

Catalogue  
Number

★11308 to 11310. "SCALAMP" ELECTROSTATIC VOLTMETER. The moving system is a light vane mounted on a robust taut suspension of the galvanometer type. A high-voltage electrode is placed near the vane; application of voltage between the two causes the vane to rotate, and a light beam reflected from a mirror attached to the vane converts the rotation into movement of a spot on the scale. All components are built into a functional plastic case which is sealed against the ingress of dust. No levelling is required. The lamp operates from 200-250 volts A.C. or 4-volt battery. (See Cat. No. 8565.)

The following ranges are available at present:

Cat. No. 11308. 1-5 kV A.C. or D.C.

Cat. No. 11309. 3-10 kV A.C. or D.C.

Cat. No. 11310. 5-12 kV A.C. r.m.s. and 5-18 kV D.C.

Accuracy: D.C.,  $\pm 2\%$  of full scale. When used to measure A.C. voltages the accuracy may be slightly lower.

†(12" × 10" × 9"—7 lb.)

★11320 "SCALAMP" MEGOHM-PER-VOLT D.C. VOLTMETER. Taut suspension reflecting voltmeter with built-in optical system and scale. Mounted in plastic case with anti-vibration feet. 14 cm. ( $5\frac{1}{2}$ ") scale traversed by light-spot with fine hairline.

Scale calibrated in two ranges, 0-10, 0-30.

Range switch giving ranges of 0.01, 0.03, 0.1, 0.3, 1.0, 3.0, 10, 30, 100 and 300 volts, full scale.

The range multiplier switch and associated high-stability resistors are sealed in a desiccated box ensuring stability. The movement is automatically shorted when the instrument is lifted off the bench. Light-spot supply from 200-250 volt A.C. mains, via built-in transformer or from external 4-volt battery. May be used with positive or negative terminal earthed on any range. (See Cat. No. 8565.)

†(12" × 10" × 9"—8 lb.)

★7905/S and 7906/S "SCALAMP" D.C. MICROAMMETER. Taut suspension reflecting microammeter built-in optical system and scale. 14 cm. scale traversed by a light spot with fine hairline. Mounted in plastic case with anti-vibration feet. Six-position switch gives five degrees of sensitivity with critical damping and shorted position. Slow motion drive to set-zero head. Automatic shorting foot for transport. Spotlamp bulb easily interchanged, operates from 200-250 volt A.C. mains via built-in transformer or from external 4-volt battery.

†(12" × 10" × 9"—6 lb.)

## SPECIFICATION

Model	Volt drop at f.s.d.		Sensitivity	
	(m.u.)	(mV/μA)	(μA.f.s.d.)	
7905/S	2.295	9.33	15	
7906/S	20.52	140	1	

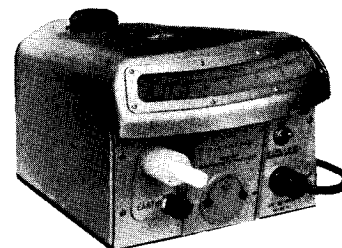
★ DESCRIPTIVE LEAFLET AVAILABLE.

† Approximate size and weight of instrument in protective wrapping.

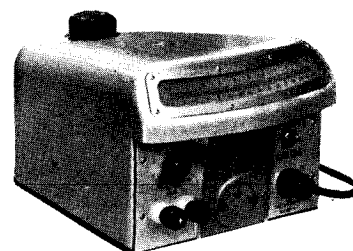
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## SECTION II

### GALVANOMETERS ELECTROMETERS AND ACCESSORIES



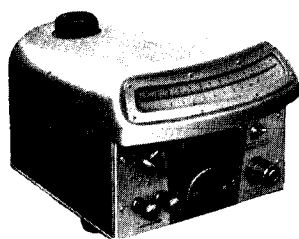
11310 "SCALAMP" ELECTROSTATIC VOLTMETER



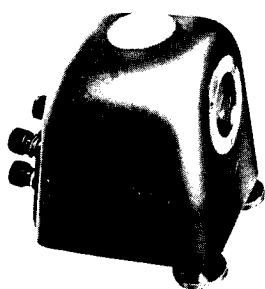
11320 "SCALAMP" MEGOHM-PER-VOLT VOLTMETER

## SECTION II

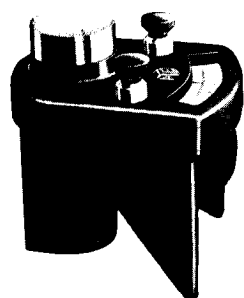
### GALVANOMETERS ELECTROMETERS AND ACCESSORIES



7901/S "SCALAMP" GALVANOMETER



7890-7893 TAUT SUSPENSION  
7901-7904 REFLECTING GALVANOMETER



7910 TAUT SUSPENSION POINTER  
GALVANOMETER

# SCIENTIFIC INSTRUMENTS

With the exception of Cat. No. 8000, all of these galvanometers are of the moving-coil type.  
All performance figures given are approximate.

Catalogue  
Number

★7890/S to 7893/S

★7901/S to 7904/S

**"SCALAMP" GALVANOMETERS.** Taut suspension reflecting galvanometer with built-in optical system and scale. Levelling is not critical. Mounted in robust plastic case with anti-vibration feet. 14 cm. scale graduated in millimetres with side and centre zero. Six-position switch providing direct and shorted positions and four degrees of sensitivity with critical damping. Special slow motion drive to set zero head. Fitted with automatic shorting foot for transport. Spotlamp bulb removable without opening case; operates from 200-250 volt A.C. mains via built-in transformer or from external 4-volt battery. (See Cat. Nos. 7908, 8260, 8565.)

†(12" × 10" × 9"—6 lb.)

#### SPECIFICATION (7890/S-7893/S)

	Resistance (ohms)	Period (sec)	Critical damping resistance (ohms)	Min. Sensitivity (mm/μA) (mm/μV) (μA/mm)
7890/S	23	2	10	12 0.522 0.0816 Direct
7891/S	25	2	100	20 0.80 0.05
7892/S	90	2	1000	65 0.723 0.0154
7893/S	900	2	10000	210 0.233 0.0048

Sensitivity switch for the above gives Direct, × 1, × 0.1, × 0.01, × 0.001, and shorted positions, except for Cat. No. 7890/S which has Direct, × 0.1, × 0.01, × 0.001, and shorted positions. Cat. No. 7890/S fitted with special manual clamp. Sensitivity figures are for × 1 range except for 7890/S.

#### SPECIFICATION (7901/S-7904/S)

	Resistance (ohms)	Period (sec)	Critical damping resistance (ohms)	Sensitivity (mm/μA) (mm/μV) (μA/mm)
7901/S	24	2	230	16 0.67 0.0625
7902/S	110	2	1450	40 0.36 0.025
7903/S	420	2	7500	90 0.21 0.011
7904/S	1400	2	25000	180 0.13 0.0055

Sensitivity switch for the above gives Direct, × 1, × 0.05, × 0.01, × 0.001 and shorted.

7890 to 7893

7901 to 7904

**TAUT SUSPENSION REFLECTING GALVANOMETERS.**

Mounted in aluminium housings finished in grey enamel. Four terminals providing (1) direct connection, (2) critical damping with full sensitivity, or (3) critical damping with 0.01 sensitivity. Plane mirror and lens window of 1 metre working distance. (A special Double Tapping Key, Cat. No. 8420 and the Lamp, Scale and Stand outfit, Cat. No. 8122, are recommended for use with this type of galvanometer.)

†(6½" × 6½" × 4½"—4½ lb.)

#### SPECIFICATION

	Resistance (ohms)	Period (sec)	Critical damping resistance (ohms)	Sensitivity (at 1 metre radius) (mm/μA) (mm/μV) (μA/mm)
7890*	21	2	10	60 2.86 0.017 Direct
7891	23	2	100	100 5.35 0.01
7892	77	2	1000	330 4.63 0.003
7893	840	2	10000	1050 1.36 0.0009
7901	22	2	230	80 3.6 0.0125
7902	100	2	1450	200 2.0 0.005
7903	400	2	7500	450 1.1 0.0022
7904	1300	2	25000	900 0.69 0.0011

\* No shunt fitted to Cat. No. 7890. Sensitivity figures for 7890-7893 are minimum values.

**8245 to 8256 PHOSPHOR-BRONZE SUSPENSION STRIP.** In metre lengths wound on brass bobbins.

Range	Approximate Breaking Strain	Torque Con- stant in dyne cm per radian per cm length	Range	Approximate Breaking Strain	Torque Con- stant in dyne cm per radian per cm length
8245	14 grams	0.0216	8251	55 grams	0.212
8246	16 grams	0.033	8252	65 grams	0.376
8247	18 grams	0.044	8253	90 grams	0.847
8248	25 grams	0.0595	8254	105 grams	1.50
8249	28 grams	0.087	8255	180 grams	3.37
8250	40 grams	0.135	8256	300 grams	13.50

★ DESCRIPTIVE LEAFLET AVAILABLE.

† Approximate size and weight of instrument in protective wrapping.

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# SCIENTIFIC INSTRUMENTS

Catalogue  
Number

**7908 REPAIR KIT FOR "SCALAMP" GALVANOMETERS** (Cat. Nos. 7901/S and 7904/S). Comprising spool of phosphor-bronze strip 2 metres long, glass tube containing flexible shellac, special bridge and associate weight, coil and mirror assembly holder and detailed instruction leaflet. Strip and shellac sufficient for six re-suspensions. (The kit may also be used to repair suspensions of Cat. Nos. 7901 to 7904.) †(4½" × 3" × 2"—1 lb.)

**7910 TAUT SUSPENSION POINTER GALVANOMETER.** A low-priced instrument which is particularly robust, having been specially designed for students' use. No critical levelling is called for. The standard scale of 50 divisions has a centre zero. Illustrated on page 4. †(5½" × 5" × 3½"—2½ lb.)

## SPECIFICATION

	Resistance (ohms)	Period (sec)	Aperiodic	Sensitivity (div/μA)	(div/μV)
7910	84	2		1	0.01

## ★7923 ULTRA SHORT PERIOD REFLECTING GALVANOMETER.

The coil of this instrument is similar to that described by Professor A. V. Hill in the Journal of Scientific Instruments for July 1948. The period can be shortened by suitable optical-electronic feedback methods. The instrument is robust, is fitted with shock-absorbing feet, plane mirror and lens window of 1 metre working distance. A typical specification provides a resistance of 48 ohms, a response time of 10 millisecc with a critical damping resistance of 120 ohms, and a sensitivity at 1 metre radius of 2 mm/μA and 0.04 mm/μV. †(8" × 6" × 5"—5½ lb.)

## ★7940 to 7944 FREELY SUSPENDED REFLECTING GALVANOMETERS.

Long-period instruments suitable for ballistic measurements, or for sensitive current measurements when critically damped. Fitted with a spirit level, three levelling feet, coil clamping device, plane mirror and lens window of 1 metre working distance. (Lamp, Scale, and Stand outfit, Cat. No. 8122 is recommended for use with this type of Galvanometer.) †(8" × 6" × 5"—4 lb.)

## SPECIFICATION

	Resistance (ohms)	Period (sec)	Critical damping resistance (ohms)	Sensitivity (at 1 metre radius)	(mm/μA)	(mm/μV)	(mm/μC)	(μA/mm)
7940	12	7	75	320	27	360	0.0031	
7941	25	7	210	340	13.5	380	0.0029	
7942	100	7	650	650	6.5	700	0.0015	
7943	400	7	3000	1140	2.8	1200	0.00087	
7944	1800	9	23000	6000	3.3	4500	0.00017	

## 7971 to 7976 FREELY SUSPENDED POINTER GALVANOMETERS.

The very high sensitivity of these instruments makes them suitable for applications where a pivoted meter is inadequate, or the sensitivity required does not justify the expense of a reflecting type. Automatic coil-clamping device. Spirit level and two levelling feet. The scale of 80 divisions has a centre zero. Cat. Nos. 7975 and 7976 have formerless coils for ballistic use.

†(6½" × 5" × 5"—3½ lb.)

## SPECIFICATION

	Resistance (ohms)	Period (sec)	Critical damping resistance (ohms)	Sensitivity (div/μA)	(div/μV)
7971	12.5	6.5	210	10	0.80
7974	1300	6.5	24000	85	0.065

## SPECIFICATION

	Resistance (ohms)	Period (sec)	Critical damping resistance (ohms)	Sensitivity (div/μA)	(div/μV)	Log (div/μC) dec.
7975	100	8	1300	20	0.2	18
7976	700	8	11500	55	0.08	45

**8000 TANGENT GALVANOMETER.** With windings of 2, 50, and 500 turns wound on insulated metal bobbin of 6 inches diameter. Mounted on revolving base fitted with levelling screws. Complete with removable compass box Cat. No. 9110.

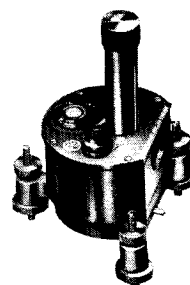
†(9" × 6" × 6"—4 lb.)

## SECTION II

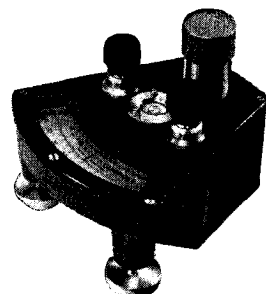
### GALVANOMETERS ELECTROMETERS AND ACCESSORIES



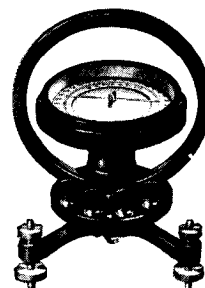
7923 ULTRA SHORT PERIOD  
REFLECTING GALVANOMETER



7940-7944 REFLECTING GALVANOMETER



7971-7976 POINTER GALVANOMETER



8000 TANGENT GALVANOMETER

★ DESCRIPTIVE LEAFLET AVAILABLE

† Approximate size and weight of instrument in protective wrapping.

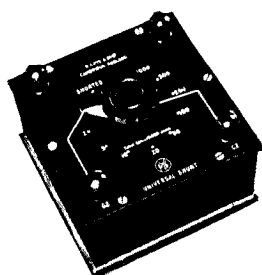
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CATALOGUE K

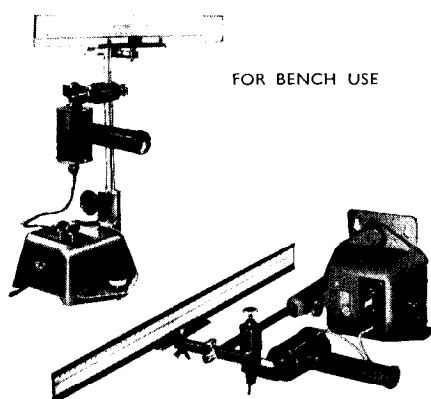
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## SECTION II

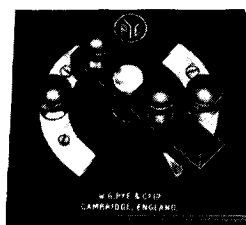
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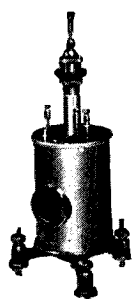
8207 GALVANOMETER SHUNT



8122 LAMP, STAND AND SCALE OUTFIT



8540 M.I.P. REVERSING KEY



8630 QUADRANT ELECTROMETER

# SCIENTIFIC INSTRUMENTS

Catalogue  
Number

**8207 GALVANOMETER SHUNT (AYRTON-MATHER UNIVERSAL).**  
Shunt powers of 1000, 500, 200, 100, 50, 20, 10, 5, 2, and 1, with "shorted" position. Total resistance 10,000 ohms. Manganin coils. Accuracy  $\pm 0.5\%$ .  
†(6" × 6" × 4"—2 lb.)

**8122 UNIVERSAL LAMP, STAND AND SCALE OUTFIT.** This can be used on a bench or attached to a wall. Moreover, it can be operated from A.C. mains 200–250 volt supply or from a 4-volt battery. The lamp is fitted with a 4-volt 1 amp bulb and the optical system is fitted with a hair-line and pointer. (See Cat. No. 8565.)  
†(22" × 8" × 8"—8½ lb.)

**8260 SPARE PHOSPHOR-BRONZE SUSPENSION STRIP** for Galvanometers Cat. Nos. 7901 to 7904, 7901/S to 7904/S ("Scalamp"). In metre lengths wound on brass bobbins.

**8420 GALVANOMETER TAPPER KEY.** Two single-contact keys with one terminal common. Gold-silver contacts. Ebonite base. Suitable for use with Galvanometers Cat. Nos. 7901 to 7904.  
†(6" × 6" × 2"—1 lb.)

**8531 PRESS KEY.** Single tapper with gold-silver contacts. Ebonite base.  
†(6" × 3" × 2"—½ lb.)

**8540 M.I.P. REVERSING KEY.** Two terminals on insulated arm and one each on the two contact arcs. Laminated brushes. Ebonite base.  
†(6" × 5" × 3"—¾ lb.)

**8565 SPARE MINERS' LAMP BULB. (Clear.)** 4 volt 1 amp. As used in the lamp tube in Cat. No. 8122, "Scalamp" Galvanometers Cat. Nos. 7890/S–7893/S, 7901/S–7904/S, Electrostatic Voltmeters Cat. Nos. 11308–11310, Megohm-per-volt Voltmeter Cat. No. 11320, D.C. Microammeter Cat. Nos. 7905/S and 7906/S and Fluxmeter Cat. No. 8834.

**8630 QUADRANT ELECTROMETER. (DOLEZALEK PATTERN.)**  
With quartz insulation to quadrants and terminals. Fine adjustments for height and rotation of the vane relative to the quadrants are provided. Complete with three phosphor-bronze suspensions giving sensitivities of approximately 250 mm, 500 mm, and 1000 mm per volt at 1 metre radius with the vane charged at 100 volts. Vane fitted with plane mirror and lens window for a working distance of 1 metre. A plane window can be supplied if required. (See Cat. No. 8122.)  
†(12" × 8" × 8"—7½ lb.)

**8631 to 8633 SPARE PHOSPHOR-BRONZE SUSPENSION STRIP.**  
For Cat. No. 8630. Sensitivity per volt at 1 metre radius with the vane charged at 100 volts are approximately:

8631	250 mm	8632	500 mm	8633	1000 mm
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**8636 SPARE VANE** with plane mirror for Cat. No. 8630.

† Approximate size and weight of instrument in protective wrapping.

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