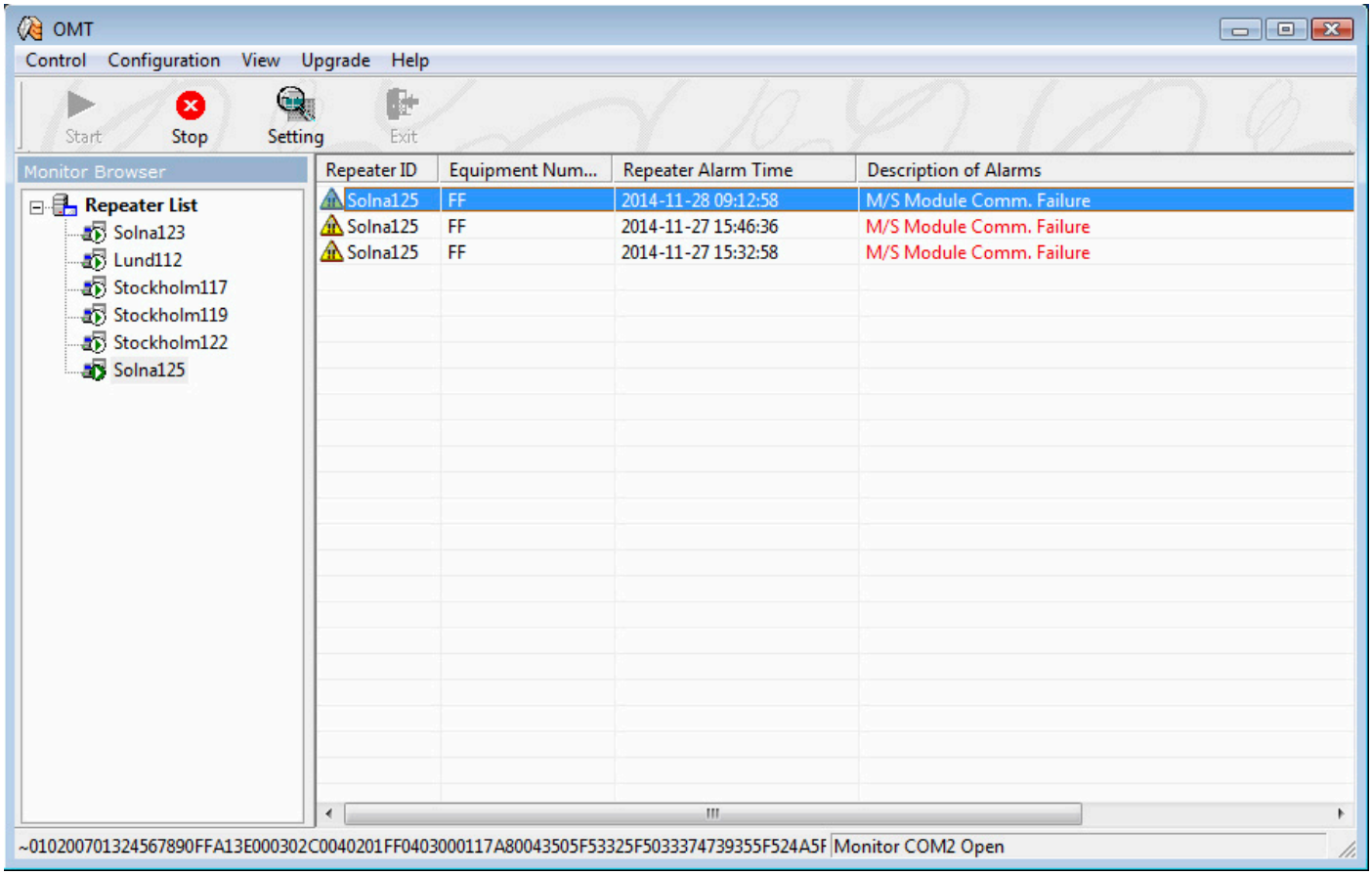
Operation and Maintenance Terminal (OMT 1.2)
User's Manual for use with MPW2100-23

1. Outline

1.1 Operation and Maintenance Terminal



The OMT is powerful software when it is incorporated with the repeaters; it allows the manager to configure, control and to monitor the repeater locally or remote. The alarms will be sent to the control center. This man-machine interface used to monitor and operate the repeater system is referred to as the OMT.

OMT is a window based user friendly interface that provides the operator a means of monitoring and controlling the repeater system in either a local or remote site.

The OMT provides the real-time system monitoring and may be accessed locally through the USB connection or remotely via a GSM/3G-modem.

The OMT software is used to configure repeater parameters and tailor the repeater's configuration according to the donor BTS. The OMT software also provides a log that can monitor and track to the status and messages.

2. System Requirements

The minimum operating system requirement is:

- Intel Pentium level CPU
- Minimum 256MB RAM
- NT/98/2K/XP/Vista/W7
- 800X600 (1024x768 is preferred) display
- Minimum 40GB hard disk

3. Getting Started

Install the OMT software from CD or download from mobilepartners.com

4.1 Initial Connection to Repeater

Before turning on the repeater, terminate the “BTS” and “MS” port with the 50 ohm dummy loads or in case you don’t have dummy loads make sure to use antennas connected far apart. Otherwise, repeater may be damaged because of self-oscillation.

4.2 Start-up the OMT

Start the OMT software.

The user name is **Admin** and cant’t be changed.

Leave the password field blank.

If a password is needed for users to login due to security concern, please assign a password through “Configuration” -> “Modify Password”.

Note: The password is case sensitive.

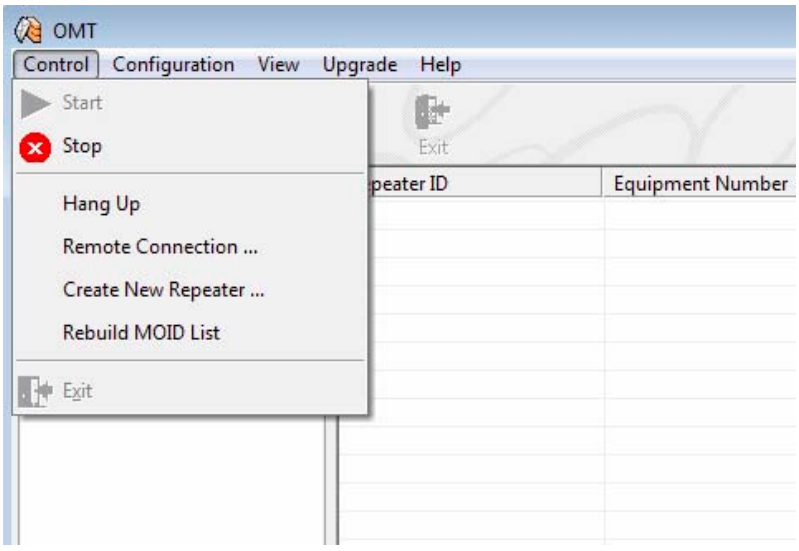
4.3 Main Menu and Functions

After starting the main windows, users can navigate around the software functions using the tool bar provided at the top of the screen or via the iconic tool bar.

Each function in the toolbar will be described in the following sections.

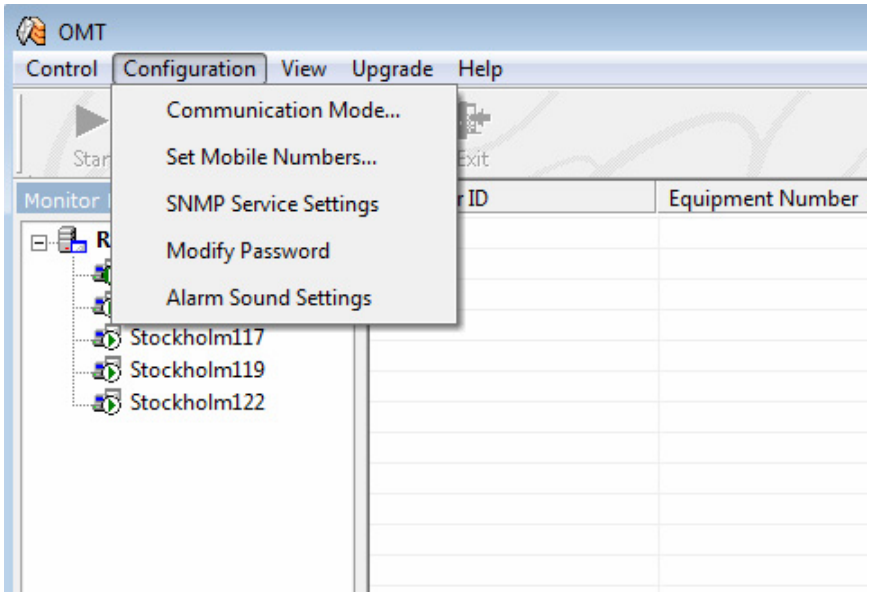
4.3.1 Control

Start:	Connect to the repeater directly via USB to Mini USB cable or connect to the external GSM/3G modem for SMS communication with mutiple repeaters
Stop:	Terminate connection between computer and repeater or GSM/3G modem.
Create New Repeater:	Add a new repeater to the list.
Rebuild MOID List:	To retain MOID list. This list describes the alarm items.
Exit:	Exit and close the OMT program, click “Stop” before exiting the program.



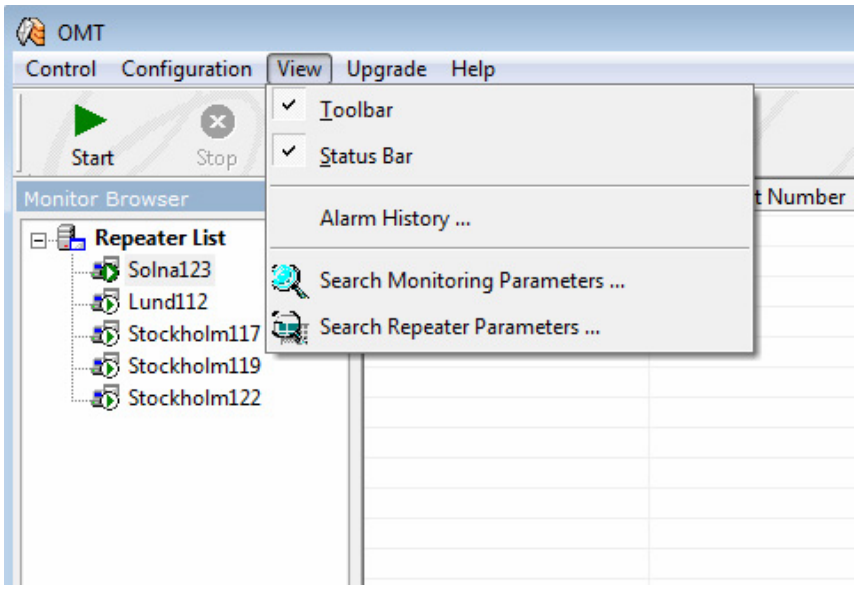
4.3.2 Configuration menu

Communication Mode:	Allows users to configure the communication mode (local or remote) properly to achieve successful connection. Serial = Local mode direct to repeater via USB cable SMS = Remote SMS control via externa GSM/3G modem
Set Mobile Numbers:	Allows users to configure SMS alarms to forwarded to mutiple OMT managers. Up to 5 phone numbers can be entered. Use internation format like “+46701234567”
Modify Password:	Allows administrator to set or change the password.
SNMP Service Settings:	Set SNMP Trap information to be sent out in case of an alarm
Alarm Sound Settings:	Local Alarm sounds on OMT computer



4.3.3 View menu

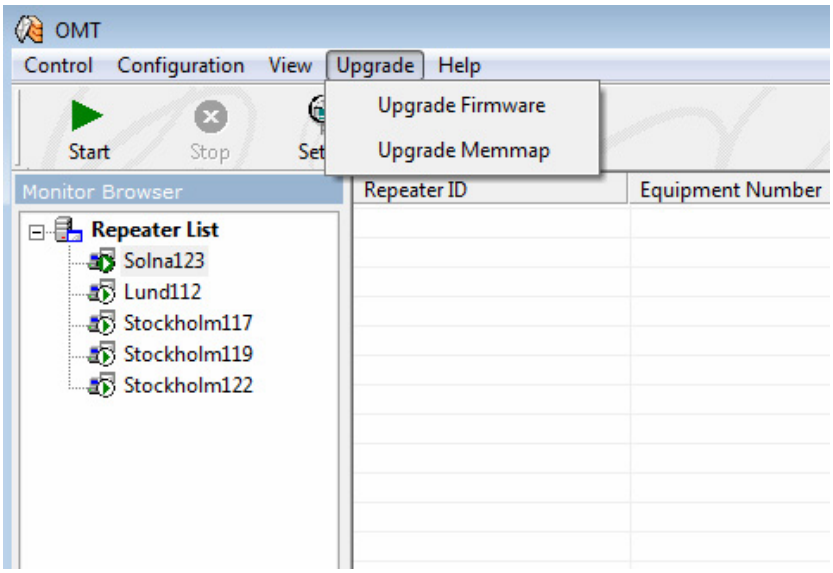
Toolbar:	To display or hide the tool bar from screen.
Status Bar:	To display or hide the status bar from screen.
Alarm History:	To display the alarm history of the repeater.
Search Monitor Parameters:	Open the dialog box for the current monitoring status of the repeater.
Search Repeater Parameters:	Open display the dialog box for the current repeater settings.



4.3.4 Upgrade

Upgrade Firmware: Upgrade management firmware in the repeater

Upgrade Memmap: Upgrade memory configuration file, operate by FAE.



5. Adding and Deleting Repeaters

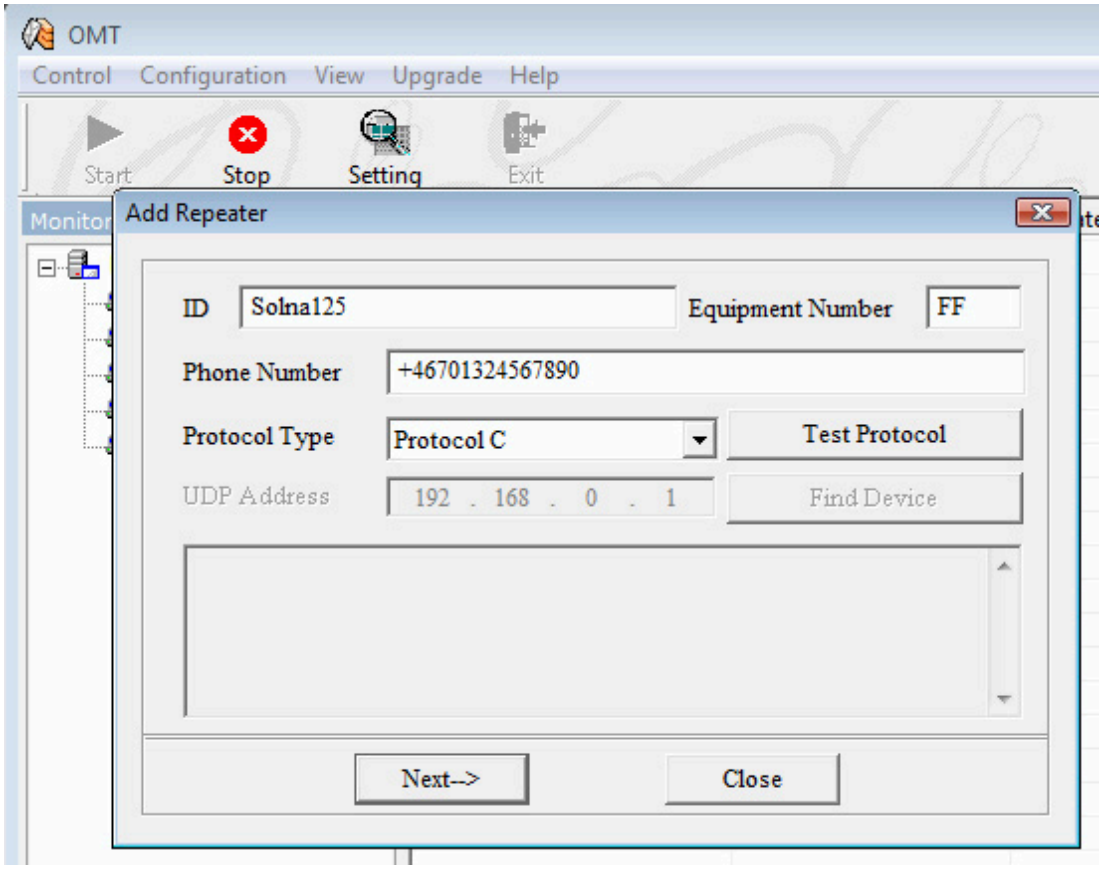
5.1 Adding a Repeater

Adding a repeater can be done in local mode (via USB cable) or in remote mode (with externa GSM/3G modem and a SIM card in the repeater). You need to have a repeater ready to complete the adding of a new repeater in the OMT.

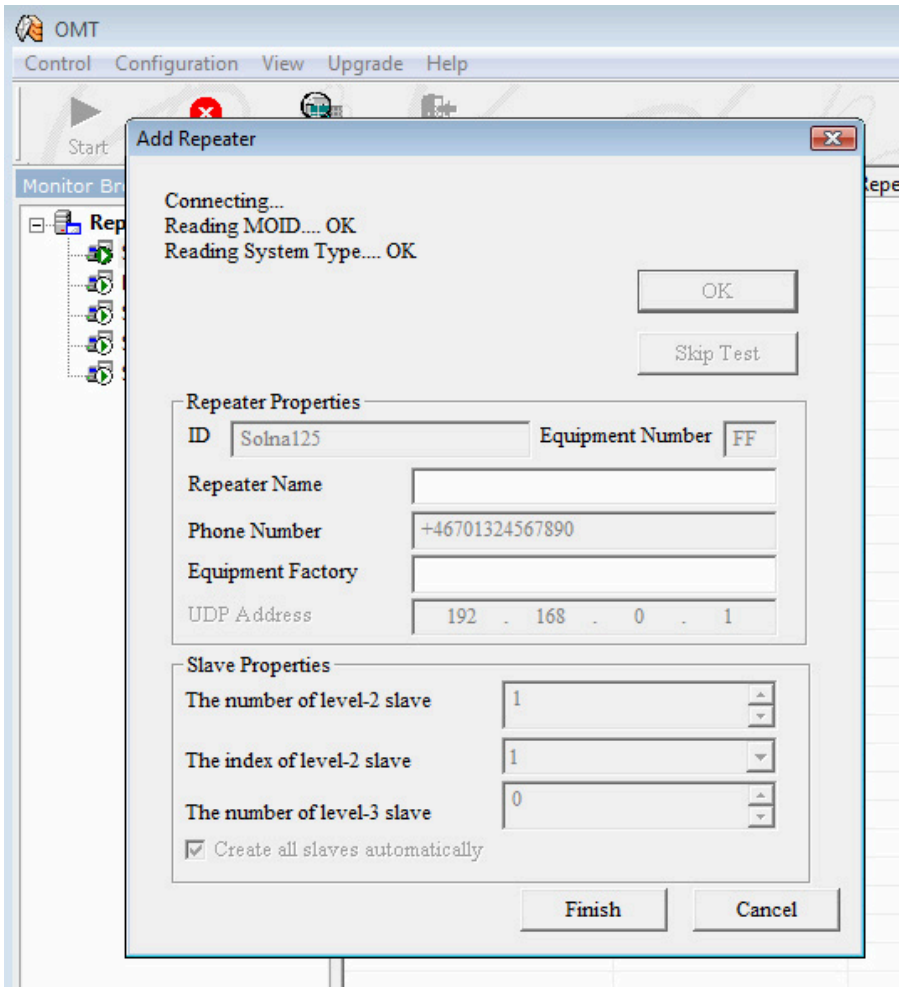
When running the OMT for the first time, there is no repeater present in the list of left frame (In the Monitor Browser). Please add a new repeater to the list according to the following steps.

1. Make sure the correct Communication Mode has been set (Please refer to section 6 for detailed information).
   Click “Start” to activate OMT service. Depending on your communication settings it will communicate over USB (Serial) or over SMS (externa GSM/3G modem)
2. Under the “Control” menu, select “Create New Repeater…” item.
3. Assign an ID number for the repeater in the “ID” box consisting of 1 to 20 characters (“0” to “9” for digit input, “A” to “Z” for letter input). Repeater ID is the unique repeater’s identification for your mobile network.
   Important: The ID has to be unique. Each repeater that is being created in the OMT must have different ID.
4. Enter **FF** in the “Equipment Number” box. (The value FF is for single band repeater like the MPW2100-23).
5. If the repeater has a 3G modem with a SIM card inside (like the MPW2100-23) for remote access enter the SIM card’s number into the “Repeater Sim Card Number” field. If the repeater does not have remote access feature or no SIM card has been installed, enter a random number into the “Repeater Sim Card Number” field.
   Note: The Repeater Sim Card Number box cannot be left blank.
   Use international format like “+46701234567”
6. Choose correct protocol type. For MPW2100-23 choose “Protocol Type C”
7. Click “Next” to proceed the next phase.
   If protocol type is selected manually from the “Protocol Type” drop-down menu, the “Auto Test Protocol” button will shift to “Test Protocol” button.

Se next page for picture.



If in local mode please verify the protocol type by clicking “Test Protocol” button. However, sometimes the communication network between modem and repeater is temporally not available, it’s better to go check the sticker tapped on the repeater marked the corresponding “Repeater Type” or “Protocol Type” information before conducting the following setup procedure. After confirmation, choose correct protocol type and click “Next” button and a following window should appear, as shown below.



Click on the “Test Connect”, and wait for the OMT to process for a little while. After the “Test Connect” is done, click on the “Finish”. At this point, the repeater is successfully added, and you should be able to see this repeater under the Monitor Browser area.

When deleting a repeater, simply double click on the repeater at the Monitor Browser area that you wish to delete. After the window is opened, click on the “Delete”, and the repeater will be deleted in the OMT.

6. Monitoring/Configuring Functions

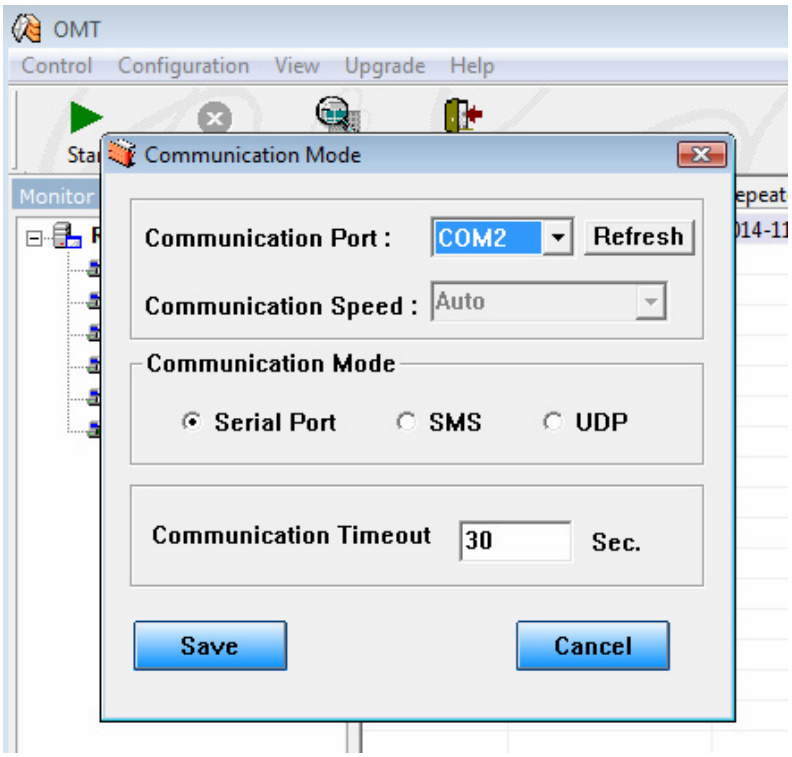
6.1 Connection Type

In order to be able to monitor or configure the repeater parameters, a connection between the OMT software and repeater has to be established. Establishing a connection to the repeater can be achieved via the USB port (serial) or via the wireless modem (SMS).

6.1.1 Local Connection via USB

Open communication configuration window from menu “Configuration” > “Communication Mode…”.

1. Select the COM port of your repeater.
2. Set communication Mode as “Serial”
3. Click “Save”.



If your COM port is higher than COM16 please reconfigure COM-port to a lower number in the computers Device Manager.

Communication Speed is automatically set to “Auto”. Select the Communication Mode” as “Serial Port”, and then click Save to finish.

Note: Choose the “Serial Port” for local control (USB cable), and “SMS” for remote control (requires ex-terna AT+SMS compatible GSM-modem or 3G modem connected to the OMT software)

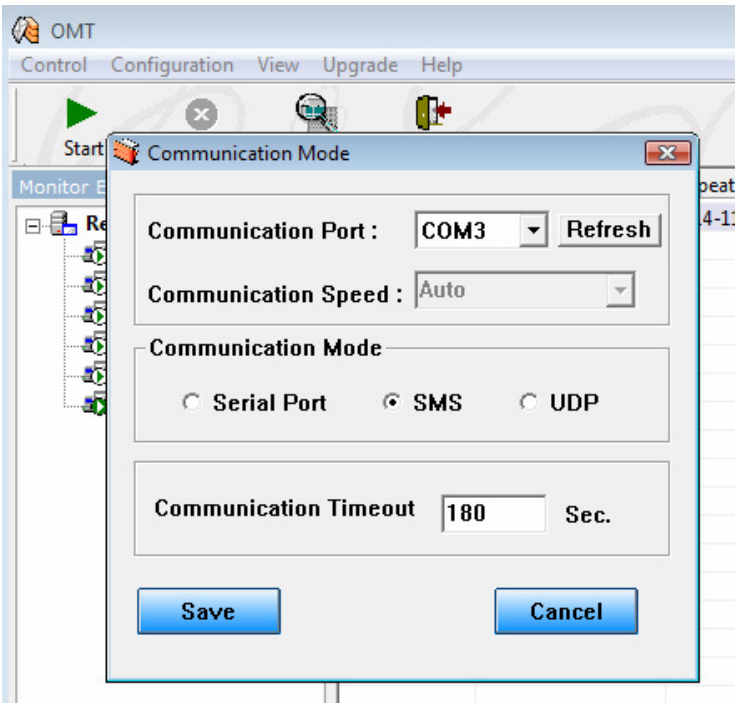
Note: After the Communication Mode has been set according to the connection method. Click on the “Start” on the toolbar, and then access the function you required.

6.1.2 Remote Connection via Wireless Modem

When the repeater is equipped with a wireless Modem (like MPW2100-23), monitoring and configuring of the repeater parameters can be achieved remotely.

Open communication configuration window from menu “Configuration” > “Communication Mode…”.

1. Select the COM port of your AT+SMS compatible GSM or 3G-modem.
2. Set communication Mode as “SMS”
3. Click “Save”.



Detailed explanation of how to set up a remote connection will be discussed in later chapters.

Note: After the Communication Mode has been set according to the connection method. Click on the “Start” on the toolbar, and then access the function you required.

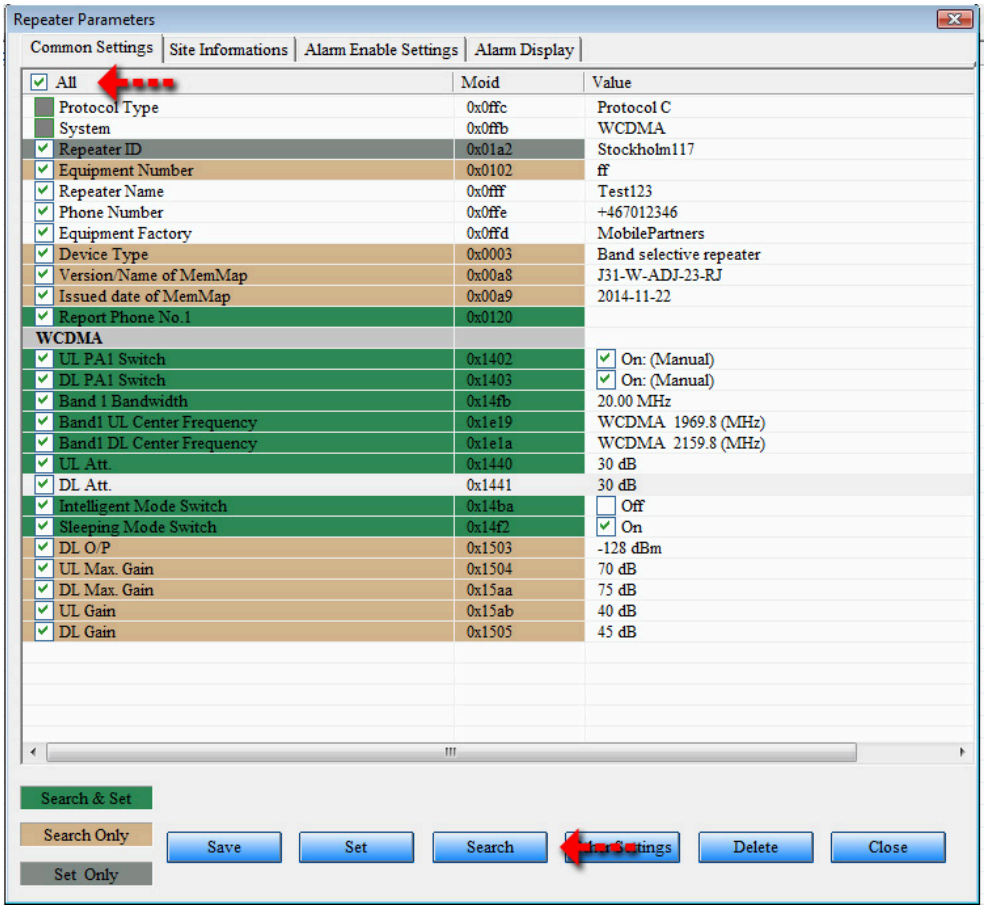
6.2 Monitoring and configuring the Repeater

1. Set the correct communication mode first, and then press “Start” to start the service.

6.2.1 Set Repeater Parameters

To bring up the “Repeater Parameters” window by doubleclicking on the ID number in the “Monitor Browser”

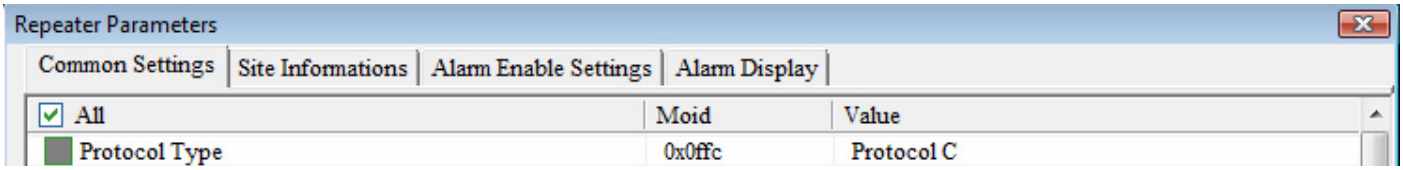
Mark “All” and click “Search” to read configuration data from repeater



Green:	Read and Write field. This field can be used for **Search (read) and Set (write)**.
Tan:	Read ONLY field. This field can be used for **Search (read)**.
White:	This field is only stored on your local computer. Information is stored when using **Save or Set**.
Grey:	This field can’t be changed

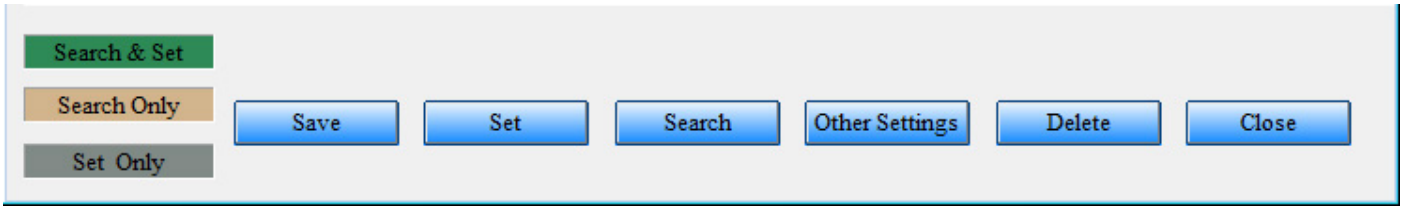
6.3 Configuring the Repeater

All information are categorized into 4 pages, “Common Settings” page, “Site Information” page, “Alarm Enable Settings” page and “Alarm Display” page. All items can be Enable/disable by clicking the box in front of each parameter. You can choose/active all items by simply clicking the “All” box



The buttons listed at the bottom of the window have different function:

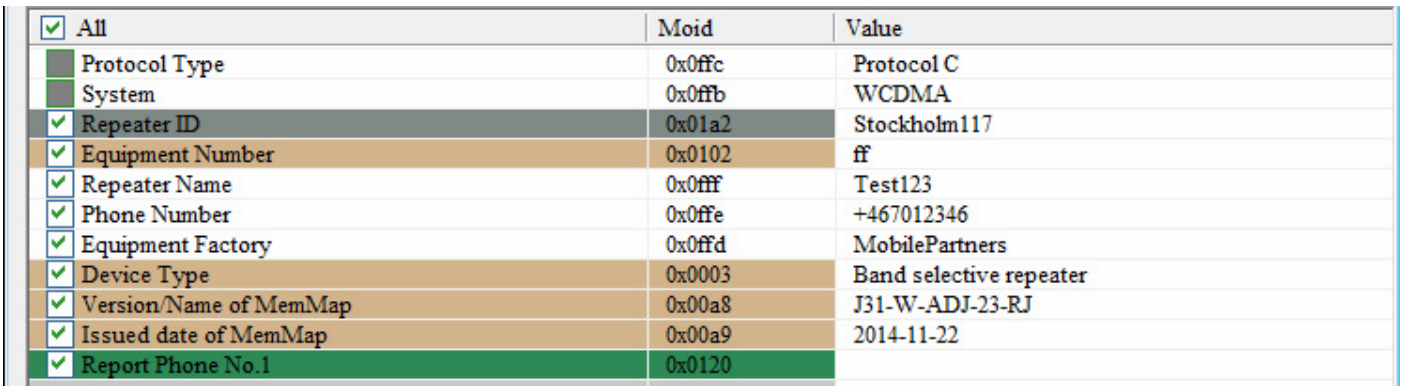
“Save” Button:	Store the configuration data into the **local computer only**.
“Set” Button:	Store configuration data into both the local computer and remote repeaters.
“Search” Button:	Retrieve data from remote repeaters and display in local computer
“Delete” Button:	Delete the repeater marked in the “Monitor Browser”.
“Other Settings” Button:	Extra settings (like frequency band for MPW2100-23). Repeater’s configuration can be set back to manufacturer’s default value. Click on the “Default Setting” button, system will reset all parameter back to default value and display a message box to confirm that the setting has succeed.



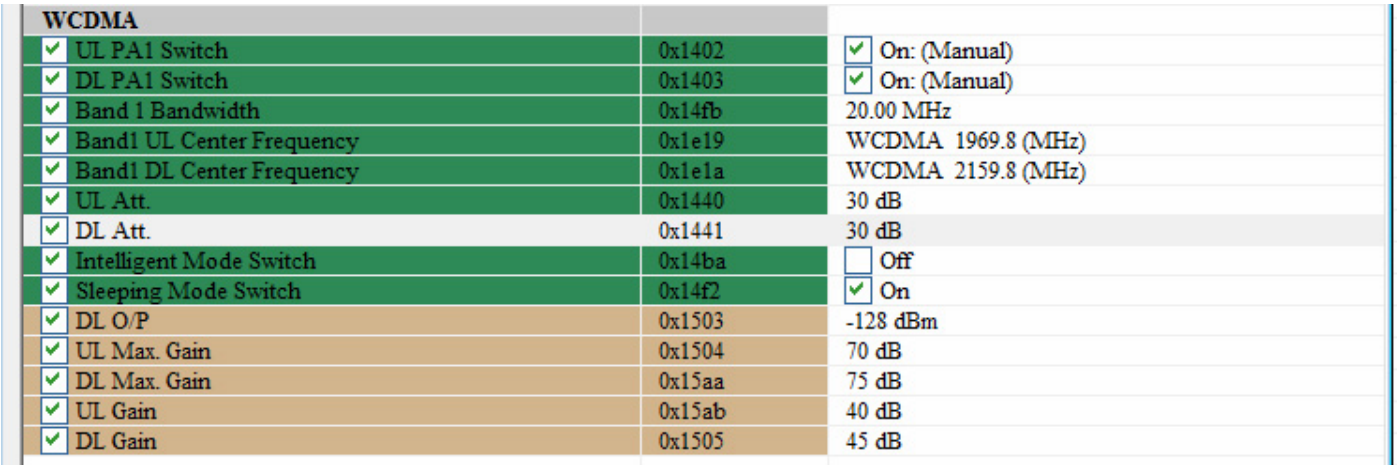
6.3.1 Common Settings tab

This page includes General information

General information:	This group of information displays general information to identify repeaters such as Protocol Type, System, Repeater ID, Equipment Number, Device Type, Repeater Name and Repeater SIM card Number, and so on...



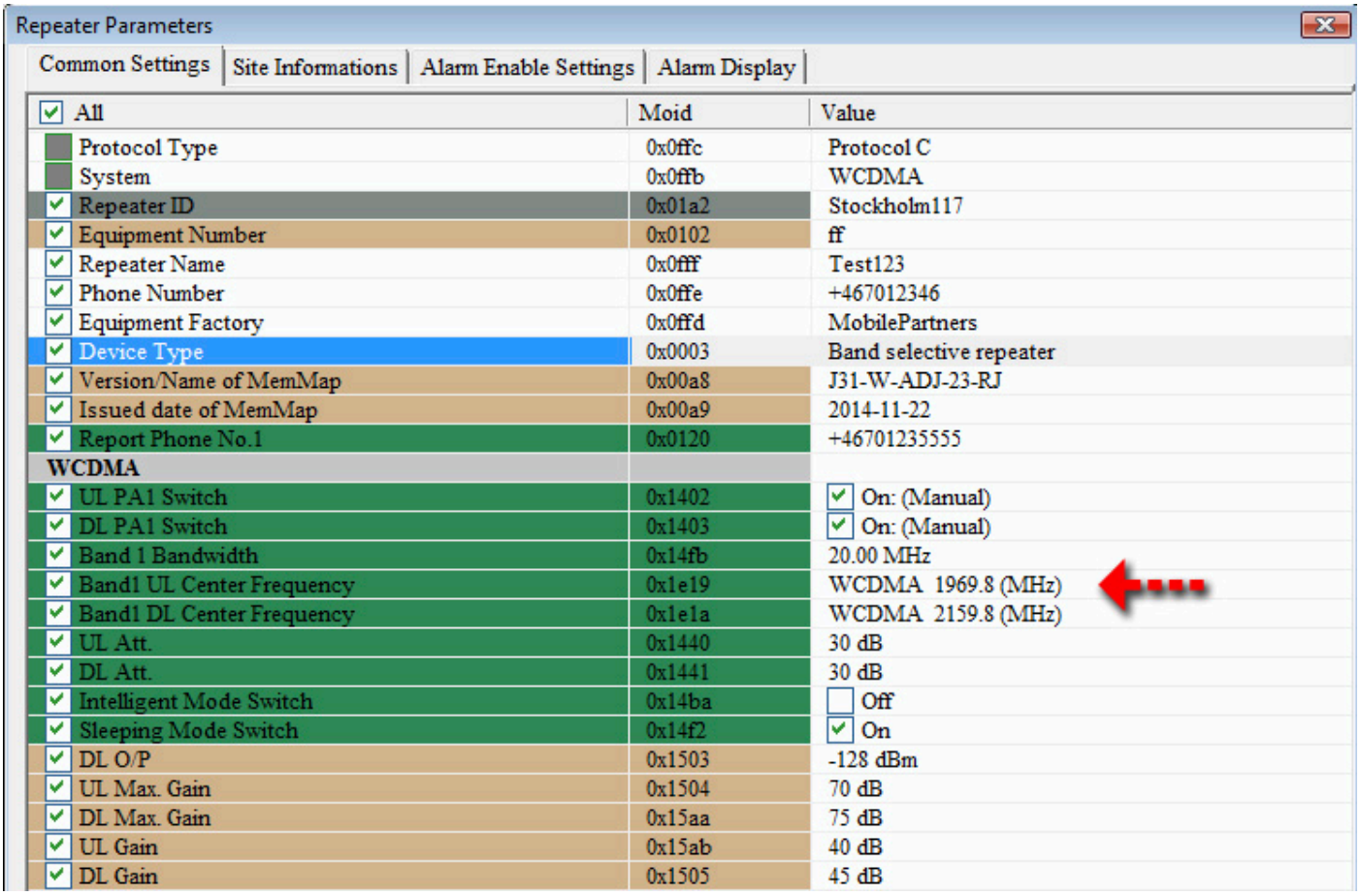
Technical information and config: This group of information indicates repeater parameter settings, and its current performance (output power). These information includes UL/DL PA Switch, UL/DL Attenuation, DL Output Power, UL/DL Maximum Gain value and UL/DL Gain.
The attenuation value for 3G/WCDMA can be adjusted. Directly change the value of “UL Att.” or “DL Att.” item and click “ Set” button, and attenuation will be set into the repeater.



WCDMA		
UL PA1 Switch	0x1402	On: (Manual)
DL PA1 Switch	0x1403	On: (Manual)
Band 1 Bandwidth	0x14fb	20.00 MHz
Band1 UL Center Frequency	0x1e19	WCDMA 1969.8 (MHz)
Band1 DL Center Frequency	0x1e1a	WCDMA 2159.8 (MHz)
UL Att.	0x1440	30 dB
DL Att.	0x1441	30 dB
Intelligent Mode Switch	0x14ba	Off
Sleeping Mode Switch	0x14f2	On
DL O/P	0x1503	-128 dBm
UL Max. Gain	0x1504	70 dB
DL Max. Gain	0x15aa	75 dB
UL Gain	0x15ab	40 dB
DL Gain	0x1505	45 dB

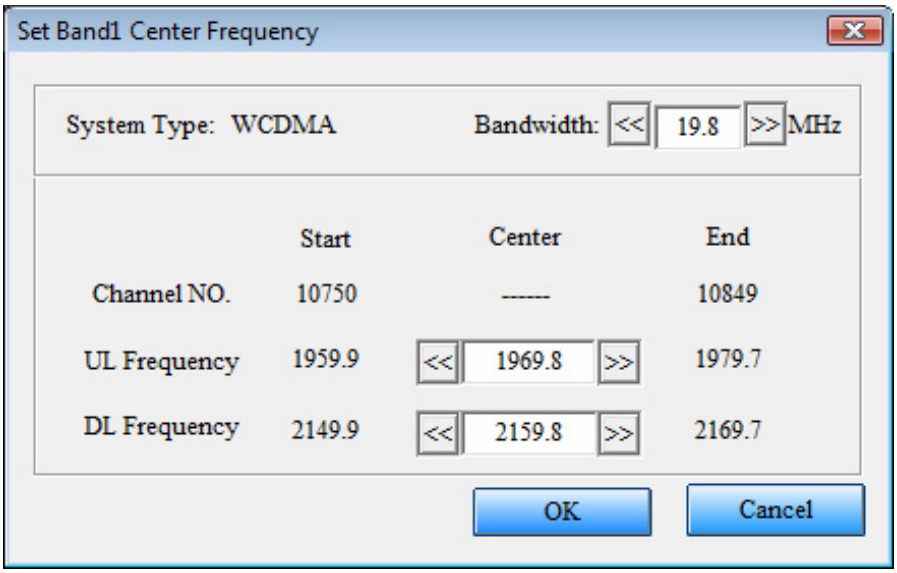
Setting Center frequencies for repeater

Click on any of the frequency information fields to acces the frequency settings



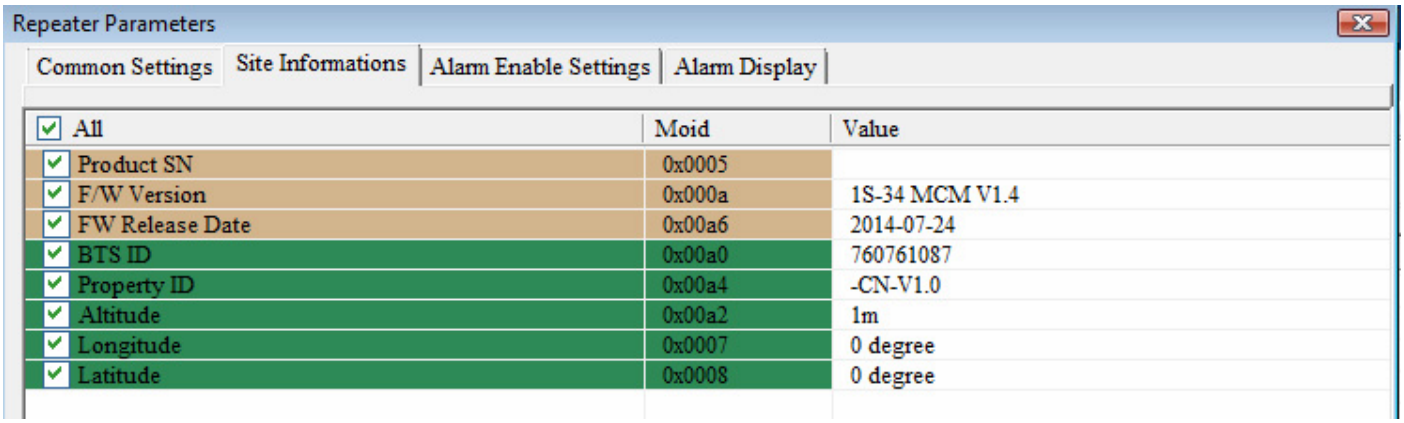
When the frequency settings opens you can set the center frequency for your selected Operator.
Set Bandwidth to 19.8 MHz (fixed in MPW2100-23 but set to 20 or 19.8 MHz to show correct)

Telia/Tele2	UL: 1969.8 MHz (1959.90 - 1979.70 MHz) DL: 2159.8 MHz (2149.90 - 2169.70 MHz)
Telenor	UL: 1930.2 MHz (1920.30 - 1940.10 MHz) DL: 2120.2 MHz (2110.30 - 2130.10 MHz)
Tre	UL: 1950.0 MHz (1940.10 - 1959.90 MHz) DL: 2140.0 MHz (2130.10 - 2149.90 MHz)



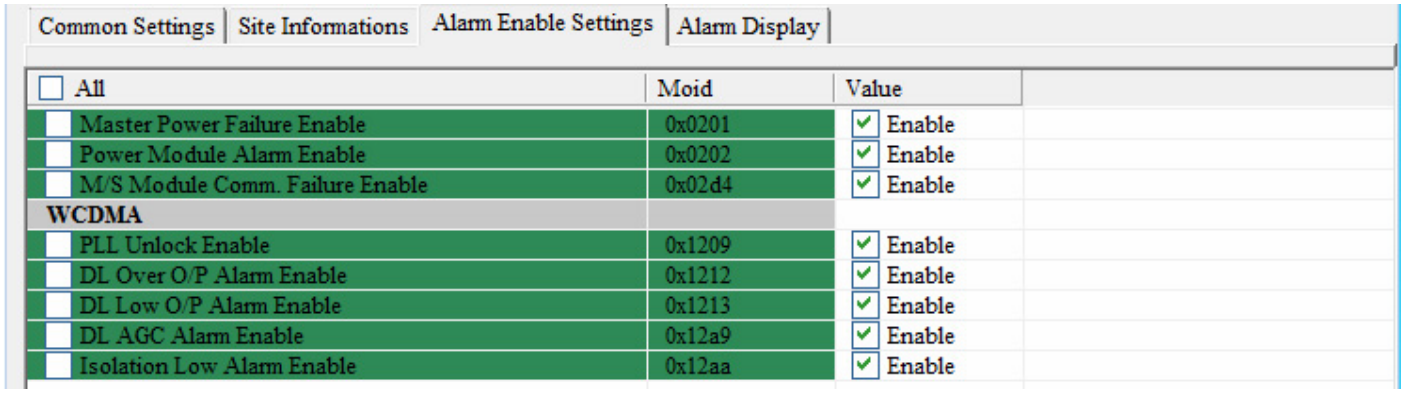
6.3.2 Site Information tab

This tab houses the basic repeater site information. The information include Product Series Number, Firmware Version, Model Number, BTS ID, Property ID, Altitude, Longitude and Latitude, Coverage Area and Remote Communication Mode.



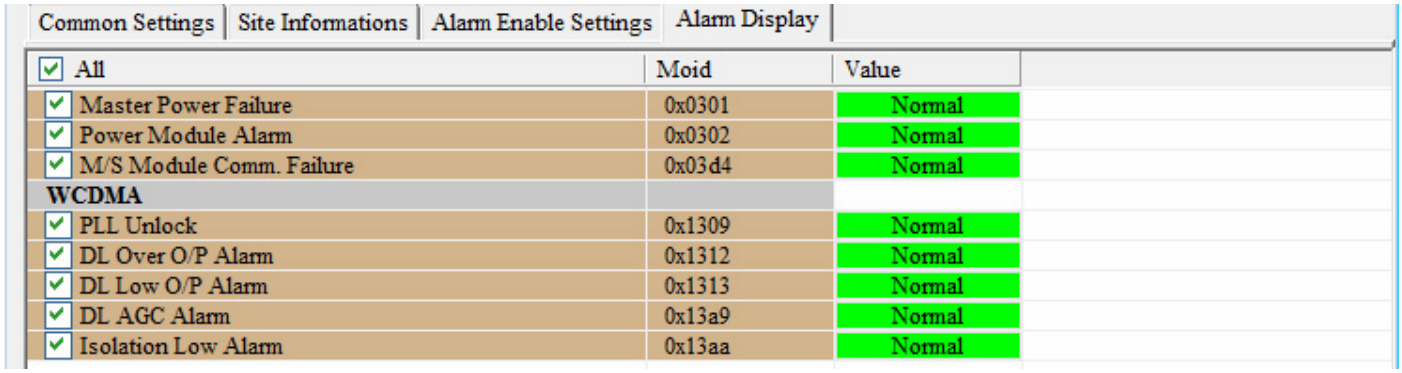
6.3.3 Alarm Enable Settings tab

This tab lists all alarm items. Please Enable/Disable specific alarms by ticking the boxes and click “Set”. make sure to tick the box to the left of the settings you would like to set to the repeater.



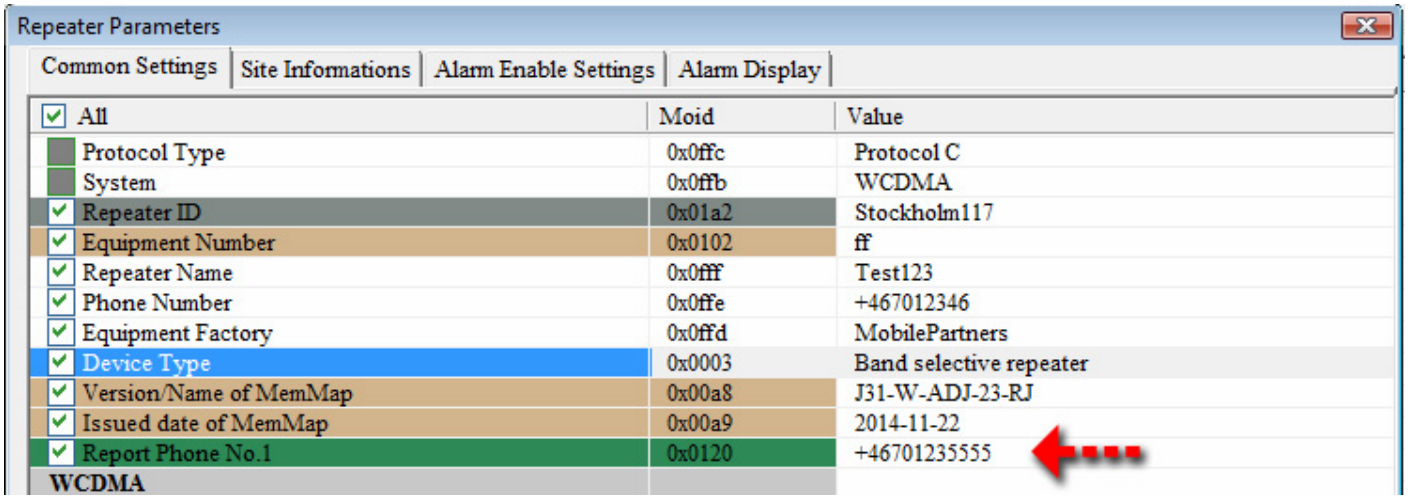
6.3.4 Alarm Display tab

This window delivers all alarm status received from repeaters. Green color indicates a normal status. Red color means an alarm has occurred.

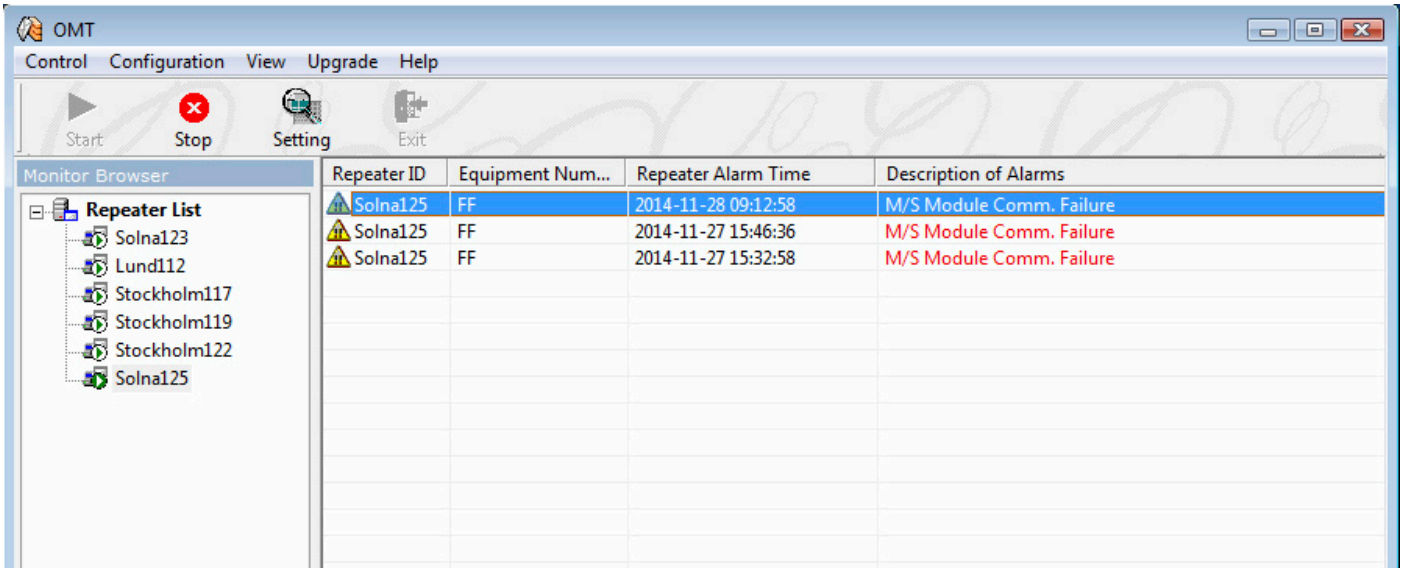


7. Remote alarms

To be able to recieve alarms from the repeater via SMS you have to set the “Report Phone No.1” field with the phone number to your GSM/3G modem. Use international format like “+4670987654321”



Alarms will be listed in the main window och the OMT software.



If phone numbers to managers har been entered in OMT manager, then SMS will be sent to these numbers in case of an alarm