

BRITISH STANDARDS INSTITUTION

2, PARK STREET, LONDON, W1A 2BS.

BS CECC.16 101-001
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Specification available from:

AS SHOWN IN PD9002 AND

HELLERMANN DEUTSCH LIMITED

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ELECTRONIC COMPONENTS OF ASSESSED QUALITY. DETAIL SPECIFICATION IN ACCORDANCE WITH

BS CECC 16000: 1980 and

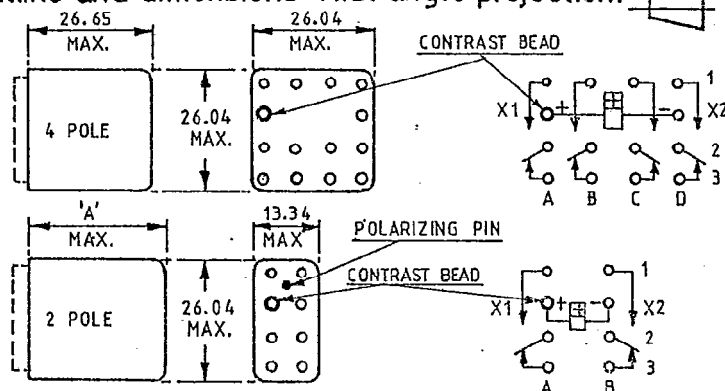
BS CECC 16100: 1980

MANUFACTURER'S TYPE NUMBER.

HDS 11 SERIES

HDS 12 SERIES

Outline and dimensions. First angle projection.



COIL VARIANTS 01, 02, 03, 04 AND 05, 'A' = 26.65 MAX.

COIL VARIANTS 06 A = 28.6 MAX.

ALL DIMENSIONS ARE IN MILLIMETRES

MOUNTING AND TERMINATION VARIANTS ARE SHOWN IN APPENDICES 1 AND 2.

MARKING INFORMATION. SEE CLAUSE 7.

SEE PD9002

and/or CECC 00 200

ELECTROMECHANICAL-ALL-
OR NOTHING RELAY.

POLARIZED MONOSTABLE
HERMETICALLY SEALED
WITH INTERNAL ARC
BARRIERS.

HOOKE OR STRAIGHT
TERMINATIONS.

CLIMATIC CATEGORY
70/125/56

Test Schedule: 3

1. COIL:

Nominal Coil Voltage	Resistance at 25°C Ohms (Min/Max)		Max Coil Current A		Test Voltage kV	Coil Variant Code	
	2 POLE	4 POLE	2 POLE	4 POLE		2 POLE	4 POLE
6Vdc	18/22	16/22	0.34	0.38	1.0 a.c.r.m.s	01	11
12Vdc	72/88	63/77	0.17	0.19	"	02	12
28Vdc	288/352	261/319	0.11	0.11	"	03	13
48Vdc	878/1050	778/1050	0.06	0.06	"	04	14
110Vdc	4500/5810	4410/5500	0.027	0.027	"	05	15
115Vac/400Hz			0.04	0.04	"	06	16

2. CONTACTS:

Type	Category	Continuous Contact Current A	Contact Voltage V	Test Voltage kV
2 & 4 POLE change over	III	10	28 V dc and 115 V ac 400Hz	1.00 ac rms

3. Limiting conditions of use (not for inspection purposes).

Temperature Range: -70°C to $+125^{\circ}\text{C}$

Shock 1960 m/s^2 , 6 ms ($\frac{1}{2}$ sine)

Vibration 10 - 60 Hz - 2 mm amplitude

60-3000 Hz - 294 m/s^2

Acceleration 490 m/s^2

Bump 390 m/s^2 , 6 ms

4000 Bumps (total)

Refer to Qualified Products List PD 9002 and/or CECC 00200 for details of
Manufacturers approved to this specification.

(RELAY1/101001/2)

1.0 RELATED DOCUMENTS:

BS 6001 : 1972	Sampling Procedures and tables for Inspection by Attributes
BS CECC 16000 ; 1980	Generic Specification . Electromechanical All-or-Nothing Relays
BS CECC 16100 : 1980	Sectional Specification Electromechanical All or Nothing Relays.
BS 9000 :	Specification for General Requirements for Electronic Components of Assessed Quality.
IEC 68.2.17 : 1978	Basic Environmental Testing Procedures for Electronic Components and Electronic Equipment, Part 2 : Tests - Test Q : Sealing.
PD 9002 :	BS 9000 Component Selection Guide
CECC 00 200 : 1980	Qualified Products List

2.0 CHARACTERISTIC VALUES: (at 25°C)

2.1 Coils

TABLE 1 OPERATING CHARACTERISTICS

RATED VOLTAGE	RELEASE VALUE	OPERATE VALUE	NON OPERATE VALUE
6 V d.c	0.3 V d.c	3 V d.c	1 V d.c
12 V d.c	0.7 V d.c	6 V d.c	2 V d.c
28 V d.c	1.4 V d.c	14 V d.c	5 V d.c
48 V d.c	2.5 V d.c	24 V d.c	8 V d.c
110 V d.c	6.5 V d.c	55 V d.c	18 V d.c
115 V a.c/400Hz	6.5 V a.c/400Hz	75 V a.c/400Hz	25 V a.c/400Hz

Additional Information not for Inspection purposes.

RATED VOLTAGE	RELEASE VALUE		OPERATE VALUE +125°C
	-65°C	+125°C	
6 V d.c	0.2 V d.c	2 V d.c	3.9 V d.c
12 V d.c	0.5 V d.c	4 V d.c	7.7 V d.c
28 V d.c	1.5 V d.c	7 V d.c	18 V d.c
48 V d.c	2.0 V d.c	14 V d.c	31 V d.c
110 V d.c	5.0 V d.c	30 V d.c	70 V d.c
115 V a.c/400Hz	5.0 V a.c/400Hz	30 V a.c/400Hz	95 V a.c/400Hz

2.0 CHARACTERISTIC VALUES (Continued):

2.2 Contacts

TABLE 2 RATED CONTACT LOAD (CASE GROUNDED)

TYPE OF LOAD	28 V.d.c.		115 V.a.c. 400 Hz	
	LIFE OPERATING ₃ CYCLES X 10 ³	LOAD AMP	LIFE OPERATING ₃ CYCLES X 10 ³	LOAD AMP
Resistive	100	10	100	10
Inductive	10	8	20	8
Motor	100	4	100	4
Lamp	100	2		

Contact circuit volt drop .150 V. (initial)
at 10 amps:- .175 V. (During and after rated Life)

Contact:- Operate time 15 m.sec.
Release time 15 m.sec. (d.c. coil)
50 m.sec. (a.c. coil)
Bounce time 5 m.sec.

3.0 FORMULATION OF INSPECTION LOTS:

Inspection Lots shall be formed in accordance with BS CECC 16100 paragraph 3.4.

4.0 INTERVALS BETWEEN TESTS:

Sub-Groups C1, C2, C3, C4 and C6 shall be tested 1 year after Qualification Approval and Sub-Group C5 tested two years after Qualification Approval. Thereafter at two yearly intervals.

5.0 QUALIFICATION APPROVAL:

For Qualification Approval see Table 4.

6.0 QUALITY CONFORMANCE INSPECTION:

For Quality Conformance Inspection See Table 3.

With the exception of Sub-Group AO, where a sub-group contains more than one test the order of tests is mandatory.

Samples subjected to destructive tests (D) shall not be released for delivery.

7.0 MARKING OF RELAYS AND PACKAGE:

Relays and their package supplied in accordance with this detail specification shall be marked as follows:-

7.1 Relay

- trade mark or manufacturer's name
- relay type and variants code (see 7.3)
- coded date of manufacture, to at least the nearest month
- (any further necessary marking)

7.2 Package

- detail specification reference
- trade mark or manufacturer's name
- relay type code
- manufacturer batch identification code
- quantity
- (any further necessary marking)

7.3 Code Number

The relay code number shall consist of the specification number and digits in the order as follows:-

Two digits for coil variant	(see page 1)
Two digits for mounting variant	(see appendix 1)
Two digits for termination variant	(see appendix 2)

8.0 APPENDICES:

- 1 Mounting Variants
- 2 Termination Variants
- 3 Details Electrical Endurance Test

9.0 INSPECTION REQUIREMENTS:

9.1 Standard conditions for testing applicable to all tests unless otherwise specified.

9.1.1 Atmospheric conditions as BS CECC 16 000 paragraph 5.5.1.

9.1.2 Properties of supply and connections as BS CECC 16 000 paragraphs 5.5.2 to 5.5.4.

9.1.3 Where mounting is required for particular tests, the relay shall be mounted by fixing arrangements provided on the relay housing.

10.0 ORDERING INFORMATION:

Orders for components to this specification shall include the following information:

- 1) Quantity.
- 2) BS CECC No. Code number, (see 7.3) and Issue number of this specification.

NOTES:

- 1) Condition of tests are prescribed in detail once only, later on they are referred to as Test Number.
- 2) Reference numbers of tests and performance requirements refer to BS CECC 16 000.
- 3) Contact loading for bump, shock, vibration and acceleration tests shall not exceed 12 V. open circuit voltage and current 10 mA. A discontinuity shall be regarded as a circuit resistance in excess of 10,000 ohms occurring for periods greater than 10 microsecs.

Where it is required the coil should be energised the rated coil voltage as specified in Table 1 shall be used, unless otherwise stated.

TABLE 3 QUALITY CONFORMANCE INSPECTION REQUIREMENTS

TEST NO	EXAMINATION OR TEST	CONDITIONS OF TEST See Note 2	IL	AQL	PERFORMANCE REQUIREMENTS
GROUP A INSPECTION					
Sub-group A0					
1.	Visual inspection, marking	5.6.4.(1) and (2)	100 %		Present and legible
4.	Functional Tests	5.13 (1) Energising values as Table 1 of this specification (2) Order of steps:- a) Non operate value b) Operate value c) Rated value d) Release value (5) Applied to new relays (7) The condition of the contacts shall be monitored with a suitable indicating instrument or an electrical circuit, with an open circuit voltage and closed circuit current not exceeding the maximum contact ratings.	100 %		Presence of the function
5.	Dielectric Test	5.9 (1) a) Terminals of each contact circuit. In operate and non-operate conditions. b) All contact terminals connected together and case. c) Coil terminals connected together and case and contact terminals connected together d) Terminals of separate contact circuits (2) 1000 V.r.m.s (3) Duration: 1 sec. or 1 min. NB If the test voltage is applied for 1 sec. the specified voltage shall be increased by 10%.	100 %		No breakdown, no flashover

TEST NO	EXAMINATION OR TEST	CONDITIONS OF TEST See Note 2	IL	AQL	PERFORMANCE REQUIREMENTS
6	Sealing	5.2.0.2 1.1) Method 2 Test Qk of IEC 68.2.17 3a) Tracergas: helium mixture containing 95% helium minimum 3b) Pressure: 2 bar 3c) Time: 70 mins 3d) Removal of surface tracer gas: dry gas blowing. 3e) Recovery duration: 30 mins maximum. 1.2) Test Qc method 1 of IEC 68-2-17 at ambient temp.	100 %		Method 2. 10^{-8} mbar l/s Measured helium leak Method 1, no visible leakage
Sub-Group A1					
9	D.C. Coil Resistance (D.C. Coils only)	5.8.1 (2) 25°C	I	1%	Resistance as page 1
10	Coil Burden (A.C. Coils only)	5.8.3 (1) Method 2, Fully energised	I	1%	Burden 2 Pole:-1.15VA 4 Pole:-2.6VA Limits $\pm$ 15%
Sub-Group A2					
13	Check of Dimensions	5.6.1 (1) See Appendices 1 and 2 of this specification	S4	1%	Dimensions as specified
Sub-Group A3					
14	Visual inspection, other than marking	5.6 (5) Workmanship and finish	II	1%	Free from external damage or defects