

GC-10 Wireless Control Box

User Guide

1. Introduction

This GC-10 Installation and User Guide will assist you in installing and configuring the Brodersen GC-10 SMS Alarm Unit. The guide covers the installation of the configuration software and gives a detailed description of the setup features. The guide is divided into sections. The main parts are Software installation and a User Guide, describing the setup of the GC-10 and the options available.

Wiring and installation details can be found in the GC-10 Installation Guide and further information can be found on the Brodersen website www.brodersensystems.com, where you will also find the latest news, programming examples and application notes.

You can also obtain assistance from your local distributor.

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3. General Information

3.1 Deliverables

The GC-10 is delivered in a box containing all that is needed to start using the GC-10 SMS Alarm Unit:

- GC-10 SMS Alarm Unit.
- Power Cable.
- Configuration Cable.
- GSM Antenna.
- A CD with GC-10 Configuration Software.
- GC-10 User Guide.
- GC-10 Installation Guide.

3.2 GC-10 Basic Functionality

The GC-10 Wireless Control Box performs simple remote control functions, data logging and communication via SMS messages using an integrated GSM modem.

The main features are:

- Sending of SMS messages initiated by:
 - Status change of digital input.
 - Reaching a predefined setpoint on an analogue value – such as temperature level or flow.
 - Cyclic, at a predefined time.
- Remote setting (On/Off) of digital outputs via an SMS message from a mobile telephone.
- Reporting input and output status on SMS request.
- Real time alarm scheduling with profiles.
- Simple control functions including a timer.
- Local data logging with time stamp.

4. Getting Started

Before starting we recommend that you read the User Guide and the Installation Guide. Please pay special attention to the section dealing with electrical safety when working with the GC-10.

Important: If you already have a version of Brodersen IOTOOL32 Pro on your PC, please uninstall it prior to loading the GC-10 software when another version of IOTOOL32 Pro will be installed.

The User and Installation Guide will take you through the installation and configuration of the GC-10 step by step to ensure a trouble free operation:

- Place a SIM card in the SIM cardholder. Make sure that the PIN code is disabled.
- Fit the GSM antenna to the antenna plug.
- Connect the power cable to the power supply terminals. Please note of the power supply voltage printed on the label next to the power supply terminal.
- Plug the configuration cable into the programming port on the top right corner of the GC-10. Plug the Sub-D 9 pole into a free COM port on your PC (if you do not have a COM port on your PC, you should use a USB-to-RS232 converter, and use a USB port instead).
- Install the GC-10 configuration software on your PC, as per the instructions in the Software Installation Section (see page 26).
- Apply power to the GC-10 and wait for a connection to the GSM network (the modem LED on the front of the GC-10 should start flashing slowly). If the modem LED is ON constantly, the GC-10 is not connected to the GSM network. In which case check that you have disabled the PIN code and that the SIM card works satisfactorily in a mobile telephone.

You are now ready to start configuring the GC-10.

5. User Guide

5.1 Starting GC-10 Configuration Tool.

On your desktop you will find a GC-10 Config icon. Start the configuration tool by double clicking on this icon.

During start up the required drivers will be initiated and you will see small pop-up boxes with progress bars appearing and disappearing.

Finally the configuration tool will start the main user interface.

The screenshot shows the 'GC-10 Configuration [S2000.INI] - [Node 1]' window. It features a menu bar (File, System Log, Options, Help) and a toolbar with 'Make connection' and 'Upload Log' buttons. Below the toolbar are tabs for 'Alarm module config', 'SMS Message and Profiles', 'SMS Mobile no.', and 'Output Control'. The main area is divided into three sections: 'Digital input event config', 'Analog input event config', and 'Time event config'. Each section contains various input settings, checkboxes for 'Log Active', 'Active', and 'SMS Profile' (1, 2, 3), and an 'SMS Message' dropdown. A 'Download' button is located in the top right of the digital input section, and a 'View Guide' button is in the top right of the time event section. At the bottom right, there is a 'No Communication' indicator.

Callout boxes provide the following information:

- Use for connecting to GC-10:** Points to the 'Make connection' button.
- Use for uploading of log from GC-10:** Points to the 'Upload Log' button.
- Configuration Tab sheets:** Points to the 'SMS Message and Profiles' tab.
- Button for downloading of the configuration parameters to GC-10:** Points to the 'Download' button.
- Open this User guide:** Points to the 'View Guide' button.
- Indicator for online with GC-10:** Points to the 'No Communication' indicator.

5.2 Procedure for Setting Up the GC-10

Please make sure that the GC-10 is powered up.

Read the module data by clicking on **Make Connections**.

When the Rescan pop-up menu appears, you select the COM port used, no other settings are needed. Select OK and the configuration software will scan the module to confirm that a GC-10 is present.

After the rescan procedure is finished the module will be on-line. You can check the connection in the Status Box (lower right corner). If it has turned green the GC-10 is on-line. If it has not turned green, check that the cable is correct, the module is powered up and try to connect to the module again.

The GC-10 is now ready for setting up. All the adjustable parameters can be configured in the *Setup and Configuration Parameters section* (see page 8). The configuration made can be downloaded to the GC-10 unit by clicking the **Download** button.

5.3 Saving and Restoring Configuration Data Files

Settings/configuration made in the configuration tool can be saved by selecting **File and Save as....** The settings are saved in a project file (*.ini) which can be copied and used on other PCs.

When you want to download the data from a saved project file, just connect the GC-10, open the file and make sure that the GC-10 is on-line. Click **Download** and all the settings from the file will be downloaded to the GC-10. If you want to store the settings to more GC-10's, just connect a new GC-10, apply power and click the **Download** button again. Each time making sure that the module is on-line before downloading.

5.4 Closing the GC-10 Configuration Tool and the Drivers.

Important note: When you are running the configuration tool, the communication driver requires the full service of the COM port and it does not accept any other programs using the COM port. After closing the software, you must close the basic driver. You will find the **driver icon** on the bottom right side of your screen. Point at the icon, right click your mouse and select '**close**' – now your COM port is clear for use by other programs.

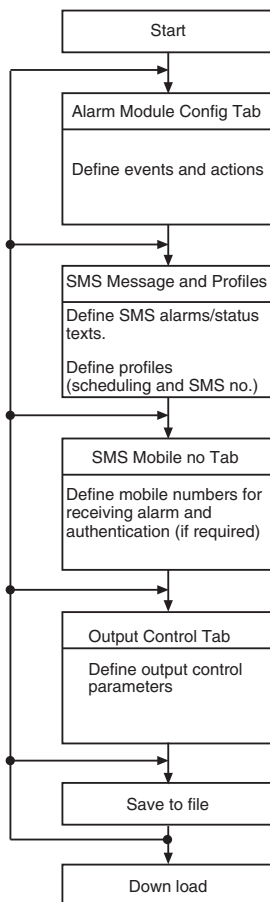
6. Setup and Configuration Parameters

The configuration tool is designed to provide you with easy and simple configuration features. It is important that you get familiar with the basic configuration strategy. (See page 6)

- Start with the '**Alarm Module Config**' tab sheet. Define which events should initiate which actions.
- Next enter the '**SMS Message and Profiles**' tab sheet. Enter SMS Message texts and setup profiles of the SMS alarm message recipients.
- The third step is to enter the '**SMS Mobile No**' tab sheet and enter all the mobile numbers for receiving SMS alarm messages. Authorised telephone numbers allowed to receive status messages and change outputs are also entered here.
- Finally you enter the '**Output Control**' tab sheet. This is for configuring simple control functions for outputs.

After setting up the parameters and functions, you save the configuration in a project file (*.ini) and download the settings into the GC-10 by pressing the **Download** button.

We recommend that you follow the configuration flow diagram, see page 9, as the selection options in a tab sheet may disable or enable the parameter settings on a following tab sheet.



The procedure for remotely controlling outputs is described in section **Controlling output with SMS from mobile phone**. (See 6.6 page 18)

6.2 Configuration – Alarm Module Config Tab Sheet (See fig. page 6)

Digital input Event Config

For each of the 4 digital inputs you can define what a rising pulse and/or falling pulse event should do. Options are:

- Activate SMS profile 1-3: Define which SMS profile an event should activate (see page 15).
- SMS Message: Defines the SMS message number to send. SMS number refers to the SMS messages defined in the next tab sheet.
- Log active: logs the event in the GC-10 with a time stamp.

NOTE: When powered up, the GC-10 will see an active input as a rising pulse event (if only '**rising pulse**' box is ticked). If both '**rising pulse**' and '**falling pulse**' boxes are ticked, no event is activated at power up until there is a change in the input.

Analogue Input Event Config

The analogue inputs are 12-bit resolution (0-4095 bits). This means that minimum input equals the value 0 and maximum input equals 4095.

For each of the 2 analogue inputs you can define:

- Value = setpoint value in bits. If the analogue input value passes a defined setpoint an event is activated. You can calculate the bit value from the following formula:

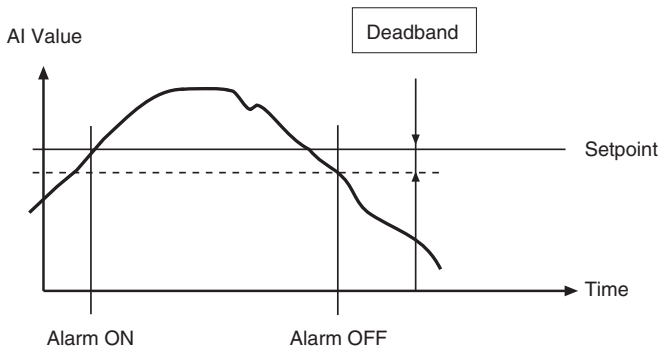
$$\text{Setpoint value} = \frac{4096 \times (\text{setpoint} - \text{min. Input})}{\text{Max. value} - \text{min. value}}$$

Example: Input range is 4-20mA, setpoint wanted is 10mA.

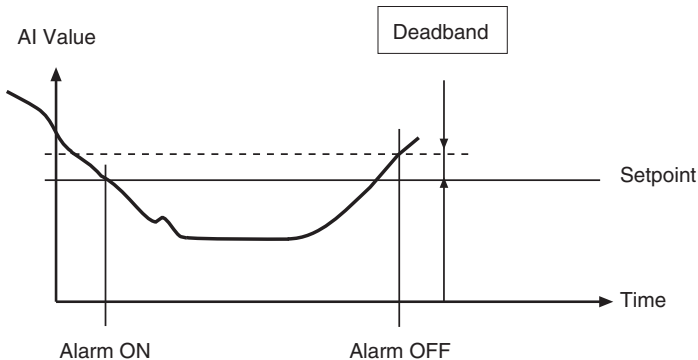
$$\text{Setpoint value} = \frac{4096 \times (10\text{mA} - 4\text{mA})}{20\text{mA} - 4\text{mA}} = 1536 \text{ bits}$$

- Deadband: Define deadband (Hysteresis/window) in number of bits.

High Activated



LOW Activated



- **Scale:** Define the scaling of the analogue input to be reported in SMS. Only the values in the drop-down menu are allowed.
- **High/Low:** Activate when setpoint is reached up and/or down.
- **Log:** logs event with time stamp in GC-10.
- **SMS profile:** Activate SMS profile 1-3. Define which SMS profile an event should activate.
- **SMS Message:** Defines the SMS message phone no. to send.

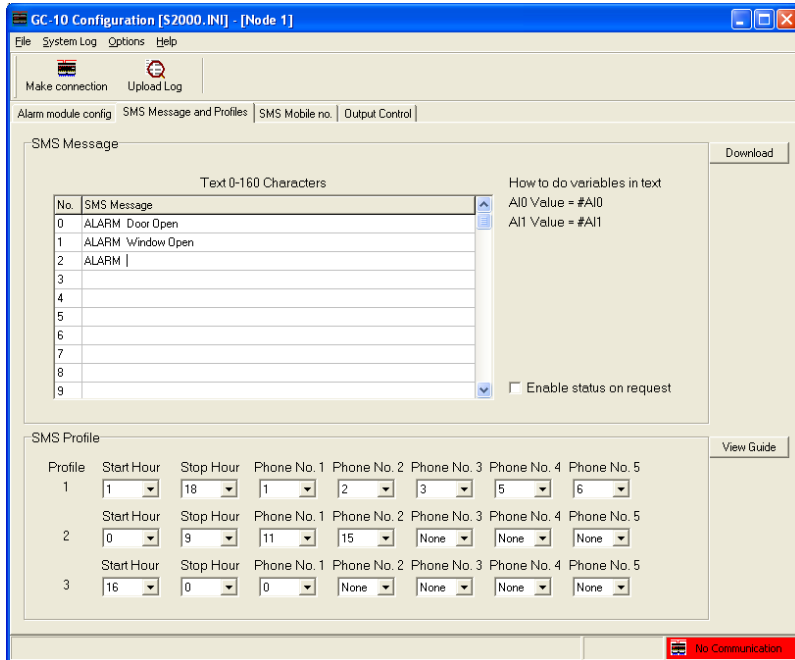
Time Event Config

Defines up to 6 cyclic activities for sending SMS and/or logging all inputs and outputs in GC-10 log. The options are:

- **Active:** Defines if a cyclic time event should be enabled.
- **Hour & minutes (time settings):** Select at which time every day the cyclic event should be performed.
- **Log All:** All I/O values will be logged cyclically, as defined in the time setting
- **SMS profile:** Activates SMS profile 1-3: Define which cyclic SMS profile should be activated.
- **SMS Message:** Define the SMS message number to send.

6.3 Configuration - SMS Message and Profiles Tab Sheet

Layout



SMS Message

Up to 20 SMS texts can be entered in the SMS message chart. You can send an actual analogue value by using the syntax #A10 for the first analogue value and #A11 for the second analogue value. SMS texts numbered. 16-19 are by default configured for sending status request messages. If NOT used they are available for other purposes.

The setting options are:

- SMS Messages: Enter SMS messages. Can contain analogue values.
- Enable status on request: Enable the option to get an I/O status SMS messages from the GC-10 by sending a pre-defined SMS message from your mobile. See section **Status on request** on following page.

SMS Profile

Define the 3 SMS profiles. SMS profiles can be used for scheduling alarm messages to different users (mobile numbers) at different times of the day.

Each profile can contain 5 different numbers selectable from the Phone no. list. The adjustments are:

- Start hour: Define from when the profile is active
- Stop hour: Define when profile is de-activated.
- Phone nos.: Define the Phone nos. to be in the profile.

Status on Request

When ticked in the **Enable** box, you will enable the SMS request function. This function makes it possible to send an SMS request to the GC-10 and ask for an I/O status to be returned by SMS. 4 different options are available:

- “DI stat: 0,0,0,0” – report status of digital inputs
- “DO stat: 0,0,0,0” – report status of digital outputs
- “AI1 stat: 0” – report value of first analogue input as scaled.
- “AI2 stat: 0” – report value of second analogue input as scaled.

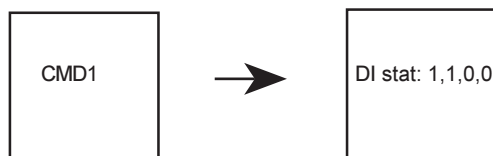
The text in the last 4 SMS texts (16-19) will automatically be used. Note that you can add text, such as the site name to these messages.

In case you wish to reload these messages, cut and paste them:

- Message 16 = DI stat: #DI0,#DI1,#DI2,#DI3
- Message 17 = DO stat: #DO0,#DO1,#DO2,#DO3
- Message 18 = AI0 stat: #AI0
- Message 19 = AI1 stat: #AI1

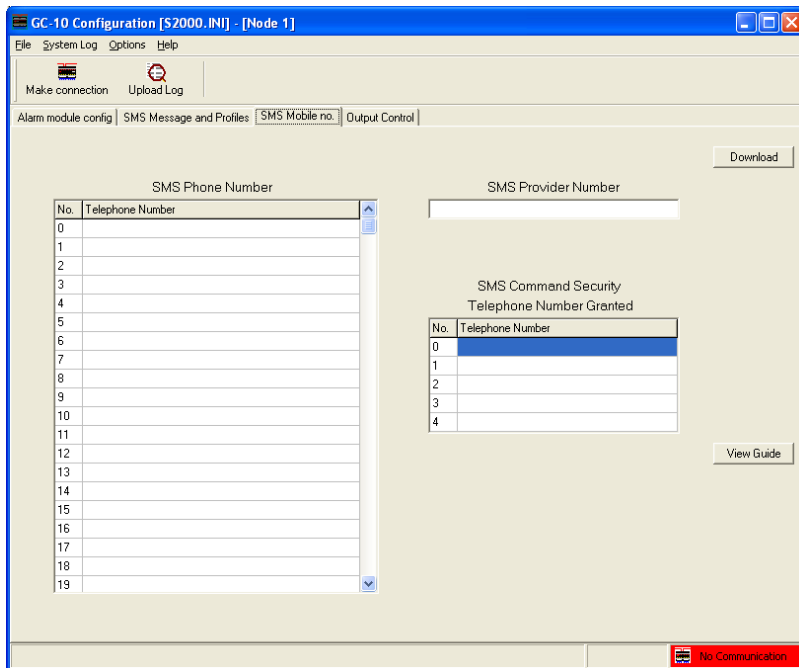
Sending an SMS message “Cmdx” to the GC-10 will return a status SMS from the GC-10 as follows.

- x = 1 reports DI status
- x = 2 reports DO status
- x = 3 reports first AI value
- x = 4 reports second AI value



6.4 Configuration – SMS Mobile No Tab sheet

Layout



SMS Phone No. list

SMS Mobile No.: Enter the list of mobile phone numbers to which SMS alarms are to be sent.

Enter telephone number in the Telephone no list via SMS. (GC-10 v.2.05 and newer)

Up to five telephone numbers in the telephone list in the configuration table can be entered with a SMS message. This is done by using the SMS format; Cmdpno "phone no 0", "phone no 1", "phone no 2", "... etc. - up to 5 numbers.

Example: Cmdpno "+45123456" - will write +45123456 into telephone no 0 in the list.

Existing number in the actual entry will be overwritten. If you do not enter any number but just define "" the entry will be overwritten with blanks.

GSM Providers Short Message Service Centre No. (SMSC)

The SMS Service Centre Number can be obtained from the GSM provider. Some providers do not use a SMSC number as they can automatically route SMS messages to the SMS Service centre, if such is the case leave blank.

SMS Command Security

Defines the phone numbers authorised to receive status messages from the GC-10 and to control outputs with SMS messages. If no phone numbers are entered, authentication is not activated and all valid messages are accepted

6.5 Configuration – Output Control Tab sheet**Layout**

RTU-COM Configuration [S2000.INI] - [Node 1]

File System Log Options Help

Rescan Upload Log

Alarm module config | SMS Message and Profiles | SMS Mobile no. | **Output Control**

	Output 0		Output 1		Output 2		Output 3	
	On	Off	On	Off	On	Off	On	Off
DI0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DI1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DI2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DI3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AI0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AI1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Timer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CMD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Timer
Time settings: 0 Sec.

Download

View Guide

Online

Controlling Output

Each output can be controlled by an event and cyclic activities of a DI and AI. A timer function is possible for output 0 (first output). The timer is started whenever a control event is activated for output 0.

5 different events can control the outputs:

- Dlx: Digital input change.
- Alx: Analogue value reaching a setpoint.
- Tx: Cyclic time event.
- Timer: On-delay or off-delay timer function.
- CMD: Command SMS from mobile phone. By default all outputs can be controlled from an SMS command message. If an output is not to be controlled from an SMS command the box should be left blank.

The “On” and “Off” tick boxes provide the following functions:

- Ticking the “On” box will activate the output at the specific event.
- Ticking the “Off” box will de-activate the output at the specific event.

Ticking both the “On” and “Off” boxes will activate the output when – and only when the specific event is activated.

Note: an output can be controlled by more than one input event. E.g. an output can be activated by input 0 and de-activated by input 1.

Timer settings:

- When ticking the “On” box an On-delay function is provided for output 0.
- When ticking the “Off” box an Off-delay function is provided for output 0.

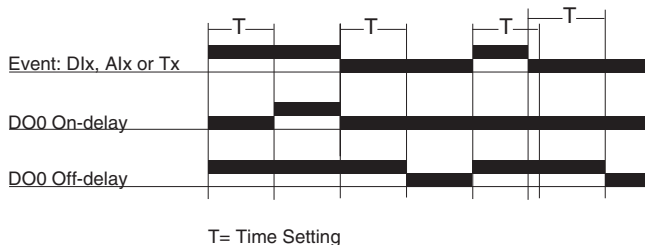
When you enable a timer function it is linked in between the event that controls output 0 and output 0. Enabling the timer alone does not give any function.

Ticking in Timer ON makes a simple a delay in the output going ON and ticking in Timer OFF makes a delay in the output going OFF. It makes no difference whether it is input event or a cyclic event that is set to activate the output.

Example:

If an input event is to directly activate/deactivate an output and you enable Timer ON – the function will be as shown in Fig. 1. I.e. the input has to be ON for longer than the time delay before the output is activated.

Fig. 1



CMD settings:

The CMD (Command) box must be ticked, to enable control with SMS message from a mobile phone.

Time settings:

Timing period is defined in seconds.

6.6 Control Output with SMS from Mobile Phone

Outputs can be controlled remotely via an SMS message.

By sending an SMS message to the GC-10 you can activate or de-activate an output. Sending an SMS message "Cmdxx" to the GC-10, where "xx" defines the action, will activate or de-activate the outputs.

Sending an SMS message „AckCmdxx“ will both activate or de-activate the outputs and return an SMS message to confirm execution of the command or not.

An action is defined by "xx" from the following list:

- xx = 10 De-activate output 0 (1st output)
- xx = 11 Activate output 0 (1st output)
- xx = 20 De-activate output 1 (2nd output)
- xx = 21 Activate output 0 (2nd output)
- xx = 30 De-activate output 3 (3rd output)
- xx = 31 Activate output 2 (3rd output)
- xx = 40 De-activate output 3 (4th output)
- xx = 41 Activate output 3 (4th output)

Note: text is not case sensitive.

7 General Program Options**7.1 Selecting Language**

In the Option menu you are able to change language. After changing the language the program must be re-started to use the selected language. At present only English and German languages are supported, but other languages will be added as and when required.

7.2 Special Program Options

The configuration tool has some helpful options, which you will find in the System Log drop-down menu. The options are listed below.

7.2.1 View System Log

If you activate view system log you will get an extra window at the bottom of your configuration tool. It is a system log which reports all events and activities performed by the driver communicating with the GC-10. Useful if connecting to the GC-10 is a problem.

7.2.2 Locking at Last Log

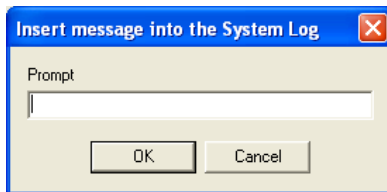
Default activated means that the configuration tool will scroll the system log so the last log line is always viewable in the system log window.

7.2.3 Clear the System Log

Clears the system log.

7.2.4 Add Msg to System Log

This feature allows you to add comments to the System Log by a prompt in the dialogue box below.

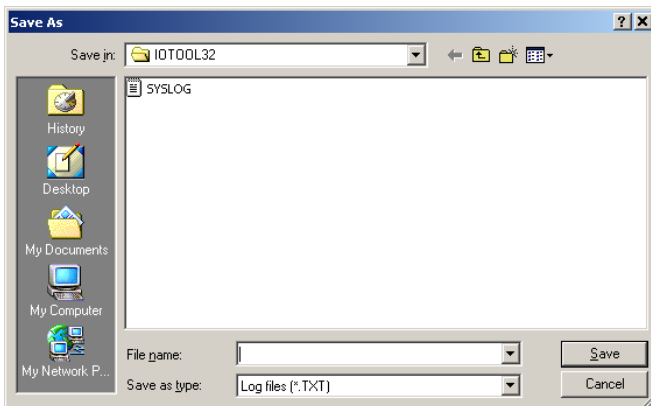


7.2.5 Saving System Log

Saves the System Log in a file.

7.2.6 Print System Log

Prints the System Log on the printer.



7.3 Help Options

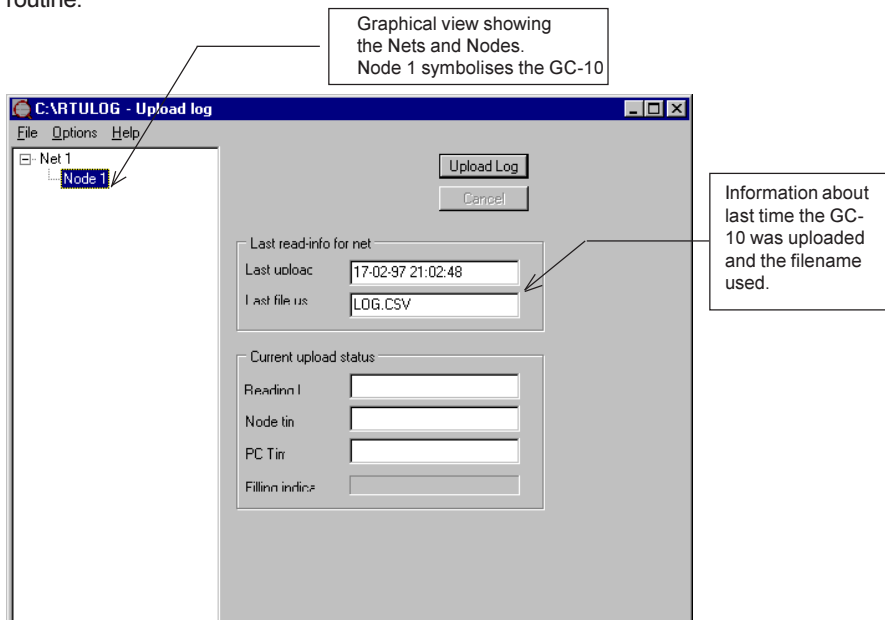
Under the Help drop-down menu you will find the software information and version. Help for using the program is basically only in this document and in the help and information line at the bottom of the screen. There is no F1 help.

8. How to Upload Saved Data from the GC-10

Logged data can be uploading from the GC-10 to a PC using the same RS232 cable used in configuring the GC-10. After communication has been established you are able to empty the GC-10 Log Buffer using the upload facility.

When clicking the Upload Log Icon the following menu appears:

This is the Upload Log Main Menu, where you can set the parameters for the upload routine.



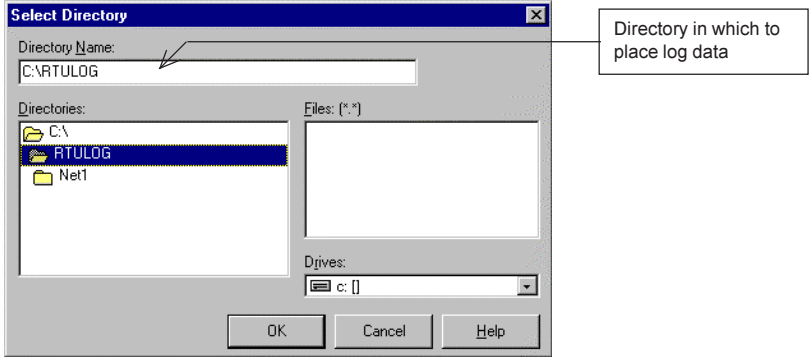
8.1 Setting Upload Options

Before you start uploading a log file you must define the log upload options.

The first entry is to specify the directory in which to place the logged data after it has been uploaded.

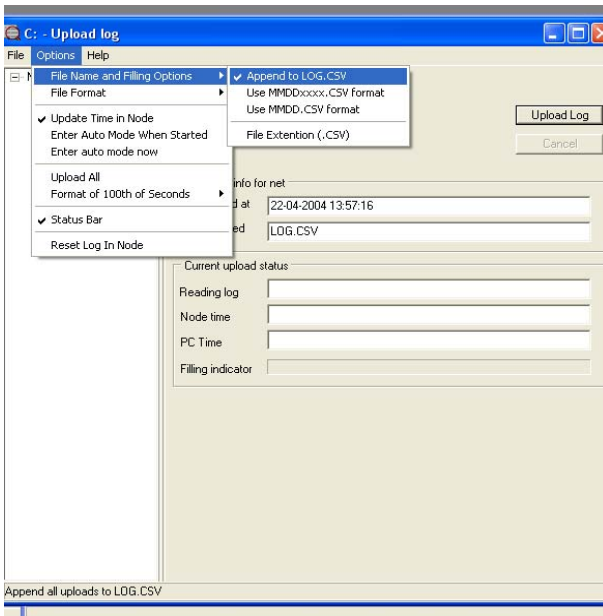
This is done by choosing the **Select Directory** command in the **File** Menu.

The following dialogue box appears. Select the required directory and press OK.



In this example the C:\RTULOG directory has been selected.

The **Option** Menu gives you a number of choices of how to save your uploaded data, and a number of parameter settings of the upload format.



File name and filing options

3 options are available:

- Save Log in LOG.CSV (use same file for all log uploads).
- Save Log in MMDDxxxx.CSV format (MM=month, DD=day, xxxx=number of upload).
- Save Log in MMDD.CSV format (MM=month, DD=day).

File format

Always use CSV format which is pure text file

Update time in node

Tick if you want the GC-10 internal clock to be synchronised to the PC time at every log upload.

Enter automode options

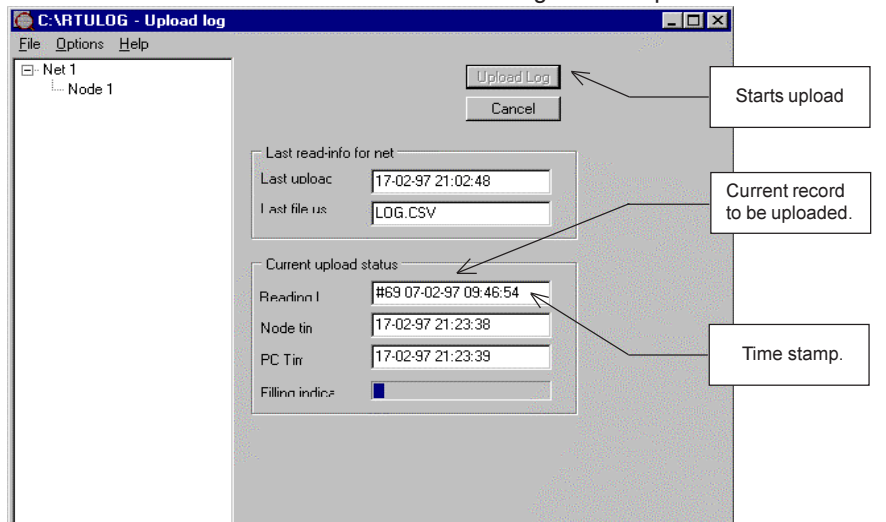
Not used.

Upload all

Tick if you want a full upload of all data from the GC-10. If not ticked only logged data since last log upload will be uploaded.

Format of 100th of second

Enable or disable use of 100th of a second in the log time stamp.



If you have ticked the **Use MMDDxxxx.CSV format in the Options; File Name and Filing Options Menu**, the uploaded files will be saved as follows:

The first file uploaded on the 18 of February will be named 02180000.CSV, the second 02180001.CSV and so on.

8.2 Structure and Format of Uploaded Data

After uploading of the data you can view the generated comma separated ASCII log file using an editor or by importing it into a spreadsheet such as Microsoft Excel. Each item of logged data is defined by an id. Shown below is an example of how the data is structured in the log file:

		Log file structure			
Log id	I/O	Date	Time	Log id	I/O data
0	DI 0	18-02-04	10:09:10;	0;	;1
1	DI 1	18-02-04	10:09:25;	1;	;1
2	DI 2	18-02-04	10:09:45;	2;	;0
3	DI 3	18-02-04	10:09:55;	3;	;0
4	AI 0	18-02-04	10:10:13;	4;	;50
5	AI 1	18-02-04	10:10:35;	5;	;100
6	T0	18-02-04	10:10:51;	6;	;1;1;0;0;0;0;1;1;50;100
7	T1	18-02-04	10:11:16;	7;	;1;1;0;0;0;0;1;1;50;100
8	T2	18-02-04	10:11:32;	8;	;1;1;0;0;0;0;1;1;50;100
9	T3	18-02-04	10:11:13;	9;	;1;1;0;0;0;0;1;1;50;100
10	T4	18-02-04	10:12:13;	10;	;1;1;0;0;0;0;1;1;50;100
11	T5	18-02-04	10:12:13;	11;	;1;1;0;0;0;0;1;1;50;100

> 130 Status logs - see next page.

The I/O data in the T0..T5 logs is structured as:

; DI0 ; DI1 ; DI2 ; DI3 ; DO0 ; DO1 ; DO2 ; DO3 ; AI0 ; AI1

Digital inputs and digital outputs is logged as the value 0 or 1, where 0 = OFF and 1 = ON.

Analogue input values are logged as the chosen scaled value. If you have selected the scale to be 0-4095, a maximum input will be logged as the decimal value 4095.

If the analogue inputs are logged as decimal values 0-4095 (0 = min. input and 4095 = max. input) you have to calculate the real value (e.g. a temperature or another signal input level).

Example:

If the analogue input is a temperature Pt100 input with a range of -50 - 100 degrees Celsius, the logged value 1051 equals the temperature of:

$$((100-(-50)) / 4095 \times 1051) + (-50) = -11,5 \text{ degrees Celsius.}$$

If you use MS Excel you can make the calculations there and get the real readings reported directly.

Upload of log data is in the file started with:

Station number;1

Up-load start;18-02-04 10:20:39

and ended with:

Station number;1

Up-load end;18-02-04 10:20:39

8.3 Logged GC-10 Status Data

Below is a list covering the pre-defined log IDs used.

Event	Log ID
Power ON and/or micro processor reset	130
Program download or change of set-up	131
Errors detected by the controller. (Status error/communication error, etc.)	150
The log memory has been up-loaded (the PC will request this log to take place)	170
Log buffer overflow	171
Log ID in application out of range	172
Clock has been updated	180

9. System Requirements

Minimum requirements for running the GC-10 configuration software:

Hardware:

IBM compatible PC with a Pentium Processor

32 MB RAM

30 MB free hard disk space

Mouse and keyboard

SVGA monitor (minimum display resolution: 768 x 1024, Small Fonts)

CD-ROM or DVD drive.

1 serial RS232 COM port.

Software:

32 bit operating system

MS Windows2000, NT4.0 or WindowsXP.

10. Software Installation Guide

Before you start installation of the software, please make sure that you do not have any prior versions of GC-10 configuration software or IOTOOL32Pro installed. If you have, you should un-install by using the **Add or Remove Program** option in the Control Panel.

Place the installation CD in your CD drive and if autorun is enabled on your PC the installation will start automatically. If not you should type D:\setup in the **Run** windows located under the Start button on your MS Windows desktop.

Now the installation of the software is in progress. In general you just enter **Next** at every installation screen.

When the GC-10 configuration software is installed on your PC and ready to use an icon will appear on the desktop.

When using the GC-10 configuration software to generate a configuration file, the GC-10 must be connected to the PC as some parts of the setup require a direct reading in the GC-10 for showing the setup options. When you have made a configuration setup on one unit you will be able to store the settings in a project file. The project file will contain all settings and you can easily copy the project file to other computers for downloading the GC-10 setting into other GC-10's.

Important note: When you are running the GC-10 configuration software, you are using a serial driver on the COM port. The driver requires full service from the COM port and it does not accept any other programs using the COM port.

After closing the GC-10 configuration software, you must close the basic driver. You find the driver icon on the bottom right side of your screen. Point at the icon, right click your mouse and close the driver - now your COM port is free for use by other programs.



11. Un-installing the Software.

The software is un-installed by entering the Add or Remove program facility in Windows Control Panel and un-install GC-10 configuration software. If during un-installation you see the message "You must close all drivers before uninstalling", please refer to Section 10 above.

Note: This document is subject to changes without notice.

