NMCnet User Manual

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NMCnet Basic Requirements

- ✓ PC equipped with Windows XP SP-3 operating system
- ✓ Pentium 4, 2 GHz processor
- ✓ 1 GB RAM, minimum
- ✓ 10 GB Hard Drive, Minimum
- ✓ Free Direct Serial Port (COM PORT, 9 pin connector, RS232) or USB to Serial Port Converter

Recommendations:

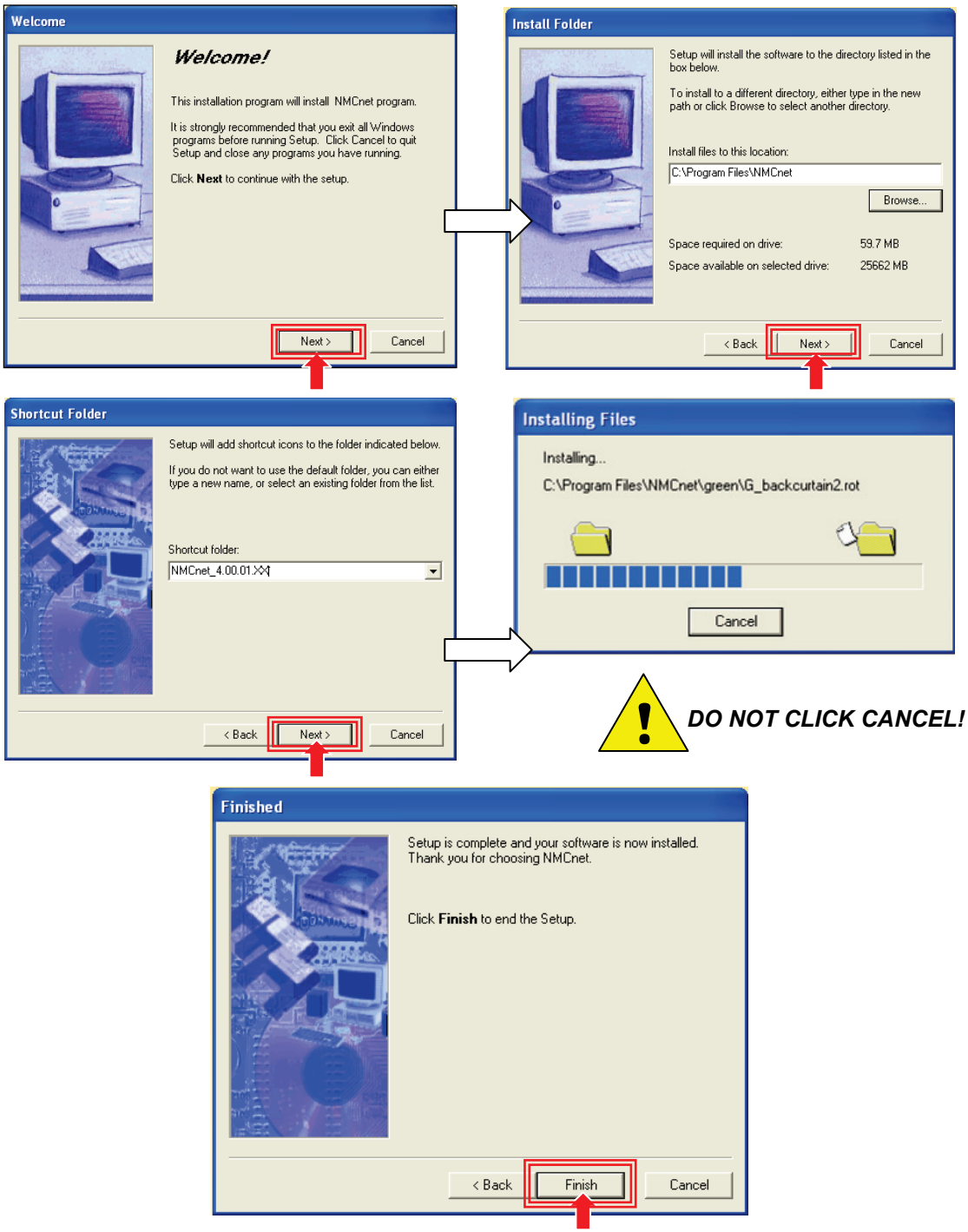
- The system should be equipped with a backup UPS electricity system
- Microsoft Office Excel
- Microsoft .NET Framework Version 2.0 (required for the Graph Reporting Tool). If this is not installed, the following window appears when opening the Graph Tool:

Install Microsoft.Net Framework from the accompanying CD or download the program from the Microsoft website.

Installation NMC Net Communication Program

Insert the CD. Open the CD folder and double-click **Setup.exe.**

Follow the below steps to install the NMCnet program:



Network Setup

The following sections detail how to set up local and remote networks.

Local Network

*(Refer to **Appendix A** for Local Network wiring)*

***NOTE:** If one of the controllers is defined as a MASTER controller, then a MUX 3.6 connection must be used.*

The appropriate screen is displayed (see **Figure 1**).

1. **Controller Startup**: Choose the required controller (Irrigation or Climate).
2. **Set Baud Rate**: Set the baud rate according to the settings on the controllers.
3. **Set Number of Controllers**: Set the number of controllers of each type connected to the communication program.
4. **Communication Ports**: Select the communication port from the available ports.
5. **Network Test**: The RX TX lights indicate the communication status:
   - A green RX LED indicates an answer from a controller.
   - A red TX LED indicates a lack of communication.
   - The communication test is preformed on different types of controllers separately, choose type of controller and press start.

The network test is an endless loop and only stops by pressing the **Stop** button. (The loop is on controllers 1-50).

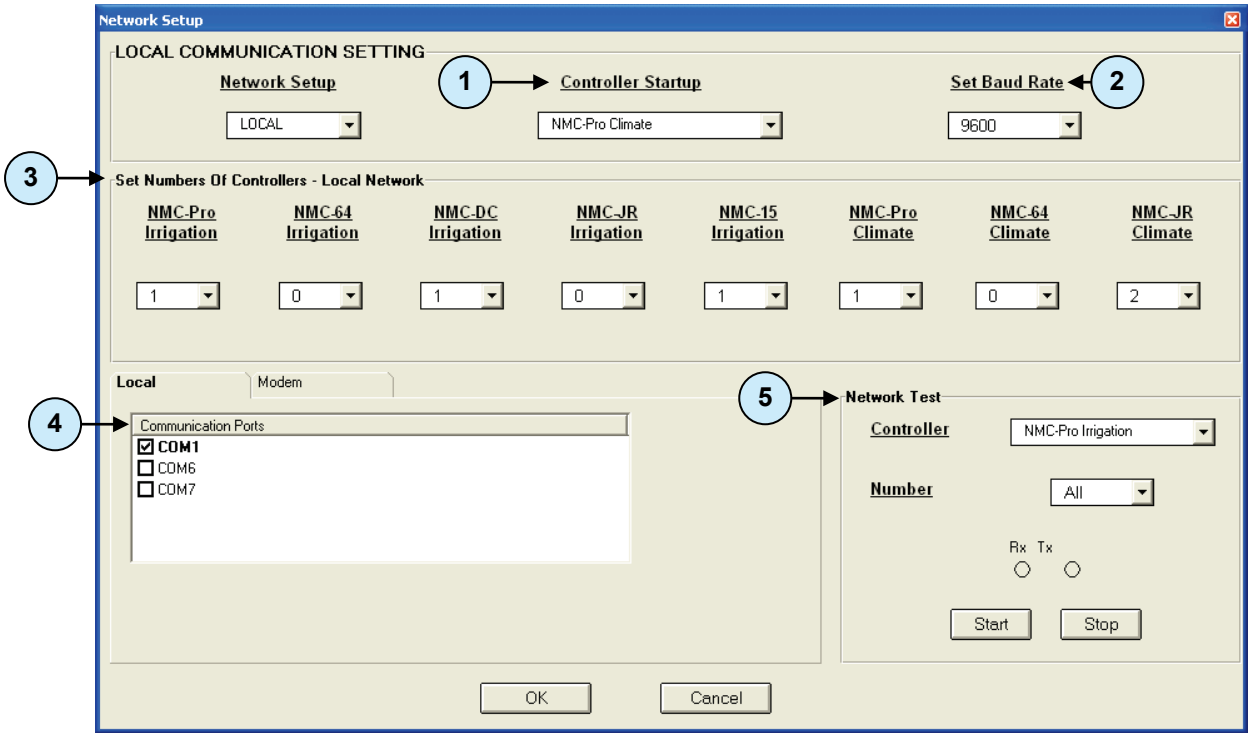


Figure 1: Local Communication Setting Screenshot – Part 1

Figure 2 displays a drop down list from which the required controller start up is selected.

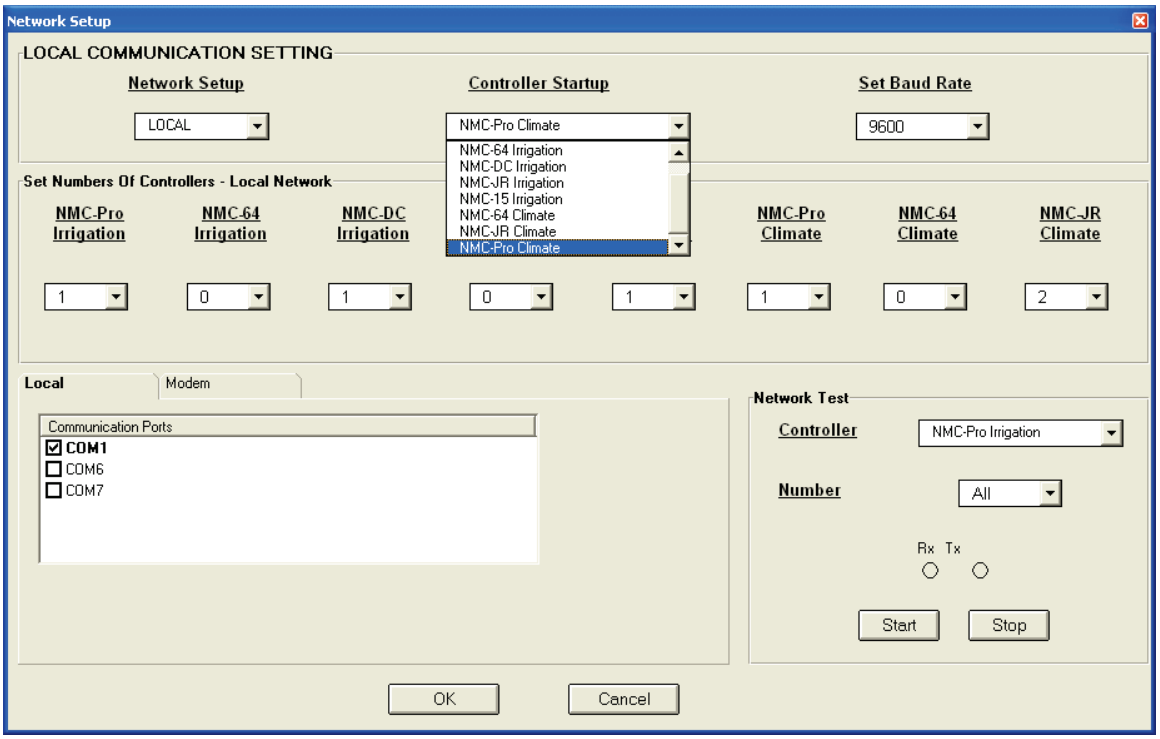


Figure 2: Local Communication Setting screenshot – part 2

Modem Network

*(Refer to **Appendix C** for Modem Network wiring)*

***NOTE:** If one of the controllers is defined as a MASTER controller, then a MUX 3.6 connection must be used.*

Modem Communication Setting

The modem screen is displayed (see **Figure 3**).

- **Modems**: Select the required modem from the list.

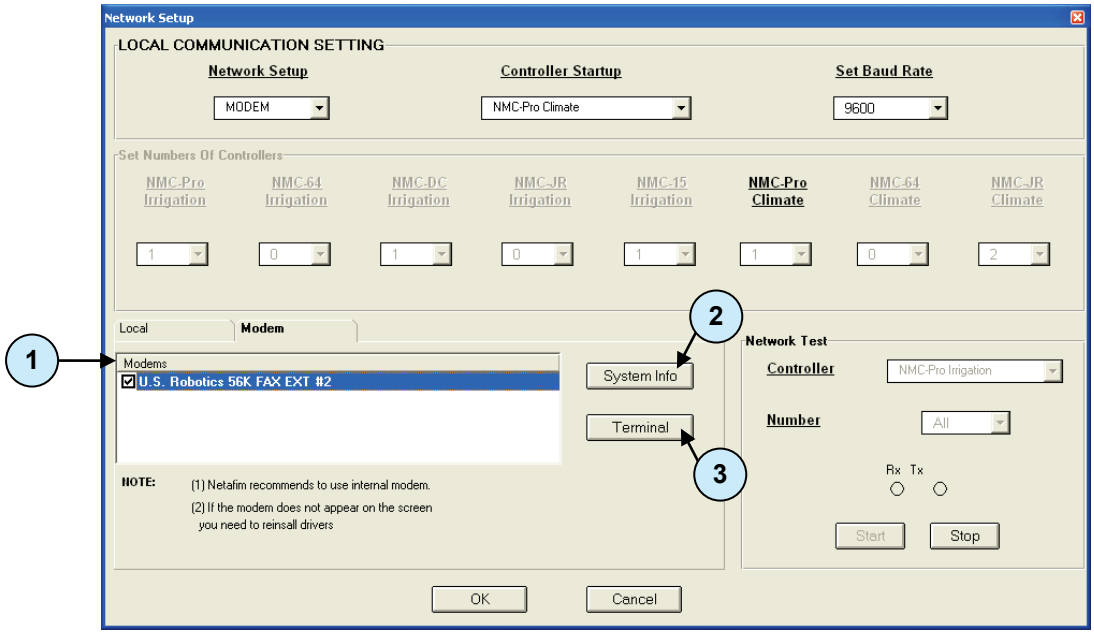


Figure 3: Modem Setting screenshot

1. Choose line modem type to connect to the PC.
2. **System Info**: The system info button opens the communication system's information/troubleshooting, through which you can obtain information on the serial ports and modems that are defined and registered in the computer.

Figure 4: System Information Screen

3. **Terminal**: **Clicking** on Terminal button opens the Netafim Terminal window (see **Figure 5**). This window enables the user to change AT Commands settings, such as the modem's configuration (see **Figure 6**). Note that the octagon on the right represents a Toggling port and can be either green (indicating good communication) or red (indicating bad communication).

The initiation string can be either of US Robotics (see the Command String in **Figure 7**) or Generic (see the Command string in **Figure 8**).

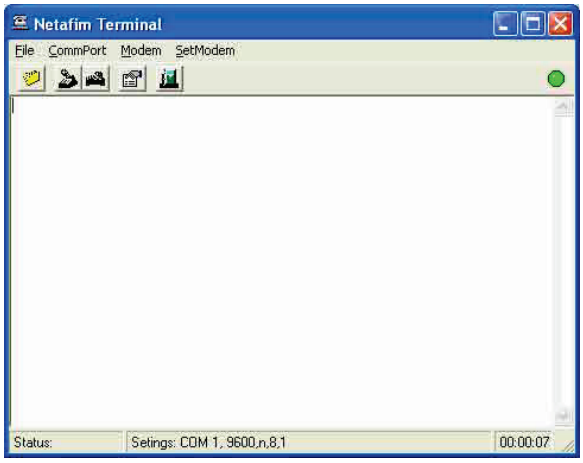


Figure 5: Netafim's Terminal Screenshot

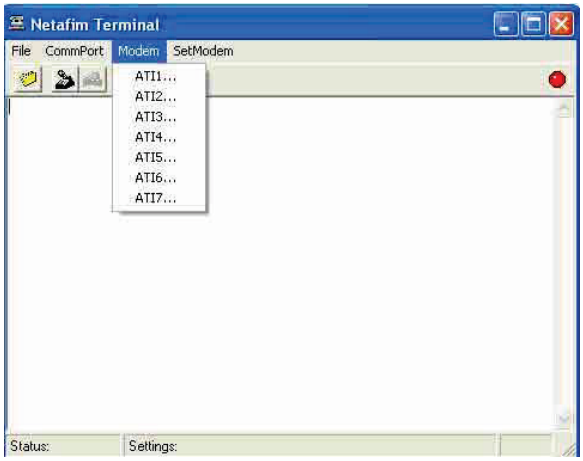


Figure 6: Modem Option List Screenshot

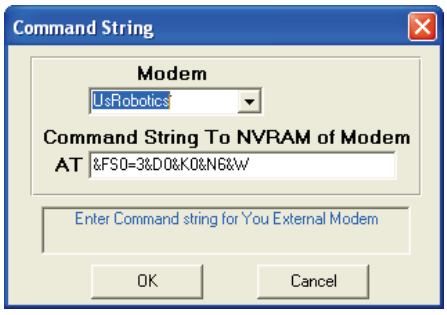


Figure 7: Initiation String Using US Robotics Screenshot

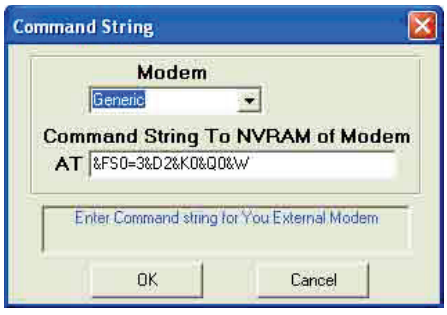


Figure 8: Initiation String Using Generic

Netafim recommends working with an internal modem. It is important to verify that the modem is recognized by Windows and is operative.

- This table contains the connection information of all the controllers.

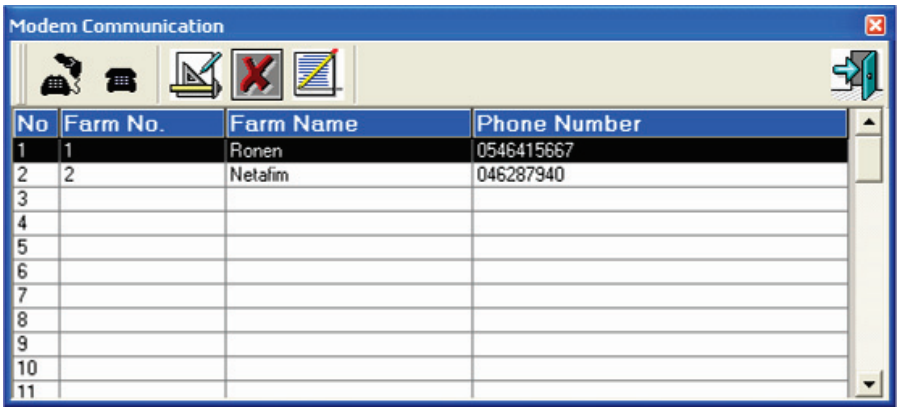


Figure 9: Modem Communication Screen

- Click  and enter a farm number, name and modem line phone number and set amount of controller types.

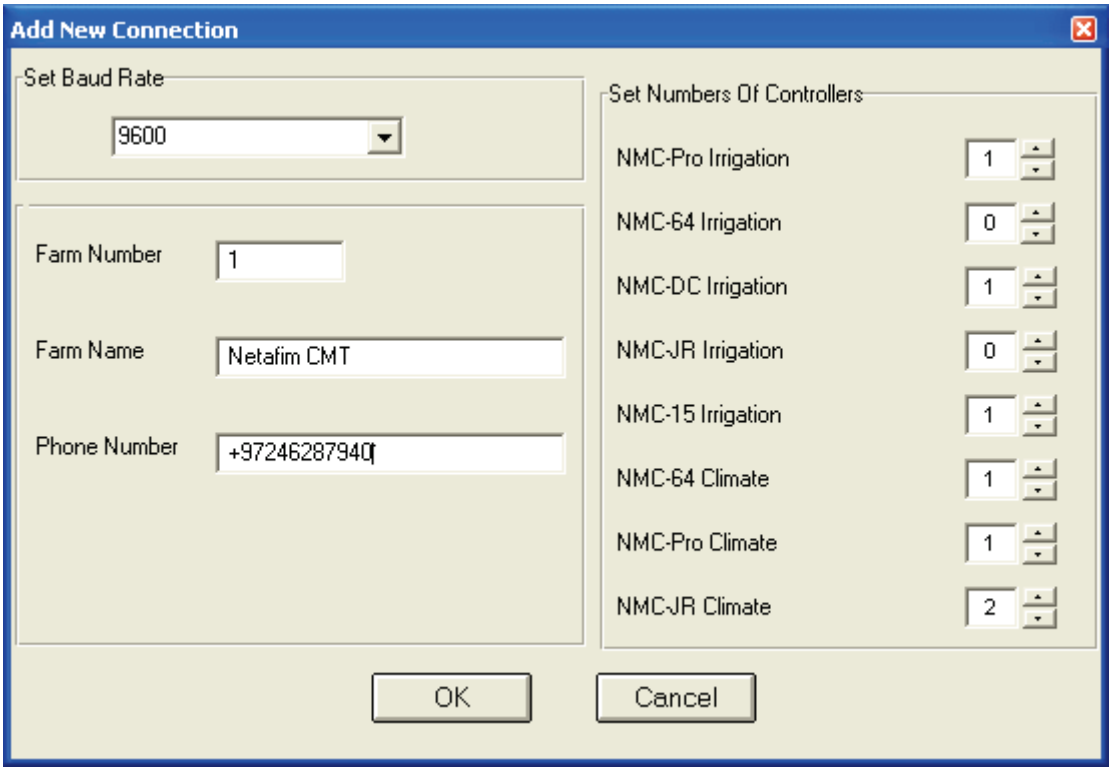


Figure 10: Add Connection Screen

- Select  and update the farm number, name and modem line phone number and set amount of controller types.

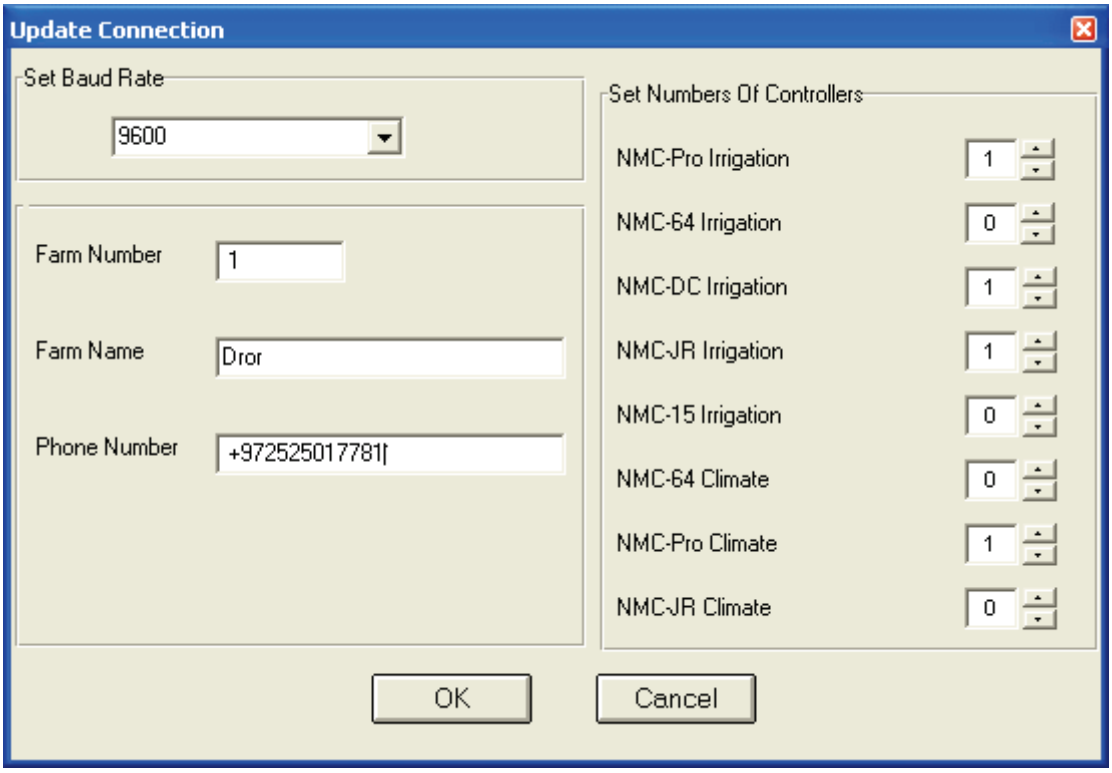


Figure 11: Update Connection Screenshot

	Dial and hang up the highlighted modem connection.
	Make new connection line.
	Delete the highlighted connection line.
	Update an existing connection line

Demo Network

The demo option enables using the NMCnet as a demonstration program, without connecting to actual controllers.
Define how many controllers of each type are needed to display in the demo (see **Figure 12**).

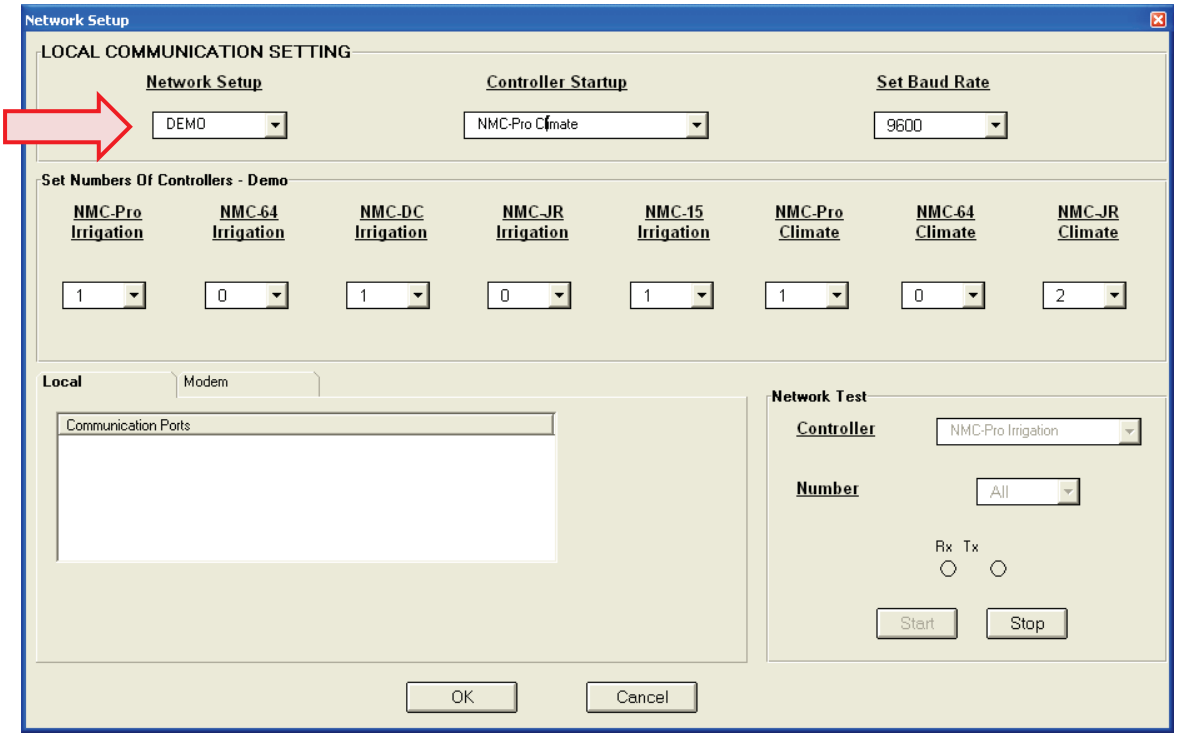


Figure 12: Demo Setting Screenshot

PC Software Configuration

Tools

The tools menu enables changing the language and display colors.

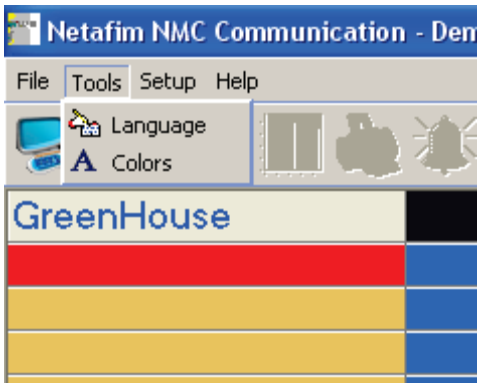


Figure 13: Tools Menu List

Language

- From the dropdown list, select the required language.
- Click OK.

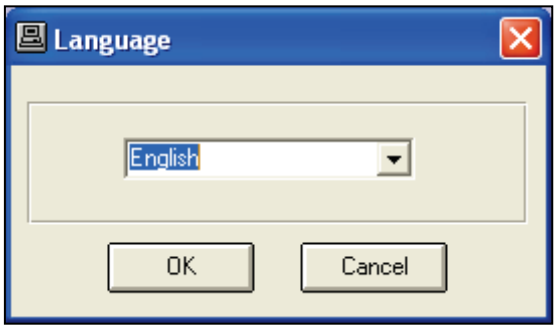


Figure 14: Language Selection Box

Colors

- Click on BackColor (background) or ForeColor, and then select the required color from the dropdown list.
- Click OK.

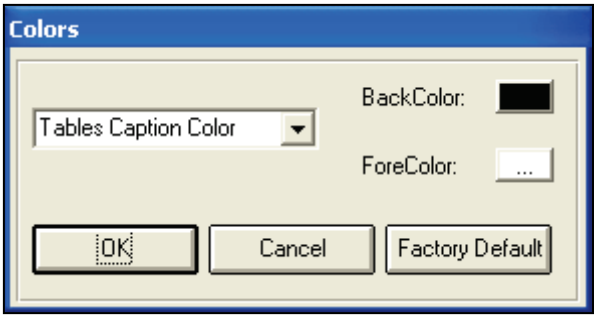


Figure 15: Colors Selection Box

Setup Menus

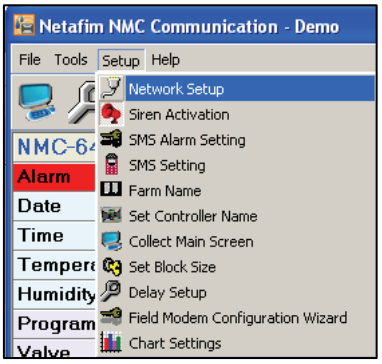


Figure 16: Setup Menu List

Network Setup

Refer to the Network Setup section, page 4.

Siren Activation

Selecting the siren function enables a siren sound to be played on your PC if an alarm is activated.

SMS Alarm Setting

The Cellular modem sends SMS alerts and messages from the PC to the cellular phone and vice versa. Mark the alarms you would like sent by SMS. The available message types are:

- Different types of alarms
- Main screen status
- Message to reset an alarm
- A message is generated automatically when there is no communication and another message when communication is re-established.

NO PC Communication software has to operate in order to receive this message.

When the Software does not operate there are no SMS messages.

Select *Setup > SMS Alarm Setting*. The SMS Alarm Setting window opens. Select which messages to receive. Otherwise, clicking on the **Select All** button marks all alarms.

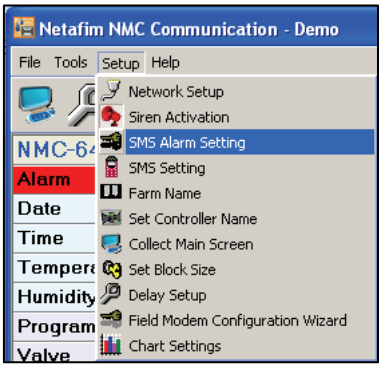


Figure 17: SMS Alarm Setting Selection

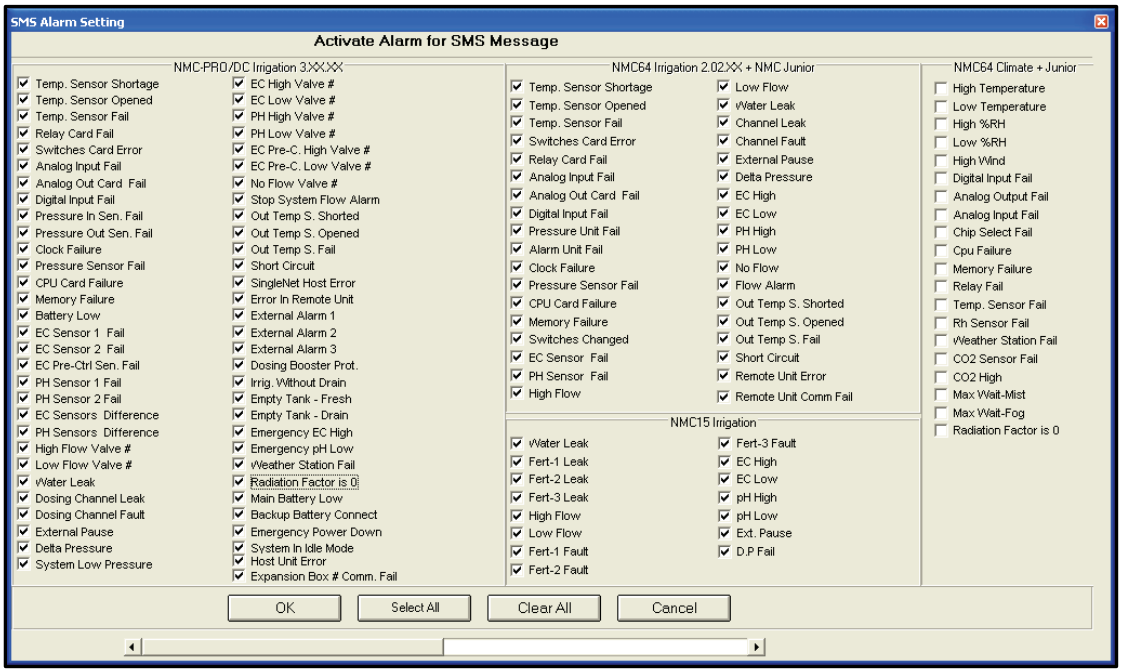


Figure 18: SMS Alarm Setting

SMS Setting

*(Refer to **Appendix B** for connecting GSM modem for SMS option)*

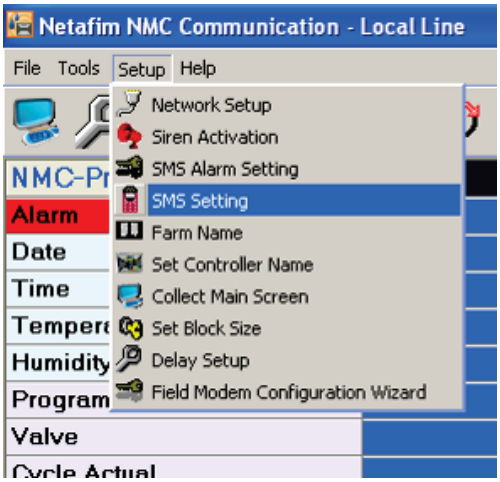


Figure 19: Setup Menu List

SMS Setting screen is used to define to whom you would like to send SMS messages. Note that there is no connection to the controller's type.

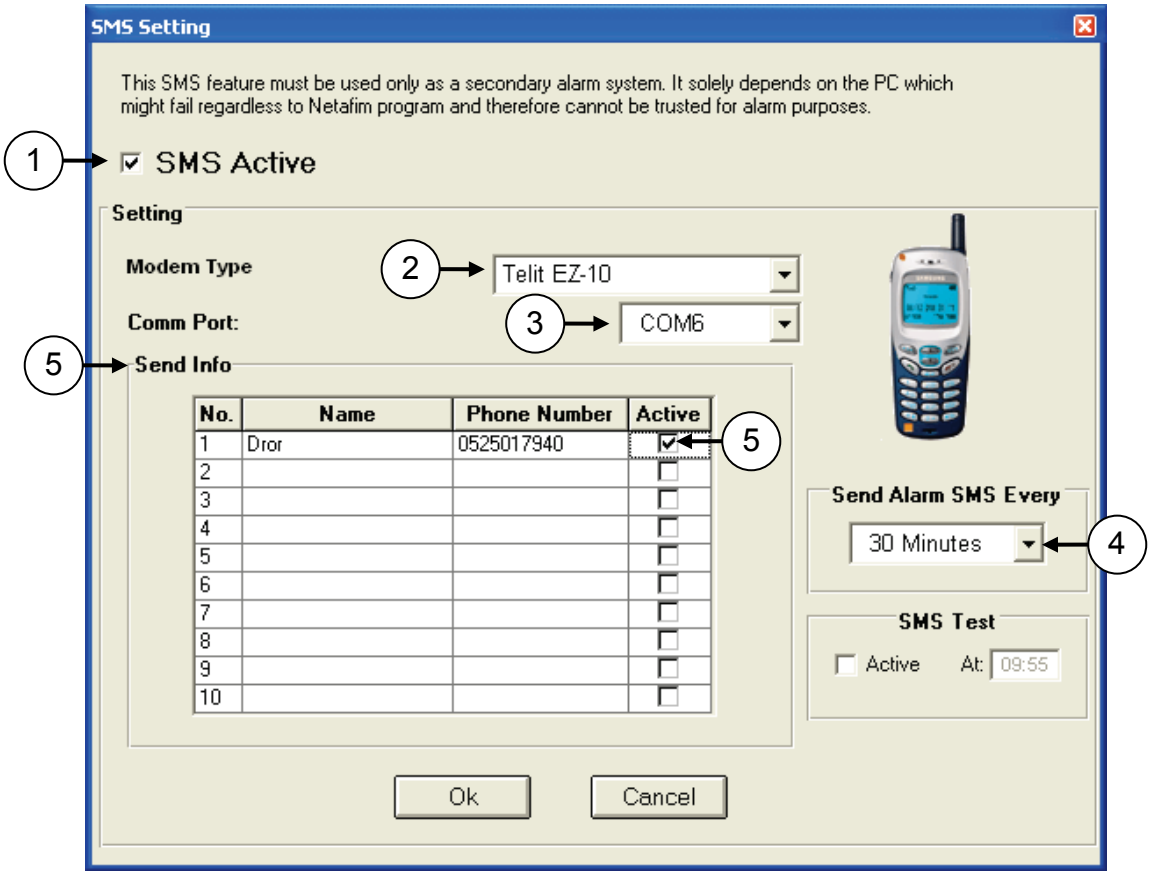


Figure 20: SMS Setting Screen

Configuring SMS Transmission

1. **SMS Active:** Check the **SMS Active** box to activate SMS sending.
2. **GSM Modem Type:** Select the type of GSM modem for sending SMS.
3. **Comm. Port:** Select the GSM modem comm. port from the dropdown list.
4. **Send Alarm SMS Every:** Set the time in minutes between SMS messages. Alarms that remain active are re-sent to the cell phone according to this setting.
5. **Send Info:** In the Send Info list, enter the names and phone numbers of the persons to receive the SMS. Mark the **Active** check boxes next to names of persons whom you would like to send SMS messages. Only selected lines are active.

Communicating with the GSM modem from your cellular phone

1. To reset the alarm, write RESET on your cellular phone followed by the controller signal (See explanation below) and the house number. For example RESETJ2 (controller number 2 of NMC-Junior Irrigation). Then send the message. The Modem will confirm the message on the cellular phone upon successful completion of the message.
2. To request main screen data, write STATUS on your cellular phone followed by the controller signal and the house number. For example STATUSJ2 (controller number 2 of NMC-Junior Irrigation) and send the message from the cellular phone to the modem. Data will be sent after a few seconds and a message will appear on the cellular.

- Controller Signal:
  - **I** – NMC-64 / Pro Irrigation / NMC DC
  - **C** – NMC-64 / Junior Climate
  - **F** – NMC-15
  - **J** – NMC Junior Irrigation
  - **P** – NMC-Pro Climate

Farm Name

User defined farm name. Use a name that will help you to identify the farms easily.

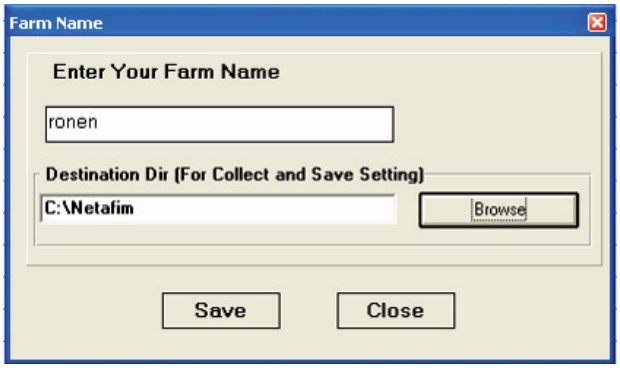


Figure 21: Farm Name Entry Box

All data will be collected to the Farm Directory when the Local Connection is selected.

NOTE: *Farm name must be in English in order for an SMS be delivered properly.*

Set Controller Name

User defined House name. Use a name that will help you to identify the houses easily and will be used as the directory name for collected Data.

Note: Forbidden characters: **\ / * ? < >**

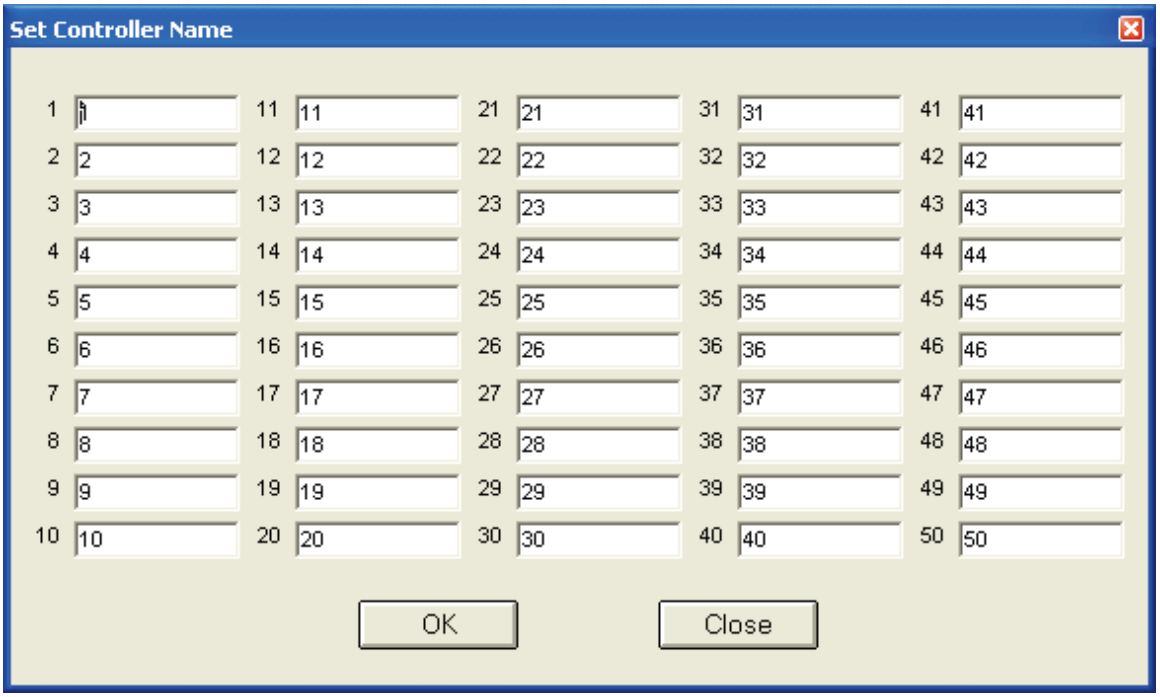


Figure 22: Available House Number Window

Collect Main Screen

Enables collecting data presented on the main screen, how often and where to save it. The data is saved in CVS format, and can be viewed using Microsoft Excel.

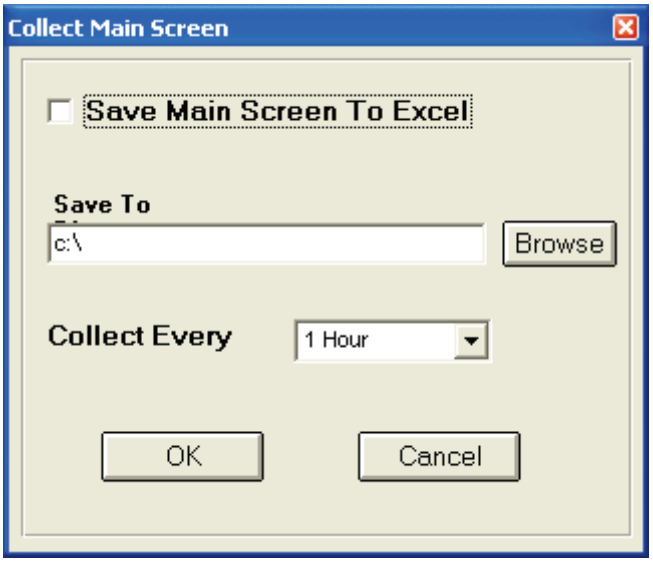


Figure 23: Collect Main Screen Settings Window

Setting Block Size

When working with RF communication it is a custom to operate using 64 bytes rather than 255 bytes. When functioning in bad conditions, it is possible to decrease the block size.

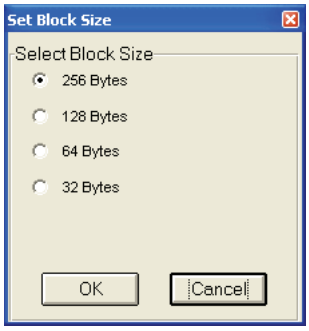


Figure 24: Set Block Size – Screenshot

Delay Setting

When functioning using bad communication (using either wrong modem or wrong cellular modem), it is possible to increase the delay time from one block to the other.

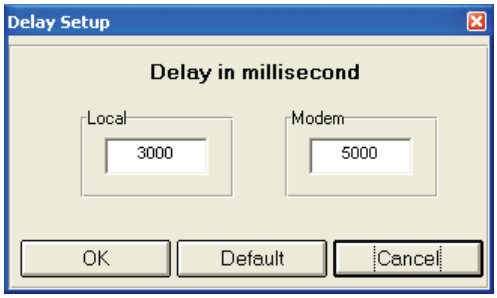


Figure 25: Delay Setup – Screenshot

Field Modem (Telit EZ-10) Configuration Wizard

This section is a step-by-step procedure on how to reconfigure the Telit EZ-10. (Usually, the GSM modem is sent out preconfigured to MUX connection)

*(Refer to **Appendix B** for connection)*

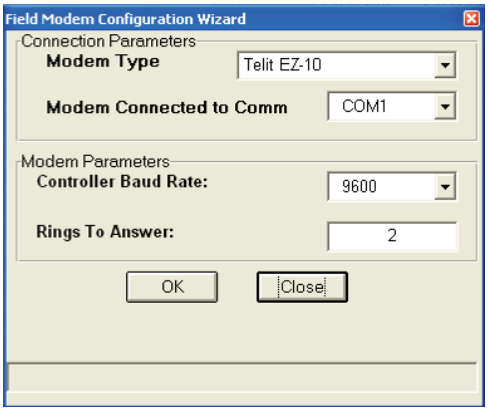


Figure 26: Telit Configuration Screen – Part 1

1. Connect to PC.
2. Select Modem Type
3. Select which comm. Port the connection with the modem is set.
4. Set the controller Baud Rate.
5. Set the number of rings before modem answers.

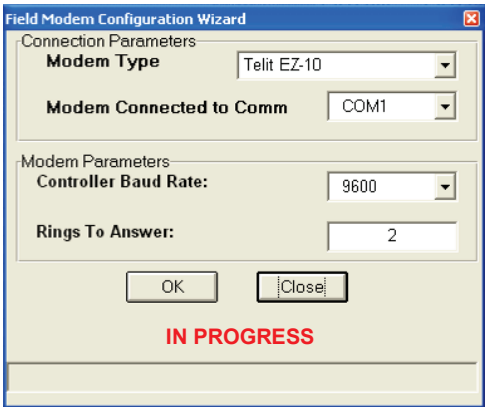


Figure 27: Telit Configuration Screen – Part 2

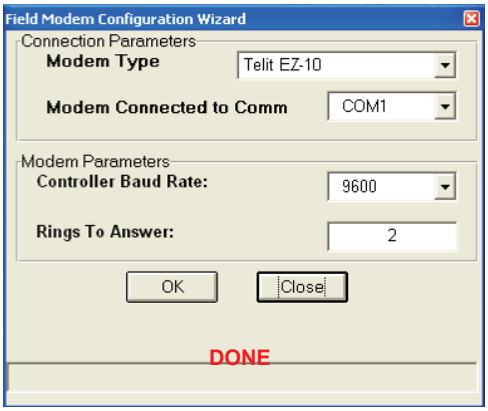


Figure 28: Telit Configuration Screen – Part 3

6. Once finished, turn modem power OFF.

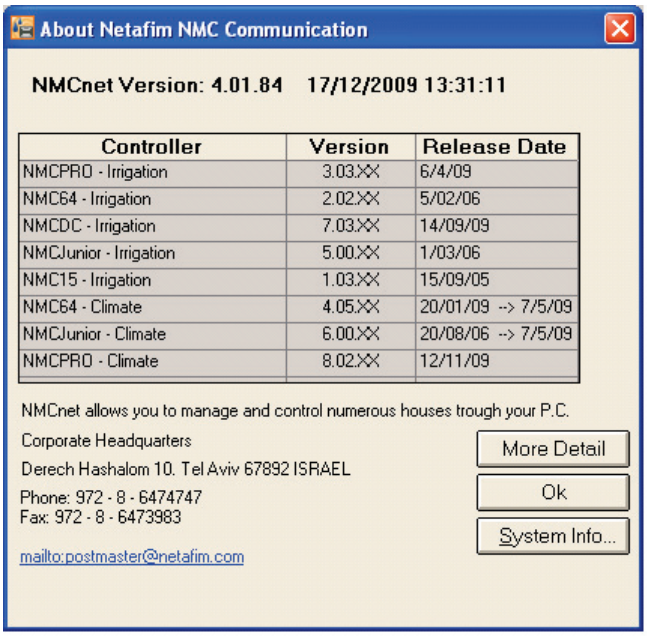
Help

Communication Manual

Select *Communication Manual* in order to view this manual.

About

View the controller software versions supported by the NMCnet version currently in use.



Quick Access Buttons

Main Screen

Click on the Main Screen button on the tool bar to bring up the Main Screen.

Settings

Select the controller number column and click on the Settings button on the tool bar to access the **Settings** submenu.

Click on any of the submenus to receive information from the controller.

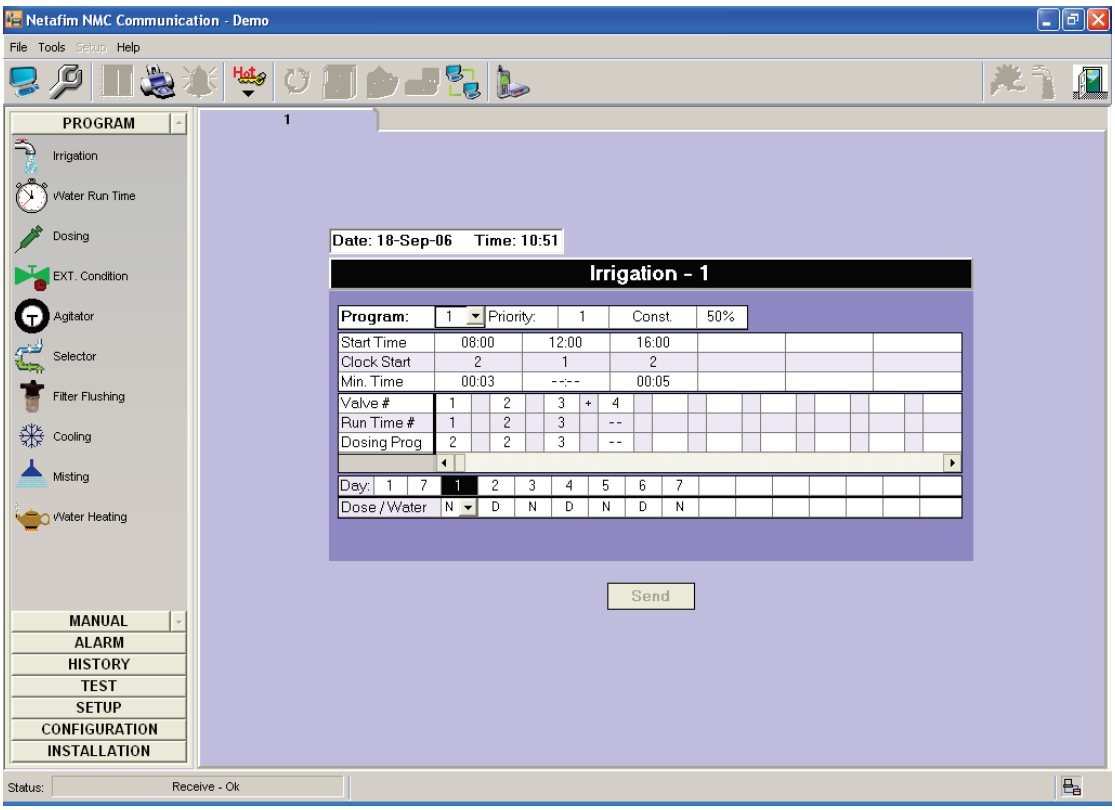


Figure 29: Irrigation Program Screen

NOTE: *Every column represents a controller.*

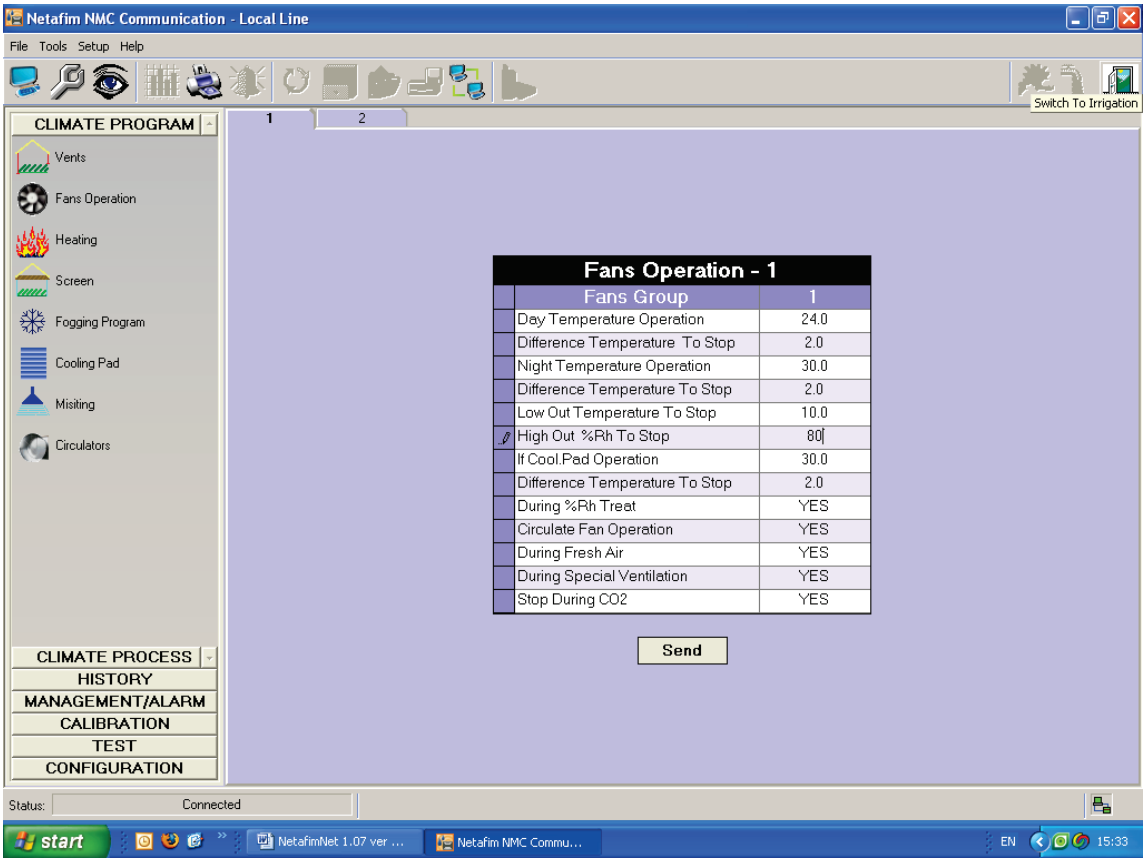


Figure 30: Fans Operation Screen

Graph

Click the Graph button to view controller data in graphs. The following sections detail the Graph function.

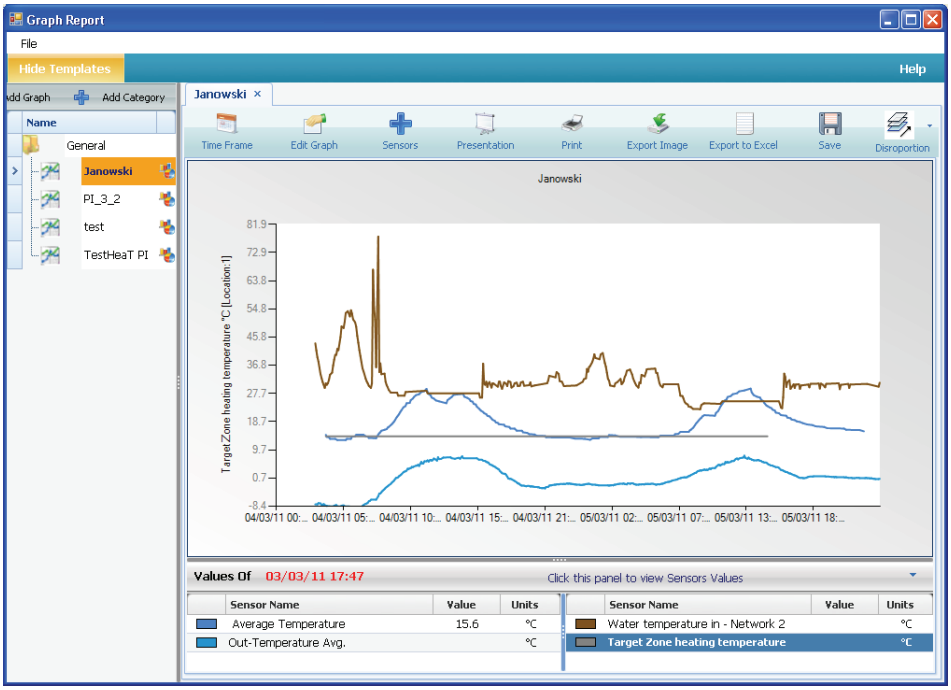


Figure 31: Main Graph Function Window

Creating a New Category

1. Click 

.
2. In the text box, type the category name.
3. Click **OK**.

Creating a New Graph

1. Click 

.

The Add a New Graph window opens.

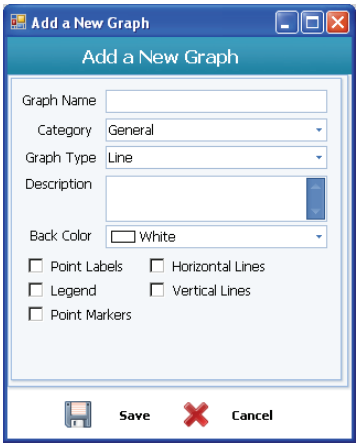


Figure 32: New Graph Properties Window

2. In the Graph Name field, type the graph name.
3. From the Category drop down list, select a category.
4. From the Graph Type drop down list, select the graph type.
5. In the Description text box, add any required text.
6. Select the graph properties:
   - Point labels: Date
   - Legend:
   - Point Markers
   - Horizontal/Vertical Lines: Set up a grid
7. Choose background color.
8. Click **Save**.

The new graph appears.

Editing a Graph

The Edit function enables changing the graph appearance.

1. Click 

.

The Graph Properties window opens.

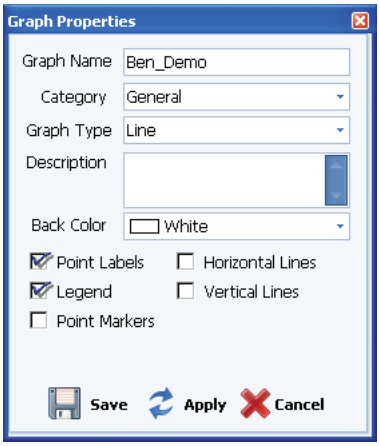


Figure 33: Edit Graph Properties Window

2. Edit the fields as required.

3. In the Description text box, add any required description.

4. Choose background color.

5. The check boxes determine what details appear on the graph. Click the required boxes.

6. Click **Save**.

The graph displays the new settings.

Sensor Settings in NMC Net

Sensor to Collect

You can determine controllers and sensors to be reported.

To set reporting sensors:

1. Click the **Sensor** icon on the toolbar. The sensors panel appears of the right side of the graph.

2. In the **Controller** field, use the drop down arrow to select the required controller. When selected, the **Locations** area appears with a list of the controllers sensors.

3. Select the required sensors to be shown on the graph.

Note: Only those sensors that have been selected in Settings > Setup can appear in the graphs.

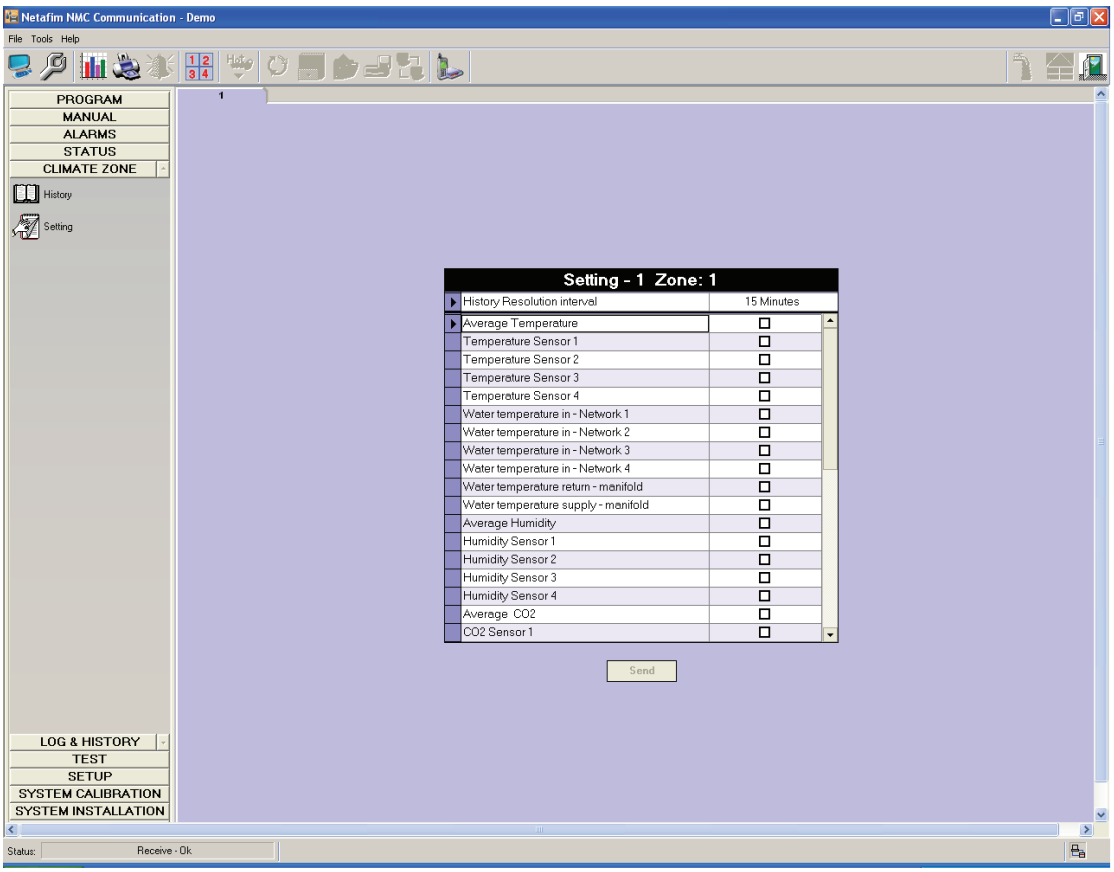


Figure 34: Sensor Setup Screen

Note: Figure 34 shows the NMC Climate Pro setup screen. The screen displayed in your application will differ according to your controller.

Time Refresh

You can determine the time period that the sensors connected to the controllers are reported. You can determine the To and From time period, and the default time frame for each template.

To select the time frame:

1. Click the **Time Frame** icon on the toolbar. The Select Time Frame panel appears on the right of the Graph.
2. In the **From/To** area set the desired day, month year and start and end time using the drop down menus.
3. Click **Apply** to apply the selected dates and times.

NOTE: When selected, this time frame applies to the current session only.

4. In the **Default Time Frame For Current Template** area, set the desired default template time frame.
5. Click **Save** to apply the desired default time template frame.

Changing the Time Frame

By default the graph displays data from the current date to the previous seven days. You can change the time frame as required.

1. Click 

.

The Time Frame fields appear.

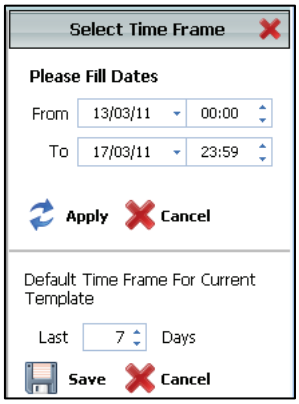


Figure 35: Select Time Frame Window

2. In the *From* and *To* fields, select the required dates.
3. Click **Apply**.
4. If required, change the default time frame.
5. Click **Save**.

Saving the Template

If you change the graph appearance, you can save the settings to the template. The next time that you create a graph, the data appears in the new format.

Exporting to Excel

You can export the data to Microsoft Excel.

1. Click 

2. Browse to the required directory and save.

Saving a the Graph as an Image

You can save an image of the graph as a jpeg file.

1. Click 
.
2. Browse to the required directory and save.

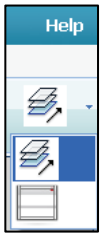
Printing the Graph

- Click 

to print the graph.

Graph Appearance

The graphs can appear having:

- All data lines appearing in one graph
- Each data line appearing in a separate graph
- Click 

    - To place all data lines in one graph, select  .
    - To separate the data lines, select  .

File

The File menu has the following functions:

- **Load Offline Data Files:** Enables loading offline data files
- **Application Settings:** Enables setting the desired units of measure between the U.S. or Metric system

Print

Clicking the print button will print the current table showing on your monitor.

Active Alarms

NMCnet displays the active alarms with a short message describing the alarm type. The alarm icon lights up when an alarm is active and it will automatically pop up a screen showing alarm and cause.

Any change in alarm will pop up that screen. After it is close it can be reopened by pressing the alarm icon. (Up to 9 alarms can be displayed – see the figure below).

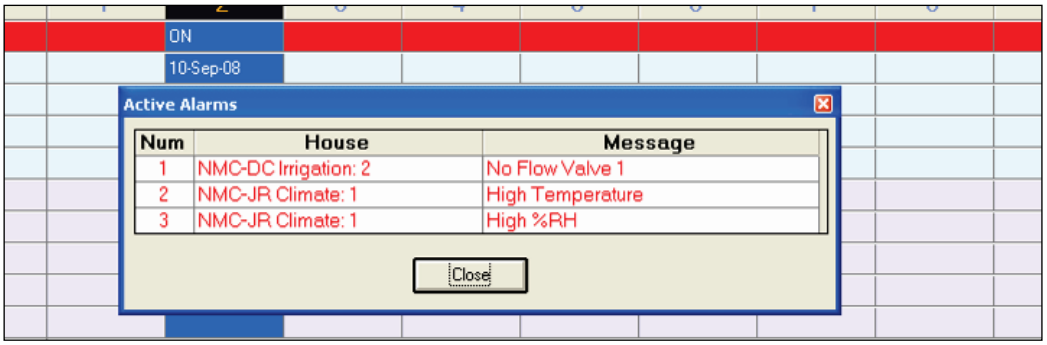


Figure 36: Active Alarm Screenshot

Zone selection for NMC-PRO Climate

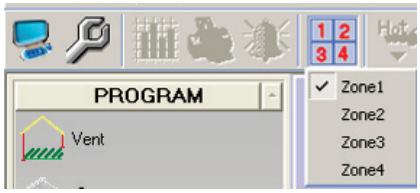


Figure 37: Zone Menu List

Hot Keys

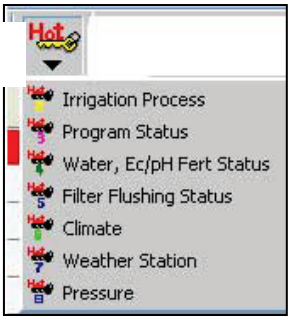


Figure 38: Hot keys Menu List

The NMCnet offers several functions located under the *Hot* dropdown list icon that enable you easy access to information that pertains to actual and future processes, as well as general conditions.

Simply select one of the functions from the dropdown list to open the appropriate window.

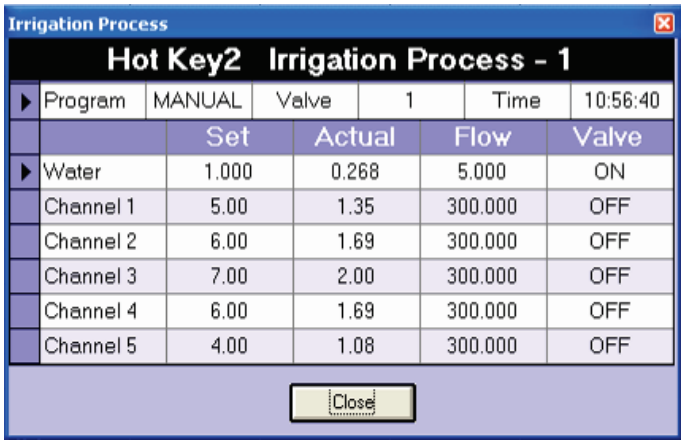


Figure 39: Hot Key 2 (Irrigation Process) Example

NOTE: *This hot key supports the following controllers only:*
NMC-PRO Climate/Irrigation, NMC-DC, NMC-64 Irrigation, Junior Irrigation

Collect

The collect button opens a window that allows you to configure the accumulation of history data from each controller, in order to use it for statistics calculations and records of previous years.

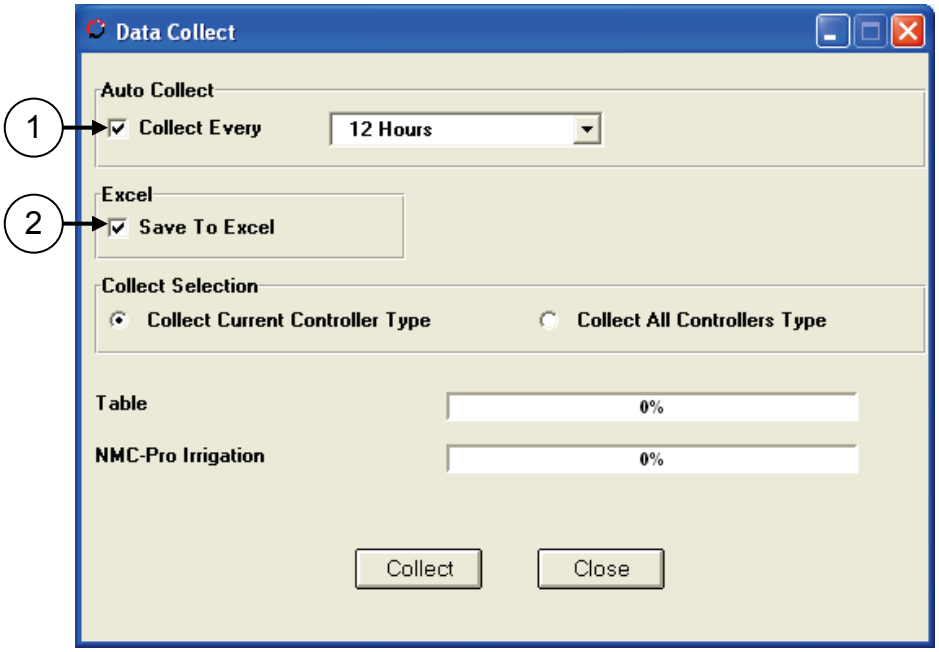


Figure 40: Data Collect 24 hr Format Screen

1. **Auto Collect:** Select this option to activate it. Select the data collection interval, and enter an hour in which automatic history collection is performed.
2. **Excel:** You can choose to save the data in excel format.

   In addition, there is an automatic data collection to a Microsoft Access - database.

   When Local connection is selected all the data will be collected to the Farm Directory that was defined in **Figure 21**. When Modem connection is selected all the data will be collected to the Farm Directory as defined in **Figure 9**.

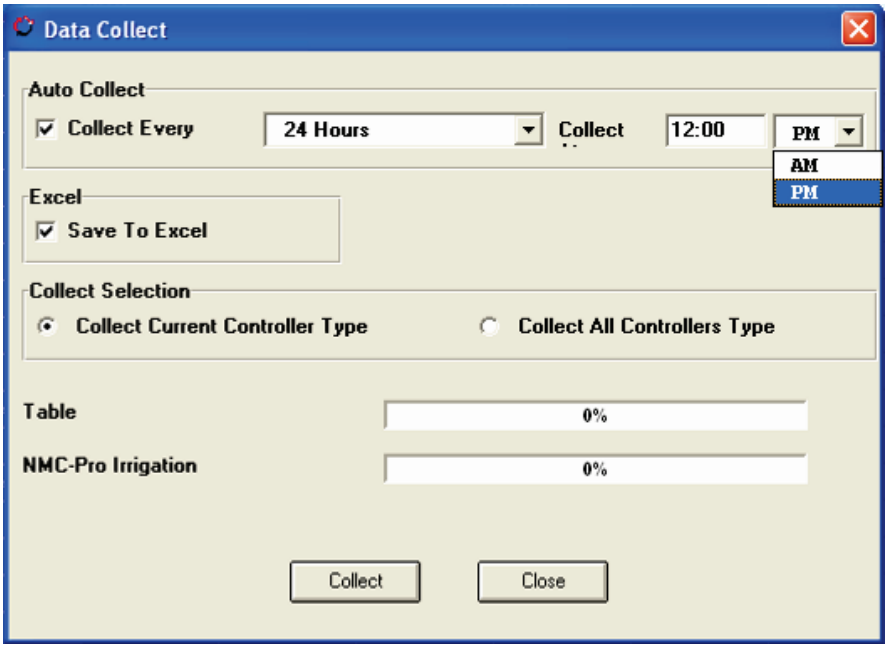
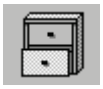


Figure 41: Data collect AM/PM Format Screen

History



Click on the History button on the tool bar and browse to directory of the saved history file in your PC. Open the history file and view history.

Load Settings to the Controller

Load settings to a controller (Figure 42: Select a controller number and the location of the file to load (In order to enter this menu you must enter a password that can only be received from your local dealer).

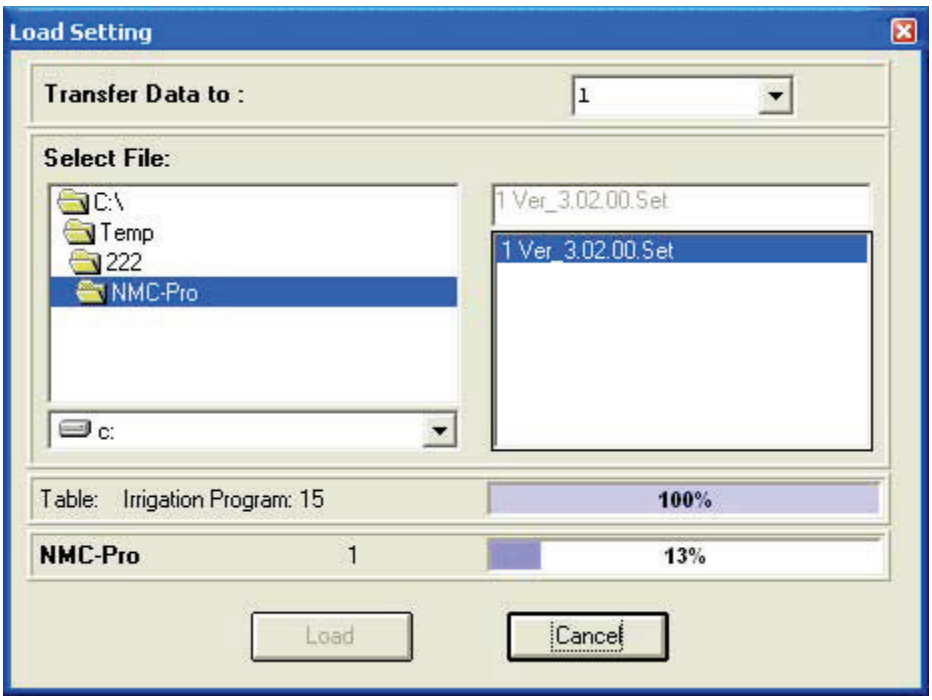


Figure 42: Load Setting to Controller Screen

Save Settings from Controllers

Click on the *Save Settings* button on the tool bar to download settings from all controllers to a file on your computer (PC).

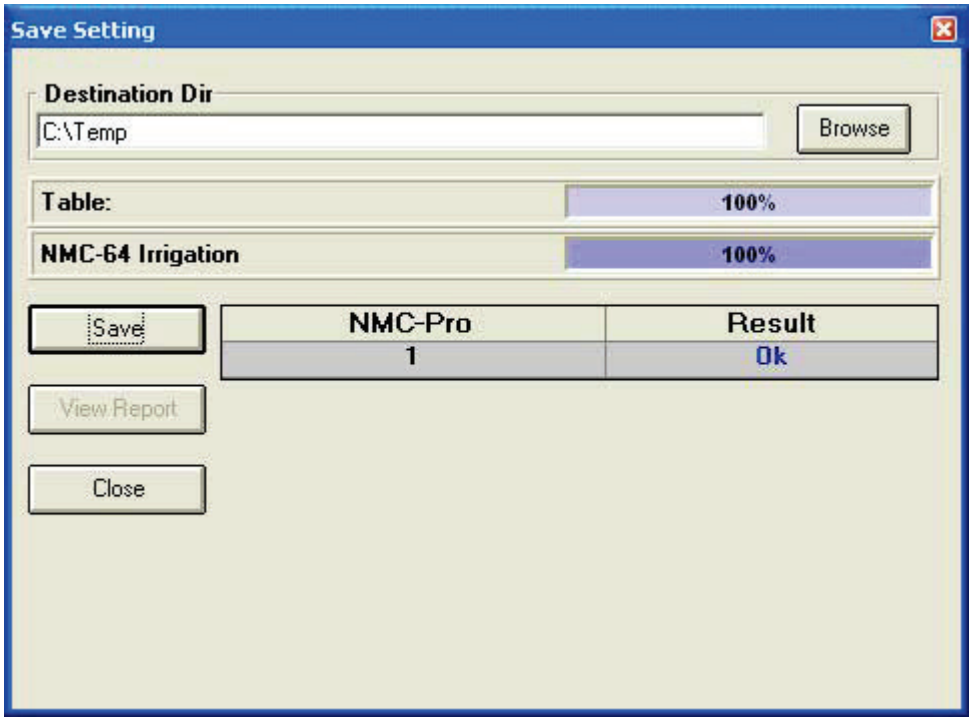


Figure 43: Save Setting Screen

The program creates a different file for each controller. The settings can be transferred to other controllers or serve as backup settings in case of malfunctions.

Send To

Send table settings to selected controllers or to all of the controllers.

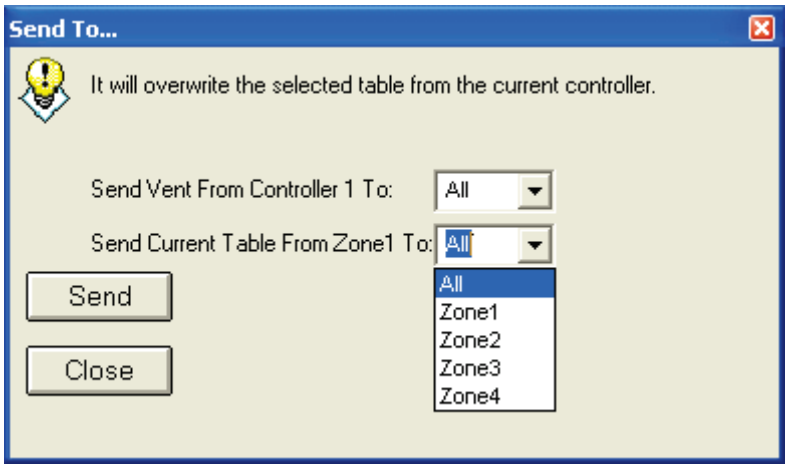


Figure 44: Send To Screen

Switch Between Controller Types

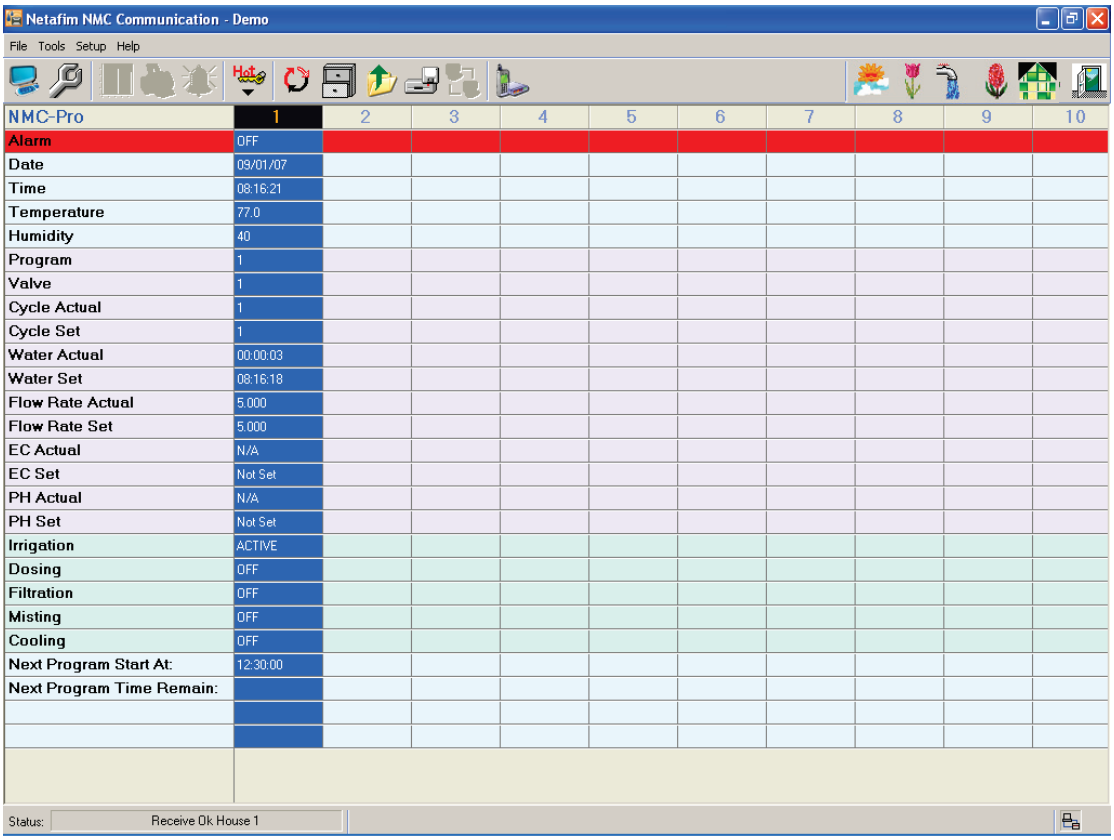


Figure 45: Switch Between Controllers Screenshot

The four icons on the upper right side of the screen (see **Figure 98**), enable the user to switch to different controllers according to the following:

 - Switch to **NMC-64 Climate**

 - Switch to **NMC-15**

 - Switch to **Irrigation**

 - Switch to **NMC-Junior**

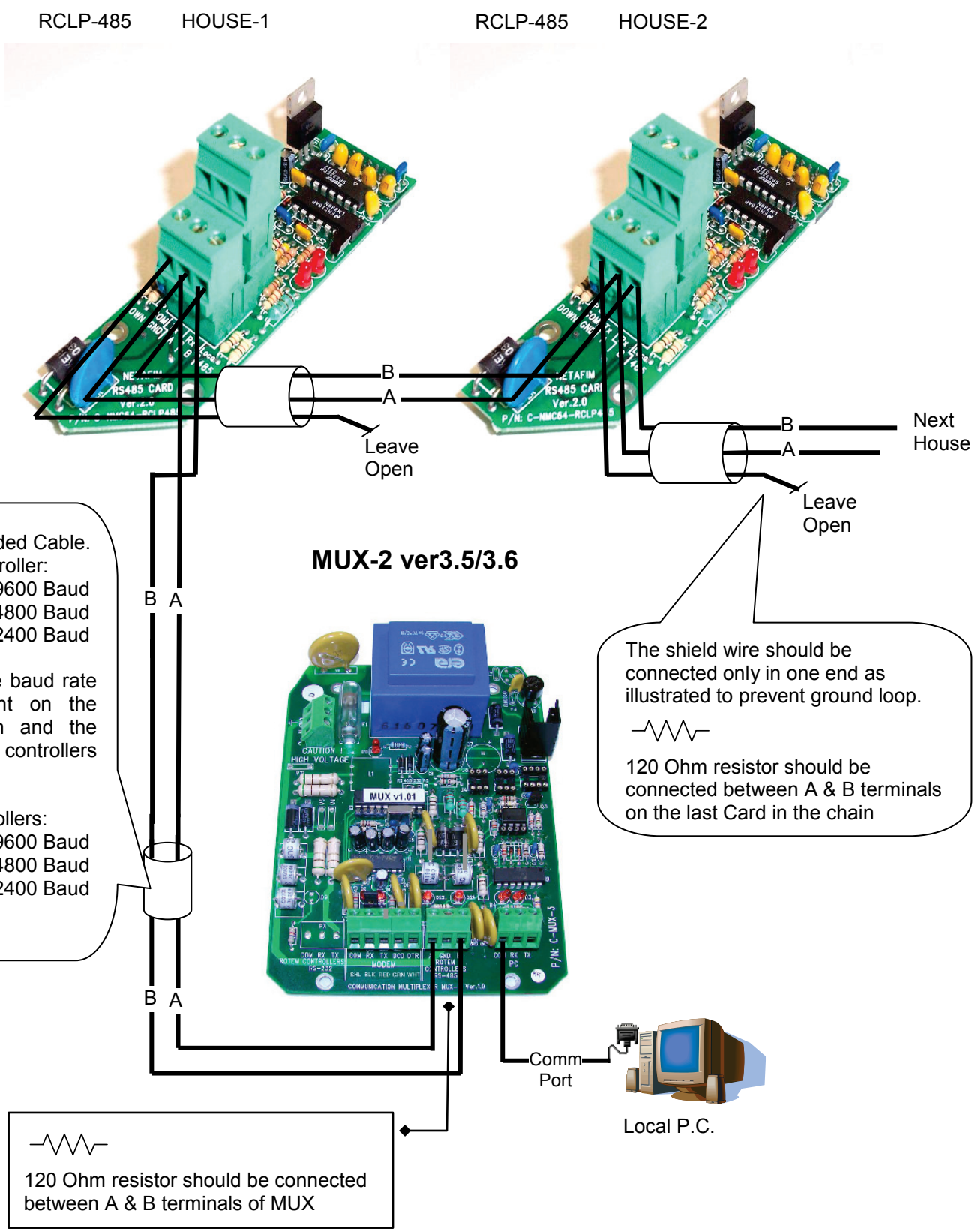
 - Switch to **NMC-Pro Climate**

Use the “Switch to …” buttons to switch between available controller types. When connecting to a specific type of controller, for example NMC-Pro Irrigation all available NMC-Pro will be visible.

Note: The icons only appear if they exist on the network.

Appendix A - Local Network Wiring Diagram

NOTE: *If one of the controllers is defined as a MASTER controller, then a MUX 3.6 connection must be used.*



Appendix B - GSM Modem Connection (SMS)

GSM modem EZ10 connection for SMS and reconfiguration:

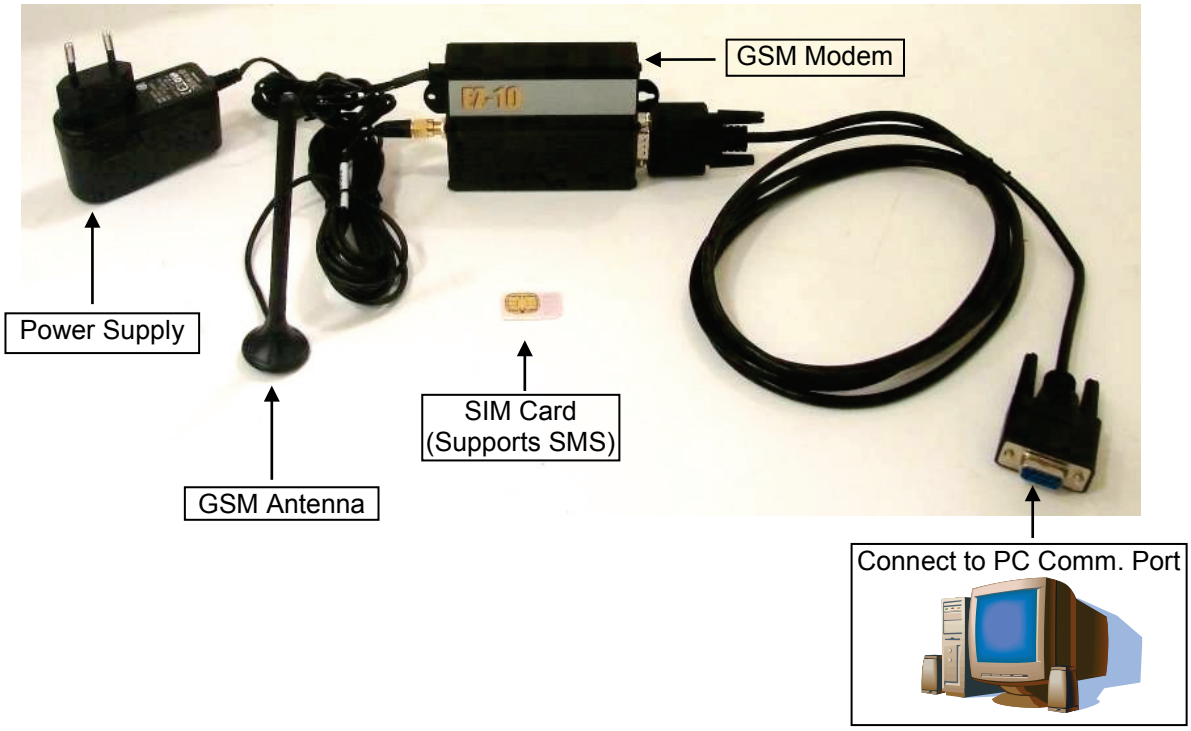


Figure 46: GSM Modem Connection

Appendix C - GSM Modem Connection (MUX)

GSM modem EZ10 connection for MUX

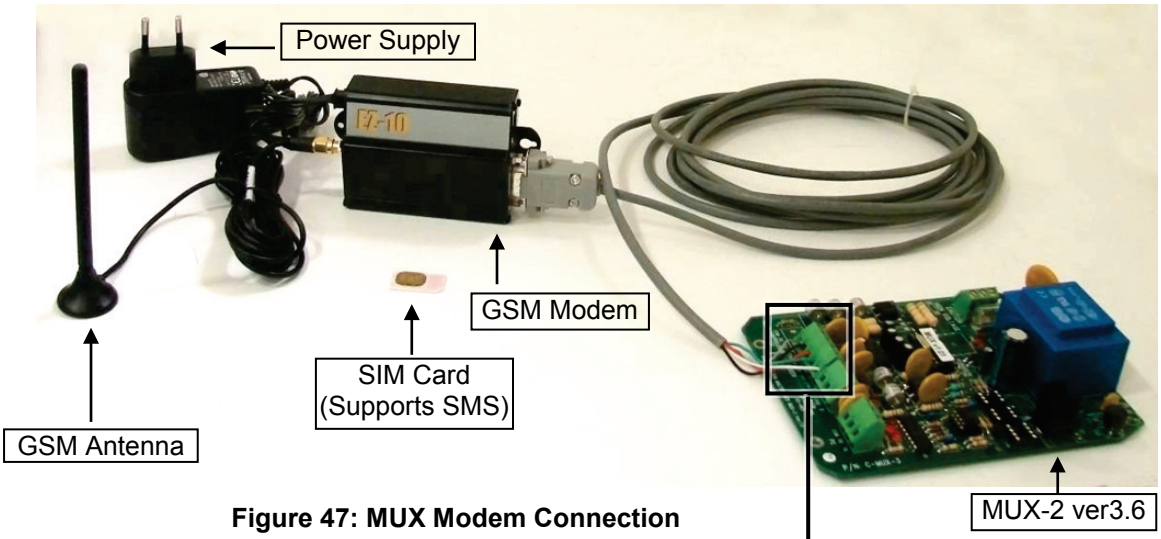


Figure 47: MUX Modem Connection

Pin Out Connections Table for MUX 3.6

DB-9 Pin number	Cable Color	MUX Terminal	
1	Green	DCD	GRN
2	Black	RX	BLK
3	Red	TX	RED
4	White	DTR	WHT
5	Shield	COM	SHL
6	-	-	-
7	Short	-	-
8		-	-
9	-	-	-

Pin Out Connections Table for MUX 3.5

DB-9 Pin number	Cable Color	MUX Terminal
1	Green	-
2	Black	RX
3	Red	TX
4	White	-
5	Shield	COM
6	-	-
7	Short	-
8		-
9	-	-

NOTE: *If one of the controllers is defined as a MASTER controller, then a MUX 3.6 connection must be used.*