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Plug-in / PCB Relays - Overview

	Rated current	No. of Contacts	Features	Sockets
 30 Series	2 A	2 CO	**Subminiature DIL relays** - 2 Pole changeover contacts - Low level switching capability - Subminiature: - industry standard DIL package - Sensitive DC coil: 200 mW - Wash tight: RT III	
 32 Series	6 A	1 CO 1 NO	**Subminiature PCB relays** - 1 Pole changeover contacts or 1 Pole normally open contact - Subminiature, low profile package - Sensitive DC coil: 200 mW - Wash tight: RT III	
 34 Series	6 A	1 CO 1 NO	**Ultra-slim Electromechanical PCB relays** - Sensitive DC coil: 170 mW - 5 mm wide - 6kV (1.2/50 µs) isolation, coil - contacts	 93 Series
	0.1 A 2 A	1 output (SSR)	**Ultra-slim Solid State PCB relays** - Sensitive DC input circuits - 5 mm wide - Silent, high speed switching with long electrical life	
 36 Series	10 A	1 CO 1 NO	**Printed circuit relay** - 1 Pole changeover contacts or 1 Pole normally open contact - Miniature "Sugar Cube" package - DC coil: 360 mW - Wash tight: RT III	
 40 Series	12 A 16 A	1 CO 1 NO	**Miniature PCB relay** - DC coils - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts - Flux proof: RT II standard - 3.5 or 5 mm pin pitch	 95 Series
	10 A 16 A	1 CO 1 NO	**Miniature PCB/plug-in relay** - DC coils & AC coils - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts - 3.5 or 5 mm pin pitch	
	8 A	2 CO 2 NO		
 41 Series	12 A 16 A	1 CO	**Low profile electromechanical PCB relay** - Low profile, 15.7 mm height - DC coils: 400mW - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts - Flux proof: RT II standard, (RT III option)	 93 Series
	8 A	2 CO		
	3 A 5 A	1 output (SSR)	**Low profile Solid State PCB relay** - Low profile, 15.7 mm height - Sensitive DC input circuits - Silent, high speed switching with long electrical life	 95 Series
 43 Series	10 A 16 A	1 CO 1 NO	**Low profile PCB relay** - Low profile, 15.4 mm height - Sensitive DC coils: 250mW or 400mW - Very high coil contact isolation 10mm, 6kV (1.2/50 µs) - Flux proof: RT II standard, (RT III option) - 3.2 or 5mm pin pitch	 95 Series
 44 Series	6 A 10 A	2 CO	**Miniature PCB relay** - High physical separation between adjacent contacts - DC coils - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts - Flux proof: RT II - 5mm pin pitch	 95 Series
 45 Series	16 A	1 NO 1 NC	**Miniature PCB relay** - Relay for +125°C ambient use - Contact gap ≥ 3mm according to EN 60730-1 - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts - Sensitive DC coil: 360mW - PCB mounting + Faston 250	

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Plug-in / PCB Relays - Overview

	Rated current	No. of Contacts	Features	Sockets
 46 Series	8 A	2 CO	**Miniature industrial relays** - Socket mount or direct connection via Faston connectors - AC & DC coils - Available with lockable test button, mechanical flag & LED indicator - 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts	 97 Series
	16 A	1 CO		
 50 Series	8 A	2 CO	**Safety relay (EN 50205)** - 2 Pole changeover contacts - PCB Relay with forcibly guided contacts according to EN 50205 type B - High physical separation between adjacent contacts - 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts - Flux proof: RT II	
 55 Series	10 A	2 CO 3 CO	**General purpose relays** - AC & DC coils - PCB or Plug-in mounting - Available with lockable test button, mechanical flag & LED indicator	 94 Series
	7 A	4 CO		
 56 Series	12 A	2 CO 2 NO 4 CO 4 NO	**Miniature power relays** - PCB or Plug-in mounting - Flange mount option (Faston 187 termination) - AC & DC coils - Available with lockable test button, mechanical flag & LED indicator	 96 Series
 60 Series	6 A 10 A	2 CO 3 CO	**General purpose relays** - 8 & 11 pin plug-in - Flange mount - AC & DC coils, "current sensing relays" or "intensity relays" - Available with lockable test button, mechanical flag & LED indicator - Version with bifurcated contacts for low level switching	 90 Series
 62 Series	16 A	2 CO 2 NO 3 CO 3 NO	**Power relays** - PCB mount or Plug-in mount (Faston 187) or Flange mount (Faston 250) - AC & DC coils - NO contacts options, > 3mm contact gap - LED, mechanical indicator & test button options	 92 Series
 65 Series	20 A	1 NO + 1 NC	**Power relays** - AC & DC coils - PCB mount or Flange mount (Faston 250) - NO version, > 3mm contact gap	
	30 A	1 NO		
 66 Series	30 A	2 CO 2 NO	**Power relays** - PCB mount or Flange mount (Faston 250) - AC & DC coils - 8mm, 6kV (1.2/50 µs) isolation, coil - contacts	

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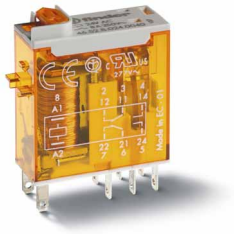
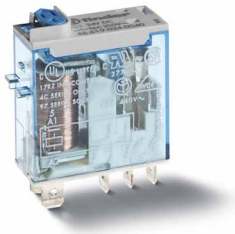
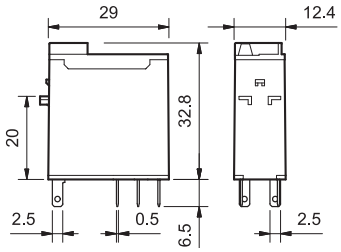
46 Series - Miniature industrial relays 8 - 16 A

Features

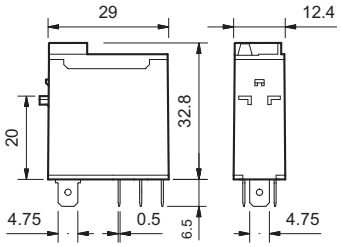
1 & 2 Pole relay range
46.52 - 2 Pole 8 A
46.61 - 1 Pole 16 A

- Socket mount or direct connection via Faston connectors
- AC coils & DC coils
- Available with: lockable test button, mechanical indicator & LED indicator
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- Cadmium Free contacts
- European Patent

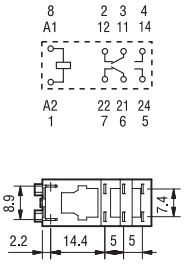
46.52	46.61
	
• 2 Pole CO, 8 A • Plug-in/Solder terminals	• 1 Pole CO, 16 A • Plug-in/Faston 187

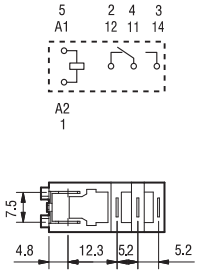


46.52



46.61





FOR UL RATINGS SEE:
"General technical information" page V

		46.52	46.61
Contact specification			
Contact configuration		2 CO (DPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	8/15	16/25 *
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	2,000	4,000
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	6/0.5/0.15	12/0.5/0.15
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 - 48 - 110 - 120 - 230 - 240	
	V DC	12 - 24 - 48 - 110 - 125	
Rated power	VA/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	$0.8U_N$ /$0.4U_N$	$0.8U_N$ /$0.4U_N$
Must drop-out voltage	AC/DC	$0.2U_N$ /$0.1U_N$	$0.2U_N$ /$0.1U_N$
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	10/3	15/5
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
Environmental protection		RT II	RT II
Approvals (according to type)			

* With the $AgSnO_2$ material the maximum peak current is 80 A - 5 ms on normally open contact.

Ordering information

Example: 46 series Miniature industrial relay, 1 CO (SPDT), 24 V DC coil, lockable test button and mechanical indicator.

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

Series

Type
5 = Spade/blade solder terminal (2.5x0.5)mm
6 = Spade/blade terminal Faston 187 (4.8x0.5)mm

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

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

Coil voltage
See coil specifications

A: Contact material
0 = AgNi
4 = $AgSnO_2$ (46.61 only)
5 = AgNi + Au

B: Contact circuit
0 = CO (nPDT)

D: Special versions
0 = Standard

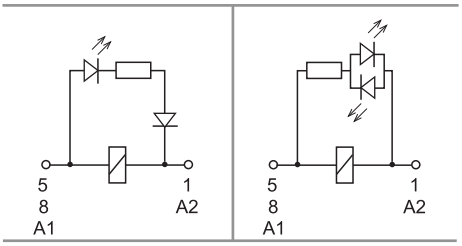
C: Options
2 = Mechanical indicator
4 = Lockable test button + mechanical indicator
54 = Lockable test button + LED (AC) + mechanical indicator
74 = Lockable test button + double LED (DC non-polarized) + mechanical indicator

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
46.52	AC - DC	**0** - 5	**0**	2 - **4**	**0**
	AC	0 - 5	0	54	/
	DC	0 - 5	0	74	/
46.61	AC - DC	**0** - 4 - 5	**0**	2 - **4**	**0**
	AC	0 - 4 - 5	0	54	/
	DC	0 - 4 - 5	0	74	/

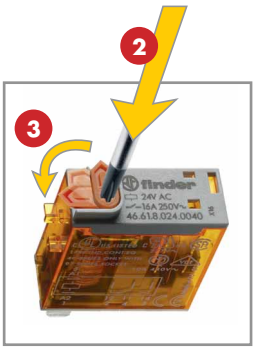
Special versions for Rail Applications on request

Descriptions: Options



C: Option 54
LED (AC)

C: Option 74
LED (DC, non-polarized)



Lockable test button and mechanical flag indicator (0040, 0054, 0074)

The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly below the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.
Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

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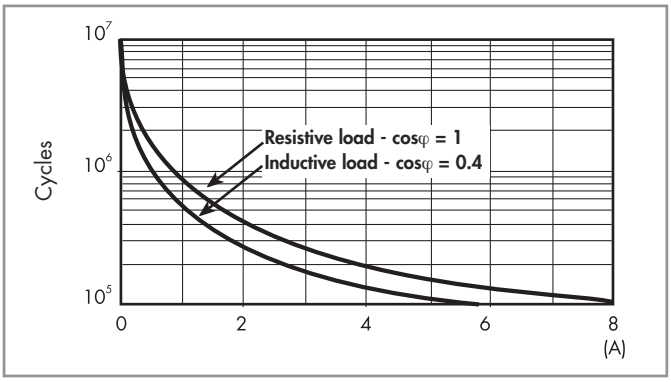
46 Series - Miniature industrial relays 8 - 16 A

Technical data

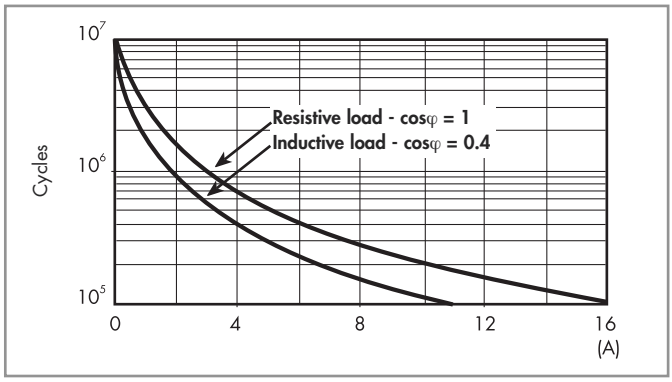
Insulation according to EN 61810-1						
			1 pole		2 pole	
Nominal voltage of supply system		V AC	230/400		230/400	
Rated insulation voltage		V AC	250	400	250	400
Pollution degree			3	2	3	2
Insulation between coil and contact set						
Type of insulation			Reinforced (8 mm)		Reinforced (8 mm)	
Overvoltage category			III		III	
Rated impulse voltage		kV (1.2/50 µs)	6		6	
Dielectric strength		V AC	4,000		4,000	
Insulation between adjacent contacts						
Type of insulation			—		Basic	
Overvoltage category			—		III	
Rated impulse voltage		kV (1.2/50 µs)	—		4	
Dielectric strength		V AC	—		2,000	
Insulation between open contacts						
Type of disconnection			Micro-disconnection		Micro-disconnection	
Dielectric strength		V AC/kV (1.2/50 µs)	1,000/1.5		1,000/1.5	
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			**46.61**		**46.52**	
Bounce time: NO/NC		ms	2/6		1/4	
Vibration resistance (10...150)Hz: NO/NC		g	20/12		20/15	
Shock resistance		g	20		20	
Power lost to the environment	without contact current	W	0.6		0.6	
	with rated current	W	1.6		2	
Recommended distance between relays mounted on PCB		mm	≥ 5			

Contact specification

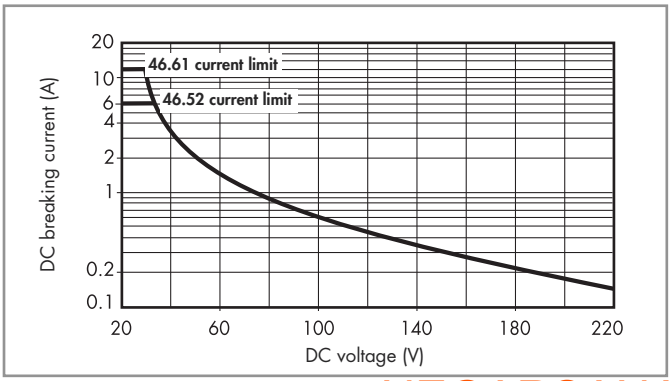
F 46 - Electrical life (AC) v contact current
Type 46.52



F 46 - Electrical life (AC) v contact current
Type 46.61



H 46 - 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

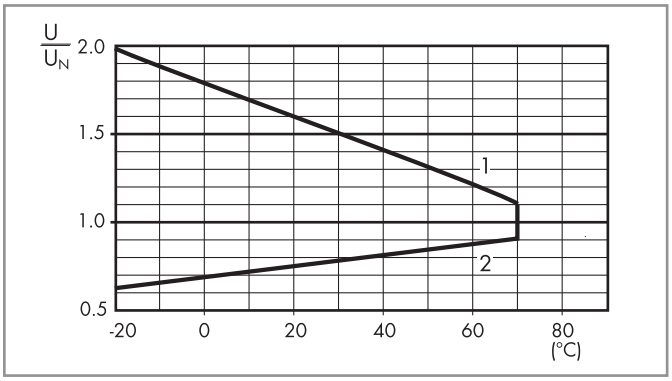
DC coil data

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	8.8	13.2	300	40
24	**9**.024	17.5	26.4	1,200	20
48	**9**.048	35	52.8	4,800	10
110	**9**.110	80	121	23,500	4.7
125	**9**.125	91.2	138	32,000	3.9

AC coil data

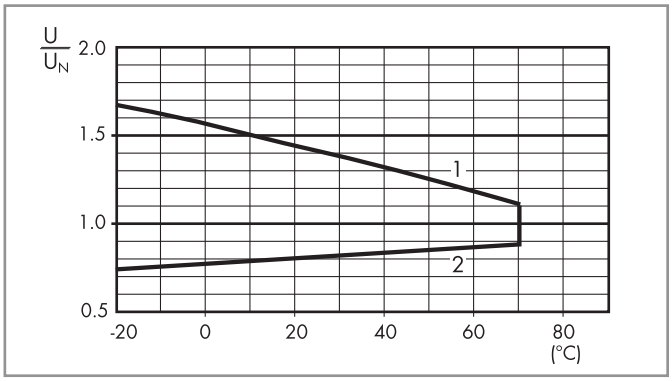
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N
V		V	V	Ω	mA
12	**8**.012	9.6	13.2	80	90
24	**8**.024	19.2	26.4	320	45
48	**8**.048	38.4	52.8	1,350	21
110	**8**.110	88	121	6,900	9.4
120	**8**.120	96	132	9,000	8.4
230	**8**.230	184	253	28,000	5
240	**8**.240	192	264	31,500	4.1

R 46 - DC coil operating range v ambient temperature



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

R 46 - AC coil operating range v ambient temperature



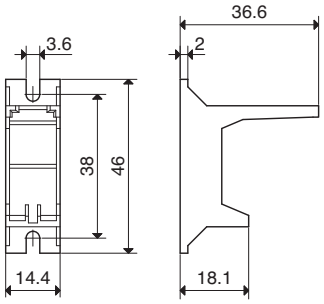
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories

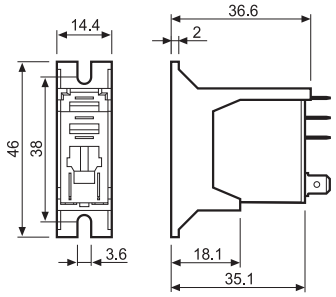
046.05

046.05 with relay

Flange mount adaptor for relays types 46.52 and 46.61 — 046.05



046.05

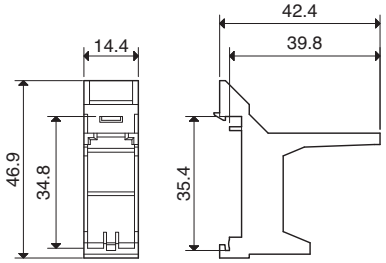


046.05 with relay

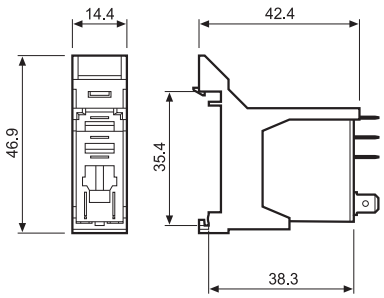
046.07

046.07 with relay

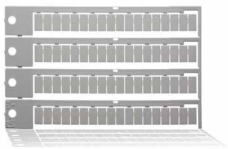
35 mm rail adaptor for relays types 46.52 and 46.61 — 046.07



046.07



046.07 with relay



060.72

Sheet of marker tags for relays types 46.52 and 46.61 (72 tags), 6x12mm — 060.72

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97 Series - Sockets and accessories for 46 series relays

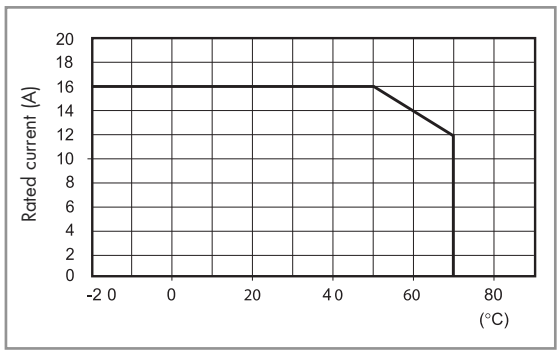
97.01

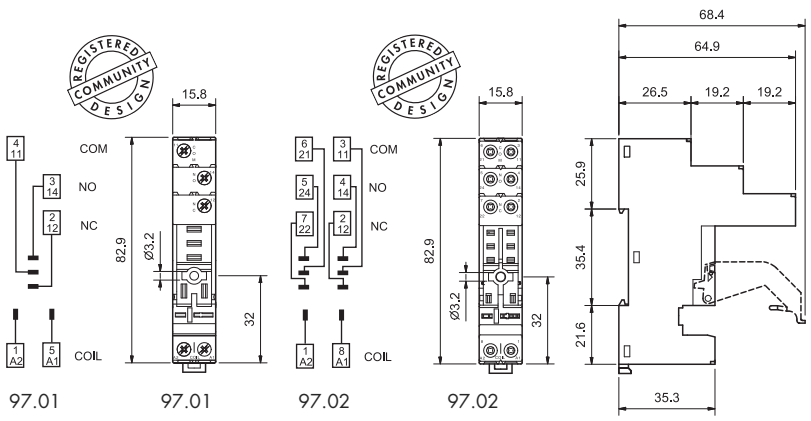
Approvals (according to type):

097.01

Screw terminal socket panel or 35 mm rail (EN 60715) mount		**97.01 (blue)**	**97.01.0 (black)**	**97.02 (blue)**	**97.02.0 (black)**
For relay type		46.61		46.52	
Accessories					
Plastic retain and release clip (supplied with socket - packaging code SPA)		097.01			
Metal retaining clip		097.71			
Identification tag		095.00.4			
8-way jumper link		095.18 (blue)		095.18.0 (black)	
Modules (see table below)		99.02			
Timer modules (see table below)		86.30			
Technical data					
Rated current		16 A - 250 V AC		8 A - 250 V AC	
Dielectric strength		6 kV (1.2/50 µs) between coil and contacts			
Protection category		IP 20			
Ambient temperature	°C	–40...+70 (see diagram L97)			
Screw torque	Nm	0.8			
Wire strip length	mm	8			
Max. wire size for 97.01 and 97.02 sockets		solid wire		stranded wire	
	mm²	1x6 / 2x2.5		1x4 / 2x2.5	
	AWG	1x10 / 2x14		1x12 / 2x14	

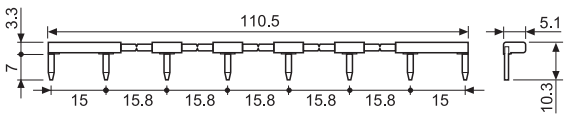
L 97 - Rated current vs ambient temperature
(for 46.61 relay / 97.01 socket combination)





095.18

8-way jumper link for 97.01 and 97.02 sockets	095.18 (blue)	095.18.0 (black)
Rated values	10 A - 250 V	



86.30

86 series timer module	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

Approvals (according to type):

99.02

Approvals (according to type):

99.02 coil indication and EMC suppression modules for 97.01 and 97.02 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

DC Modules with non-standard polarity (+A2) on request.

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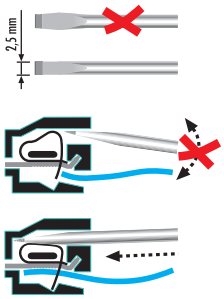
97 Series - Sockets and accessories for 46 series relays

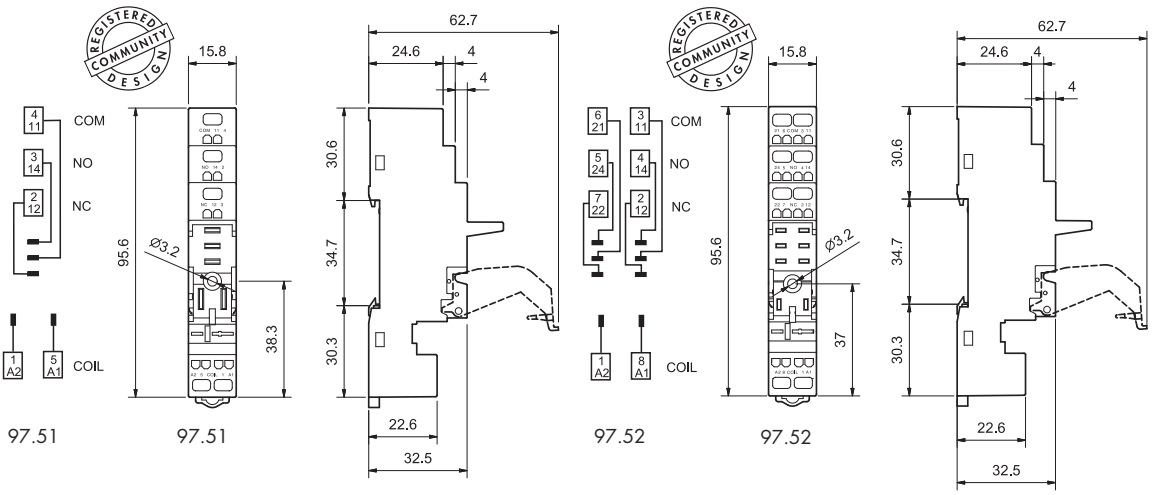
97.51

Approvals (according to type):

Screwless terminal socket panel or 35 mm rail (EN 60715) mount		**97.51 (blue)**	**97.51.0 (black)**	**97.52 (blue)**	**97.52.0 (black)**
For relay type		46.61		46.52	
Accessories					
Plastic retain and release clip (supplied with socket - packaging code SPA)		097.01			
Metal retaining clip		097.71			
Modules (see table below)		99.02			
Timer modules (see table below)		86.30			
Technical data					
Rated current		10 A - 250 V AC		8 A - 250 V AC	
Dielectric strength		6 kV (1.2/50 µs) between coil and contacts			
Protection category		IP 20			
Ambient temperature	°C	–25...+70			
Wire strip length	mm	8			
Max. wire size for 97.51 and 97.52 sockets		solid wire		stranded wire	
	mm^2	2x(0.2...1.5)		2x(0.2...1.5)	
	AWG	2x(24...18)		2x(24...18)	

097.01





86.30

86 series timer module	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

Approvals (according to type):

99.02

Approvals (according to type):

DC Modules with non-standard polarity (+A2) on request.

99.02 coil indication and EMC suppression modules for 97.51 and 97.52 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

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97 Series - Sockets and accessories for 46 series relays

97.11

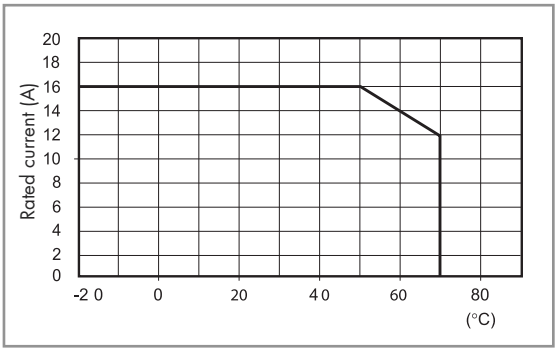
Approvals (according to type):

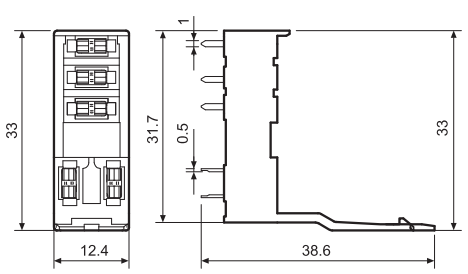
97.12

Approvals (according to type):

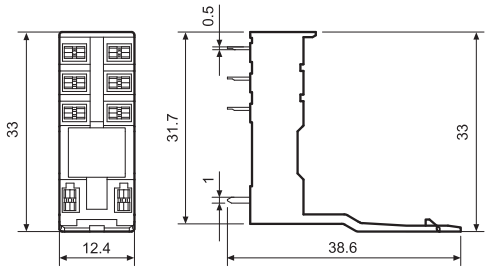
PCB socket	97.11 (blue)	97.12 (blue)
For relay type	46.61	46.52
Technical data		
Rated values	12 A - 250 V (see diagram L97)	8 A - 250 V
Dielectric strength	6 kV (1.2/50 µs) between coil and contacts	
Protection category	IP 20	
Ambient temperature °C	–40...+70	

L 97 - Rated current vs ambient temperature
(for 46.61 relay / 97.11 socket combination)

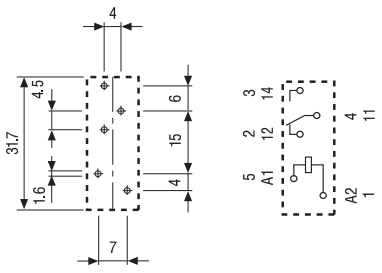




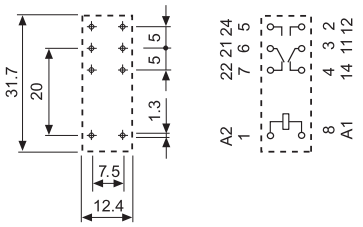
97.11



97.12



Copper side view



Copper side view

Packaging codes

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

Example:

9 7 . 0 1	S P	A

A Standard packaging

SM Metal retaining clip
SP Plastic retaining clip

9 7 . 0 1		

Without retaining clip

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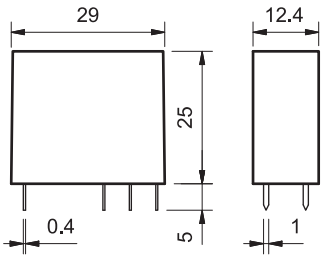
50 Series - Forcibly guided contacts relay 8 A

Features

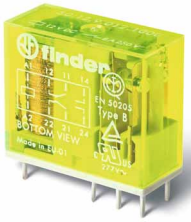
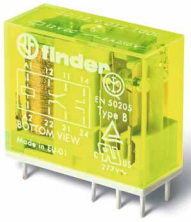
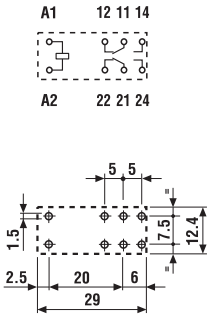
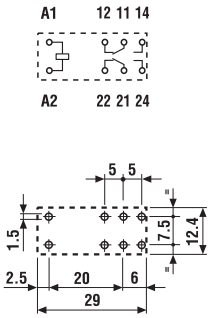
PCB Relay with forcibly guided contacts according to EN 50205 type B
2 CO contacts *

- High physical separation between adjacent contacts
- Cadmium Free contact materials
- 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts
- Flux proof: RT II



*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 UL RATINGS SEE:
"General technical information" page V

	50.12...1000	50.12...5000
		
	• For medium duty switching, suggested for DC loads • 2 Pole 8 A • 5 mm pinning • PCB mounting	• For safety applications • Gold plate contacts for low level switching capability • 5 mm pinning • PCB mounting
		
	Copper side view	Copper side view

Contact specification				
Contact configuration			2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current		A	8/15	8/15
Rated voltage/Maximum switching voltage		V AC	250/400	250/400
Rated load AC1		VA	2,000	2,000
Rated load AC15 (230 V AC)		VA	500	500
Single phase motor rating (230 V AC)		kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V		A	8/0.65/0.2	8/0.65/0.2
Minimum switching load		mW (V/mA)	500 (10/10)	50 (5/5)
Standard contact material			AgNi	AgNi + Au
Coil specification				
Nominal voltage (U_N)		V AC (50/60 Hz)	–	–
		V DC	5 - 6 - 12 - 24 - 48 - 60 - 110 - 125	5 - 6 - 12 - 24 - 48 - 60 - 110 - 125
Rated power AC/DC		VA (50 Hz)/W	–/0.7	–/0.7
Operating range		AC (50 Hz)	–	–
		DC	(0.75...1.2)U_N	(0.75...1.2)U_N
Holding voltage		AC/DC	–/0.4 U_N	–/0.4 U_N
Must drop-out voltage		AC/DC	–/0.1 U_N	–/0.1 U_N
Technical data				
Mechanical life AC/DC		cycles	–/10 · 10^6	–/10 · 10^6
Electrical life at rated load AC1		cycles	100 · 10^3	100 · 10^3
Operate/release time		ms	10/4	10/4
Insulation between coil and contacts (1.2/50 µs)		kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts		V AC	1,500	1,500
Ambient temperature range		°C	–40...+70	–40...+70
Environmental protection			RT II	RT II
Approvals (according to type)				

Ordering information

Example: 50 series forcibly guided contacts, 2 CO (DPDT) 8 A contacts, 24 V DC coil.

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

Series

Type
1 = PCB - 5 mm pinning

No. of poles
2 = 2 pole 8 A

Coil version
9 = DC

Coil voltage
See coil specifications

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

B: Contact circuit
0 = CO (DPDT)

D: Special versions
0 = Flux proof (RT II)

C: Options
0 = None

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
50.12	DC	**1** - 5	**0**	**0**	**0**

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 (8 mm)	
Overvoltage category			III	
Rated impulse voltage		kV (1.2/50 µs)	6	
Dielectric strength		V AC	4,000	
Insulation between adjacent contacts				
Type of insulation			Basic	
Overvoltage category			III	
Rated impulse voltage		kV (1.2/50 µs)	4	
Dielectric strength		V AC	3,000	
Insulation between open contacts				
Type of disconnection			Micro-disconnection	
Dielectric strength		V AC/kV (1.2/50 µs)	1,500/2.5	
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	2/10	
Vibration resistance (10...200)Hz: NO/NC		g	20/6	
Shock resistance NO/NC		g	20/5	
Power lost to the environment	without contact current	W	0.7	
	with rated current	W	1.2	
Recommended distance between relays mounted on PCB		mm	≥ 5	

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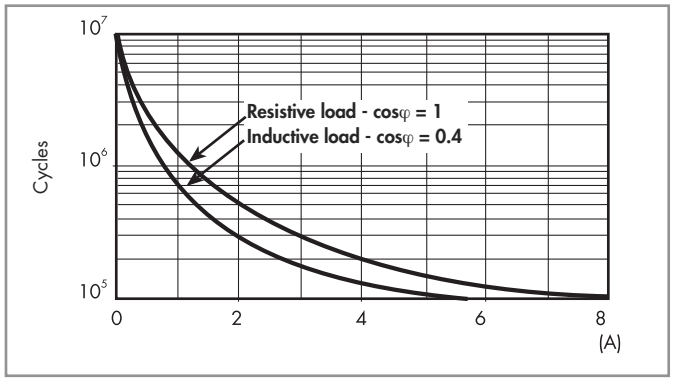
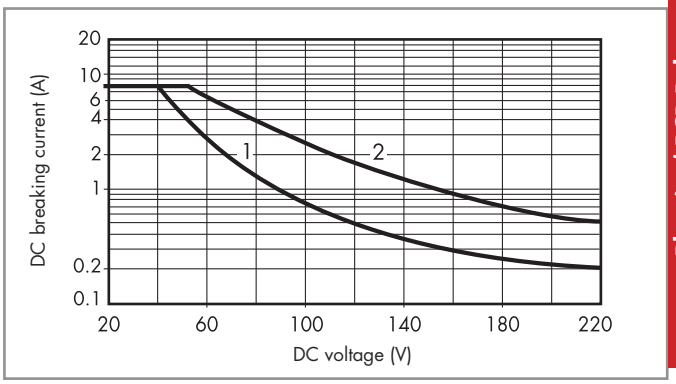
50 Series - Forcibly guided contacts relay 8 A

Contact specification

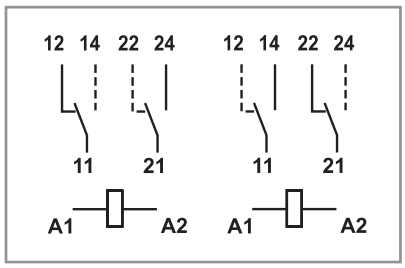
F 50 - Electrical life (AC) v contact current



H 50 - 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.



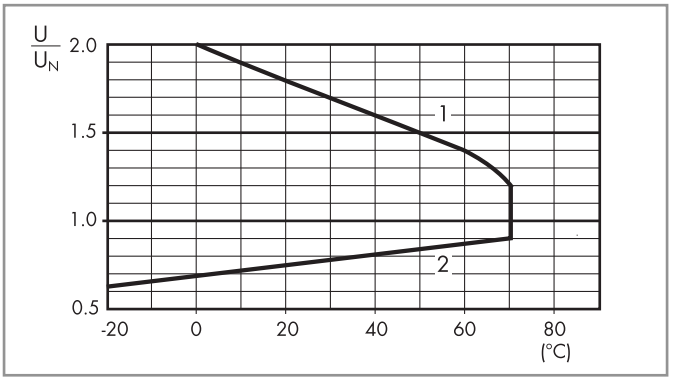
Alternative selection of NO and NC contacts to provide Forcibly guided (mechanically linked) contacts, in accordance with EN 50205 (type B).

Coil specifications

DC coil data

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
5	**9**.005	3.8	6	35	143
6	**9**.006	4.5	7.2	50	120
12	**9**.012	9	14.4	205	58.5
24	**9**.024	18	28.8	820	29.3
48	**9**.048	36	57.6	3,280	14.4
60	**9**.060	45	72	5,140	11.7
110	**9**.110	82.5	131	17,250	6.4
125	**9**.125	93.7	150	22,300	5.6

R 50 - DC coil operating range v ambient temperature
Standard coil



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

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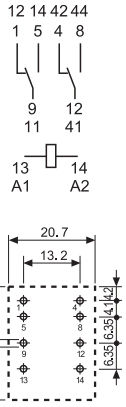
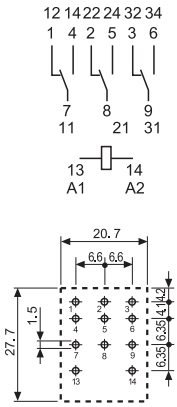
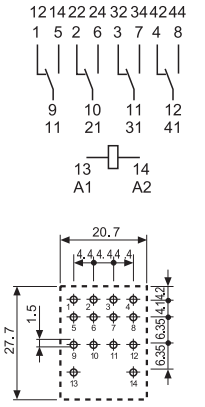
55 Series - General purpose relays 7 - 10 A

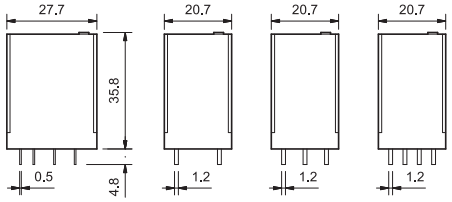
Features

Printed circuit mount, general purpose
2, 3 & 4 Pole relays

55.12 - 2 Pole 10 A
55.13 - 3 Pole 10 A
55.14 - 4 Pole 7 A

- AC coils & DC coils
- Cadmium Free contacts (preferred version)
- Contact material options
- RT III (wash tight) option available

	55.12	55.13	55.14
			
	• 2 pole, 10 A • PCB mount	• 3 pole, 10 A • PCB mount	• 4 pole, 7 A • PCB mount
			
	Copper side view	Copper side view	Copper side view



55.12 55.13 55.14

FOR UL RATINGS SEE:
"General technical information" page V

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)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240		
	V DC	6 - 12 - 24 - 48 - 60 - 110 -125 - 220		
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	10/5	11/3
Insulation between coil and contacts (1.2/50 µs)	kV	4	4	4
Dielectric strength between open contacts	V AC	1,000	1,000	1,000
Ambient temperature range	°C	–40...+85	–40...+85	–40...+85
Environmental protection		RT I	RT I	RT I
Approvals (according to type)				

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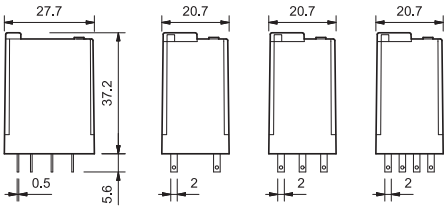
55 Series - General purpose relays 7 - 10 A

Features

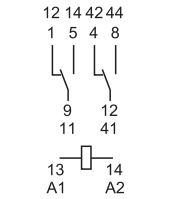
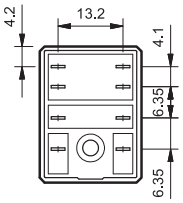
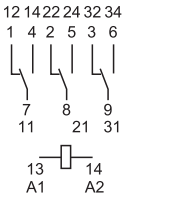
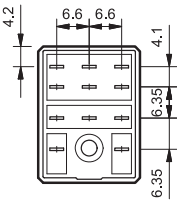
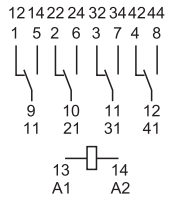
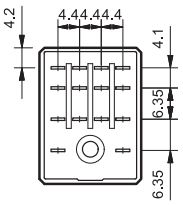
Plug-in mount, general purpose
2, 3 & 4 Pole relays

55.32 - 2 Pole 10 A
55.33 - 3 Pole 10 A
55.34 - 4 Pole 7 A

- Lockable test button and mechanical flag indicator as standard on 2 & 4 pole types
- AC coils & DC coils
- UL Listing (certain relay/socket combinations)
- Cadmium Free contacts (preferred version)
- Contact material options
- 94 series sockets
- Coil EMC suppression
- Timer accessories 86 series
- European Patent



FOR UL RATINGS SEE:
"General technical information" page V

	55.32	55.33	55.34
			
	• 2 pole, 10 A • Plug-in 94 series sockets	• 3 pole, 10 A • Plug-in 94 series sockets	• 4 pole, 7 A • Plug-in 94 series sockets
	 	 	 

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: 30/110/220 V		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)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240	
		V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	
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	10/5	11/3
Insulation between coil and contacts (1.2/50 µs)		kV	4	4	4
Dielectric strength between open contacts		V AC	1,000	1,000	1,000
Ambient temperature range		°C	–40...+85	–40...+85	–40...+85
Environmental protection			RT I	RT I	RT I
Approvals (according to type)			CE ANCE CCC SP D FI PCT VDE Lloyd's Register N RINA S cULus DVE		

finder

55 Series - General purpose relays 7 - 10 A

Ordering information

Example: 55 series plug-in relay, 4 CO (4PDT), 12 V DC coil, lockable test button and mechanical indicator.

5 5	3	4	9	0 1 2	A: 0	B: 0	C: 4	D: 0

Series

Type
1 = PCB
3 = Plug-in

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 = Standard AgNi
2 = AgCdO
5 = AgNi + Au

B: Contact circuit
0 = CO (nPDT)

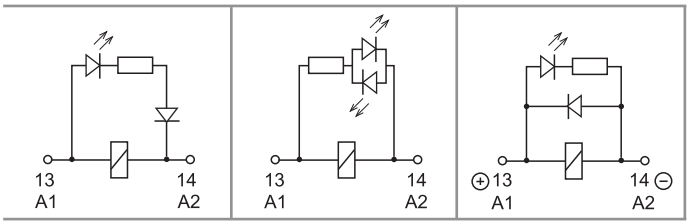
D: Special versions
0 = Standard
1 = Wash tight (RT III) for 55.12, 55.13 and 55.14 only

C: Options
0 = None
1 = Lockable test button
2 = Mechanical indicator
3 = LED (AC)
4 = Lockable test button+mechanical indicator
5 = Lockable test button + LED (AC)
54 = Lockable test button + LED (AC) + mechanical indicator
6* = Double LED (DC non-polarized)
7* = Lockable test button + double LED (DC non-polarized)
74* = Lockable test button + double LED (DC non-polarized) + mechanical indicator
8* = LED + diode (DC, polarity positive to pin A1/13)
9* = Lockable test button + LED + diode (DC, polarity positive to pin A1/13)
94* = Lockable test button + LED + diode (DC, polarity positive to pin A1/13) + mechanical indicator
* Option not available for the 220 V DC version.

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
55.32/34	AC-DC	0 - 2 - 5	0	0	0
	AC	**0** - 2 - 5	**0**	2 - 3 - **4** - 5	**0**
	AC	0 - 2 - 5	0	54	/
	DC	**0** - 2 - 5	**0**	2 - **4** - 6 - 7 - 8 - 9	**0**
	DC	0 - 2 - 5	0	74 - 94	/
55.33	AC-DC	**0** - 2 - 5	**0**	**0**	**0**
	AC	0 - 2 - 5	0	1 - 3 - 5	0
	DC	0 - 2 - 5	0	1 - 6 - 7 - 8 - 9	0
55.12/13/14	AC-DC	**0** - 2 - 5	**0**	**0**	**0** - 1

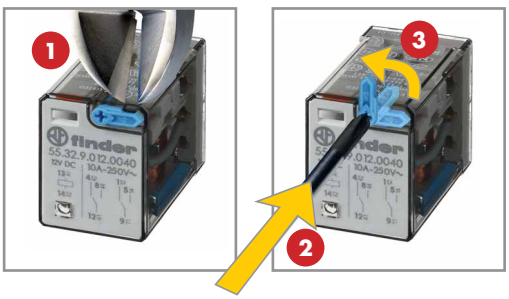
Descriptions: options and special versions



C: Option 3, 5, 54
LED (AC)

C: Option 6, 7, 74
Double LED
(DC non-polarized)

C: Option 8, 9, 94
LED + diode (DC, polarity positive to pin A1/13)



Lockable test button and mechanical flag indicator (0010, 0040, 0050, 0054, 0070, 0074, 0090, 0094)

EUROPEAN PATENT

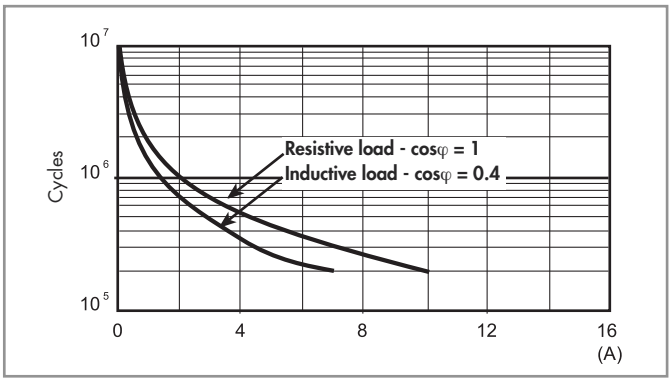
The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.
Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

Technical data

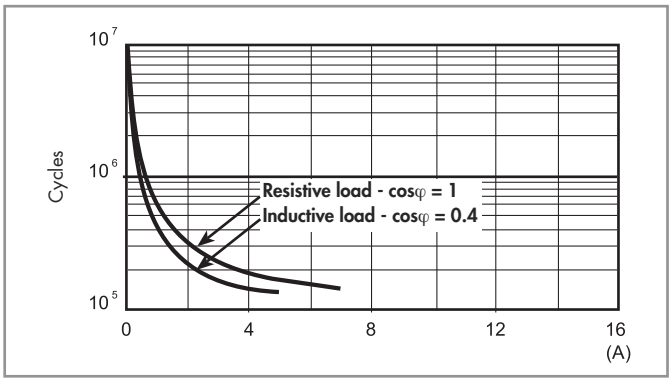
Insulation according to EN 61810-1		2 pole - 3 pole	4 pole
Nominal voltage of supply system	V AC	230/400	230
Rated insulation voltage	V AC	400	250
Pollution degree		2	2
Insulation between coil and contact set			
Type of Insulation		Basic	Basic
Overvoltage category		III	III
Rated impulse voltage	kV (1.2/50 µs)	4	4
Dielectric strength	V AC	2,000	2,000
Insulation between adjacent contacts			
Type of insulation		Basic	Basic
Overvoltage category		III	II
Rated impulse voltage	kV (1.2/50 µs)	4	2.5
Dielectric strength	V AC	2,000	2,000
Insulation between open contacts			
Type of disconnection		Micro-disconnection	Micro-disconnection
Dielectric strength	V AC/kV (1.2/50 µs)	1,000/1.5	1,000/1.5
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 (5...55)Hz: NO/NC	g	15/15	
Shock resistance	g	16	
Power lost to the environment — without contact current	W	1	
Power lost to the environment — with rated current	W	3 (2 pole)	4 (3 pole) / 3 (4 pole)
Recommended distance between relays mounted on PCB	mm	≥ 5	

Contact specification

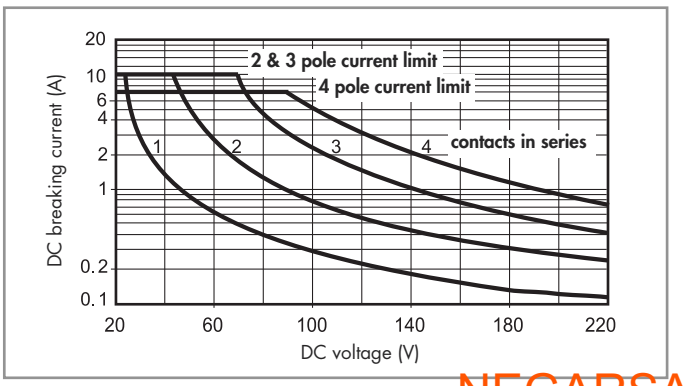
F 55 - Electrical life (AC) v contact current
2 and 3 pole relays



F 55 - Electrical life (AC) v contact current
4 pole relay



H 55 - 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.

finder

55 Series - General purpose relays 7 - 10 A

Coil specifications

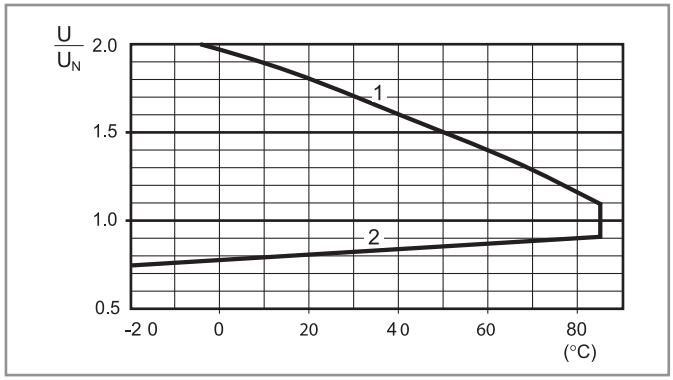
DC coil data

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
6	**9**.006	4.8	6.6	40	150
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
60	**9**.060	48	66	4,000	15
110	**9**.110	88	121	12,500	8.8
125	**9**.125	100	138	17,300	7.2
220	**9**.220	176	242	54,000	4

AC coil data

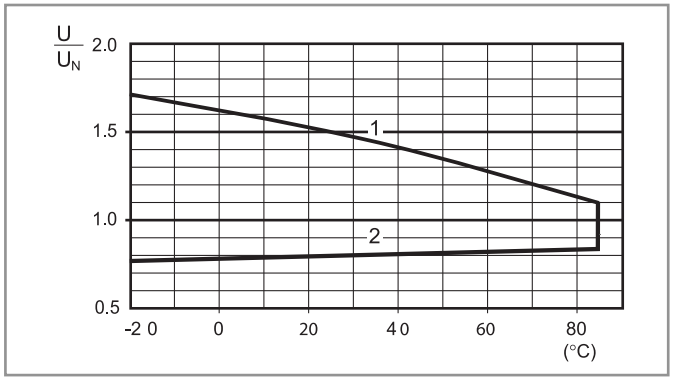
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	12	200
12	**8**.012	9.6	13.2	50	97
24	**8**.024	19.2	26.4	190	53
48	**8**.048	38.4	52.8	770	25
60	**8**.060	48	66	1,200	21
110	**8**.110	88	121	4,000	12.5
120	**8**.120	96	132	4,700	12
230	**8**.230	184	253	17,000	6
240	**8**.240	192	264	19,100	5.3

R 55 - DC coil operating range v ambient temperature



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

R 55 - AC coil operating range v ambient temperature



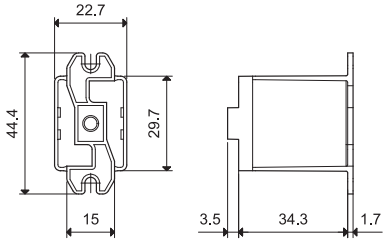
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories

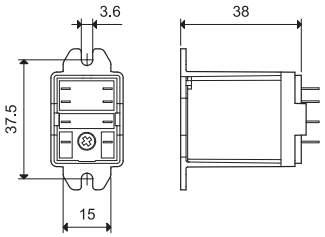
056.25

056.25 with relay

Top flange mount adaptor for 55.32, 55.33, 55.34 | 056.25



056.25

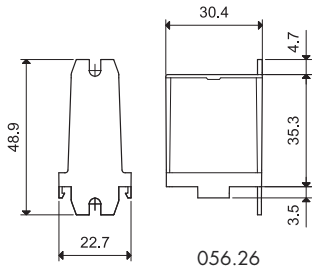


056.25 with relay

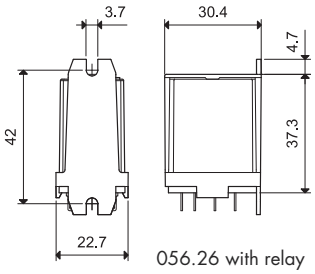
056.26

056.26 with relay

Rear flange mount adaptor for 55.32, 55.33, 55.34 | 056.26



056.26

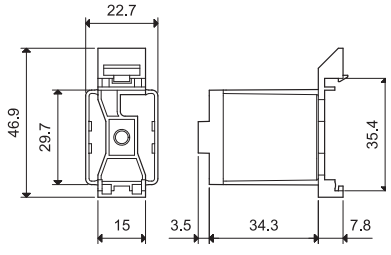


056.26 with relay

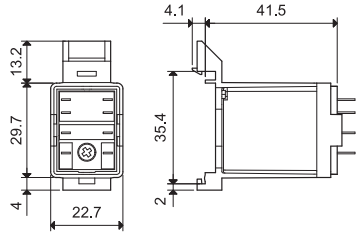
056.27

056.27 with relay

Top 35 mm rail (EN 60715) adaptor for 55.32, 55.33, 55.34 | 056.27



056.27



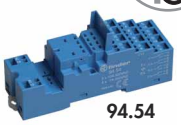
056.27 with relay

finder

94 Series - Socket overview for 55 series relays

94.04
See page 7

Module	Socket	Relay	Description	Mounting	Accessories
99.02	94.02	55.32	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Plastic retaining and release clip
	94.03	55.33	- Top terminals - Contacts		
	94.04	55.32 55.34	- Bottom terminals - Coil		



94.54
See page 8

Module	Socket	Relay	Description	Mounting	Accessories
99.02	94.54	55.32 55.34	**Screwless terminal socket** - For fast cable connections - Top terminals - Contacts - Bottom terminals - Coil	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Plastic retaining and release clip
					

94.74
See page 9

Module	Socket	Relay	Description	Mounting	Accessories
99.01	94.72	55.32	**Screw terminal (Plate clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Metal retaining clip
	94.73	55.33			
	94.74	55.32 55.34			

94.82
See page 9

Module	Socket	Relay	Description	Mounting	Accessories
99.01	94.82	55.32	**Screw terminal (Plate clamp) socket** - 23 mm wide for space saving	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Metal retaining clip
					

94.84.3
See page 10

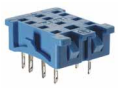
Module	Socket	Relay	Description	Mounting	Accessories
99.80	94.84.2	55.32 55.34	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Plastic retainig and release clip
	94.82.3	55.32			
	94.84.3	55.32 55.34			

94.94.3
See page 11

Module	Socket	Relay	Description	Mounting	Accessories
99.80	94.92.3	55.32	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Plastic retaining and release clip
	94.94.3	55.32 55.34	- Top terminals - Contacts - Bottom terminals - Coil		

94.14
See page 12

Module	Socket	Relay	Description	Mounting	Accessories
—	94.12	55.32	**PCB sockets**	PCB mounting	- Metal retaining clip
—	94.13	55.33			
—	94.14	55.32 55.34			



94.22
See page 12

Module	Socket	Relay	Description	Mounting	Accessories
—	94.22	55.32	**Panel mount**	Panel mount on 1 mm thick panel	- Metal retaining clip
—	94.23	55.33	**with solder connections**		
—	94.24	55.32 55.34			

94.34
See page 13

Module	Socket	Relay	Description	Mounting	Accessories
—	94.32	55.32	**Panel mount**	M3 screw fixing	- Metal retaining clip
—	94.33	55.33	**with solder connections**		
—	94.34	55.32 55.34			

finder

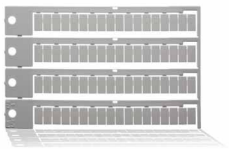
94 Series - Sockets and accessories for 55 series relays

94.04

Approvals (according to type):

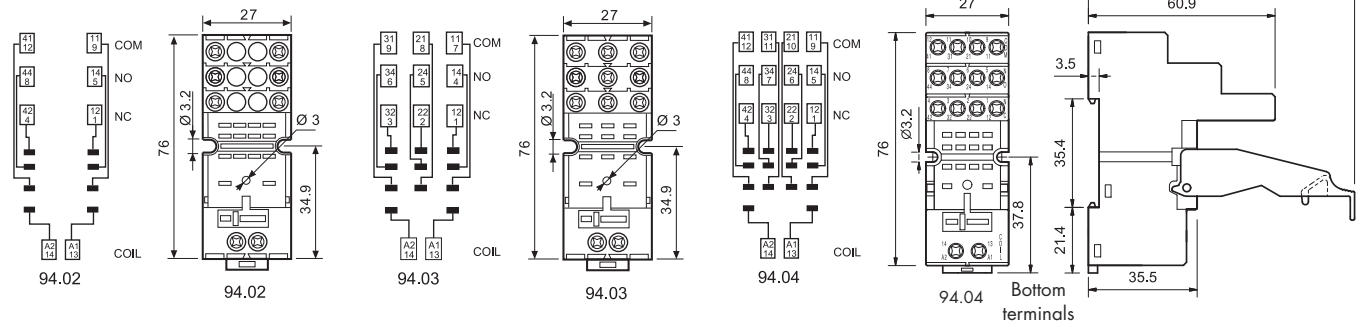
Certain relay/socket combinations

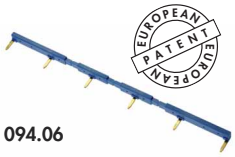
094.91.3



060.72

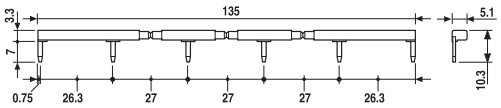
Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount		**94.02 Blue**	**94.02.0 Black**	**94.03 Blue**	**94.03.0 Black**	**94.04 Blue**	**94.04.0 Black**
For relay type		55.32		55.33		55.32, 55.34	
Accessories							
Metal retaining clip		094.71					
Plastic retaining and release clip (supplied with socket - packaging code SPA)		094.91.3	094.91.30	094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link		094.06	094.06.0	094.06	094.06.0	094.06	094.06.0
Identification tag		094.00.4					
Modules (see table below)		99.02					
Timer modules (see table below)		86.30					
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm		060.72					
Technical data							
Rated values		10 A - 250 V					
Dielectric strength		2 kV AC					
Protection category		IP 20					
Ambient temperature	°C	–40...+70					
Screw torque	Nm	0.5					
Wire strip length	mm	8					
Max. wire size for 94.02/03/04 sockets		solid wire		stranded wire			
	mm²	1x6 / 2x2.5		1x4 / 2x2.5			
	AWG	1x10 / 2x14		1x12 / 2x14			





094.06

6-way jumper link for 94.02, 94.03 and 94.04 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



86.30

86 series timer modules	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

Approvals (according to type):

99.02

Approvals (according to type):

DC Modules with non-standard polarity (+A2) on request.

99.02 coil indication and EMC suppression modules for 94.02, 94.03 and 94.04 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

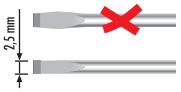
94 Series - Sockets and accessories for 55 series relays

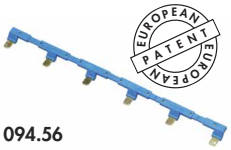
94.54

Approvals (according to type):

094.91.3

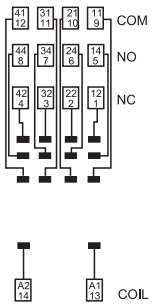
060.72

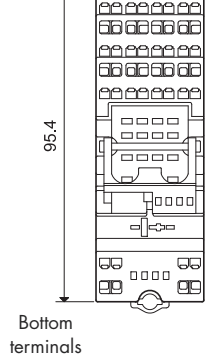


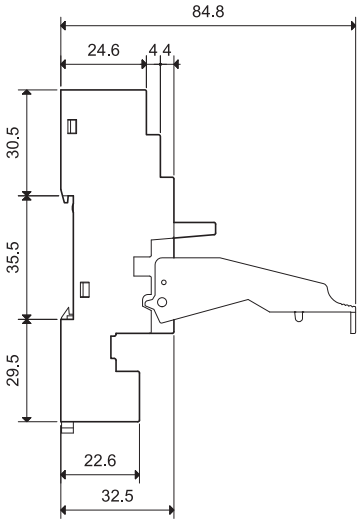


094.56

Screwless terminal socket 35 mm rail (EN 60715) mount		**94.54 (blue)**	
For relay type		55.32, 55.34	
Accessories			
Metal retaining clip		094.71	
Plastic retaining and release clip		094.91.3	
6-way jumper link		094.56	
Modules (see table below)		99.02, 86.30	
Sheet of marker tags, 72 tags, 6x12 mm		060.72	
Technical data			
Rated values		10 A - 250 V	
Dielectric strength		2 kV AC	
Protection category		IP 20	
Ambient temperature	°C	–25...+70	
Wire strip length	mm	10	
Max. wire size for 94.54 socket		solid wire	stranded wire
	mm²	2x(0.2...1.5)	2x(0.2...1.5)
	AWG	2x(24...14)	2x(24...14)

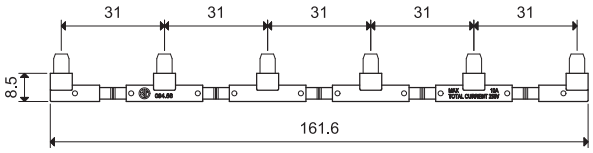






Sockets + jumper link

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



86 series timer modules	
(12...24)V AC/DC; Bi-function: AI, DI; (0.05s...100h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.240.0000

86.30

Approvals (according to type):

99.02

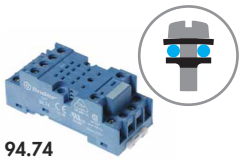
Approvals (according to type):

99.02 coil indication and EMC suppression modules for 94.54 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

DC Modules with non-standard polarity (+A2) on request.

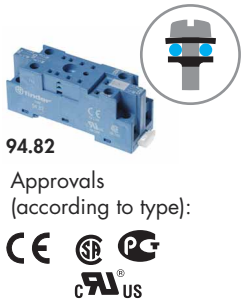
finder

94 Series - Sockets and accessories for 55 series relays



94.74

Approvals (according to type):



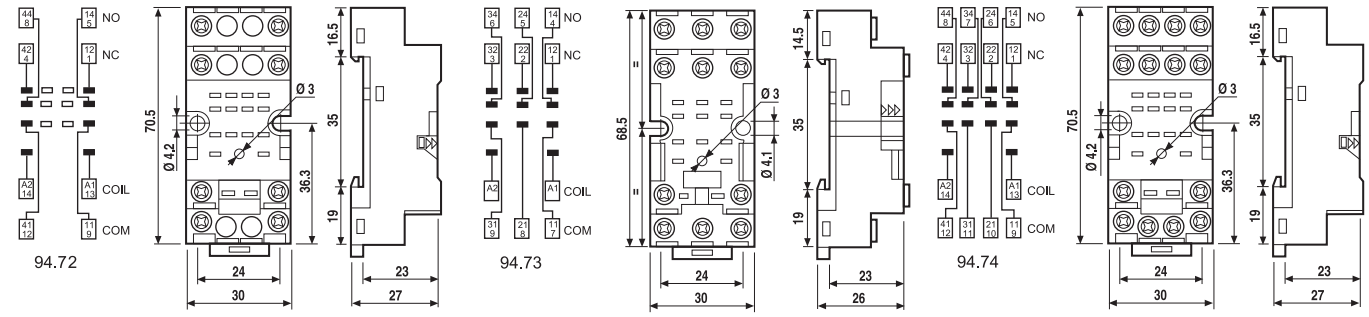
94.82

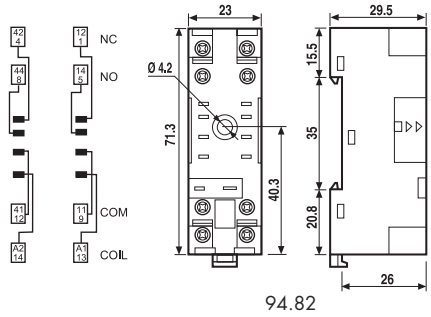
Approvals (according to type):

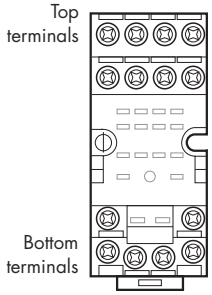
Screw terminal (Plate clamp) socket panel or 35 mm (EN 60715) rail mount	**94.72 Blue**	**94.72.0 Black**	**94.73 Blue**	**94.73.0 Black**	**94.74 Blue**	**94.74.0 Black**
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.71					
Modules (see table below)	99.01					

Screw terminal (Plate clamp) socket: panel or 35 mm rail mount	**94.82 (blue)**	**94.82.0 (black)**
For relay type	55.32	55.32
Accessories		
Metal retaining clip (supplied with socket - packaging code SMA)	094.71	
Modules (see table below)	99.01	

Technical data			
Rated values		10 A - 250 V	
Dielectric strength		2 kV AC	
Protection category		IP 20	
Ambient temperature	°C	–40...+70	
Screw torque	Nm	0.5	
Wire strip length	mm	8 (94.72/73/74)	9 (94.82)
Max. wire size for 94.72/73/74 and 94.82 sockets		solid wire	stranded wire
	mm^2	1x2.5 / 2x1.5	1x2.5 / 2x1.5
	AWG	1x14 / 2x16	1x14 / 2x16







99.01

Approvals (according to type):

99.01 coil indication and EMC suppression modules for 94.72, 94.73, 94.74 and 94.82 sockets

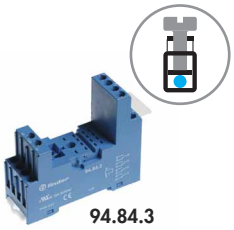
		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

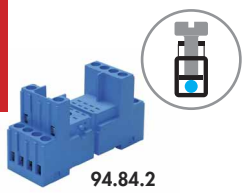
finder

94 Series - Sockets and accessories for 55 series relays



94.84.3

Approvals (according to type):



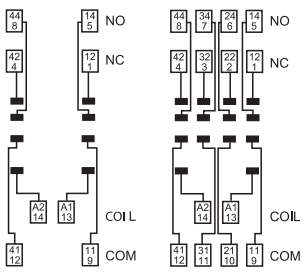
94.84.2

Approvals (according to type):

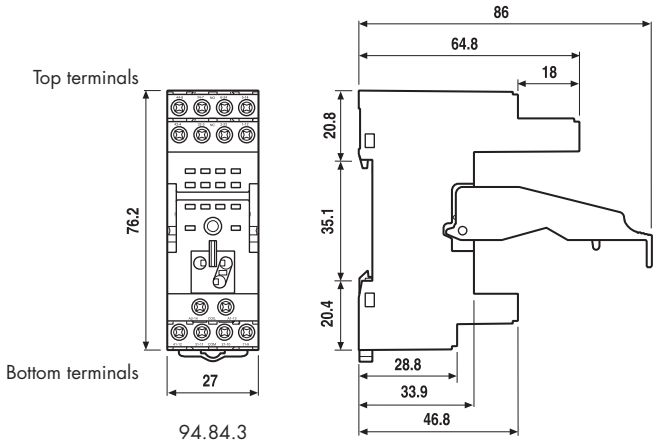
094.91.3

060.72

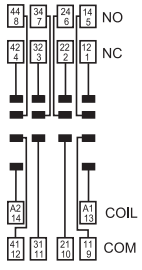
Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount		**94.82.3** Blue	**94.82.30** Black	**94.84.3** Blue	**94.84.30** Black
For relay type		55.32		55.32, 55.34	
Accessories					
Metal retaining clip (supplied with socket - packaging code SMA)		094.71			
Plastic retaining and release clip		094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link		094.06	094.06.0	094.06	094.06.0
Identification tag		094.80.3			
Modules (see table next page)		99.80			
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm		060.72			
Screw terminal (Box clamp) socket panel or 35 mm (EN 60715) rail mount		**94.84.2** Blue		**94.84.20** Black	
For relay type		55.32, 55.34			
Accessories					
Metal retaining clip (supplied with socket - packaging code SMA)		094.71			
Plastic retaining and release clip		094.91.3		094.91.30	
6-way jumper link		094.06		094.06.0	
Identification tag		094.80.3			
Modules (see table next page)		99.80			
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm		060.72			
Technical data					
Rated values		10 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40...+70			
Screw torque	Nm	0.5			
Wire strip length	mm	7			
Max. wire size for 94.82.3, 94.84.3 and 94.84.2 sockets		solid wire		stranded wire	
	mm²	1x6 / 2x2.5		1x4 / 2x2.5	
	AWG	1x10 / 2x14		1x12 / 2x14	



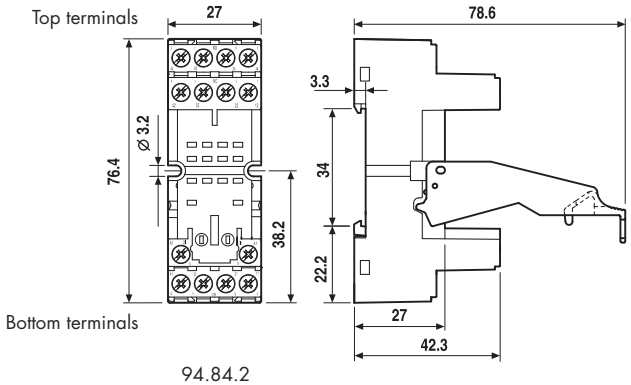
94.82.3 94.84.3



94.84.3



94.84.2



94.84.2

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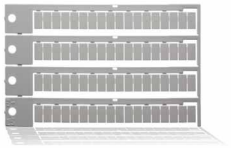
94 Series - Sockets and accessories for 55 series relays

94.94.3

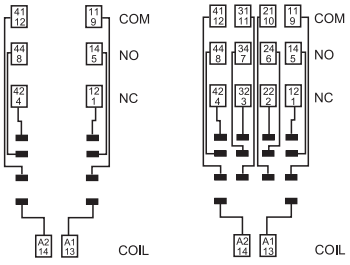
Approvals (according to type):

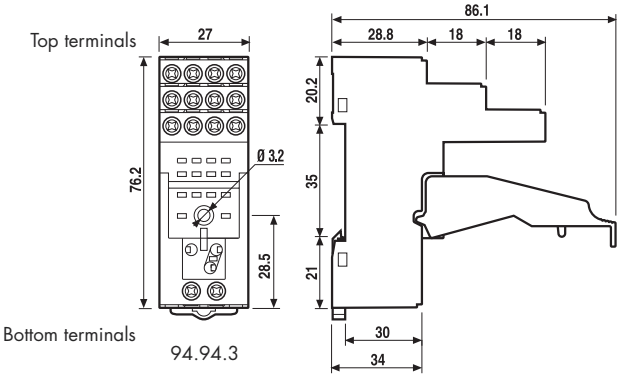
Screw terminal (Box clamp) socket panel or 35 mm rail mount		94.92.3 (blue)	94.92.30 (black)	94.94.3 (blue)	94.94.30 (black)
For relay type		55.32		55.32, 55.34	
Accessories					
Metal retaining clip		094.71			
Plastic retaining and release clip		094.91.3	094.91.30	094.91.3	094.91.30
6-way jumper link		094.06	094.06.0	094.06	094.06.0
Identification tag		094.80.3			
Modules (see table below page)		99.80			
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm		060.72			
Technical data					
Rated values		10 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–25...+70			
Screw torque	Nm	0.5			
Wire strip length	mm	8			
Max. wire size for 94.92.3 and 94.94.3 sockets		solid wire		stranded wire	
	mm^2	1x6 / 2x2.5		1x4 / 2x2.5	
	AWG	1x10 / 2x14		1x12 / 2x14	

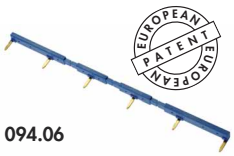
094.91.3



060.72

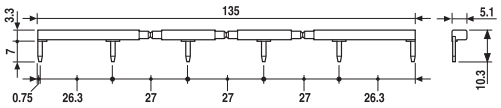






094.06

6-way jumper link for 94.84.2, 94.82.3, 94.84.3, 94.92.3 and 94.94.3 sockets	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



99.80

Approvals (according to type):

* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

99.80 coil indication and EMC suppression modules for 94.84.2, 94.82.3, 94.84.3, 94.92.3 and 94.94.3 sockets		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.80.3.000.00
LED	(6...24)V DC/AC	99.80.0.024.59
LED	(28...60)V DC/AC	99.80.0.060.59
LED	(110...240)V DC/AC	99.80.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.80.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.80.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.80.9.220.99
LED + Varistor	(6...24)V DC/AC	99.80.0.024.98
LED + Varistor	(28...60)V DC/AC	99.80.0.060.98
LED + Varistor	(110...240)V DC/AC	99.80.0.230.98
RC circuit	(6...24)V DC/AC	99.80.0.024.09
RC circuit	(28...60)V DC/AC	99.80.0.060.09
RC circuit	(110...240)V DC/AC	99.80.0.230.09
Residual current by-pass	(110...240)V AC	99.80.8.230.07

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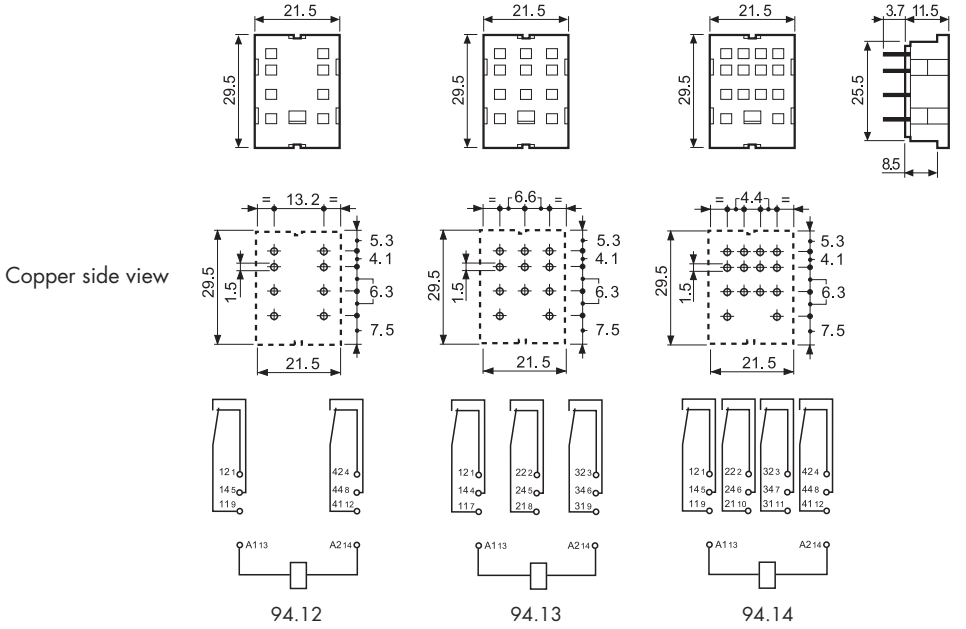
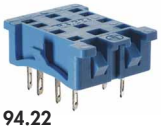
94 Series - Sockets and accessories for 55 series relays

94.14

Approvals (according to type):

PCB socket	94.12 Blue	94.12.0 Black	94.13 Blue	94.13.0 Black	94.14 Blue	94.14.0 Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.51					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Ambient temperature °C	–40...+70					

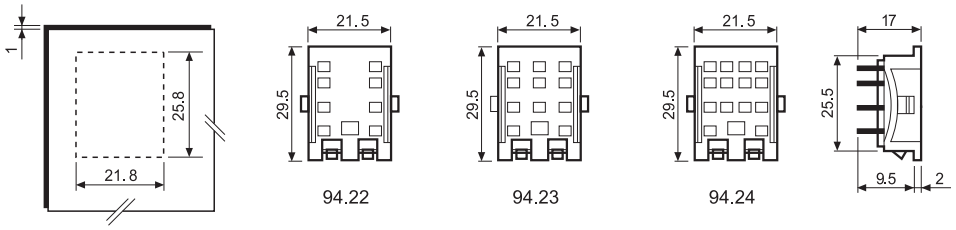




94.22

Approvals (according to type):

Panel mount solder socket 1 mm thick panel	94.22 Blue	94.22.0 Black	94.23 Blue	94.23.0 Black	94.24 Blue	94.24.0 Black
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.51					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Ambient temperature °C	–40...+70					



X-2013, www.findernet.com

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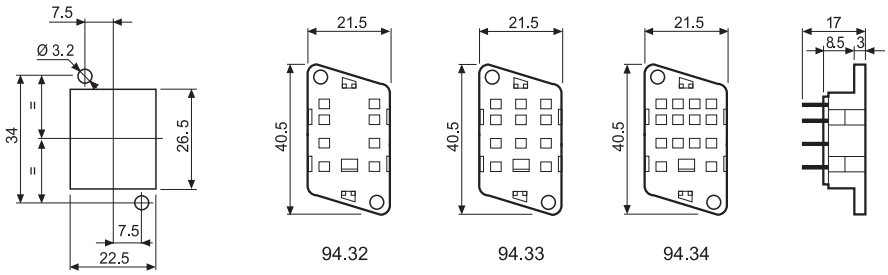
94 Series - Sockets and accessories for 55 series relays

94.34

Approvals (according to type):

Panel mount socket M3 screw fixing - solder connections	**94.32 Blue**	**94.32.0 Black**	**94.33 Blue**	**94.33.0 Black**	**94.34 Blue**	**94.34.0 Black**
For relay type	55.32		55.33		55.32, 55.34	
Accessories						
Metal retaining clip (supplied with socket - packaging code SMA)	094.51					
Technical data						
Rated values	10 A - 250 V					
Dielectric strength	2 kV AC					
Ambient temperature °C	–40…+70					



Packaging codes

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

Example:

9 4 .	0 4	S P	A

A Standard packaging

SM Metal retaining clip
SP Plastic retaining clip

9 4 .	0 4		

Without retaining clip

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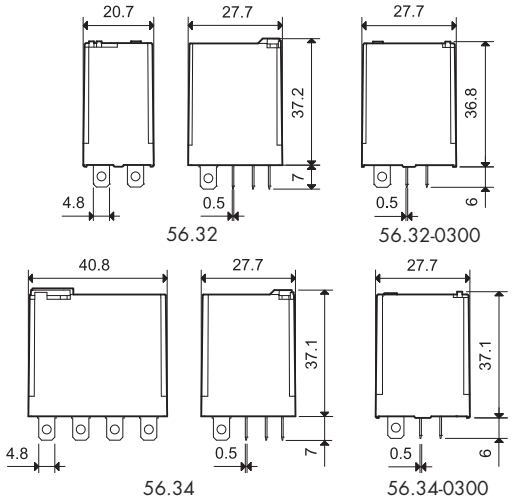
56 Series - Miniature power relays 12 A

Features

Plug-in - 12 A Power relay, 2 & 4 pole

- Flange mount option - (Faston 187, 4.8x0.5 mm termination)
- AC coils & DC coils
- Lockable test button and mechanical flag indicator
- Cadmium Free contacts (standard version)
- Contact material options
- 96 series sockets
- Coil EMC suppression
- Accessories
- European Patent

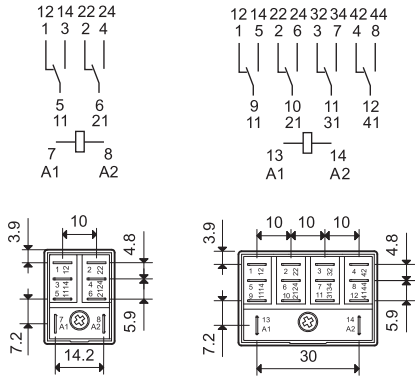


* For 4 CO (4PDT) or 4 NO only.

FOR UL RATINGS SEE:
"General technical information" page V

56.32/56.34

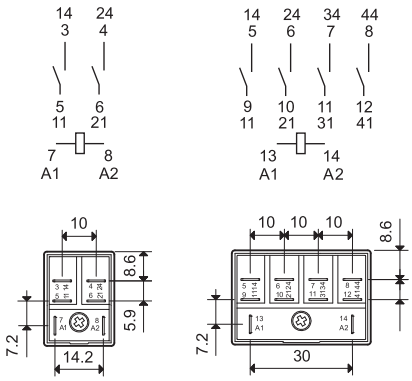
- 2 or 4 pole changeover contact
- Plug-in/Faston 187



56.32 56.34

56.32-0300/56.34-0300

- 2 or 4 pole normally open contact (≥1.5 mm gap)
- Plug-in/Faston 187



56.32-0300 56.34-0300

Contact specification					
Contact configuration		2 CO (DPDT)	4 CO (4PDT)	2NO (DPST-NO) - ≥1.5mm gap	4NO (4PST-NO) - ≥1.5mm gap
Rated current/Maximum peak current	A	12/20		12/20	
Rated voltage/Maximum switching voltage	V AC	250/400		250/400	
Rated load AC1	VA	3,000		3,000	
Rated load AC15 (230 V AC)	VA	700		700	
Single phase motor rating (230 V AC)	kW	0.55		0.55	
Breaking capacity DC1: 30/110/220 V	A	12/0.5/0.25		12/1/0.5	
Minimum switching load	mW (V/mA)	500 (10/5)		500 (10/5)	
Standard contact material		AgNi		AgNi	
Coil specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400*			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220		—	
Rated power AC/DC	VA (50 Hz)/W	1.5/1	2/1.3	1.5/—	2/—
Operating range	AC	(0.8...1.1)U_N		(0.85...1.1)U_N	
	DC	(0.8...1.1)U_N	(0.85...1.1)U_N	—	
Holding voltage	AC/DC	0.8 U_N/0.6 U_N		0.85 U_N/—	
Must drop-out voltage	AC/DC	0.2 U_N/0.1 U_N		0.2 U_N/—	
Technical data					
Mechanical life AC/DC	cycles	20 · 10^6/50 · 10^6		20 · 10^6/—	
Electrical life at rated load AC1	cycles	100 · 10^3		100 · 10^3	
Operate/release time	ms	8/3	10/4	8/4	
Insulation between coil and contacts (1.2/50 µs)	kV	4	5	4	5
Dielectric strength between open contacts	V AC	1,000		2,000	
Ambient temperature range	°C	–40...+70		–40...+70	
Environmental protection		RT I		RT I	
Approvals (according to type)					

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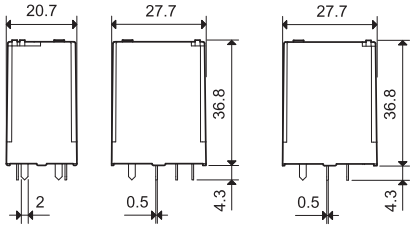
56 Series - Miniature power relays 12 A

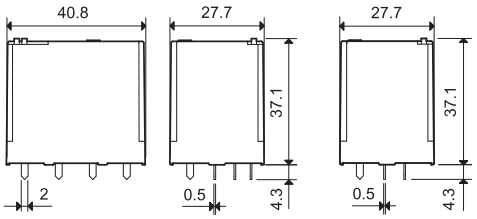
Features

Printed circuit mount
12 A Power relay

- 2 & 4 pole
- AC coils & DC coils
- Cadmium Free contacts (standard version)
- Contact material option
- RT III (wash tight) option available



56.42 56.42-0300



56.44 56.44-0300

* For 4 CO (4PDT) or 4 NO only.

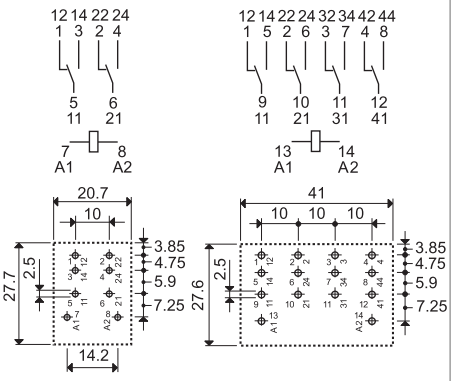
FOR UL RATINGS SEE:
"General technical information" page V

56.42/56.44

- 2 or 4 pole changeover contact
- PCB mount

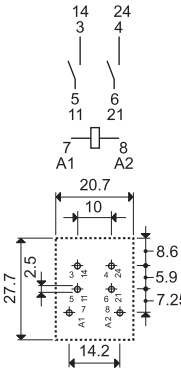
56.42-0300/56.44-0300

- 2 or 4 pole normally open contact (≥ 1.5 mm gap)
- PCB mount

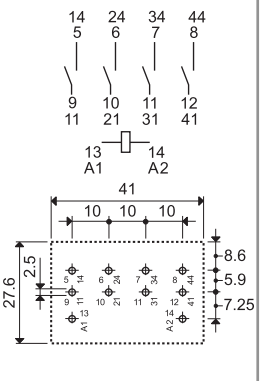


56.42
Copper side view

56.44
Copper side view



56.42-0300
Copper side view



56.44-0300
Copper side view

Contact specification					
Contact configuration		2 CO (DPDT)	4 CO (4PDT)	2NO (DPST-NO) - ≥1.5mm gap	4NO (4PST-NO) - ≥1.5mm gap
Rated current/Maximum peak current	A	12/20		12/20	
Rated voltage/Maximum switching voltage	V AC	250/400		250/400	
Rated load AC1	VA	3,000		3,000	
Rated load AC15 (230 V AC)	VA	700		700	
Single phase motor rating (230 V AC)	kW	0.55		0.55	
Breaking capacity DC1: 30/110/220 V	A	12/0.5/0.25		12/1/0.5	
Minimum switching load	mW (V/mA)	500 (10/5)		500 (10/5)	
Standard contact material		AgNi		AgNi	
Coil specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400*			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220		—	
Rated power AC/DC	VA (50 Hz)/W	1.5/1	2/1.3	1.5/—	2/—
Operating range	AC	(0.8...1.1)U_N		(0.85...1.1)U_N	
	DC	(0.8...1.1)U_N	(0.85...1.1)U_N	—	
Holding voltage	AC/DC	0.8 U_N/0.6 U_N		0.85 U_N/—	
Must drop-out voltage	AC/DC	0.2 U_N/0.1 U_N		0.2 U_N/—	
Technical data					
Mechanical life AC/DC	cycles	20 · 10^6/50 · 10^6		20 · 10^6/—	
Electrical life at rated load AC1	cycles	100 · 10^3		100 · 10^3	
Operate/release time	ms	8/3	10/4	8/4	
Insulation between coil and contacts (1.2/50 µs)	kV	4	5	4	5
Dielectric strength between open contacts	V AC	1,000		2,000	
Ambient temperature range	°C	–40...+70		–40...+70	
Environmental protection		RT I		RT I	
Approvals (according to type)					

finder

56 Series - Miniature power relays 12 A

Ordering information

Example: 56 series plug-in relay, 2 CO (DPDT), 12 V DC coil, lockable test button and mechanical indicator.

						A	B	C	D
5 6	.	3	2	. 9	.	0 1 2	. 0	0	4	0

Series

Type
3 = Plug-in
4 = PCB

No. of poles
2 = 2 pole, 12 A
4 = 4 pole, 12 A

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

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgNi
2 = AgCdO
4 = $AgSnO_2$

B: Contact circuit
0 = CO (nPDT)
3 = NO (nPST), ≥ 1.5 mm contact gap

D: Special versions
0 = Standard
1 = Wash tight (RT III) for 56.42 and 56.44 only
6 = Rear flange mount (4 pole only)
8 = Rear 35 mm rail mount (4 pole only)
For other mounting options see page 6

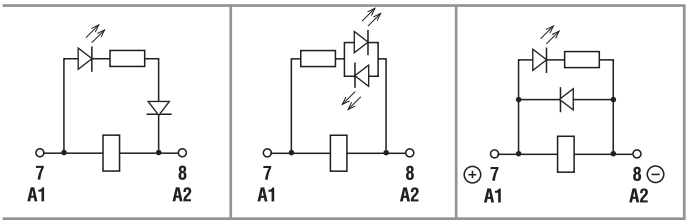
C: Options
0 = None
2 = Mechanical indicator
3* = LED (AC)
4 = Lockable test button+mechanical indicator
5* = Lockable test button + LED (AC)
54* = Lockable test button + LED (AC) + mechanical indicator
6* = Double LED (DC non-polarized)
7* = Lockable test button + double LED (DC non-polarized)
74* = Lockable test button + double LED (DC non-polarized) + mechanical indicator
8* = LED + diode (DC, polarity positive to pin 7) for 56.32 only
9* = Lockable test button + LED + diode (DC, polarity positive to pin 7) for 56.32 only
94* = Lockable test button + LED + diode (DC, polarity positive to pin 7) + mechanical indicator for 56.32 only
* Options not available for 220 V DC and 400 V AC versions.

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
56.32	AC	**0** - 2 - 4	**0**	0 - 2 - 3 - **4** - 5	**0**
	AC	0 - 2 - 4	0	54	/
	AC	0 - 2 - 4	3	0 - 3 - 5	0
	DC	**0** - 2 - 4	**0**	0 - 2 - **4** - 6 - 7 - 8 - 9	**0**
	DC	0 - 2 - 4	0	74 - 94	/
56.34	AC	**0** - 2 - 4	**0**	**0** - 2 - 3 - **4** - 5	**0** - 6 - 8
	AC	0 - 2 - 4	0	54	/
	AC	0 - 2 - 4	0 - 3	0 - 3 - 5	0
	DC	**0** - 2 - 4	**0**	**0** - 2 - **4** - 6 - 7	**0** - 6 - 8
	DC	0 - 2 - 4	0	74	/
56.42	DC	**0** - 2 - 4	**0**	**0**	**0** - 1
	AC	0 - 2 - 4	0 - 3	0	0 - 1
56.44	AC-DC	**0** - 2 - 4	**0**	**0**	**0** - 1
	AC	0 - 2 - 4	0 - 3	0	0 - 1

Special versions for Rail Applications on request

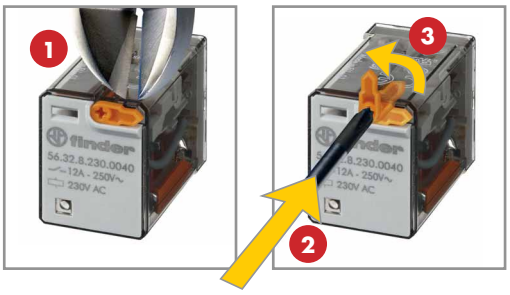
Descriptions: options and special versions



C: Option 3, 5, 54
LED (AC)

C: Option 6, 7, 74
Double LED
(DC non-polarized)

C: Option 8, 9, 94
LED + diode (DC, polarity positive to pin 7) - (56.32 only)



Lockable test button and mechanical flag indicator (0040, 0050, 0054, 0070, 0074, 0090, 0094)
The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.

Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position.

In both cases ensure that the test button actuation is swift and decisive.

finder

56 Series - Miniature power relays 12 A

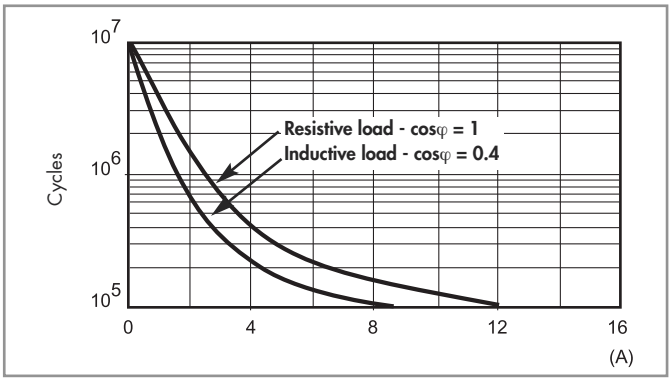
Technical data

*Only in applications where over voltage category II is permitted. In applications of over voltage category III: Micro-disconnection.

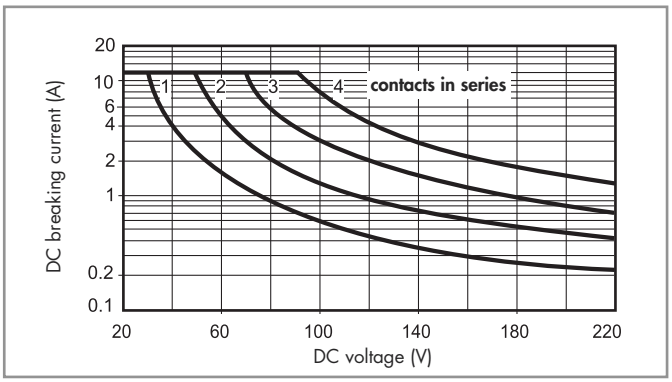
Insulation according to EN 61810-1			2 CO - 4 CO		2 NO - 4 NO	
Nominal voltage of supply system		V AC	230/400		230/400	
Rated insulation voltage		V AC	250	400	250	400
Pollution degree			3	2	3	2
Insulation between coil and contact set						
Type of insulation			Basic		Basic	
Overvoltage category			III		III	
Rated impulse voltage		kV (1.2/50 µs)	4		4	
Dielectric strength		V AC	2,500		2,500	
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	2,500		2,500	
Insulation between open contacts						
Type of disconnection			Micro-disconnection		Full-disconnection*	
Overvoltage category			—		II	
Rated impulse voltage		kV (1.2/50 µs)	—		2.5	
Dielectric strength		V AC/(1.2/50 µs)	1,000/1.5		2,000/3	
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	1/4 (changeover)		3/— (normally open)	
Vibration resistance (10...150 Hz): NO/NC		g	17/14			
Shock resistance NO/NC		g	20/14			
Power lost to the environment	without contact current	W	1 (56.32, 56.42)		1.3 (56.34, 56.44)	
	with rated current	W	3.8 (56.32, 56.42)		6.9 (56.34, 56.44)	
Recommended distance between relays mounted on PCB		mm	≥ 5			

Contact specification

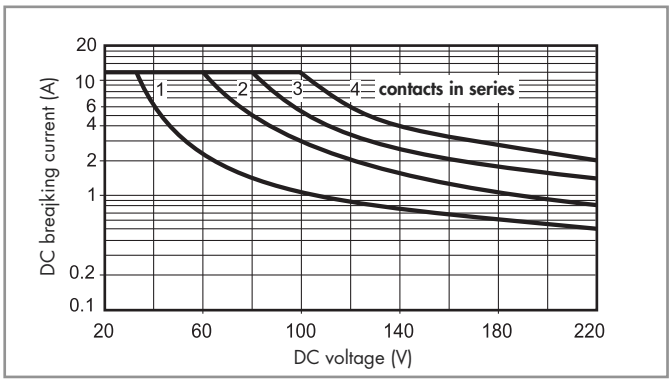
F 56 - Electrical life (AC) v contact current
2 - 4 pole relays



H 56 - Maximum DC1 breaking capacity
Changeover version



H 56 - Maximum DC1 breaking capacity
Normally open version



- 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 of the load will be increased.

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56 Series - Miniature power relays 12 A

Coil specifications

DC coil data, 2 pole relay

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
6	**9**.006	4.8	6.6	40	150
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
60	**9**.060	48	66	4,000	15
110	**9**.110	88	121	12,500	8.8
125	**9**.125	100	138	17,300	7.2
220	**9**.220	176	242	54,000	4

AC coil data, 2 pole relay

Nominal voltage U_N	Coil code	Operating range U_{min}*	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	12	200
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
60	**8**.060	48	66	1,200	21
110	**8**.110	88	121	3,940	12.5
120	**8**.120	96	132	4,700	12
230	**8**.230	184	253	17,000	6
240	**8**.240	192	264	19,100	5.3

* U_{min} = 0.85 U_N for normally open version.

DC coil data, 4 pole relay

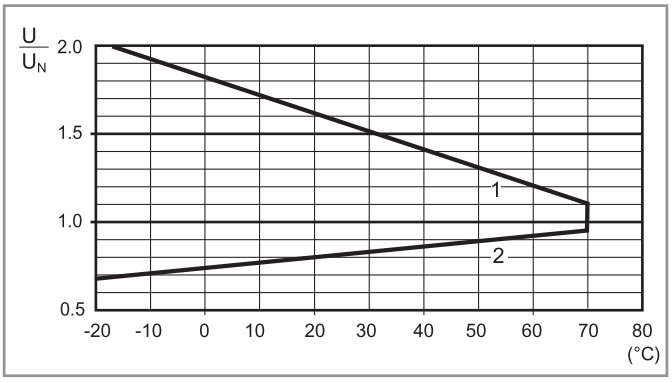
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N
V		V	V	Ω	mA
6	**9**.006	5.1	6.6	32.5	185
12	**9**.012	10.2	13.2	123	97
24	**9**.024	20.4	26.4	490	49
48	**9**.048	40.8	52.8	1,800	27
60	**9**.060	51	66	3,000	20
110	**9**.110	93.5	121	10,400	10.5
125	**9**.125	107	138	14,200	8.8
220	**9**.220	187	242	44,000	5

AC coil data, 4 pole relay or 4 NO

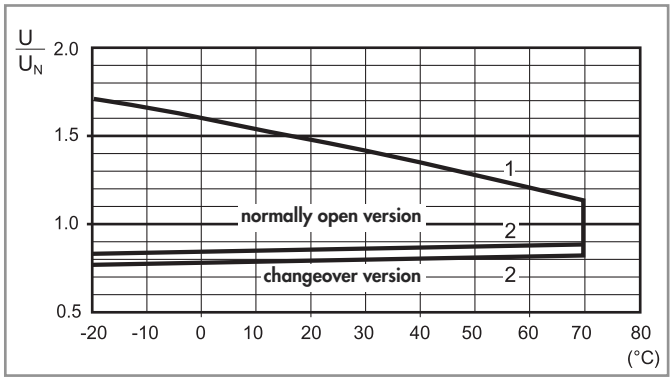
Nominal voltage U_N	Coil code	Operating range U_{min}*	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	5.7	300
12	**8**.012	9.6	13.2	22	150
24	**8**.024	19.2	26.4	81	90
48	**8**.048	38.4	52.8	380	37
60	**8**.060	48	66	600	30
110	**8**.110	88	121	1,900	16.5
120	**8**.120	96	132	2,560	13.4
230	**8**.230	184	253	7,700	9
240	**8**.240	192	264	10,000	7.5
400	**8**.400	320	440	26,000	4.9

* U_{min} = 0.85 U_N for normally open version.

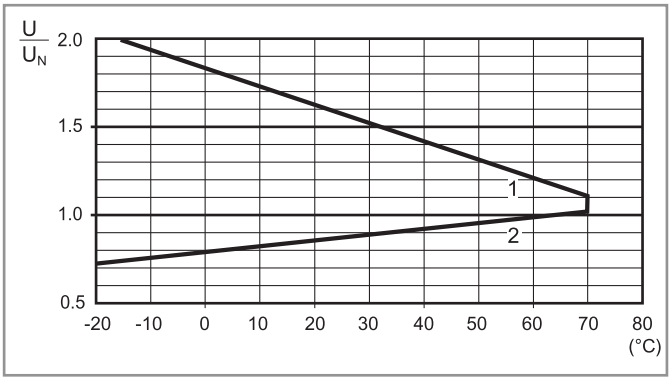
R 56 - DC coil operating range v ambient temperature
2 pole relay



R 56 - AC coil operating range v ambient temperature
2 pole relay

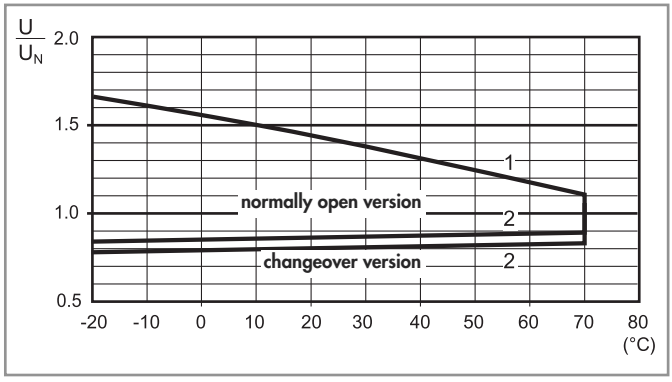


R 56 - DC coil operating range v ambient temperature
4 pole relay



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

R 56 - AC coil operating range v ambient temperature
4 pole relay or 4 NO



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

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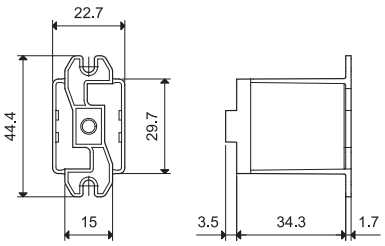
56 Series - Miniature power relays 12 A

Accessories

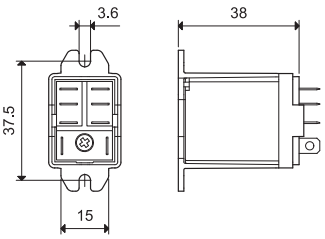
056.25

056.25 with relay

Top flange mount adaptor for 56.32 | 056.25



056.25

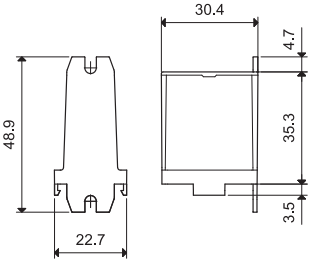


056.25 with relay

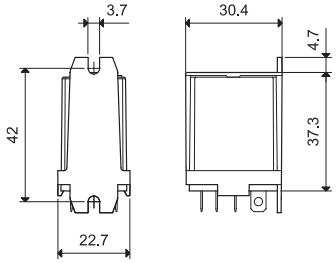
056.26

056.26 with relay

Rear flange mount adaptor for 56.32 | 056.26



056.26

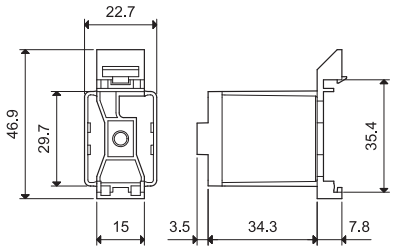


056.26 with relay

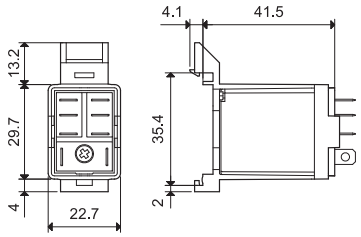
056.27

056.27 with relay

Top 35 mm rail (EN 60715) adaptor for 56.32 | 056.27



056.27

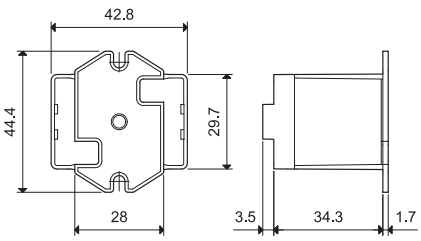


056.27 with relay

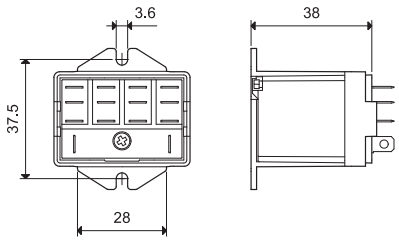
056.45

056.45 with relay

Top flange mount adaptor for 56.34 | 056.45



056.45

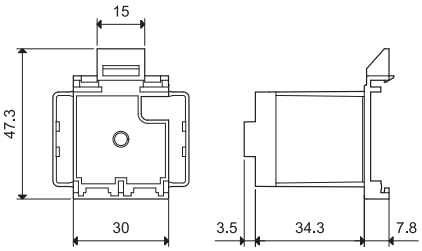


056.45 with relay

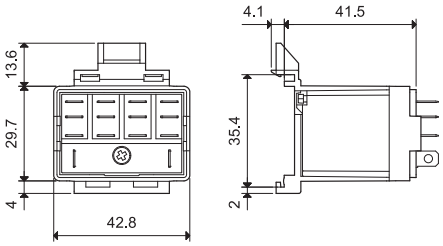
056.47

056.47 with relay

Top 35 mm rail (EN 60715) adaptor for 56.34 | 056.47



056.47



056.47 with relay

060.72

Sheet of marker tags for relay type 56.34, plastic, 72 tags, 6x12 mm | 060.72

finder

96 Series - Sockets and accessories for 56 series relays

96.02

Approvals (according to type):

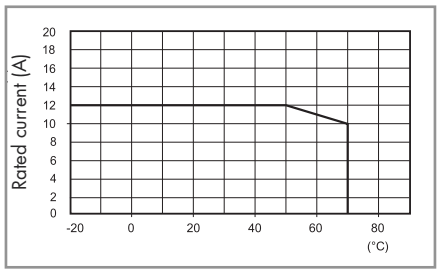
96.04

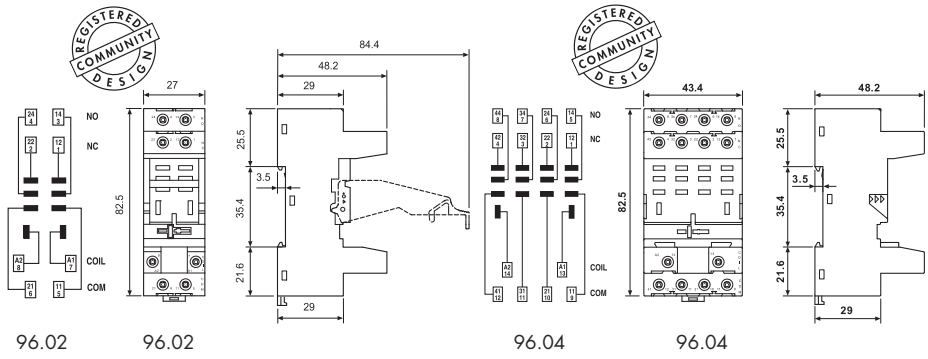
Approvals (according to type):

094.91.3

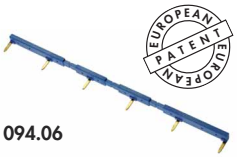
Screw terminal (Box clamp) socket panel or 35 mm **(EN 60715)** rail mount		**96.02 Blue**	**96.02.0 Black**	**96.04 Blue**	**96.04.0 Black**
For relay type		56.32		56.34	
Accessories					
Metal retaining clip (supplied with socket - packaging code SMA)		094.71		096.71	
Plastic retaining and release clip (supplied with socket - packaging code SPA)		094.91.3	094.91.30	—	—
6-way jumper link		094.06	094.06.0	—	—
Identification tag		095.00.4		090.00.2	
Modules (see table below)		99.02			
Timer modules (see table below)		86.30		86.00, 86.30	
Sheet of marker tags for retaining and release clip 094.91.3 plastic, 72 tags, 6x12 mm		060.72		—	
Technical data					
Rated values		12 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40…+70 (see diagram L96)			
Screw torque	Nm	0.8			
Wire strip length	mm	8			
Max. wire size for 94.02/04 sockets		solid wire		stranded wire	
	mm²	1x6 / 2x2.5		1x4 / 2x2.5	
	AWG	1x10 / 2x14		1x12 / 2x14	

L 96 - Rated current vs ambient temperature



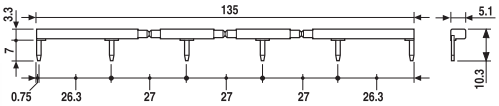


96.02 96.02 96.04 96.04



094.06

6-way jumper link for 96.02 socket	094.06 (blue)	094.06.0 (black)
Rated values	10 A - 250 V	



86.00

86.30

99.02

Approvals (according to type):

DC Modules with non-standard polarity (+A2) on request.

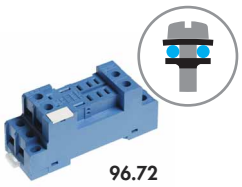
86 series timer modules	
Multi-voltage: (12…240)V AC/DC; Multi-functions: AI, DI, SW, BE, CE, DE, EE, FE; (0.05 s…100 h)	86.00.0.240.0000
(12…24)V AC/DC; Bi-function: AI, DI; (0.05 s…100 h)	86.30.0.024.0000
(110…125)V AC; Bi-function: AI, DI; (0.05s…100h)	86.30.8.120.0000
(230…240)V AC; Bi-function: AI, DI; (0.05 s…100 h)	86.30.8.240.0000

Approvals (according to type):

99.02 coil indication and EMC suppression modules for 96.02 and 96.04 sockets		
Diode (+A1, standard polarity)	(6…220)V DC	99.02.3.000.00
LED	(6…24)V DC/AC	99.02.0.024.59
LED	(28…60)V DC/AC	99.02.0.060.59
LED	(110…240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6…24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28…60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110…220)V DC	99.02.9.220.99
LED + Varistor	(6…24)V DC/AC	99.02.0.024.98
LED + Varistor	(28…60)V DC/AC	99.02.0.060.98
LED + Varistor	(110…240)V DC/AC	99.02.0.230.98
RC circuit	(6…24)V DC/AC	99.02.0.024.09
RC circuit	(28…60)V DC/AC	99.02.0.060.09
RC circuit	(110…240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110…240)V AC	99.02.8.230.07

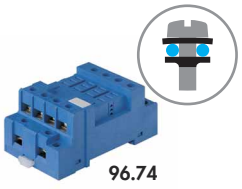
finder

96 Series - Sockets and accessories for 56 series relays



96.72

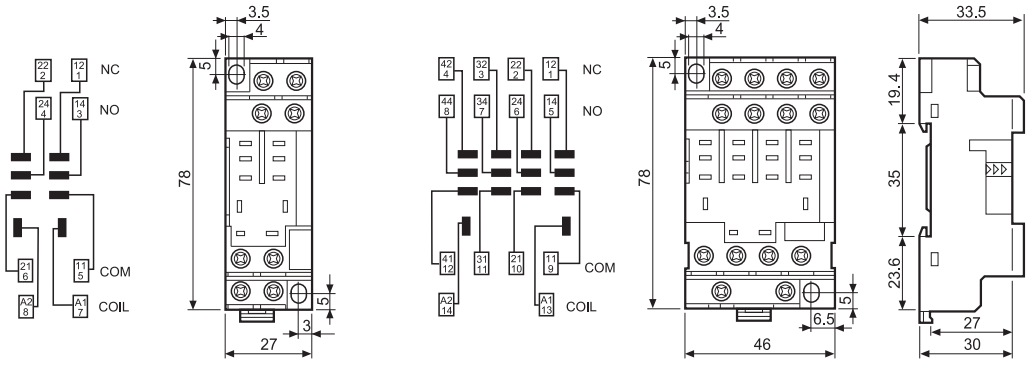
Approvals (according to type):



96.74

Approvals (according to type):

Screw terminal (Plate clamp) socket panel or 35 mm rail (EN 60715) mount		96.72 Blue	96.72.0 Black	96.74 Blue	96.74.0 Black
For relay type		56.32		56.34	
Accessories					
Metal retaining clip (supplied with socket - packaging code SMA)		094.71		096.71	
Modules (see table below)		99.01			
Technical data					
Rated values		12 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40...+70			
Screw torque	Nm	0.8			
Wire strip length	mm	10			
Max. wire size for 96.72 and 96.74 sockets		solid wire		stranded wire	
	mm²	1x4 / 2x4		1x4 / 2x2.5	
	AWG	1x12 / 2x12		1x12 / 2x14	



96.72 96.74

99.01

Approvals (according to type):

99.01 coil indication and EMC suppression modules for types 96.72 and 96.74 sockets

		Blue*
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non-standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non-standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non-standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non-standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

* Modules in Black housing are available on request.

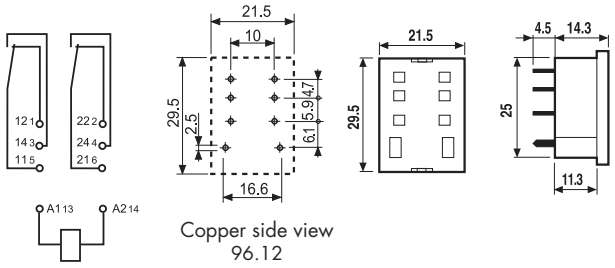
Green LED is standard. Red LED available on request.

96 Series - Sockets and accessories for 56 series relays

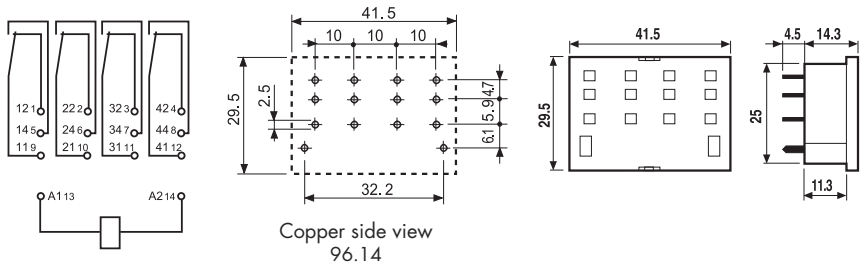
96.12

Approvals (according to type):

PCB socket	96.12 (blue)	96.12.0 (black)	96.14 (blue)	96.14.0 (black)
For relay type	56.32		56.34	
Accessories				
Metal retaining clip (supplied with socket - packaging code SMA)	094.51			
Technical data				
Rated values	15 A - 250 V			
Dielectric strength	2 kV AC			
Protection category	IP 20			
Ambient temperature °C	–40...+70			



Copper side view
96.12



Copper side view
96.14

Packaging code

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

Example:

9 6 . 7	4	S M	A

A Standard packaging

SM Metal retaining clip
SP Plastic retaining clip

9 6 . 7	4		

Without retaining clip

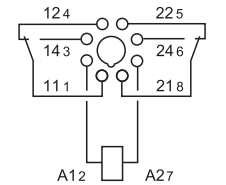
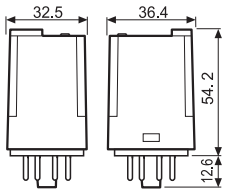
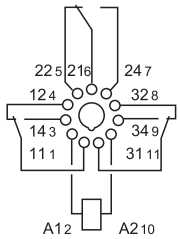
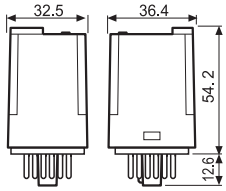
finder

60 Series - General purpose relays 6 - 10 A

Features

Plug-in mount
10 A General purpose relay

- 2 & 3 pole changeover contacts
- Cadmium Free contacts (preferred version)
- AC coils & DC coils
- UL Listing (certain relay/socket combinations)
- Contact material options
- Lockable test button with mechanical flag indicator (preferred version)
- 90 series sockets
- Coil EMC suppression
- Timer accessories 86 series
- European Patent

	60.12	60.13
		
	• 2 pole, 10 A power contacts • 8 pin plug-in	• 3 pole, 10 A power contacts • 11 pin plug-in
	 	 

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification			
Contact configuration		2 CO (DPDT)	3 CO (3PDT)
Rated current/Maximum peak current	A	10/20	10/20
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V	A	10/0.4/0.15	10/0.4/0.15
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 -125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
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	$200 \cdot 10^3$	$200 \cdot 10^3$
Operate/release time	ms	11/4	11/4
Insulation between coil and contacts (1.2/50 µs)	kV	4	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	–40...+70	–40...+70
Environmental protection		RT I	RT I
Approvals (according to type)			

finder

60 Series - General purpose relays 6 - 10 A

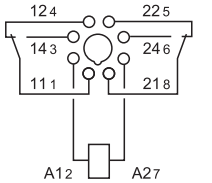
Features

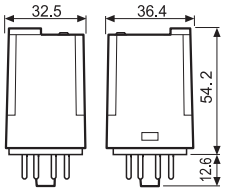
Plug-in mount - 6 A
Bifurcated contacts for low level switching

- 2 & 3 pole changeover contacts
- Cadmium Free contacts (Gold plated Silver Nickel)
- AC coils & DC coils
- Lockable test button with mechanical flag indicator (preferred version)
- 90 series sockets
- Coil EMC suppression
- Timer accessories 86 series
- European Patent

60.12 - 5200

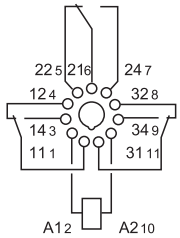
- 2 pole, 6 A bifurcated contacts
- 8 pin plug-in

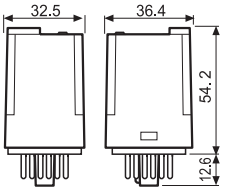




60.13 - 5200

- 3 pole, 6 A bifurcated contacts
- 11 pin plug-in





FOR UL RATINGS SEE:
"General technical information" page V

Contact specification			
Contact configuration		2 CO (DPDT)	3 CO (3PDT)
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	250	250
Single phase motor rating (230 V AC)	kW	0.185	0.185
Breaking capacity DC1: 30/110/220 V	A	6/0.3/0.12	6/0.3/0.12
Minimum switching load	mW (V/mA)	50 (5/5)	50 (5/5)
Standard contact material		AgNi + Au bifurcated contacts	AgNi + Au bifurcated contacts
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 -125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
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	$250 \cdot 10^3$	$250 \cdot 10^3$
Operate/release time	ms	11/4	11/4
Insulation between coil and contacts (1.2/50 µs)	kV	4	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	–40...+70	–40...+70
Environmental protection		RT I	RT I
Approvals (according to type)			

finder

60 Series - General purpose relays 6 - 10 A

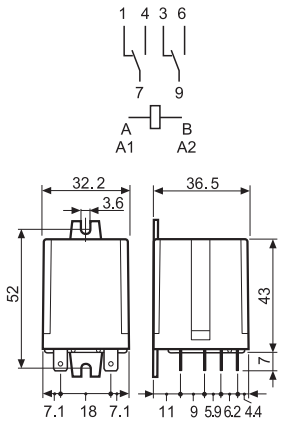
Features

Flange mount - General purpose relay 10 A

- Faston 187, 4.8x0.8 mm
- 2 & 3 pole changeover contacts
- AC coils & DC coils
- Cadmium Free contacts (preferred version)
- Contacts material options

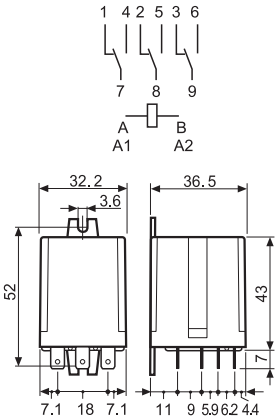
60.62

- 2 pole, 10 A power contacts
- Flange mount/Faston 187



60.63

- 3 pole, 10 A power contacts
- Flange mount/Faston 187



FOR UL RATINGS SEE:
"General technical information" page V

Contact specification			
Contact configuration		2 CO (DPDT)	3 CO (3PDT)
Rated current/Maximum peak current	A	10/20	10/20
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2,500	2,500
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V	A	10/0.4/0.15	10/0.4/0.15
Minimum switching load	mW (V/mA)	500 (10/5)	500 (10/5)
Standard contact material		AgNi	AgNi
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 -125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
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	$200 \cdot 10^3$	$200 \cdot 10^3$
Operate/release time	ms	11/4	11/4
Insulation between coil and contacts (1.2/50 µs)	kV	4	3.6
Dielectric strength between open contacts	V AC	1,000	1,000
Ambient temperature range	°C	–40...+70	–40...+70
Environmental protection		RT I	RT I
Approvals (according to type)			

Ordering information

Example: 60 series plug-in relay, 3 CO (3PDT), 12 V DC coil, test button and mechanical indicator.

6 0	. 1	3	. 9	. 0 1 2	. 0	0	4	0
Series	Type	No. of poles	Coil version	Coil voltage	A	B	C	D

Series

Type
1 = 8/11 pin plug-in
6 = Faston 187 (4.8x0.8 mm) with flange mount

No. of poles
2 = 2 pole
3 = 3 pole

Coil version
4 = Current sensing (60.12/13 only)
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

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

B: Contact circuit
0 = CO (nPDT)
2 = Bifurcated contacts 60.12/13 - 6 A only

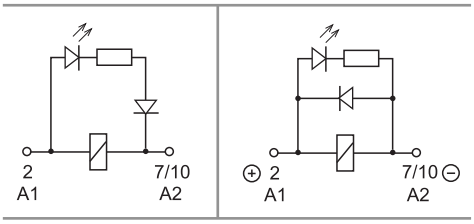
C: Options
0 = None
2 = Mechanical indicator
3 = LED (AC)
4 = Lockable test button + mechanical indicator
5* = Lockable test button + LED (AC)
54* = Lockable test button + LED (AC) + mechanical indicator
6* = LED + diode (DC, polarity positive to pin 2)
7* = Lockable test button + LED + diode (DC, polarity positive to pin 2)
74* = Lockable test button + LED + diode (DC, polarity positive to pin 2) + mechanical indicator
* Options not available for 220 V DC and 400 V AC versions.

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.**

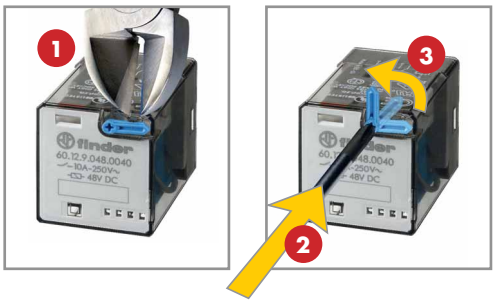
Type	Coil version	A	B	C	D
60.12/13	AC	**0** - 2	**0**	0 - 2 - 3 - **4** - 5	**0**
	AC	0 - 2	0	54	/
	AC	5	0 - 2	0 - 2 - 3 - 4 - 5	0
	AC	5	0 - 2	54	/
	DC	**0** - 2	**0**	0 - 2 - **4** - 6 - 7	**0**
	DC	0 - 2	0	74	/
	DC	5	0 - 2	0 - 2 - 4 - 6 - 7	0
	DC	5	0 - 2	74	/
	current sensing	0	0	4	0
60.62/63	AC-DC	**0** - 2 - 5	**0**	**0**	**0**

Descriptions: Options and Special versions



C: Option 3, 5, 54
LED (AC)

C: Option 6, 7, 74
LED + diode (DC, polarity positive to pin 2)



Lockable test button and mechanical flag indicator (0040, 0050, 0054, 0070, 0074)

The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.
Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

X-2013, www.findernet.com

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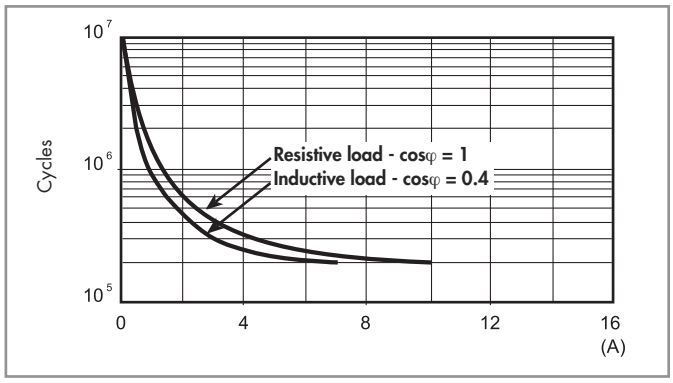
60 Series - General purpose relays 6 - 10 A

Technical data

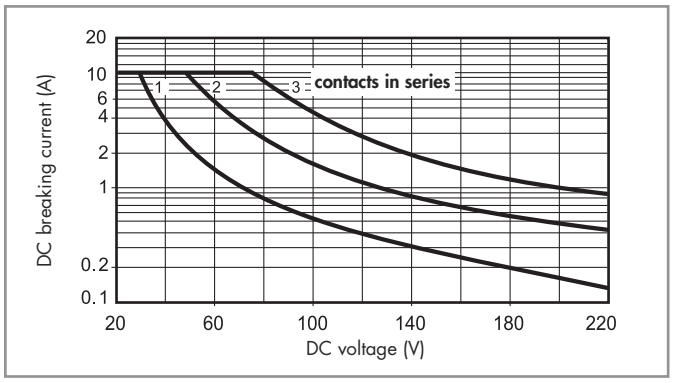
Insulation according to EN 61810-1			2 pole		3 pole	
Nominal voltage of supply system		V AC	230/400		230/400	
Rated insulation voltage		V AC	250	400	250	400
Pollution degree			3	2	3	2
Insulation between coil and contact set						
Type of insulation			Basic		Basic	
Overvoltage category			III		III	
Rated impulse voltage		kV (1.2/50 µs)	4		3.6	
Dielectric strength		V AC	2,000		2,000	
Insulation between adjacent contacts						
Type of insulation			Basic		Basic	
Overvoltage category			III		III	
Rated impulse voltage		kV (1.2/50 µs)	4		3.6	
Dielectric strength		V AC	2,000		2,000	
Insulation between open contacts						
Type of disconnection			Micro-disconnection		Micro-disconnection	
Dielectric strength		V AC/kV (1.2/50 µs)	1,000/1.5		1,000/1.5	
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	1/4			
Vibration resistance (5...55)Hz: NO/NC		g	22/22			
Shock resistance		g	20			
Power lost to the environment	without contact current	W	1.3		1.3	
	with rated current	W	2.7 (60.12, 60.62)		3.4 (60.13, 60.63)	

Contact specification

F 60 - Electrical life (AC) v contact current



H 60 - 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

DC coil data

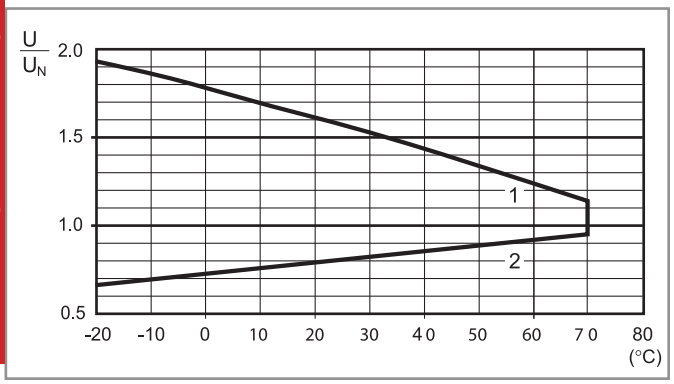
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N
V		V	V	Ω	mA
6	**9**.006	4.8	6.6	28	214
12	**9**.012	9.6	13.2	110	109
24	**9**.024	19.2	26.4	445	53.9
48	**9**.048	38.4	52.8	1,770	27.1
60	**9**.060	48	66	2,760	21.7
110	**9**.110	88	121	9,420	11.7
125	**9**.125	100	138	12,000	10.4
220	**9**.220	176	242	37,300	5.8

AC coil data

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	4.6	367
12	**8**.012	9.6	13.2	19	183
24	**8**.024	19.2	26.4	74	90
48	**8**.048	38.4	52.8	290	47
60	**8**.060	48	66	450	37
110	**8**.110	88	121	1,600	20
120	**8**.120	96	132	1,940	18.6
230	**8**.230	184	253	7,250	10.5
240	**8**.240	192	264	8,500	9.2
400	**8**.400	320	440	19,800	6

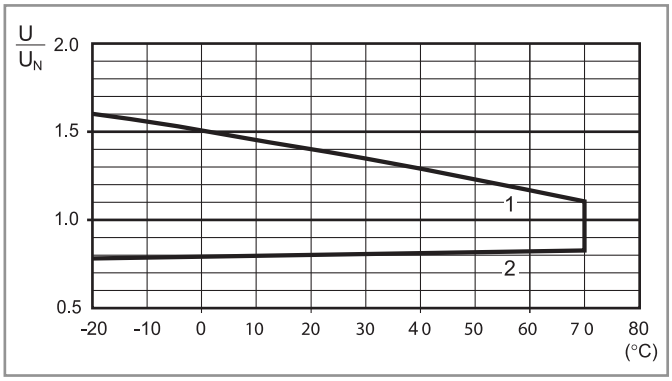
Coil specifications

R 60 - DC coil operating range v ambient temperature



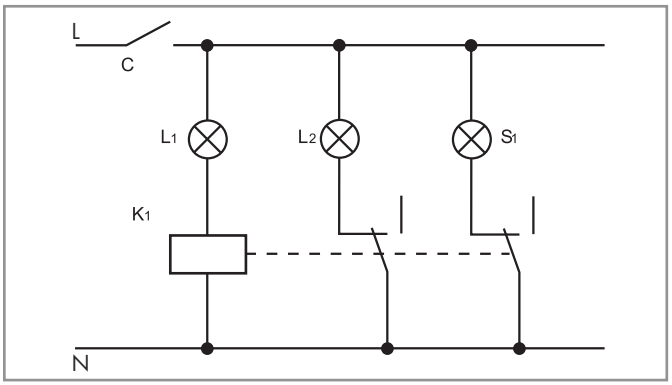
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

R 60 - AC coil operating range v ambient temperature



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

Current sensing version



Typical application with current sensing relays.
An open circuit filiment of lamp L1 is detected by the current sensing relay coil (K1) which causes the back-up safety lamp L2 to be energised, and indication of failure at the control panel via lamp S1.
Example: navigation light.
L1 = Light
L2 = Safety light
S1 = Control light
K1 = Relay

Current sensing DC coil data

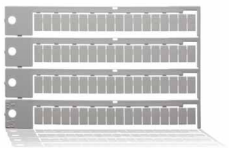
Coil code	I_{min} (A)	I_N (A)	I_{max} (A)	R (Ω)
4202	1.7	2.0	2.4	0.15
4182	1.5	1.8	2.2	0.19
4162	1.4	1.6	1.9	0.24
4142	1.2	1.4	1.7	0.31
4122	1.0	1.2	1.4	0.42
4102	0.85	1.0	1.2	0.61
4092	0.8	0.9	1.1	0.75
4062	0.5	0.6	0.7	1.70
4032	0.25	0.3	0.4	6.70
4012	0.085	0.1	0.15	61

Current sensing AC coil data

Coil code	I_{min} (A)	I_N (A)	I_{max} (A)	R (Ω)
4251	2.1	2.5	3.0	0.05
4181	1.5	1.8	2.2	0.10
4161	1.4	1.6	1.9	0.12
4121	1.0	1.2	1.4	0.22
4101	0.85	1.0	1.2	0.32
4051	0.42	0.5	0.6	1.28
4041	0.34	0.4	0.5	2.00
4031	0.25	0.3	0.4	3.57
4021	0.17	0.2	0.25	8.0
4011	0.085	0.1	0.15	32.1

Other types of current sensing relays are available on request.

Accessories



060.72

Sheet of marker tags for relay types 60.12 and 60.13, plastic, 72 tags, 6x12 mm	060.72

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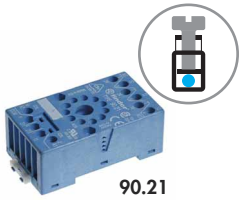
90 Series - Socket overview for 60 series relays

90.03

See page 8

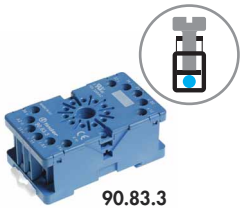
Module	Socket	Relay	Description	Mounting	Accessories
99.02 	90.02	60.12	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Jumper link - Timer modules - Metal retaining clip
	90.03	60.13	Double A1 terminal		



90.21

See page 9

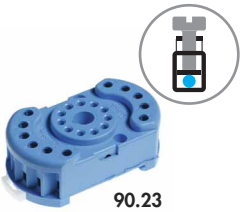
Module	Socket	Relay	Description	Mounting	Accessories
99.01 	90.20	60.12	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Coil indication and EMC suppression modules - Metal retaining clip
	90.21	60.13			



90.83.3

See page 10

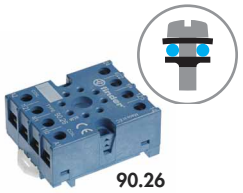
Module	Socket	Relay	Description	Mounting	Accessories
—	90.82.3	60.12	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—	90.83.3	60.13			



90.23

See page 10

Module	Socket	Relay	Description	Mounting	Accessories
—	90.22	60.12	**Screw terminal (Box clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—	90.23	60.13			



90.26

See page 11

Module	Socket	Relay	Description	Mounting	Accessories
—	90.26	60.12	**Screw terminal (Plate clamp) socket**	Panel or 35 mm rail (EN 60715) mount	- Metal retaining clip
—	90.27	60.13			

90.12

See page 1

Module	Socket	Relay	Description	Mounting	Accessories
—	90.12	60.12	**Flange mount solder socket**	M3 screw fixing	—
—	90.13	60.13			

90.15

See page 12

Module	Socket	Relay	Description	Mounting	Accessories
—	90.14	60.12	**PCB socket**	PCB	—
—	90.14.1	60.12			
—	90.15	60.13			
—	90.15.1	60.13			

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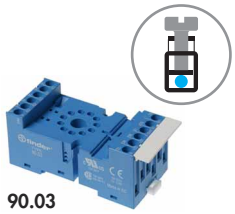
90 Series - Sockets and accessories for 60 series relays

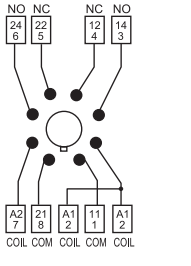


90.03

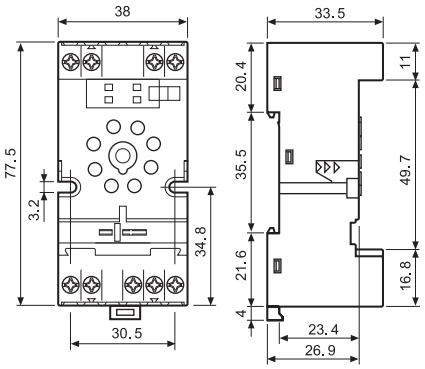
Approvals (according to type):

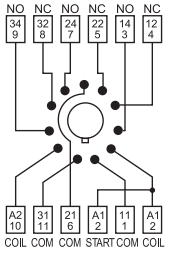
Certain relay/socket combinations

Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount		90.02 Blue	90.02.0 Black	90.03 Blue	90.03.0 Black
For relay type		60.12		60.13	
Accessories					
Metal retaining clip		090.33			
6-way jumper link		090.06			
Identification tag		090.00.2			
Modules (see table below)		99.02			
Timer modules (see table below)		86.00, 86.30			
Technical data					
Rated values		10 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40...+70			
Screw torque	Nm	0.6			
Wire strip length	mm	10			
Max. wire size for 90.02 and 90.03 sockets		solid wire		stranded wire	
	mm²	1x6 / 2x2.5		1x4 / 2x2.5	
	AWG	1x10 / 2x14		1x12 / 2x14	

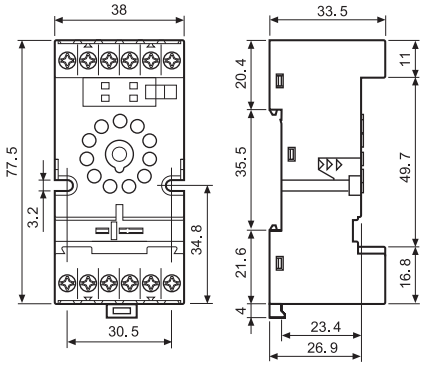


90.02





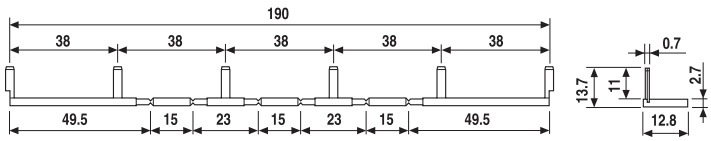
90.03



090.06

6-way jumper link for 90.02 and 90.03 sockets	090.06 (blue)	090.06.0 (black)
Rated values	10 A - 250 V	

Approvals (according to type):



86.00

86.30

86 series timer modules	
Multi-voltage: (12...240)V AC/DC; Multi-functions: AI, DI, SW, BE, CE, DE, EE, FE; (0.05 s...100 h)	86.00.0.240.0000
(12...24)V AC/DC; Bi-function: AI, DI; (0.05 s...100 h)	86.30.0.024.0000
(110...125)V AC; Bi-function: AI, DI; (0.05s...100h)	86.30.8.120.0000
(230...240)V AC; Bi-function: AI, DI; (0.05 s...100 h)	86.30.8.240.0000

Approvals (according to type):

99.02

Approvals (according to type):

99.02 coil indication and EMC suppression modules for 90.02 and 90.03 sockets		
Diode (+A1, standard polarity)	(6...220)V DC	99.02.3.000.00
LED	(6...24)V DC/AC	99.02.0.024.59
LED	(28...60)V DC/AC	99.02.0.060.59
LED	(110...240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.02.9.220.99
LED + Varistor	(6...24)V DC/AC	99.02.0.024.98
LED + Varistor	(28...60)V DC/AC	99.02.0.060.98
LED + Varistor	(110...240)V DC/AC	99.02.0.230.98
RC circuit	(6...24)V DC/AC	99.02.0.024.09
RC circuit	(28...60)V DC/AC	99.02.0.060.09
RC circuit	(110...240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110...240)V AC	99.02.8.230.07

DC Modules with non-standard polarity (+A2) on request.

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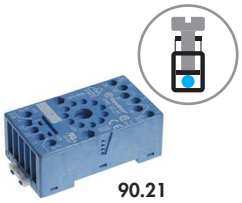
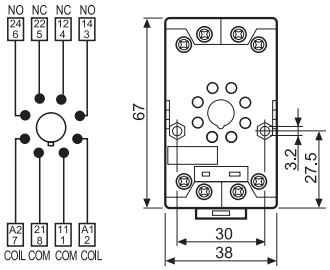
90 Series - Sockets and accessories for 60 series relays



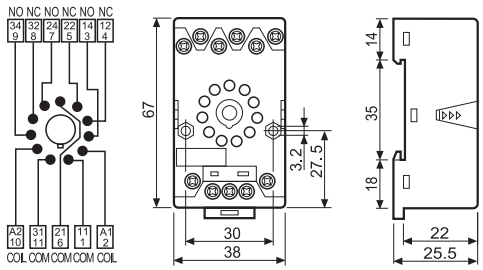
90.21

Approvals (according to type):

Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount		**90.20** **Blue**	**90.20.0** **Black**	**90.21** **Blue**	**90.21.0** **Black**
For relay type		60.12		60.13	
Accessories					
Metal retaining clip (supplied with socket - packaging code SMA)		090.33			
Modules (see table below)		99.01			
Technical data					
Rated values		10 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40...+70			
Screw torque	Nm	0.5			
Wire strip length	mm	10			
Max. wire size for 90.20 and 90.21 sockets		solid wire		stranded wire	
	mm^2	1x6 / 2x2.5		1x6 / 2x2.5	
	AWG	1x10 / 2x14		1x10 / 2x14	



90.20



90.21

99.01

Approvals (according to type):

* Modules in Black housing are available on request.

Green LED is standard. Red LED available on request.

99.01 coil indication and EMC suppression modules for 90.20 and 90.21 sockets		
See technical data page 215/216		**Blue***
Diode (+A1, standard polarity)	(6...220)V DC	99.01.3.000.00
Diode (+A2, non-standard polarity)	(6...220)V DC	99.01.2.000.00
LED	(6...24)V DC/AC	99.01.0.024.59
LED	(28...60)V DC/AC	99.01.0.060.59
LED	(110...240)V DC/AC	99.01.0.230.59
LED + Diode (+A1, standard polarity)	(6...24)V DC	99.01.9.024.99
LED + Diode (+A1, standard polarity)	(28...60)V DC	99.01.9.060.99
LED + Diode (+A1, standard polarity)	(110...220)V DC	99.01.9.220.99
LED + Diode (+A2, non-standard polarity)	(6...24)V DC	99.01.9.024.79
LED + Diode (+A2, non-standard polarity)	(28...60)V DC	99.01.9.060.79
LED + Diode (+A2, non-standard polarity)	(110...220)V DC	99.01.9.220.79
LED + Varistor	(6...24)V DC/AC	99.01.0.024.98
LED + Varistor	(28...60)V DC/AC	99.01.0.060.98
LED + Varistor	(110...240)V DC/AC	99.01.0.230.98
RC circuit	(6...24)V DC/AC	99.01.0.024.09
RC circuit	(28...60)V DC/AC	99.01.0.060.09
RC circuit	(110...240)V DC/AC	99.01.0.230.09
Residual current by-pass	(110...240)V AC	99.01.8.230.07

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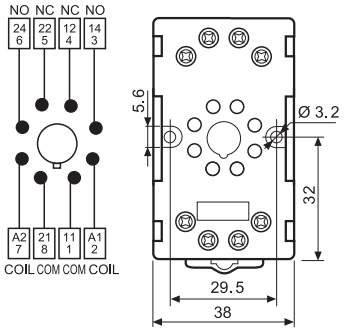
90 Series - Sockets and accessories for 60 series relays

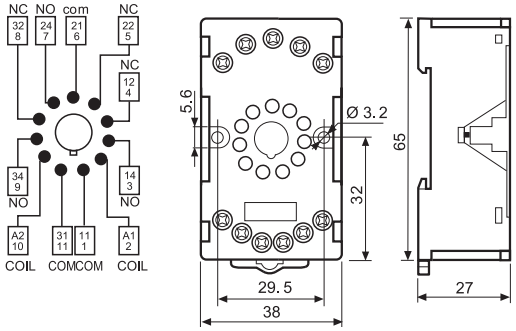
90.83.3

Approvals (according to type):

Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount		90.82.3 Blue	90.82.30 Black	90.83.3 Blue	90.83.30 Black
For relay type		60.12		60.13	
Accessories					
Metal retaining clip		090.33			
Technical data					
Rated values		10 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40...+70			
Screw torque	Nm	0.8			
Max. wire size for 90.82.3 and 90.83.3 sockets		solid wire		stranded wire	
	mm²	1x6 / 2x4		1x6 / 2x4	
	AWG	1x10 / 2x14		1x10 / 2x14	



90.82.3

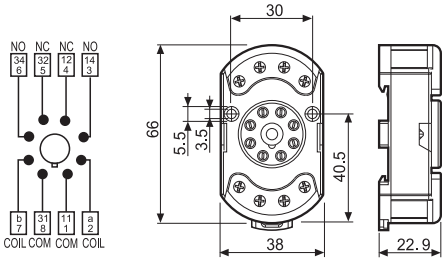


90.83.3

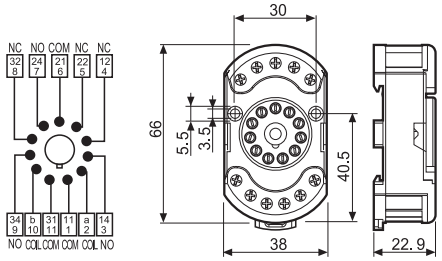
90.23

Approvals (according to type):

Screw (Box clamp) terminal socket panel or 35 mm rail (EN 60715) mount		90.22 Blue	90.23 Blue
For relay type		60.12	60.13
Accessories			
Metal retaining clip (supplied with socket - packaging code SMA)		090.33	
Technical data			
Rated values		10 A - 250 V	
Dielectric strength		2 kV AC	
Protection category		IP 20	
Ambient temperature	°C	–40...+70	
Screw torque	Nm	0.5	
Wire strip length	mm	7	
Max wire size for 90.22 and 90.23 sockets		solid wire	stranded wire
	mm²	1x6 / 2x2.5	1x6 / 2x2.5
	AWG	1x10 / 2x14	1x10 / 2x14



90.22



90.23

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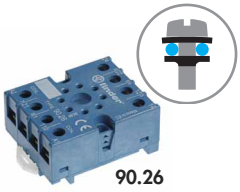
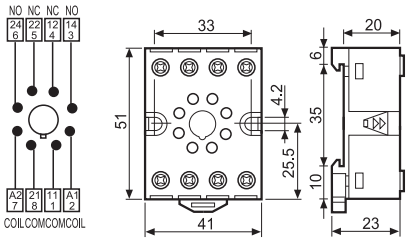
90 Series - Sockets and accessories for 60 series relays



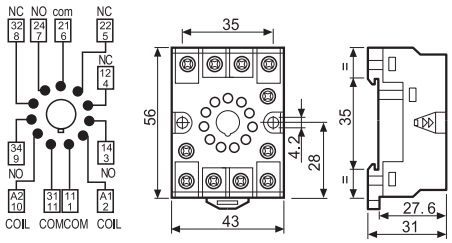
90.26

Approvals (according to type):

Screw terminal (Plate clamp) socket panel or 35 mm rail (EN 60715) mount		**90.26 Blue**	**90.26.0 Black**	**90.27 Blue**	**90.27.0 Black**
For relay type		60.12		60.13	
Accessories					
Metal retaining clip (supplied with socket - packaging code SMA)		090.33			
Technical data					
Rated values		10 A - 250 V			
Dielectric strength		2 kV AC			
Protection category		IP 20			
Ambient temperature	°C	–40…+70			
Screw torque	Nm	0.8			
Wire strip length	mm	10			
Max. wire size for 90.26 and 90.27 sockets		solid wire		stranded wire	
	mm^2	1x4 / 2x2.5		1x4 / 2x2.5	
	AWG	1x12 / 2x14		1x12 / 2x14	



90.26

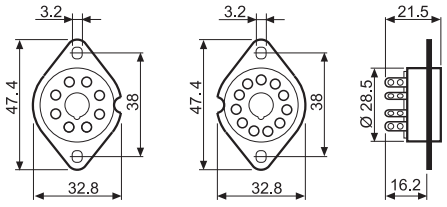


90.27

90.12

Approvals (according to type):

Flange mount solder socket mount with M3 screw		**90.12 (black)**	**90.13 (black)**
For relay type		60.12	60.13
Technical data			
Rated values		10 A - 250 V	
Dielectric strength		2 kV AC	
Ambient temperature	°C	–40…+70	



90.12 90.13

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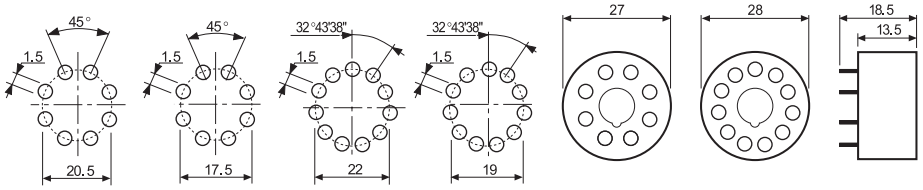
90 Series - Sockets and accessories for 60 series relays

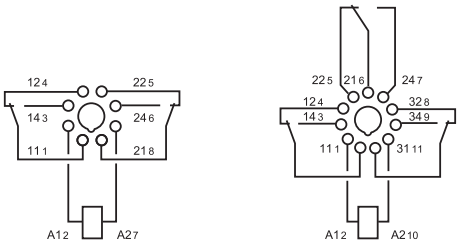
90.15

Approvals (according to type):

PCB socket	Blue Blue	90.14 (Ø 20.5 mm) 90.14.1 (Ø 17.5 mm)	90.15 (Ø 22 mm) 90.15.1 (Ø 19 mm)
For relay type		60.12	60.13
Technical data			
Rated values		10 A - 250 V	
Dielectric strength		2 kV AC	
Ambient temperature	°C	–40...+70	



90.14 90.14.1 90.15 90.15. 1 90.14 90.15



90.14 90.15

Packaging code

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

Example:

9 0 . 2	1	S M	A

A Standard packaging

SM Metal retaining clip

9 0 . 2	1		

Without retaining clip

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Features

Printed circuit mount
16 A Power relay

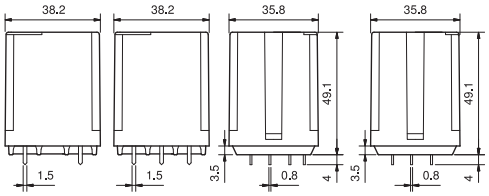
- 2 & 3 Pole changeover contacts or NO (≥ 3 mm contact gap)
- AC coils & DC coils
- Reinforced insulation between coil and contacts according to EN 60335-1, with 6 mm clearance & 8 mm creepage distance
- SELV coil-contact separator option
- Cadmium Free contact material options

62.22 / 62.23

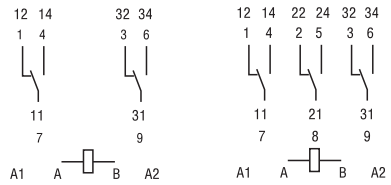
- 2 & 3 pole changeover contact
- PCB mount

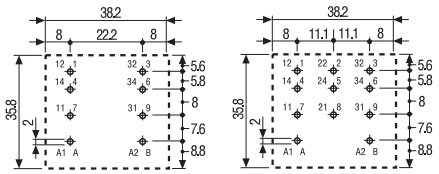
62.22-0300 / 62.23-0300

- 2 & 3 pole normally open contact (≥ 3 mm contact gap)
- PCB mount



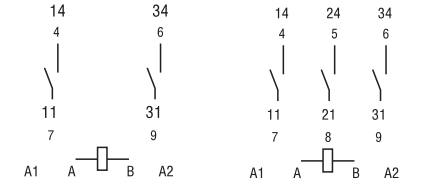
62.22 62.23 62.2x 62.2x-0300
62.22-0300 62.23-0300

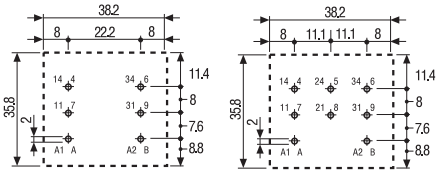




62.22
Copper side view

62.23
Copper side view





62.22 - 0300
Copper side view

62.23 - 0300
Copper side view

* Distance between contacts ≥ 3 mm (EN 60730-1).

** With the $AgSnO_2$ material the maximum peak current is 120 A - 5 ms (NO contact).

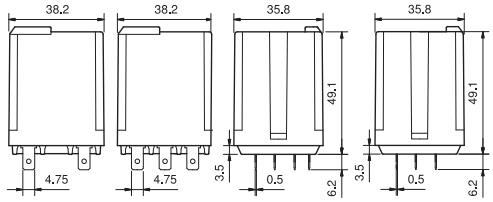
FOR UL RATINGS SEE:
"General technical information" page V

Contact specification					
Contact configuration		2 CO (DPDT)	3 CO (3PDT)	2 NO (DPST-NO), ≥ 3 mm*	3 NO (3PST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	16/30**		16/30**	
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	
Motor rating (230/400 V AC)	kW	0.8/—	0.8/1.5	0.8/—	0.8/1.5
Breaking capacity DC1: 30/110/220 V	A	16/0.6/0.4		16/1.1/0.7	
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)	
Standard contact material		AgCdO		AgCdO	
Coil specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220			
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3		3/3	
Operating range	AC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
	DC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
Holding voltage	AC/DC	0.8 U_N/0.6 U_N		0.8 U_N/0.6 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	$10 \cdot 10^6/30 \cdot 10^6$		$10 \cdot 10^6/30 \cdot 10^6$	
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$		$100 \cdot 10^3$	
Operate/release time	ms	11/4		15/3	
Insulation between coil and contacts (1.2/50 µs)	kV	6		6	
Dielectric strength between open contacts	V AC	1,500		2,500	
Ambient temperature range	°C	–40...+70		–40...+50	
Environmental protection		RT I		RT I	
Approvals (according to type)					

Features

Plug-in mount/Faston 187
16 A Power relay

- Plug-in (92 series sockets) or Faston 187 (4.8x0.5 mm) with optional mounting adaptors
- 2 & 3 Pole changeover contacts or NO (≥ 3 mm contact gap)
- AC coils & DC coils
- UL Listing (certain relay/socket combinations)
- LED, mechanical indicator & test button options
- Reinforced insulation between coil and contacts according to EN 60335-1, with 6 mm clearance & 8 mm creepage distance
- SELV coil-contact separator option
- Cadmium Free contact material options
- Sockets and accessories
- European Patent



62.32 62.33 62.32-0300 62.33-0300 62.3x 62.3x-0300

* Distance between contacts ≥ 3 mm (EN 60730-1).

** With the $AgSnO_2$ material the maximum peak current is 120 A - 5 ms (NO contact).

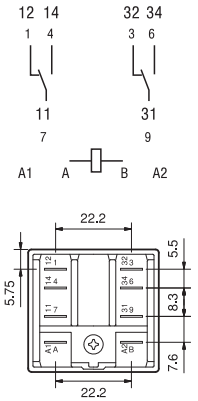
FOR UL RATINGS SEE:
"General technical information" page V

62.32 / 62.33

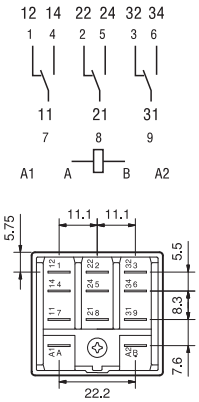
- 2 & 3 pole changeover contact
- Plug-in / Faston 187

62.32-0300 / 62.33-0300

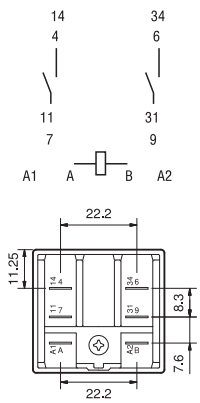
- 2 & 3 pole normally open contact (≥ 3 mm contact gap)
- Plug-in / Faston 187



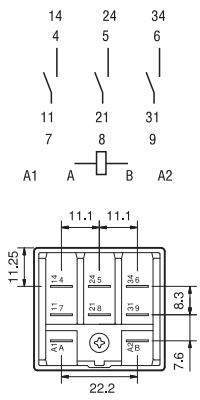
62.32



62.33



62.32-0300



62.33-0300

Contact specification					
Contact configuration		2 CO (DPDT)	3 CO (3PDT)	2 NO (DPST-NO), ≥ 3 mm*	3 NO (3PST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	16/30**		16/30**	
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	
Motor rating (230/400 V AC)	kW	0.8/—	0.8/1.5	0.8/—	0.8/1.5
Breaking capacity DC1: 30/110/220 V	A	16/0.6/0.4		16/1.1/0.7	
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)	
Standard contact material		AgCdO		AgCdO	
Coil specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220			
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3		3/3	
Operating range	AC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
	DC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
Holding voltage	AC/DC	0.8 U_N/0.6 U_N		0.8 U_N/0.6 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	$10 \cdot 10^6/30 \cdot 10^6$		$10 \cdot 10^6/30 \cdot 10^6$	
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$		$100 \cdot 10^3$	
Operate/release time	ms	11/4		15/3	
Insulation between coil and contacts (1.2/50 µs)	kV	6		6	
Dielectric strength between open contacts	V AC	1,500		2,500	
Ambient temperature range	°C	–40...+70		–40...+50	
Environmental protection		RT I		RT I	
Approvals (according to type)					

Features

Flange mount/Faston 250
16 A Power relay

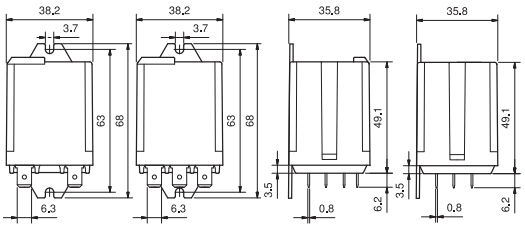
- Faston 250 (6.3x0.8 mm) termination Flange or optional mounting adaptors
- 2 & 3 Pole changeover contacts or NO (≥ 3 mm contact gap)
- AC coils & DC coils
- LED, mechanical indicator & test button options
- Reinforced insulation between coil and contacts according to EN 60335-1, with 6 mm clearance & 8 mm creepage distance
- SELV coil-contact separator option
- Cadmium Free contact material options
- European Patent

62.82 / 62.83

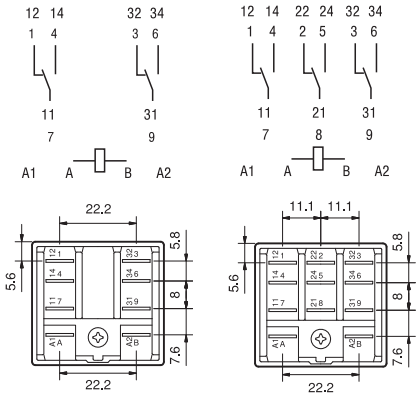
- 2 & 3 pole changeover contact
- Flange mount / Faston 250

62.82-0300 / 62.83-0300

- 2 & 3 pole normally open contact (≥ 3 mm contact gap)
- Flange mount / Faston 250

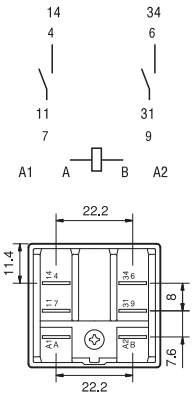


62.82 62.83 62.8x 62.8x-0300
62.82-0300 62.83-0300

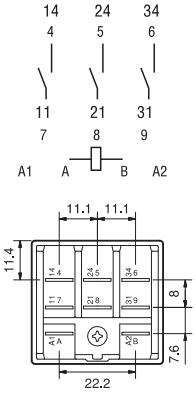


62.82

62.83



62.82-0300



62.83-0300

* Distance between contacts ≥ 3 mm (EN 60730-1).

** With the $AgSnO_2$ material the maximum peak current is 120 A - 5 ms (NO contact).

FOR UL RATINGS SEE: "General technical information" page V

Contact specification					
Contact configuration		2 CO (DPDT)	3 CO (3PDT)	2 NO (DPST-NO), ≥ 3 mm*	3 NO (3PST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	16/30**		16/30**	
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	
Motor rating (230/400 V AC)	kW	0.8/—	0.8/1.5	0.8/—	0.8/1.5
Breaking capacity DC1: 30/110/220 V	A	16/0.6/0.4		16/1.1/0.7	
Minimum switching load	mW (V/mA)	1,000 (10/10)		1,000 (10/10)	
Standard contact material		AgCdO		AgCdO	
Coil specification					
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400			
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220			
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3		3/3	
Operating range	AC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
	DC	$(0.8...1.1)U_N$		$(0.85...1.1)U_N$	
Holding voltage	AC/DC	0.8 U_N/0.6 U_N		0.8 U_N/0.6 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	$10 \cdot 10^6/30 \cdot 10^6$		$10 \cdot 10^6/30 \cdot 10^6$	
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$		$100 \cdot 10^3$	
Operate/release time	ms	11/4		15/3	
Insulation between coil and contacts (1.2/50 µs)	kV	6		6	
Dielectric strength between open contacts	V AC	1,500		2,500	
Ambient temperature range	°C	–40...+70		–40...+50	
Environmental protection		RT I		RT I	
Approvals (according to type)					

Ordering information

Example: 62 series power relay + Faston 250 (6.3x0.8 mm), rear flange mount, 2 NO (DPST-NO), 12 V DC coil.

6 2	. 8	2	. 9	. 0 1 2	. 0	3	0	0
					A	B	C	D

Series

Type
2 = PCB
3 = Plug-in
8 = Faston 250 (6.3x0.8 mm) with rear flange mount

No. of poles
2 = 2 pole
3 = 3 pole

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

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgCdO
4 = $AgSnO_2$

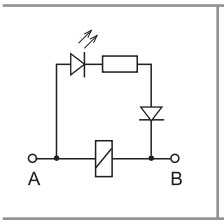
B: Contact circuit
0 = CO (nPDT)
3 = NO (nPST), ≥ 3 mm contact gap
5 = CO (nPDT) + additional physical separator between coil and contacts (for SELV applications)
6 = NO (nPST), ≥ 3 mm contact gap + additional physical separator between coil and contacts (for SELV applications)

C: Options
0 = None
2 = Mechanical indicator
3 = LED (AC)
4 = Lockable test button + mechanical indicator
5* = Lockable test button + LED (AC)
54* = Lockable test button + LED (AC) + mechanical indicator
6* = LED + diode (DC, polarity positive to pin A/A1)
7* = Lockable test button + LED + diode (DC, polarity positive to pin A/A1)
74* = Lockable test button + LED + diode (DC, polarity positive to pin A/A1) + mechanical indicator
* Options not available for 220 V DC and 400 V AC versions.

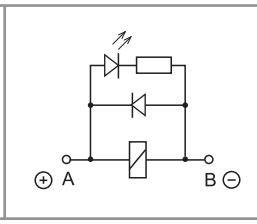
Selecting features and options: only combinations in the same row are possible.
Preferred selections for best availability are shown in **bold.**

Type	Coil version	A	B	C	D
62.22/23	AC-DC	**0** - 4	**0** - 3 - 5 - 6	**0**	**0**
62.32/33	AC-DC	0 - 4	0 - 3 - 5 - 6	0	0 - 6
	AC-DC	**0** - 4	**0** - 5	2 - **4**	**0** - 6
	AC	**0** - 4	**0**	2 - 3 - **4** - 5	**0** - 6
	AC	0 - 4	0 - 3	3	0 - 6
	AC	0 - 4	0	54	/
	DC	**0** - 4	**0**	**4** - 6 - 7	**0** - 6
	DC	0 - 4	0 - 3	6	0 - 6
	DC	0 - 4	0	74	/
62.82/83	AC-DC	**0** - 4	**0** - 3 - 5 - 6	**0**	**0** - 9
	AC-DC	0 - 4	0 - 5	2 - 4	0
	AC	0 - 4	0	2 - 3 - 4 - 5	0
	AC	0 - 4	0 - 3	3	0
	DC	0 - 4	0	4 - 6 - 7	0
	DC	0 - 4	0 - 3	6	0

Descriptions: Options and Special versions



C: Option 3, 5, 54
LED (AC)



C: Option 6, 7, 74
LED + diode (DC, polarity positive to pin A/A1)

B: Contact circuit 5, 6
Additional physical separator between coil and contacts (for SELV applications)

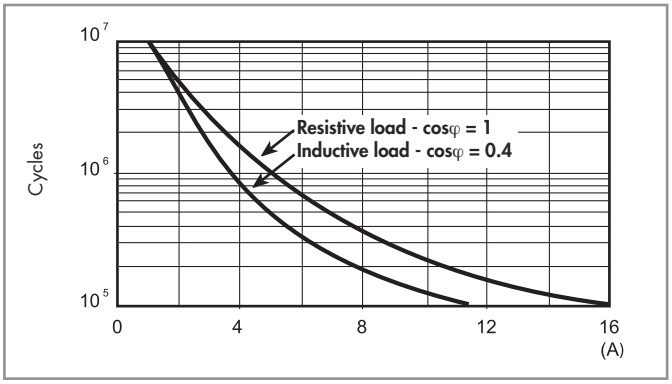
Lockable test button and mechanical flag indicator (0040, 0050, 0054, 0070, 0074)
The dual-purpose Finder test button can be used in two ways:
Case 1) The plastic pip (located directly above the test button) remains intact. In this case, when the test button is pushed, the contacts operate. When the test button is released the contacts return to their former state.
Case 2) The plastic pip is broken-off (using an appropriate cutting tool). In this case, (in addition to the above function), when the test button is pushed and rotated, the contacts are latched in the operating state, and remain so until the test button is rotated back to its former position. In both cases ensure that the test button actuation is swift and decisive.

Technical data

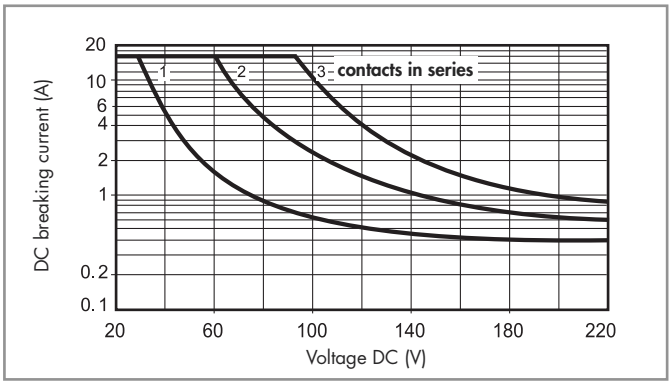
Insulation according to EN 61810-1					
		2 CO - 3 CO		**2 NO - 3 NO**	
Nominal voltage of supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	400		400	
Pollution degree		3		3	
Insulation between coil and contact set					
Type of insulation		Reinforced		Reinforced	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	6		6	
Dielectric strength	V AC	4,000		4,000	
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	2,500		2,500	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Full-disconnection	
Overvoltage category		—		III	
Rated impulse voltage	kV (1.2/50 µs)	—		4	
Dielectric strength	V AC/kV (1.2/50 µs)	1,500/2		2,500/4	
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	1/5 (changeover)		3/— (normally open)	
Vibration resistance (10...150)Hz: NO/NC	g	20/8			
Shock resistance	g	15			
Power lost to the environment		**2 pole (CO)**	**3 pole (CO)**	**2 pole (NO)**	**3 pole (NO)**
without contact current	W	1.3	1.3	3	3
with rated current	W	3.3	4.3	5	6
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

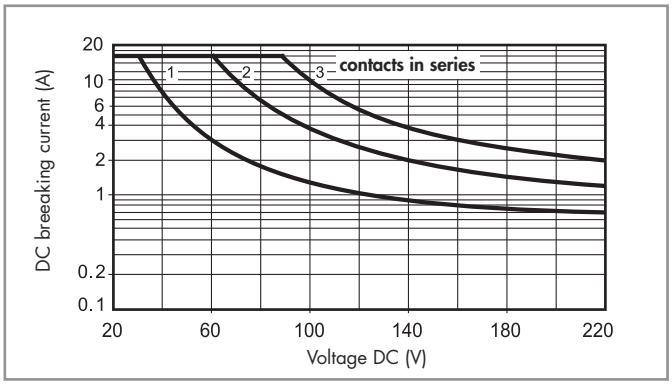
F 62 - Electrical life (AC) v contact current



H 62 - Maximum DC1 breaking capacity
Changeover contacts



H 62 - Maximum DC1 breaking capacity
Normally open contacts



- 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 of the load will be increased.

Coil specifications

DC version data

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
6	**9**.006	4.8	6.6	28	214
12	**9**.012	9.6	13.2	110	109
24	**9**.024	19.2	26.4	445	54
48	**9**.048	38.4	52.8	1,770	27
60	**9**.060	48	66	2,760	21.7
110	**9**.110	88	121	9,420	11.7
125	**9**.125	100	138	12,000	10.4
220	**9**.220	176	242	37,300	5.8

AC version data

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	4.6	367
12	**8**.012	9.6	13.2	19	183
24	**8**.024	19.2	26.4	74	90
48	**8**.048	38.4	52.8	290	47
60	**8**.060	48	66	450	37
110	**8**.110	88	121	1,600	20
120	**8**.120	96	132	1,940	18.6
230	**8**.230	184	253	7,250	10.5
240	**8**.240	192	264	8,500	9.2
400	**8**.400	320	440	19,800	6

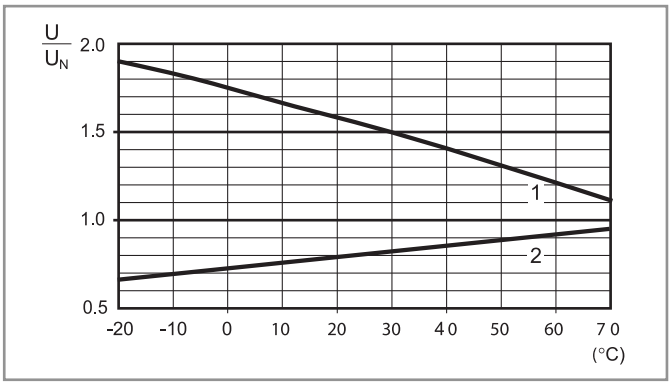
DC (NO/nPST-NO) version data - ≥ 3 mm

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
6	**9**.006	5.1	6.6	12	500
12	**9**.012	10.2	13.2	48	250
24	**9**.024	20.4	26.4	192	125
48	**9**.048	40.8	52.8	770	63
60	**9**.060	51	66	1,200	50
110	**9**.110	93.5	121	4,200	26
125	**9**.125	106	138	5,200	24
220	**9**.220	187	242	17,600	12.5

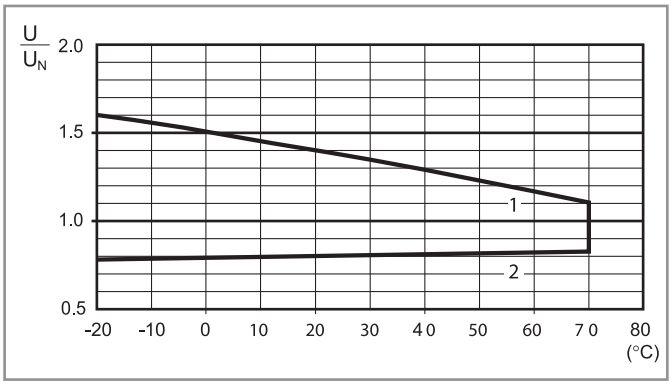
AC (NO/nPST-NO) version data - ≥ 3 mm

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	5.1	6.6	4	540
12	**8**.012	10.2	13.2	14	275
24	**8**.024	20.4	26.4	62	130
48	**8**.048	40.8	52.8	220	70
60	**8**.060	51	66	348	55
110	**8**.110	93.5	121	1,200	30
120	**8**.120	106	137	1,350	24
230	**8**.230	196	253	5,000	14
240	**8**.240	204	264	6,300	12.5
400	**8**.400	340	440	14,700	7.8

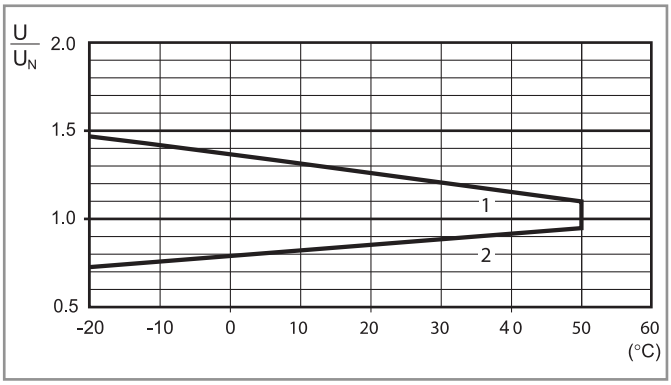
R 62 - DC coil operating range v ambient temperature
Changeover contacts



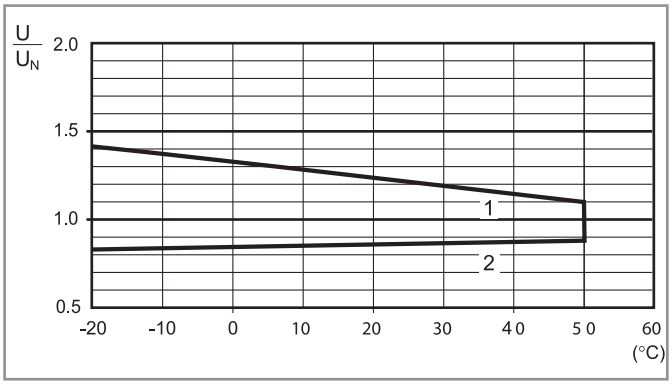
R 62 - AC coil operating range v ambient temperature
Changeover contacts



R 62 - DC coil operating range v ambient temperature
Normally open contacts



R 62 - AC coil operating range v ambient temperature
Normally open contacts



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

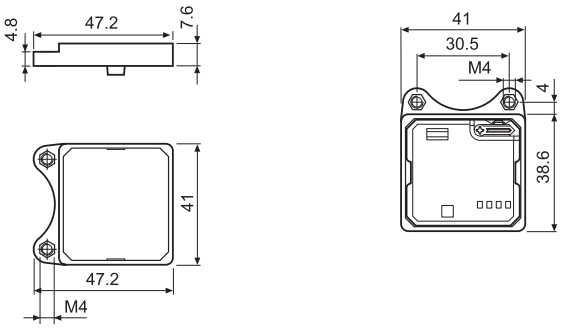
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories

062.10

062.10 with relay

Mounting adaptor for types 62.3x and 62.8x.xxxx.xxx9 (M4) | 062.10

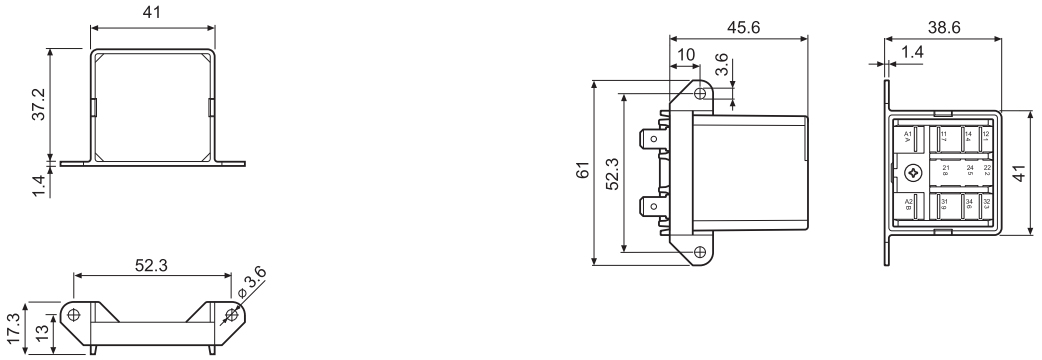


062.10 | 062.10 with relay

062.60

062.60 with relay

Flange mounting adaptor for types 62.3x and 62.8x.xxxx.xxx9 | 062.60

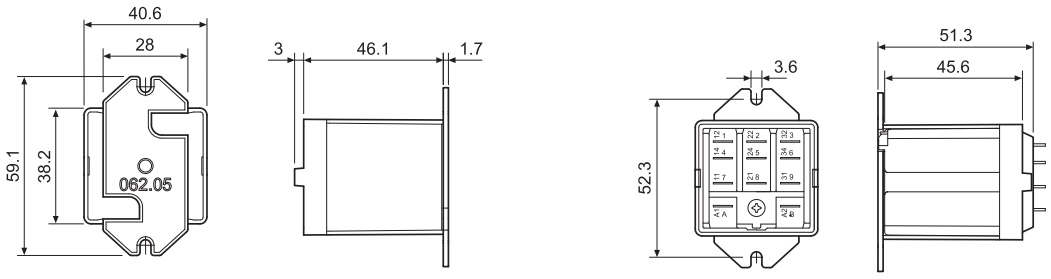


062.60 | 062.60 with relay

062.05

062.05 with relay

Top flange mount for types 62.3x and 62.8x.xxxx.xxx9 | 062.05

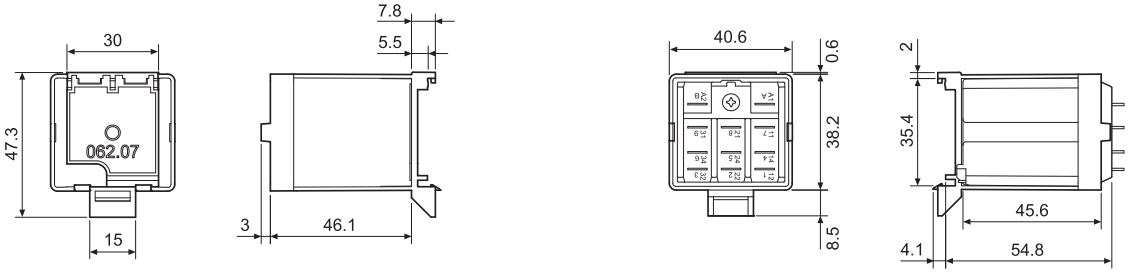


062.05 | 062.05 with relay

062.07

062.07 with relay

Top 35 mm rail (EN 60715) mount for types 62.3x and 62.8x.xxxx.xxx9 | 062.07



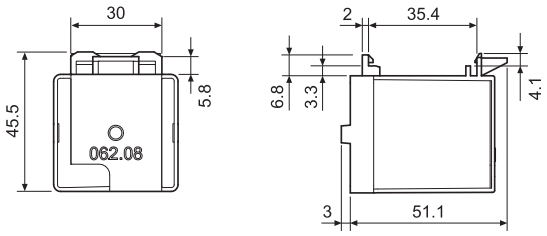
062.07 | 062.07 with relay

Accessories

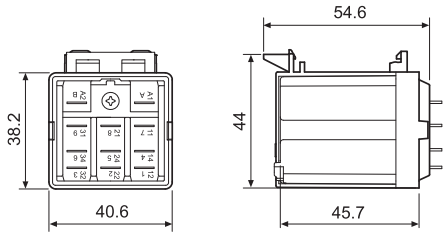
062.08

062.08 with relay

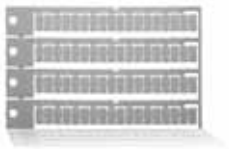
Rear 35 mm rail (EN 60715) mount for types 62.3x and 62.8x.xxxx.xxx9	062.08



062.08



062.08 with relay



060.72

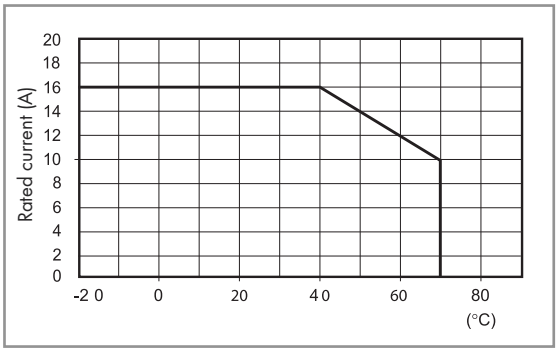
Sheet of marker tags for 62 series relays, plastic, 72 tags, 6x12 mm	060.72

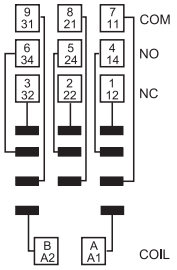
92.03

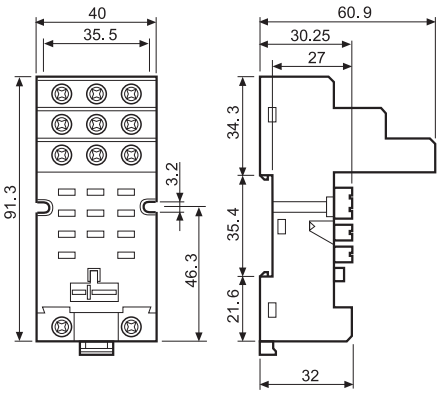
Approvals (according to type):

Screw terminal (Box clamp) socket panel or 35 mm rail (EN 60715) mount		92.03 Blue	92.03.0 Black
For relay type		62.32, 62.33	
Accessories			
Metal retaining clip (supplied with socket - packaging code SMA)		092.71	
Identification tag		092.00.2	
Modules (see table below)		99.02	
Timer modules (see table below)		86.00, 86.30	
Technical data			
Rated values		16 A - 250 V	
Dielectric strength		6 kV (1.2/50 µs) between coil and contacts	
Protection category		IP 20	
Ambient temperature	°C	–40…+70 (see diagram L92)	
Screw torque	Nm	0.8	
Wire strip length	mm	10	
Max. wire size for 92.03 socket		solid wire	stranded wire
	mm²	1x10 / 2x4	1x6 / 2x4
	AWG	1x8 / 2x12	1x10 / 2x12

L 92 - Rated current vs ambient temperature







86.00

86.30

86 series timer modules	
Multi-voltage: (12…240)V AC/DC; Multi-functions: AI, DI, SW, BE, CE, DE, EE, FE; (0.05s…100h)	86.00.0.240.0000
(12…24)V AC/DC; Bi-function: AI, DI; (0.05s…100h)	86.30.0.024.0000
(110…125)V AC; Bi-function: AI, DI; (0.05s…100h)	86.30.8.120.0000
(230…240)V AC; Bi-function: AI, DI; (0.05s…100h)	86.30.8.240.0000

Approvals (according to type):

99.02

Approvals (according to type):

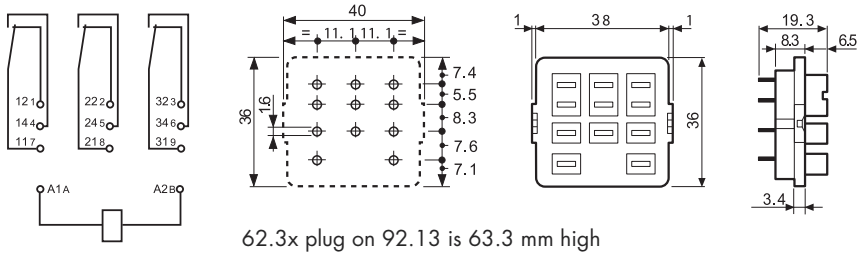
DC Modules with non-standard polarity (+A2) on request.

99.02 coil indication and EMC suppression modules for 92.03 socket		
Diode (+A1, standard polarity)	(6…220)V DC	99.02.3.000.00
LED	(6…24)V DC/AC	99.02.0.024.59
LED	(28…60)V DC/AC	99.02.0.060.59
LED	(110…240)V DC/AC	99.02.0.230.59
LED + Diode (+A1, standard polarity)	(6…24)V DC	99.02.9.024.99
LED + Diode (+A1, standard polarity)	(28…60)V DC	99.02.9.060.99
LED + Diode (+A1, standard polarity)	(110…220)V DC	99.02.9.220.99
LED + Varistor	(6…24)V DC/AC	99.02.0.024.98
LED + Varistor	(28…60)V DC/AC	99.02.0.060.98
LED + Varistor	(110…240)V DC/AC	99.02.0.230.98
RC circuit	(6…24)V DC/AC	99.02.0.024.09
RC circuit	(28…60)V DC/AC	99.02.0.060.09
RC circuit	(110…240)V DC/AC	99.02.0.230.09
Residual current by-pass	(110…240)V AC	99.02.8.230.07

92.13

Approvals (according to type):

PCB socket	92.13 (blue)	92.13.0 (black)
For relay type	62.32, 62.33	
Accessories		
Metal retaining clip (supplied with socket - packaging code SMA)	092.54	
Technical data		
Rated values	10 A - 250 V	
Dielectric strength	2.5 kV AC	
Ambient temperature °C	–40...+70	

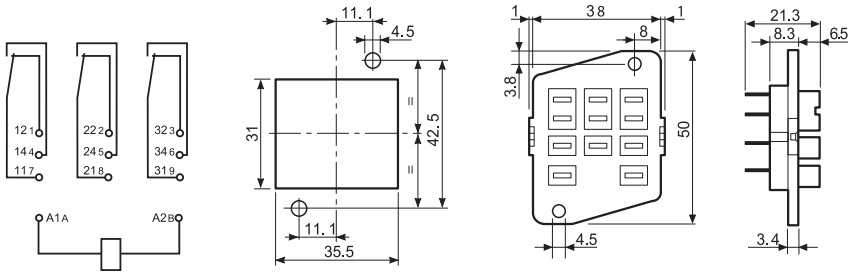


62.3x plug on 92.13 is 63.3 mm high

92.33

Approvals (according to type):

Panel mount solder socket mounted with M3 screw	92.33 (blue)
For relay type	62.32, 62.33
Accessories	
Metal retaining clip (supplied with socket - packaging code SMA)	092.54
Technical data	
Rated values	10 A - 250 V
Dielectric strength	2.5 kV AC
Ambient temperature °C	–40...+70



Packaging code

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

Example:

9 2	.	0 3	S M	A

A Standard packaging

SM Metal retaining clip

9 2	.	0 3		

Without retaining clip

Features

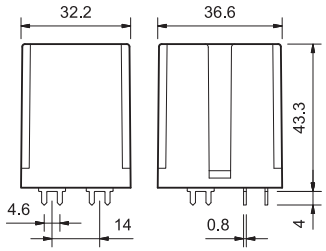
20 A Power relays
1 NO + 1 NC (SPST-NO + SPST-NC)

65.31 Flange mount
Faston 250 connections

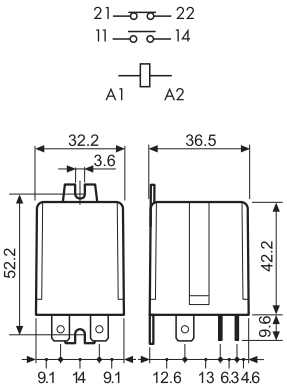
65.61 PCB mount

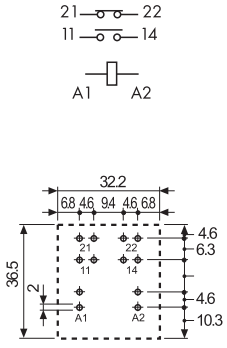
- AC coils & DC coils
- Cadmium Free option available

65.31	65.61
	
• 20 A rated contacts • Flange mount/Faston 250 (6.3x0.8 mm) connection	• 20 A rated contacts • PCB mount - bifurcated terminals



65.61





Copper side view

* With the $AgSnO_2$ material the maximum peak current is 120 A - 5 ms on NO contact.

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification			
Contact configuration		1NO+1NC (SPST-NO+SPST-NC)	1NO+1NC (SPST-NO+SPST-NC)
Rated current/Maximum peak current	A	20/40*	20/40*
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	5,000	5,000
Rated load AC15 (230 V AC)	VA	1,000	1,000
Single phase motor rating (230 V AC)	kW	1.1	1.1
Breaking capacity DC1: 30/110/220 V	A	20/0.8/0.5	20/0.8/0.5
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC	$(0.85...1.1)U_N$	$(0.85...1.1)U_N$
Holding voltage	AC/DC	0.8 U_N/0.6 U_N	0.8 U_N/0.6 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	$10 \cdot 10^6/30 \cdot 10^6$	$10 \cdot 10^6/30 \cdot 10^6$
Electrical life at rated load AC1	cycles	$80 \cdot 10^3$	$80 \cdot 10^3$
Operate/release time	ms	10/12	10/12
Insulation between coil and contacts (1.2/50 µs)	kV	4	4
Dielectric strength between open contacts	V AC	1,500	1,500
Ambient temperature range	°C	–40...+75	–40...+75
Environmental protection		RT I	RT I
Approvals (according to type)			

Features

30 A Power relays
1 NO (SPST-NO)

65.31-0300 **Flange mount**
Faston 250 connections
65.61-0300 **PCB mount**

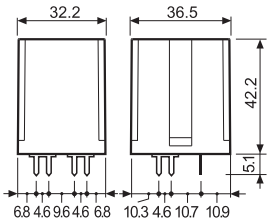
- ≥ 3 mm contact gap
- AC coils & DC coils
- Cadmium Free option available

65.31-0300

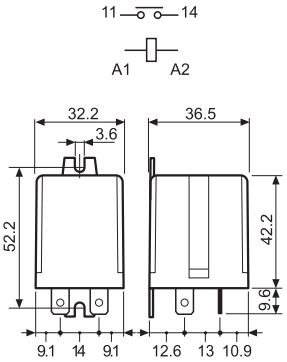
- 30 A rated contacts
- Flange mount/Faston 250 (6.3x0.8 mm) connection

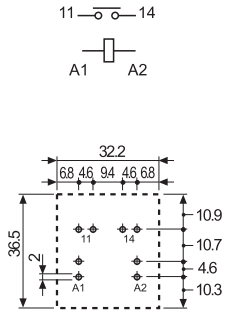
65.61-0300

- 30 A rated contacts
- PCB mount - bifurcated terminals



65.61-0300





Copper side view

* Distance between contacts ≥ 3 mm (EN 60335-1).

** With the $AgSnO_2$ material the maximum peak current is 120 A - 5 ms on NO contact.

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification			
Contact configuration		1 NO (SPST-NO), ≥ 3 mm*	1 NO (SPST-NO), ≥ 3 mm*
Rated current/Maximum peak current	A	30/50**	30/50**
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	7,500	7,500
Rated load AC15 (230 V AC)	VA	1,250	1,250
Single phase motor rating (230 V AC)	kW	1.5	1.5
Breaking capacity DC1: 30/110/220 V	A	30/1.1/0.7	30/1.1/0.7
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	
	V DC	6 - 12 - 24 - 48 - 60 - 110 -125 - 220	
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	$(0.8...1.1)U_N$	$(0.8...1.1)U_N$
	DC	$(0.85...1.1)U_N$	$(0.85...1.1)U_N$
Holding voltage	AC/DC	0.8 U_N/0.6 U_N	0.8 U_N/0.6 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	$10 \cdot 10^6/30 \cdot 10^6$	$10 \cdot 10^6/30 \cdot 10^6$
Electrical life at rated load AC1	cycles	$50 \cdot 10^3$	$50 \cdot 10^3$
Operate/release time	ms	15/4	15/4
Insulation between coil and contacts (1.2/50 µs)	kV	4	4
Dielectric strength between open contacts	V AC	2,500	2,500
Ambient temperature range	°C	–40...+75	–40...+75
Environmental protection		RT I	RT I
Approvals (according to type)			

Ordering information

Example: 65 series power relay, PCB with bifurcated terminals, 1 NO + 1 NC (SPST-NO + SPST-NC) contact, 12 V DC coil.

6 5 . 6 1 . 9 . 0 1 2 . 0 0 0 0 (positions A B C D = the last four digits)

Series = 6 5

Type
3 = Faston 250 (6.3x0.8 mm) with rear flange mount
6 = PCB with bifurcated terminals

No. of poles
1 = 1 NO + 1 NC (SPST-NO + SPST-NC)

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

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgCdO
4 = $AgSnO_2$

B: Contact circuit
0 = 1 NO + 1 NC (SPST-NO + SPST-NC)
3 = NO (≥ 3 mm contact gap)

C: Options
0 = None

D: Special versions
0 = Standard
9 = Type 65.31 without rear flange mount

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

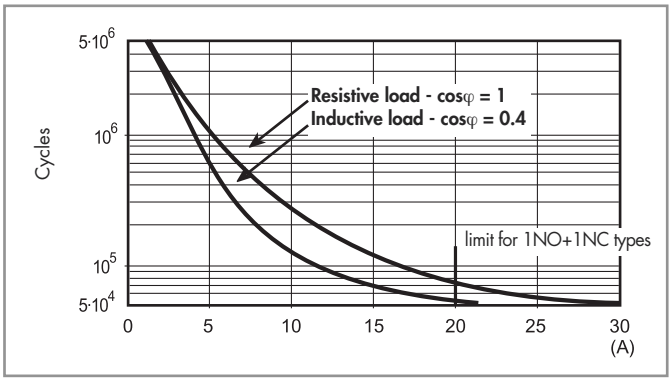
Type	Coil version	A	B	C	D
65.31	AC-DC	**0** - 4	**0** - 3	**0**	**0** - 9
65.61	AC-DC	**0** - 4	**0** - 3	**0**	**0**

Technical data

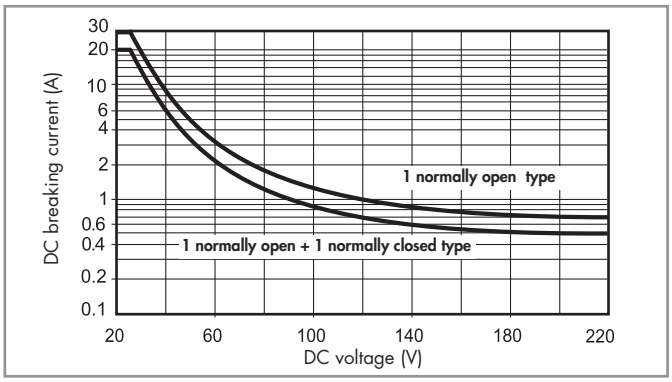
Insulation according to EN 61810-1					
		1 NO + 1 NC		**1 NO**	
Nominal voltage supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
Insulation between coil and contact set					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μs)	4		4	
Dielectric strength	V AC	2,500		2,500	
Insulation between open contacts					
Type of disconnection		Micro-disconnection		Full-disconnection	
Overvoltage category		—		III	
Rated impulse voltage	kV (1.2/50 μs)	—		4	
Dielectric strength	V AC/kV (1.2/50 μs)	1,500/2		2,500/4	
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	5/6 (1 normally open + 1 normally closed)		7/— (normally open)	
Vibration resistance (10…150)Hz: NO/NC	g	20/13			
Shock resistance	g	20			
Power lost to the environment — without contact current	W	1.3			
Power lost to the environment — with rated current	W	2.1 (65.31, 65.61)		3.1 (65.31/.61.0300)	
Recommended distance between relays mounted on PCB	mm	≥ 5			

Contact specification

F 65 - Electrical life (AC) v contact current



H 65 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ 80·10³ 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

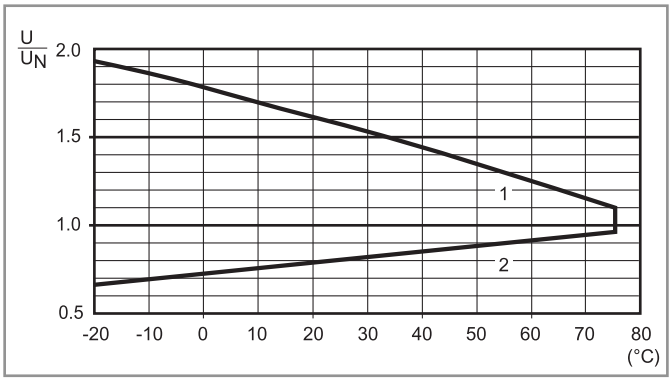
DC coil data

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
6	**9**.006	5.1	6.6	28	214
12	**9**.012	10.2	13.2	110	109
24	**9**.024	20.4	26.4	445	54
48	**9**.048	40.8	52.8	1,770	27.1
60	**9**.060	51	66	2,760	21.7
110	**9**.110	93.5	121	9,420	11.7
125	**9**.125	106	138	12,000	10.4
220	**9**.220	187	242	37,300	5.8

AC coil data

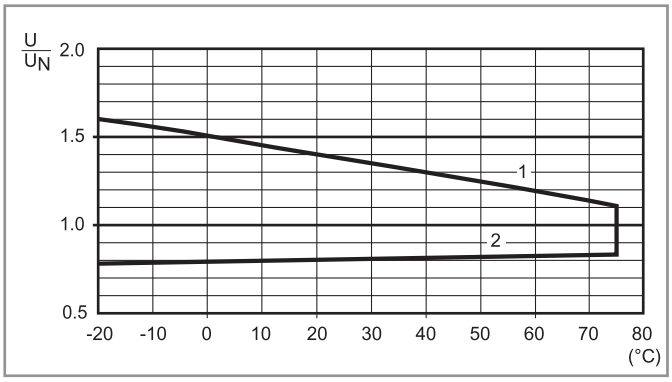
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	4.6	367
12	**8**.012	9.6	13.2	19	183
24	**8**.024	19.2	26.4	74	90
48	**8**.048	38.4	52.8	290	47
60	**8**.060	48	66	450	37
110	**8**.110	88	121	1,600	20
120	**8**.120	96	132	1,940	18.6
230	**8**.230	184	253	7,250	10.5
240	**8**.240	192	264	8,500	9.2
400	**8**.400	320	440	19,800	6

R 65 - DC coil operating range v ambient temperature



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

R 65 - AC coil operating range v ambient temperature



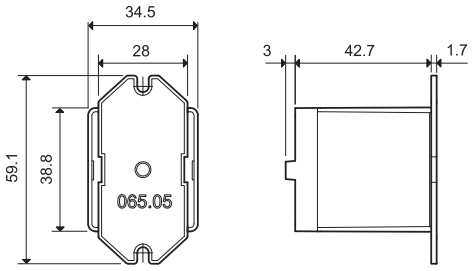
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Accessories

065.05

065.05 with relay

Top flange mount for types 65.31.xxxx.xxx9 | 065.05



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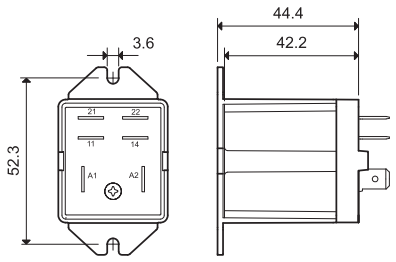
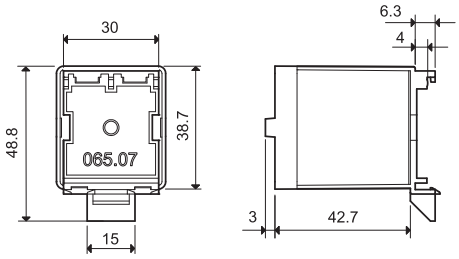


065.05 with relay

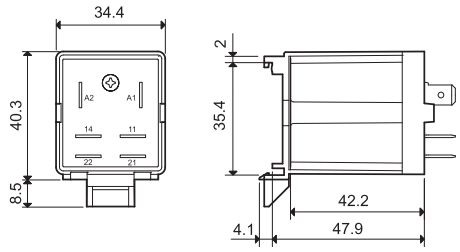
065.07

065.07 with relay

Top 35 mm rail (EN 60715) mount for types 65.31.xxxx.xxx9 | 065.07



065.07

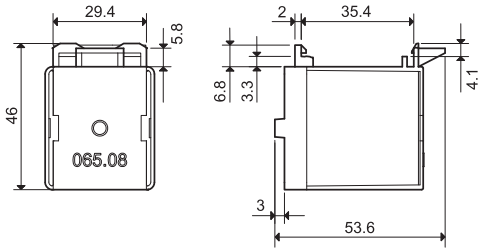


065.07 with relay

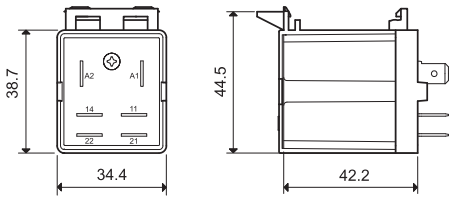
065.08

065.08 with relay

Rear 35 mm rail (EN 60715) mount for types 65.31.xxxx.xxx9 | 065.08



065.08



065.08 with relay

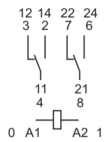
Features

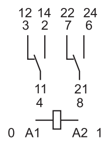
2 Pole Changeover (DPDT)
30 A Power relay

66.22 PCB connections & mount
66.82 Faston 250 connections - Flange mount

- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- AC coils & DC coils
- Cadmium Free option available

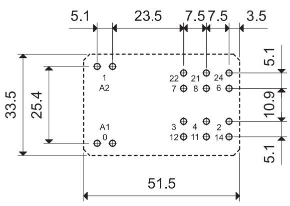
66.22	66.82
	
• 30 A rated contacts • PCB mount - bifurcated terminals	• 30 A rated contacts • Flange mount • Faston 250 connections



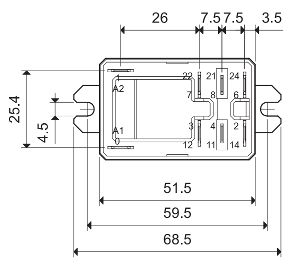


For outline drawing see page 6

For UL ratings see:
"General technical information" page V



Copper side view



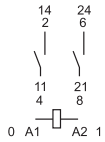
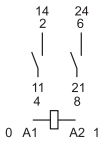
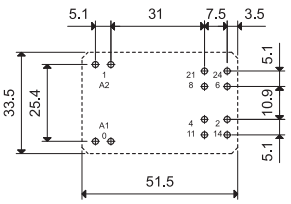
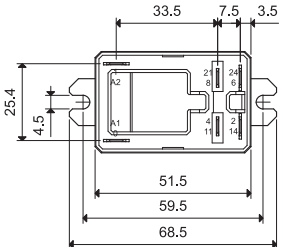
		66.22	66.82
Contact specification			
Contact configuration		2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	30/50 (NO) - 10/20 (NC)	30/50 (NO) - 10/20 (NC)
Rated voltage/Maximum switching voltage	V AC	250/440	250/440
Rated load AC1	VA	7,500 (NO) - 2,500 (NC)	7,500 (NO) - 2,500 (NC)
Rated load AC15 (230 V AC)	VA	1,200 (NO)	1,200 (NO)
Single phase motor rating (230 V AC)	kW	1.5 (NO)	1.5 (NO)
Breaking capacity DC1: 30/110/220 V	A	25/0.7/0.3 (NO)	25/0.7/0.3 (NO)
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification			
Nominal voltage (U_N)	V AC (50/60 Hz)	6 - 12 - 24 - 110/115 - 120/125 - 230 - 240	
	V DC	6 - 12 - 24 - 110 - 125	
Rated power AC/DC	VA (50 Hz)/W	3.6/1.7	3.6/1.7
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	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	8/15	8/15
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1,500	1,500
Ambient temperature range	°C	–40…+70	–40…+70
Environmental protection		RT II	RT II
Approvals (according to type)		RINA	

Features

2 Pole NO (DPST-NO)
30 A Power relay

66.22-x300 PCB mount
66.82-x300 Faston 250 connections
- Flange mount

- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- AC coils & DC coils
- Cadmium Free option available

	66.22-x300	66.82-x300
		
	• 30 A rated contacts • PCB mount - bifurcated terminals	• 30 A rated contacts • Flange mount • Faston 250 connections
		
	 Copper side view	

For outline drawing see page 6

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification				
Contact configuration			2 NO (DPST-NO)	2 NO (DPST-NO)
Rated current/Maximum peak current		A	30/50	30/50
Rated voltage/Maximum switching voltage		V AC	250/440	250/440
Rated load AC1		VA	7,500	7,500
Rated load AC15 (230 V AC)		VA	1,200	1,200
Single phase motor rating (230 V AC)		kW	1.5	1.5
Breaking capacity DC1: 30/110/220 V		A	25/0.7/0.3	25/0.7/0.3
Minimum switching load		mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material			AgCdO	AgCdO
Coil specification				
Nominal voltage (U_N)	V AC (50/60 Hz)		6 - 12 - 24 - 110/115 - 120/125 - 230 - 240	
	V DC		6 - 12 - 24 - 110 -125	
Rated power AC/DC		VA (50 Hz)/W	3.6/1.7	3.6/1.7
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	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1		cycles	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time		ms	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	1,500	1,500
Ambient temperature range		°C	–40...+70	–40...+70
Environmental protection			RT II	RT II
Approvals (according to type)				

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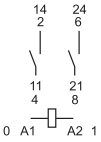
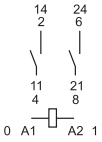
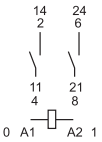
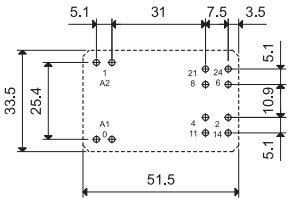
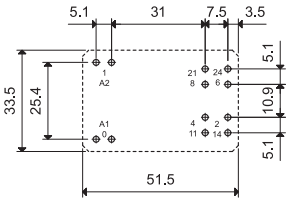
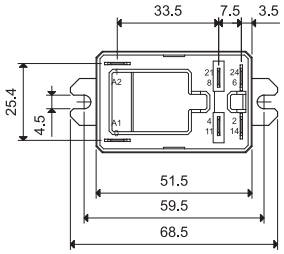
Features

2 Pole NO (DPST-NO), ≥1.5mm contact gap
30 A Power relay

66.22-x600	**PCB mount**
66.22-x600S	**PCB mount - 5 mm gap between PCB and relay base**
66.82-x600	**Faston 250 connections - Flange mount**

- ≥1.5 mm contact gap (according to VDE 0126-1-1 for solar inverter applications)
- Reinforced insulation between coil and contacts according to EN 60335-1; 8 mm creepage and clearance distances
- Wash tight version (RT III) available
- DC coils
- Cadmium Free option available

NEW 66.22-x600	NEW 66.22-x600S	NEW 66.82-x600
		
• PCB mount - bifurcated terminals	• PCB mount - bifurcated terminals • 5 mm gap between PCB and relay base	• Flange mount • Faston 250 connections
		
		
Copper side view	Copper side view	

For outline drawing see page 6

FOR UL RATINGS SEE:
"General technical information" page V

Contact specification				
Contact configuration		2 NO (DPST-NO)	2 NO (DPST-NO)	2 NO (DPST-NO)
Rated current/Maximum peak current	A	30/50	30/50	30/50
Rated voltage/Maximum switching voltage	V AC	250/440	250/440	250/440
Rated load AC1	VA	7,500	7,500	7,500
Rated load AC15 (230 V AC)	VA	1,200	1,200	1,200
Single phase motor rating (230 V AC)	kW	1.5	1.5	1.5
Breaking capacity DC1: 30/110/220 V	A	30/1.2/0.5	30/1.2/0.5	30/1.2/0.5
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO	AgCdO
Coil specification				
Nominal voltage (U_N)	V AC (50/60 Hz)	–		
	V DC	6 - 12 - 24 - 110 -125		
Rated power AC/DC	VA (50 Hz)/W	–/1.7	–/1.7	–/1.7
Operating range	AC	–	–	–
	DC	(0.8...1.1)U_N	(0.7...1.1)U_N	(0.8...1.1)U_N
Holding voltage	AC/DC	–/0.5 U_N	–/0.5 U_N	–/0.5 U_N
Must drop-out voltage	AC/DC	–/0.1 U_N	–/0.1 U_N	–/0.1 U_N
Technical data				
Mechanical life	cycles	$10 \cdot 10^6$	$10 \cdot 10^6$	$10 \cdot 10^6$
Electrical life at rated load AC1	cycles	$100 \cdot 10^3$	$100 \cdot 10^3$	$100 \cdot 10^3$
Operate/release time	ms	15/4	15/4	15/4
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	2,500	2,500	2,500
Ambient temperature range	°C	–40...+70	–40...+70	–40...+70
Environmental protection		RT II	RT II	RT II
Approvals (according to type)				

Ordering information

Example: 66 series relay, Faston 250 (6.3x0.8 mm) with top flange mount, 2 CO (DPDT) 30 A contacts, 24 V DC coil.

								A	B	C	D			
6	6	.	8	2	.	9	.	0	2	4	.	0	0	0	0	

Series

Type
2 = PCB
8 = Faston 250 (6.3x0.8 mm) with top flange mount

No. of poles
2 = 2 pole, 30 A

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

Coil voltage
See coil specifications

A: Contact material
0 = Standard AgCdO
1 = AgNi

B: Contact circuit
0 = CO (nPDT)
3 = NO (nPST)
6 = NO (nPST), ≥1.5 mm contact gap

C: Options
0 = None

D: Special versions
0 = Standard
1 = Wash tight (RT III)

S = PCB version with 5 mm gap between PCB and relay base (only 66.22)

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
66.22	AC-DC	**0** - 1	**0** - 3	**0**	0 - **1**
	DC	**0** - 1	**6**	**0**	0 - **1**
66.22....S	DC	**0** - 1	**6**	**0**	0 - **1**
66.82	AC-DC	**0** - 1	**0** - 3	**0**	**0** - 1
	DC	**0** - 1	**6**	**0**	**0** - 1

Technical data

Insulation according to EN 61810-1				
Nominal voltage of supply system		V AC	230/400	
Rated insulation voltage		V AC	400	
Pollution degree			3	
Insulation between coil and contact set				
Type of insulation			Reinforced (8 mm)	
Overvoltage category			III	
Rated impulse voltage		kV (1.2/50 µs)	6	
Dielectric strength		V AC	4,000	
Insulation between adjacent contacts				
Type of insulation			Basic	
Overvoltage category			III	
Rated impulse voltage		kV (1.2/50 µs)	4	
Dielectric strength		V AC	2,500	
Insulation between open contacts			**2 CO**	**2 NO, ≥1.5mm (x600 version)**
Type of disconnection			Micro-disconnection	Full-disconnection *
Overvoltage category			—	II
Rated impulse voltage		kV (1.2/50 µs)	—	2.5
Dielectric strength		V AC/kV (1.2/50 µs)	1,500/2	2,500/3
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	7/10	
Vibration resistance (10...150)Hz: NO/NC		g	20/19	
Shock resistance		g	20	
Power lost to the environment	without contact current	W	2.3	
	with rated current	W	5	
Recommended distance between relays mounted on PCB		mm	≥ 10	

* Only in applications where over voltage category II is permitted. In applications of over voltage category III: Micro-disconnection.

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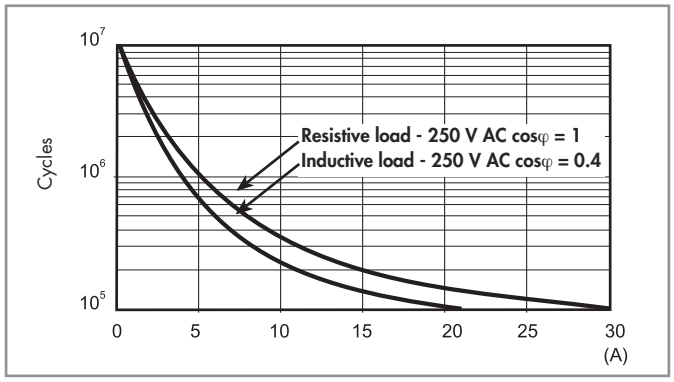
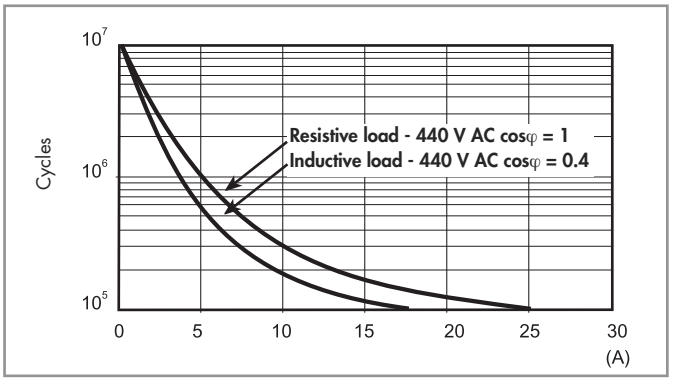
Contact specification

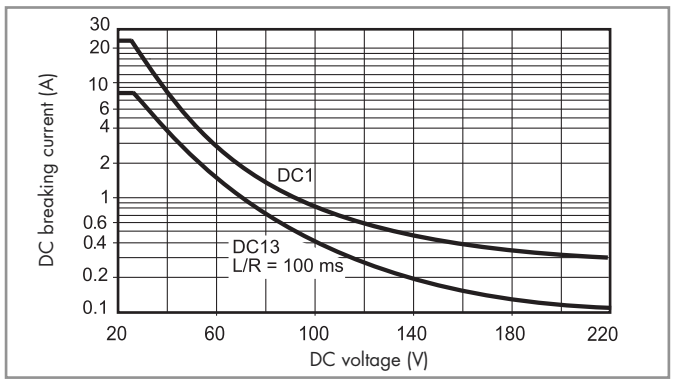
F 66 - Electrical life (AC) v contact current
250 V (normally open contact)



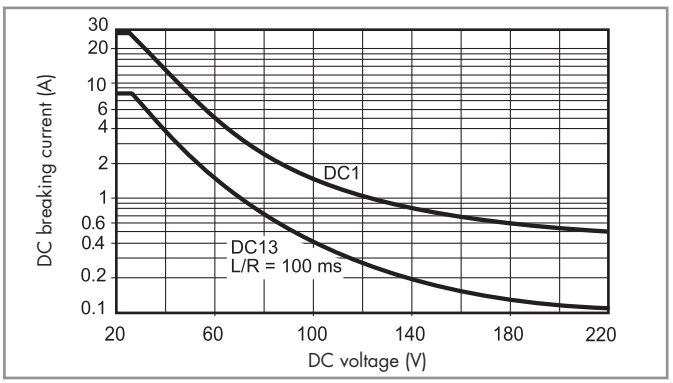
F 66 - Electrical life (AC) v contact current
440 V (normally open contact)



H 66 - Maximum DC breaking capacity



H 66 - Maximum DC breaking capacity, x600 versions (>1.5mm contact gap)



- 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

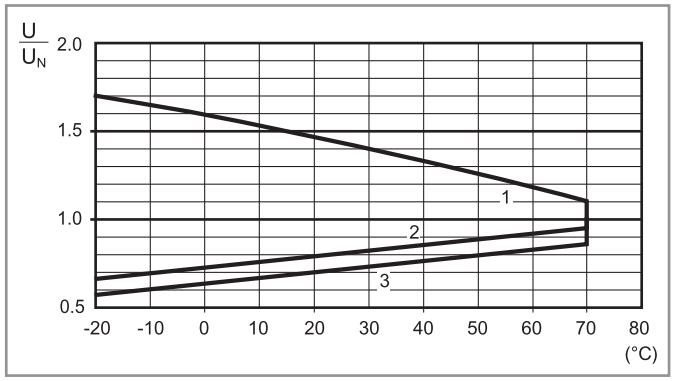
DC coil data

Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N
V		V	V	Ω	mA
6	**9**.006	4.8	6.6	21	283
12	**9**.012	9.6	13.2	85	141
24	**9**.024	19.2	26.4	340	70.5
110	**9**.110	88	121	7,000	15.7
125	**9**.125	100	138	9,200	13.6

AC coil data

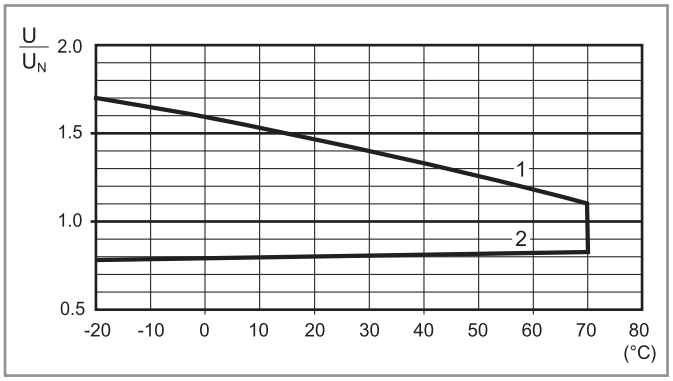
Nominal voltage U_N	Coil code	Operating range U_{min}	Operating range U_{max}	Resistance R	Rated coil consumption I at U_N (50Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	3	600
12	**8**.012	9.6	13.2	11	300
24	**8**.024	19.2	26.4	50	150
110/115	**8**.110	88	126	930	32.6
120/125	**8**.120	96	137	1,050	30
230	**8**.230	184	253	4,000	15.7
240	**8**.240	192	264	5,500	15

R 66 - DC coil operating range v ambient temperature



1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.
3 - Min. pick-up voltage with coil at ambient temperature (66.22.x600S).

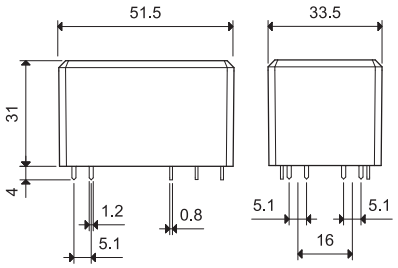
R 66 - AC coil operating range v ambient temperature



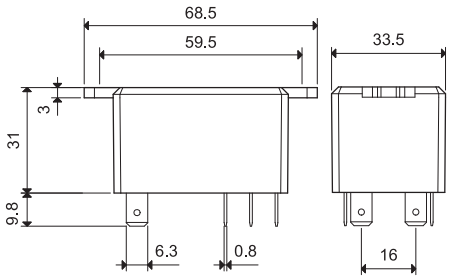
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Outline drawings

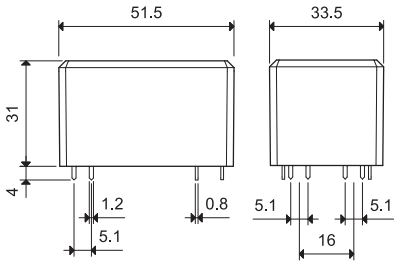
Type 66.22



Type 66.82



Type 66.22-0300



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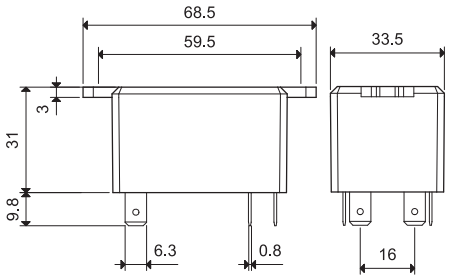
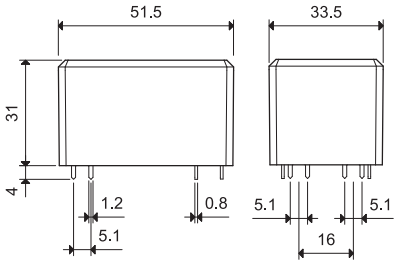
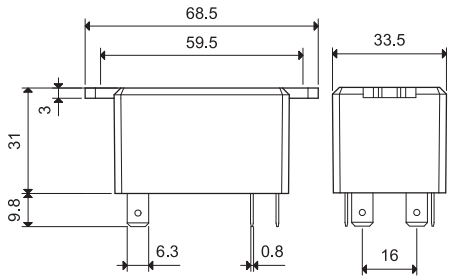


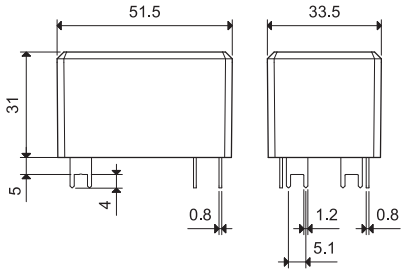
Type 66.22-0600



Type 66.82-0600



Type 66.22-0600S

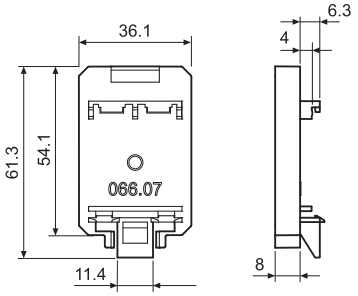


Accessories

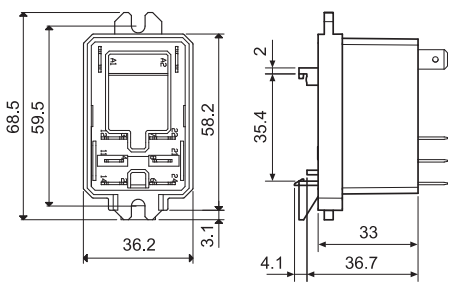
066.07

066.07 with relay

Top 35 mm rail (EN 60715) mount for types 66.82.xxxx.0x00	066.07



066.07



066.07 with relay

VII-2012, www.findernet.com

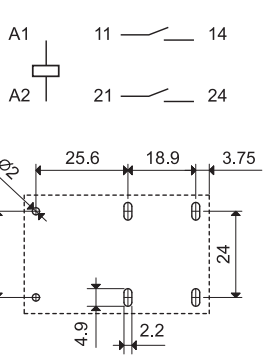
Features

Printed circuit mount - 3 mm contact gap
50 A Power relay for photovoltaic inverters

- 2 and 3 pole versions (NO, double break contacts)
- Contact gap ≥ 3 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- DC coils, with only 170 mW holding power
- Reinforced insulation between coil and contacts
- 1.5 mm gap between PCB and relay base
- Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energization) or 70 °C (with standard coil energization)

NEW 67.22-4300

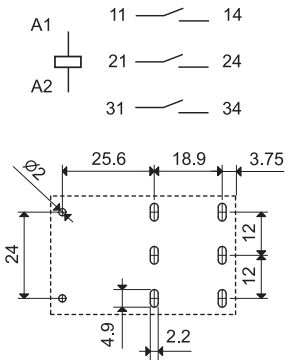
- 2 NO
- Contact gap ≥ 3 mm
- PCB mount



Copper side view

NEW 67.23-4300

- 3 NO
- Contact gap ≥ 3 mm
- PCB mount



Copper side view

For outline drawing see page 6

Contact specification			
Contact configuration		2 NO (DPST-NO)	3 NO (3PST-NO)
Contact gap	mm	≥ 3	≥ 3
Rated current/Maximum peak current (for 5 ms)	A	50/150	50/150
Rated voltage/Maximum switching voltage	V AC	400/690	400/690
Rated load AC1/AC7a (per pole)	VA	20,000	20,000
Rated load AC15 (per pole @ 230 V AC)	VA	2,300	2,300
Single-phase motor rating (230 V AC)	kW	2	2
Three-phase motor rating (480 V AC)	kW	–	7
Breaking capacity DC1: 24/110/220 V	A	50/4/1	50/4/1
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		$AgSnO_2$	$AgSnO_2$
Coil specification			
Nominal voltage (U_N)	V DC	5 - 6 - 8 - 12 - 24 - 48 - 60 - 110	
Rated power	W	1.7	1.7
Operating range (–40...+70°C)	DC	(0.90 ...1.1) U_N	(0.90 ...1.1) U_N
Energy-saving mode (–40...+85)°C			
Operating range for 1s		(0.95...2.5) U_N	(0.95...2.5) U_N
Holding voltage range	DC	(0.32...0.65) U_N	(0.32...0.65) U_N
Minimum holding power	W	0.17	0.17
Must drop-out voltage	DC	0.05 U_N	0.05 U_N
Technical data			
Mechanical life	cycles	$1 \cdot 10^6$	$1 \cdot 10^6$
Electrical life at rated load AC7a	cycles	$30 \cdot 10^3$	$30 \cdot 10^3$
Operate/release time	ms	35/4	35/4
Ambient temperature range (energy-saving mode)	°C	–40...+70 (–40...+85)	–40...+70 (–40...+85)
Environmental protection		RTII	RTII
Approvals (according to type)			

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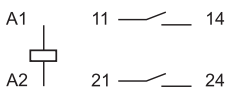
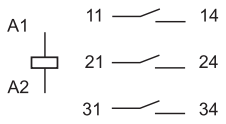
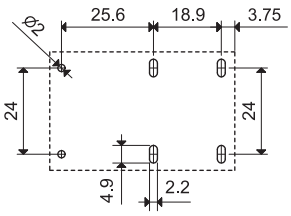
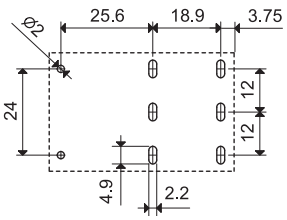
67 Series - Solar relay 50 A

Features

Printed circuit mount - 5.2 mm contact gap
50 A Power relay for photovoltaic inverters

- 2 and 3 pole versions (NO double break contacts)
- Contact gap ≥ 5.2 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- Suitable for inverters with DC input up to 1,500 V and AC output up to 690 V, installations up to 4,000 m above sea level
- DC coils, with only 170 mW holding power
- Reinforced insulation between coil and contacts
- 1.5 mm gap between PCB and relay base
- Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energization) or 60 °C (with standard coil energization)

	NEW 67.22-4500	NEW 67.23-4500
		
	• 2 NO • Contact gap ≥ 5.2 mm • PCB mount	• 3 NO • Contact gap ≥ 5.2 mm • PCB mount
		
		
For outline drawing see page 6	Copper side view	Copper side view

Contact specification			
Contact configuration		2 NO (DPST-NO)	3 NO (3PST-NO)
Contact gap	mm	≥ 5.2	≥ 5.2
Rated current/Maximum peak current (for 5 ms)	A	50/150	50/150
Rated voltage/Maximum switching voltage	V AC	400/690	400/690
Rated load AC1/AC7a (per pole)	VA	20,000	20,000
Rated load AC15 (per pole @ 230 V AC)	VA	2,300	2,300
Single-phase motor rating (230 V AC)	kW	2	2
Three-phase motor rating (480 V AC)	kW	–	7
Breaking capacity DC1: 24/110/220	A	50/7/2	50/7/2
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		$AgSnO_2$	$AgSnO_2$
Coil specification			
Nominal voltage (U_N)	V DC	5 - 6 - 8 - 12 - 24 - 48 - 60 - 110	
Rated power	W	2.7	2.7
Operating range (–40...+60°C)	DC	(0.90 ...1.1) U_N	(0.90 ...1.1) U_N
Energy-saving mode (–40...+85)°C			
Operating range for 1s		(0.95...2.5) U_N	(0.95...2.5) U_N
Holding voltage range	DC	(0.25...0.5) U_N	(0.25...0.5) U_N
Minimum holding power	W	0.17	0.17
Must drop-out voltage	DC	0.05 U_N	0.05 U_N
Technical data			
Mechanical life	cycles	$1 \cdot 10^6$	$1 \cdot 10^6$
Electrical life at rated load AC7a	cycles	$30 \cdot 10^3$	$30 \cdot 10^3$
Operate/release time	ms	30/4	30/4
Ambient temperature range (energy-saving mode)	°C	–40...+60 (–40...+85)	–40...+60 (–40...+85)
Environmental protection		RTII	RTII
Approvals (according to type)			

finder

67 Series - Solar relay 50 A

Ordering information

Example: 67 series solar relay, single PCB terminals, 2 pole NO, ≥ 3 mm contact gap .

6	7	.	2	3	.	9	.	0 1 2	.	4	3	0	0
										A	B	C	D

Series

Type
2= Single PCB terminals, 1.5 mm gap between PCB and relay base

No. of poles
2 = 2 pole
3 = 3 pole

Coil version
9 = DC

Coil voltage
See coil specifications

A: Contact material
4 = Standard $AgSnO_2$

B: Contact circuit
3 = NO, ≥ 3 mm contact gap
5 = NO, ≥ 5.2 mm contact gap

C: Options
0 = None

D: Special versions
0 = Standard

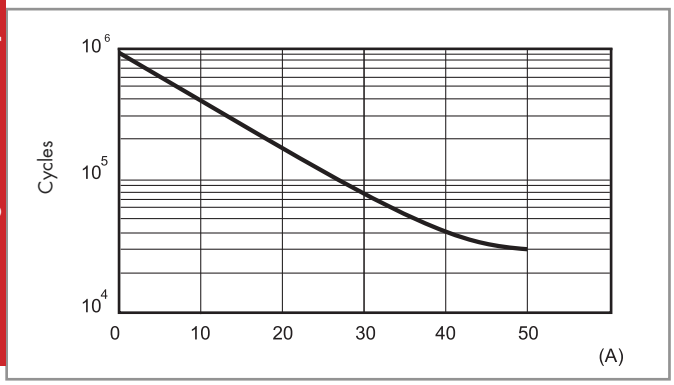
Technical data

Insulation according to EN 61810-1					
Nominal voltage of supply system		V AC	400/690 3-phase	400 1-phase	230/400
Rated insulation voltage		V AC	630	400	400
Pollution degree			3		
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 adjacent contacts					
Type of Insulation			Basic		
Overvoltage category			III		
Rated impulse voltage		kV (1.2/50) µs	6		
Dielectric strength		V AC	2,500		
Insulation between open contacts					
Type of disconnection			Micro-disconnection *		Full-disconnection
Overvoltage category			—		III
Rated impulse voltage		kV (1.2/50) µs	—		4
Dielectric strength		V AC	2,500 (67.xx-4300) / 3,000 (67.xx-4500)		
Other data					
Power lost to the environment	without contact current	W	1.7 (67.xx-4300) / 2.7 (67.xx-4500)		
	with rated current	W	8.5 (67.xx-4300) / 9.5 (67.xx-4500)		
Recommended distance between relays mounted on PCB		mm	≥ 20		

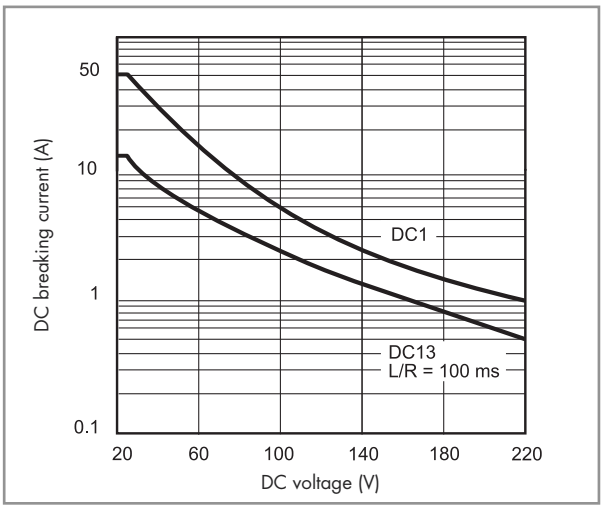
* with overvoltage category II: Full-disconnection

Contact specification

F 67 - Electrical life vs contact current (AC1/AC7a load)

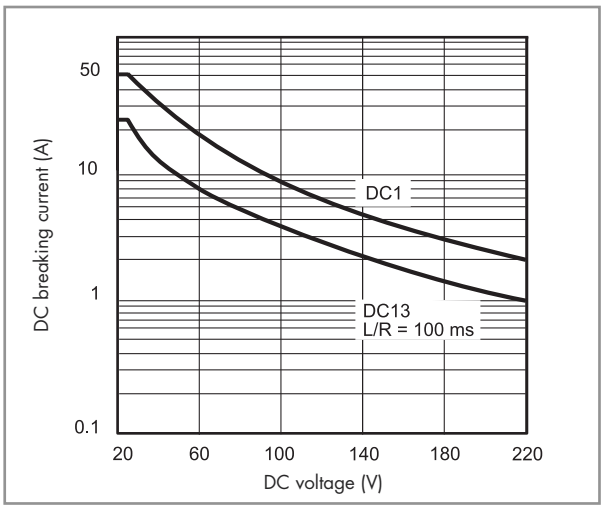


H 67 - Maximum DC breaking capacity (67.xx-4300)



When switching a resistive (DC1) or inductive (DC13) load having voltage and current values under the corresponding curve, an electrical life of > 30 000 cycles can be expected.

H 67 - Maximum DC breaking capacity (67.xx-4500)



When switching a resistive (DC1) or inductive (DC13) load having voltage and current values under the corresponding curve, an electrical life of > 30 000 cycles can be expected.

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Coil specifications

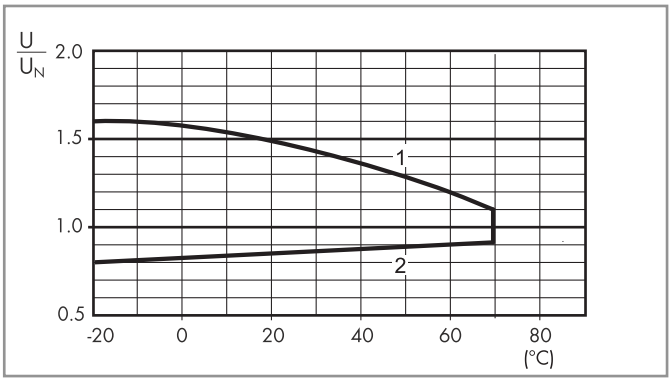
DC coil data, 67.xx-4300

Nominal voltage U_N	Coil code	Operating range (@ 70 °C max) U_{min}	U_{max}	Holding voltage U_h	Resistance R	Rated coil consumption I at U_N I_N
V		V	V	V	Ω	mA
5	**9**.005	4.5	5.5	1.6	14.7	340
6	**9**.006	5.4	6.6	1.9	21.5	279
8	**9**.008	7.2	8.8	2.6	37.6	213
12	**9**.012	10.8	13.2	3.8	85	141
24	**9**.024	21.6	26.4	7.7	340	71
48	**9**.048	43.2	52.8	15.4	1,355	35
60	**9**.060	54	66	19.2	2,120	28
110	**9**.110	99	121	35.2	7,120	15

DC coil data, 67.xx-4500

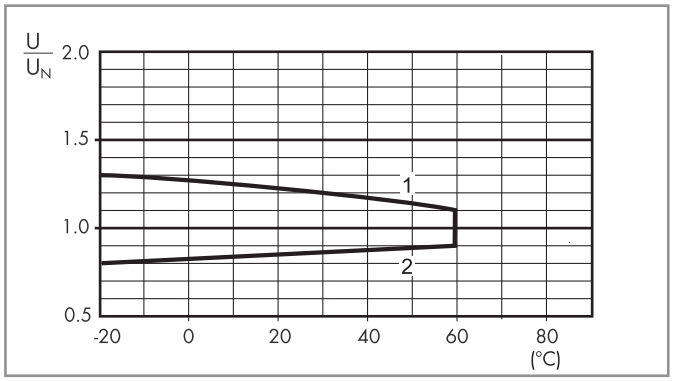
Nominal voltage U_N	Coil code	Operating range (@ 60 °C max) U_{min}	U_{max}	Holding voltage U_h	Resistance R	Rated coil consumption I at U_N I_N
V		V	V	V	Ω	mA
5	**9**.005	4.5	5.5	1.25	9.3	538
6	**9**.006	5.4	6.6	1.5	13.5	444
8	**9**.008	7.2	8.8	2	23.7	338
12	**9**.012	10.8	13.2	3	53.5	224
24	**9**.024	21.6	26.4	6	213	113
48	**9**.048	43.2	52.8	12	855	56
60	**9**.060	54	66	15	1,335	45
110	**9**.110	99	121	27.5	4,500	24

R 67 - Operating range v ambient temperature, 67.xx-4300
with standard (continuous) coil energization (–40...+70)°C



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

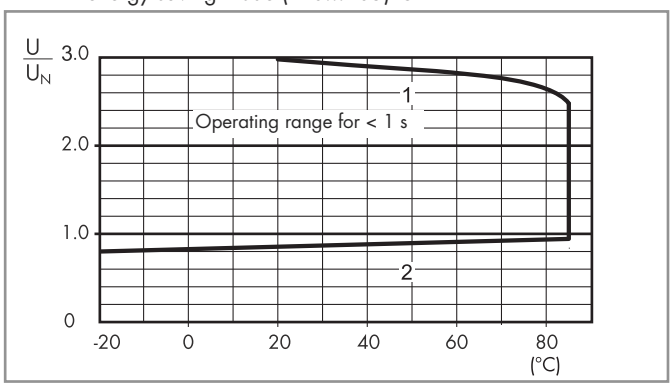
R 67 - Operating range v ambient temperature, 67.xx-4500
with standard (continuous) coil energization (–40...+60)°C



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

Energy saving mode
In some applications, such as photovoltaic inverters, it may be necessary to minimize the overall relay power dissipation and to permit use at higher ambient temperature levels (up to 85 °C). This can be achieved by initially applying a coil voltage within the Energy saving mode Operating range (see diagram to the right) and then rapidly (< 1 s) reducing the coil voltage to a level within the Holding voltage range. The lower the Holding voltage, the lower is the continuous power dissipation of the coil (0.17 W minimum).
Coil voltages as high as $2.5U_N$ may be used, when necessary, to reduce the contact operate time.

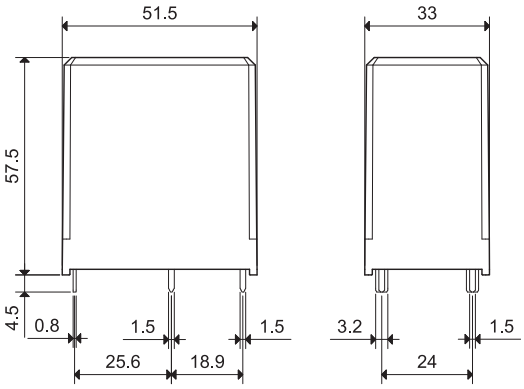
R 67 - Operating range v ambient temperature, 67.xx-4300/4500
in energy saving mode (–40...+85)°C



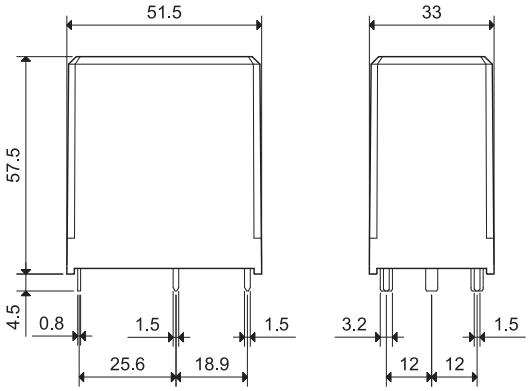
1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Outline drawings

Type 67.22



Type 67.23



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