



# HPT135BT

HPT135BT is 35 W VHF radio transceiver with built-in wireless link monitoring and management Tools, USB and Bluetooth® capacity. The unmatched features of HPT135BT include:

- 48 miles/77 km Maximum Distance Range
- Full speed USB 2.0 device port (12 Mbps)
- Data Speed over the air 38400 bps at 25 kHz and 19200 bps at 12.5 kHz
- Bluetooth® Interface
- Programmable Output Power (320 mW to 35 W)
- Advanced Forward Error Correction (FEC)
- Serial port configurable as RS-232 and 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
- Automatic search and select for best frequency/channel

The HPT135BT radio transceiver provides a high-speed Point-to-Point and Point-to-Multipoint wireless data transfer at up to 38.4 kbps. HPT135BT 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 48 miles /77 km). It also includes a selectable error correction, which improves the functioning of the radio modem under interference.

The sophisticated features of HPT135BT include data scrambling, frequency hopping, user selectable transmit output power level, low power consumption sleep modes, autoscanning for 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 HPT135BT radio transceiver resides in a flash memory. The updating of the radio modem programs is entirely software-based. The flash memory is re-programmable through an RS232 interface, USB, Bluetooth, or over the air.

# HPT135BT

## General Radio Specifications

Parameter	Specification
Operating Frequency Range	138 - 174 MHz (EU) 150 - 174 MHz (USA) 138 - 144;148-174 MHz (Canada)
Channel Spacing	25/12.5/6.25 kHz (USA for 138-149 MHz) 12.5/6.25 kHz (USA for 150-174 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
System Gain for DBPSK modulation (Antenna gain is not included)	161 dB (for 25 kHz Channel Spacing) 163 dB (for 12.5 kHz Channel Spacing) 164 dB (for 6.25 kHz Channel Spacing)
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	48 miles / 77 km
Serial port	Serial (RS-232) up to 115200 bps. Serial port configurable as RS-232 and 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	Internal

## 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

## 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	1	Receive Data positive line (RS-422)/ Clear to Send (RS-232)
4	RX-/RX_IN	1	Receive Data negative line (RS-422)/ Receive Data (RS-232)
5	not used	-	-
6	USB_PWR	1	Power Input line (USB)
7	Ground	-	Power Ground
8	not used	-	-
9	DSR_IN	1	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

This connector provides DB15 connectivity for the HPT135BT with DTE.

About using and configuration RS-485 please contact JAVAD GNSS support

## Environmental Specifications

Parameter	Specification
Temperature	Operating -40°C to +60°C Storage -40°C to +85°C
Environmental	IP 67
Dimensions (H x W x D)	5.98 x 3.3 x 2.83 inches (152 x 84 x72 mm)
Weight	1.98 lbs (900 g)
Power Supply Voltage	+9 to +16 VDC nominal
Power Consumption (Average): Continuous Transmit/ Transmit with 30% duty cycle / Sleep	120W/38W/300mW (USA, Canada) 60/20/300mW (EU)
Housing/Color	Aluminum / Two-tone Green/ Gray
Antenna Connector	TNC, 50Ω

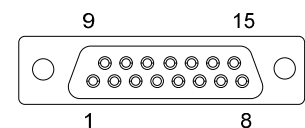
## Transmitter Specifications

Parameter	Specification
Output Power	USA, Canada 25 dBm to 45.44 dB m in 1 dB step (320 mW to 35W) EU 25 dBm to 41.76 dBm in 1 dB step (320 mW to 15W)
Output Power Control Accuracy	±1.5 dB (at normal 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 (Conducted)	25/12.5/6.25 kHz CS USA, Canada Part §90.210 (C, D, E) 25/20/12.5 kHz CS EU Clause 4.2.4 EN 300 113-2 (60 dBc)
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

Parameter	Specification
Noise Figure	3 dB
Receiver Sensitivity	DBPSK -116 dBm 25kHz / -117 dBm 12.5kHz
BER 1x10 <sup>-4</sup> , 25 kHz CS	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 -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 60 dB for 12.5 kHz Channel Spacing 50 dB for 6.25 kHz Channel Spacing

## DB15 (Fem)



Specifications are subject to change without notice.



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