Embedded Communications Systems
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QUICK START GUIDE

MTC - MINI TELEMETRY CONTROLLERS

LOW POWER, LICENCE EXEMPT WIRELESS REMOTE CONTROL

The MTC Series is a range of low cost Telemetry Controllers providing both unidirectional and bidirectional FM wireless links capable of simple control and monitoring tasks. Their ease of use and numerous features make them ideal for adding wireless control and monitoring to any application requiring wire free operation.

MTC-2DI : Transmitter
Dual Digital Input Module

Features:

- User configurable operating modes
- Pluggable screw terminal connectors
- Opto-isolated inputs.
- Two digital inputs, third trigger input
- SMA Antenna connector
- Visual indication of input state & operation
- Rugged extruded enclosure. 85mm x 55mm x 25mm
- 151MHz/173MHz/433MHz/868MHz/914MHz/918MHz

Technical Specifications:

- Operating current: 7mA@12VDC, +5mA per active opto-isolated input.
- Wide operating voltage: 7 to 28VDC.
- User configurable operating modes
- Pluggable screw terminal connectors

MTC-2DO : Receiver
Dual Digital Output Module

Features:

- User configurable operating modes
- Pluggable screw terminal connectors
- Two relay outputs. NO & NC contacts
- SMA Antenna connector
- Visual indication of input state & operation
- Rugged extruded enclosure. 85mm x 55mm x 25mm
- Can learn up to 50 transmitters per receiver
- 151MHz/173MHz/433MHz/868MHz/914MHz/918MHz

Technical Specifications:

- Operating current: 10mA @ 12VDC, +20mA per activated relay.
- Wide operating voltage: 7 to 28VDC.
- User configurable operating modes
- Pluggable screw terminal connectors
- Relay contacts: 1A @ 24VDC. 0.5A @ 125VAC
- NO & NC contact provided for each output

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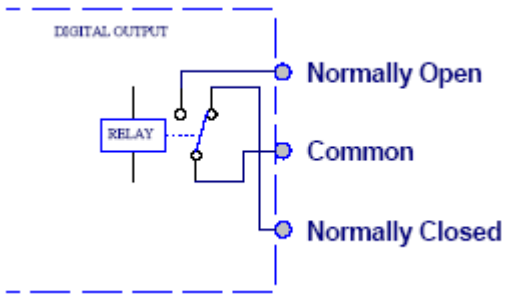
Digital Outputs on MTC-2DO (Receiver – Relay Outputs)

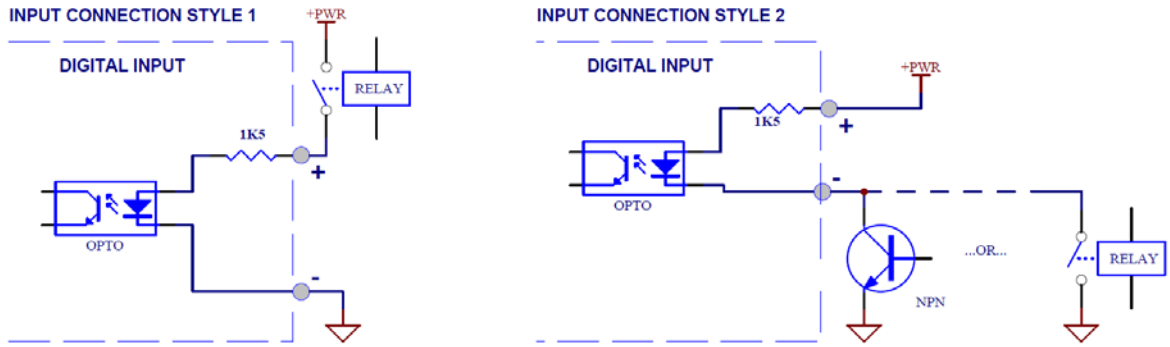
Both digital output relays provide an isolated low capacity switch. The relay contacts are not suitable for switching high currents or voltages.

Use an external relay to switch high capacity loads and mains voltages.

Provided relay contacts are Normally Open (NO), Normally Closed (NC) and Common (COM).



Digital Inputs MTC-2DI (Transmitter – Opto Isolated Inputs)



Three fully isolated digital inputs are provided. DI1 and DI2 are used for the digital inputs, while DI3 is provided as a trigger input for specific modes of the opposing output module. The trigger input is used to initiate a transmission of the state of DI1 and DI2. If DI3 is not used as a trigger input then DI1 and DI2 can be configured for sending a status transmission on either rising edge (closure) or falling edge (opening) or both (rising & falling edge).

Inputs are configured with a debounce time of 200ms. They have a maximum rating of 28VDC differential between the (+) and (-) inputs. The opto couplers have a wetting current of 7mA @ 12VDC.

Pairing Transmitter to Receivers

All transmitters are factory programmed with a unique serial number. This serial number is encrypted along with the input state data and transmitted as a unique transmission every event as dictated by the DIP switch settings.

The same transmitter can be paired with any number of receivers.

Creating New Pairings

Using a paperclip press the Learn button on the *receiver*. The status LED will light.

1. Press the Learn button on the *transmitter* once. The status LED on the *receiver* will turn off.
2. Press the Learn button on the *transmitter* again. The status LED on then *receiver* will flash.
3. Wait for the receiver status LED to stop flashing. The transmitter will now work with the receiver.

Note: Each receiver can learn up to 50 unique transmitters.

Erase Receiver Pairings

On the MTC-2DO (*receiver*), press and hold the LEARN button for 10 seconds.

The signal LED will turn off after 10 seconds indicating all registered transmitters has been erased.
Note: Individual transmitter pairings cannot be erased.

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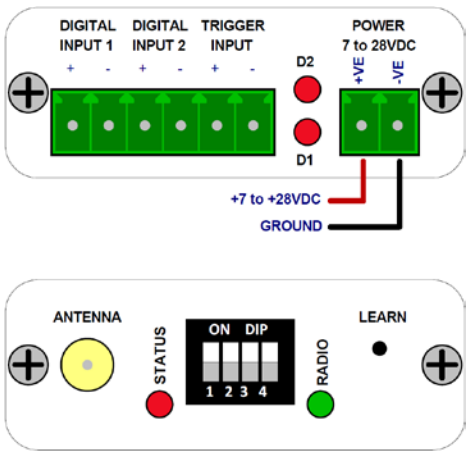
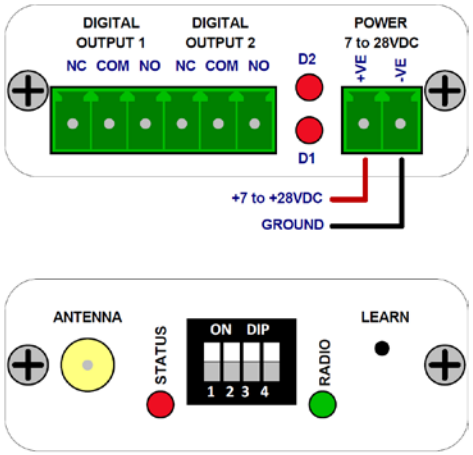
End Panel Layout and Connections

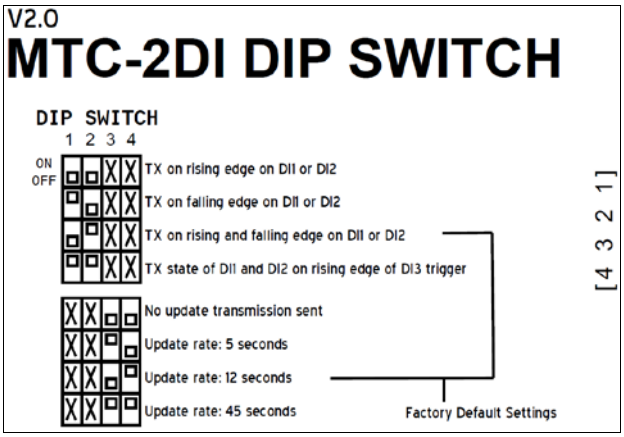
MTC-2DI : Transmitter



MTC-2DO : Receiver



DIP Switch Options



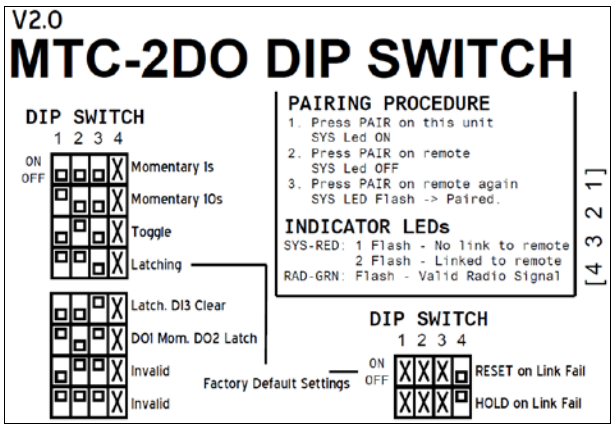
Transmitter Modes of operation:

- Transmit on rising edge of DI1 or DI2
- Transmit on falling edge of DI1 or DI2
- Transmit on both the rising and falling edge
- Transmit digital input states only on rising edge of DI3 (trigger input)

Transmitter update rates:

- Do not send any status updates
- Send a status update every 5 seconds
- Send a status update every 12 seconds
- Send a status update every 45 seconds

Using the update rate setting provides a means of adding a link fail function on the output unit.



Receiver Modes of operation:

- Momentary 1s & 10s:- The output relay is pulsed for a duration of 1 or 10 seconds when triggered from the transmitter.
- Toggle:- The output is toggled for every incoming event from the transmitter.
- Latching:- The relays are latched and follow the state of the input. This is the default setting for new units and provides link fail functionality.
- Latch & DI3 Clear:- The outputs are latched to an ON state with the trigger input on the transmitter being used to clear the output relays.
- DO1 Mom, DO2 Latch:- DO1 has is pulsed for 1 second while DO2 provides a latching function.

Receiver Link Fail operation:

- Reset or hold the output state when using latching mode. Link fail timeout is 3.5 x the update rate of the transmitter.

➢ **It's strongly recommend to bench test a wireless link prior to installation to ensure your chosen links settings give the desired output results for all combinations of input states/transitions.**

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Available Frequencies & Operating Range

Freq (MHz)	TX Power	Country of use	Range (upto): MTC-2DI to MTC-2DO (small antenna)	Range (upto): MTC-2DI to MTC-2DO (external antenna)
151.275	100mW	AUS	1km (Helical)	5km+ (1/2 wave)
151.300	100mW	AUS	1km (Helical)	5km+ (1/2 wave)
151.600	100mW	AUS	1km (Helical)	5km+ (1/2 wave)
173.225	100mW	NZ	1km (Helical)	5km+ (1/2 wave)
173.250	10mW	Europe	300m (Helical)	2km+ (1/2 wave)
173.250	100mW	NZ	1km (Helical)	5km+ (1/2 wave)
433.920	10mW	Many	200m (whip)	500m+ (GI dipole)
433.920P	25mW	AUS/NZ	500m (whip)	800m+ (GI dipole)
434.650NB	10mW	AUS/NZ/EU	n/a	1km+ (GI dipole)
869.85	3mW	Europe	80m (whip)	200m (GI whip)
918.525	3mW	AUS	80m (whip)	200m (GI whip)

Ordering Information

The MTC Controller Series is available in a number of operating frequencies to suit specific requirements and countries. Other frequencies are available if required but may be dependant on local regulations for the country of use. The MTC Controllers do not include any accessories or antenna. A number of antenna options are available; please contact your supplier for further information.

Example Product Code: **MTC** **2DI** **151.300** **R**

Product Code

Mini Telemetry Controller

Model

2DI - Dual Digital Input Transmitter

2DO - Dual Digital Output Receiver

Operating frequency

Eg; 151.300MHz

Repeater Option

R = Fitted with a transceiver

Options for the MTC-2DO & MTC-2DI

Antennas

- VHF – Wire wound helical mounted on an SMA
- VHF – Helical, end-fed ground independent with 4m low loss coax + SMA
- VHF – ½ wave dipole, end-fed ground independent with 4m low loss coax + SMA
- UHF – Helical wire wound stubby mounted on an SMA
- UHF – ¼ wave whip mounted on an SMA
- UHF – Dipole, end-fed ground independent with 2m low loss coax
- UHF – 6 Element Yagi - 6dBi.

*Note, mounting hardware is not provided with the external antennas.

Cables, Adapters and Accessories

- Power Adapter Plug Pack. 300mA 9VDC
- TS32 DIN Rail Mounting Bracket

←DIN mount bracket

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