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Mercury Module Interface Manual

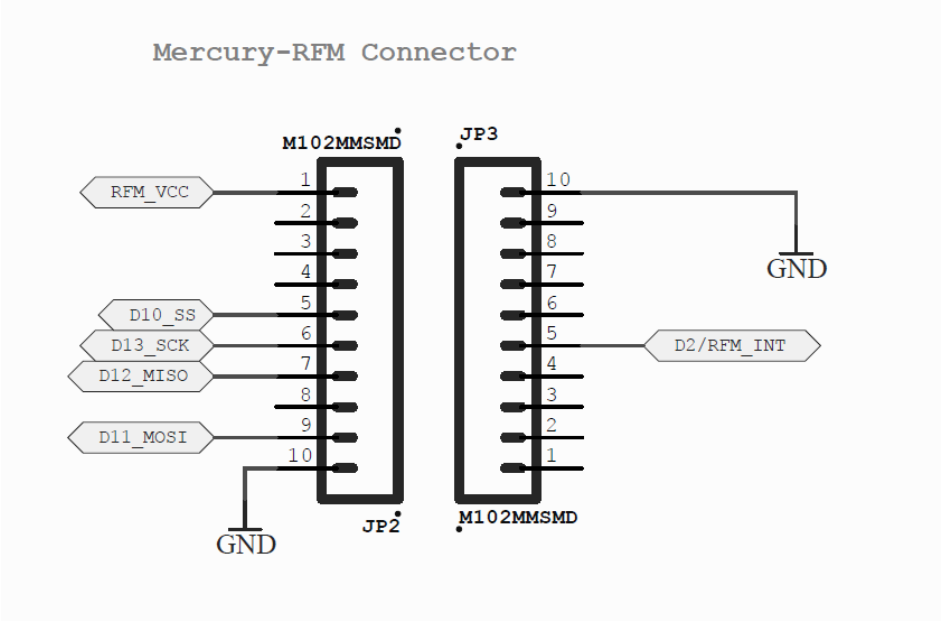
FOR INTERNAL USE ONLY – TRELLIS PROPRIETARY

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The Mercury Module is a limited modular transmitter, for use by Trellis systems only, including the Wireless Sensor Station and Central Base Station. It may be incorporated into other platforms that meet the interface requirements in this document. This radio uses the 902-928 MHz ISM band and utilizes LoRa modulation at 128 kHz bandwidth, 4/5 coding rate, and a spreading factor of 8. The radio utilizes a reverse polarity SMA antenna connector. The radio uses a pseudo-random frequency hopping technique where each frequency is used equally on average by each transmitter. The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals. Data packets are limited to 256 bytes, including a 4 byte header, 251 byte payload, and 1 byte checksum.

Pin #	Signal	Usage	Voltage Levels
1	VCC	Power to the module	2.4V – 3.7 V
2	DIO5	General purpose IO	0V – VCC
3	RESET	Reset for radio module. Pull to VCC for active.	0V – VCC
4	N/C	-	-
5	SS	SPI Source Select	0V – VCC
6	CLK	SPI Clock	0V – VCC
7	MISO	SPI Master In, Slave Out	0V – VCC
8	N/C	-	-
9	MOSI	SPI Master Out, Slave In	0V – VCC
10	GND	Ground	-
11	N/C	-	-
12	N/C	-	-
13	N/C	-	-
14	DIO_2	General purpose IO	0V – VCC
15	N/C	-	-
16	INT	Interrupt output	0V – VCC
17	DIO_4	General purpose IO	0V – VCC
18	N/C	-	-
19	DIO_3	General purpose IO	0V – VCC
20	GND	Ground	-

Example schematic interface:



Example mechanical interface: