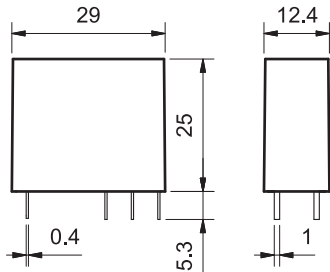


## Features

- 1 & 2 Pole relay range**  
 40.31 - 1 Pole 10 A (3.5 mm pin pitch)  
 40.51 - 1 Pole 10 A (5 mm pin pitch)  
 40.52 - 2 Pole 8 A (5 mm pin pitch)

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

- DC coils (standard or sensitive) & AC coils
- Cadmium Free contact material
- 8 mm, 6 kV (1.2/50 μs) isolation, coil-contacts
- UL Listing (certain relay/socket combinations)
- Flux proof: RT II standard, (RT III option)
- 95 series sockets
- Coil EMC suppression
- Timer accessories 86 series

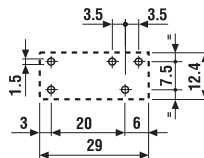
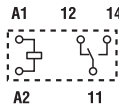


FOR UL RATINGS SEE:  
 "General technical information" page V

**40.31**



- 3.5 mm contact pin pitch
- 1 Pole 10 A
- PCB or 95 series sockets

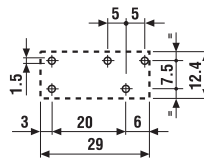
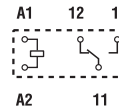


Copper side view

**40.51**



- 5 mm contact pin pitch
- 1 Pole 10 A
- PCB or 95 series sockets

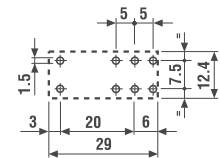
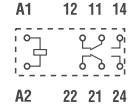


Copper side view

**40.52**



- 5 mm contact pin pitch
- 2 Pole 8 A
- PCB or 95 series sockets



Copper side view

Contact specification		40.31	40.51	40.52
Contact configuration		1 CO (SPDT)	1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	10/20	10/20	8/15
Rated voltage/Maximum switching voltage V AC		250/400	250/400	250/400
Rated load AC1	VA	2,500	2,500	2,000
Rated load AC15 (230 V AC)	VA	500	500	400
Single phase motor rating (230 V AC)	kW	0.37	0.37	0.3
Breaking capacity DC1: 30/110/220 V	A	10/0.3/0.12	10/0.3/0.12	8/0.3/0.12
Minimum switching load	mW (V/mA)	300 (5/5)	300 (5/5)	300 (5/5)
Standard contact material		AgNi	AgNi	AgNi
Coil specification				
Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240		
	V DC	5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 - 24 - 28 - 36 - 48 - 60 - 90 - 110 - 125		
Rated power AC/DC/sens. DC	VA (50 Hz)/W/W	1.2/0.65/0.5	1.2/0.65/0.5	1.2/0.65/0.5
Operating range	AC	(0.8...1.1)U <sub>N</sub>		(0.8...1.1)U <sub>N</sub>
	DC/sens. DC	(0.73...1.5)U <sub>N</sub> /(0.73...1.75)U <sub>N</sub>		(0.73...1.5)U <sub>N</sub> /(0.73...1.75)U <sub>N</sub>
Holding voltage	AC/DC	0.8 U <sub>N</sub> /0.4 U <sub>N</sub>		0.8 U <sub>N</sub> /0.4 U <sub>N</sub>
Must drop-out voltage	AC/DC	0.2 U <sub>N</sub> /0.1 U <sub>N</sub>		0.2 U <sub>N</sub> /0.1 U <sub>N</sub>
Technical data				
Mechanical life AC/DC	cycles	10 · 10 <sup>6</sup> /20 · 10 <sup>6</sup>		10 · 10 <sup>6</sup> /20 · 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 - (12/4 sensitive)		7/3 - (12/4 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**

<b>Approvals</b> (according to type)	
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\*\* See general technical information "Guidelines for automatic flow solder processes" page II .

## Coil specifications

**DC coil data - 0.65 W standard** (types 40.31/51/52/61)

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		
5	9.005	3.65	7.5	38	130
6	9.006	4.4	9	55	109
7	9.007	5.1	10.5	75	94
9	9.009	6.6	13.5	125	72
12	9.012	8.8	18	220	55
14	9.014	10.2	21	300	47
18	9.018	13.1	27	500	36
21	9.021	15.3	31.5	700	30
24	9.024	17.5	36	900	27
28	9.028	20.5	42	1,200	23
36	9.036	26.3	54	2,000	18
48	9.048	35	72	3,500	14
60	9.060	43.8	90	5,500	11
90	9.090	65.7	135	12,500	7.2
110	9.110	80.3	165	18,000	6.2
125	9.125	91.2	188	23,500	5.3

**DC coil data - 0.5 W sensitive** (types 40.31/51/52/61)

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		
5	7.005	3.7	8.8	50	100
6	7.006	4.4	10.5	75	80
7	7.007	5.1	12.2	100	70
9	7.009	6.6	15.8	160	56
12	7.012	8.8	21	300	40
14	7.014	10.2	24.5	400	35
18	7.018	13.2	31.5	650	27.7
21	7.021	15.4	36.9	900	23.4
24	7.024	17.5	42	1,200	20
28	7.028	20.5	49	1,600	17.5
36	7.036	26.3	63	2,600	13.8
48	7.048	35	84	4,800	10
60	7.060	43.8	105	7,200	8.4
90	7.090	65.7	157	16,200	5.6
110	7.110	80.3	192	23,500	4.7
125	7.125	91.2	219	32,000	3.9

\* $U_{min} = 0.8 U_N$  for 40.61

\*\* $U_{max} = 1.5 U_N$  for 40.61

**DC coil data - 0.5 W sensitive** (types 40.11/41)

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		
6	7.006	4.4	10.5	75	80
12	7.012	8.8	21	300	40
24	7.024	17.5	42	1,200	20
48	7.048	35	84	4,600	10.4
60	7.060	43.8	105	7,200	8.3

\* $U_{max} = 1.5 U_N$  for 40.11-2016

**AC coil data** (types 40.31/51/52/61)

Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ (50Hz) mA
		$U_{min}$ V	$U_{max}$ V		
6	8.006	4.8	6.6	21	168
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
60	8.060	48	66	2,100	16.8
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

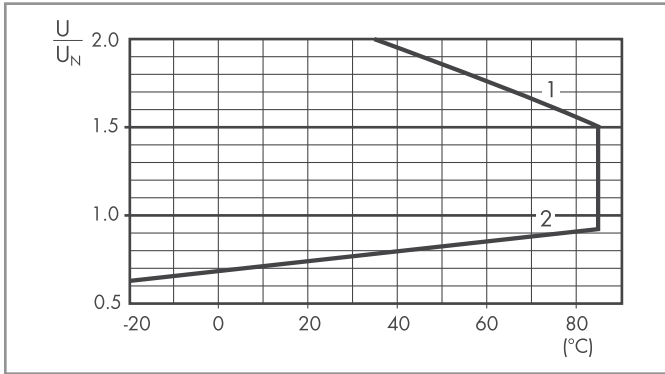
**AC/DC coil data - bistable** (types 40.31/51/52/61)

Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ mA	DC: Release resistance** $R_{DC}$ $\Omega$
		$U_{min}$ V	$U_{max}$ V			
5	6.005	4	5.5	23	215	37
6	6.006	4.8	6.6	33	165	62
12	6.012	9.6	13.2	130	83	220
24	6.024	19.2	26.4	520	40	910
48	6.048	38.4	52.8	2,100	21	3,600
110	6.110	88	121	11,000	10	16,500

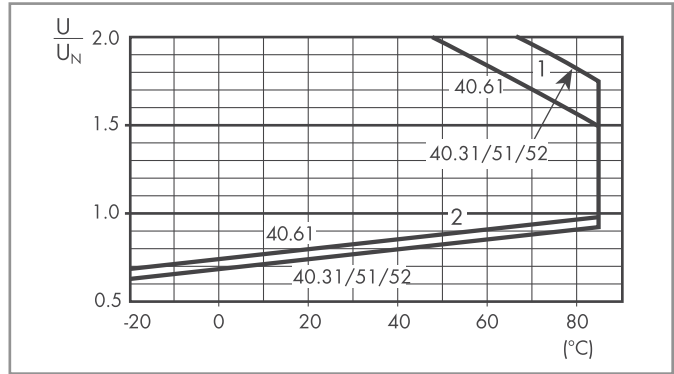
\*\*  $R_{DC}$  = Resistance in DC,  $R_{AC} = 1.3 \times R_{DC}$  1W

## Coil specifications

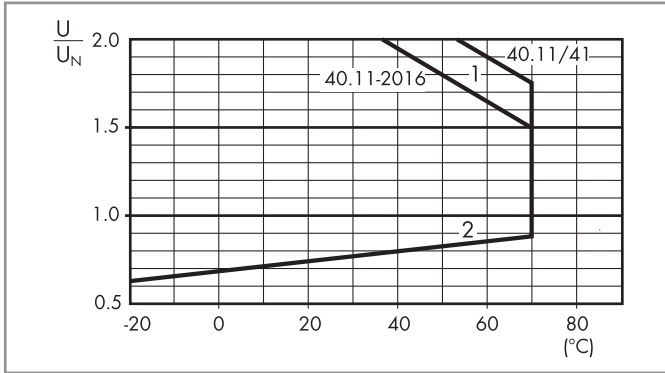
**R 40 - DC coil operating range v ambient temperature**  
Standard coil



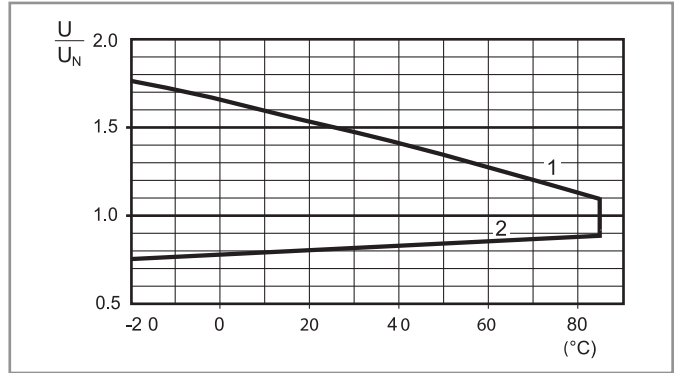
**R 40 - DC coil operating range v ambient temperature**  
Sensitive coil, types 40.31/51/52/61



**R 40 - DC coil operating range v ambient temperature**  
Sensitive coil, types 40.11/41



**R 40 - AC coil operating range v ambient temperature**

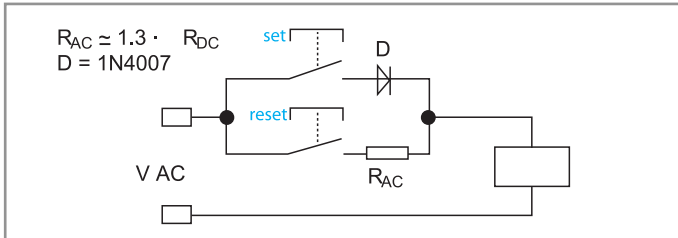


1 - Max. permitted coil voltage.  
2 - Min. pick-up voltage with coil at ambient temperature.

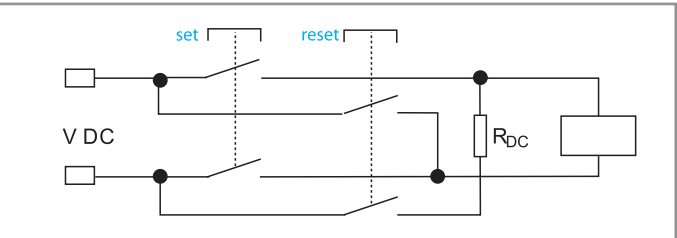
1 - Max. permitted coil voltage.  
2 - Min. pick-up voltage with coil at ambient temperature.

## Wiring diagram for 40 series bistable coil version

### AC Operation



### DC Operation



On momentary closure of the SET switch the relay is magnetised through the diode and the relay contacts transfer to the set position and remain in this position.

On momentary closure of the RESET switch the relay is demagnetised through limiting resistor ( $R_{AC}$ ) and the contacts return to the reset position.

On momentary closure of the SET switch the relay is magnetised and the relay contacts transfer to the set position and remain in this position.

On momentary closure of the RESET switch the relay is demagnetised through limiting resistor ( $R_{DC}$ ) and the contacts return to the reset position.

**Notes:** The minimum SET or RESET impulse time is 20 ms. The maximum time can be continuous. In practice, always ensure that the SET and RESET contacts cannot be operated simultaneously.