

SERIES D

Auxiliary Miniature Relays

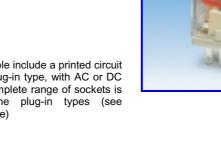
All-or-Nothing relays offering very high performance and compact size. Design includes a clear protective dust cover. Ratings range from 10 to 5 A, depending upon contact configuration (up to four pole, changeover).

Variations available include a printed circuit and a solder / plug-in type, with AC or DC rated coils. A complete range of sockets is available for the plug-in types (see exclusive literature)

Impulse voltage class

Weight

Operating class (CEI 41-1)



DIELECTRIC STRENGTH				
Coil spring set to contacts :	2000 V RMS			
Between adjacent contacts :	2000 V RMS			
Between open contacts :	1000 V RMS			
Ground / live parts :	2000 V RMS			

OPERATING TIMES (At Rated Voltage)

Bounces :	max 7	milliseconds
Release (excluding bounces) :	max 10	milliseconds
Operate (excluding bounces) :	max 15	milliseconds

AVAILABLE TYPES

D2N - 2 pole changeover 10A-250V AC - plug-in / solder terminals (2.2x0.5mm)

D2P - 2 pole changeover 10A-250V AC

- printed circuit terminals (1x0.5mm)

Push-to-test button and flag indicator fitted as standard.

Standard contact material Aq-CdO 15%. Alternative materials available for specially agreed quantities.

Special versions fitted with LED indicator, ground bolt or fixing tabs also available on request.

D4N - 4 pole changeover 5A-250V AC - plug-in / solder terminals (2.2x0.5mm) D4P - 4 pole changeover 5A-250V AC - printed circuit terminals (1x0.5mm)

Double action button (Push-to-test /turn-tolock) and flag indicator fitted as standard. Standard contact material Ag-Ni 10%. Alternative materials available for specially agreed guantities.

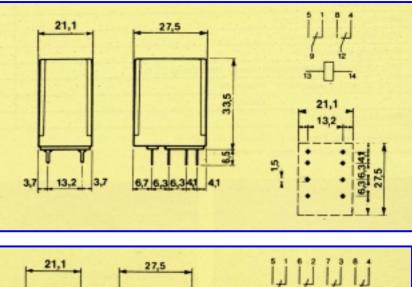
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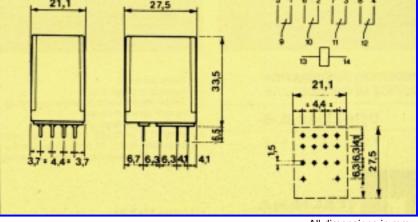
APPROVALS



SPECIFICATION Min. insulation resistance Insulation group (VDE 110) Enclosure classification Type of duty Max leakage current Mechanical life expectancy Max ops./hour @ no load Max ops./hour @ rated load Temperature range Storage temperature

 $10^4~M\Omega$ @ 500 VDC (all circuits) 1° Gr. B ~250 VAC IP 40 (IEC 144) Continuous 10 mA 10x10⁶ operations (AC / DC) 18000 (AC / DC) 1200 (AC / DC) -40 to +55° C -40 to +70° C 0 С 31 grams





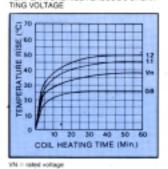
All dimensions in mm

Willow Technologies Ltd. Shawlands Court, Newchapel Road, Lingfield, Surrey, RH7 6BL, United Kingdom Tel (+44) 01342 835234 - Fax (+44) 01342 834306 - E-mail: sales@willow.co.uk - Web: http://www.willow.co.uk

COIL CHARACTERISTICS

Rated	DC		AC			
Voltage V	Rated Current mA	Resistance R Ω	Rated Current mA	Resistance R Ω	Reactance X Ω	Impedance Z Ω
6	150	40	250	10	21.8	24
12	75	160	125	38	88.2	96
24	38	640	63	150	350	381
48	18	2600	31	680	1390	1548
60	15	4000	-	-	-	-
110	8.1	13600	14	3100	7220	7857
230	-	-	6.5	13200	32830	35385
Resistanc	Resistance values at 20°C ambient temp. Tolerance on R, X and Z: <u>+</u> 10%					

TEMPERATURE RISE VERSUS DC OPERA-TING VOLTAGE



TEMPERATURE RISE VERSUS AC OPERA-TING VOLTAGE (50 Hz) Ę۲ 1000 SO 12 50 1.1 ERATURE 8 8 8

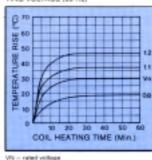
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COIL HEATING TIME (Min.)

C PL A

rated voltage

TEMPERATURE RISE VERSUS AC OPERA-TING VOLTAGE (60 Hz)



Minimum hold voltage: 80% of nominal (AC) Must release voltage: 20% of nominal (AC) 10% of nominal (DC) Thermic insulation class of winding (IEC 317): F (155°C) VARIATIONS OF POWER CONSUMPTION VERSUS AC OPERATING VOLTAGE (50-60 Hz)

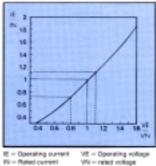
Power supply voltages: 6-12-24-48-110-230 VAC 6-12-24-48-60-110 VDC

0.9W (DC) ; 1.5 VA (AC)

- 20% to + 10% of nominal

Rated power:

Operating range:

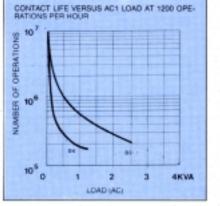


VN = rated voltage

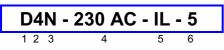
CONTACT CHARACTERISTICS	2 pole	4 pole			
Maximum power rating (AC1) :	2500	1250	VA		
Rated current :	10	5 A			
Rated voltage :	250	250	VAC		
Maximum switched voltage :	400	250	VAC		
Maximum instantaneous current ⁽¹⁾ :	20	10	А		
Switching power (DC1) :	Se	see diagram			
Maximum single-phase motor load ($\cos\phi 0.7 - 250VAC \max$.):	1/3	1/10	HP		
Initial contact resistance ⁽²⁾ : maximum	30	50	mΩ		
Standard	10	15	mΩ		
Standard material	Ag90% - CdO10%	Ag90% - Ni10%			

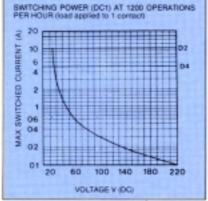
⁽¹⁾ Make & maintaining only - max. 0.5 sec.

⁽²⁾ Category of application (EN 60255) : 3

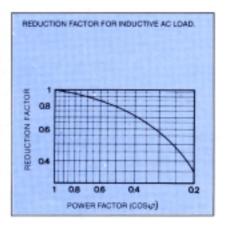


ORDERING INFORMATION





- 1 Relay Series: D
- 2 Number of poles: 2 or 4
- 3 Termination variant:
 - N = solder lugs / plug-in P = printed circuit
- 4 Coil supply voltage: AC or DC
- 5 Optional equipment: IL (LED indicator); DP (protection diode); DL (LED + diode); VM (grounding bolt).



- 6 Alternative contact materials:
 - None = standard material
 - 1 = Silver / Nickel (Ag-Ni 10%) 2 = Silver / Cadmium (Ag-CdÓ 15%)

 - 4 = Silver / Tin Oxide (Ag-SnO₂ 12%) 5 = Gold plated silver (Ag-Ni + 5μ Au)

Groups 5 & 6 of code are normally omitted, concerning special types available only on request for agreed quantities.

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