

# TCD

Telemetry  
Communications  
Device



## Installation Guide

Interface for the Emizon managed network

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This guide sets out a simple check list together with a step-by-step guide to the components, installation, commissioning and fault finding for the Telemetry Communications Device; the gateway to the Emizon's Global21 secure alarm signalling service.

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## 1. Introduction

Global 21 from Emizon is the first secure, dual path, managed alarm signalling service for today's digital networks. It means that your customers can now embrace the benefits of the IP era while maintaining the high standards associated with traditional dual path managed signalling services.

## 2. Key Features:

### Secure

- Dual path service; broadband (primary) and GPRS
- Class 1, 2, 3, 4 and 5 signalling compliant
- Full audit trail on both paths

### Easy to Install

- No on-site configuration
- Fits into existing panels
- Not site specific

### Cost effective

- No connection charge
- No call charges on either path
- Avoids need for a dedicated PSTN line

### Future Proofed

- Designed specifically for IP networks
- Works over WAN, LAN, Private networks, Cable, ADSL, GPRS networks.

## 3. Check List – Before you Start

### 3.1. Global21 Customer IT Survey Form

Please ask the customer to complete the Global 21 Customer IT Survey form to check for any IT security settings and refer to the Global 21 checklist. Both the Customer IT survey form and the checklist are available to download from the iZone section of the website at [www.emizon.com.au](http://www.emizon.com.au)

### 3.2. Check the Router Port Connection

The Ethernet port on the TCD simply plugs into a spare Ethernet port on the router in the customers' premises using a standard Ethernet cable. Check that there is a spare port and that you have enough Ethernet cable to reach. Additional ports can be made available by using an Ethernet hub - available from IT suppliers who also supply Ethernet cable in various lengths.

To comply with the Alarm Transmission System Standard AS2201.5, the installer must ensure the following;

- the modem and/or router used as part of the IP connection shall be approved for use on the Australian telecommunication network. Approved equipment lists are available on websites such as Optus and Telstra.
- any modem or router which forms part of the Alarm Transmission System shall have a standby power supply which has the capacity and meets the requirements of AS2201.1 clause 3.14.2. “A modem / router requiring mains power shall have sufficient Power Supply capacity to last 16 hours”
- Any TCD that utilizes the “pin” inputs for communication from an alarm panel shall be mounted within the alarm panel and not in an external location

### **3.3. Check Wireless GPRS Signal Strength**

Operating in the same way as any GSM device, the GPRS module requires sufficient signal strength to communicate. For an easy indication of signal strength place an **Optus** mobile next to the panel – 2 bars or more is usually sufficient. For a more accurate indication **see Section 5 Step 4** which shows how to use the in-built diagnostic capability to display signal strength in a range from 0 to 31 (0-100%). High gain antennas and extension antenna cables can be used to provide additional signal strength away from the panel location. These are available from MCM.

### **3.4. Power-Down the Control Panel**

As with the process for installing any type of alarm communications within a panel (e.g. STU or GSM interface) ...the panel must be:

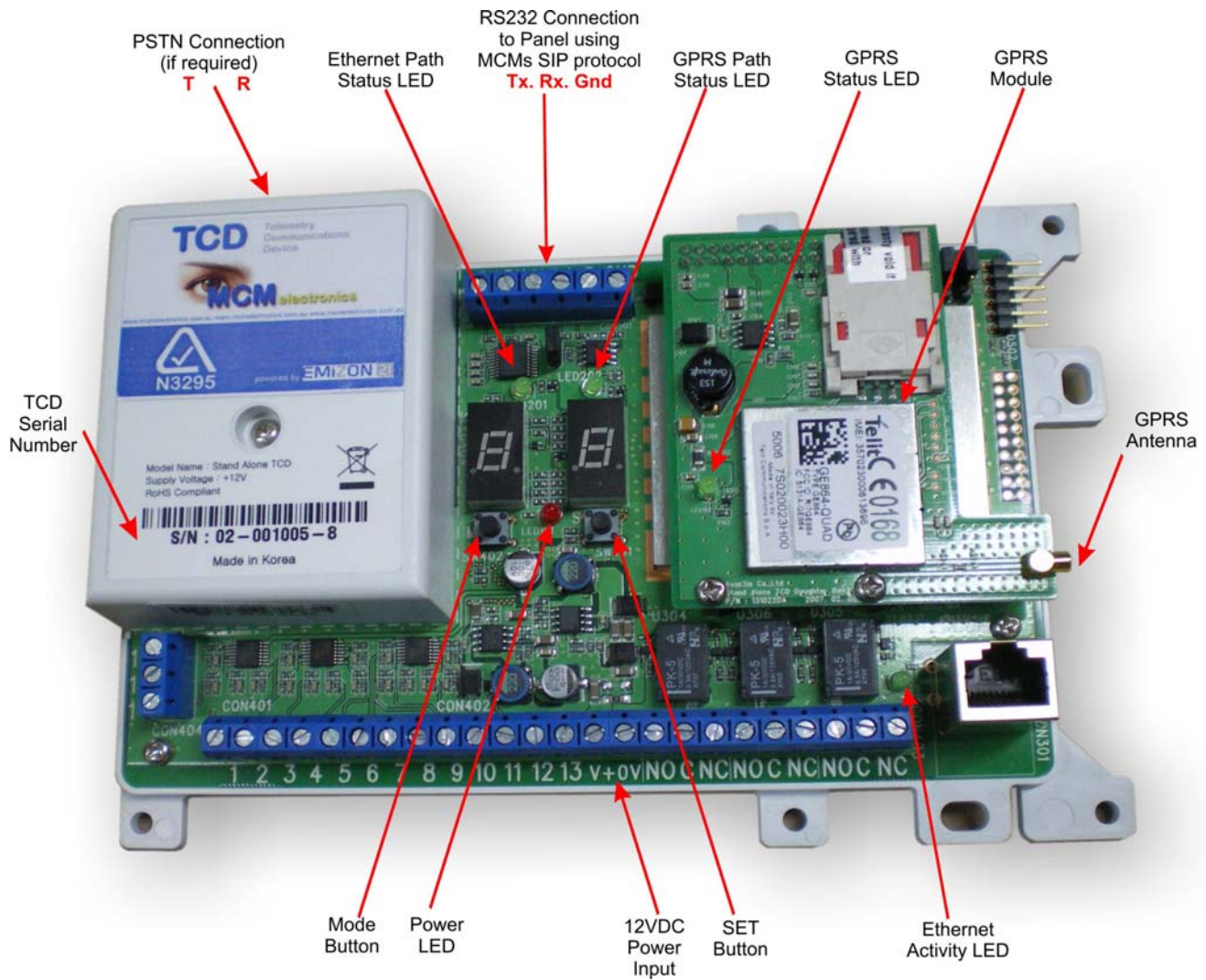
- Out of commission; having notified your Monitoring Centre
- Powered down, with the battery disconnected

**Note:** The TCD requires up to 350mA from the panel power supply (Typical 200mA). The power supply capacity to last a minimum of 16 hours as required by AS2201.1 clause 3.14.2

### **3.5. Make a Note of the TCD Serial Number**

During the commissioning process you will need to advise this number to your Monitoring Centre so that this can be matched against the customer installation number. Make a note of the serial number shown on the TCD label and box before you start and have this number ready.

## 4. TCD Components



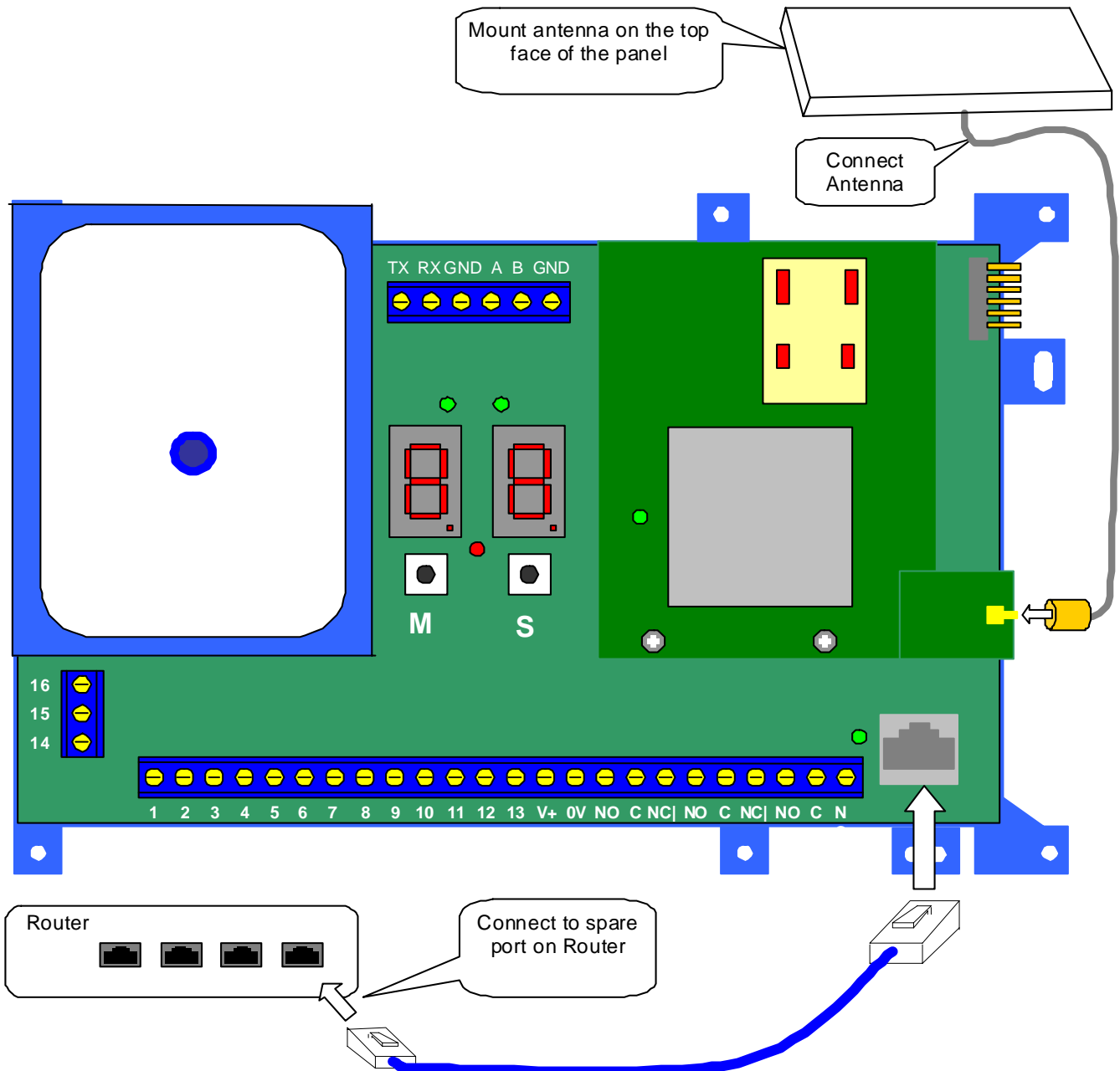
### TCD Serial Number

Each TCD has a unique serial number located on the manufacturer's label. You will need to give this number to your Monitoring Centre during the commissioning process so that they can "Associate" the TCD with the Customer.

## 5. Step-by-Step by Guide

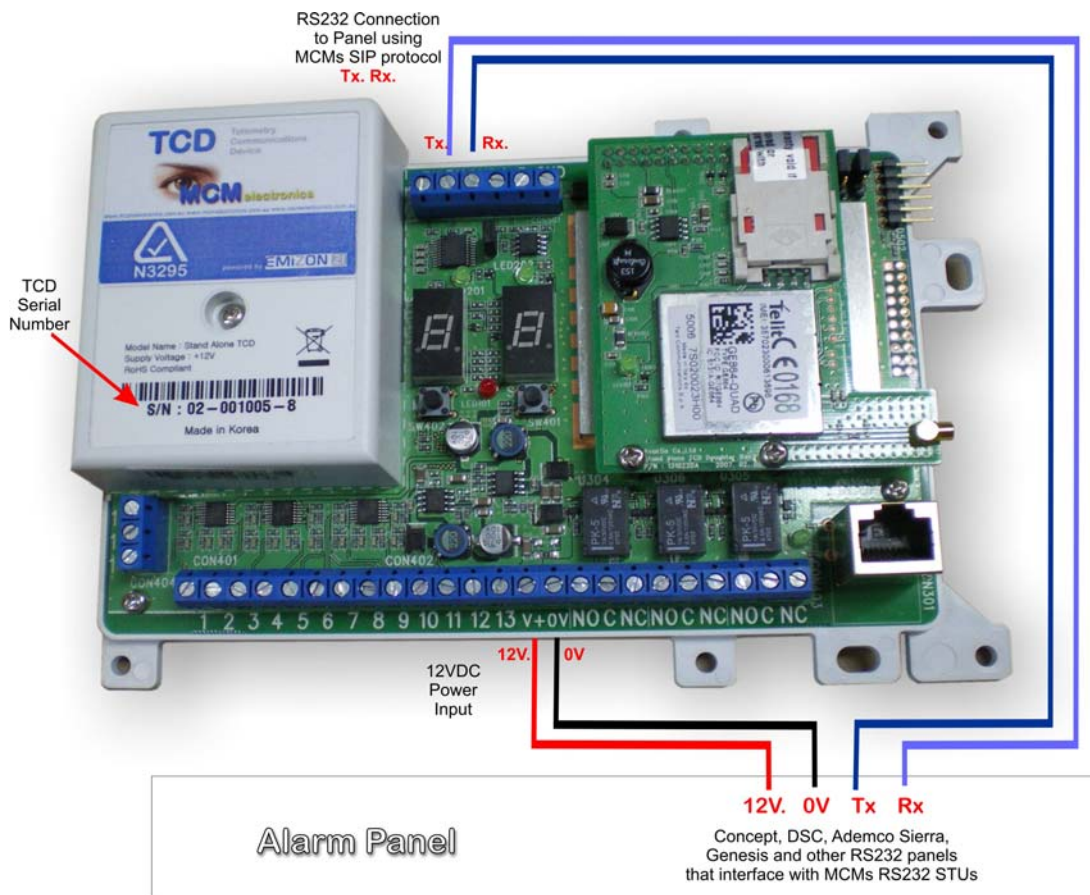
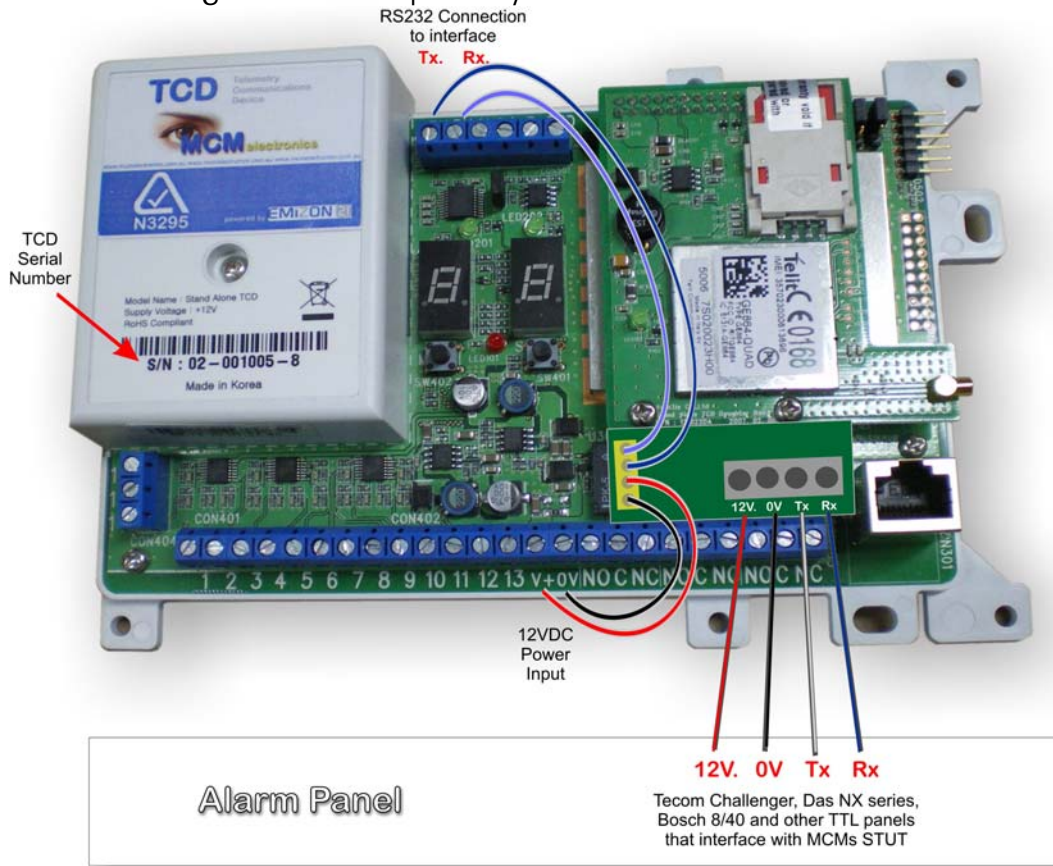
### Step 1: Fit the TCD in the Alarm Control Panel

- Position the TCD in the panel and fix in place using either the sticky pads supplied or your own screws.
- Mount the antenna on top of the alarm panel box (wait till Step 6 to affix in place) and run the wire down the back of the panel and connect to the antenna connector.
- Connect the Ethernet port to the router in the customer's premises.



## Step 2: Connect TCD to a Panel ...

- Connect the TCD pin inputs to the panel (note – default is +ve removed)
- Connect the power supply to the TCD power supply input, carefully observing the correct polarity

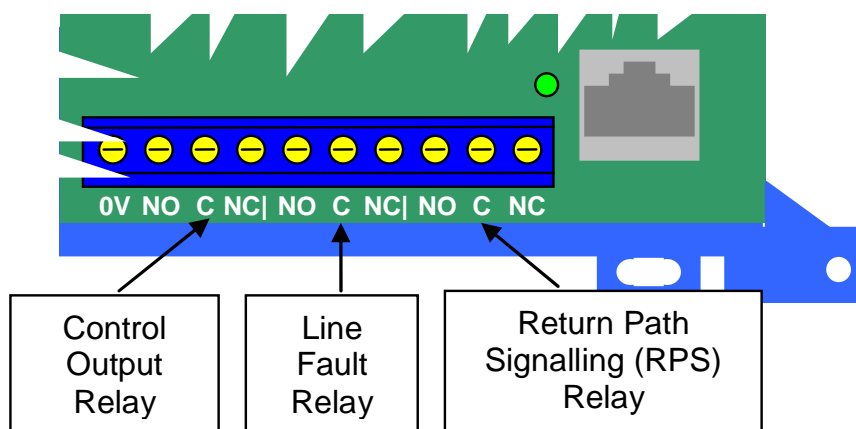


## Relay Operation

The three relays are positioned next to the Ethernet port are:

- **Control Output** – Controlled by the Monitoring Centre and used for various purposes such as resetting the alarm panel following an event.
- **Line Fault** – Activated when the TCD is unable to transmit a message. This relay is programmed to report a path failure on either path,
- **RPS** – Return Path Signalling. When enabled, the RPS relay activates whenever any alarm is being transmitted. It is reset only when there are no alarms waiting to be acknowledged by the Monitoring Centre.

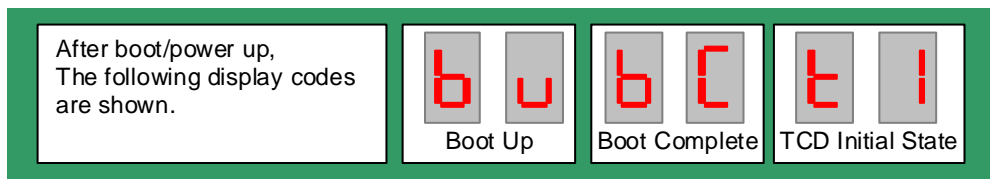
Each relay is a changeover type with a common Normally Open and Normally closed terminal. The contacts are rated at 30VDC @ 1A.



### Step 3: Initial Power up and Signal Level Check

Turn on the power supply to the panel, wait 15 secs (approx):

- The red power status LED in the centre of the board will illuminate.
- The seven segment user display sequence is shown below:

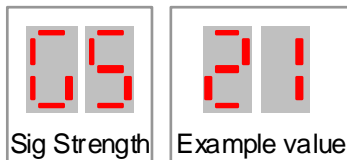


- Check Ethernet activity LED near the Ethernet connector is lit up - it will flicker if data is present.
- If this is the **first time** this TCD is being installed (if has already been installed you can skip this step), you will need to **wait** for the **"E I"** indication to appear on the display, then press and hold the **Set** and **Mode** buttons together until display shows **"UF"**.



- The TCD will make contact with the Emizon Service Platform and **automatically download** the latest firmware. If “**rr**” is displayed then a **firmware update has taken place and the TCD will reboot**. If “**UE**” is displayed then the TCD has the latest software and is ready for use. Allow the TCD to boot up (15sec)
- After boot up the TCD will display “**t I**” state. (i.e. ready for activation)

#### Step 4. TCD Signal Strength Indicator



The TCD incorporates a diagnostic mode allowing specific types of information, such as signal strength and GPRS registration, to be shown in digital format on the user display.

This mode is entered by quickly “tapping” the “Mode” button (left hand button) - the display will remain in this “mode” for a period of 2 minutes.

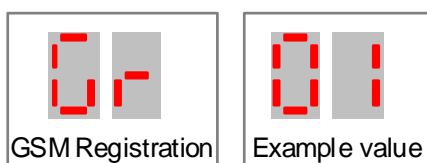
The display will then show a code for the parameter on display for example “**GS**”(GSM signal Strength together with the associated value.

The signal strength value ranges from 0 (zero signal strength) to 31 (maximum signal strength). A value of 12 or more is normally acceptable for GPRS transmission. ‘**99**’ indicates that the GPRS modem cannot properly determine the signal strength. Check antenna connections or antenna location.

The display will then move on to show the GPRS registration status.

#### GPRS Registration Status

The GPRS registration status is shown as a numeric code:

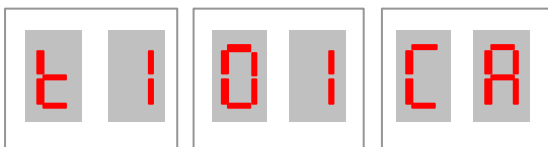


The only acceptable code for proper operation of the TCD is “**01**”, which indicates that the TCD is registered successfully on its home network (**Optus**).

Please note for other territories outside of the Australia “**G r 0 5**” is acceptable.

## Step 5: Commissioning with your Monitoring Centre

- Call your Monitoring Centre with the TCD serial number printed on the label on the front cover. The Monitoring Centre will then **'associate'** or link the TCDs serial number to this specific installation on their system and then **'activate'** it.
- Press the 'set' button ( right hand button) for 5 seconds.
- The user display will then alternate between **E I** and **O I** then **CA** (completely activated) indicating a successful commission and connection to the Monitoring Centre. The green GPRS and Ethernet path LEDs will change to green to indicate that they are communicating with the Emizon Service Platform.
- For added security there is a time out period of around 20min for Monitoring Centre activation.
- 
- The following display codes are shown.



Note: if you re-power the TCD you may need to repeat the Monitoring Centre commissioning process... ie De-Activate and the Activate (similar to Down STU and UP STU).

- Following the successful activation ...make sure the Monitoring Centre has sent a Configuration message to the TCD to setup the way the panel communicates to the TCD. eg via Contact ID or MCM Serial Securitel data.
- You can then test all alarms on both signalling paths ensuring that the alarm panel is ready for service.
- Once this is complete, affix the antenna in place on top of the panel.

## 6. Additional Requirements for Class C4 and Class C5

When a TCD is used as Class 4 or Class 5 then the enclosure shall meet the additional requirements of AS2201.1 clauses 3.16.5.5 and 3.16.5.7 for tamper detection and restricted key locking.

Mains connection for Class 4 and 5 installations is required to comply with clause 3.11.7 of AS2201.1 (2007), which state that both the power switch and plug pack are to be captive so that neither can be altered without the use of a tool or a key

Installers are reminded that all requirements of AS2201.1 shall be met to qualify an Alarm Transmission System to comply with the various Classes

## 7. Fault Finding

The TCD comes with in-built fault finding capability. When detected, Error and Fault conditions are displayed on the user interface display using the convention of 'E' for non-fatal errors and 'F' for faults requiring Emizon intervention. The display will also show a number code to indicate the nature of the problem.

The three most common error codes together with the potential reasons and solutions are shown on the table below:

Error Code		Possible reason and Solution
<b>F</b>	<b>0</b>	<b>Fault code 0:</b> Configuration read from flash failed – device is faulty please replace with a new TCD.
<b>E</b>	<b>0</b>	<b>Error code 0:</b> IP path not connected. Please check Ethernet cable from TCD to socket. Make sure connectivity to router is completed and that either DHCP is enabled OR a static IP address has been input by the Emizon helpdesk.
<b>E</b>	<b>1</b>	<b>Error Code 1:</b> Unable to contact Emizon Service Platform for configuration parameters. Check IP path is continuous to customers router (is green light flashing on Ethernet port on TCD?).
<b>E</b>	<b>2</b>	<b>GPRS Registration state</b> not 1 or 5 as specified. If this persists, this indicates poor Optus signal coverage area or antenna location problem.
<b>E</b>	<b>3</b>	<b>GPRS Connection not available.</b> If this persists this indicates the GPRS connection is unable to connect to the GPRS IP service.
<b>E</b>	<b>4</b>	<b>Serial Connection to Alarm Panel</b> failed (if configured). Check the serial connection to the alarm panel on the RS232/RS384 ports.
<b>E</b>	<b>5</b>	<b>PSTN Connection failed</b> (if configured). The physical wiring between the TCD and the alarm panel on the PSTN connection has failed.
<b>FE</b>	<b>52</b>	<b>Connection to Update Server Failed.</b> Unable to contact Emizons Update Server for software updates. Check Router Firewall (if E0 is not displaying). <b>Ports 18000-18049 need to be open for Outgoing TCP</b> on the customers Router/Firewall.

## 8. Glossary

<b>Term</b>	<b>Description</b>
Commissioning	Process to ensure that the alarm panel is recognized and can communicate on both paths with the Monitoring Centre across the Emizon Service Platform.
DHCP	Dynamic Host Configuration Protocol. Allows a device i.e. the alarm control panel to automatically request and obtain an IP address.
Ethernet hub	Device that is used with a router to extend the number of ports or connections available to the IP network.
Ethernet port	Connection point on a router.
GPRS module	Provides connectivity for the secondary GPRS communications path for Emizon 21 on the TCD.
Installation	An individual customer premises connected to the Emizon service via the hardware or TCD (equivalent of a STU) in the alarm panel.
IP Address	Internet protocol. A number that identifies each sender or receiver of information that is sent in packet across the Internet.
Router	Provides the gateway at the customer's premises into the global IP network and the benefits that it brings. It is the router that enables the alarm control panel to communicate with the Emizon platform and then onwards to the Monitoring Centre.
TCD serial number	The unique reference number for the TCD. This number allows the alarm equipment at the customer's premises to be matched against the installation number on the Monitoring Centre's data base as well as on the Emizon Service platform.

## 9. Compliance



The TCD complies with the requirements of ACMA



The TCD complies with the requirements of the European EMC Directive (89/336/EC), the Low Voltage Directive (72/23/EC and 93/68/EC) & from (1/1/2006) the "Reduction of Hazardous Substances Directive (2002/95/EC).

Appropriate components also comply with the requirements of the R&TTE directive (1995/5/EC). EN55022 Emissions Class B. EN50130-4 Immunity. And 89/336 Electro Magnetic Compatibility Directive) as amended by 92/31/EEC.

### **Signaling Compliance**

Emizon is suitable for installation in systems complying with AS/NZ 2201.5 2008 for Class 1, 2, 3, 4, 5  
(Subject to correct installation, configuration and settings)

### **Environmental Compliance**

Environmental Class 2

### **Warranty**

MCM will repair or replace, at our discretion, any Stand-Alone TCD developing a fault within 18 months, free of charge. Products for repair should be returned to MCM suitable packed to prevent damage (including any damage from electrostatic discharges), and be accompanied by full details of the fault and the full return address.

## More TCD Compliance info...

The following documented details are required for AS2201.5 clause 2.3;

- a) **Electrical supply:**  
12VDC (nominal) 350mA max.
  
- b) **Suitability:**  
Classes C1, C2, C3, C4, C5 refer to individual Certificates.
  
- c) **Alarm transmission:**  
Class C1, 120 seconds  
Class C2, 90 seconds  
Class C3, 60 seconds  
Class C4, 30 seconds  
Class C5, 10 seconds
  
- d) **Fault detection:**  
Class C1, 8 days  
Class C2, 25 hours  
Class C3, 120 seconds  
Class C4, 60 seconds  
Class C5, 20 seconds
  
- e) **Type of interface:**  
Class C1, Pin or Dial Capture or Serial Data connection when in alarm panel enclosure, Dial Capture or Serial Data connection when external to alarm panel.  
Class C2, Pin or Dial Capture or Serial Data connection when in alarm panel enclosure, Dial Capture or Serial Data connection when external to alarm panel.  
Class C3, Dial Capture or Serial Data connection.  
Class C4, Serial Data connection  
Class C5, Serial Data connection
  
- f) **Any communications path restrictions:**  
Refer to Table 1 of Certification Class being used.

- g) **System parameters:**  
Refer to Table 1 of Certification Class being used.
- h) **Certificate of Compliance:**  
Refer to Table 1 of Certification Class being used.
- i) **Signalling Security:**  
All Classes meet Class 5 requirements.
- j) **Installation:**  
Refer section 5 of TCD Installation Guide.
- k) **Adjustments and tests:**  
Refer section 5 of TCD Installation Guide.
- l) **Testing:**  
Refer section 5 of TCD Installation Guide, Carry out tests referred to in c) and d) above.

## **MCM Electronics Pty Ltd**

Unit 3/10 Abel Street

Penrith

NSW

2750

### **Contact Phone Numbers**

Tel: 0247 218067

Fax: 0247 218572

### **Opening Hours**

8:30am-5pm

Monday to Friday

### **E-mail:**

[tech@mcmelectronics.com.au](mailto:tech@mcmelectronics.com.au)

### **Website**

[www.mcmelectronics.com.au](http://www.mcmelectronics.com.au)



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