



CERTIFICATE OF EXAMINATION OF

RESISTANCE BRIDGE NO. 32 978 N 60 186,
FOR USE WITH STEEL SURVEYING TAPES.

TESTED FOR:-

COMMONWEALTH OF AUSTRALIA,
AUSTRALIA HOUSE,
STRAND,
LONDON, W.C.2.

MAKERS:-

MESSRS. H. TINSLEY & CO.

REFERENCE:-

ORDER NO. 5 910/6 644, DATED 22.4.38.

The instrument is a modification of a Kelvin Double Bridge and consists of four 100 ohm coils which form two pairs of proportional arms, together with a decade resistance which is adjustable between 5 and 15 ohms in steps of 0.001 ohm.

A 10 ohm standard resistance, provided with terminals similar to those fitted to the tape-ends, is contained in the instrument, to enable the accuracy of the bridge to be verified at the 10 ohm setting.

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C. G. DARWIN,
Director.

Date. 30th December, 1938.

Reference E.T.D.197.14.
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Superintendent Electricity Department.

A Laboratory Certificate, Statement or Report may not be published except in full, unless permission for the publication of an approved abstract has been obtained, in writing, from the Director.

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Adjustable Decade Resistance.

Dial.	Coil.	Resistance: International Ohms		
		at 50°F.	at 68°F.	at 86°F.
"X by 1"	5	4.999	5.001	5.003
	6	5.999	6.001	6.003
	7	6.998	7.001	7.003
	8	7.998	8.001	8.003
	9	8.998	9.001	9.003
	10	9.997	10.001	10.004
	11	10.997	11.001	11.004
	12	11.997	12.001	12.004
	13	12.996	13.001	13.004
	14	13.996	14.001	14.004
	15	14.996	15.001	15.004

Dial.	Coil.	Resistance: International Ohms	
		at 50°F.	at 68°F. and 86°F.
"X by 0.1"	1	0.100	0.100
	2	0.200	0.200
	3	0.300	0.300
	4	0.400	0.400
	5	0.499	0.500
	6	0.599	0.600
	7	0.699	0.700
	8	0.799	0.800
	9	0.899	0.900
	10	0.999	1.000

Coil	Resistance: International Ohms at 50°F., 68°F. and 86°F.	
	"X by 0.01"	"X by 0.001"
1	0.010	0.001
2	0.020	0.002
3	0.030	0.003
4	0.040	0.004
5	0.050	0.005
6	0.060	0.006
7	0.070	0.007
8	0.080	0.008
9	0.090	0.009
10	0.100	0.010

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Proportional Arms.

Coil.	Resistance: International Ohms		
	at 50°F.	at 68°F.	at 86°F.
Outer dividing arm	99.97	100.01	100.03
Inner dividing arm	99.97	100.01	100.03
Outer multiplying arm	99.96	100.00	100.02
Inner multiplying arm	99.96	100.00	100.02

The value given for each multiplying proportional arm includes the resistance of its flexible connecting lead, viz. 0.10 ohm.

10 Ohm Standard Resistance.

Testing Current: Amperes.	Resistance: International Ohms.		
	at 50°F.	at 68°F.	at 86°F.
0.1	9.998	10.000	10.001

The prescribed order of accuracy of the values of resistance given in this Certificate is as follows:-

For the adjustable decade resistance: to the nearest 0.001 ohm.

For the proportional arms and the 10 ohm standard resistance } 0.01%.

This resistance bridge has been set up and used in connection with four 50 metre Steel Surveying Tapes, which have been tested at the Laboratory and for which a separate Certificate of Examination (dated 30th December, 1938, reference M.T.49-84) has been issued.

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Notes.

The connecting leads used with the instrument consist of 2.5 yards of 14/0.0076 inch (0.0006 sq.in.) twin flexible cord, of which the resistance of each cord is 0.10 ohm.

The lead used for connecting the tapes in series consists of 14/0.0076 (0.0006 sq.in.) twin flexible cord, having a total length, including the lead-ends, of 9 inches, and a resistance, with the two cords connected in parallel, of 0.005 ohm.

A diagram of the circuit is shown in the National Physical Laboratory drawing No.D.990 fixed to the lid of the instrument.

C. G. DARWIN,
Director.

Date: 30th December, 1938.

Reference: E.T.D.197.14.
AKR

Superintendent Electricity Department.