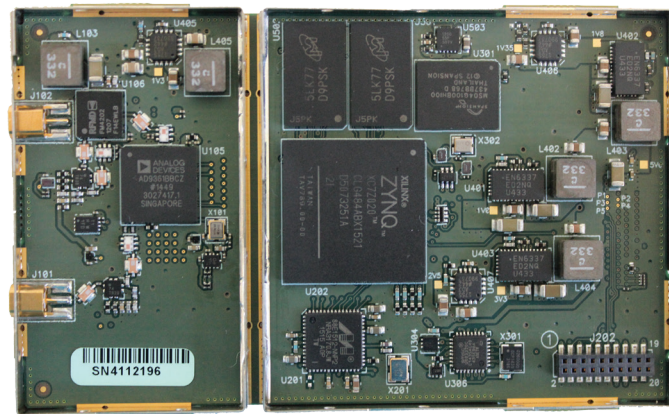




HIGH SPEED RADIO



Actual size

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 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 Forwarder 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 OEM

Description	I/O	Signal name	Pin #	Pin #	Signal name	I/O	Description
+5V DC from ext. Power Supply	I	+5V	1-12	58	TD-	O	Do not connect
Signal and Chassis Ground		GND	13-24	59	GND		Signal and Chassis Ground
3.3V reference voltage from HSR	O	3V3HSR	25	60	RD+	I	Do not connect
Do not connect	I/O	SDIO0-DAT0	26	61	RTS0_OUT	I/O	Do not connect
Do not connect	I/O	PLIO1	27	62	RD-	I	Do not connect
Do not connect	I/O	SDIO0-DAT1	28	63	TX0_OUT	I/O	Do not connect
Do not connect	I/O	PLIO2	29	64	ELED	O	Do not connect
Do not connect	I/O	SDIO0-DAT2	30	65	CTS0_IN	I/O	Do not connect
Do not connect	I/O	PLIO3	31	66	WL_IRQ	I/O	Do not connect
Do not connect	I/O	SDIO0-DAT3	32	67	RX0_IN	I/O	Do not connect
Do not connect	I/O	PLIO4	33	68	WL_EN	I/O	Do not connect
Do not connect	I/O	SDIO0-CMD	34	69	Reserved	I/O	Do not connect
Do not connect	I/O	PLIO5	35	70	BT_EN	I/O	Do not connect
Do not connect	I/O	SDIO0-CD_B	36	71	Reserved	I/O	Do not connect
Do not connect	I/O	PLIO6	37	72	RTS1_OUT	I/O	Do not connect
Do not connect	I/O	SDIO0-CLK	38	73	SDIO_BOOT	I	Do not connect
Do not connect	I/O	PLIO7	39	74	TX1_OUT	I/O	Do not connect
1.8V reference voltage from HSR	O	1V8	40	75	PLIO12	I/O	Do not connect
Do not connect	I/O	PLIO8	41	76	CTS1_IN	I/O	Do not connect
Do not connect	I/O	SDIO1-CLK	42	77	PLIO13	I/O	Do not connect
Do not connect	I/O	PLIO9	43	78	RX1_IN	I/O	Do not connect
Do not connect	I/O	SDIO1-CMD	44	79	PS_ACTIVE	I/O	Do not connect
Do not connect	I/O	PLIO10	45	80	PPS	I/O	Do not connect
Do not connect	I/O	SDIO1-DAT0	46	81	JTAG_BOOT	I	Do not connect
Do not connect	I/O	PLIO11	47	82	TCK	I	Do not connect
Do not connect	I/O	SDIO1-DAT1	48	83	HSR_RESET	I	Do not connect
Signal and Chassis Ground		GND	49	84	TMS	I	Do not connect
Do not connect	I/O	SDIO1-DAT2	50	85	HSR_ON	I	« < 0.6V OFF; > 1.8V ON; +6.6V max»
VBUS pin of the USB cable	I/O	USB_VBUS	51	86	TDO	O	Do not connect
Do not connect	I/O	SDIO1-DAT3	52	87	PROGRAM_B	I	Do not connect
D- pin of the USB cable	I/O	USB_DM	53	88	TDI	I	Do not connect
Signal and Chassis Ground		GND	54	89	DONE	O	Do not connect
D+ pin of the USB cable	I/O	USB_DP	55	90	3V3HSR	O	3.3V reference voltage from HSR
Do not connect	O	TD+	56	91-94	GND		Signal and Chassis Ground
ID pin of the USB cable	I	USB_ID	57				

HIGH SPEED RADIO OEM

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: 1.5 miles
- Occupied Bandwidth: 10 MHz
- Data Rate: 10MHz 256 subcarr
OFDM QAM4 Up to 7.1 Mbit/sec
- System Gain (Antenna not incl.) 89dB
- Carrier Frequency Stability: ± 1 ppm
- Communication Mode: TX, RX, TDD MASTER, TDD SLAVE
- Receiver Sensitivity (BER 1×10^{-4}): -91 dBm
- Receiver Dynamic Range: -91 to -30 dBm

SDR based OEM Radio Modem

- Unlicensed operation mode
- 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

General Specification

- Input Voltage: +4.75V ... +5.25V (3A max)
- Power Consumption (average):
14.5 W – transmit with 100% duty cycle (1 W TPO)
4.5 W – receive mode
- Operation Temperature: -40° C ... +60° C
- Storage Temperature: -40° C ... +80° C
- Dimensions: L: 90.2 mm x W: 55.5 mm x H: 7.0/8.0 mm
- Weight: 50 g

External Connectors

- RF Connector J102 is Antenna Input / Output Connector: MMCX Jack, MICROMATE Edge Mount, AMPHENOL P/N 908-22100 (280103).
- RF Connector J101 is Antenna Input for SIMO: MMCX Jack, MICROMATE Edge Mount, AMPHENOL P/N 908-22100 (280103).
- System Connector (J201) CONN, PLUG, 2X45, 0.4MM, VERTICAL, SMT, MOLEX P/N 55909-0974 (285400)

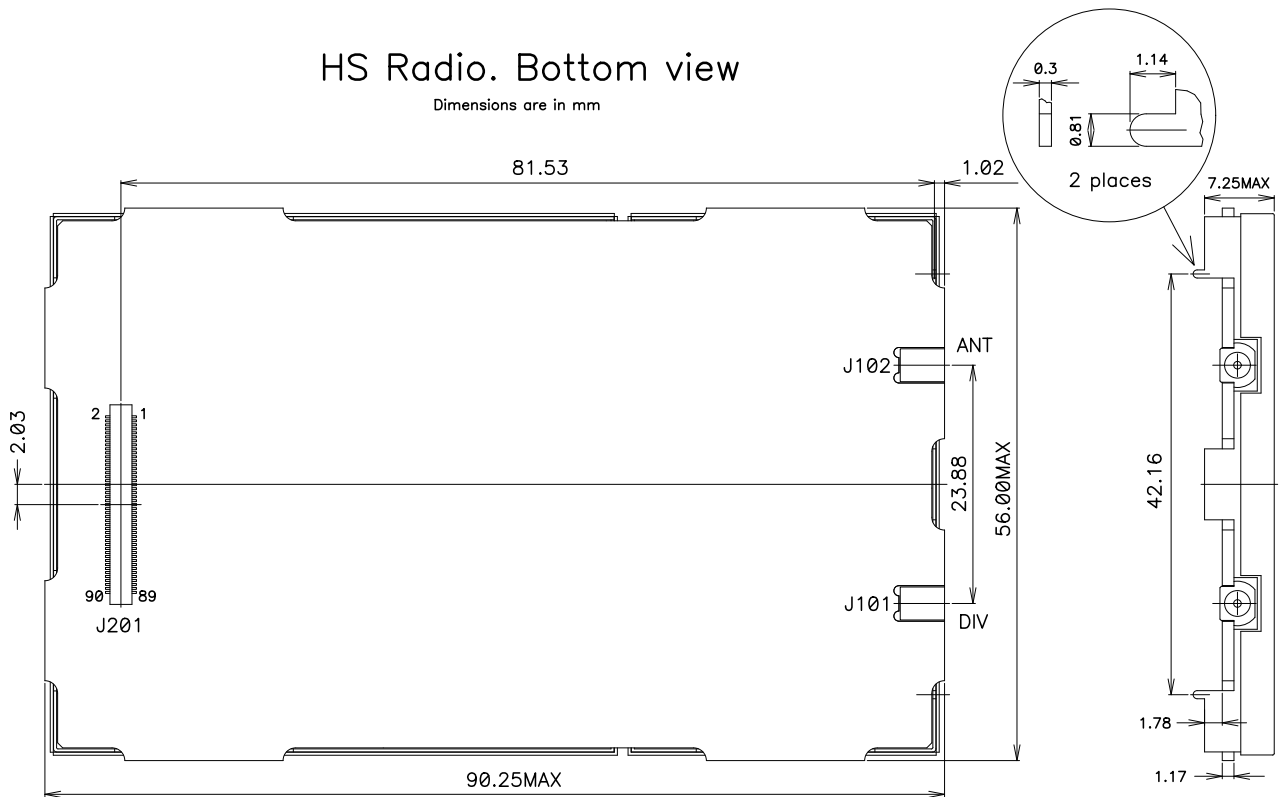
Radio Specifications

- Transmitter Output Power: -40 ... +30 dBm in 1 dB step
- Carrier Power Stability: +1 dB / -2 dB

HIGH SPEED RADIO OEM

HS Radio. Bottom view

Dimensions are in mm



Specifications are subject to change without notice



JAVAD GNSS
www.javad.com
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