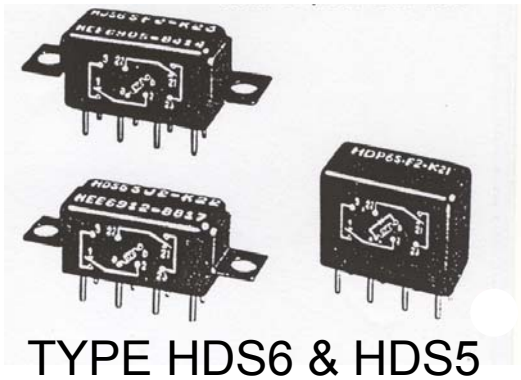
DATA SHEET

RELAY

The HDS6 half crystal can size, 2 pole changeover relay has been in U.K. production longer than any other comparable relay. Its all welded construction dynamically balanced armature, argon-arc welded seal and special resonance free contact system ensure satisfactory performance under extreme environmental conditions.
The finished relay is contaminant free; assured by ultrasonic cleaning, vacuum de-gassing, sealing into a stainless steel can by argon arc welding and filling of the relay enclosure with inert dry nitrogen.
The HDS5 relay is qualification approved to DEF 5165 and meets the requirements of MIL-R-5757D.
The HDS5 relay is essentially the same as HDS6 with the important difference that by the use of a new header assembly the overall height has been reduced to 0.410" to suit applications where very high component packaging density is necessary.

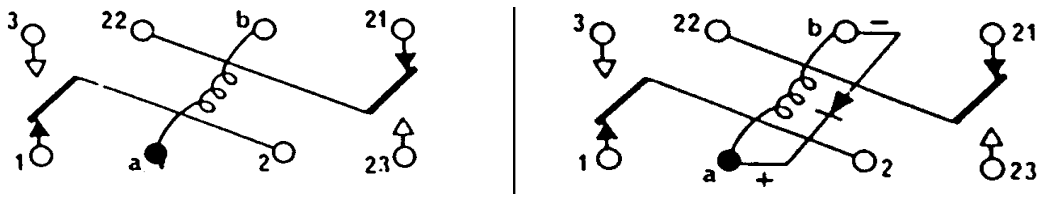


TYPE HDS6 & HDS5

2 Pole Changeover
Half Crystal Can Size

Special relays are available with coil transient suppression incorporated by the fitting of diodes. In this case polarity has to be observed when connecting the relay into circuit and this is indicated by the reference HDP6 and HDP5 respectively. As a result of incorporating diodes in this way release time, weight and overall height are slightly increased.

Schematic Diagrams



● = Blue bead

Technical Data

Standard Relay Identification

Letter	**K**	
Contact Form	2 Pole changeover (2PDT)	
Contact Material	Gold plated silver alloy	
Contact Rating/Life	2 Amps at 28 VDC resistive load, 10^5 operations 4 Amps at 28 VDC resistive, 10^4 operations. 1 Amp at 28 VDC, 400 Hz resistive load, 10^5 operations (case ungrounded) Low level, 10^6 operations	
Contact Resistance	50 mΩ initial, 100 mΩ after rated life	
Operate Time	4 ms max at 25°C with nominal voltage.	
Release Time	4 ms max at 25°C with nominal voltage. (not applicable to HDP5 and HDP6)	
Bounce Time	3 ms max.	
Insulation Resistance	Not less than 500 MΩ at 500 Volts.	
Dielectric Strength	750 VRMS at 50 Hz except 500 VRMS between open contacts and coil to case at sea level. 350 VRMS at 70,000 ft.	
Capacitance	Between open contacts	0.38 pF
	Between normally open contacts and case	1.50 pF
	Between normally closed contacts and case	2.50 pF
	Between contact sets	0.30 pF
	Between coil and case	22.00 pF

Data Sheet No
DSHDS- 0904

Design authority and manufacture by Barnbrook Systems Limited
Barnbrook Systems reserves the right to alter specifications and design without notice

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Quality Approvals
BS EN ISO 9001:2000
EASA Part 21 Subpart G
UK.21G.2069
EASA Part 145
UK.145.01008
BCAR A8-8
CAA DA1/9289/90
Q 11271

DATA SHEET

RELAY
TYPE HDS6 & HDS5

Temperature Range	-65°C to +125°C Ambient
Vibration	0.33 inch DA, 5 - 35 Hz, 20g, 35 – 3000 Hz.
Shock	50g, 11 milliseconds
Weight	HDS6 – 10 gm. Max HDS5 – 8 gm max (Style 21, other styles vary with brackets etc.)
Dimensions	See drawings on page 3
Coil Data	Minimum operate power – 220 milliwatts Power dissipation at nominal voltage – 800 milliwatts Maximum Permissible Coil Dissipation – 1.4 watts at 25°C 1.0 watt at 125°C

Standard Coil	H2	C2	E2	M2	F2	J2	G2
Nominal Operate voltage, VDC	4.5	6.3	12.6	18	26.5	32	48
Coil Resistance, ohms +/- 10% at 25°C	25	42	210	430	830	1300	2800
Maximum Pull-in voltage at 25°C	2.5	3.2	6.8	9.5	13.5	16.8	25.5
Minimum Drop-out votage at 25°C	0.2	0.3	0.6	1.1	1.0	1.4	2.5

DEF 5165, Style SM5U

HDS5 relays suitable for use with supply voltages as listed below are specified by the appropriate Style No. /Designation and NATO Stock Number. For performance characteristics, dimensional data, etc. reference should be made to the latest issue of DEF 5165.

Nominal Coil Operating Voltage	Relay Designation	NATO Stock Number
6.0	SM5U-N1	5945-99-014-2584
12.0	SM5U-N2	5945-99-014-2585
24.0	SM5U-N3	5945-99-014-2586
48.0	SM5U-N4	5945-99-014-2587

Mountings and Terminations

Details of standard mounting brackets, studs etc, and terminations are give on page 3.
Sockets are available for 'plug in' fitting.

Finish

The stainless steel can is finished with a black epoxy paint.
Identification is in white indelible ink.
HDS6 header and terminals are hot tin dipped.

Special Modifications

To contacts, operating characteristics, mountings, terminations, finish etc., may be obtained to special order. If your requirements are not satisfied by a standard relay consult your Barnbrook representative or contact our Sales Office.

HDP5 & HDP6

These are HDS5 and HDS6 relays respectively with diodes fitted to provide suppression of the transient back EMF which occurs when the relay is de-energised. The diodes used are of a type which will withstand the same arduous conditions as the relay in order that performance shall not be impaired.
Note that release time is increased to 8 milliseconds and overall height of the relay is increased to 0.600 in. Suppression is such that the back EMF does not exceed 5V.

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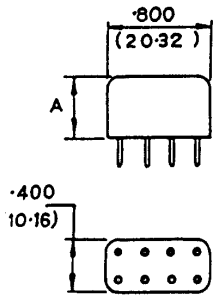
DATA SHEET

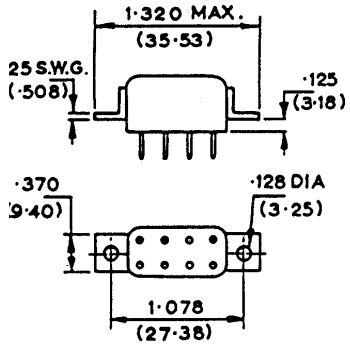
RELAY
TYPE HDS6 & HDS5

DIMENSIONS AND MOUNTING STYLES

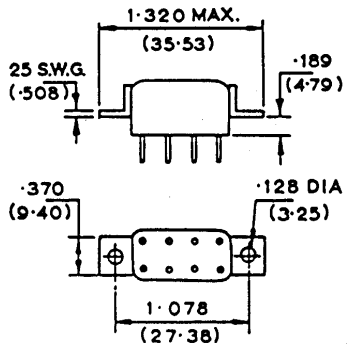
STYLE 21



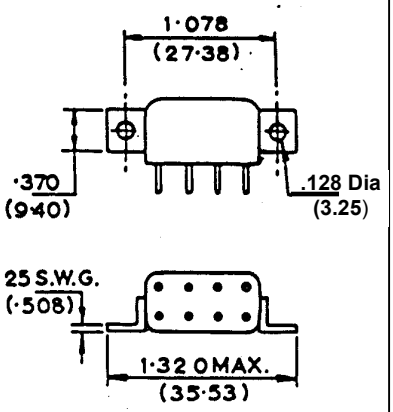
STYLE 22



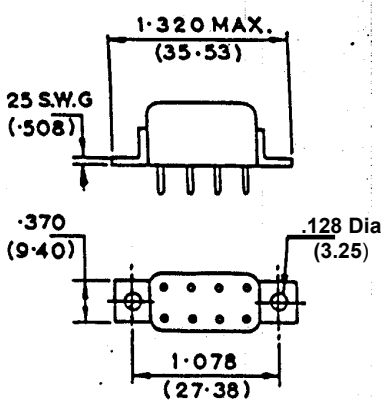
STYLE 23



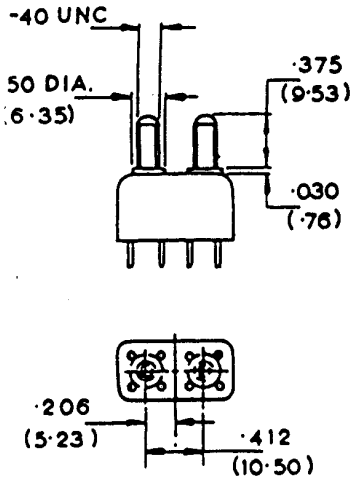
STYLE 24



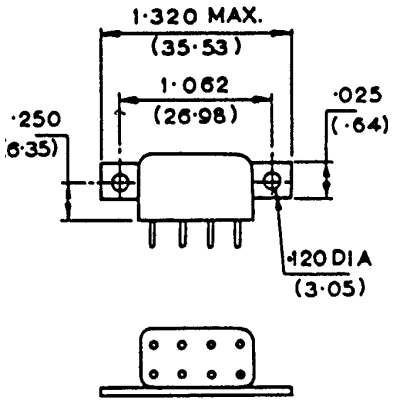
STYLE 25



STYLE 26



STYLE 30



Relay Type	Dimension 'A'	
	In.	mm
HDS5	0.410	10.41
HDS6	0.460	11.68
HDP6	0.600	15.30
HDS7	0.460 max	11.68

Notes :

1. HDS7 Identical except for the number of terminals.
2. Dimensions in brackets are millimetres.
3. Dimensions shown in style 21 are applicable to all styles.
4. This is a selection of mounting styles in common use. Alternative styles are available. If your requirements are not met by one of those shown please contact our Sales Department.

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Quality Approvals
BS EN ISO 9001:2000
EASA Part 21 Subpart G
UK.21G.2069
EASA Part 145
UK.145.01008
BCAR A8-8
CAA DA1/9289/90
Q 11271