JAVAD

HPT404BT

HPT404BT is the up-to-date unsurpassed 4 W UHF radio transceiver with USB and Bluetooth® capacity. The unmatched features of HPT404BT include:

- 16 miles (26 km) maximum distance range
- Bluetooth® Interface
- Data speed over the air 38400 bps at 25 kHz and 19200 bps at 12.5 kHz
- Programmable Output Power (32 mW to 4 W)
- Advanced Forward Error Correction (FEC)

- Serial port configurable as RS-232 or RS-422, or RS-485
- Data speed over the serial port 9600 to 115200 bps
- Testing, monitoring and control of the unit over the air
- AlphaWave SuperScan® - automatic search and select for best frequency/channel

The HPT404BT radio transceiver provides a high-speed point-to-point and point-to-multipoint wireless data transfer at up to 38.4 kbps. HPT404BT firmware supports user selectable modulation techniques (GMSK, 4FSK, DBPSK, DQPSK, D8PSK, or D16QAM), which allows the user to achieve the highest data speed for a given range (up to 16 miles/26 km). It also includes a selectable error correction, which improves the functioning of the radio modem under interference.

The sophisticated features of HPT404BT include data scrambling, frequency hopping, user-selectable transmit output power level, low power consumption sleep modes, auto scanning for the base and plug-and-play installation for remote terminals.

The built-in software tools provide the wireless link testing, unit's status and error statistics monitoring as well as unit's settings change over the air. The firmware of the HPT404BT radio modem resides in a flash memory. The updating of the radio modem programs is entirely software-based. The flash memory is reprogrammable through an RS-232 interface, USB, or Bluetooth.

HPT404BT

General Radio Specifications

- Operating Frequency Range:
  - 406 - 470 MHz (EU)
  - 406.1 - 470 MHz (USA)
  - 406.1 - 430;450-470 MHz (Canada)
- Channel Bandwith:
  - 25/12.5/6.25 kHz (USA for 406-420 MHz)
  - 12.5/6.25 kHz (USA for 421-470 MHz)
  - 25/12.5/6.25 kHz (Canada)
  - 25/20/12.5 kHz (EU)
- Data Rate (25/20/12.5/6.25 kHz Channel Bandwith):
  - 9600/7500/4800/2400 bps − DBPSK/GMSK
  - 19200/15000/9600/4800 bps − DQPSK/4FSK
  - 28800/22500/14400/7200 bps − D8PSK
  - 38400/30000/19200/9600 bps − D16QAM
- System Gain for DBPSK modulation (Antenna gain is not included):
  - 161 dB (for 25 kHz Channel Bandwith)
  - 163 dB (for 12.5 kHz Channel Bandwith)
  - 164 dB (for 6.25 kHz Channel Bandwith)
- Roaming Speed for DBPSK modulation:75 mph / 120 km/h
- Modulation:GMSK/4FSK/DBPSK/DQPSK/D8PSK/D16QAM
- Nominal Impedance: 50 Ohms
- End to End delay: 60 ms
- Communication Mode:
  - Time Division Duplex (TDD)
  - Time Division Multiple Access (TDMA)
- Maximum Distance Range: 16 miles / 26 km
- Serial port:
  - Serial (RS-232) up to 115200 bps.
  - Serial port configurable as RS-232 and RS-422, or RS-485
- Built-in USB to RS232 FTDI converter. 12Mbps USB 2.0 Full-Speed
- Bluetooth:
  - V2.0 Class 2 supporting SPP Slave and Master Profiles
  - FCC ID: WJ4BT4EX8M; IC : 3504A-BT4EX8M
- Bluetooth Antenna: Internal

Transmitter Specifications

- Output Power:
  - USA, Canada: 15 dBm to 36 dBm in 1 dB steps (32mW to 4W)
  - EU : 15 dBm to 33 dBm in 1 dB steps (32mW to 2W)
- Output Power Control Accuracy:
  - ±1.5dB (at normal test conditions)
  - +2.0dB and -3.0dB (under extreme test conditions)
- Carrier Frequency Stability
  - ±1.5 ppm initial stability over temp with
  - ±3.0 ppm aging/year
- Max. Frequency Error
  - ±1.0 kHz (at normal test conditions)
  - ±1.5 kHz (under extreme test conditions)

- Adjacent Channel Power:
  - 25/12.5/6.25 kHz CS Part §90.210 (C, D, E) (USA, Canada)
  - 25/20/12.5 kHz CS60 dBc (EU)
- Spurious Emission (Conducted):
  - -36 dBm (9 kHz − 1GHz)
  - -30 dBm (1GHz − 4 GHz)
- Spurious Emission (Radiated):
  - -36 dBm (9 kHz to 1 GHz)
  - -30 dBm (1 GHz to 4 GHz)

Receiver Specifications

- Noise Figure: 3 dB
- Receiver Sensitivity BER 1×10^{-4}, 25 kHz CS:
  - DBPSK -116 dBm 25kHz / -117 dBm 12.5kHz
  - DQPSK -115 dBm 25kHz / -116 dBm 12.5kHz
  - D8PSK -110 dBm 25kHz / -111 dBm 12.5kHz
  - D16QAM -106 dBm 25kHz / -107 dBm 12.5kHz
  - GMSK -113 dBm 25kHz / -114 dBm 12.5kHz
- Dynamic Range: -115 to −15 dBm
- Max. Input Signal Level: -10 dBm
- Co-channel Rejection:
  - -8 dB for 25 kHz Channel Bandwith
  - -8 dB for 20 kHz Channel Bandwith
  - -12 dB for 12.5 kHz Channel Bandwith
  - -16 dB for 6.25 kHz Channel Bandwith
- Adjacent Channel Selectivity:
  - 70 dB for 25 kHz Channel Bandwith
  - 70 dB for 20 kHz Channel Bandwith
  - 60 dB for 12.5 kHz Channel Bandwith
  - 50 dB for 6.25 kHz Channel Bandwith

Environmental Specifications

- Operating Temperature: −40º C to +70º C
- Storage Temperature: −40º C to +85º C
- Enclosure: Aluminum, IP 67
- Dimensions: 5.75 x 2.95 x1.73 inches (146 x75 x44 mm)
- Weight: 1.07 lbs (488 g)
- Power Supply Voltage: +9 to +36 VDC nominal
- Power Consumption (Average):
  - 18W / 2W / 0.01W −Transmit / Receive / Sleep
- Housing Color: Two-tone Green/ Gray
- Antenna Connector: TNC, 50Ω
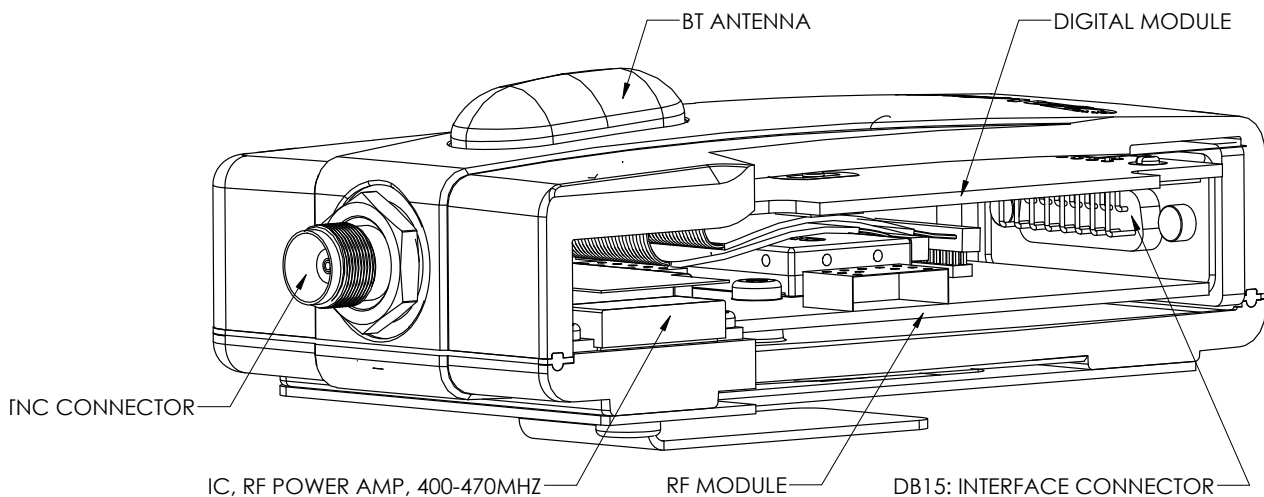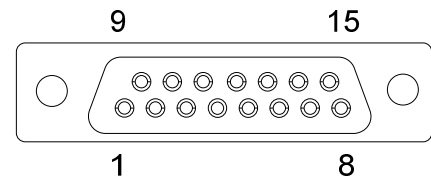
Compliance

- FCC Part 90
- Industry Canada RSS-119
- R&TTE:
  - ETSI EN 300 113-2
  - ETSI EN 301 489-5
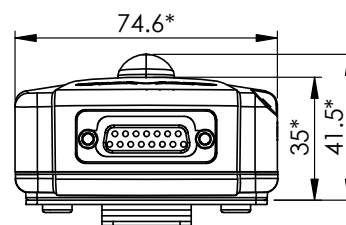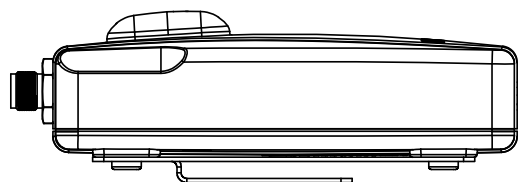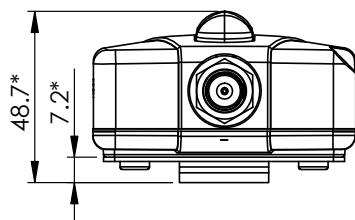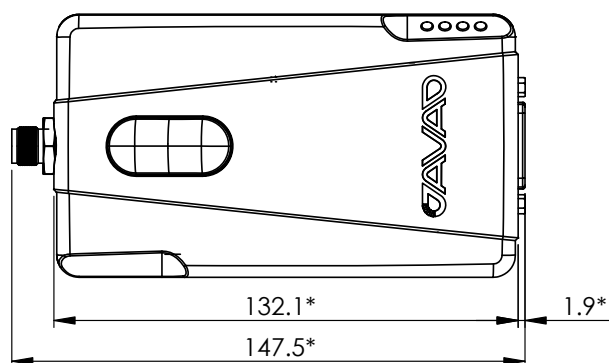 - EN 60950-1:2006

DB15 Connector Specification

Pin #	Signal Name	I/O	Description
1	DCD_OUT	O	Data Carrier Detect (RS-232)
2	DTR_OUT	O	Data Terminal Ready (RS-232)
3	RX+/CTS_IN	I	Receive Data positive line (RS-422)/Clear to Send (RS-232)
4	RX-/RX_IN	I	Receive Data negative line (RS-422)/ Receive Data (RS-232)
5	PWR_IN	I	+9 to +36 VDC Power Input
6	USB_PWR	I	Power Input line (USB)
7	Ground	-	Power Ground
8	PWR_IN	I	+9 to +36 VDC Power Input
9	DSR_IN	I	Data Set Ready (RS-232)
10	TX+/RTS_OUT	O	Transmit Data positive line (RS-422) / Request to Send (RS-232)
11	TX-/TX_OUT	O	Transmit Data negative line (RS-422) / Transmit Data (RS-232)
12	Ground	-	Power Ground
13	USB_D+	I/O	Positive line (USB)
14	USB_D-	I/O	Negative line (USB)
15	Ground	-	Power Ground

This connector provides DB15 connectivity for the HPT404BT with DTE.
About using and configuration RS-485 please contact JAVAD GNSS support

BT ANTENNA

DIGITAL MODULE

TNC CONNECTOR

IC, RF POWER AMP, 400-470MHZ

RF MODULE

DB15: INTERFACE CONNECTOR

HPT404BT

132.1*

1.9*

147.5*

48.7*

7.2*

74.6*

35*

41.5*

* All dimensions are in mm

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