

Crestron CWD6782
Two-Way RF Transceiver Module

Operations Guide



This document was prepared and written by the Technical Documentation department at:



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Regulatory Compliance

Federal Communications Commission (FCC) Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following 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.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Industry Canada (IC) Compliance Statement

Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

To satisfy RF exposure requirements, this device and its antenna must operate with a separation distance of at least 20 centimeters from all persons and must not be colocated or operating in conjunction with any other antenna or transmitter.

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Two-Way RF Transceiver Module: CWD6782

Functions and Features

The CWD6782 (hereafter referred to as “module”), with a dipole antenna or an integrated SMD antenna, is a two-way radio frequency (RF) module that utilizes the 2.4 GHz frequency band to communicate with other devices.

The module operates according to the IEEE 802.15.4 specification and can be configured to minimize the possibility of interference with other devices.

The module receives RF signals from one or more Crestron devices and can transmit these signals over the air for further processing (depending on the application).

Functional Summary

- 2.4 GHz frequency band, IEEE 802.15.4 specification
- Range from 3 feet to 550 ft.
- Operates on one of sixteen available channels to establish optimal signal quality

Specifications

The table below is a summary of specifications for the CWD6782.

Specifications of the CWD6782

SPECIFICATION	DETAILS
Power Requirements	1.3 Watts (5VDC @ 0.26A)
Operating Frequency	2400 MHz to 2483.5 MHz (802.15.4 compliant)
Operating Ranges*	
Minimum Distance	3 ft
Maximum Distance Indoors (without repeater device)	550 ft
Available Channels	16 (numbered 11 through 26 per 802.15.4)
Antenna	Gain: 2.0±0.5 dBi max. Type: Sleeve Dipole Antenna Frequency: 2.4GHz to 2.5 GHz Connector Type: SMA Plug Reverse Polarity Connector with ¼-36 UNS2B Screw
Antenna	Max. Gain: 1.8 dBi Average Gain: -1.9 dBi Type: SMD Frequency: 2.4GHz to 2.5 GHz
Dimensions	Width: 1.80 in (4.572 cm) Height: 2.50 in (6.35 cm) Depth: 0.45 in (1.143 cm)

* The location and orientation of the module are important factors in the RF performance. With the unit located outside of any metal enclosures, the antenna is adjusted to achieve the best range. The range is dependent on its placement and the building in which it is used. The construction of the building, obstructions, and RF interference from other devices are factors determining the effective range of the unit. To prevent unit-to-unit RF interference, multiple modules operating at the same frequencies should not be installed within 3-5 feet of each other.

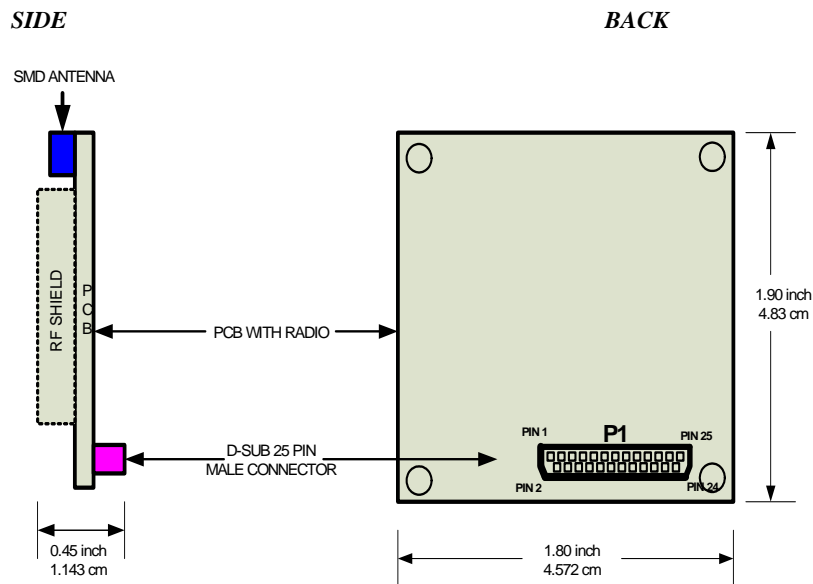
Physical Description – CWD6782 with a SMD Antenna

The module, shown below, consists of various components attached to a printed circuit board. The circuit board attaches an intended SMD mounting antenna while a 25pin D-SUB Male connector is for the application-specific installation.

Physical View of CWD6782 (SMD antenna)



CWD6782 Detail Views



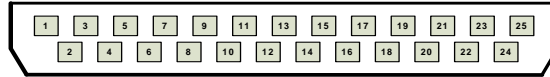
Ports

The module contains a 25pin D-SUB Male connector and a 10-pin debug header. Refer to the diagrams and descriptions that follow.

Power/I-O

The 25pin D-SUB male connector provides power to the module as well as the communication between the module and wired devices.

Refer to the following table for pin assignments of the module interface connector.



NOTE: Pin 22 and 24 provides power to the circuit card.

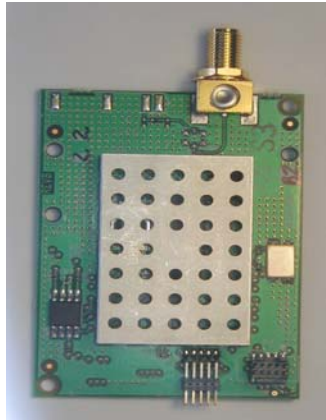
Power/I-O Pinout Signals

Pin #	Signal	Pin #	Signal
1	SPI_CLK	2	SPI_MISO
3	GP12	4	SPI_MOSI
5	GP4/PT1 EN	6	GP11/TM2IC_A
7	GP5/PT1_DATA	8	GND
9	GP6/ADC2	10	GND
11	GP7/ADC3	12	GND
13	GP8	14	GND
15	GP9/TXD	16	GND
17	GP10/RXD	18	GND
19	GP16/TM1OC_B	20	GND
21	GP15/TM1OC_A	22	+5V
23	GP14/TM2OC_B	24	+5V
25	GP13/TM2OC_A		

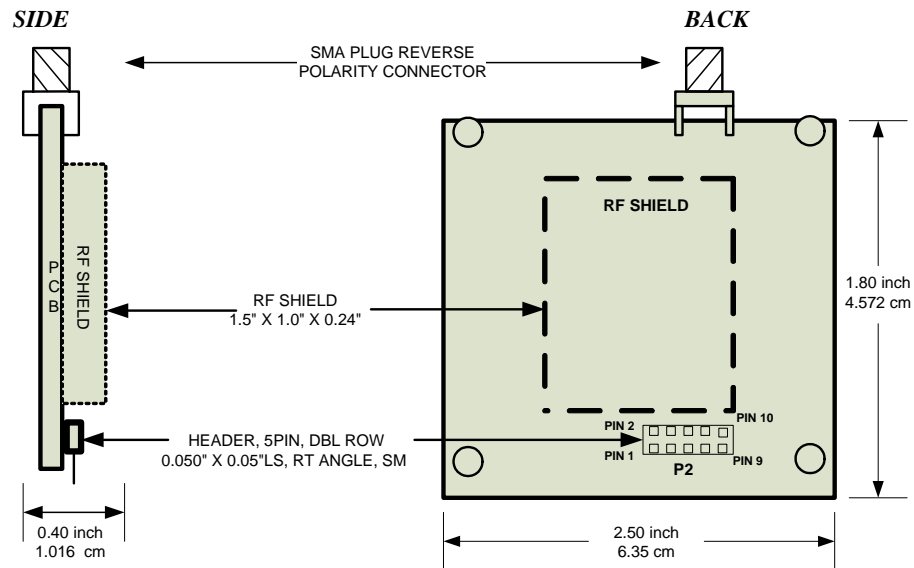
Physical Description – CWD6782 with a Dipole Antenna

The module, shown below, consists of various components attached to a printed circuit board. A SMA reverse polarity female antenna port is located at the edge of the circuit board for the attaching of a dipole antenna while a 5-pin Double Row Male connector is for the application-specific installation.

Physical View of CWD6782 (Dipole antenna)



CWD6782 Detail Views



Ports

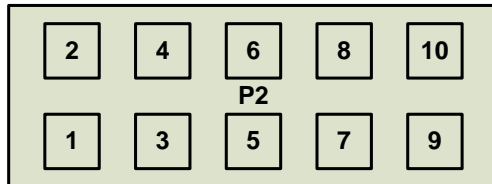
The module contains a 5-pin Double Row Male Connector, a 10-pin debug header, and one antenna port.

Refer to the diagrams and descriptions that follow.

Power/I-O

The 5-pin Double Row Male Connector provides power to the module as well as the communication between the module and wired devices. Refer to the following table for pin assignments of the module interface connector.

CWD6782 POWER/ I-O PIN CONFIGURATION



(Top View)

NOTE: Pin 3, 5 and 7 provides power to the circuit card.

Power/I-O Pinout Signals

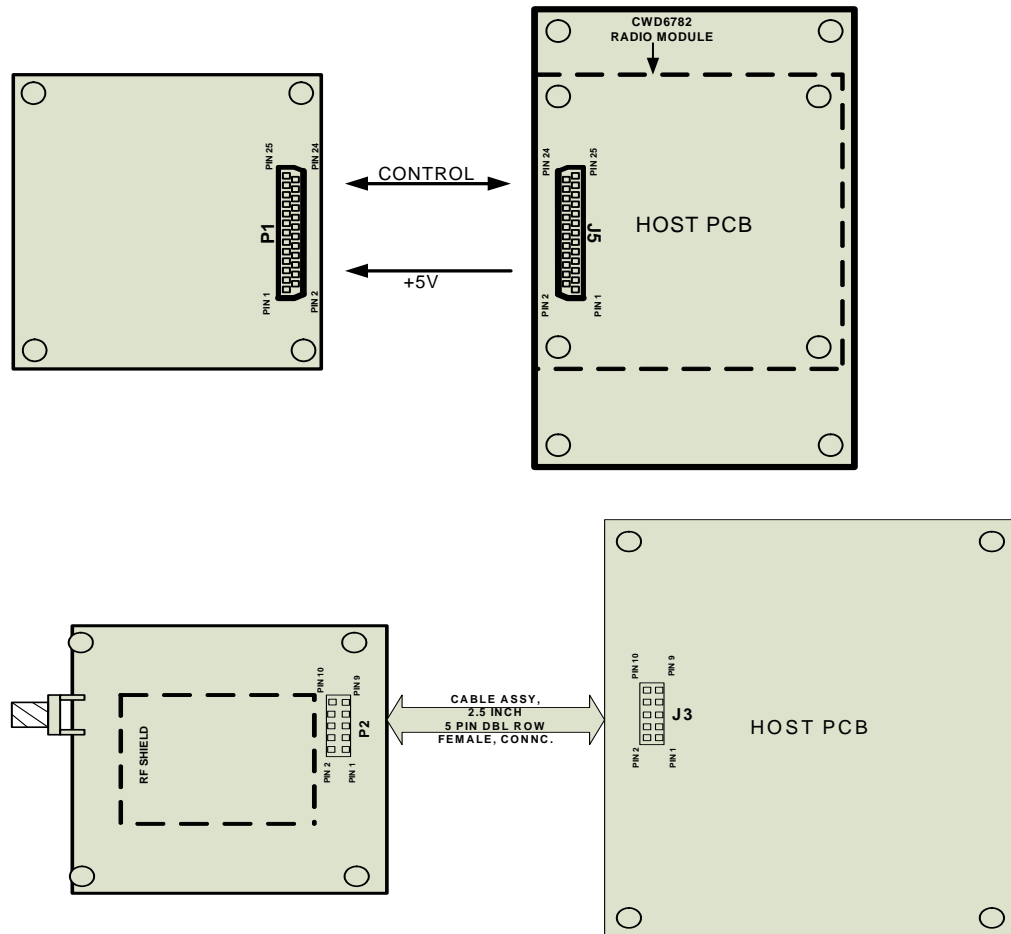
Pin #	Signal	Pin #	Signal
1	GP10/RXD	2	GP9/TXD
3	+5V	4	GND
5	+5V	6	GND
7	+5V	8	GND
9	RESET	10	GND

Setup

Refer to the hookup diagram below, which shows the connections made to the module. Complete the connections in any order.

NOTE: To prevent unit-to-unit RF interference, multiple modules operating at the same frequencies should not be installed within three to five feet of each other.

Hardware Hookup



Labeling

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: EROCWD6782” or “Contains FCC ID: EROCWD6782.” Any similar wording that expresses the same meaning may be used.

Documentation

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the users manual of the end product.

The users manual for OEM integrators must include the following information in a prominent location

“IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”

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Specifications subject to
change without notice.