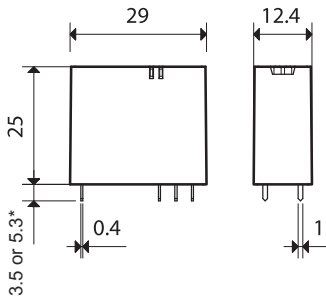


## Features

### 1 Pole relay range

- 40.31 - 1 Pole 12 A (3.5 mm pin pitch)
- 40.61 - 1 Pole 16 A (5 mm pin pitch)

- Pin length 3.5 mm for pcb mount
- Pin length 5.3 mm as Plug-in relay
- DC standard (0.65 W) or sensitive (0.5 W) coils available
- Cadmium Free contact material available
- 6 kV (1.2/50 µs) isolation coil-contacts
- 8 mm creepage and clearance distances between coil and contacts
- Meets EN 60335-1 glow wire requirements
- Flux proof: RT II standard or wash tight RT III
- AC inductive load rating (related to AC15 utilisation category) 4 A 250 V approved according to EN 61810-1:2008 (Annex B tables B1, B2, B3)

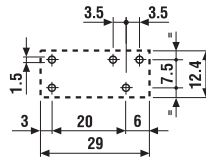
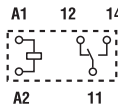


\* (3.5 or 5.3) mm see ordering code

### 40.31



- 3.5 mm contact pin pitch
- 1 Pole 12 A

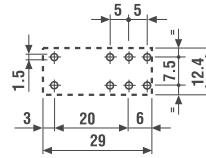
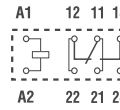


Copper side view

### 40.61



- 5 mm contact pin pitch
- 1 Pole 16 A



Copper side view

Contact specification			
Contact configuration		1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current	A	12/20	16/30
Rated voltage/Maximum switching voltage V AC		250/400	250/400
Rated load AC1	VA	3,000	4,000
Rated load AC15 (230 V AC)	VA	1,000	1,000
Single phase motor rating (230 V AC)	kW	0.55	0.55
Breaking capacity DC1: 30/110/220 V	A	12/0.3/0.12	16/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	500 (10/5)
Standard contact material		AgNi	AgCdO
Coil specification			
Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	—	—
	V DC	12 - 24	12 - 24
Rated power DC/sensitive DC	W	0.65/0.5	0.65/0.5
Operating range	AC	—	—
	DC/sensitive DC	(0.73...1.5)U <sub>N</sub> /(0.73...1.5)U <sub>N</sub>	(0.73...1.5)U <sub>N</sub> /(0.8...1.5)U <sub>N</sub>
Holding voltage	DC	0.4 U <sub>N</sub>	0.4 U <sub>N</sub>
Must drop-out voltage	DC	0.1 U <sub>N</sub>	0.1 U <sub>N</sub>
Technical data			
Mechanical life AC/DC	cycles	10 · 10 <sup>6</sup>	10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	200 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
Operate/release time	ms	7/3 (10/3 sensitive)	7/3 (10/3 sensitive)
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...+85	-40...+85
Environmental protection		RT II	RT II
Approvals (according to type)			RINA

### Ordering information

Example: 40 series PCB relay, 1 CO (SPDT) - 12 A, 24 V DC coil.

	<b>4 0 . 3 1 . 7 . 0 2 4 . 1 0 2 0</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Series</b>					
<b>Type</b> 3 = PCB - 3.5 mm pinning 6 = PCB - 5 mm pinning					
<b>No. of poles</b> 1 = 1 pole for: 40.31, 12 A 40.61, 16 A					
<b>Coil version</b> 7 = Sensitive DC 9 = Standard DC					
<b>Coil voltage</b> 012 = 12 V DC 024 = 24 V DC					
		<b>A: Contact material</b> 0 = AgNi (40.31 Plug-in relays) 0 = AgCdO (40.61 Plug-in relays) 1 = AgNi (PCB relays) 2 = AgCdO (40.61 PCB relays)			
		<b>B: Contact circuit</b> 0 = CO (SPDT) 3 = NO (SPST)			
				<b>C: Options</b> 0 = Pins length 5.3 mm (Plug-in relays) 2 = Pins length 3.5 mm (PCB relays)	
					<b>D: Special versions</b> 0 = Standard flux proof (RT II) 1 = Wash tight (RT III)

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

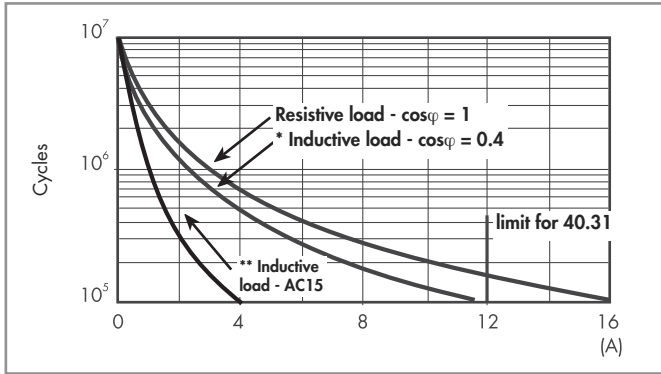
Terminal pin	Type	Coil version	A	B	C	D
PCB-relay, pin length 3.5 mm	40.31	DC/DC sensitive	<b>1</b>	<b>0 - 3</b>	<b>2</b>	<b>0 - 1</b>
PCB-relay, pin length 3.5 mm	40.61	DC/DC sensitive	1 - <b>2</b>	<b>0 - 3</b>	<b>2</b>	<b>0 - 1</b>
Plug in relay, pin length 5.3 mm	40.31	DC/DC sensitive	<b>0</b>	<b>0 - 3</b>	<b>0</b>	<b>0 - 1</b>
Plug in relay, pin length 5.3 mm	40.61	DC/DC sensitive	<b>0</b>	<b>0 - 3</b>	<b>0</b>	<b>0 - 1</b>

### 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)		
Overtoltage category	III		
Rated impulse voltage	kV (1.2/50 µs)	6	
Dielectric strength	V AC	4,000	
Insulation between open contacts			
Type of disconnection	Micro-disconnection		
Dielectric strength	V AC/kV (1.2/50 µs)	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			
Bounce time: NO/NC	ms	2/5	
Vibration resistance (10...200)Hz: NO/NC	g	20/5	
Shock resistance NO/NC	g	20/5	
Power lost to the environment	without contact current	W	0.5
	with rated current	W	1.2 (40.31) 1.8 (40.61)
Recommended distance between relays mounted on PCB	mm	≥ 5	

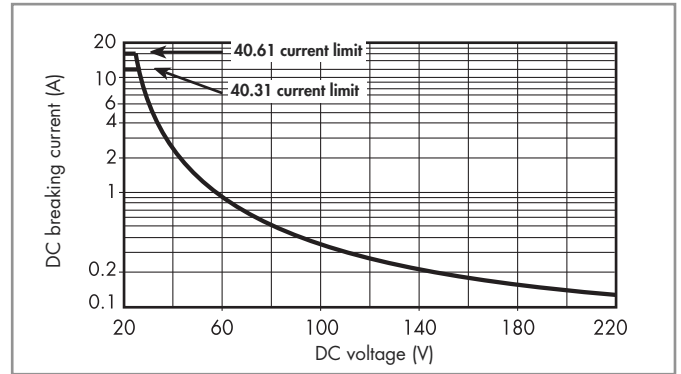
### Contact specification

**F 40 - Electrical life (AC) v contact current**  
Types 40.31/61



\* Inductive load -  $\cos\phi = 0.4$ : inrush current = rated current  
 \*\* Inductive load - AC15: inrush current = 10 x rated current

**H 40 - Maximum DC1 breaking capacity**



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 100 \cdot 10^3$  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 - 0.5 W sensitive (type 40.31)**

Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ mA
		$U_{min}$ V	$U_{max}$ V		
12	7.012	8.8	18	288	42
24	7.024	17.5	36	1,150	21

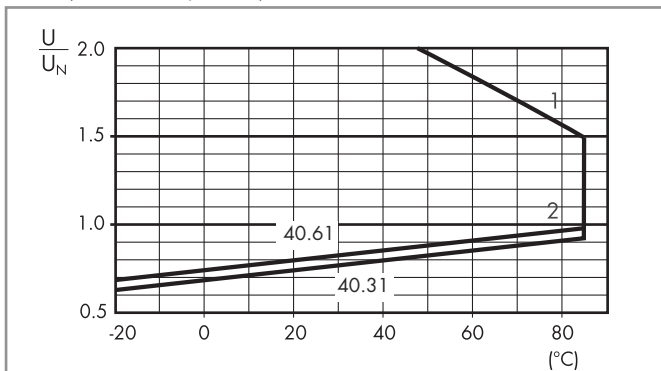
**DC coil data - 0.5 W sensitive (type 40.61)**

Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ mA
		$U_{min}$ V	$U_{max}$ V		
12	7.012	9.6	18	288	42
24	7.024	19.2	36	1,150	21

**DC coil data - 0.65 W standard (types 40.31/61)**

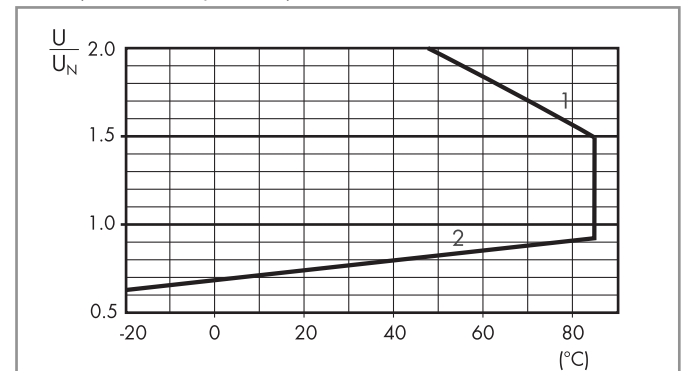
Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ mA
		$U_{min}$ V	$U_{max}$ V		
12	9.012	8.8	18	220	55
24	9.024	17.5	36	900	27

**R 40 - DC coil operating range v ambient temperature (sensitive coil, 0.5 W)**



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

**R 40 - DC coil operating range v ambient temperature (standard coil, 0.65 W)**



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

