

Eddystone

BRITISH MADE

RECEIVERS

EDDYSTONE radio communications equipment has been manufactured since 1923 and the Company Trademark has become associated world-wide with reliability and high performance, qualities in fact synonymous with those for which the well-known lighthouse, from which the name is derived, is renowned. During this period a large proportion of EDDYSTONE production has been devoted to meeting the needs of the professional communications market, including government departments, post and telegraph authorities, nation-wide broadcasting/television services and leading manufacturers of electronic and scientific equipment. The considerable experience gained in designing for this highly discriminating market is reflected in the present range of EDDYSTONE receivers. Finish, workmanship, engineering and general construction are to the highest standards and each receiver leaves the works precisely aligned, calibrated and tested ready for immediate use.

An after sales service is available from EDDYSTONE Works and includes the resources of a fully equipped service department and a spares stock holding covering a period of 10 years from production for each receiver model.

The brief details provided in this brochure serve only to introduce the EDDYSTONE range of receivers. Separate data sheets, affording fuller information on each receiver model, are available on request.

All enquiries will receive full and prompt attention.



Eddystone communication RECEIVERS



MODEL 990R

TRANSISTORISED VHF COMMUNICATIONS RECEIVER

The EDDYSTONE 990R is a fully transitorised single-conversion superhet for CW, AM and FM reception in the VHF band 27—240 MHz. Power supply arrangements permit operation from any standard AC mains supply or from 12V DC and the receiver is suitable for use over the temperature range 0—50°C. A matching panoramic display unit is available when visual signal analysis is a requirement.

Frequency Coverage:

Range 1, 130-240 MHz Range 2, 75-130 MHz Range 3, 46-76 MHz Range 4, 27-46 MHz

MODEL 990S

VHF/UHF COMMUNICATIONS RECEIVER

The EDDYSTONE 990S is a fully transistorised single conversion receiver for reception of AM and FM signals over the range of 230 MHz to 870 MHz. Two separate RF heads, incorporation trough-line circuits, are used, the range switch simply energising one or other unit according to the range required.

Frequency Coverage: Range 1. 470-870 MHz Range 2. 230-510 MHz.





MODEL 770R MARK II.

V.H.F. COMMUNICATIONS RECEIVER

The EDDYSTONE 770R Mark II receiver accepts various modes of signal and is designed to meet specialised requirements in the VHF spectrum. It has many applications in the communications and allied fields, and is invaluable as an instrument for research and development work, interference investigations and experimental projects.

Frequency Range:

Range 1. 114—165 MHz Range 4. 39— 54 MHz Range 2. 78—114 MHz Range 5. 27— 39 MHz Range 3. 54—78 MHz Range 6. 19—27 MHz

MODEL 770U MARK II.

U.H.F. COMMUNICATIONS RECEIVER

The EDDYSTONE 770U Mark II is a manually tuned double conversion receiver covering 150 MHz to 500 MHz in six ranges. It is equally suitable for reception of AM and FM signals and gives a high standard of performance in both modes. Operation is from standard AC mains supplies.

Frequency Coverage:

Range 1. 400—500 MHz Range 4. 220—270 MHz

Range 2. 330—400 MHz Range 5. 180—220 MHz Range 3. 270—330 MHz Range 6. 150—180 MHz





MODEL 830/7

WIDE RANGE COMMUNICATIONS RECEIVER

The EDDYSTONE 830/7 is a high grade general purpose HF/MF communications receiver covering 300 kHz to 30 MHz in 9 ranges. The circuit is single conversion on frequencies below 1.5 MHz and double conversion above 1.5 MHz.

Frequency Coverage:

Range 1. 18— 30 MHz Range 4. 4.0— 6.7 MHz Range 7. 860—1500 kHz

Range 5. 11— 18 MHz Range 5. 2.5— 4.0 MHz Range 8. 480—860 kHz. Range 3. 6.7— 11 MHz Range 6. 1.5— 2.5 MHz Range 9. 300—520 kHz

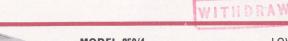
MODEL 880/2

HIGH STABILITY COMMUNICATIONS RECEIVER

The EDDYSTONE 880/2 is a HF communications receiver of unique design and construction covering 500 kHz to 30 MHz in 30 switched ranges. Provision is made for the reception of AM, CW and SSB signals. Each of the 30 ranges has a nominal-coverage of 1 MHz. Output from the second oscillator is fed to the mixer through a co-axial cable link and it is a simple matter to substitute other links whereby one or more additional receivers can be controlled from this particular oscillator.

Frequency Coverage: Continuous from 500 kHz to 30.5 MHz in thirty switched ranges.







MODEL 850/4

LOW FREQUENCY COMMUNICATIONS RECEIVER

The EDDYSTONE 850/4 is expressly to give a high performance on the very low, low and medium frequencies. Complete coverage is given between the lower limit of 10 kHz and the upper limit of 600 kHz. The receiver accepts all types of signals normally employed over its range offrequency.

Frequency Coverage:

Range 1. 300—600 kHz Range 4. 40— 85 kHz Range 2. 150—310 kHz Range 5. 19— 40 kHz Range 3. 80—160 kHz Range 6. 10— 20 kHz

COMMUNICATION RECEIVERS Eddystone

MODEL EA12

AMATEUR BAND COMMUNICATIONS RECEIVER

The EDDYSTONE EA12 communications receiver is specifically designed for Amateur operators in that it caters for AM, CW and SSB signals and is confined to amateur operating bands.

Frequency Coverage:

Range 1. 29.4—30 MHz Range 4. 27.9—28.5 MHz Range 7. 6.9— 7.5 MHz Range 2. 28.9—29.5 MHz Range 5. 20.9—21.5 MHz Range 8. 3.4— 4.0 MHz Range 3. 28.4—29.0 MHz Range 6. 13.9—14.5 MHz Range 9. 1.8— 2.4 MHz





MODEL 940

HF COMMUNICATIONS RECEIVER

The EDDYSTONE 940 receiver is the 'senior member' of the group of general purpose Eddystone receiver and is in fact used by many authorities for professional communications. It possesses an exceptionally good specification and many refinements are included, of a type which cannot be fitted to a receiver in a lower price bracket for economic reasons. Examples are the use of 2 radio frequency amplifiers (one of a special low-noise type) and two intermediate frequency amplifiers.

Frequency Coverage:

Range 1. 12.7—30.0 MHz Range 4. 1.0— 2.4 MHz Range 2. 5.4—12.7 MHz Range 5. 480—1013 kHz Range 3. 2.4—5.4 MHz

MODEL EC10 (Cat.No. 924).

TRANSISTORISED COMMUNICATIONS RECEIVER

The EDDYSTONE EC10 is a fully transistorised communications receiver of reasonably small size and giving excellent performance between 550 kHz and 30 MHz in five bands. The receiver accepts CW and AM signals and though not specifically designed for SSB reception it operates in this mode as well. The EC10 may also be powered from internal dry cells or mains units.

Frequency Coverage:

Range 1. 18.0—30.0 MHz Range 4. 1.5— 3.5 MHz Range 2. 8.5—18.0 MHz Range 5. 550—1500 kHz Range 3. 3.5—8.5 MHz





MODEL EB35 BROADCAST RECEIVER COVERING LONG, MEDIUM AND SHORT WAVES

The EDDYSTONE EB 35 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, the medium wave and the majority of the short wave bands, together with the international VHF/FM Band.

Frequency Coverage:

Range 1. 8.5— 22 MHz Range 4. 550—1500 kHz Range 2. 3.5—8.5 MHz Range 5. 150—350 kHz Range 3. 1.5—3.5 MHz VHF/FM 88—108 MHz

MODEL EB36

A VERSATILE RECEIVER LONG, MEDIUM AND SHORT WAVES

The EDDYSTONE EB 36 Broadcast Receiver is a fully transistorised model of compact dimensions and operating from an internal battery unit. Of particular interest is the incorporation of the L/F band of 150 kHz to 350 kHz should this receiver be required for Marine Purposes.

Frequency Coverage:

Range 1. 8.5— 22 MHz Range 4. 550—1500 kHz Range 2. 3.5—8.5 MHz Range 5. 150—350 kHz Range 3. 1.5—3.5 MHz





PANORAMIC UNITS

EDDYSTONE PANORAMIC DISPLAY UNITS

A panoramic receiver, giving a visual display simultaneously with the usual aural reproduction of signals of any type, locally generated or distant, is invaluable both for operational and laboratory application. On the one hand quick observation is possible of signals present over a given band and on the other hand a close study can be made of the characteristics of a particular signal.

EP 15: 100 kHz (30kHz bandwidth) and tunable 400 to 800 kHz.

EP 17R: Fixed input at 5.2 MHz.



EDDYSTONE EDOMETER TEST INSTRUMENT

A versatile instrument which will be found a most useful and practical addition to the equipment in any radio and electronic laboratory, workshop or maintenance department.

The "EDOMETER" provides the following facilities in the one complete unit: Standard Dip Oscillator, Absorption Wavemeter, Heterodyne Wavemeter, Simple Signal Generator, Modulation Monitor, Audio Tone Source.



EDDYSTONE receivers are available for most modes of transmission in the frequency range 10 kHz to 870 MHz.

Two of the most popular UHF/VHF receivers in past years have been the models "770U" and "770R". Mark II versions of both these equipments have been produced and these versions have wide and invaluable applications in communications and allied fields as instruments for research and development work, interference investigation and many experimental projects.

The more recent additions to the receiver range are in solid state form and types "990R" and "990S" are within this category. Type "990S" has been designed to fulfil the need for a fully-tuned UHF receiver covering the frequency spectrum 230—870 MHz. In general, the transmissions heard in this range are of a wide-band nature and include the assignments to television broadcast networks. For this reason the choice of selectivity has been finalised at 1 MHz and 6 MHz. Apart from its use as a pure receiver, the "990S" is recommended for use in universities, schools and technical colleges where an RF detector is required for experimental purposes. Several convenient outlets are provided to facilitate ready extraction of the signal for external observation or processing as desired. As more services move into the VHF spectrum, the need arises for a versatile wide-frequency coverage receiver capable of monitoring the modes of transmission used. In this connection attention is invited to the "990R", a new addition to the EDDYSTONE range, which covers 27—240 MHz. It is ideal as a general search receiver and its usefulness is enhanced by its ability to operate directly from a vehicle battery. The user assignments within the wide frequency coverage of the receiver are numerous and include wide-band broadcast FM stations, meteorological signals, VHF radio navigation beacons, space communications, aeronautical bands and many services, including police, fire, water, ambulance and ancillary users. As with other receivers in the EDDYSTONE range, an outlet is provided for connection of an external panoramic display unit for visual examination of the received wave form when desired.

The choice of EDDYSTONE HF equipment available is extensive and ranges from the very popular model "EC10" in the lower price bracket to the highly sophisticated and more costly model "880/2" high stability receiver. In addition to the fully transistorised "EC10", which is of major interest to all radio enthusiasts, one of the more popular equipments is the model "940", a general purpose receiver designed not only for the shortwave listener but also for the professional user requiring a first-rate HF (480 kHz to 30 MHz) receiver with a reasonable specification at a modest price.

The EDDYSTONE model "830/7" is a HF/LF receiver incorporating the more important features in the HF area but which, in the absence of undue sophistication, can be offered at a most competitive price. The wide frequency coverage, 300 kHz to 30 MHz, in nine switched ranges, includes all the popular HF bands and combines the necessary facilities required for ready resolution of the modes of transmission used. Other notable features include the outstanding selectivity performance and the high degree of stability, which can be further improved if required by utilising the crystal control facility. Ease of operation is afforded by ample identification of the relative controls so that a semi-experienced operator can achieve the maximum resolution of signal.

For those concerned with low frequencies, EDDYSTONE offers the model "850/4" communications receiver, which affords complete coverage from 10 kHz to 600 kHz. Where particular interest is centred on a selected frequency, such as the Standard Time and Frequency transmissions, use can be made of the crystal control facility. Other signals within the coverage of the "850/4" are radio navigation beacons, maritime mobile stations and long wave broadcast stations. Apart from these uses, the "850/4" is an invaluable aid in technical colleges, schools and laboratories where, for example, it may be used to detect small RF signals in Bridge measurements. When required, visual display of the received signal is also possible using the associated panoramic display unit EP15. The resolution of this unit is of a high order, enabling critical examination of the received waveform to be carried out.



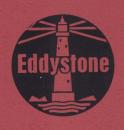
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990 R VHF COMMUNICATIONS RECEIVER



EDDYSTONE RADIO LIMITED
BIRMINGHAM 31

Eddystone 990 R

VHF COMMUNICATIONS RECEIVER

The Eddystone model "990R" is a fully transistorised single conversion receiver for reception of CW, AM and FM signals in the range of 27-240 MHz. The full tuning range is covered in four switched bands, with the R.F. unit having three gang-tuned signal circuits prior to the mixer. Local oscillator arrangements permit operation with crystal control from any one of eight switched frequencies in addition to manual tuning.

An intermediate frequency of 10.7 MHz is used and bandwidths of 30 kHz and 200 kHz are provided as standard, the former employing a crystal filter, alternative filters being available to order.

Separate wide and narrow bandwidth outputs are available at the intermediate frequency. The former is a low level output intended for driving the companion Panoramic Display Unit (Model EP17R) via an external converter, bandwidth being of the order of 1 MHz at the higher frequencies. Video output is available on both AM and FM.

The audio frequency response is excellent and for convenience, a built in monitor speaker is fitted and outputs are provided for external speaker, telephone headset and remote line. In the latter case output is restricted to allow direct connection to lines and has a separate level control.

Basically, the "990R" receiver operates from a 12 volt DC supply and incorporated is an AC mains power unit furnishing this supply. Alternatively, the receiver can be driven direct from a suitable DC source (Dry cells or accumulator) which is of advantage when mobile application is envisaged.

Other standard features include, built in crystal calibrator providing modulated marker signals at 10 MHz intervals, an adjustable carrier controlled muting system, and a clearly scaled meter for carrier level measurement or tuning purposes.

As illustrated the receiver is suitable for table or plinth mounting but it is easily converted to standard rack mounting.



Frequency Coverage

Four ranges directly calibrated on horizontal slide rule scale over 9" wide.

Range 1	 	130—240 MHz.	- Nominal.
Range 2	 	75—130 MHz.	
Range 3	 	46— 76 MHz.	
Range 4		27— 46 MHz.	

Intermediate Frequency

10.7 MHz. Output of up to 50 millivolts is available at low impedance from B.N.C. co-axial socket.

Low-level output is also available with provision for use as a $10.7 \ \text{MHz}$ input.

Calibration Accuracy

Precision geared slow-motion drive with reduction ratio of approximately 100 to 1. Nominal scale calibration accuracy is within 1%, but much higher accuracy is obtainable when the adjustable cursor is aligned against the 10 MHz markers provided by the crystal calibrator unit. An arbitrary logging scale is also provided, using markings on the tuning knob in conjunction with the bottom scale on the dial.

Controls

Front panel controls are:—Tuning; Range Selector Switch; System Switch; combined Mode/Supply Switch; Selectivity Switch; Cursor Adjuster; AGC: Muting and Calibration Switches. The built-in speaker can also be switched by means of panel switch. Pre-set Line Level; Meter Zero and Muting controls are located ar the rear of the set.

Power Supplies

Operation is from standard AC mains 100/130 volts or 200/260 volts, 40 to 60 Hz, which is transformed and rectified to 12 volt DC, the current consumption being 0.3 to 0.5 amperes.

Noise Factor

Better than 10 dB on all ranges up to 200 MHz.

Spurious Responses

All responses, including image, are at least 50 dB down, up to 200 MHz. Image above 200MHz of the order of 45 dB.

IF Bandwidth

30 kHz and 200 kHz.

Frequency Stability

Better than one part in 10⁵ per degree Centrigrade change in ambient temperature and of the order one part in 10⁶ per degree Centigrade when using crystal control.

Sensitivity

For a signal modulated 30% 1000 Hz, producing 50 milliwatts output with a signal-to-noise ratio of 10 dB in the AM and FM positions is 5uV.

Deviation

The FM discriminator accepts deviations of up to 75 kHz.

A.G.C. Characteristics

The audio level does not change by more than 10 dB for an increase in input of 80 dB above 10 microvolts, taken at 100 MHz.

Audio Output

The audio output can be fed into the internal monitor speaker (max. 150 mW) or to a separate 3 ohm external speaker (max. 500 mW). Line output at 600 ohms is restricted to a maximum of 10 milliwatts. The response is level within 6dB from 200 Hz to 10 kHz. A panel jack is fitted to accept low/medium impedance telephone headset.

Physical Details

Panel $16\frac{3}{4}" \times 5\frac{1}{4}"$ (42.6 cm × 13.4 cm).

Depth $13\frac{1}{2}''$ (34·2 cm) (about 14" with projections). Height (Table Mounting) $5\frac{3}{4}''$ (14·6 cm) including $\frac{1}{2}''$ rubber

feet.

Height (Rack Mounting) $5\frac{1}{4}$ " (13.4 cm).

Weight 19½ lbs. (8.8 kg).

Video Output and Response.

Video output is of the order of 1 volt peak-to-peak into a 1000 ohm load. Video response is 6 dB down at 20 Hz and 100 kHz with external loading of 250 pF.

Input Impedance

Aerial Input 75 ohms unbalanced into a BNC coaxial socket. External Oscillator Input—low impedance into BNC socket.

Panoramic Reception

Available for use with the "990R" receiver is the "EP17R" Panoramic Display Unit. This permits visual monitoring of received signals and will be found to be of considerable use in many directions dependent upon the particular project on hand.

Applications which come to mind are aerial adjustments for maximum gain and directivity; degree of fading present; presence and nature of interference and detection of spurious signals from a mal-adjusted transmitter.

In the laboratory the unit can be used, by switching the oscillator as a wobulator thus allowing for accurate alignment of receiver IF circuits.

The "EP17R" operates with the "990R" through an intermediate transistorised converter unit—Cat. No: 959, from the IF output of the receiver.

Full details of the Panoramic Unit are available separately.

Reference Number

The 990R receiver has been allocated the following Civil Aviation reference number:—Reference: 10D/CA/5967.

\$1195.



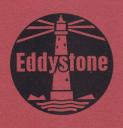
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990 S VHF/UHF COMMUNICATIONS RECEIVER



EDDYSTONE RADIO LIMITED
BIRMINGHAM 31

Eddystone

VHF/UHF COMMUNICATIONS RECEIVER

The Eddystone Model "990S" is a fully transistorised single conversion receiver for reception of AM and FM signals over the range 230 Mc/s to 870 Mc/s, thus taking in the whole of Bands IV and V allocated to television transmissions. Two separate RF heads, incorporating trough-line circuits, are used, the range switch simply energising one or other unit according to the range required.

The use of a high intermediate frequency (36.5 Mc/s) ensures good image protection and the alternative bandwidths provided permit reception of signals carrying amplitude, video or frequency modulation. A low impedance output at the intermediate frequency is available for driving ancillary equipment.

The audio frequency response is excellent, as is desirable for monitoring high quality television sound channels. For convenience, a built-in monitor speaker is fitted and outputs are provided for external speaker, telephone headset, and remote lines. In the latter case, the output is restricted to allow direct connection to lines and has a separate level control.

Basically, the "990S" receiver operates from a 12 volt DC supply and incorporated is an AC mains power unit furnishing this supply. The receiver can be driven direct from a suitable DC source (dry cells or accumulator), which is of advantage when mobile or field applications are envisaged.

Other noteworthy features include the standard Eddystone precision gear-driven slow motion drive; clear tuning scales; crystal calibrator; panel tuning meter; independent RF and IF gain controls calibrated directly in decibels; compact size and light weight.

As supplied, the receiver is in table-mounting style, but is easily converted to standard rack mounting.



Frequency Coverage

Two ranges with direct calibration on horizontal scales over 9" wide.

Range 1 470 to 870 Mc/s.
Range 2 230 to 510 Mc/s.

Intermediate Frequency

36.5 Mc/s. Output of up to 50 millivolts available at low impedance from coaxial socket.

Tuning System

Precision geared slow-motion drive, with reduction ratio of approximately 100 to 1. Nominal scale calibration accuracy is within 1%, but much higher accuracy is obtainable when the adjustable cursor is aligned against the markers provided by the crystal controlled calibrator at 50 Mc/s. intervals. An arbitrary logging scale is also provided, using markings on the tuning knob in conjunction with the third scale on the dial.

Controls

The following controls are fitted to the front panel:—Tuning; AF Gain (continuously variable); Bandwidth (6 Mc/s:1 Mc/s:FM 1 Mc/s); IF Attenuator (6 dB steps); RF Attenuator (3 dB steps); Meter and combined supply on/off Switch; Range; AGC off/on; AGC short/long; Speaker on/off; Calibrator on/off: cursor adjuster. At the rear are meter zero and line level controls, also IF input and output sockets.

Carrier Level Meter

An easily observed meter is fitted to the front panel and is marked in arbitrary divisions from 0 to 10. The associated switch allows the reading to be changed to linear, logarithmic or FM.

AGC Characteristic

The audio output level does not change by more than 15 dB for an increase in input of 70 dB above 10 microvolts.

Power Supplies

Operation is from standard AC mains 100/125 or 200/250 volts (40 to 60 c/s), which is transformed and rectified to 12 volts DC. A socket is provided for direct input at 12 volts DC, the current consumption being 0.3 to 0.5 amperes.

Construction

The receiver is of rigid, light-weight construction and considerable use is made of printed circuit techniques. Removal of the cabinet allows ready access to all parts of the interior. In its standard form, the receiver is table-mounting but the addition of brackets converts it to rack-mounting. Finish is two-tone grey.

Physical Details

Panel $16\frac{3}{4}'' \times 5\frac{1}{4}''$ (42.5 cm \times 13.3 cm). Depth $13\frac{1}{2}''$ (34.3 cm) (about 14" with projections). Height (table mounting) $5\frac{3}{4}''$ (14.6 cm) including $\frac{1}{2}''$ rubber feet.

Height (rack mounting) $5\frac{1}{4}''$ (13.3 cm). Weight 18 lb. (8.16 kg).

Noise Factor

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

Spurious Responses

All responses, including image, are at least 50 dB down.

Sensitivity

For a signal modulated 30% 1000 cycles, producing 50 milliwatts output with a signal-to-noise ratio of 10 dB. At 1 Mc/s bandwidth in AM position less than 5 uV, and in FM position less than 4 uV.

Bandwidths

6 Mc/s: 1 Mc/s: and 1 Mc/s (FM position.)

Deviation

The FM discriminator accepts deviations of up to 250 kc/s.

Frequency Stability

Of the order one part in 10⁵ per degree Centigrade change in ambient temperature.

Audio Output

The audio output can be fed into the internal monitor speaker (max. 150 mW) or to a separate 3 ohm external speaker (max. about 500 mW). Line output at 600 ohms is restricted to a maximum of 10 milliwatts. The response is level within 6 dB from 100 c/s to 10 kc/s. Panel jack for low/medium impedance telephone headset.

Video Output

Output from the AM and FM video channels is approximately 2.5 volts peak-to-peak into a 1,000 ohm load. A link at the rear allows both channels to be used simultaneously when necessary.

The LF response is 6 dB down at 20 c/s on both channels. The HF response is 6 dB down at 5 Mc/s on AM and 250 kc/s on FM, taking into account external loadings of 250 pF on AM and 350 pF on FM.

Input Impedance

75 ohms unbalanced to BNC coaxial socket.



Panoramic Reception

Available for use with the "990S" receiver is the "EP17R" panoramic display unit, which permits visual monitoring of received signals. It operates through an intermediate transistorised converter unit (Cat No. 939) from the i.f. output of the receiver. The combination is easy to set up, the units match each other physically and electrically, and versatility is increased. Maximum sweep of the display unit is one megacycle and resolution under optimum conditions is approximately two kilocycles. Full details of the "EP17R" are given in a separate sheet.

The complete panoramic receiver, as illustrated, bears the reference EPR29. The compact overall size is a feature of note.

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