

CONWAY

Proudly Presents a Complete

Line of

Eddystone

COMMUNICATIONS
RECEIVERS

Range

From 10 Kc/s up to Gc/s

Eddystone

COMMUNICATIONS RECEIVERS

EDDYSTONE radio communications equipment has been manufactured since 1923 and the trademark has become famous throughout the world, being synonymous in fact with the qualities possessed by the well-known lighthouse from which the name is derived. The very considerable value of this long experience is reflected in the current range of professional receivers which are designed, developed and produced to combine high performance, reliability and ease of control. Finish, workmanship, engineering and general construction reach the highest standards. The association that now exists between Eddystone Radio and the Marconi Company will lead to further advancement as time goes on.

A wide range of receivers and ancillary equipment is available, covering frequencies from 10 kc/s to 870 Mc/s. In the design of each item, study has been made of the facilities needed for the majority of applications which arise, bearing in mind these include practical communications, monitoring, field survey work, laboratory research and development, interference investigations and other special uses. The majority are available as table models or for mounting in standard racks.

The abridged details given in this catalogue relate mainly to those receivers intended for professional and commercial operations. The information serves to indicate the suitability of a given model for a project, and amplified information in a separate data sheet is readily available for each piece of equipment.

Your enquiries will receive full and prompt attention.

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Eddystone

850/4 LOW FREQUENCY COMMUNICATIONS RECEIVER

The Eddystone "850/4" receiver is a special low frequency model giving complete coverage from 10 kc/s to 600 kc/s and having the facility for crystal control on eight spot frequencies. It accepts the modes of signal normal to this range of frequencies and a high performance obtains throughout. Eleven preferred type valves are used in the single superheterodyne circuit, and normal communications facilities are provided. Three selectivity positions, two having crystal filters, meet the majority of requirements. In addition, an efficient audio filter reduces the bandwidth to approximately 100 c/s.



Frequency Coverage

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

Circuit

RF Amplifier : Frequency changer : two IF amplifiers : AM and CW detectors : noise limiter : IF output stage : audio amplifier and output : stabiliser : rectifier.

Tuning Drive and Scales

Geared drive mechanism with 140/1 reduction ratio, having smooth precise movement. Horizontal scales are clearly marked in kilocycles to an accuracy within 0.5% above 100 kc/s, and within 2.5% below 100 kc/s. A secondary logging scale is provided.

Controls

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

A carrier level meter is fitted and terminals at the rear permit desensitising when necessary. A low impedance IF outlet (720 kc/s) is provided and an AGC connection is brought out to terminals at the rear.

Sensitivity

The CW sensitivity is better than 5 uV for a 15 dB signal/noise ratio throughout. An equally good performance obtains on AM signals.

Selectivity (IF)

Position 1 (crystal)	..	400 c/s.
Position 2 (crystal)	..	1500 c/s.
Position 3	6 kc/s.

With audio filter in circuit, approximately 100 c/s. (figures are overall bandwidths at 6 dB points).

Image Rejection

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

AGC

Increasing input level 80 dB above 10 uV (at 600 kc/s) results in a change of output not exceeding 10 dB.

Audio Outputs

1 watt maximum into 2.5 ohms ; 10mW into 600 ohm lines ; telephone jack. Audio response is within 6 dB from 200 c/s to 5 kc/s.

IF Output

Approximately 100 mV into 75 ohms for an input of 5 uV.

Dimensions and Weight

Width	16 $\frac{7}{8}$ " (43 cm).
Depth	15" (38.1 cm).
Height	8 $\frac{3}{4}$ " (22.2 cm).
Weight	50 lb. (22.6 kgs).

Finish

Two-tone grey ; chromium plated handles ; matching finger plate. Available in table and standard rack matching versions.

Eddystone

880/2 HIGH STABILITY HF COMMUNICATIONS RECEIVER

Of most advanced design, this model offers many advantages, and is directly suitable for reception of single-sideband signals. Notable are the extremely high frequency stability, precise frequency setting, and ease of operation. The first oscillator is crystal controlled and the second tunable oscillator is specially designed for high thermal, mechanical and voltage stability. In effect, the "880/2" gives the equivalent of crystal control whilst permitting continuous coverage from 500 kc/s to 30.5 Mc/s. Other advantages are a very low level of radiation, and provision for use in diversity with common oscillator control. The standard table model is easily converted to rack mounting.

Circuit and Valves

Two fully tuned RF stages : mixer : crystal controlled oscillator : tunable IF, mixer and oscillator : three stage 500 kc/s amplifier with filters : noise limiter : AM and CW SSB detectors : AF amplifiers and separate stages for line and speaker : voltage stabilisers : silicon diode HT rectifiers. In all, 23 preferred type valves plus diodes.

Intermediate Frequencies

The first IF tunes over either 2500 to 3500 kc/s, or 3500 to 4500 kc/s, as automatically selected by the range switch. The second IF is 500 kc/s, with variable selectivity. Two crystal filters are fitted, one of which gives a 3 kc/s bandwidth for s.s.b. signals.

Sensitivity

For 15 dB signal/noise ratio, better than 3 microvolts above 1.5 Mc/s, and averaging 5 microvolts on Range 1 (500 to 1500 kc/s) at bandwidth of 3 kc/s.

Selectivity

Five positions provided. Bandwidths range from 400 c/s to 14 kc/s, at 6 dB points. Audio filter gives a bandwidth of approximately 100 c/s.

Stability

After four hours running, with ambient temperature and mains supply constant, the frequency drift is in the order of ± 20 cycles.

Spurious Responses

Attenuated 90 dB at frequencies below 15 Mc/s, (except Range 1) and greater than 60 dB elsewhere.

Tuning Accuracy

Calibration 1 kc/s. and re-setting better than 500 c/s

AGC

Three time-constants provided—fast, slow and s.s.b.

Audio Outputs

0.75 watts for speaker (internal monitor speaker is fitted). Independent 600 ohm line channel with separate level control. Jack for telephone headset.

Aerial Input

75 ohms unbalanced.

Radiation

Does not exceed 5 μ V into 75 ohms.

Dimensions

Rack Mounted Version :

Width 19" (48.3 cm) Depth 20½" (52.1 cm).

Height 8¾" (22.2 cm).

Table Mounted Version :

Width 19½" (49.5 cm). Depth 20½" (52.1 cm).

Height 9.7½" (23.9 cm).

Weight

Rack Mounted Version : 87 lb. (39.5 kgs).

Table Mounted Version : 99 lb. (44.9 kgs).

Finish

Modern styling and presentation in two-tone grey finish.

Other Features

100 kc/s. crystal calibrator : fine tuning control (panel and remotely) : output at second IF : carrier level meter : provision for diversity operation : desensitising.



Eddystone

830/7 HF/MF COMMUNICATIONS RECEIVER

A high grade general purpose receiver, having extremely versatile tuning arrangements, including provision for crystal-control and an incremental facility covering 100 kc/s above or below the frequency selected on the main scale. It is suitable for the reception of AM, CW and SSB signals, and has a good performance throughout. Standard finish is grey. Normally supplied for table mounting but standard rack-mounting version is available.

Frequency Coverage

Range 1	18 Mc/s to 30 Mc/s
Range 2	11 Mc/s to 18 Mc/s
Range 3	6.7 Mc/s to 11 Mc/s
Range 4	4 Mc/s to 6.7 Mc/s
Range 5	2.5 Mc/s to 4 Mc/s
Range 6	1.5 Mc/s to 2.5 Mc/s
Range 7	860 kc/s to 1500 kc/s
Range 8	480 kc/s to 860 kc/s.
Range 9	300 kc/s to 520 kc/s.



Circuit

Double superheterodyne on ranges 1 to 6; single superhet on ranges 7, 8 and 9. First oscillator free-running or crystal-controlled on eight spot frequencies. Second oscillator designed for high stability and can also be crystal controlled. Incremental tuning facility, with total coverage of 200 kc/s, available from 1.5 Mc/s to 30 Mc/s. Second IF is 100 kc/s, with variable selectivity.

Sensitivity

On AM, better than 3 microvolts for 15 dB signal/noise ratio, at IF bandwidth of 3 kc/s. CW sensitivity approximately 1 microvolt.

Selectivity

Continuously variable, with positions indicated for AM (6 kc/s); SSB (3 kc/s); CW (1300 c/s) and a very narrow position (50 c/s) with crystal filter switched in (figures refer to 6 dB bandwidths).

Spurious Responses

Image ratio is better than 50 dB at 30 Mc/s, and better than 70 dB below 10 Mc/s. Figures for cross-modulation, inter-modulation and blocking are equally good.

Oscillator Stability

Frequency drift is low after the usual warm-up period. Using crystal controlled first oscillator, drift is less than 100 c/s in any one hour. Crystal calibrator and cursor adjuster permit high accuracy of frequency resolution.

Audio Outputs

Plug and socket terminations for 600 ohm line and 2.5 ohm speaker. Output 2.5 watts maximum.

Power Supply

AC mains, 200/250 volts and 100/125 volts, 40/60 cycles. Consumption 85 watts. Ancillary equipment socket at rear.

Physical Details

Width	16 $\frac{3}{4}$ " (42.5 cm).
Depth	15" (38.1 cm).
Height	8 $\frac{3}{4}$ " (22.2 cm).
Weight	49 lb. (22.2 kg).

Other Features

Carrier level meter : noise limiter : fast and slow AGC : output at 100 kc/s : independent RF, IF and AF gain controls : fine tuning for SSB : band-pass input circuits on ranges 1 to 6 : provision for muting.

Eddystone

770R MARK II VHF COMMUNICATIONS RECEIVER

Fully tunable over the range 19 Mc/s to 165 Mc/s, accepting various modes of signal and having many applications in the communications and instrument fields. The combination of six scales and a precision slow motion drive, with a reduction of 140/1, permits relatively fine tuning. Many specially designed units are incorporated and an excellent performance results throughout the range. Operation is from standard AC mains supplies.



Frequency Coverage

Six position, diecast turret tuning assembly contains coils to give the following ranges:

Range 1	114 Mc/s to 165 Mc/s.
Range 2	78 Mc/s to 114 Mc/s.
Range 3	54 Mc/s to 78 Mc/s.
Range 4	39 Mc/s to 54 Mc/s.
Range 5	27 Mc/s to 39 Mc/s.
Range 6	19 Mc/s to 27 Mc/s.

Circuit and Valves

The circuit is a single superhet, with a fully tuned RF stage. In all, twenty preferred type valves and three germanium diodes are used.

Signal Modes

The receiver accepts CW : AM : FM and NBFM. On CW, a fixed BFO gives a preset beat of 1000 c/s. The two FM deviations are 15 kc/s narrow band, and 75 kc/s wide band. The degree of selectivity is automatically adjusted to suit the type of signal.

Sensitivity and Noise Factor

Sensitivity on AM, 50 mW output, 15 dB signal/noise, is better than 5 microvolts on all ranges. Noise factor varies from 5 dB on Range 6 to around 14 dB at the high end of Range 1.

Selectivity

AM/CW	6 dB down	15 kc/s. off resonance.
	40 dB down	100 kc/s. off resonance.
FM	6 dB down	40 kc/s. off resonance.
(narrow band)	40 dB down	160 kc/s. off resonance.
FM	6 dB down	150 kc/s. off resonance.
(wide band)	40 dB down	350 kc/s. off resonance.

Image Ratio

Approximately 20 dB at 165 Mc/s and correspondingly greater at lower frequencies.

Stability

Frequency drift is less than .003% per degree C and similar for a 5% change of mains voltage.

Crystal Calibrator

A crystal calibrator gives markers at 5 Mc/s intervals. A device is fitted to permit correct alignment of the cursor.

I.F. Output

A co-axial socket at the rear provides a wide-band IF signal at 5.2 Mc/s, for use with auxiliary units.

Input Impedance

75 ohms (co-axial socket).

Audio Output

2.5 watts maximum into 2.5 ohms to terminals. 600 ohms output for line. Telephone jack on front panel.

Physical Details

Width	16 $\frac{3}{4}$ " (42.5 cm).
Depth	15" (38.1 cm).
Height	8 $\frac{3}{4}$ " (22.2 cm).
Weight	60 $\frac{1}{2}$ lb. (27.4 kgs).

Modern styling and two-tone grey finish. Available in table mounting and rack mounting styles.

Eddystone

770U MARK II UHF COMMUNICATIONS RECEIVER



A versatile instrument having applications for communications, laboratory work, aerial survey and interference investigations. Coverage is continuous from 150 Mc/s to 500 Mc/s, using a specially developed six-position turret. Available in table and rack-mounting versions.

Frequency Coverage

Range 1	400 Mc/s to 500 Mc/s.
Range 2	330 Mc/s to 400 Mc/s.
Range 3	270 Mc/s to 330 Mc/s.
Range 4	220 Mc/s to 270 Mc/s.
Range 5	180 Mc/s to 220 Mc/s.
Range 6	150 Mc/s to 180 Mc/s.

Circuit

The front end consists of a grounded grid RF amplifier; diode mixer; 6AF4 oscillator on fundamental frequency. Then follow two IF amplifiers at 50 Mc/s; a double triode mixer; and further IF amplifications at 5.2 Mc/s. Other stages include FM limiter and discriminator; muting; noise

limiting; audio output. In all, nineteen preferred type valves, four germanium diodes, and one transistor.

Input Impedance

75 ohms (co-axial socket).

Signal Modes

AM and FM, with a deviation acceptance up to ± 20 kc/s.

Sensitivity

Better than 10 microvolts, 15 dB signal/noise, 50 mW output, on all ranges.

Selectivity

6 dB down 20 kc/s off resonance. 40 dB down 100 kc/s off resonance.

Image Rejection

25 dB at 400 Mc/s. 40 dB at 200 Mc/s.

Crystal Calibrator

A crystal calibrator gives markers at 50 Mc/s intervals. A device is fitted to permit correct alignment of the cursor.

Audio Outputs

Maximum of 2.5 watts at 3 ohm terminals for speaker. 600 ohm line output. Telephone jack on panel.

Special Features

Two low impedance outlets at the IF of 5.2 Mc/s are available, offering different bandwidths and permitting direct connection to the Eddystone EP17R Panoramic Display Unit. A further point allows taking off the 50 Mc/s first IF or feeding in a signal converted to this frequency. Limiter grid current can be measured at a jack on the front panel, and a carrier level meter is fitted as an aid to tuning.

Physical Details

Width	16 $\frac{3}{4}$ " (42.5 cm).
Depth	15" (38.1 cm).
Height	8 $\frac{3}{4}$ " (22.2 cm).
Weight	52 lb. (23.6 kg).

Modern styling and two-tone grey finish. Available for rack or table mounting.

Eddystone

990S

UHF COMMUNICATIONS RECEIVER

A fully transistorised single conversion superheterodyne for reception of AM and FM signals in the ultra-high frequency band from 230 Mc/s to 870 Mc/s. Operation is from any standard AC mains supplies or from a 12 volt DC supply. Available in patterns for table mounting or for fitting into a standard rack. Operational temperature range 0 to 50 degrees Centigrade.



Frequency Coverage

Two ranges are displayed on horizontal scale over 9" wide, the coverage being 470 to 870 Mc/s on Range 1, and 230 to 510 Mc/s on Range 2.

Tuning System

Single knob, controlling flywheel-loaded geared drive, with a reduction ratio of approximately 100 to 1.

Calibration Accuracy

The scales are directly calibrated to an accuracy within 1%. By making use of the crystal calibrator and the adjustable cursor, a much higher degree of accuracy is possible.

Tuning Meter

Clearly observable meter with switch to change reading to linear, logarithmic or FM.

Input Impedance

Nominally 75 ohms unbalanced to a BNC socket.

Noise Factor

Range 1	10 to 16 dB.
Range 2	8 to 12 dB.

Spurious Responses

At least 50 dB down.

IF Bandwidths

AM	..	alternative 6 Mc/s and 1 Mc/s positions.
FM	..	1 Mc/s (i.f. is 36.5 Mc/s).

FM Deviation Acceptance

Up to 250 kc/s.

Frequency Stability

Better than 1 part in 10^4 per degree C. change in ambient temperature.

Outputs

At i.f. of 36.5 Mc/s:—50 millivolts at low impedance.

Video:—AM and FM channels, approximately 2.5 volts peak-to-peak into 1000 ohms. Both channels are available simultaneously.

Audio:—500 milliwatts to 3 ohm speaker; 10 milliwatts to 600 ohm line (separate gain control); jack for telephone headset. An internal monitor speaker is fitted.

Physical Details

Rigid light weight construction, with cabinet easily removable. Standard version is table mounting — the addition of brackets converts to rack mounting. Modern styling and two-tone grey finish. Weight is 18 lb. (8.16 kg). Panel measures $16\frac{3}{4}'' \times 5\frac{1}{4}''$ (42.5×13.3 cm). Depth approximately 14" over projections (34.6 cm).

Panoramic Reception

The addition of an EP17R Panoramic Display Unit and Cat. No. 939 IF. Converter Unit permits visual display over the whole range of frequencies covered by the receiver. This combination bears the reference EPR29.

Eddystone

PANORAMIC DISPLAY UNITS



To go with receivers already in use, of Eddystone or other make, there are four panoramic display units, two with characteristics suitable for wide band operation, with medium resolution, on very high and ultra high frequencies, and two with fine resolution for narrow band operation on low to high frequencies.

The first units referred to are the EP14 and EP17R, the former having tuned input to match a wide range of intermediate frequencies, whilst the EP17R has a fixed input frequency of 5.2 Mc/s, as used in the Eddystone 770R and 770U receivers described elsewhere in this Catalogue. Otherwise the electrical specifications are practically identical.

Similarly, the EP15 and EP20 units will operate successfully with the majority of HF receivers. The EP15 has tunable input and the EP20 a fixed input frequency of 100 kc/s.

Brief details of the specifications are given opposite and full information is available in separate folders. It should be noted that frequency converters are offered (see page 12) for matching receiver intermediate frequency outputs to panoramic unit inputs cover wide limits.

Frequency Coverage (*intermediate frequencies*)

EP14 : 5.2 Mc/s (1 Mc/s bandwidth) and tunable 6.2 to 60 Mc/s.

EP15 : 100 kc/s (30 kc/s bandwidth) and tunable 400 to 800 kc/s.

EP17R : Fixed input at 5.2 Mc/s.

EP20 : Fixed input at 100 kc/s.

Sweep Rates

Four selectable speeds are available:—

EP14 and EP17R : 5, 10, 20 and 40 sweeps per second.

EP15 and EP20 : 0.2, 0.4, 0.8 and 2 sweeps per second.

Sweep Widths

EP14 and EP17R variable from 3 kc/s to 1 Mc/s.

EP15 and EP20 variable from 100 kc/s to 30 kc/s.

Resolution

EP14 and EP17R .. 2 kc/s at optimum settings.

EP15 and EP20 .. 50 kc/s at optimum settings.

Sensitivity (at full gain)

EP14 and EP17R 20 microvolts for full deflection.

EP15 and EP20 25 microvolts for 1 cm deflection.

Common Features

The *display* is given on a 2 $\frac{3}{4}$ " diameter tube, of medium or long persistence. An *attenuator* acts on the input signal and is calibrated in 10 dB steps over a range of 60 dB. Input impedance is 75 ohms. A separate gain control is fitted. Other controls are sweep width; scanning rate; centering; brilliance; focus. The units can also be used as "wobblers" for alignment purposes. Operation is from standard AC mains, with a consumption of 55 watts. A blower fan is fitted to prevent undue temperature rise. Dimensions EP17R and EP20 approximately 16 $\frac{3}{4}$ " x 5 $\frac{1}{4}$ " x 15". (Rack mounting EP14 and EP15 19" wide). Weight 36 lb.



Eddystone

PANORAMIC RECEIVERS



In both the communications and laboratory fields, a complete panoramic receiver will often allow tasks to be carried out quickly, simply and effectively, in a way only possible otherwise with a range of expensive equipment, which, where it exists, may well not be available at short notice. Visual monitoring; measurements of frequency, carrier amplitude and modulation; presence or absence of spurious responses and emissions; setting up transmitters and receivers for correct operation on s.s.b. and other modes of signal; studying the character and level of interference; are some of the applications which readily come to mind. It will be appreciated the higher apparent overall sensitivity of the panoramic receiver, whereby a signal barely audible can be clearly seen, is a considerable asset when carrying out bridge measurement operations. The practical communications engineer will obviously find the combination of much value in his work.

Again, as an aid in teaching, the panoramic receiver can be very useful and save much time. A student can observe at a glance variations brought about by changes of amplitude, modulation depth and character, bandwidth, insertion of filters, and other factors.

The display unit is designed for secondary use as a "wobbulator", to check the alignment of the receiver unit, with the advantage of knowing thereafter that the overall performance is at a maximum. The addition of the display unit does not in any way affect the operation of the receiver for standard applications.

Three complete combinations of receiver and panoramic display unit are offered, with details as follows. Other combinations can be supplied to special order.

The complete installation is relatively compact and blends well with other equipment. Tie-bars at the rear make for a rigid assembly and, with the inclusion of the speaker plinth, the backward tilt leads to ease of viewing and ready operation of the controls.

EPR26 (v.h.f.)

The illustration shows the EPR26 Panoramic Receiver, which comprises a standard 770R Mark II receiver, EP17R display unit, and Cat. No. 906 speaker plinth. Visual display is obtained over the normal ranges of the receiver, from 19 Mc/s to 165 Mc/s. Maximum scan is one megacycle and the other characteristics are as set out elsewhere in this Catalogue. Total power consumption is approximately 150 watts.

EPR27A (h.f.)

The second panoramic receiver is the EPR27A, a combination of the 830/7 receiver and the EP20 display unit. The appearance is similar to the illustration and the frequency coverage is from 300 kc/s to 30 Mc/s. The maximum scan is 30 kc/s (as dictated by the selectivity characteristics of the receiver) and a high degree of resolution is possible. The EPR27A is of particular assistance in correctly setting up h.f. equipment for s.s.b. and f.s.k. operations.

EPR29 (u.h.f.)

Panoramic reception over the range 230 Mc/s to 870 Mc/s is provided by the EPR29 receiver, which combines the 990S receiver, EP17R display unit, Cat. No. 939 I.F. Converter Unit, and Cat. No. 906 speaker. The overall sensitivity is high and both AM and FM signals can be studied in detail. Total consumption is about 110 watts.

Eddystone

EC10 TRANSISTORISED COMMUNICATIONS RECEIVER

Although classed as a general purpose receiver, the "EC10" is finding many applications in the professional field, and is of particular value where portability and operation independent of a mains supply are essential requirements. Continuous coverage is given from 550 kc/s to 30 Mc/s in five ranges and an excellent performance obtains throughout. The receiver accepts CW and AM signals and, whilst not specifically designed for s.s.b., it operates reasonably well in this mode also.

Relatively inexpensive, the "EC10" receiver is nevertheless built to the normal high engineering standards associated with Eddystone equipment.



Frequency Coverage

550 kc/s to 30 Mc/s, in five ranges.

Circuit

Single superheterodyne using ten transistors and three diodes. One RF stage, separate oscillator, two IF stages, push-pull class "B" output.

Power Supply

Six HP2 cells housed in a detachable compartment with Zener diode stabilisation to earlier stages. AC mains power supply unit, (Cat. No. 924), interchangeable with battery unit, available as an extra.

Tuning System

Precision slow motion drive, 110 to 1 reduction ratio. Horizontal scales, 9" long, calibrated to within 1%. Logging and auxiliary vernier scales.

Controls

Independent RF and AF gain; tuning; wave-change; BFO pitch; push-buttons for AF Filter; AGC on/off; BFO on/off; dial lights (biased at off).

Input Impedance

Nominal 75 ohms on ranges 1 to 4, and 400 ohms on medium wave range. High impedance connection for short aerial, effective on all ranges.

Sensitivity

Better than 5 microvolts on Ranges 1 to 4, and 15 microvolts Range 5, for 15 dB signal-to-noise ratio.

Spurious Responses

Image ratio approximately 50 dB at 2 Mc/s and 20 dB at 18 Mc/s. Breakthrough at the I.F. (465 kc/s) better than 65 dB.

AGC

Not more than 15 dB change of output level when input signal increased 80 dB above 6 microvolts (at 2 Mc/s on range 4).

Audio Output

Maximum output approaches 1 watt. Internal speaker and panel jack for telephones or external speaker.

Physical Details

Width	12½" (31.7 cm).
Height	6¾" (16.2 cm).
Depth	8" (20.3 cm).
Weight with battery	..	14 lb. (6.3 kg).

Finished two-tone grey and suitable for use in all parts of the World.

Eddystone

EB 35

A VERSATILE RECEIVER COVERING VHF/FM : LONG, MEDIUM & SHORT WAVES

The Eddystone "EB35" Broadcast Receiver is a fully transistorised model of compact dimensions and operating from an internal battery power unit. It is a versatile receiver giving coverage on the long wave band, the medium wave band, the majority of the short wave bands, and the international VHF/FM range of 88 Mc/s to 108 Mc/s, with a high performance throughout.

Features standard to Eddystone receivers are incorporated. The flywheel-loaded tuning knob controls a finely engineered gear drive with a reduction ratio of 110 to 1, resulting in smooth, precise tuning. The main scales occupy a length of nine inches and are clearly marked directly in frequency. Tuning to a given frequency is a comparatively simple matter and a useful additional feature is the provision of a logging scale to permit settings of preferred stations to be recorded for future reference.

The versatility of the "EB35" extends further than the wide range of frequencies covered. A socket is provided from which the signal can be fed to a high fidelity amplifier and the receiver can thus be used

as a tuner unit in conjunction with a "hi-fi" system, still retaining the advantage of having a large number of stations from which to choose. The same socket serves when it is desired to use a tape recorder. A second socket enables the audio frequency stages of the receiver to be used as an amplifier with a record player.

An internal speaker is fitted and the telephone jack on the panel can be used either with a pair of low impedance telephones (preferably of the high quality type) or with a large external speaker.

Power is normally derived from a battery of U2 type cells housed in a detachable compartment. An alternative unit (Cat. No. 924), operating direct from AC mains and providing the correct voltage and current, is available separately and is readily interchangeable with the battery unit.

The "EB35" receiver is housed in a metal cabinet, and, with robust construction throughout, it will stand up to hard usage over a long period with a high degree of reliability. Chromium-plated handles are fitted and the finish is an attractive combination of dark green and beige. The receiver is suitable for use in all parts of the world.



Frequency Coverage

Range 1	8.5 Mc/s to	22 Mc/s.
Range 2	3.5 Mc/s to	8.5 Mc/s.
Range 3	1.5 Mc/s to	3.5 Mc/s.
Range 4	550 kc/s to	1500 kc/s.
Range 5	150 kc/s to	350 kc/s.
VHF/FM	88 Mc/s to	108 Mc/s.

Tuning System

The scales are horizontal, occupying a length of approximately nine inches. Frequencies are clearly marked to a calibration accuracy within 1%. The tuning control is flywheel-loaded and operates a gear drive with a reduction ratio of 110 to 1. A logging scale and auxiliary vernier allow dial settings to be recorded.

Controls

Six conveniently placed and clearly marked controls as follows:—

on/off switch; volume; tone; wavechange; tuning; dial lights.

Circuitry

A total of thirteen transistors, five diodes and a Zener stabiliser is used. A radio frequency amplifier is effective on all frequencies, leading to high sensitivity. The discriminator is of the Foster-Seeley type, for minimum distortion of the FM signal.

Power Supply

Power is derived from a battery of six U2 type cells, housed in a separate compartment and readily detachable. Voltage stabilisation, where required, is achieved with a Zener diode, which feature leads to a consistent performance up to the end of the useful life of the battery.

An AC mains supply unit (Cat. No. 924) is available as an alternative. This unit is identical in size and shape with the battery unit, with which it is readily interchangeable.

Special Features

Two sockets are provided at the rear. One is for taking a signal from the detector stage, at moderate impedance, for feeding into either an external amplifier or into a tape recorder. The second socket accepts a signal from a record player and, with a plug inserted, the earlier stages of the receiver are muted.

Dial lamps are provided for occasional use, the switch being of the self-return type, to avoid unnecessary drain on the battery.

Dimensions and Weight

Height	6½ in. (16.2 cm)	Weight (less battery)
Width	12½ in. (31.7 cm)	is 12½ lb (5.8 kg.) with
Depth	8 in. (20.3 cm)	battery 14 lb (6.3 kg)

TECHNICAL PERFORMANCE FIGURES

The following figures are provided for those wishing to have full technical information on the performance

of the "EB35" receiver. In plain language, it can be taken that the receiver has high sensitivity and is designed to give good separation between stations transmitting on adjacent channels. The audio output is ample for the majority of domestic requirements and is of good tonal quality. When desired, a larger cabinet type of speaker (of 10 ohms nominal impedance) can be used, the lead being plugged into the socket on the front panel.

To allow the receiver to make the most of the incoming signal, an outdoor aerial (not necessarily long), erected in the clear, is recommended, and this will help also to reduce the level of local electrical interference. On VHF/FM, an aerial designed for reception on these frequencies should be used.

Sensitivity

For 15 dB signal-to-noise ratio, sensitivity is better than 5 microvolts on ranges 1 to 3, and better than 15 microvolts on ranges 4 and 5. On VHF/FM, sensitivity is 20 microvolts at 22.5 kc/s deviation for a 20 dB signal-to-noise ratio.

Selectivity

On ranges 1 to 5, the bandwidth is 5 kc/s at the 6 dB points and 25 kc/s at the 40 dB points. FM bandwidth is 250 kc/s at the 6 dB points.

Spurious Responses

The image rejection is approximately 50 dB at 2 Mc/s and 15 dB at 18 Mc/s. Breakthrough at the I.F. of 465 kc/s is at least 85 dB down on ranges 1 to 3 and greater than 65 dB down on ranges 4 and 5.

On the VHF/FM range, the image ratio is better than 25 dB, and IF breakthrough better than 50 dB.

Audio Output

The maximum output approaches 750 milliwatts. A 5" diameter speaker is built-in and a jack on the panel is for use with low impedance telephones. Frequency response is level within 6 dB over the range 100 to 10,000 cycles.

Aerial Input Impedances

On ranges 1 to 3, the input impedance is nominally 75 ohms, balanced or unbalanced, to allow the use of a dipole or single wire aerial. On ranges 4 and 5 the input impedance is nominally 400 ohms.

A standard unbalanced coaxial socket, with nominal impedance of 75 ohms, is provided for connection of the feeder from a VHF aerial for FM reception.

Instruction Manual and Guarantee

A comprehensive Instruction Manual is supplied. Our 12 months guarantee against faulty workmanship or components (excluding semi-conductors) applies.

Eddystone



Plinth Loudspeaker (Cat. No. 906)

A dual purpose unit for fitting underneath a communications receiver, the latter being tilted back at an angle of about 20° , allowing a better view of the scales, and leading to easier control of knobs and switches. Fitted to the front of the unit is an elliptical speaker of 3 ohms impedance, which is suitable for direct connection to the speaker output terminals of Eddystone receivers and most other makes also. The width is 16", the depth $10\frac{1}{2}$ ", and the height at the front $3\frac{5}{16}$ ". The weight is $2\frac{1}{2}$ lb. and the finish smooth grey.

General Purpose Speaker (Cat. No. 935)

A useful general purpose cabinet speaker, of compact dimensions, the measurements being width $8\frac{1}{4}$ "; height $4\frac{1}{2}$ "; depth $2\frac{1}{2}$ ". The cabinet, of steel, is finished a pleasing grey and matches well with most equipment. The speaker can be used free-standing and it lends itself well to mounting on wall or bulkhead. Impedance is 3 ohms and a connecting lead is fitted.

High Quality Telephone Headset (Cat. No. LP2921)

These telephones are of well above average quality and, in professional communications, ensure excellent speech quality. Because of the wide frequency range and low distortion at high sound levels, the telephones are recommended for monitoring music at high fidelity in cases where it is undesirable to use a speaker. The impedance is 400 ohms, making the headset suitable for use with the majority of receivers. Weight 10 ounces. Finish cream and black. Fitted with lead and sleeve and tip plug, and with hygienic noise-excluding pads.

Lightweight Telephone Headset (Cat. No. LP2924)

A telephone headset of modern design and possessing high sensitivity. The quality of speech reproduction is good and the telephones are equally suitable for the reception of CW signals. This type of headset is favoured by the majority of professional operators. The material is mainly reinforced Nylon, which is strong,

ACCESSORIES FOR USE WITH COMMUNICATIONS RECEIVERS

and durable and very light in weight. The headset is adjustable and is most comfortable in use. The impedance is 600 ohms, a value which matches well with most receivers, and a cord fitted with a standard sleeve and tip plug is attached. Weight is approximately six ounces and the colour black.

I.F. Converter Units

With the majority of the Eddystone receivers described in this Catalogue, an i.f. outlet is provided for use with auxiliary equipment such as a panoramic display unit, discriminator or recording unit. Cases arise where the frequency at the outlet does not match that required at the input of the auxiliary equipment and, to obviate possible difficulty, a range of small transistorised converter units is available. Whilst intended mainly for use with Eddystone receivers, the converter units may well fit in with other requirements. They are robustly constructed in small, well-finished diecast boxes.

The same general design applies to each of the units, a given frequency being accepted, mixed with the output of a crystal-controlled oscillator, and the desired output frequency selected, with suitable filtering to minimise spurious responses. Input and output terminations are co-axial sockets, the impedance being within the operating range of 50 to 200 ohms. The gain and the bandwidth are adjusted to near unity.

An external power supply of nine volts at a few milliamperes is required, and with the Eddystone receivers mentioned below, a socket is provided enabling the power to be drawn from the receiver itself. It should not be difficult to make suitable arrangements in other cases.

Cat. No. 929 Converts an input frequency of 500 kc/s, which is the intermediate frequency of the "880/2" receiver, to 100 kc/s.

Cat. No. 951 Converts from 720 kc/s, the intermediate frequency of the "850/4" receiver, to 100 kc/s.

Cat. No. 939 Converts from 36.5 Mc/s to 5.2 Mc/s, the former being the i.f. of the "990S" receiver and the latter the input frequency of the "EP17R" panoramic display unit.

The above are standard units but it will be appreciated the general design lends itself readily to other combinations. Specific enquiries are invited, giving technical details and quantity involved.



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