

# INTERQUARTZ®

## GSM key



User Guide v1.0

**Basic Specifications:**

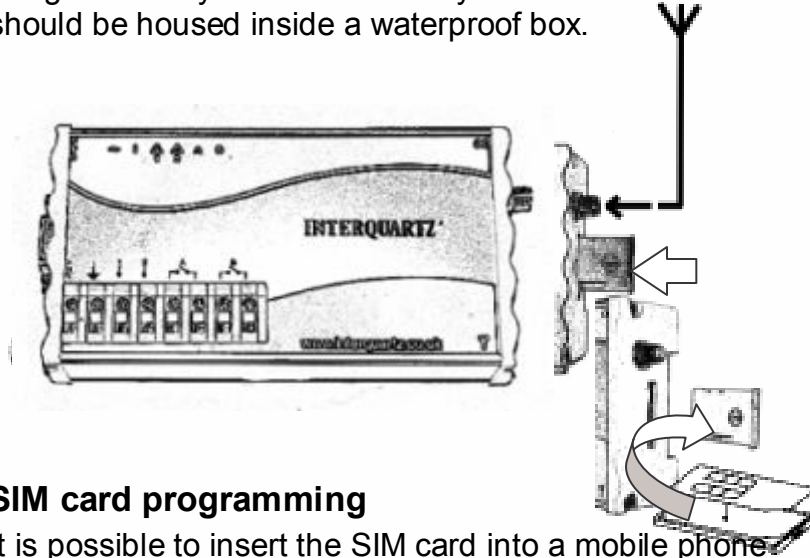
- Power supply 9 to 15V DC, 500mA
- GSM network 900/1800MHz
- Dimensions: 145 x 75 x 30 mm

**Features:**

- Power supply from distribution rail 12V, or mains power supply (12V adapter).
- Optional battery backup 12V with charging adapter.
- 2 inputs for switching contacts (alarm output, sensors etc.) (5V)
- Sends SMS notification when a short circuit exists on inputs.
- Progressive dialling up to 8 pre-programmed numbers on short circuit.
- 2 galvanised switching contacts @ 230V/5A
- 1 switching contact controlled by dialling in from authorised telephone number
- The list of authorised numbers is limited by the SIM card's capacity (up to 250).
- Both switching contacts can be controlled by SMS from authorised numbers.
- Programming via SMS command
- Programming via PC through RS 232 port.
- Credit level checking
- Messages from Network Operator can be forwarded to administrators' phones

## Installation

The unit may be installed onto a DIN rail, screwed onto the wall or put on a shelf. The unit is not designed for installation in a high humidity environment. If you want install it outdoors it should be housed inside a waterproof box.



## SIM card programming

It is possible to insert the SIM card into a mobile phone to program the list of authorised names and numbers. .

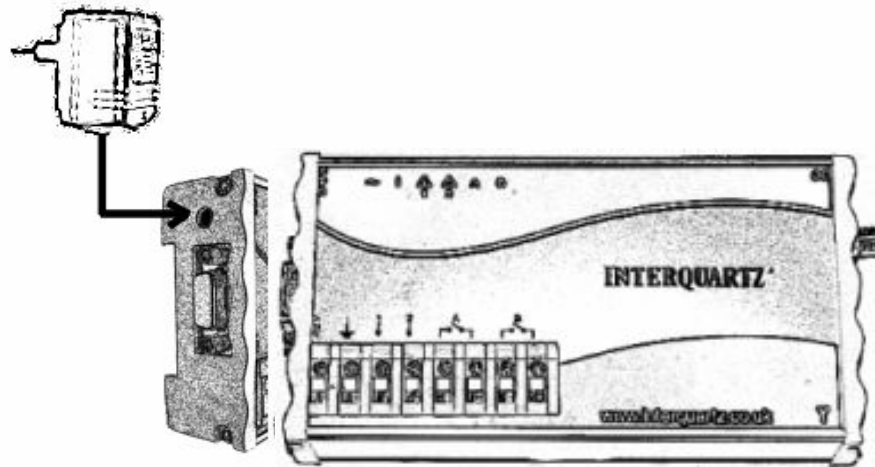
However, it is easier to insert it into the GSM Key itself and program it via a PC using the dedicated programming cable (supplied separately) and configuration software on the CD which is provided with the unit.

**CAUTION! PHONE NUMBERS MUST BE SAVED IN INTERNATIONAL FORMAT – e.g. +447966 not 07966!**

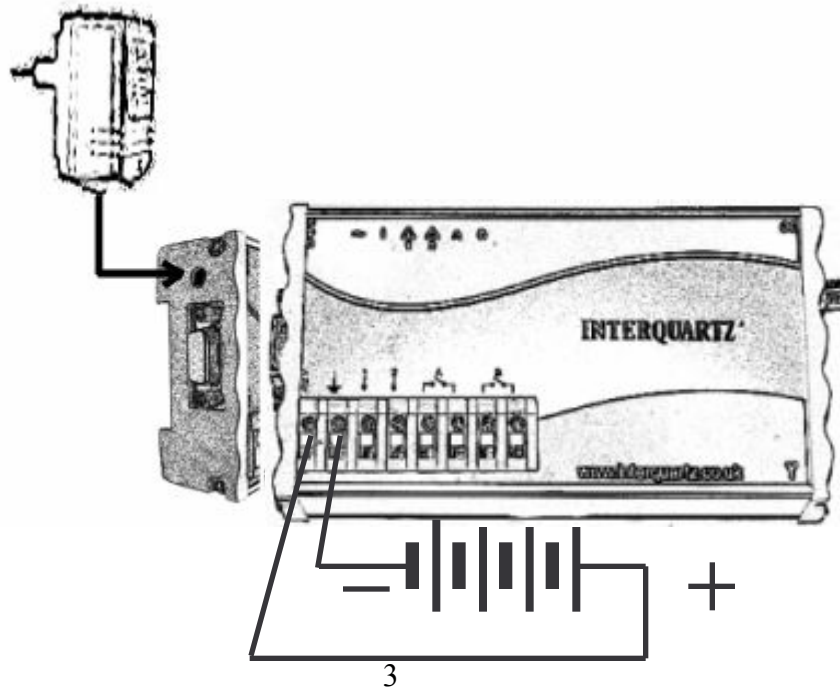
## Inserting SIM card into unit

Pull out SIM card holder by pressing the yellow button on right side of the unit. Put the SIM card into the holder, then replace it.

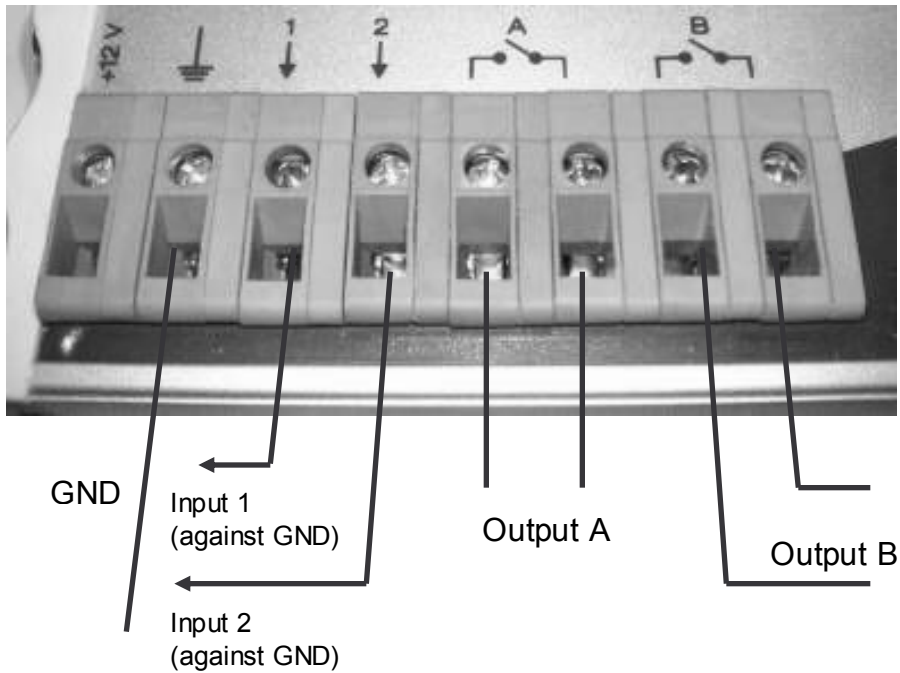
### Schematic for connecting mains power adapter



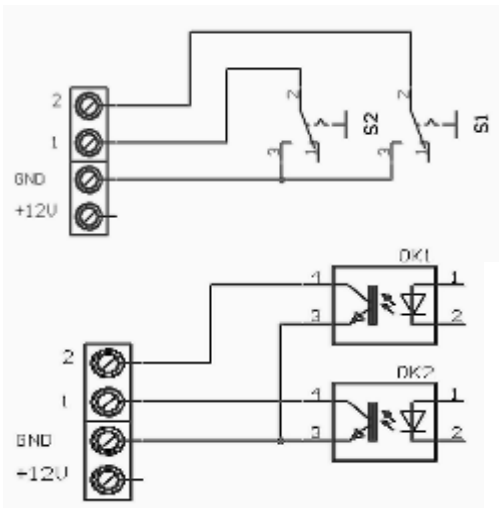
### Schematic for feeding from 12V distribution rail



## Schematics of Inputs/Outputs



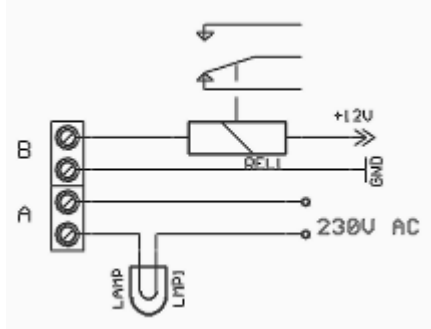
### Input connection examples:



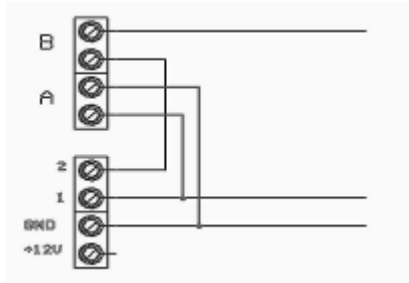
Connection with relay contacts, switches, magnetic contact switchers etc.

Connection of galvanically isolated switch with optotransistor

### Outputs connection examples:

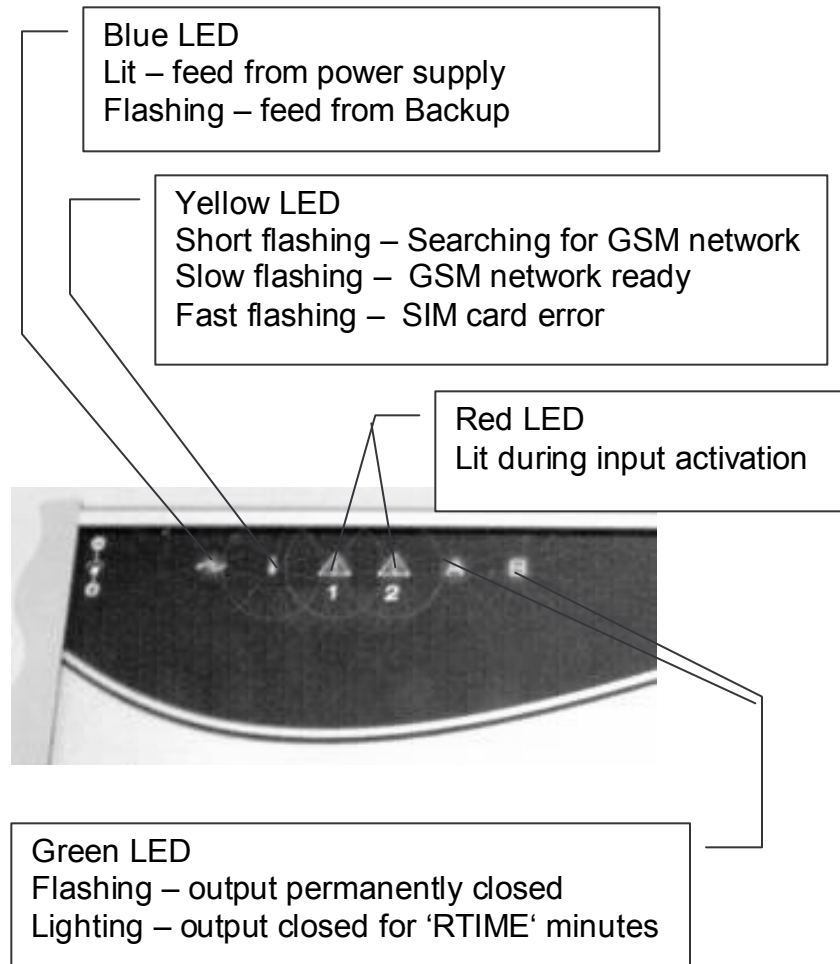


High power relay (clammer) connection, lightbulb connection (heating, motor etc.).



This is a simple self test circuit. On activation of OUTPUT A, this will send INPUT1 alarm status. Activation of OUTPUT B will send INPUT 2 alarm status.

## LED Indicators



## Saving names and numbers on SIM card

Name	Function
Standard User	Activate output A (closing time set in RTIME) by dialling in
ALARM1 to ALARM8	<ul style="list-style-type: none"> <li>- Activate output A (closing time set in RTIME) by dialling in</li> <li>- Activate output A and B by SMS</li> <li>- Querystatus, version, IMEI, credit by SMS</li> <li>- Receive SMS alerts on failure of inputs. GSM Key progressively dials ALARM numbers until call is answered</li> <li>- When power supply is disconnected for 30 secs or more, SMS in format 'ACCU,credit' is sent to ALARM8 number</li> <li>- After power supply has been on again for longer than 30 secs SMS in format 'POWER ON,credit' is sent to ALARM8 number</li> </ul>
ADMIN1 to ADMIN8	<ul style="list-style-type: none"> <li>- Activate output A (closing time set in RTIME) by dialling in</li> <li>- Activate output A and B by SMS</li> <li>- Querystatus, version, IMEI, credit by SMS</li> <li>- Edit names and numbers saved on SIM card</li> <li>- Control further functions (AT commands) by SMS</li> </ul>
CRED	<ul style="list-style-type: none"> <li>- code to check credit level</li> <li>(*101# ... for T-MOBILE, *104*# ... for O2)</li> </ul>
OPER	<ul style="list-style-type: none"> <li>- GSM operator number for incoming SMS messages to be relayed to ALARM8</li> </ul>
RTIME	<ul style="list-style-type: none"> <li>- Time of closing output A after ringing (1-99sec), default 3sec</li> </ul>

The name and numbers may be saved to SIM card phone book by mobile phone or by PC via configuration software. **The names ALARMx, ADMINx, CRED, OPER and RTIME must be written in capital letters. There must not be a space between ,ALARM‘ and the number. All telephones used as ALARM numbers must have their voicemail switched off, otherwise voicemail will answer the call and the GSM Key will not dial any further numbers.**

The text of ALARM SMS messages can only be programmed using the configuration software.



**SMS Commands – SMS with other content are refused**

		<b>Command ( SMS)</b>	<b>Function</b>	<b>Response</b>
<b>Commands can be sent from ADMIN numbers only!</b>		ADMINx,+44cc...c	Save or rewrite ADMINx number	'OK,credit'
		ADMINx,	Erase ADMINx number	'OK,credit'
		ALARMx,+44cc...c	Save or rewrite ALARMx number	'OK,credit'
		ALARMx,	Erase ALARMx number	'OK,credit'
		CRED,x..xx	Save or rewrite CRED number	'OK,credit'
		CRED,	Erase CRED number	'OK,credit'
		OPER,x..xx	Save or rewrite OPER number	'OK,credit'
		OPER,	Erase OPER number	'OK,credit'
		RTIME,ss	Closing time of output A on incoming call (ss=01..99 sec)	'OK,credit'
		NAME,+44cc...c	Save phone number for NAME	'OK,credit'
		NAME,	Erase all numbers with NAME	'OK,credit'
		NAME,+44cc...c-DEL	Erase exact number with NAME (may have more than one!)	'OK,credit'
		CAL,AT+CSQ	Valuation of GSM signal strength	'+CSQ, 17,99, credit' (max 32)
		CAL,AT+CPBR=x	Detection of number saved on position x	'+CPBR:1,"+44 1617633122", 145,"ADMIN1"
<b>Valid for ALARM numbers</b>		STAT	Status inquiry	'status,version, imei,credit' )*
		REL1,ON	Activate relay 1 (Output A)	'OK(REL1,ON),credit'
		REL1,OF	Deactivate relay 2 (Output A)	'OK(REL1,OF),credit'
		REL1,ON,mm	Activate relay 1 (Output A) for time mm, where mm=01..99 min	'OK(REL1,ON,mm),credit'
		REL2,ON	Activate relay 2 (Output B)	'OK(REL2,ON),credit'
		REL2,OF	Deactivate relay 2 (Output B)	'OK(REL2,OF),credit'
		REL2,ON,mm	Activate relay 2 (Output B) for time mm, where mm=01..99 min	'OK(REL2,ON,mm),credit'

Note:

**Credit** - The level of remaining credit on prepaid cards.

**Status** - Input and output always follow the order:

INPUT1, INPUT2, RELAY1, RELAY2.

INPUT<sub>x</sub> =           1- stand by  
                          2- alarm status  
RELAY<sub>x</sub> =           0- switch off  
                          1- switch off permanently  
                          2- switch off for time 'mm'

**Version** – firmware version

**imei** – IMEI of integrated GSM module

### **Inputs**

Inputs 1 and 2 can monitor the state of an electrical circuit. When the circuit's state changes, the GSM Key will send an SMS message to all of the nominated 'ALARM' contacts saved on its SIM card. It will also progressively dial each ALARM contact until one answers. **If a call from the GSM Key goes through to a recipient's voicemail, it will be classed as answered and no further calls will be made.**

The inputs can be used, for example, to monitor burglar alarms, fire alarms or smoke detectors.

The text for the SMS message should be entered in the fields marked 'SMS input 1' and 'SMS input 2'.

## PC programming with configuration software.

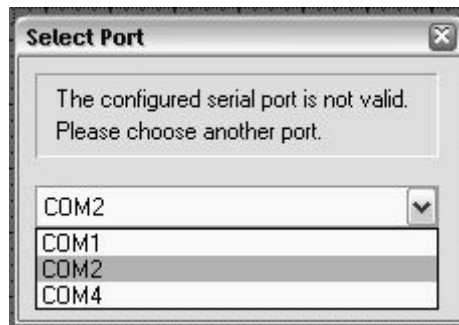
### Installing and uninstalling software

Insert the mini CD into the CD drive. Simply copy the file named KEYset.exe onto your computer's hard drive.

Connect the GSM Key to a USB port on the computer, using the special programming cable, and connect it to its power source.

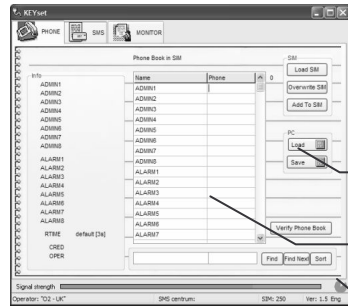
When the program starts, you will be prompted to select the COM port to which the GSM Key is connected.

The first time the program is run, two further files named KEYset.ini and blank.phb will be created in the same folder where the KEYset.exe application is located.



The Basic Program Window will open.

## Basic program window



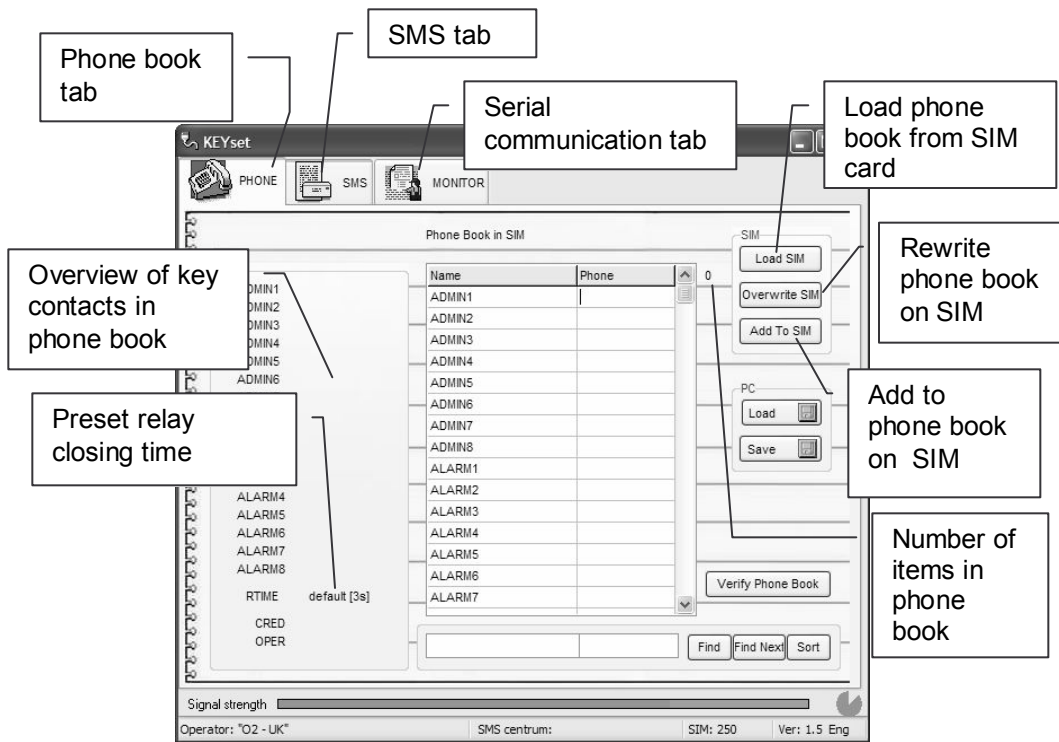
Until connection is established (max. 30sec) some elements are not active.

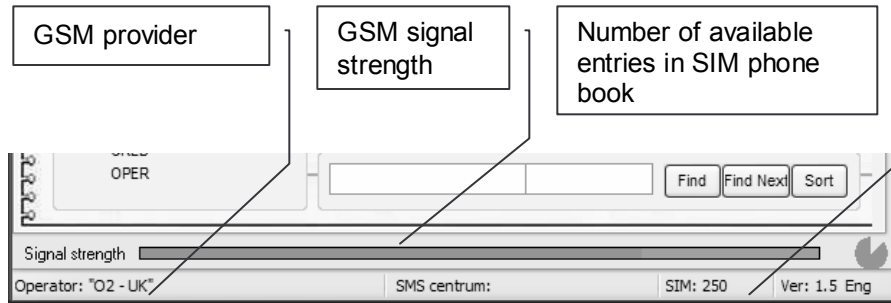
Save and read phone book

Prepared blank phone book

Connection status icon

## The basic window after connecting PC with unit

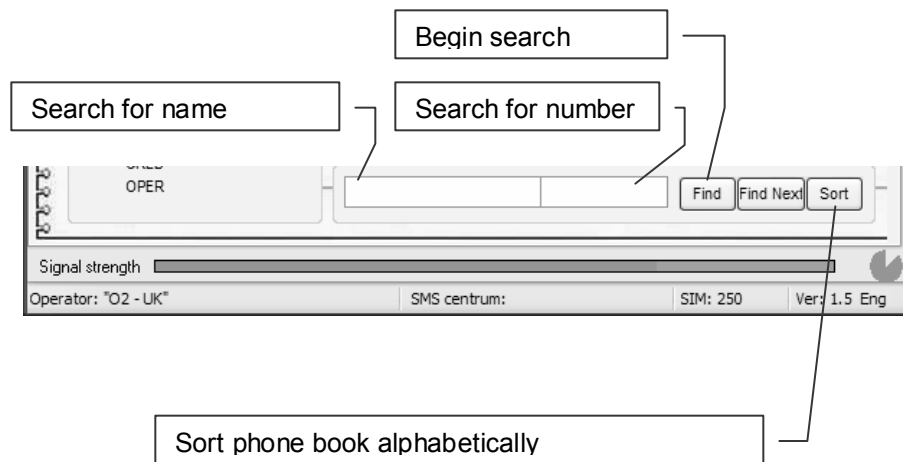




The program periodically synchronises with the GSM Key. During this time some features unavailable.

### Phone book

When the program starts running an empty phone book is shown, with preprogrammed important names (ADMIN, ALARM, CRED etc.). Enter the phone number into the "Phone" column next to the corresponding name in international format. It will automatically appear in the table on the left. Using the Insert button on your keyboard you can add new rows into the table. When you erase a name or number, the row disappears when you move the cursor. Only numbers entered in the correct format will be accepted (e.g. +441617633122). Then only exceptions are the numbers for OPER and CRED which can contain the characters \* and #, according to the specification of GSM provider and RTIME (time in sec.)

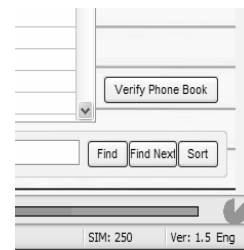


The phone book allows you to search for names and numbers (in whole or in part).

The phone book may be saved to a PC where alterations may be made using a text editor.

After loading a phone book, use the 'Verify Phone Book' button to ensure correct data format.

It is also possible to download the phonebook from the SIM card. You can



then add or rewrite phone numbers and names. The more names and numbers there are in the phonebook, the longer the process of saving will take. Progress is displayed on the scale at the bottom of the basic window. While the phone book is saving, certain control elements are blocked.

The phone book size is limited by the SIM card capacity (usually 250 items). The capacity is shown on the bottom bar of basic window.

## SMS messages

Click the SMS tab to open the SMS message window.

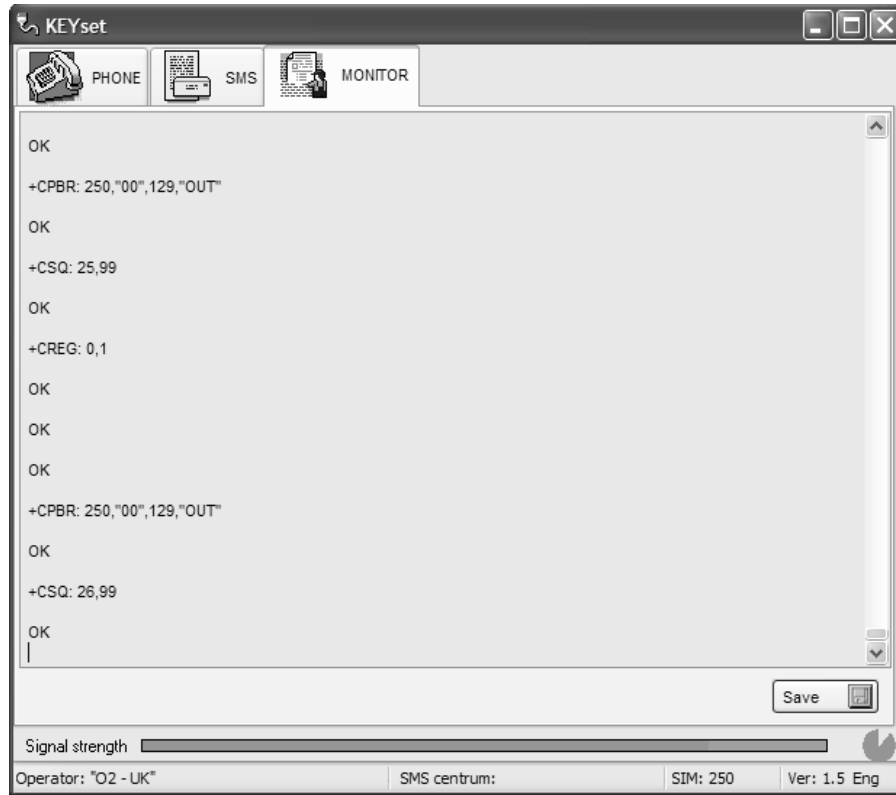
The screenshot shows a software window titled 'SMS' with several tabs: 'PHONE', 'SMS', and 'MONITOR'. The 'SMS' tab is active, displaying a configuration interface. The interface includes fields for 'SMS Start', 'SMS Input1', 'SMS Input2', 'SMS blank1', 'SMS blank2', and 'SMS blank3'. On the right side, there are buttons for 'Load SMSs', 'Save SMSs', and 'Erase SMSs'. Below these, there are 'PC' buttons for 'Load' and 'Save'. At the bottom, there is a list of 'SMSs in SIM' with columns for 'Sim', 'Time', and 'Text'. The status bar at the bottom shows 'Operator: 02 - UK', 'SMS centum:', 'SIM: 290', and 'Ver: 1.5 Eng'.

Callouts and their corresponding functions:

- Eraser all messages from SIM
- Save written SMS to SIM
- Read all messages from SIM
- SMS sent when unit powers up
- SMS sent when input 1 is activated
- SMS sent when input 2 is activated
- Inactive SMS for future features
- Display all SMS messages on SIM
- Load and save SMS messages from PC

## Service button – serial communication monitor

All communications on the serial connection between the PC and the GSM Key are logged in this window. This output may be saved and used for analysis purposes.



## Contact

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