

Intelligent Tri-Mode Terminal – ETM Purple

2G, 2G/3G, 2G/4G and 3G/4G Variants

ETM-Purple User Guide



Features:

- ❑ Intelligent Tri-Mode Terminal, AT mode, ET Mode, JET Mode
- ❑ SMS, IP or CSD operation and/or configuration options
- ❑ Small form factor, to fit under meter covers or other enclosures with size constraints
- ❑ 2G (GSM/GPRS) Connectivity
- ❑ 3G (HSPA/UMTS) Connectivity
- ❑ 4G (LTE) Connectivity
- ❑ Combined or separate RS232 Serial & Power Connectors
- ❑ High speed USB
- ❑ RS422 and RS485 functionality
- ❑ Signal strength LED indicator
- ❑ 5 - 35V power input. 7 - 35V for last Gasp variants
- ❑ FME M antenna connector
(note ETM Purple2 4G AUS variant has 2 x Antenna Connectors)

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Revision History

Date	Revision	Editor	Description
2016-05-01	201605RV01	Patrick Paffard	First released version
2016-05-13	201605PRV02	Carl Håkansson	Added signal strength picture, Added LED behaviour from Main code
2017-02-13	R03	Christian Leierer	Added Last Gasp information
2017-02-22	R04	Christian Leierer	Change parameters in tables
2017-06-08	201706RV01	Patrick Paffard	Add notes re 2 antenna leads for ETM Purple 4G AUS variant

Introduction

Nomenclature

The ETM Purple variants incorporate the Cinterion BGS2, BGS5, EHS5, EHS6 or ELS61 module and are intended for worldwide use (network and regulatory approvals permitting).

Terminal Nomenclature/History		
Description	Part number	Module Installed
ETM Purple 2G, RJ12, Boxhead	71271	BGS2-E
ETM Purple 2G, RJ12, Boxhead, USB	71272	BGS5-E
ETM Purple 2G, RJ12, Boxhead, USB, Last Gasp	71273	BGS5-E
ETM Purple 2G/3G, RJ12, Boxhead, USB	71276	EHS5-E
ETM Purple 2G/3G, RJ12, Boxhead, USB, Last Gasp	71277	EHS5-E
ETM Purple 2G/3G Penta Band, RJ45, USB	71280	EHS6
ETM Purple 2G/3G Penta Band, RJ12, Box head, USB	71284	EHS6
ETM Purple 2G/3G US-Band, RJ12, Boxhead, Last Gasp	71283	EHS5-US
ETM Purple 2G, RJ12, Boxhead, USB, RS485	71327	BGS5-E
ETM Purple 2G/3G, RJ12, Boxhead, USB, RS485	71329	EHS5-E
ETM Purple 2G/4G, RJ12, Boxhead, USB	71353	ELS61-E
ETM Purple 2G/4G, RJ12, Boxhead, USB, Last Gasp	71354	ELS61-E
ETM Purple 3G/4G US-Band, RJ12, Boxhead, USB	71355	ELS61-US
ETM Purple 3G/4G US-Band, RJ12, Boxhead, USB, Last Gasp	71356	ELS61-US
ETM Purple 3G/4G AUS-Band, RJ45, USB	71395	ELS61-AUS

Overview

The ETM Purple range of products, are intelligent industrial terminals designed for M2M (Machine to Machine) communications. With 2G/3G & 4G connectivity, intelligent Tri-Mode operation and small form factor they provide the ideal communications solution for electrical metering or other applications utilising serial communications.

Applications

Typical applications include:

- ❑ RS232, RS422/485 or USB communications interface for electrical meters and data concentrators
- ❑ Serial communications interface for other devices such as PLC's, Irrigation controls, Security and/or access systems, data loggers
- ❑ As a device for sending SMS alarms notifications based on AT commands from a connected PLC, PC or Server

Safety Precautions

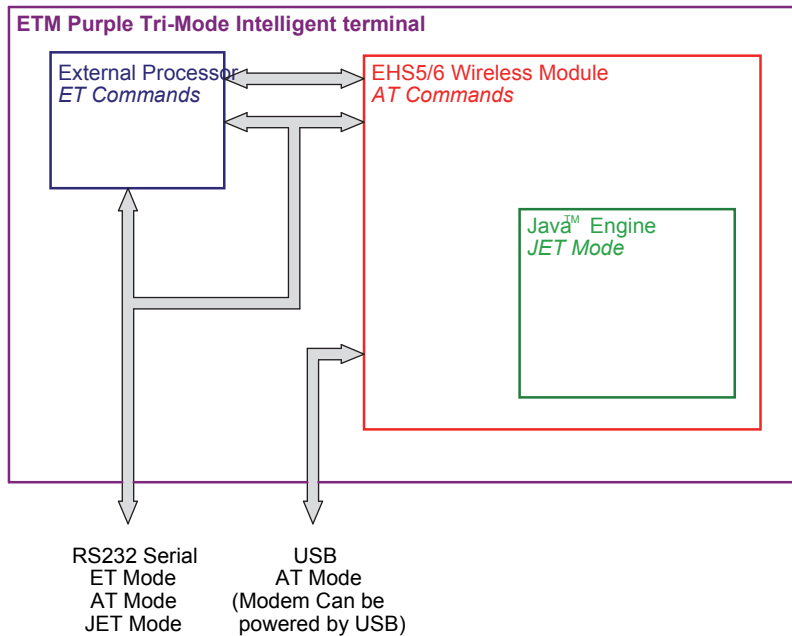
The following safety precautions must be observed when operating, using, servicing or repairing of any cellular terminal or device utilising a cellular terminal. Failure to comply with these precautions violates the safety standards of the design, manufacture and intended use of the product.

Hospital and Medical Facilities	<p>When in hospitals or other health care facilities, observe the restrictions on the use of mobiles. Switch off the cellular terminal or mobile if to be instructed to do so by the guidelines posted in sensitive areas. Medical equipment may be sensitive to RF energy.</p> <p>The operation of cardiac pacemakers, other implanted medical equipment and hearing aids can be affected by interference from cellular terminals or mobiles placed close to the device. If in doubt about potential danger, contact the physician or the manufacturer of the device to verify that the equipment is properly shielded. Pacemaker patients are advised to keep their hand-held mobile away from the pacemaker, while it is on. This personal subgroup always should check the distance to the mobile.</p>
Aircraft	<p>Switch off the cellular terminal or mobile before boarding an aircraft. Make sure it cannot be switched on inadvertently. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communications systems. Failure to observe these instructions may lead to the suspension or denial of cellular services to the offender, legal action, or both.</p> <p>Check the local laws and regulations prior to use of mobile devices.</p>
Flammable or Explosive Environments	<p>Do not operate the cellular terminal or mobile in the presence of flammable gases or fumes. Switch off the cellular terminal when you are near petrol stations, fuel depots, chemical plants or where blasting operations are in progress. Operation of any electrical equipment in potentially explosive atmospheres can constitute a safety hazard</p>
SOS / Life Critical Applications	<p>IMPORTANT!</p> <p>Cellular terminals or mobiles operate using radio signals and cellular networks. Connections cannot be guaranteed at all times under all conditions. Therefore, you should never rely solely upon any wireless device for essential communications, for example emergency SMS alarms.</p> <p>Remember, in order to make connections/calls the cellular terminal or mobile must be switched on in a service area with adequate cellular signal strength.</p>
Radio Waves/ RF Emissions	<p>Cellular terminals receive and transmit radio frequency energy while switched on. Remember that interference can occur if it is used close to TV sets, radios, computers or inadequately shielded equipment. Follow any special regulations and always switch off the cellular terminal or mobile wherever forbidden, or when you suspect that it may cause interference or danger.</p> <p>According to the guidelines for human exposure to radio frequency energy, antennas connected to the FME jacks of the device should be placed at greater than 20cm away from any part of a human body.</p>

Tri-Mode Operation

The unit can be operated in a number of ways to achieve different functional outcomes, depending on the requirements of the device to which the unit is connected, and/or the interaction with any back-end/server. The ETM Purple can support CSD or IP connections and SMS configuration or status queries.

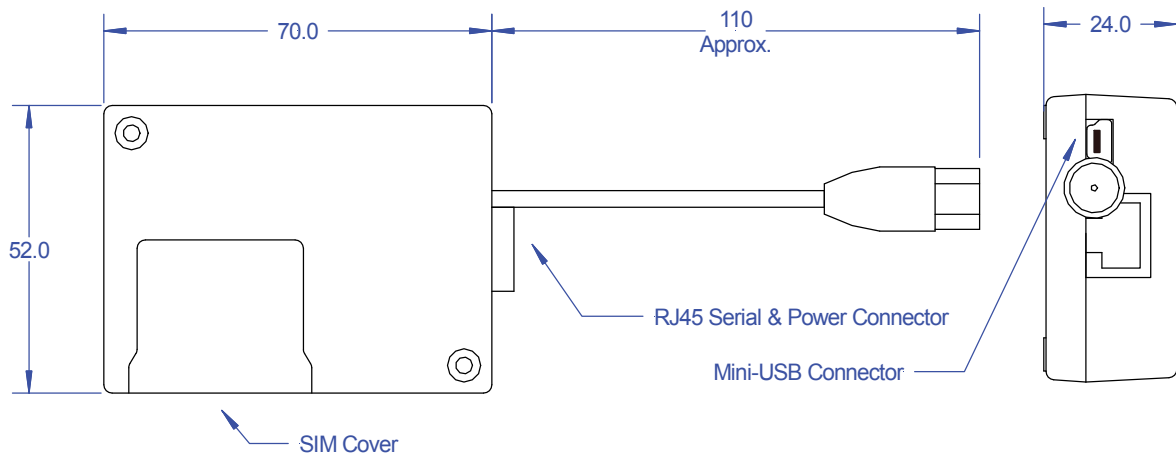
The following is a simplified block schematic to assist in understanding the operational capabilities of the unit.



Mode/Command Structure	Purpose	Interface Method
ET Commands	The external processor is used to control the start sequence of the modem and make default operational settings. It is also used to configure "Last Gasp" functionality (if applicable) and other features.	ET commands sent to serial port if in ESC mode SMS of a subset of ET commands sent to the units phone number (note SIM needs to have SMS activated)
AT Mode	Depending on the setting made above the unit can be operated as a basic 2G/3G/4G modem using AT commands to drive the unit	AT commands sent to the serial or USB port
JET Mode	Provides intelligent operational functions such as; <ul style="list-style-type: none"> - TCP tunnel - CSD tunnel - TCP Server - Serial to TCP Server - Status Logging > sending to server for monitoring (by others) 	JET commands sent to the serial port, or by SMS or by TCP

Note that there may be a charge associated with the provision of JET code, and that it is possible for customers to use the modem and to load their own Java™ code for a specific application. ETM will not provide un-compiled JET code for use by others, it is the customers responsibility to develop their own code using the resources available for the BGS5, EHS5, EHS6 or ELS61 module.

Physical Dimensions



Note ETM Purple2 4G AUS variant has two antenna connectors
Telstra approval of the ETM Purple2 4G AUS requires the connection of **two** suitable antennas separated by a distance of approximately 15cm or more

Separate Power RJ12 & Serial 10 pin Boxhead Connector

Some models of ETM Purple utilises a 6-pin RJ12 connector for power, pin allocations are shown below.

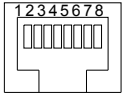
Pin	Function	Looking at Modem Socket
1	Power Supply (+5 to +35VDC) (+7 to 35VDC for Last Gasp)	
2	Not Used	
3	Not Used	
4	Not Used	
5	Not Used	
6	GND	

Some models of ETM Purple utilises a 10-pin box head connector for communication, pin allocations are shown below.

Pin	Function	Looking at Modem Socket
1	DCD Out	
2	DSR Out	
3	RXD Out	
4	RTS In	
5	TXD In	
6	CTS Out	
7	DTR In	
8	RING Out	
9	GND	
10	Not Used	

Combined Power & Serial RJ45 Connector

Some models of the ETM Purple utilises a single RJ45 combined power and serial connector, pin allocations are shown below.

Pin	Function	Looking at Modem Socket
1	Power Supply (+5 To 35VDC, 400mA @ 12VDC) (+7 To 35VDC for Last Gasp)	 <div style="background-color: red; color: white; padding: 5px; margin-top: 10px;"> <p>Caution Take care to ensure that only the correct connectors are used or mechanical damage to the pins may result.</p> </div>
2	DCD	
3	DTR	
4	GND	
5	RX	
6	TX	
7	CTS	
8	RTS	

USB Communications Port

Mini-USB port for communications directly to the EHS6 module within the modem, drivers for Windows need to be installed on the PC to allow access to this port.

The modem can be powered from the USB assuming the USB can deliver a voltage in the range of +5 to 35VDC(+7V to 35V Last Gasp), if not a separate power supply via the RJ45 connector is required.

Note: The NES DCN3000 data concentrator can be set to 12VDC output USB power.

AT commands and responses are available via the USB port.

Antenna

The ETM Purple has a standard FME M antenna Plug on the end of an approximately 110mm cable.



FME M Antenna Connector

Note ETM Purple2 4G AUS variant has two antenna connectors
Telstra approval of the ETM Purple2 4G AUS requires the connection of **two** suitable antennas separated by a distance of approximately 15cm or more

SIM Card

The SIM card connector is located on the underside of the ETM Purple Terminal. The unit supports both 3V or 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;

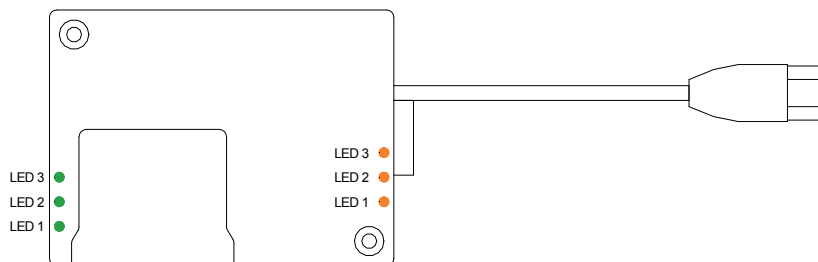
- Telstra NextG® SIMs when used for CSD require 2620 bearer capability

SIM Pin

If the SIM used has a PIN either;

- The unit can be configured to enter the SIM pin, refer applicable section of this manual OR
- The SIM PIN should be deactivated, insert the SIM in a mobile phone and deactivate then transfer the SIM into the ETM Purple unit.

Indicator Lights



Looking at underside (SIM access side) of unit.

LED Behaviour - Normal Start Sequence



Green LEDs

Green LED 1	Function
Slow Flash 500ms On / 500ms Off	Searching for mobile network
Double Flash 3s Off / 100ms ON / 100ms OFF / 100 ms ON	Active 2G network connection
Triple Flash 3s OFF / 100ms ON / 100ms OFF / 100 ms ON / 100ms OFF / 100ms ON	Active 3G network connection
Four time Flash 3s OFF / 100ms ON / 100ms OFF / 100 ms ON / 100ms OFF / 100ms ON / 100ms OFF / 100 ms ON	Active 4G network connection

Green LED 2	Function
ON	Internet Service Provider connection (Active PDP context and IP address)
OFF	No Internet Service Provider connection

Green LED 3	Function
Rapid Flash	Sending Data
ON	Receiving data from host (turn off after 2 seconds)
OFF	No data transmission occurring

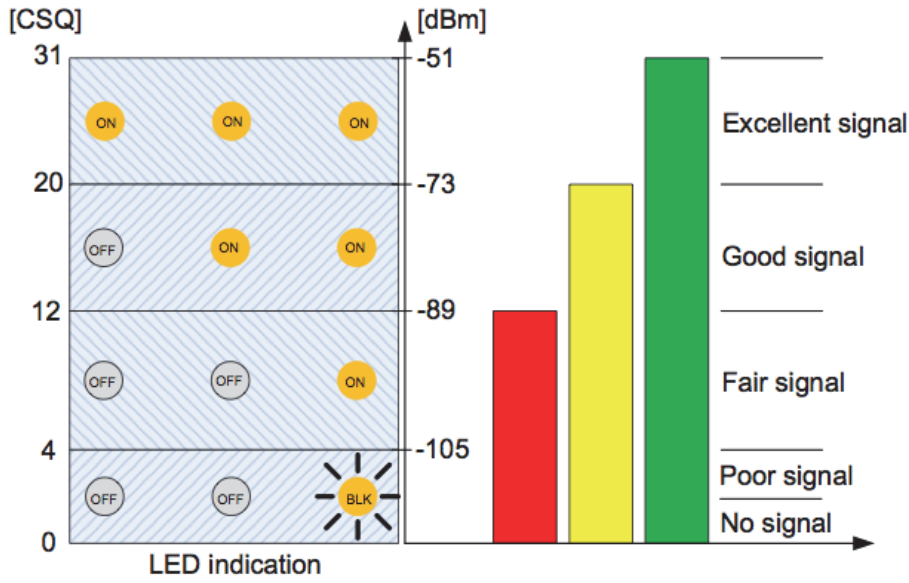
Note: All LED will flash at boot up

Orange LEDs

Orange LED 1	Function
Flashing	RSSI < -105 dBm or no SIM detected
ON	RSSI ≥ -105 dBm (Poor signal)
OFF	Not registered to mobile network ≥

Orange LED 2	Function
Flashing	No SIM detected
ON	RSSI ≥ -89 dBm (Fair signal)
OFF	RSSI < -89 dBm or Not registered to mobile network

Orange LED 3	Function
Flashing	No SIM detected
ON	RSSI ≥ -73dBm (Good signal)
OFF	RSSI < -73dBm or Not registered to mobile network



-110 dBm (no signal)	<-100 dBm (poor signal)	-100 to -86 dBm (fair signal)	-85 to -70 dBm (good signal)	> -70 dBm (excellent signal)
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Signal strength levels.

Installation

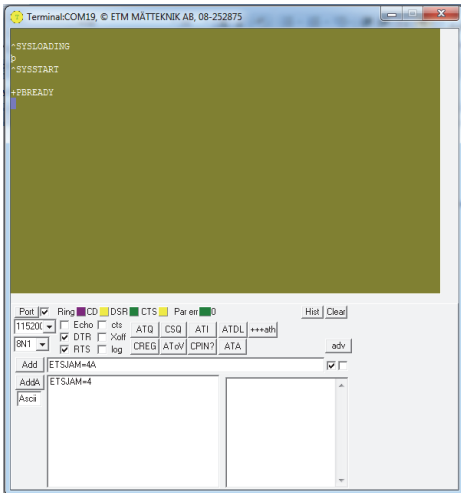
1. Connect a suitable serial interface to the modems RJ45 port or 10 pin box header depending on model, see previous section for pinout details.
2. Fit a suitable antenna to the unit's FME antenna lead.
Note ETM Purple2 4G AUS variant has two antenna connectors Telstra approval of the ETM Purple2 4G AUS requires the connection of two suitable antennas separated by a distance of approximately 15cm or more
3. Install a SIM card enabled for the services you intend to use. If the terminal is intended to be used for Circuit Switch Data (CSD) a SIM with a terminating data number will need to be provisioned by the network operator, this number will usually differ from any voice/SMS number. Note that for Telstra you will need to request;
2620 bearer capability (Telstra NextG™ Sims)
4. Connect the power supply. (The unit accepts a broad range of voltages from +5 to +35VDC)
5. Refer to related sections of this manual for information on configuring the unit for the intended mode of operation.

Initial Start-up & Configuration

The unit may be delivered in the following states depending on customer request, note that additional costs may apply for certain functionality.

As delivered State	Description	Start-Up
Standard – no JET Code	Basic modem that may be controlled by AT commands from devices such as a PC, electrical meter or PLC	When the units power is connected and the start-up sequence completed (approximately 20-30 seconds) the serial and USB ports will become available at the set baud rate for AT commands
With JET Code	When JET code is installed in the unit custom functionality become available	<p>When power is connected and the start-up sequence completed (approximately 20-30 seconds) the serial and USB ports will become available at the set baud rate for AT commands.</p> <p>Note that dependant on the JET code and actual state the serial and/or USB ports may not be accessible as they may be busy.</p> <p>Depending on the configuration settings associated with the JET code the JET code may auto run or be manually started</p>

Typical Startup Sequence



AT commands may now be sent to the unit.

ET Mode/Configuration

ET Mode runs in the background irrespective of whether the unit is being used as a basic AT modem controlled via AT commands from a connected device, or the JET functionality is being used. ET mode enables configuration of the unit to run in a specific way, controls the Last Gasp functionality (if applicable) and allows for some SMS based diagnostic queries.

ET commands can be sent to the unit via the serial port (RJ45 or box head) when the unit is in ESC mode, a subset of the commands may also be sent by SMS to reconfigure the unit or query the unit's status.

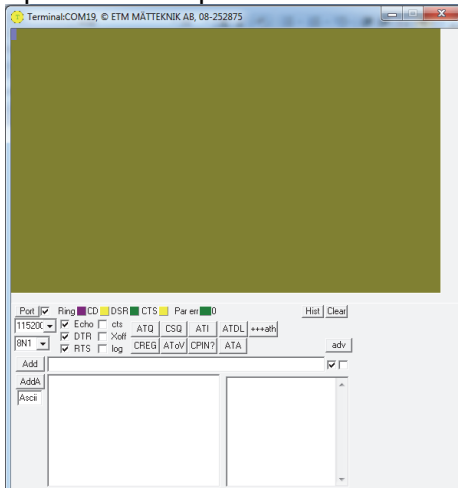
All commands must start with "ET" and end with Carriage Return(<CR> / ASCII 13).

The response will be: "Message Body" + "OK"

Putting the Unit into ESC Mode

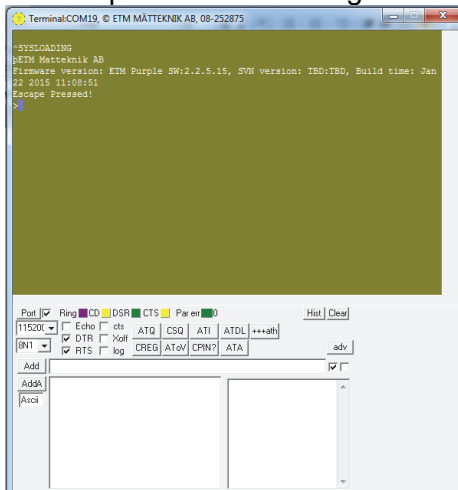
To enter ESC mode and configure the ET functions the unit must be started while holding the ESC key down in an active terminal window. The example below uses ETM's Term42 program and valid terminal program will suffice.

1. Open and Setup a suitable Terminal Program



Prior to starting the unit
Open a terminal program and
ensure the correct serial port is
open, the baud rate is 115200 and
the cursor is flashing in the terminal
window

2. Power up Unit while holding down ESC key



Make sure you hold the ESC key on
until the unit confirms "Escape
Pressed!"

You are now in ESC mode and ET configuration commands and queries can be sent to the unit.

ET Command Table

ET Command	Description	Command Method ESC (Serial in ESC Mode), SMS	Response
ETI	Query Modem Information	ESC, SMS	Modem Info: VAR:Standard POWIN:7414mV MODV:3912mV CAPV:3712mV IMEI:004401081945897 SCID:89462046001000364372 MTemp:29degC BSWS:2.2.6.4 SWS:2.2.9.24 HWS:71357 PCBS:B06031703 SWC:0 PUC:6 PFC:0 MRC:0 Module Info: AT11 Cinterion ELS61-AUS REVISION 01.001 A-REVISION 00.004.00
ETNET	Query Network Information	ESC, SMS	Network Info: SIM:READY(1) CREG:1 SigQ:8 Operator:"Tele2" LAC:00D4 CELL:0D4133A ACT:3G UARFCN:10787 PSC:275 EC/n0:-6.0 RSCP:-100
ETMCU	Query MCU Information	ESC, SMS	MCU Info: Bootloader version:2.2.6.4,Build time: Jan 26 2017 10:18:49 Firmware version:ETM Purple SW:2.2.9.24, SVN version: TBD:TBD, Build time: Feb 1 2017 10:00:39 Binary image size:82420 bytes STM32 SOC ID:0x4321554238314746ffff0033 FLASH size:256kb
ET&V	Query Active Profile	ESC, SMS	PROFILE: CID:001 LGNR:+46709032555026 IPADD:000.77.219.177:8608 APN:maingatelan.telia.se HSD:10(min) HSP:10(min) LGPFT:0(s) LGBT:3600(s) LGPRT:0(s) RT:1440(min) Max SMS limit:50
ET&T	Query Timers Profile	ESC, SMS	TIMERS: MRTC:00/00/00,00:00:00 RTC:00:02:38(h:m:s) PFTS:0(s) RT/RTR:1440/1437(min) BkpWTR:744(s) HSPTR:464(s) HSDTR:464(s)
ETRVL	Query CAP Voltage level	ESC, SMS	CAP VOLT: 3838mv
ETGIS	Query Short format Information	ESC, SMS	#2,CuID,UID,ETGIS,0,004401081945897,71357*B0 6031703,2.2.9.24,89462046001000364372,9,OPC,3 ,00D4,0D4133A,3,706,33,0,0,0#
ETSC1	Set communication to Module mode Starts the module and switches to AT mode	ESC	Powering up modem...
ETRT?	Query Reset Timer	ESC, SMS	Periodic reset timer: 1440min Time remaining: 1436min
ETSMSML=n	Set SMS Max Limit, ETSMSML=n; n=number of SMS max limit before delete	ESC, SMS	SMS Max limit set to: 50
ETHSD?	Query Hash Send Delay Timer		Periodic Hash send delay: xmin Time remaining: xxsek
ETHSD=n	Set Hash Send Delay Timer, ETHSD=n; n=Delay Time in Minutes	ESC, SMS	Periodic Hash send delay set to: 3min

ET Command	Description	Command Method ESC (Serial in ESC Mode), SMS	Response
ETHSP?	Query Hash Send Periodic Timer	ESC, SMS	Periodic Hash send timer: 10min Time remaining: 272s
ETHSP=n	Set Hash Send Periodic Timer, ETHSP=n; n=Time in Minutes	ESC, SMS	Periodic Hash send period set to: 10min
ETRT=n	Set Reset Timer, ETRT=n; n=Time in seconds	ESC, SMS	Periodic reset period set to: 0s
ETLGNR?	Query Last Gasp report SMS Phonenumber. The phone number that the power failure SMS is sent to, default is ETM EWO i.e. 0709-032555026 (Infoflex number) ETLGNR? <CR>	ESC, SMS	Last Gasp report number: +46709032555026
ETLGNR=XXXX XXX XXX	Set Last Gasp report SMS Phonenumber. ETLGNR=+46709032555026<CR>	ESC, SMS	Last Gasp report number set to: +46709032555026
ETIPADD?	Query IP Address and Port	ESC, SMS	IP address:Port: 000.77.219.177:8608
ETIPADD=n	Set IP Address and Port	ESC, SMS	IP address:Port: set to: 000.77.219.177:8608
ETAPN?	Query Network APN	ESC, SMS	APN: maingatelan.telia.se
ETAPN=n	Set Network APN	ESC, SMS	APN set to: maingatelan.telia.se
ETLGPRT?	Query Last Gasp Power return time. Notification that power has returned after a power failure. A value between 0 -120 sec, the time that power needs to be present before a notification is sent. 0 = disabled.	ESC, SMS	Last Gasp power return time: 120s
ETLGPRT=n	Set Last Gasp Power return time, ETLGPRT=n; n=Time in seconds. Set ETLGPRT to a value between 0 – 120 seconds. 0 = disabled.	ESC, SMS	Last Gasp power return time set to: 120s
ETLGPFT?	Query Last Gasp power failure time. A value between 60-120 sec, the time that power needs to be absent in order for a power loss to be regarded as a power failure. 0 = disabled.	ESC, SMS	Last Gasp power failure time: 120s
ETLGPFT=n	Set Last Gasp power failure time, ETLGPFT=n; n=Time in seconds. Set ETLGPFT to a value between 60 – 120 seconds, Consider that the Meter needs x sec to start and power modem. 0 = disabled.	ESC, SMS	Last Gasp power failure time set to: 120s
ETLGBT?	Query Last Gasp block time. Block time is defined as the time in seconds which a power failure SMS will not be sent if a new power failure occurs. The functionality can be regarded as a basic hysteresis i.e. avoid unwanted rapid switching or in this case avoid several power failure SMS during a defined period	ESC, SMS	Last Gasp block time: 3600s
ETLGBT=n	Set Last Gasp block time, ETLGBT=n; n=Time in seconds. Set ETLGBT to a value between 0 – 43200 seconds (12 hours)	ESC, SMS	Last Gasp block time set to: 3600s
ETHWS?	Query Hardware serial number	ESC, SMS	Hardware serial: 71357
ETSWS?	Query Software version	ESC, SMS	Software version: ETM Purple SW:2.2.9.24, SVN version: TBD:TBD, Build time: Feb 1 2017 10:00:39
ETBSWS?	Query Bootloader Software version	ESC, SMS	Bootloader Software version: 2.2.6.4
ETCC	Clear SW-,PU-,PF-Counters	ESC, SMS	SW-,PU-,PF-,MR-Counter Cleared
ETSEND="ATcmd"	Send AT command to module	ESC, SMS	Response to AT command sent is forward to serial port and/or SMS
ETSJAM=n	Send JAVA App cmds to the Module, ETSJAM=n; n=cmd(0=install,1=start,2=stop,3=re move,4=list inst,5=list run)	ESC, SMS	Sending command: "ETSJAM=5" ^SJAM: "a:/JRC-1.60.28.jad", "Java Remote Control MIDlet Suite", "Cinterion", "1.60.28", 1 ^SJAM: "a:/SocketTunnel_QS.jad", "SocketTunnel_QS MIDlet Suite", "ETM Matteknik AB, ETM Pacific and Tony Kay Pty Ltd", "3.3.02770", 1
ET&SR	Do Software Reset on the MCU No response, unit will restart	ESC, SMS	Shutting down modem... ^SHUTDOWN

AT Mode Operation

In AT mode the Terminal can be controlled and by means of AT commands applicable to the Cinterion EHSx/ELS61 module, AT commands can be sent to either the serial or USB port. All commands must start with "AT" and end with Carriage Return (<CR> / ASCII 13).

Common useful AT commands for basic operation include:

AT Command	Description/Details	Response	Notes
ATI	Returns Module Name and Firmware Version	Cinterion EHS6 REVISION 03.001 OK	
AT+CPIN=XXXX	Allows you to input the SIM card PIN number, if required where XXXX is the PIN number		
AT+CPIN?	Check the PIN status	+CPIN: READY OK	
AT+CSQ	returns signal strength e.g. CSQ 11,99 where 11 is the signal and 99 is the service quality	+CSQ: 11,99 OK	
AT+CREG?	Verifies network registration status, 0 – not registered, 1 – registered, 2 – not registered searching, 3 – registration denied, 5 – registered roaming	+CREG: 0,1 OK	
AT+COPS?	Indicates connected operator if applicable	+COPS: 0,0,"vodafone AU",2 OK	
AT&V	will return the current settings for the terminal	ACTIVE PROFILE: E1 Q0 V1 X4 &C1 &D2 &S0 \\Q3 S0:000 S3:013 S4:010 S5:008 S6:000 S7:060 S8:000 S10:002 +CBST: 7,0,1 +CRLP: 61,61,78,6 +CR: 0 +CRC: 0 +CMGF: 1 +CSDH: 0 +CNMI: 1,0,0,0,0 +CMEE: 0 +ICF: 3 +DTMF: 0 +CSMS: 0,1,1,1 +CREG: 0,1 +CLIP: 0,2 +COPS: 0,0,"vodafone AU",2 +CGSMS: 1 OK	
AT&W	Stores the current configuration of the unit.	OK	
AT&F	sets all current parameters to the manufacturers default profile	OK	Caution this may adversely affect the operation of the modem - contact ETM
AT^SCFG="Radio/Band", "X"	Sets available radio bands, we recommend using 511, all bands (where X=radio band setting)	^SCFG: "Radio/Band", "511" OK	

SMS Specific Commands

AT Command	Description/Details	Response	Notes
AT+CMGF=1	Changes the unit from PDU (Default Setting) to text mode	OK	
AT+CSCA?	Checks the SMS Central number Normally, this should be read automatically from the SIM Card at start-up	+CSCA: "+61415011501",145	
AT+CMGS="YYY YYYYYYY"	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 and Z key together to send the message.	at+cmgs="0414532963" > test +CMGS: 112 OK	

AT Commands for Incoming Circuit Switch Data Calls

AT Command	Description/Details	Response	Notes
ATS0=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.	OK	
AT+CRC=1	Sets call type indication, voice or incoming data call. Only terminating data calls displayed as REL ASYNC will be answered.	OK	Note, this terminal does not have voice capabilities

JET Mode Operation

Java ETM Terminal (JET) mode operation is controlled by Java™ code embedded within the BGS5, EHSx or ELS61 module designed to provide additional useful features such as TCP Threaded Tunnel mode Serial to TCP Tunnel etc.

The JET mode, if installed, will typically run automatically but can be started and stopped by sending specific commands to the terminal.

The specific operation of the JET mode can be tailored to meet customer requirements via the setting of various configuration options, these configuration options can be set, in most cases, via the serial port, by SMS or by TCP/IP.

Some basic useful commands applicable to JET operations are shown below, for more information on JET code operation and configuration refer the JET code documentation.

Command	Send Method	Description/Details	Response	Notes
ETSJAM=4	SMS	Requests details of JAD file currently installed	OK	If unit has JET functionality installed the file name will be similar to "a:/SocketTunnel_QS.jad","SocketTunnel_QS MIDletSuite","ETM MattekNIK AB","X.X.XX",X,XXXXX,XXXXXX Where X reflect the version of JET firmware
JETI	Serial, SMS, TCP	Returns relevant information about current operational aspects of the modem (some fields may be blank in (C) mode)		
JETSAVE	Serial, SMS, TCP	Saves changes done with JET commands.		For JET commands to be set and saved in memory.

Last Gasp Mode Operation

Read "ET&V" PROFILE:

CID:001

LGNR:+46709032555026

IPADD:213.115.2.218:3003

APN:4g.tele2.se

HSD:3(min)

HSP:60(min)

LGPFT:60(s)

LGBT:60(s)

LGPRT:60(s)

RT:1440(min)

Max SMS limit:50

For Last Gasp operation, set:

[SMS] Set SMS phone number: ETLGNR=<SMS Phone number>

[TCP/IP] Set IP address and port: ETIPADD=<IP address>:<Port>

Note: If only "SMS"-Last Gasp is desired, set ETIPADD=000, to turn off TCP/IP operation.

Set APN: ETAPN=<apn>

Set Last Gasp Power failure time, ETLGPFT=n; n=Time in seconds

Set Last Gasp Block time, ETLGBT=n; n=Time in seconds

Set Last Gasp Power return time, ETLGPRT=n; n=Time in seconds

Example:

ETLGNR=+46709032555026

ETIPADD=213.115.2.218:3003

ETAPN=4g.tele2.se

ETLGPFT=60

ETLGBT=60

ETLGPRT=60

Last Gasp message protocol structure:

#9,Eventcode,ICC(SIMCno),Res,Res,Res,Res,RTC_Date,RTC_Clock,Alarm_counter(Power fail counter),I/O Alarm_Status(Event ID),Free_text,CapVolt,mV,IMEI,Modultemp

Note: "Res"=Reserved

Example:

#9,3,89462046211101409980,,,,,04/01/06,23:52:15+00,2,8AL,Power

Failure,4.370,mV,004401081755155,24,

#9,4,89462046211101409980,,,,,04/01/07,00:00:49+00,3,8ALR,Power

Restored,5.012,mV,004401081755155,25,

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