

■ *E.Set, E.View and E.View+ Software*

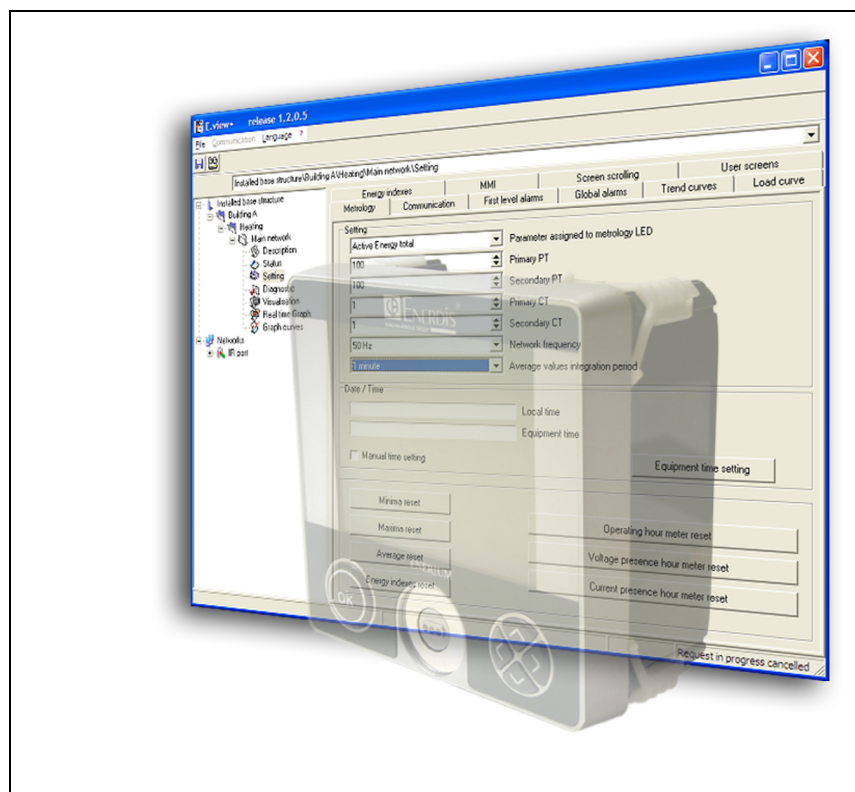


Table of Contents

Introduction.....	7
--------------------------	----------

1. Purpose of the manual	9
---------------------------------------	----------

2. Warranty, Responsibility and Copyright	10
--	-----------

2.1 Warranty.....	10
2.2 Ownership	10
2.3 Licence.....	10
2.4 Copyright.....	10
2.5 Registered trademarks.....	10

3. Package	11
-------------------------	-----------

General description	13
----------------------------------	-----------

4. General presentation	15
--------------------------------------	-----------

4.1 The application.....	15
4.2 Functionalities	15
4.3 Comparison of E.set / E.view and E.view+.....	15
4.4 Shortcuts	16

5. Installing the application	19
--	-----------

5.1 Hardware configuration	19
5.2 Install.....	19
5.3 Localisation of applications	22
5.4 Start.....	23
5.5 Entering the key	23
5.6 Un-installation	24
5.7 Repair.....	24
5.8 Note regarding the optical head driver	24

6. The start-up page.....	27
----------------------------------	-----------

6.1 Presentation	27
6.2 Tree architecture zone	27
6.3 The menus	28

6.4 The toolbar	29
6.5 The address bar.....	30
6.6 The status bar.....	31

Configuration.....	33
---------------------------	-----------

7. Create communication channels	35
---	-----------

7.1 Reminder about communication	35
7.2 Creating a communication channel.....	36
7.3 Creating another link.....	38
7.4 Remaining operations.....	38

8. Create the Installed base architecture	39
--	-----------

8.1 Example of architecture	39
8.2 Creating the architecture	39
8.3 Remaining operations.....	41

9. Create the devices.....	43
-----------------------------------	-----------

9.1 Creation	43
9.2 Configuring the description	44
9.3 Defining the configuration parameters	46
9.4 Device icons	47
9.5 Remaining operations.....	47

10. Abridged manual	49
----------------------------------	-----------

10.1 Create a communication channel	49
10.2 Create a new folder	50
10.3 Create a new device	50
10.4 Establish the E.view ↔ PC connection	51
10.5 Transfer between Device → PC.....	51
10.6 Use the application	51
10.7 Transfer from PC → Device	51

Utilisation 53

11. Connection and transfers 55

11.1 Connection	55
11.2 Transfer from Device → PC	56
11.3 Transfer from PC → Device	57
11.4 Close a link.....	57
11.5 Remaining operations	57

12. Using the application..... 59

12.1 Initial programming.....	59
12.2 Reprogramming	59
12.3 Description	59
12.4 Status	60
12.5 Setting.....	60
12.6 Diagnostic	60
12.7 Displaying the measured data.....	61
12.8 Real time graph.....	61
12.9 Graph. curves.....	62

13. The error messages 63

13.1 Location of messages	63
13.2 List of messages	63

The menus..... 65

14. Description Page..... 67

14.1 Access.....	67
14.2 Display on call	67
14.3 Function details	68
14.4 Display example.....	70

15. Status page 71

15.1 Access.....	71
15.2 Display on call	71
15.3 General	72
15.4 First level alarms	73
15.5 Global alarms	73
15.6 Pulse outputs	74
15.7 Analogue outputs	74

16. Setting page 75

16.1 Access.....	75
16.2 Display on call	75
16.3 Available functions	76

16.4 First level alarms.....	76
16.5 Global alarms	77
16.6 Communication.....	77
16.7 Trend curves.....	78
16.8 Load curve.....	79
16.9 Screen scrolling	80
16.10 User screens.....	80
16.11 Pulse inputs	81
16.12 MMI.....	81
16.13 Energy index.....	82
16.14 Pulse inputs index.....	82
16.15 Metrology.....	83
16.16 Analogue outputs.....	85
16.17 Pulse outputs.....	86

17. Diagnostic Page 87

17.1 Access	87
17.2 Display on call.....	87
17.3 Pulse inputs	88
17.4 Binary inputs.....	88
17.5 Binary outputs.....	88
17.6 PLC outputs.....	89
17.7 Analogue outputs.....	89

18. Visualisation icon..... 91

18.1 Access	91
18.2 Display on call.....	91
18.3 Available functions.....	91
18.4 Counters	92
18.5 Load curve.....	92
18.6 Trend Curves	93
18.7 Instant extremums	94
18.8 Harmonics	94
18.9 Alarms journal.....	94
18.10 Power max.....	95
18.11 Power minimums	95
18.12 Powers.....	96
18.13 Harmonic rates	96
18.14 Instant values.....	97

19. Real time graph icon 99

19.1 Access	99
19.2 Phasors	99
19.3 Fresnel.....	100
19.4 Harmonics table.....	101
19.5 Harmonics graphs.....	102

20. Graph. curves icon..... 103

20.1 Access	103
20.2 Display on call.....	103
20.3 General method.....	103
20.4 Graph. LC.....	104

20.5 Graph. Tc	107
----------------------	-----

Appendices 109

21. Characteristics 111

21.1 Visual architecture.....	111
21.2 Communication	111
21.3 Setting	111
21.4 Description page	111
21.5 <i>Status</i> page	111
21.6 Setting page	111
21.7 Diagnostic page	112
21.8 Visualisation page	112
21.9 Real time graph page.....	112
21.10 Graph. curves page.....	112

22. Printing *Micar 2* configuration label 113

22.1 Hardware configuration	113
22.2 Installation of the <i>Micar 2 label Printer</i> software.....	113
22.3 Printing the <i>Micar 2</i> label.....	114

23. Index 115

Introduction

1. PURPOSE OF THE MANUAL

This manual is intended for customers who want to use the *E.View+* and *E.Set+* software with a measuring unit of type *Enerium* power meter or *Micar 2* transducer for measuring network (V, U, I, F, P, Q, S, FP, THD) and energy quantities.

This manual gives information about:

- the product's functions.
- setting up and using the product.
- the product's characteristics.

Enerdis (company) produces this manual with the aim to provide simple and accurate information. *Enerdis* cannot be held responsible for any incorrect interpretation of this manual. Although every effort has been made to produce a manual that is as accurate as possible, the manual may nevertheless contain technical and/or typographical errors.

It is the software owner's responsibility to keep this manual throughout the duration of use of the product.

All information or modification relating to this manual should be addressed to:

ENERDIS

The Publication Manager
16, rue Georges Besse
SILIC 44
F - 92182 Antony Cedex

2. WARRANTY, RESPONSIBILITY AND COPYRIGHT

2.1 Warranty

Our warranty is applicable, unless explicitly stipulated otherwise for, 90 days after the date the software is made available (extract from our *General Terms and Conditions of Sale*, sent on request).

2.2 Ownership

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2.3 Licence

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First edition, November 2008.

2.5 Registered trademarks

E.view+, *E.set+* and *Enerium* are registered trademarks of *Enerdis*.

Excel and *Windows* are registered trademarks of *Microsoft Corporation* in the United States and in other countries.

3. PACKAGE

The software is delivered as follows.

Description	Q ^{ty}
CD ROM containing the application software <i>E.view+</i> (or <i>E-Set</i>) and this reference manual in pdf format .	1

General description

4. GENERAL PRESENTATION

4.1 The application

E.view+ and *E.set+* are applications that work under the *Windows* environment. They are designed to communicate with one or more *Enerium* type measuring units or *Micar 2* transducers through:

- A RS485 type digital communication with the Modbus protocol in RTU mode, or Ethernet type with the Modbus/TCP protocol in RTU mode;
- Or an optical communication interface (USB connection and infrared communication).

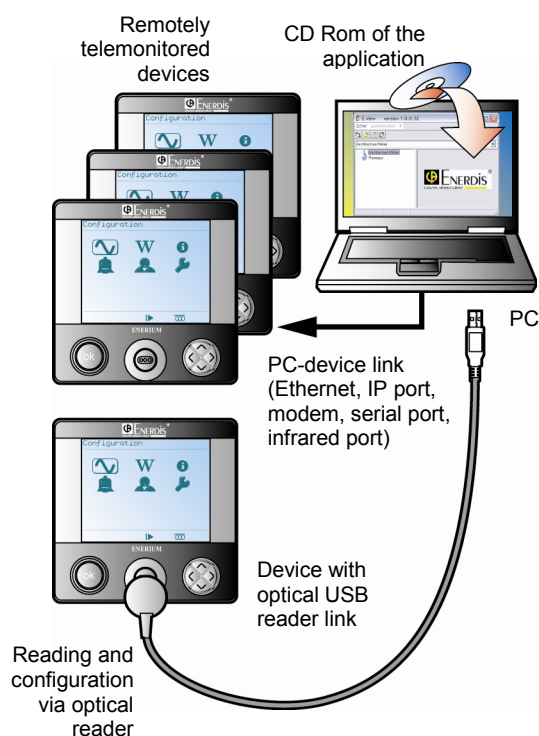


Figure 4-1: overall view of a set of devices and the application.



The *E.view+* version can be used for a 30 days period without activating the licence (see paragraph 5.5). The *E.set* version can be used without a licence.

4.2 Functionalities

On the PC which will be running the application, the digital or optical communication enables the user in particular to:

- Configure products real-time or non-real-time.
- Display measurements permitted by the software on the PC or read all the available quantities through memory addresses.

With digital communication, the number of measurement units or transducers that can be consulted or remotely configured is around a thousand and this depends solely on the computer's capabilities (random access memory (RAM) capacity)

4.3 Comparison of *E.set* / *E.view* and *E.view+*

The following table presents the differences between the applications *E.set* and *E.view+*.

Functionalities	<i>E.set</i>	<i>E.view</i>	<i>E.view+</i>
Description	■	■	■
Status	■	■	■
Configuration	■	■	■
Diagnostics		■	■
Visualisation		■	■
Real time graph			■
Graph curves			■

The following points summarize the different functionalities:

- **Description:** Manually or automatically define optional cards present in the selected product (digital inputs, digital outputs, analogue inputs) and display version numbers, statuses of communication cards, man-machine interface and the *Enerium* or *Micar 2* motherboard.
- **Status:** Displays current status of the selected device (general, status of first level and global alarms).

- **Configuration:** Full configuration of the device from this application or by downloading the information from the concerned *Enerium*.
- **Diagnostic:** Display current status of the selected device. The digital inputs, digital outputs and analogue outputs are also displayed.
- **View:** Display, in the form of tables, data measured or calculated by the device.
- **Real time graph:** display, in the form of graphs, Fresnel diagrams and harmonic graphs, data measured or calculated by the device.
- **Graph. curves:** display in the form of load and record curves, data saved in the database.

4.4 Shortcuts

The illustration on the following page shows an example of the application used with shortcuts to the concerned chapters.

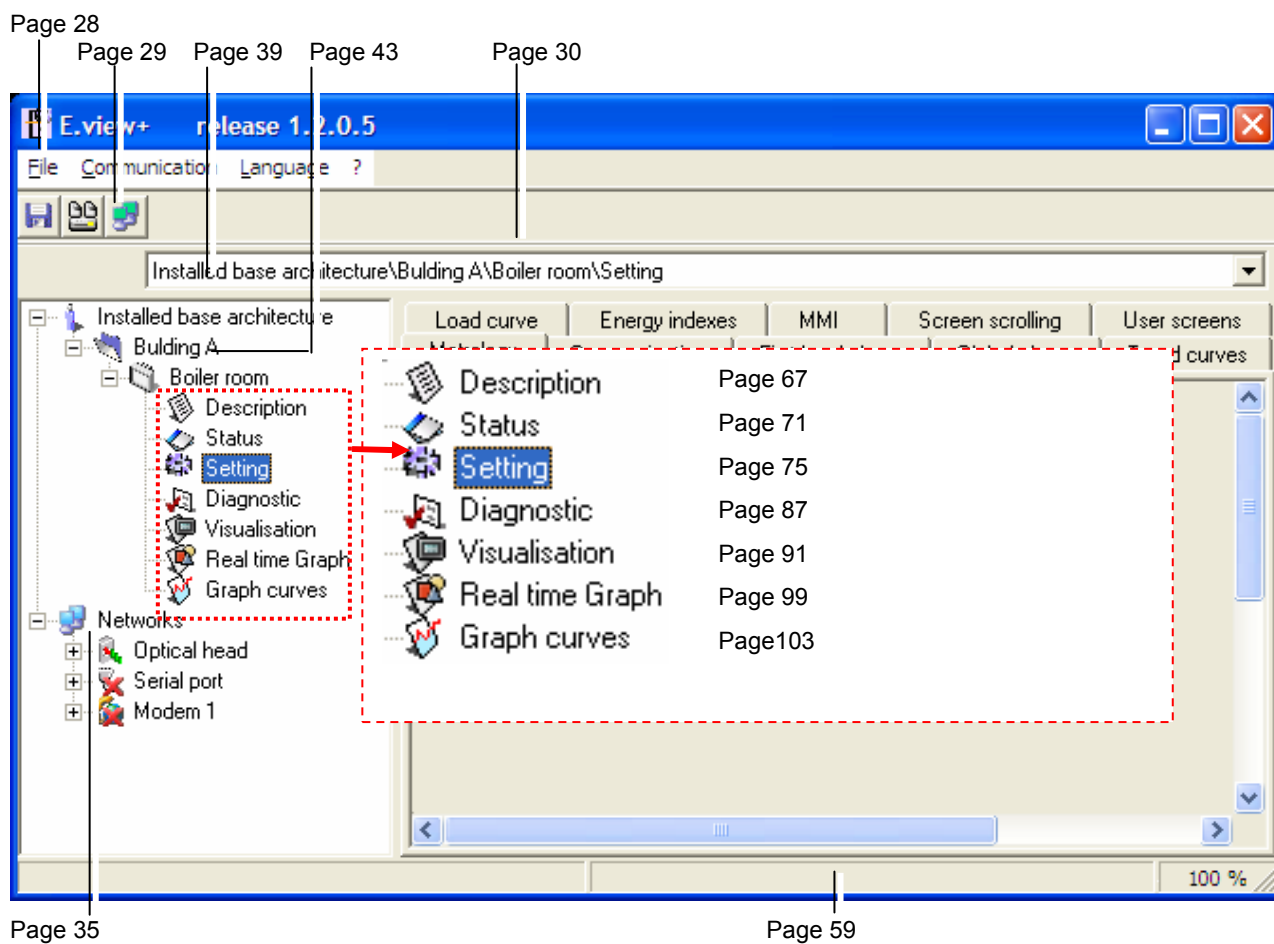


Figure 4-2 : overall view of the application with shortcuts to the concerned chapters.

5. INSTALLING THE APPLICATION

5.1 Hardware configuration

For the *E.set*, *E.view* or *E.view+* applications to operate, the PC must have a minimum of the following characteristics:

- PC: compatible processor.
- Operating system: XP or 2000.
- RAM memory: 512 Mb minimum, 1 Gb recommended.
- Screen: 1024 * 768 minimum.
- CD ROM reader
- Space on hard disk: Approximately 50 Mb is needed for normal operation and 1 Gb additional space is needed if the SQL database is installed.
- Local communication port: at least one USB type port (1.1 minimum).
- Remote communication port: at least a RS232C type port, Ethernet or Modem.

5.2 Install

Proceed as follows.

5.2.1 Selecting options

- Insert the CD ROM into the reader. The automatic installation wizard is launched.
Note: if *auto-run* has been de-activated, double click on the icon of the CD Rom and double click the *setup.exe* icon.
- Select the installation language for the menus and click **Next**.
- When the *Welcome* screen appears, click on **Next**.
- Accept the terms of use and click **Next**.
- Select the type of installation and click **Next**:

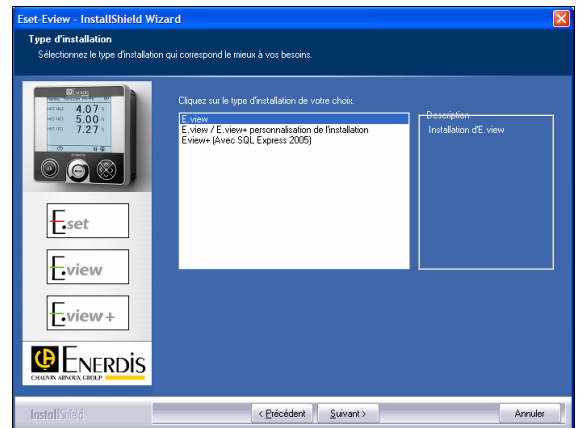


Figure 5-1 : the screen for selecting applications to install.

- *E.view*: Install only the *E.view* application. Proceed to paragraph 5.2.2
- *E.view / E.view + installation customisation*: install the *E.view* application, with the option to select the destination directory and possibly install *SQL Express*. Proceed to paragraph 5.2.3
- *E.view + (with SQL Express 2005)*: install *E.view* and *SQL Express* applications. Depending on properties of the computer, the installation can take up to 25 minutes. Proceed to paragraph 5.2.4.

5.2.2 "E.view" Selection

The following screen is displayed:

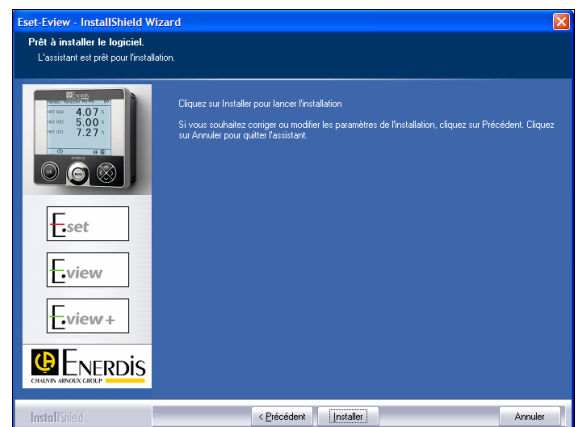


Figure 5-2 : the screen before the installation.

- Click **Install** to launch the installation. The screen displays the progress of the installation.

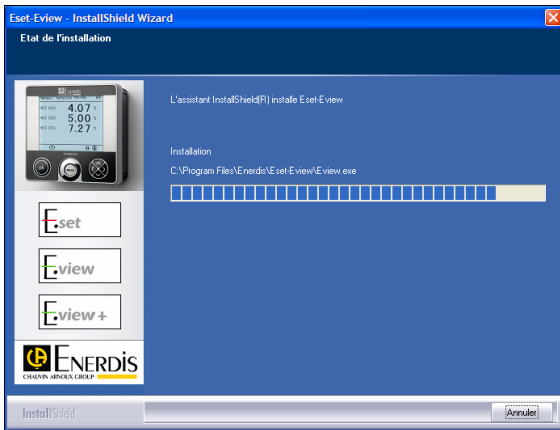


Figure 5-3 : installation in progress.

- Once the installation is complete, click **Finish** to end the installation procedure.

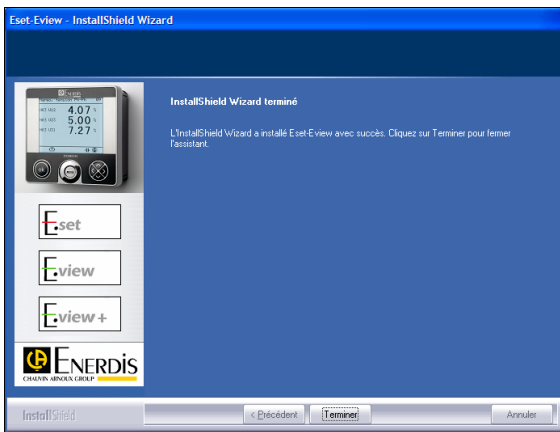


Figure 5-4 : the installation is finished.

5.2.3 Selection of "E.view / E.view+ customization of the installation"

The following screen is displayed:

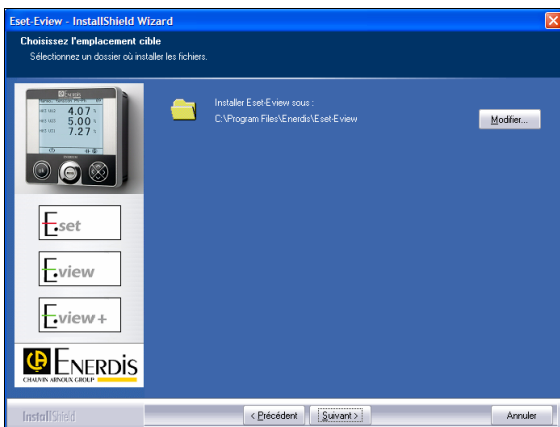


Figure 5-5 : the screen for selecting the destination directory.

- Click **Change** if the default destination directory is to be changed; select another directory before clicking on **OK**.
- Click **Next** and select the objects to install. Select **SQL Express 2005** if this application must be used. Otherwise, another database management application must be present on the system, if the **Graph. Curves** function (see chapter 20) must be used.

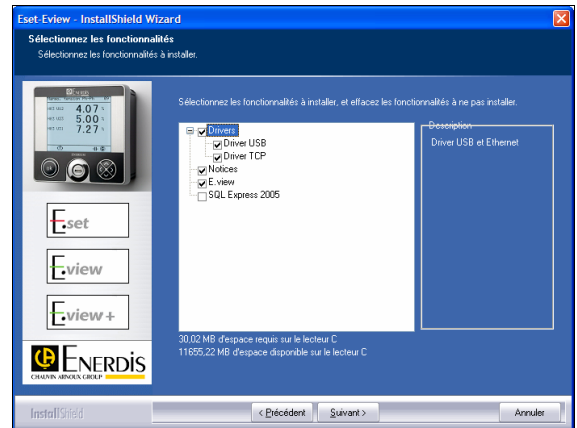


Figure 5-6 : the screen for selecting applications to install.

- Click **Next**.

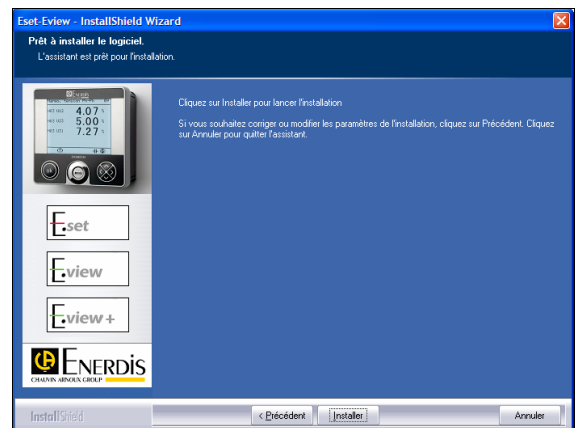


Figure 5-7 : The screen before launching the installation.

- Click **Install** to launch the procedure.

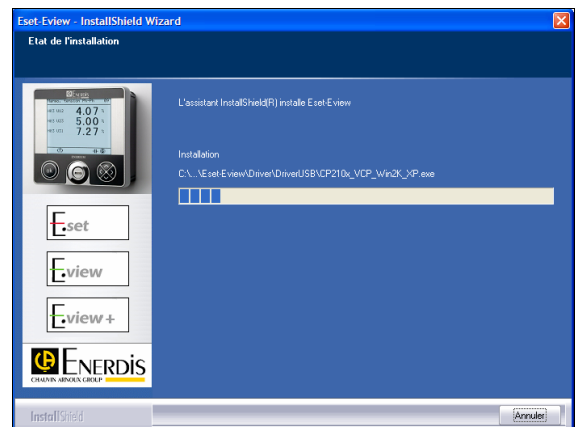


Figure 5-8 : installation in progress.

- Once the installation is complete, click **Finish** to end the installation procedure.

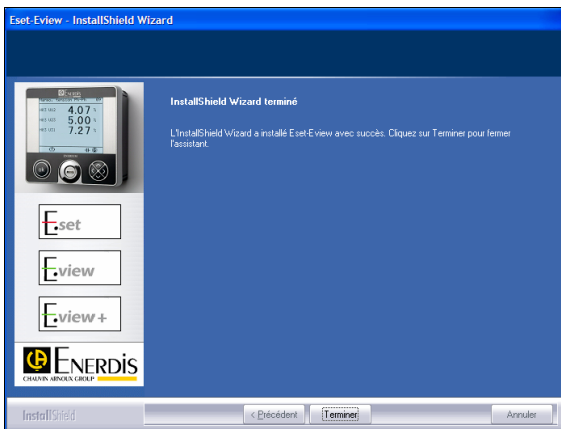


Figure 5-9: the installation is finished.

5.2.4 Selection of "E.view+ (with SQL express)"

- The following window is displayed:

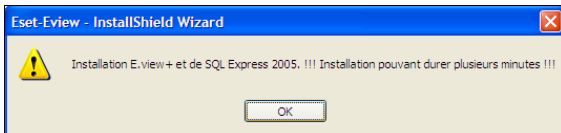


Figure 5-10 : a warning message informs that the installation can take up to 25 minutes.

- Click **OK** to display:

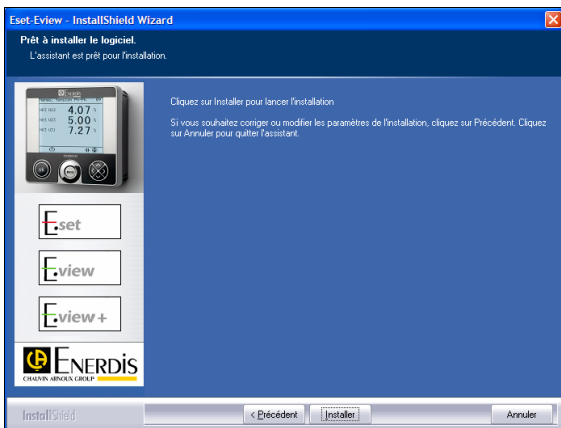


Figure 5-11 : installation with SQL Server.

- Click **Install**.
- If the necessary objects are not present on the system, the installation will add the missing applications. Click **Next**.

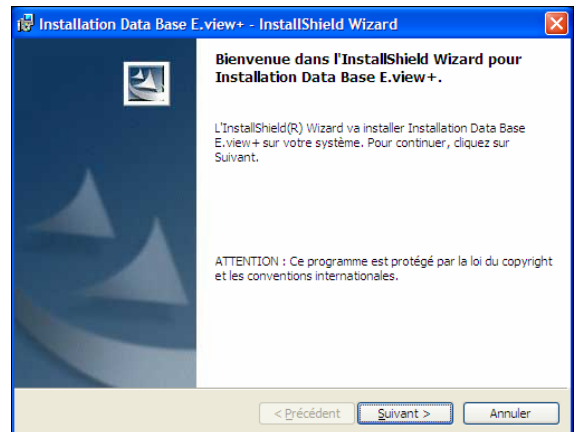


Figure 5-12 : the missing objects are automatically installed.

- After the SQL Express environment installation (up to 25 minutes), click **Next**.

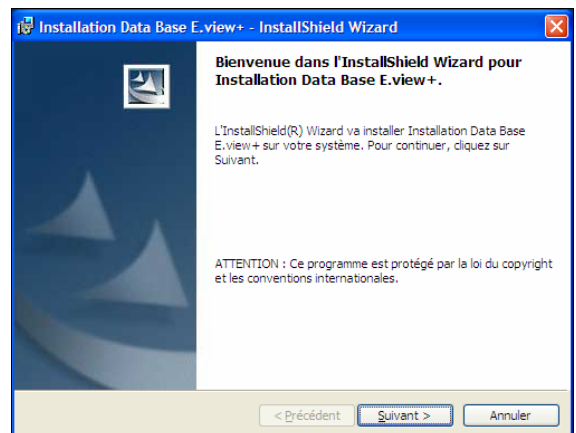


Figure 5-13 : database installation start.

- In the displayed window:
 - Click **Browse...** if the default installation (in *Programme Files > Enerdis*) is not desired.
 - Select **Login details...** (default parameter).
 - Select **Server login...** if the *Enerdis* database is network type.
 - Click **Next**.

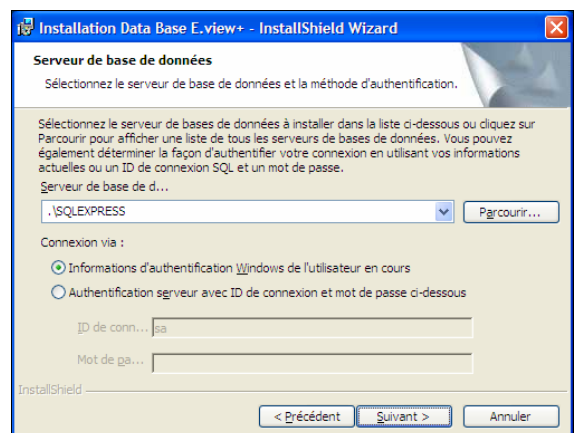


Figure 5-14 : definition of database options.

- On the screen displayed, click **Installation** to install the *E.view+* database.

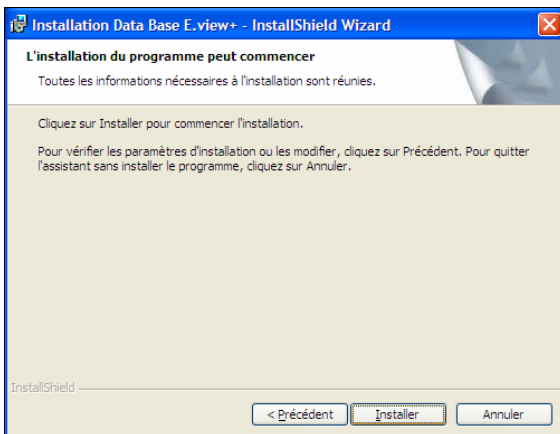


Figure 5-15 : launching the database installation.

- After a few minutes, the database final installation screen is displayed. Click **Finish**.

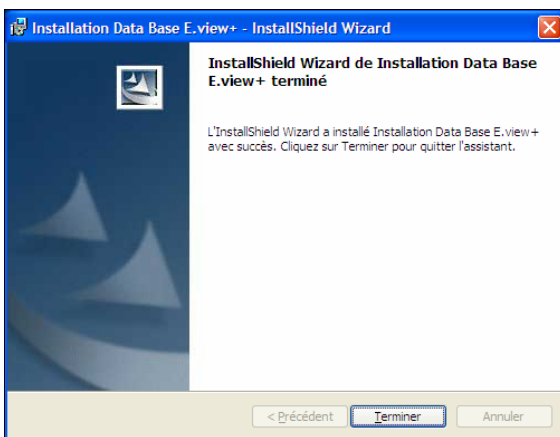


Figure 5-16 : the database installation is finished

- On the screen displayed, click on *Install* to install the *E.view+* application.

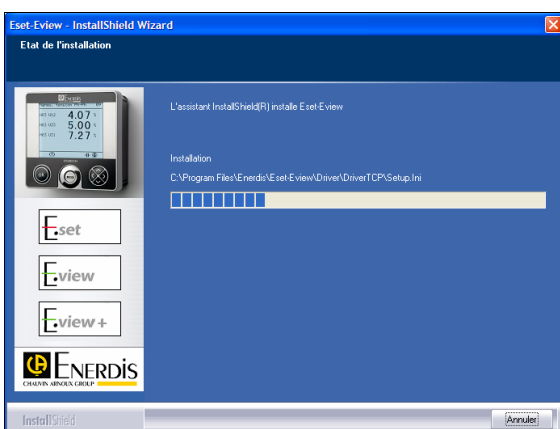


Figure 5-17 : *E.view+* installation in progress.

- After a few minutes, the database installation completion screen is displayed. Click **Finish**.

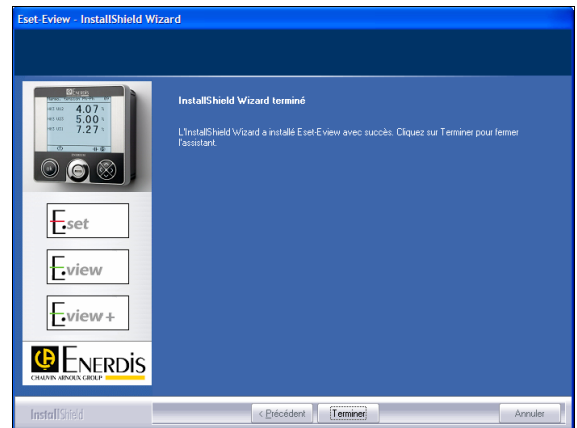


Figure 5-18 : the installation of *E.view+* is finished.

5.3 Localisation of applications

Proceed as follows:

- The application is available from the *Start > Programs* menu, by clicking on the *Enerdis/E.view* icon.
- The *SQL Server Management Studio Express* application is available from the *Start > Programs* menu, by clicking on the *Microsoft SQL Server 2005* icon.

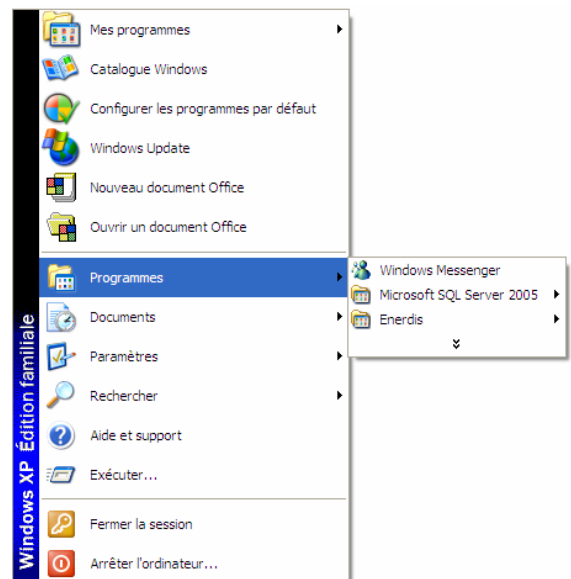


Figure 5-19 : Accessing applications once the installation is complete.

5.4 Start



When the optical head is plugged in for the *first* time in the USB port of the PC, application Alcee or not, an automatic installation procedure of the optical head driver is started. Refer to chapter 5.8 on page 24 for details.

Select **Start > Programmes, Enerdis/E.view** icon and click **E.view**. The screen is displayed as follows.

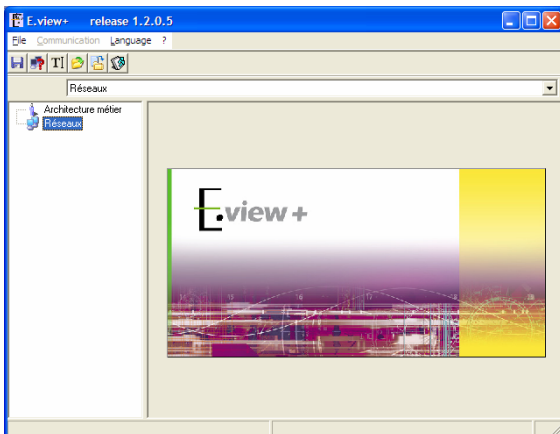


Figure 5-20 : display on using for the first time.

5.4.1 E.view or E.view+

E.view or *E.view+* application can be used for 30 days after the first use. After this period, an activation key must be entered; refer paragraph 5.5 - *Entering the key*. This key can be obtained from *Enerdis* (company). This is a commercial application.

5.4.2 E.set

This application is free; it is operational without any time limit.

5.5 Entering the key

An activation key is required to use the *E.view+* application after 30 days from the first run. Proceed as follows:

- Launch the application.

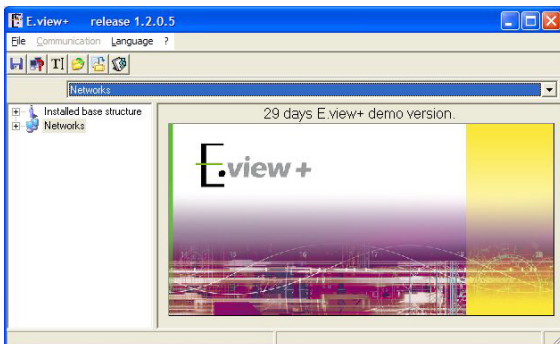


Figure 5-21 : without an activation key, the application can be used only for a period of 30 days.

- In the menu bar, select **? > Activation**.
- The window displayed asks the user to enter the software activation key.

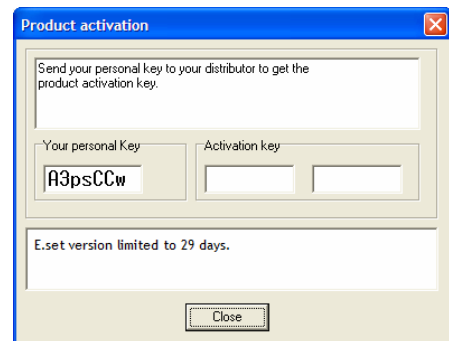


Figure 5-22 : awaiting entry of the activation key.

- Contact your retailer to obtain an activation key or contact www.enerdis.com.
- Enter this key in the **Activation key** zone.
- When a valid key is entered, the message **E.set version activation successful** is displayed (figure below).

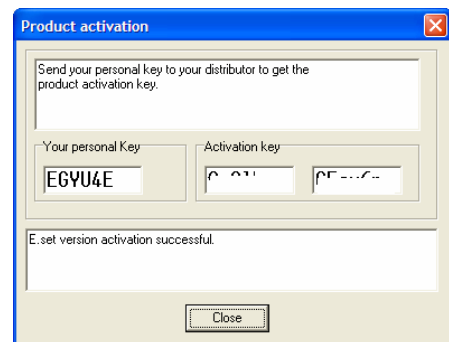


Figure 5-23 : valid activation key.

- Click **Close** to use the application. No activation key will be requested again on this PC.

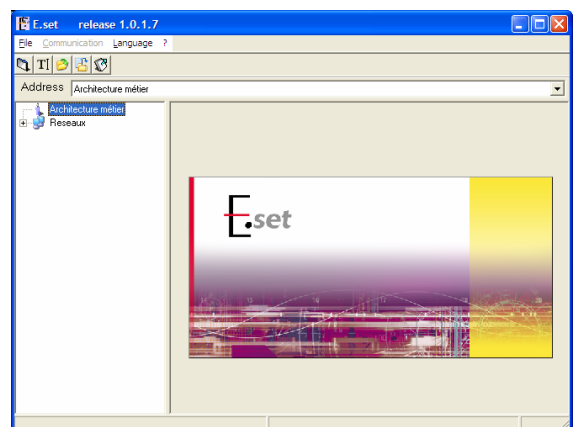


Figure 5-24 : with the activation key, the application can be used without any time limit.

5.6 Un-installation

5.6.1 Using the *Add/Remove programs* menu

The installed applications are generally de-installed from the *Start > Settings > Control Panel > Add/Remove programs* menu as follows:

- **E.set - E.view**: click on the *E.set-E.view* icon and click on the *Remove* button.
- **Microsoft SQL Server**: separate clicks on each of the four *Microsoft SQL* icons and click on the *Remove* button.

5.6.2 Using the CD Rom

The CD Rom has an option to remove the installed applications as follows:

- Given that the application was previously installed, insert the CD Rom. The *autorun* displays, after a few seconds, the following window:



Figure 5-25 : the screen for selecting the actions to be executed.

- Select **Remove** to remove all the installed features. *SQL Server Express* is not removed by this option.

5.7 Repair

Proceed as follows:

- Given that the application was previously installed, insert the CD Rom. The *autorun* displays, after a few seconds, the following window:



Figure 5-26 : the screen for selecting the actions to be performed.

- Select **Repair** to repair the installed features. *SQL Server Express* is not concerned by this option.

5.8 Note regarding the optical head driver

The optical head driver installation is done in 2 steps, namely:

- Installation of the USB driver of the optical head.
- Creation of a virtual communication port.

5.8.1 Installation of the USB driver of the optical head

Proceed as follows on display of the different screens.

- When the *Add hardware* wizard is displayed, select *Not this time* and click *Next*.

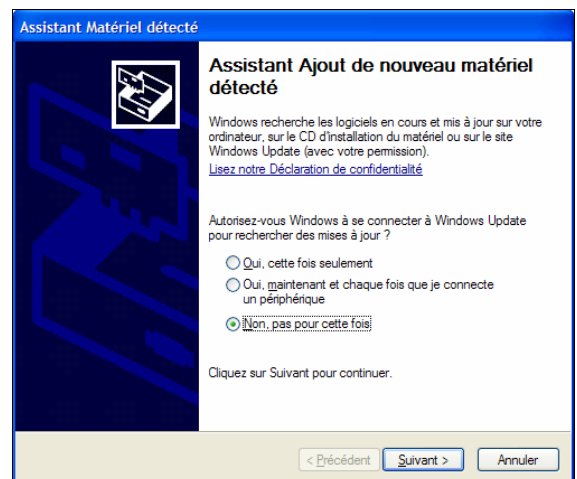


Figure 5-27 : display the add hardware wizard.

- Select *Install the software automatically (recommended)* and click *Next*.

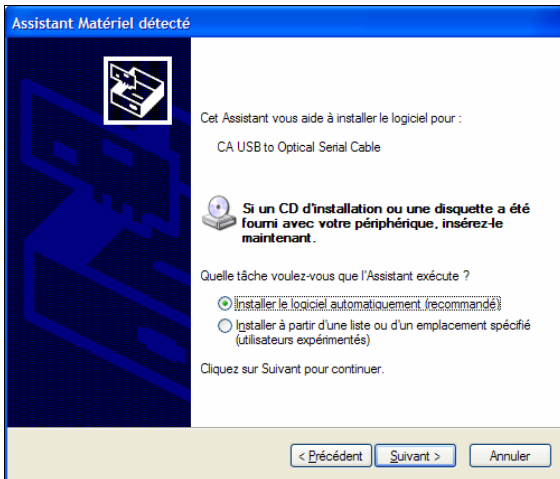


Figure 5-28 : display of the add automatically wizard.

- When the following screen appears, click on *Continue*.

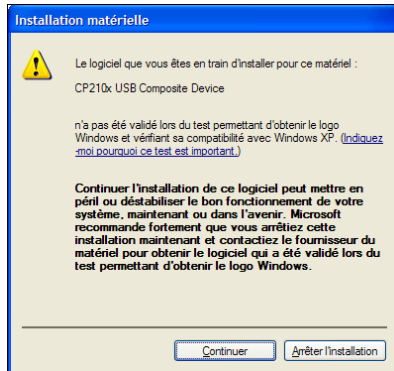


Figure 5-29 : intermediate step.

- The screen shows the installation progress.

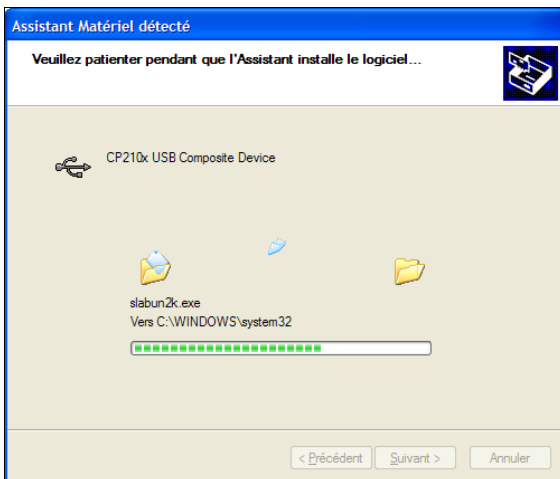


Figure 5-30 : installation progress.

- The screen shows the completion of the installation of the USB driver of the optical head.

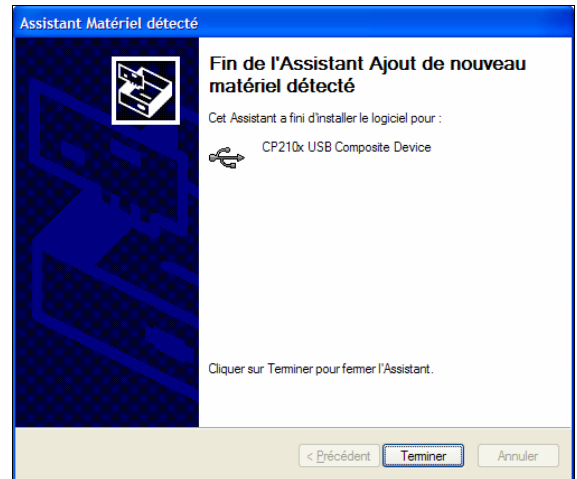


Figure 5-31 : the USB driver of the optical head is installed.

- Click *Finish*.
- Wait for a few seconds for the following screen to appear (see paragraph 5.8.2).

5.8.2 Creation of a virtual communication port

Proceed as follows on display of the different screens.

- When the *Add hardware* wizard is displayed, select *Not this time* and click *Next*.

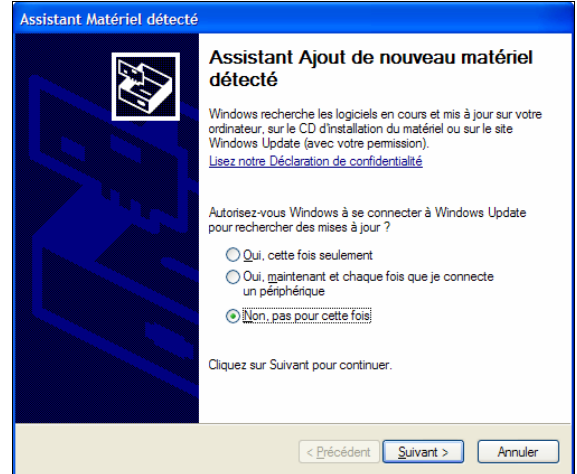


Figure 5-32 : display the virtual port creation wizard.

- Select *Install the software automatically (recommended)* and click *Next*.

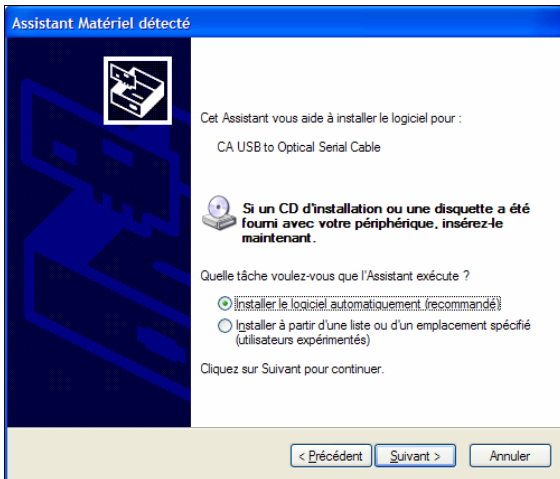


Figure 5-33 : display of the add automatically wizard.

- When the following screen appears, click on *Continue*.

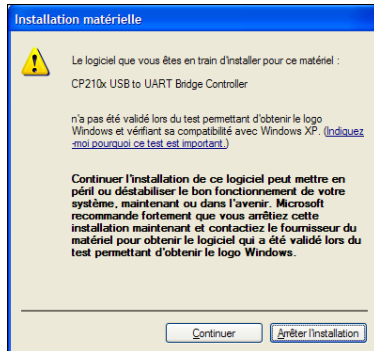


Figure 5-34 : intermediate step.

- The screen shows the installation progress.

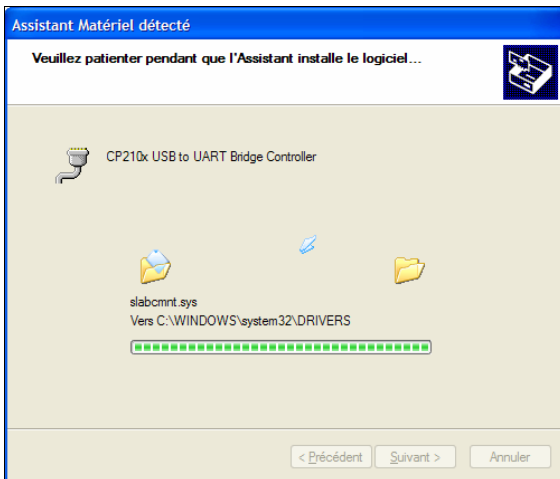


Figure 5-35 : installation progress.

- The screen shows the completion of the creation of the virtual communication port of the optical head.

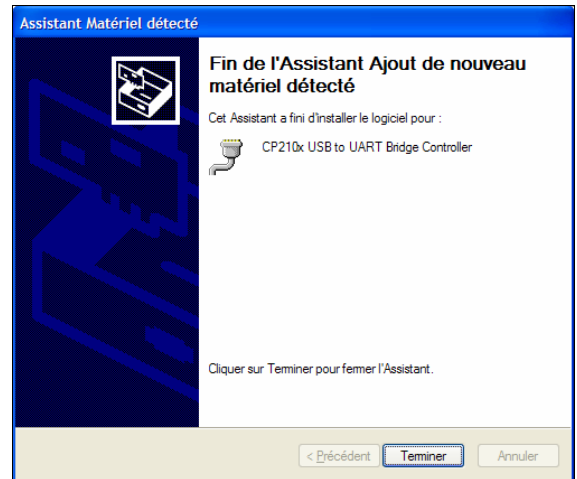


Figure 5-36 : the virtual communication port of the optical head is created.

- Click *Finish*.

5.8.3 End of installation

Both the optical head driver installation procedure and the creation of the virtual communication port are completed.

6. THE START-UP PAGE

This chapter presents the start-up page of the application and provides shortcuts to the chapters that detail the various options.

6.1 Presentation

The start-up page displayed when the application is first opened is shown below.

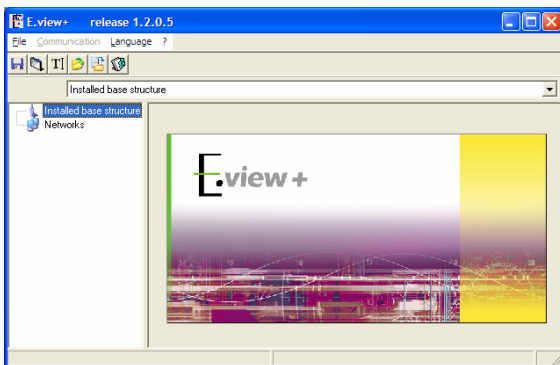


Figure 6-1 : the start-up page displayed the first time the application is used.

6.2 Tree architecture zone

Located to the left of the window, this zone currently displays the two main nodes.

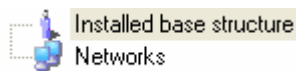


Figure 6-2 : the tree architecture zone still empty.

- **Installed base architecture:** this first node is the root of the entire future architecture of your remote monitoring installation. It is from this node that the representation of the physical architecture of your installation will be built.
- **Networks:** this second node will show all the means of communication (modem, RS232, IP, USB, Ethernet, infrared) likely to be used from the PC on which the application is running.

After programming, the tree architecture zone can be presented as follows:

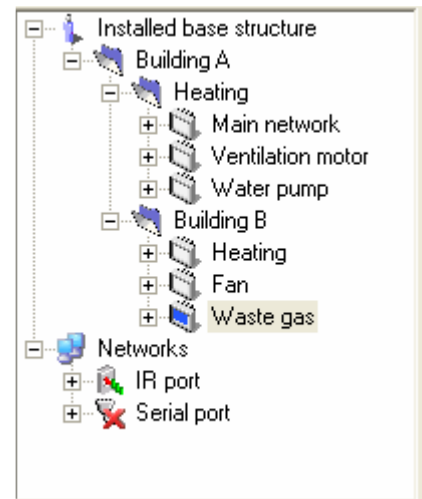


Figure 6-3 : example of the tree architecture zone after using the application.

In this example:

- **The Installed base architecture** is defined with 3 devices called *EDF network*, *Compressor* and *General* clearly positioned in their buildings (*Building A* and *Building B*) and their respective sub-buildings (*Gas Extraction*, *Compressor*, *Purification*).
- **The networks** that can be used by the PC are the serial port and the infrared link.



The use of the tree architecture zone is detailed in chapter 8, on page 39.

6.2.1 The working zone

It currently displays the *E.view+* logo.



Figure 6-4 : the working zone is currently empty of all information.

After use, this zone can be presented as follows:

Id CC	Variable(s)	Start date	End date	Integration period
42	P+, P-, S+, Q4, Q2	01/01/2005 00:00:00	05/02/2009 08:00:00	5 minutes

Date / time	P+	P-	S+	Q4	Q2	Comment
03/01/2005 20:25:00	630,902	0,000	1293,441	1100,435	0,000	
03/01/2005 20:30:00	630,985	0,000	1301,667	1103,012	0,000	
01/01/1970 00:00:00						Loss of time Synchronisation
01/01/2005 00:01:14	0,000	0,000	0,000	0,000	0,000	Graph start
01/01/2005 00:05:00	506,320	0,000	937,657	788,819	0,000	
01/01/2005 00:10:00	675,872	0,000	1254,782	1057,487	0,000	
01/01/2005 00:15:00	685,732	0,000	1277,782	1078,069	0,000	
01/01/2005 00:20:00	689,117	0,000	1290,292	1090,740	0,000	
01/01/2005 00:25:00	685,647	0,000	1292,285	1095,280	0,000	
01/01/2005 00:30:00	686,144	0,000	1296,608	1100,067	0,000	

Figure 6-5: the working zone after using the application.



The use of the working zone is detailed in § 12.3 to 12.7 on pages 59 and the following pages.

6.3 The menus

6.3.1 The File menu

The sub-menus accessible from the *File* menu depend on the icon selected in the tree architecture zone (*Installed base architecture* or *Networks*). However, the functionalities are similar.

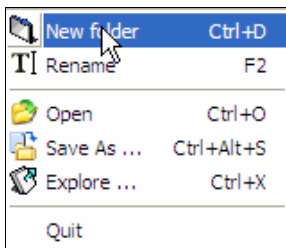


Figure 6-6 : example of the File menu.

- **New folder:** Creates a new *Network architecture* type folder. Displayed only after the root folder or a sub-folder is selected. This new folder can, for example, be named *Building_A*. It will contain all the devices of building A.

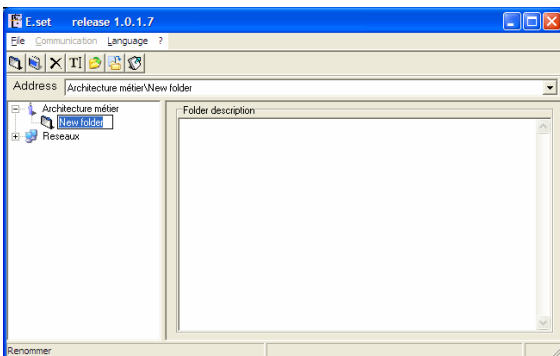


Figure 6-7 : a new folder is created.

- **New device:** entering a new device in the tree architecture. Displayed only after an architecture

folder different from the *Installed base architecture* folder is selected.

- **Open:** opens a window enabling xml type data to be incorporated in function of the selected element, coming from a previous save or a previous data export.
- **Save as:** opens a window enabling all the xml type data to be saved in function of the selected element, in a folder defined by the user. This data could, for example, be a complete tree architecture, or a single device of this tree architecture. The *xml* format enables data to be re-integrated at a later stage into the *E.view* application.
- **Export:** opens a window enabling all the xml type data in function of the selected element to be exported, in a folder saved by the user, that is:
 - **txt:** text format. This type of data cannot be re-integrated at a later stage into the *E.view* application. It is generally used to save the settings to be able to print them out later for example.
 - **csv:** the data is comma-separated.
 - **asc:** same as txt format; only the extension is changed (*asc* instead of *txt*).
 - **xls:** special format for *Excel* spreadsheet from *Microsoft*.
- **Delete:** delete the selected element. A tree architecture folder can be deleted only if it is empty. The *Installed base architecture* folder cannot be deleted.
- **Exit:** closes the application and automatically saves the data displayed on the screen in an *xml* file in the application folder.

6.3.2 The Communication menu



This menu is accessible only after a communication channel is created/selected (refer § 10.1), device creation (refer § 10.3).

6.3.2.1 Connect

When the *Connect* function is selected, a communication link is established by the selected port (paragraph 7.2, on page 36), between the PC and the product selected in the tree architecture zone (for example, the device named *EDF Network* in the figure below).

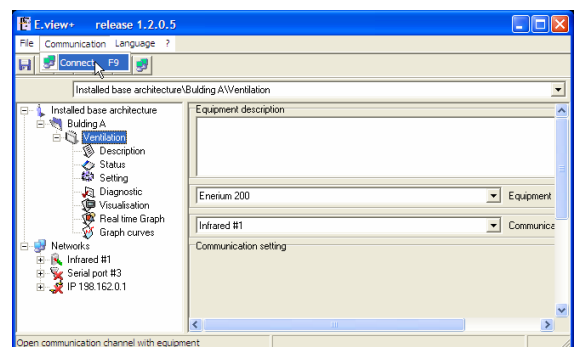


Figure 6-8 : the Communication menu before connection.



The information from the selected device has not yet been exchanged between the PC and the application. Only the link has been established. To transfer the information between the application and the device or vice versa, refer to paragraph 6.3.2.3.



The utilisation of the *Communication* menu is discussed in chapter 7, on page 35.

6.3.2.2 Disconnect

This option is displayed after the first connection. Disconnection enables the COM port used to be made available. The shortcut is the <F10> key.

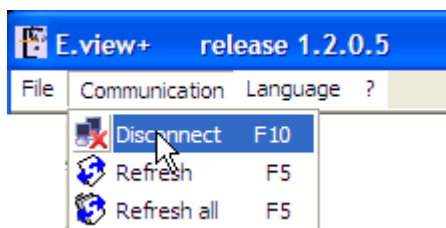


Figure 6-9 : The Communication menu after a connection.

6.3.2.3 Refresh

This choice enables the user to make a new information request for the corresponding device and to update again the information displayed by the selected tab. The shortcut is the <F5> key.

6.3.2.4 Refresh all

This option enables the user to make a new information request for the corresponding device and to update the information displayed for all the tabs, whether selected or not. The shortcut is Ctrl + <F5>.

6.4 The toolbar

The icons displayed in the toolbar depend on the icon selected in the tree architecture zone (*Installed base architecture*, *Network*, folder, device or criterion - *Description*, *Status*, *Configuration*, *Diagnostic*, *Visualisation*).

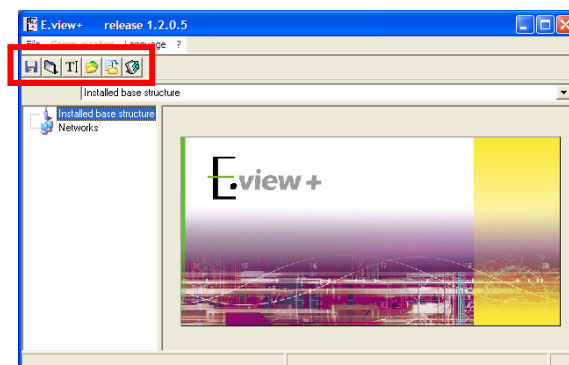


Figure 6-10 : location of the toolbar.

However, the functionalities of the toolbar are similar to the menu commands. The table below presents the icons and related commands.










6.4.1 Installed base architecture

This toolbar is displayed when the *Installed base architecture* icon is clicked.









Icons	Meaning	See §
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>).	-
	Creates a new Installed base architecture folder.	8.2.1 8.2.2
	Changes the selected text.	-
	Opens a Installed base architecture folder for importing xml data of the entire Installed base architecture for re-import.	8.2.2
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>) in a xml format file for a potential re-import.	7.2.5 8.2.2
	Exports the information of the entire Installed base architecture into a file of a specified format.	-
	Print the entire configuration from all the displayed tabs.	-
	Print the data of the active page.	-

6.4.2 Installed base architecture - new folder













This toolbar is displayed when a folder created in the *Installed base architecture* root folder is clicked.

Icons	Meaning	See §
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>).	-
	Creates a new folder in the selected folder.	8.2.1 8.2.2
	Creates a new device in a folder.	9.1
	Deletes an empty Installed base architecture folder...	-
	Opens a Installed base architecture folder for importing xml data for re-import.	8.2.2
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>) in a xml format file for a potential re-import.	7.2.5 8.2.2
	Exports the information of the selected icon into a file in a specified format.	8.2.2
	Print the entire configuration from all the displayed tabs.	-
	Print the data of the active page.	-

6.4.3 Installed base architecture – new device

Icons	Meaning	See paragraph
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>).	-
	Deletes a device.	9.3.4
	Changes the label of the selected device.	-
	Opens a Installed base architecture folder for importing xml data for re-import.	8.2.2
	Saves all the configurations (<i>Installed base architecture</i> and <i>Networks</i>). in a xml format file for a potential re-import.	7.2.5 8.2.2
	Exports the information of the selected icon into a file in a specified format.	8.2.2
	Print the entire configuration from all the displayed tabs.	-
	Print the data of the active page.	-

6.4.4 Networks

Icons	Meaning	See §
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>).	-
	A communication channel has been defined but its type (RS232, etc.) has not yet been defined.	-
	Disconnects a connection previously activated by the icon  .	-
	Sends the data from the displayed window to the connected device.	11.3
	Sends the data from all windows, active or not, to the connected device.	11.3
	Changes the label of the selected network.	-
	Opens a Installed base architecture folder for importing xml data for re-import.	8.2.2
	Saves all the configuration information (<i>Installed base architecture</i> and <i>Networks</i>). in a xml format file for a potential re-import.	7.2.5 8.2.2
	Exports the information of the selected icon into a file in a specified format.	8.2.2
	Print the entire configuration from all the displayed tabs.	-
	Prints the data of the displayed port.	-

6.5 The address bar

Once the Installed base architecture has been developed, this zone will indicate the location of the icon selected in the **Installed base architecture** or **Networks**.

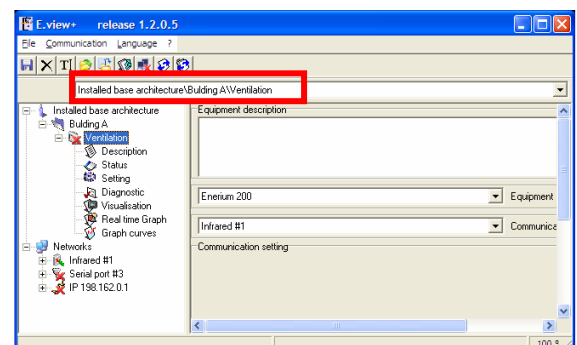


Figure 6-11 : location of the address bar.

6.6 The status bar

It displays error messages intended for the application user. The list of these messages is the subject of chapter 13, on page 63.

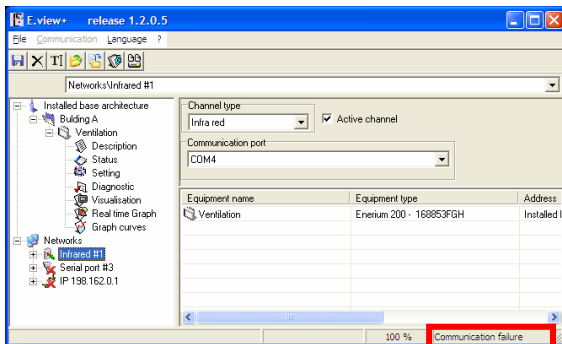


Figure 6-12 : location of the status bar.

Configuration

7. CREATE COMMUNICATION CHANNELS

The first step when using the application is the channel creation that will be used when communicating between the PC and devices.

7.1 Reminder about communication

The device, depending on its hardware configuration, can communicate with the PC on which the application is installed via one of the following channels:

- Serial port.
- Infrared port.
- IP gateway.
- Modem.
- Ethernet network.

7.1.1 Serial port

Up to 247 devices can be simultaneously connected on the communication channel; this limitation is due to the JBus protocol. The PC is considered as the master and can communicate with the 247 devices considered as the slaves.

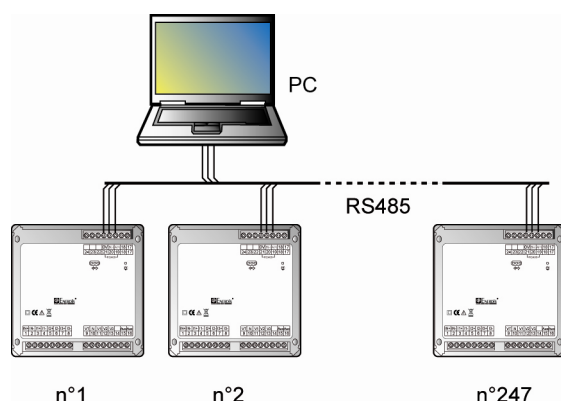


Figure 7-1 : A PC can communicate with a maximum of 247 devices using the RS 485 serial link.

7.1.2 Modem port

The device is connected on a RS 485 line (JBus) itself connected to a telephone modem. The device will thus converse with a remote PC through these two links.

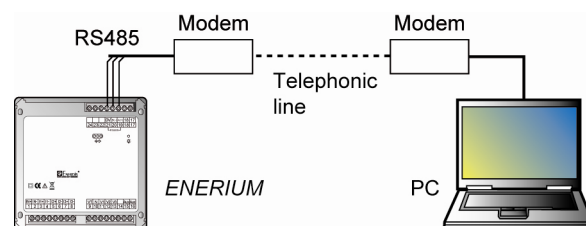


Figure 7-2 : A PC can communicate with a device using the modem link.

7.1.3 IP gateway and Ethernet

For these gateways, a very large number of devices can be connected simultaneously; the number of devices depends on the number of IP addresses available on the user network. The application user will select the device to be displayed from the list of devices connected.

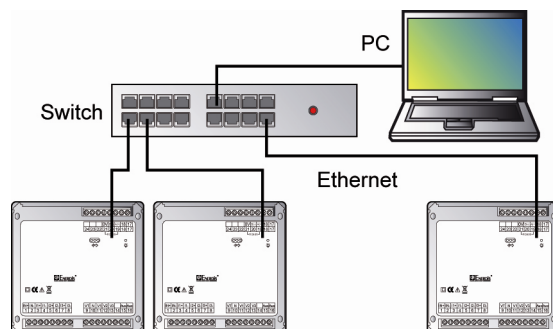


Figure 7-3 : The application user will select the device to be displayed from the list of devices connected.

7.1.4 Infrared port

For this port, the application user can only communicate with a single device at a time using the optical head in local mode (on the front or the back of the device).

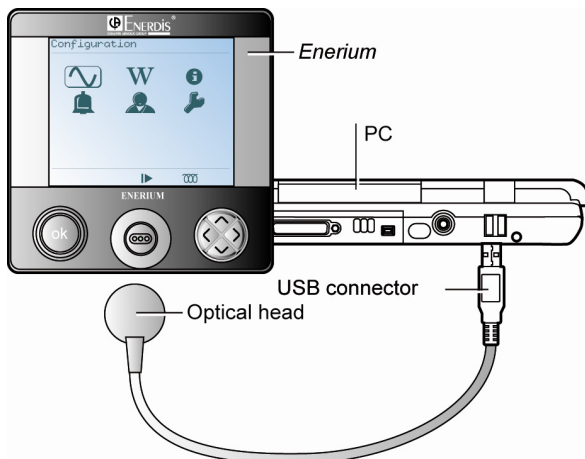


Figure 7-4 : with the infrared interface, the application user communicates exclusively with a single device at a time.



To use the optical head, it must be connected to the USB port of the PC **before** starting the *E.set+* or *E.view+* application. Otherwise, the optical head will not be detected.

7.2 Creating a communication channel



Note: connection to the network device (Ethernet, optical head, etc.) is not required at this stage. In fact, we create only the environment definition in this paragraph.

However, if the user wants to connect the optical head (infrared link) already, it must be connected to the USB port of the PC **before** starting the *E.set+* or *E.view+* application. Otherwise, the optical head will not be detected.

The screen appears as follows:

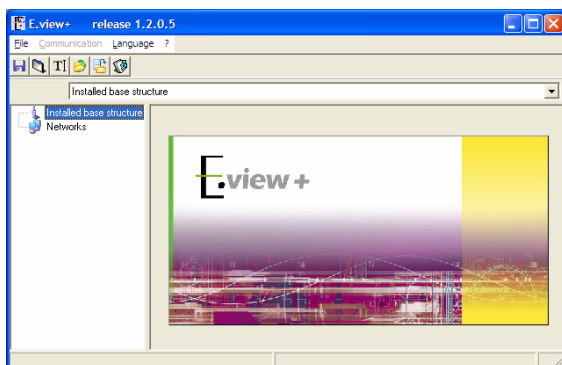



Figure 7-5 : the start-up page for creating a communication channel.

7.2.1 Adding a communication channel

Use one of the following three methods:

- Using the menu: click the **Networks** icon and select **File / New communication channel**.
- Using the toolbar: click on the  icon on the toolbar.

- Using the floating menu: right click on the **Networks** icon and select **New communication channel**

In all cases, the window appears as follows:

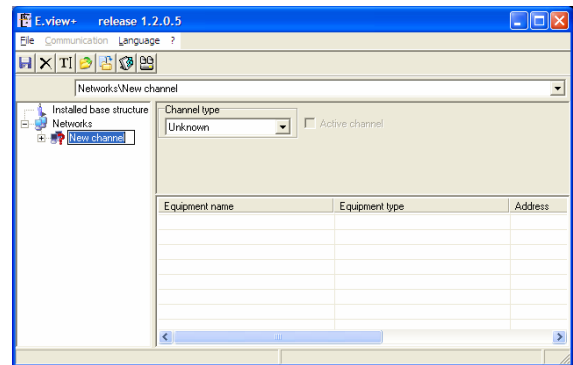



Figure 7-6 : the first step in creating a communication channel.

The network icon currently displayed is . It indicates a undefined communication channel. Once the communication channel is defined, definition object of this paragraph, the icon displayed will depend on the type of communication selected as shown in the following table.












Icon		Type of communication
Active	Inactive	
-		Undefined communication channel. :
		RS232 serial channel.
		Infrared channel.
		IP gateway.
		Modem channel.
		Ethernet channel.

Table 1: communication icons

7.2.2 Assigning a name to the channel

Click the **New channel** icon. Change the name, depending on the type of channel that will be selected during the next stage by clicking on the greyed out zone. The standard name is limited to 255 characters.

7.2.3 Selecting a channel type

In the **Channel type** drop-down list, select the type of channel that will be used to communicate with the device to be configured.

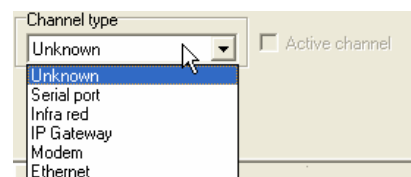




Figure 7-7 : the definition zone for the type of communication channel.

7.2.3.1 Serial Port

Once selected, the checkbox **Active channel** is ticked (+  New channel 1). Without checking this box, the channel is inactive (unusable) on the network (the equipment cannot be connected); a cross is therefore displayed on the communication icon in the left hand zone of the window (+  New channel 1).

In the **Communication port** drop-down list, select the COM port of the PC on which the serial link will be connected.

Proceed to paragraph 7.2.4.

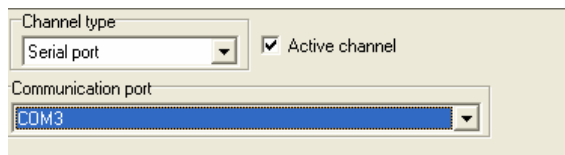




Figure 7-8 : setting the parameters for the serial port.

7.2.3.2 Infrared



To use the optical head, it must be connected to the USB port of the PC **before** starting the *E.set+* or *E.view+* application. Otherwise, the optical head will not be detected.

Once selected, the checkbox **Active channel** is ticked (+  New channel). Without checking this box, the channel is inactive (unusable) on the network (the equipment cannot be connected); a cross is therefore displayed on the communication icon in the left hand zone of the window (+  New channel).

In the **Communication port** drop-down list, select the COM port of the PC on which the optical head will be connected.

Proceed to paragraph 7.2.4.

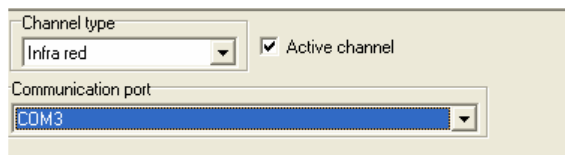
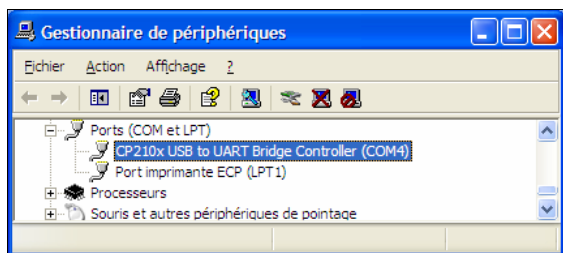




Figure 7-9: setting the parameters for the infrared port.



To view the COM port used by the optical head, select *Start / Settings / Control Panel / System*. Click the *Hardware* tab and the *Device Manager* button. In the tree architecture, click on the '+' icon of *Ports (COM and LPT)* and check that *CP2101 USB to UART Bridge controller* is present. The number of the COM port used by the optical head is displayed at the end of this line. Close all these windows in order to define the COM port actually used.



7.2.3.3 IP gateway

Once selected, the checkbox **Active channel** is ticked (+  New channel). Without checking this box, the channel is inactive (unusable) on the network (the equipment cannot be connected); a cross is therefore displayed on the communication icon in the left hand zone of the window (+  New channel).

- In the *TCP-IP gateway address*, enter the TCP-IP gateway address in the form 000.000.000.000.
- In the adjacent zone, enter the *socket* number. By default, the *socket* 502 is defined.

Proceed to paragraph 7.2.4.

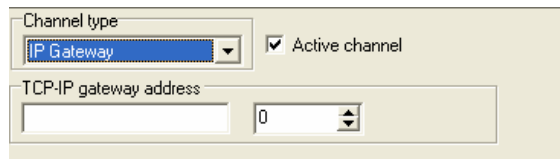




Figure 7-10: setting the parameters of the IP gateway.

7.2.3.4 Modem

Once selected, the checkbox **Active channel** is ticked (+  New channel). Without checking this box, the channel is inactive (unusable) on the network (the equipment cannot be connected); a cross is therefore displayed on the communication icon in the left hand zone of the window (+  New channel).

In the **Modem** drop-down list, select the modem from the drop-down list and enter the telephone number to be called, in the format 012345678 (without delimiters, maximum 14 numbers).

The zones *JBUS speed*, *Parity* and *No. Bits stop* concerning the RS485 device network configuration.

Proceed to paragraph 7.2.4.

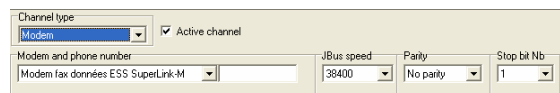


Figure 7-11: setting the parameters for the modem.

7.2.3.5 Ethernet



Once selected, the checkbox **Active channel** is ticked (+  New channel). Without checking this box, the channel is inactive (unusable) on the network (the equipment cannot be connected); a cross is therefore displayed on the communication icon in the left hand zone of the window (+  New channel).



Figure 7-12 : setting the parameters of the IP gateway.

Enter the socket number in the zone. This number is 502 by default on the devices.



The TCP-IP number is set at the device level (see device manual).

Proceed to paragraph 7.2.4.

7.2.4 List of devices and addresses

The figure below locates this zone.

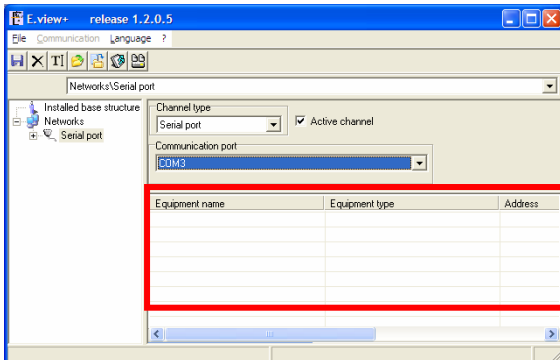


Figure 7-13 : the list of devices detected or configured in the tree architecture is displayed in the bottom pane of the window.

This zone, currently empty, will display all the devices present in the left hand tree architecture and on this communication channel. Double click on a device in the list on the left side to open the window relating to the selected device.

The following figure presents an example of the display.

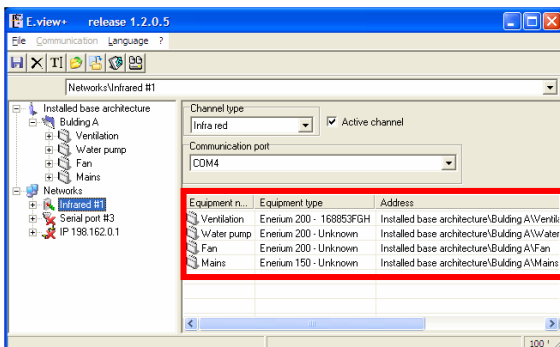


Figure 7-14 : the list of devices is displayed in the right hand pane of the window.

7.2.5 Save network settings

It is recommended to save changes made to the **Networks** configuration. In order to do this, several solutions are possible:

- Save only information relating to the **Networks**. This option should be selected when the user wants to save only the configuration of the networks in order to export to another PC.
- Save all the **Networks** and **Installed base architecture** information. This is the usual choice that enables the user to globally save all the information displayed on the screen.
- Saves only **Installed base architecture** information. This choice enables the user to save **Installed base architecture** node information. This option should be selected when the user wants to save only the tree

architecture of the devices in order to export to another PC.

In all cases, proceed as follows:

1. Right click on the **Networks** icon or on the channel type to be saved.
2. Choose one of the following two points:
 - Complete save: select **File / Save as...** or click on the icon in the menu bar.
 - Saves only **Installed base architecture** information: right click on the **Installed base architecture** icon and select **Save as ...**
 - Save only **Network** information: Right click on the **Networks** icon and select **Save as ...**
- 3 In the window displayed, enter a file name and an *xml* extension file corresponding to the parameters to be saved.
4. Click **Save**. The selected settings currently displayed are saved.

7.3 Creating another link

It is possible to define several link matrices (serial, IP, infrared ports, etc.) in the network node, as indicated in paragraph 7.2. During a subsequent new communication, simply select the link to be used.



Figure 7-15: two links were defined on this PC.

7.4 Remaining operations

Described in chapter 8, it consists of creating the architecture of the buildings that will house the devices.

8. CREATE THE INSTALLED BASE ARCHITECTURE

The second part of the application configuration concerns creating the general architecture of the devices implementation architecture, called *Installed base architecture*, corresponding to the actual topology of the buildings.

8.1 Example of architecture

In order to match as accurately as possible to the actual architecture of the device network, the **Architecture** zone has a real flexibility that enables the user to design the tree architecture of his system similar to the way it is done in the actual field.

Thus, once it has been completely configured, the **Architecture** zone (left side of the screen) could have the following appearance:

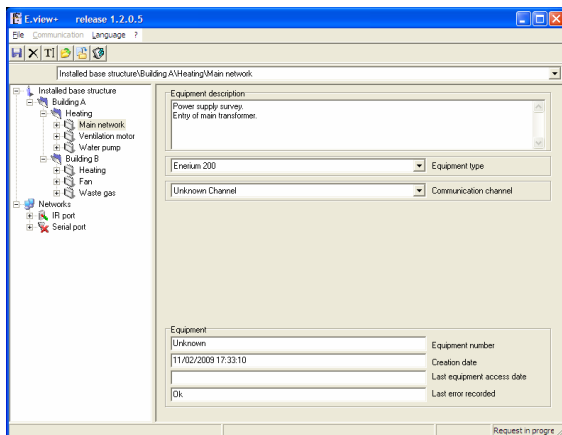


Figure 8-1 : tree architecture (left side of the screen) created by the user is similar to the actual field.

We note, in this example that the two devices have been spread out according to the 2 buildings making up the site.

8.2 Creating the architecture

In the reproduction of the following screen, an optical head was defined at a time as means of communication, as indicated in paragraph 7.2.3.2.

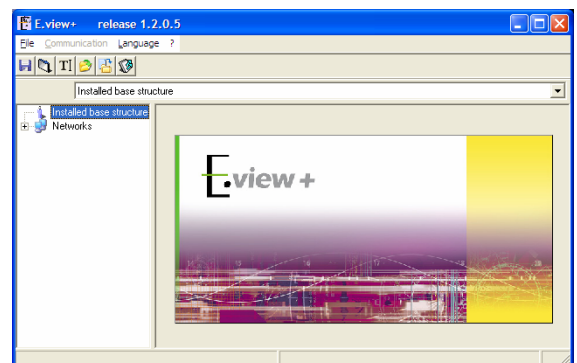


Figure 8-2 : the start-up page.

8.2.1 Adding an architecture



An *architecture* is a folder representing a zone, a building, that is, an entity containing one or more devices.

Click on the **Installed base architecture** icon and use one of the following methods:

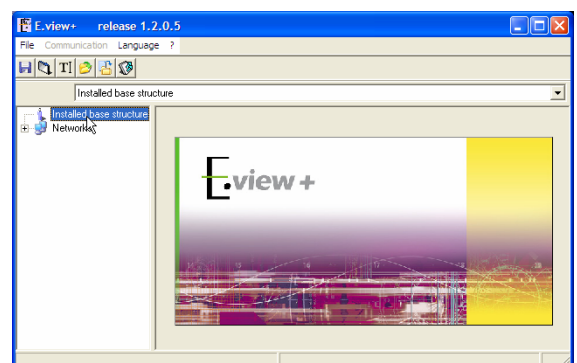


Figure 8-3 : clicking on the Installed base architecture icon enables it to be selected.

- Using the menu: click the **Networks** icon and select **File / New folder**.
- Using the toolbar: click on the  icon on the toolbar.
- Using the floating menu: right click on the **Installed base architecture** icon and select **New folder**.

In all cases, the window appears as follows:

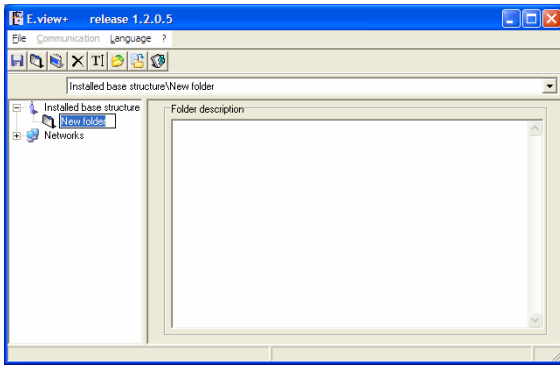


Figure 8-4 : the first step in creating an architecture.

The **New folder** text is selected by default; change the name to a more explicit label: "Building A", for example.

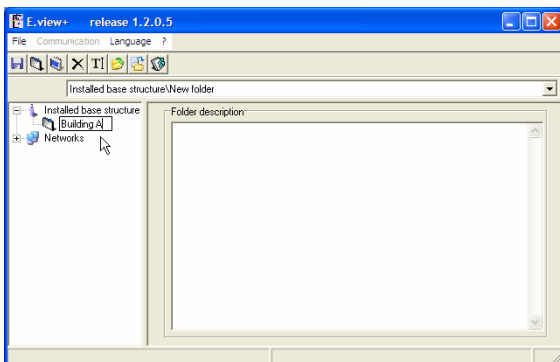


Figure 8-5 : changing the name to a more explicit label.

Create as many folders as zones (buildings, etc.) by clicking in the root folder (*Installed base architecture*) or in a sub-folder (*Building A*). Each new folder will therefore correspond to a zone containing one or more devices.



The user does not need to create the entire architecture in a single step. This can be completed later or even modified (see paragraph 8.2.2).

It is therefore possible to create an architecture representing the actual field.

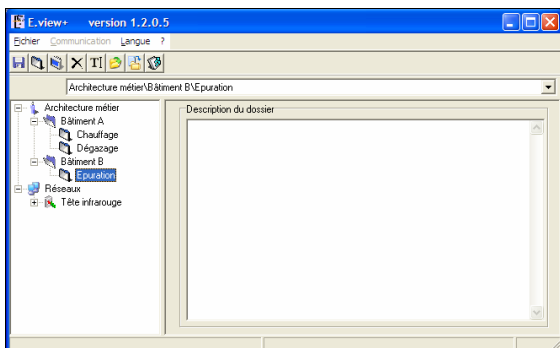


Figure 8-6: a more complete architecture.

In the right window pane a zone called *Folder description* can be used to enter a description.

8.2.2 Modifying or deleting an architecture

It is possible to delete, open, save or export the information relating to an architecture (folder or sub-folder), by using one of the following methods, after clicking on the corresponding icon:

- Using the menu: select **File**.
- Using the toolbar: Click the corresponding icon on the toolbar (a help message is displayed).
- Using the floating menu: right click on the appropriate folder icon and select the function.

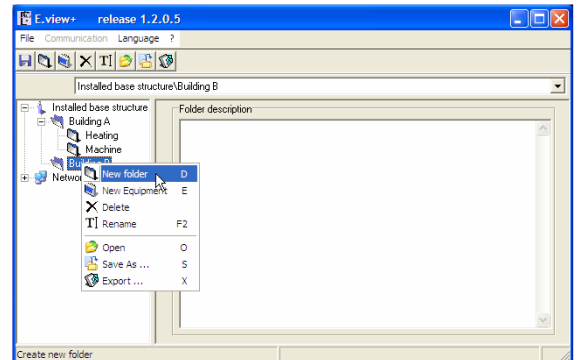


Figure 8-7: the commands relating to a folder, here by right clicking.

The available functions are:

- **New folder:** create an architecture folder in the selected location.
- **New equipment:** see paragraph 9.1, on page 43.
- **Delete:** deletes the selected architecture folder. This option is only available if the concerned folder has no sub-folder. A folder can only be deleted if it is empty (no sub-folder or device).
- **Open:** opens a window that allows xml type data relating to another folder to be imported into the designated folder, from the selected folder.
- **Save as:** opens a window that allows all the xml type data related to the selected folder to be saved.
- **Export:** opens a window that enables the user to export, in various formats (.txt, .csv, .asc, .xls), all the xml data relating to the selected folder into the defined folder.

8.2.3 Saving the Architecture




It is recommended to save the changes made to the *Installed base architecture* configuration. In order to do this, two solutions are possible:

- Saves only **Installed base architecture** information. This choice enables the user to save **Installed base architecture** node information. This option should be selected when the user wants to

save only the tree architecture of the devices in order to export to another PC.

- Save all the **Networks** and **Installed base architecture** information. This is the usual choice that enables the user to globally save all the information displayed on the screen.

In all cases, proceed as follows:

1. Choose one of the following two points:
 - Complete save: select **File** /  **Save as...** or click on the  in the menu bar.
 - Saves only **Installed base architecture** information: right click on the **Installed base architecture** icon and select  **Save as**
- 3 In the window displayed, enter a file name and an xml extension file corresponding to the parameters to be saved.
4. Click **Save**. The selected settings currently displayed are saved.

8.3 Remaining operations

Once the building architecture has been defined, you may now virtually install the different devices. This is described in chapter 9.

9. CREATE THE DEVICES

Once the overall architecture of the installation of the devices has been entirely or partially created, the third stage consists of *virtually* installing the devices in the various buildings that make up the architecture. The configuration characteristics of these virtual devices will later be downloaded to the respective actual devices.



A virtual device is a device (measurement unit, transducer) created by the user. The user defines the characteristics of this device using the application. Naturally, the characteristics defined below must correspond exactly to the actual characteristics of the device to be monitored. However, in the event of discrepancies in information (information entered by the user is different to the information read by the application) during the download to the device, a red cross will be displayed, in the tree architecture, over the device icon. A message will also be displayed in the status line at the bottom of the *E.view* screen. See chapter 13, on page 63.

Creating a virtual device is useful in that the user can define the characteristics of his monitoring network without being connected to the remote transmission network.

9.1 Creation

When the screen is called, it displays, for example, as follows:

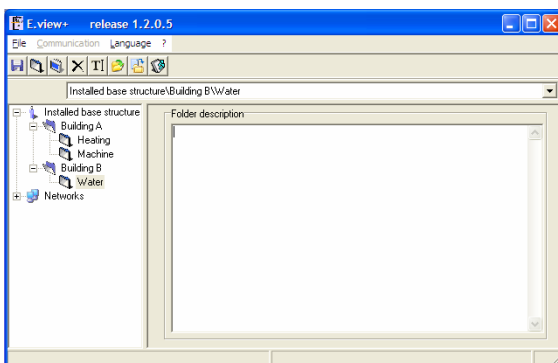


Figure 9-1 : example of the screen with a defined architecture.

- Click on the folder icon (*Building A* for example) that must house the device to be defined.
- Create the new device using one of the following 3 methods:

- Using the menu: select **File** / **New device**.
- Using the toolbar: click on the icon on the toolbar.
- Using the floating menu: right click on the icon and select **New device**.

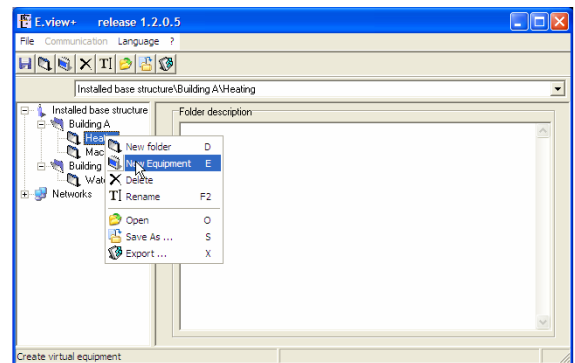


Figure 9-2 : the commands relating to a new device, here by right clicking.

- The following screen relating a new device created is displayed.

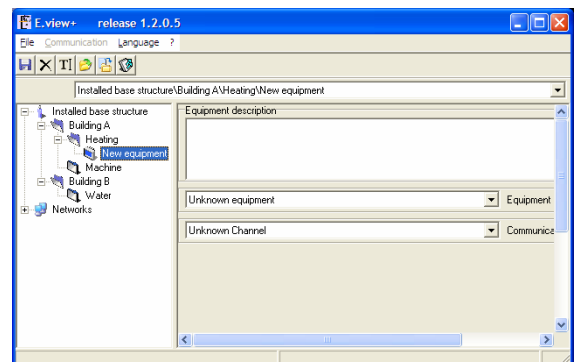


Figure 9-3 : example of the screen in a defined architecture.

9.2 Configuring the description

The actions described in this paragraph define the non-fundamental general characteristics of the equipment (name, description and type of device, type of network communication).



It is also possible to download the characteristics from a device without having to manually define them. Refer to paragraph 11.2, on page 56.

9.2.1 Device name

Proceed as follows:

- In the left window pane, rename the device with a more explicit label (*Main network* for example).

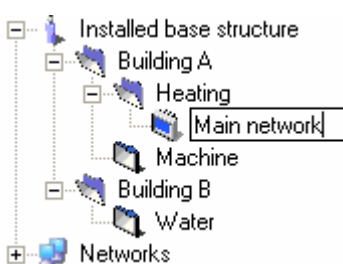


Figure 9-4 : example of naming a device

9.2.2 General information

In the right window pane define the following fields:

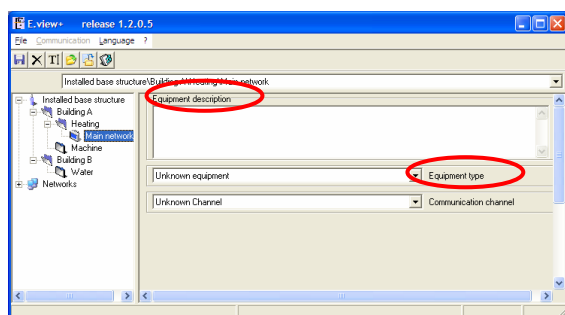


Figure 9-5 : definition of general information.

- Device description:** free text zone enabling the user to freely define the function of the device or any user-specific information. This data will only be displayed in this zone.
- Product type:** in the drop-down list, select the device type currently being defined (*Enerium* 50,100, 110, 150, 200, 210, 220, Micar 2).



As soon as the product type is defined, the device icon, in the *Installed base architecture* zone, gets a "+" sign.



Figure 9-6 : icon for an un-defined type device on the left and for a defined type device on the right.

9.2.3 Communication information

In the right window pane define the following fields :

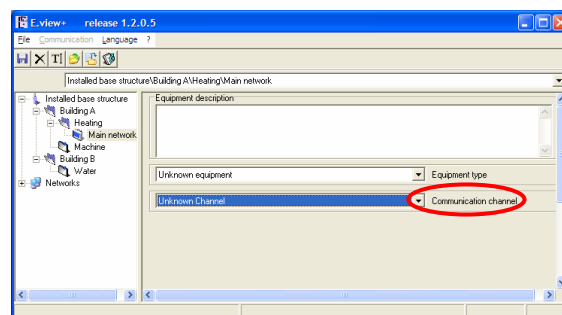


Figure 9-7 : defining the communication information.

9.2.3.1 Selecting a communication channel

In the drop-down list, select the PC port that will be used to communicate with the device. Only the ports defined in the *Networks* zone are displayed.

9.2.3.2 Configuring a communication channel

In the drop-down list displayed after the *Communication channel* has been defined, define the characteristics of the communication port selected in the previous step.

- Serial port / modem**

Parameters	Range of values
Slave address :	1 to 247
JBus speed	Up to 115200 Bds
Parity	Without, even, odd
Nbr bits stop	1 or 2
Time out	0 to 2000 ms
Response time	0 to 1000 ms



Time out: interval of time in milliseconds after which the communication is interrupted if no activity on the port. With the value 0, the device permanently monitors the serial network.

Response Time: minimum interval of time in milliseconds required by the master before it returns to the task of monitoring the communication channel. This time is added to the *time-out*.

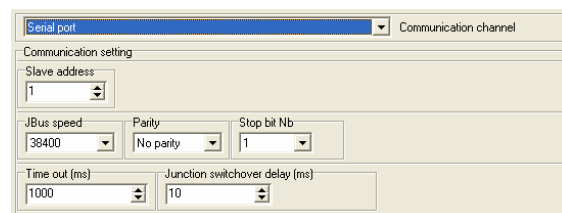


Figure 9-8 : the zone for defining a COM port.

• Infrared port

Figure 9-9: the zone for defining an IR port.

Parameters	Range of values
Time out	0 to 2000
Response time	0 to 1000

See the *Note* for the serial port on defining the *time-out* and response time parameters.

• IP Gateway

Figure 9-10: the zone for defining an IP gateway.

Parameters	Range of values
Slave No.:	1 to 247
Time out	0 to 2000
Response time	0 to 1000

See the *Note* for the serial port on defining the *time-out* and response time parameters.

• Ethernet

Figure 9-11: the zone for defining an IP address.

Parameters	Range of values
IP Address	Format 000.000.000.000
Time out	0 to 2000 ms
Response time	0 to 1000 ms

See the *Note* for the serial port on defining the *time-out* and response time parameters.

9.2.4 Product information

This zone cannot be modified by the user. It includes information downloaded from the device to the PC during the last connection. At this stage, the device

number is unknown and the creation date is the date on which this file was created.

Figure 9-12: the zone relating to the product definition which is still empty.

Refreshing this zone is described in paragraph 9.3.1, on page 46.

Parameters	Information
Equipment number	Serial number of the device printed on the back of the device. Note: the word <i>Unknown</i> is displayed until a communication between the application and the device considered takes place.
Creation date	Timestamp of creation of the device in the tree architecture.
Last equipment access date	Date of latest access to the device via any channel
Last recorded error	Message indicating the type encountered during the most recent communication (write or read).

9.2.5 Saving data

It is recommended to save the changes made to the device configuration. In order to do this, two solutions are possible:

- Save only the information relating to the device. This choice enables the user to save the device node information. This option should be chosen when the user wishes to save only the information of this device for exporting to another PC.
- Save all the **Networks** and **Installed base architecture** information. This is the usual choice that enables the user to globally save all the information displayed on the screen.

In all cases, proceed as follows:

1. Choose one of the following two points:
 - Save only the information relating to the device: right click on the device icon and select **Save as ...**
 - Complete save: select **File / Save as...** or click on the icon in the menu bar.
- 3 In the window displayed, enter a file name and an xml extension file corresponding to the parameters to be saved.
4. Click **Save**. The selected settings currently displayed are saved.



The application automatically saves the current environment when the user closes the application.

9.3 Defining the configuration parameters



This paragraph describes the main lines of configuration states of a device connected on the network.

Two options are available:

- Either a real device can be programmed (the equipment is connected by the network to the PC running the application). This option allows the user to programme one device at a time with an active network connection.
- Or a virtual device can be programmed (no device is connected by the network to the PC running the application). This option allows the user to programme one or more devices without being connected to the network. Once the connection is established subsequently, it will then be possible to download this data to the devices concerned.

9.3.1 Programming a real device

Proceed as follows:

1. In the tree architecture zone, **right** click on the icon of the device connected to the PC running the *E.view* application and select  **Connect** or <F9>.
2. In the tree architecture zone, right click a second time on the icon of the device connected to the PC running the *E.view* application and select  **Refresh** or <F5>.

The *Product type* zone in the right window pane is refreshed with the type of device connected. The wording *Unknown device* is cleared and replaced by the device type.

3. Proceed to paragraph 9.3.3.

Equipment		Equipment number
168853FGH		
13/02/2009 16:01:40		Creation date
13/02/2009 16:25:45		Last equipment access date
Communication failure		Last error recorded

Figure 9-13 : example of a product information zone.


9.3.2 Programming a virtual device

The PC not being connected to the communication network, proceed as follows:

1. In the tree architecture zone, **left** click on the device icon.
2. In the right window pane, click on the **Product type** drop-down list and select the type of device connected. The zone displays *Unknown device* followed by xxx (xxx being the device type, *Enerium* 50, 100, 110, 150, 200, 210, 220, Micar 2).
3. Proceed to paragraph 9.3.3.

9.3.3 Effective programming

Proceed as follows:

1. In the tree architecture zone, click on the + () located on the left side of the device icon to expand the options.



The + sign is only displayed for a device with the product type defined (see paragraphs 9.2.2, or 9.3.1 below).

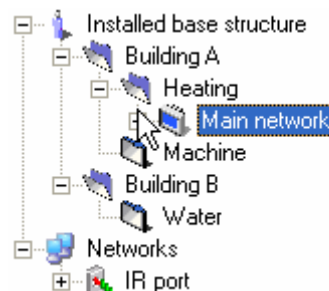


Figure 9-14 : the + sign enables the user to expand the options of the selected device.

2. The new options (Description, Status, Configuration, Diagnostic, and Visualisation) are displayed as follows.

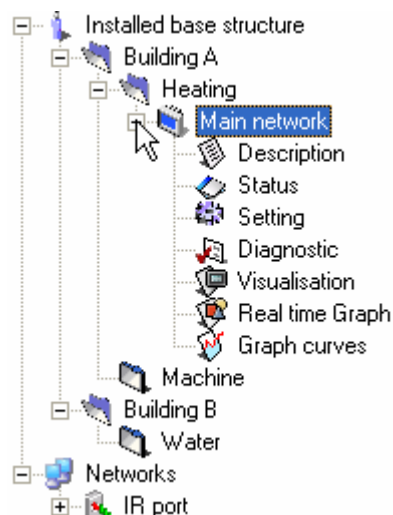









Figure 9-15 : the tree architecture of a device.

- **Description:** function that can be used in disconnected mode. Manually or automatically defines optional cards present in the selected device (binary inputs, binary outputs, analogue inputs) and displays version numbers, communication card status, user interface and the device motherboard.
- **Status:** function can be used only in connected mode. Displays current status of the selected device (general, status of first level and global alarms).
- **Configuration:** function that can be used in disconnected mode. Full configuration of the device from this application or by downloading the information from the concerned device.

- **Diagnostic:** function can be used only in connected mode. Display the current status of the selected device. The binary inputs, binary outputs and analogue outputs are also displayed. For the two latter cases, it is also possible to manually override the output.
- **View:** function can be used only in connected mode. Display, in the form of tables, data measured or calculated by the device.
- **Real time graph:** function can be used only in connected mode. Display, in the form of graphs, Fresnel diagrams and harmonic graphs, data measured or calculated by the device.
- **Graph. curves:** function can be used only in disconnected mode. Display in the form of load and record curves, data saved in the database.

The table below presents the shortcuts to the relevant chapters of this manual.

See		
Icon	Chapter	Page
 Description	14	67
 Status	15	71
 Setting	16	75
 Diagnostic	17	87
 Visualisation	18	91
 Real time Graph	19	99
 Graph curves	20	103

9.3.4 Modifying or deleting a device

It is possible to delete, open, save or export the information relating to a device, by using one of the following methods, after clicking on the corresponding icon:

- Using the menu: select **File**.
- Using the toolbar: Click the corresponding icon on the toolbar (a help message is displayed).
- Using the floating menu: right click on the appropriate device icon and select the function.

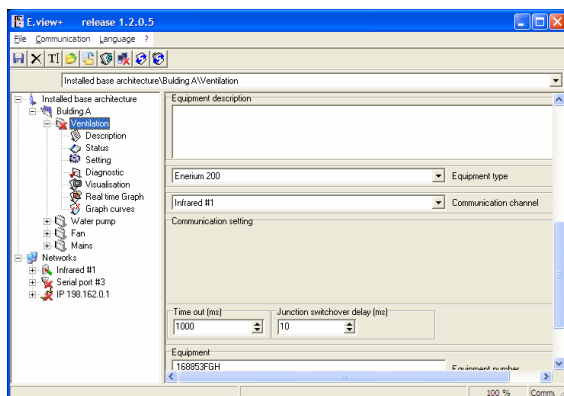














Figure 9-16 : the commands relating to a device, here by right clicking.

The available functions are:

-  **Delete:** deletes the selected device.
-  **Open:** opens a window that allows the xml type data relating to a device to be imported from the selected folder.
-  **Save as:** opens a window that allows all the xml type data related to the selected device to be saved.
-  **Export:** opens a window that allows all the xml type data relating to the selected device to be exported, in txt format, into the defined folder, in order to print it for example.
-  **Refresh:** updates the active window (right side).
-  **Refresh all:** updates all the windows, whether active or not (right side).
-  **Connect:** establishes a communication link via the selected port between the PC and the device selected in the tree architecture zone. The icon is displayed if no communication has yet been established.
-  **Disconnect:** frees the COM port used. The icon is displayed if a communication has already been established.

9.4 Device icons

The following icons relating to a device can be displayed.

Icons	Meaning
	Crossed screen: communication problem (faulty communication or incorrect data transmission).
	Green screen: channel defined and connection established.
	Blue screen: no communication channel allocated (unknown channel).
	White screen: channel defined but no connection activated.

9.5 Remaining operations

The following actions consist of accurately defining the binary or internal analogue inputs and outputs cards, as well as all the other settings necessary for the display and configuration of the application.

Continue:

- In chapter 11 on page 55 that details the method for connecting the device to the network.
- Or in chapter 12, on page 59.

10. ABRIDGED MANUAL

This chapter is a **summary** of chapters 7, 8 and 9. It can be used as a **memory aid** after these chapters have been read and understood.

10.1 Create a communication channel



At this stage, the *E.view* application should not yet be launched.

10.1.1 With an optical head

1. Connect the optical head to the PC.
2. Launch the *E.view* application.
3. In the tree architecture to the left of the application window, right click on the **Networks** icon and select **New communication channel**.

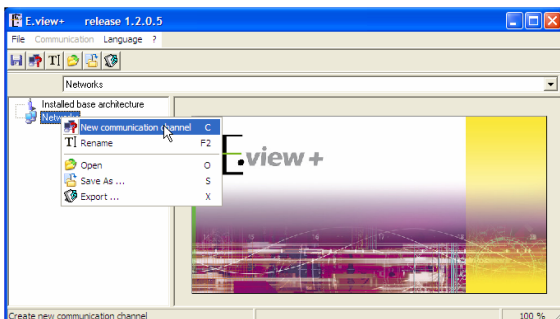


Figure 10-1 : selecting networks in the tree architecture.

4. Enter the name of the communication channel (for example **Optical head**).

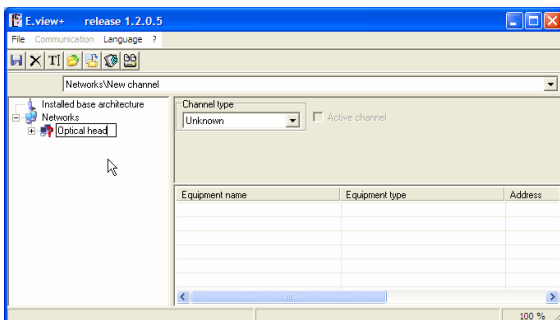


Figure 10-2 : Defining the name of the type of communication.

5. In the right side of the application window, in the **Channel Type** dropdown list, select **Infrared**

(the **Active Channel** checkbox is automatically checked).

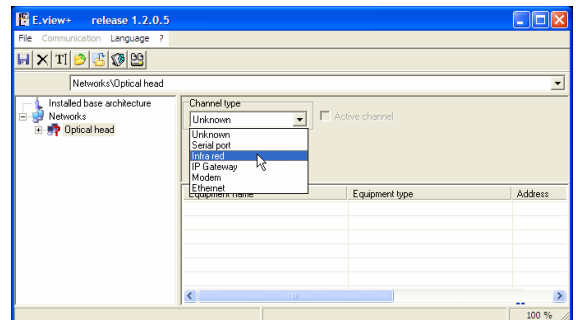


Figure 10-3 : Selecting a communication channel.

6. In the **Communication port** dropdown list, select the COM port of the optical head.

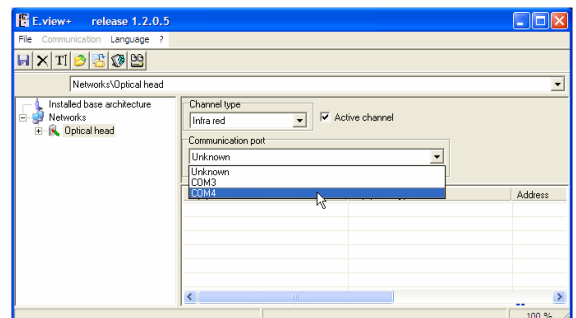


Figure 10-4 : Selecting a communication port.



To view the COM port used by the optical head, select **Start / Settings / Control panel / System**, click the **Hardware** tab, click the **Device Manager** button. In the tree architecture, click on the '+' icon of **Ports (COM and LPT)** and check that **CP2101 USB to UART Bridge controller** is present. The number of the COM port used by the optical head is displayed at the end of this line. Close all these windows in order to define the COM port actually used. Refer to chapter 7, on page 35 for details.

10.1.2 With another link type

1. Connect the link (serial port, IP gateway, modem, Ethernet) to the PC.
2. Launch the *E.view* application.
3. In the tree architecture to the left of the application window, right click on the **Networks** icon and select **New communication channel**.
4. Enter the name of the communication channel (for example **Ethernet**).

5. In the right side of the application window, in the **Channel Type** dropdown list, select the type of communication used (the **Active Channel** checkbox is automatically checked).

If the communication port needs to be used, click on each of the other ports (if present) and de-select this box to de-select the other channels (a non active channel has a red cross on the corresponding icon). Refer to chapter 7, on page 35 for details.

10.2 Create a new folder



A device can be created only in a Installed base architecture folder.

1. Right click **Installed base architecture** and select **New folder**.

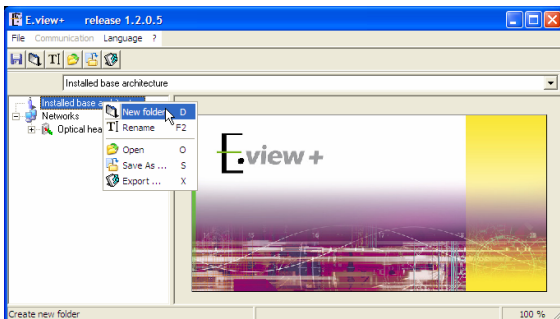


Figure 10-5 : Creating a new folder.

2. Rename the new folder (**Factory A** for example).
3. If necessary, create the other folders from the root (**Installed base architecture**) or from another folder, as per the actual architecture.

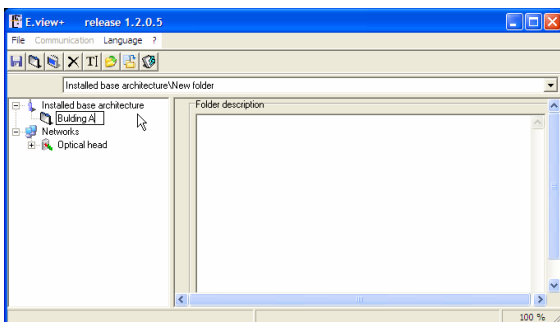


Figure 10-6 : Defining the name of the folder.

10.3 Create a new device

1. Right click on the previously created folder and select **New equipment**.

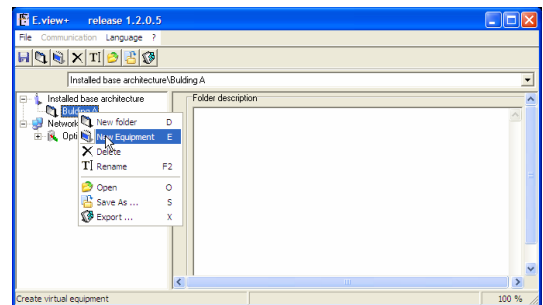


Figure 10-7 : Creating a new equipment.

2. Rename the new equipment (**Boiler room** for example).

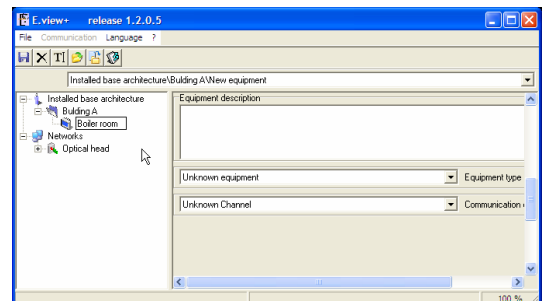


Figure 10-8 : Defining the name of the new device.

3. On the right side, select the device type from the dropdown list.

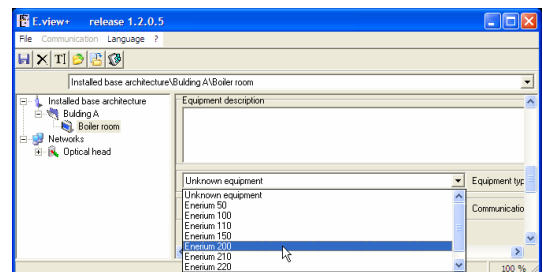


Figure 10-9 : Selecting a device type.

4. In the right side, select the communication channel from the dropdown list (one of the channels created in paragraph 10.1) corresponding to the communication type to be used.

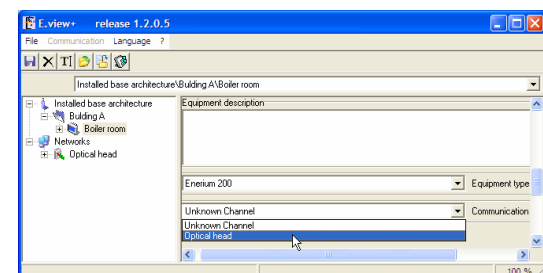


Figure 10-10 : Selecting a communication channel.

10.4 Establish the *E.view* ↔ PC connection



It is possible to configure a device before it is connected to the network. In this case, go directly to paragraph 10.6.

Proceed as follows to establish the communication between a device and the application.

1. **Right click on the concerned device and select *Connect*.**

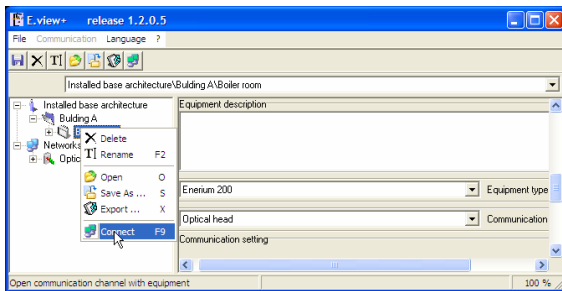


Figure 10-11 : Connexion.

If a device icon is crossed (✖) in the display, there is a connection problem. The error message is displayed at the bottom of the window. See chapter 13, on page 63.

If the icon is not crossed (✔), the communication was established correctly.

10.5 Transfer between Device → PC

Proceed as follows to re-import the information relating to the current hardware and software configuration of a device (not yet programmed or already programmed) to the PC.

1. **Right click on the concerned device and select:**
 - **Refresh** to update only the active window (right pane).
 - **Refresh all** to update all the application windows (*Description*, *Status*, etc.).

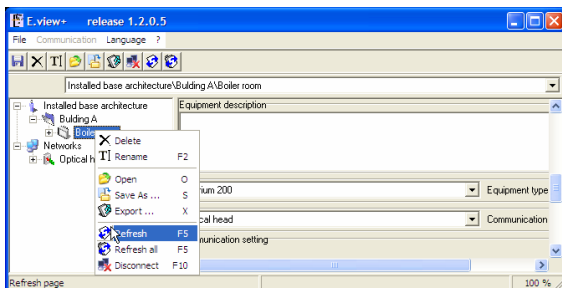


Figure 10-12 : Selecting the update information function.

The window or windows are updated with the information collected on the remote device. The device icon now has a green background (✔).

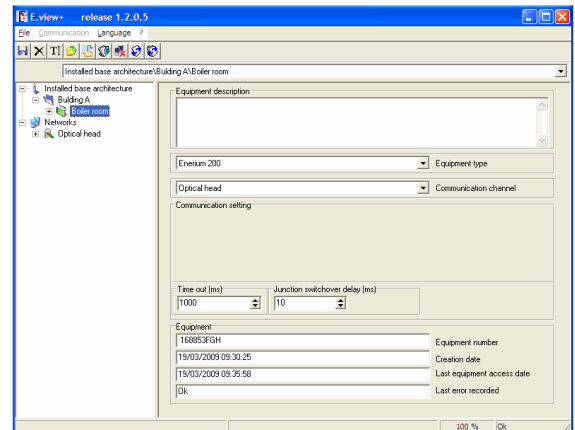


Figure 10-13 : Update of information displayed completed.

10.6 Use the application

Proceed as follows to define or to modify the data of a device.

1. **Click on the (+) icon of the concerned device to expand the tree architecture.**

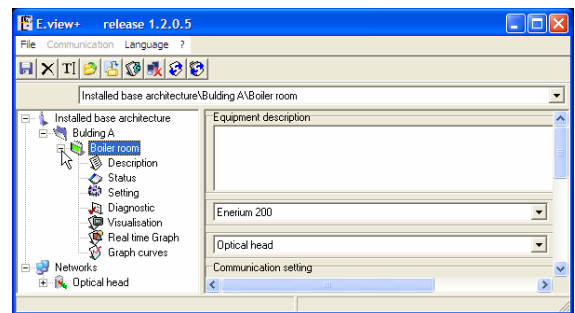


Figure 10-14 : Expanding the tree architecture.

2. **Use the icons (device icon, *Description*, *Status*, *Configuration*, *Diagnostic*, and *Visualisation*) as described in chapter 12, on page 59.**

10.7 Transfer from PC → Device



If the communication between the device and the PC has not yet been established or was interrupted, firstly proceed as indicated in paragraph 10.4. Moreover, the PC can be connected to a device by a communication channel (see paragraph 10.1, page 49).

Proceed as follows to transfer the information displayed on the PC (re-imported or modified information) to the concerned device.

1. **Left click on the concerned device to select it.**
2. **Right click on the page to be transferred (*Configuration* or *Diagnostic*) and select:**
 - **Send** to transfer only the active window (right pane).

- **Send all** to transfer all the application windows (*Configuration and Diagnostic*).

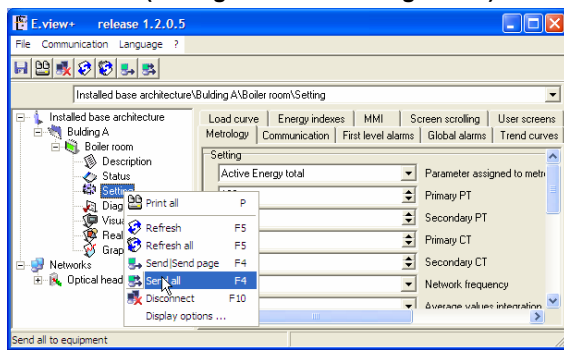


Figure 10-15 : Expanding the tree architecture.

Utilisation

11. CONNECTION AND TRANSFERS

This chapter details:

- The procedure for connecting a PC to the network linking up the devices;
- The procedure for connecting a PC to a device using the optical head;
- Transferring data from Device → PC;
- Transferring data from PC → Device.

11.1 Connection

Prior to the transfer, it is essential to connect the PC to the device. Two methods can be used:

- **Using the network** (RS485, Ethernet, modem). In this case, all the devices present on this network will be directly accessible and can be consulted or configured from the PC.
- **Using the optical head**. In this case, only the device equipped with the optical head can be consulted or configured.

11.1.1 Connecting via the network



The configuration (COM port, definition of communication settings) for each of the useable connections (serial port, modem, optical head) has already been defined (see chapter 7, on page 35).

Proceed as follows:

1. **Connect the PC to the network with the cable that will be used during the connection (RS232, Ethernet).**



An RS232C – USB converter can be used if there is no serial connector on the PC.

2. **Launch the application and click on the (+) sign of the *Networks* icon to expand the tree architecture.**

The previously defined ports (serial, infrared, modem) (see page 35) are displayed.

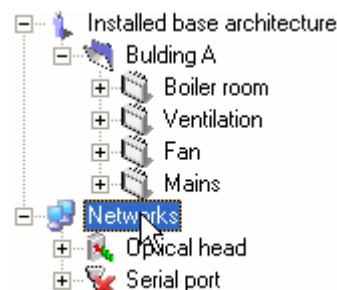


Figure 11-1 : selecting networks in the tree architecture.

3. **Click the icon corresponding to the type of communication to be used (serial or infrared port, etc.).**

4. **In the right window pane, click the box *Active channel*.**

This implies that the box for the other unused channels will not be checked. A red cross is shown across each of the other channel icons.

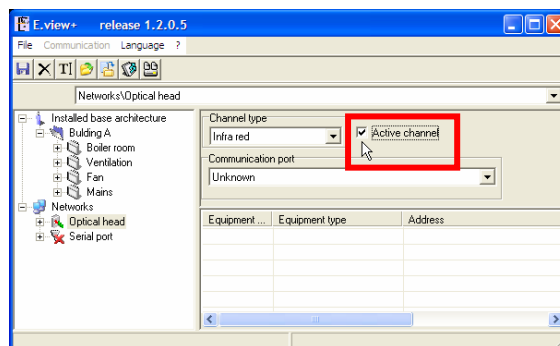



Figure 11-2 : Activating the selected channel.

5. **In the tree architecture (left window pane), click on the corresponding device icon.**

6. **In the right window pane, from the *Communication channel* dropdown list, select the corresponding channel (serial port, infrared, modem, etc.).**

The options correspond to the icons available under the *Networks* icon.

7. **To make the connection with the device:**
 - right click on the device icon in the tree architecture (or in the displayed window) and select  **Connect**
 - or press <F9>.

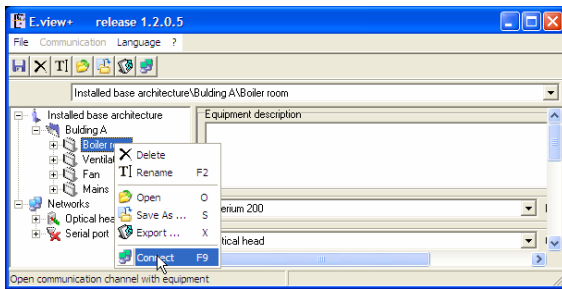


Figure 11-3 : Connection made.

8. The PC is ready to send or receive data through the network.

11.1.2 Connection using optical head



The configuration (COM port, definition of communication settings) for each of the available connections (serial port, modem, optical head) has already been defined (see chapter 7, on page 35).

Proceed as follows:

1. Insert the optical head cord into the USB connector of the PC.
2. Place the head of the optical cord on the device (front or back side).
3. Launch the application and click on the (-) sign of the **Networks** icon to expand this tree architecture.
The previously defined ports (serial, infrared, modem) (see page 35) are displayed.

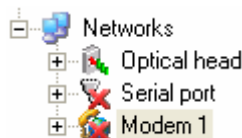


Figure 11-4 : selecting networks in the tree architecture.

4. Click the optical head icon.
5. In the right window pane, check the "Active channel" box **only** for the channel to be used.
This implies that the other channels that are not used will be unchecked. A red cross is shown across each of the other channel icons.

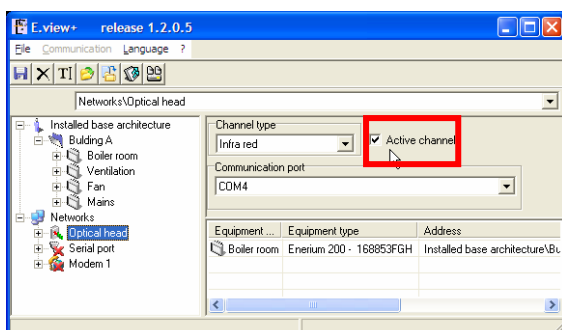


Figure 11-5 : Activating the selected channel.

6. In the tree architecture, click the corresponding device icon.

7. From the dropdown list on the right window pane, select the **Communication channel** corresponding to the optical head.
8. To make the connection with the device:
 - right click the device icon in the tree architecture (or in the displayed window) and select **Connect**.
 - or press <F9>.

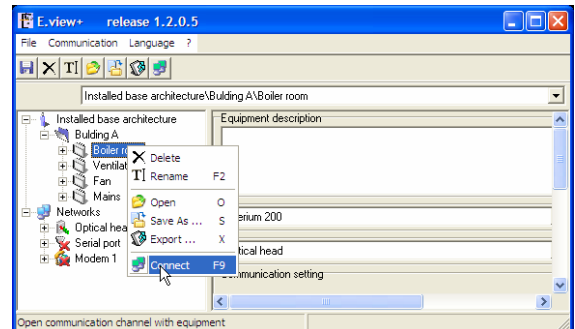


Figure 11-6 : Connection made.

9. The PC is ready to send or receive data via the optical head.

11.2 Transfer from Device → PC

It is assumed that the active connection has been established between the PC and the device. If this is not the case, refer to paragraph 11.1, on page 55.

Proceed as follows:

1. In the tree architecture zone (left window pane), right click and select:
 - **Refresh** or press the <F5> key to update only the active window.
 - **Refresh all** or press the CTRL + <F5> keys to update all the windows whether active or not relating to the selected device.

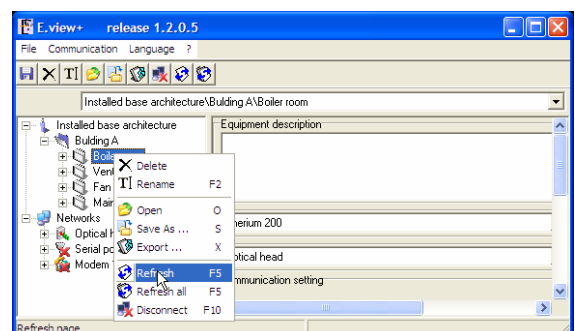




Figure 11-7 : selection for transferring from the device to the PC.

2. The data relating to the selected device's icon are transferred from the device to the PC. The window(s) are updated.

11.3 Transfer from PC → Device

It is assumed that the active connection has been established between the PC and the device. If this is not the case, refer to paragraph 11.1, on page 55.

Proceed as follows:

1. In the tree architecture (left window pane), right click one of the three icons *Description*, *Status* or *Diagnostic* and select:
 -  **Send** or press <F4> to transfer data from the active window to the concerned device.
 -  **Refresh all** or press the CTRL + <F4> keys to transfer the data from all the windows whether active or not relating to the selected device.

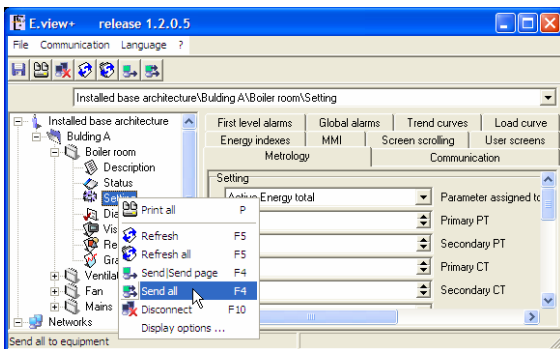


Figure 11-8 : selection for transferring from the PC to the device

2. Data related to the selected device icon are transferred from the PC to the device.

11.4 Close a link

1. In the tree architecture (left window pane) right click the icon corresponding to the concerned device and select *Disconnect* or press the <F10> key.

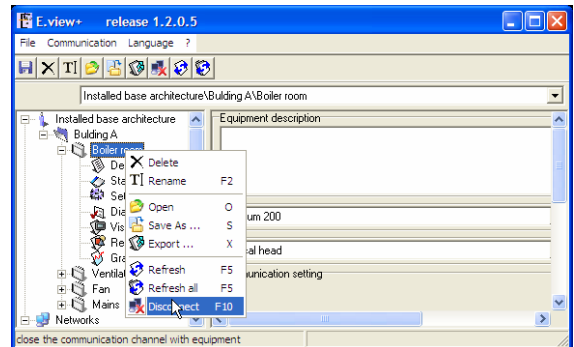


Figure 11-9 : selecting the disconnection.

2. If necessary, click the *Networks* icon and then the icon corresponding to the optical head on the left window pane and, in the right pane, uncheck *Active channel* to free the COM port used.

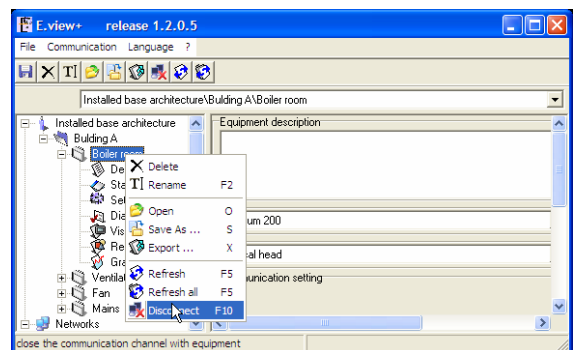


Figure 11-10 : Freeing the COM port.

11.5 Remaining operations

Continue as described in chapter 12, on page 59.

12. USING THE APPLICATION

This chapter presents the normal use of the application in the various cases that the operator may encounter.

12.1 Initial programming

A device must be programmed before it can be used. This programming can be carried out:

- **Without limitation** using the *E.view* software. Follow the chapters as follows:

Action	See§
Definition of network outputs used	7
Definition of Installed base architecture	8
Creating device(s)	9
Defining optional cards	14.3.1
Programming all parameters	14, 16
Connecting the PC to the device	11.1
Transferring the parameters to the device	11.3

- **Partially**, from the device screen, using its menus. However, only the following functions can be defined:
 - TC/TP ratio.
 - RS485 communication parameters.
 - Activation of page scrolling.
 - Display language.

This programming mode is described in the user instructions provided with the device.

12.2 Reprogramming

It is possible to retrieve the saved parameters and data from a device that has already been programmed and is operational, to transfer them to the connected PC, to modify this data and download them to the device, after they have been updated. Follow the chapters as follows:

Action	See §
Connecting the PC to the device	11.1
Importing data to the PC	11.2
Updating the optional cards	14.3.1
Programming all parameters	14, 16
Transferring the parameters to the device	11.3

12.3 Description

This function, which can be used in disconnected mode, enables to:

- Manually define the configuration of the Input-Output cards (ON/PFF or analogue) of the device and to transfer these changes to the concerned device.
- Preview the current configuration of the *Input-output* cards (binary or analogue) of the device by re-importing the information from the device to the PC.

Proceed as follows:

1. **Select the device to be displayed in the tree architecture zone.**

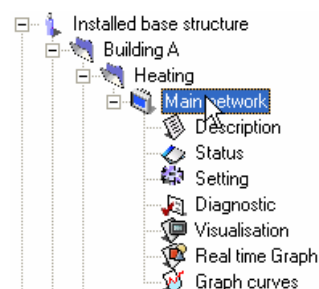


Figure 12-1: selecting a device from the tree architecture.

2. Click the **Description** icon.

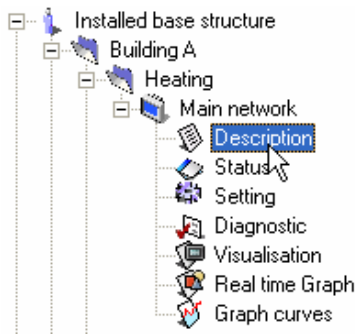


Figure 12-2: click the Description icon.

3. Consult the instructions given in the right window pane.

Refer to chapter 14, on page 67 for details on the information presented.

12.4 Status

This function, which can be used only in connected mode, displays the status of the device connection, the first level or global alarms or for reinitialising (Reset) the alarms (log and/or status).

Proceed as follows:

1. Select the device to be displayed in the tree architecture zone.

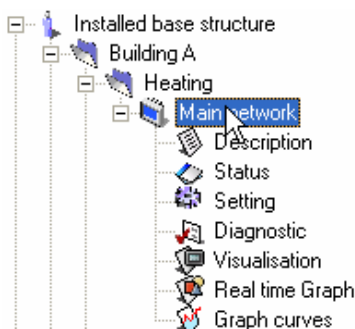


Figure 12-3: selecting a device from the tree architecture.

2. Click the **Status** icon.

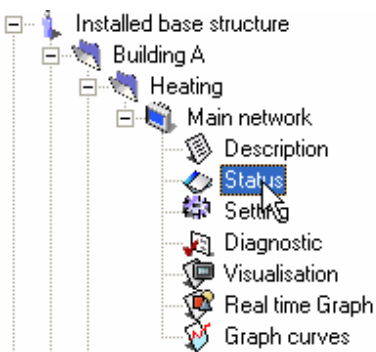


Figure 12-4: click the Status icon.

3. Refer the instructions given in the right window pane.

Refer to chapter 15, on page 71 for details on the information presented.

12.5 Setting

This function, which can be used in disconnected mode, enables to:

- Manually define the full configuration of the device and transfer these changes to the concerned *Energid*.
- View the full current configuration of the device by re-importing the information from the device to the PC.

Proceed as follows:

1. Select the device to be displayed in the tree architecture zone.

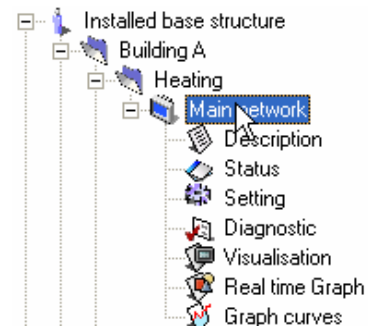


Figure 12-5: selecting a device from the tree architecture.

2. Click the **Setting** icon.

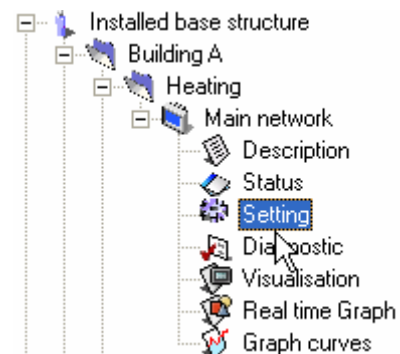


Figure 12-6: click the Setting icon.

3. Refer the instructions given in the right window pane.

Refer to chapter 16, on page 75 for details on the information presented.

12.6 Diagnostic

This function, which can be used only in connected mode, enables to:

- View the status of the graph plots, inputs (pulses or binary), binary or analogue outputs, or override an binary or analogue output to a defined status and transfer these changes to the concerned device.
- View the full current configuration of the device by re-importing the information from the device to the PC.

Proceed as follows:

1. **Select the device to be displayed in the tree architecture zone.**

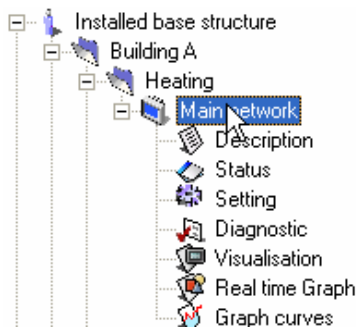


Figure 12-7: selecting a device from the tree architecture.

2. **Click the *Diagnostic* icon.**

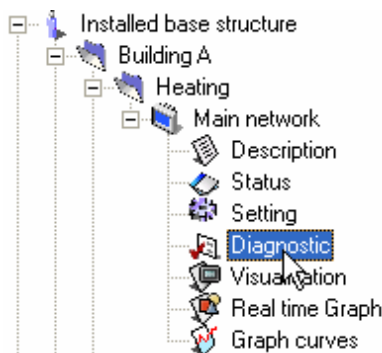


Figure 12-8: click the *Diagnostic* icon.

3. **Refer the instructions given in the right window pane.**

Refer to chapter 17, on page 87 for details on the information presented.

12.7 Displaying the measured data

This function, which can be used only in the connected mode, enables the user to display on the PC certain data recorded in memory by a network device. Proceed as follows:

1. **Select the device to be displayed in the tree architecture zone.**

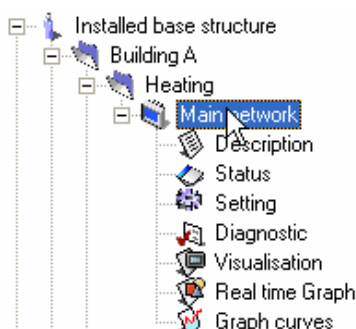


Figure 12-7: selecting a device from the tree architecture.

2. **Click the *Visualisation* icon.**

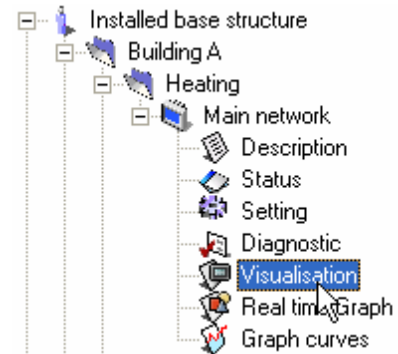


Figure 12-9: select a device in the tree architecture and click on the *Visualisation* icon.

3. **Consult the instructions given in the right window pane.**

Refer to chapter 18, on page 91, for details on the information presented.

12.8 Real time graph

This function, which can be used only in connected mode, enables the user to display, in the form of graphs, Fresnel diagrams and harmonic graphs, data measured or calculated by the device. Proceed as follows:

1. **Select the device to be displayed in the tree architecture zone.**

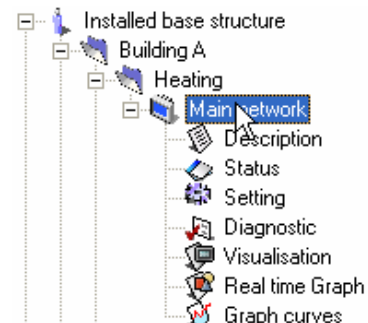


Figure 12-7: selecting a device from the tree architecture.

2. **Click the *Real time graph* icon.**

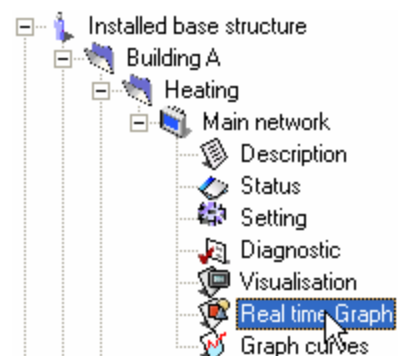


Figure 12-9: select a device in the tree architecture and click on the *Real time graph* icon.

3. **Consult the instructions given in the right window pane.**

Refer to chapter 19, on page 99, for details on the information presented.

12.9 Graph. curves

This function which can be used only in disconnected mode, enables the user to display in the form of load and record curves, data saved in the database. Proceed as follows:

1. **Select the device to be displayed in the tree architecture zone.**

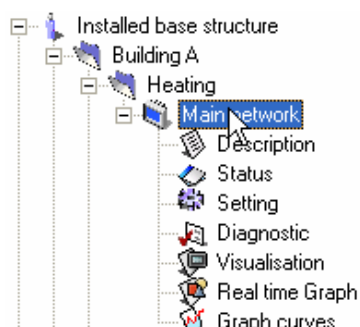


Figure 12-7: selecting a device from the tree architecture..

2. **Click the *Graph. curves* icon.**

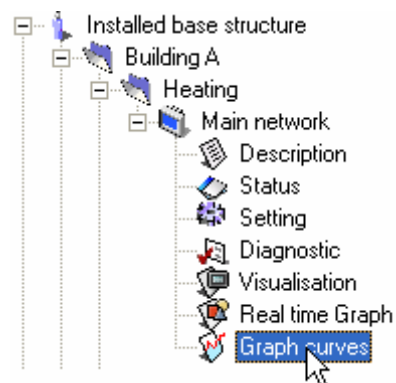


Figure 12-9: select a device in the tree architecture and click on the *Graph. curves* icon.

3. **Consult the instructions given in the right window pane.**

Refer to chapter 20, on page 103, for details on the information presented.

13. THE ERROR MESSAGES

The status bar displays error messages reporting defects encountered by the application.

13.1 Location of messages

The messages are displayed in the status bar located in the bottom right of the window.

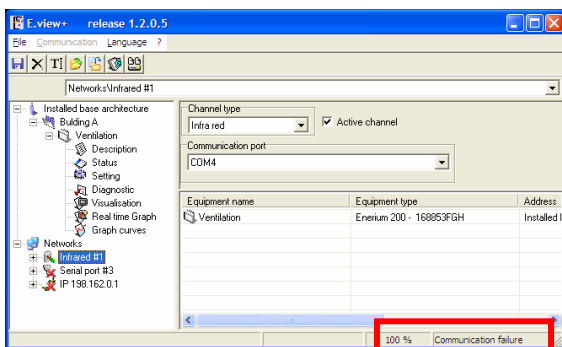


Figure 13-1 : location of the status bar.

13.2 List of messages

13.2.1 Product memory address invalid

Cause: *E.set* or *E.view* is trying to access an invalid memory area.

Correction: check, in the *mapping*, that the memory address concerned by this value (read or write) is valid.

13.2.2 Request cancellation in progress

Cause: the page had not finished refreshing when the user requested a change of page or tab.

Correction: no correction possible.

13.2.3 CRC fault

Cause: received or sent frame check incorrect.

Correction: check that the line is sufficiently protected from interferences.

13.2.4 Response fault

Cause: The concerned device sent an invalid response following a request (refresh, send).

Correction: repeat the request.

13.2.5 Write error occurred

Cause: attempt to write in an internal *mapping* zone while writing.

Correction: check, in the *mapping*, that the memory address concerned by this value being written is valid.

13.2.6 Waiting period elapsed for current request

Cause: the request waiting period (*time-out*) has elapsed. The device did not respond within the set time limit.

Correction: increase the *time-out* period, check the communication settings, check the link.

13.2.7 Request impossible, exchange in progress. Retry.

Cause: the device is currently processing a request (exchange) and is not ready to receive a new request.

Correction: repeat the request.

13.2.8 Invalid product data

Cause: the device has sent an invalid response despite receiving a correct frame check (CRC).

Correction: If this type of error appears repeatedly, the device is faulty.

13.2.9 Communication failure

Cause: no communication with the concerned device.

Correction: check that a communication channel has been selected (see paragraph 7.2.3 page 36), check the physical link (cable, connector, etc.).

13.2.10 Impossible to enter communication *timeouts*

Cause: The PC's UART is unavailable.

Correction: check that the UART (*Universal Asynchronous Receiver Transmitter*) is present and working correctly.

13.2.11 Impossible to write communication port status

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.12 Impossible to write on the communication port

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.13 Impossible to delete communication port errors

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.14 Acknowledgement error

Cause: the *Windows* communication protocol has detected a communication error.

Correction: repeat the request. In the event of operation failure, check the PC settings.

13.2.15 Non acknowledgement error

Cause: the *Windows* communication protocol has detected a communication error.

Correction: repeat the request. In the event of operation failure, check the PC settings.

13.2.16 Slave not ready

Cause: The device has not finished processing the current request.

Correction: repeat the request.

13.2.17 Impossible to close the communication port

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.18 Function unknown by the product

Cause: the version of *E.set* or *E.view* used is more recent than the software version loaded in the device.

Correction: upgrade the software version loaded on the device.


13.2.19 Incompatibility with the product type

Cause: the product type manually entered in the configuration (9.2, page 44) does not match the validation frame sent by the queried device.

Correction: check the manually entered configuration (page 46) or perform an automatic query (paragraph 9.3.1, page 46).

13.2.20 Incompatibility with the option cards

Cause: the types, number and location of the option cards manually entered in the configuration (paragraph 14.3.1, page 68) does not match the validation frame sent by the queried device.

Correction: check the manually entered configuration or perform an automatic query (see  *Download to Enerium* on page 67).

13.2.21 Impossible to read the communication port

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.22 Impossible to read the communication port status

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.23 Insufficient PC memory

Cause: too many devices are being queried at the same time which leads to a saturation of the PC's RAM.

Correction: close applications which are open and not being used currently, reduce the number of devices or increase the quantity of RAM installed on the PC.

13.2.24 Impossible to open the communication port

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.25 Communication port closed

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and working correctly.

13.2.26 Communication port undefined

Cause: The PC's UART is unavailable.

Correction: check that the UART is present and functioning correctly

The menus

14. DESCRIPTION PAGE

E.set
E.view
E.view+

The tab(s) associated with this page enable the user to define the hardware status of the device as well as the functional use of the inputs (binary) and outputs (analogue or binary) of the device.

14.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Description** icon.

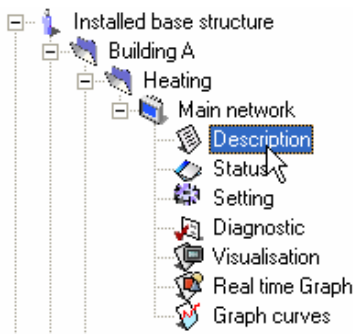


Figure 14-1 : selecting the description of a device in the tree architecture.

14.2 Display on call

On calling, the window is presented as follows.

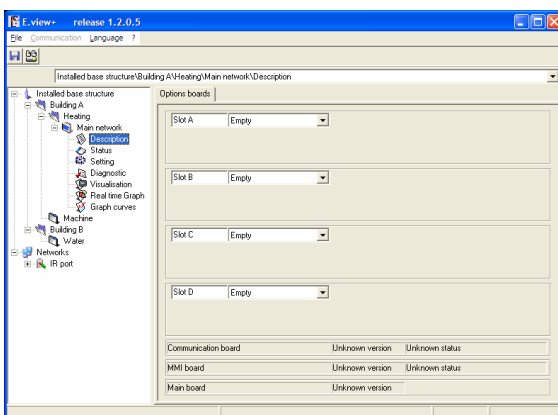


Figure 14-2 : the "Description" window on call.

A message zone can be found in the bottom part of the window (see chapter 13, on page 63 for details of messages).



Summary of the download procedure (details in chapter 11, on page 55)

Connect

In the tree architecture zone (left window pane), click the *Networks* icon, select the COM port to be used, check *Active channel* in the right window pane and select the *Communication port* from the dropdown list.

Download to the PC

To download the information from an already programmed device and connected to the network through a PC to this window, select the concerned device from the tree architecture (left window pane):

1. If no connection has previously been made, right click in the right window pane and select *Connect* or press <F9>.
2. Select the *Description* icon, right click and select *Refresh* or press <F5>.

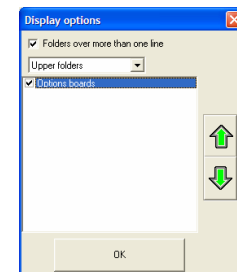
Download to the device

To download the information from this window to a device connected to the network, select the concerned device in the tree architecture (left window pane):

1. If no connection was previously established, right click in the right window pane and select *Connect* or press <F9>.
2. Select the *Description* icon, right click and select *Send* or press <F4>.



The tabs are displayed in the top part of the window by default. To display the tabs on the right, at the bottom or on the left, right click in the tree architecture and click the *Description* icon, select *Display options* and select the position of the tabs from the dropdown list.



14.3 Function details

14.3.1 Slot A (B, C or D)



The *Enerium* 50 and 150 have only slot A.

On calling, the window is presented as follows.

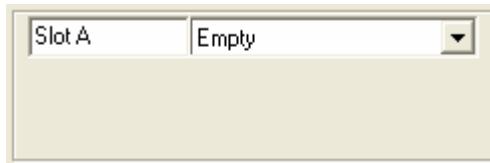


Figure 14-3 : the "Slot A" zone when the window is called.

Depending on the type, a device can receive a maximum of 4 input-output cards in connectors called here as *Slot*. An input-output card can be of the following types:

- Analogue output card.
- Binary output card (*TOR*).
- Binary input card (*TOR*).



The application manages the possible options. Thus, for example, if more than 2 cards have been defined as inputs, it is no longer possible to select a third card defined as input.

Similarly, the input and output terminals are automatically defined.

14.3.1.1 Analogue output card



The *Enerium* can receive a maximum of 2 analogue cards that can be mixed with other cards (binary outputs or inputs).

The card can be configured as follows:



Figure 14-4 : display for an analogue output card when invoked.

- **Channel 1 / Channel 2:** both the channels are analogue outputs.
- **Version:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the version number of the card.
- **Status:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the type of card with the message OK.

The parameters are defined from this application (see *Configuration – Analogue outputs*, paragraph 16.16, on page 85).



It will be possible to override an analogue output with a set value. See *Diagnostic – Analogue outputs* 17.6, on page 89.

14.3.1.2 Binary output card



The *Enerium* can receive a maximum of 2 binary output cards that can be mixed with other cards (analogue outputs or Binary inputs).

Each of the two channels can be defined as:



Figure 14-5 : display for a binary output card when invoked.

- **Alarm output :** the corresponding output of the card will change to alarm as soon as the programmed thresholds are crossed. The thresholds are defined from this application (see *Configuration – first level alarms*, paragraph 16.4, on page 76).

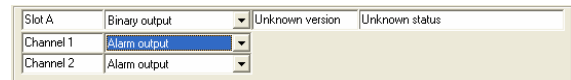


Figure 14-6 : display for a binary output card with channel 1 in alarm output.



It will be possible to override later on the value of an binary output to a 0 or 1 status. See *Diagnostic – binary outputs*, paragraph 17.5, on page 88.

- **Pulse output:** the corresponding card output will emit a pulse depending on the set associated energies. The pulses are defined using this application (see *Setting – Pulse output*, paragraph 16.17, on page 86).



Figure 14-7 : display for a binary output card with channel 1 in pulse output.

- **PLC output:** does not exist on *Enerium* 50-150. Behaves like an alarm output, except that this output can be forced to 1 or to 0 (page *Diagnostic, Binary output* tab) until the operator takes a new action-



Figure 14-8 : display for a binary output card with channel 1 in PLC output.

Additional information displayed:

- **Version:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the version number of the card.
- **Status:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the type of card with the message OK.

14.3.1.3 Binary input card



Option not available on *Micar 2*.



The *Enerium* can receive a maximum of 2 binary input cards that can be mixed with other cards (analogue outputs or binary outputs).

Each of the two channels can be defined as :

Slot A	Entrée TOR	Version inconnue	Etat inconnu
Voie 1	Entrée alarme	Entrée A1	
Voie 2	Entrée alarme	Entrée A2	

Figure 14-9 : display for an Binary input card when invoked.

- **Alarm input:** the corresponding card input awaits a logical information. The thresholds are then defined using this application (see *Setting – First level alarms*, paragraph 16.4, on page 76).

Slot A	Binary input	Unknown version	Unknown status
Channel 1	Alarm input	Input A1	
Channel 2	Alarm input	Input A2	

Figure 14-10 : display for an Binary input card with channel 1 in alarm input.

- **Pulse input:** the pulses received will be multiplied by the weight of the pulse on this input and will then be totalled by a meter. The pulses are then defined using this application (see *Setting – Pulse inputs*, paragraph 16.11, on page 81).

Slot A	Binary input	Unknown version	Unknown status
Channel 1	Alarm input	Input A1	
Channel 2	Alarm input	Input A2	

Figure 14-11 : display for an Binary input card with channel 1 in pulse input.

- **Synchronisation input:** this input is used to synchronise the device's internal clock.

Slot A	Binary input	Unknown version	Unknown status
Channel 1	Synchro input	Input A1	
Channel 2	Alarm input	Input A2	

Figure 14-12 : display for a Binary input card with channel 1 in synchronisation input.



It will be possible later on to view an binary input. See *Diagnostic – BIN inputs*, see paragraph 17.4, on page 88.

Additional information displayed:

- **Version:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the version number of the card.
- **Status:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the type of card with the message OK.
- **Label (only for binary inputs):** free text field for entering description directly recorded in the device, text which is retrieved in the other pages (*Status*, *Setting*, *Diagnostic* and *Visualisation*).

Slot A	Binary input	Unknown version	Unknown status
Channel 1	Synchro input	My own comment #1	
Channel 2	Alarm input	My own comment #2	

Figure 14-13 : location of labels (free text labels) on the binary inputs only.

14.3.1.4 Binary I/O Card



Option present on *Enerium 50*, 150 only. Absent on *Enerium 100*, 110, 200, 210, 220 and *Micar 2*.

The functions are similar to those described in the following paragraphs:

- Binary input card: See paragraph 14.3.1.3.
- Binary output card: see paragraph 14.3.1.2, except for the *Robot* output not available.

14.3.2 Communication card

Once the communication with the device is established, this zone will indicate:

Communication board	Release : 1.2	RS485 board OK
---------------------	---------------	----------------

Figure 14-14 : information zone for the communication card.

- **Version:** the message *Unknown* indicates that the card cannot be read or is not present.. Once the zone has been refreshed, it will indicate the version number of the card.
- **Status:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the type of card with the message OK.

14.3.3 MMI Card



This information is not available on *Enerium 50* and 150.

Once the communication with the device is established, this zone will indicate:

Communication board	Release : 1.2	RS485 board OK
---------------------	---------------	----------------

Figure 14-15 : information zone for the MMI card.

- **Version:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the version number of the card.
- **Status:** the message *Unknown* indicates that the card cannot be read or is not present. Once the zone has been refreshed, it will indicate the type of card with the message OK.

14.3.4 Mother board

Once the communication with the device is established, this zone will indicate:

Main board	Release : 1.34
------------	----------------

Figure 14-16 : information zone for the mother board.

The message *Unknown* indicates a faulty device.

Otherwise, the zone indicates the version number of the mother board.

14.4 Display example

The following screenshot shows the window displayed by an *Enerium 200* after the **Refresh** function on the **Description** icon is selected.

The screenshot displays a software interface titled "Options boards". It contains several sections for configuring different boards:

- Slot A:** Analog output (dropdown), Release : 1.3, Analog output board OK. Below it are Channel 1 and Channel 2 labels.
- Slot B:** Binary output (dropdown), Release : 1.3, Binary output board OK. Below it are Channel 1 (Alarm output dropdown) and Channel 2 (Alarm output dropdown).
- Slot C:** Binary input (dropdown), Release : 1.3, Binary input board OK. Below it are Channel 1 (Alarm input dropdown, Entree specifique) and Channel 2 (Alarm input dropdown, Input C2).
- Slot D:** Empty (dropdown).
- Communication board:** Release : 1.2, RS485 board OK.
- MMI board:** Release : 1.7, MMI board OK.
- Main board:** Release : 1.34.

Figure 14-17 : information zone for the communication card.

15. STATUS PAGE

E.set

E.view

E.view+

This page allows only the status of the device to be previewed (voltage and current inputs, order of phases, time synchronisation, first level alarms, global alarms, pulse and analogue outputs).

Note: the user can modify the displayed parameters only by using the *Setting* and *Diagnostic* pages.

15.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Status** icon.

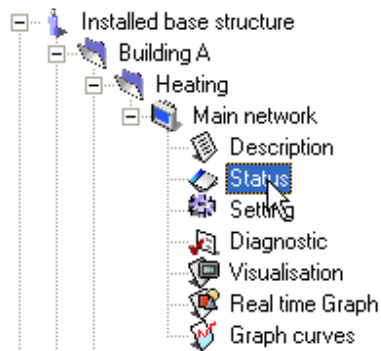


Figure 15-1: selecting the status of a device in the tree architecture.

15.2 Display on call

On calling, the window is presented as follows.

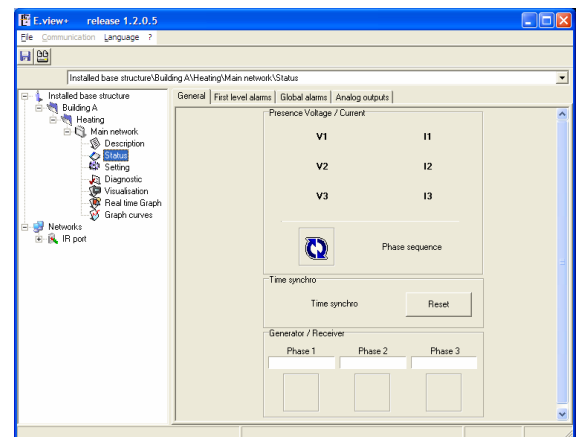


Figure 15-2 : the "Status" window when called.

A message zone can be found in the bottom part of the window (see chapter 13, on page 63 for details of messages).



Summary of the procedure
(details in chapter 11, on page 55)

Connect

In the tree architecture zone (left window pane), click the *Networks* icon, select the COM port to be used and check *Active channel* in the right window pane and select the *Communication port* from the dropdown list.

Download to the PC

To download the information from an already programmed device and connected to the network through a PC to this window, select the concerned device from the tree architecture (left window pane):

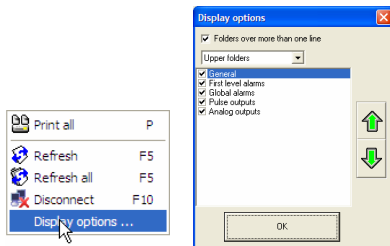
1. If no connection was previously established, right click in the right window pane and select *Connect* or press <F9>.
2. Select the *Status* icon, right click and select *Refresh* or press <F5>.



Download to the device

This window does not allow downloading to a device.

The tabs are displayed by default at the top and on several lines. To display the tabs on the right side, at the bottom or on the left side and on one or more lines, right click in the tree architecture on the *Status* icon and select *Display options*. Then select the position of the tabs from the drop-down list and/or the tabs over one or more lines in the checkbox. Use the arrows to change the tab order.



Tab	See page
First level alarms	73
Global alarms	73
General	72
Analogue outputs	74
Pulse outputs	74

15.3 General

This window is used to view the operation (correct or incorrect) of voltage and current quantities and the order of phases.

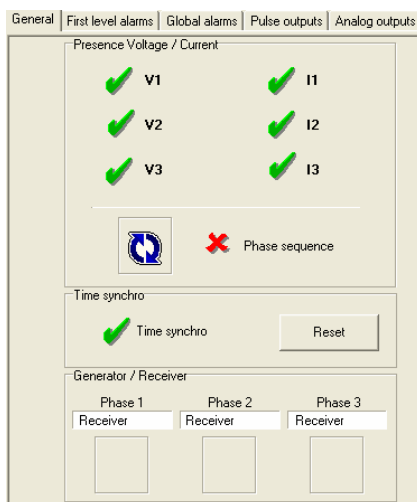


Figure 15-3 : example of a "General" tab.

15.3.1 Presence of voltage / Current

A green tick indicates only the presence of voltage or current on the connected device's terminals.



indicates the presence of voltage or current on the device terminals.



indicates the absence of voltage or current on the device terminals.



Order of phases:



: indicates a correct order of phases.



: indicates an incorrect order of phases (connection order not followed).

15.3.2 Time synchronisation



This function is not present on *Micar 2*.

With an Binary input, a channel can be used as a time input, for receiving, for example, an update pulse sent every hour (*France inter* or other signal).

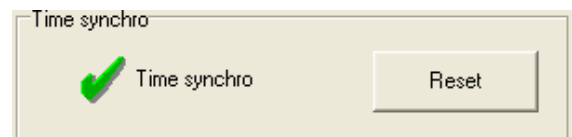


Figure 15-4 : la zone Synchro de l'onglet « Général ».

The pulse should appear within a time window of ± 5 seconds.

- If the pulse is detected within this interval, the synchronisation is adjusted.
- If the pulse is detected outside this interval, this means that an error of type time synchronisation loss is sent.

In the event of loss of synchronisation, the user should rely on the product's internal clock.

The synchronisation status is displayed as follows :

- No icon: no programmed time synchronisation.
- : correct time synchronisation.
- : incorrect time synchronisation. A bit of the product's status word has been modified (see *Status* page).

The **Reset** key sets the status word to zero (re-initialisation of the synchronisation loss bit).

15.3.3 Receiver / Generator

The three phases are individually monitored. The message "**Generator**" indicates that the phase is working in generator mode. The message "**Receiver**" indicates that the phase is working normally in receiver mode.

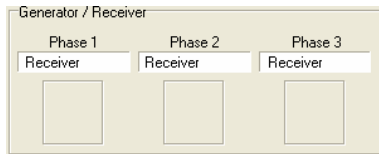


Figure 15-5: the Receiver / Generator zone of the "General" tab.

For example, if all the currents are inversed, there will be no phase order error, but the device will be working as generator.

15.4 First level alarms

This window displays the status of the first level alarms.



The first level alarms are defined by the "Setting" icon, in the "First level alarms" tab. See paragraph 16.4, page 76.

General First level alarms Global alarms Analog outputs					
	Parameter	Type	threshold	Tempo (s)	Status
First level Alarm 1	V1	Max	240.00	4	Off
First level Alarm 2	V2	Max	240.00	4	Off
First level Alarm 3	V3	Max	240.00	4	Off
First level Alarm 4	V Neutral	Max	240.00	4	Off
First level Alarm 5	None	Max		0	Off
First level Alarm 6	None	Max		0	Off
First level Alarm 7	None	Max		0	Off
First level Alarm 8	None	Max		0	Off
First level Alarm 9	None	Max		0	Off
First level Alarm 10	None	Max		0	Off
First level Alarm 11	None	Max		0	Off
First level Alarm 12	None	Max		0	Off
First level Alarm 13	None	Max		0	Off
First level Alarm 14	None	Max		0	Off
First level Alarm 15	None	Max		0	Off
First level Alarm 16	None	Max		0	Off

Figure 15-6 : example of a "first level alarms" tab.

A first level alarm is a software alarm, which bears no relation to the alarm outputs of the device. A maximum of 16 first level alarms can be defined.

Each first level alarm has the following properties:

- **Quantity:** physical quantity associated with this first level alarm.
- **Type:** detection of the minimum (*Min*) or maximum (*Max*) threshold.
- **Threshold:** set alarm threshold.
- **Tempo (s):** time limit for the first level alarm to be activated after it has exceeded the set threshold.
- **Status:** current status of the first level alarm.
 - Off: no alarm activated.
 - On: alarm activated.

The buttons have the following functions:

- **Reset the alarm log:** clears the entire alarm log.
- **Reset the alarm status word:** sets all the outputs in the "Status" column to "Off".

- **Complete reset of alarms:** deletes the alarm logs and the alarm status words.

15.5 Global alarms

This window displays the status of the global alarms.

General First level alarms Global alarms Analog outputs						
	Fct	Label	Output	Level	Status	Memo
Global alarm 1			Slot B, channel 1	NO	Off	Off
Global alarm 2			Slot B, channel 2	NO	Off	Off
Global alarm 3			Slot C, channel 1	NO	Off	Off
Global alarm 4					Off	Off
Global alarm 5					Off	Off
Global alarm 6					Off	Off
Global alarm 7					Off	Off
Global alarm 8					Off	Off

Figure 15-7 : example of a "Global alarms" tab.

A global alarm:

- Is either an individual first level alarm, or a logical combination (AND / OR) of 2 first level alarms.
- Can control one of the output card relays.

A maximum of 8 global alarms can be defined.



The first level alarms are defined by the "Setting" icon, "Global alarms" tab. See paragraph 16.5, page 77.

Each global alarm is displayed as follows:

- **Column no.1:** name of the global alarm (1 to 8).
- **Column no.2:** first first-level alarm connected to the concerned global alarm.
- **Fct:** defined logical function (AND / OR) combined where relevant with column no.3.
- **Column no.4:** second first level alarm connected to the concerned global alarm.
- **Label:** reminder of the mnemonic message associated with the global alarm.
- **Output:** reminder of the activated output relay associated with the global alarm.
- **Level:** current status of the concerned global alarm. "Off" = non-activated global alarm, "On" = activated global alarm.
- **Memo:** alarm stored in memory. As soon as the global alarm concerned switches to the "On" status, the status of this "Memo" field also switches to "On". However, if the global alarm switches back to "Off" status, the "memo" field remains fixed in the "On" status. Clicking on the **Reset the status word of the alarms** or **Complete reset of the alarms** buttons switches the "Memo" to OFF.

The **Reset the status word of the alarms** forces all the outputs of the "Status" column to "Off".

15.6 Pulse outputs



This tab is displayed only when the pulse outputs are present on the concerned device. See paragraph 14.3.1.2, on page 68.

This window displays the status of the pulse outputs.

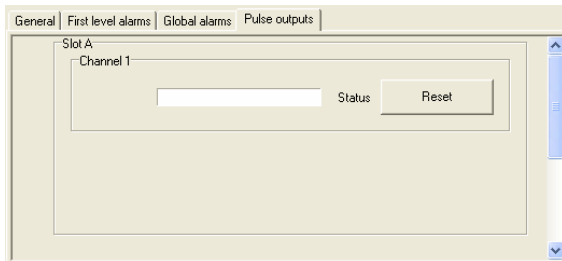


Figure 15-8: example of a "Pulse outputs" tab.

Each pulse output is displayed as follows:

- : the pulse output is working correctly.
- : problem on the pulse output. There are too many pulses at the output compared to what the output can manage, but the output counter is saturated. The excess is added up internally by the device; **there is no pulse loss during counting.**
- : problem on the pulse output. There are too many pulses at the output compared to what the output can manage; the output counter is saturated. The device no longer adds up the excess internally; **there is pulse loss during counting.**

15.7 Analogue outputs



This tab is displayed only when the analogue outputs are present on the concerned device. See paragraph 14.3.1.1, on page 68.

This window displays the status of the analogue outputs.

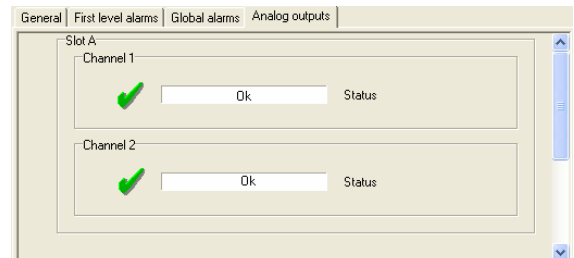


Figure 15-9 : example of an "Analogue outputs" tab.

- : the analogue output is working correctly.
- **High saturation status:** problem with the analogue output. The value to be sent is higher than the permitted range. This value is defined in the *Setting / Analogue output* tab (see paragraph 16.16, on page 85).
- **Low saturation status:** problem with the analogue output. The value to be sent is lower than the permitted range. This value is defined in the *Setting / Analogue output* tab (see paragraph 16.16, on page 85).

16. SETTING PAGE

E.set

E.view

E.view+

This page allows the user to fully configure, immediately or off-line, each of the devices present on the network.

16.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Setting** icon.

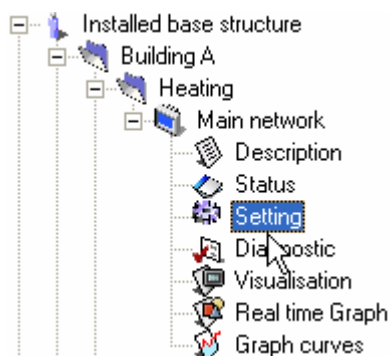


Figure 16-1 : selecting the setting of a device in the tree architecture.

16.2 Display on call

On calling, the window is presented as follows.

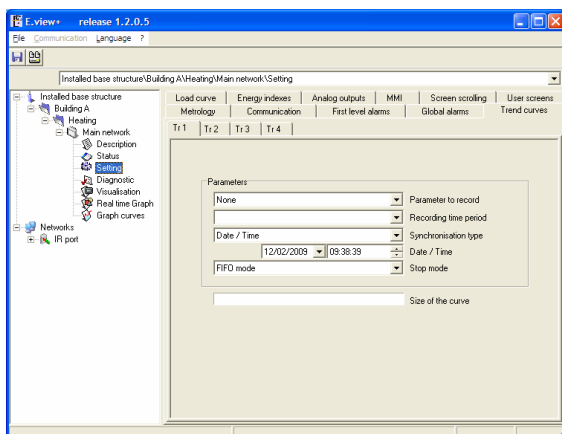


Figure 16-2 : the "Setting" window when called.

A message zone can be found in the bottom part of the window (see chapter 13, on page 63 for details of messages).



Summary of the procedure

(details in chapter 11, on page 55)

Connect

In the tree architecture zone (left window pane), click the *Networks* icon, select the COM port to be used and check *Active channel* in the right window pane and select the *Communication port* from the dropdown list.

Download to the PC

To download the information from an already programmed device and connected to the network through a PC to this window, select the concerned device from the tree architecture (left window pane):

1. If no connection was previously established, right click in the right window pane and select *Connect* or press <F9>.

2. Select the *Setting* icon, right click and select *Refresh* or press <F5> to update the active window. The *Refresh all* function updates all the windows, whether active or not.

Download to the device

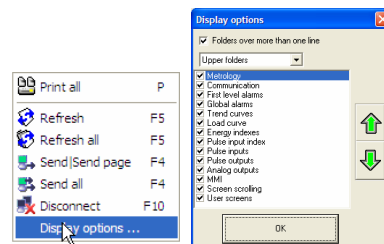
To download the information from this window to a device connected to the network, select the concerned device in the tree architecture (left window pane):

1. If no connection was previously established, right click in the right window pane and select *Connect* or press <F9>.

2. Select the *Setting* icon, right click and select *Send* or press <F4> to send the data from the active window. The *Send all* function sends all the data from all windows, whether active or not.



The tabs are displayed by default at the top and on several lines. To display the tabs on the right side, at the bottom or on the left side and on one or more lines, right click in the tree architecture on the *Setting* icon and select *Display options*. Then select the position of the tabs from the drop-down list and/or the tabs over one or more lines in the checkbox. Use the arrows to change the tab order.



16.3 Available functions

The available tabs depend on the product type selected (*Enerium 50, 100, etc., Micar 2*). The following table specifies the available tabs according to the product type and the shortcuts to the corresponding paragraphs.

Product type	Reference point
<i>Enerium 50</i>	A
<i>Enerium 100,</i>	B
<i>Enerium 110</i>	C
<i>Enerium 210</i>	D
<i>Enerium 150, 200, 220</i>	E
<i>Micar 2</i>	F

Tab	A	B	C	D	E	F	Page
First level alarms	■	■	■	■	■	■	76
Global alarms	■	■	■	■	■	■	77
Communication	■	■	■	■	■	■	77
Load curve	■	-	-	■	■	-	79
Record graphs.	-	■	■	■	■	-	78
screen scrolling	■	■	-	-	■	-	80
User screens	■	■	-	-	■	-	80
MMI	■	■	-	-	■	-	81
Energy index	■	■	■	■	■	■	82
Pulse input index	■	■	■	■	■	-	82
Metrology	■	■	■	■	■	■	82
Pulse inputs	■	■	■	■	■	■	81
Analogue outputs	■	■	■	■	■	■	85
Pulse outputs	■	■	■	■	■	■	86

16.4 First level alarms



Certain options (means, counters and Binary) are not applicable to *Micar 2*.



To download the information from this window to a device or from a device, refer to of paragraph 16.15.1, on page 83.

This tab is presented below.

Figure 16-3 : "First level alarms" tab..

A first level alarm is a software alarm associated with a unique parameter (V1, V2, V3, U12, U13, etc.). A first level alarm is not directly associated with a relay; a relay can be associated only to one global alarm (see paragraph 16.5, on page 77). A total of 31 parameters is proposed for each first level alarm. When a first level alarm is triggered, it appears on the **Status/First level alarms** page (see paragraph 15.4, on page 73). It is possible to define a maximum of 16 first level alarms per device.

16.4.1 Configure a first level alarm

To define a first level alarm:

Figure 16-4 : defining a first level alarm.

1. Select the magnitude from those proposed.
2. Define the detection type; minimum or maximum.
 - MIN: the alarm is triggered as soon as the measure goes below the threshold.
 - MAX: the alarm is triggered as soon as the measurement rises above the threshold.
3. Define the permitted detection threshold, minimum or maximum, as per the choice made in the previous point.
4. Set the interval in seconds. The alarm will be triggered after an effective presence of this alarm after the set interval.

- Proceed in the same way for the other first level alarms if necessary.

16.4.2 Resetting the alarms

Two buttons are available in this tab:

- Reset the alarm log:** deletes any messages that may be displayed by the alarm log (see *Visualisation / Alarm log*, paragraph 18.9, on page 94).
- Reset the alarm status word:** reinitialise the status of all the basic software alarms to <Off> (see *Status / First level alarms* tab, column *Status*, paragraph 15.4, on page 73).

16.4.3 Utilisation

See the point "i" of paragraph 16.2, on page 75.

- Give it a label (free text). This label will be displayed in the *Status / Global alarms* (see paragraph 15.5, on page 73).
- Select the associated output relay on the device. Only the outputs that can be used concretely are displayed (see *Description, Option cards* tab icon – paragraph 14.3.1, on page 68); otherwise, no output can be selected.
- Select the output status (NC or NO) of the associated output relay contact on the device.
 - NO: the contact is normally open when the alarm is not activated (inactive).
 - NC: the contact is normally closed when the alarm is not activated (inactive).
- Proceed in the same way for the other global alarms if necessary.



The global alarms will only be activated after the potential time intervals for the various first level alarms concerned.

16.5 Global alarms



To download the information from this window to a device or from a device, refer to "i" of paragraph 16.15.1, on page 83.

This tab is presented below.

	Boolean function			Label	Associated relay output	
	Output	Activation level	Output		Activation level	
Global alarm 1	None	None	None	None	None	
Global alarm 2	None	None	None	None	None	
Global alarm 3	None	None	None	None	None	
Global alarm 4	None	None	None	None	None	
Global alarm 5	None	None	None	None	None	
Global alarm 6	None	None	None	None	None	
Global alarm 7	None	None	None	None	None	
Global alarm 8	None	None	None	None	None	

Alarm journal reset Alarm status reset

Figure 16-5 : the "Global alarms" tab.

A global alarm is a first level alarm (defined in paragraph 16.4) generally associated with another first level alarm via a logical function (OR/ AND).

It is possible to define 8 global alarms per device.

When a global alarm is triggered, it appears on the **Status/Global alarms** page (see paragraph 15.5, on page 73).

16.5.1 Configure a global alarm

To define a global alarm:

	Boolean function			Label	Associated relay output	
	Output	Activation level	Output		Activation level	
Global alarm 1	AL E1	AND	AL E1	None	None	
Global alarm 2	None	None	None	None	None	
Global alarm 3	None	None	None	None	None	
Global alarm 4	None	None	None	None	None	
Global alarm 5	None	None	None	None	None	
Global alarm 6	None	None	None	None	None	
Global alarm 7	None	None	None	None	None	
Global alarm 8	None	None	None	None	None	

Alarm journal reset Alarm status reset

Figure 16-6 : defining a global alarm.

- Select a first level alarm from the dropdown list.
- If a logical function with a second first level alarm is planned, select this function (OR, AND).
- If a logical function has been defined, select a second first level alarm from the dropdown list.

16.5.2 Resetting the alarms

Two buttons are available in this tab:

- Reset the alarm log:** deletes the messages that may be displayed by the alarm log (see *Visualisation / Alarm log*, paragraph 18.9, on page 94).
- Reset the alarm status word:** reinitialise the status of all the basic software alarms to <Off> (see *Status / First level alarms* tab, column *Status*, paragraph 15.4, on page 73).

16.5.3 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.6 Communication



To download the information from this window to a device or from a device, refer to "i" of paragraph 16.15.1, on page 83.

This tab is presented below.

The information enabling the user to define the JBUS communication characteristics between the device and the RS485 network on which it will be connected.

The communication mediums serial port and modem are concerned by this tab.

Figure 16-7 : the "Communication" tab.

The choice of settings is made as follows:

- JBus Address:** JBUS address of the device between 1 and 247 (terminals included).
- RS485 speed:** select the same value from the dropdown list on all the devices and on the connected PC.
- Parity:** select the same value from the dropdown list on all the devices and on the connected PC.

- **Stop bit:** select the same value from the dropdown list on all the devices and on the connected PC.
- **Response time (ms):** select the same value from the dropdown list on all the devices and on the connected PC.

16.6.1 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.7 Trend curves



Certain options (means, counters and Binary) are not applicable to Micar 2.



To download the information from this window to a device or from a device, refer to "i" of paragraph 16.15.1, on page 83.

This curve is also called a "Trend curve" in the device.

This tab is presented below.

Figure 16-8 : the "Trend curves" tab.

The user can define up to 4 independent and simultaneous curves recording the evolution of a quantity among 59 quantities; they can be viewed by *E.view* (*Visualisation / Trend curves*) icon).

16.7.1 Configuring a trend curve

To define a trend curve:

1. Select the tab (**CE1** to **CE4**) corresponding to the trend curve to be configured.
2. Select the **Parameter to record** from the dropdown list. See Table 2, on page 79 for details of quantities.
3. Select the **Recording time period** from the dropdown list.
For example, a period of 7 seconds will precede the recording of the quantity at intervals of 7 seconds.
4. Select the **Synchronisation type** from the dropdown list.
 - **Date/Time:** the recording of the data starts or stops when the device reaches the programmed date and time.
 - **Global alarm x:** the recording of the data starts or stops when the selected global alarm is activated.
5. Select the **Date** and **Time** of the start and end of the data recording.
The date and time are greyed out if the **Synchronisation type** has been set for a **Global alarm**.
6. Select the **Stop mode** from the dropdown list.
 - **Non-stop:** the recordings will be made in a circular fashion in the curve, the oldest recording being deleted by the most recent recording (FIFO type curve). In this mode, the three types of synchronisation are authorised to launch the recording. However, only writing a command word on the remote or local communication can stop the data recording.
 - **Stop on full buffer:** the three types of synchronisation are authorised to launch the recording. The recording stops when 4,032 values have been recorded
 - **Rotating buffer with stop on synchronisation:** the recordings will also be made in a circular way in the curve, the oldest recording will be overwritten by the most recent recording (FIFO type curve). The recording starts as soon as a quantity is allocated to the curve. Entering a command word on the remote or local communication, an " Binary input synchro" or a "Global alarm synchro" can immediately stop the recording of data.
 - **Stop 75% after synchronisation:** the recordings will be made in the same way as in the third mode. However the recording will not stop immediately but only after 3,024 values (or 75% of the size of the curve) have been recorded after the stop command, which can be a command word entered on the remote or local communication, an " Binary input synchro" or a "Global alarm synchro".
 - **Stop 50% after synchronisation:** the recordings will be made in the same way as in the third mode. However the recording will not stop immediately but only after 2,016 values (or 50% of the size of the curve) have been recorded after the stop command, which can be a command word entered on the remote or local communication, an " Binary input synchro" or a "Global alarm synchro".
7. If necessary, proceed in the same way for the other tabs.

The table below lists the quantities likely to be recorded.

Symbol	Physical quantity
I1, I2, I3, In	Currents per second.
Pt, Qt, St	Active, reactive, apparent three-phase power per second.
TPF	Total power factor per second.
U imbalance	Imbalance factor per second.
Average V1, V2, V3	Average line to neutral voltage.
Average U12, U23, U31	Average phase to phase voltage.
Average I1, I2, I3, In	Average currents.
Average P1, P2, P3, Pt, generator, receiver	Average active powers on each of the phases and three-phase in generator and receiver mode.
Average FP1, FP2, FP3, FP total receiver, generator	Average power factors on each of the phases and global in generator and receiver modes.
Average cos φ 1, cos φ 2, cos φ 3, cos φ total, generator, receiver	Cos(φ) averages on each of the phases and total in generator mode and receiver mode.
Frequency average	Average frequency.
Crest factor average I1, I2, I3, V1, V2, V3	Average crest factors.
THD average V1, V2, V3, I1, I2, I3, U12, U23, U31,	THD averages in line to neutral, phase to phase and current for each phase.

Table 2: list of quantities to record (trend curves).

16.7.2 Curve size

This indefinable zone indicates only the maximum size of the curve that can be recorded depending on the parameters selected in this tab. A maximum of 4,032 recordings per quantity is possible.

16.8 Load curve



To download the information from this window to a device or from a device, refer to of paragraph 16.15.1, on page 83.

This tab is presented below.

Figure 16-9 : the "Load curve" tab.

The load curve records from one to eight quantities among the following twelve quantities: P+, P-, Q1, Q2, Q3, Q4, S+, S-, TOR1, TOR2, TOR3 and TOR4. It can be displayed by E.view (*Visualisation* icon and *Load curves* tab).

Each recording is made up of a timestamp (date and time), a status and the selected quantities (a maximum of eight). The quantities are always ranked in the following order: P+, P-, S+, S-, Q1, Q2, Q3, TOR1, TOR2, TOR3, TOR4. A maximum of 4,032 recordings can be made without overwriting, which is equal to 28 days, with an integration time of 10 minutes.

16.8.1 Configure a load curve

To define a load curve:

- Select the parameters to be recorded by checking the relevant boxes.**
A click on the displays the quadrants and the signs.
- Select, for example, ccTOR 1.**
These options are active only if a card was defined as *Binary Input* with *Input Pulse* in the *Description / Option cards* tab (see paragraph 14.3.1.3, page 69).
- Select the Integration time from the dropdown list.**
- Assign the Binary inputs to the counters.**

16.8.2 Curve size

This zone gives the theoretical duration of the recording possible depending on the selected integration time. A maximum of 4,896 recordings per quantity is possible.

16.8.3 Delete the load curve

Clicking on this button deletes the records relating to the load curve stored in the device's memory.

16.9 Screen scrolling



See the information note in paragraph 16.2, on page 75 about the download.

This tab is presented below.

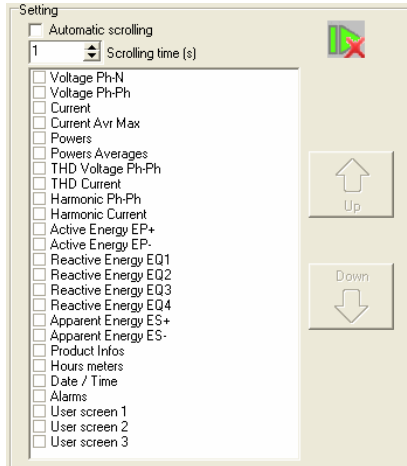




Figure 16-10 : the "screen scrolling" tab.

From this screen, it is possible:

- To display the current screen display order on the device.
- To define the screen display order on the device and to transfer them to the device.

16.9.1 The information displayed

- **Automatic scrolling:** when checked, the page scrolling function on the device is active.
- **Icon:**
 -  : the *Automatic scrolling* checkbox is activated.
 -  : the *Automatic scrolling* checkbox is deactivated.
- **Scrolling time:** display time of each page on the device.
- **List:** select the screen to be displayed by clicking in the box and defining the order in all the screens to be displayed using the *Up* and *Down* arrow keys. A maximum of 16 pages can be displayed.

16.9.2 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.10 User screens



See the information note in paragraph 16.2, on page 75 about the download.

This tab is presented below.

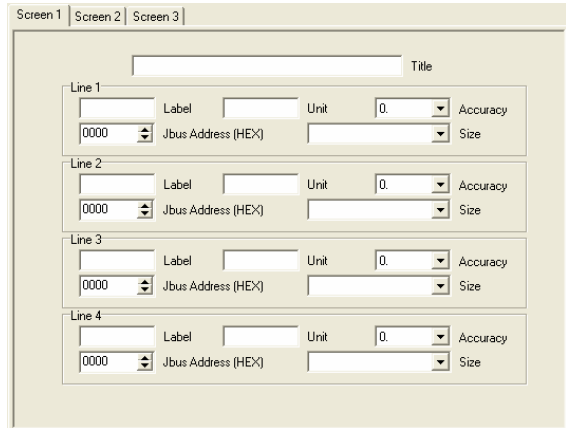


Figure 16-11 : the "User screens" tab.

Three screens that can be customised by the user can be defined; one tab corresponds to one screen. The figure below presents an example of the display on the device from data entered by the user (Figure 16-11).

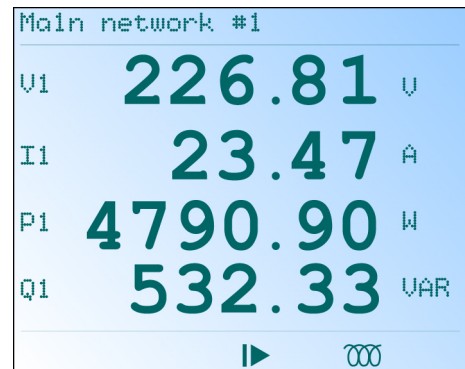


Figure 16-12 : example of user screen depending on the Setting of the previous figure.

16.10.1 The information displayed



Refer to the previous two figures for the mapping between the settings of the *User screens* and the information displayed by the device.

- **Title:** text zone to be entered. Enter a title ("Boiler room measurements" for example) a maximum of 24 characters long. Enter a wording of maximum length 7 characters ("U Ph-N" for example).
- **Unit:** text zone to be entered. Enter a relevant quantity wording ("U" for example) on 4 character maximum.
- **Accuracy:** select the number of digits after the decimal point from the drop-down list. This choice can only be made depending on the number of digits after the decimal point as defined in the device *mapping* (*).

- **JBus Address (HEX):** select the hexadecimal address of the value to be read in the JBUS *mapping*.
- **Size:** select the size of the value to be read in the JBUS *mapping* from the dropdown list (16 or 32 bits). This choice can only be made according to the device *mapping* (*).

(*) refer to the device *mapping* manual.

16.10.2 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.11 Pulse inputs



See the information note in paragraph 16.2, on page 75 about the download.

This tab is presented below.

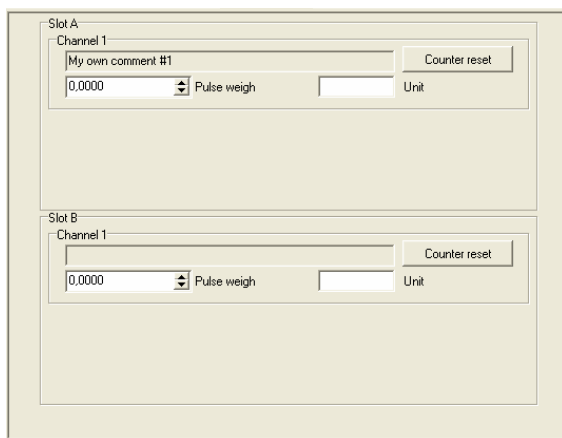


Figure 16-13 : the "Pulse inputs" tab.

It is possible to define the information relating to the weight of the pulses stored by the device (value and unit) from this screen.

16.11.1 The information displayed

Only the cards and channels having a *Binary input* declared as *Pulse input* (see *Description / Option cards* icon – paragraph 14.3.1.3, on page 69) are displayed.

- **Input x:** location (slot A, B, C or D) of the Binary input card that has a defined input such as *Pulse input*.
- **Pulse weight:** the pulses received are multiplied by the weight of the pulse on this input and will then be totalled by a counter. The pulse weight can be configured between 0.0001 and 999.9999.
- **Unit:** the unit (M3, etc.) entered in the *Pulse inputs* tab (see paragraph 16.14, page 82).
- **Counter reset:** click once to reinitialise the counter for the selected channel on the concerned device.

16.11.2 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.12 MMI



See the information note in paragraph 16.2, on page 75 about the download.

This tab is presented below.

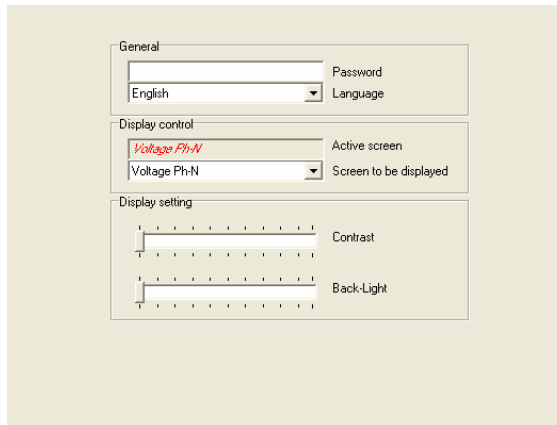


Figure 16-14 : the "MMI" tab..

From this screen, it is possible:

- To display the information relating to the characteristics of the man-machine interface (MMI) of the device.
- To define the characteristics of the man-machine interface (MMI) and to transfer them to the device.

16.12.1 The information displayed

- **Password:** sets the product password. The device will ask for this password before allowing access to the *Setting* screen to configure the device locally (device keys (see Figure 16-15)). Enter the password. The permitted code range is from 0000 to 9999, including terminals. If a code other than 0000 is activated, the access to the *Setting* screen will be possible only after answering this password.

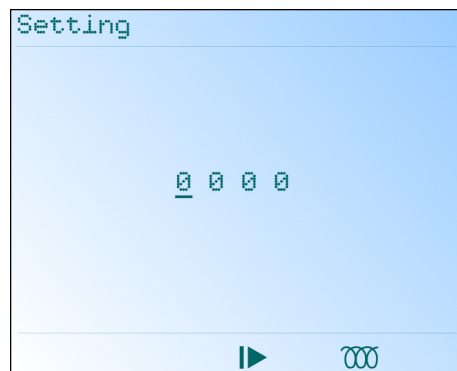



Figure 16-15 : Recap of the device password screen.

- **Language:** select the language in which the device menus will be displayed.
- **Display control:** specifies the screen currently displayed on the device (Current screen) and the screen that the user wishes to display (Screen to display) once the *Send* ( F4) icon is clicked.

- **Contrast:** cursor on left side (bright screen) or on right side (dark screen).
- **Backlight:** cursor on left side (no backlighting of the display) or to the right side (maximum back light).

16.12.2 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.13 Energy index



To download the information from this window to a device or from a device, refer to i of paragraph 16.15.1, on page 83.

This tab is presented below.

Figure 16-16 : the "Energy index" tab.

From this screen, it is possible:

- To view the information stored and displayed by the device on this screen.
- To transfer the information entered by the operator in the text zones to the device. When maintaining the device, it is thus possible to reinitialise the new device with the values from the previous device.

16.13.1 The information displayed

It is displayed as follows:

- **Active energy:** displays the active energy (P) in kWh in receiver and generator mode.
- **Reactive energy:** displays in kVARh the reactive energy (Q) in the faces EQ1 to EQ4. A click on the ? icon displays the quadrants and the signs.
- **Apparent energy:** display the apparent energy (S) in kVAh in receiver and generator mode.

16.14 Pulse inputs index



See the information note in paragraph 16.2, on page 75 about the download.

This tab is presented below.

Figure 16-17 :the "Pulse inputs index" tab.

From this screen, it is possible:

- To display the information stored and displayed by the device on this screen.
- To transfer the information entered by the operator in the zones to the device. When maintaining the device, it is thus possible to reinitialise the new device with the counter index values from the previous device.

16.14.1 The information displayed

Only the cards and channels having a *Binary output* declared as *Pulse output* (see *Description / Option cards* icon – paragraph 14.3.1.2, on page 68) are displayed.

- The digital zone displays the value of the counter to be sent to the product.
- The adjacent non-modifiable zone summarises the corresponding unit defined in the *Pulse inputs* tab (see paragraph 16.11, page 81).

16.14.2 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.15 Metrology



To download the information from this window to a device or from a device, refer to of paragraph 16.15.1, on page 83.

This tab is presented below.

Figure 16-18 : the "Metrology" tab for the product types other than Micar 2.

Figure 16-19 : the "Metrology" tab only for Micar 2.

16.15.1 Setting

16.15.1.1 Quantity assigned to the LED

Defines the type of energy (total three-phase active power, total three-phase reactive power, total three-phase apparent power) that will be displayed by the metrological LED, in order to count the pulses from the measurements observed on the secondary side of the client measurement transformers.



Figure 16-20 : reminder of the location of the metrological LED.

16.15.1.2 Primary PT

Select the maximum working voltage indicated on the primary of the voltage transformer. The primary value (in phase to phase voltage) of the PT transformer can be set between 100 V and 650 000 V. The primary PT can be set by 1 V increments and its default value is 100 V.



The value of the primary PT multiplied by the value of the primary CT should be less than 693 MVA.

16.15.1.3 Secondary PT

Select the maximum working voltage indicated on the secondary of the voltage transformer. The secondary value (phase to phase voltage) of the PT transformer can be set between 100 V and 480 V. The PT secondary can be adjusted by 1 V increments and its default value is 100 V.

16.15.1.4 Primary CT

Select the maximum working current indicated on the primary current transformer. The value of the primary CT transformer is between 1 A and 20,000 A. The primary CT can be adjusted by 1 A increments and its default value is 100 A.



The value of the primary PT multiplied by the value of the primary CT should be less than 693 MVA.

16.15.1.5 Secondary CT

Select the maximum working current indicated on the secondary of the current transformer. The secondary value of the CT transformer is between 1 A and 5 A. The secondary CT can be adjusted by 1 A increments and its default value is 5 A.

16.15.1.6 Network frequency

Select the fundamental network frequency (50 or 60 Hz). For the 400 Hz, it is not possible to choose, because it is defined on the device itself.

This selection has an influence on the calculation related to harmonics.

16.15.1.7 Integration period



Not available on *Micar 2*.

Select the integration period in minutes for the average values from the 12 pre-set values.

This selection affects the calculation of averages. The integration period is the same for all quantities.

16.15.1.8 $\sqrt{3}$



Available only on *Micar 2*.

This checkbox, when activated, simply reminds that the device was wired for phase to phase voltages.

16.15.1.9 Connection diagram number



Available only on *Micar 2*.

Select the connection type which will be used on the device. The codification is as follows:

16.15.1.10 Icon ?



Available only on *Micar 2*.

Clicking on the ? icon displays the connection diagram corresponding to the selection in the *Connection number*, when this selection is other than *None*. Click on the diagram to close this window again.

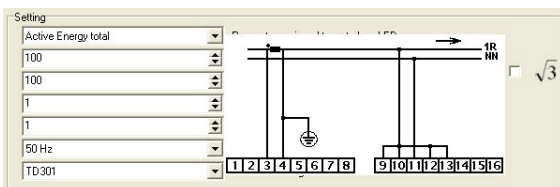


Figure 16-21 : example of display of the connection diagram.

16.15.2 Date and time

This zone displays any time difference between the PC's internal time and the device's internal time.

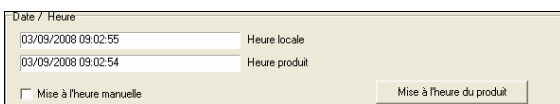


Figure 16-22 : the "Date and Time" zone.

16.15.2.1 Local time

Un-editable zone displaying the time of the internal clock of the PC.

16.15.2.2 Product time

Un-editable zone displaying the time of the internal clock of the measurement device once communication is established. Click <F5> to view the current time of the internal clock of the selected device.

16.15.2.3 Manually time setting

- **Unchecked:** click the **Set product time** button sets the device's time to the PC time.
- **Checked:** a date and time zone is displayed. Clicking the **Set product time** button sets the device's time to the time indicated in this zone.

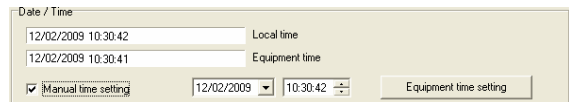


Figure 16-23 : the "Date and Time" zone.

16.15.2.4 Setting the product time

This key sets the device's time to the time displayed in this window. See the paragraph above.

16.15.3 Reset buttons

This zone is summarised below.

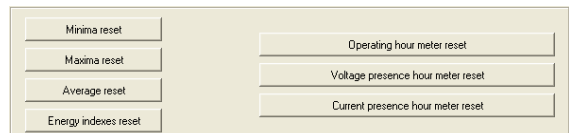


Figure 16-24 : the "Reset" zone for the product types other than *Micar 2*.

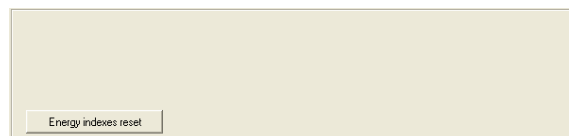


Figure 16-25 : the "Reset" zone for *Micar 2*.

16.15.3.1 Resetting the minima

Re-initialises all the minimum values monitored by the device, that is, those displayed in the *Visualisation / Power minimum values* tab as well as those not used by the application but available in the *JBUS mapping*. See paragraph 18.12, on page 95.

16.15.3.2 Resetting the maximum values

Reinitialises the values displayed in the *Visualisation / Power maximum values* tab. See paragraph 18.10, on page 95.

16.15.3.3 Resetting averages

Re-initialises all the averages monitored by the device, that is, those displayed in the *Visualisation / Powers* tabs as well as those not used by the application but available in the *JBUS mapping*. See paragraph 18.12.

16.15.3.4 Resetting energy index

Reinitialises the values displayed in the *Visualisation / Meters* tab. See paragraph 18.4.

16.15.3.5 Resetting operating time hourly meter

Re-initialises all the meter values displayed in the *Visualisation / Meters (Operating time, Voltage presence*

time and Current presence time) tab. See paragraph 18.4.

16.15.3.6 Resetting voltage presence time hourly meter

Reinitialises the value displayed in the *Visualisation / Meters - Voltage presence time* tab. See paragraph 18.4.

16.15.3.7 Resetting current presence time hourly meter

Reinitialises the value displayed in the *Visualisation / Meters - Current presence time* tab. See paragraph 18.4.

16.15.4 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.16 Analogue outputs



See the information note in paragraph 16.2, on page 75 about the download.

16.16.1 All models except *Micar 2*

This tab is presented below.

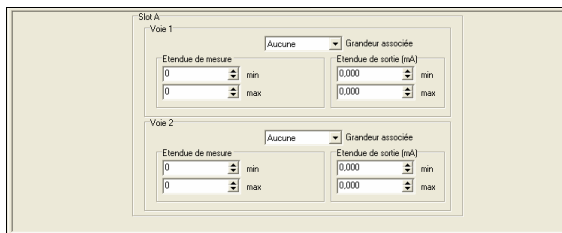


Figure 16-26 : the "Analogue outputs" tab.

From this screen, it is possible:

- To display information relating to the characteristics of analogue outputs stored by the device in memory.
- To define the characteristics of the analogue outputs and to transfer the information entered in the text zones by the operator to the device.

16.16.1.1 The information displayed

Only cards and channels having an *Analogue output* (see *Description / Option cards* icon – paragraph 14.3.1.1, on page 68) are displayed.

- **Associated quantity:** defines the quantity to be converted into an analogue measurement. The dropdown list offers these quantities (V, U, I, P, Q, S, FP, cos phi, F).
- **Measurement range:** minimum and maximum analogue values (negative or positive) for inputs.
- **Output range (mA):** minimum and maximum values of the corresponding output measurement available on the output terminal *Current* (mA) of the card (see paragraph 14.3.1.1, page 68).

16.16.2 *Micar 2* only

This tab is presented below.

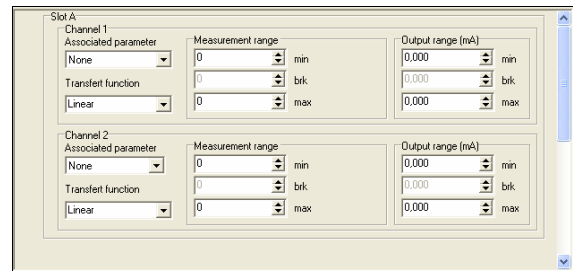


Figure 16-27 : the "Analogue outputs" tab.

From this screen, it is possible:

- To display information relating to the characteristics of analogue outputs stored by the device in memory.
- To define the characteristics of the analogue outputs and to transfer the information entered in the text zones by the operator to the device.

16.16.2.1 The information displayed

Only cards and channels having an *Analogue output* (see *Description / Option cards* icon – paragraph 14.3.1.1, on page 68) are displayed.

- **Associated quantity:** defines the quantity to be converted into an analogue measurement. The dropdown list offers these quantities (V, U, I, P, Q, S, FP, cos phi, F).
- **Measurement range:** minimum and maximum analogue values (negative or positive) for inputs. The option "break" corresponds to the breakpoint of the dual slope..
- **Output range (mA):** minimum and maximum values of the corresponding output measurement available on the output terminal *Current* (mA) of the card (see paragraph 14.3.1.1, page 68). . The option "break" corresponds to the breakpoint of the dual slope..
- **Transfer function:** defines the function for converting input measurement to output current (*Linear*, *Dual slope* or *Quadratic*).

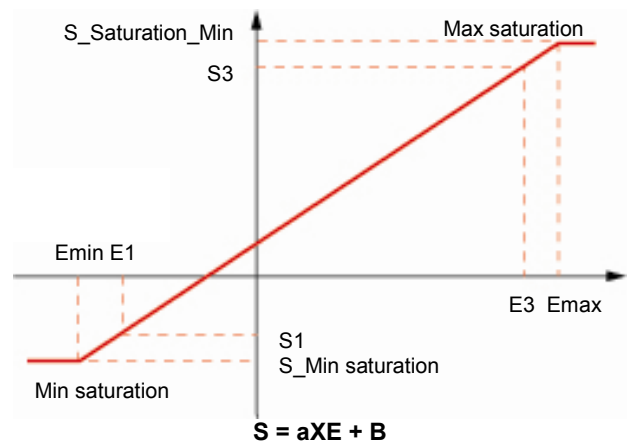


Figure 16-28 : transfer curve in linear mode (single slope).

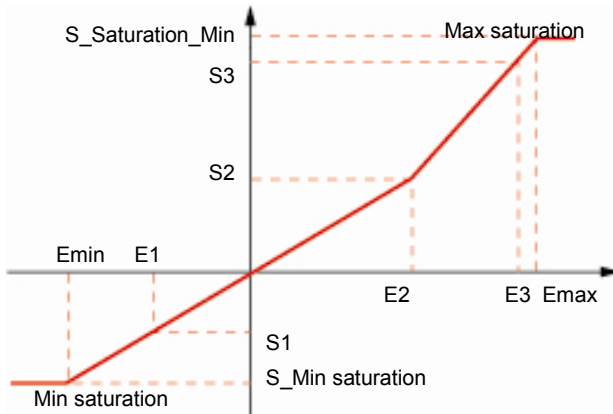


Figure 16-29 : transfer curve in dual slope mode.

For slope 1: $S = a1XE + b1$
 For slope 2: $S = a2XE + b2$

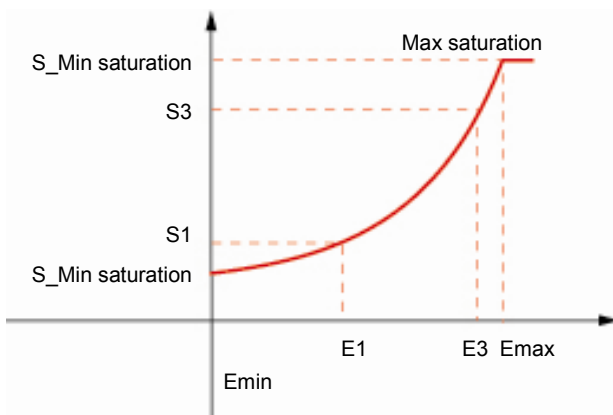


Figure 16-30 : transfer curve in quadratic mode.

For slope 1 : $S = axE^2 + b1$

16.16.3 Utilisation

See the point "i" of paragraph 16.2, on page 75.

16.17 Pulse outputs



See the information note in paragraph 16.2, on page 75 about the download.

This tab is presented below.

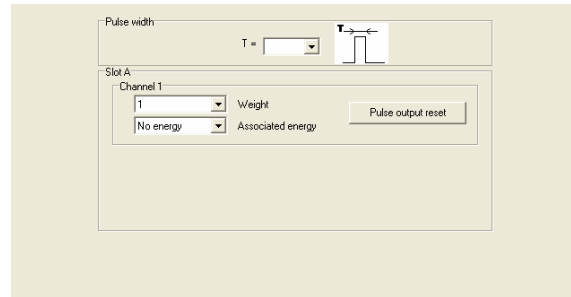


Figure 16-31 : the "Pulse outputs" tab.

From this screen, it is possible:

- To display the information relating to the weight of the pulses stored by the device.
- To define the characteristics of a pulse (duration, weight) emitted by a pulse output and to transfer to the device the information entered in the text zones by the operator.

16.17.1 The information displayed

Only the cards and channels having a *Binary output* declared as *Pulse output* (see *Description / Option cards* icon – paragraph 14.3.1.2, on page 68) are displayed.

- **Pulse width:** value measured in ms of the pulse. Ten values ranging from 50 to 500 ms are offered.
- **Weight:** defines the value of a pulse. For example, if the active power metering has been configured with pulse per kW of power, each pulse emitted by this output will correspond to 1kW consumed power. The pulse weight can be configured to values 1, 10, 100, 1k, 10k and 100k.
- **Associated energy:** a list of 8 power quantities is offered of which one that can be totalled by this output (active three-phase energy in generator mode [EP+], active three-phase energy in receiver mode [EP-], apparent three-phase energy in generator mode [ES+] and apparent three-phase energy in generator mode [ES-] and reactive three-phase energy from quadrants 1, 2, 3, and 4 [EQ1 to 4]).
- **Meter reset:** resets the selected pulse output to zero.

16.17.2 Utilisation

See the point "i" of paragraph 16.2, on page 75.

17. DIAGNOSTIC PAGE

E.view

E.view+

This page enables the user to read the digital inputs as well as to read and/or to override the digital and analogue outputs of the device.



Note: if the page is empty, select the *Description* icon and right click on *Refresh*.

17.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Diagnostic** icon.

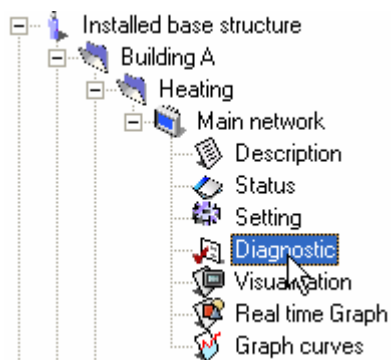


Figure 17-1: selecting the status of a device in the tree architecture.

17.2 Display on call

When called, the number of tabs displayed depends on the device type and the Setting of its cards.

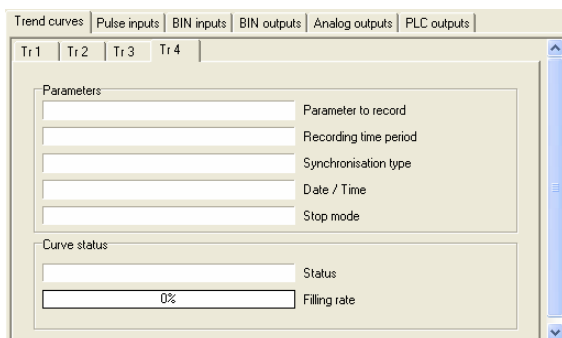


Figure 17-2: example of "Diagnostic" window when called.



Summary of the procedure

(details in chapter 11, on page 55)

Connect

In the tree architecture zone (left window pane), click the *Networks* icon, select the COM port to be used and check *Active channel* in the right window pane and select the *Communication port* from the dropdown list.

Download to the PC

To download the information from an already programmed measuring device and connected to the network through a PC to this window, select the concerned device from the tree architecture (left window pane):

1. If no connection was previously established, right click in the right window pane and select *Connect* or press <F9>.
2. Select the *Diagnostic* icon, right click and select *Refresh* or press <F5> to update the active window. The *Refresh all* function updates all the windows, whether active or not.

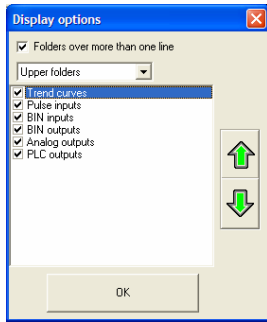
Download to the device

To download the information from this window to a device connected to the network, select the concerned device in the tree architecture (left window pane):

1. If no connection was previously established, right click in the right window pane and select *Connect* or press <F9>.
2. Select the *Diagnostic* icon, right click and select *Send* or press <F4> to send the data from the active window. The *Send all* function sends all the data from all windows, whether active or not.



The tabs are displayed by default at the top and on several lines. To display the tabs on the right side, at the bottom or on the left side and on one or more lines, right click in the tree architecture on the *Diagnostic* icon and select *Display options*. Then select the position of the tabs from the drop-down list and/or the tabs over one or more lines in the checkbox. Use the arrows to change the tab order.



Tab	See page
Pulse inputs	88
BIN inputs	88
BIN outputs	88
Analogue outputs	89
PLC outputs	89

17.3 Pulse inputs



Not available on *Micar 2*.



See the information note in paragraph 16.2, on page 75 about the download.

This tab only enables the user to read the pulse inputs.

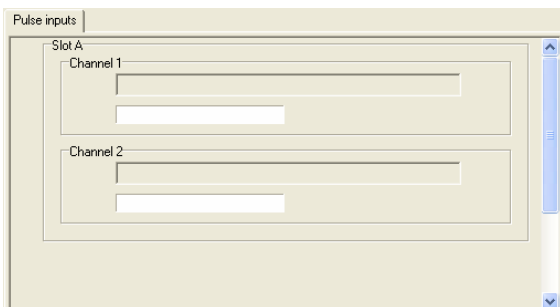


Figure 17-3: example of the "Pulse inputs" tab after the window has been refreshed.

Only the cards and channels having a *Binary input* declared as *Pulse input* (see *Description / Option cards* icon – paragraph 14.3.1.3, on page 69) are displayed.

- The top greyed-out zone gets back the label defined on the *Description* page for the corresponding Binary input (if existing). See paragraph 14.3.1.3, page 69.
- The bottom zone shows the index value (the number of pulses multiplied by the pulse weight).

17.4 Binary inputs



See the information note in paragraph 16.2, on page 75 about the download.

This tab enables the user to only read the Binary input status (open / closed).

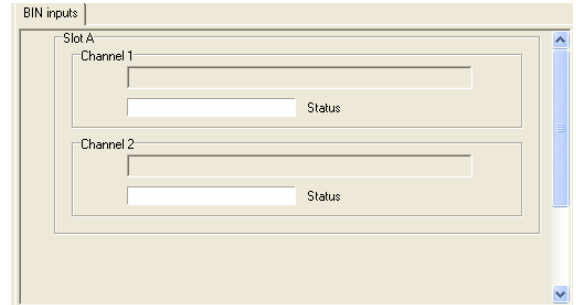


Figure 17-4: example of the "Binary inputs" tab after the window has been refreshed.

Only the cards and channels having an *Binary input* declared as *Binary input* (see *Description / Option cards* icon – paragraph 14.3.1.3, on page 69) are displayed.

- The top greyed-out zone gets back the label defined on the *Description* page for the corresponding binary input (if existing). See paragraph 14.3.1.3, page 69.
- The bottom zone gives the corresponding input status:
 - Open: the input is open.
 - Closed: the input is closed.

17.5 Binary outputs



See the information note in paragraph 16.2, on page 75 about the download.

This tab enables the user to read and/or override the binary output status (open/closed).

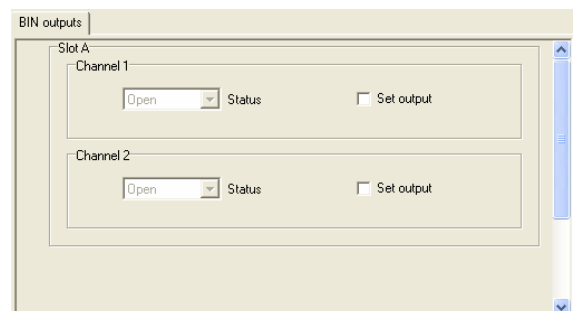


Figure 17-5: example of the "Binary outputs" tab after the window has been refreshed.

Only the cards and channels having a *Binary output* declared as *Alarm input* (see *Description / Option cards* icon – paragraph 14.3.1.2, on page 68) are displayed.

- The top greyed-out zone gets back the label defined on the *Description* page for the corresponding binary output (if existing). See paragraph 14.3.1, on page 68.
- The bottom zone gives the corresponding output status:
 - Open: output at 0 V.
 - Closed: output at +V.

If the *Override output* box is checked, right clicking on this window and selecting *Send* (<F4>) overrides the designated output of the concerned device to the indicated status.



If the user takes no action, after 30 seconds, the device will revert to its initial Setting.

17.6 PLC outputs



See the information note in paragraph 16.2, on page 75 about the download.



Compared to the binary outputs (see § 17.5), the robot output is different only as regards the overriding which remains activated after the 30 second period.

This tab enables the user to override the PLC output values.

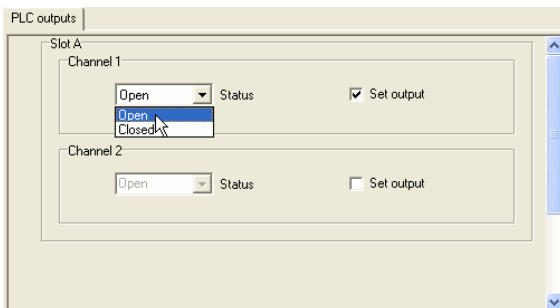


Figure 17-6: example of a "PLC outputs" tab.

Only cards and channels having a *PLC output* (see *Description / Option cards* icon – paragraph 14.3.1.1 on page 68) are displayed.

The *Channel 1* and *Channel 2* zones enable the user to define the status of the corresponding robot output.

- The bottom zone gives the corresponding output status:
 - Open.
 - Closed.

If the *Override output* box is checked, right clicking on this window and selecting *Send* (<F4>) overrides the designated output of the concerned device to the indicated status.

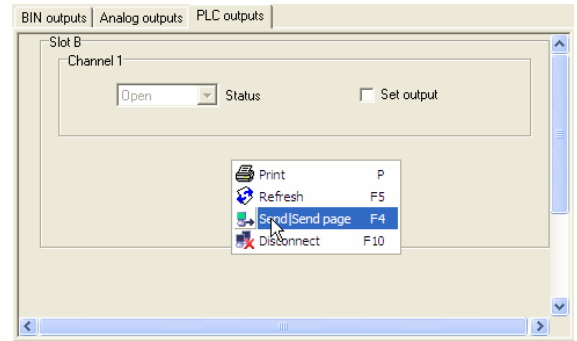


Figure 17-7: Overriding a PLC output.



If the user takes no action, after 30 seconds, the device will remain in its overridden output.

17.7 Analogue outputs

This tab enables the user to override the analogue output values.

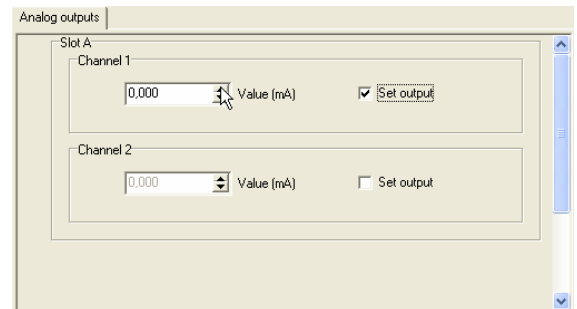


Figure 17-8: example of an "Analogue outputs" tab.

Only cards and channels having an *Analogue output* (see *Description / Option cards* icon – paragraph 14.3.1.1 on page 68) are displayed.

The *Channel 1* and *Channel 2* zones enable the user to define the analogue value of the corresponding analogue output. It is not possible to read the analogue output of the concerned device.

When the *Override output* box is:

- Unchecked: the output value is the same as the one given when the device was programmed.
- Checked: select the value (from -20 to +20 mA) to be sent, right click on this window and select *Send* (<F4>) to override the designated analogue output of the device to the indicated value.

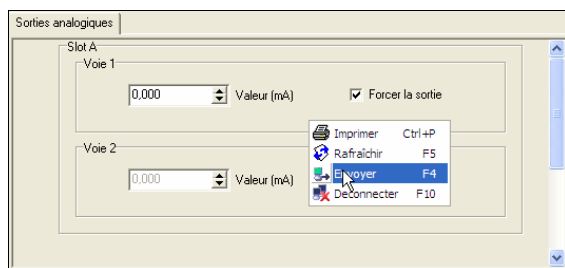


Figure 17-9: Overriding an analogue output.



If the user takes no action, after 30 seconds, the *Enerium* will revert to its initial setting.

18. VISUALISATION ICON

E.view

E.view+

This function enables the user to preview eleven families of information of the device.

The displayed information is automatically read in the *mapping* of the concerned device and displayed on these screens.

18.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Visualisation** icon.

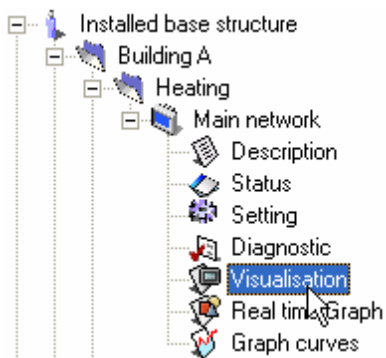


Figure 18-1 : selecting the visualisation of a device in the tree architecture.

18.2 Display on call

On calling, the window is presented as follows.

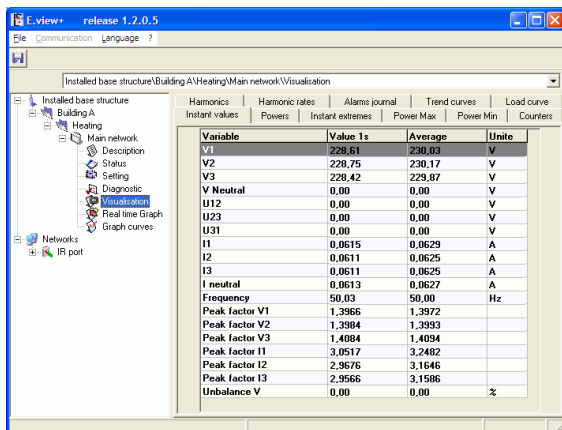


Figure 18-2 : example of "Visualisation" window when called.



Summary of the procedure

(details in chapter 11, on page 55)

Connect

In the tree architecture zone (left window pane), click the *Networks* icon, select the COM port to be used and check *Active channel* in the right window pane and select the *Communication port* from the dropdown list.

Download to the PC

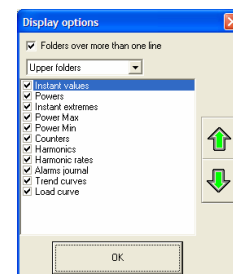
This window does not allow information to be manually transferred from a device to the PC. This transfer is performed automatically.

Download to the device

This window does not allow downloading to a device.



The tabs are displayed by default at the top and on several lines. To display the tabs on the right side, at the bottom or on the left side and on one or more lines, right click in the tree architecture on the *Visualisation* icon and select *Display options*. Then select the position of the tabs from the drop-down list and/or the tabs over one or more lines in the checkbox. Use the arrows to change the tab order.



18.3 Available functions

The available tabs depend on the product type selected (*Enerium 50, 100, etc., Micar 2*). The table of paragraph 16.3 specifies the available tabs according to the product type and the shortcuts to the corresponding paragraphs.

18.4 Counters



Micar 2 does not have the reader of 3 hourly meters.

The data displayed correspond to a complete reading of the *mapping* relating to the active, reactive and apparent energy counters, as well as any pulse counters on the concerned device.

Variable	Value	Unit	Variable	Value	Unit
E active receiver	0.415	kWh		0.0000	
E active generator	0.000	kWh		0.0000	
E reactive Q1	0.000	kvarh			
E reactive Q4	0.005	kvarh			
E reactive Q2	0.000	kvarh			
E reactive Q3	0.000	kvarh			
E apparent receiver	0.949	kVAh	Hours meter	Operating time	22.38 h
E apparent generator	0.000	kVAh	Hours meter	Voltage presence time	22.35 h
			Hours meter	Current presence time	22.38 h

Figure 18-3 : example of display of the "Counters" tab.

- **E active receiver:** cumulative active energy in receiver mode since the last re-initialisation.
- **E active generator:** cumulative active energy in generator mode since the last re-initialisation.
- **E reactive (Q1, Q2, Q3, Q4):** cumulative reactive energy since the last re-initialisation in each of the 4 quadrants (see Figure 18-15, on page 96).
- **Apparent E receiver:** cumulative apparent energy in receiver mode since the last re-initialisation.
- **Apparent E generator:** apparent energy accumulated in generator mode since the last re-initialisation.
- **Pulse input:** the 5 first lines of the right side of the table display the binary inputs (*Variable* column) defined in pulse mode and the associated energy indices.
 - The title *Pulse input* lists all the *Channels* defined as *Pulse inputs* (see 14.3.1.3, page 69).
 - The *Variable* column lists all the inputs defined as *Pulse inputs* (see 14.3.1.3, page 69).
 - The *Value* column displays the value of the current index calculation. This corresponds to the weight of the pulse multiplied by the number of pulses.
 - The *Unit* column is the previously defined unit (see paragraph 16.11.1, page 81).

Time counters:



Micar 2 does not have the reader of 3 time counter.

- **Operating time:** time for which the supply voltage (auxiliary source) is present on the device. This information is useful for maintaining the device.
- **Voltage presence time:** period during which, at least one line to ground voltage, of $V_1[1s]$, $V_2[1s]$ and $V_3[1s]$ is non-zero. This information is useful for maintaining the monitored load.
- **Current presence time:** time during which, at least one current, among $I_1[1s]$, $I_2[1s]$ and $I_3[1s]$ is non-zero. This information is useful for maintaining the monitored load.

18.5 Load curve



Micar 2 does not have this function.

The data displayed is for a complete reading of the *mapping* relating to the load curves of the concerned device.

Figure 18-4 : example of a display of the "Load curves" tab.



The device has a memory (*buffer*) enabling the data to be recorded. When a load curve is started, the *buffer* gradually fills up.

By the manufacturer's own design, each time the power fails, or a change in Setting or time setting, the *buffer* is "truncated". So, the *buffer* is presented in blocks each with its own identification number (LCid – Load Curve Identifier). The blocks will be numbered from 1 to 65,535.

18.5.1 Full reading button

Reads, for the concerned device, all the available recordings and displays them in the table at the bottom of the window (see paragraph 18.5.3, page 93).

18.5.2 Partial reading button

For the concerned device, reads only the selected recordings (by date or by identification number) and displays them in the table at the bottom of the window (see paragraph 18.5.3, page 93).

Proceed as follows:

1. Select:

- either a *Start date* and an *End date* to record one or more recordings;
Note: click on ▼ to display the calendar.

Figure 18-5 : the zone for selecting the start and end dates.

- or a single record block (LCid). The *Variables* column indicates what has been recorded (P+, P-, Q1, Q4, etc.); these quantities have been

defined in *Setting / Load curves* (see paragraph 16.8, page 79). The other three columns indicate the timestamp and recall the integration time.

Id CC	Variable(s)	Start date	End date	Integration period
43	P+, P-, S+, Q4, Q2	01/01/2005 00:01:14	05/01/2005 00:40:00	5 minutes
42	P+, P-, S+, Q4, Q2	04/02/2009 08:50:00	05/02/2009 08:00:00	5 minutes

Figure 18-6 : the zone for selecting the record blocks.

- Click the *Partial reading* button to display the data in the table. Refer to paragraph 18.5.3, page 93 for reading details of the information displayed.

18.5.3 Load curve table

This table is read as follows:

Date / time	P+	P-	S+	Q4	Q2	Comment
	kW	kW	kVA	kvar	kvar	
03/01/2005 20:25:00	690,902	0,000	1299,441	1100,435	0,000	
03/01/2005 20:30:00	690,995	0,000	1301,657	1103,012	0,000	
01/01/1970 00:00:00						Loss of time Synchronisation
01/01/2005 00:01:14	0,000	0,000	0,000	0,000	0,000	Graph start
01/01/2005 00:05:00	506,320	0,000	937,657	788,819	0,000	
01/01/2005 00:10:00	675,072	0,000	1254,702	1057,407	0,000	
01/01/2005 00:15:00	685,732	0,000	1277,782	1078,069	0,000	
01/01/2005 00:20:00	689,117	0,000	1290,292	1090,740	0,000	
01/01/2005 00:25:00	685,547	0,000	1252,295	1095,280	0,000	
01/01/2005 00:30:00	686,144	0,000	1296,608	1100,067	0,000	

Figure 18-7 : example of a load curve record table.

- Date/time:** timestamp of completing the integration of the curve point.
- Columns:** a maximum of 8 columns per quantity configured in *Setting / Load curves* (see paragraph 16.8, page 79).
- Remarks:** automatic marking of points having experienced a change in date, a power cut, loss of time synchronisation or changes in Setting.
- Delete the load curve:** clicking reinitialises the whole part of the *mapping* relating to the load curve.
- Save as:** opens a window to save the table in one of the formats (txt, xls or csv available).



The xls format can be read only by a Microsoft Excel compatible application. The csv format can be read by any application that reads this type of formatting; the data is separated by a comma).

- Save DB:** once the curve is plotted, the entire data present in this table is transferred to the database for subsequent processing by the graph functions (*Graph. Curves* – see page 103).

18.6 Trend Curves



Enerium 50 and *Micar 2* do not have this function.

The data displayed is for a complete reading of the *mapping* relating to the record curves of the concerned device.

The screenshot shows the 'Trend curves' tab with the following parameters:

- Parameter to record: I1
- Recording time period: 1 second
- Stop on buffer full: Stop mode
- Curve stopped: 100%
- Filling rate: 100%

Buttons: Upload, Recording stop

Synchro	Date / time	I1	Unit
	04/07/2006 10:36:10	1.5666	A
	04/07/2006 10:36:11	1.5665	A
	04/07/2006 10:36:12	1.5665	A
	04/07/2006 10:36:13	1.5666	A
	04/07/2006 10:36:14	1.5667	A
	04/07/2006 10:36:15	1.5666	A
	04/07/2006 10:36:16	1.5666	A

Buttons: Save As ..., Database record

Figure 18-8 : example for the "Trend curves" tab.

18.6.1 Parameters

- Parameter to record:** taken from the information defined in *Setting / Trend curves* (see paragraph 16.7, page 78).
- Recording time period:** taken from the information defined in *Setting / Trend curves* (see paragraph 16.7, page 78).
- Stop mode:** taken from the information defined in *Setting / Trend curves* (see paragraph 16.7, page 78).
- Status:** displays the current status of the recording.
 - Programming in progress:* awaiting the synchronisation event for launching the recording.
 - Stopped:* recording period ended and or curve full in stop mode.
 - Recording in progress:* the recording is not yet complete
- Filling rate:** blue coloured index indicating the current fill rate of the quantity to be recorded. 100 % corresponds to a recording of 4,032 points of a quantity. The 4 quantities to be recorded are defined in the *Setting / Record curves* tab (see paragraph 16.7, page 78).
- Reading:** clicking on this button displays the measurements read in the table.
- Stopping the recording:** permanently stops the recording; it is no longer possible to re-launch the recording. To restart recording, a new recording must be scheduled from *Setting / Trend curves* (16.7, page 78).
- Save as:** opens a window to save the table in one of the formats (txt, xls or csv available).



The xls format can be read only by a Microsoft Excel compatible application. The csv format can be read by any application that reads this type of formatting; the data is separated by a comma).

- **Save DB:** once the curve is plotted, the entire data present in this table is transferred to the database for subsequent processing by the graph functions *Graph. Curves* – see page 103).

18.7 Instant extrema



Micar 2 does not have this function.

The data displayed correspond to a partial reading of the *mapping* of 12 minimum and maximum values of the concerned device, relating to phase to ground voltage (V), phase to phase voltage (U), current and network frequency.

Variable	Date minima	minima	Date maxima	maxima	Unit
V1	25/06/2009 14:12	224,94	13/07/2009 17:45	232,09	V
V2	25/06/2009 14:12	225,08	13/07/2009 17:45	232,24	V
V3	25/06/2009 14:12	224,78	13/07/2009 17:45	231,92	V
V Neutral	25/06/2009 08:15	0,00			V
U12	25/06/2009 08:15	0,00			V
U23	25/06/2009 08:15	0,00			V
U31	25/06/2009 08:15	0,00			V
I1	25/06/2009 12:37	0,0588	25/06/2009 12:37	0,1352	A
I2	25/06/2009 12:37	0,0584	25/06/2009 12:37	0,1291	A
I3	25/06/2009 12:37	0,0584	25/06/2009 12:37	0,1307	A
I neutral	25/06/2009 12:37	0,0586	25/06/2009 12:37	0,1211	A
Frequency	13/07/2009 17:45	39,99	25/06/2009 12:51	50,07	Hz

Min / Max reset

Figure 18-9: example of an "Instant extreme" tab.

- **Variable:** variable displayed.
- **Date minima:** timestamp (date and time) of the minimum value detected for the concerned variable.
- **Minima:** minimum value detected for the concerned variable.
- **Date maxima:** timestamp (date and time) of the maximum value detected for the concerned variable.
- **Maxima:** maximum value detected for the concerned variable.
- **Unit:** unit of the variable.
- **Min/max reset:** clicking reinitialises all the minimum and maximum values of the *mapping* of the concerned device; that is, including the values not displayed in this screen. The values of the variables are positioned on the measurement being read when the button is clicked.

18.8 Harmonics

The data displayed corresponds to a partial reading of the *mapping* of 9 maximum values of the concerned device relating to the odd harmonics 3 to 13.

- **Variable:** variable displayed.
- **Max rank:** number of the harmonic with the highest rate (between 1 and 25 or between 1 and 50 depending on the device type).

- **Max value:** numeric value in % of the distortion rate compared to the fundamental on the indicated rank in the *Max rank* column.).
- **H3 to H13:** numeric value in % of the distortion rate compared to the fundamental on the rank indicated in the column head.
- **Unit:** unit of the variable.

Variable	Order Max.	Value Max.	H3	H5	H7	H9	H11	H13	Unit
V1	0								%
V2	0								%
V3	0								%
U12	0								%
U23	0								%
U31	0								%
I1	5	62,28	61,05	62,28	54,04	43,73	36,34	22,86	%
I2	5	62,35	61,11	62,35	54,17	43,83	36,50	22,92	%
I3	5	62,57	61,18	62,57	54,37	43,93	36,58	22,89	%

Figure 18-10: example of a display of the "Harmonics" tab.

18.9 Alarms journal

The data displayed correspond to a complete reading of the *mapping* relating to the alarm log of the concerned device.

N° Alarm	Variable	Date / time	Duration	Extremes	Unit
First level Alarm 2	V2	13/07/2009 16:35:26	0:0:1	0,00	V
First level Alarm 3	V3	13/07/2009 16:35:26	0:0:1	0,00	V
First level Alarm 2	V2	13/07/2009 17:45:29	0:0:1	0,00	V
First level Alarm 3	V3	13/07/2009 17:45:29	0:0:1	0,00	V

Alarm journal reset

Database record

Figure 18-11: example of the display of the "Alarms journal" tab.

- **Alarm No.:** number of defined first level alarm (1 to 16) concerned (see paragraph 16.4, page 76).
- **Variable:** information on the quantity (V1, U1, etc.) and the defined first level alarm concerned (see paragraph 16.4, page 76).
- **Date / time:** timestamp recorded as soon as the alarm appears.
- **Duration:** duration in hours, minutes and seconds of the presence of the alarm before falling below the set threshold (see paragraph 16.4, page 76).
- **Extreme:** minimum or maximum digital value measured according to the defined *Type of detection* (*Min* or *Max*) (see paragraph 16.4, page 76).
- **Unit:** information on the unit of the quantity (V1, U1, etc.) of the defined first level alarm concerned (see paragraph 16.4, page 76).
- **Resetting the alarm log:** deletes any messages that may be displayed on the alarm log.

18.10 Power maxima



Micar 2 does not have this function.

The data displayed correspond to a partial reading of the *mapping* of 24 maximum and maximum values averaged on the concerned device, relating to active power (P), reactive power (Q), power factors (PF) and $\cos(\varphi)$. The apparent powers (S1, S2, S3 and St) are signed.

Variable	Date maxima	maxima	Date maxima average	maxima average	Unit
P1 receiver	13/07/2009 17:45	7			W
P2 receiver	25/06/2009 08:33	6			W
P3 receiver	25/06/2009 08:33	6			W
Pt receiver	13/07/2009 17:45	20	25/06/2009 08:33	19	W
Q1 receiver	25/06/2009 08:34	-11			var
Q2 receiver	25/06/2009 08:33	-11			var
Q3 receiver	25/06/2009 08:33	-11			var
Qt receiver	25/06/2009 13:50	-34	25/06/2009 09:19	0	var
Pf1 receiver			13/07/2009 17:51	94.32	%
Cos phi t receiver			13/07/2009 17:51	0.9675	
S1	25/06/2009 12:37	31			VA
S2	25/06/2009 12:37	30			VA
S3	25/06/2009 12:37	30			VA
St	25/06/2009 12:37	91	13/07/2009 18:03	44	VA
P1 generator					W
P2 generator					W
P3 generator					W
Pt generator					W
Q1 generator					var
Q2 generator					var
Q3 generator					var
Qt generator			25/06/2009 08:33	0	var
Pf1 generator			13/07/2009 17:51	100.00	%
Cos phi t generator			13/07/2009 17:51	1.0000	

Figure 18-12: example of display of the "Power max" tab.



The first 10 lines of the table concern the receiver mode, while the last 10 lines concern the generator mode.

- **Variable:** variable displayed (receiver or generator depending on the line).
- **Maximum date:** timestamp (date and time) of the maximum value detected for the concerned variable.
- **Maximum:** maximum value detected for the concerned variable over 1 second. Corresponds to the *Power* tab, 1 s value column.
- **Average maximum date:** timestamp (date and time) of the average maximum value detected for the concerned variable.
- **Average Maximums:** average maximum value of the quadrants 2 and 3 (generator) or 1 and 4 (receiver) integrated during the integration period for the average values defined in the *Setting/Metrology* tab (see paragraph 16.15.1.7, page 84). Corresponds to the *Power* tab, columns *Avg. Receiver* or *Avg. Generator*.
- **Unit:** unit of the variable.
- **Resetting the max values:** clicking reinitialises all the maximum and average maximum values of the *mapping* of the concerned device, that is, including the values not displayed in this screen. The values of the variables are positioned on the measurement being read when the button is clicked.

18.11 Power minima



Micar 2 does not have this function.

The data displayed corresponds to a partial reading of the *mapping* of 8 minimum and averaged minimum values of the concerned device, relating to active power (P), reactive power (Q), power factors (PF) and $\cos(\varphi)$.

Variable	Date minima	minima	Unit
Pt receiver	17/07/2009 09:56	7151	W
Qt receiver	17/07/2009 09:46	1114	var
Pt generator	17/07/2009 09:46	0	W
Qt generator	17/07/2009 09:46	0	var

Variable	Date minima average	minima average	Unit
Pf1 receiver	17/07/2009 09:56	17.58	%
Cos phi t receiver	17/07/2009 09:46	1.0000	
Pf1 generator	17/07/2009 09:46	100.00	%
Cos phi t generator	17/07/2009 09:46	0.7909	

Figure 18-13: example of a display of the "Power minimums" tab.



The upper table displays the minimum values. The bottom table displays the average minimum values.

- **Variable:** variable displayed (receiver or generator depending on the line).
- **Minimum date:** timestamp (date and time) of the minimum values detected for the concerned variable.
- **Minimum:** minimum values detected for the concerned variable over 1 second.
- **Average minimum date:** timestamp (date and time) of the average minimum value detected for the concerned variable.
- **Average minimum:** average minimum value of the quadrants 2 and 3 (generator) or 1 and 4 (receiver) integrated during the integration period for the average values defined in the *Setting/Metrology* tab (see paragraph 16.15.1.7, page 84). Corresponds to the *Power* tab, 1 s values column, lines *Cos phi*.
- **Unit:** unit of the variable.
- **Reset min values:** clicking reinitialises all the minimum and average minimum values of the *mapping* of the concerned device, that is, including the values not displayed in this screen. The values of the variables are positioned on the measurement being read when the button is clicked.

18.12 Powers



Micar 2 has neither the average information, nor the Reset averages button.

The data displayed correspond to a partial reading of the *mapping* of 20 "1 second" and average values of the concerned device relating to the active (P), reactive (Q) and apparent (S) powers, power factors (PF) and $\cos(\varphi)$.

Variable	Value 1s	Avr Receiver	Avr Generator	Unite
P1	679679	677797	0	W
P2	698908	697203	0	W
P3	612207	610843	0	W
Pt	1990793	1985843	0	W
Q1	3644752	3646621	0	var
Q2	3845879	3847708	0	var
Q3	3657482	3659405	0	var
Qt	11148114	11153732	0	var
S1	3707584	3709078		VA
S2	3908869	3910364		VA
S3	3708365	3710037		VA
St	11324820	11329480		VA
PF1	18,33	18,27	100,00	%
PF2	17,88	17,83	100,00	%
PF3	16,51	16,46	100,00	%
PfI	17,58	17,53	100,00	%
Cos phi 1	-0,7447	1,0000	0,7927	
Cos phi 2	-0,7425	1,0000	0,7890	
Cos phi 3	-0,7395	1,0000	0,7911	
Cos phi T	-0,7422	1,0000	0,7909	

Average values reset

Figure 18-14: example of a display of the "Powers" tab.



Micar 2 has neither the average information, nor the Reset averages button.

- **Variable:** variable displayed.
- **1 second value:** instantaneous value of the integrated variable displayed for 1 second.
- **Receiver average:** average value of quadrants 1 and 4 integrated during the period defined in the *Setting/Metrology* tab (see paragraph 16.15.1.7, page 84 or in Figure 18-18).
- **Generator average:** average value of quadrants 2 and 3 integrated during the integration period for average values defined in the *Setting/Metrology* tab (see paragraph 16.15.1.7, page 84).
- **Unit:** unit of the variable.
- **Reset average values:** clicking reinitialises the average values of all the power values of the *mapping* of the concerned device; that is, including the values not displayed on this screen. The averages of the variables P, Q and S are set to zero, from PF to 100 and the Cos to 1.



The *Reset* button is not available in *Micar 2*.

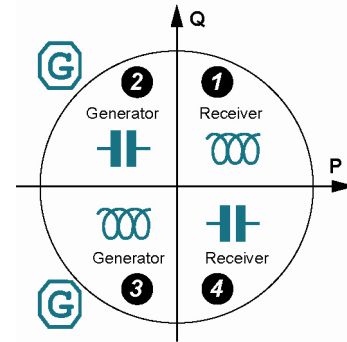


Figure 18-15: summary of quadrants.

18.13 Harmonic rates

The data displayed corresponds to a partial reading of the *mapping* of 9 instantaneous and average values integrated in the concerned device relating to total harmonic distortion (THD).

Variable	Value	Average	Unite
THD V1	30,79	30,73	%
THD V2	29,82	29,82	%
THD V3	28,01	27,98	%
THD U12	0,00	0,00	%
THD U23	0,00	0,00	%
THD U31	0,00	0,00	%
THD I1	101,94	105,22	%
THD I2	100,57	104,88	%
THD I3	102,68	104,79	%

Average values reset

Figure 18-16: example of display of the "Harmonic rates" tab.

- **Variable:** total harmonic distortion of the displayed variable.
- **Value:** instantaneous value of the harmonics rate measured for the concerned variable over 1 second.
- **Average:** average value integrated into the harmonics rate during the period of integration of average values defined in the *Setting/Metrology* tab (see paragraph 16.15.1.7, page 84).
- **Unit:** unit of the variable.
- **Reset average values:** clicking reinitialises all the average values of the harmonics rate of the *mapping* for the concerned device, that is, including values not displayed on this screen. The values of the variables are positioned on the measurement being read and calculated when the button is clicked.



This button is not available in *Micar 2*.

18.14 Instant values



Micar 2 does not have the averages information.

The displayed data corresponds to a partial reading of the *mapping* of 19 "1 second" values and average of the concerned device relating to phase to ground voltages (V), phase to phase voltages (U), currents, network frequency, crest factors and voltage unbalance.

Variable	Value 1s	Average	Unite
V1			V
V2			V
V3			V
V Neutral			V
U12			V
U23			V
U31			V
I1			A
I2			A
I3			A
I neutral			A
Frequency			Hz
Peak factor V1			
Peak factor V2			
Peak factor V3			
Peak factor I1			
Peak factor I2			
Peak factor I3			
Unbalance V			%

Figure 18-17: example of display of the "Instant values" tab.



The Average column is absent for Micar 2.

- **Variable:** variable displayed.
- **1 second value:** instantaneous value of the integrated variable displayed for 1 second.
- **Associated average:** average value of the integrated variable displayed for the period defined in the *Setting/Metrology* tab (see paragraph 16.15.1.7, page 84).
- **Unit:** unit of the variable.

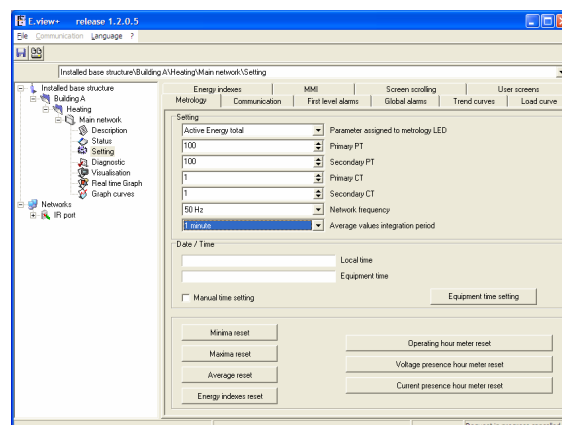


Figure 18-18: summary of "Setting/Metrology" tab and of the zone for defining the integration period.

19. REAL TIME GRAPH ICON

E.view+

This function displays the instantaneous values of the harmonics (table or graph) and Fresnel.

The displayed information is automatically read in the *mapping* of the concerned device and displayed on these screens.

19.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Real time graph** icon.

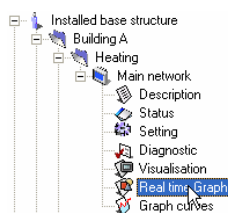


Figure 19-1: selecting the instantaneous graph of a device in the tree architecture.

19.2 Phasors

On calling, the window is presented as follows.

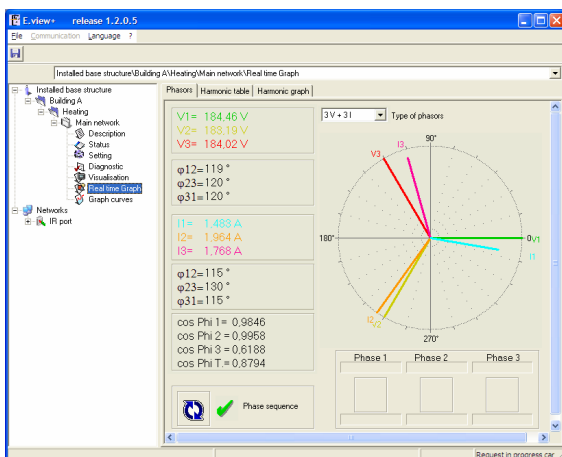


Figure 19-2: example of "Real time graph" window when called.



Summary of the procedure
(details in chapter 11, on page 55)

Connect

In the tree architecture zone (left window pane), click the *Networks* icon, select the COM port to be used and check *Active channel* in the right window pane and select the *Communication port* from the dropdown list.

Download to the PC

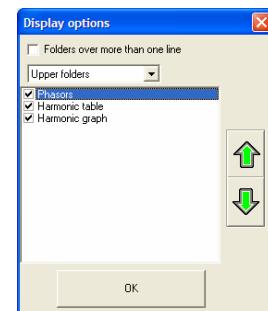
This window does not allow information to be manually transferred from a device to the PC. This transfer is performed automatically.

Download to the device

This window does not allow downloading to a device.



The tabs are displayed by default at the top and on several lines. To display the tabs on the right side, at the bottom or on the left side and on one or more lines, right click in the tree architecture on the *Visualisation* icon and select *Display options*. Then select the position of the tabs from the drop-down list and/or the tabs over one or more lines in the checkbox. Use the arrows to change the tab order.



19.3 Fresnel

This screen displays all the Fresnel values as follows:

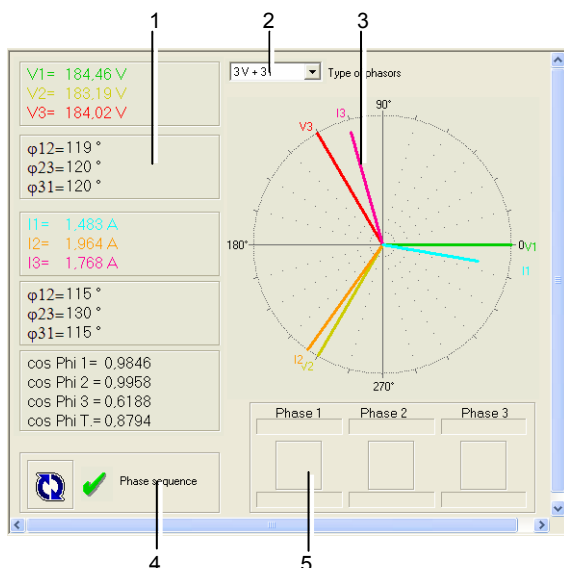


Figure 19-3: example of display of instantaneous measurements.

Ref.	Indication
1.	Instantaneous values (V, U, I, etc.).
2.	Selecting the type of Fresnel graph to be displayed.
3.	Fresnel graph from instantaneous values.
4.	Order of phases.
5.	Indication of transit in each of the phases.

19.3.1 Instantaneous values (ref. 1)

The number of measures displayed depends on the selection in the dropdown list (ref. 2) (see paragraph 19.3.2 for details of the displayed values).

The text colour, and hence the corresponding bars in the Fresnel graph, can be redefined by double-clicking on a coloured line.

19.3.2 Fresnel type (ref. 2)

This dropdown list is for selecting the type of Fresnel graph to be displayed as follows:

- **3V**: displays 3 phase to ground voltages, with V1 for reference (0°).
- **3I**: displays 3 neutral currents, with I1 for reference (0°).
- **3U**: displays 3 phase to phase voltages, with U12 for reference (0°).
- **3V + 3I**: displays 3 phase to ground voltages and 3 neutral currents, with V1 for reference (0°).
- **3I + 3V**: displays 3 neutral currents and 3 phase to ground voltages, with I1 for reference (0°).
- **3U + 3I**: displays 3 phase to phase voltages and 3 line currents, with U12 for reference (0°).


- **3I + 3U**: displays 3 line currents and 3 phase to phase voltages, with I12 for reference (0°).

19.3.3 Fresnel graph (ref. 3)

The Fresnel graph is displayed with the instantaneous values and the defined colours (ref. 1) and the measurements selected from the dropdown list (ref. 2).

The phase shift values are more accurately read in the instantaneous values zone (ref. 1).

19.3.4 Order of phases (ref. 4)

On the right side of this symbol  the order of phases is displayed as follows:



Correct order of phases.



Incorrect order of phases (connection order not followed).

19.3.5 Generator / Receiver (ref. 5)

The three phases are individually monitored. The message "**Generator**" indicates that the phase is working in generator mode. The message "**Receiver**" indicates that the phase is working normally in receiver mode.

For example, if all the currents are reversed, there will be no phase order error, but the device will be working in generator mode.



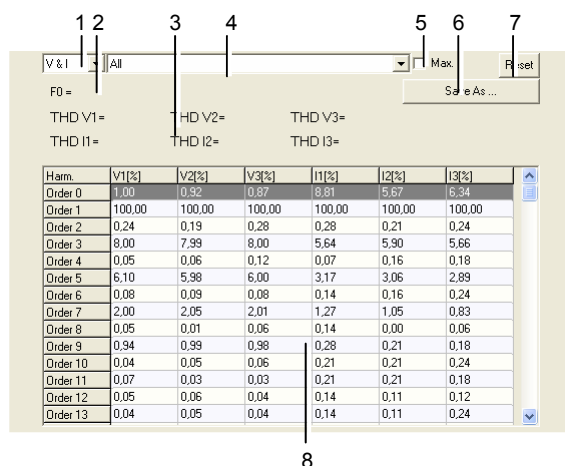
Right clicking in the window brings up a floating menu which enables the user to print the window or to disconnect the monitored device.

19.4 Harmonics table



The information is presented in the form of tables as compared to the presentation in the form of graphs from the *Harmonics graphs* tab (see paragraph 19.5).

This screen displays continuous harmonics in number form, refreshed every second, as follows:



8

Figure 19-4: example of a display of the Harmonics table.

Ref.	Indication
1.	Selecting the reference measurement.
2.	Instantaneous fundamental frequency.
3.	Global harmonics rate of instantaneous phase to phase voltages and line currents.
4.	Selecting harmonics to be displayed in the table (ref. 8).
5.	Selecting the display of maximums.
6.	Save button to save values currently displayed in the table.
7.	Deleting maximum values from the table with Max (ref. 5) checked.
8.	Display of instantaneous global harmonic rates, selected rank, phase to phase voltages and line currents based on the choices made.

19.4.1 Reference selection (ref. 1)

This dropdown list selects the reference measurement as follows:

- **U & I:** U12 will be taken as reference (0°).
- **I + U:** I12 will be taken as reference (0°).

19.4.2 Display of the frequency (ref. 2)

indication of the instantaneous fundamental frequency.

19.4.3 Display of the frequency (ref. 3)

Indication of the global harmonics rate of instantaneous phase to phase voltages and line currents.

19.4.4 Selection of harmonics (rep. 4)

Selects the harmonics to be displayed in the table (ref. 5):

- **All:** the table will display all the harmonics measured by the device. A point to be noted is that *Micar 2* and *Enerium 50, 100* and *110* display only the harmonics with rank from 0 to 25.
- **Odd triple-N harmonics:** Selecting harmonics to be displayed in the table (ref. 5). The display will be based on the harmonics of order 3, 9, 15, 21, etc.
- **Non-triple-N odd harmonics:** Selecting harmonics to be displayed in the table (ref. 5). The display will be based on the harmonics of order 1, 5, 7, 11, 13, 17, 19, 23, 25, etc.
- **Even harmonics:** Selecting harmonics to be displayed in the table (ref. 5). The display will be based on the harmonics of order 2, 4, 6, 8, 10, etc.

19.4.5 Selection of maximum (ref. 5)

Checked (ref. 5), the table (ref. 8) will display only the maximum values of the harmonic rates, as in the following example

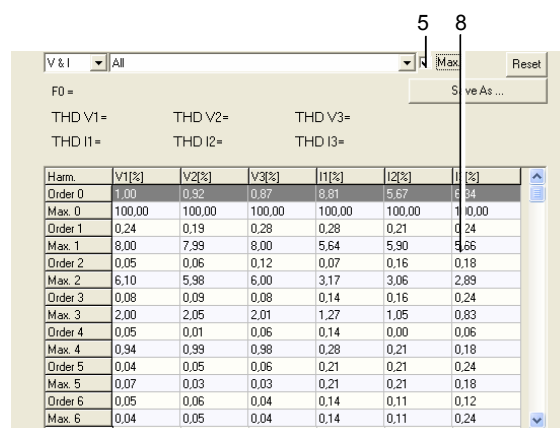


Figure 19-5: example of a display of the maximum harmonics table (the checkbox "Max" is activated).

19.4.6 Save as (ref. 6)

Displays a window which enables the user to save the values currently displayed in the table in csv or xls format (ref. 8).

19.4.7 Reset (ref. 7)

Deletes the maximum values from the table (ref. 8) when Max (ref. 5) is checked.

19.4.8 Harmonics table (ref. 8)

Displays the instantaneous global harmonic rates, of the selected rank, phase to phase voltages and line currents based on the choices made in (1), (4) and (5).



Right clicking in the window brings up a floating menu which enables the user to print the window or to disconnect the monitored device.

19.5 Harmonics graphs



The information is presented in the form of graphs as compared to the presentation in the form of tables from the *Harmonics table* tab (see paragraph 0).

This screen displays, in graph format, all the instantaneous measurements present in the *Harmonics table* tab (see paragraph 19.3), as well as the harmonics graph which is refreshed every second.

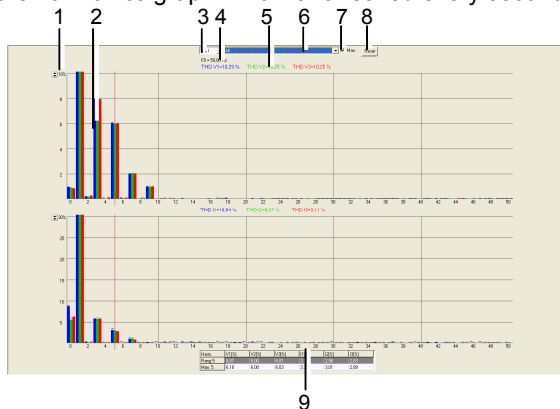


Figure 19-6: example of a display of the Harmonics graph.

Ref.	Indication
1.	Selecting the range of Y-axis values.
2.	Graph of instantaneous global harmonic rates, rank by rank, phase to phase voltages and line currents.
3.	selecting the reference measurement.
4.	Display of the instantaneous fundamental frequency.
5.	Display of the global harmonics rate of instantaneous phase to phase voltages and line currents.
6.	Selecting harmonics to be displayed in the graph.
7.	Display of maximum values of harmonics rates.
8.	Deleting maximum values of the graph
9.	Table presenting a line with the numeric value of the selected rank and a second line with the max values, if "Max." (ref.7) is checked.

19.5.1 Selecting the vertical range (ref. 1)

By default, the vertical range is 10% of the maximum value for the voltages (ref. 3) and 10% of the maximum value for the currents (ref. 8).

Click on this button to change the range.

19.5.2 Reference selection (ref. 3)

This dropdown list selects the reference measurement as follows:

- **U & I** : U12 will be taken as reference (0°).
- **I + U** : I12 will be taken as reference (0°).

19.5.3 Selection of harmonics (ref. 6)

Selects the harmonics to be displayed in the graph:

- **All**: the table will display all the harmonics measured by the device. A point to be noted is that *Micar 2* and *Enerium 50, 100, 110* and *150* display only the harmonics with rank from 0 to 25.
- **Odd triple-N harmonics**: Selecting harmonics to be displayed in the graph (ref. 9). The display will be based on the harmonics of order 3, 9, 15, 21, etc.
- **Non-triple-N odd harmonics**: Selecting harmonics to be displayed in the graph (ref. 9). The display will be based on the harmonics of order 1, 5, 7, 11, 13, 17, 19, 23, 25, etc.
- **Even harmonics**: Selecting harmonics to be displayed in the graph (ref. 9). The display will be based on the harmonics of order 2, 4, 6, 8, 10, etc.

19.5.4 Selection of maximum (ref. 7)

When checked, the graph will display only the maximum values of harmonics rates.

19.5.5 Reset (ref. 8)

Deletes the maximum values from the graph (ref. 9) when *Max* (ref. 5) is checked.

19.5.6 Display of the frequency (ref. 4)

indication of the instantaneous fundamental frequency.

19.5.7 Display of THD (ref. 5)

Indication of the global harmonics rate of instantaneous phase to phase voltages and line currents.

19.5.8 Harmonics graph (ref. 2)

Displays the graph of the instantaneous global harmonic rates, rank by rank, of phase to phase voltages and line currents based on the choices made in (3), (4) and (6).



Right clicking in the window brings up a floating menu which enables the user to print the window or to disconnect the monitored device.

The colour of the bars is set by double-clicking on the label THD (see reference 5).


19.5.9 Values table (ref. 9)

Clicking a harmonic displays the corresponding measures in the form of a special table similar to the one present in the *Harmonics table* tab.

Click between two harmonic curves to delete the table.

20. GRAPH. CURVES ICON

This function displays the load curves (LC) and record curves (RC) from information previously stored in the database.



Displaying this information requires the *SQL Server Express* application or any other server application of a SQL database to be present.

Enerium 150 does not have the *RC Graph* function.

Micar 2 does not have the *RC Graph* and *LC Graph* functions.

20.1 Access

You access by clicking, in the left window pane (tree architecture), on the icon of the selected device and then on the **Graph. curves** icon.

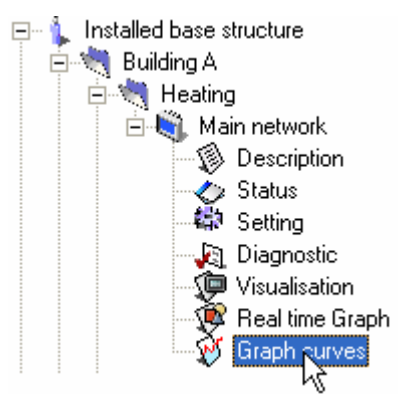


Figure 20-1: selecting the curves graph of a device in the tree architecture.

20.2 Display on call

On calling, the window is presented as follows.

- **Graph. LC:** displays the load curves of the selected device (ref. 2). See details in paragraph 20.4.
- **Graph. RC:** displays the record curves of the selected device (ref. 3). See details in paragraph 20.5.

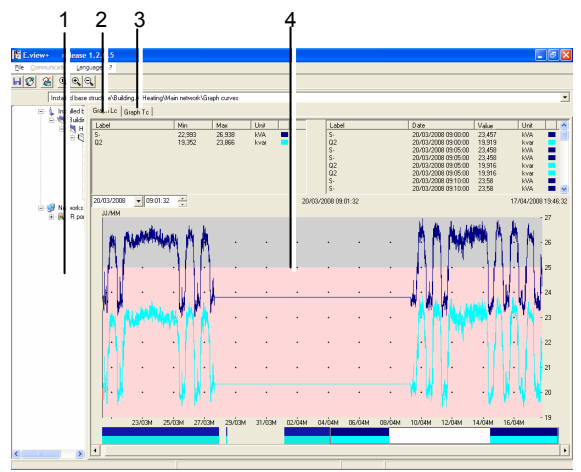


Figure 20-2: example of "Graph. curves" window when called.

Ref.	Indication
1.	Architecture which enables the selection of the devices for which the database information is to be displayed.
2.	Load curves data display tab.
3.	Record curves data display tab.
4.	Measurement Graph (load curves or record curves).

20.3 General method

Proceed as follows to display the graphs of the load and record curves:

1. In the architecture (Figure 20-2, ref. 1) select the line *Graph. Curves* of the device for which the information stored in the database has to be displayed.
2. To view the curves:
 - **load curves**, click if required on the *LC Graph* tab. (Figure 20-2, ref. 2). See details in paragraph 20.4.
 - **record curves**, click if required on the *RC Graph* tab. (Figure 20-2, ref. 3). See details in paragraph 20.5.

20.4 Graph. LC

This screen displays all the load curves.

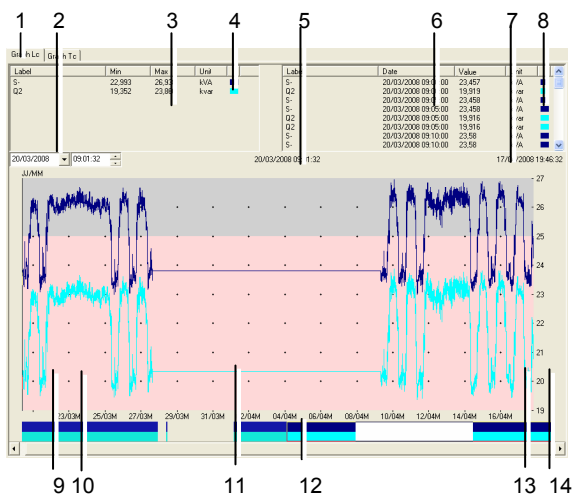


Figure 20-3: example of a display of the load curve graph.

Ref.	Indication
1.	the Load curves tab.
2.	Selecting the timestamp of the start of the plotting from the dates available in the database.
3.	Indications of minimum and maximum values of each curve for all the measurements. The measurement types chosen by the user for display are selected by right clicking in this zone and selecting <i>Properties</i> – see § 20.4.2.
4.	Curve colours (right click in the zone and select <i>Properties</i> – see § 20.4.2) defined by the user.
5.	Timestamp of the measurement under the cursor (ref. 10).
6.	Values of all the measurement types present in the database currently, queried and selected by the cursor.
7.	Timestamp of the measurement in the extreme right side of the window (ref. 13).
8.	Curve colours (right click in the zone and select <i>Properties</i> – see § 20.4.2) defined by the user.
9.	Curves corresponding to the measurements selected in ref. 3.
10.	Cursor. To move the cursor, click on the graph at the desired place. The measurements present under the cursor are numerically displayed in (6).
11.	Graph background colour corresponding to the markers defined by the user (right click in the zone and select <i>Properties</i> – see § 20.4.2).
12.	Time zone.
13.	Graph extremes corresponding to the timestamp present in (7).
14.	Numeric values scale.

20.4.1 Timestamp (ref. 2)

Sets the timestamp (day, month, year, minutes, seconds) of the start of the plotting from the set of dates available in the database.

20.4.2 Selection of curves to be displayed (ref. 3)

The zone presents the curves which were selected by the user to be displayed.

To select the curves to be displayed:

1. Right click in this zone and select *Property*.
2. In the displayed window, select the curves to be displayed by clicking on the corresponding checkboxes (ref. 1). The units (ref. 2), as well as the timestamp of start (ref. 3) and end (ref. 4) values present in the database are automatically refreshed.
3. If required, define the corresponding colour for the curves by clicking on the coloured zone (ref. 5).
4. If required, define the markers (coloured zones of graph background, see Figure 20-3). Four markers are available. To do this, check the marker to be used (ref. 6), define the value of the horizontal separation on the graph (see Figure 20-3) and its colour (ref. 9). Click on this zone to change the colour. Activate or not the gridlines of the graph (ref. 10). Click OK (ref. 8) to validate.

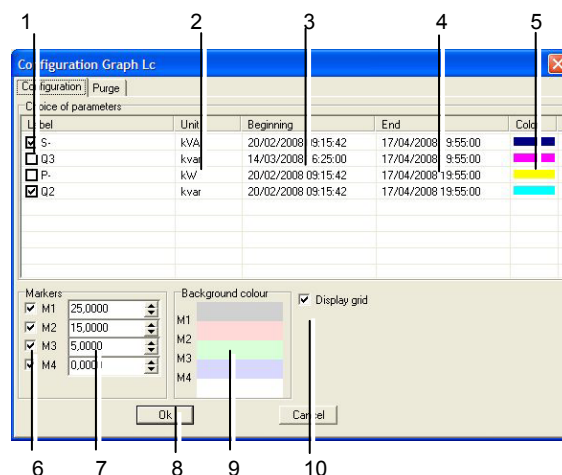


Figure 20-4: example of display of the load curve graph Setting.



Important Note

Since the vertical scale for the graphs are automatic, it implies that only the most significant numeric values are correctly displayed by the curves.

For example, the numeric values of a power measurement are higher than that of a current (270,000 W for 5 A). In this example, the current curve will be reduced to zero with respect to the power curve.

To view the current curve correctly, you have to simply deselect the power curve. The automatic scale will then settle on the numeric value of the current which will then be correctly displayed.

20.4.3 Colour of the displayed curves (ref. 4)

The colour of the displayed curves is indicated by these coloured zones. The colours can be defined as indicated in paragraph 20.4.2, step 4.

20.4.4 Timestamp (ref. 5)

This zone specifies the timestamp of the points present under the cursor.

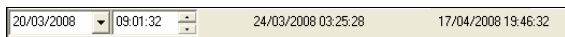


Figure 20-5: snapshot of the device timestamp zone.

20.4.5 Data present (ref. 6)

This zone specifies:

Label	Min	Max	Unit	Color
S	22.983	26.538	kVA	Blue
Q2	19.352	23.866	kvar	Red

Figure 20-6: snapshot of the zone of data present.

- The list of data available in the database processed.
- The corresponding values under the cursor (measurement type (S, Q, etc.), timestamp, value, unit and colour).

20.4.6 Timestamp (ref. 7)

This zone specifies the timestamp in the extreme right of the graph window.

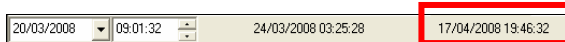


Figure 20-7: snapshot of the timestamp zone on the right.

20.4.7 Colour of the displayed curves (ref. 8)

The colour of the displayed curves is indicated by these coloured zones. The colours are those defined in paragraph 20.4.3.

Label	Min	Max	Unit	Color
S	22.983	26.538	kVA	Blue
Q2	19.352	23.866	kvar	Red

Figure 20-8: snapshot of the colours zone.

20.4.8 Measurement curves (ref. 9)

20.4.8.1 Curves

The displayed curves are defined as follows:

- **Curve type:** See § 20.4.2.
- **Curve colour:** See § 20.4.2.
- **Presence of gridlines:** See § 20.4.2.
- **Starting the curve plot:** See § 20.4.1.
- **Value of points under the cursor:** See § 20.4.5.

20.4.8.2 Zoom

The curves can be enlarged by right clicking and selecting **Zoom +** or **Zoom -**.



Figure 20-9: The floating window for zoom.

- To zoom on a specific zone, right click, select **Property** and **Zoom +** and click on the zone to be enlarged. Each click increases the definition. To clear the loop icon, select **Property** and **Zoom +**.
- Proceed similarly for **Zoom-**.
- To cancel the zoom, select **Zoom 1**.

20.4.9 Cursor (ref. 10)

Move the cursor by clicking at the desired place in the graph zone (ref. 11).

20.4.10 Gridlines and background colours (ref. 11)

20.4.10.1 Gridlines

Show or remove gridlines as per paragraph 20.4.2, step 4.

20.4.10.2 Background colour (marker)

The background colours correspond to the markers. A marker is a user-defined horizontal line that enables better viewing of certain levels. One to four markers can be defined freely.

To define the markers, refer to paragraph 20.4.2, step 4.

20.4.11 Time zone (ref. 12)

An example of this zone is presented below:

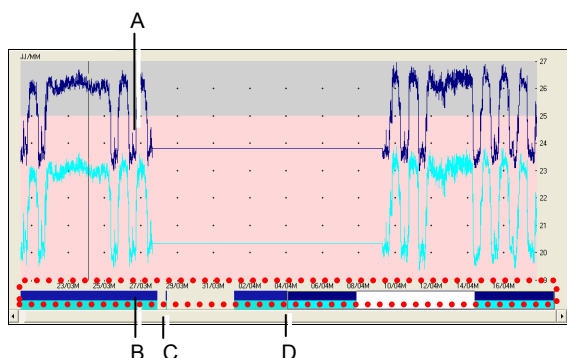


Figure 20-10: mapping between graph (ref. A) and the time zone (ref. B).

The zone (ref. B) shows all the data present in the file that matches the database.

- If the amount of information is high, the time zone (ref. B) will show only a part of this information. Hence you will have to use the cursor (ref. C) for browsing.
- If the amount of information is compatible with the graph area, then the time zone and the graph will match.

You can move around the graph by clicking on the time zone at the place to be displayed. In the time zone, a black box (ref. D) specifies the part displayed in the graph.

The following table lists all the information displayed.

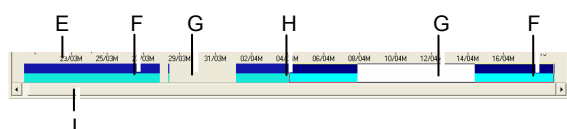


Figure 20-11: snapshot of the time zone.

Ref.	Function
E.	Timestamp in Day/month format. This format changes to Hours/minutes when Zoom + is used.
F.	Each colour band corresponds to a measurement type (P, S, Q, etc.); see paragraph 20.4.2.
G.	White zone corresponds to data not present for this time period.
H.	Black box shows the part displayed in the graph.
J.	Navigation cursor which can be used when the amount of information to be displayed and in the database is more than the graph width.

20.4.12 End of graph (ref. 13)

The timestamp of ending the display of the graph depends on the rate of enlargement (zoom).

20.4.13 Numeric values scale (ref. 14)

It depends on:

- The maximum value of one of the curves; the value is determined by the application.
- The rate of enlargement (zoom).

20.4.14 Utilisation

Once the device data to be displayed is selected (see paragraph 20.3), proceed as follows:

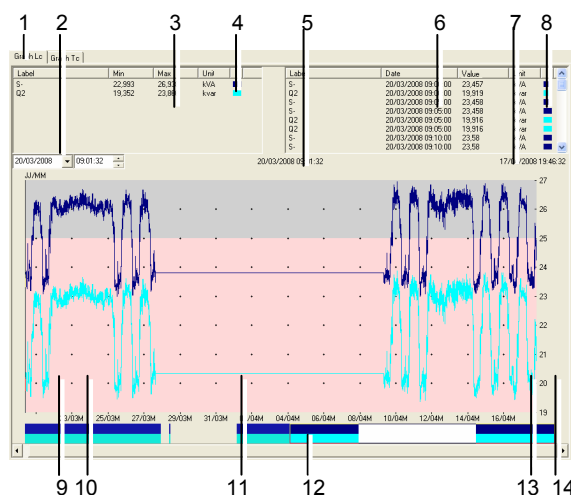


Figure 20-12: example of a display of the load curve graph.

1. In Figure 20-12, ref. 3), right click and click *Property* to display the *LC Graph configuration* window.
2. In the displayed window, select the curves to be displayed by checking or unchecking the corresponding checkboxes. If required, change the curve colour by double-clicking on the coloured zone of the *Colour* column.
3. While still in this window, if required, change the value of markers and/or background colour. Check or uncheck *Display grid*. Click *OK* to close the window.
4. Click on the graph to move the cursor. Read the corresponding data in (Figure 20-12, ref. 6). The zone Figure 20-12, ref. 2) display the minimum and maximum values.
5. To zoom on a specific zone, right click, select *Property* and *Zoom +* and click on the zone to be enlarged. Each click increases the definition. To clear the loop icon, select *Property* and *Zoom +*. Proceed similarly for *Zoom-*. To cancel the zoom, select *Zoom 1*.

20.5 Graph. Rc



Only the devices having this function can display the record curve.

The presentation and usage of information is same as described for *Load curve*. Refer to information provided in paragraph 20.4

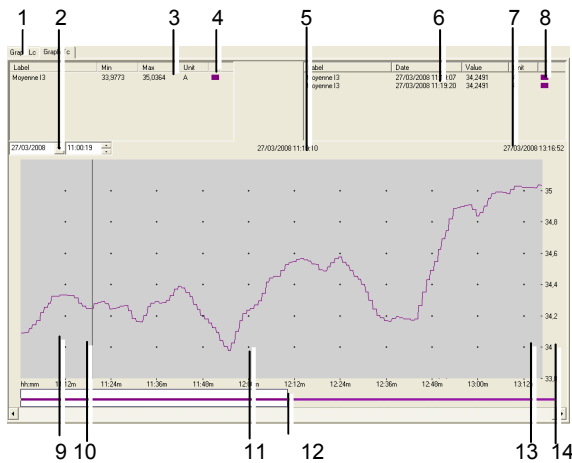


Figure 20-13: example of a display of the record curve graph.

Ref. Indication

1. Load curves tab.
2. Selecting the timestamp of the start of the plotting from the set of dates available in the database.
3. Indications of minimum and maximum values of each curve for the entire set of measurements. The measurement types chosen by the user for display are selected by right clicking in this zone and selecting *Properties* – see § 20.4.2.
4. Curve colours (right click in the zone and select *Properties* – see § 20.4.2) defined by the user.
5. Timestamp of the measurement under the cursor (ref. 10).
6. Values of all the measurement types present in the database currently, queried and selected by the cursor.
7. Timestamp of the measurement in the extreme right side of the window (ref. 13).
8. Curve colours (right click in the zone and select *Properties* – see § 20.4.2) defined by the user.
9. Curves corresponding to the measurements selected in ref. 3.
10. Cursor. To move the cursor, click on the graph at the desired place. The measurements present under the cursor are numerically displayed in (6).
11. Graph background colour corresponding to the markers defined by the user (right click in the zone and select *Properties* – see § 20.4.2).
12. Time zone.
13. Graph extremes corresponding to the timestamp present in (7).
14. Numeric values scale.

Appendices

21. CHARACTERISTICS

21.1 Visual architecture

Creating a user-specific tree architecture of devices used.

21.2 Communication

Availability of 5 communication channels (serial port, infrared port, IP gateway, modem, Ethernet) between the PC running the application and one of the devices used.

21.3 Setting

Manual or automatic configuration of the settings of the connected device (product type, selection of the communication channel, device number, file creation timestamp, last product access timestamp, communication error type, if any).

21.4 Description page

Manual or automatic configuration of optional cards integrated into the connected device:

- Binary inputs (alarms, pulse or synchronisation).
- Binary outputs (alarms or pulse).
- Analogue outputs (2 channels)

21.5 Status page

Current status of the connected device:

- General: presence of voltages and current, correct or incorrect phase order, time synchronisation, status of the 3 phases (generator or receiver).
- First level alarms: status of the 16 first level alarms defined in the *Setting* zone.
- Global alarms: status of the 8 global alarms defined in the *Setting* zone.
- Pulse outputs: status of the 4 pulse outputs defined in the *Setting* zone.

- Analogue outputs: status of the 4 analogue outputs defined in the *Setting* zone.

21.6 Setting page

Manual configuration of the following functions:

- Metrology: PT settings (primary, secondary), network frequency, integration period, product date and time.
- Communication: definition of the JBus communication.
- First level alarms: definition of quantities, type of detection, threshold and delay time of the 16 first level alarms.
- Global alarms: definition of the 8 global alarms and the associated logical functions.
- Record curves: definition of the 4 independent and simultaneous record curves of the changes of a quantity among 59 quantities.
- Load curves: definition of the 8 quantities among the twelve quantities (P+, P-, Q1, Q2, Q3, Q4, S+, S-, TOR1, TOR2, TOR3 and TOR4) that are to be recorded.
- Energy index: number of pulses * pulse weight.
- Pulse input index: definition of information relating to the weight of the pulses stored in memory by the device (value and unit).
- Pulse inputs: definition of information relating to the weight of the pulses stored in memory by the device (value and unit).
- Pulse outputs: definition of characteristics of a pulse (duration, weight) emitted by a pulse output.
- Analogue outputs: definition of characteristics of analogue outputs.
- MMI: definition of the device password, the menu display language, the display screen contrast and the level of backlighting.
- Screen scrolling: definition of the display order of screens on the device.
- User screens: definition of the 3 customizable screens.

21.7 Diagnostic page

Reading or overriding the inputs/outputs of the device.

- Pulse inputs: displaying the index value (the number of pulses multiplied by the pulse weight).
- Binary inputs: reading the status of binary inputs.
- Binary outputs: reading and/or overriding the status of binary outputs (open/ closed).
- Analogue outputs: overriding each of the inputs to a set analogue value.

21.8 Visualisation page

Automatic and continuous display of the following quantities:

- Instantaneous values of phase to ground voltage (V), phase to phase voltage (U), currents, network frequency, crest factors and voltage imbalance.
- Instantaneous values of active power (P), reactive power (Q), apparent power (S), power factors (PF) and $\cos(\varphi)$.
- Instantaneous values of 12 minimum and maximum phase to ground values (V), phase to phase values (U), currents and network frequency.
- Instantaneous values of 24 maximum and average maximum values of active powers (P), reactive powers (Q), power factors (PF) and $\cos(\varphi)$. The apparent powers (S1, S2, S3 and St) are signed.
- Instantaneous values of 9 maximum values of the odd harmonics 3 to 13.
- Instantaneous values of 9 instantaneous and average values integrated with total harmonic distortion (THD).
- Instantaneous values of complete reading of the *mapping* relating to the alarms log.
- Instantaneous values of complete reading of the *mapping* relating to record curves.
- Instantaneous values of complete reading of the *mapping* relating to load curves.
- Instantaneous values of 8 minimum and average minimum values of active powers (P), reactive powers (Q), power factors (PF) and $\cos(\varphi)$.
- Instantaneous values of the *mapping* relating to the active, reactive and apparent energy meters, as well as any pulse meters.

21.9 Real time graph page

Reading and displaying instantaneous values measured by the device:

- As Fresnel graphs in one of the following formats: 3V, 3I, 3U, (3V + 3I), (3I + 3V), (3U + 3I), (3I + 3U), with phase shift, $\cos \Phi$, phase order, generator/receiver.
- Harmonics table with selection of ranks, to be displayed, or display of maxi. Display of the fundamental frequency and the harmonic distortion rates.
- Graph of the harmonics (graphical representation of the harmonics table). The same options as for the harmonics table are available.

21.10 Graph. curves page

Reading and displaying the values stored in the database for the concerned device:

- Graph of load curves, with option to select measurement types and time periods to be displayed.
- Graph of record curves, with option to select measurement types and time periods to be displayed.

22. PRINTING *Micar* 2 CONFIGURATION LABEL



The labels provided in the kit can be printed only with a laser printer. *Micar* 2 must remain connected to print the label. If the optical head driver is not yet installed on the PC, refer to paragraph 7.2.

22.1 Hardware configuration

- Laser printer.
- Minimum resolution of 600 dpi.
- Sizes of customized printing medium, minimum of: 76 x 127 mm.
- Manufacturer's toner is mandatory.

22.2 Installation of the *Micar* 2 label Printer software

- Insert the *E.view+* CD ROM into the PC's CD reader.
- Open the *Micar2 Label Printer* directory.
- Launch the executable "setup.exe".
- The following screen is displayed:

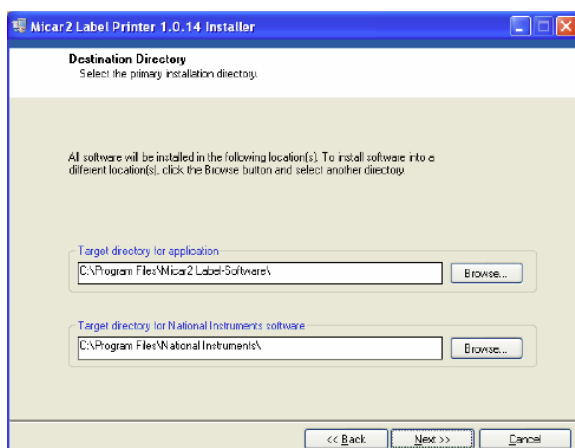


Figure 22-1: Destination directory of the programme.

- Click *Next*.
- Accept the terms of use and click *Next*

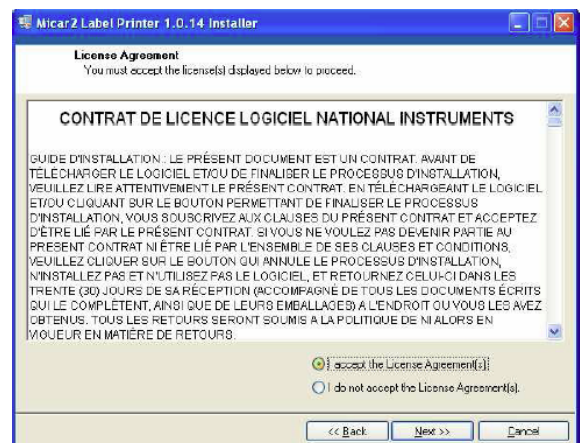


Figure 22-2 : "License agreement(s)".

- When the following screen displays, click *Next* again.

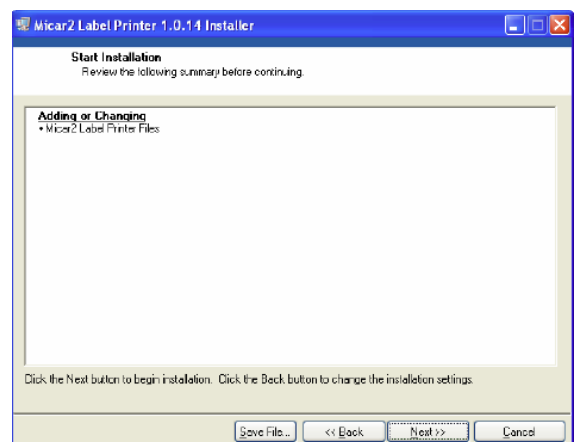


Figure 22-3: the screen before the installation.

- Installation in progress.

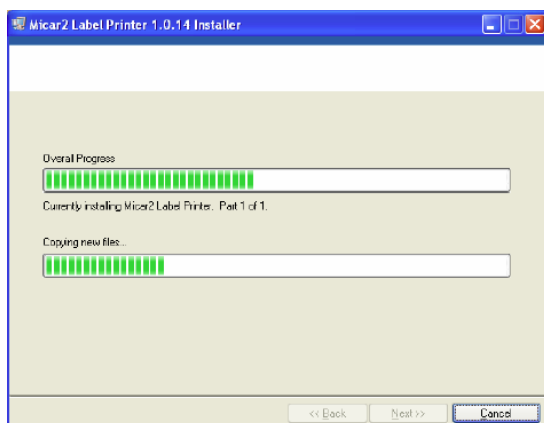


Figure 22-4: installation in progress

- Once the installation is complete, click *Finish*.

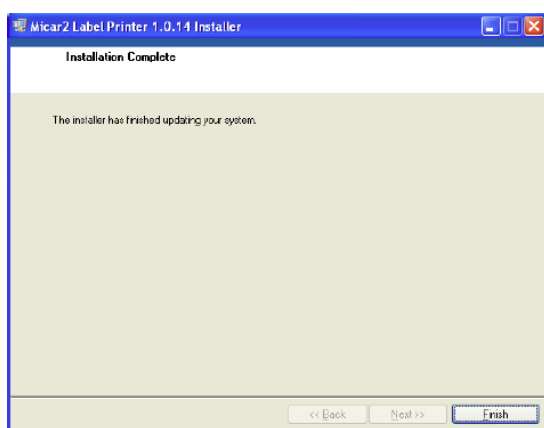


Figure 22-5: the installation is finished.

22.3 Printing the *Micar 2* label

- Connect the power supply and the optical head of the product if it is not done.
- Open *Start > Programmes* and start the *Micar2 Label Printer* application.
- The following screen is displayed:



Figure 22-6: Start-up screen

- Open *File* and click *Automatic Reading*.
- Reading the product configuration is in progress:

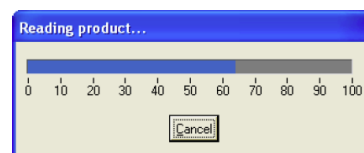


Figure 22-7: product information read progress bar.

- The image of the label with the product configuration is displayed, as in the following example:

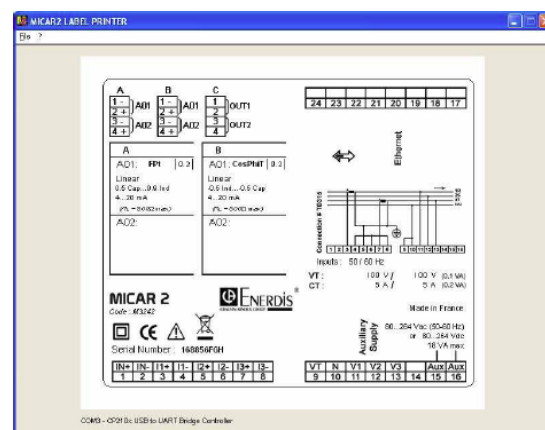


Figure 22-8: example of label

- Verify that the displayed label corresponds to the previously configured settings.
- Place the label in the printer width-wise and adjust the support nearest to the label.



The printer must be configured as 600 dpi.

- Open *File* and click *Print* to start printing.
- *Save* enables you to save the label configuration in a directory.
- *Open* enables the user to open saved files.

23. INDEX

?

?, 84
? Icon, 84

1

1 second value, 97

A

Abridged manual, 49
Activation key, 23
Active channel, 56
 Check, 37, 49, 50, 55
 Uncheck, 57
Active energy
 Counters, 92
 Display/Transfer, 82
Active power, 95
Address Bar, 30
Alarm input, 69
Alarm log
 Reset, 77, 94
Alarm output, 68
 Status, 77
Alarm status word
 Reset, 77
Alarms
 Duration, 94
 Log, 94
 Max value, 94
 Reset, 94
 Timestamp, 94
Alarms journal, 94
Analogue output card, 68
Analogue outputs, 74, 89
 Saturation, 74
 Setting, 85
And (logical function), 73
Apparent energy
 Counters, 92
 Display/Transfer, 82
Apparent powers, 96
Application
 Activation key, 23
 Hardware configuration, 19
 Installation, 19
 Localisation, 22
 Menus, 28
 Presentation, 15, 27
 Repair, 24
 Start, 23
 Tree Architecture, 27

Un-install, 24
Usage, 59
Architecture folder
 Open, 30
Associated energy indices, 92
Average maximums, 95
Average minimum, 95
Average values
 Reset, 96

B

Background (colour), 105
Background colour, 105
Backlight, 82
Binary I/O Card, 69
Binary input, 72
Binary input card, 69
Binary inputs, 88
Binary output card, 68
Binary outputs, 88

C

Cards
 Options, 68, 70
CD ROM, 11
Channel
 Add a channel, 36
 Configuration, 44
 Create a channel, 36
 Define a name, 36
 Ethernet, 37
 Icons, 36
 Infrared, 37
 IP gateway, 37
 Modem, 37
 Selecting type, 36
 Selection, 44
 Serial Port, 37
Characteristics, 111
COM, 29, 37
COM Port, 29, 37
Communication, 28, 77
 Close, 57
 Create a channel, 36
 Enerium-PC, 51
 Ethernet port, 35
 Failure, 63
 Infrared port, 35
 IP port, 35
 Modem port, 35
 PC->Enerium, 51
 Serial port, 35
 The ports, 35

Communication card, 69
Communication channel
 Create, 49
 Ethernet, 49
 Modem, 49
 Optical head, 49
 Optical IP gateway, 49
 Serial port, 49
Connect, 28, 47, 51, 55, 56
Connection
 Enerium-PC, 51
 Ethernet, 55
 IP gateway, 55
 Modem, 55
 RS485, 55
 Serial port, 55
Connection diagram, 84
Connection diagram number, 84
Contrast, 82
Copyright, 10
Cos phi, 95, 96
Counter
 Binary inputs load curve, 79
Counters, 92
Counting, 74
CRC, 63
Crest factor, 97
csv, 93
Current
 Time of presence, 92
Current presence time, 92
Currents, 94, 97
Cursor, 105
Curve
 Colour, 105

D

Date, 84
Delete, 28, 30
Description
 Access, 67
 Display on call, 67
 Example, 70
 Function details, 68
 Use, 59
Device
 Backlight, 82
 Connect, 47
 Create, 29, 30, 43
 Delete, 30
 Description, 44
 Display control, 81
 Display language, 81
 Icons, 47

- Initial programming, 59
- Last access, 45
- Last error, 45
- List of screens, 80
- Metrological LED, 83
- Name, 44
- New device, 43
- Option cards, 68, 70
- Password, 81
- Programme, 46
- Reprogramming, 59
- Saving information, 45
- Screen contrast, 82
- Screen scrolling, 80
- Screen Setting, 80
- Unknown, 46

Diagnostic

- Access, 87
- Analogue outputs, 89
- Binary inputs, 88
- Binary outputs, 88
- Display, 87
- PLC outputs, 89
- Pulse inputs, 88
- Usage, 60

Disconnect, 29, 47

Display

- Control, 81

Display control, 81

Display language, 81

Driver

- Optical head, 24

E

E.set

- Comparison, 15
- General points, 15

E.view

- Comparison, 15
- General points, 15

Energy

- Active, 86

Energy index, 82

Enerium

- Options, 64
- Alarm output status, 77
- Backlight, 82
- Connect, 47
- Create, 43
- Date of creation, 45
- Description, 44
- Disconnect, 30
- Disconnect, 47
- Display control, 81
- Display language, 81
- Functionalities, 15
- Icons, 47
- Information request, 29
- Initial programming, 59
- Last access, 45
- Last error, 45
- List of screens, 80
- Memory, 63
- metrological LED, 83
- Name, 44
- Number, 45

- Option cards, 68, 70
- Password, 81
- Programme, 46
- Reprogramming, 59
- Saving information, 45
- Screen contrast, 82
- Screen scrolling, 80
- Send information, 30
- Setting of screens, 80

EP-, 86

Equipment

- Disconnect, 47
- Number, 45

EQUIPMENT

- Date of creation, 45

Error messages

- List, 63
- Location, 63

Error., 45

ES-, 86

ES+, 86

Ethernet, 15, 19, 35, 37, 45

- Socket, 37

Ethernet port., 35

Excel, 10, 93

Exit, 28

Export, 29, 30

F

F5, 29

Fill rate

- Trend curves, 93

First level alarms, 73, 76

Folder

- Create, 30

Folder architecture

- Open, 29

Fresnel, 100

Fresnel graph, 100

Fresnel type, 100

G

Generator, 72, 100

- Average powers, 96

Generator average, 96

Global alarms, 73, 77

- Configure, 77
- Logical combination, 73

Graph

- Background colour, 105

Graph

- Curve colour, 105

Graph curves, 107

Graph. curves

- Access, 103
- Display, 103
- LC Tab, 104
- Rc Tab, 107
- Usage, 62

Gridlines, 105

H

H1, 94

Harmonic rates, 96

Harmonics, 94

- Averages, 96
- Graph, 102
- Max rank, 94
- Max value, 94
- Rates, 96
- Table, 101

Harmonics graphs, 102

Harmonics table, 101

I

Icon

- Ethernet channel, 36
- Infrared channel, 36
- Installed base architecture, 30
- IP gateway, 36
- Modem channel, 36
- Networks, 30
- RS232 channel, 36
- Undefined channel, 36

Icons

- Device, 47
- Enerium, 47
- Installed base architecture, 38
- Installed base architecture, 27
- Networks, 27, 38
- Toolbar, 29

Impulsion inputs index

- Display/Transfer, 82

Infrared, 35, 37, 45

Infrared port, 35, 45

- Configuration, 45

Initial programming

- On an Enerium, 59
- With the application, 59

Initial reprogramming, 59

Installing the application, 19

Installed base architecture, 27

- Add, 39
- Create, 39
- Example, 39
- Save, 41

Instant extrema, 94

Instant values, 97

Integration

- Period, 84

Integration period, 84

IP, 35, 45

IP address

- Configuration, 45

IP gateway, 35, 37

IP Gateway

- Configuration, 45

J

JBUS, 35, 77, 81

JBUS Address, 77, 81

K

kVAh, 82

kVARh, 82

kWh, 82

L

- Label
 - Micar 2, 113
- Licence, 10
- Link
 - Close, 57
 - Create a new link, 38
- Load curve, 79, 92
 - Complete reading, 92
 - Delete, 93
 - Measurement table, 93
 - Partial reading, 92
- Load Curve
 - Save, 93
- Load curves, 104
 - Configure, 79
 - Curve size, 79
 - Delete, 79
- Logical combination, 73
- Logical function
 - And/Or, 73

M

- Manually time setting, 84
- Mapping, 63
- Marker, 105
- Master, 35
- Max rank, 94
- Max value
 - Harmonics, 94
- Max values
 - Reset, 95
- Maxima, 94
- Maximum, 95
- Measurement range, 85
- Memory
 - Enerium, 63
- Menu
 - Communication, 28
 - File, 28
- Menus, 28
- Meters
 - Current, 85
 - Operation, 84
 - Voltage, 85
- Metrological LED, 83
- Metrology, 83
- Micar 2
 - Label, 113
- Min values
 - Reset, 95
- Min/max values
 - Reset, 94
- Minimum, 94
- MMI, 81
- MMI Card, 69
- Modbus, 15
- Modbus/TCP, 15
- Modem, 19, 35, 37
 - Configuration, 44
 - Telephone number, 37
- Modem port, 35
- Mother board, 69

N

- NC, 77
- Network
 - Frequency, 83, 94
- Network frequency, 83, 94
- Networks, 27
 - Save the parameters, 38
- New communication channel, 36
- New device, 28, 43
- New folder, 28
 - Create, 29, 30
- NO, 77
- Numeric scale, 106

O

- Open, 28
- Operation
 - Operating time, 92
- Optical Driver, 24
- Optical head, 35, 49
 - Install the driver, 24
- Options, 64, 68, 70
- Or (logical function), 73
- Order
 - Phases, 100
- Order of phases, 72
- Output range, 85
- Ownership, 10

P

- P, 82
- Package, 11
- Parity
- Password, 81
- PC
 - Hardware configuration, 19
 - RAM, 64
- PC memory, 64
- PCL
 - Outputs, 89
- pdf, 11
- Phase to ground voltages, 94, 97
- Phase to phase voltages, 94, 97
- Phases
 - Order, 72, 100
- PLC output, 68
- PLC outputs, 89
- Port COM
 - Error, 64
 - Virtual, 25
- Power factor, 96
- Power factors, 95
- Power maxima, 95
- Power minima, 95
- Powers, 96
- Presence of current, 72
- Presence of voltage, 72
- Primary CT, 83
- Primary PT, 83
- Pulse
 - Associated energy, 86
 - Counting loss, 74
 - for counting, 74
 - input, 92
 - ms, 86
 - Weight, 81, 86
 - Width, 86

- Pulse input, 69
- Pulse input counter
 - Reset, 81
- Pulse inputs, 81, 88, 92
 - Display, 81
- Pulse inputs index, 82
- Pulse output, 68
- Pulse output meter
 - Reset, 86
- Pulse outputs, 74, 86
- Pulse weight, 81, 86

Q

- Q, 82, 92

R

- RAM, 64
- Reactive energy
 - Counters, 92
 - Display/Transfer, 82
- Reactive power, 95
- Reactive powers, 96
- Real time graph
 - Access, 99
 - Fresnel, 100
 - Harmonics graph, 102
 - Harmonics table, 101
 - Phasors, 99
 - Usage, 61
- Receiver, 72, 100
 - Average powers, 96
- Receiver average, 96
- Record Curves
 - Save DB, 93
- Reference manual, 11
- Refresh, 29, 51, 56
- Refresh all, 29, 47, 51, 56
- Relative powers, 96
- Repair the application, 24
- Reset
 - Alarm log, 73
 - Alarm status word, 73, 77
 - Average values, 96
 - Averages, 84
 - Complete reset of alarms, 73
 - current meters, 85
 - Energy index, 84
 - Harmonic averages, 96
 - Max values, 95
 - Maxima, 84
 - Min values, 95
 - Min/max values, 94
 - Minima, 84
 - operation meters, 84
 - Pulse input counter, 81
 - Pulse output meter, 86
 - Synchronisation, 72
 - voltage meters, 85
- RESET
 - Alarm log, 77, 94
- Response, 78
- Response time, 45, 78

- Root 3, 84
- RS 485, 35
- RS232C, 19, 55
- RS485, 15
 - JBUS Address, 77
 - Parity, 77
 - Response time, 78
 - Speed, 77
 - Stop bit, 78
- RS485 speed, 77
- RTU, 15

S

- S, 82
- Save, 29, 30
- Save as, 28
- Screen
 - User, 80
- Screen scrolling, 80
- Secondary CT, 83
- Secondary PT, 83
- Send, 57, 89
- Send all**, 52, 57
- Serial, 35
- Serial port
 - Configuration, 44
- Serial Port, 37
- Setting
 - Access, 75
 - Analogue outputs, 85
 - Communication, 77
 - Description, 75
 - Energy index, 82
 - First level alarms, 76
 - Global alarms, 77
 - Load curve, 79
 - Metrology, 83
 - MMI, 81
 - Pulse inputs, 81
 - Pulse inputs index, 82
 - Pulse outputs, 86
 - Screen scrolling, 80
 - Trend curves, 78
 - Usage, 60
 - User screens, 80
 - Versions, 76, 91
- Slave, 35

- Slot A, 68
- Socket, 37
- Software
 - Use, 59
- Software version, 64
- Start the application, 23
- Status
 - Access, 71
 - Analogue outputs, 74
 - Description, 71
 - First level alarms, 73
 - General, 72
 - Global alarms, 73
 - Pulse outputs, 74
 - Use, 60
- Status bar, 31
- Stop
 - Trend curves, 93
- Stop bit, 78
- Synchronisation input, 69

T

- TCP-IP Address, 37
- Telephone, 37
- Telephone number, 37
- THD, 96
- Time, 84
- Time counter, 92
- Time out, 45
- Time synchronisation, 72
 - RESET, 72
- Time-out, 63
- Toolbar, 29
- Total harmonic distortion, 96
- Transfer
 - Enerium->PC, 56
 - PC->Enerium, 51, 57
- Transfer function, 85
- Trend curves, 78
 - Configure, 78
 - Curve size, 79
 - Fill rate, 93
 - Save, 93
 - Save DB, 94
 - Stop, 93
- Trend Curves, 93
 - Curve status, 93

- txt, 29, 30, 93

U

- UART, 63, 64
- Un-installing the application, 24
- USB, 15, 19

V

- View
 - Load curve, 92
- Virtual
 - Port COM, 25
- Visualisation
 - Access, 91
 - Alarm journal, 94
 - Counters, 92
 - Display, 91
 - Harmonic rates, 96
 - Harmonics, 94
 - Instant extrema, 94
 - Instant values, 97
 - Power maxima, 95
 - Power minima, 95
 - Powers, 96
 - Trend Curves, 93
 - Utilisation, 61
- Voltage
 - Time of presence, 92
- Voltage presence time, 92
- voltage unbalance, 97

W

- Warranty, 10

X

- xls, 93
- xml, 29, 30

Z

- Zoom, 105



ENERDIS

16, rue Georges Besse
SILIC 44
F - 92182 Antony Cedex
Tel : +33 (0)1 75 60 10 30
Fax : +33 (0)1 46 66 62 54
<http://www.enerdis.fr>