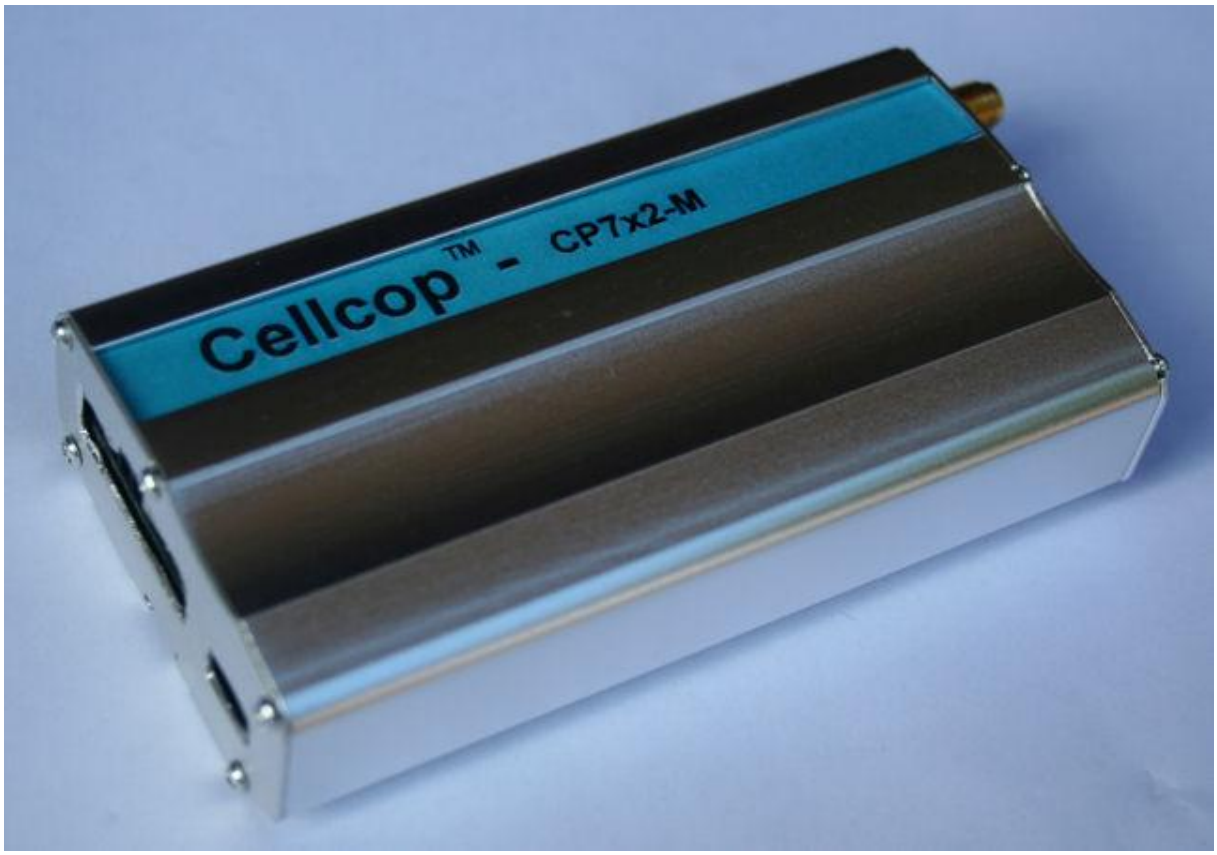
Cellcop Communicator

CP7x2-M

May 2011 – First Draft

Instruction Manual



ABOUT THE CELLCOP COMMUNICATOR SYSTEM

The GSM communicator system is based on GSM SMS technology. It uses standard cellphone technology for communication and has been designed to provide you with the greatest possible flexibility and convenience. Read this manual carefully and have your installer instruct you on your system's operation and on which features have been implemented in your system. All users of this system should be equally instructed in its use.

1. Features

7 Inputs to communicate separate alarm conditions

- Each input can be triggered to send an SMS to up to 16 Cellphone numbers
- The time delay before the input is triggered can be set for each input
- Separate messages can be configured for On and Off states of the input signal
- Messages to be send can be programmed by the user
- On or Off states can both be reported to predefined cellphone numbers.
- Reporting can be disabled for an input
- The states of the inputs can be requested from the unit by SMS
- Cellphone 1 can be used to send messages via GPRS to a server

2 Outputs to control any electrical device

- Outputs can be controlled by cellphone using SMS (Switching the output on, off or pulse)
- Outputs can be controlled using Voice calls
- Output controls can be scheduled
- The duration of the pulse can be programmed for each output
- Output can be set to switch on when the unit is dialed
- Status of an output can be requested from the unit by SMS
- Own text can be used to control outputs

Power Status can be monitored

- AC power can be monitored by setting voltage levels to identify the power status.
- SMS can be send to up to 16 numbers when an power failure occur and when the power return

Low Voltage

- The input voltage is monitored and a low voltage can be communicated to up to 16 numbers via SMS and GPRS.

Scheduled Commands

- The execution of commands can be scheduled

Configuration tool to configure unit to user requirements

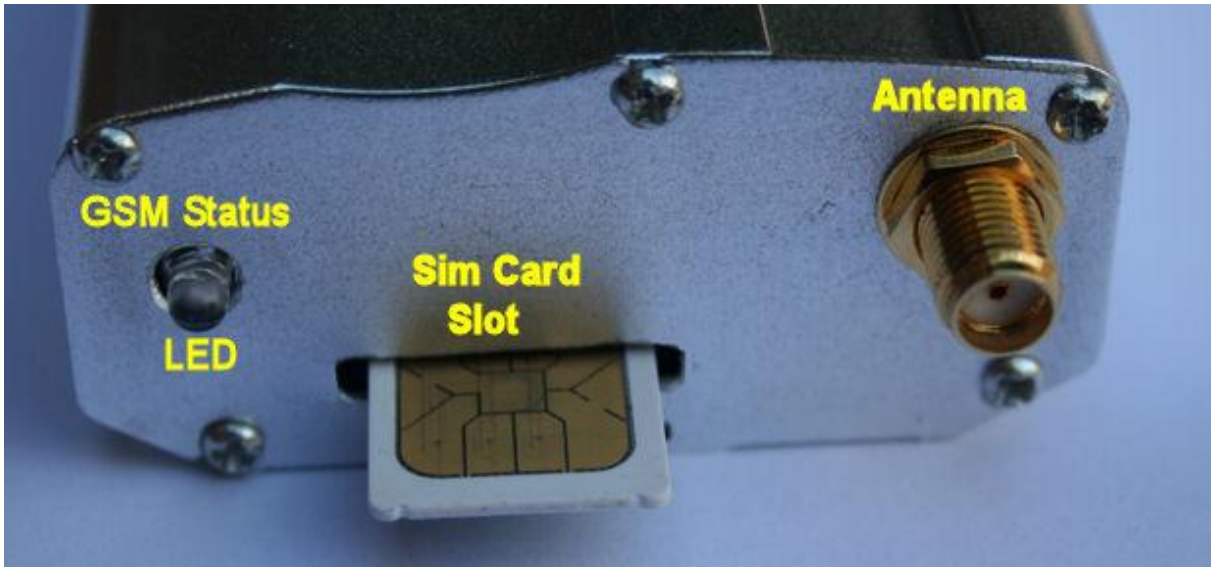
- All parameters can be set from configuration tool.
- Save and Load from files for backup

2. Overview of the CP7x2M

2.1 Description

Figure 1: Cellcop CP7x2-M Port Description

In1-In7 : **Digital Inputs 1 to 7 (Triggered by GND)**
Out1-Out2: **Digital Outputs (Switched GND)**
TX: **Serial Transmit (3V3 Level)**
RX: **Serial Receive (3V3 Level)**
3V3: **3.3V Voltage Output (100mA)**
Vin: **Input Voltage (9-30V DC)**
Vout: **Output Voltage (9-30V DC)**
GND: **Negative Supply or Ground**



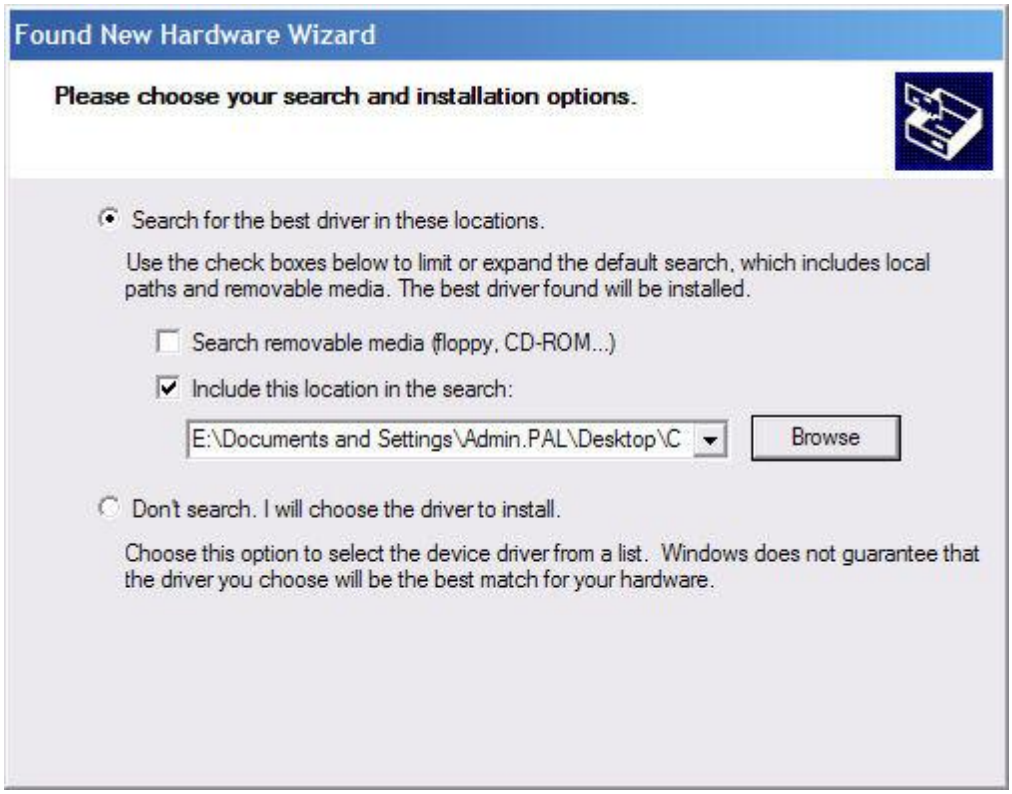
GSM Status LED Key:
On – Modem is Powered but not turned on
Flash every second – Modem is switched on but not connected to the network
Flash every 3 seconds – Modem On and connected to the network
Off - Modem has no Power

2.2 Installing the USB Driver

The CP7x2-M has a USB port to configure the parameters. The USB driver must be installed before u will be able to connect to the CP7x2-M Unit. After the driver is installed a new serial port will appear under ports. Note the port because u will need it on the setup. When the USB cable is inserted for the first time a window will popup to begin the driver installation.

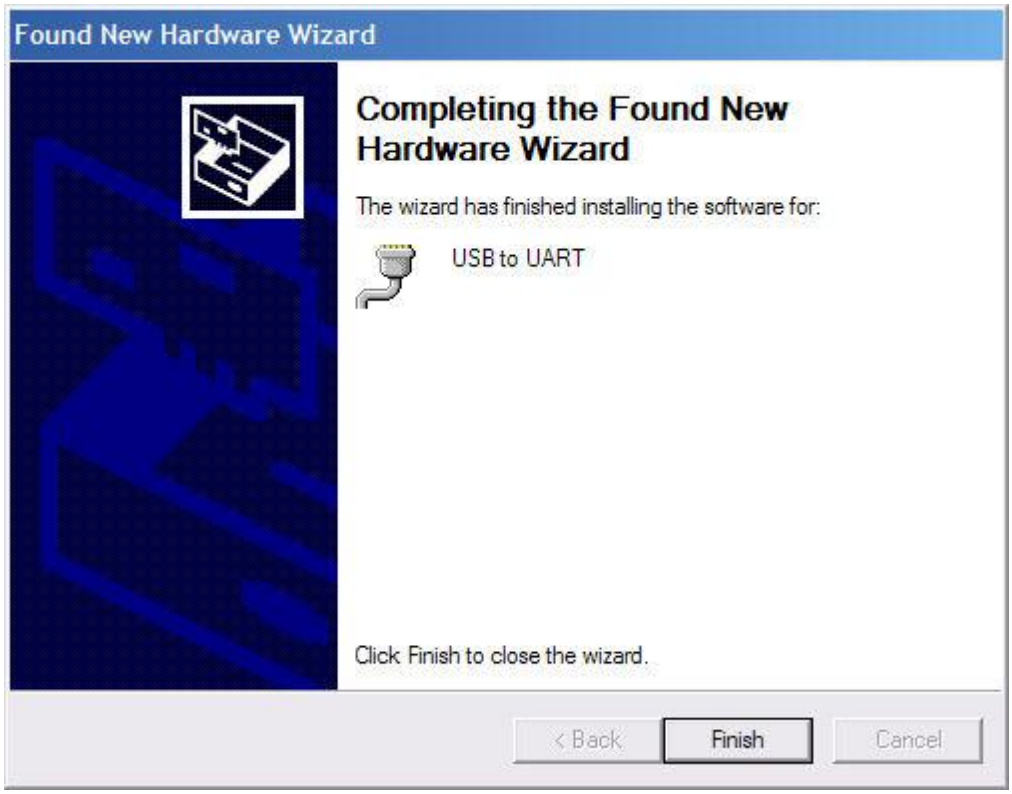
Select Install from specific location and click next.

Select the location where the driver is located.



Click Next

Click Continue Anyway

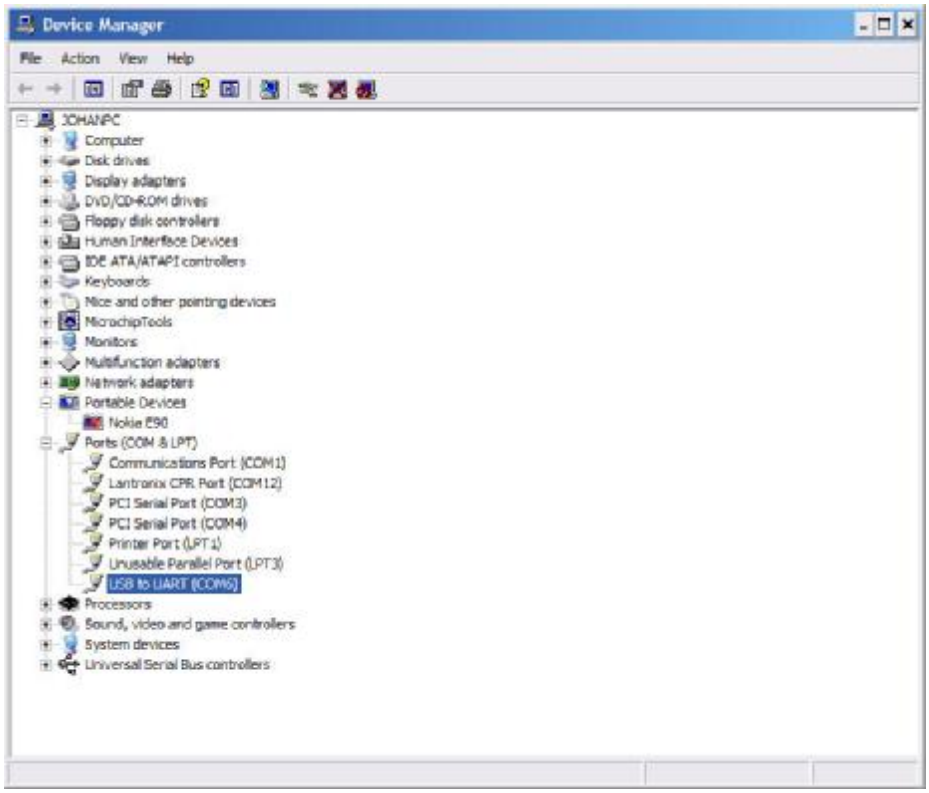


Click Finish. Driver is successfully installed. This will add a serial port to your existing ports.

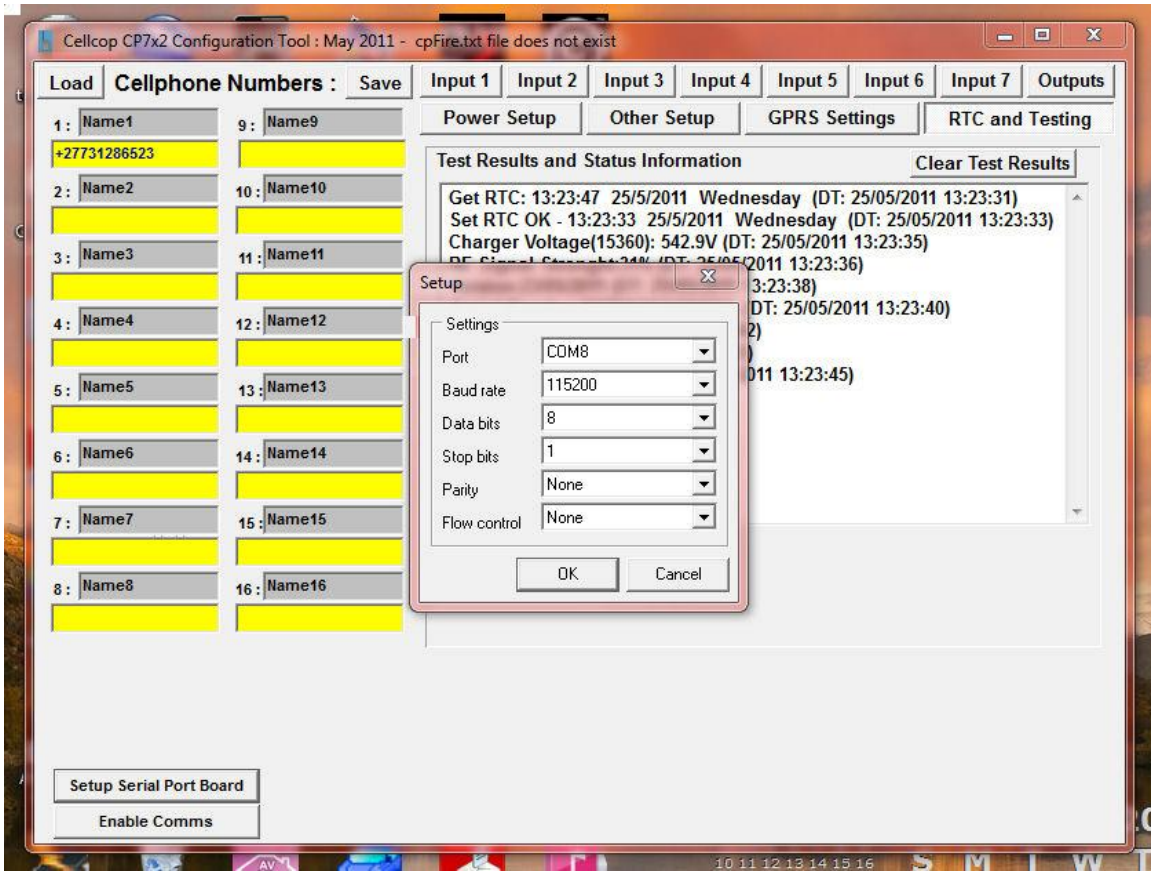
2.3 Connection to the Unit

To configure the unit u must first select the serial port where the CP7x2 is connected.

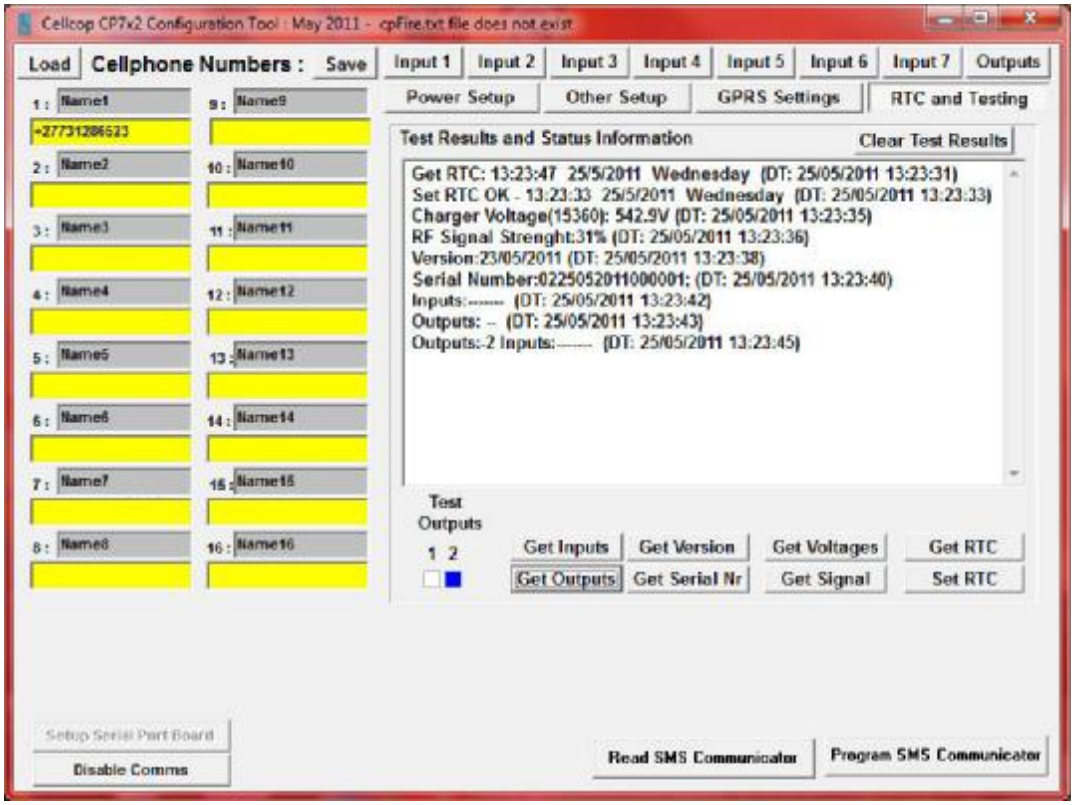
To find out which port is the USB port go to the device manager and click on ports. It's the port with USB to UART next to it. Use this port in the next section.



Open the configuration software and select the serial port.



Then enable communication to the unit. Two buttons will appear to read from the unit and to write to the unit. Use this to configure the unit after the parameters is entered on the screen.



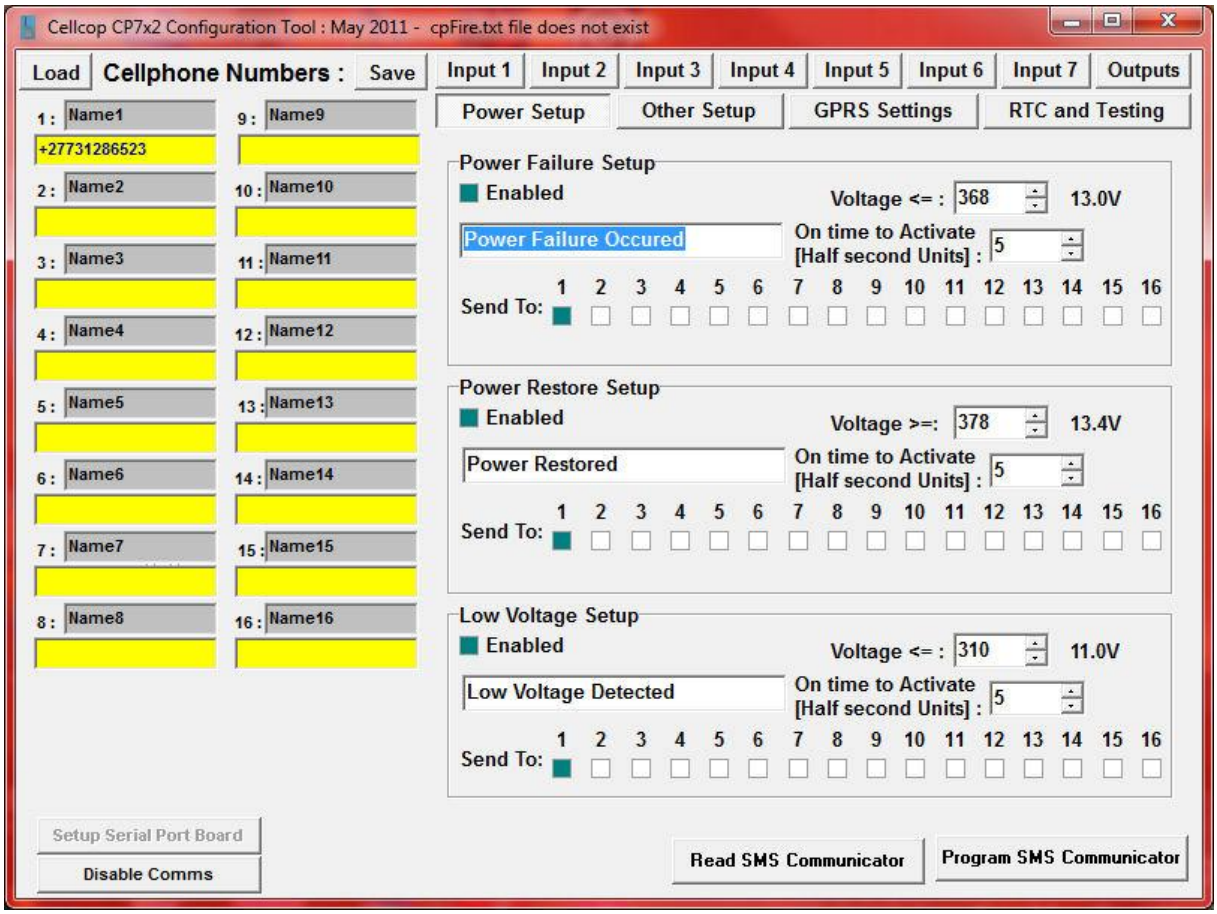
On the RTC and testing page u can use the buttons to test and set the RTC.

3. Using the CP7x2-M

The Cellcop CP7x2-M is a universal GSM communication device and can be used for many applications. The first step is to wire the inputs and outputs to your Plant/Device/PLC/Controller/Sensors. Then u configure the units parameters to perform the required actions. The following sections will describe the different options on the CP7x2-M.

3.1 Supply Input

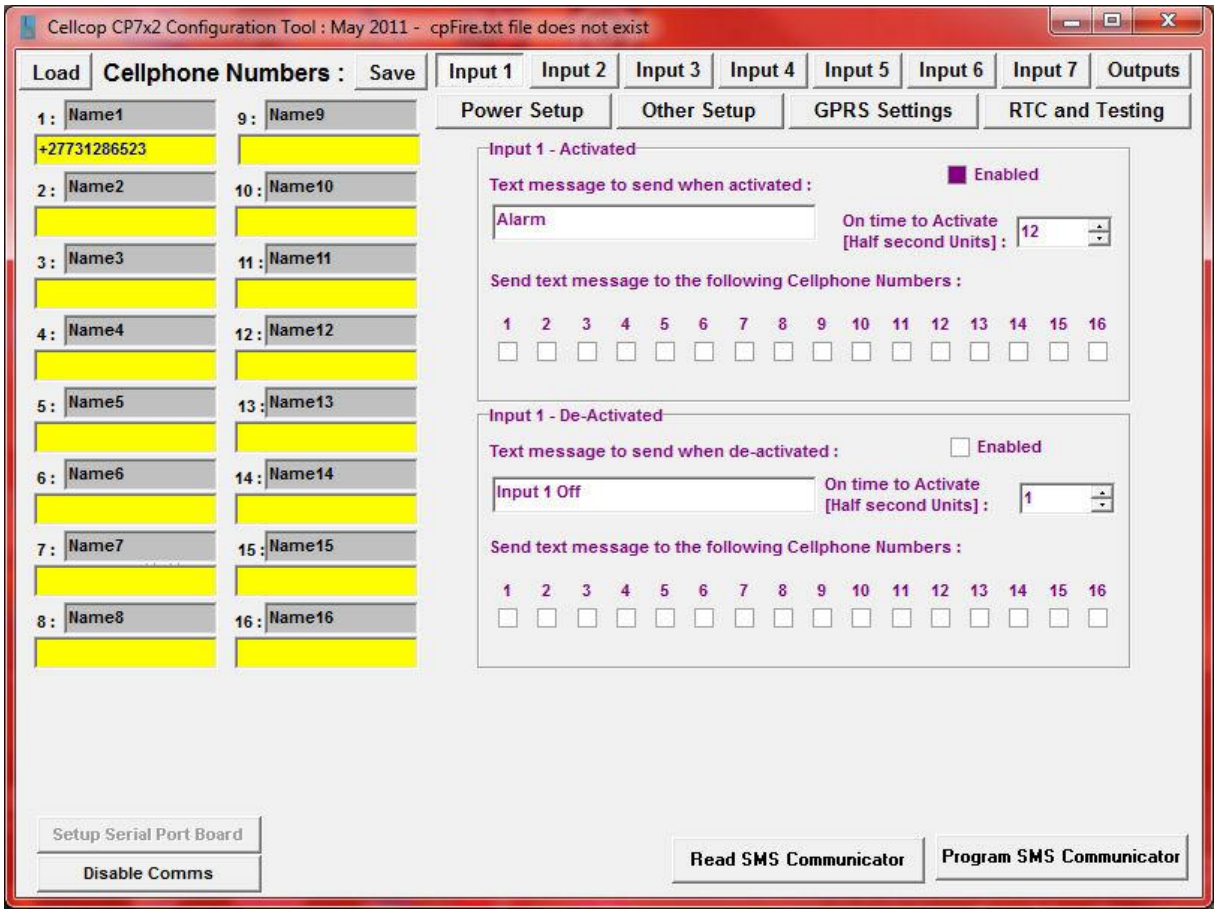
The unit can be supplied from an external DC supply and it is able to operate from 9-30V DC. This supply voltage is monitored by the CP7x2 and the measured voltage is available as part of the status message. The unit can also identify the power on/off status if it is supplied by a battery being charged. When the charger is on the voltage on the battery will be higher. This can be used to indicate power available or not. See Configuration to use this feature. Low voltage detection on the supply input is also available as an SMS option. All options have timers available to enable the user to configure delays before the SMS is triggered. The options can also be disabled by using the enabled tick.



In his example the unit will SMS “Power failure Occurred” to cell phone 1 when the input voltage is above 13V for 2.5 seconds. The unit will also SMS “Power Restored” to cell phone 1 when the input voltage is above 13.4V for 2.5 seconds. “Low Voltage detected will be SMS’ed when the input voltage is below 11V for 2.5 seconds.

3.2 Digital Inputs

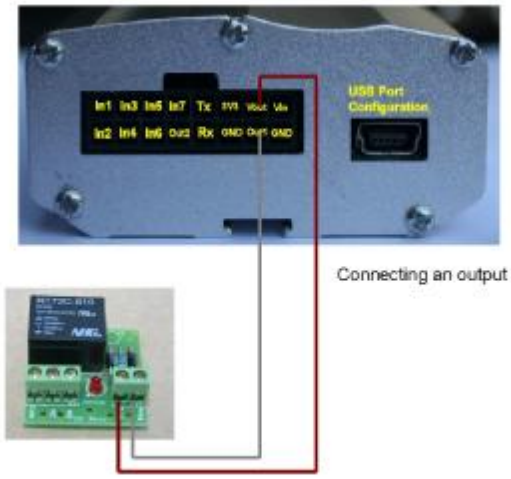
Digital inputs is used to trigger SMS messages to configured numbers when triggers or state changes occur. The digital input is on when the input is connected to GND and it is of when it is open circuit. The unit is able to send SMS messages on the on and the off state of the digital input. The user can configure what message to send to up to 16 numbers when the digital input changes state.



In this example the unit will SMS Alarm to cell phone 1 when input 1 is connected to GND. The input must be disconnected for more than a half second before it will send the alarm message again.

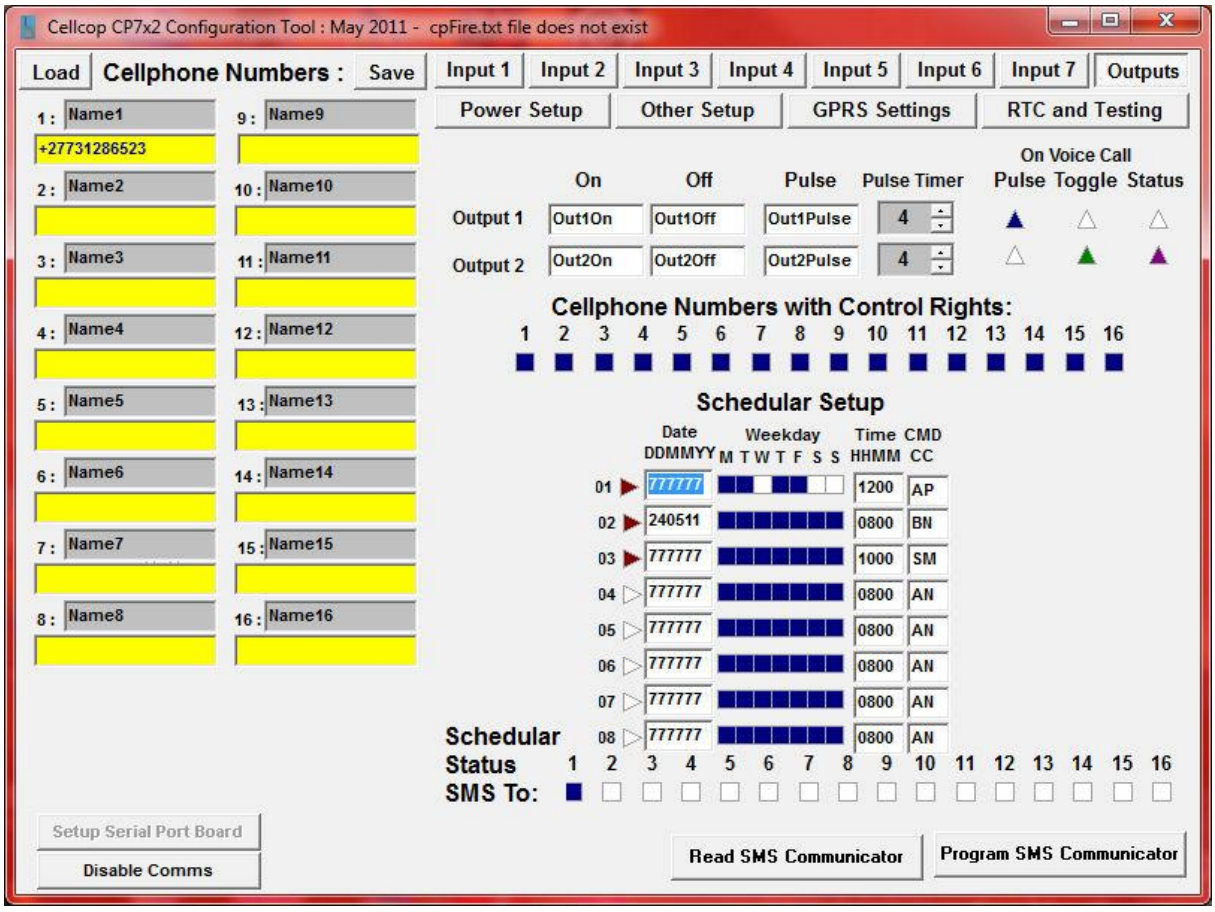
3.3 Digital Outputs

Outputs is used to control devices. The output is a switched GND and can be used to switch a small relay (100mA)



Connecting an output

The outputs can be controlled in 3 ways. The first method is to SMS the unit from a cell phone with control rights activated the configured messages. The second method is by using a voice call to the unit from a cell phone with control rights. And the third method is by using the scheduler.



Example of the first method based on the configuration. SMS the message:

“Ccmd Out1On Out2Pulse status” from a cell phone with control rights activated then the unit will switch on output 1 and pulse (switch on) output 2 for 2 seconds. Because the status word is included a status message will be send back to the cell phone sending the command. The text ccmd must be inserted into the message to indicate custom command is issued.
A second example:
The following SMS “Ccmd Out1On Out2Off” will switch on output 1 and switch off output 2 with no SMS send back.

A voice call from a cell phone with control rights will pulse (switch on) output 1 for 2 seconds and change the status of output 2. A status message will be send back because the status is ticked.

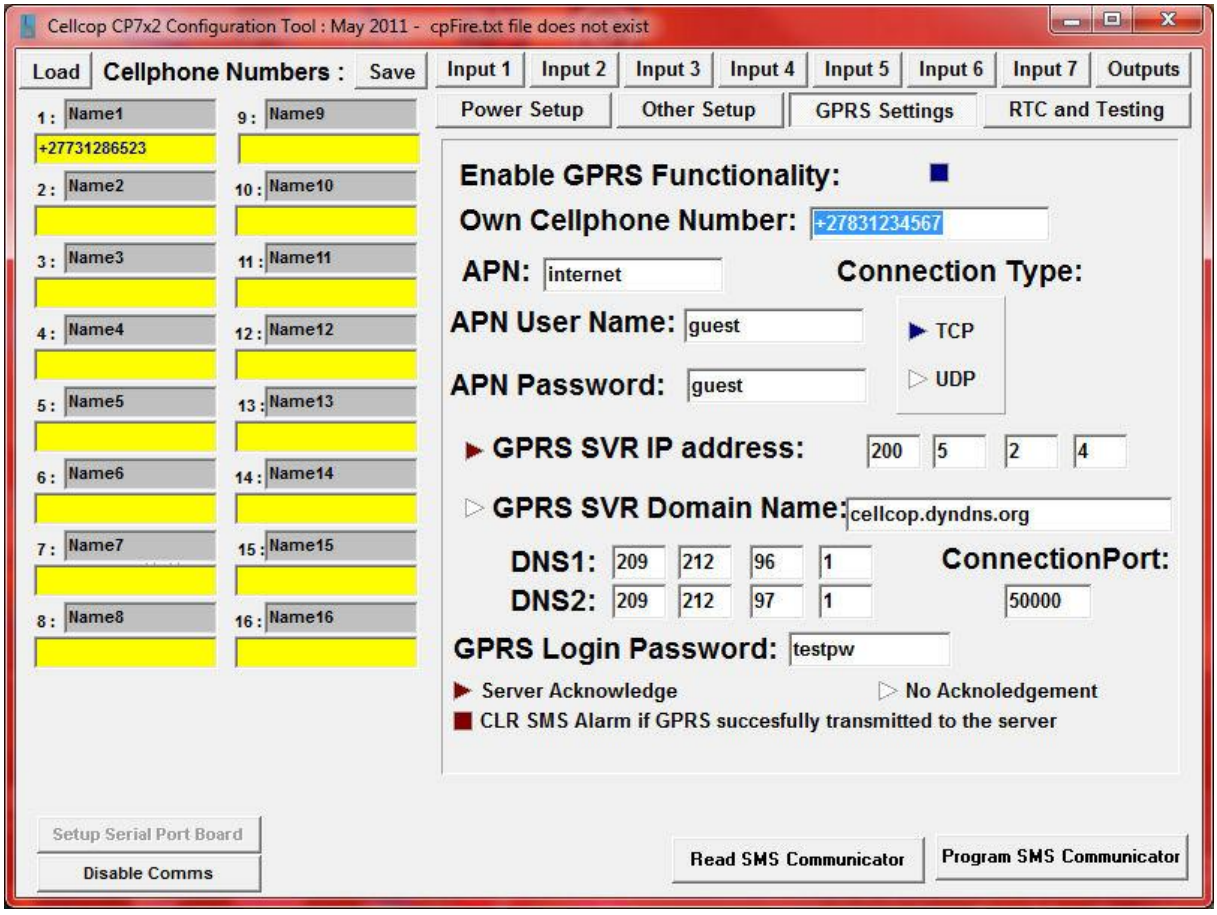
The scheduler is used to control outputs based on days of the week, date and time.

3.4 Serial Port

The unit has a serial port input. Currently there are no functions implemented on the serial port but the user can contact the dealer to enquire on the implementation of custom functionality like integration to a PLC, controller expansion units, etc.

3.5 GPRS

GPRS reporting to a central server is also available as an option. When the GPRS parameters is enabled it will report all messages send to cell phone number 1 to the GPRS server.



4.0 SMS Programming:

Program GPRS Settings 1;

PASSWD[5]<Space>PGPRS1:<IPAddress>,<PortNumber>,<ConMode>,<ConType>,<APN>,><APNUserName>,<APNUSRPasswd>,<AckServer>,<CLRSucc>,<GPRSSVRPassword>;
PASSWD[5] – Programming Password (Must be 5 Characters)
IPAddress – Server Fixed IP Address. If No Fixed IP use 0.0.0.0
PortNumber – Port Number
ConMode 1-Fixed IP 2-Domain Name
ConType – 1 - TCP
APN – APN Name
APNUserName – APN User Name
APNUSRPasswd – APN Password
AckServer – 1 - Acknowledge Messages
CLRSucc – Clear sending on successful Transmit (0-Do not clr, 1 – clr)
GPRSSVRPassword – Logon Password on the server
Example:
12345 PGPRS1:0.0.0.0,50000,1,1,internet,guest,guest,1,1,Test1;

Program GPRS Settings 2

PASSWD[5]<Space>PGPRS1:<DNS1>,<DNS2>,<DomainName>,<OwnNumber>;

PASSWD[5] – Programming Password (Must be 5 Characters)
DNS1 – DNS IP Address. If No Fixed IP use 0.0.0.0
DNS2 – DNS IP Address. If No Fixed IP use 0.0.0.0
DomainName – Domain Name of the server
OwnNumber – Own Cellphone Number
Example:
12345 PGPRS1:20.3.207.2,123.123.123.123,www.axxessvpn.co.za,+27835555555;

Set The Date and Time
PASSWD[5]<Space>SETRTC:HHMMSSDDMMYYW
PASSWD[5] – Programming Password (Must be 5 Characters)
HH – Hour
MM – Minutes
SS – Seconds
DD – Date
MM – Month
YY – Year
W – Weekday (1-7) Mon – Sun

Example:
12345 SETRTC:2207001606101
222:07:00 16 June 2010 Monday

Request Settings:
RQS

Program Cellphone Numbers:
PASSWD[5]<Space>SETCEL:<PP><Cellphone Number>
PP – Position of the cellphone Number - Valid Values (01-16)
Cellphone – Cellphone number in the international format

Example:
12345 SETCEL:02+27731286523

Program Site Name:
PASSWD[5]<Space>SETSNM:<Site Name>

Switch GPRS On
PASSWD[5]<Space>GPRSON

Switch GPRS OFF
PASSWD[5]<Space>GPRSOFF

Request the Status from the Cellcop Fire Alarm
PASSWD[5]<Space>STATUSQ

Delete All Cellphone Numbers
PASSWD[5]<Space>SETCNDA

SET ALARM Parameters
PASSWD[5]<Space>SETINP: <Input Number 1 - 8><On/Off - H,L><En - 0,1><FFFF - Matrix1 and Matrix2><Time:00001-60000><Message>

Example:
12345 SETINP:2H1000F00010Fire Detected

5.0 SPECIFICATION

1. Communication device used	Simcom
2. Number of outputs	7
3. Number of inputs	2
4. Power supply	9-30V DC ± 5%

IMPORTANT NOTICE

A security system cannot prevent emergencies. It is only intended to alert you and - if programmed - your neighbours and monitoring station of an emergency situation. Security systems are generally very reliable but they may not work under all conditions and they are not a substitute for prudent security practices or life and property insurance. Your security system should be installed and serviced by qualified security professionals who should instruct you on the level of protection that has been provided and on system operations.