

Eddystone

LOW FREQUENCY COMMUNICATIONS RECEIVER

MODEL 850/4



The Eddystone "850/4" receiver is expressly designed to give a high performance on the very low, low and medium frequencies. Complete coverage is given between the lower limit of 10 kc/s and the upper limit of 600 kc/s, thus including frequencies used by Rugby Radio (GBR on 16 kc/s), MSF Rugby 60 kc/s, Droitwich 200 kc/s, and the lower marine communications bands. The receiver accepts all types of signal normally employed over its range of frequencies. The facility is included for crystal control of the oscillator on up to eight spot frequencies.

The "850/4" is a single conversion superheterodyne, using eleven CV type valves, with the intermediate frequency above the range of signal frequencies. Three selectivity positions are provided, two of which incorporate crystal filters. In addition, an efficient audio filter gives the facility of a very narrow bandwidth.

The design, construction and workmanship follow the traditionally high standards associated with all Eddystone receivers. Clear horizontal scales permit good frequency resolution; the geared tuning mechanism is precise and positive; the controls are clearly marked. The receiver is suitable for use in most climates.

Operation is from standard AC mains 100/125 and 200/250 volts, 40/60 cycles. Rack-mounting and table versions are available.

Eddystone 850/4 Receiver

SPECIFICATION

Frequency Coverage

Six switched ranges as follows:—

Range 1	300 kc/s to 600 kc/s.
Range 2	150 kc/s to 310 kc/s.
Range 3	80 kc/s to 160 kc/s.
Range 4	40 kc/s to 85 kc/s.
Range 5	19 kc/s to 40 kc/s.
Range 6	10 kc/s to 20 kc/s.

Valve Complement

V1	6BA6 (CV454)	RF Amplifier
V2	6AJ8 (CV2128)	Frequency Changer
V3	6BA6 (CV454)	1st IF Amplifier
V4	6BA6 (CV454)	2nd IF Amplifier
V5	6AL5 (CV140)	Noise Limiter and Meter Protection
V6	6AU6 (CV2524)	Cathode Follower (IF output)
V7	6AT6 (CV452)	AM Detector, AF Amplifier and AGC Rectifier
V8	6AM5 (CV136)	Audio Output
V9	6BE6 (CV453)	CW Detector
V10	VR150/30 (CV216)	HT Stabiliser
V11	5Z4G (CV1863)	HT Rectifier.

Mounting Styles

The receiver is available in two styles. One is for table mounting and the other style is for mounting in an international size of rack, the cabinet being retained, as it helps to protect the interior.

Finish is two-tone grey, with modern styling. Chromium-plated handles are fitted.

Tuning Drive and Scales

The geared tuning mechanism is made to precision limits and has a reduction ratio of 140/1. The movement is smooth, positive and free from backlash. The horizontal scales are clearly marked

in kilocycles to an accuracy within 0.5% at frequencies above 100 kc/s, and within 2.5% below 100 kc/s. A secondary logging scale is also provided.

Controls

The following controls are conveniently located on the front panel. An anodised finger-plate is marked appropriately.

Tuning: Wavechange: Crystal Selector: Aerial trimmer: RF Gain: IF Gain: AF Gain: Mode Switch (AM/CW): Selectivity: BFO Pitch: AGC on/off: Noise Limiter on/off: AF Filter on/off: Mains Supply on/off: Meter zero adjuster.

Carrier Level Meter

On the front panel is fitted a carrier level meter, marked in arbitrary divisions over a scale of nought to ten. It is useful as a tuning indicator and for making comparative measurements of signal strength.

Desensitising

When desensitising is a requirement, terminals at the rear (normally shorted out) can be brought into use, leads being taken either to an external switch or to contacts on a relay.

Noise Limiter

The series-diode type of noise limiter is effective against ignition and similar pulse types of electrical interference.

General Construction

The front panel and tuner unit are robust aluminium diecastings, and the other units of brass or steel. A strong well-ventilated cabinet provides adequate protection, and is easily removable when necessary. Chromium plated handles are fitted to the front of the receiver. All metal parts are treated to resist corrosion, components are of high quality and the whole is finished for service in any climate.

Physical Details

Width 16 $\frac{3}{8}$ " (43 cms). Depth 15" (38.1 cms). Height 8 $\frac{3}{4}$ " (22.2 cms). Weight 50 lbs. (22.6 kgs).

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AVERAGE TECHNICAL FIGURES

Sensitivity

For a 15dB signal/noise ratio, 30% modulation at 400 c/s, better than 5uV above 100 kc/s (A3 mode is not usually applicable below 100 kc/s). Sensitivity on CW better than 5uV throughout the whole range.

Selectivity

Position 1 — single crystal — 400 c/s at 6dB points; 6 kc/s at 40dB points.

Position 2 — band-pass crystal — 1500 c/s at 6dB points; 6 kc/s at 40dB points.

Position 3 — no crystal — 6 kc/s at 6dB points; 15 kc/s at 40dB points.

Additionally, with audio filter switched in, bandwidth becomes 120 c/s at 6dB points; 400 c/s at 30dB points.

Image Rejection

Better than 75dB at 600 kc/s, and progressively greater at lower frequencies.

AGC Characteristic

The audio level does not change by more than 10dB with an 80dB increase of input signal above 10uV (at 600 kc/s). A connection from the AGC line is brought out to a terminal at the rear for use as required.

Stability

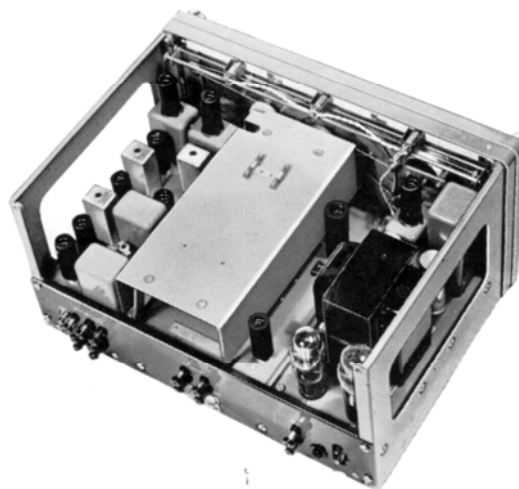
Excellent frequency stability is achieved, provided the receiver is allowed to warm up to an even temperature throughout. Under conditions of continuous operation, the degree of drift during one hour is usually less than 100 cycles and normally does not exceed 200 cycles. Crystal control is recommended where very high stability is required. Provision is made for the insertion of up to eight Style "D" crystals

Audio Outputs

Terminals for external speaker, 2.5 ohms, approximately 1 watt.

Terminals for line, 600 ohms, restricted to 10 mW. Jack for telephones, nominal 2000 ohms impedance.

The audio response does not deviate more than 6dB between 200 c/s and 6 kc/s.



Interior view of the 850/4 low-frequency receiver, illustrating its clean lines and solid construction.

Aerial Input

75 ohms and 300 ohms, balanced or un-balanced.

Intermediate Frequency

720 kc/s. Cathode follower un-balanced output, suitable for terminating impedances 75 to 300 ohms. Approximately 100 mV available across 75 ohms for an input of 5uV at 500 kc/s. (AGC on).

Power Supply

Standard AC mains, 40/60 c/s, 110 volts and 200/250 volts.

Accessories

An external speaker is required, the most suitable being the Cat. No. 906, which takes the form of a plinth on which the receiver rests at an inclined angle. Easier control and better viewing of the scales are advantages. Alternatively, the Cat. No. 935 Cabinet Speaker matches the receiver electrically and physically. Telephone headsets to suit are readily available, as are essential spare parts, either separately or in kit form, for maintenance purposes. A comprehensive Instruction Manual is supplied.

In the interests of continued improvement, we reserve the right to amend this specification without notice.

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