

Eltek TU 1016 User Instructions

Using a GSMSQ modem (Extend) with Eltek data loggers

Introduction

An Eltek supplied GSM modem arrives configured for use with Eltek telemetry or conventional Squirrel 1000 series data loggers. No adjustment is necessary. The product is marked GSMSQ. Packed in the box is the following:

- Wavcom Extend / EDGE modem
- Mounting tabs
- Logger to modem lead
- Antenna with 1.8m lead
- sma connector
- These user instructions

A SIM is NOT included.

The GSM modem is powered by the logger external supply. Therefore an external supply must be used with the logger, e.g. the MP12U power supply. If the external power fails the logger will continue to function but GSM functionality will be lost.

The GSM modem is used to deliver text messages, contact the logger, make logger set-up changes and download data from the logger memory.

To use the GSM modem for remote access via the GSM network and/or Alarm SMS texting, plug the supplied lead (type GSM-mdm-com2X) into the GSM modem and connect the other end to the "output" socket of the logger.

For data download and text messaging, the **Voice number only** is used if the PC is equipped with a dedicated GSM modem – e.g. Eltek's GSMPC.

For data download where the PC is connected to the mobile network via a land line, an **Analog Data number**, associated with the Voice number, must be used and is allocated by the SIM provider. The Voice number is used for text messaging.

NOTE: For best results, the Eltek GSMPC modem should be used at the PC end. (An analogue data number is NOT required for the GSMSQ). If the PC is equipped with a dedicated GSM modem such as the GSMPC kit from Eltek, then the remote logger GSM and PC GSM are communicating directly. This avoids the need for an analog data number altogether.

When the PC is landline connected to the GSM network

For remote communication the GSMSO requires an Analogue Data number assigned to the SIM. (A voice number will not work!) Your GSM provider can allocate this data number. Explain you need an Analogue Data number, which you will be calling from a landline modem (i.e. Circuit Switched). The number issued is like the voice number.

SIMs

A Pay as You Talk SIM can be used but the number can be voided by the Network provider if the SIM is not used to make a call (for Vodaphone) within 90 days.

For this reason a maintenance “Logger OK” message is sent from the logger via the modem on the 1st, 8th, 15th, 22nd and 29th of the month at approximately midday IF a mobile number is stored in the modem telephone directory. A contract SIM is preferred – although the Pay as You Talk route can be useful initially.

Some SIMs (e.g. Orange) may be supplied with a PIN. To check if a PIN is needed, insert SIM into a mobile that is not locked to another network, and check if PIN requested. The PIN should have been issued when the SIM was obtained. Ensure the PIN is disabled for this application. (You will need to use a mobile in order to disable the PIN).

To contact a logger connected to the GSMSO modem

- Ensure that there is a built in modem or GSMPC modem connected to the PC.
- Start the Darca Plus program.
- Click on **Contact Wizard** > **Next** > **via modem**. Enter the voice number if the PC modem is the GSMPC or the Analog Data number if the PC has a built in modem. Click **Next** (to start the contact). “Modem” will be greyed out if no landline modem is available on the PC.
- In Darca, click on **Settings/Communicate** and in **Direct Connection** set the baud rate to 9600. (The COM Port number is not relevant).

There are a few settings that can be adjusted in Darca to improve/optimize the modem operation.

- In **Settings** > **Preferences** > **Timing**, set the **wakeup retries** to 10 and the **command retries** to 20. This is helpful when telephone line quality or GSM reception is poor.
- For GSM modems, in **Settings** > **Preferences** > **Timing** set the **normal timeout** and **modem timeout** to 2000. Other settings should not be changed.

Potential problems

- If phone line quality or GSM reception is poor the above suggestions may help. Phone lines in remote places tend to have more problems.
- Internal exchanges can also cause problems. If you have to dial a number (e.g. 9) to get an outside line, place a comma after the 9 in the number entered into Darca.
- Internal exchanges can cause problems to GSM modems. This is often due to the exchange routing it as a voice call in the telephone network. The engineers who look after the phone system can sometimes resolve this. You can prove the internal exchange is blocking contact by connecting direct to a land line.

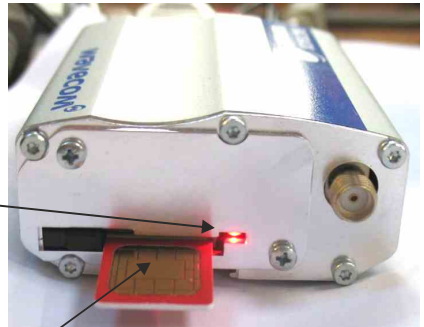
Note: Using Eltek GSMPC modem avoids potential land line quality and internal telephone network routing issues.

How do I know if the GSMSQ is connected to the network?

A red LED is located adjacent to the SIM tray on the modem. Ensure a valid SIM is installed correctly (see below) and an antenna connected.

LED cadence:

Continuously ON:	No network connection or no SIM installed!
Flash every two secs:	Connected to network
Fast flash:	Data call in progress



SIM Installation

- Correct orientation is gold contacts must face up
- To insert the SIM, gently push home the SIM (it will latch) and move slider across to secure SIM in place and activate the modem. To remove the SIM, move slider and press the SIM to unlatch. (Disconnect power to remove or install SIM.)

Use only the supplied GSM antenna. The antenna lead can be extended – refer to Eltek for 5m extension lead.

Note: The system has no means of indicating credit on a SIM.

Testing the modem from the logger

The logger must have channel 1 enabled. A test SMS will be sent irrespective of whether the logger is logging or not logging.

With power connected to the logger and the modem connected to the logger:

- Press **function** to scroll to **STAT battery** (Note: you may need to hold the **function** button for 2 or 3 seconds to “wake” the logger.)
- Press **select** to scroll to **check GSM**
- Press **set**.

For loggers with firmware version prior to 7.3:

- This display will show **+CSMS:** [number].

For loggers with firmware version 7.3 or greater:

- This display will show **+CSQ:** [number x], [number y]. Number x is the RSSI and number y is the bit error rate:

RSSI value	Condition
2 to 9	Marginal
10 to 14	OK
15 to 19	Good
20 to 30	Excellent
99,99	No SIM / not known / not detectable / not on network

- Press **select** to scroll to **send SMS**
- Press **set** to send a text message
- A “**message sent**” will be displayed. Note that this will be displayed even if no modem is connected; to verify that the test has passed, ensure a modem is properly connected and check the outcome of the test by sending the message to a valid mobile no.

The SMS Text message will be in the form:

[Logger ID] ; [Channel No/Name] ; [Alarm status] ; [value] ; [engineering units]

The channel name and engineering units are only displayed if previously configured / appropriate.

Using the GSM kit outside UK or Europe

The GSM kit is preconfigured for the UK and Europe – no adjustment is required.

For R.O.W users please contact Eltek or our regional representative.

Also see the FAQ “What is the best way to contact a logger remotely using GSM?”

Eltek

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