61000-4-5)		kV (1.2/50 µs)	2					
Other data								
Bounce time: NO/NC		ms	4/6 (monostable) - 2/10 (bistable)					
Vibration resistance (5…55)Hz: NO/NC		g	15/2 (monostable) - 5/3 (bistable)					
Shock resistance		g	16 (monostable) - 10 (bistable)					
Power lost to the environment	without contact current	W	0.4 (monostable)					
	with rated current	W	1.7 (41.31)		1.2 (41.52)			1.8 (41.61)
Recommended distance between relays mounted on PCB		mm	≥ 5					

A

Contact specification

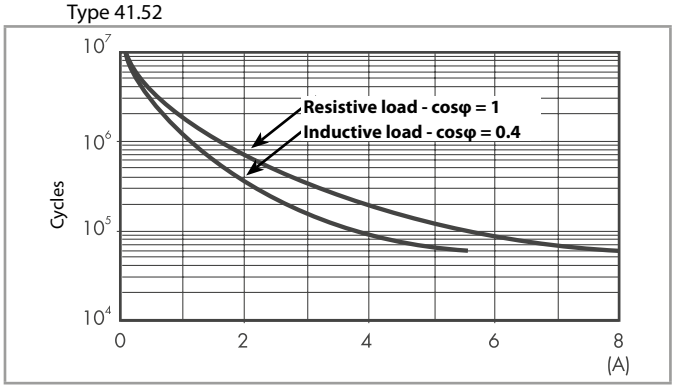
F 41 - Electrical life (AC) v contact current (monostable)

Types 41.31/61

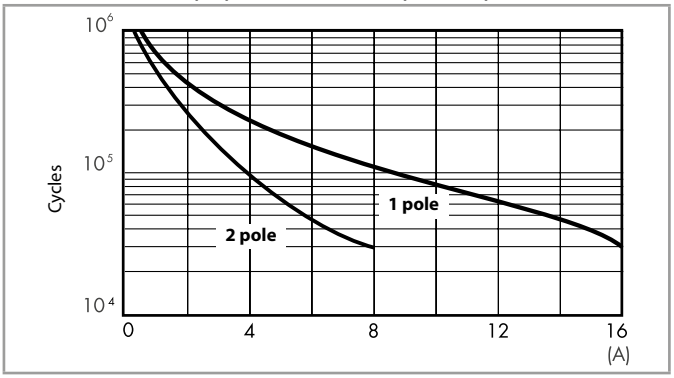


F 41 - Electrical life (AC) v contact current (monostable)

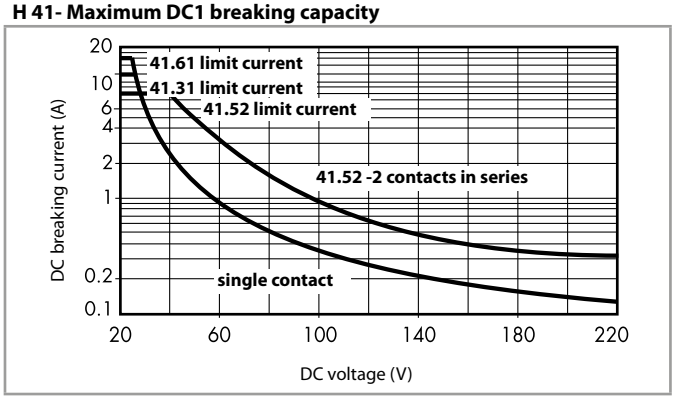
Type 41.52



F 41 - Electrical life (AC) v contact current (bistable)



H 41- Maximum DC1 breaking capacity



- 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.

Coil specifications

AC coil data

Nominal voltage	Coil code	Operating range		Resistance	Rated coil consumption
U_N		U_{min}	U_{max}	R	I at U_N
V		V	V	Ω	mA
24	**8**.024	19.2	26.4	350	31.6
230	**8**.230	184	253	32500	3.2

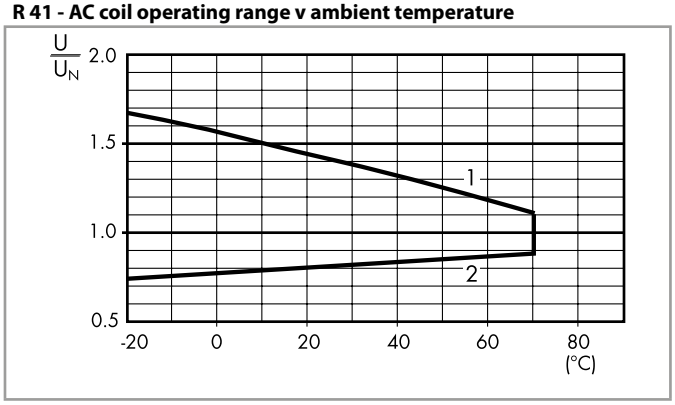
DC coil data

Nominal voltage	Coil code	Operating range		Resistance	Rated coil consumption
U_N		U_{min}	U_{max}	R	I at U_N
V		V	V	Ω	mA
5	**9**.005	3.5	7.5	62	80
6	**9**.006	4.2	9	90	66.7
12	**9**.012	8.4	18	360	33.3
24	**9**.024	16.8	36	1440	16.7
48	**9**.048	33.6	72	5760	8.3
60	**9**.060	42	90	9000	6.6
110	**9**.110	77	165	24200	4.5

DC coil data (bistable)

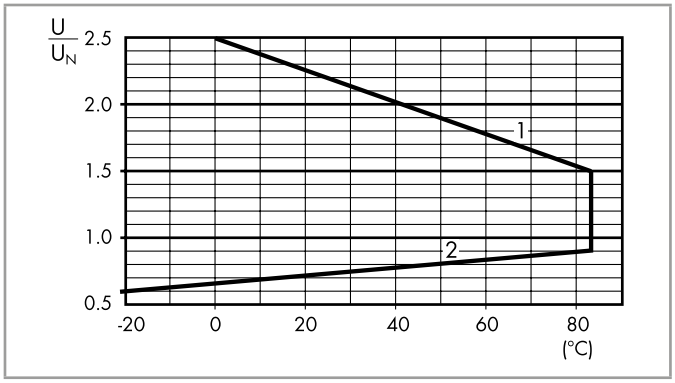
Nominal voltage	Coil code	Operating range			Resistance	Rated coil power
		Set	Reset	Set/Reset		
U_N		U_{min}	U_{min}	U_{max}	R	I at U_N
V		V	V	V	Ω	mW
5	**6**.005	3.5	3.5	5.5	38	650
12	**6**.012	8.4	8.4	13.2	220	650
24	**6**.024	16.8	16.8	26.4	885	650

R 41 - AC coil operating range v ambient temperature



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

R 41 - DC 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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Solid state relay

Technical data

Other data			41.81 - 9024	41.81 - 8240
Power lost to the environment	without current	W	0.25	0.25
	with maximum current	W	1.75	3.5

Input specification

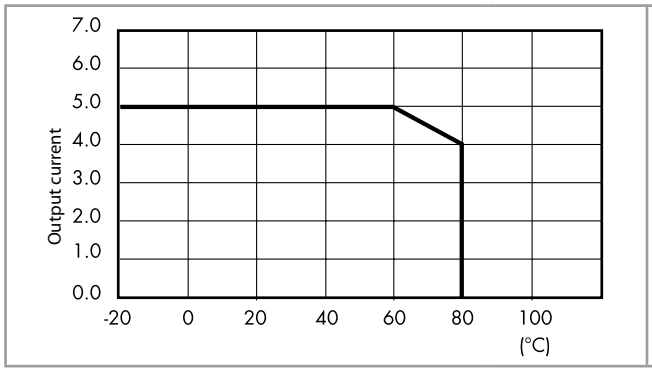
Input data - DC types

Nominal voltage U_N	Input code	Operating range U_{min}	Operating range U_{max}	Release voltage	Impedance	Control current I at U_N
V		V	V	V	Ω	mA
12	**7**.012	8	17	4	1550	5.5
24	**7**.024	14	32	9	2600	9

Output specification

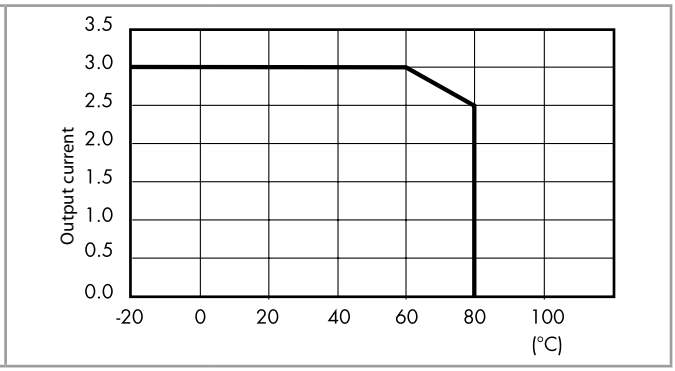
L 41 - Output current v ambient temperature

SSR - 5 A DC output types



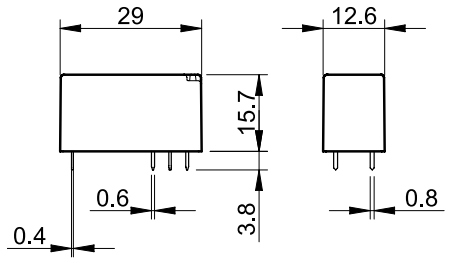
L 41 - Output current v ambient temperature

SSR - 3 A AC output types

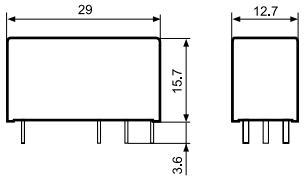


Outline drawings

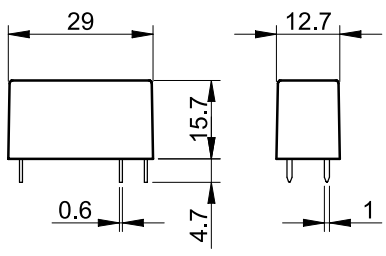
Types 41.31/52/61



Types 41.52.6.xxx/41.61.6.xxx



Types 41.81-9024/41.81-8240



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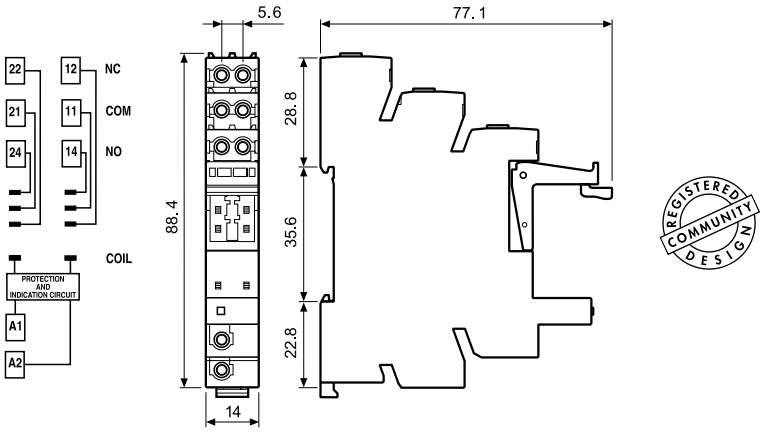
93.02

Approvals
(according to type):

Screw terminal socket 35 mm (EN 60715) mounting		
Supply voltage	**Relay type**	**Socket type**
6 V AC/DC	41.52.9.005.0010 or 41.61.9.005.0010	93.02.0.024
12 V AC/DC	41.52.9.012.0010 or 41.61.9.012.0010	93.02.0.024
24 V AC/DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.02.0.024
60 V AC/DC	41.52.9.060.0010 or 41.61.9.060.0010	93.02.0.060
(110…125)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.02.0.125
(220…240)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.02.0.240
(230…240)V AC	41.52.9.110.0010 or 41.61.9.110.0010	93.02.8.230
6 V DC	41.52.9.005.0010 or 41.61.9.005.0010	93.02.7.024
12 V DC	41.52/61.9.012.0010 or 41.81.7.012.xxxx	93.02.7.024
24 V DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.02.7.024
48 V DC	41.52.9.048.0010 or 41.61.9.048.0010	93.02.7.060
60 V DC	41.52.9.060.0010 or 41.61.9.060.0010	93.02.7.060
Accessories		
8-way jumper link	093.08 (see specification next page)	
Plastic separator	093.01 (see specification next page)	
Sheet of marker tags, 48 tags	060.48 (see specification next page)	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	6 kV (1.2/50 µs) between coil and contacts	
Protection category	IP 20	
Ambient temperature ($U_N \leq 60$ V / > 60 V) °C	–40…+70/–40…+55	
Screw torque Nm	0.5	
Wire strip length mm	8	
Max. wire size for 93.02 socket	solid wire	stranded wire
mm²	1 x 6 / 2 x 2.5	1 x 4 / 2 x 2.5
AWG	1 x 10 / 2 x 14	1 x 12 / 2 x 14



Note: Not for bistable relays

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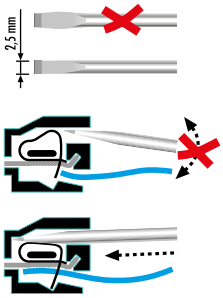
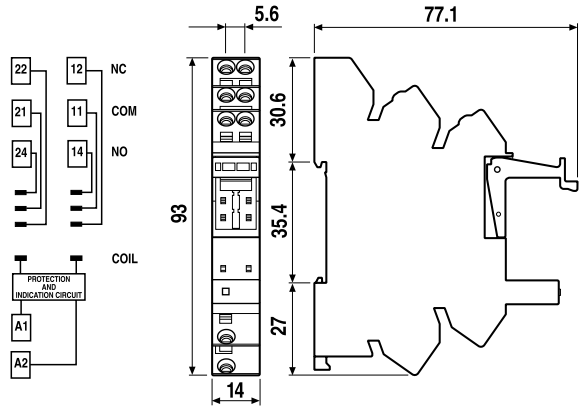
93.52

Approvals (according to type):

Screw terminal socket 35 mm (EN 60715) mounting		
Supply voltage	**Relay type**	**Socket type**
6 V AC/DC	41.52.9.005.0010 or 41.61.9.005.0010	93.52.0.024
12 V AC/DC	41.52.9.012.0010 or 41.61.9.012.0010	93.52.0.024
24 V AC/DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.52.0.024
60 V AC/DC	41.52.9.060.0010 or 41.61.9.060.0010	93.52.0.060
(110…125)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.52.0.125
(220…240)V AC/DC	41.52.9.110.0010 or 41.61.9.110.0010	93.52.0.240
(230…240)V AC	41.52.9.110.0010 or 41.61.9.110.0010	93.52.8.230
6 V DC	41.52.9.005.0010 or 41.61.9.005.0010	93.52.7.024
12 V DC	41.52/61.9.012.0010 or 41.81.7.012.xxxx	93.52.7.024
24 V DC	41.52/61.9.024.0010 or 41.81.7.024.xxxx	93.52.7.024
48 V DC	41.52.9.048.0010 or 41.61.9.048.0010	93.52.7.060
60 V DC	41.52.9.060.0010 or 41.61.9.060.0010	93.52.7.060

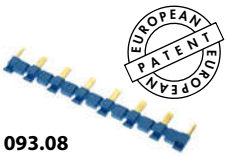


Accessories			
8-way jumper link		093.08 (see table below)	
Plastic separator		093.01 (see table below)	
Sheet of marker tags, 48 tags		060.48 (see table below)	
Technical data			
Rated values		10 A - 250 V	
Dielectric strength		6 kV (1.2/50 µs) between coil and contacts	
Protection category		IP 20	
Ambient temperature ($U_N \leq 60$ V / > 60 V)	°C	–40…+70/–40…+55	
Wire strip length	mm	8	
Max. wire size for 93.52 socket		solid wire	stranded wire
	mm²	1 x 2.5	1 x 2.5
	AWG	1 x 14	1 x 14



Note: Not for bistable relays

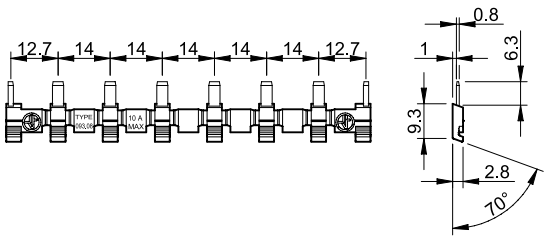
Accessories



093.08

Approvals (according to type):

8-way jumper link for 93.02 and 93.52 sockets	093.08 (blue)	093.08.0 (black)	093.08.1 (red)
Rated values	10 A - 250 V		

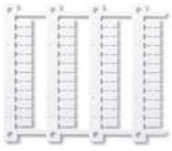




093.01

Plastic separator for 93.02 and 93.52 sockets	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



060.48

Sheet of marker tags (CEMBRE Thermal transfer printers), plastic, 48 tags, 6 x 12 mm	060.48

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A



95.13.2



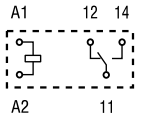
95.15.2

Approvals (according to type):

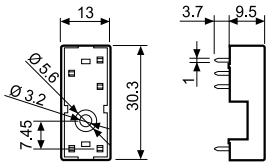
PCB socket	95.13.2 (blue)	95.13.20 (black)	95.15.2 (blue)	95.15.20 (black)
For relay type	41.31		41.52, 41.61, 41.81(1)	
Accessories				
Plastic retaining clip	095.42.30			
Technical data				
Rated values	10 A - 250 V*			
Dielectric strength	6 kV (1.2/50 µs) between coil and contacts			
Protection category	IP 20			
Ambient temperature °C	–40…+70			

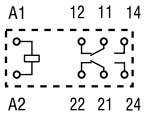
* For currents > 10 A, contact terminals must be connected in parallel (21 with 11, 24 with 14, 22 with 12).

(1) With the relay 41.81 the NO change-over contact will be 11-14.

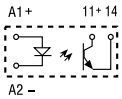


41.31

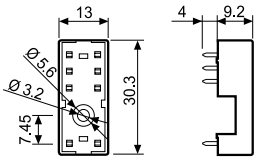


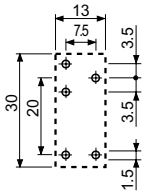


41.52

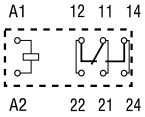


41.81 - 9024

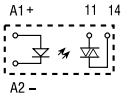




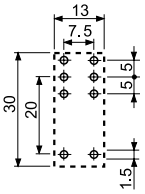
95.13.2
Copper side view



41.61



41.81 - 8240



95.15.2
Copper side view

Note: Not for bistable relays

Packaging codes

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

Example:

9	5	.	1	3	.	2	S	L	A

A Standard packaging

SL Plastic retaining clip

9	5	.	1	3	.	2			

Without retaining clip

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