

Power Quality Suite Analysis

Operating instructions 



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1. SYSTEM REQUIREMENTS / PC AND OS HARDWARE

The POWER QUALITY SUITE ANALYSIS software requires the following system configuration:

Recommended configuration:

Operating System:	Windows XP Service Pack 3, Vista, Seven
Processor:	CPU dual core 2GHz
RAM:	1 Go
Hard disk:	10 Gb free
Player:	DVD
Network card:	Ethernet
Screen:	1280*800 – 32 bit colour
IP Port not blocked:	502, 6000, 26345, 26246, 26545, 26546 and 26549 (TCP) / 503, 7000 (UDP)

2. GENERAL POINTS / PRESENTATION

a. Guarantee and liability limits - right of reproduction

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Windows is a registered trademark of Microsoft Corporation in the United States and other countries. All product names or brands mentioned in this manual are registered by their respective owners.

b. Preliminary operations

The following points should be checked when you receive the product:

- The condition of the packaging,
- The product reference number conforms to your order,
- The presence of the software installation DVD.

For the software to function, your computer must be connected to the network in order to be able to communicate with the devices.

c. Description of functions / architecture

The products supported by the software are:

- DIRIS N300
- DIRIS N600
- DIRIS A60
- DIRIS A80

The analysis software allows you to use the data provided by the products. This data is only data of a qualitative nature and not data in terms of multi-measurements or metering.

3. INSTALLATION / START

a. Installation

The installation of the "Analysis" software is done with the DVD provided in the DIRIS N pack or through download on the SOCOMEC Internet site.

Once you have inserted the DVD in the player, the following screen is automatically displayed:



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NB: if autorun is not enabled on the DVD player, browse the DVD and click on the «start.exe» program.

Select the desired language by clicking on the corresponding flag:



The following screen is displayed:



SOFTWARES INSTALLATION
Power Quality Suite

DOCUMENTATIONS
Quickstart
Operating instructions
JBUS table

CAD drawings
DIRIS D600 : Step PDF 3D
DIRIS N300 - N600 : Step PDF 3D
DIRIS O2i-a / O2o-a : Step PDF 3D
DIRIS O4i2o-d : Step PDF 3D



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Click on "Power Quality Suite" and then on "Analysis (N300/N600/A60)"

An information message indicates that .NET 3.5 Framework is required:

Installing and launching the distant display on PC application

The .NET 3.5 framework must be previously installed on this PC.

Before installing a version of this application on this PC, it's mandatory to desinstall the previous version.

1) If the framework is already installed:

> to install the application, go directly to step 3.

2) If the framework is not already installed, it's mandatory to have the administrator rights on this PC:

> install the framework and the application (step 3).

> to launch the application on the same profile (with the administrator rights), launch it directly (step 4).

> to launch the application on another profile, reinstall the application (step 3) and launch it (step 4).

3) Launch the installation by this [link](#)

- This CD-ROM is no more usefull as soon the application is installed on the PC.
- For a full installation, it's mandatory to reboot the PC.

4) Launch the application from the menu: "Start" -> "All programs" -> "Socomec Tools" -> "Diris N300-N600 Launcher"



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If the Framework is not installed, click on "Microsoft .net" for installing it:



Power Quality Suite



SOFTWARES INSTALLATION

- Analysis (N300/N600/A60)
- Display (N300/N600)
- Settings (N300/N600)

DOCUMENTATIONS

- Analysis operating instruction
- Display operating instruction
- Settings operating instruction

Back



Obligatoire pour l'utilisation des logiciels



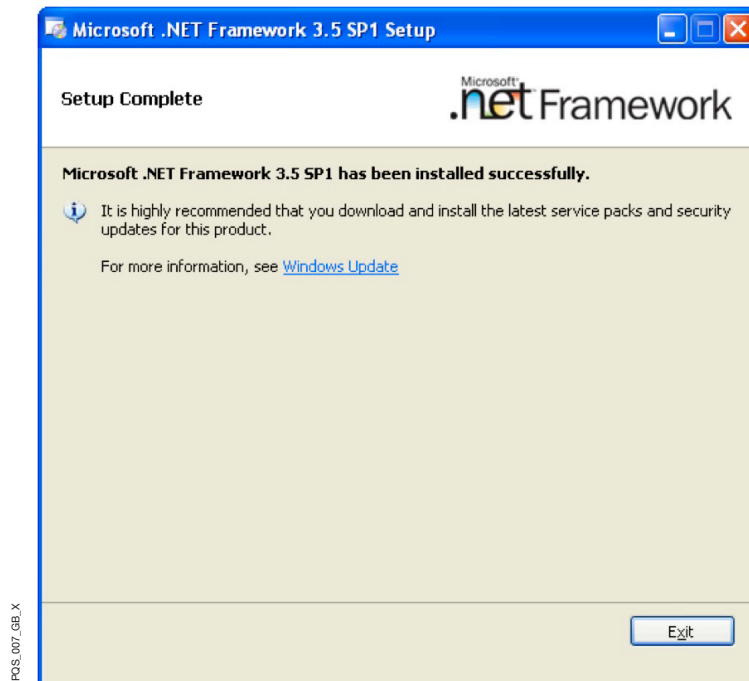
Copyright © 2009, SOCOMEC S.A.

Follow the following steps to install it:



After reading the contract, select «I have read and ACCEPT the terms of the License Agreement». Now click on "Install".

At the end of the installation the confirmation message is displayed:



Click on «Exit» for exiting the installation menu.

After installing the .Net Framework you should now install the Socomec Power Quality Suite – Analysis software.
Click on "Analysis (N300/N600/A60)".



Power Quality Suite



SOFTWARES INSTALLATION
Analysis (N300/N600/A60)
Display (N300/N600)
Settings (N300/N600)

DOCUMENTATIONS
Analysis operating instruction
Display operating instruction
Settings operating instruction

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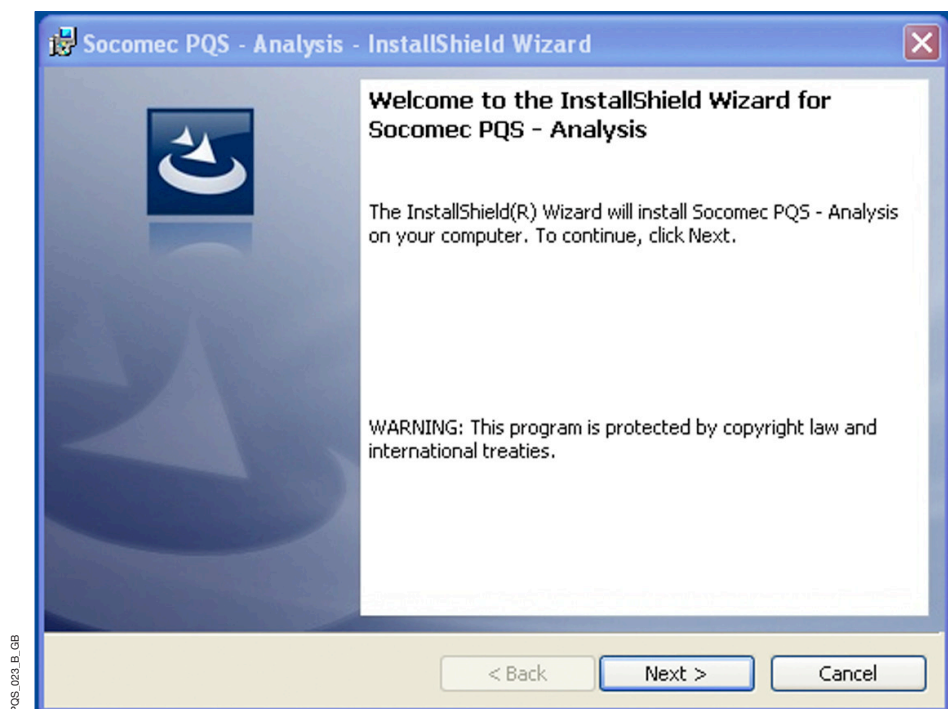
Get
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Microsoft
.net
Obligatoire pour l'utilisation des logiciels

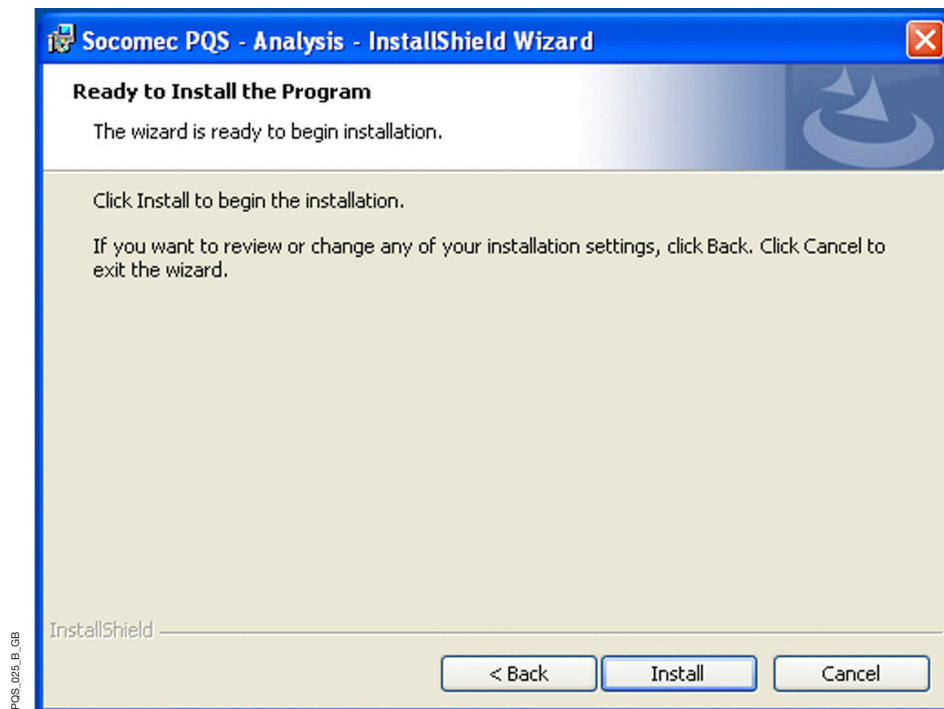


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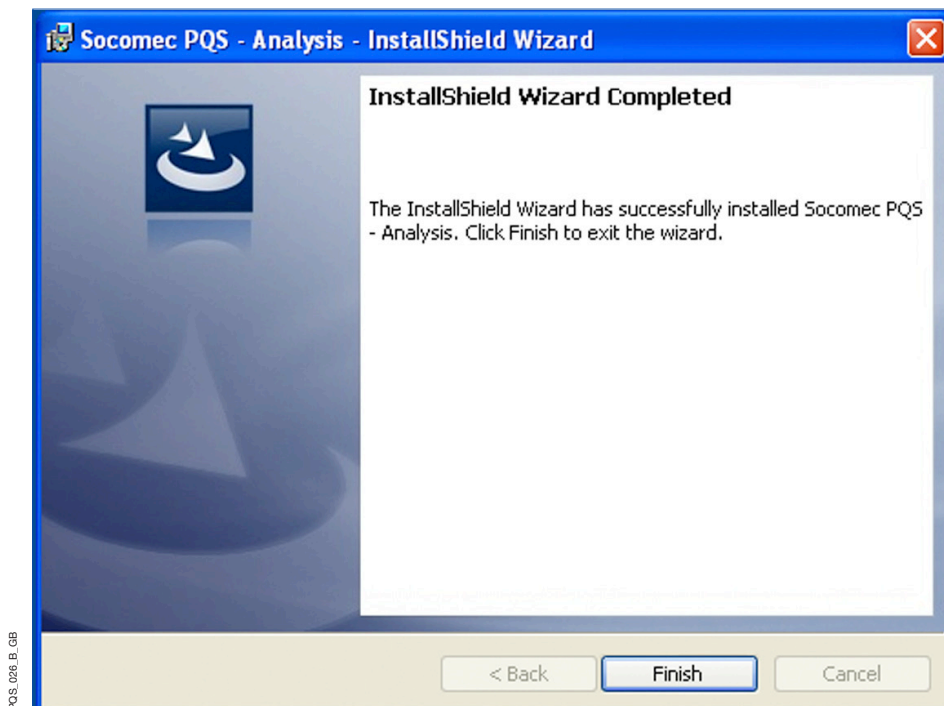
Click on "Next".



Click on "install" to begin the installation:



Click on "Finish" to finish the installation:

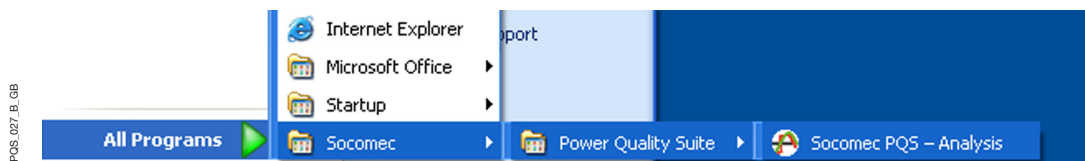


b. Start

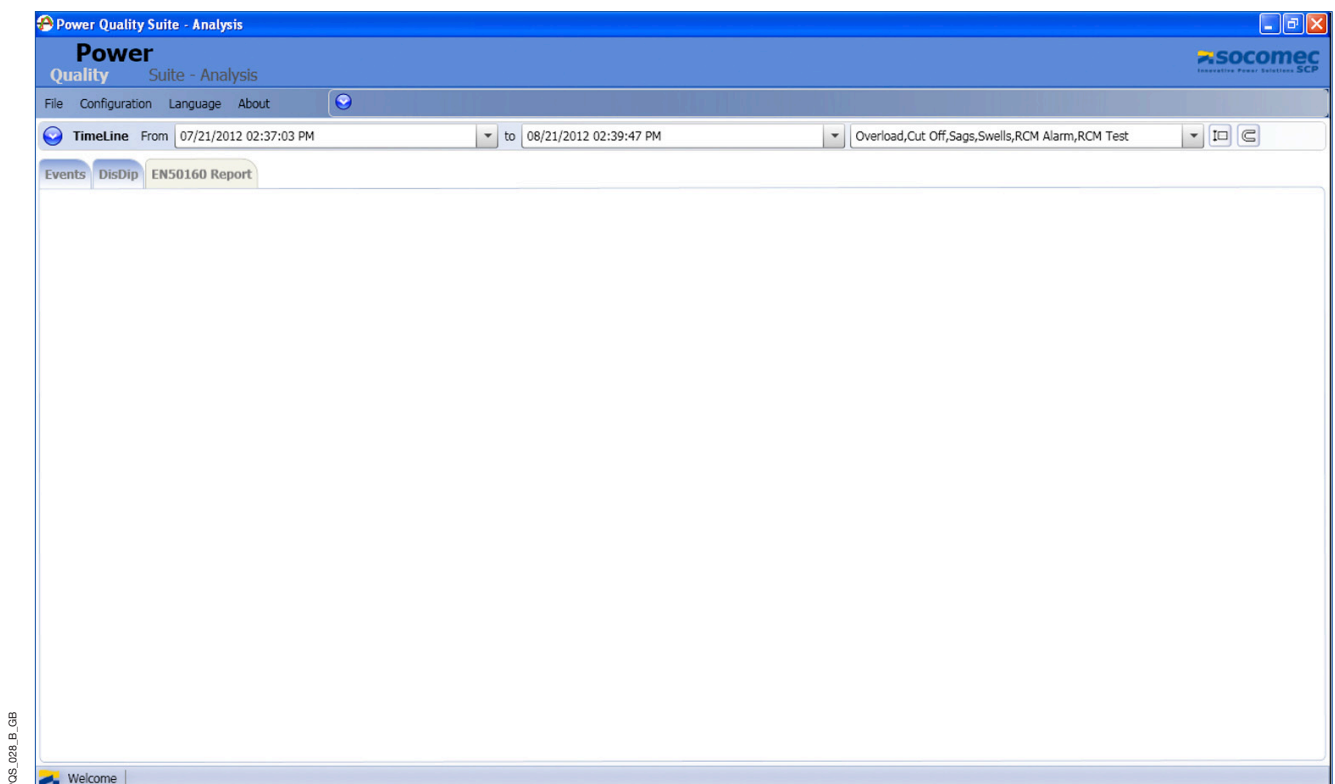
Power Quality Suite Analysis starts when you double click on the icon installed on the desktop.



If the icon is absent, click on "Start", All programs/Socomec/Power Quality Suite/Analysis or double click on the "Analysis.exe" file in the software directory under Windows Explorer.



The following screen is displayed after the software is launched:



4. STEPS TO FOLLOW

There are several steps to be followed in order to operate these 3 main functionalities of the software:

- Events EN50160 and residual current (RCM)
- Disdip tables
- EN50160 reports

Configuration of the application:

Prior to any operation, the application has to be configured by configuring the data storage depth.

Events reading:

Step 1 -> Configuration of the devices

Step 2 -> Selection of a time interval

Step 3 -> Visualization of the events EN50160 and residual current (RCM)

Reading of the Disdip table:

Step 1 -> Configuration of the devices

Step 2 -> Configuration of the Disdip tables

Step 3 -> Selection of a time interval

Step 4 -> Visualization of the Disdip tables

Reading of the report EN50160:

Step 1 -> Configuration of the devices

Step 2 -> Configuration of the reports EN50160

Step 3 -> Selection of a time interval

Step 4 -> Visualization of the reports EN50160

All the steps are set out in detail in the following chapters:

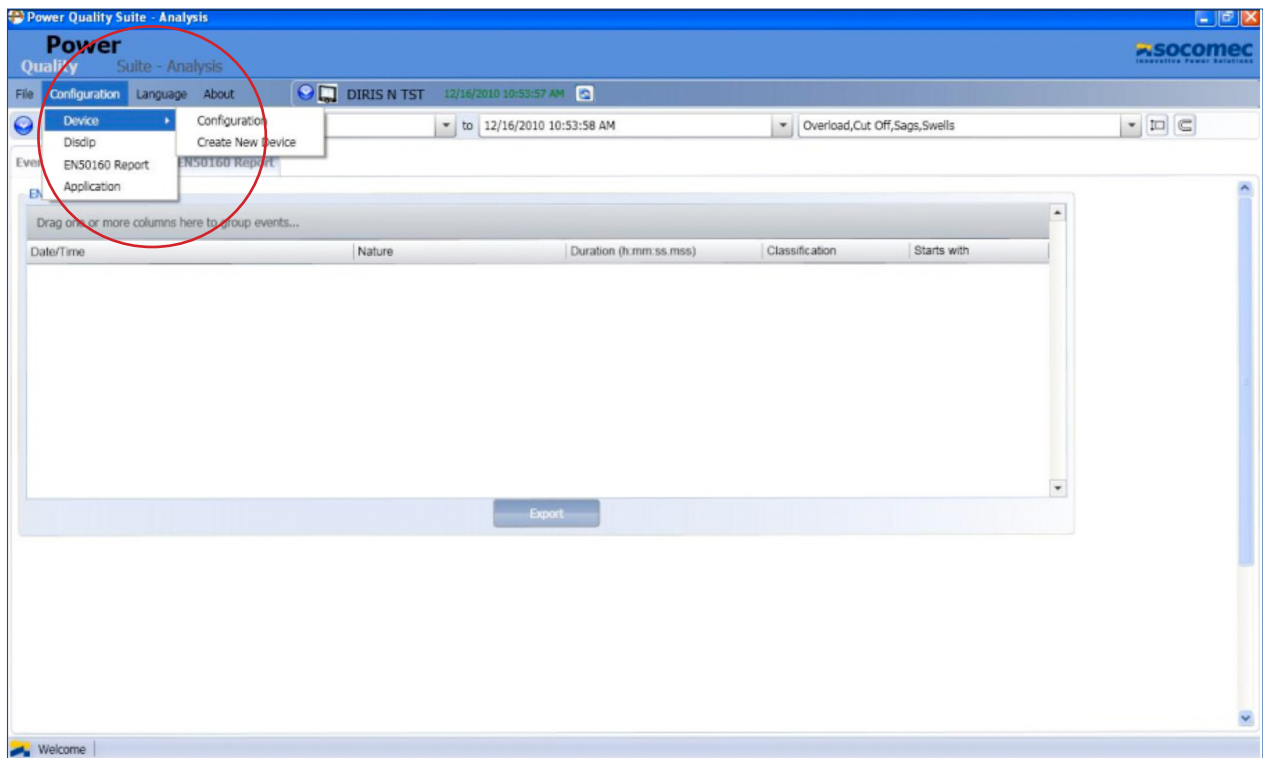
- Configuration / settings
- Use / Detailed operation

5.CONFIGURATION / SETTINGS

The different settings menus:

- Selection of the language
- Configuration of the application
- Configuration of the devices
- Configuration of the Disdip tables
- Configuration of the reports EN50160

In order to access the configuration menu:



PQS_029_B_GB

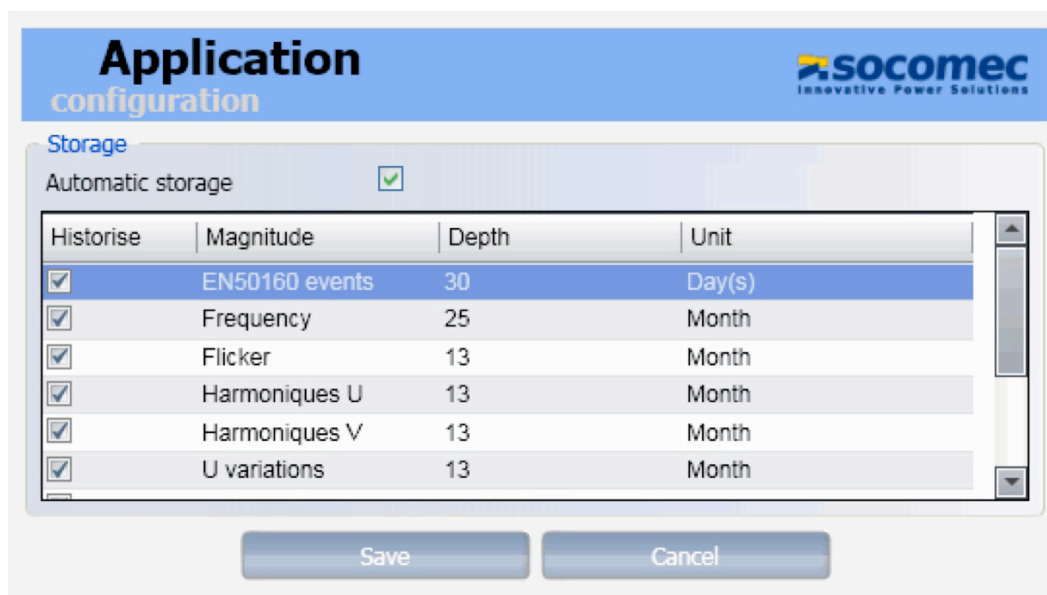
Selection of the language:

The software is available in the following languages:



Configuration of the application:

It is possible to set the storage depth in the database and choose the sizes to be recorded.
By default, the selected sizes as well as their recording depth are those of the report EN50160.

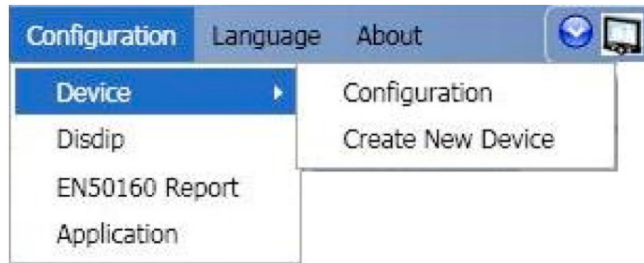


Please note that "Automatic storage" has to be ticked in order to save the data in the database of the software.

Click on "Save" in order to back up the configuration and exit the menu.

Configuration of the devices:

In order to add, delete or modify a device in the software, click on the Configuration / Device menu:



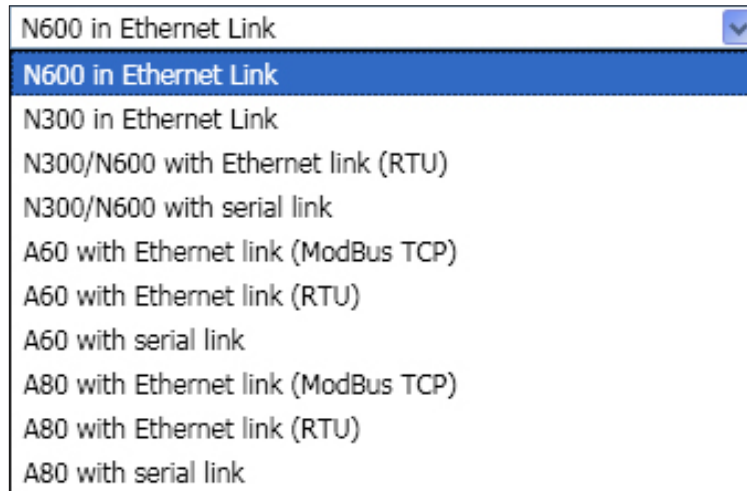
In order to add a device, the following information needs to be filled in:

- Device name
- Type of device and its communication (see the devices and the communications available below)
- Modbus address
- IP address
- Port (It is changed automatically as per the selected product and communication)
- Scanning frequency
- IP address of the site (Leave the default address 127.0.0.1 for local operation)

Configuration screen of a device:

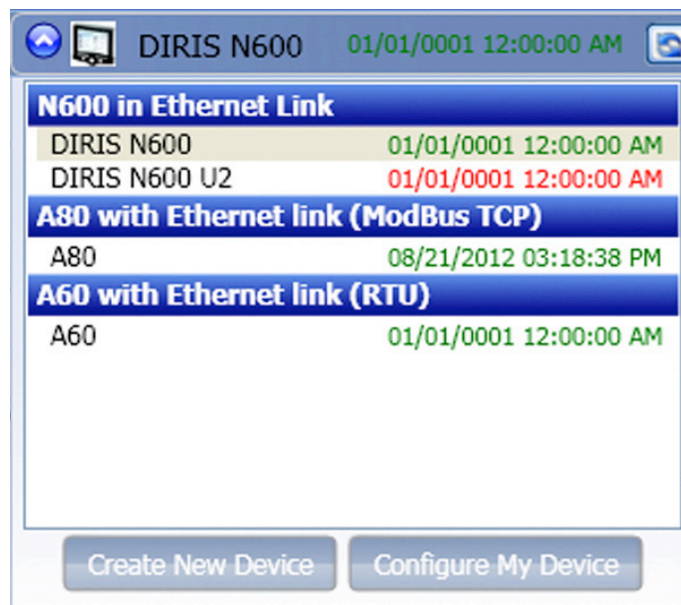
Validate the configuration of the device by clicking on "Save".

Here are the devices (with their respective means of communication) that can be added to the software:



- N300/N600 with Ethernet connection (Modbus TCP) / (RTU): The N300/N600 is directly connected in Ethernet on the network; the protocol used for communicating is Modbus TCP / Modbus RTU over TCP.
- N300/N600 with serial port connection: The N300/N600 is connected to the computer in serial connection, via its RS232 or USB port; the protocol used for communicating is Modbus RTU.
- A60/A80 with Ethernet connection (Modbus TCP) / (RTU) : The A60/A80 is directly connected in Ethernet on the network; the protocol used for communicating is Modbus TCP / Modbus RTU over TCP.
- A60/A80 with serial port connection: The A60/A80 is connected to the computer in serial connection, via its RS232 or USB port; the protocol used for communicating is Modbus RTU.

You can scroll down the tab in order to see the list of configured devices, select the desired device and verify if the communication is functioning (in green) or if it is not functioning (in red):

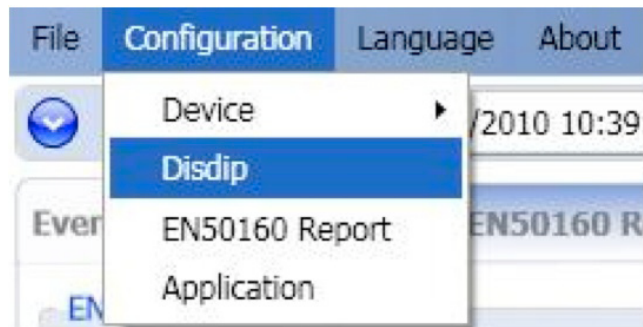


Note that it is also possible to scroll down the tab in order to see the list of devices, and then click on "Create a New Device" in order to add one or on "Configure Device" in order to modify a device.

• Configuration of the Disdip tables

It is possible to completely personalise Disdip tables as per the contract.
It may be noted that there are 2 adaptable tables by default.

In order to create a new table, click on the Configuration / Disdip menu:



Click on "Add":

		Duration (Seconds)														
		0.01	to	0.2	to	0.5	to	1	to	10	to	60	to	180	to	*
Sag (%)	5															
	to															
	10															
	to															
	30															
	to															
85																
to																
95																
to																
100																

A window opens and it is necessary to fill in:

- the name of the configuration
- the number of columns (Time)
- the number of lines (Levels of disturbances)

The following fields must subsequently be configured:

- Type of disturbance (voltage dips or overvoltages)
- Thresholds for the disturbances (in percentage)
- Thresholds for the time (in seconds)
- Number of occurrences allowed in the contract (indicative values over 1 year)

Next click on «OK» in order to finish the configuration of the new Disdip table:

Name		Unit
Configuration Sag		Sags
Configuration Swell		Swells

Occure and segment configuration

Configuration name: Unit Type: Sags

Sag (%)	Duration (Seconds)		
	0.01 to 0.2	0.2 to 0.5	0.5 to 1
5 to 80	100	50	10
80 to 95	10	10	5
95 to 100	2	2	1

Buttons: Cancel, OK, Close

Configuration of the reports EN50160:

In order to configure a report EN50160, click on the Configuration / EN50160 menu:



Click on «Add» and then enter the following information:

- Report name
- Marked data (the marked data are the values recorded during the events)
- Depth of calculation for the different flows (10min, 10s and 3s)
- Selected measurements
- Range and level of detection of events in percentage

Report configuration

Name

- EN50160 (U)
- EN50160 (V)
- EN50160 (U, V)

Config

Configuration name: EN50160 (U)

Use data marked: ☒

Flow compute: 10 minutes 1 Weeks 10 seconds 1 Years 3 seconds 1 Days

Measure	Range	Threshold	Flow	Enabled
Group : Frequency (2).				
Nominal frequency	+- 1.0%	99.5 %	1 Years	<input checked="" type="checkbox"/>
Extrem frequency	-6.0%, 4.0%	100 %	1 Years	<input checked="" type="checkbox"/>
Group : Variations (4).				
Nominal variation	+- 10%	95 %	1 Weeks	<input checked="" type="checkbox"/>
Extrem variation	-15.0%, 10.0%	100 %	1 Weeks	<input checked="" type="checkbox"/>
Nominal variation V	+- 10%	95 %	1 Weeks	<input type="checkbox"/>
Extrem variation V	-15.0%, 10.0%	100 %	1 Weeks	<input type="checkbox"/>
Group : Flicker (1).				
Flicker	1.0	95 %	1 Weeks	<input checked="" type="checkbox"/>
Group : UnBalance (2).				
Imbalance value U	+- 2.0%	95 %	1 Weeks	<input checked="" type="checkbox"/>
Imbalance value V	+- 2.0%	95 %	1 Weeks	<input type="checkbox"/>
Group : Harmonic U (25).				
THD U (Row 40)	8%	95 %	1 Weeks	<input checked="" type="checkbox"/>
Harmonic 2	2.0%	95 %	1 Weeks	<input checked="" type="checkbox"/>
Harmonic 3	5%	95 %	1 Weeks	<input checked="" type="checkbox"/>

Add Delete Modify Close

Click on "OK", a new report is displayed in the list:

Report configuration

Name

- EN50160 (U)
- EN50160 (V)
- EN50160 (U, V)
- EN50160 (U) new

Click on "Close" to get back to the main menu.

6. USE / DETAILED OPERATION

The different visualization menus:

- Visualization of the TimeLine graph
- Visualization of the events EN50160
- Visualization of the events RCM (DIRIS A80)
- Visualization of the Disdip tables
- Visualization of the EN50160 reports

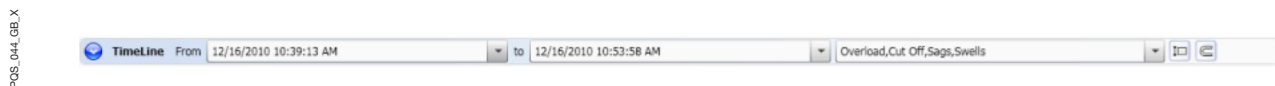
Click on the desired tab in order to access the various visualizations:



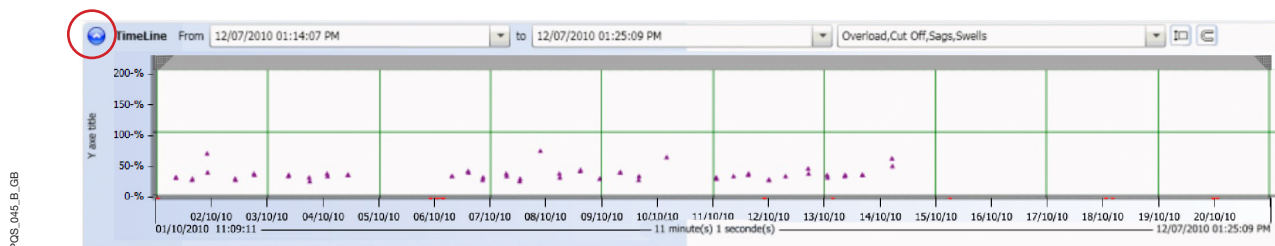
Note that the EN50160 reports are only available for DIRIS N600 and RCM events are only available for DIRIS A80.

- Visualization of the TimeLine graph:

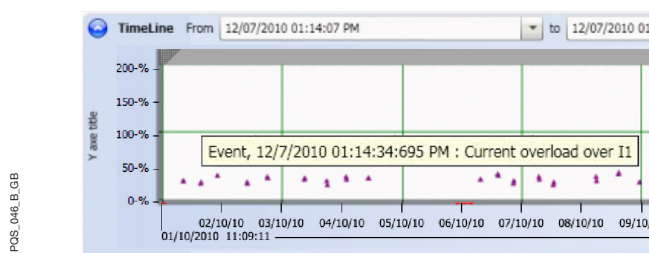
Select a beginning date, an ending date and the type of event that you wish to view:



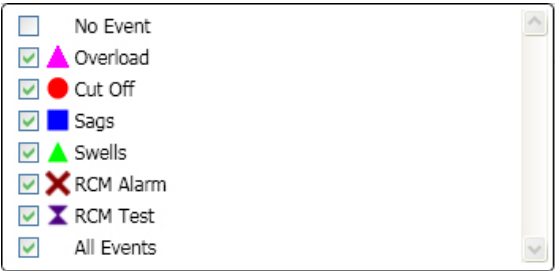
Click on the arrow to the left of the TimeLine in order to scroll down the graph:



It is possible to see the details of the event by moving the mouse cursor onto the symbol on the TimeLine graph:



The different events are represented by the following symbols:



The 2 buttons visible to the right of the TimeLine can be used in order to change the visualization mode of the graph:



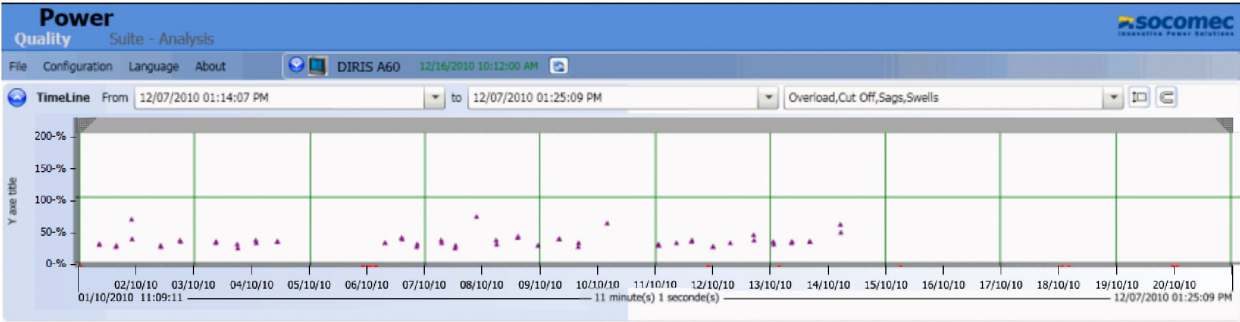
-> In order to reduce the graph and only have a preview.



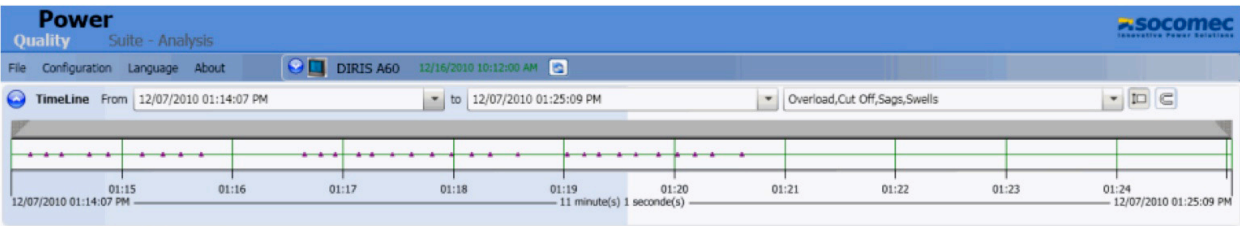
-> In order to enclose or not enclose the selectors with the lines of the graph for the zoom function.

Change the visualization mode with the following icon

Complete view of the TimeLine graph:




Partial view of the TimeLine graph:

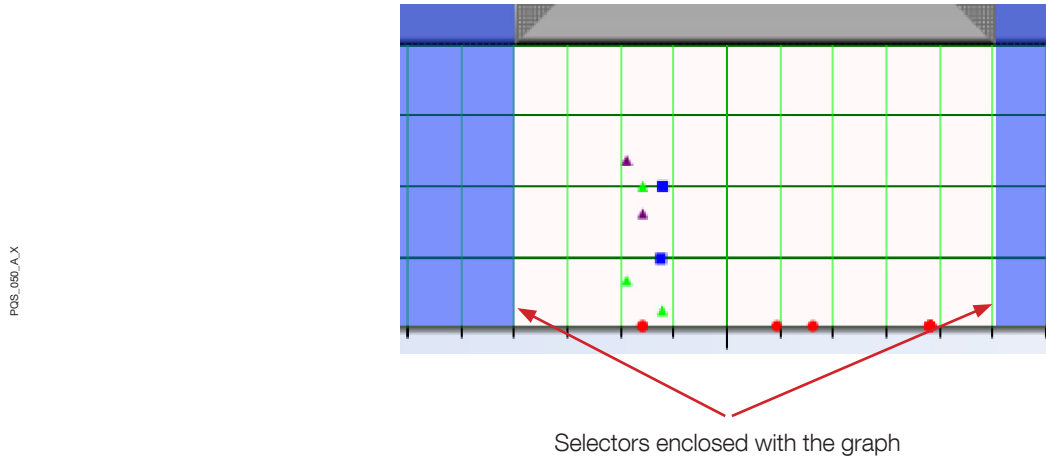


Zoom function:

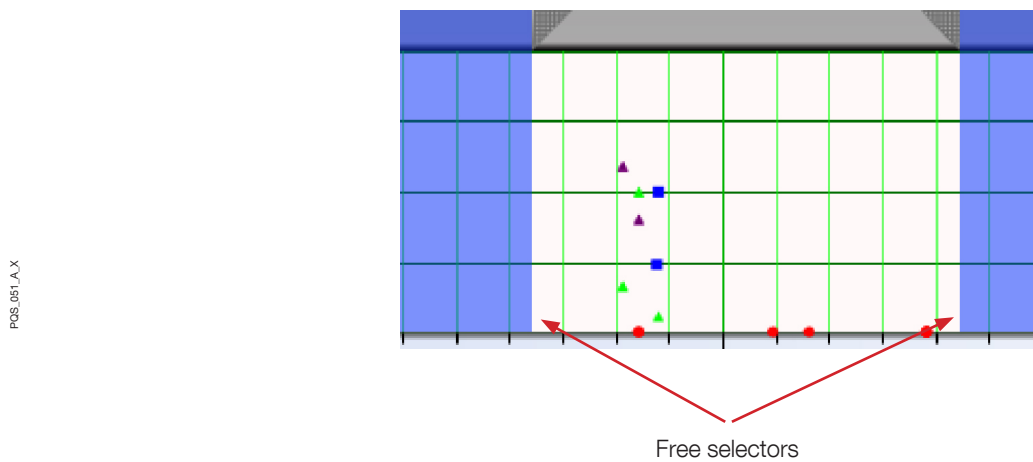
It is possible to carry out the zoom function by sliding the cursors to the right and to the left in the bar above the graph.

Note that there are 2 ways to define a time interval by clicking on the following icon 

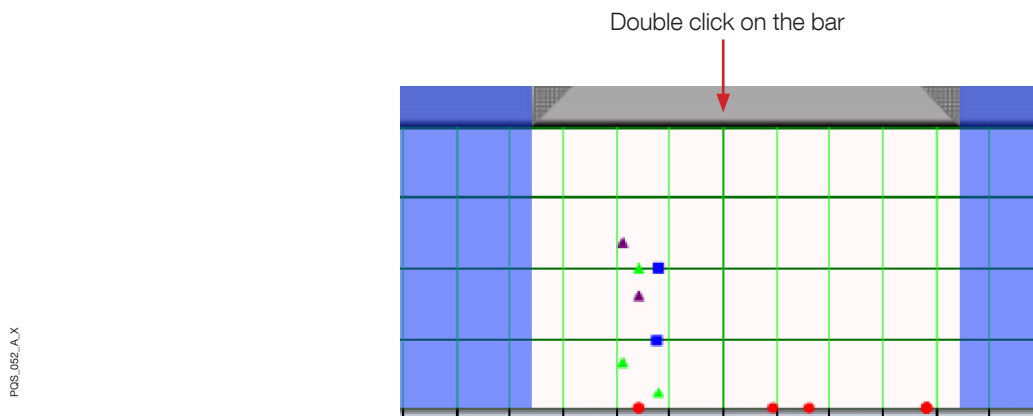
- By enclosing the selectors with the lines of the graphs:



- By leaving the selectors free:



After selecting a time interval, double click on the bar above the graph in order to carry out the zoom function:



Visualization of the EN50160 events:

In order to visualize the EN50160 and RCM events, select a device and then click on the tab "EN50160 events".

According to the periods defined, the events are displayed in the following table:

POE_063_B_GB

Events list				
Drag one or more columns here to group events...				
Date/Time	Nature	Duration (h:mm:ss.mss)	Classification	Cause
07/19/2012 01:30:23 PM	RCM Test - Start	-	0	IΔn
07/19/2012 01:30:23 PM	RCM Test - Start	-	0	IPE
07/19/2012 01:30:32 PM	RCM Test - Finished and non acknowledged	0:00:08.900	0	IΔn
07/19/2012 01:30:32 PM	RCM Test - Finished and non acknowledged	0:00:08.890	0	IPE
07/19/2012 01:35:08 PM	RCM Test - Start	-	0	IPE
07/19/2012 01:35:08 PM	RCM Test - Start	-	0	IΔn
07/19/2012 01:35:18 PM	RCM Test - Finished and non acknowledged	0:00:10.039	0	IPE
07/19/2012 01:35:18 PM	RCM Test - Finished and non acknowledged	0:00:10.039	0	IΔn
07/19/2012 02:39:33 PM	Sag	0:00:00.150	21	V2
07/19/2012 02:39:33 PM	Cut-off	0:00:11.955	0	
07/19/2012 02:39:33 PM	Sag	0:00:11.915	25	V1
07/20/2012 08:06:59 AM	RCM Test - Start	-	0	IΔn

Export

The different columns contain the following information:

- Date / Time: Date and Time when the event took place
- Nature: Event type (Dips, Outages, Overvoltage, Overload, RCM alarms*)
- Duration: Time taken between the beginning and the end of the event
- Classification: Classification value is defined by the standard EN50160 (see below)

* for RCM alarm, several natures are possible:

- RCM Alarm - Start: beginning of RCM alarm
- RCM Alarm - Finished and non acknowledged: RCM alarm is finished, but not acknowledged by the operator
- RCM Alarm - Finished and acknowledged: RCM alarm is finished and acknowledged by the operator.

In mode test of RCM function, "RCM Alarm" is replaced by "RCM Test"

Classification of the events according to the EN50160 standard:

Sag classification (Creux)

Residual voltage u [%]	Duration t [ms]				
	20 < t < 200	200 < t < 500	500 < t < 1000	1000 < t < 5000	5000 < t < 60000
90 > u ≥ 80	1	2	3	4	5
80 > u ≥ 70	6	7	8	9	10
70 > u ≥ 40	11	12	13	14	15
40 > u ≥ 5	16	17	18	19	20
5 > u	21	22	23	24	25

Swell classification (Sauts)

Swell voltage u [%]	Duration t [ms]		
	20 < t < 500	500 < t < 5000	5000 < t < 60000
u ≥ 120	26	27	28
120 > u ≥ 110	29	30	31

The events list can be sent in CSV format by clicking on "Export".

Available records of curves:

Records of curves available			
Index	Date/Time	Event Date Offset	Chronology
1	16/03/2010 14:37:47.790	-0:00:00.121	Start of Evt.
2	16/03/2010 14:43:41.868	+0:05:53.957	End of Evt.

- ☐ Display Volt mark
- ☐ Display Ampere mark
- ☐ Display time mark

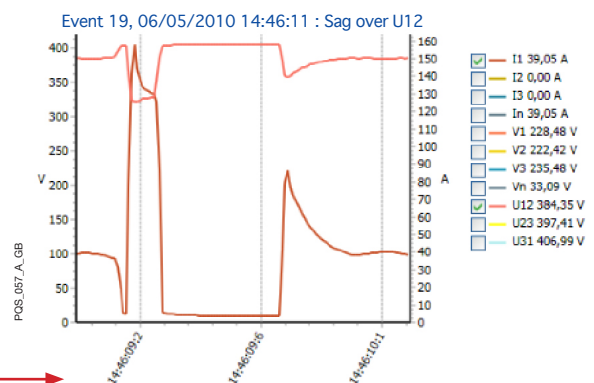
The different columns contain the following information:

- Index: There may be 1 or 2 curves associated with an event depending on its duration (cf. device operating instructions)
 - 1 curve if Event < 1.2 seconds (50Hz)
 - 2 curves subsequently if 1.2s < Event < 2.4s (50Hz)
 - 2 curves if Event > 2.4s (50Hz):
- (1 containing the beginning of the event and 1 containing the end of the event)
- Date/Time: Beginning of recording of the curve.
- Offset Date Event: Delta of time taken between the beginning of the event and the beginning of the recording of the curve.
- Chronology: Indicates if the curve represents the beginning or the end of the event (applicable only if two curves are associated with the same event). Customization of the display is possible.
- Display reading of the Volts: Allows displaying in dotted lines of the x-values of the different voltage values in order to facilitate legibility.
- Display reading of the Amperes: Allows displaying in dotted lines of the x-values of the different intensity values in order to facilitate legibility.
- Display temporal reading: Allows displaying in dotted lines of the abscissae of the different time values in order to facilitate legibility.

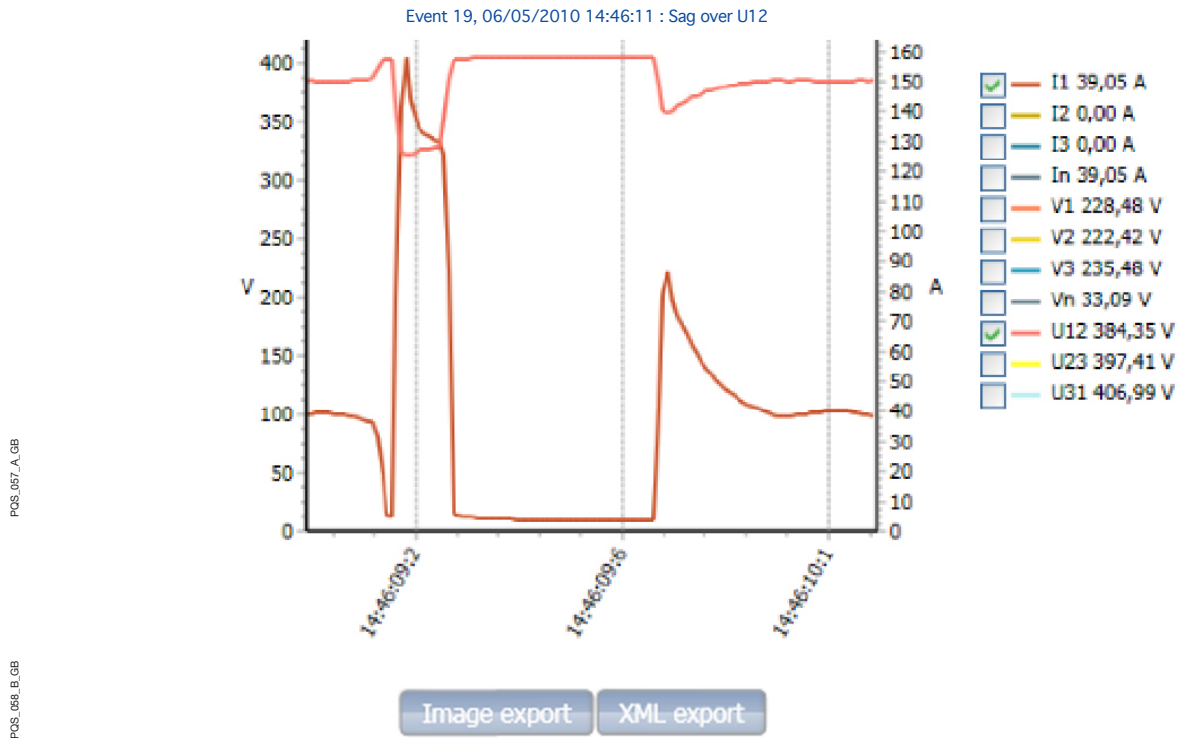
Event graphs:

Click on the event in the "Recording of the available curves" table in order to display the curve.

Records of curves available			
Index	Date/Time	Event Date Offset	Chronology
1	16/03/2010 14:37:47.790	-0:00:00.121	Start of Evt.
2	16/03/2010 14:43:41.868	+0:05:53.957	End of Evt.



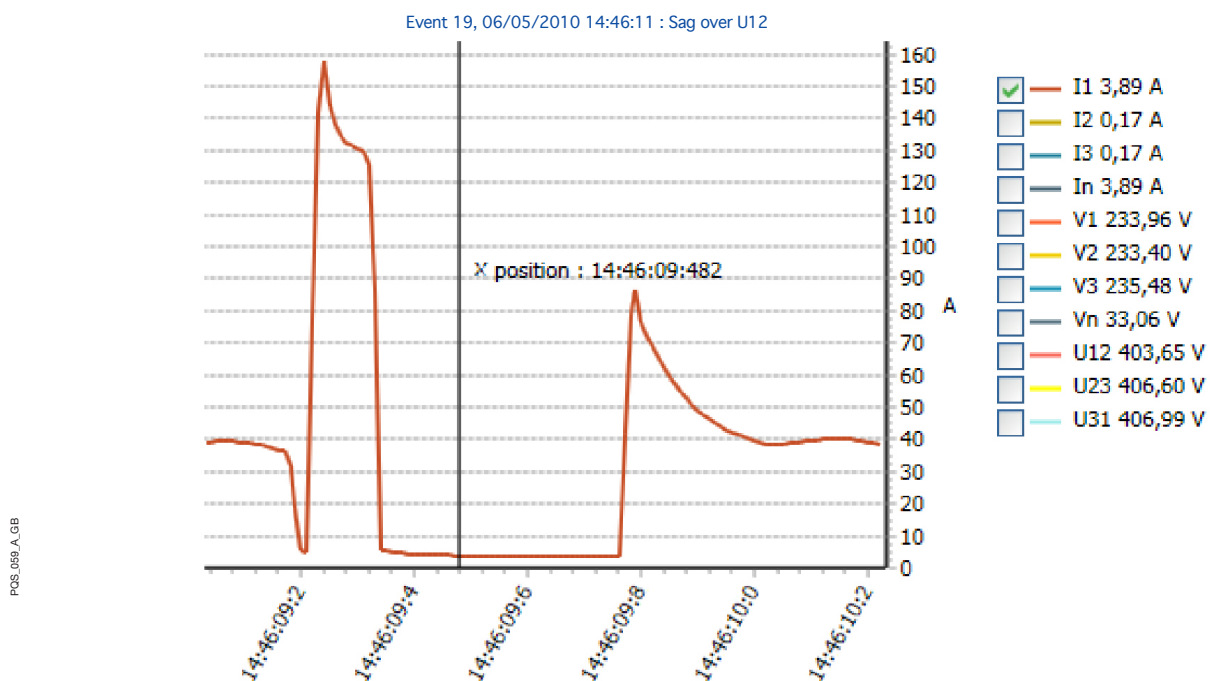
Standard display:



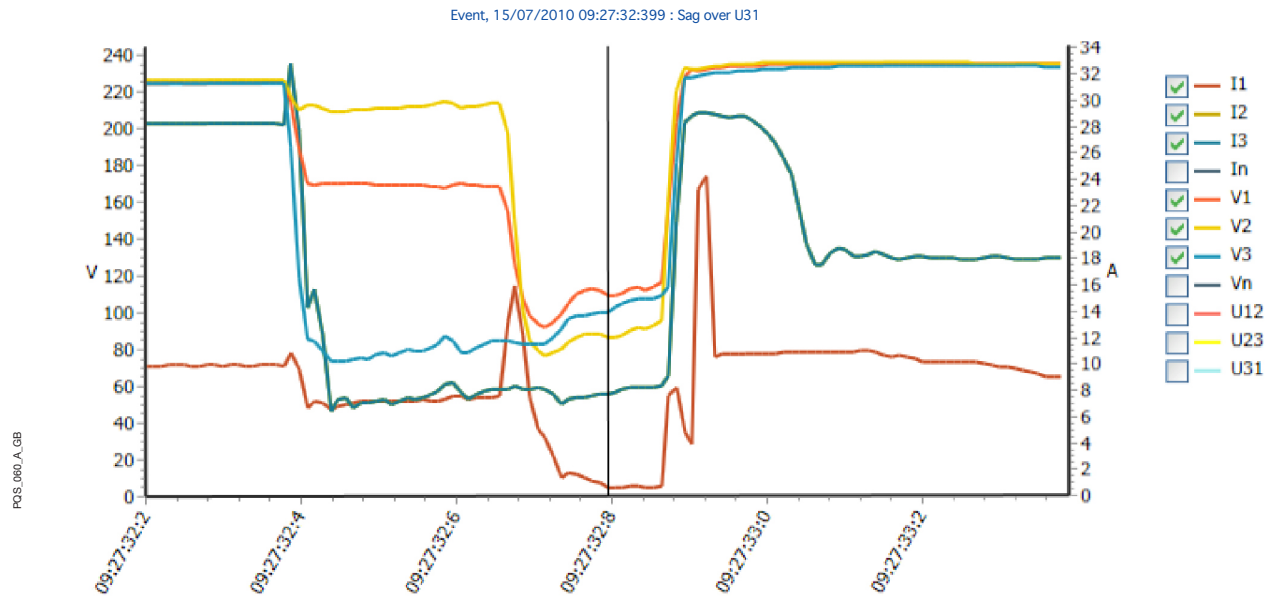
- Exporting picture: Backs up the graph in a file in JPG format
- Exporting XML : Backs up all the points of the graph in a file in XML format

Complementary features:

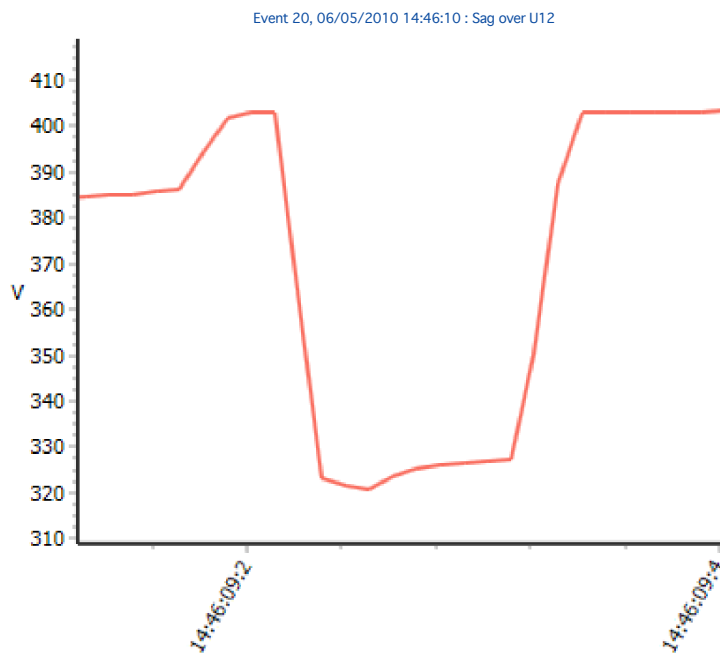
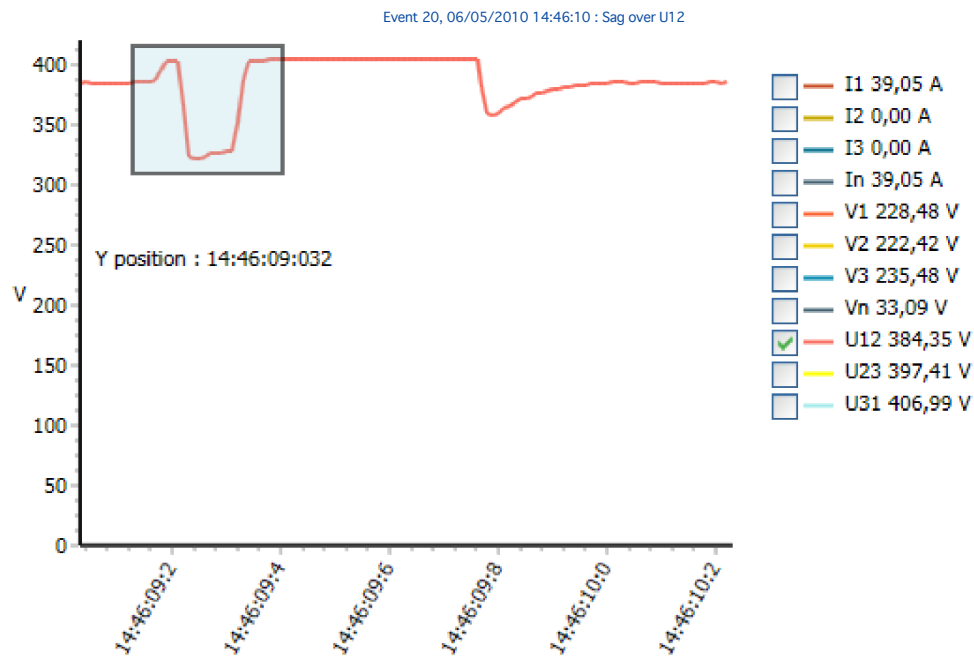
- Sliding cursor: it is possible to move the vertical cursor in order to know the different values at the "t" instant of the cursor



- Selection of multiple scales: It is possible to display a combination of the different scales available on the same graph

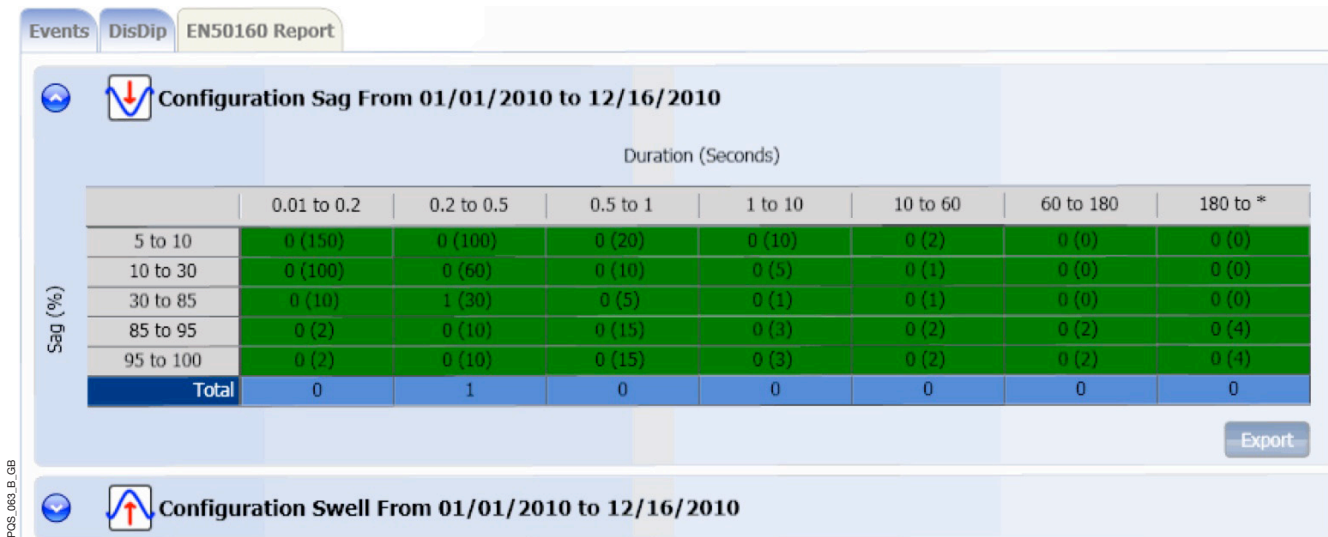


- Zoom in / Zoom out: by making a selection rectangle on the graph it is possible to zoom in (rectangle from left to right) or zoom out (rectangle from right to left) of the graph.



Visualization of the Disdip tables:

After selecting a time interval, it is possible to see the associated Disdip table:
Note that 2 tables are pre-configured in the software and that it is possible to modify them or create other tables:



If the number of occurrences allowed is not adhered to, the squares are displayed in red:



if the number of occurrences is adhered to, the squares are green:



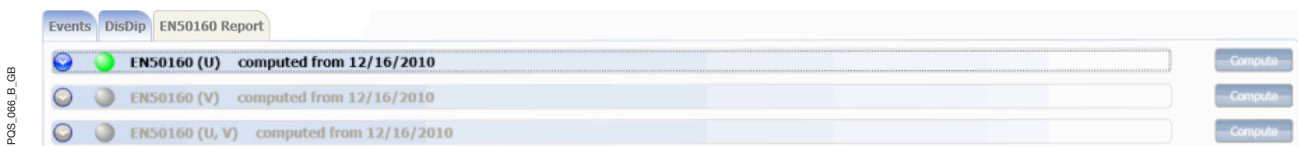
It is possible to export the Disdip tables in .JPG format by clicking on «Export».

Visualization of the EN50160 reports:

In order to visualize an EN50160 report, click on "Compute" so that the software recovers the data and calculates the report.
This step can take some time depending on the quantity of data to be calculated.
Note that 3 reports are pre-configured in the software and that it is possible to create other reports.

The 3 reports are:

- EN50160 (U)
- EN50160 (V)
- EN50160 (U, V)



The report can have 3 different states:

- Grey if the report is not generated
- Red if the report is generated but is non-compliant
- Green if the report is generated and is compliant

In order to have the details of the report it is necessary to click on the scroll-down arrow to the left of the report.
On each of the values the status is indicated with a green or red symbol:



Interpretation of the report:

For each one of the values, the black bar represents the status of the network.
If the bar reaches the green area, the criterion is in accordance.

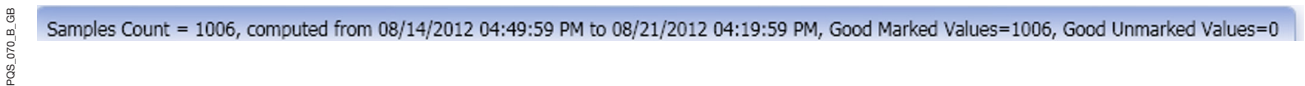


If the black bar does not reach the green area and remains in the red area, the criterion is not in accordance.

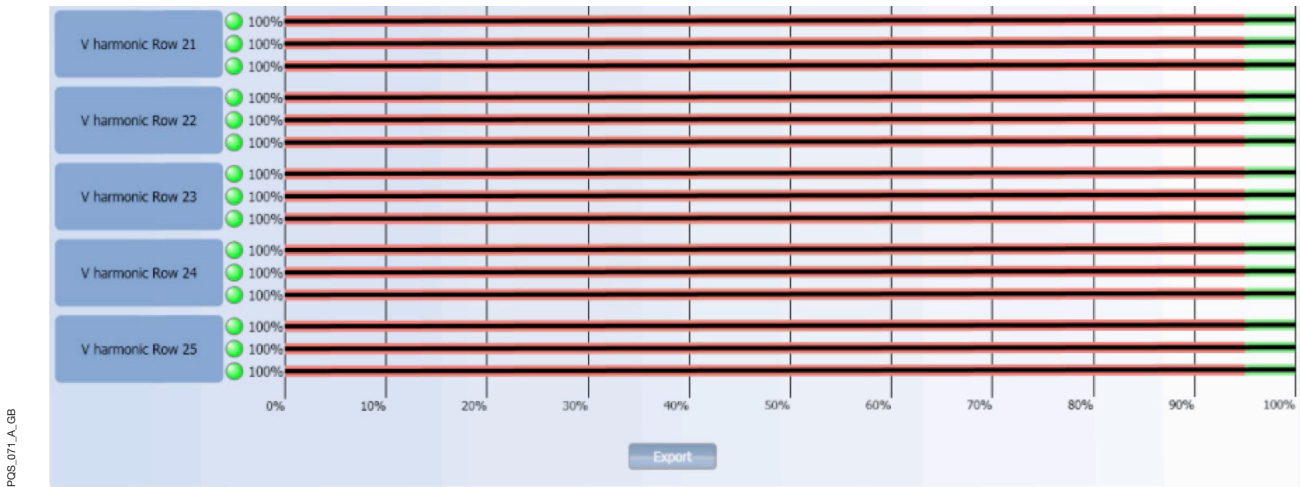


Details of the measurements:

It is possible to see the details of the calculations by moving the mouse cursor on it:



Click on "Export" in order to send the report in .JPG format:



It is possible to see the list of faulty samples:

POS_072_A_GB

Bad samples list: 3			
Drag a column header here to group by that column.			
Date	Type	Phase info	Value
12/15/2010 5:59 PM	Flicker	V1	1,042
12/15/2010 5:59 PM	Flicker	V2	1,042
12/15/2010 5:59 PM	Flicker	V3	1,042

7. TROUBLESHOOTING / FAQ

Questions	Answers
Is the Framework necessary for using the software?	Yes
What are the communication ports used by the software?	The ports 26345, 26246, 26545, 26546 and 26549
The data is not saved	You should keep the PC switched on; Tick «Automatic storage» in the Configuration/Application menu

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