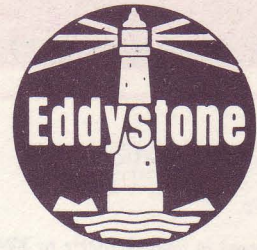


# Eddystone Radio Limited

Member of Marconi Communication Systems Limited  
Alvechurch Road, Birmingham B31 3PP, England  
Telephone: 021-475 2231  
Cables: Eddystone Birmingham Telex: 337081



## SINGLE CHANNEL RECEIVER

MODEL  
1680/3

### GENERAL DESCRIPTION

The Eddystone model 1630/3 receiver is a compact low-cost receiver for operation on a single channel in the frequency range 1.6MHz to 30MHz. Reception facilities for AM and USB are provided as standard, but reception on LSB, CW with variable BFO and FSK can also be provided.

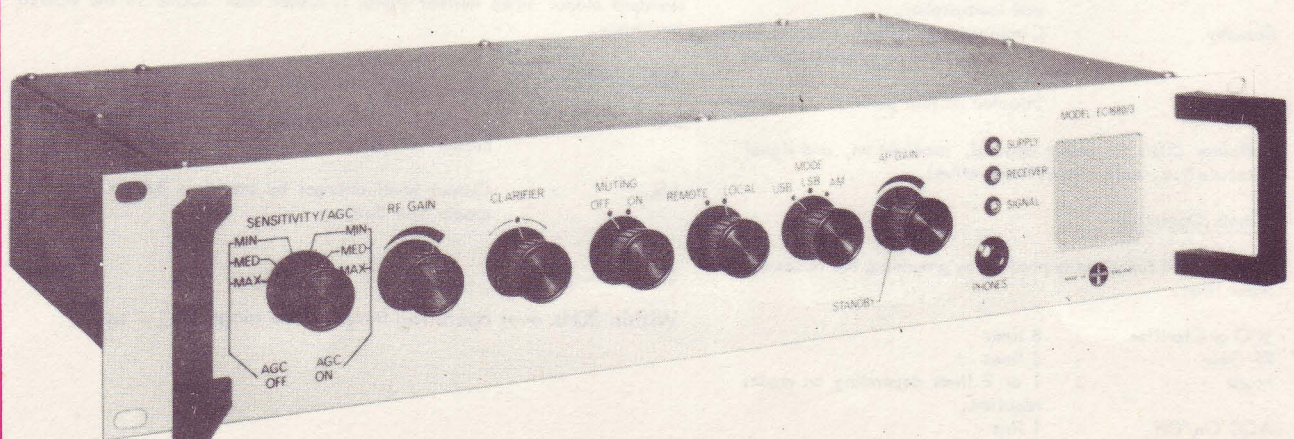
Power supply arrangements can be chosen to suit the customer's installation requirements. The standard receiver operates from standard 40Hz-60Hz AC supplies and from 24V DC supply (negative earth). For 12V or floating earth supplies, an external converter can be supplied.

Audio outputs provided are for connection to standard 600Ω circuits, output for headset, and 2 watts to an internal speaker plus 2 watts to an external speaker.

Audio-derived AGC is used for SSB reception and IF-derived AGC for AM. A manual RF gain is provided which can be used in conjunction with or instead of the AGC. A fast-acting muting circuit is included which provides 17dB of noise-quieting in the absence of a signal.

A single conversion circuit design is employed, with an output provided at the 1.4MHz intermediate frequency for connection to ancillary units, and operation in dual diversity is possible.

Remote control of all functions is available.



GENERAL SPECIFICATIONFrequency

One channel in range 1.6MHz to 30MHz.

Intermediate Frequency

1400kHz

Reception Modes

AM  
SSB in upper sideband.  
LSB, CW or FSK can be supplied to specific customer requirements.

Aerial Input

50Ω unbalanced  
30VRMS continuously applied will not damage the receiver.

Power Supplies

AC 100V/130V and 200V/250V (40Hz-60Hz) standard fitting.  
24V DC with negative earth standard fitting.  
12V DC and 24V DC with floating earth optional extra.  
Consumption 25VA.

Environmental

Operational : -10°C to +55°C  
Storage : -40°C to +70°C  
Humidity : 95% at +40°C  
Vibration : Compatible with all marine specifications.

Dimensions

Panel : 483mm x 88mm (19 inches x 3.5 inches).  
Intrusion into rack : 282mm (11 inches) over cover plus 50mm (2 inches) for cabling.  
Weight : 6.5Kg

Controls

Clarifier : Provides fine tune control.  
Aerial Attenuator : 3 position providing nominal 0dB, -20dB, -40dB.  
AGC : On/Off switch combined with attenuator.

RF Gain : Can be used with AGC On or Off.  
BFO (if fitted) : Range ±3kHz provided.  
Muting : On/Off control. Muting threshold dependent on RF gain setting.

Remote Mode : Remote/Local selection.  
Mode : Select AM or SSB or other modes if fitted.

AF Gain : Adjusts audio output to headset and loudspeaker.

Standby : Combined with AF gain removes HT from receiver leaving power applied to oven.

Line Level : Situated on rear panel.

Indicator LED's for power applied, receiver on, and signal received (i.e. mute circuit inoperative).

Remote Operation

Control of all functions is possible by grounding the necessary input lines.

BFO or Clarifier : 8 lines  
RF Gain : 5 lines  
Mode : 1 or 2 lines depending on modes required.  
AGC On/Off : 1 line  
Aerial Attenuator : 2 lines  
Muting On/Off : 1 line

PERFORMANCE SPECIFICATION

(Not to be interpreted as a test specification)

Sensitivity

1μV for 12dB SINAD on SSB.

Selectivity

SSB : -6dB +350Hz to +2700Hz  
-60dB -400Hz and +3400Hz  
AM : -6dB ±3.0kHz  
-60dB ±7.5kHz

Image Rejection

Greater than 50dB above 20MHz  
Greater than 70dB below 20MHz

IF Rejection

Greater than 90dB

Audio Output

Line 600Ω balanced or unbalanced : Preset to +10dBm maximum.  
Headset : 600Ω nominal, output adjusted by AF gain control to +10dBm maximum.  
Loudspeaker : 2 watts maximum.  
External loudspeaker : 2 watts maximum into 8Ω.

Overall Response

Level within 6dB over 300Hz to 2.7kHz.  
Distortion better than 5%, typically 2%.

Blocking

With a wanted signal 60dB above 1μV, an unwanted carrier 10kHz off-tune must be of a level greater than 110dB above 1μV to affect the output by 3dB.

Cross Modulation

With a wanted carrier 60dB above 1μV adjusted to give standard output at an audio frequency of 1400Hz, an unwanted signal 20kHz off-tune and modulated 30% at 1000Hz must be of a level exceeding 90dB above 1μV to produce an audio output greater than 30dB below standard output.

Intermodulation (In-Band)

The third order intermodulation products at 400Hz and 2200Hz produced by two carriers of level 80dB above 1μV tuned to produce outputs of 1000Hz and 1600Hz will be more than 30dB below standard output when the individual carriers each provide an output equal to standard output.

Intermodulation (Out-Of-Band)

With a wanted signal 1μV producing standard output, two unwanted signals adjusted to produce a third order intermodulation product at the wanted frequency, must each be of a level greater than 80dB above 1μV to produce standard output when neither signal is closer than 30kHz to the wanted frequency.

AGC Characteristic

SSB : Output level changes by less than 3dB for 100dB increase from 2μV.

AM : Output level changes by less than 3dB for 90dB increase from 5μV.

Stability

Within 20Hz over operating temperature range 0°C - +40°C.

As we are always seeking to improve our products, the information in this document gives only general indications of product capacity, performance and suitability, none of which shall form part of any contract. The information contained herein is subject to confirmation at the time of ordering.