HPT104BT

HPT104BT is the up-to-date unsurpassed 4 W VHF radio transceiver with USB and Bluetooth® capacity, and optional built-in quad band GSM/GPRS module. HPT104BT accesses VRS network using via GPRS, takes incoming data from the network, modulates it with GMSK, FSK, PSK or most spectrum efficient QAM modulation and transmits it at RF power output levels from 15 dBm up to 36 dBm operating in VHF frequency band (138 to 174 MHz). HPT104BT is also capable of receiving RF signal from remote VHF transmitter, and the data could be send over the cellular network using built-in GSM/ GPRS module if such operation mode is selected. The unmatched features of HPT104BT include:

- 16 miles (26 km) maximum distance range
- Full speed USB 2.0 device port
- GSM/GPRS quad band 850/900/1800/1900 module (optional)
- 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 HPT104BT radio transceiver provides a high-speed point-to-point and point-to-multipoint wireless data transfer at up to 38.4 kbps. HPT104BT 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 HPT104BT 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 HPT104BT 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, Bluetooth, or over the air.

HPT104BT

General Radio Specifications

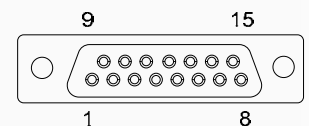| Parameter	Specification
Operating Frequency Range	138 - 174 MHz (EU) 150 - 174 MHz (USA) 138 -144 MHz, 148 - 149.9MHz and 150.05 - 174 MHz (Canada)
Channel Spacing	12.5/6.25 kHz (USA for 150-174 MHz) 25/12.5/6.25 kHz (Canada) 25/20/12.5 kHz (EU)
Data Rate (25/20/12.5/6.25 kHz Channel Spacing)	9600/7500/4800/2400 bps – DBPSK/GMSK 19200/15000/9600/4800 bps – DQPSK/4FSK 28800/22500/14400/7200 bps – D8PSK 38400/30000/19200/9600 bps – D16QAM
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 or RS-422, or RS-485
USB	USB 2.0 device port
GSM/GPRS Module (optional)	Internal GSM/GPRS quad-band module, GPRS Class 10
GSM/GPRS Antenna (optional)	External
Bluetooth	Bluetooth V2.0 Class 2 supporting SPP Slave and Master Profiles FCC ID: WJ4BT4EX8M; IC : 3504A-BT4EX8M
Bluetooth Antenna	Embedded

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	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

Environmental Specifications

Parameter	Specification
Temperature	Operating –40ºC to +70ºC Storage –40ºC to +85ºC
Environmental	IP 66
Dimensions (H x W x D)	146 mm x75 mm x44 mm
Weight	488 g
Power Supply Voltage	+9 to +36 VDC nominal
Power Consumption (Average)	18W / 2W / 0.01W –Transmit / Receive / Sleep
Housing/Color	Aluminum / Two-tone Silver / Gray
Antenna Connector	BNC, 50 Ω
Bluetooth Antenna Connector	SMA, 50 Ω

Transmitter Specifications

Parameter		Specification
Output Power	USA, Canada	15 dBm to 36 dBm in 1 dB steps (32mW to 4W)
	EU	15 dBm to 36 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 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

This connector provides DB15 connectivity for the HPT104BT with DTE.

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

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