Data Sheet

Barrett 4050

HF Software-defined Radio

MOTOROLA SOLUTIONS

Software-Defined Radio, Redefined

The Barrett 4050 HF SDR transceiver combines Software-Defined Radio technology with a robust design, intuitive interface and encryption capabilities.

When teamed with other Barrett HF products, this transceiver provides secure email, data transfer and text within a HF network and IP networks.

The Barrett 4050 transceiver can be controlled from all major mobile and desktop platforms. Its remote control app runs on iOS, Android and Windows devices for wireless voice and radio control.

Key features

- Intuitive and user-friendly touch-screen interface
- IP Connectivity (ED-137C compliant[1])
- Wireless and wired operation via iOS, Android® and Windows® devices
- Multi-Language software GUI
- Digital Voice and Secure Digital Voice options
- AES-256 encryption with FIPS 140-3 Level 3 validated security
- 2G and 3G Automatic Link Establishment (ALE)
- On-board high speed data transmission modem options
- Detachable control head
- Control Handset option
- Up to 150W transmit power
- Low current consumption
- GPS Push option
- Free Scroll Rx (VFO)

[1] Conforms to ED-137C (Part 1: Radio); only a single transmitter supported

Configurable to suit your mission

The Barrett 4050 is a versatile, flexible platform that supports a variety of configuration options, while offering uncompromising performance and security.

Base station configuration

The transceiver easily connects to the Barrett 4022 power supply for base-station operation.

Remote front-panel configuration

The front panel can be removed for installation in a vehicle.

Control handset

The fully featured Barrett 4050 control handset provides streamlined radio control, particularly in vehicle and marine installations. The handset can be used as the only control interface or in conjunction with the standard control panel.

High-resolution touchscreen control

Access to Barrett 4050's HF radio interface is via a super-bright high-definition 24-bit color touchscreen, providing maximum viewability under most lighting conditions.

Multi-language UI

Change the Barrett 4050 language setting at the touch of a button. Each radio ships with multiple language menus including English, French, Spanish, Arabic, Russian, Turkish and Chinese.

Software-defined architecture

The Barrett 4050 transceiver's advanced Software-defined architecture offers complete software control of RF modulation and bandwidth, providing unprecedented flexibility and reliability with ease of upgrade. Custom emissions and filter bandwidths of up to 24 kHz (wideband HF option) can be enabled with a simple swipe of the touchscreen.

IP network connectivity

Built into the 4050 control head, the wireless access point allows mobile cellular handsets, tablets and desktop PCs to connect directly to the transceiver over Wi-Fi, using the optional Wi-Fi adapter. Ethernet connectivity to additional IP configurations is provided via a standard RJ45 Ethernet socket on the rear of the 4050ip transceiver.

Advanced calling features

The Barrett 4050 transceiver is fully interoperable with advanced digital selective calling systems commonly used by many peacekeeping and non-government organisations globally. Second generation (2G) ALE, based on MIL-STD-188-141B (JITC certified) and FED-STD-1045, is available as an option for automatic point-to-point and/or multipoint calling including AMD text messaging and GPS position. For superior fast link setup (FLSU), robust packet data and greater penetration on noisy channels, 3rd generation (3G) ALE based on STANAG 4538 is also available.

Encrypted Communications (optional)

Secure Digital Voice (SDV) allows users to encrypt their communications over HF radio providing a secure HF network. We offer two SDV encryption algorithms: a non-export controlled DES-56 vocoder with rates of 700, 1200 and 2400 bps, or an export controlled AES-256 vocoder with rates of 600, 1200 and 2400 bps. Optional FIPS 140-3 Level 3 validated AES-256 encryption helps protect cryptographic keys from digital and physical tampering.

Enhanced DSP noise reduction

The digital signal processor (DSP) provides clear intelligible voice communications on analogue circuits through the digital removal of background noise and radio interference.

Frequency hopping (optional)

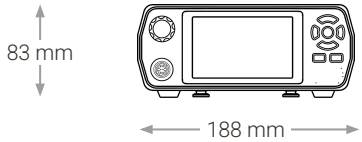
The frequency hopping option requires no central synchronisation station, has no early or late entry time delay and requires no handshaking. Available hopping rates of 5, 15 and 25 hops per second, it can be operated for extended periods in the field without synchronisation. (**Please note:** this option is subject to export controls.)

Data modem capability

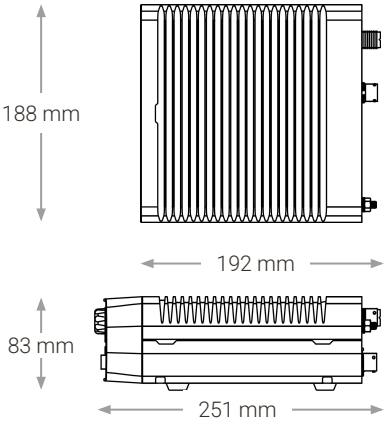
The Barrett 4050 transceiver offers multiple data waveform options, including MIL-STD-188-110A/B (STANAG 4285, 4415, 4481, 4529, 4539) and STANAG 4538. These waveforms provide throughput rates up to and in excess of 19200 bps.

SPECIFICATIONS AND STANDARDS	
TX frequency range	1.5 MHz - 30 MHz (reduced performance below 1.6 MHz)
RX frequency range	250 KHz - 30 MHz
Channel capacity	Barrett 4050ip: 1000 Barrett 4050se: 200
Frequency stability	± 0.5 PPM at operating temperature
Frequency resolution	10 Hz program mode 1 Hz tunable receiver
Operating modes	J3E (USB, LSB) - H3E (AM) - J2A (CW - CF (custom filter) - ISB (data option)
Frequency hopping	5, 15 or 25 hops per second
Sensitivity	–125 dBm (0.126 µV) for 10 dB SINAD (sensitivity is lower between 250 kHz and 500 kHz)
Power output	150 W PEP with 13.8V DC supply (100 W PEP in Australia)
Duty cycle	100% data with fan option
Standards	FCC Part 87 and Part 90 MIL-STD-810G for temperature, humidity, altitude, shock, vibration NTIA Certified JITC CE Australia/New Zealand AS/NZS 4770 2000 and AS/NZS 4582:1999 EMC and vibration standard IEC 95

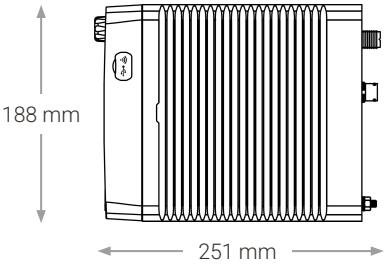
Front panel
Weight 0.35 kg



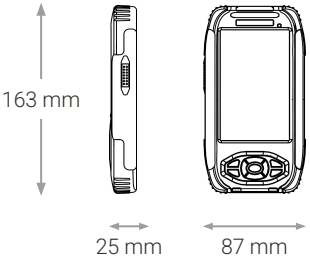
Remote control (mobile) configuration
Weight 2.2 kg

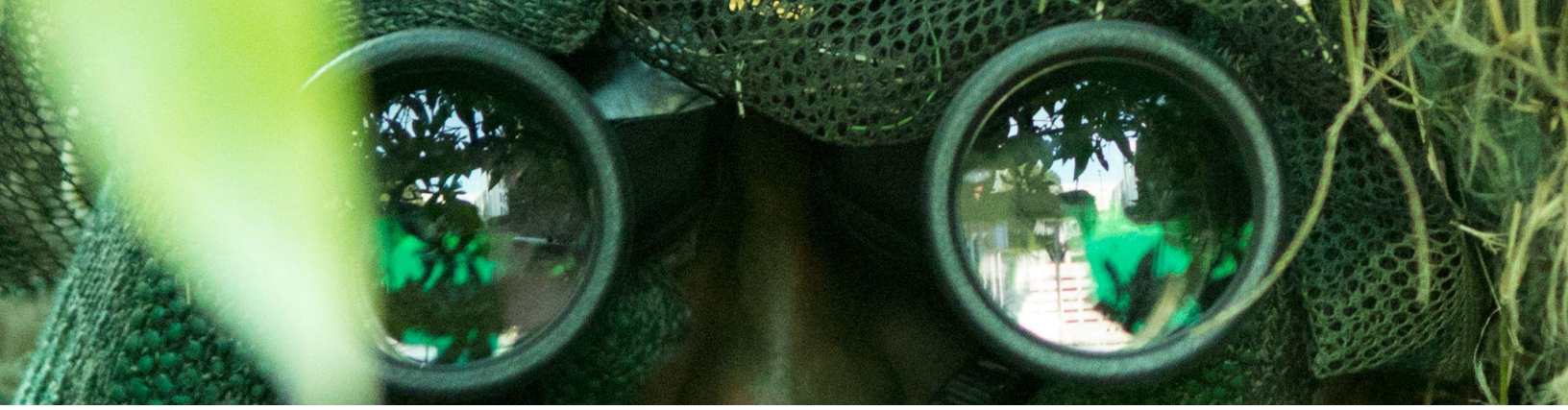


Base station configuration
Weight 2.55 kg



Control handset
Weight 0.28 kg





4050 TRANSCEIVER COMPARISON		
FEATURES AND OPTIONS	**4050ip HF SDR TRANSCEIVER**	**4050se HF SDR TRANSCEIVER**
Fully software-defined architecture	Standard	Standard
Intuitive and user-friendly software interface	Standard	Standard
High-resolution touchscreen control	Standard	Standard
Up to 150W transmit power	Standard	Standard
Multi-language software interface	Standard	Standard
Superior receiver performance	Standard	Standard
Low current consumption	Standard	Standard
Digital selective calling	Standard	Standard
Channels	1000	200
Contacts	500	300
Enhanced noise reduction DSP	Standard	Standard
Backwards compatible with existing radio networks	Standard	Standard
USB connection	Standard	Standard
Integrated GPS Interface	Standard	Standard
Detachable control head	Standard	Standard
Free Scroll Rx (VFO)	Standard	Standard
Free Scroll Tx[1]	Optional	Optional
ED IP-137C VoIP interoperability[2] standard	Optional	Optional
IP connectivity[2]	Standard	Optional
Control handset	Optional	Optional
Secure call	Optional	Optional
2G Automatic Link Establishment (ALE)	Optional	Optional
3G Automatic Link Establishment (ALE)	Optional	Not available

4050 TRANSCEIVER COMPARISON		
FEATURES AND OPTIONS	**4050ip HF SDR TRANSCEIVER**	**4050se HF SDR TRANSCEIVER**
GPS push	Optional	Optional
Frequency hopping	Optional	Optional
Data modem capability	Optional	Optional
Wireless operation via iOS, Android and Windows[2]	Optional	Optional
Digital voice and secure digital voice	Optional	Optional
On-board high-speed data transmission waveforms[3]	Optional	Optional
AUX dual 600Ω port option	Optional	Optional

[1] Restricted in some countries
[2] IP connectivity via USB only
[3] Using non-3G waveforms

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