BARRETT

HF Radio Communications

2050 HF SSB Transceiver

- **Secure long range voice, email, telephone, and tracking**
- **Rapid mobile or base station installation**
- **Reliable and easy to operate**
- **Independent of all other communications networks**
- **Free to air - no call costs**

The Barrett 2050 HF transceiver, the centrepiece of the 2000 series of HF communications equipment, combines current technology with the intuitive “ease of use” that has become synonymous with Barrett Communications equipment. Teaming the versatile 2050 transceiver with other 2000 series products provides email, fax, telephone and data connectivity within an HF network and onwards to both the international telephone network and the Internet.

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Barrett 2050 HF transceiver front panel

Digital Signal Processing (DSP)
A single DSP chip provides modulation and demodulation of all on air signalling used in the ALE, Selective Call and syllabic mute processes and provides noise reduction of received signals.

Frequency hopping option
A simple to operate, unique frequency hopping system that has no network entry time or late entry time. Simply enter the hop band, cipher key number and talk.

Simple architecture
The transceiver uses only two microprocessors, the main processor uses a soft loaded core while the second processor is used within the control head to operate the display and keypad.

Barrett 2050 HF transceiver rear panel

ALE - Automatic Link Establishment
An embedded internal option fully interoperable with FED STD 1045 ALE systems. Also capable of full 16 digit telephone dialing (using FED STD 1045 ALE as the signalling medium) with Barrett 960 or Barrett 2060 ALE equipped telephone interconnects.

Selective Call options
Fitted with both a CCIR 493-4 based, four and six digit system of which the protocol is available for free distribution and an OEM protocol that is fully compatible with other major HF manufacturers four and six digit systems that utilise encryption.

BITE - Built-in Test Equipment
Tests receiver performance, selcall, syllabic mute, VCO operation and serial communications port viability.

Programming by IR or serial port
For ease of programming in a vehicle a notebook computer loaded with the 2000 series programming package can load a transceiver's parameters without the need for cables through the remote head IR port.

Second antenna connector
Allows each channel to select one of two antennas - ideal when long and short distance antennas are used.

Size and weight
The 2050 in a local control configuration measures only 185(w) x 270(d) x 70(h) and weighs less than 2.6 kg. Housed in a lightweight, extremely strong sealed aluminium chassis, 2050 meets MIL-STD 810F for drop, dust, temperature, shock and vibration.

GPS tracking
An option that supports connection to an external GPS receiver for tracking applications using the Barrett 977 tracking system.

Direct dial telephone calls
"Telcall" option provides direct dialling access with Barrett Communications' HF Telephone Interconnects and most interconnects from other manufacturers.

"SMS Pagecall"
Allows short text messages to be sent from one 2050 transceiver to another. Barrett 2050 transceivers have alpha-numeric input keys (similar to mobile phones) that allow direct text message input (without the need for an external PC or Palm type input device).

HF email fax and data
The 2050 transceiver auxiliary connector is fully featured to interface to a variety of external modems including the Barrett 2020 HF email system. The Barrett 2020 Email fax & data system is ideal for the provision of full telecommunication facilities within organisations with remote-sited operations with no existing communication infrastructure.

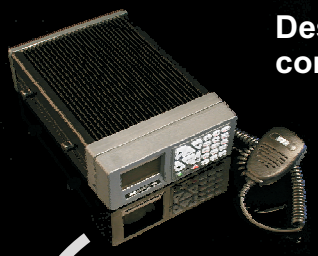
The 2020 provides a simple automatic interface for speech, data, fax and email among all stations in the HF Network with full connectivity to Internet email and fax facilities via the international telephone network.

Barrett 2050 HF transceiver with 2023 modem, 2022 power supply and notebook PC running the Barrett 2020 Email fax and data system software

Manpack configuration
Inserting the 2050 into the 2040 manpack adaptor, the complete unit becomes a lightweight (6.4 kg) manpack transceiver with built-in automatic antenna tuner, battery management system and removable Lithium Ion battery cartridge. All connections such as handsets and auxiliary units are made through military specification connectors. Available with the manpack is a custom made backpack and frame assembly designed to hold the manpack, accessories normally used with the unit and other personal items.

2050 HF SSB Transceiver

Inserting the 2050 into the 2040 manpack adaptor, the complete unit becomes a lightweight (6.4 kg) manpack transceiver



Desk top configuration

Mobile configuration with 2019 automatic tuning mobile antenna

Configuration flexibility

The 2050 transceiver is packaged as a desktop (local control) transceiver and with the addition of the simple and inexpensive mobile pack the 2050 is quickly reconfigured to a mobile (trunk mount) transceiver. This feature simplifies the logistics of stocking the right transceiver for the right application. The modular design of the 2000 series of products as a whole enables a basic 2050 transceiver to adapt quickly and easily between base station, mobile, email, fax and data and manpack configurations.

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HF Radio Communications

2050 HF SSB Transceiver

General Specifications

Standards	Exceeds/complies with Australian/ New Zealand standard AS/NZS 4770:2000 and AS/NZS 4582:1999 Exceeds/complies with EMC and vibration standard IEC 945 Complies with MIL-STD 810F for drop, dust, temperature, shock and vibration.
Transmit frequency range	1.6 MHz to 30 MHz (continuous)
Receive frequency range	500 kHz to 30 MHz (continuous)
Channel capacity	Up to 500 programmable channels (simplex or semi-duplex)
Frequency resolution	10 Hz program mode 1 Hz tunable receiver
Frequency stability	±10 Hz or better than 0.3 ppm over temperature range - 30°C to + 70°C
Operating modes	J3E (USB, LSB) - H3E (AM) - J2A (CW) - J2B (AFSK) Optional J2B (AFSK) with narrow filter
Operating temperature	-30°C to +70°C humidity 95% relative, non-condensing
Frequency hopping	25 or 5 hops per second with external syncronisation unit (ESU) supplied when the option is fitted. The Barrett frequency hopping system requires no master station, all stations are synchronised and ready to communicate on switch-on. Synchronisation is not affected by propagation or local interference and there is no late entry synchronisation delay
Supply voltage with	2050 -13.8 V DC +20% / -10% (negative ground) polarity protected. Over voltage protected. Manpack 22 to 27 V DC (100-260 V AC or 11 to 16 V DC power adaptor
Current consumption	470 mA standby (muted, back lighting off)
Selcall system	Based on CCIR 493-4, four and six digit systems. Protocol available for free distribution. Fully compatible with other major HF manufacturers' four and six digit systems including encrypted systems
Switching speed	Less than 15mS Tx to Rx, Rx to Tx

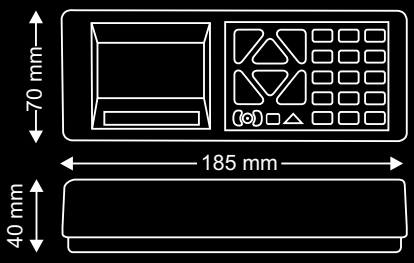
Receiver Specifications

Sensitivity	-120 dBm (0.224 uV) for 10 dB SINAD - J3E Mode pre-amp on -110 dBm (0.708 uV) for 20 dB SINAD - J3E Mode pre-amp on
Selectivity J3E	-1 kHz and +4 kHz better than 50 dB -2 kHz and +5 kHz better than 55 dB -5 kHz and +8 kHz better than 60 dB
Selectivity J2B (optional)	-500 Hz and +500 Hz better than 60 dB - the level of an unwanted signal above the level of a wanted signal that will reduce the SINAD of the wanted signal from 20 dB SINAD to 14 dB SINAD
Blocking	-20 kHz and +20 kHz better than 71 dB - the level of an unwanted signal above the level of a wanted signal that will reduce the SINAD of the wanted signal by 6 dB or cause an output level change of 3 dB
Intermodulation	Better than 89 dBµV - the level of two unwanted signals, that are within 30 kHz of the wanted signal, above the level of a wanted signal that reduces the SINAD of the wanted signal to 20 dB
Spurious response ratio	Better than 70 dB
Reciprocal mixing	Better than 105 dBuV
In-band IMD	Better than 34 dB
Audio output	4 W into 4 ohms at less than 2% distortion
Audio response	Less than 6 dB variation from 350 Hz to 2700 Hz
Input protection	Better than 30 V RMS from a 50 ohm source

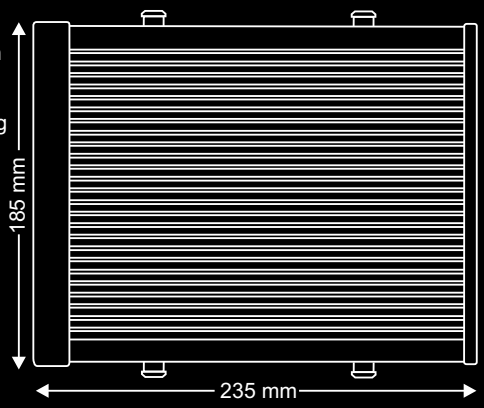
Transmitter Specifications

RF output power	125 W PEP voice ± 1.5 dB or 30 W PEP voice ± 1.5 dB or 10 W PEP voice ± 1.5 dB
Duty cycle	100% two tone input signal with fan option
Intermodulation products	Better than -31 dB below PEP (25 dB below two tone peak)
Audio frequency response	Less than 6 dB variation 350 Hz to 2750 Hz
Current consumption	Voice average less than 9 Amps typical Two tone less than 12 Amps typical

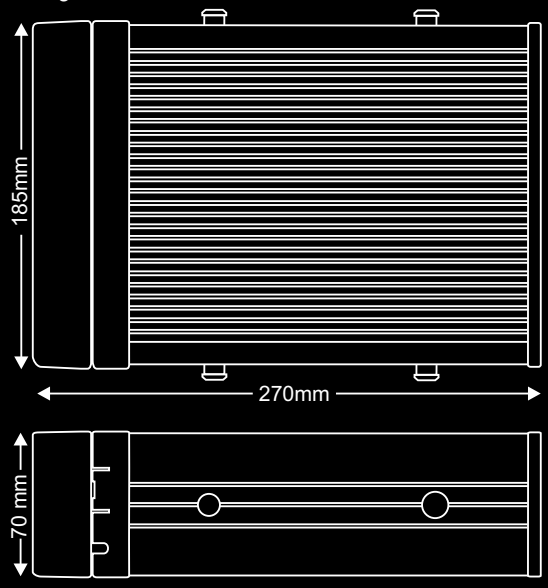
2050 remote control head (trunk mount configuration) Weight 0.22 kg



2050 ,remote configuration (trunk mount) main unit Weight 2.36 kg



2050 local control configuration Weight 2.58 kg



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