

Plug-in power relays

Order code	Manufacturer code	Description
60-1305	5534.9012.0040	12V DC 4 POLE RELAY RC
60-1310	5534.9024.0040	24V DC 4 POLE RELAY (RC)
60-1345	5534.8230.0040	230V AC 4 POLE RELAY

Plug-in power relays	Page 1 of 9
The enclosed information is believed to be correct, Information may change 'without notice' due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E.	Revision A 04/07/2003

55 SERIES

MINIATURE GENERAL PURPOSE RELAYS 5-10-16 A

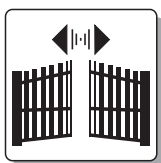


- a range of miniature general purpose relays, with 1, 2, 3 or 4 CO contacts
- plug-in or P.C.B. mount versions available
- AC or DC coils
- high temperature and sealed (with removable pip to avoid ozone accumulation) options
- dual-function lockable test button with mechanical flag indicator as standard
- B250 insulation group (in accordance with VDE 0100)
- low consumption LED and surge suppression diode options
- sockets and accessories: see 94 and 99 series
- approvals (according to type): BBJ, BEAB, DEMKO, FIMKO, GOST, IMQ, NEMKO, RINA, SEMKO, SEV, cUL, UTE, VDE

INDUSTRIAL
AUTOMATION



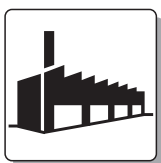
DOOR, GATE
OPENERS



TEXTILE
MACHINES



INDUSTRIAL
APPLIANCES



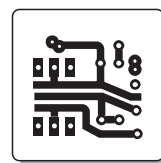
MEDICAL
EQUIPMENT



PLASTIC
MOLDING
MACHINES



ELECTRONIC
APPLIANCES



WHITE
GOODS





55.11



55.31



55.12



55.32



MINIATURE GENERAL PURPOSE RELAY 1 CO (SPDT) 16 A

TYPE 55.11 P.C.B. mount

TYPE 55.31 plug-in

- tin plated brass connections:
1.2 x 0.5 mm for P.C.B. versions
2.0 x 0.5 mm for plug-in versions
- standard contact material: Ag CdO (contact option not available)
- options: see coding table page 35
- ordering information: see page 35

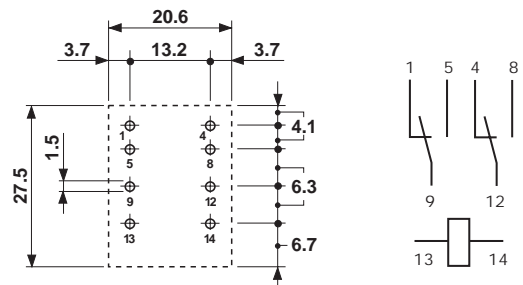
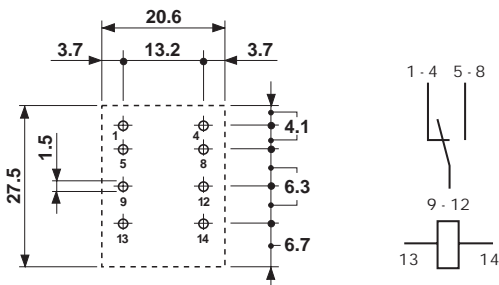
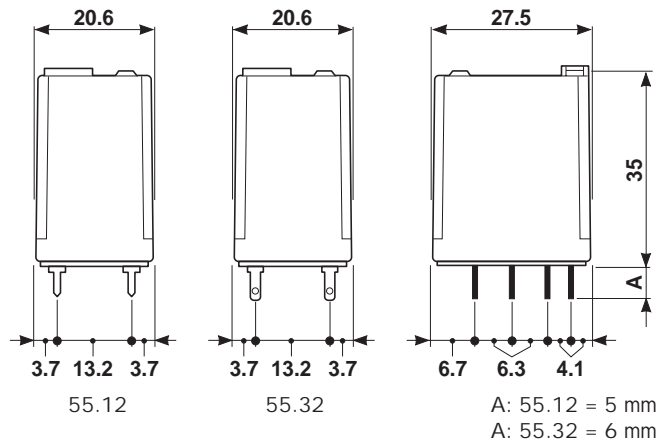
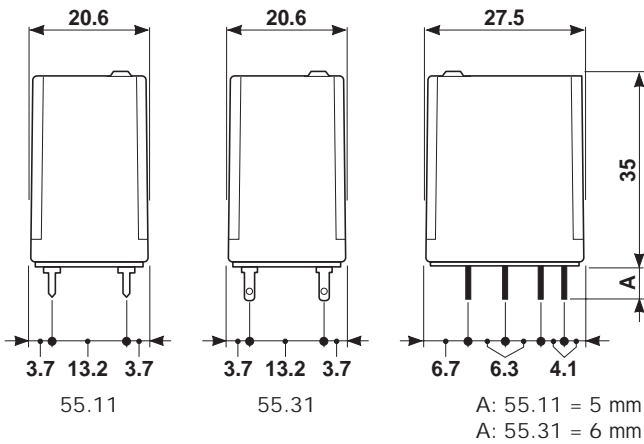


MINIATURE GENERAL PURPOSE RELAY 2 CO (DPDT) 10 A

TYPE 55.12 P.C.B. mount

TYPE 55.32 plug-in - with dual-function lockable test button and mechanical indicator as standard

- tin plated brass connections:
1.2 x 0.5 mm for P.C.B. versions
2.0 x 0.5 mm for plug-in versions
- standard contact material: Ag Ni
- options: see coding table page 35
- ordering information: see page 35





55.13



55.33



MINIATURE GENERAL PURPOSE RELAY 3 CO (3PDT) 10 A

- TYPE 55.13 P.C.B. mount
- TYPE 55.33 plug-in
- tin plated brass connections:
 - 1.2 x 0.5 mm for P.C.B. versions
 - 2.0 x 0.5 mm for plug-in versions
- standard contact material: Ag Ni
- options see coding table page 35
- ordering information: see page 35



55.14

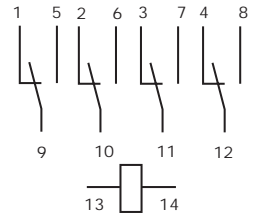
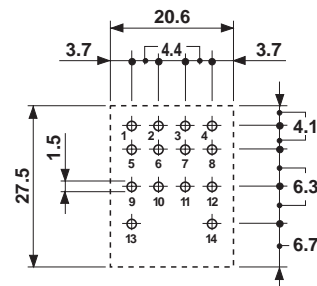
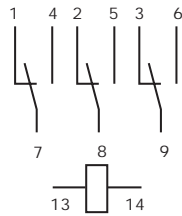
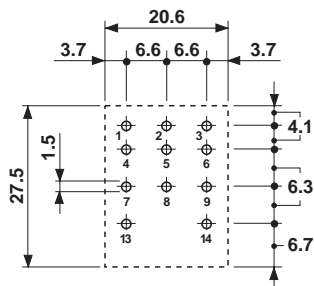
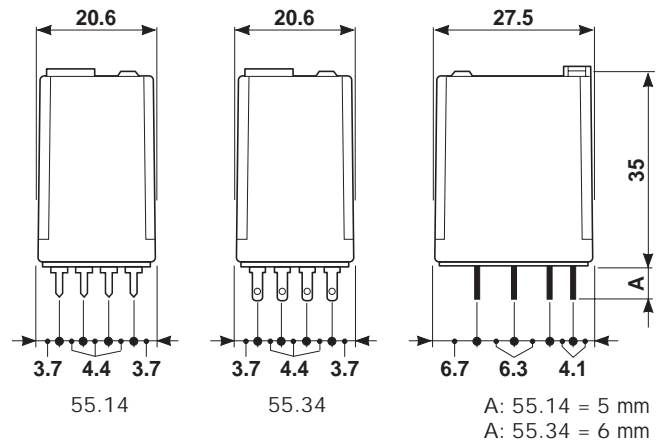
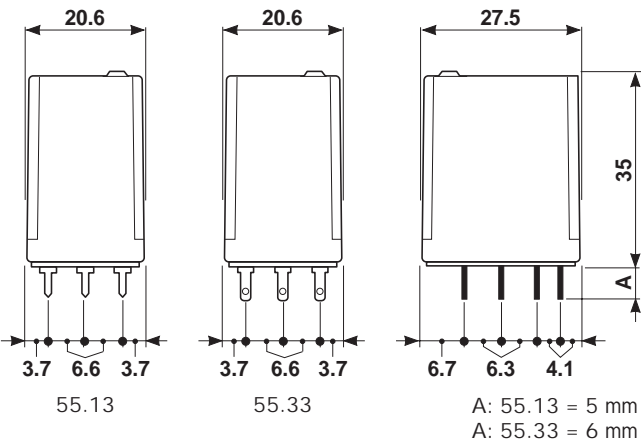


55.34



MINIATURE GENERAL PURPOSE RELAY 4 CO (4PDT) 5 A

- TYPE 55.14 P.C.B. mount
- TYPE 55.34 plug-in - with dual-function lockable test button and mechanical indicator as standard
- tin plated brass connections:
 - 1.2 x 0.5 mm for P.C.B. versions
 - 2.0 x 0.5 mm for plug-in versions
- standard contact material: Ag Ni
- options: see coding table page 35
- ordering information: see page 35



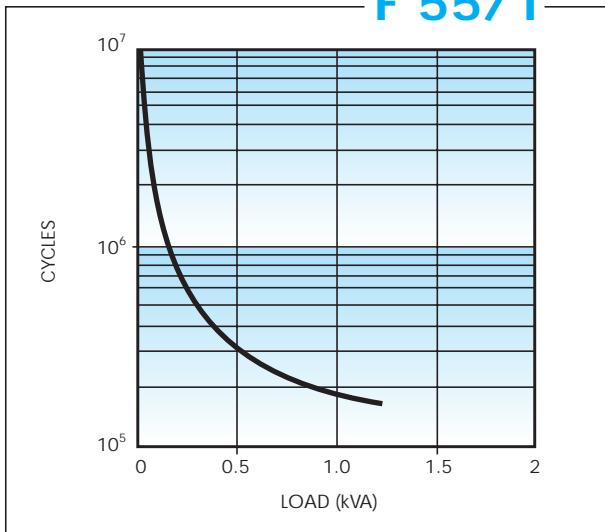
TECHNICAL DATA

DIELECTRIC STRENGTH		1-2-3 CO	4 CO
tested at: leakage current ≤ 10 mA for 1 min at 50 Hz	between coil and contacts	2000 V	2000 V
	between open contacts	1000 V	1000 V
	between adjacent contacts	2000 V	1550 V
	between frame and live parts	1500 V	1500 V
SURGE TEST (1.2/50 μs) voltage between coil and contacts		2500 V	
INSULATION RESISTANCE		≥ 10 · 10 ³ MΩ	
INSULATION GROUP		B 250	
MAX SWITCHING FREQUENCY - without load - at rated load - at rated load		36000 cycles/h 1800 cycles/h (5-10 A) 600 cycles/h (16 A)	
AMBIENT TEMPERATURE		- 40 to + 70 °C	
MECHANICAL LIFE		AC: 20 · 10 ⁶ cycles DC: 50 · 10 ⁶ cycles	
PROTECTION CATEGORY OF ENCLOSURES		IP 40	
OPERATE AND RELEASE TIME: - pick-up time (from 0 to U _N) - drop-out time (from U _N to 0)		≤ 20 ms (including contact bounce) ≤ 20 ms (including contact bounce)	
TYPE OF DUTY		continuous	
PICK-UP CLASS		C (according to IEC 255)	
DIELECTRIC TEST		☆ ₂	
TYPE OF RELAY		all - or - nothing	

CONTACT SPECIFICATION

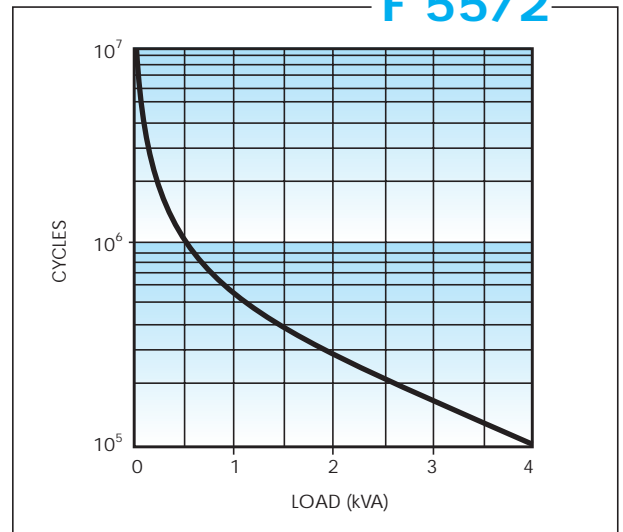
	1 CO (SPDT)	2 CO (DPDT)	3 CO (3PDT)	4 CO (4PDT)
NOMINAL RATE IN AC1	4000 VA	2500 VA	2500 VA	1250 VA
RATED CURRENT (resistive)	16 A	10 A	10 A	5 A
MAXIMUM PEAK CURRENT	30 A	20 A	20 A	10 A
RATED VOLTAGE	250 V AC	250 V AC	250 V AC	250 V AC
MAXIMUM SWITCHING VOLTAGE	400 V AC	400 V AC	400 V AC	400 V AC
BREAKING CAPACITY IN DC1	see diagram H 55			
SINGLE PHASE HP MOTOR RATING AT 250 V	0.8 kW/1.2 HP	0.37 kW/0.6 HP	0.37 kW/0.6 HP	0.12 kW/0.2 HP
CONTACT RESISTANCE: - initial	≤ 50 mΩ	≤ 50 mΩ	≤ 50 mΩ	≤ 50 mΩ
STANDARD CONTACT MATERIAL	Ag CdO	Ag Ni	Ag Ni	Ag Ni

F 55/1



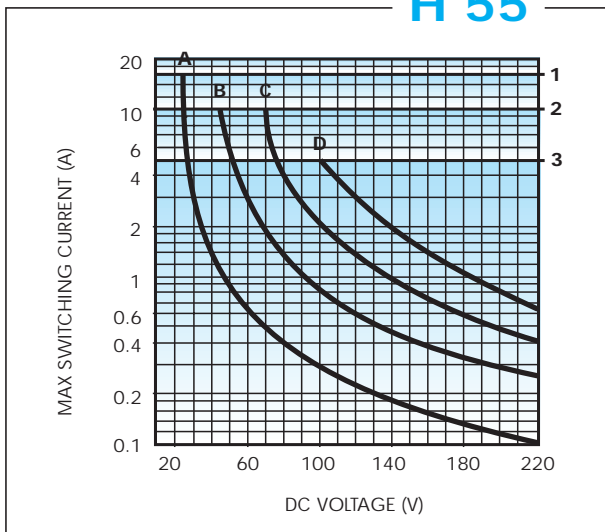
Contact life vs AC1 load.
4 CO relay type (5 A) at 1800 cycles/h.

F 55/2



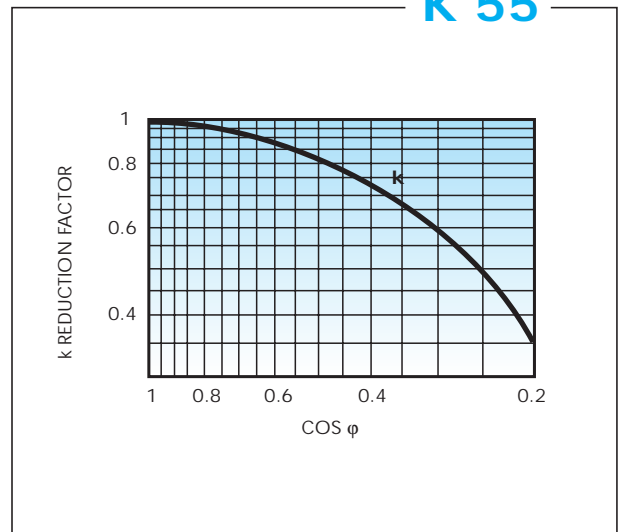
Contact life vs AC1 load.
1 CO relay type (16 A) at 600 cycles/h.
2 - 3 CO relay type (10 A) at 1800 cycles/h.

H 55



Breaking capacity for DC1 load.
1 - 1 CO type (600 cycles/h)
2 - 2 - 3 CO type (1800 cycles/h)
3 - 4 CO type (1800 cycles/h)
A = load applied to 1 contact
B = load applied to 2 contacts in series
C = load applied to 3 contacts in series
D = load applied to 4 contacts in series

K 55



Load reduction factor vs $\cos \phi$.

COIL SPECIFICATION

VERSIONS:

AC - alternating current 50/60 Hz

DC - direct current

DI - DC coil with a diode in parallel

	AC	DC
RATED POWER	1.5 VA	1 W
OPERATING RANGE	$(0.8 \div 1.1) U_N$	$(0.8 \div 1.1) U_N$
HOLDING VOLTAGE	$\leq 0.8 U_N$	$\leq 0.5 U_N$
MUST DROP-OUT VOLTAGE	$\geq 0.2 U_N$	$\geq 0.1 U_N$
NOMINAL MAGNETOMOTIVE FORCE	150 A	200 A
THERMAL INSULATION CLASS OF WIRE	F (+155°C)	F (+155°C)
THERMAL RESISTANCE	50°C/W	50°C/W

CONDUCTED DISTURBANCE IMMUNITY:

BURST (acc. to EN 61000-4-4) level 4 (4kV)

SURGE (acc. to EN 61000-4-5) level 4 (4kV)

AC VERSION DATA

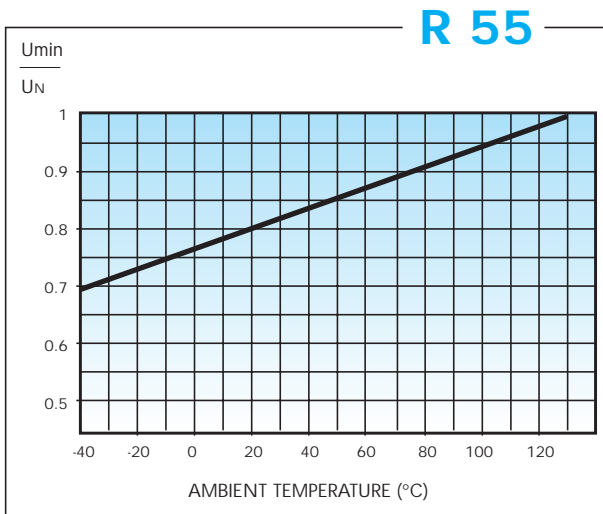
(R values relate to +20°C. Tolerance of R and I values: $\pm 10\%$.)

rated voltage U_N (V)	U min (V)	U max (V)	resistance R (Ω)	nominal absorption I at U_N 50 Hz (mA)	inductance with closed armature (H)
6	4.8	6.6	12	234	0.072
12	9.6	13.2	50	117	0.285
24	19.2	26.4	190	58.3	1.16
48	38.4	52.8	770	29.2	4.6
60	48	66	1200	23.3	7.3
110	88	121	3940	12.7	24.5
125	100	137.5	4700	11.2	32
230	184	253	17000	6.3	100
240	192	264	19100	5.8	117

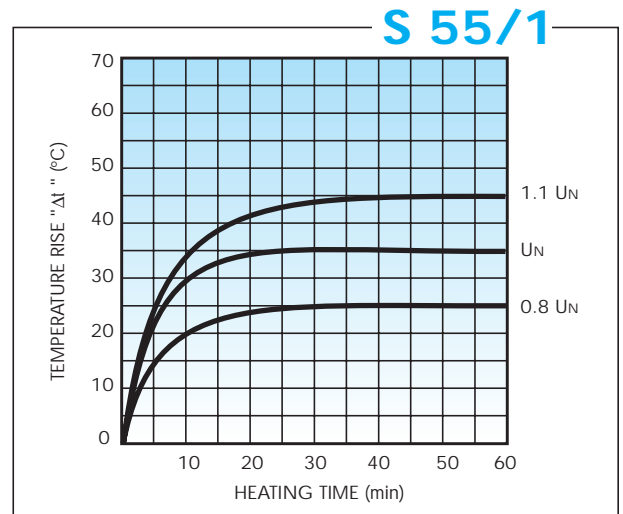
DC VERSION DATA

(R values relate to +20°C. Tolerance of R and I values: $\pm 10\%$.)

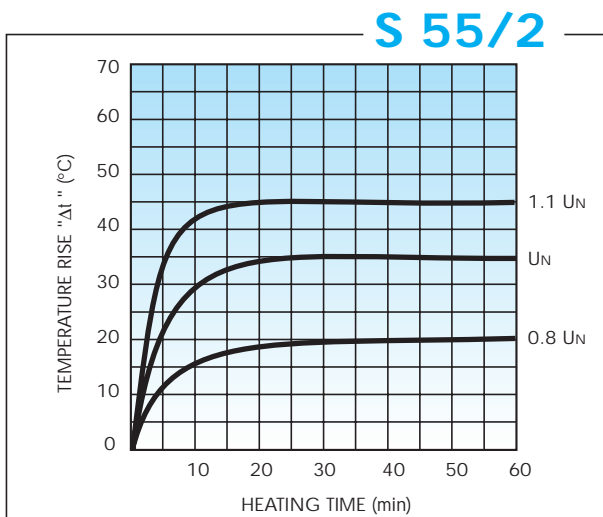
rated voltage U_N (V)	U min (V)	U max (V)	resistance R (Ω)	nominal absorption I at U_N (mA)
6	4.8	6.6	40	150
12	9.6	13.2	140	86
24	19.2	26.4	600	40
48	38.4	52.8	2400	20
60	48	66	4000	15
110	88	121	12500	8.8
125	100	137	17300	7.2
—	—	—	—	—
—	—	—	—	—



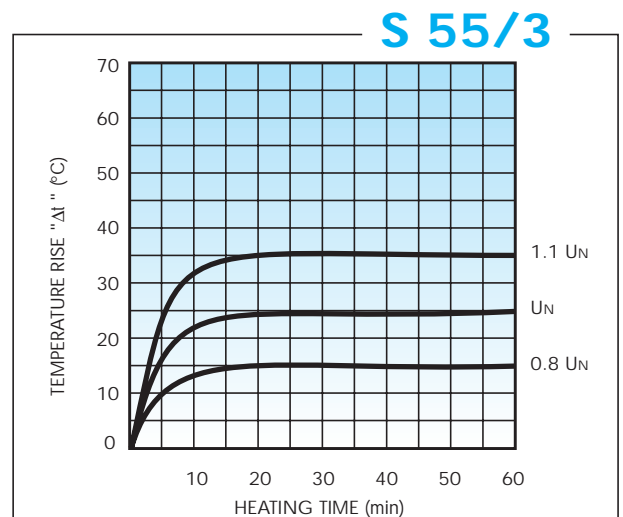
DC coil min pick-up voltage vs ambient temperature.
 U_{min} = pick-up voltage U_N = rated voltage



Temperature rise "Δt" vs applied voltage. DC coils.



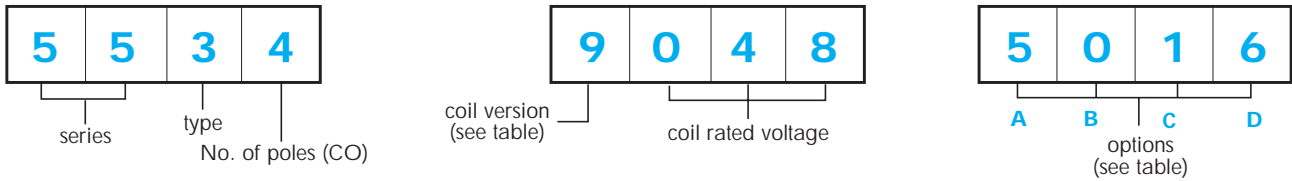
Temperature rise "Δt" vs applied voltage. AC - 50 Hz coils.



Temperature rise "Δt" vs applied voltage. AC - 60 Hz coils.

ORDERING INFORMATION

Example: a 55 series plug-in relay with 4 CO (4PDT) contacts, coil rated at 48 V DC, with gold-plated Ag Ni contacts, a lockable test button and rear mount flanges has the following code:



For standard relays with no options, use the first 8 digits only.

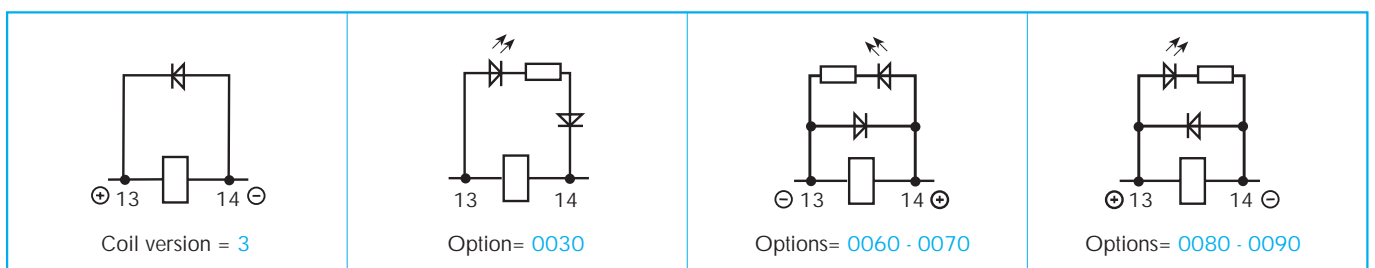
COIL VERSION

Code		Coil types
9	DC	Direct current
8	AC	Alternating current 50/60 Hz
3	DI	Direct current with diode in parallel to the coil

Relay type	Options available			
	A	B	C	D
55 - 1 CO (SPDT) standard	—	—	1 - 3 - 5 - 6 - 7 - 8	5 - 6
55 - 2 CO (DPDT) standard	2 - 5	—	all	0 - 5 - 6
55 - 2 CO (DPDT) sealed	2 - 5	—	3 - 6 - 8	1
55 - 2 CO (DPDT) high temperature	2 - 5	—	—	3
55 - 3 CO (3PDT) standard	2 - 5	—	1 - 3 - 5 - 6 - 7 - 8 - 9	5 - 6
55 - 3 CO (3PDT) sealed	2 - 5	—	3 - 6 - 8	1
55 - 3 CO (3PDT) high temperature	2 - 5	—	—	3
55 - 4 CO (4PDT) standard	2 - 5	—	all	5 - 6
55 - 4 CO (4PDT) sealed	2 - 5	—	3 - 6 - 8	1
55 - 4 CO (4PDT) high temperature	2 - 5	—	—	3

OPTIONS (* available for DC coil only)

A	Contact material	B	Contact circuit	C	Additional features	D	Special application
0	standard	0	standard	0	standard	0	standard
2	Ag CdO			1	lockable test button	1	sealed
5	Ag Ni + Au (5μ)			3	LED, AC only	3	high temperature (+125° C) and sealed
				4	lockable test button + mechanical indicator		
				5	lockable test button + LED, AC only	5	top mount flange
				*6	LED + diode (positive to pin 14) DC only	6	rear mount flange
				*7	lockable test button+LED+diode (positive to pin 14) DC only		
				*8	LED + diode (positive to pin 13) DC only		
				*9	lockable test button+LED+diode (positive to pin 13) DC only		
				0054	lockable test button + LED + mechanical indicator, AC only		
				0074	lockable test button+LED+diode (positive to pin 14) DC only+mechanical indicator		
				0094	lockable test button+LED+diode (positive to pin 13) DC only+mechanical indicator		



OPTIONS



SEALED VERSION (0001)

Suggested for automatic soldering and cleaning processes.
Not available for 1 CO (SPDT) relay.



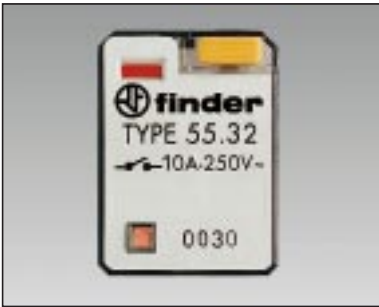
HIGH TEMPERATURE SEALED(0003)

High temperature sealed versions, both AC and DC coils.
Not available for 1 CO (SPDT) relays.

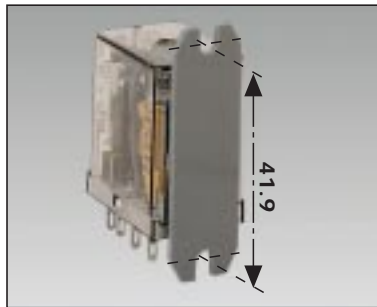


REMOVE VENTILATION PIP

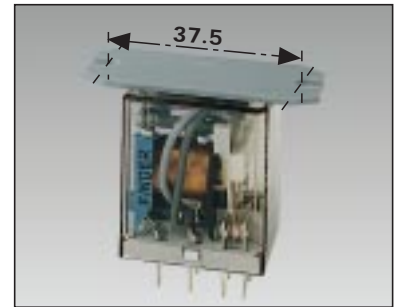
The sealed version has a removable pip to avoid ozone accumulation when relay is working.



LED (0030)



REAR MOUNT FLANGE (0006)



TOP MOUNT FLANGE (0005)



LOCKABLE TEST BUTTON AND MECHANICAL FLAG INDICATOR (0040)