

HSPA+/UMTS/GSM/GPRS Terminal – ETM9440-1
GSM/GPRS Terminal – ETM9420-1

Quick Start Guide



Features:

- ❑ 3G (HSPA+/UMTS) Connectivity – ETM9440-1 only
- ❑ 2G (GSM/GPRS) Connectivity
- ❑ Standard RS232 9DF serial port
- ❑ USB port
(older units may have combined serial and power on an RJ45 connector in lieu of USB Port)
- ❑ 6V to 35V power input on RJ12 connector
- ❑ FME M antenna connector
- ❑ Low power consumption
- ❑ Wide Operating Temperature Range
- ❑ TCP/IP

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Introduction

Nomenclature

The ETM9420-1 incorporates the Cinterion TC63i engine and is intended for worldwide use (network and regulatory approvals permitting).

The ETM9440-1 incorporates the Cinterion EU3-E or PH8-P engine and is intended for use within Europe, Australasia and Asia (network and regulatory approvals permitting).

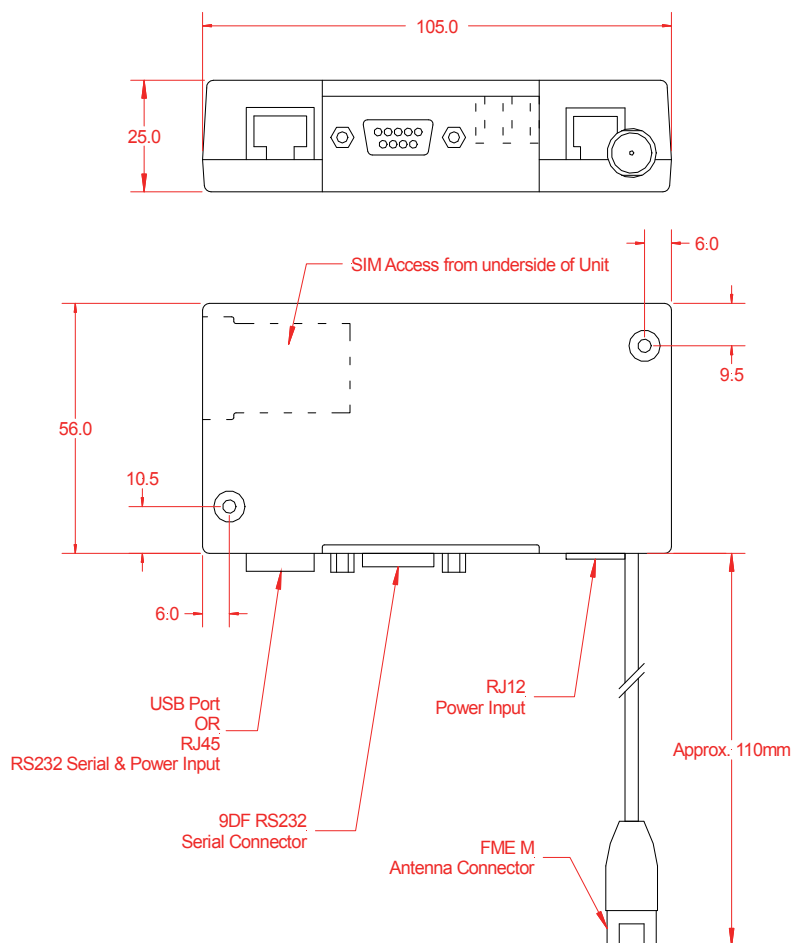
Terminal Nomenclature/History		
Model	Comment	Module Installed
ETM9420-1	First Release	TC63i
ETM9440-1	First Release	PH8-P (or PHS8-P on adaptor Board)

Applications

Typical applications include:

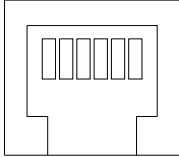
- ❑ SMS sending using AT commands initiated by a PLC, Datalogger or PC/Server
- ❑ Automated Meter Reading (Telemetry)
- ❑ Interface to data acquisition/data logging systems

Product Dimensions

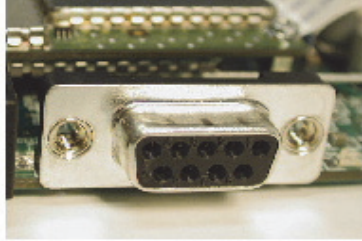


Interfaces

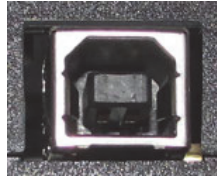
RJ12 Power Supply

Pin	Function	Looking at Modem Socket
1	Power Supply (+6 to +35VDC)	
2	Not Used	
3	Power Down	
4	Ignition	
5	Not Used	
6	GND	

DB9 Female Serial (RS232) Port

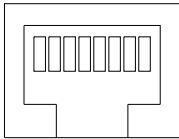
Pin	Function	Looking at Modem Socket
1	DCD Out	
2	RXD Out	
3	TXD In	
4	DTR In	
5	GND	
6	DSR Out	
7	RTS In	
8	CTS Out	
9	RING Out	

USB Port

Function	Looking at Modem Socket
USB Port 4-pin (female) USB-B connector <div style="background-color: #800000; color: white; padding: 5px;"> Caution <i>This modem has an inactivity timer/reset on the serial port, this can cause issues with applications using the USB - the application software may not recognise the USB after reset. Contact ETM for guidance.</i> </div>	

Combined RS232 Serial & Power Input (in lieu of USB Port - fitted to some older units)

This port is connected in parallel with the above RJ12 (power) and DB9 (serial) interfaces. This connection is commonly used for a single interface with electricity meters.

Pin	Function	Looking at Modem Socket
1	Power Supply (+6 to +35VDC)	
2	DCD	
3	DTR	
4	GND	
5	RX	
6	TX	
7	CTS	
8	RTS	

Antenna

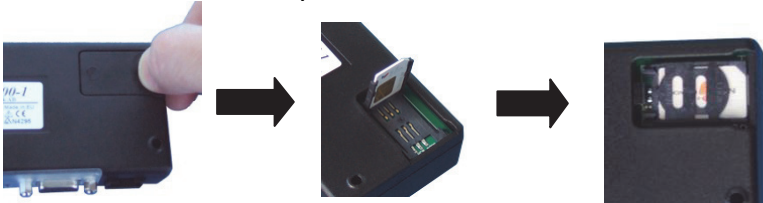
The ETM9420-1/9400-1 Terminal has a standard FME Jack (Male) antenna Plug on the end of an approximately 90mm cable.



FME M Antenna Connector

SIM Card

The SIM card connector is located on the underside of the ETM9xxx (x) Terminal. The unit supports both 3V and 1.8V SIMs. Any SIM card used needs to be correctly provisioned for the services and network upon which it is intended to be used



Caution

Always disconnect power supply before inserting or removing SIM Card.

Care should be taken in inserting and removing the SIM card so as not to damage the SIM holder or cover.

If the terminal is intended to be used for remote access to a device a terminating data number for Circuit Switch Data (CSD) will need to be provisioned by the network operator, this number will usually differ from any voice/SMS number. Other key configuration settings are;

- Telstra NextG® SIMs to be used for CSD require 2620 bearer capability

SIM Pin

If the SIM used has a PIN either;

- The device connected to the modem needs to enter the SIM pin using the appropriate AT command
OR
- The SIM PIN should be deactivated, insert the SIM in a mobile phone and deactivate then transfer the SIM to the ETM9420-1/9440-1

Indicator Lights

ETM9420-1

The operation of the units LED is determined by the setting of the AT[^]SSYNC command as default the unit is set to AT[^]SSYNC=1. Refer to the AT command list for more details.

Yellow LED (GSM)	Function
600ms On / 600ms Off	<ul style="list-style-type: none"> - Network search - No SIM inserted - No PIN entered - NO GSM or GPRS network available
75 ms on / 3 s off	IDLE mode: The mobile is registered to the GSM network (monitoring control channels and user interactions). No call is in progress.
75 ms on / 75 ms off / 75 ms on / 3 s off	One or more GPRS PDP contexts activated.
500 ms on / 50 ms off	Packet switched data transfer is in progress.
Permanently on	Depending on type of call: Voice call: Connected to remote party. Data call: Connected to remote party or exchange of parameters while setting up or disconnecting a call.
Permanently off	ME is in one of the following modes: <ul style="list-style-type: none"> - POWER DOWN mode - AIRPLANE mode - CHARGE ONLY mode - NON-CYCLIC SLEEP mode - CYCLIC SLEEP mode with no temporary wake-up event in progress

ETM9440-1

The operation of the units LED is determined by the setting of the AT[^]SLED command, typically the unit is set to AT[^]SLED=2,10 and operation of the LED will be as follows.

Yellow LED (GSM)	Function
10 ms on / 990 ms off	ME is registered to a network. GSM CS data or voice call or UMTS voice call is in progress.
10 ms on / 1990 ms off	ME is registered to a network. GSM PS data (GPRS) transfer or UMTS CS data call is in progress.
10 ms on / 3990 ms off	ME is registered to a network. No call is in progress. ME is either awake or in power saving state.
500ms on / 500 ms off	ME is in Limited Network Service, e.g. no SIM/USIM, no PIN or during network search.

Should alternative LED status indication be desired then the appropriate AT commands need to be set. Refer to the AT command list for more details.

Common AT Commands

The Terminal can be controlled and by means of AT commands. The AT command structure corresponds to;

- The Cinterion AT Command Set for the TC63i Module – ETM9420-1
- The Cinterion AT Command Set for the PH8-P Module – ETM9440-1

ATI Returns the module (TC631/EU3) name and firmware version.

At+CPIN=xxxx (this will allow you to input the SIM Card PIN Number)

AT+CSQ returns signal strength e.g. CSQ 8,99 where 8 is the signal and 99 is the service quality

AT+CREG? Verifies network registration status, 0 – not registered, 1 – registered, 2 – not registered searching, 3 – registration denied, 5 – registered roaming

AT+COPS? Indicates connected operator if applicable

AT&V will return the current settings for the terminal.

AT&W Stores the current configuration of the unit.

AT&Z sets current parameters to the user profile stored with AT&W. If a connection is in progress, it will be terminated. Note some parameters are not changed refer to AT Command document

AT&F sets all current parameters to the manufacturers default profile.

AT^SCFG="Radio/Band", "X" (where X=band),1

Valid Settings for TC63i	Valid Settings for PH8-P
1 GSM 900 MHz	1 GSM 900
2 GSM 1800 MHz	2 GSM 1800
4 GSM 1900 MHz	4 GSM 850
8 GSM 850 MHz	8 GSM 1900
3 GSM 900 MHz + GSM 1800 MHz	16 WCDMA 2100 (BC1)
5 GSM 900 MHz + GSM 1900 MHz	32 WCDMA 1900 (BC2)
10 GSM 850 MHz + GSM 1800 MHz	64 WCDMA 850 (BC5)
12 GSM 850 MHz + GSM 1900 MHz	128 WCDMA 900 (BC8)
15 All available bands RECOMMENDED SETTING	256 WCDMA 800 (BC6)
	511 All available bands RECOMMENDED SETTING

SMS Specific Commands

AT+CMGF=1 Changes the unit from PDU (Default Setting) to text mode.

AT+CSCA="XXXXXXXXXX" Sets the SMS Central Number which is network dependant. Normally, this should be read automatically from the SIM Card at start-up.

AT+CMGS="YYYYYYYYYY" To send a SMS in Text Mode to a mobile number, where YYYYYYYYYY is the mobile phone number. Next, wait for prompt >, then enter the text message followed by the <CTRL Z> to send the message.

AT Commands for Incoming Circuit Switch Data Calls

ATSD=2 Will set the unit to answer an incoming call after 2 rings. Please note that for this to work the SIM Card must be provisioned with a Terminating Data Number by your network operator.

AT+CRC=1 Sets call type indication, voice or incoming data call. Only terminating data calls displayed as REL ASYNC will be answered. Note, no external access to the voice channel is provided on the ETM9420-1/9400-1.

Typical AT Commands Applied to the ETM9420-1 / ETM9440-1

The following settings are typically made to the ETM9420-1 / ETM9440-1 prior to delivery, specific customers may have different or no (default for module TC63i/PH8-P) settings.

ETM9420-1	ETM9440-1
AT^SSYNC=1 Sets LED operation see previous page	AT^SLED=2,10 Sets LED operation see previous page
AT+IPR=9600 Sets baud rate to 9600 bps	AT+IPR=9600 Sets baud rate to 9600 bps
ATSD=0 Auto answer set to off	AT^SCFG="MEDpMode/PwrSave", "Disabled" Power save mode disabled
	AT^SDPORT=2 Refer AT command list for more details
	ATSD=0 Auto answer set to off

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