

## REFERENCE CELLS



D-845-A



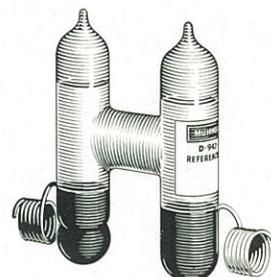
D-845-C



D-845-D



D-845-F



D-942-C

THESE cells are characterized by a negligible temperature coefficient, ensuring a constant e.m.f. over a wide range of temperature, and a negligible hysteresis effect, enabling the cell to rapidly reach stability after a change of temperature.

Connexions are made to the cell electrodes by means of flexible p.v.c. covered wires soldered to the platinum lead-out wires, the p.v.c. sleeving being coloured red and black to denote polarity. The base of the cell limbs, including the soldered junctions, are plastic-coated to secure the leads against vibration.

The final test is made at 25°C for both e.m.f. and internal resistance; the positive limb is then labelled with the serial number and the date of test. According to customer requirements, each cell is provided with a certificate of test or tie-on tag giving the actual voltage on final test at 25°C, to an accuracy of 0.01%.

## TYPES AVAILABLE

**D-845 REFERENCE CELL**

Several versions of this cell are available, the complete range covering a variety of applications.

The basic cell, which is an unmounted type, is the D-845-C; external connexions are made by means of 9 inch flexible leads.

Two standard mounted versions are available: the D-845-A and the D-845-D. The dimensions of the container of the D-845-A, and the mounting centres, enable the unit to be used as a direct replacement in many instruments of American design. Three soldering tags, for external connexions, are provided on one side of the container. Two of the tags are engraved + and - respectively, and are connected internally to the cell. The third tag is spare, being provided for the mounting of a series limiting resistor, if required. The dimensions of the D-845-D are slightly smaller than those of the D-845-A; also, there are only two tags fitted.

Another version of the D-845, the D-845-D/1, is intended for applications in which a close-tolerance e.m.f. is required.

The tolerance on the e.m.f. ( $\pm 100\mu\text{V}$ ) compares favourably with that of the other models.

For those applications which call for precisely known voltages greater than the normal e.m.f., the D-845-E is especially useful. The unit consists of nine D-845-C cells connected in series, the overall e.m.f. being in the range 9.170 to 9.177 volts absolute.

Finally, for those applications in which the cell is frequently connected and disconnected, e.g. in technical colleges, the D-845-F has screw-terminals for external connexions, as opposed to the normal solder tags.

**D-942-C REFERENCE CELL**

This is an unmounted cell that has the same e.m.f. as the D-845-C. Its internal resistance, however, is less than half that of the D-845-C, being an average of 300 ohms as opposed to 800 ohms. The cell has a large capacity and is especially suitable for applications in which a small, steady current is taken, as the low internal resistance reduces voltage drop to a minimum.

## SPECIFICATION

The guaranteed accuracy of e.m.f. on the Test Certificate is 0.01% for all models; the temperature coefficient is less than  $\pm 5\mu\text{V}/^\circ\text{C}$  over the range  $10^\circ\text{C}$  to  $40^\circ\text{C}$ .

Type	Manufacturing Tolerance of E.M.F. at 20°C (volts abs.)	Internal Resistance (ohms)	
		Average	Maximum
D-845-A	1.0191 to 1.0195	800	1200
D-845-C	1.0190 to 1.0196		
D-845-D	1.0191 to 1.0195		
D-845-D/1	1.0192 to 1.0194		
D-845-E	9.170 to 9.177	7200	10800
D-845-F	1.0191 to 1.0195	800	1200
D-942-C	1.0190 to 1.0196	300	500

## DIMENSIONS

TYPE	HEIGHT		WIDTH		DEPTH		WEIGHT	
	in	cm	in	cm	in	cm	oz	g
D-845-A	4.312	10.95	1.437	3.65	$\frac{7}{8}$	2.22	3.5	100
D-845-C	$2\frac{11}{16}$	6.82	$1\frac{1}{16}$	2.70	0.425*	1.08*	1.25	35
D-845-D	3.437	8.73	1.437	3.65	1.0	2.54	3.0	85
D-845-D/1								
D-845-E	4.1	10.4	2.3	5.85	2.3	5.85	17.5	500
D-845-F	$3\frac{13}{16}$	10.0	1.437	3.65	$\frac{13}{16}$	2.06	3.4	95
D-942-C	$2\frac{3}{4}$	7.0	$2\frac{3}{8}$	5.4	$\frac{5}{8}$ *	1.58*	2.5	70

\* Diameter of tubes

