

TMAS™

**TMN-51T
Hardware User Guide**

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TMN-51T Specifications

Specification	Details
Transmission	GPRS
GPRS Connectivity	<ul style="list-style-type: none"> • GPRS multi-slot class 10 • GPRS mobile station class B
Frequency Band	<ul style="list-style-type: none"> • Dual Band EGSM900 and GSM1800 • Quad band E-GSM 850/900Mhz and GSM 1800/1900Mhz
Transmit Power	<ul style="list-style-type: none"> • Class 4 (2W) for E-GSM 850, E-GSM 900 • Class 1 (1W) for GSM 1800, GSM 1900
RF Power	<ul style="list-style-type: none"> • E-GSM 850, E-GSM 900: 33dBm • GSM 1800, GSM 1900: 30dBm
External Antenna	Connected via antenna SMA connector
Serial Interface	<ul style="list-style-type: none"> • DB9 Female Connector, RS232 standard <ul style="list-style-type: none"> ◦ RS422 and RS485 is optional • Supporting 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
Power Supply Interface	4 pin Micro Fit 3.0
Supply voltage	6-40VDC
Supply current	0.08A at 12VDC (GPRS online, no data) 0.2A at 12VDC (Data transmission)
Dimensions	86 x 54 x 25mm
Weight	110g
Temperature	0 to 55°C (normal) -20 to +70°C (restricted)
Analog inputs	Support 2 channels each capable of measuring 4-20mA analog signal.

TMN-51T Interface

TMN-51T contains the following interfaces as shown in Figure 1:

- SIM Card Holder
- SMA connector for antenna (radio interface)
- DB9 Female Connector
- 4 pin power supply socket

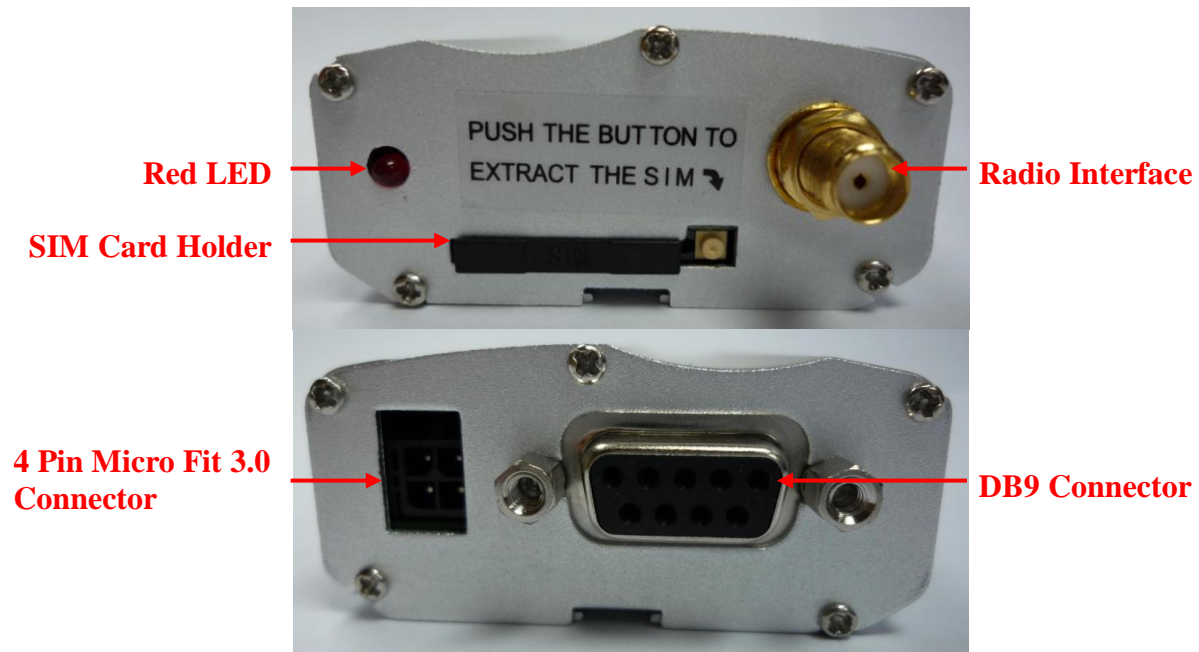


Figure 1: TMN-51T Interface

DB9 Female Connector

Main interface: DB9 female connector

Communication standard:

- RS232 (default)
- RS422 (optional)
- RS485 (optional)

Figure 2 shows the DB9 female interface for TMN-51T including all the pin numbers.



Figure 2: DB9 Female Interface

Listed below are the pin configurations of DB9 connector for all 3 communication standards.

Pin	RS232	RS422	RS485
	Description		
1	-	-	-
2	Receive	Rx -	-
3	Transmit	Rx +	-
4	-	-	-
5	Ground	-	-
6	-	Tx +	Data +
7	RTS	-	-
8	CTS	-	-
9	-	Tx -	Data -

Micro Fit 3.0 Power Supply Connector

Shown in Figure 3 is the 4-pin Micro Fit 3.0 power supply socket for TMN-51T. Included in the figure is the pin numbering for the socket.



Figure 3: Micro Fit 3.0 Power Supply Socket for TMN-51T

Below is a description of the 4-pin Micro Fit 3.0 power supply socket for TMN-51T

Pin	Description
1	6-40 VDC
2	Ground
3	Analog input 0
4	Analog input 1

TMN-51T contains 2 channels each capable of supporting 4-20mA analog input.

LED Blinking Sequence

The red LED blinking sequence represents the state where TMN-51T is currently in. Below is a table for the available states and the corresponding blinking sequence.

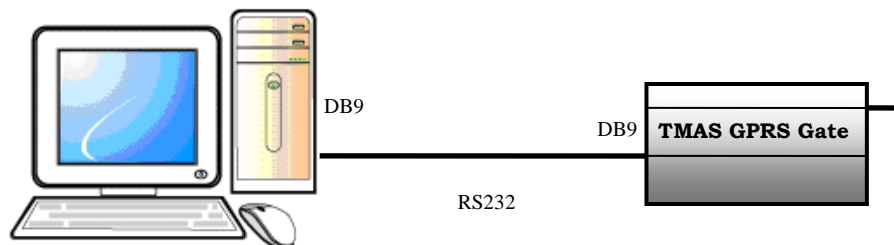
TMN-51T state	Red LED blinking sequence
Upon power up	Start blinking after 4 second
Not connected to GPRS or GSM	Blink every 1 second
Connected to GPRS	Double-blink every 4 second
Data transfer via GPRS	Turned on and flicker
Connected to GSM (modem mode)	Blink every 3 second
In configuration mode with Center Manager	LED turned off

Connecting to PC

For configuration, TMN-51T has to be connected to a computer. The diagrams below show all the connection setup for TMN-51T with RS232, RS422 (optional) and RS485 (optional).

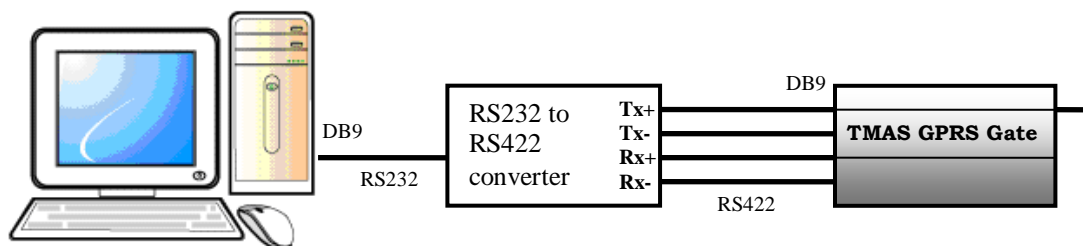
TMN-51T (RS232 interface)

To connect TMN-51T with RS232 interface, use the RS232 cable provided. Alternatively an USB to serial converter can be used for connection.



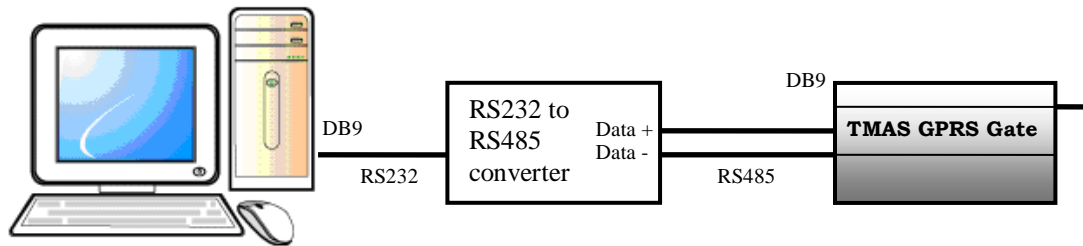
TMN-51T (RS422 interface)

For TMN-51T with RS422 interface, a RS232 to RS422 converter is necessary to convert the signals from TMN-51T into RS232 standards that is recognized by the PC.



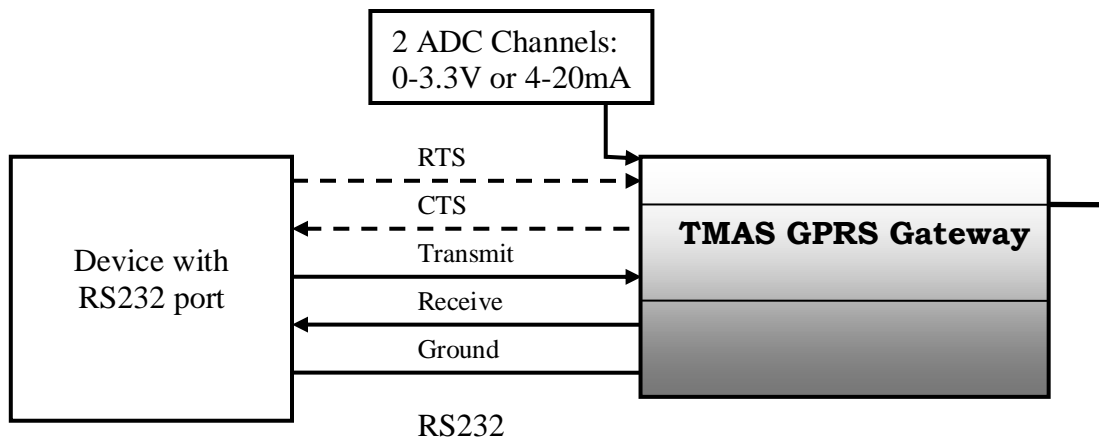
TMN-51T (RS485 interface)

For TMN-51T with RS485 interface, a RS232 to RS485 converter is necessary to convert the signals from TMN-51T into RS232 standards that is recognized by the PC.



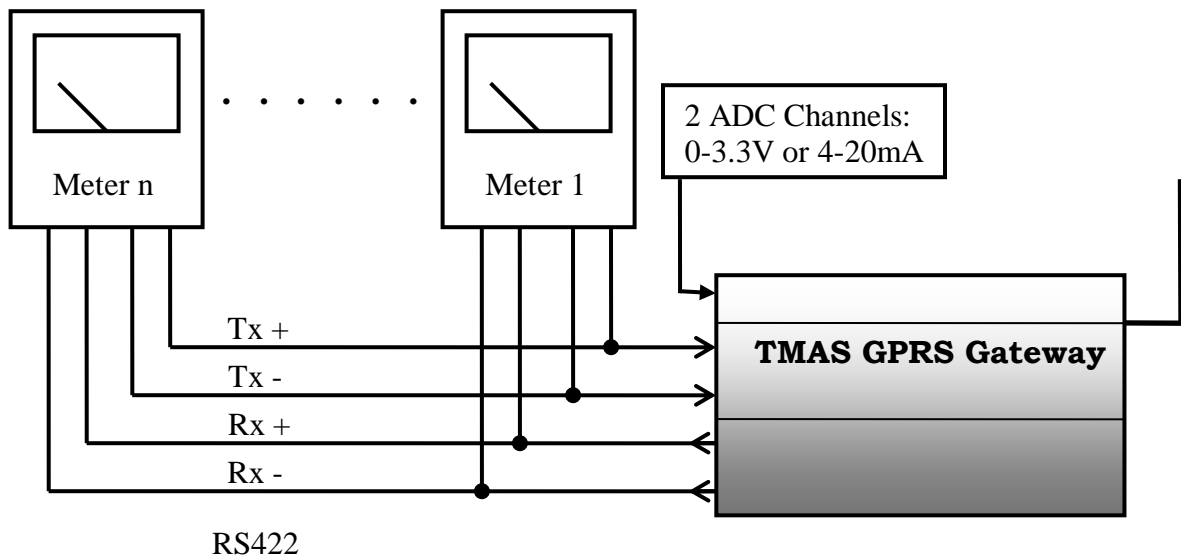
Connecting TMN-51T to Device

TMN-51T (RS232 interface)



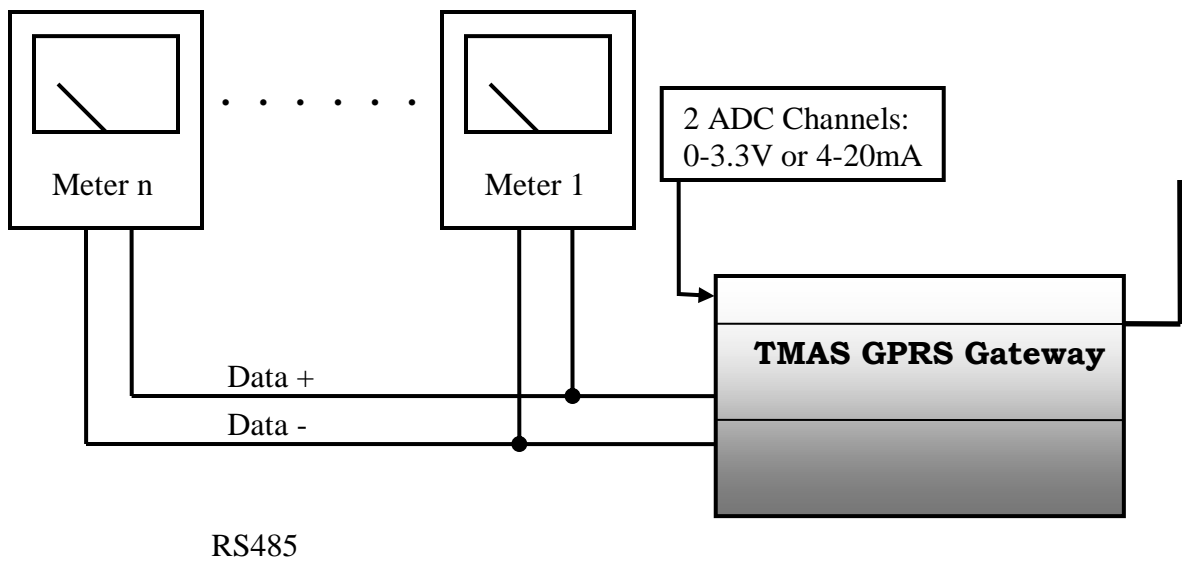
For a basic configuration in which TMN-51T is connected to a device via RS232 port, transmit, receive and ground pin must be connected. In situation where the device is utilizing hardware flow control, Ready To Send (RTS) and Clear To Send (CTS) have to be connected as well. TMN-51T with RS232 interface supports hardware flow control.

TMN-51T (RS422 interface)



For TMN-51T with RS422 interface, the transmit and receive can be multi-dropped to max 32 remote devices. Shown in the diagram above is a sample application whereby many meter reading devices are connected to a single TMN-51T via RS422 multi-drop.

TMN-51T (RS485 interface)



For TMN-51T with RS485 interface, max of 32 remote devices can be connected.

TMN-51T Analog Inputs

TMN-51T supports 2 channels of 4-20mA analog inputs. The 2 analog inputs are located at the 4 pin Micro Fit 3.0 power supply socket as shown in Figure 4 below.

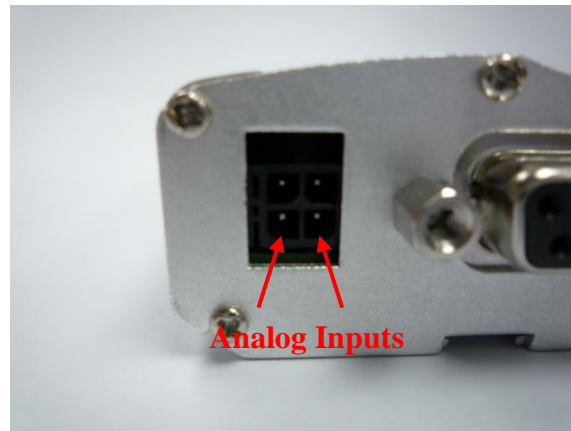


Figure 4: Analog Inputs

To insert the analog signal to TMN-51T, use TMN-51T power adaptor's 4 pin Micro Fit 3.0 socket connector as shown in Figure 5. The additional 2 empty holes are for the analog input.

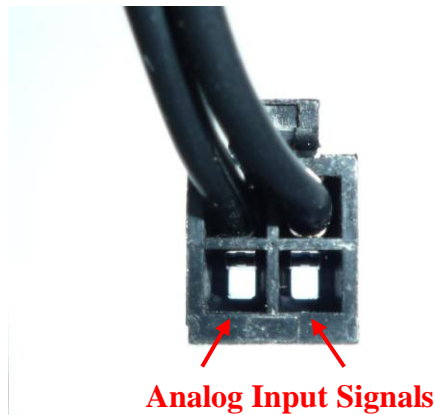


Figure 5: Micro Fit 3.0 Socket Connector for Power Adaptor