RADICAL WIRELESS



LUMEN CONTROL

Overview

The LUMEN CONTROL module enables wireless control of DMX luminaires and LED dimmers through the LumenRadio CRMX protocol. Despite its powerful functionality, the module is extremely compact and can be easily installed in own luminaires or DMX lighting devices.

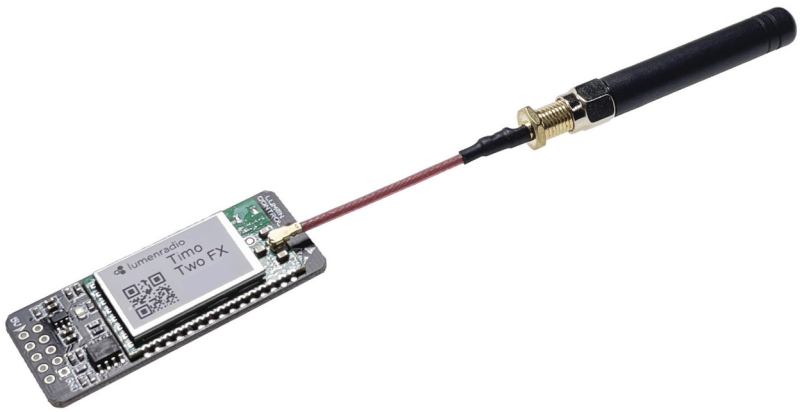
With its simple SPI programming and control, the module is also well suited for use in more complex control systems.

The module's small size makes it ideal for applications where space is an issue. Our customers can rely on the LUMEN CONTROL module to provide a reliable and powerful wireless control solution.

This module is SPI control only, with an additional RS485 interface for direct DMX connection. You need an external microcontroller or development board like Arduino or STM32 Bluepill to control this module.

Features

- Supports DMX512-A (ANSI E1.11) and RDM (ANSI E1.20)[1]
- DMX fidelity and frame integrity
- DMX frame rate and frame size auto sensing
- Fixed 5 ms end-to-end latency
- Connectivity based on Bluetooth Smart (BLE), allowing for easy connection from any phone or tablet
- Cognitive coexistence – dynamically avoids occupied 2.4GHz frequencies
- Automatic legacy (W-DMX G3, G4 and G4S) compatibility mode
- Receives CRMX², CRMX Classic, W-DMX G3, G4, G4S and G5
- Transmit CRMX Classic, W-DMX G3 or G4S
- U.FL/IPEX external antenna connector
- All configuration data is stored in non-volatile memory, 20 years data retention
- Over-the-air firmware upgrades
- Settings can be changed via the Lumenradio's Toolbox app
- A standard 2.54mm pitch header for external connection



[1] *RDM support only in RX receiver mode*

General Functionality

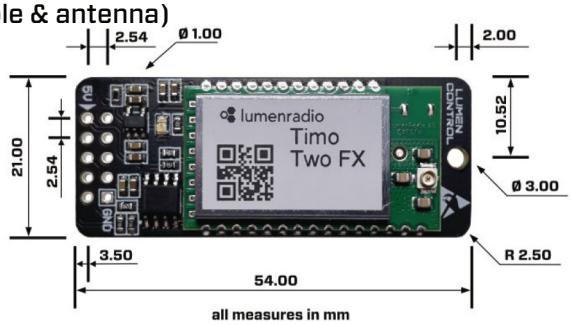
- Power IN — 5 VDC nominal, Voltage range 4.75 - 5.20 VDC max. 300mA
- Temp. working range — -20°C - +60°C
- Frequency — 2402 MHz - 2480 MHz
- Transmitting Power — 5 - 20 dBm
- Wireless Connectivity — Lumenradio CRMX Technology
- Wireless Protocols — DMX/RDM (CRMX², CRMX, WDMX), Bluetooth
- Antenna connector — U.FL/IPEX socket
- On-board Interface — LED: Power ON
- Programming Interface — Full SPI Support
- DMX Support — DMX512-A (ANSI E1.11) and RDM (ANSI E1.20)
- DMX / RDM Data — In Transmitter TX mode
  - Support for DMX512-A (ANSI E1.11)

  In Receiver RX mode
  - supports DMX512-A (ANSI E1.11) and RDM (ANSI E1.20)

Dimensions and Programming Interface

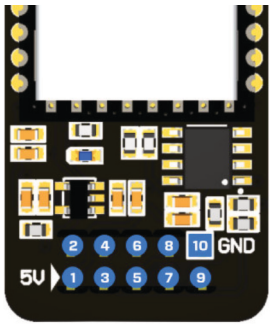
Dimensions

54mm x 21mm x 3mm (w/o cable & antenna)



Programming Interface

1	VDD	Power IN	Power
2	CS	SPI	Chip select, active low
3	DMX +	RS485 signal	Digital input/output
4	SCK	SPI	SPI clock
5	DMX -	RS485 signal	Digital input/output
6	MOSI	SPI	SPI Master Out, Slave In
7	IRQ	SPI	Interrupt signal, active low
8	MISO	SPI	SPI Master In, Slave Out
9	LINK	Link control switch input	Digital input, active low - on-board 10 kΩ pull-up
10	VSS	GND	Power



Example SPI sketch for Arduino can be found here at our Github page https://github.com/graflichttechnik

Technical data for the CRMX module can be found at the Lumenradio https://docs.lumenrad.io/timotwo/

Approvals & Certificates

CE - Certification of Compliances:

- TiMoTwo FX comply with the European Union (2014/53/EU), ETSI EN 300 328 V2.2.2

- EMC/EMV tested according EN 55022 Class B RE

FCC:

- FCC part 15 modular approval - 15.247 - approval to 100mW

For more information on the TimoTwo FX module, see Lumenradio https://docs.lumenrad.io/timotwo/compliance

Release Notes

Document Version	Notes and Changes	Hardware Revision
v1.0	Initial document	v1.0.0
v1.1	Change: New board size: 54mm x 21mm x 3mm Update: Pin 9 Link Switch note **IMPORTANT CHANGE: 5.00 VDC nominal for Voltage IN**	v1.0.1