

DMX Engineering LLC
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Casambi Enabled, Quad Channel Configurable Dry Contact In and Out

Product Description

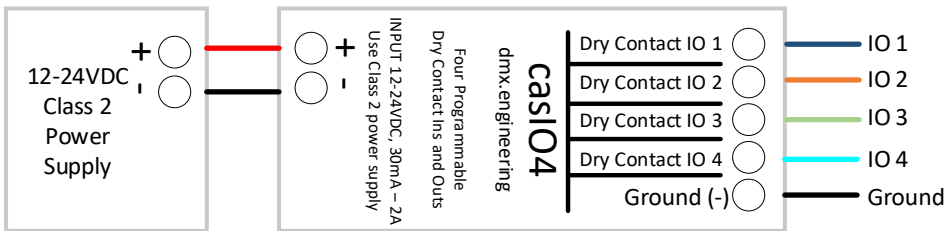
casIO4 is a Casambi Bluetooth controllable quad dry contact handling device that allows connection to four inputs, four outputs, or a combination of the two. Use Casambi App Profiles to select the mode desired, five Fixture Profiles available: Out4, Out 3-In1, Out2-In2, Out1-In3, and In4. Vendor Parameters allow for detailed control of the channels to provide use cases to meet just about any dry contact output, or pushbutton input, including ganged switch handlers.

As inputs, each channel operates independently but shares a common ground — each is expected to be shorted to common ground and not an external voltage. The 12-24 VDC Class 2 power supply creates the bias to the four channels so dry contact switches can be used without the need for external voltage. Do not connect an external voltage to the channel, but do connect them directly to switches in the input mode.

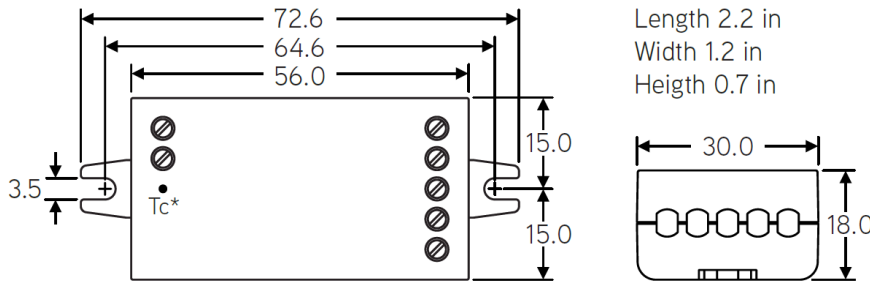
As outputs, each channel can sink 25mA to the ground connection to act as a low power slave output. This is not intended to drive a relay, for example, but the input to a device that expects a non-powered, dry contact input that can be driven with <25mA. Do not connect an external voltage to the channel.

Multiple casIO4 devices can be used in the same network, with multigang switch signaling between the devices to keep them in sync. casIO4 can be configured with the Casambi app which can be downloaded free of charge from the Apple App Store or the Google Play Store.

Typical Connection Diagram



Mechanical Data



Dimensions are in mm.

* Tc point is on bottom side

Dimensions: 2.2 x 1.2 x 0.7 inch
 72.6 x 30.0 x 18.0 mm
 Weight: 0.8 oz (23 g)

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Certifications

FCC ID: X8WB740F
 TELECC: 201-210217/01

Conforms to UL STD 916
 Certified to CSA STD C22.2#205



Technical Data

DC Voltage Input

Voltage range: 12-24 VDC, Class 2, input current: <30 mA.

casIO4 Channel Electrical Specs

The casIO4 channels expect no external voltage to be applied in either input or output mode. The channel has a 100-ohm series resistor for protection, and a 200K pullup resistor, and a 47K pulldown resistor. This provides a small electrical bias on the channel for dry contact input sensing.

The casIO4 input connects to the gate of a NFET transistor and provides electrical isolation. The 200K pullup provides bias current, while the 47K provides a high impedance to ground.

The casIO4 output connects the output pin to ground through a NFET, capable of sinking 25mA. A series 100 protection resistor is in place before the NFET drain pin.

Digital Input and Output

Both Digital I/O's are dry contacts only! Do not drive with voltage!

Input: Normal, Inverted, or Multi-Switch to allow for switch gang operation. Configurable long press, toggle. Double tap to dim up and down.

Output: Normal or Inverted.

Caution! This input should not be powered, and only used as a dry contact between the channel and ground.

Radio transceiver

Fanstel BT840 Radio Module
 Operating frequencies: 2.401-2.483 GHz
 Maximum output power: typ. +3.4dBm
 -103 dBm RX sensitivity in long-range mode

Antenna Options

Both external and internal (shown above) antenna models are available. Ask your distributor for either model.

Operating conditions

Ambient temperature, ta: -13...+113°F (-25...+45°C)
 Max. case temperature, tc: +167°F (+75°C)
 Storage temperature: -13...+167°F (-25...+75°C)
 Max. relative humidity: 0...80%, non-condensing

Connectors

Wire range, solid & stranded: 0.5 - 1.5 mm
 14 - 22 AWG, Wire strip length: .25" (6 - 7 mm)
 Tightening force: 0.4 Nm / 2.6 Lb-in

****RATED FOR INDOOR USE ONLY****

Installation

Connect a Class 2 power supply with 100mA max of output current to the power input connector of casIO4. Make sure not to use a constant current LED driver and make sure that the cable polarity is correct. The product has four identical configurable input OR output channels, select the proper Profile to select 4Ins, 4Outs, 2Ins2Outs, 1Outs3Ins, or 1In3Outs. Note that multiple Casambi Venor Parameter are present to give your system a wide control operation.

casIO4 digital inputs are configured as "Switches" using the Casambi App. casIO4 digital outputs are configured as "Luminaires" using the Casambi App. casIO4 will only appear in "Switches" if configured as 4Ins and only in "Luminaires" if configured as 4Outs. Digital Inputs and Outputs are both dry contact ONLY! Do not apply external power! External input or output device will open or close electrical contact between channel and ground terminal provided. Normal, Inverted, and MultiSwitch Action Parameters available. Normal operation activates channel when contact is closed and Inverted operation activates channel when contact is open. MultiSwitch for 3-way switch operation using multiple casIO4's in tandem is available. 10 separate gang settings allow for 10 different pairings of casIO4's in MultiSwitch mode. Mode Parameters for Hold (Maintained Input), Toggle-on-Pulse, Press-and-Hold to Dim Up, Press-and-Hold to Dim Down, Press-and-Hold to Toggle Dim, Double-Tap Dim Max, Double-Tap Dim Min, and Double-Tap Dim Toggle available.

Range

The range between two casIO4's or between a casIO4 and a smart phone can vary depending on obstacles and surrounding material. In open air the range between two casIO4 can be in excess of 200 ft, but if the unit is encapsulated into a metal structure, the range can be only few feet. Therefore, thorough testing is highly suggested. Casambi uses mesh network technology so each casIO4 acts also as a repeater. When testing the network, it is important to test that each unit can be controlled from any point of the network covered area.

casIO4 should not be placed in a metal enclosure, such as metal junction boxes. Metal will attenuate radio signals which are crucial to the operation of the product. If the product will have to be installed into a junction box, make sure to use a plastic junction box. casIO4 is an ETL Listed Open-Type device which means that it will have to be used together with a Class 2 power supply with maximum output power of 100 VA. The product can be installed outside of junction box. Make sure to comply with National Electric Code in installation and when selecting installation wires.

Compliance Statement

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.

Warning

Changes or modifications not expressly approved by DMX Engineering and Design LLC could void the user's authority to operate the equipment.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital 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 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.

Radiation Exposure Statement for Canada

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

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

This equipment is exempt from the routine RF exposure evaluation requirements of RSS-102. This equipment should be installed and operated with a minimum distance of 20 cm between the antenna and the user or bystanders.

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;
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Ce matériel n'est pas sujet à l'évaluation habituelle d'exposition RF selon RSS102. Ce matériel devrait être installé et exploité en gardant une distance minimale de 20 cm entre l'antenne et l'utilisateur ou les spectateurs.

