



HPT401BT

HPT401BT is the up-to-date unsurpassed 1W UHF radio transceiver with USB and Bluetooth® capacity, and internal rechargeable Li-Ion batteries. The unmatched features of HPT401BT include:

- 8 miles (12.87 km) maximum distance range
- Full speed USB 2.0 device port
- 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 1 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 HPT401BT radio transceiver provides a high-speed point-to-point and point-to-multipoint wireless data transfer at up to 38.4 kbps. HPT401BT 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. It also includes a selectable error correction, which improves the functioning of the radio modem under interference.

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 HPT401BT radio modem resides in a flash memory. The updating of the radio modem programs is entirely software-based. The flash memory is re-programmable through an RS-232 interface, USB, or Bluetooth.

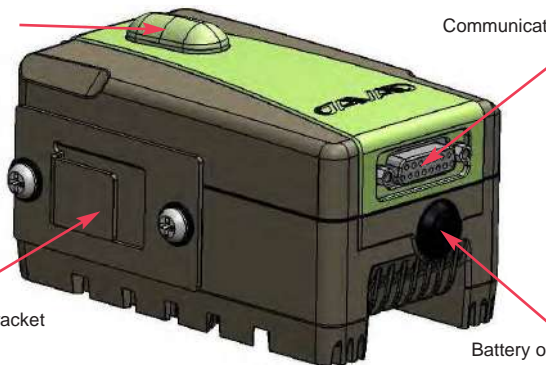
HPT401BT

General Radio Specifications

Parameter	Specification
Operating Frequency Range	406 - 470 MHz (EU) 406.1 - 470 MHz (USA) 406.1 - 430; 450 - 470 MHz (Canada)
Channel Spacing	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 Spacing)	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
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	8 miles / 12.87 km
Serial port	Serial (RS-232) up to 115200 bps. Serial port configurable as RS-232 or RS-422, or RS-485
USB	Built-in USB to RS232 FTDI converter: 12Mbps USB 2.0 Full-Speed
Bluetooth	Bluetooth V2.0 Class 2 supporting SPP Slave and Master Profiles
Bluetooth Antenna	Embedded
Battery	One embedded, 7.2V, 5850 mAh
Operation Time (battery-powered) in transmission mode	11 hours (typical)

Bluetooth
antenna

Communication port



Mounting bracket

Battery on/off button

DB15 Connector Specification

Pin #	Signal Name	I/O	Description
1	DCD_OUT	0	Data Carrier Detect (RS-232)
2	DTR_OUT	0	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	VDC Power Input
6	USB_PWR	I	Power Input line (USB)
7	Ground	-	Power Ground
8	PWR_IN	I	VDC Power Input
9	DSR_IN	I	Data Set Ready (RS-232)
10	TX+/RTS_OUT	0	Transmit Data positive line (RS-422) / Request to Send (RS-232)
11	TX-/TX_OUT	0	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

Environmental Specifications

Parameter	Specification
Temperature	Operating -40°C to +70°C* Storage -40°C to +85°C**
Environmental	IP 67
Dimensions (H x W x D)	3.11 x 5.94 x 2.87 inches (79 x 151 x 73 mm)
Weight	2.2 lbs (1.0 kg)
Power Supply Voltage	+5.5...36V without battery charging, 1.4A max @ 5.5V +12...34V when the battery is charged, 2.4A max @12V
Power Consumption (Average)	8W / 2W / 0.01W – Transmit / Receive / Sleep (without charging)
Housing/Color	Aluminum / Green / Gray
Antenna Connector	TNC, 50 Ohm

* The operating temperature of Li-Ion batteries is -20 °C to +45 °C

** The storage temperature range of Li-Ion batteries is -20 °C to +60 °C

Transmitter Specifications

Parameter	Specification
Output Power	+15... +30 dBm in 1 dB step / 50 Ω
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 25/20/12.5 kHz CS	Part 90.210 (C, D, E) (USA, Canada) 60 dBc (EU)
Spurious Emission (Conducted)	-36 dBm (9 kHz – 1 GHz) -30 dBm (1GHz – 4 GHz)
Spurious Emission (Radiated)	-36 dBm (9 kHz to 1 GHz) -30 dBm (1 GHz to 4 GHz)

Receiver Specifications

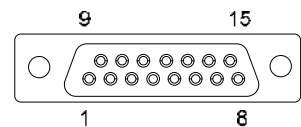
Parameter	Specification
Noise Figure	4 dB
Receiver Sensitivity (BER 1x10 ⁻⁴ ; 25 kHz CS)	DBPSK -116 dBm 25kHz / -117 dBm 12.5kHz DQPSK -115 dBm 25kHz / -116 dBm 12.5kHz D8PSK -110 dBm 25kHz / -111 dBm 12.5kHz D16QAM -106 dBm 25kHz / -107 dBm 12.5kHz GMSK -113 dBm 25kHz / -114 dBm 12.5kHz
Dynamic Range	-115 to -15 dBm
Max. Input Signal Level	-10 dBm
Co-channel Rejection	-8 dB for 25 kHz Channel Spacing -8 dB for 20 kHz Channel Spacing -12 dB for 12.5 kHz Channel Spacing -16 dB for 6.25 kHz Channel Spacing
Adjacent Channel Selectivity	70 dB for 25 kHz Channel Spacing 70 dB for 20 kHz Channel Spacing 60 dB for 12.5 kHz Channel Spacing 50 dB for 6.25 kHz Channel Spacing

Compliance

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

This connector provides DB15 connectivity
for the HPT401BT with DTE.

About using and configuration RS-485 and
RS-422 please contact support@javad.com



Specifications are subject to change without notice.



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