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. 5KV isolation
- 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@8VDC, +10mA per active input.
- Wide operating voltage: 7 to 28VDC.
- User configurable operating modes
- Pluggable screw terminal connectors

User Settable Modes of Operation:
- Rising edge trigger
- Falling edge trigger
- Rising and falling edge trigger
- Rising on DI3 sends state of DI1 & DI2

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 upto 50 transmitters per receiver
- 151MHz/173MHz/433MHz/868MHz/914MHz/918MHz

Technical Specifications:
- Operating current: 7mA @ 8VDC,   +20mA per 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

User Settable Modes of Operation:
- Output 1 second momentary
- Output 10 second momentary
- Output state toggle
- Output latching
- Outputs latched on, DI3 resets outputs
- Output 1 momentary, output 2 latching

MTC – Wireless Telemetry Controllers
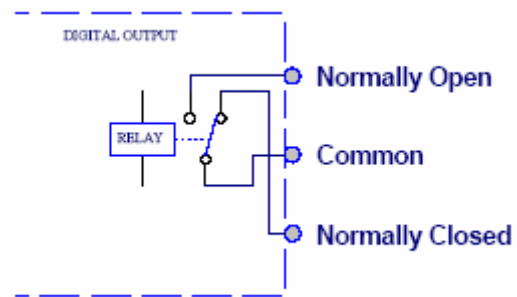
<table>
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MTC-FOB : Transmitter
Single Button KeyFOB Module

Features:
- Single button transmitter
- Internal loop antenna
- Visual indication of transmit
- User replaceable 12V battery
- ABS plastic enclosure. 60mm x 35mm x 15mm
- High security rolling code using AES encryption
- 151MHz/173MHz/433MHz/868MHz/914MHz/918MHz

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Technical Specifications:
- Operating current: 0mA @ idle. 9mA transmitting.
- Internal 12V battery.

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Output Modes on MTC-2DO:
- Output 1 second momentary
- Output 10 second momentary
- Output state toggle

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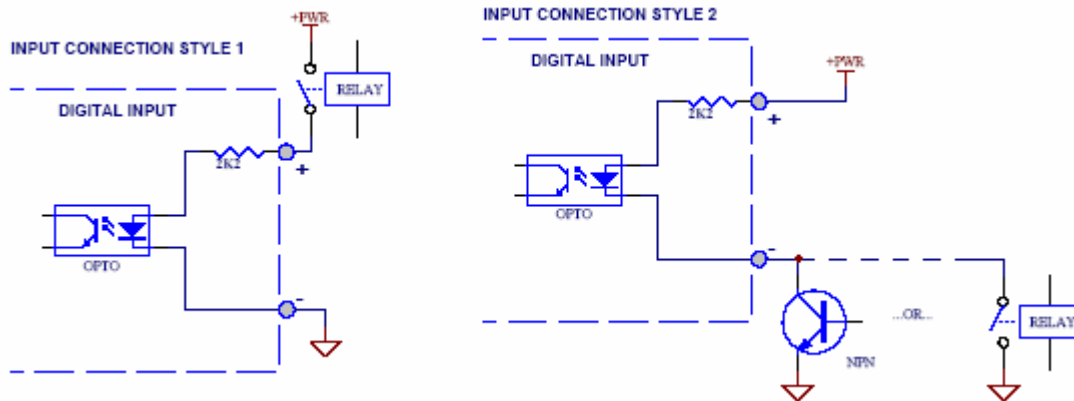## Digital Outputs on MTC-2DO (Receiver – Relay Outputs)

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

Use an external relay to switch high capacity loads.

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

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

Three fully isolated digital inputs providing 5KV isolation 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 (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.

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Pairing Transmitter to Receivers:

All transmitters are factory programmed with a unique 40 bit serial number. This serial number is encrypted with an AES compliant 128 bit algorithm and transmitted as a unique transmission code every closure of an input or press of a button. A code is never transmitted more than once and a receiver will never accept an already sent code thus providing maximum security.
The same transmitter can be paired with any number of receivers.

Creating New Pairings

1. Using a paperclip press the Learn button on the *receiver*. The status LED will light.
2. Press the Learn button on the *transmitter* once. The status LED on the *receiver* will turn off.
3. Press the Learn button on the *transmitter* again. The status LED on then *receiver* will flash.
4. Wait for the receiver status LED to stop flashing. The transmitter will now work with the receiver.
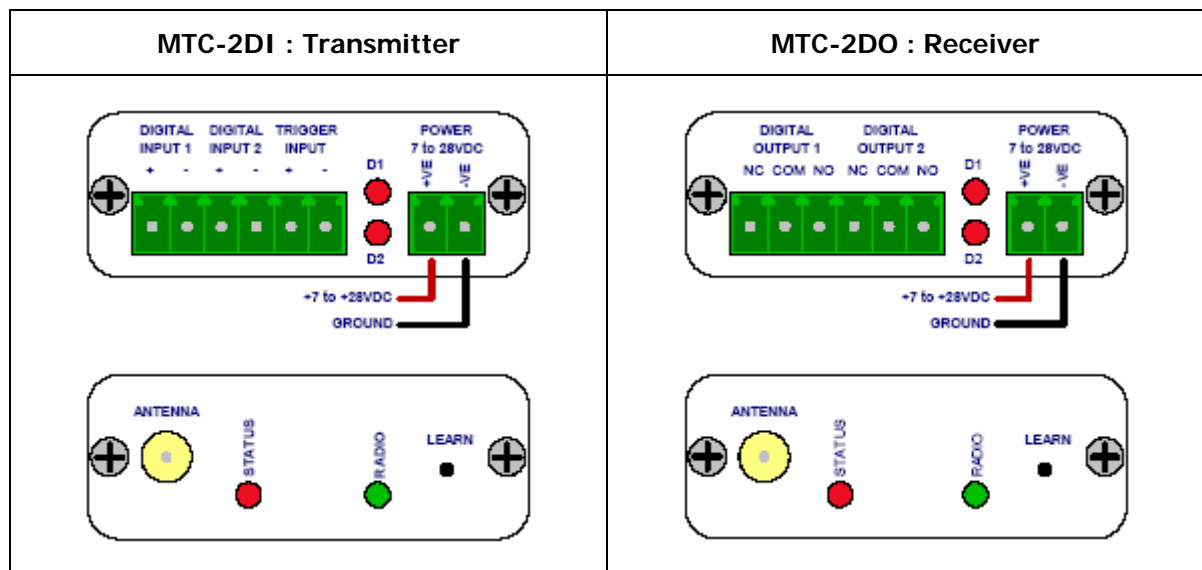**Note:** Each receiver can learn upto 50 unique transmitters.

Erase Receiver Pairings

1. On the MTC-2DI (*receiver*), press and hold the LEARN button for 10 seconds.
2. The signal LED will turn off after 10 seconds indicating all registered transmitters has been erased.
Note: Individual transmitter pairings cannot be erased.

End Panel Layout and Connections

Linking Options:

MTC-2DI : Transmitter				MTC-2DO : Receiver			
L1	L2	L3	Description	L1	L2	L3	Description
Open	Open	Open	Rising edge on DI1 or DI2	Open	Open	Open	Momentary 1 second^
Link	Open	Open	Falling edge on DI1 or DI2	Link	Open	Open	Momentary 10 second^
Open	Link	Open	Rising or falling edge	Open	Link	Open	Latching Toggle^
Link	Link	Open	Rising on DI3 trigger	Link	Link	Open	Latching
Open	Open	Link	Invalid (=open/open/open)	Open	Open	Link	Latched on. DI3 to clear
Link	Open	Link	Invalid (=open/open/open)	Link	Open	Link	DO1 mom. DO2 latched
Open	Link	Link	Invalid (=open/open/open)	Open	Link	Link	Invalid (open/open/open)
Link	Link	Link	Invalid (=open/open/open)	Link	Link	Link	Invalid (open/open/open)

^The KeyFOB transmitter only provides the first three function settings on the MTC-2DO receiver module.
Note: Invalid link options shown above are defaulted to the functionality of no links fitted.

↘ **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): FOB to MTC-2DO (antenna type)	Range (upto): MTC-2DI to MTC-2DO (small antenna)	Range (upto): MTC-2DI to MTC-2DO (external antenna)
151.275#	100mW	AUS	n/a	1km (Helical)	5km+ (1/2 wave)
151.300	10mW	AUS	150m (Helical)	300m (Helical)	2km+ (1/2 wave)
151.300	100mW	AUS	n/a	1km (Helical)	5km+ (1/2 wave)
151.600#	100mW	AUS	n/a	1km (Helical)	5km+ (1/2 wave)
173.250	10mW	Europe	150m (Helical)	300m (Helical)	2km+ (1/2 wave)
173.250	100mW	NZ	n/a	1km (Helical)	5km+ (1/2 wave)
433.920	10mW	Many	100m (whip)	200m (whip)	500m+ (GI dipole)
433.920NB	10mW	Many	n/a	n/a	1km+ (GI dipole)
433.920	25mW	AUS	100m (whip)	500m (whip)	1km+ (GI dipole)
869.85	3mW	Europe	30m (whip)	80m (whip)	200m (GI whip)
918.525#	3mW	AUS	30m (whip)	80m (whip)	200m (GI whip)

#By special order only. MOQ's may apply.   * FOB is an internal loop antenna

Ordering Information

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 are available in a complete kit, or as stand alone modules for expanding a system. Stand alone modules do not include any accessories or antenna. A number of antenna options are available; please contact your supplier for further information.

MTC-2D-LINK Kit Contents

- 1 x MTC-2DI and 1 x MTC-2DO
- 1 x Printed MTC Quick Start Guide
- 2 x Power Adapter. 9VDC 300mA.
- 4 x Rubber feet and 1 strip adhesive backed velcro
- 2 x Helical Antenna with SMA mount.

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

Antennas

- VHF – Wire wound helical mounted on an SMA
- VHF – ½ wave dipole, end-fed ground independent with 2m 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