Crestron CWD7083
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 if 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) Notice of Compliance

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

Industrie Canada (IC) avis de conformité

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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.

The specific patents that cover Crestron products are listed at patents.crestron.com.

Contents

Two-Way RF Transceiver Module: CWD7083

Functions and Features

The CWD7083 (hereafter referred to as "module") 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 100 ft.
- Operates on one of sixteen available channels to establish optimal signal quality

Specifications

The table below is a summary of specifications for the CWD7083.

Specifications of the CWD7083

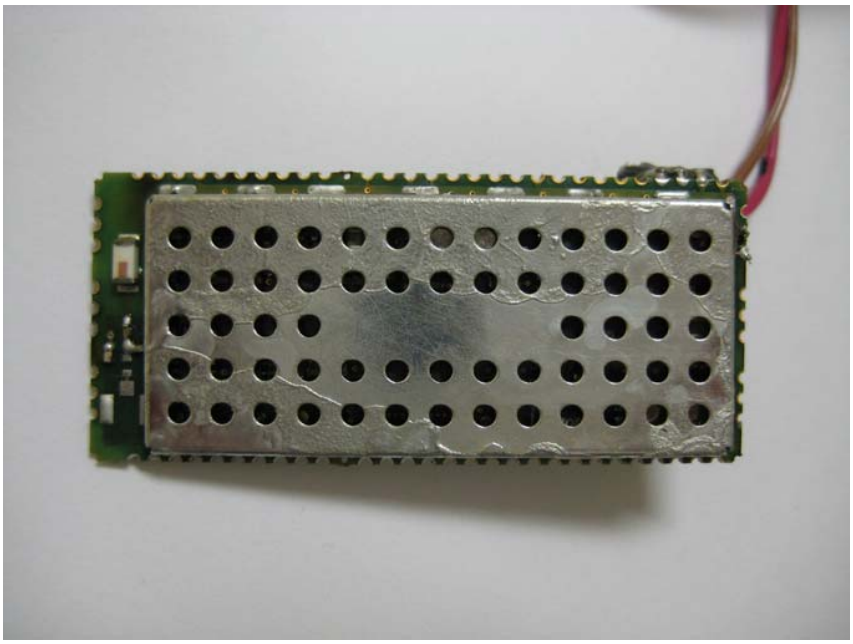
SPECIFICATION	DETAILS
Power Requirements	0.825 Watts (5VDC @ 0.167A)
Operating Frequency	2400 MHz to 2483.5 MHz (802.15.4 compliant)
Operating Ranges*	
Minimum Distance	3 ft
Maximum Distance Indoors (without repeater device)	100 ft
Available Channels	16 (numbered 11 through 26 per 802.15.4)
Antenna	Chip
Dimensions	Width: 1.88 in (4.77 cm) Height: 0.82 in (2.08 cm) Depth: 0.10 in (0.25 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.

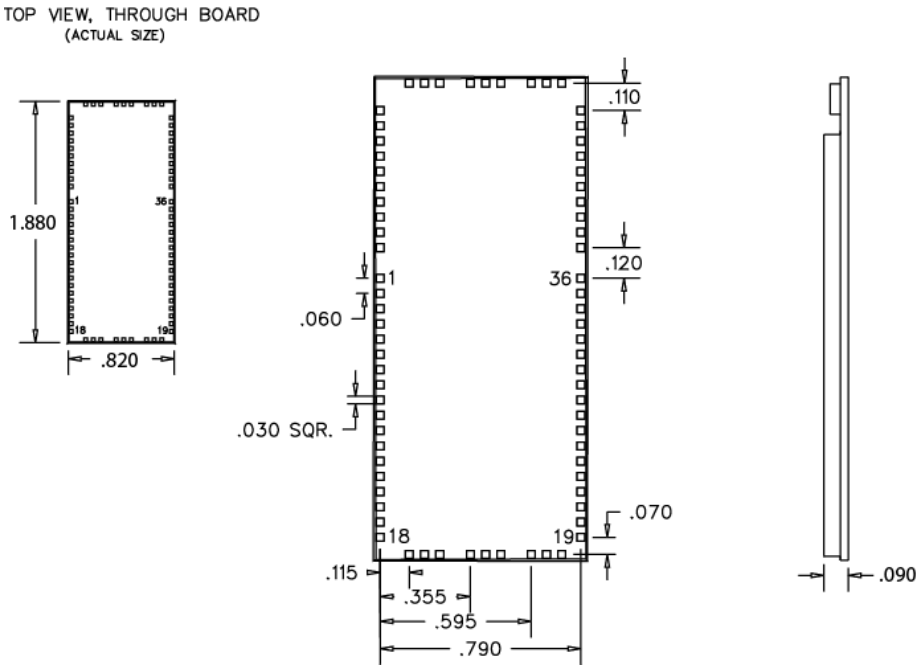
Physical Description

The module, shown below, consists of various components attached to a printed circuit board.

Physical View of CWD7083



CWD7083 Detail Views



Power/I-O – An edge connector provides power to the module as well as serial communications between the module and wired devices. Refer to the following table for pin assignments of the module interface connector.

Power/I-O Pinout Signals

Pin #	Signal	Pin #	Signal	Pin #	Signal
1	+5v	12-16	Reserved	29	Reserved GPIO
2	GND	17-20	GND	30	SCLK
3	GPIO PWMA	21	UART RX	31	MOSI
4	GPIO PWMB	22	UART TX	32	MISO
5	Reserved GPIO	23	Reserved GPIO	33	CONFIG1
6	Reserved GPIO	24	RESET	34	CONFIG2
7	Reserved GPIO	25	Reserved ADC1	35	Reserved GPIO
8	Reserved GPIO	26	Reserved ADC2	36	GND
9	Reserved GPIO	27	Reserved ADC3	62	GND
10	Reserved GPIO	28	GND	63	+5v
11	GND				

Setup

For hardware hookup, refer to the "Power/I-O Pinout Signals" table on the previous page, which shows the connection made to the module.

NOTE: To prevent unit-to-unit RF interference, multiple modules operating at the same frequencies should not be installed within 3 to 5 feet of each other.

Labeling Requirements

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: EROCWD7083" or "Contains FCC ID: EROCWD7083." 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.