

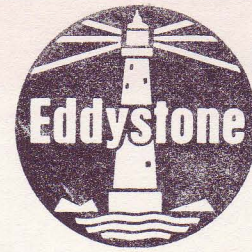
Eddystone Radio Limited

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Marine Communication Receiver

Model 1004

General Description Eddystone Model 1004 is a compact rack-mounting receiver specifically designed for marine applications. It provides reception facilities for CW, MCW & AM signals in accordance with the British MPT requirements for an approved Reserve Receiver, and also has provision for SSB reception.

The frequency coverage includes all the usual marine allocations in the bands 150kHz-535kHz and 1.6MHz-30MHz with provision for crystal-controlled operation in the high frequency band. Up to ten crystal-controlled channels can be accommodated, the front-end signal frequency circuits being manually tuned in the normal way. Crystals are supplied separately and are housed in a plug-in unit which incorporates the appropriate switching.

A totally separate crystal-controlled converter is incorporated as a standard feature to allow watch-keeping on the International HF Distress and Calling Channel (2182kHz). This listening channel is completely pre-tuned and can be selected without need for adjustment of the normal range switch or tuning control. Alternative marine frequencies can be fitted to special order.

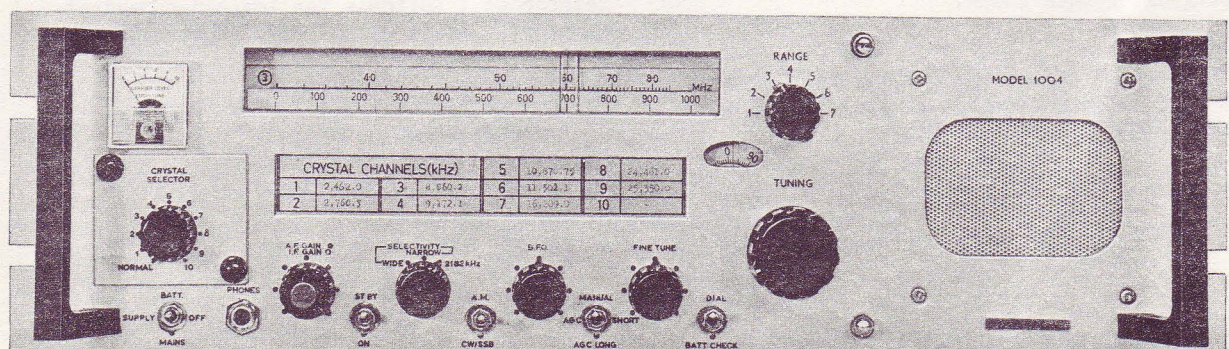
An internal power unit is provided for operation from standard 40-60Hz AC supplies and the receiver can also be powered from an external 12V or 24V battery. Supply switching permits instantaneous changeover to battery working in the event of mains failure and all forms of battery arrangement can be employed irrespective of earthing polarity.

Advanced single-conversion design techniques are employed using a mixture of solid-state devices including IC's and FET's. The RF Amplifier utilises the cascode configuration for best two-signal performance and this is maintained in the Mixer which uses a dual-gate MOSFET. Input protection is provided and a relay is included to interrupt the aerial circuit when using the receiver with an associated transmitter.

The IF Section is based on an integrated circuit which is used in conjunction with two high-grade multi-element ceramic ladder filters at 720kHz. A separate detector is used for CW/SSB reception and the associated BFO has a coarse control for normal use and a fine control which serves as a clarifier for SSB reception. AGC is permanently connected to the RF Stage but the IF Amplifier can be manually controlled when required. Desensitizing is controlled by a panel switch.

Loudspeaker and telephone outputs are derived from a second integrated circuit and a 600Ω line output is taken from a separate low-level amplifier. The loudspeaker output is interrupted when telephones are connected.

Frequency calibrations for tuning are marked on a horizontal scale drum which displays each range separately. Scale length is of the order 165mm (6.5in) on each range and a secondary scale below the main calibration can be used in conjunction with a vernier dial to provide a useful logging facility. Scale illumination is provided.



GENERAL SPECIFICATIONFrequency Coverage

150-535kHz and 1.6-30MHz in seven ranges plus pre-tuned channel set to 2182kHz. Ten spot-frequencies can be crystal-controlled in the band 1.6-30MHz using switched Style 'D' crystals: lower frequencies can be accommodated to special order.

Ranges: 150-385kHz, 380-535kHz, 1.6-2.65MHz, 2.6-3.8MHz, 3.6-8.5MHz, 8.5-18MHz, 18-30MHz.

Intermediate Frequency

720kHz. BFO coverage : 720kHz \pm 3kHz.

Reception Modes

A1, A2 & A2H telegraphy. A3, A3A, A3H & A3J telephony with upper sideband and lower sideband selectable in SSB mode.

Scale Accuracy and Resolution

Accuracy 1%. Resolution is typically 5kHz/mm in band 150-535kHz, 10kHz/mm from 1.6-3.8MHz.

Environmental

-15°C to +55°C (-20°C to +70°C storage)

Aerial Input

50/75 Ω unbalanced at all frequencies. Input conditions for data below:- 75 Ω above 4MHz, 10 Ω in series with 200/600pF below 4MHz.

Power Supplies

DC :: 12V or 24V. Consumption (12V) : 230mA at maximum audio o/p, 38mA quiescent.

AC :: 100/130V or 200/260V (40-60Hz). Consumption : approximately 12VA.

Dimensions and Weight

Panel : 483mm x 133mm (19in x 5.25in). Overall rack intrusion : 250mm (10in approx). Weight : 7.7kg (17lb).

Also available to special order as a bench-mounting receiver with close-fitting cabinet. Shock-mounts can be fitted when required.

Controls

Main Tuning, Range Switch, Crystal Selector, Mode Switch, Selectivity/2182kHz Switch, BFO (coarse and fine), IF & AF Gains, AGC Switch, Meter/Dial Light Switch, Standby Switch (de-sensitizing), Supply Switch (BATT-OFF-MAINS), Line Level (pre-set).

TYPICAL PERFORMANCE †Sensitivity (15dB S+N/N)

5 μ V on Ranges 1 - 5 and 15 μ V on Ranges 6 & 7. (Taken in 'AM' mode with 3kHz IF B/W for 50mW output with signal modulated 30% at 1kHz.)

Selectivity

WIDE: 8kHz at -6dB, 20kHz at -60dB.
NARROW: 3kHz at -6dB, 18kHz at -60dB.

Image Rejection

400kHz : 90dB. 1.6MHz : 60dB. 18MHz : 40dB.

IF Rejection

75dB on all ranges, rising to 90dB at 12MHz.

Stability

Better than 1 part in 10⁴/°C or 1 in 10⁶/°C with crystal-controlled oscillator.

Radiation

Not greater than 400pW.

Blocking

With wanted signal 60dB above 1 μ V, unwanted carrier 20kHz off-tune must exceed 90dB above 1 μ V to affect output by 3dB.

Cross Modulation

With wanted carrier 60dB above 1 μ V, unwanted signal 20kHz off-tune must exceed 90dB above 1 μ V to give an o/p 20dB below standard o/p.

Intermodulation (Taken on Range 6)

With receiver adjusted for standard output on signal 40dB above 1 μ V, simultaneous application of two interfering signals of level 100dB above 1 μ V, one modulated and the other not, will give an output not greater than standard output.

AGC Characteristic (Taken at 2MHz)

Less than 12dB change in output for an 80dB increase in input from 6 μ V.

Audio Output

Loudspeaker : 600mW @ 5% distortion.
Line : 10mW max into 600 Ω (pre-set adj.)
Telephones : suitable for low/med-Z headset.
Response : level within 6dB, 300Hz-6kHz.

(†) Not to be interpreted as a test specification.

The information contained herein is subject to confirmation at the time of ordering