

Pulsar Process Measurement Ltd.

blackbox GSM MODEM



PULSAR PROCESS MEASUREMENT Ltd.

Blackbox GSM Modem

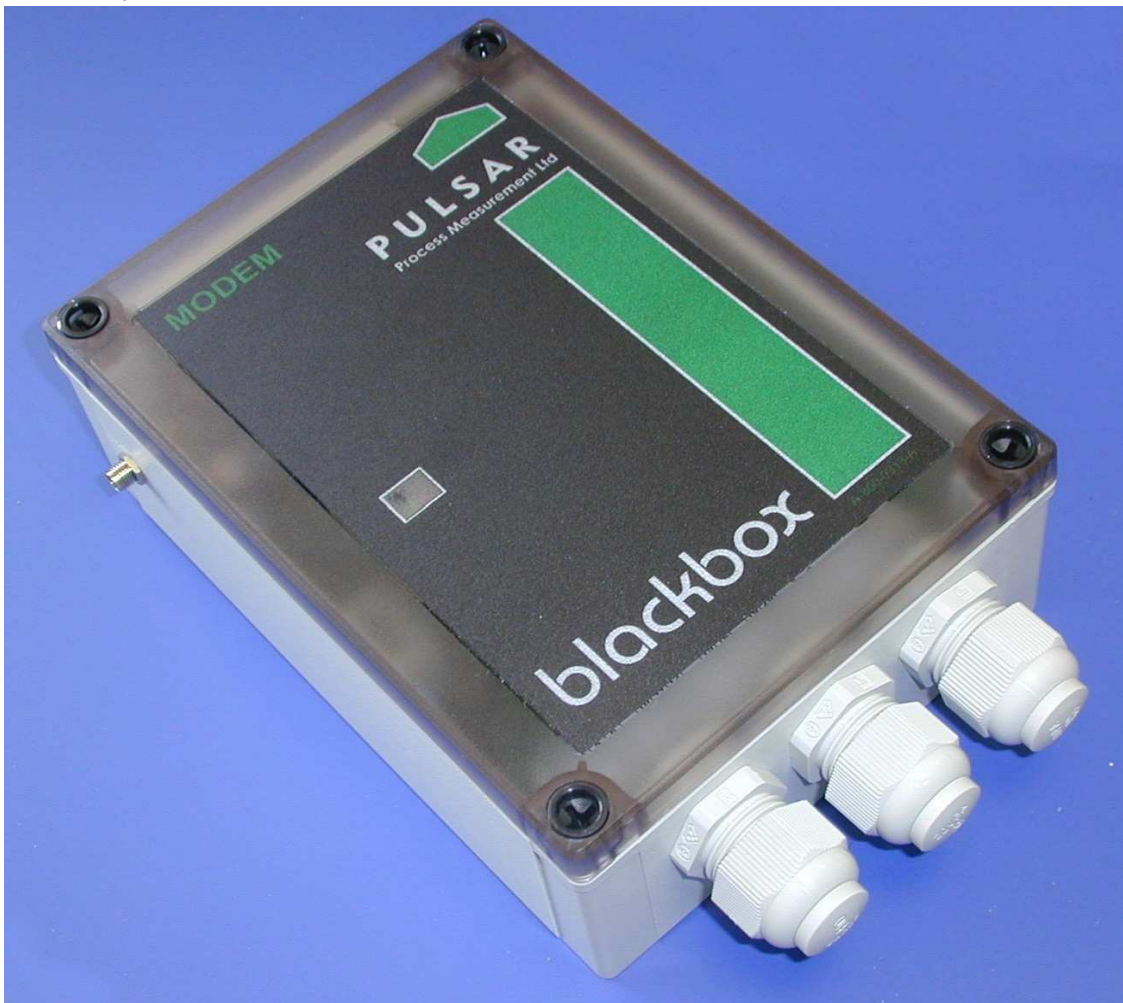
Important specification difference compared to standard blackbox:

Due to the inclusion of a GSM modem the power supply has been uprated, this means that the fuse ratings are different to standard blackbox.

The correct fuses for the blackbox GSM modem are as follows:

INPUT	RANGE	FREQUENCY	FUSE
230Vac	200-240	50/60Hz	200mA(T)
115Vac	90-120	50/60Hz	315mA(T)
POWER Maximum 30W			

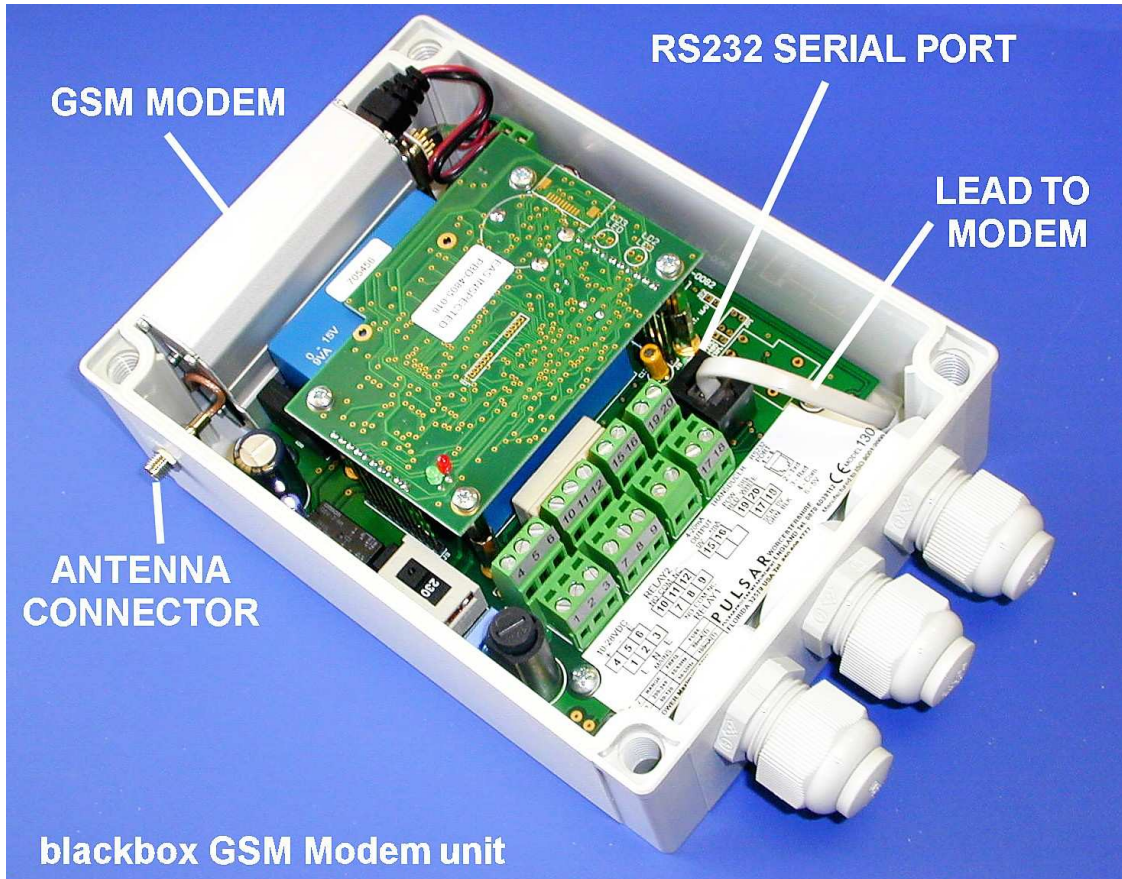
ENSURE THAT THE VOLTAGE SELECTOR SWITCH IS SET TO THE SAME AS THE INCOMING SUPPLY PRIOR TO CONNECTION AND THAT THE CORRECT FUSE IS FITTED, UNITS ARE SHIPPED WITH 200mA FUSES FITTED.



blackbox GSM modem unit

System Overview:

The system consists of a number of remote blackbox GSM modem units that communicate via SMS to server software (SMS server) run on a PC connected to a Pulsar GSM modem unit. The remote units transmit the current volume at an interval (P995) set in each of the units. (P988 has to be set to SMS and the telephone number of the server modem in P985-987). A message is also sent immediately if any alarm is triggered.



blackbox GSM modem unit

GSM modem – This is the unit that sends the SMS messages, a SIM card must be fitted, see below

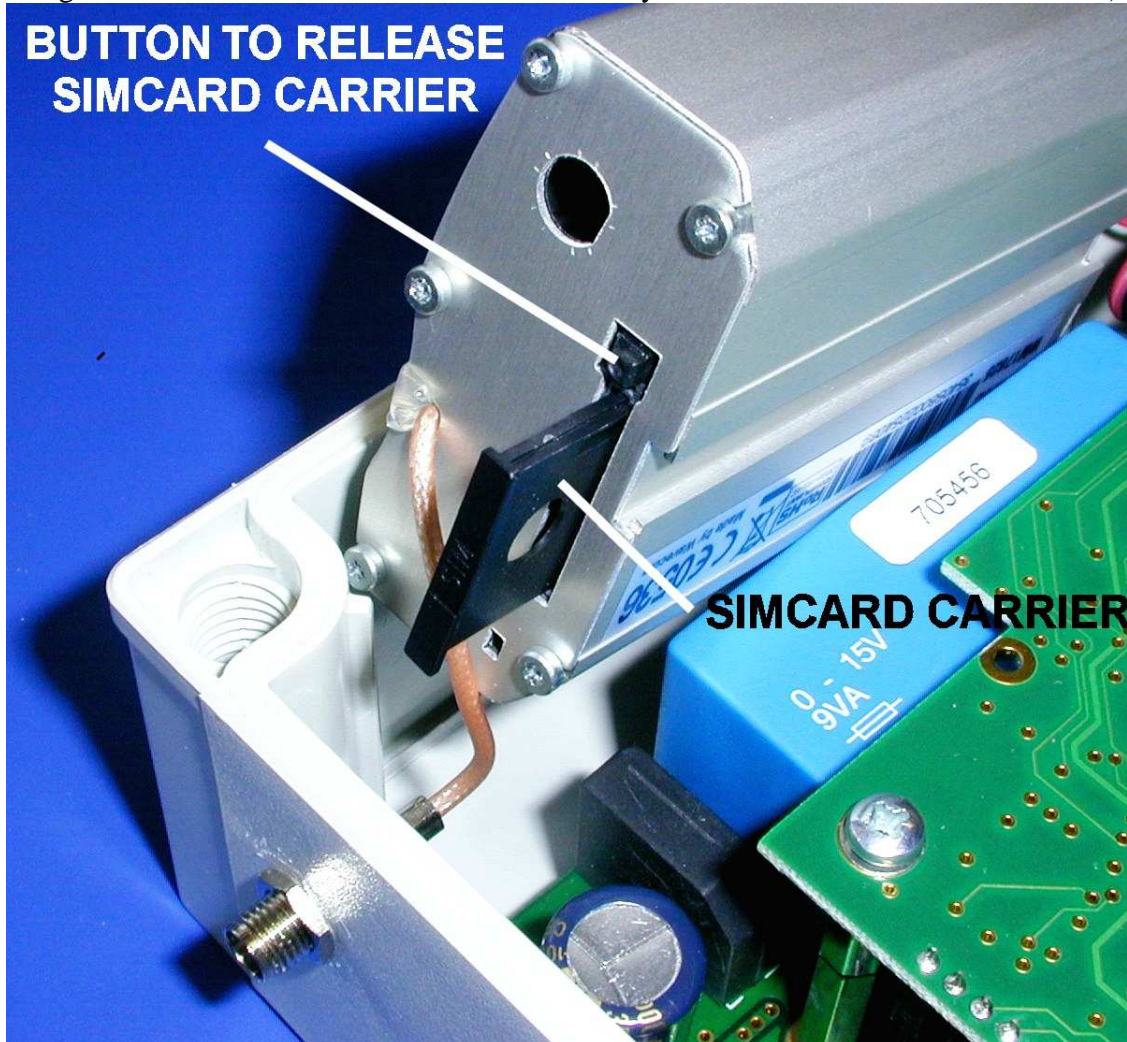
Antenna Connector – Connect the antenna here, mount it away from metal objects and as high as sensible.

Lead to modem – This lead plugs into the RS232 serial port and allows the blackbox to talk to the modem. This lead must be plugged in for the SMS to work.

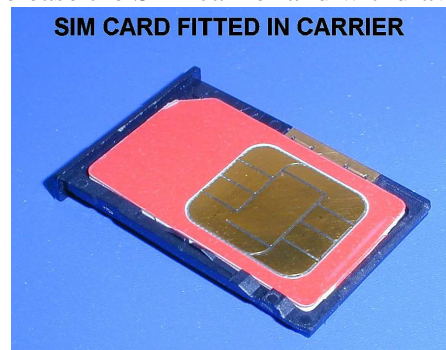
RS232 Serial Port – This is used to set up the blackbox unit via a software called Handheld PC. To use it you will need to unplug the Lead to Modem and use a Pulsar comms lead to set up the blackbox. After you have set up the unit remember to plug back in the modem lead.

Fitting the SIM Card

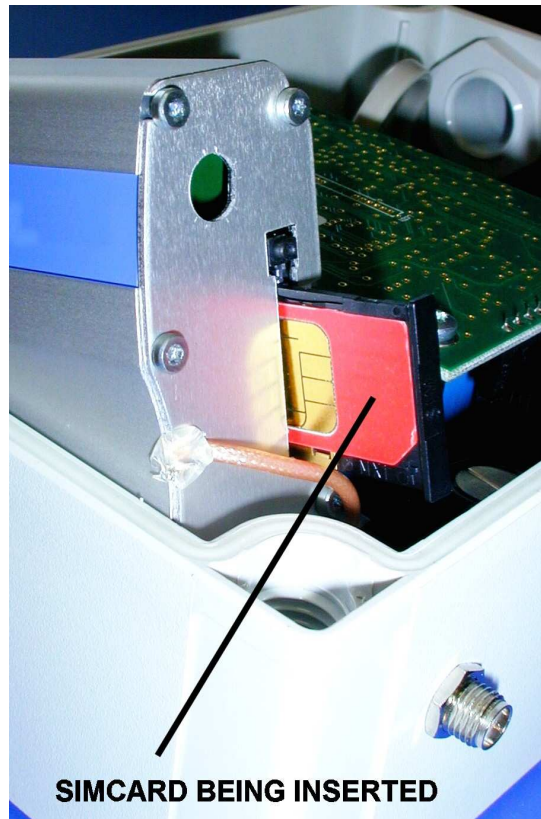
The SIM card needed for SMS may be a 'Pay you Go' or a contract card. (If you are using the modem for DATA rather than SMS then you need a contract data enabled card)



Carefully angle the modem as shown above, do not put excessive strain on the antenna cable. Press the button to release the SIM carrier and withdraw.



Fit the SIM card as shown above into the carrier.



Slide the SIM card carrier back into the slot and push home. Carefully lower the modem back into the enclosure.

Set up the blackbox to suit your application.

blackbox SMS parameters

Parameter	Name	Description														
985	Telephone number 1	Enters the number of preceding 0's in the telephone number. Options 1 = 0 or 2 = 00.														
986	Telephone number 2	Enters the next part of the phone number (do not start with a zero).														
987	Telephone number 3	Enters the last part of the phone number (do not start with a zero).														
988	Call Type	Off, Ring or SMS.														
995	SMS Interval	Sets unit to output SMS every xxx minutes within the SMS interval period.														
996	Start Time	Sets time for SMS interval period to start.														
997	Stop Time	Sets time for SMS interval period to stop.														
998	Days	Boolean value for which days the SMS interval period to applies to:														
		<table border="1"> <tr> <td>M</td> <td>T</td> <td>W</td> <td>T</td> <td>F</td> <td>S</td> <td>S</td> </tr> <tr> <td>1</td> <td>2</td> <td>4</td> <td>8</td> <td>16</td> <td>32</td> <td>64</td> </tr> </table>	M	T	W	T	F	S	S	1	2	4	8	16	32	64
		M	T	W	T	F	S	S								
1	2	4	8	16	32	64										
Add together any combination up to a maximum of 127 (every day) e.g. 21 = mon, wed and fri.																

Pulsar GSM modem (PC end)

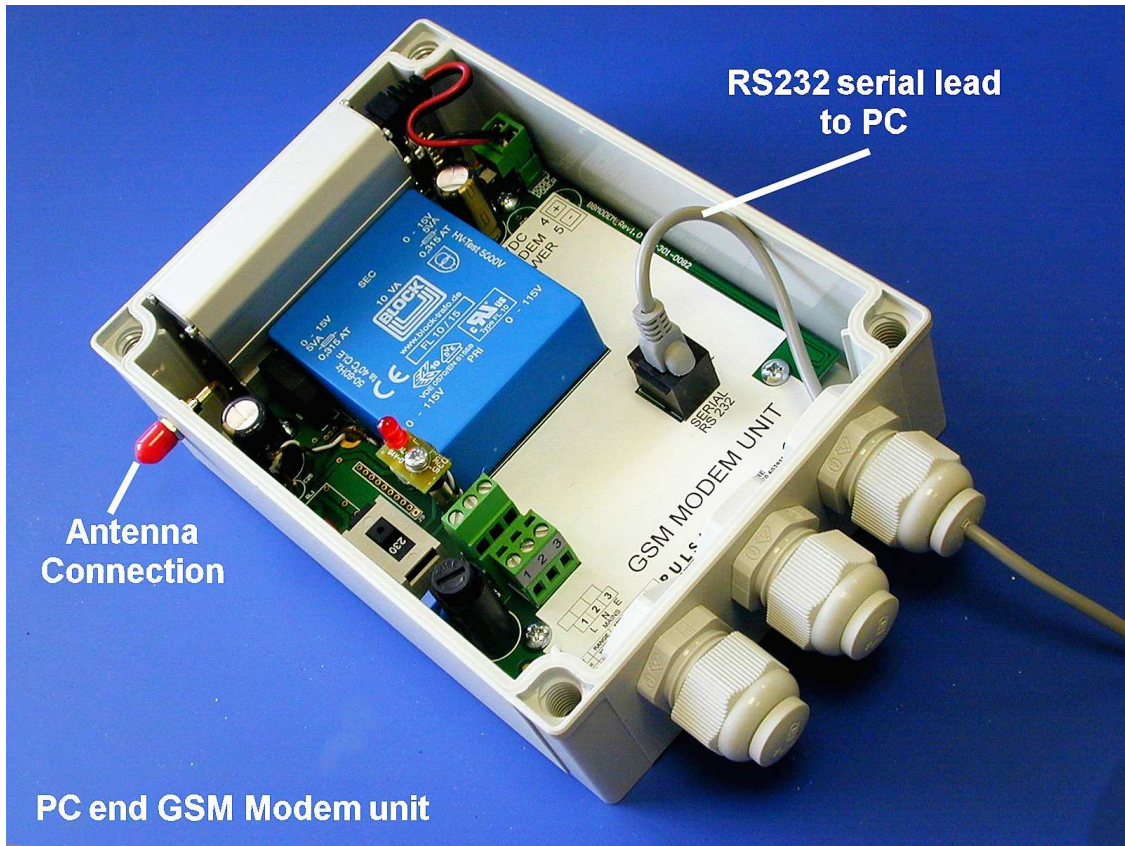
The modem for the PC end is housed and externally labelled in the same enclosure as blackbox GSM Modem, the difference is that it contains no blackbox, just the modem, and has a RS232 serial lead coming out through the right hand cable gland.

INPUT	RANGE	FREQUENCY	FUSE
230Vac	200-240	50/60Hz	100mA(T)
115Vac	90-120	50/60Hz	200mA(T)
POWER Maximum 30W			

ENSURE THAT THE VOLTAGE SELECTOR SWITCH IS SET TO THE SAME AS THE INCOMING SUPPLY PRIOR TO CONNECTION AND THAT THE CORRECT FUSE IS FITTED, UNITS ARE SHIPPED WITH 100mA FUSES FITTED.



Pulsar GSM modem for PC - Note protective red cover over antenna connector



Inside the Pulsar GSM modem for PC

Fit the a SIM card as described for the blackbox GSM modem above and connect the serial lead to a serial port on a PC.

Load the SMS Server software and set up as follows:

Pulsar SMS Server Software SetUp

Product Registration

- After installing Pulsar SMS Server and opening the program for the first time, a unique code will be displayed and the user will be prompted to enter a security registration key. To obtain a liberation key, please contact Pulsar with the software code and the software version.
- The software can be used without a liberation key for a trial period of 30 days from first activation. To activate the trial licence, click on the “Register Later” button. The software can then be used, in its entirety, until the trial licence expires.

Program Access

- After registering the software (or clicking register later), the user will be prompted for an access code. The software can be used without a code, but access will be restricted to read only. Site information can be viewed, printed and exported but new data cannot be downloaded from the modem or saved.
- The standard Pulsar Service code must be used to enable all functions of the software.

Setup

- To receive information from your GSM modem, connect the modem to a serial communications port on your PC or Laptop.
- Select the correct port in the communications port setup screen and ensure the baud rate = 19200 bps.
- Open a new database by selecting the File menu and choosing “New Database”. Give it a name choose “Open”.
- To build the database, click on the stations information tab and click auto or manual scan. The database will automatically update itself when a message is received from the modem and sorted based on the site identification of the unit sending the message.

Operations Overview tab

- The first page shown when entering the program is the “Operations Overview”. This shows a bar graph of the latest level reading for all units in the current database.
- To view an example database, click on the File menu and “Open Existing Database”. Choose “Demo.sms” and “Open” to view.
- Green bars mean stock levels are OK, Yellow bars show levels that are below the warning threshold but above the alarm threshold and the red bars show levels below the alarm threshold.

- Warning threshold and alarm threshold levels can be set from the “General Setup” menu in the “Communications Port” screen under “Gateway Setup”.
- Clicking on one of the bars will take you to the stations information tab and will display the messages received for that site.

Stations Information tab

- The stations information tab is where information can be collected from the individual sites.
- On the left hand side is a tree diagram (white section) of all the sites within the database. Click on the ‘+’ symbol to the left hand side of “Remote Stations” to expand the tree.
- Each site is listed in a format with pieces of quick reference information e.g. **BSite 92313 (5)(1)**.
 - The first word shows the type of remote station and can be one of 3 things: BSite = Blackbox site, USite = Ultra site and TSite = Ultra Twin site.
 - The second figure shows the site ID, programmed in parameter 929 of the unit in question.
 - The third, bracketed figure shows the number of SMS reports gathered from the site.
 - The fourth, bracketed figure shows the number of alarm SMS messages reported for that site.
- At the bottom of the screen, below the Remote Stations tree diagram is a sum total of all SMS messages received and the number of stations within the database.
- Left clicking the mouse on one of the stations will provide the SMS messages received from that unit in the green section of the screen. All messages with a white background show interval reports and those with a red background show alarm reports.
- A graph will also be plotted showing information gathered from the selected station. The blue line shows the level provided by interval reports and red arrows are shown at alarm points.

The toolbar



1. Open Existing Database: Opens an existing database.
2. Save Current Database: Saves the current database to a user specified file.
3. Print: Prints the selected station or all station data.
4. Export to Excel: Exports the selected station or all stations to a Microsoft Excel comma separated file (.csv).
5. Setup Communication Port: Brings up the setup window where communication port and baud rate, auto scan settings, threshold settings and language settings can be adjusted.

6. Checking GSM tool: Bring up the modem toolkit window where network service and signal strength etc. can be viewed.
7. Auto Scan: Toggles auto scanning on and off (frequency set in setup window) to scan the modem for new messages.
8. Manual Scan: Instantly scans the modem for messages once
9. Toggle Terminal Window: Toggle the terminal screen where all traffic from the modem can be observed.
10. Exit: Closes the program.

The Menu System

File: Allows the user to create a new database, open an existing database, save the current database, save the current database as a user specified filename, export to excel, print data and exit the program.

Get SMS: Performs a manual scan.

General Setup: Provides access to the setup menu (communications port) and to the modem toolkit (GSM modem Tools).

Help: Provides information about the program.

Hints, Tips and additional information

- If your PC or Laptop is being used to do multiple tasks, it is advisable to set the auto scan rate (in the communications port setup screen) to a value of 60 seconds or more. For example, if set to scan every second, the computer resources will be tied up every second and may cause performance problems on other programs.
- When a message is downloaded from the GSM modem to a computer, that message is then deleted from the modems memory, thus freeing it up for further messages.
- If receiving interval reports from multiple units, it is advisable to stagger the start times. This is because if all of the units are sending to the same receiving modem, sending all messages in one go may fill up the memory. This won't be a problem as the messages will stay on the GSM network until the memory has been freed up (in the same way as a mobile phone does) but it may slightly delay the update of the database.