# 990 S

## VHF/UHF COMMUNICATIONS RECEIVER

**EDDYSTONE RADIO LIMITED**

**BIRMINGHAM 31**

# Eddystone
## 990S
### 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.

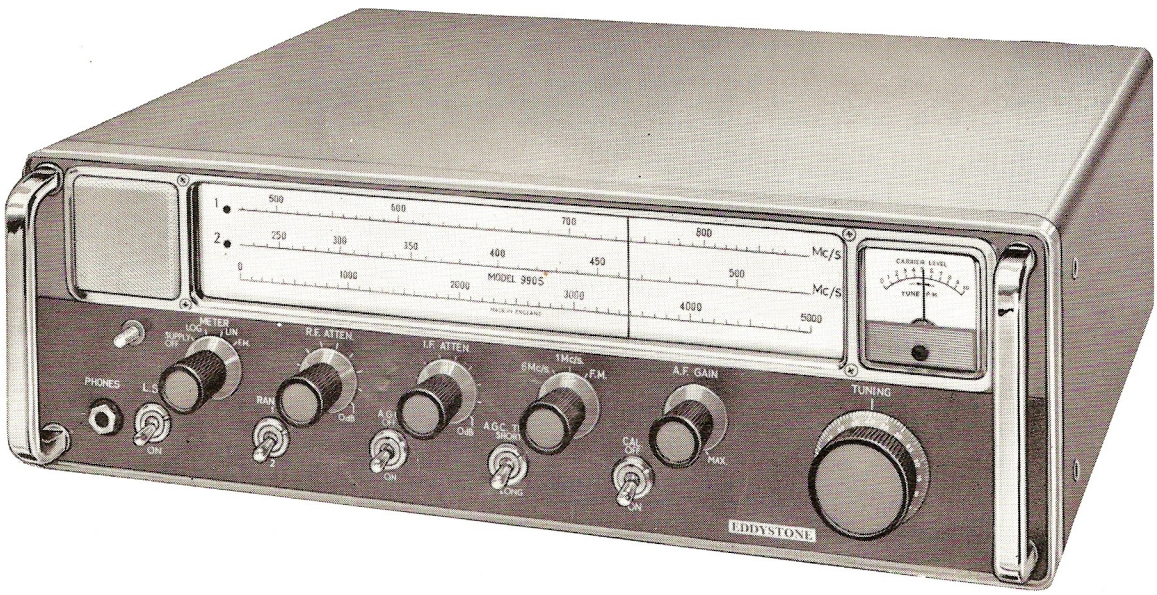
The use of a high intermediate frequency (36.5 Mc/s) ensures good image protection and the alternative bandwidths provided permit reception of signals carrying amplitude, video or frequency modulation. A low impedance output at the intermediate frequency is available for driving ancillary equipment.

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.

### 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 $16\frac{3}{4}$″ × $5\frac{1}{4}$″ (42.5 cm × 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.

### 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 $10^5$ per degree Centigrade change in ambient temperature.

### 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.

### 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.

**EDDYSTONE RADIO LIMITED**
ALVECHURCH ROAD, BIRMINGHAM 31, ENGLAND
Telephone PRIORY 2231
Cables EDDYSTONE, BIRMINGHAM
Telex 33708

Printed in England Issued November, 1965