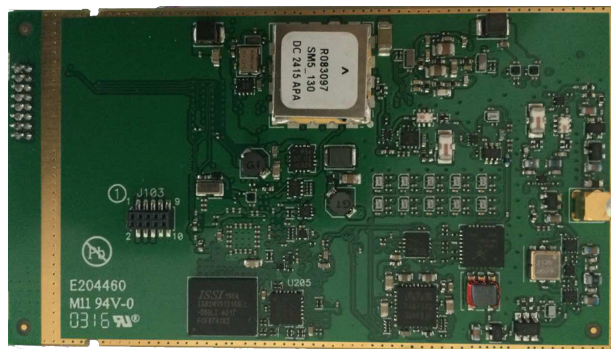




# UHFSSRx



UHFSSRx tri-band radio receiving only module is an universal radio operating in the UHF 406-470 MHz licensed and 868 – 870 MHz European CEPT license free bands, allocated for narrow band telemetry, alarms and data transfer applications like broadcasting of GNSS RTCM corrections; 902-928 MHz USA and 915-928 MHz Australian ISM (industrial, scientific and medical) license free bands.

In that way UHFSSRx communicates with any of broad range of JAVAD transmitters.

The UHFSSRx is developed for exacting customer needs for excellent reliability in noisy plant environments.

## Pinout

Pin #	Signal designator	Signal name	I/O	Description	Description
1	GND	GND	-	Ground	Signal and Chassis Ground
2	DSP UART 1	TXD	TTL Input	Transmitted Data	Serial Data Input
3	DSP UART 2	RXD	TTL Output	Received Data	Output for received serial data
4	DPORT5	DTR or DP/MP	TTL Input	Data Terminal Ready	Control line can be used as a backup method for entering Command mode: (0V) – Maintenance Mode; (3.3V) – Data Mode An internal 100K pull-up enables Data Mode if this signal is left unconnected. Maintenance Mode is also accessible by transmitting an escape sequence.
5	DPORT1	CTS	TTL Output	Clear to Send	Used to control transmit flow from the user to the radio: (0V) – Transmit buffer not full, continue transmitting (3.3V) – Transmit buffer full, stop transmitting
6	TTL1	SLEEP	TTL Input	Sleeps/wakes radio Receive only	In sleep mode, all radio functions are disabled consuming less than 50µA. An internal 10K pull-down wakes up the radio if this signal is left unconnected. At wake up, any user programmed configuration settings are refreshed from flash memory, clearing any temporary settings that may have been set: (3.3V) – Sleep Radio; (0V) – Wake Radio As an option could be used as TTL Input Line 1.
7	DPORT3	MDM_GRN	TTL Output	Data Carrier Detect	Used by remotes to indicate that the remote has successfully acquired the signal from base station: (0V) – Carrier detected (synchronized) (3.3V) – No carrier detected (not synchronized)
8	DPORT4	RTS	TTL Input	Request to Send	Gates the flow of receive data from the radio to the user on or off. An internal 10K pull-down enables data receive if this signal is left unconnected. In normal operation, this signal should be asserted: (0V) – Receive data (RxD) enabled (3.3V) – Receive data (RxD) disabled
9	DPORT2	DSR	TTL Output	Data Set Ready	Used to control transmit flow from the user to the radio: (0V) – Receive buffer has data to transfer; (3.3V) – Receive buffer is empty
10	RES CONT	RESCONT	TTL Input	Reset the radio	Reset the radio by shortening this pin to the ground.
11	TTLO1	TTLOUT1	TTL Output	TTL Output Line 1	Reserve line
12	TTLO2	TTLOUT2	TTL Output	TTL Output Line 2	Reserve line
13	GND	GND	-	Ground	Signal and Chassis Ground
14	TTL2	TTLIN	TTL Input	TTL Input line	An internal 100K pull-up resistor is applied.
15	VCC36	PWR	External	Power Supply	Regulated positive 3.6V DC from ext. Power Supply.
16	VCC36	PWR	External	Power Supply	Regulated positive 3.6V DC from ext. Power Supply.

## General Specification

- Input Voltage: 3.6 V  $\pm$  5 %
- Power Consumption (average): 1 W – receive mode
- Operation Temperature: -40°C ... +60°C
- Storage Temperature: -40°C ... +80°C
- Dimensions: L: 80 mm x W: 46.5 mm x H: 7.6/9.5 mm
- Weight: 43 g

## Features

- DSP-Modem
- Zero-IF Technologies
- 406-470 MHz

- 902-928 MHz (USA); 915-928 MHz (Australia); 868-870 MHz (EU) with 25/20/12.5 kHz CS
- Up to 115200 bps Serial Interface Data Rate
- Embedded Firmware Compensation for Operation at Extremely Low and High Temperatures
- Compact Design

## External Connectors

- RF Connector (J401) Antenna input connector MMCX RIGHT ANGLE PCB JACK, LEGS.068, EMERSON JOHNSON, p/n 135-3701-311 (285210)
- Main Connector (J100) 16LEAD, HEADER Connector, 5.84CONT, COMM CON INC, p/n 3913-16G2 (285209)

## UHF Radio Specifications

- Frequency Range: 406 - 470 MHz
- Channel Spacing: 25/20/12.5/6.25 kHz
- Carrier Frequency Stability:  $\pm$ 1 ppm
- Modulation GMSK/4FSK/DBPSK/DQPSK/ D8PSK/D16QAM
- Communication Mode: Simplex
- Supported User Interfaces: Serial Asynchronous (TTL compatible)
- Supported Comms. Protocols: Transparent Receiver

## Radio Receiver Specifications

- Receiver Sensitivity for DBPSK (BER  $1 \times 10^{-4}$ ):
  - 113 dBm for 25 kHz Channel Spacing
  - 113 dBm for 20 kHz Channel Spacing
  - 114 dBm for 12.5 kHz Channel Spacing
  - 114 dBm for 6.25 kHz Channel Spacing
- Receiver Sensitivity for DQPSK (BER  $1 \times 10^{-4}$ ):
  - 110 dBm for 25 kHz Channel Spacing
  - 110 dBm for 20 kHz Channel Spacing
  - 111 dBm for 12.5 kHz Channel Spacing
  - 111 dBm for 6.25 kHz Channel Spacing
- Receiver Dynamic Range: -119 to -10 dBm

## Modem Specifications

- Interface DSP: UART (serial port)
- Data Speed of Serial Interface: 9600 - 115200 bps
- Data Rate of Radio Interface (25/20/12.5/6.25 kHz Channel Spacing):
  - 9600/7500/4800/2400 bps – DBPSK/GMSK
  - 19200/15000/9600/4800 bps – DQPSK
  - 28800/22500/14400/7200 bps – D8PSK
  - 38400/30000/19200/9600 bps – D16QAM
- Forward Error Correction (FEC): Reed-Solomon Error Correction
- Data scrambling

## Frequency Hopping Radio Specifications

- Frequency Range: 902-928 MHz (USA); 915-928 MHz (Australia); 868-870 MHz (EU) with 25/20/12.5 kHz CS
- Link Rate, symbols/second: 4800, 9600 (EU) 9600, 19200, 38400, 64000 (USA/Australia)
- Carrier Frequency Stability:  $\pm$ 1 ppm
- Modulation: MSK/GMSK/4FSK
- Communication Mode: Half duplex, simplex, repeater

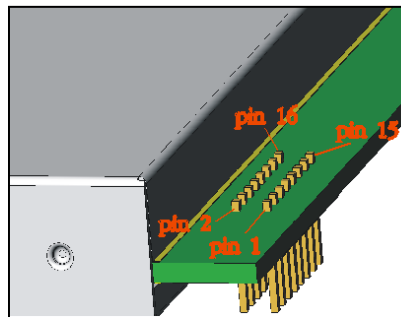
## Radio Receiver Specifications

- Receiver Sensitivity for GMSK (BER  $1 \times 10^{-4}$ ):
  - 113 dBm for 25 kHz CS
  - 113 dBm for 20 kHz CS
  - 114 dBm for 12.5 kHz CS
- Receiver Sensitivity for 4FSK (BER  $1 \times 10^{-4}$ ):
  - 110 dBm for 25 kHz CS
  - 110 dBm for 20 kHz CS
  - 111 dBm for 12.5 kHz CS
- Receiver Dynamic Range: -119 to -10 dBm

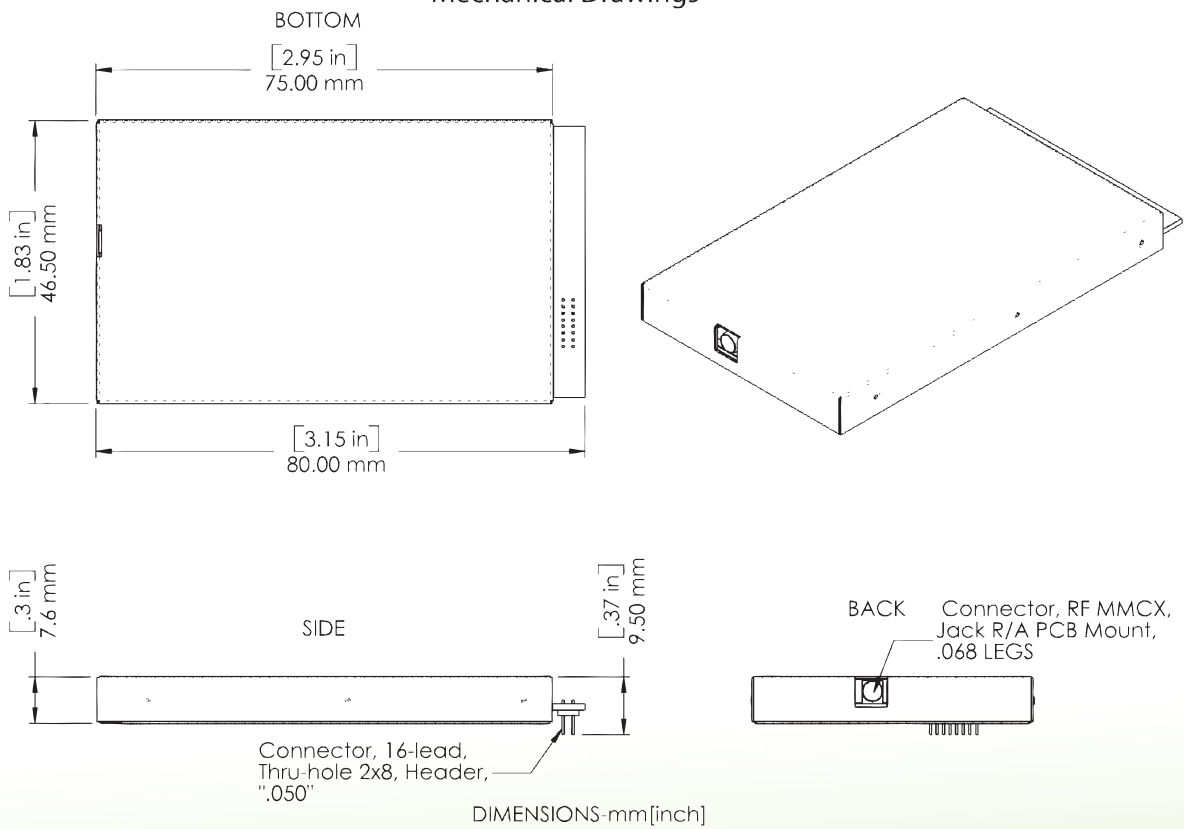
## Modem Specifications

- Interface DSP: UART (serial port)
- Data Speed of Serial Interface: 9600 - 115200 bps
- Data Rate of Radio Interface (USA/Australia):
  - 9600 bps – MSK, GMSK
  - 19200 bps – MSK, GMSK
  - 38400 bps – MSK, GMSK
  - 64000 bps – MSK, GMSK
  - 4FSK  $\Leftrightarrow$  2 GMSK
- Data Rate Radio Interface (25/20/12.5 kHz CS):
  - 9600/8000/4800 bps – GMSK
  - 19200/16000/9600 bps – 4FSK
- Forward Error Correction (FEC): Convolutional code
- Data scrambling

AW400Rx pinout



## Mechanical Drawings



Specifications are subject to change without notice



**JAVAD GNSS**  
[www.javad.com](http://www.javad.com)  
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