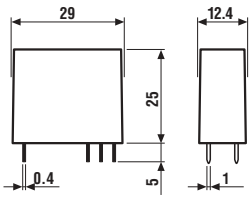
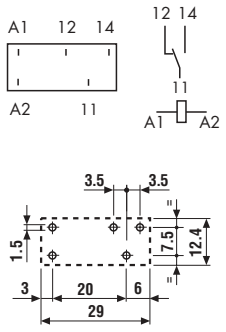
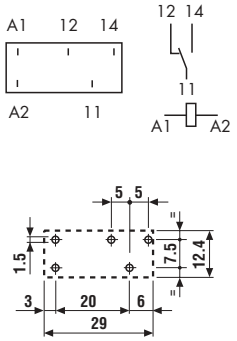
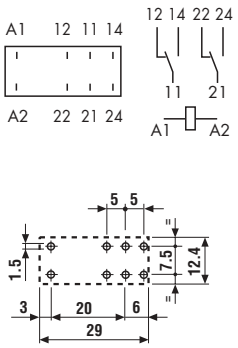
- *P.C.B. or plug-in mount*
- *AC, DC, sensitive DC or single bistable coil versions available*
- *8 mm, 6 kV (1.2/50 µs) between coil and contacts*
- *Ambient temperature + 85 °C*
- *RT III (wash tight) version available*
- *Sockets and accessories: see 95, 99 and 86 series*



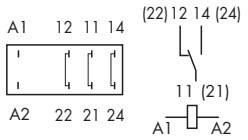
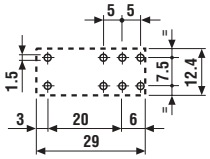
* For 400 V applications, where requirements for pollution degree 2 are met.

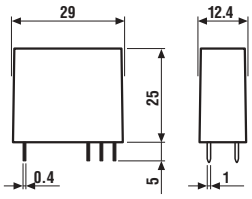
	40.31	40.51	40.52
			
	- 1 pole, 10 A - 3.5 mm pinning - P.C.B./for use with 95 series sockets	- 1 pole, 10 A - 5 mm pinning - P.C.B./for use with 95 series sockets	- 2 pole, 8 A - 5 mm pinning - P.C.B./for use with 95 series sockets
	 Copper side view	 Copper side view	 Copper side view
Contact specifications			
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*	250/250
Rated load in AC1 VA	2,500	2,500	2,000
Rated load in AC15 (230 V AC) VA	500	500	400
Single phase motor rating (230 V AC) kW	0.37	0.37	0.3
Breaking capacity in 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 specifications			
Nominal voltage (U_N) 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_N	(0.8...1.1)U_N	(0.8...1.1)U_N
DC/sens. DC	(0.73...1.5)U_N/(0.73...1.75)U_N	(0.73...1.5)U_N/(0.73...1.75)U_N	(0.73...1.5)U_N/(0.73...1.75)U_N
Holding voltage AC/DC	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N	0.8 U_N /0.4 U_N
Must drop-out voltage AC/DC	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N	0.2 U_N /0.1 U_N
Technical data			
Mechanical life AC/DC cycles	10 · 10^6/20 · 10^6	10 · 10^6/20 · 10^6	10 · 10^6/20 · 10^6
Electrical life at rated load AC1 cycles	200 · 10^3	200 · 10^3	100 · 10^3
Operate/release time ms	7/3 - (12/4 sensitive)	7/3 - (12/4 sensitive)	7/3 - (12/4 sensitive)
Insulation according to EN 61810-1 ed. 2	4 kV/3	4 kV/3	4 kV/2
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	1,000	1,000	1,000
Ambient temperature range °C	–40...+85	–40...+85	–40...+85
Envirommental protection	RT II**	RT II**	RT II**
Approvals (according to type):	CE ABS BV BEAB SP DNV FI GOST KR IRAM LR RINA NK cULus NF VDE		

** See page 202 "Guidelines for automatic flow solder processes".

40

- *P.C.B. or plug-in mount*
- *AC, DC, sensitive DC or single bistable coil versions available*
- *8 mm, 6 kV (1.2/50 µs) between coil and contacts*
- *Ambient temperature + 85 °C*
- *RT III (wash tight) version available*
- *Sockets and accessories: see 95, 99 and 86 series*

	40.61	40.xx.6
		
	- 1 pole, 16 A - 5 mm pinning - P.C.B./for use with 95 series sockets	- Bistable version (1 coil) - P.C.B./for use with 95 series sockets
	  Copper side view	Bistable version (1 coil) types: 40.31.6... 40.51.6... 40.52.6... 40.61.6... For wiring diagrams see page 28
Contact specifications		
Contact configuration	1 CO (SPDT)	
Rated current/Maximum peak current A	16/30**	
Rated voltage/Maximum switching voltage V AC	250/400*	See relays
Rated load in AC1 VA	4,000	40.31
Rated load in AC15 (230 V AC) VA	750	40.51
Single phase motor rating (230 V AC) kW	0.55	40.52
Breaking capacity in DC1: 30/110/220 V A	16/0.3/0.12	40.61
Minimum switching load mW (V/mA)	500 (10/5)	
Standard contact material	AgCdO	
Coil specifications		
Nominal voltage (U_N) V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240	5 - 6 - 12 - 24 - 48 - 110
V DC	***See below	5 - 6 - 12 - 24 - 48 - 110
Rated power AC/DC/sens. DC VA (50 Hz)/W/W	1.2/0.65/0.5	1.0/1.0/—
Operating range AC	(0.8...1.1)U_N	(0.8...1.1)U_N
DC/sens. DC	(0.73...1.5)U_N/(0.8...1.5)U_N	(0.8...1.1)U_N/—
Holding voltage AC/DC	0.8 U_N /0.4 U_N	—
Must drop-out voltage AC/DC	0.2 U_N /0.1 U_N	—
Technical data		
Mechanical life AC/DC cycles	10 · 10^6/20 · 10^6	See relays
Electrical life at rated load AC1 cycles	100 · 10^3	40.31
Operate/release time ms	7/3 - (12/4 sensitive)	40.51
Insulation according to EN 61810-1 ed. 2	4 kV/3	40.52
Insulation between coil and contacts (1.2/50 µs) kV	6 (8 mm)	40.61
Dielectric strength between open contacts V AC	1,000	
Ambient temperature range °C	–40...+85	Min. impulse duration
Enviromental protection	RT II**	≥ 20 ms
Approvals (according to type):	CE ABS BV BEAB SP DNV FI GOST KR IRAM Lloyd's Register NK RINA CSA cULus NF VDE	



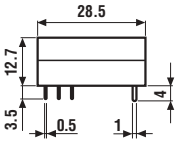
* For 400 V applications, where requirements for pollution degree 2 are met.

** With the $AgSnO_2$ material the maximum peak current is 100 A - 5 ms on NO (nPST-NO) contact.

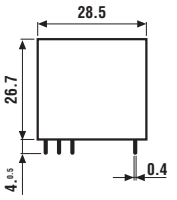
*** Nominal voltage (U_N): 5 - 6 - 7 - 9 - 12 - 14 - 18 - 21 - 24 - 28 - 36 - 48 - 60 - 90 - 110 - 125 V DC

** See page 202 "Guidelines for automatic flow solder processes".

- *Plug-in or P.C.B. versions*
- *Sensitive DC version available*
- *8 mm, 6 kV (1.2/50 µs) between coil and contacts*
- *Sockets and accessories: see 95 series*

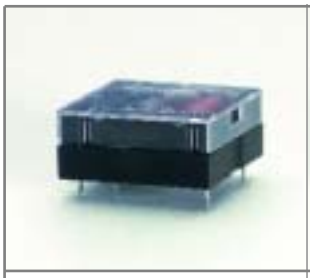
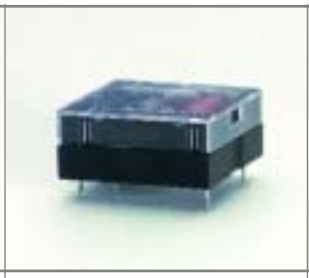
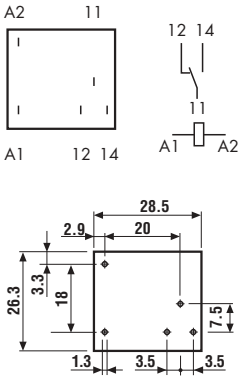
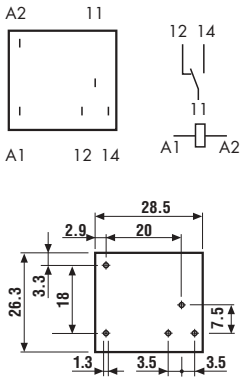
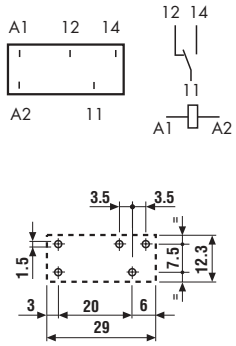


40.11



40.41

* For 400 V applications, where requirements for pollution degree 2 are met.

	40.11	40.11-2016	40.41
			
	- 1 pole, 10 A - 3.5 mm pinning - P.C.B. mounting	- 1 pole, 16 A - 3.5 mm pinning - P.C.B. mounting	- 1 pole, 10 A - 3.5 mm pinning - P.C.B./for use with 95 series sockets
			
	Copper side view	Copper side view	Copper side view
Contact specifications			
Contact configuration	1 CO (SPDT)	1 CO (SPDT)	1 CO (SPDT)
Rated current/Maximum peak current A	10/20	16/30	10/20
Rated voltage/Maximum switching voltage V AC	250/400*	250/400*	250/400*
Rated load in AC1 VA	2,500	4,000	2,500
Rated load in AC15 (230 V AC) VA	500	750	500
Single phase motor rating (230 V AC) kW	0.37	0.55	0.37
Breaking capacity in DC1: 30/110/220 V A	10/0.3/0.12	16/0.3/0.12	10/0.3/0.12
Minimum switching load mW (V/mA)	300 (5/5)	500 (10/5)	300 (5/5)
Standard contact material	AgCdO	AgCdO	AgCdO
Coil specifications			
Nominal voltage (U_N) V AC (50/60 Hz)	—	—	—
V DC	6 - 12 - 24 - 48 - 60	6 - 12 - 24 - 48	6 - 12 - 24 - 48 - 60
Rated power AC/DC/sens. DC VA (50 Hz)/W/W	—/—/0.5	—/—/0.5	—/—/0.5
Operating range AC	—	—	—
DC/sens. DC	—/(0.73...1.75)U_N	—/(0.73...1.75)U_N	—/(0.73...1.75)U_N
Holding voltage AC/DC	—/0.4 U_N	—/0.4 U_N	—/0.4 U_N
Must drop-out voltage AC/DC	—/0.1 U_N	—/0.1 U_N	—/0.1 U_N
Technical data			
Mechanical life AC/DC cycles	—/20 · 10^6	—/20 · 10^6	—/20 · 10^6
Electrical life at rated load AC1 cycles	200 · 10^3	50 · 10^3	200 · 10^3
Operate/release time ms	12/4	12/4	12/4
Insulation according to EN 61810-1 ed. 2	4 kV/3	4 kV/3	4 kV/3
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	1,000	1,000	1,000
Ambient temperature range °C	–40...+70	–40...+70	–40...+70
Enviromental protection	RT I	RT I	RT I
Approvals (according to type):	GOST cULus VDE		

ORDERING INFORMATION

Example: a 40 series P.C.B. relay with 2 CO (SPDT) contacts, with coil rated at 230 V AC.

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

Series

Type
1 = P.C.B. - 3.5 mm pinning, flat
3 = P.C.B. - 3.5 mm pinning
4 = P.C.B. - 3.5 mm pinning
5 = P.C.B. - 5 mm pinning
6 = P.C.B. - 5 mm pinning

No. of poles
1 = 1 pole
for: 40.11, 10 A
40.31, 10 A
40.41, 10 A
40.51, 10 A
40.61, 16 A
2 = 2 pole
for 40.52, 8 A

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

Coil voltage
see coil specifications

A: Contact material
0 = Standard AgNi
for: 40.31/51/52
AgCdO for 40.61
2 = AgCdO (standard
for 40.11/41)
4 = $AgSnO_2$
5 = AgNi + Au (5 µm)

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

D: Special versions
0 = Standard
1 = Wash tight (RT III)
3 = High temperature (+ 125 °C)
wash tight

C: Options
0 = None
16 = with rated current 16 A (for 40.11)

Only combinations in the same row are possible

Preferred versions

	coil version	A	B	C	D
40.11/41	sens.DC	2	0	0	0
40.31/51	AC/DC/sens.DC	0	0	0	0
40.52	AC/DC/sens.DC	0	0	0	0
40.61	AC/DC/sens.DC	0	0	0	0

All versions

	coil version	A	B	C	D
40.11	sens. DC	2	0	0	0
40.11	sens. DC	2	0	16	/
40.41	sens. DC	2	0 - 3	0	0
40.31/51	AC/sens. DC	0 - 2 - 5	0 - 3	0	0 - 1
40.31/51	DC	0 - 2 - 5	0 - 3	0	0 - 1 - 3
40.52	AC/sens. DC	0 - 2 - 5	0 - 3	0	0 - 1
40.52	DC	0 - 2 - 5	0 - 3	0	0 - 1 - 3
40.61	AC/sens. DC	0 - 4	0 - 3	0	0 - 1
40.61	DC	0 - 4	0 - 3	0	0 - 1 - 3
40.31/51/52/61	bistable	0	0	0	0

TECHNICAL DATA

INSULATION

Insulation according to EN 61810-1 ed. 2		insulation rated voltage	V	250
		rated impulse withstand voltage	kV	4
		pollution degree		3 (1 CO/SPDT) 2 (2 CO/DPDT)
		overvoltage category		III
Dielectric strength between adjacent contacts	V AC	2,000		

CONDUCTED DISTURBANCE IMMUNITY

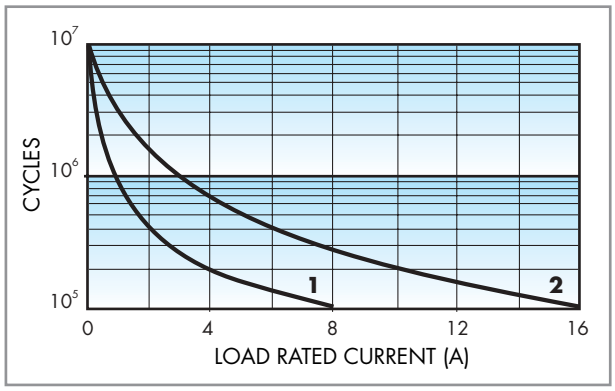
Burst (5...50)ns, 5 kHz, on A1 - A2	EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 µs) on A1 - A2 (differential mode)	EN 61000-4-5	level 3 (2 kV)

OTHER DATA

Bounce time: NO/NC		ms	2/5	
Vibration resistance (10...55)Hz, max. ± 1 mm: NO/NC		g/g	10/4 (for 1 CO or SPDT)	3/3 (for 2 CO or DPDT)
Power lost to the environment	without contact current	W	0.6	
	with rated current	W	1.2 (40.11/31/41/51)	2 (40.61/52/40.11-2016)
Recommended distance between relays mounted on P.C.B.s		mm	≥ 5	

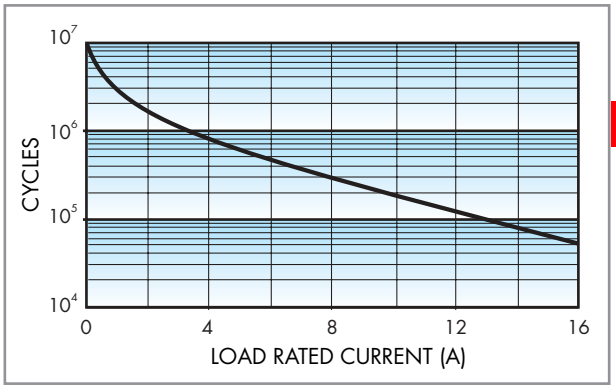
CONTACT SPECIFICATIONS

F 40 (Types 40.31/51/52/61)



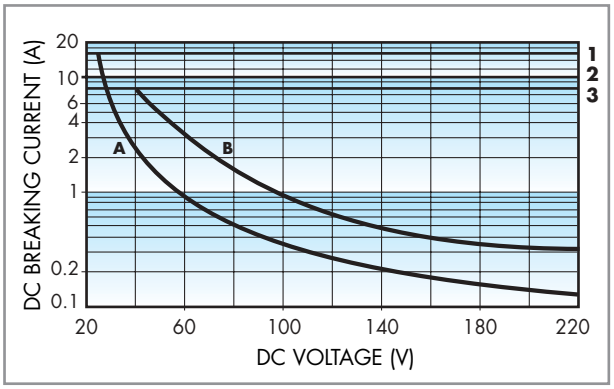
Electrical life vs AC1 load.
1 - Type 40.52 (8 A)
2 - Types 40.31, 40.51 (10 A)
Type 40.61 (16 A)

F 40 (Types 40.11/41)



Electrical life vs AC1 load.
Types 40.11, 40.41 (10 A)
Types 40.11-2016 (16 A)

H 40



Breaking capacity for DC1 load.
1 - Type 40.61
2 - Types 40.11, 40.31, 40.41, 40.51
3 - Type 40.52
A - Load applied to 1 contact
B - Load applied to 2 contacts in series

• When switching a resistive load (DC1) having voltage and current values under the curve the expected electrical life is ≥ $100 \cdot 10^3$ cycles.
• In case of DC13 loads the connection of a diode in parallel with the load will permit the same electrical life as for a DC1 load.
Note: the release time of load will be increase.