■ TriadJust2 Software
## Table of contents

### Introduction

- Purpose of the manual

### Warranty, Responsibility and Copyright

- Warranty
- Ownership
- Licence
- Copyright
- Registered trademarks

### Package

- Description

### Installing the application

- Hardware configuration
- Installing the application
- Application location
- Purpose of the application
- Launching
- Repair
- Un-installation
- Note concerning the optical head driver

### General description

- General presentation

### The start-up page

- Presentation
- Menus
- File
- Equipment
- Communication
- Language

### Utilisation

- General points about the utilisation

### Active connection

- Preparation
- Configuring the communication type
- Establishing the connection
- Reading information
- Quit the application

### Inactive connection

- Configuration
- Transferring parameters
- Reading information
- Quit the application

### Error messages

- Present configuration not saved
- Warning
- Error
- Information

### Configuration

- Description
- Basic settings
- Communication
- Channel 1 to n

### Viewing

- Instantaneous values
- Analog meter
13. Diagnosis ............................................ 51
   13.1 Phasors ............................................. 51
   13.2 Product input ...................................... 52
   13.3 Product output ................................... 52

14. [PC] Configuration ................................. 55
   14.1 Operation procedure ............................... 55

Appendix ................................................. 57

15. Index ............................................... 59
Introduction
1. PURPOSE OF THE MANUAL

This manual is intended for those who want to use the TriadJust2 software application with one or more Triad2 transducers.

This manual gives information on:
- The application’s functions.
- The application’s implementation and usage.
- The application’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 application.

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**

All manuals and documentation of any type are *Enerdis* proprietary and are protected by copyright, all rights are reserved. They may not be distributed, translated or reproduced, either in whole or in part, in any way whatsoever or in any form whatsoever.

2.3 **Licence**

The application licence authorises the use of this software on only one workstation at a time.

2.4 **Copyright**

All rights reserved. The reproduction, adaptation or translation of this manual without express prior written authorisation is strictly prohibited, within the limits set by the governing bodies concerning copyright law.

*Enerdis Copyright – 2009.*


2.5 **Registered trademarks**

*TriadJust2* and *Triad2* 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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD ROM containing the application software TriadJust2 and this reference manual in pdf format.</td>
<td>1</td>
</tr>
</tbody>
</table>
4. INSTALLING THE APPLICATION

4.1 Hardware configuration

To run the TriadJust2 application, a PC with the following minimum features are:

- PC: compatible processor.
- Operating system:
  - XP SP2 or higher
  - or Windows 2000 SP4 or higher.
- RAM memory: 512 Mb minimum, 1 Gb recommended.
- Monitor: 1024 * 768 minimum.
- CD ROM Reader.
- Free hard disk space: around 20 Mb.
- Local communication port: at least one USB port (1.1 minimum) for the optical head connection.
- Remote communication port: at least one RS232C port (with RS485 adaptor for connecting to the Triad2 device) or Ethernet.

4.2 Installing the application

Proceed as follows.

- Insert the CD ROM into the reader. The automatic installation wizard is launched. Note: if auto-run has been desactivated, double click on the CD Rom icon and double click the setup.exe icon.
- The first window enables the selection of the language for menu installation.
- Select the desired language and click Next.
- In the displayed window, click Next to start the installation.
- After reading the licence conditions, click on the "I accept the terms of the licence agreement" button and click Next.
- Select next the installation type:
  - Complete: install all the application features.
  - Custom: enables you to choose the installation directory for the TriadJust2 application as well as the components to install (instructions in PDF format, the actual application and the USB driver).
Click Next to start the installation.

After some time, the installation completion screen is displayed. Click Finish.

The application can be accessed:
- either from the menu Start > Programs > Enerdis > TriadJust2, as is shown in the following diagram.
Figure 4-7: Accessing the application once the installation is completed.

- Or from the shortcut automatically created on the desktop.

TriadJust 2

Figure 4-8: the application icon created on the desktop.

The screen is displayed as follows.

Figure 4-9: display when used for the first time.

Chapter 5 introduces the application, while chapter 7 presents a summary of the application usage.

This application can be copied on several computers.

4.6 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 4-10: the screen for selecting the actions to be performed.

- Select Repair to repair the installed features.

4.7 Un-installation

The application can be uninstalled either from the Add/Remove programs menu or a special function of the CD Rom.

The DAT and LOG directories are not deleted (C:\Program files \ Enerdis \ TriadJust2).

4.7.1 From Add/Remove programmes

Select Start > Settings > Control Panel > Add/Remove programs > TriadJust2 and click on the Remove button.

4.7.2 Using the CD Rom

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

        Figure 4-11: selecting the actions to be performed.
4.8 Note concerning the optical head driver

The optical head driver is installed during the application installation (see paragraph 4.2). However, this installation will be completed when the optical head is plugged in for the first time as follows.

4.8.1 Installation of the USB driver of the optical head

Proceed as follows when the different screens are displayed.

- Insert the optical head on the computer port.
- When the Add hardware wizard is displayed, select Not this time and click Next.
- Select Install the software automatically (recommended) and click Next.

When the following screen appears, click on Continue.

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

Select Delete to delete the TriadJust2 application.
• Click Finish.
• Wait for a few seconds for the following screen to appear (see paragraph 4.8.2).

4.8.2 Creation of a virtual communication port

Proceed as follows when the different screens are displayed.
• When the Add hardware wizard is displayed, select Not this time and click Next.

Figure 4-17: display the virtual port creation wizard.
• Select Install the software automatically (recommended) and click Next.

Figure 4-18: display of the "add automatically" wizard.
• When the following screen appears, click on Continue.

Figure 4-19: intermediate step.
• The screen shows the installation progress.

Figure 4-20: installation progress.
• The screen shows the completion of the creation of the virtual communication port of the optical head.

Figure 4-21: the virtual communication port of the optical head is created.
• Click Finish.

4.8.3 End of installation

Both the optical head driver installation procedure and the creation of the virtual communication port are completed.
General description
5. GENERAL PRESENTATION

5.1 The application

The TriadJust2 application enables the configuration of Triad2 transducers. It runs on a PC in Windows® environment. The PC will be connected to:

- either a single Triad2 type device by an optical head through an USB link.
- or to one or more Triad2 type devices by a RS485 or Ethernet link.

5.2 The features

On the PC hosting the application, digital or optical communication enables particularly:

- The reading in real-time of information read on the Triad2 device(s) connected to the PC.
- The offline configuration (no active link) of certain information which will be later sent to the selected Triad2 type device.
- The display in real-time of information measured on the selected Triad2 type device.

5.3 Shortcuts

The illustration of the following page shows an example of using the application with shortcuts to the concerned chapters.
Figure 5-1: overall view of the application with shortcuts to the concerned chapters.
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.

![Start-up Page](image)

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

6.2 Menus

The menu presents the following functions:

<table>
<thead>
<tr>
<th>Menu</th>
<th>Purpose</th>
<th>Refer</th>
</tr>
</thead>
<tbody>
<tr>
<td>File</td>
<td>Manages the configuration files (creation, import, recording, printing, preview), label printing, and application exit.</td>
<td>6.3</td>
</tr>
<tr>
<td>Equipment</td>
<td>Access to configuration sub-menus of Triad2 and shows the connected Triad2.</td>
<td>6.4</td>
</tr>
<tr>
<td>Communication</td>
<td>Defines the type of communication between the TriadJust2 application and the connected Triad2.</td>
<td>6.5</td>
</tr>
<tr>
<td>Language</td>
<td>Selects automatically or manually the menu display language.</td>
<td>6.6</td>
</tr>
<tr>
<td>?</td>
<td>Displays the About window, launches the mail software enabling the user to send an e-mail to the technical department of Enerdis and access the Enerdis web site.</td>
<td></td>
</tr>
</tbody>
</table>

6.3 The menu File

The sub-menus accessible from the File menu depend on the items currently displayed, as explained below.

![File Menu](image)

Figure 6-2: Example of the File menu.
6.3.1 New
Clears the contents of the window, which is displayed then as in Figure 6-1.
This menu is the same as that obtained by clicking on the icon.

6.3.2 Open
Opens a window enabling the incorporation of xml data relating to a previously saved configuration.
This menu is the same as that obtained by clicking on the icon.

6.3.3 Recording
Records the configuration in the active configuration file or opens the Save as menu if no recording has still been made. These data elements will be saved in XML format in a file with “trd” extension. The Recording sub-menu is accessible only if a Triad2 device is activated.
This menu is active only if a configuration is displayed (Figure 6-1, item 4). It is the same as that obtained by clicking on the icon.

6.3.4 Save as
Opens a window enabling the saving of all the data items relating to a displayed Triad2 or to the current configuration, in a user-defined directory. These data elements will be saved in XML format in a file with “trd” extension.
By default, the file is saved in the C:\Program files\Enerdis\TriadJust2\DATA directory.
This menu is active only if a configuration is displayed (Figure 6-1, item 4).

6.3.5 Preview config file
Displays, in a table, the main characteristics embedded in the configuration files of a given directory, the default directory being DATA. This table cannot be modified.
This menu is the same as that obtained by clicking on the icon.

Figure 6-3: the “Communication” menu before a connection.
These data elements are:
- **File name**: name of the configuration file saved in the DATA directory.
- **Equipment type**: type of Triad2 concerned in the configuration file.
- **Serial number**: serial number of the Triad2.

- **Network frequency**: fundamental frequency of the network (50, 60 or 400 Hz).
- **Sqr (3)**: indication of a connection on a star-connected voltage transformer.
- **PT primary**: operating voltage of the primary of the voltage transformer.
- **PT secondary**: operating voltage of the secondary of the voltage transformer.
- **CT primary**: operating current of the primary of the current transformer.
- **CT secondary**: operating current of the secondary of the current transformer.
- **Channel 1...4**: magnitudes allotted on the channels 1, 2, 3 and 4.

A click on the column header sorts the data with respect to the selected column.

6.3.6 Print
Opens the Windows print window and enables the printing of the active configuration.
This menu is active only if a configuration is displayed (Figure 6-1, item 4). It is the same as that obtained by clicking on the icon.

6.3.7 Print label
Opens the Windows print window and enables the printing of the configuration label in A6 format.
This menu is active only if a configuration is displayed (Figure 6-1, item 4). It is the same as that obtained by clicking on the icon.

Figure 6-4: the “Print label” window.
The label has 2 parts to be pasted on the device, namely:
- **Left portion**: connection diagram coming from the configuration or from the information read from the connected Triad2.
- **Right portion**: characteristics inferred from the configuration or from the information read from the connected Triad2.

The lower right portion has a free text zone meant for the user. This zone is generally used to write data such as the inventory number or device location.

### 6.3.8 Quit

Closes the application. A window however asks the recording of the configuration, displays the Save as window, if a modification was made with respect to the file available when the window was opened.

### 6.4 The Equipment menu

The sub-menus accessible from the Equipment menu depend on the items currently displayed, as explained below.

![Equipment menu example](image)

**Figure 6-5: example of the Equipment menu.**

#### 6.4.1 Configuration

Accesses the configuration sub-menus of the Triad2 to be configured. The options of this sub-menu are identical to those available in the Configuration zone of the window (Figure 6-1, item. 4). Refer to chapter 11, page 41, for details.

![Configuration window example](image)

**Figure 6-6: example of the Configuration window.**

#### 6.4.2 Write

This sub-menu is accessible when a Triad2 is detected (refer the procedure in paragraph 8.3, page 33). In this case, the configuration data are downloaded from the connected Triad2 to the displayed TriadJust2 application window; Refer Figure 5-1, on page 20, for details.

This menu is the same as that obtained by clicking on the icon.

#### 6.4.3 Read

This sub-menu is accessible when a configuration is active in the TriadJust2 application window (refer the procedure in paragraph 9.2.3, on page 35).

In this case, the configuration data input manually in the TriadJust2 application window are displayed to the connected Triad2; refer to Figure 5-1, on page 20, for details.

This menu is the same as that obtained by clicking on the icon.

#### 6.4.4 Viewing

This sub-menu is accessible only if a Triad2 is detected (see the procedure on page 89).

- **Instantaneous values**: the data downloaded from the connected Triad2 is displayed in the Instantaneous values window of the TriadJust2 application; refer to paragraph 12.1, on page 47, for details. This menu is the same as that obtained by clicking on the icon.

![Instantaneous values](image)

**Figure 6-8: example of display of instantaneous measures.**

- **Analog meter**: the data downloaded from the connected Triad2 are displayed in the Analog meter window of the TriadJust2 application; refer to paragraph 12.2, on page 49, for details. This menu is the same as that obtained by clicking on the icon.
6.4.5 Diagnosis

This sub-menu is accessible only if a Triad2 is detected (refer to the procedure in chapter 89).

- **Phasors:** the data downloaded from the connected Triad2 is displayed in the form of Fresnel diagram in the Fresnel window of the TriadJust2 application; refer to paragraph 13.1, on page 51, for details. This menu is the same as that obtained by clicking on the icon.

- **Product input:** the data downloaded from the connected Triad2 are displayed in the form of input state table in the Product input window of the TriadJust2 application; refer to paragraph 13.2, on page 52, for details. This menu is the same as that obtained by clicking on the icon.

- **Product output:** the data downloaded from the connected Triad2 are displayed in the form of output state table in the Product output window of the TriadJust2 application; refer to paragraph 13.3, on page 52, for details. This menu is the same as that obtained by clicking on the icon.
6.5 The Communication menu

This menu enables the definition of a communication channel between the TriadJust2 application and the addressable Triad2(s).

![Communication menu](image)

Figure 6-14: the Communication menu.

Refer to paragraph 14, on page 55, for details. This menu is the same as that obtained by clicking on the icon.

![Example of display Communication](image)

Figure 6-15: example of display Communication.

6.6 The Language menu

This menu enables the selection of the display language for menus, sub-menus and various windows of the application.

![Language menu](image)

Figure 6-16: the Language menu.

The selection of a new language requires the application to be restarted.

The Automatic option displays the texts in the default language defined by Windows.

6.7 The toolbar

The icons displayed in the toolbar depend on prior choices. Thus certain icons could be disabled (greyed) if the corresponding options for their enabling are not selected together.

![Location of the toolbar](image)

Figure 6-17: location of the toolbar.

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

<table>
<thead>
<tr>
<th>Icons</th>
<th>Meaning</th>
<th>Refer §</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="New icon" /></td>
<td>Similar to the sub-menu File &gt; New. This icon is always enabled.</td>
<td>6.3.1</td>
</tr>
<tr>
<td><img src="image" alt="Open icon" /></td>
<td>Similar to the sub-menu File &gt; Open. This icon is always enabled.</td>
<td>6.3.2</td>
</tr>
<tr>
<td><img src="image" alt="Recording icon" /></td>
<td>Similar to the sub-menu File &gt; Recording. This icon is enabled when a Triad2 is displayed in the application window.</td>
<td>6.3.3</td>
</tr>
<tr>
<td><img src="image" alt="Preview config file icon" /></td>
<td>Similar to the sub-menu File &gt; Preview config file. This icon is always enabled.</td>
<td>6.3.5</td>
</tr>
<tr>
<td><img src="image" alt="Print icon" /></td>
<td>Similar to the sub-menu File &gt; Print. This icon is disabled (greyed) if no Triad2 is defined.</td>
<td>6.3.6</td>
</tr>
<tr>
<td><img src="image" alt="Print label icon" /></td>
<td>Similar to the sub-menu File &gt; Print label. This icon is disabled (greyed) if no Triad2 is defined.</td>
<td>6.3.7</td>
</tr>
<tr>
<td><img src="image" alt="Configuration icon" /></td>
<td>Similar to the sub-menu Equipment &gt; Configuration &gt; Description. This icon is always enabled.</td>
<td>11.1</td>
</tr>
<tr>
<td><img src="image" alt="Basic settings icon" /></td>
<td>Similar to the sub-menu Equipment &gt; Configuration &gt; Basic settings. This icon is disabled (greyed) if no Triad2 is defined.</td>
<td>11.2</td>
</tr>
</tbody>
</table>
| 1 | Similar to the sub-menu  
**Equipment > Configuration > Communication [Product]**. 
This icon is disabled (greyed) if no **Triad2** is defined or if the option is not available. |
|---|---|
| 2 | Similar to the sub-menu  
**Equipment > Configuration > Channel 1**. 
This icon is disabled (greyed) if no **Triad2** is defined or if the option is not available. |
| 3 | Similar to the sub-menu  
**Equipment > Configuration > Channel 2**. 
This icon is disabled (greyed) if no **Triad2** is defined or if the option is not available. |
| 4 | Similar to the sub-menu  
**Equipment > Configuration > Channel 3**. 
This icon is disabled (greyed) if no **Triad2** is defined or if the option is not available. |
| 5 | Similar to the sub-menu  
**Equipment > Configuration > Channel 4**. 
This icon is disabled (greyed) if no **Triad2** is defined or if the option is not available. |
| 6 | Reading the configuration of the connected **Triad2**, the information is then displayed in the **TriadJust2** application window. 
Similar to the sub-menu **Equipment > Configuration > Read**. 
This icon is disabled (greyed) if no communication channel is defined. |
| 7 | Sending the configuration from the **TriadJust2** application window to the connected **Triad2**. 
Similar to the sub-menu **Equipment > Configuration > Write**. 
This icon is enabled when a communication channel and a **Triad2** have been defined. |
| 8 | Viewing, in the **TriadJust2** application window, the amplitudes of the connected **Triad2** in the form of galvanometers. 
Similar to the sub-menu **Equipment > Viewing >> Analog meter**. 
This icon is enabled when a communication channel and a **Triad2** have been defined. |
| 9 | Viewing, in the **TriadJust2** application window, the amplitudes of the connected **Triad2** in the form of Fresnel diagram. 
Similar to the sub-menu **Product > Diagnosis > Phasors**. 
This icon is enabled when a communication channel and a **Triad2** have been defined. |
| 10 | Viewing, in the **TriadJust2** application window, the input amplitudes of the connected **Triad2** (input diagnostics). 
Similar to the sub-menu **Product > Diagnosis > Product input**. 
This icon is enabled when a communication channel and a **Triad2** have been defined. |
| 11 | Viewing, in the **TriadJust2** application window, the output amplitudes of the connected **Triad2** (output diagnostics). 
Similar to the sub-menu **Product > Diagnosis > Product output**. 
This icon is enabled when a communication channel and a **Triad2** have been defined. |
| 12 | Viewing, in the **TriadJust2** application window, the amplitudes of the connected **Triad2** in the form of table. 
Similar to the sub-menu **Equipment > Viewing > Instantaneous values**. 
This icon is enabled when a communication channel and a **Triad2** have been defined. |
| 13 | Choice and configuration of the communication between the PC hosting the **TriadJust2** application and the **Triad2** to be monitored. 
Similar to the sub-menu **Communication >> [PC] Configuration**. 
This icon is always enabled. |
6.8 The status bar

It displays error messages intended for the application user. The list of these messages is the subject of chapter 10, on page 37.

![Figure 6-18: location of the status bar.](image)

<table>
<thead>
<tr>
<th>Indication</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical</td>
<td>Displays the connection type (Unknown, Ethernet, RS485, Optical) and the COM port, if any, selected. See paragraph 11.3, on page 43.</td>
</tr>
<tr>
<td>![icon]</td>
<td>This icon is displayed when a connection is activated between the PC and the Triad2. See paragraph 8.3 or 9.2.3.</td>
</tr>
<tr>
<td>OK</td>
<td>Displayed when communication between Triad2 and the PC is successful.</td>
</tr>
</tbody>
</table>
Utilisation
7. GENERAL POINTS ABOUT THE UTILISATION

The TriadJust2 application can be used in 2 ways:

- **With an active connection** with a Triad2 device, exchanges between the TriadJust2 application and the Triad2 are done in real time (online mode).

- **Without an active connection** with a Triad2 device, exchanges between the TriadJust2 application and the Triad2 are done in deferred time (batch / offline mode).

7.1 Active connection

An active connection means that the Triad2 is in direct communication with the TriadJust2 application through an optical, RS485 or Ethernet link. Thus, the exchanges between the TriadJust2 application and the Triad2 are in real time, hence immediate.

The displays of values by the Viewing, Diagnostics functions are refreshed in real time. It is also possible to use the Read and Write functions since the communication is active.

Chapter 8, page 33, explains this type of connection.

7.2 Inactive connection

An inactive connection means that the Triad2 is not in direct communication with the TriadJust2 application through an optical, RS485 or Ethernet link. Thus, the exchanges between the TriadJust2 application and the Triad2 will be in deferred time.

Displays of values by the Viewing, Diagnostics functions are not possible in real time. It is possible to use the Read and Write functions only when the communication is enabled.

This type of use enables defining the configuration of one or more Triad2, recording the configuration file, before a subsequent connection according to chapter 9, page 35, explains this type of connection.
8. ACTIVE CONNECTION

The purpose of the active connection is discussed in 7.1.

8.1 Preparation

Proceed as follows:

1. Connect the PC through the cable which will be used for the connection (RS485, Ethernet or optical sensor).
   - For an optical cable, connect the optic cable to the USB port of the PC and connect the other end in the optic card of the Triad2.
   - For an Ethernet or RS485 cable, connect the cable to the corresponding port of the PC and connect the other end in the remote transmission card.

2. Launch the TriadJust2 application. A blank page is displayed.

8.2 Configuring the communication type

This step enables the user to define the connection to use between the PC running the TriadJust2 application and a Triad2. Proceed as follows:

1. In the menu bar, select Communication > [PC] Configuration or click on the icon.

2. In the window opened, select, from the dropdown list, the Communication type to be used. Refer to the chapter 14, on page 55, for details of options.

3. Define the communication parameters. For an Ethernet or RS485 connection, the address mentioned must correspond to the Triad2 on which the information will be read. Refer to the chapter 14, on page 55, for details of options.

4. Click Valid to close the window.

8.3 Establishing the connection

Once the communication type is defined as per the previous paragraph, activate the connection between the TriadJust2 application and a Triad2 as follows:

1. In the menu bar, select Equipment > Read or press on <F5> or click on the icon.

2. A message can be displayed. Refer to chapter 10, on page 37, for the interpretation of the messages.

3. After a few seconds, the screen displays the information read on the Triad2 indicated in step 3 of paragraph 8.2. Refer to Figure 5-1, on page 20, for details of the display.

Figure 8-1: the application at the beginning.

Figure 8-2: example of display.
8.4 Reading information

Once the communication is established, it is then possible to view the data read by the Triad2.

Use the table below to access the available functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Refer §</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viewing the configuration</td>
<td>5.3</td>
</tr>
<tr>
<td>Modifying the configuration</td>
<td>11</td>
</tr>
<tr>
<td>Transferring the new configuration to the Triad2</td>
<td>9.2.3</td>
</tr>
<tr>
<td>Configuring and viewing instantaneous measures</td>
<td>12.1</td>
</tr>
<tr>
<td>Configuring and viewing galvanometers</td>
<td>12.2</td>
</tr>
<tr>
<td>Displaying the Fresnel diagram</td>
<td>13.1</td>
</tr>
<tr>
<td>Displaying inputs</td>
<td>13.2</td>
</tr>
<tr>
<td>Displaying outputs</td>
<td>13.3</td>
</tr>
</tbody>
</table>

8.5 Quit the application

Proceed as follows:
1. In the menu bar, select File > Quit or <CTRL + Q> or click on the icon.
9. INACTIVE CONNECTION

The purpose of the inactive connection is discussed in 7.2.

9.1 Configuration

Proceed as follows:

No link is to be provided at this stage between the PC running the TriadJust2 application and any Triad2.

1. Launch the TriadJust2 application.
   A blank page is displayed.

   Figure 9-1: the application on start up.

2. Define the configuration of a Triad2.
   Set the following configuration parameters:

<table>
<thead>
<tr>
<th>Function</th>
<th>Refer §</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>11.1</td>
</tr>
<tr>
<td>Basic settings</td>
<td>11.2</td>
</tr>
<tr>
<td>Communication</td>
<td>11.3</td>
</tr>
<tr>
<td>Channel 1 to “n”</td>
<td>11.4</td>
</tr>
</tbody>
</table>

3. Save the configuration of the Triad2.
   In the menu bar select File > Save as or click on

4. If required, configure another Triad2.
   Use steps 2 and 3 above.

5. The application can be closed.
   In the menu bar, select File > Quit or <CTRL + Q> or click on the icon

9.2 Transferring parameters

9.2.1 Retrieving the configuration file

This step will enable loading the previously saved configuration file to the TriadJust2 application (See paragraph 9.1). Proceed as follows:

1. In the menu bar, select File > Open or <CTRL + O> or click on the icon.

2. In the opened window, select the configuration file with “.TRD” extension to be used and click Open.
   The application window is refreshed with the loaded parameters.
   Refer to Figure 5-1, on page 20 for details.

9.2.2 Configuring the communication type

This step will enable defining the connection to be used between the PC hosting the TriadJust2 application and a Triad2. Proceed as follows:

1. In the menu bar, select Communication > [PC] Configuration or click on the icon.

2. In the opened window, select in the dropdown list, the Communication type to be used.
   Refer to paragraph 11.2, on page 42, for details of options.

3. Define the communication parameters.
   For an Ethernet or RS485 connection, the address mentioned must correspond to the Triad2 on which the information will be sent.
   Refer to chapter 14, on page 55, for details of options.

4. Click Scan to display the Triad2 present. In the resulting window, double click on the selected Triad2 to initialize its communication parameters.
   Refer to paragraph 11.2, on page 42, for details of this command.

5. Click Valid/OK to close the window.
9.2.3 Transferring parameters

Once the communication type and the configuration file are defined according to the previous paragraphs, transfer the parameters from the TriadJust2 application to a Triad2 as follows:

1. In the menu bar, select Equipment > Read or press on <F4> or click on the icon.

2. A message can be displayed. Refer to chapter 10, on page 37, for the interpretation of the messages.

3. After a few seconds, the Triad2 referred to in step 3 of paragraph 9.2.2 is loaded with the sent parameters. Refer to paragraph 5.3, page 19, for details of the display.

9.3 Reading information

Once the communication is established, it is then possible to view the data read by the Triad2.

Use the table below to access the available functions.

<table>
<thead>
<tr>
<th>Function</th>
<th>Refer §</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viewing the configuration</td>
<td>5.3</td>
</tr>
<tr>
<td>Modifying the configuration</td>
<td>11</td>
</tr>
<tr>
<td>Transferring the new configuration to the Triad2</td>
<td>9.2.3</td>
</tr>
<tr>
<td>Configuring and viewing instantaneous measures</td>
<td>12.1</td>
</tr>
<tr>
<td>Configuring and viewing galvanometers</td>
<td>12.2</td>
</tr>
<tr>
<td>Displaying the Fresnel diagram</td>
<td>13.1</td>
</tr>
<tr>
<td>Displaying inputs</td>
<td>13.2</td>
</tr>
<tr>
<td>Displaying outputs</td>
<td>13.3</td>
</tr>
</tbody>
</table>

9.4 Quit the application

Proceed as follows:

1. In the menu bar, select File > Quit or <CTRL + Q> or click on the icon.

Figure 9-2: example of display.
10. ERROR MESSAGES

10.1 Present configuration not saved

Cause: the current configuration was modified but not saved when closing the application.

Action: validate the new configuration by clicking on the button Yes.

Figure 10-1: present configuration not saved.

10.2 Warning

10.2.1 While writing mode

Cause: the TriadJust2 application detected that the configuration of the connected device number does not correspond to the information displayed in the TriadJust2 application window, when a write to the Triad2 was requested.

Action: verify that the device being written is identical to the one used for reading.

Figure 10-2: "Warning" message during write.

10.2.2 While reading mode

Cause: the TriadJust2 application detected that the configuration of the connected device number does not correspond to the information displayed in the TriadJust2 application window, when a write to the Triad2 was requested.

Action: verify that the device being read is identical to that which was displayed in the application window.

Figure 10-3: "Warning" message during read.

10.3 Error

Cause: The TriadJust2 application detected that the configuration of the connected device number is not compatible with the information displayed in the TriadJust2 application window, whereas a write to the Triad2 was requested.

Action: writing in Triad2 is impossible because of the incompatibility of the equipment configuration.

Figure 10-4: "Error" message during write.

10.4 Information

Cause: the TriadJust2 application indicates that the write operation towards the connected Triad2 was correctly executed.

Figure 10-5: "Information" message after write.
Menus
11. CONFIGURATION

The Configuration sub menus are accessible by two different ways:

- From the menu bar, by Product > Configuration.
- From the left zone of the application (figure below).

These sub-menus are:

- **Description** enables the hardware configuration of the Triad2 to be configured or the display of the characteristics of the Triad2 read. Refer to paragraph 11.1, on page 41.
- **Basic settings** configure the wiring of the Triad2 to be configured or the display of the wiring information of the Triad2 read. Refer to paragraph 11.2, on page 42.
- **Communication** defines the communication parameters of the Triad2 to be configured or the display of information of the Triad2 read. Refer to paragraph 11.3, on page 43.
- **Channel x**, which defines the amplitudes of each of the available channels of the Triad2 to be configured or the display of channels of the Triad2 read. Refer to paragraph 11.4, on page 44.

### 11.1 Description

This screen defines the hardware configuration of the Triad2 to be configured or the display of the characteristics of the Triad2 read. During configuration, the values are entered manually by the user.

On reading, these values are those read on the Triad2 in communication. These same values are displayed in the left part of the window in the Description zone.

![Description Zone](image)

**Figure 11-2: location of the Description zone.**

The Description window is displayed as follows:

![Description Window](image)

**Figure 11-3: the Description window.**
11.1.1 Equipment type
Type of model of Triad2 read by the application or configured by the user. The following is the coding:

<table>
<thead>
<tr>
<th>Position</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Letter always T (for Triad).</td>
</tr>
<tr>
<td>2nd</td>
<td>1: Triad – small model.</td>
</tr>
<tr>
<td></td>
<td>3: Triad – large model.</td>
</tr>
<tr>
<td>3rd</td>
<td>0: optical link.</td>
</tr>
<tr>
<td></td>
<td>1: optical and RS485 link.</td>
</tr>
<tr>
<td></td>
<td>2: optical and Ethernet link.</td>
</tr>
<tr>
<td>4th</td>
<td>Number of channels (0, 1, 2, 3 or 4).</td>
</tr>
</tbody>
</table>

Example: T324 means a Triad2, large model, optical and Ethernet links, 4 channels.

11.1.2 Serial number
Non-modifiable information read after communication with the Triad2, corresponding to the device serial number.

11.1.3 Auxiliary supply
Non-modifiable information read after communication with the Triad2, corresponding to the device grid supply card type (voltage permissible on the grid supply terminals).

11.1.4 Firmware version
Non-modifiable information read after communication with the Triad2, corresponding to the version number of the electronic card of the Triad2.

11.1.5 Communication
Non-modifiable information read after communication with the Triad2, corresponding to the communication card type of the Triad2.

11.1.6 Output(s) type
Output type of the model of Triad2 read by the application or configured by the user. Corresponds to the voltage or current type outputs.

11.1.7 Output number
Non-modifiable information read after communication with the Triad2.

11.2 Basic settings
This screen configures the cabling of the Triad2 to be configured or the display of the cabling information of the read Triad2.

During configuration, the values are entered manually by the user.

During the read operation, these values are those read on the Triad2 in communication. These values are displayed in the upper part of the window, in the Metrology zone.

11.2.1 Network type
Click on the icon to display the corresponding cabling diagram.

Defines or displays the network cabling type of the Triad2.

11.2.2 PT primary
Defines or displays the maximum operating voltage indicated on the primary of the voltage transformer. The primary value (phase to phase voltage) of the PT transformer can be defined between 100 V and 650 000 V. The primary of the PT can be adjusted by 1 V steps and its default value is 100 V.

11.2.3 PT secondary
Defines or displays the maximum operating voltage indicated on the secondary of the voltage transformer. The secondary value (phase to phase voltage) of the PT transformer can be defined between 100 V and 480 V. The secondary of the PT can be adjusted by 1 V steps and its default value is 100 V.
11.2.4 CT primary
Defines or displays the maximum working current indicated on the primary of the current transformer. The value of the primary of the CT transformer is between 1 A and 25,000 A. The primary CT can be adjusted by 1 A steps and its default value is 100 A.

11.2.5 CT secondary
Defines or displays the maximum working current indicated on the secondary of the current transformer. The value of the secondary of the CT transformer is between 1 A and 10 A. The secondary CT can be adjusted by 1 A steps and its default value is 5 A.

11.2.6 Network frequency
Defines or displays the fundamental network frequency (5, 60 or 400 Hz).

11.2.7 Connection diagram
Defines or displays the connection type which will be used on the device. The connection diagram is displayed by clicking on the icon . Click on the diagram to close the diagram.

11.2.8 Root of 3 (√3)
When this box is checked, it calls up the indication of a connection on a star-connected voltage transformer.

11.3 Communication
This screen defines the communication parameters of the Triad2 to be configured or displays the information of the Triad2 read.

During the configuration, the values are entered manually by the user.

During the read operation, these values are those read on the Triad2 in communication. These same values are displayed in the upper part of the window, in the Ethernet Communication zone when the Triad2 has an Ethernet card.

The parameters in Ethernet or RS485 format are displayed automatically depending on the type of device selected; See paragraph 11.1.1.

11.3.1 Ethernet Communication
The Ethernet Communication is displayed as follows:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Range of values</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>IP address of the Triad2 on the Ethernet network. Format 000.000.000.000.</td>
</tr>
<tr>
<td>Mask</td>
<td>Part of the IP address corresponding to the part network number and host number.</td>
</tr>
<tr>
<td>Gateway address</td>
<td>Format 000.000.000.000</td>
</tr>
<tr>
<td>Listening port</td>
<td>Socket number.</td>
</tr>
</tbody>
</table>

11.3.2 RS485 communication
The RS485 Communication is displayed as follows:

Figure 11-7 : location of the Communication zone.

Figure 11-6 : example of display of the connection diagram.

Figure 11-8 : the Product Communication window, in Ethernet version.

The parameters are read or defined as follows:

Figure 11-9 : the Product Communication window, in RS485 version.
The parameters are read or defined as follows:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Range of values</th>
</tr>
</thead>
<tbody>
<tr>
<td>JBUS address</td>
<td>1 to 247</td>
</tr>
<tr>
<td>Speed (Bds)</td>
<td>Up to 115200 Bds</td>
</tr>
<tr>
<td>Parity</td>
<td>Without, even, odd</td>
</tr>
<tr>
<td>Stop bit</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Junction switchover delay (ms)</td>
<td>0 to 1 000 ms</td>
</tr>
</tbody>
</table>

### 11.4 Channel 1 to n

This screen defines the channels present (1 to 4 maximum) of the Triad2 to be configured or displays the information of the Triad2 read.

During configuration, the number of channels is automatically selected depending on the type of device selected; See paragraph 11.1.1.

During the read operation, these values are those read on the Triad2 in communication. These same values are displayed in the lower part of the window, in the Channel 1 to Channel 4 depending on the type of Triad2 connected.

![Figure 11-10: location of the Channel 1 to Channel 4 zones.](image)

The data to be configured or read are the following.

#### 11.4.1 Parameter

Select, in the dropdown list box, the amplitude to be assigned on the selected channel from among the proposed amplitudes, according to the selected connection diagram.

#### 11.4.2 Response time

Select, in the dropdown list box, the response time. This determines the integration period. The higher this duration, the better will be the precision of the measurement (see paragraph 11.4.6).

#### 11.4.3 Transfer curve

Select, in the dropdown list box, the transfer function to be used during the conversion of the input measurement to the analog output (voltage or current).

##### 11.4.3.1 Linear

S = axE + b

![Figure 11-12: transfer curve in linear mode (single slope).](image)

##### 11.4.3.2 Dual slope

For slope 1: S = a1xE + b1
For slope 2: S = a2xE + b2

![Figure 11-13: transfer equation in dual slope mode.](image)
11.4.3.3 Quadratic

For slope 1: \( S = aE^2 + b_1 \)

11.4.4 Measurement range
The displayed unit depends on the selected amplitude of measurement (See paragraph 11.4.1). Defines the measurement range between the minimum and maximum values which are based on the selected amplitude and the configuration of the CT and PT.

11.4.5 Output range (mA or V)
Define the range of output values of the Triad2 in mA according to specific needs. The range 4-20 mA is generally used. Wider this range, better the precision of measurement (See paragraph 11.4.6).

11.4.6 Class
This value is calculated by the TriadJust2 application. It depends on the choice of the following parameters:
- Response time (§ 11.4.2).
- Range of output measurement (§ 11.4.5).

The more the value of class calculated is low (minimum error), the better is the precision of the output.

11.4.7 Overflow (%)
Defined, in percent, the range of permitted overflow for the minimum and maximum output values (refer § 11.4.4).

This function is generally used for certain types of galvanometers fed on a current range less than 4 mA. For the values higher than 20 mA, an overflow allowance enables an overflow to be indicated on a galvanometer.

Example, for a measurement range set between 4-20 mA in paragraph 11.4.4, an overflow in % of:
- 0% on 4 mA will limit the output to 4 mA at the minimum;
- 20% on 20 mA will limit the output to 24 mA at the maximum.
12. VIEWING

The sub-menus of Viewing are accessible in two different ways:

- From the menu bar, by Equipment > Viewing.
- From the toolbar, by clicking on one of the icons or .

These sub-menus are:

- **Instantaneous values** displays permanently, in tabular form, the information read on the Triad2, with or without recording. Refer to paragraph 12.1.
- **Analog meter** displays permanently, in the form of galvanometers defined by the user, the information read on the Triad2. Refer to paragraph 12.2.

### 12.1 Instantaneous values

This screen displays permanently, in tabular form, the instantaneous measurements read on the Triad2, with or without recording.

To access this display:

- From the menu bar, select Equipment > Viewing > Instantaneous values.
- Or, from the toolbar by clicking on the icon .

Figure 12-1: location of the Viewing icons.

Figure 12-2: example of display of instantaneous measurements.

#### 12.1.1 Normal display/High resolution display

This dropdown list defines the precision of display of measurements as follows:

Figure 12-3: the Normal display / High resolution display selection.

- **Normal display**: the measurement coefficients (K, M, G) are automatically managed.

Figure 12-4: example of normal display. The K values are present.
• High resolution display: the measurements are displayed in the lowest unit, hence an increased display precision.

![Image](image_url)

Figure 12-5: example of high resolution display. The K values are absent.

12.1.2 Recording of measurements

Proceed as follows to record the measurements displayed in the table (Figure 12-2) in a special log file.

12.1.2.1 Configuring of recording mode

1. Click on the button

![Image](image_url)

Figure 12-6: location of functions and buttons used for recording measurements.

2. In the dropdown list box Recording stopped, select the file recording format.

The button changes to grey and the button changes to green .

The displayed measurements can be recorded as they flow in one of the following formats:
- **TXT**: text format.
- **CSV**: format readable by any application reading this type of format; the data items are separated by comma .
- **ASC**: ASCII format.
- **XLS**: format readable only by an application compatible with Microsoft Excel.

3. Click on the button and select the destination directory for the logs.

By default, the log files are stored in the directory C:\Program files\Enerdis\TriadJus2\Log.

<table>
<thead>
<tr>
<th>Step</th>
<th>Button state</th>
<th>Click on</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td></td>
<td></td>
<td>The dropdown list box displays Recording stopped.</td>
</tr>
<tr>
<td>1.</td>
<td>![Icon]</td>
<td></td>
<td>Refreshing, every second, the amplitudes without recording.</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td>Stop the refresh of amplitudes.</td>
</tr>
<tr>
<td>3.</td>
<td>![Icon]</td>
<td></td>
<td>Return to 1.</td>
</tr>
</tbody>
</table>

**Viewing and recording**

Note: Inactive recording must be selected.

<table>
<thead>
<tr>
<th>Step</th>
<th>Button state</th>
<th>Click on</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>![Icon]</td>
<td>Refreshing, every second, the amplitudes without recording.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>![Icon]</td>
<td>Refreshing, every second, the amplitudes without recording.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Stop the refresh of amplitudes.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>![Icon]</td>
<td>Select Recording with xxx format.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Dropdown list box</td>
<td>Awaiting the start of recording</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>![Icon]</td>
<td>Awaiting restart of recording</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>![Icon]</td>
<td>Restart the recording.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>![Icon]</td>
<td>Recording of amplitudes started</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>![Icon]</td>
<td>Pause the recording.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>![Icon]</td>
<td>Awaiting recording.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>![Icon]</td>
<td>Resume at step 1.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>![Icon]</td>
<td>Restart recording.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Dropdown list box</td>
<td>Select Recording stopped.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>![Icon]</td>
<td>Stopping the recording and refreshing of amplitudes.</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>![Icon]</td>
<td>Resume at step 1.</td>
<td></td>
</tr>
</tbody>
</table>
12.2 Analog meter

This screen displays permanently, in the form of a maximum of 8 galvanometers, the instantaneous measurements read on the Triad2, with or without recording.

To access this display:
- From the menu bar, select Equipment > Viewing > Analog meter.
- Or, from the toolbar by clicking on the icon.

Figure 12-7: example of display of instantaneous values in the form of galvanometers.

12.2.1 Configuring a galvanometer

1. In the menu bar, select Equipment > Viewing > Analog meter or click on the icon in the toolbar.
   If no galvanometer has been defined yet, the Analog display configuration window is displayed.
   If one or more galvanometers have already been defined, the Analog meter window is displayed. Click on the Configuration button to display the Analog display configuration window.

Figure 12-8: the galvanometers configuration window.

2. To configure one of the galvanometers, click on the corresponding dropdown list boxes.

- Parameter: select the amplitude (U, I, etc.) to be displayed, depending on the connection diagram read in the device.
- Type of meter: select the type of graphics of the pointer (Gauge or Pointer).

Figure 12-9: the configuration zone of a galvanometer.

- Unit coefficient: selects the unit of measurement.
  - None: the measurement is displayed without measurement coefficient, that is, in the lowest unit (no use of multiplier k, M or G).
  - K, M, G: the measurement is displayed with the multiplier k, M or G.
  - Auto: the application determines the multiplier (k, M or G) to be used depending on the measurement value.

Figure 12-10: indicator with display in the form of gauge (left) and pointer (right).

Figure 12-11: the numeric value indicated in the bottom part of the galvanometer depends on the option “Coefficient unit”. “None” was used (left) and “K” (right).
• **Scale start**: defines the lowest value of the display unit’s dial.

![Figure 12-12: dial with a scale start value of “0” (left) and “20000” (right).](image1)

• **Scale end**: defines the highest value of the display unit’s dial.

• **Meter colour**: defines the colour of the pointer and the lower coloured range.

3. If necessary, click on **Recording** to save the configuration in a special file, by default in the directory `C:\Program files \ Enerdis \ TriadJust2`.

4. Validate to display the measurements on the configured galvanometers.

12.2.2 Retrieving the configuration of a galvanometer

If a configuration file was previously saved (paragraph 12.2.1, step 3), it is then possible to retrieve it, so as to display the galvanometers without a new configuration. Proceed as follows:

1. In the menu bar, select **Equipment > Viewing > Analog meter** or click on the icon in the toolbar.

2. Click successively the **Configuration** and **Open** buttons.

3. In the **Open** window displayed, select the galvanometers configuration file and click the **Open** button.

   The parameters are loaded in the window **Configuration of galvanometers**.

4. Click the **OK** button.

   The galvanometers are displayed in accordance with the parameters.

12.2.3 Recording of measurements

It is possible to record the measurements displayed by the galvanometers (Figure 12-7) in a specific log file. To do this, use the procedure described in paragraph 12.1.2, on page 48.
13. DIAGNOSIS

Sub-menus of Diagnostic are accessible in two different ways:

- From the menu bar, by Equipment > Diagnosis.
- From the toolbar, by clicking on one of the icons 🗻 or 🗻 or 🗻.

![Figure 13-1: location of diagnostics icon.](image)

These sub-menus are:

- **Phasors** display, in the form of Fresnel diagrams, the Fresnel values read on the Triad2. Refer to paragraph 13.1 on page 51.
- **Product input** displays the functioning (correct or incorrect) of all the input amplitudes of the connected Triad2. Refer to paragraph 13.2, on page 52.
- **Product output** displays all the output values of the connected Triad2. Refer to paragraph 13.3, on page 52.

13.1 Phasors

This screen shows all the Fresnel values as follows.

![Figure 13-2: example of a Fresnel diagram.](image)

To access this display:

- From the menu bar, by Equipment > Diagnosis > Phasors.
- Or, from the toolbar by clicking on the icon 🗻.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Instantaneous values (V, U, I, etc.).</td>
</tr>
<tr>
<td>2.</td>
<td>Selecting the type of Fresnel graph to be displayed.</td>
</tr>
<tr>
<td>3.</td>
<td>Fresnel graph from instantaneous values.</td>
</tr>
</tbody>
</table>

13.1.1 Instantaneous values (ref. 1)

The number of measures displayed depends on the selection in the dropdown list (ref. 2).

The text colour, and hence the corresponding bars in the Fresnel graph, can be redefined by double-clicking on a coloured line.

13.1.2 Type of phasors (ref. 2)

This dropdown list is for selecting the type of Fresnel graph to be displayed as follows:

- **V**: displays phase to ground voltages, with V1 for reference (0°).
- **U**: displays phase to phase voltages, with U12 for reference (0°).
- I: displays neutral currents, with I1 for reference (0°).
- V + I: displays phase to ground voltages and neutral currents, with V1 for reference (0°).
- I + V: displays neutral currents and phase to ground voltages, with I1 for reference (0°).
- U + I: displays phase to phase voltages and neutral currents, with V1 for reference (0°).
- I + U: displays line currents and phase to ground voltages, with I1 for reference (0°).

13.1.3 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).

13.2 Product input

This screen displays the functioning (correct or incorrect) of the amplitudes of voltage, current and order of phases of the connected Triad2 as follows.

![Figure 13-3: example of a product input window.]

To access this display:
- From the menu bar, by Equipment > Diagnosis > Product input.
- Or, from the toolbar by clicking on the icon.

13.2.1 Presence voltage / Current
A green tick indicates only the presence of voltages or currents on the terminals of the connected device.

- Indicates the presence of voltages or currents on the terminals of the Triad2.
- Indicates the absence of voltages or currents on the terminals of the Triad2.

Wiring
- Wiring status:
  - : indicates a correct wiring.
  - : indicates an incorrect wiring.

13.2.2 Generator / Receiver
The phases are monitored individually. The indication “Generator” indicates that the phase works in generator mode. With indication, “Receiver” the phase works normally in receiver mode.

For example, if all the currents are reversed, there is no phase order error, but the equipment works as generator.

13.2.3 Wiring
The displayed diagram is automatically displayed from the Triad2 model selected in the description (paragraph 11.2, on page 42).

13.3 Product output

This screen displays all the output values of the connected Triad2, for the available channels, as follows.

![Figure 13-4: example of a product output window.]

To access this display:
- From the menu bar, by Equipment > Diagnosis > Product output.
- Or, from the toolbar by clicking on the icon.

13.3.1 Parameter
Amplitude used on the corresponding channel of the connected Triad2. This option was defined by the user in the configuration; see 11.4.1, on page 44.
13.3.2 Transfer curve
Transfer function used during the conversion of the input measure to the current output of the corresponding channel of the connected Triad2. This option was defined by the user in the configuration; see 11.4.3, on page 44.

13.3.3 Measure
Current value, non-modifiable by the user, of the input measure of the corresponding channel of the connected Triad2.

13.3.4 Output
Value of the voltage or current generated by the connected Triad2.

13.3.5 Set output
When the checkbox Set output is:
- Unchecked: the output value is the one from the current output of the connected Triad2.
- Checked: select, in the Output zone, the output value (from -20 to +20 mA) to be generated as output of the connected Triad2, and also to set the analog output to the indicated value.

This output value is set and sent on the output of the Triad2 when once the checkbox Set output is activated. This prevents the sending of an intermediate value between the actual output value and the set value.

By leaving Product output page, Triad2 returns on normal functionment mode.
This chapter explains in detail the procedure for making a connection between the PC supporting the TriadJust2 application and a Triad2.

The Triad2 can be connected to the PC through an optical head, a RS232 link or an Ethernet connection; follow the corresponding paragraph.

### 14.1 Operation procedure

1. Launch the TriadJust2 application.
2. In the menu bar select Communication > [PC] Configuration or click on the icon.
3. Select the communication type (Ethernet, RS485, Optical).
4. Configure the channel according to the communication type.

#### Ethernet Port

- **Parameters**
  - **IP address**: Format 000.000.000.000
  - **Listening port**: 502 by default
  - **Time out**: 0 to 2000 ms

**Listening port**: socket number.

**Time out**: time interval in milliseconds after which the communication is stopped without activity on the port. With the value 0, the device is continuously listening on the serial network.

#### RS485 Port

- **Parameters**
  - **COM port**: COM1 to x
  - **Speed**: Up to 115200 Bds, in 6 predefined values (JBUS speed)
  - **Parity**: Without, even, odd
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range of values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nbr of stop bit</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Junction switchover time</td>
<td>0 to 1000 ms</td>
</tr>
<tr>
<td>Time out</td>
<td>0 to 2000 ms</td>
</tr>
<tr>
<td>JBus address</td>
<td>1 to 247</td>
</tr>
</tbody>
</table>

**Switchover time**: minimum time interval that the master requires before restarting to listen on the communication channel. This time is added to the **time-out**.

**Time out**: time interval in milliseconds after which the communication is stopped without activity on the port. With the value 0, the device is continuously listening on the serial network.

**Optical**

5. Clicking **Scan** detects all the **Triad2** present on the line corresponding to this communication type.

6. The resulting window displays the detected **Triad2**.

7. Double click on the selected **Triad2** to initialise its communication parameters.

8. Click **OK** to confirm the configuration and close the windows.

![Figure 14-5: parameters for an optical communication.](image)

![Figure 14-6: parameters for an optical communication.](image)

![Figure 14-7: parameters for an optical communication.](image)
Appendix
15. Index

[PC] Configuration, 55

A
Analog meter, 49
  Configure, 49
  Meter colour, 50
  Scale end, 50
  Scale start, 50
  Unit coefficient, 49
Application
  Features, 19
  Hardware configuration, 11
  Installation, 11
  Launching, 12
  Location, 12
  Menus, 21
  Presentation, 19, 21
  Purpose, 12
  Repair, 13
  Un-install, 13
  Un-installation, 13
ASC, 48
ASCII, 48
Auxiliary supply, 42

B
Bar
  Status, 27
  Tools, 25
  Basic settings, 42

C
CD ROM, 9
Channel
  Class, 45
  Double slope, 44
  Measurement range, 45
  Output range, 45
  Overflow, 45
  Parameter, 44
  Quadratic, 45
  Response time, 44
  Single slope, 44
  Transfer curve, 44
Class, 45
COM, 55, 56
COM port, 55, 56
COM Port
  Virtual, 15
Communication, 25, 42, 43
  Configure, 33, 35
  Ethernet, 55
  RS485, 55
  Type, 55
Configuration, 23, 41
  (galvanometers), 50
Configuration file
  Retrieve, 35
Configure
  Analog meter, 49
  Communication, 33, 35
  Connection, 33, 35
Connection
  Active, 31, 33
  Configure, 33, 35
  Establish, 33
  Inactive, 31, 35
Connection diagram, 43
Copyright, 8
CSV, 48
CT
  Primary, 22, 43
  Secondary, 22, 43

D
Description, 41
Device
  Model, 22
  Number, 22
Diagnosis, 24, 51
  Double slope, 44
  Driver
    Optical head, 14
    USB, 12

E
Equipment, 23
  Equipment type, 42
Error, 37
  Errors
    Messages, 37
  Ethernet, 11, 43, 55
Excel, 8, 48

F
File, 21
Firmware, 42
  Firmware version, 42
Fresnel, 52
  Fresnel graph, 52

G
Galvanometers, 23
  High resolution, 50
  Normal display, 50
  Record measurements, 50
  Retrieving configuration, 50
Generator, 52

H
High resolution
  Galvanometers, 50
  Instantaneous values, 47

I
Icons
  Toolbar, 25
Information, 37
  Viewing, 34, 36
Installation
  Application, 11
  USB Driver, 12
  Installing the application, 11
  Instantaneous measures, 23
  Instantaneous values, 47
    High resolution, 47
    Normal display, 47
    Record measurements, 48
IP, 55
  IP address, 55

J
JBus
  Address, 56
  Speed, 55
JBus address, 56

L
Language, 25
  Launching the application, 12
License, 8
Listening port, 55
Location
  Application, 12
  USB Driver, 12
**M**
- Measure, 53
- Measurement range, 45

**Menu**
- Communication, 25
- Configuration, 41
- Equipment, 23
- File, 21
- Language, 25
- Menus, 21
- Message
  - Error, 37
  - Error, 37
  - Information, 37
  - Present configuration not saved, 37
  - Warning, 37
- Meter colour, 50

**Model**
- Device, 22

**Modem**
- 11

**N**
- Network
  - Frequency, 22
- Network frequency, 22, 43
- New, 22
- New file, 22
- Normal display
  - Galvanometers, 50
  - Instantaneous values, 47
- Number
  - Device, 22

**O**
- Open, 22
- Optical Driver, 14
- Optical head, 56
- Install the driver, 14
- Order of phases, 52
- Output, 53
  - Number, 42
  - Set, 53
  - Type, 42
- Output number, 42
- Output range, 45
- Output(s) type, 42
- Overflow, 45
- Ownership, 8

**P**
- Package, 9
- Parameter, 52
  - Channel, 44
- Parameters
  - Read, 33
  - Transfer, 36
- Parity, 55
- PC
  - Hardware configuration, 11
  - pdf, 9
- Phases
  - Order, 52
  - Phasors, 24, 51
- Presence current, 52
- Presence voltage, 52
- Present configuration not saved, 37
- Preview config file, 22
- Print, 22
- Print label, 22
- Product input, 24, 52
- Product output, 24
- Product output, 52
- PT
  - Primary, 22, 42
  - Secondary, 22, 42
- Purpose of the application, 12

**Q**
- Quadratic, 45
- Quit, 23

**R**
- Read, 23
- Read parameters, 33
- Receiver, 52
- Record measurements
  - Galvanometers, 50
  - Instantaneous values, 48
- Recording, 22
- Reference manual, 9
- Repair the application, 13
- Response time, 44
- Retrieve configuration file, 35
- Root, 22
- Root of 3, 43
- RS232C, 11
- RS485, 43, 55

**S**
- Save as, 22
- Scale end, 50
- Scale start, 50
- Serial number, 42
- Set output, 53
- Single slope, 44
- Socket, 55
- Speed, 55
- Start-up, 21
- Stop (bits), 56
- Stop bit, 56

**T**
- Time
  - Response, 44
  - Switch over, 56
- Time out, 55, 56
- Transfer curve, 44
- Transfer curve, 53
- Transfer parameters, 36
- TXT, 48
- Type of phasors, 51

**U**
- Un-install the application, 13
- Un-installing the application, 13
- Unit coefficient, 49
- USB, 11
- USB Driver
  - Installation, 12
  - Location, 12
- Utilisation, 29

**V**
- Viewing, 23, 47
- Information, 34, 36
- Virtual
  - COM Port, 15

**W**
- Warning, 37
- Warranty, 8
- Window
  - [PC]Configuration, 55
  - Analog meter, 49
  - Basic settings, 42
  - Channel 1, 44
  - Communication, 43
  - Description, 41
  - Diagnosis, 51
  - Instantaneous values, 47
  - Phasors, 51
  - Product input, 52
  - Product output, 52
  - Viewing, 47
  - Wiring, 52
  - Write, 23

**X**
- XLS, 48