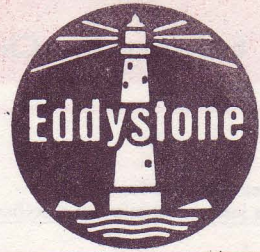


# Eddystone Radio Limited

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## TWO CHANNEL RECEIVER

MODEL  
1680/4

### GENERAL DESCRIPTION

The Eddystone model 1680/4 receiver is a compact low-cost receiver for operation on two channels 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.

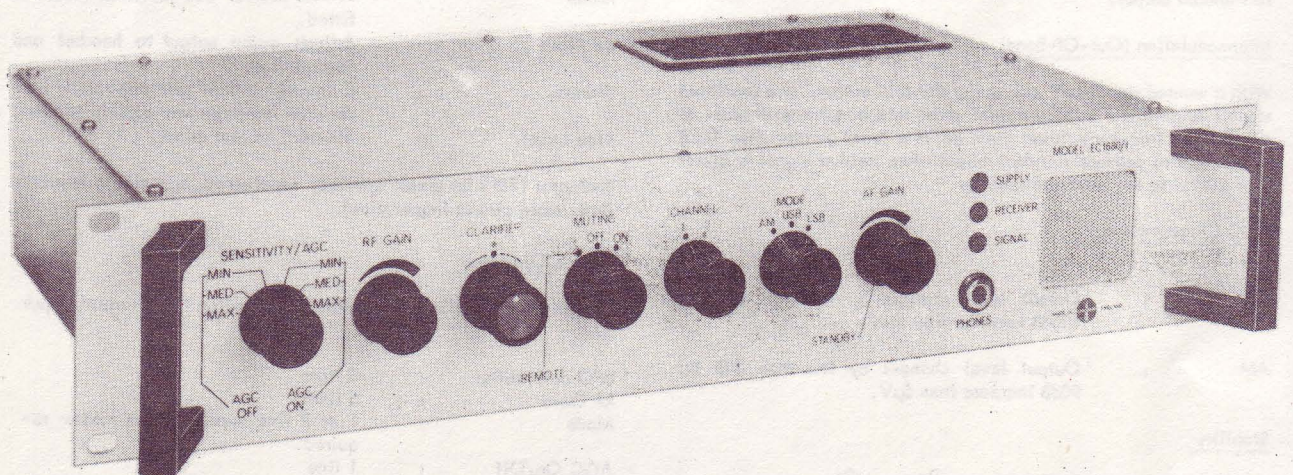
Power supply arrangements can be chosen to suit the customer's installation requirements. The standard receiver operates from standard 40Hz-60Hz AC supplies and from 24V DC supply (negative earth). For 12V or floating earth supplies, an external converter can be supplied.

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.



**Performance Specification**  
(Not to be interpreted as a test specification)

**Sensitivity**

1 $\mu$ V for 12dB SINAD on SSB

**Selectivity**

SSB -6dB +350Hz to +2700Hz  
-6dB -400Hz and +3400Hz

AM -6dB  $\pm$ 3.0kHz  
-6dB  $\pm$ 7.5kHz

**Image Rejection**

Greater than 60dB above 20MHz  
Greater than 70dB below 20MHz

**IF Rejection**

Greater than 90dB

**Audio Output**

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

**Overall Response**

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

**Blocking**

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

**Cross Modulation**

With a wanted carrier 60dB above 1 $\mu$ V 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 1 $\mu$ V 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 1 $\mu$ V 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 1 $\mu$ V 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 1 $\mu$ V to produce standard output when neither signal is closer than 30kHz to the wanted frequency.

**AGC Characteristic**

SSB : Output level changes by less than 5dB for 100dB increase from 2 $\mu$ V.

AM : Output level changes by less than 3dB for 90dB increase from 5 $\mu$ V.

**Stability**

Within 20Hz over temperature range 0 $^{\circ}$ C to +40 $^{\circ}$ C.

**General Specification****Frequency**

Two channels 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**

50 $\Omega$  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 $^{\circ}$ C to +55 $^{\circ}$ C  
Storage : -40 $^{\circ}$ C to +70 $^{\circ}$ C  
Humidity : 95% at +40 $^{\circ}$ 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 aerial attenuator.  
RF Gain : Can be used with AGC On or Off.  
BFO (if fitted) : Range  $\pm$ 3kHz provided.  
Muting : On/Off control. Muting threshold dependent on RF gain setting.  
Remote : Remote/Local selection, combined with muting control.  
Channel Mode : Selects channels 1 or 2.  
Mode : Selects 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 line.

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

Our equipment is designed generally to meet "British Defence Specification 133 Class L2".

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 herein is subject to confirmation at the time of ordering.