High Speed Radio

The new JAVAD High Speed Radio (HSR) utilizes unique Software-defined radio (SDR) architecture running on the powerful Xilinx System-on-a-Chip ZYNQ module in the conjunction with the high performance, highly integrated RF Agile Transceiver AD9361 from Analog Devices.

The HSR utilizes Single-Input and Multiple-Output (SIMO) technique, which improves the quality and reliability of a wireless link and makes HSR especially effective in operating at multipath situations in urban and indoor environments.

The HSR provides a high-speed Point-to-Point and Point-to-Multipoint wireless data transfer at up to 7.1 Mbps. Implemented the most advanced Orthogonal frequency-division multiplexing (OFDM) modulation techniques allows achieving the highest data speed for a given range (up to 2 miles). The embedded Forward Error Correction (FEC) algorithms improve sensitivity and selectivity of the radio. Master-Slave TDD mode of the HSR allows establishing bidirectional half duplex data transmission. TDD Upload and Download channels throughput balance can be tuned very flexible to satisfy user demands. The other features of HSR include data scrambling, interleaving, user selectable transmit output power level, low power consumption turn off mode. HSR supports separate Data link and Control link (with very easy command set) over USB. The built-in software provides the wireless link setting, selecting mode of operation, units' status and error statistics monitoring, TDD protocol configuration.

The HSR could be ideally suited for applications like video stream transmission from civilian unmanned aerial vehicle (UAV) to the ground user.

High Speed Radio

General High Speed Radio Specifications

- Operating Center Frequency Range: 2.405 GHz - 2.495 GHz
- Modulation Technique: OFDM QAM4
- Media Access Control Protocols: Time Division Duplex (TDD)
- Supported User Interfaces: Device Mode USB 2.0 HS
- Supported Comms. Protocols: Transparent
- Maximum Distance Range: 2 miles
- Occupied Bandwidth: 10 MHz
- Data Rate: 10MHz 256 subcarr
  OFDM QAM4 Up to 7.1 Mbit/sec
- System Gain (Antenna not incl.) 89dB
- Communication Mode: TX, RX, TDD MASTER, TDD SLAVE
- Carrier Power Stability: +1 dB / -2 dB
- Receiver Sensitivity (BER 1x 10-4): -91 dBm
- Receiver Dynamic Range: -91 to -30 dBm

SDR based OEM Radio Modem

- Unlicensed operation mode
- Data Speed over the air up to 7.1 Mbps
- Programmable Output Power (0.0001 mW to 1 W)
- Advanced Forward Error Correction (FEC)
- SDR-Modem
- Zero-IF Technologies
- TX/RX/TDD Modes
- Flexible TDD Timing Setup
- Compact Design
- Firmware can be upgraded for SIMO MRC

Power Specification

- Input Voltage: +7V ... +20V (3A max)
- Power Consumption (average):
  up to 17.5 W – transmit with 100% duty cycle (1 W TPO)
  up to 7.5 W – receive mode

Communication Ports

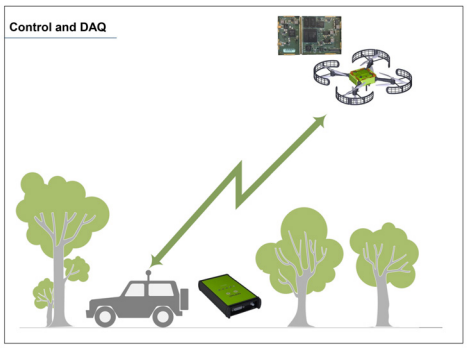
- Wi-Fi 2.4GHz and 5 GHz (IEEE 802.11 a, b, g, n, d, e, i)
- Full-duplex 10BASE-T/100BASE-TX Ethernet port
- Bluetooth 4.1 Compliance and CSA2 Support
- Dual-Mode Bluetooth and Bluetooth LE
- High Speed USB 2.0 configurable as Device port
- MicroSD card slot (fully sealed)
- Serial port configurable as RS232

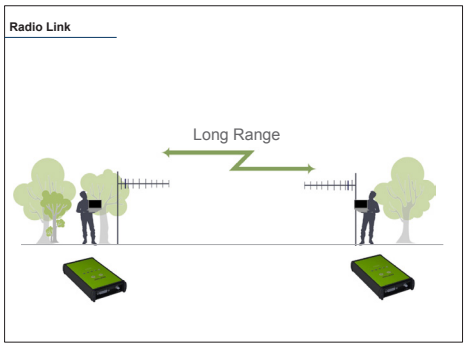
Environmental

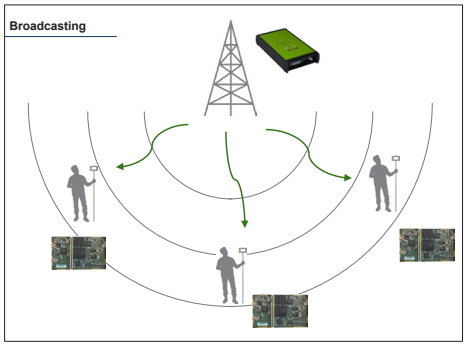
- Enclosure aluminum extrusion, waterproof IP66
- Humidity 100% condensing
- Operation Temperature: -40° C ... +60° C
- Storage Temperature: -40° C ... +80° C
- Weight 0.92 lbs (0.42 kg)
- Dimensions 4.3 x 1.4 x 7.5 inches (109 x 35 x 188) mm with connectors

External Connectors

- MAIN, DIVERSITY, BLUETOOTH/Wi-Fi ANTENNA CONNECTOR RP-SMA Female Bulkhead, RM, Crimp, RG-178 Linx Technologies, Inc. p/n CONREVSMA014-R178 (23-500186-01)
- SYSTEM CONNECTOR (J105) CONN,DSUB HD,26P,FEM,RA,TH,P/MOUNT,IP67 CONEC p/n 15-002253 (285348)

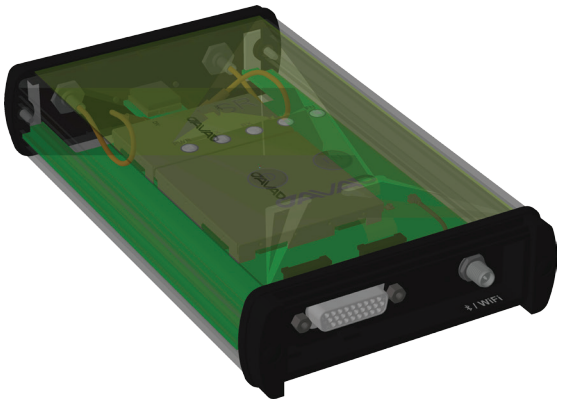


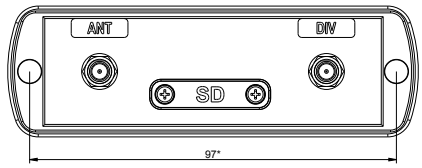


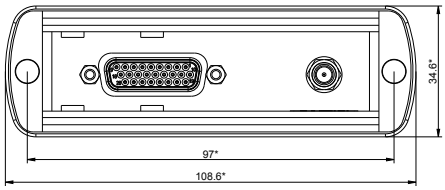


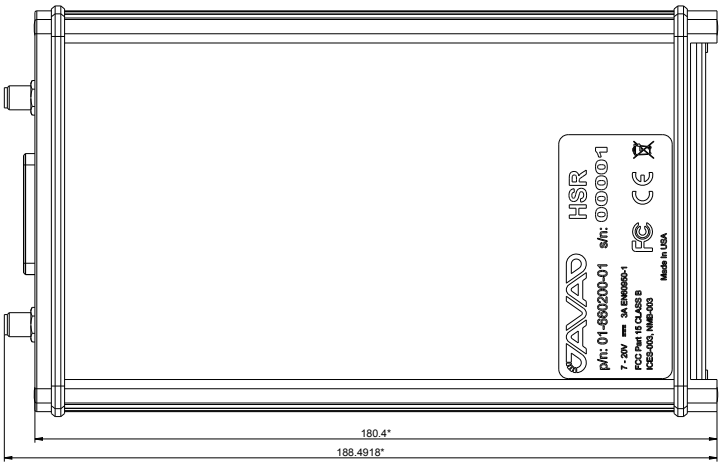
Communication and power port pinout

Pin #	Signal name	I/O	Description
1	RTS_OUT	O	Request to Send (RS-232)
2	CTS_IN	I	Clear to Send (RS-232)
3	RESERVE	-	Do not connect
4	USB_DP	I/O	Data Positive line (USB)
5	USB_DM	I/O	Data Negative line (USB)
6	ELED	O	LED line (LAN)
7	ETD+	O	Transmit Data positive line (LAN)
8	ERD+	I	Receive Data positive line (LAN)
9	PWR_IN	PWR	+7.0 to +20 VDC Power Input
10	TXD_OUT	O	Transmit Data (RS-232)
11	RXD_IN	I	Receive Data (RS-232)
12	RESERVE	-	Do not connect
13	RESERVE	-	Do not connect
14	USB_VBUS	PWR	Power line (USB)
15	USB_ID	I	USB0 ID line
16	ETD-	O	Transmit Data negative line (LAN)
17	ERD-	I	Receive Data negative line (LAN)
18	PWR_IN	PWR	+7.0 to +20 VDC Power Input
19	GND	PWR	Power Ground
20	GND	PWR	Power Ground
21	GND	PWR	Power Ground
22	RESERVE	-	Do not connect
23	RESERVE	-	Do not connect
24	12VOUT	PWR	Load 0.3Amax
25	RESERVE	-	Do not connect
26	PWR_IN	PWR	+7.0 to +20 VDC Power Input









* All dimensions are in mm

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Specifications are subject to change without notice

JAVAD GNSS

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