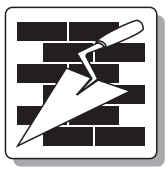
56 Series
Miniature Power Relays 12 A

A range of miniature power relays, with 2 or 4 CO contact
Features include:
- PCB version
- AC or DC coils
- Approvals (according to type): BBJ, CSA, IMQ, NEMKO, SEMKO, SEV, cUL, UTE, VDE

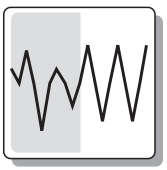
CERAMICS INDUSTRY MACHINES



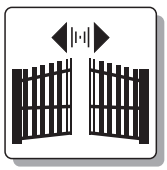
PACKING MACHINES

COFFEE MACHINES

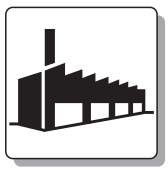
VOLTAGE STABILIZERS



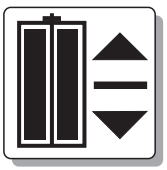
AUTOMATIC GATES



INDUSTRIAL APPLIANCES

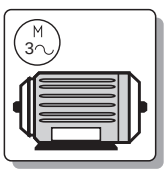


ELEVAT

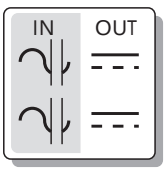


TOOLING MACHINES

ELECTRIC MOTOR LOADS



U.P.S.



56 Series
Miniature Power Relays 12 A

MINIATURE POWER RELAYS 2 CO (DPDT) 12 A

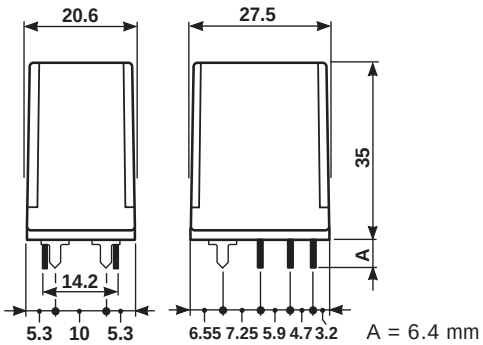
TYPE 56.42 P.C.B. mount
- Tin plated brass connections:
  2.0 x 0.5 mm for P.C.B. versions
- Standard contact material: AgNi

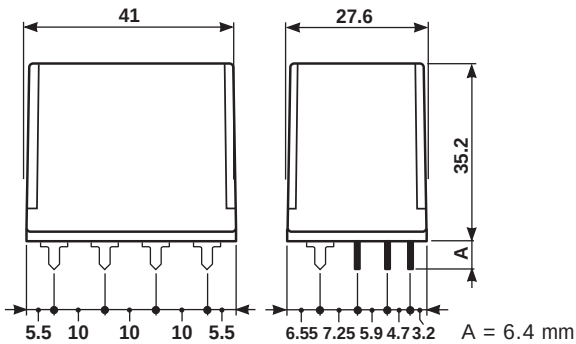
Options:
TYPE 56.32 - 0300 2 NO (DPST-NO) 12 A
TYPE 56.42 - 0300 2 NO (DPST-NO) 12 A
- 1.5 mm gap between open contacts (AC version only)

- Options: see coding table page 56
- Ordering information: see page 56

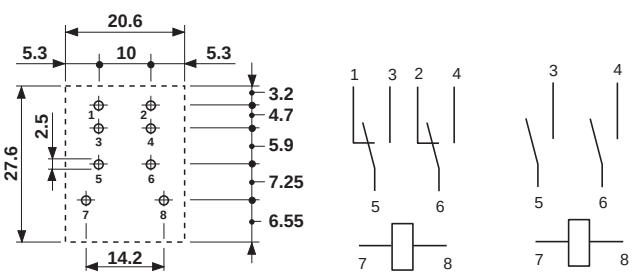
MINIATURE POWER RELAYS 4 CO (4PDT) 12 A

TYPE 56.44 P.C.B. mount
- Tin plated brass connections:
  2.0 x 0.5 mm for P.C.B. versions
- Standard contact material: AgNi
- Options: see coding table page 56
- Ordering information: see page 56

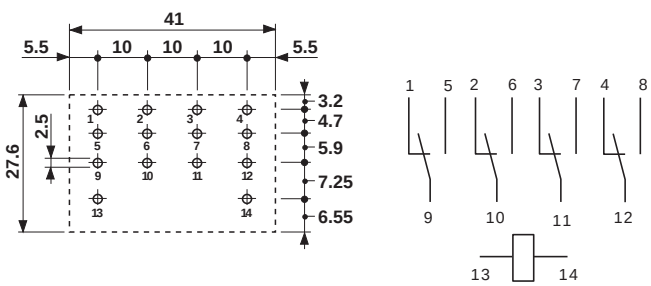




copper side view



copper side view



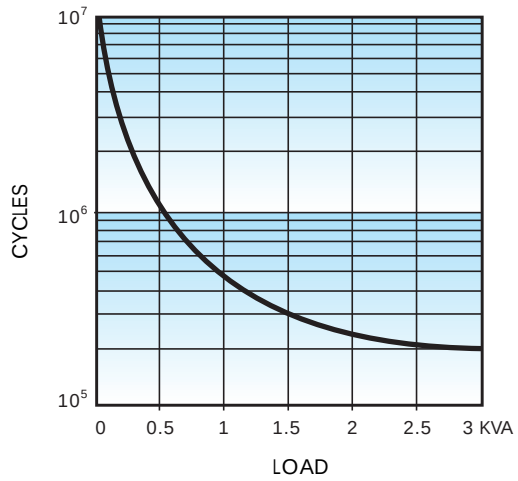
TECHNICAL DATA

DIELECTRIC STRENGTH tested at leakage current ≤ 10 mA for 1 min at 50 Hz	between coil and contact	2,500 V	
	between open contact	1,000 V	
	between adjacent contact	2,500 V	
	between frame and live parts	1,500 V	
SURGE TEST (1.2/50 µs) between coil and contacts	4,000 V		
ISOLATION RESISTANCE	≥ 20 · 10^3 MΩ		
ISOLATION GROUP	C 250		
MAXIMUM SWITCHING FREQUENCY - without load - at rated load	 36,000 cycles/h 600 cycles/h		
AMBIENT TEMPERATURE	(–40 ... +70)°C		
MECHANICAL LIFE	20 · 10^6 cycles version AC 50 · 10^6 cycles version DC		
PROTECTION CATEGORY OF ENCLOSURES	IP 40		
OPERATE AND RELEASE TIME - pick-up time (0 to U_N) - drop-out time (U_N to 0)	**4 CO** ≤ 15 ms (including contact bounce) ≤ 15 ms (including contact bounce)	**2 NO** ≤ 20 ms (including contact bounce) —	
TYPE OF DUTY	continuous		
DIELECTRIC TEST	(2)		
TYPE OF RELAY	all-or-nothing		

CONTACT SPECIFICATIONS

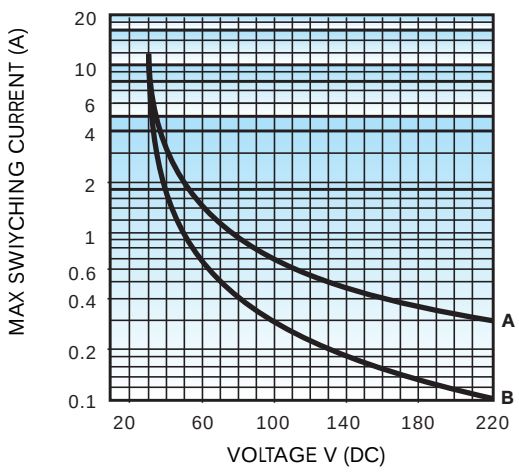
RATED CURRENT	12 A
MAXIMUM PEAK CURRENT	20 A
NOMINAL RATE IN AC1	3,000 VA
NOMINAL RATE IN AC15	500 VA
RATED VOLTAGE	250 V AC
MAXIMUM SWITCHING VOLTAGE	400 V AC
BREAKING CAPACITY IN DC1	see diagram H56
SINGLE PHASE HP MOTOR RATING AT 250 V	0.55 kW/0.7 HP
CONTACT RESISTANCE: - initial	≤ 50 mΩ
MINIMUM SWITCHING LOAD	500 mW (10V/5 mA)
STANDARD CONTACT MATERIAL	AgNi

F 56



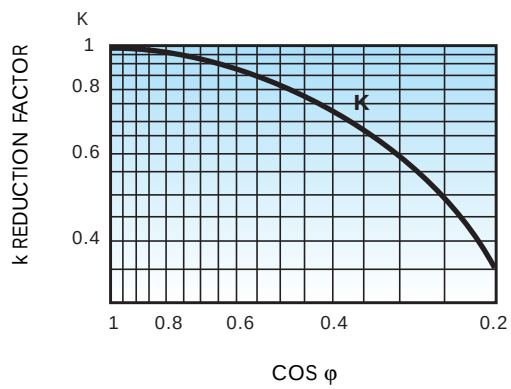
Contacts life vs AC1 load at 600 cycles/h.

H 56



Breaking capacity for DC1 load at 600 cycles/h. Load applied to 1 contact.
A = types 56.32 - 0300 and 56.42 - 0300 **B** = other types

K 56



Load reduction factor vs cos φ.

COIL SPECIFICATIONS

VERSIONS:
AC - alternating current 50/60 Hz
DC - direct current

	AC - 2 CO (DPDT)	DC - 2 CO (DPDT)	AC - 4 CO (4PDT)	DC - 4 CO (4PDT)
RATED POWER	1.5 VA	1 W	2 VA	1.3 W
OPERATING RANGE	(0.8 ... 1.1) U_N	(0.85 ... 1.1) U_N	(0.8 ... 1.1) U_N	(0.85 ... 1.1) U_N
HOLDING VOLTAGE	≤ 0.8 U_N	≤ 0.6 U_N	≤ 0.8 U_N	≤ 0.6 U_N
MUST DROP-OUT VOLTAGE	≥ 0.2 U_N	≥ 0.1 U_N	≥ 0.2 U_N	≥ 0.1 U_N
NOMINAL MAGNETOMOTIVE FORCE	150 A	200 A	125 A	180 A
THERMAL INSULATION CLASS OF WIRE	F (+155°C)	F (+155°C)	F (+155°C)	F (+155°C)
THERMAL RESISTANCE	50°C/W	50°C/W	35°C/W	35°C/W

CONDUCTED DISTURBANCE IMMUNITY	BURST (acc. to EN 61000 - 4 - 4)	level 4 (4 kV)
	SURGE (acc. to EN 61000 - 4 - 5)	level 4 (4 kV)

AC VERSION DATA (2 CO/DPDT)

R values relate to +20°C. Tolerance of R and I values: ± 10%.

Rated voltage	Operating range		Resistance	Nominal coil absorption
U_N	U_{min}	U_{max}	R	U_N 50 Hz I
V	V	V	Ω	mA
6	4.8	6.6	12	230
12	9.6	13.2	50	117
24	19.2	26.4	190	58.3
48	38.4	52.8	770	29.2
60	48	66	1,200	23.3
110	88	121	3,940	12.7
120	96	132	4,700	10.8
230	184	253	17,000	6.1
240	192	264	19,100	5.8

DC VERSION DATA (2 CO/DPDT)

R values relate to +20°C. Tolerance of R and I values: ± 10%.

Rated voltage	Operating range		Resistance	Nominal coil absorption
U_N	U_{min}	U_{max}	R	I
V	V	V	Ω	mA
6	5.1	6.6	44	150
12	10.2	13.2	140	86
24	20.4	26.4	600	40
48	40.8	52.8	2,400	20
60	51	66	4,000	15
110	93.5	121	12,500	8.8

AC VERSION DATA (4 CO/4PDT)

R values relate to +20°C. Tolerance of R and I values: ± 10%.

Rated voltage	Operating range		Resistance	Nominal coil absorption
U_N	U_{min}	U_{max}	R	U_N 50 Hz I
V	V	V	Ω	mA
6	4.8	6.6	6	290
12	9.6	13.2	23	150
24	19.2	26.4	80	75
48	38.4	52.8	380	36
60	48	66	600	26
110	88	121	1,900	16.5
120	96	132	2,600	13.4
230	184	253	8,000	7.2
240	192	264	10,500	6.9

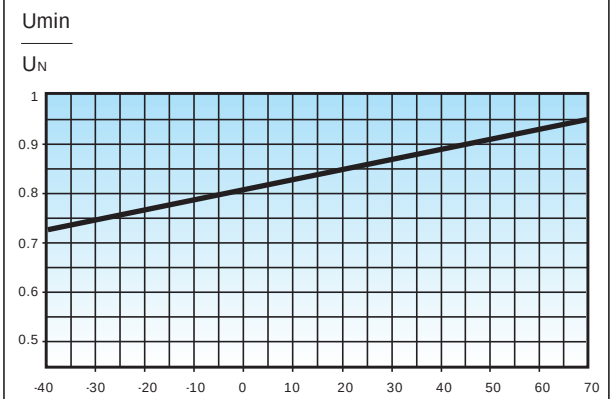
DC VERSION DATA (4 CO/4PDT)

R values relate to +20°C. Tolerance of R and I values: ± 10%.

Rated voltage	Operating range		Resistance	Nominal coil absorption
U_N	U_{min}	U_{max}	R	I
V	V	V	Ω	mA
6	5.1	6.6	33	182
12	10.2	13.2	125	92
24	20.4	26.4	500	46
48	40.8	52.8	1,800	25
60	51	66	3,000	20
110	93.5	121	10,500	10

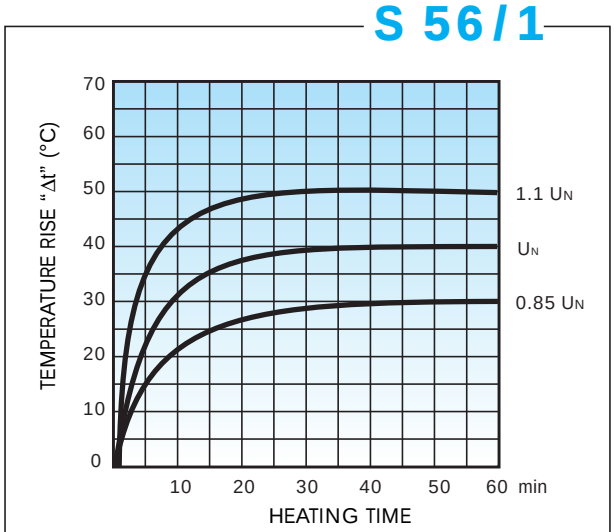
COIL SPECIFICATIONS

R 56



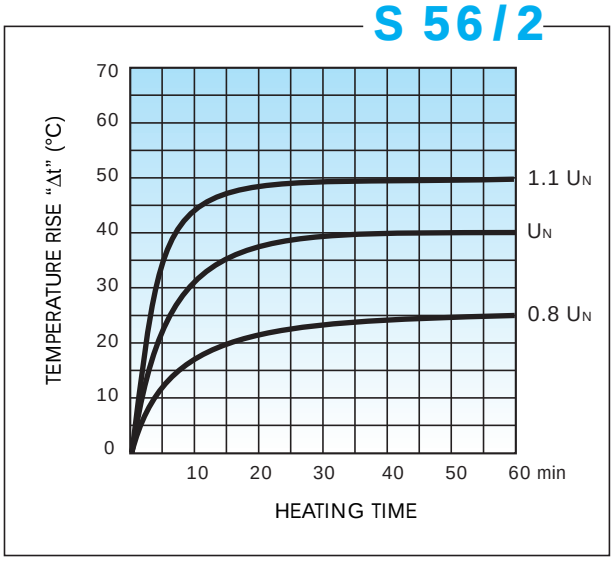
DC coil min pick-up voltage vs ambient temperature.
Umin = pick-up voltage UN = rated voltage

S 56/1



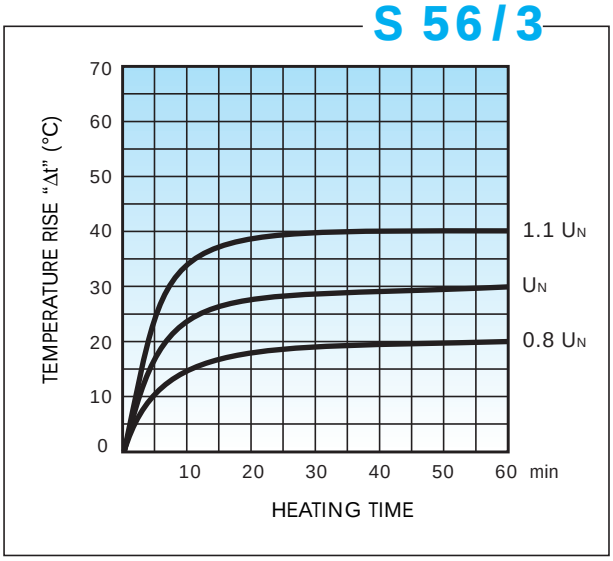
Temperature rise "Δt " vs applied voltage.
DC coils 2 CO (DPDT) and 4 CO (4PDT).

S 56/2



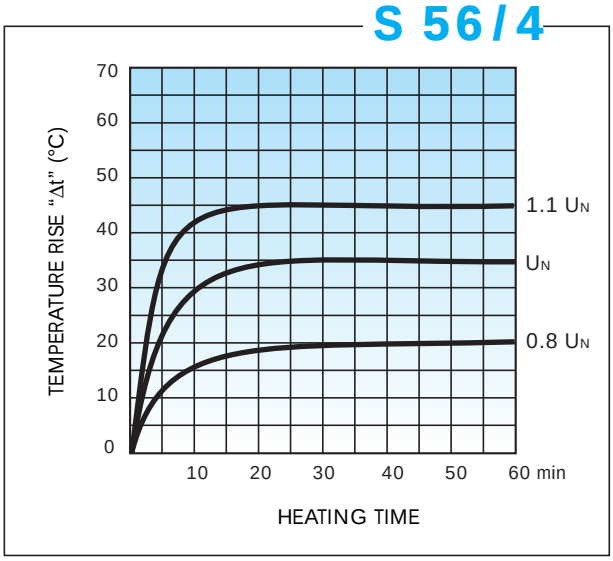
Temperature rise "Δt " vs applied voltage.
AC 50 Hz coils 4 CO (4PDT).

S 56/3



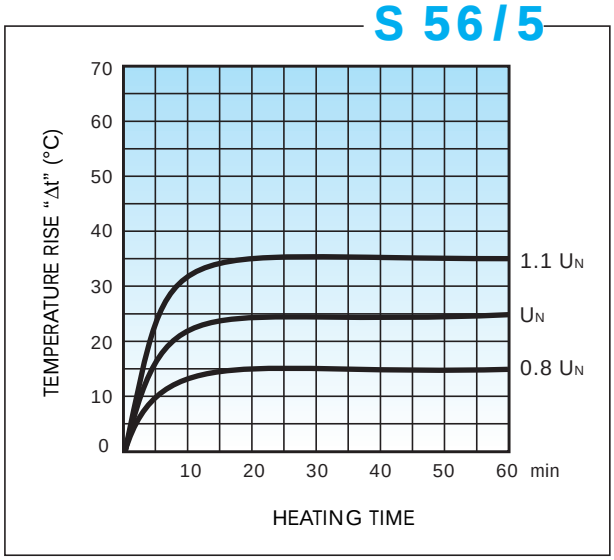
Temperature rise "Δt " vs applied voltage.
AC 60 Hz coils 4 CO (4PDT).

S 56/4



Temperature rise "Δt " vs applied voltage.
AC 50 Hz coils 2 CO (DPDT).

S 56/5



Temperature rise "Δt " vs applied voltage.
AC 60 Hz coils 2 CO (DPDT).

ORDERING INFORMATION

Example: a 56 series P.C.B. relay, 2 CO (DPDT) contacts, coil rated 12 V DC.

5 6	4	2	9	0 1 2	0 0	0 0
Series	Type	No. of poles	Coil version	Coil voltage	Contact material and contact circuit	Options

Series

Type
4 = P.C.B.

No. of poles
2 = 2 CO(DPDT)
4 = 4 CO (4PDT)

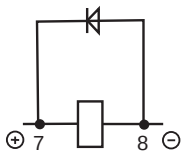
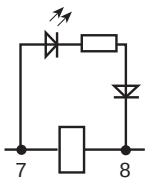
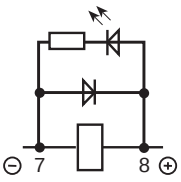
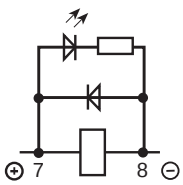
Coil version
3 = DC diode in parallel to the coil (positive to pin 7) for 2 CO only
8 = AC (50/60 Hz)
9 = DC

Coil voltage
006 = 6 V
012 = 12 V
024 = 24 V
048 = 48 V
060 = 60 V
110 = 110 V
120 = 120 V AC only
230 = 230 V AC only
240 = 240 V AC only

Contact material and contact circuit
00 = Standard
03 = NO ≥ 1,5 mm (for 56.42 (2 CO) AC only)
20 = AgCdO
40 = $AgSnO_2$

Options
00 = Standard

OPTIONS

			
Coil version= 3	Option= 0030	Option= 0060 - 0070	Option= 0080 - 0090