TCAM Technology Pte Ltd

TMAS

SMS Controller
TMN-5000i Hardware User Manual (Ver.1)

CE

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1 Introduction

This document will briefly describe the product features and specifications of SMS Controller - TMN-5000i. It will also cover a step-by-step guide to configure the device. For more information on how to use the TMAS PC Manager Software, please refer to the attached TMAS PC Manager Quick User Guide or download the user guide from our website's product page.

2 Product Overview

TMAS SMS Controller enables the users to monitor and control issues at scattered remote sites. It provides remote and efficient management of equipment, services, and facilities. Emergency such as fire, alarm, system failure can be detected timely at remote sites and notifications will be sent out immediately via SMS to alert users on their mobile phone. Users can also send SMS to control different output devices that are connected to the SMS Controller.

SMS Controller is designed to operate in standalone mode or in a network with other SMS Controller devices. It can be scaled up and deployed on demand, as many-to-one device or one-to-many devices. Managing large scale of SMS Controller devices remotely is made easy with TMAS PC Manager Software which is installed at a central PC and performed as Central Monitoring Station (CMS). The CMS provides device management and reporting functions such as remote health check, remote polling of status, test report, alarm report, login report and more. To reconfigure and update the devices wirelessly, what you only need is to add a TMAS modem, such as T61-ELS61 that is capable of sending and receiving SMS from PC. The CMS will act as the monitoring and control station for multiple SMS Controller devices, and all are done remotely via 3G/4G cellular network without massive wiring.

3 Accessories

Figure 1 TMN-5000i Unit

Figure 2 3G/4G Antenna

Standard package contains:

1. TMN-5000i Unit x 1
    - Consists of an on-board modem, a SIM card holder, 2 pieces of 10 ways pluggable terminal block and a polycarbonate plastic white casing
2. 3G/4G Antenna x 1
    - SMA (50ohm) male type
3. TMAS AC/DC Power Adapter x 1
    - Input: 100-240VAC 0.6A
    - Output: 12VDC 2A
4. Backup Battery x 1
    - Rechargeable lithium-ion type
    - 3.7V 2000mAH
    - Comes with battery connector cable
    - Can last for minimum 4 hours excluding external devices
5. Programming Cable x 1
    - DB9 female to RJ12 male converter
6. TMAS PC Manager Software
    - See attached TMAS PC Manager Quick User Guide for the download link

Figure 3 TMAS AC/DC Power Adapter

Figure 4 Backup Battery

Figure 5 Programming Cable

4 LED Indicators

LED	Indication	Description
Power LED	OFF	No AC power or backup battery power.
	ON	TMN-5000i is powered.
Network LED	OFF	On-board modem is offline.
	500ms ON, 500ms OFF	No SIM card inserted, or no antenna is plugged in, or network search in progress, or network login in progress.
	10ms ON, 3990ms OFF	Logged into the 3G network. When TMN-5000i successfully logs into the network, it will beep once.
Event LED	OFF	No input or output is triggered.
	500ms ON	Input or output is triggered. If second event occurs within less than 2 second after the first event, LED will restart and keep LED on for another 2 seconds.
Alarm LED	OFF	No alarm is triggered.
	ON	Input alarm state is triggered. Power failure, battery weak, RS485 failure, modem failure, and missing or wrong sub-node.

5 TMN-5000i Key Features and Specifications

Hardware Features	
No. of Digital Inputs (Dry contact or TTL)	8
No. of Digital Outputs (Open collector drive)	8
Power Adapter	(240V 0.6A) AC/DC (12V 2A)
Real Time Clock	Yes (CR2032 battery is included)
On-board Modem	Telit Cinterion ELS61
Antenna Interface	SMA (50ohm) female
Backup Battery	3.7V, 2000mAH (Min 4 hours excl. external devices)
Programming Cable	DB9 female to RJ12 male converter
Firmware Features	
Wired Configuration (RS232)	Yes
Wireless Configuration (SMS)	Yes
No. of Mobile Users to Alert	16
Types of Languages Support with SMS	All supported languages in SMS (max 40 characters)
Power Failure & Battery Low Detection	Yes
I/O Configuration	Yes (Normally Open or Close; Toggle ON/OFF)
Sub-Node Inputs Expansion (RS485)	Max 16 TMN-10 modules for max 128 inputs
Software Features	
Weekly Schedule	4 user-defined schedules to alert users on different shifts
User-defined Message	Yes (max 40 characters)
Resend SMS Alert	Yes, resend by count and interval
“Back to Normal” Alert	Yes
Alert Escalation Levels	4
Health Test (to Mobile Users)	Power fail, Battery weak, RS485 fail, Sub-node missing
Health Test (to CMS)	RF signal strength, Data synchronization, I/O status
Electrical Specifications	
Operating Voltage	6-32VDC
Current - Transmission - Standby (Note: exclude external devices)	220mA@12VDC 120mA@12VDC
Mechanical Specifications	
Operating Temperature	-25 to +75°C
Dimension (mm)	183 x 183 x 22
Weight	335g
Mounting	Wall or Desk
Casing Material	Polycarbonate Plastic

6 Hardware Configuration

This section will guide you step-by-step to setup your TMN-5000i for the first time. You may find a video guide online on our website's product page.

6.1 Step 1: Insert SIM Card

There are a total of 6 locks (circled in red colour) as shown below in the Figure 6. From the side groove (shown below in the Figure 7), use a flat screwdriver to pry open the casing.

Figure 6 Bottom View of the TMN-5000i

Figure 7 Prying from the Side Groove

Next, locate the SIM card holder which is underneath the printed circuit board (as shown below in the Figure 8). Insert your SIM card with its chip facing up. Push it inward until you hear a click sound.

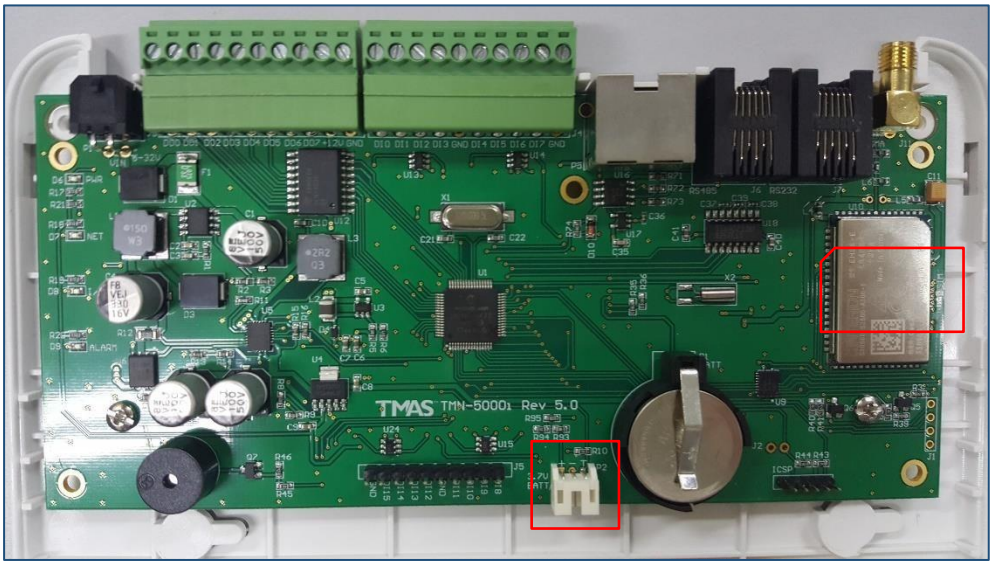


Figure 8 Locations of the SIM Card Holder and Backup Battery Power Socket

To extract your SIM card, push it inward again until you hear a click sound, and then release your finger.

6.2 Step 2: Connect Backup Battery

In case of power failure, TMN-5000i is equipped with a backup battery to sustain its operation. Assuming no external devices are connected to the TMN-5000i, the backup battery is estimated to last for minimum 4 hours on standby. You may locate a white-coloured backup battery power socket as shown above in the Figure 8, and plug it with the battery connector cable.

6.3 Step 3: Connect Input/ Output (I/O)

The input terminals work with +5V TTL or voltage-free dry contact digital input. All input channels can be configured by TMAS PC Manager Software to select either normally open (NO) or normally closed (NC) sensor type.

To check for the I/O terminals, please refer to Appendix A. You can connect your input device to any digital input. Use a flat screwdriver to drive the screw up and insert the hot wire of your input device. Next, drive the screw down to tighten it. Connect the ground wire of your input device to the ground terminal.

Repeat the above same method to connect for your output device.

6.4 Step 4: Install Antenna

Locate a gold-coloured female antenna socket and plug it with the antenna provided.

6.5 Step 5: Connect Programming Cable to PC

Before you can deploy your TMN-5000i, you will need to configure it on TMAS PC Manager via serial programming. Connect one end the programming cable (RJ12 male) to the RS232 interface on the TMN-5000i. Please refer to Appendix A to locate the RS232 interface. Then, connect the other end of the programming cable (DB9 female) to your PC or laptop.

6.6 Step 6: Configure TMN-5000i on PC

Connect the AC/DC power adapter to the power jack. Then, switch on the power adapter. Check for connection to the 3G/4G network. When the network LED blinks once in every 4 seconds, this indicates that your TMN-5000i has logged into the network.

Run the TMAS PC Manager software on your PC to configure your TMN-5000i. For more information on configuration using the PC Manager Software, please refer to the attached TMAS PC Manager Quick User Guide or download the user guide from our website product page. Once this is done, your TMN-5000i can be operated without PC connection.

Note: You only have to configure your TMN-5000i via serial programming for the first time. Any subsequent changes in the I/O function properties can be done again by using the serial programming method or using wireless method. Wireless method will require a TMAS modem T61-ELS61 to enable your PC or laptop to send SMS to configure your TMN-5000i remotely.

7 Alarm Control and Output Control

7.1 I/O Terminals

There are a total of 8 digital inputs (DI0 to DI7). The input terminals can interface with +5V TTL or dry contact digital input. The normal state can be configured to NC or NO state on TMAS PC Manager. The default settings of all the input channels are disabled and NO state at +5V. You will need to enable the input channels to receive alarm notification. To trigger the input alarm state, the input terminals are switched from the normal state.

There are a total of 8 digital outputs. The output terminals are open collector. They are capable of sink current 0.5A. You will need to enable the output channels to receive alarm notification. To trigger the output alarm state, the output terminals are toggled by the input alarm state, CMS or users via SMS.

7.2 Alarm Control

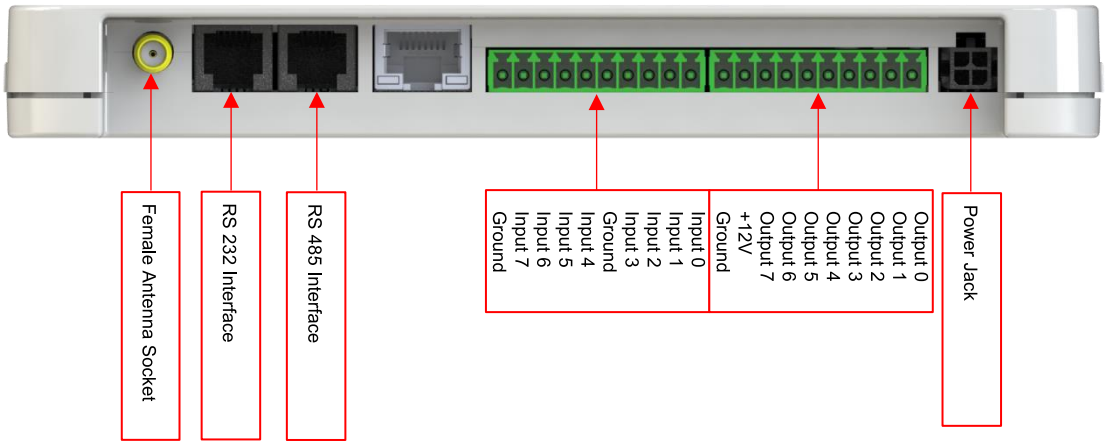
- When an alarm is triggered, the alarm LED is ON.
- Alarm notification will only be sent to the designated users. Maximum of 16 users will be notified. If you have installed TMAS modem T61-ELS61, you will receive a SMS on your CMS.
- To acknowledge the alarm, please reply accordingly to the random number shown in SMS to control your TMN-5000i. If the designated users did not acknowledge the alarm in time, TMN-5000i will keep resend SMS alerts in an interval which can be set on TMAS PC Manager. The number count of SMS resent can also set by users on TMAS PC Manager.

7.3 Output Control

The SMS format to control the output is <Channel Name> ON or <Channel Name> OFF. The <Channel Name> is set by users on TMAS PC Manager. The text is case sensitive, and allows maximum of 20 characters.

8 Appendix A

TMN-5000i Interface Panel



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9 Technical Support

For any sales and technical enquiries, please contact your local sales representatives or TCAM Technology Pte Ltd.

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