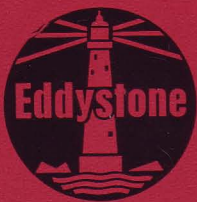


**990 R**

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 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 at 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  $10^5$  per degree Centigrade change in ambient temperature and of the order one part in  $10^6$  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  $\times$  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  $19\frac{1}{2}$  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.



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