Software LADELIGHT Manager Rev. 1.10.2
User's Manual

Revision: 25/05/2016

CONTENTS:

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News in Revision 1.10.2:

- New **PRINT** button in Main Menu bar and *Print functions* in File Menu. *(See par. 5 for details).*
- New ***EXPORT DATA*** button in Main Menu Bar. *(See par. 5 for details).*

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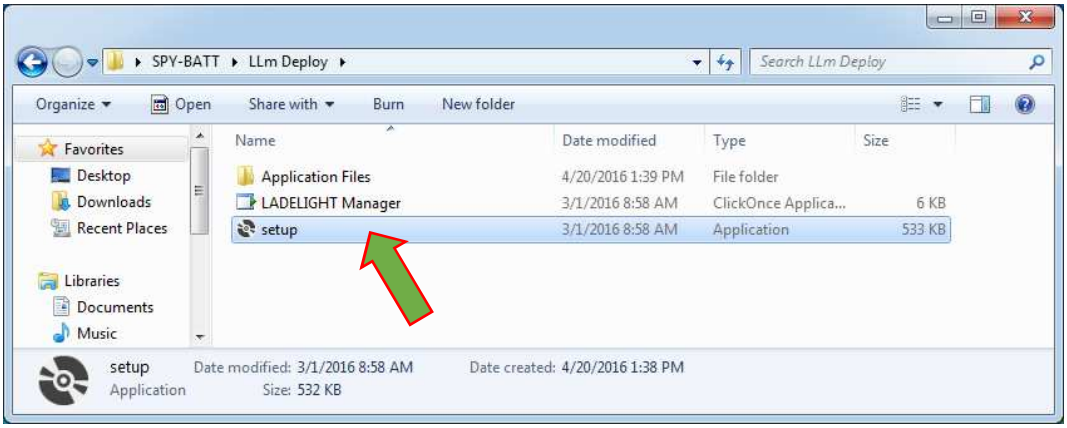
1. GENERAL DESCRIPTION

All devices of ***Lade Light*** system are managed and controlled by using the ***LADELIGHT Manager*** application software. This software allows you to connect and accomplish operations of programming, setup, reading and analysis of data stored in the devices of ***Lade Light*** system.

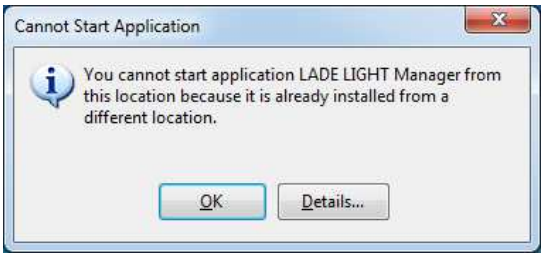
2. Installation of *LADELIGHT Manager* on the PC (Win7 OS and later)

Download the software from the website ***www.spybatt.it*** and launch the program ***Setup.exe.***

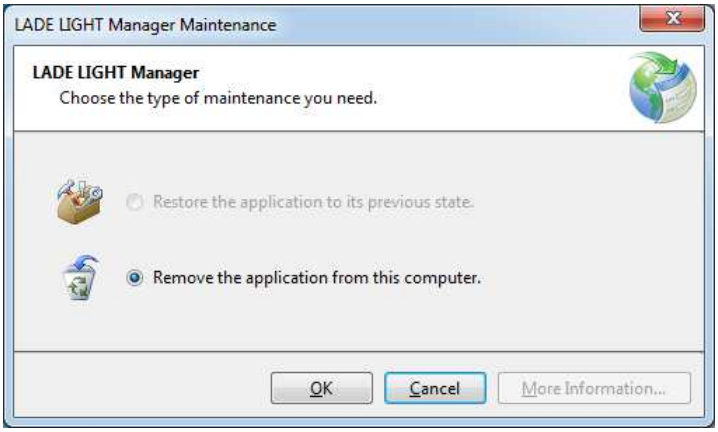
Follow the instruction proposed by your O.S. to accomplish the installation of the software ***LADELIGHT Manager:***



NOTE: If you are updating the review, the following error dialog can appear:

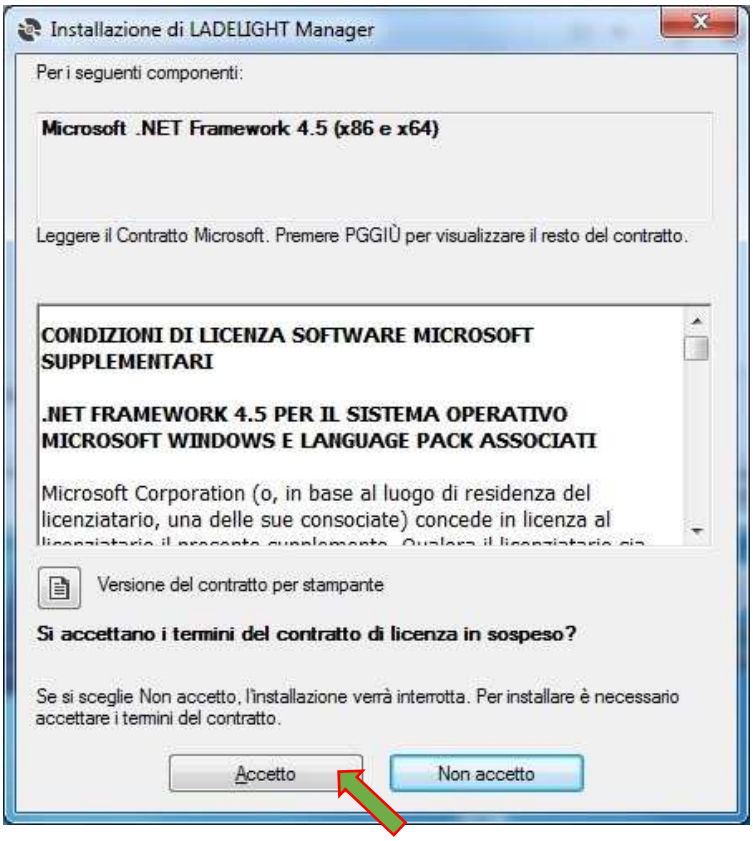


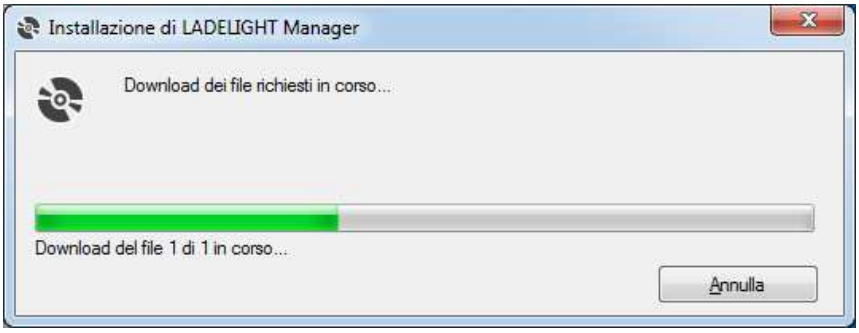
In this case, you need to uninstall the previous version from your PC before proceeding.



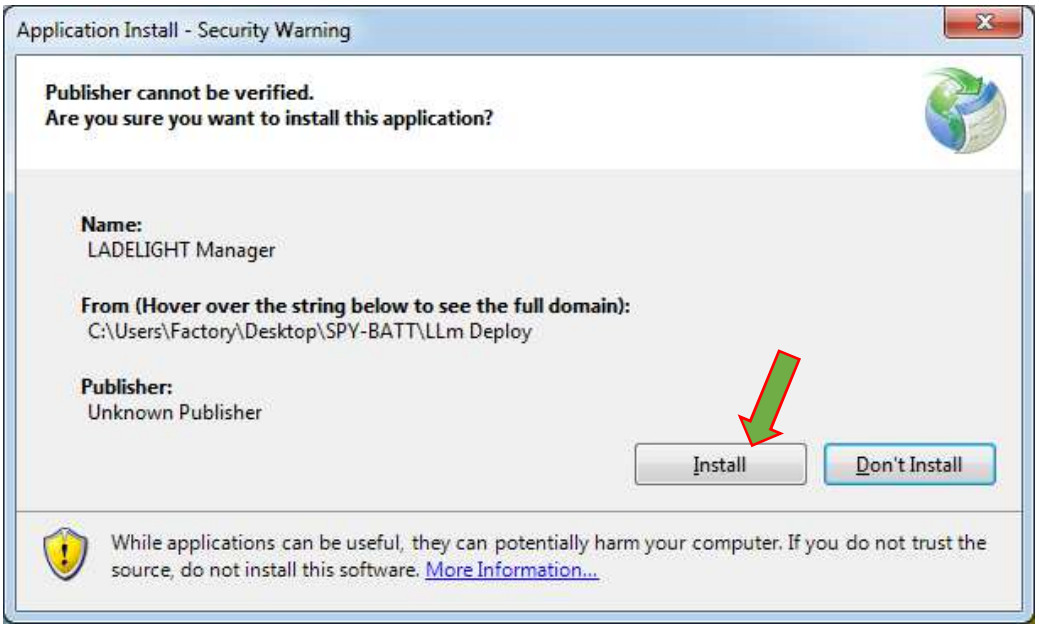
Proceed with the installation of the new version restarting the ***setup.exe*** program.

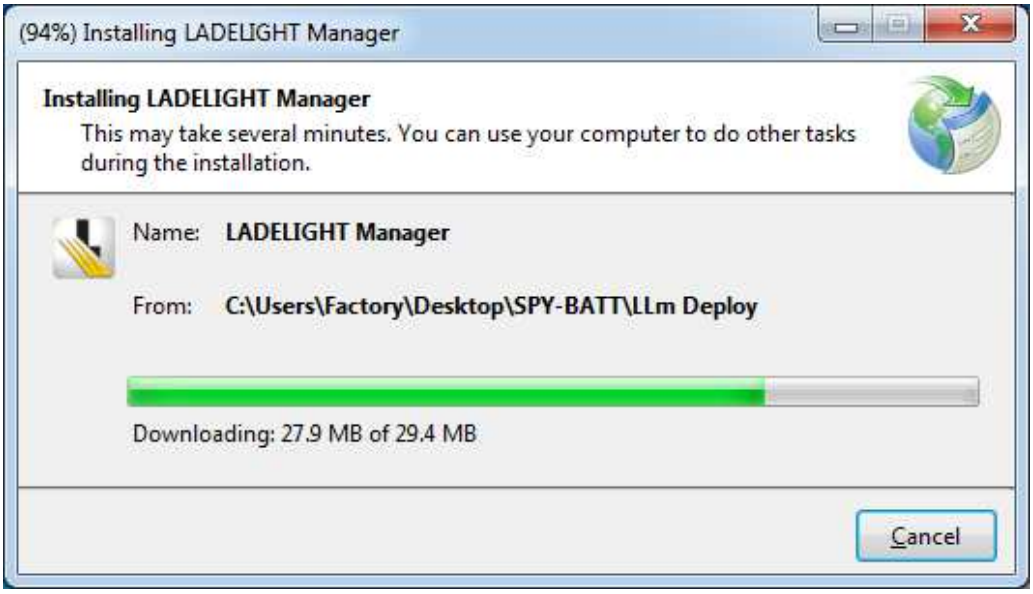
Accept the license terms and continue with the installation:





Confirm and continue with the installation:

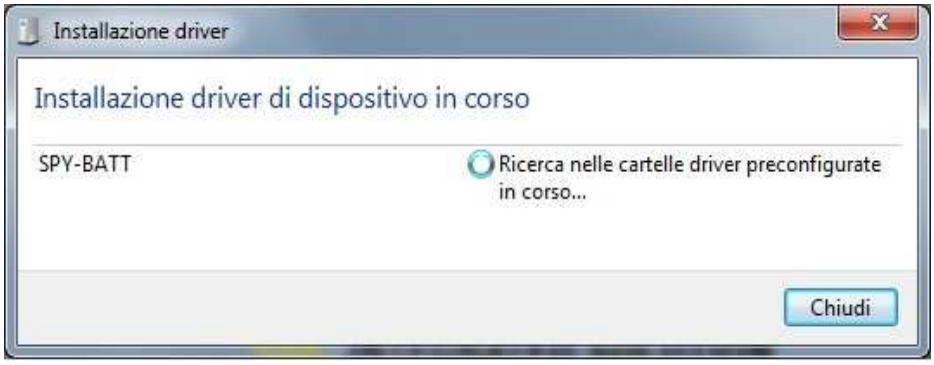




The **LADELIGHT Manager** Icon will be automatically created on desktop:

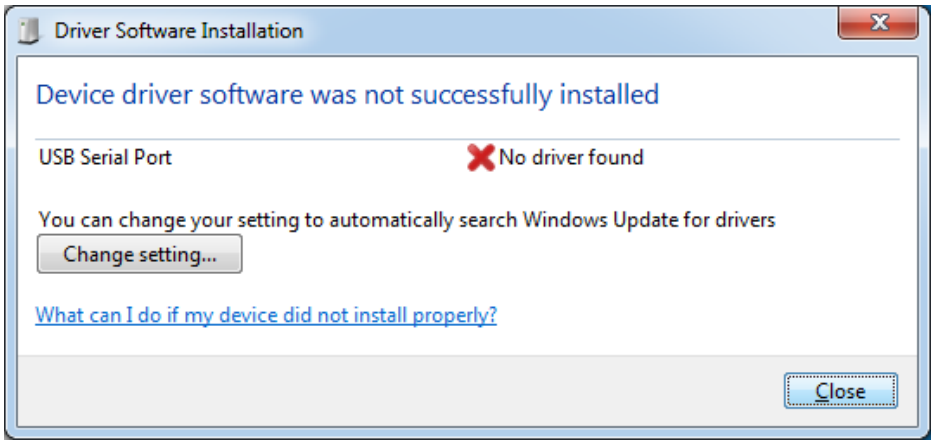
3. SPY-BATT DRIVER'S INSTALLATION (and other LadeLight devices)

When a ***SPY-BATT*** device (or any ***LadeLight*** device) is connected to the PC for the first time, the driver's installation is required. All the drivers are available on the website ***www.spybatt.it.***



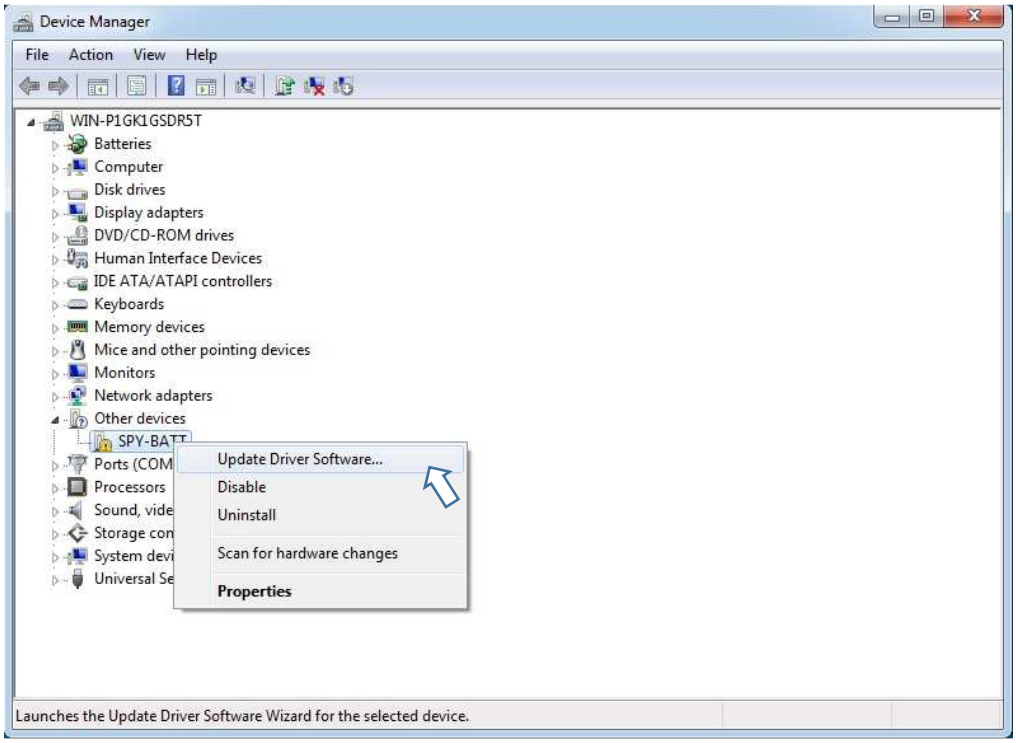
If the driver is correctly installed, go to paragraph 4.

If the Driver is not found, a warning window will appear:

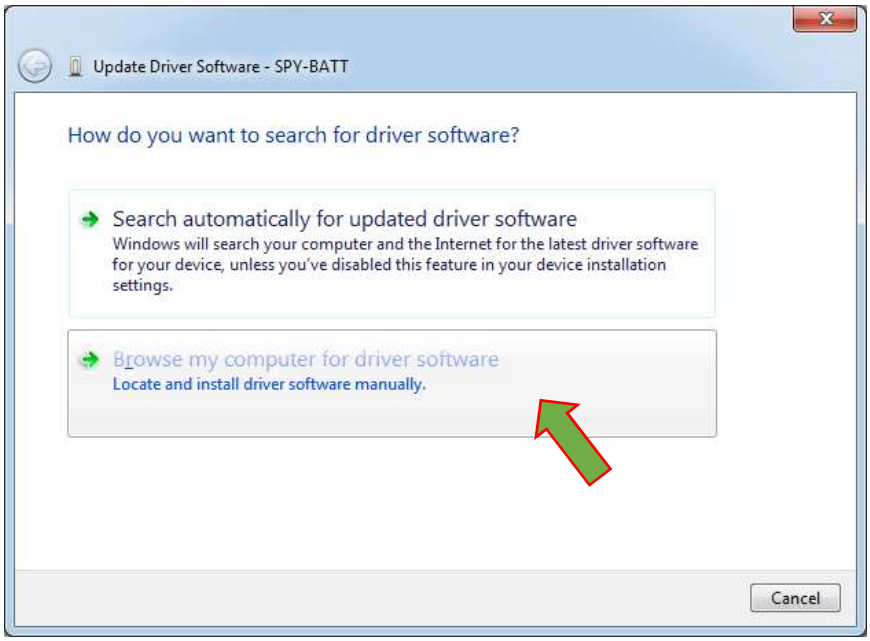


In this case, it is necessary to continue with the manual installation of the Driver:

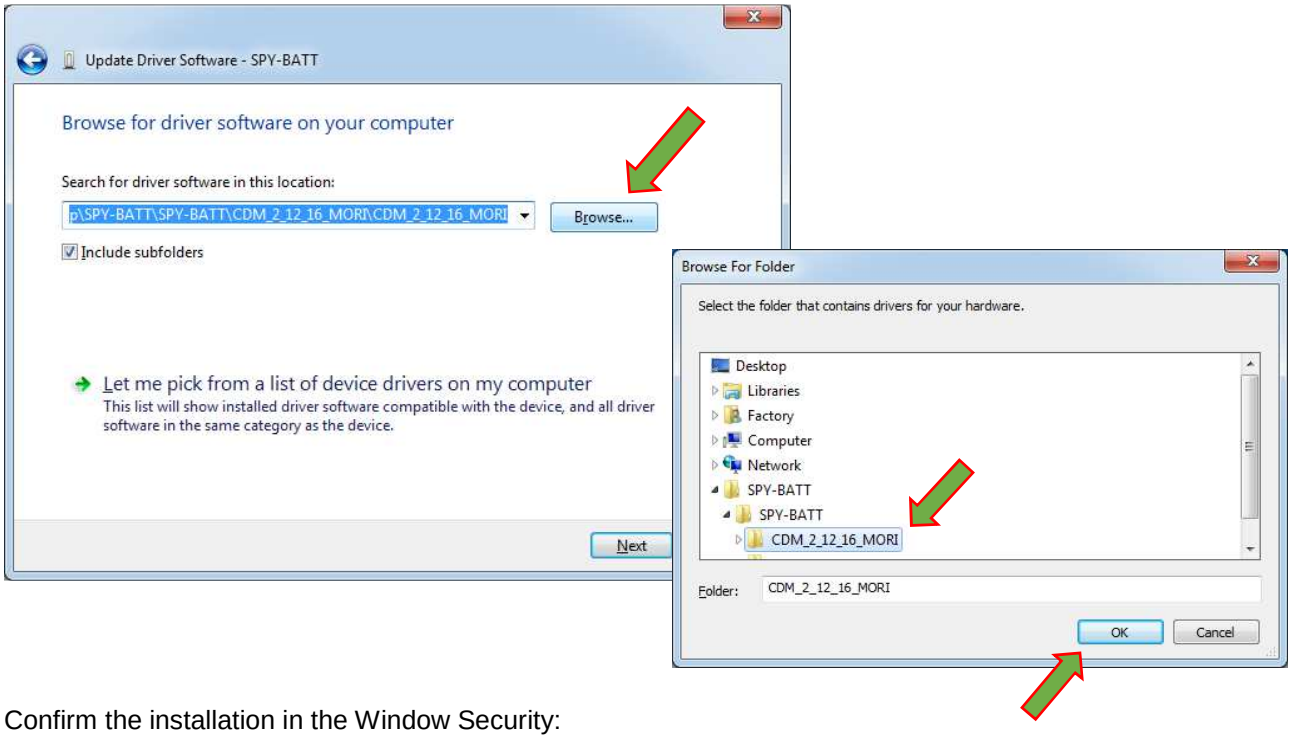
In *Device Manager* of your PC, select the ***SPY-BATT*** device from the list, open the functions window with the right key of the mouse and select *Update Driver Software*…:



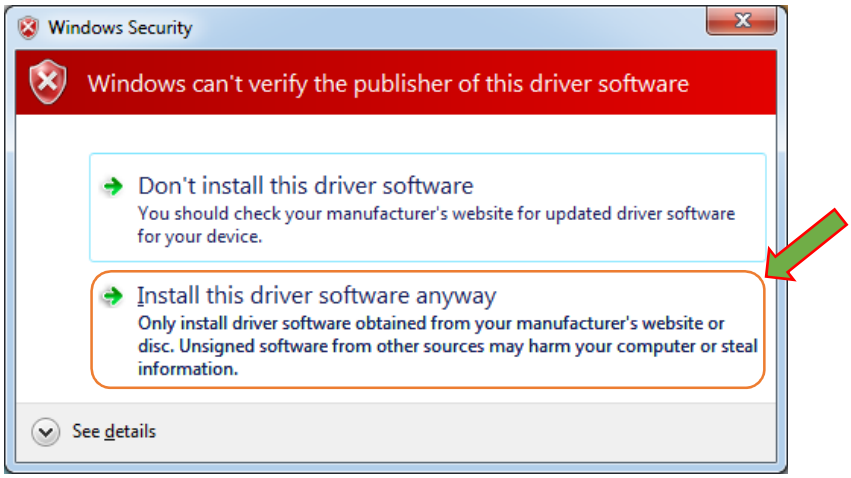
Manually look up for the driver in the computer:



Through the key **Browse…** select the folder ***CDM_2_12_16_MORI*** previously downloaded from the website ***www.spybatt.it*** and confirm:



Confirm the installation in the Window Security:



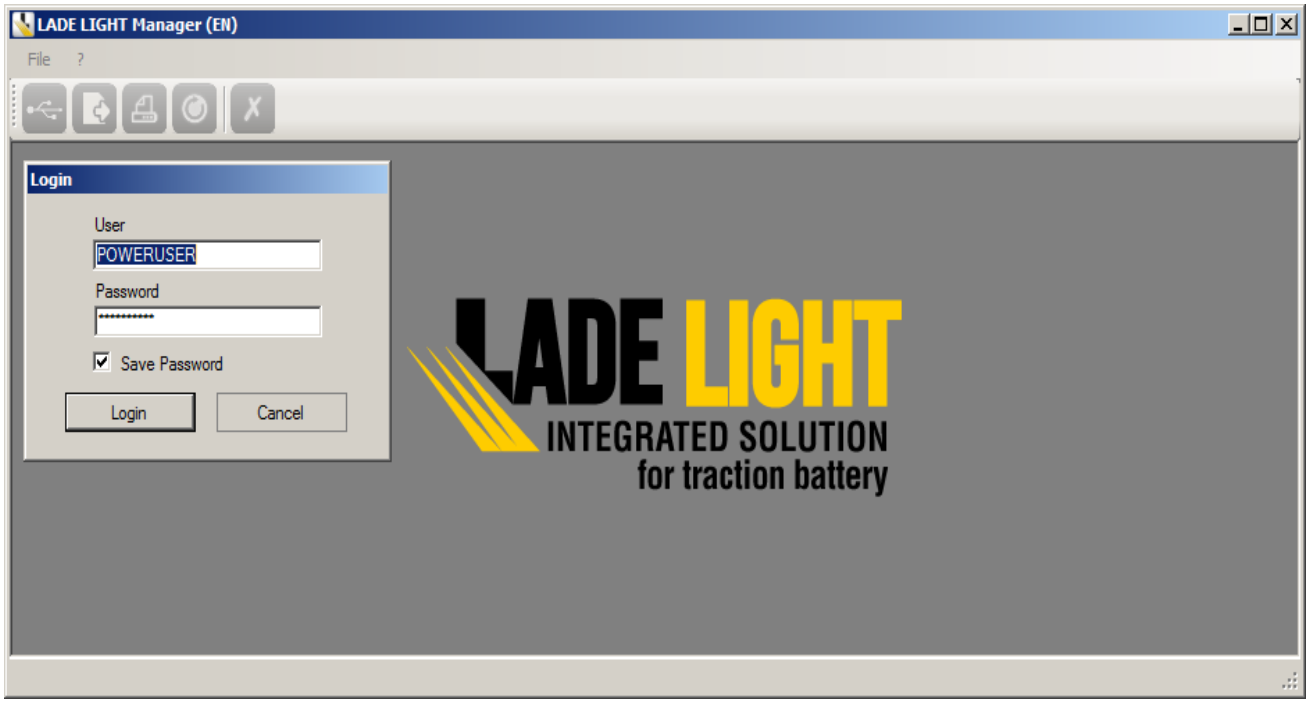
Wait for the installation of the driver on your PC:

At the end of the installation, the restart of your PC may be required. Close all the applications and restart.
It is suggested to close and restart the ***LADELIGHT Manager*** application anyway.

4. Initial page:

Open the ***LADELIGHT Manager*** application on the PC by double clicking the icon.

The main window opened with the **Login** window:



Two possible levels of login exist:

- ***USER*** (default)
- ***POWERUSER***

To execute the login at any level, the relative password must be asked to the producer.

Insert the supplied password and execute the login.

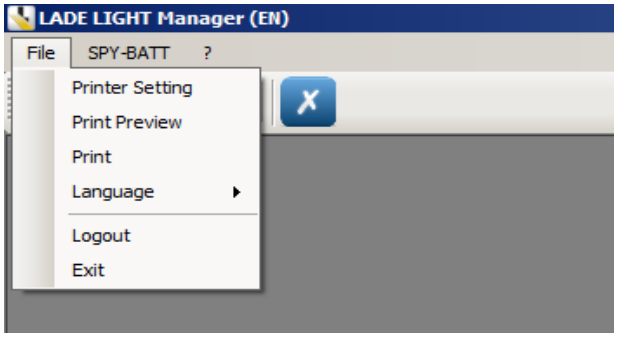
NOTE:
The general description of the functions active at the POWERUSER level follows. With USER level login, some of the described functions are not available.

5. MAIN MENU BAR general description

In the main menu bar, there are the following functions:

- **File**
- **SPY-BATT**
- **? (Info)**

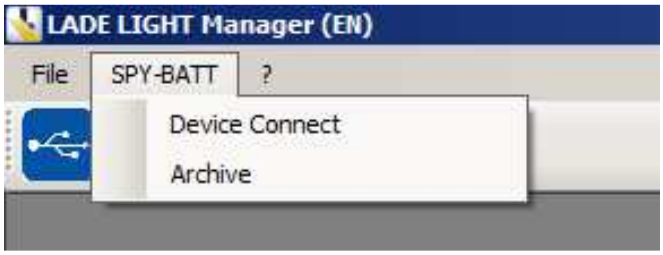
5.1. *FILE Menu*:



In the **FILE** menu, the following functions are available:

- ***Printer Setting*** : Opens the Print Setup Window of your PC.
- ***Print Preview*** : It allows to see the print preview from any locations of the application.
- ***Print*** : It allows to print the various reports in according to the open section of application.
- ***Language*** : Allows to select the language used (available options: ITALIAN and ENGLISH)
- ***Logout*****:** After the request of confirmation, the active user is disconnected by closing all the windows in use and by presenting the Login window once again.
- ***Exit****:* Closes the application ***LADELIGHT Manager.***

5.2. *SPY-BATT Menu*

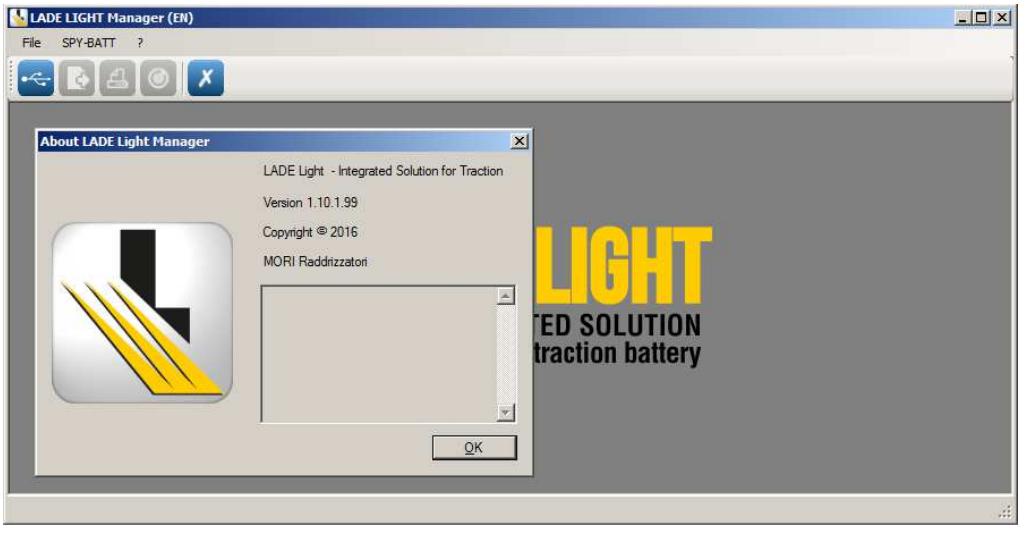


In the **SPY-BATT** menu, the following functions are present:

- **Device Connect**: It connects the device ***SPY-BATT*** connected to the PC through the USB cable (If the ***LADE LIGHT*** *device's* driver has not been installed yet, this button is inactive).
  See paragraph **6** for a complete understanding of this function.
- **Archive**: allows access to files previously saved in archives.
  See paragraph **7** for a complete understanding of this function.

5.3. *?* Menu ***(Info)***

By selecting this function, the "About" window opens and shows all the information of ***LADELIGHT Manager*** installed version:



5.4. Push buttons

USB Search– Activates the search for the connected devices.
(If the ***LADE LIGHT*** *device's* driver has not been installed yet, this button is inactive).

Export Data – It allows to directly export the selected file and save it in any location on your PC without enter in Archive window.

Print – Print the general Report (Summary of data present in **GENERAL** and **SUMMARY** windows with the **Dashboard** page) and/or the graphs in **STATISTICS** section if opened.
The **PRINT** button is active only after connecting a ***SPY-BATT*** device or after you open a file from the **Archive Data**.

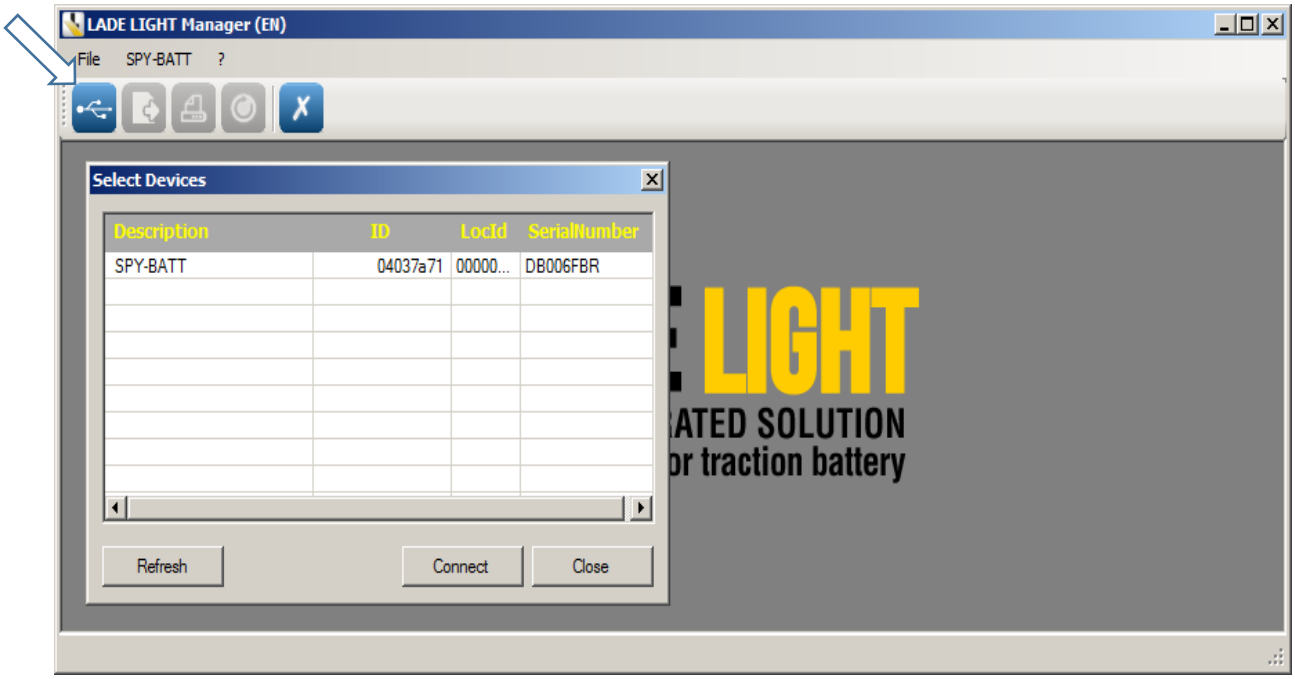
Refresh – If activated in **Select Device** window, updates the list of devices connected to the PC.
It also operates in **Statistic graph display** to return the graph in the initial display condition.

Exit – Closes all windows open in the application

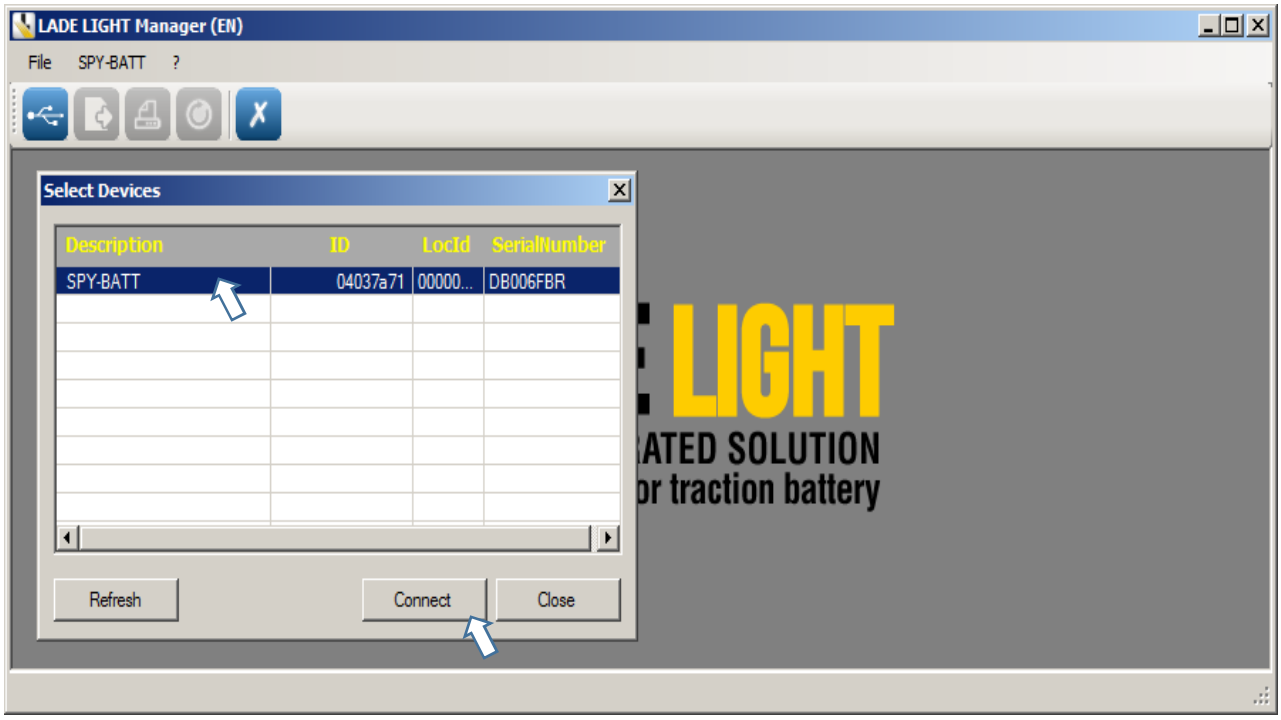
6. SPY-BATT Device connection

Once installed the driver, with the ***SPY-BATT*** device connected to the PC through a USB cable, it is possible to activate the connection in two of the following ways:

Click on the button **USB Search** to open the window with the list of devices connected:

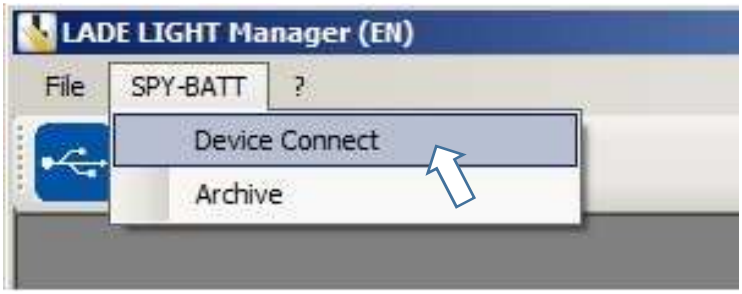


Select the device in the list and activate the connection by clicking on the button ***Connect*** (or by double clicking on the row of selection):

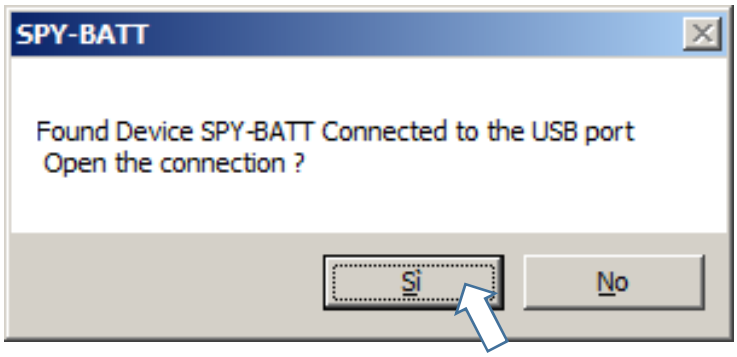


OR:

Select the function ***Device Connect*** from the menu **SPY-BATT**:

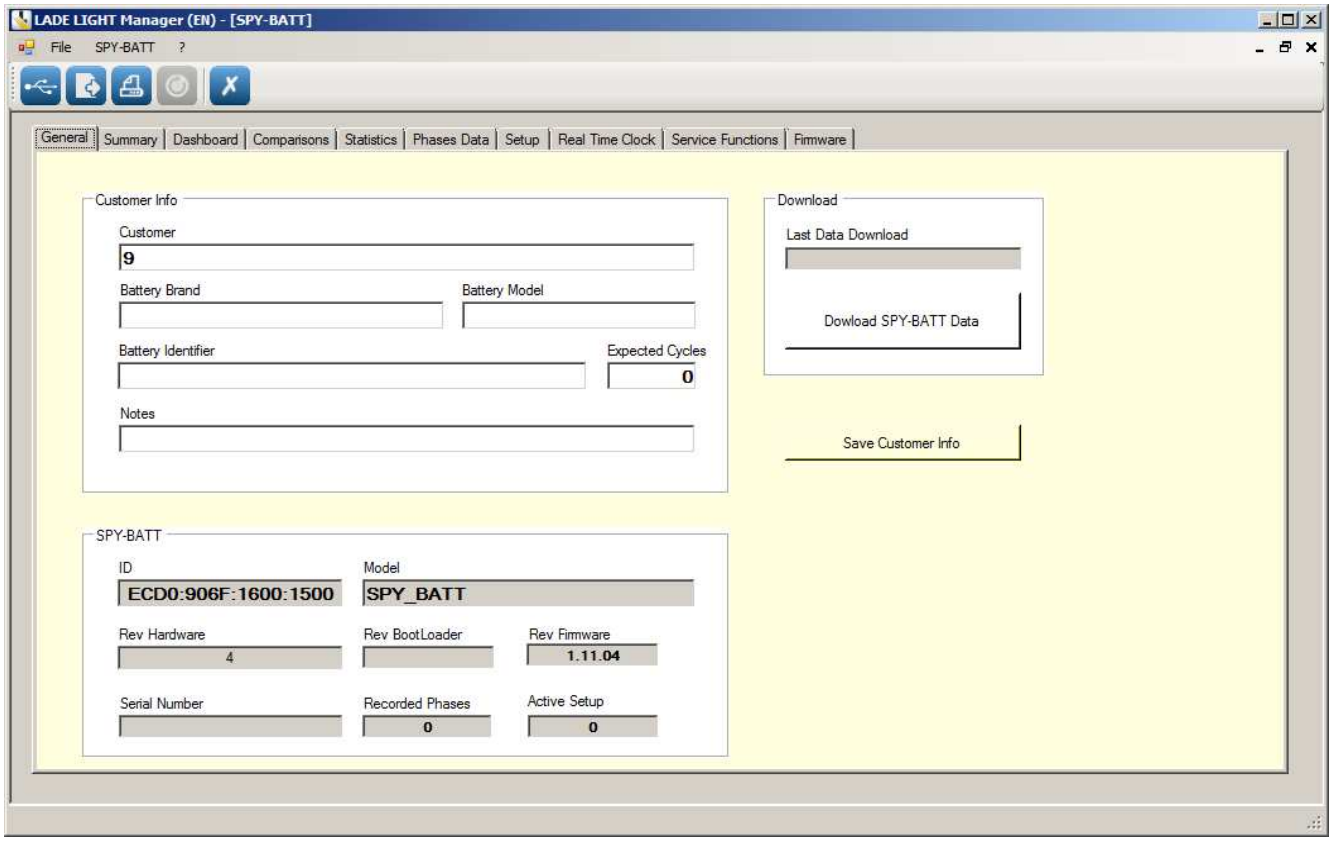


The window appears:



Confirm to open the connection to the device.

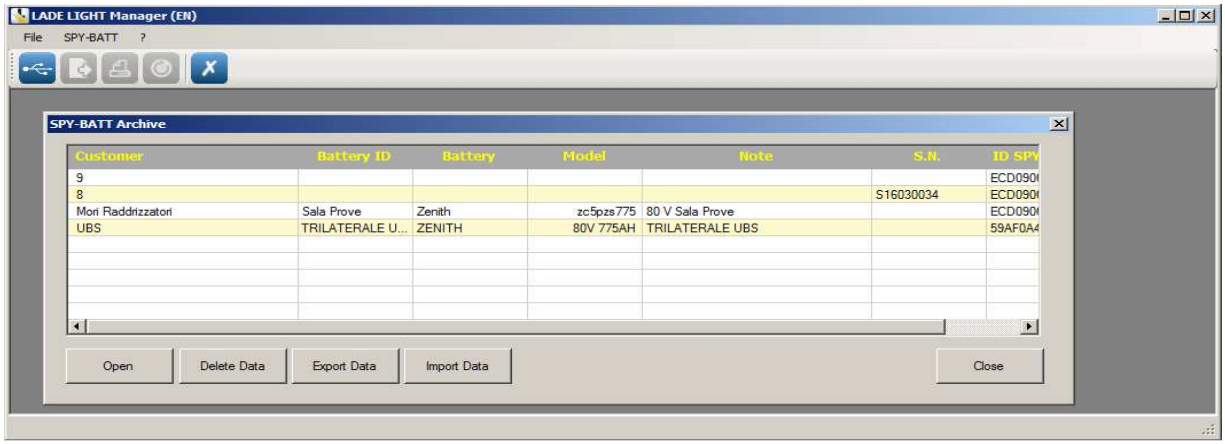
In both cases the window **SPY-BATT** appears with the **General** window open, in which all characteristic data of the connected **SPY-BATT** are summarized (See paragraph **7** for a complete understanding):



7. SPY-BATT Archive

The button **Archive** in the **SPY-BATT** menu allows uploading any ***Spy-Batt Data File*** previously saved in **Spy-Batt** archive.

The window **SPY-BATT Archive** appears with the list of Data Files saved.
The files are classified and named according to *Customer, Battery, Note* data (introduced at the initial device installation) and to the *ID SPY-BATT* (unique and different for every SPY-BATT):

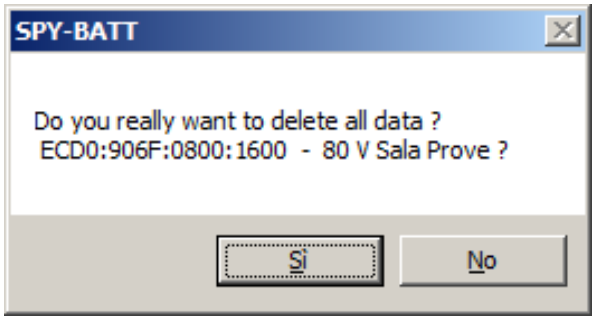


In the window, the following function buttons are available:

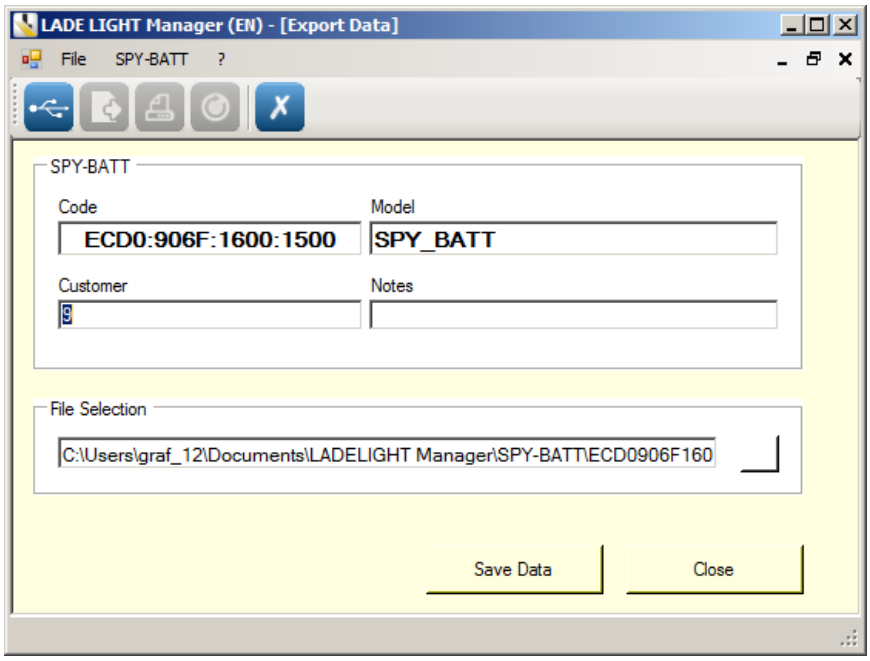
***Open**:* It opens the data files of the SPY-BATT selected allowing their visualization and analysis.
To open the sheet you can also double clicking on the selected row.

***Delete Data**:* It deletes the file selected from the list. To continue, one more confirmation will be required.

Attention: Once deleted, the files will be lost forever



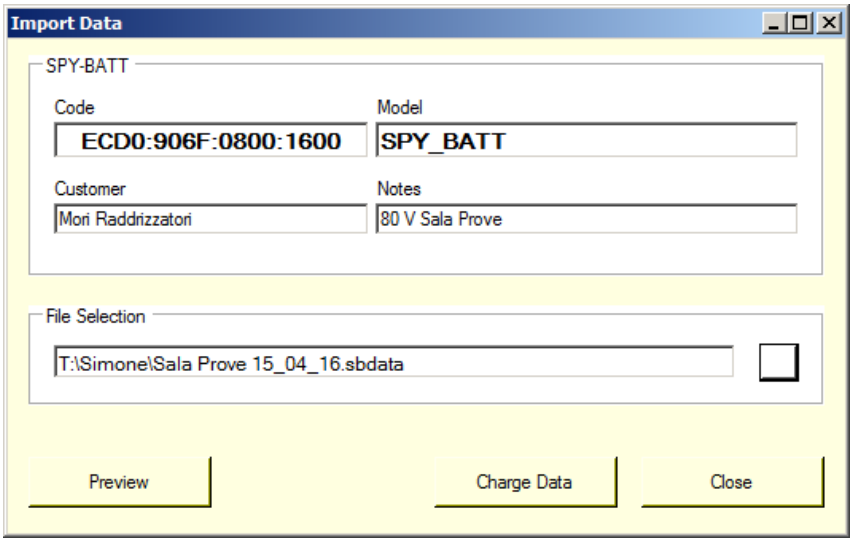
Export Data: It allows exporting the selected file and saving it in any preferred location on your PC.
This allows creating a customized archive structured according to personal needs.



Fill in the **SPY-BATT** section fields as you like.
Type the desired file name in the box **File Selection**.

Chose the destination path for the file saving with  button in ***File Selection*** section.
Click on **Save Data** button to save the file.

Import Data: Allows importing a Data File previously saved in any location on the PC.



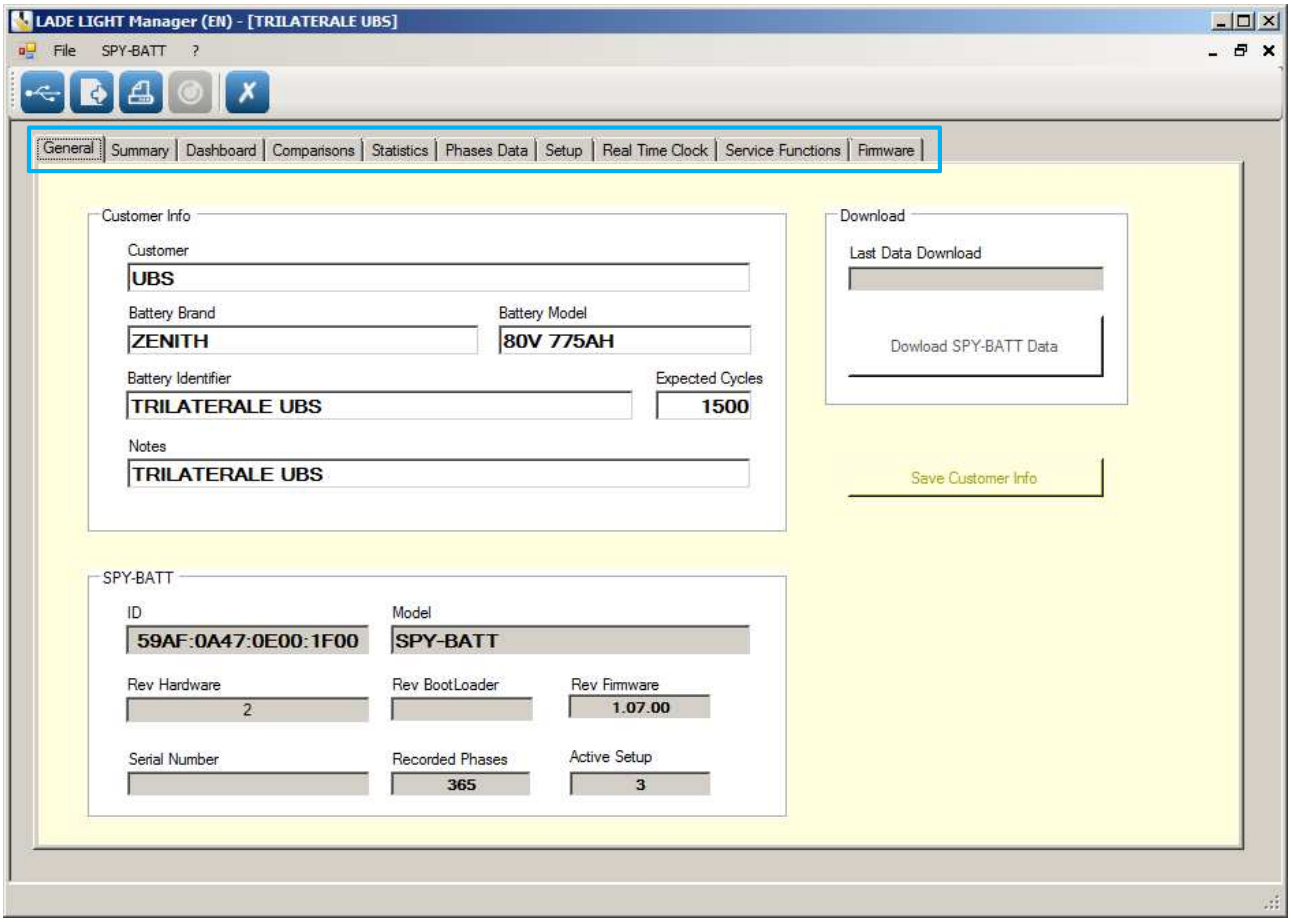
Chose the origin path of the file with the  button in ***File Selection*** section.

Click the button **Charge Data** to upload the file.

Fields in the **SPY-BATT** section will be filled in with the values found in the file uploaded.

8. GENERAL Window

The connection to a ***SPY-BATT*** device or the upload of a Data File from the archive activates the opening of the **General** Window**:**

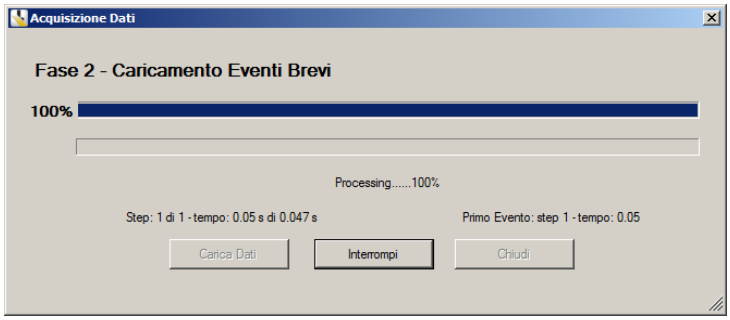


By enabling print button from this window, will be printed the ***General report***, comprising the summary data page and the page with the image of the dashboard.

In section **Customer Info** data introduced at the moment of first installation of the **SPY-BATT** on battery are shown. (See the **SPY-BATT Installation Manual** for more information).
These data can be modified and rewritten by using the button **Save Customer Info**.

In the section **SPY-BATT,** are shown the identification data of the device (not modifiable).

The ***Download SPY-BATT Data*** button allows to download all data stored in the connected SPY-BATT device's memory. Automatically, the window indicating the download progression appears. Data will be automatically saved in the archive.



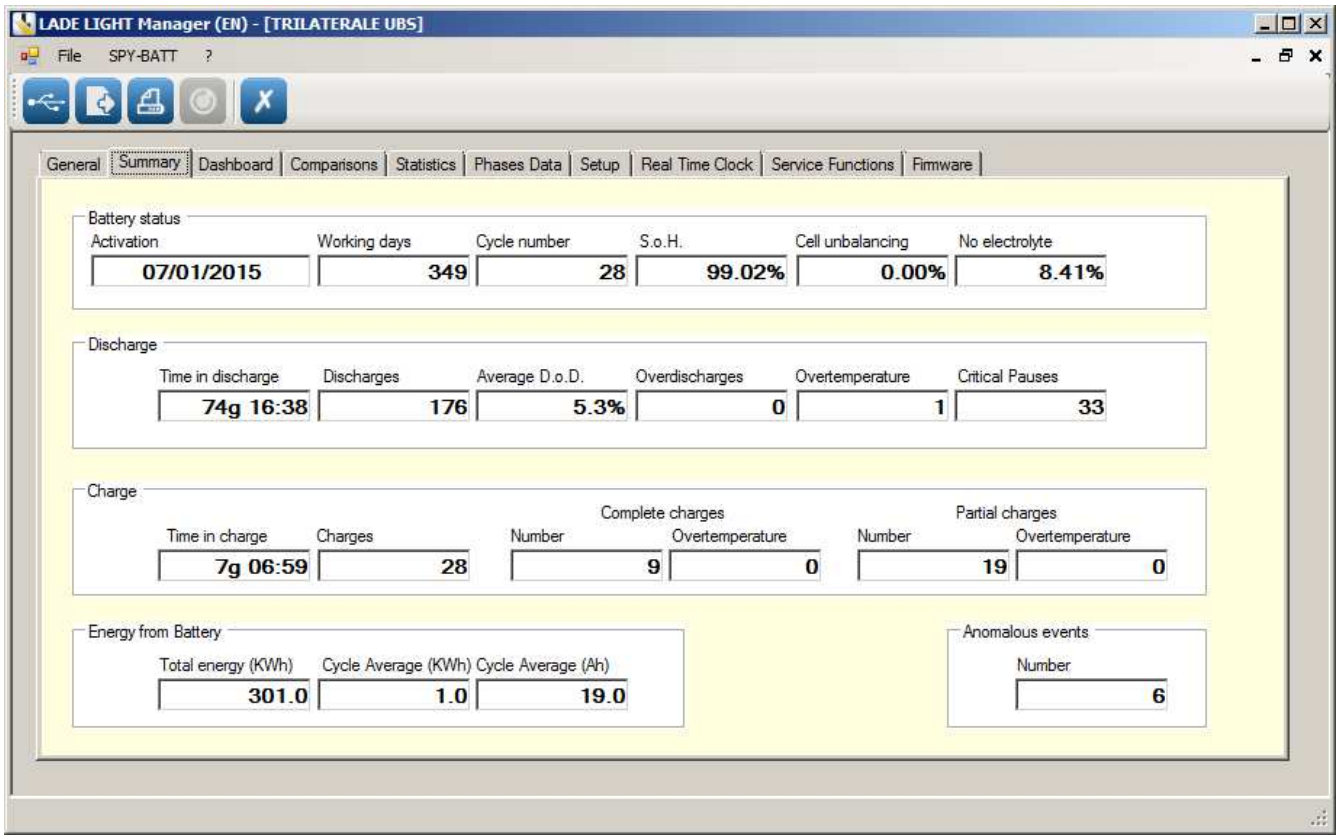
Data downloaded are automatically saved in the internal **Spy-Batt Archive** and will be always available for the consultation in every moment.

WARNING: the download may require some minutes, according to the quantity of data in the SPY-BATT.

The buttons **Download SPY-BATT Data** and **Save Customer Info** are not active with the Data from the archive.

By enabling print button from this window, will be printed the ***General report***, comprising the summary data page and the page with the image of the dashboard.

9. SUMMARY Window:



In this window, the main data are summarized in five sections:

***9.1. Battery Status** section:*

Activation: Date of SPY-BATT first activation.

Working days: The total amount of SPY-BATT working days

Cycle number: Number of executed cycles. As for CYCLE is meant a charge phase followed by one or more discharge phases or pause.

S.o.H (State of Health): State of health of the battery. Estimated percentage of the residual battery life.

Cell unbalancing: Percentage of time (with respect to the total time of charge and discharge) in which a displacement of cells voltage above the acceptable limit has been registered.

No electrolyte: Percentage of time (with respect to the total time of charge and discharge and pause) in which a too low level of the electrolyte has been registered.

***9.2. DISCHARGE** section:*

Time in discharge: Total time of discharge of the battery

Discharges: Total number of discharge phases registered.

Average D.o.D (Deep of Discharge): Depth of medium discharge with respect to all executed discharges.

Over discharges: Number of excessive discharges - Above 80%

Over temperature: Number of discharges in which a high temperature of the battery has been registered.

Critical pause: Number of times in which the battery has been left discharged and inactive for a too long period of time.

***9.3. CHARGE** section:*

Time in charge: Total time of battery charge.

Charges: Total number of charges executed on the battery.

Complete charges: About complete charges, two data are proposed:

Number: total number of complete charges.

Over temperature: number of complete charges in which a too high temperature has been registered.

NOTE: A Charge is a "Complete charge" when the Charge Factor (C.F.) is equal or above 1.0.

Partial charges: About partial charges, two data are proposed as well:

Number: total number of complete charges executed partially.

Over temperature: number of complete charges in which a too high temperature has been registered.

NOTE: A Charge is a "Partial Charge" when the Charge Factor (C.F.) is less than 1.0.

***9.4. ENERGY from Battery** section:*

Total Energy (KWh): Total energy supplied by the battery, expressed in kilowatt per hour.

Cycle Average (KWh): Medium energy supplied by the battery in a single cycle, expressed in kilowatt per hour.

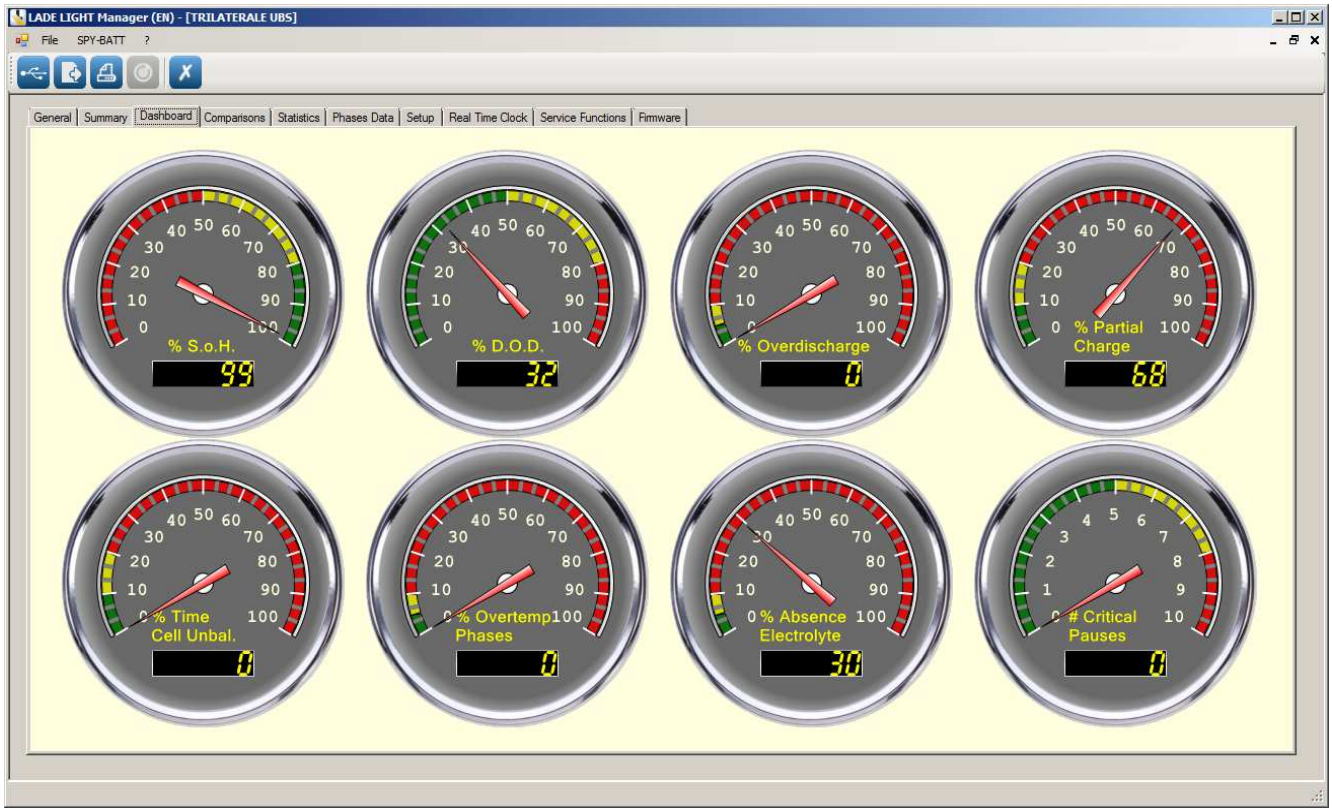
Cycle Average (Ah): Medium energy supplied by the battery in a single cycle, expressed in ampere per hour.

***9.5. Anomalous events** section:*

Number: Number of anomalies or alterations registered by the **SPY-BATT**.

By enabling print button from this window, will be printed the ***General report***, comprising the summary data page and the page with the image of the dashboard.

10. DASHBOARD Window:



In the **Dashboard** window there are eight analog indicators that shows, in an intuitive way, the following data:

% S.o.H: Percentage indicating the health status of the battery***.***

% D.O.D: Average Depth of discharge reached before charges.

% Over discharge: Percentage of discharges above 80% reached before charges.

% Partial Charge: Percentage of partial charges compared to the totality of the charges executed.

% Time Cell Unbal.: Percentage of time (compared to the total time of charge and discharge) in which it was registered an imbalance of cells voltages higher than the allowable limit.

% Overtemp Phases: Percentage of time (compared to the total time of charge and discharge) in which the battery temperature is too high.

% Absence Electrolyte: Percentage of time (with respect to the total time of charge, discharge and pause) in which a too low level of the electrolyte has been registered.

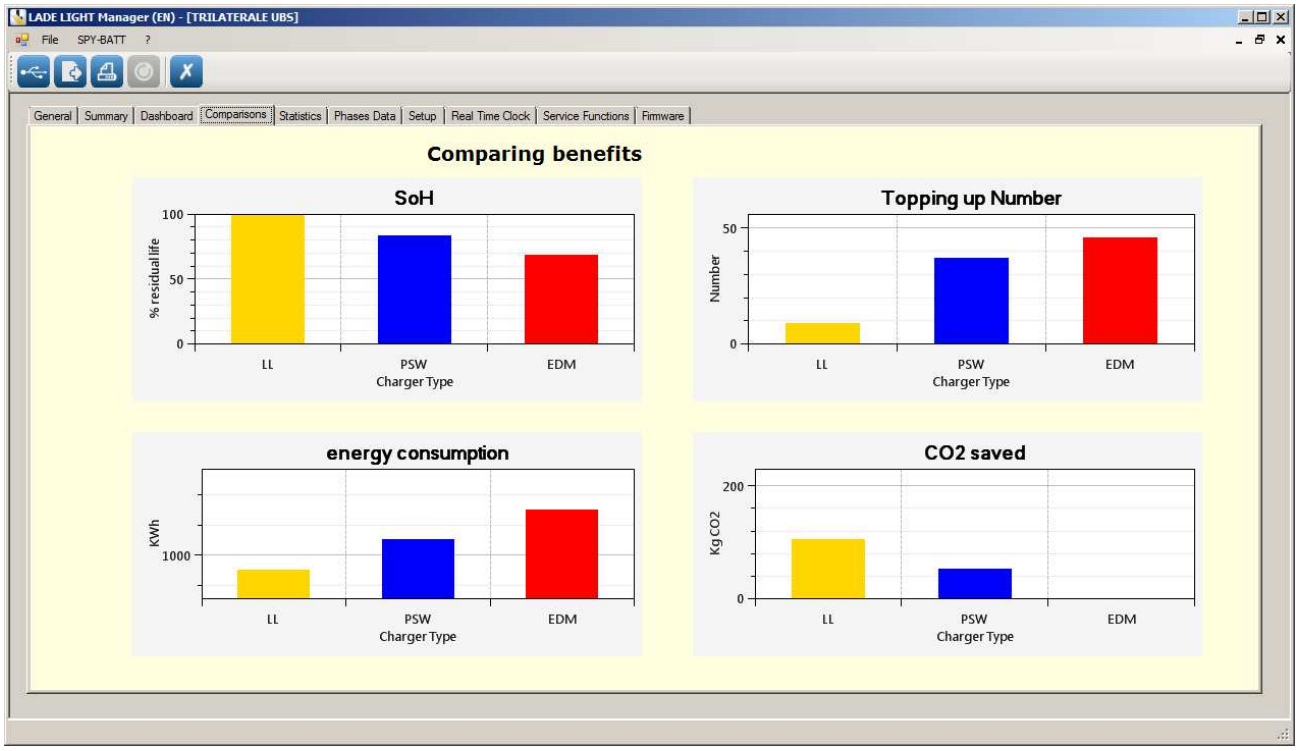
 # Critical Pauses: Number of times in which the battery has been left discharged and inactive for a too long period of time.

The **Dashboard** basically allows to immediately evaluate the general status of the battery with a glance.

If the parameters are within the ordinary limits, the needle indicates the green area of the scale, if the parameters turn to be irregular, the needle indicates the red area of the scale, if the needle indicates the yellow area of the scale, it means that the parameter tends toward a critical worsening.

By enabling print button from this window, will be printed the ***General report***, comprising the summary data page and the page with the image of the dashboard.

11. COMPARISON window:



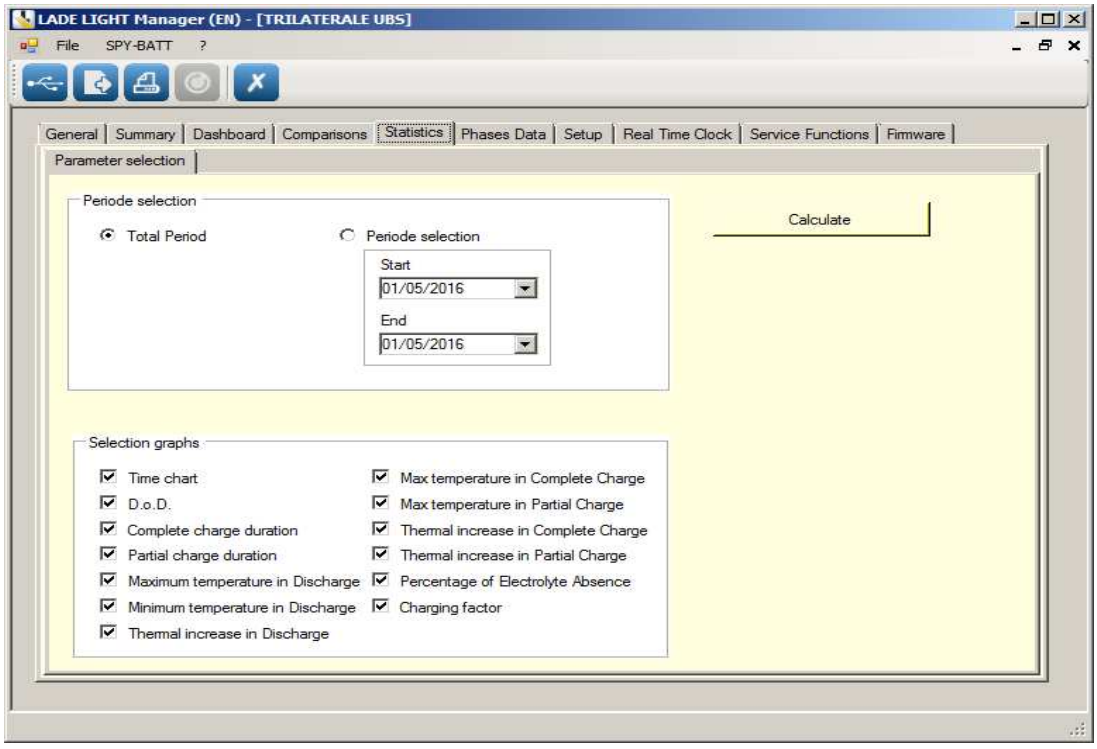
This window shows the comparative diagrams of:

- *S.o.H. (Battery Health Status)*
- *Number of needed electrolyte top ups*
- *Energy consumed by the battery charger for the charge*
- *Saved CO_2*

Diagrams derives from data memorized according to the type of battery charger in use: **LadeLight, PSW, EDM.**

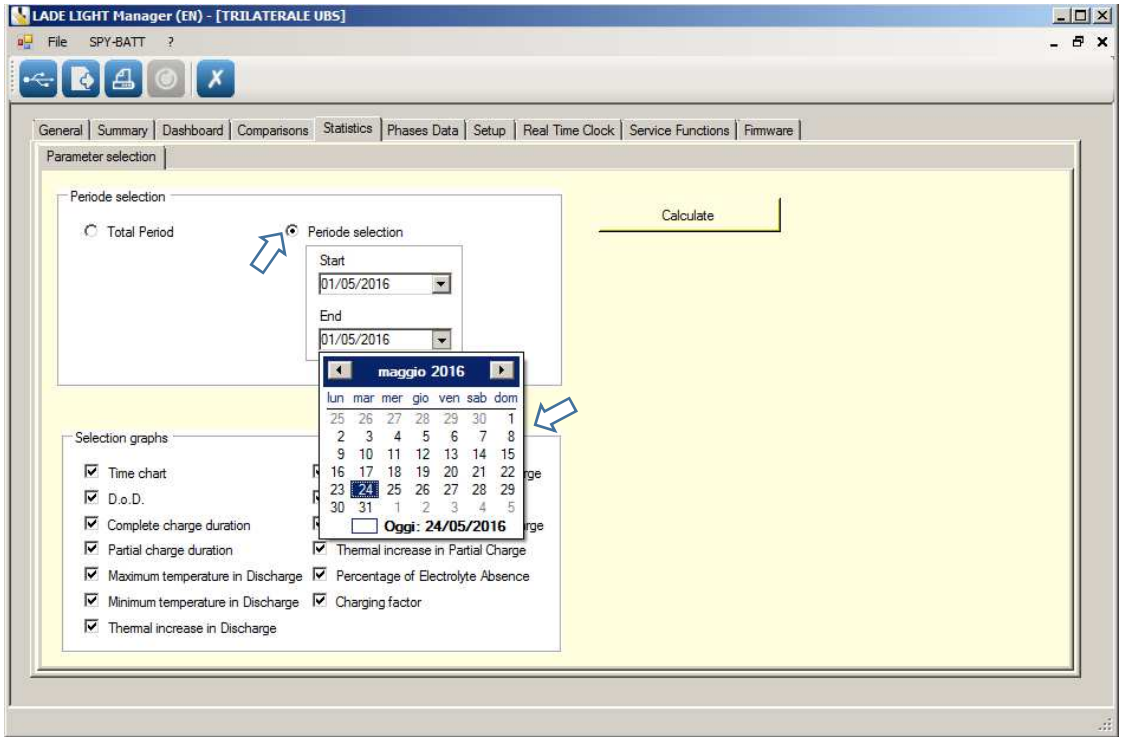
By enabling print button from this window, will be printed the ***General report***, comprising the summary data page and the page with the image of the dashboard.

12. STATISTICS window:

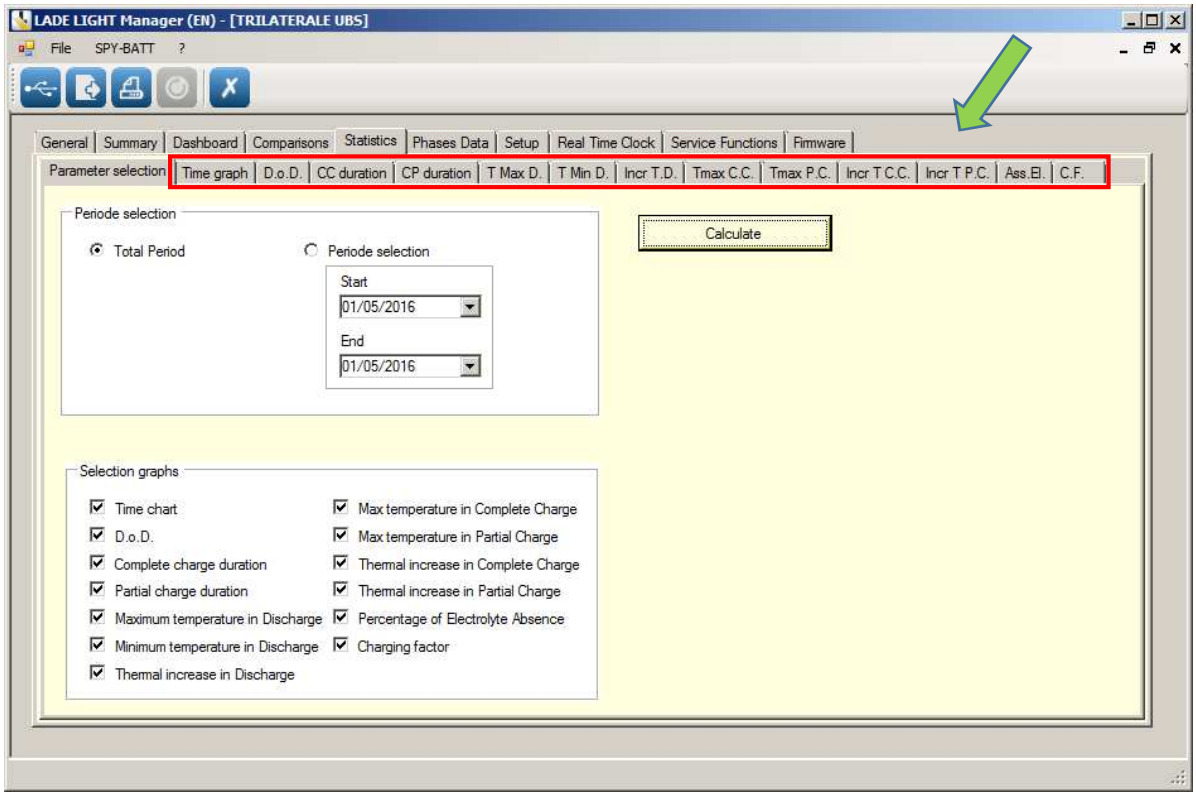


12.1. ***Period selection*** *section:*

With the activation of ***Statistics***, the window ***Parameter Selection*** opens.
This window allows setting the criteria of choice for data that will be shows in the following statistics tools.
It is possible to select the whole period of memorization (default option) or a specific time interval by setting the initial and final dates in the proper boxes ***Start*** and ***End***.

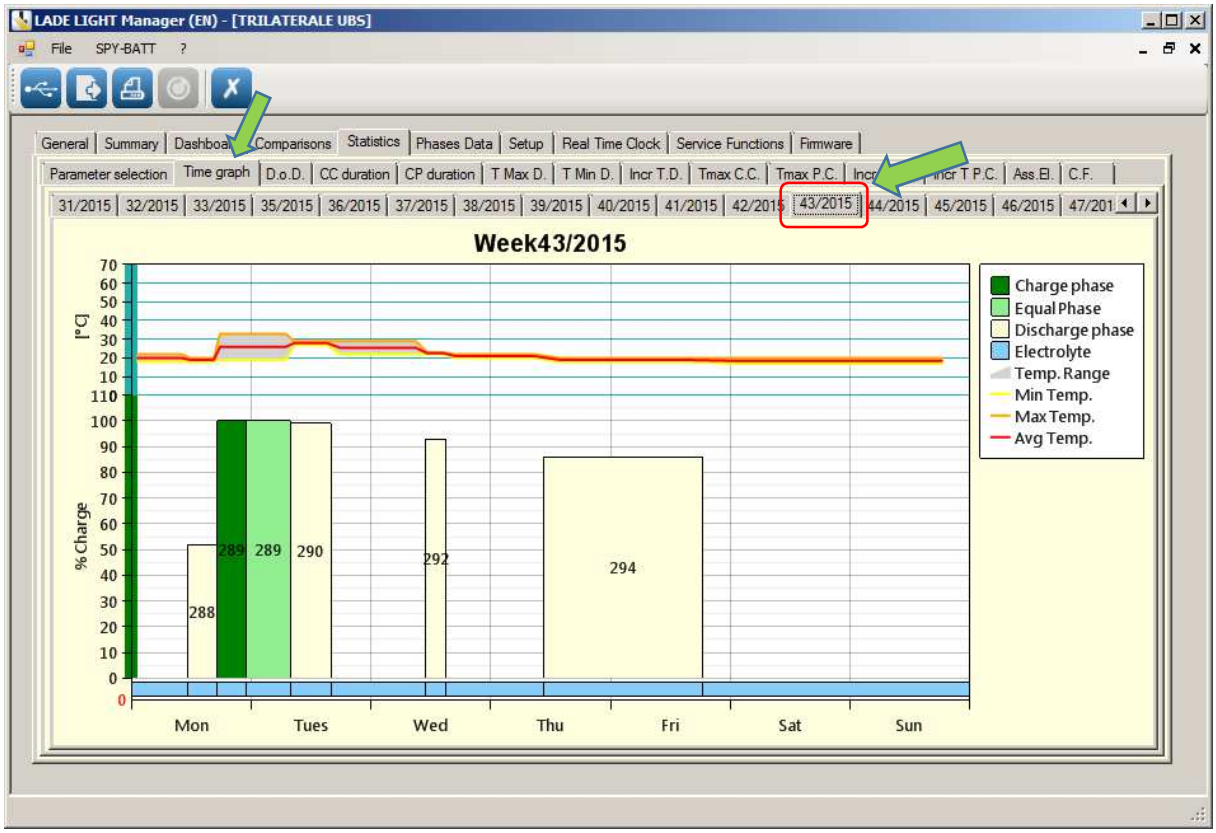


In the **Selection graphs** section, you can choose the graphs that will be displays.
Once set the desired selection criteria activate the function ***Calculate.***
At this point in the menu bar will appear all the windows of pre-selected graphs.



Activating the print in any of the Statistics windows (excluding Time graph window) will be printed the two pages of ***General report*** and all statistics charts (from 12.3 to 12.14).

12.2. *TIME GRAPH* Window:



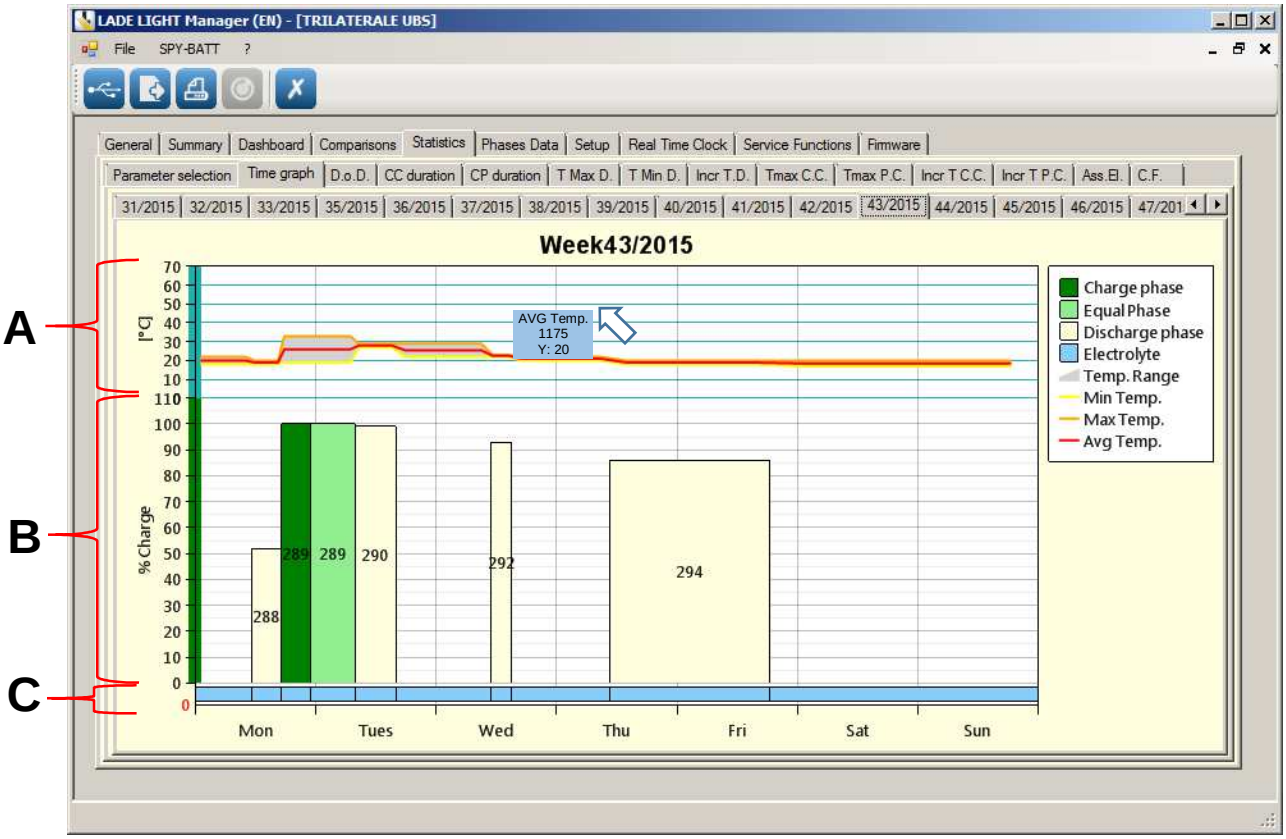
In the **Time graph** are presented the weekly graphs of all main parameters.

Use the buttons ◀ and ▶ on the right side of the bar to scroll all the weeks.

Select the desired week from the upper bar to see the related graph.

The graph shows the alternation of the phases, day by day, in the selected week.

The graph is divided into three parts:



In part **A**, values about minimum, medium and maximum temperatures are shown. In grey, the range temperature during the underlying event.

In part **B** are shown numbered events in ascending order from the less to the most recent.

EVENTS are divided in:

- ***CHARGE*** (highlighted in dark green)
- ***EQUALIZATION/Holding phase*** (highlighted in light green)
- ***DISCHARGE*** (highlighted in light yellow)
- ***PAUSE*** (not highlighted but counted in the events calculation)

In part **C**, the status bar of the presence of the electrolyte in the battery is shown.

(Light blue means electrolyte OK, Red means LOW electrolyte level)

By clicking with the left key of the mouse on any of the magnitudes represented, it's possible to see the instant value of that chosen point.

Activating the Print button from this window will be only printed the open weekly graphs.

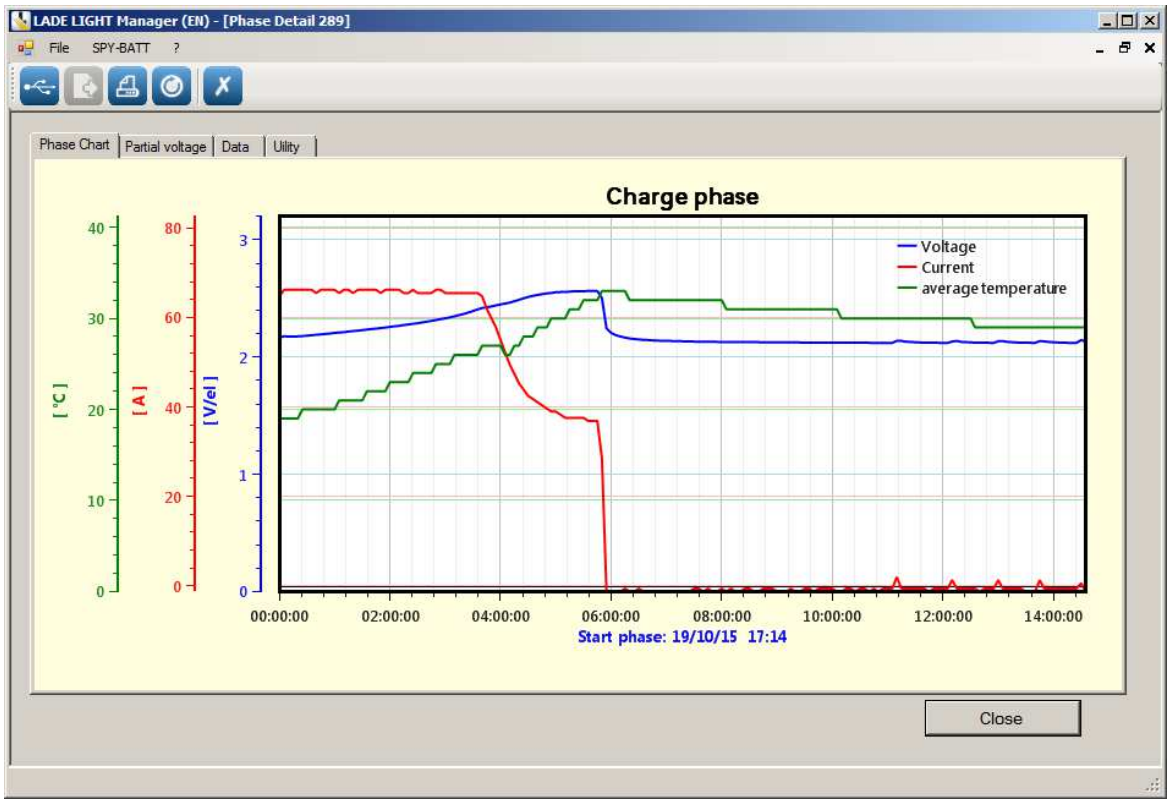
By double clicking on any column EVENT, the first window of **Graph Detail** appears.

*12.2.1. **PHASE Chart graph** (in Detail section)*

By double clicking on any column EVENT of the **Time graph**, the first Phase Detail window of specific event appears.

Activating the print button from one of *Phase Detail* windows (Phase Chart, Partial Voltage, Data and Utility) will be printed the open chart with the relative Partial Voltages graph.

Example of the **Charge phase** event graph in Detail section:



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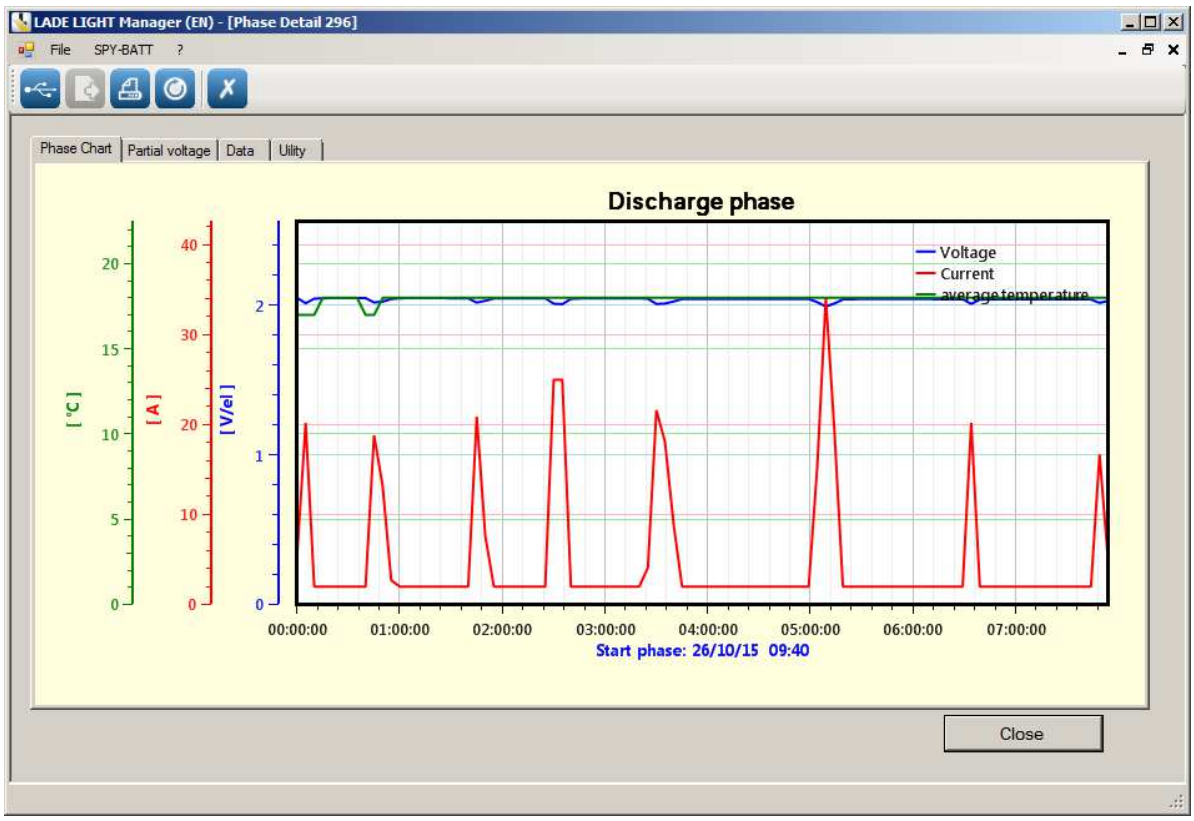
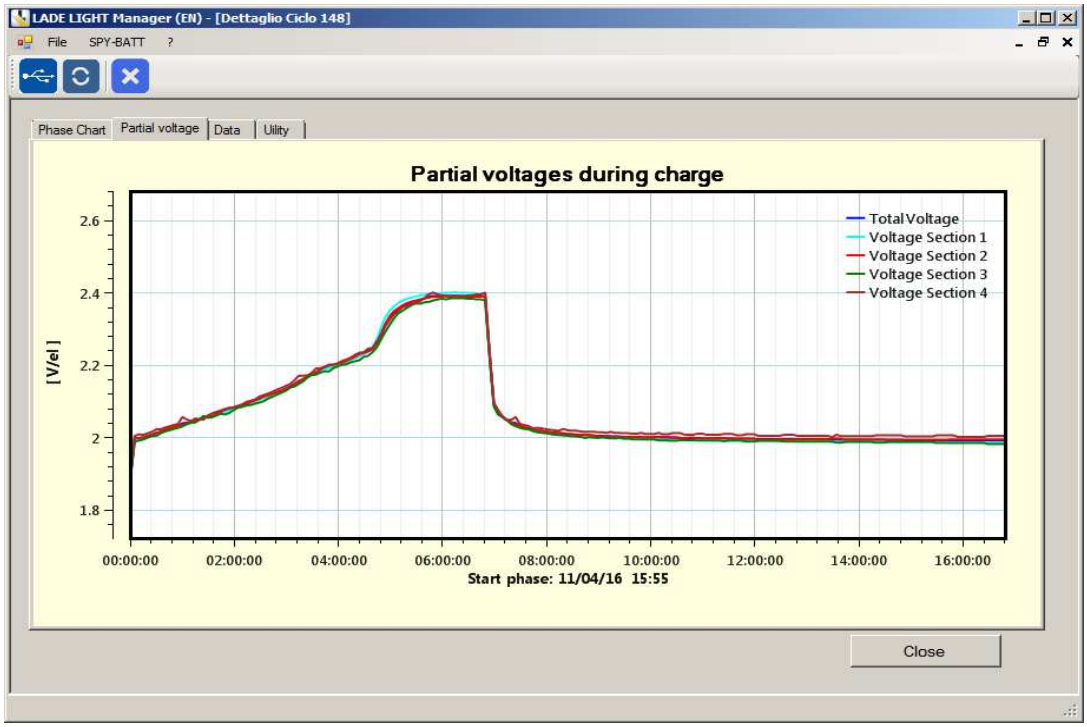
Example of the **Discharge phase** event graph in Detail section:



NOTE: The PAUSE event contains no significant data and is therefore not represented graphically.

12.2.2. ***Partial voltage graph*** (in detail section):

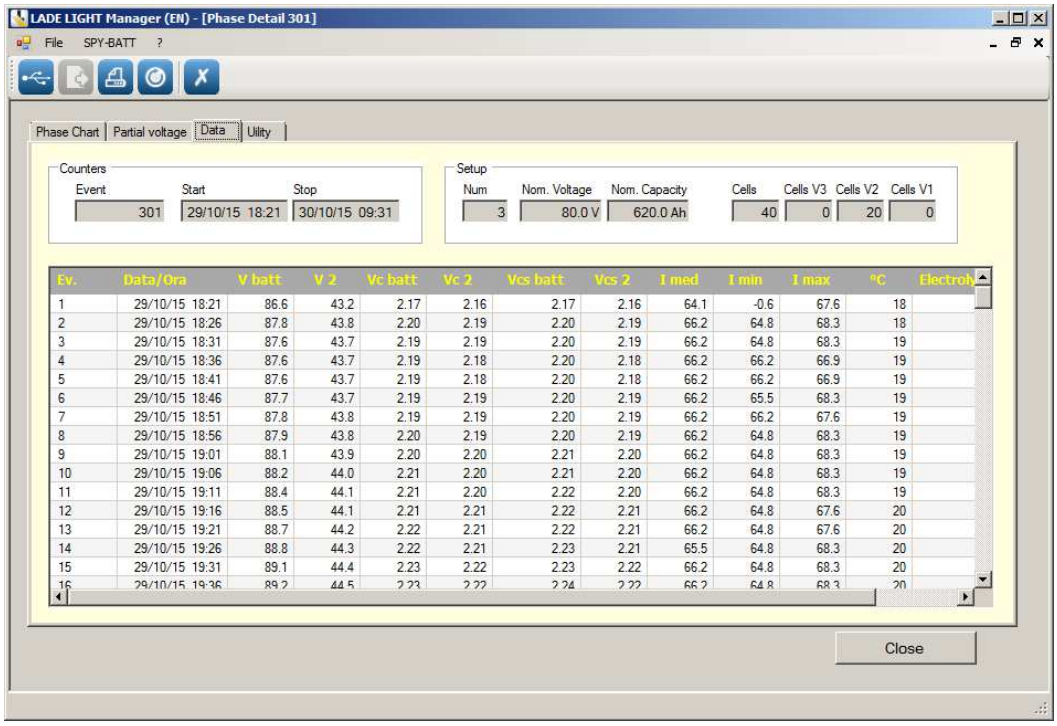


In ***Partial Voltage during charge*** graph, are represented the partial and total battery voltages during the selected event.
In ***Phase Chart*** and ***Partial voltage*** windows, are available the following mouse commands:

- Hold the left key on any point on the graph to see the value of the dimension in that point.
- Click any point on the graph with the right key and drag to the left or to the right to go back and forward in time with the point of view.
- Hold the right key on an axis and drag to move the graph up or down.

- Position the pointer on one of the scale and rotate the mouse wheel to modify the resolution scale of the selected dimension.
- Hold the wheel of the mouse to open a specific window of selection to be enlarged on the graph.

*12.2.3. **DATA Window*** (in Detail section):



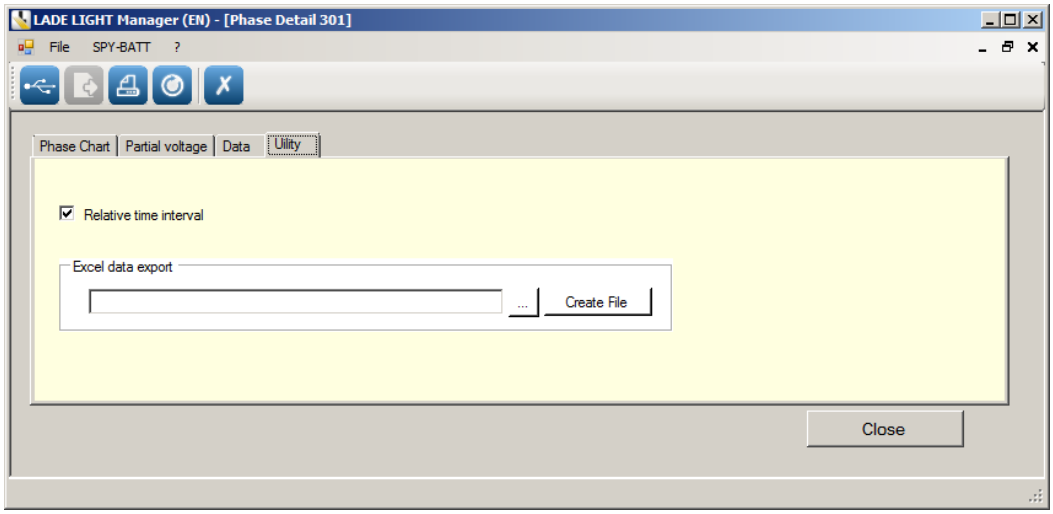
On the top of the **Data** window, are presented the following tables:

Counters: number, date and hour of beginning and end of the event in detail.

Setup: Summarizing data of the active configuration of the ***SPY-BATT*** during the registration of the event in detail.

Data Table: list of all data saved by the ***SPY-BATT*** every 5 minutes during the whole event in detail, presented in ascending order from the less to the more recent.

*12.2.4. **UTILITY Window*** (in Detail section):

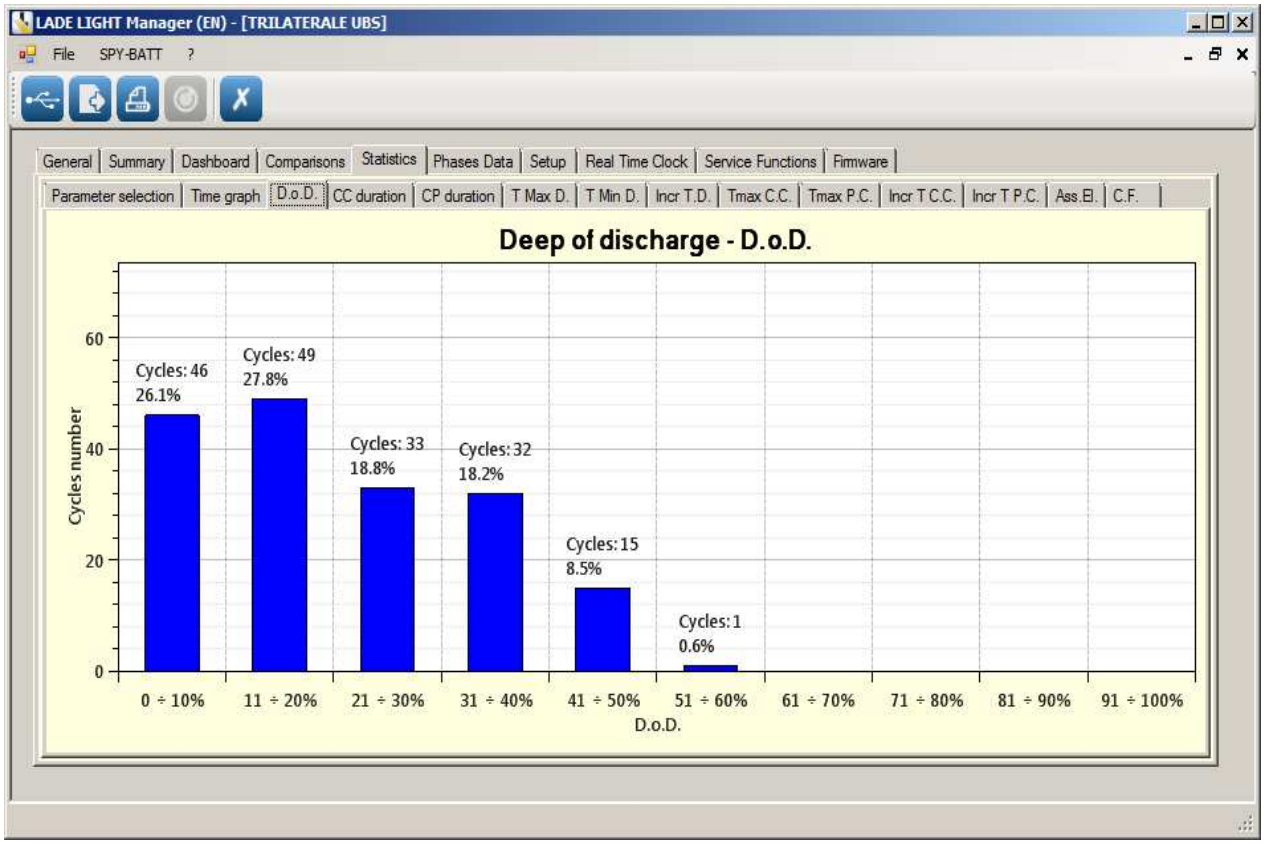


In the ***Utility*** window is possible to generate an *Excel* file of all data about the event in detail and save it in any desired location in the PC.

To exit from any windows of ***Detail section*** and go back to the ***Time Graph Window***, click the ***Close*** button.

12.3. D.o.D window *(Deep of discharge)*

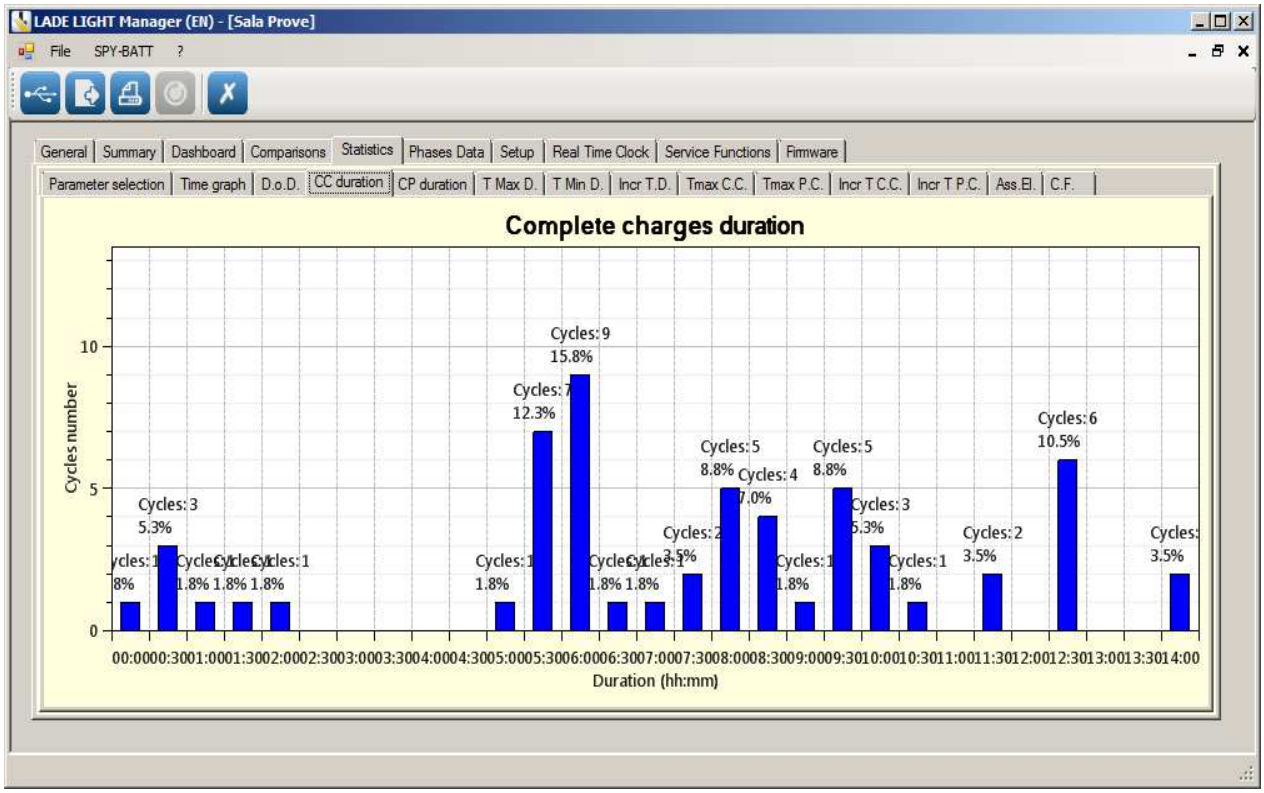
This graph shows the distribution of the discharges respect to their depth.



12.4. CC Duration window **(Complete charges duration)**

12.5. PC Duration window **(Partial charges duration)**

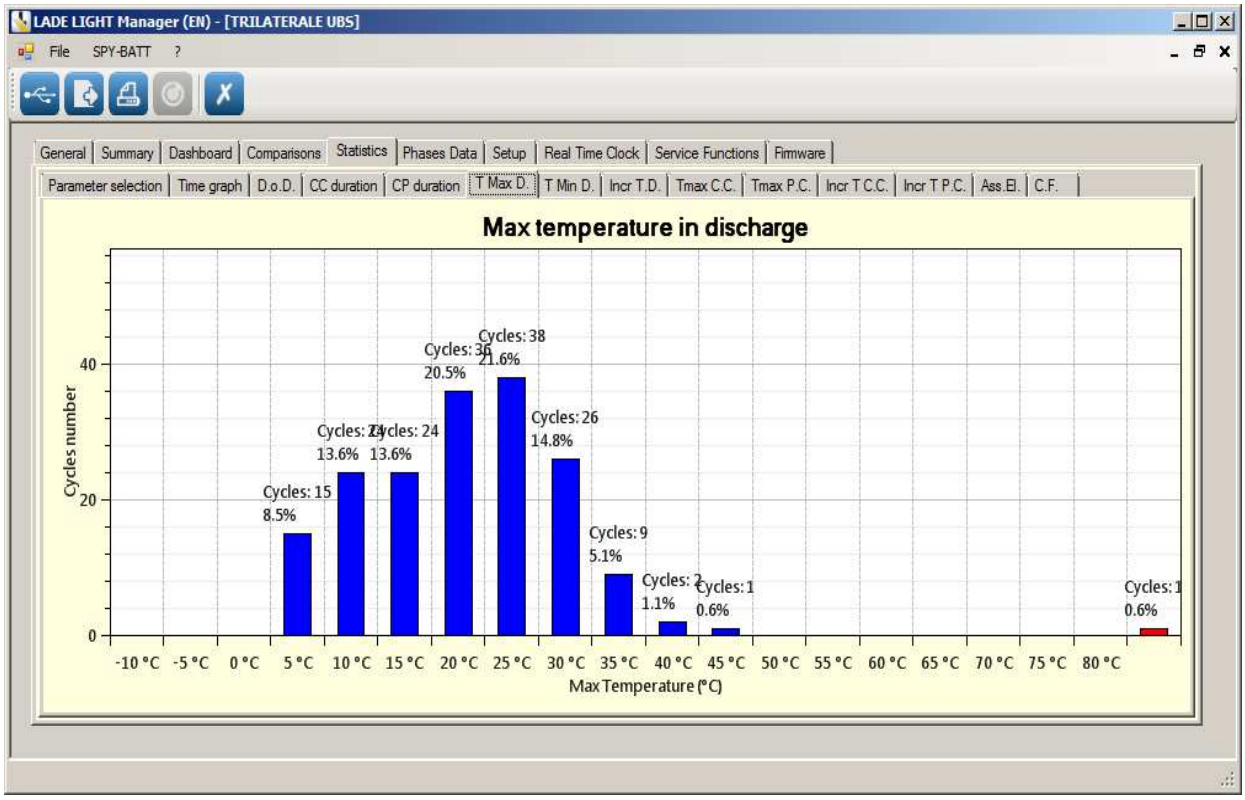
These two graphs show the distribution (in absolute number of cycles and in percentage with respect to the total amount of executed cycles) of complete and partial charges with respect to their duration.



12.6. *T Max D.* window **(Max Temperature in discharge)**

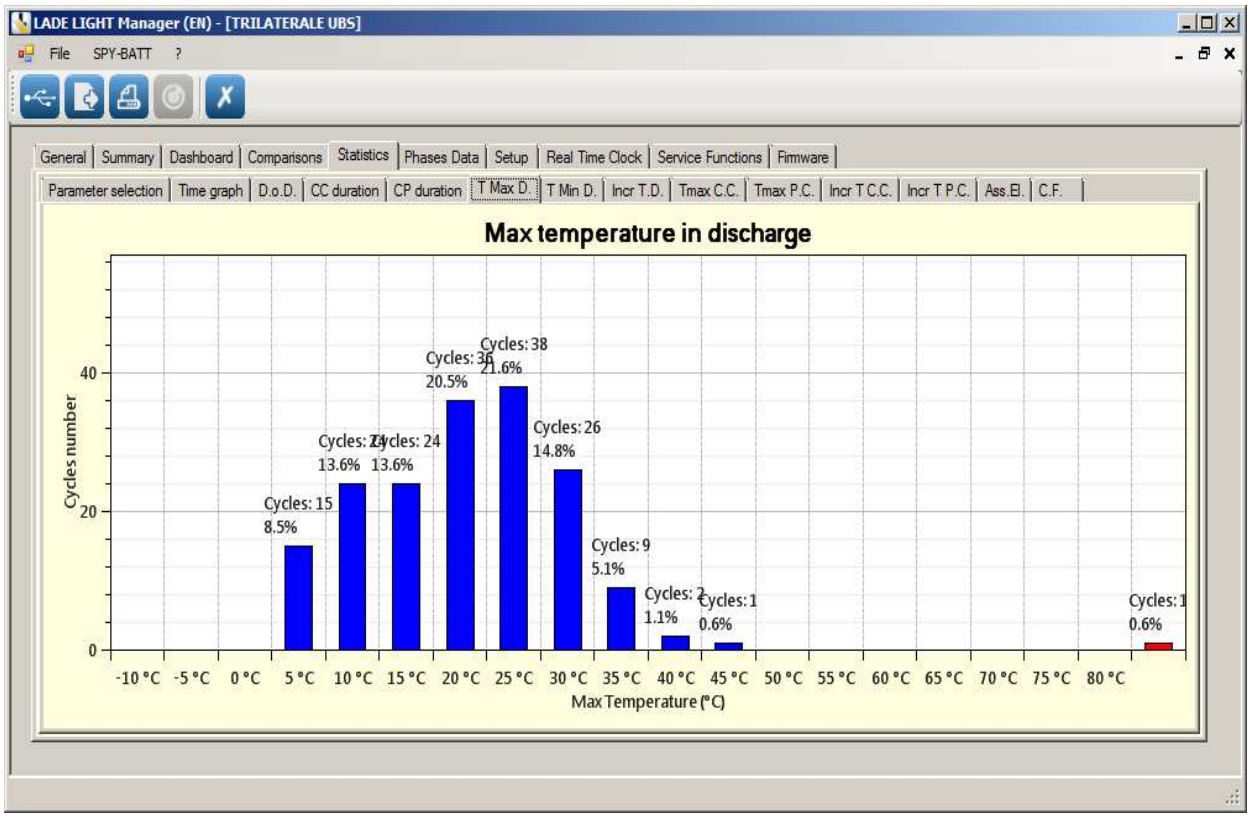
12.7. *T Min D.* window **(Min Temperature in discharge)**

These two graphs show the distribution of the maximum and minimum temperatures of the battery during all the discharge cycles (in percentage and absolute number).



12.8. *Incr T.D.* window **(Temperature increasing in discharge)**

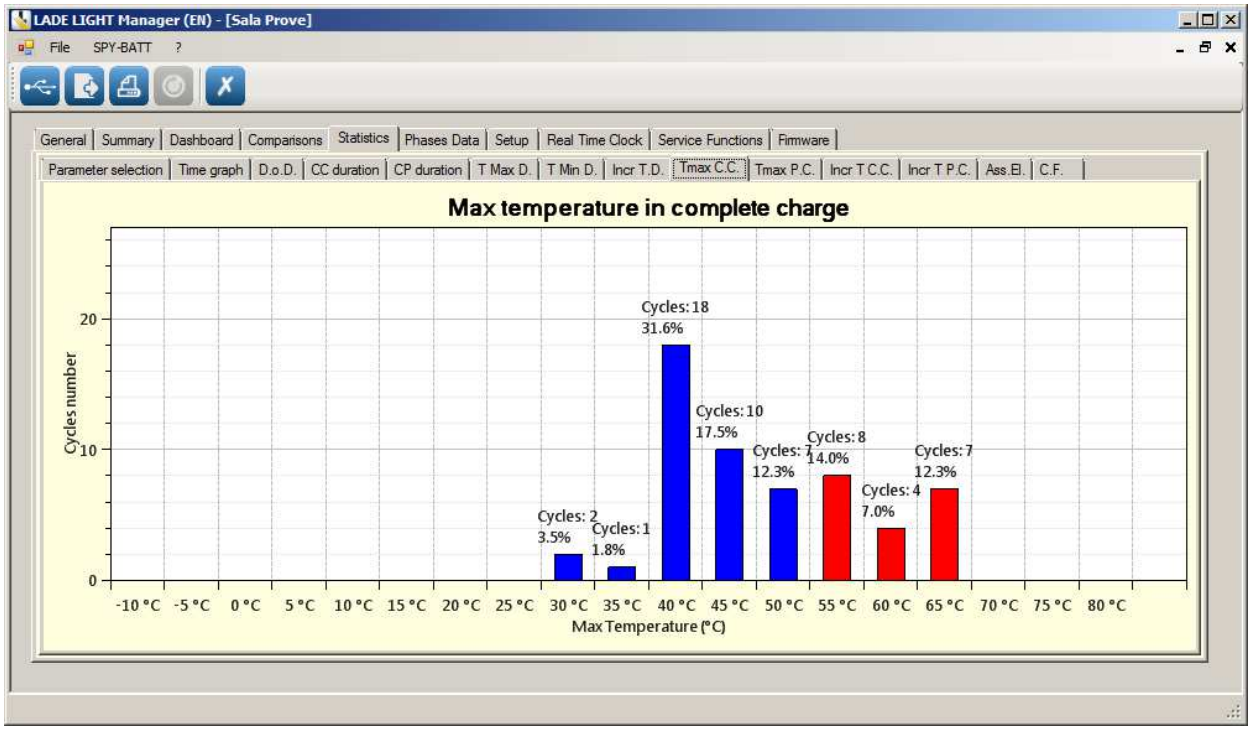
This graph shows the distribution and the entity of the temperature increasing during the phases of Discharge of the battery.



12.9. T max C.C. window **(Maximum temperature in complete charges)**

12.10. T max P.C. window **(Maximum temperature in partial Charges)**

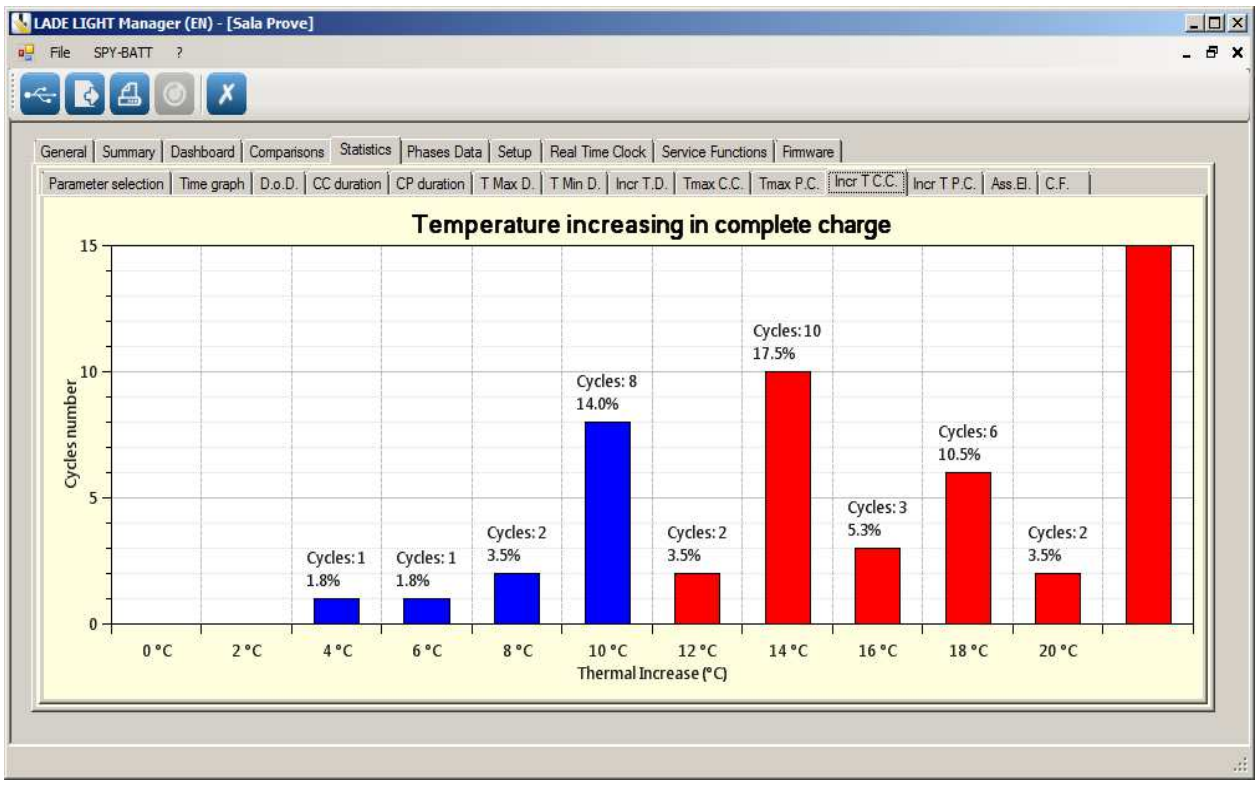
These two graphs show the distribution of the maximum temperatures of the battery registered during the cycles of partial and complete recharge.



12.11. Incr T C.C. window **(Temperature increasing in complete charge)**

12.12. Incr T P.C. window **(Temperature increasing in partial charges)**

These two graphs show the distribution of the temperature increase registered in the cycles of charge both partial and complete:



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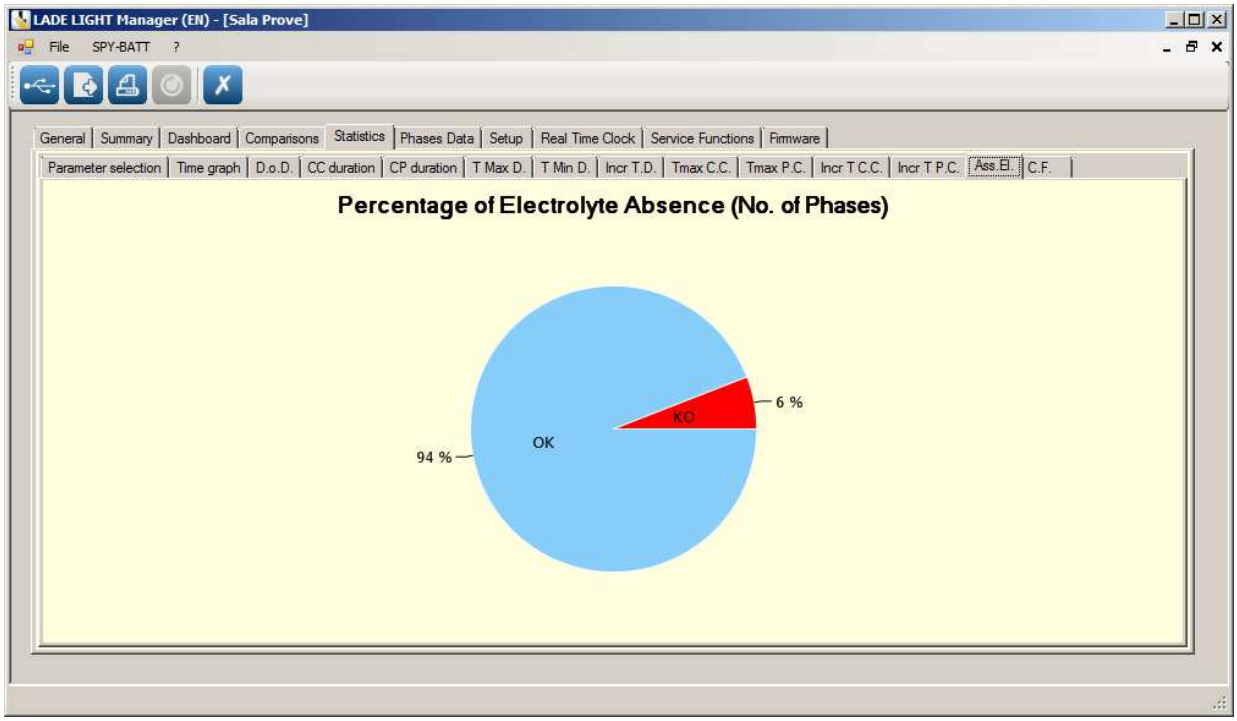
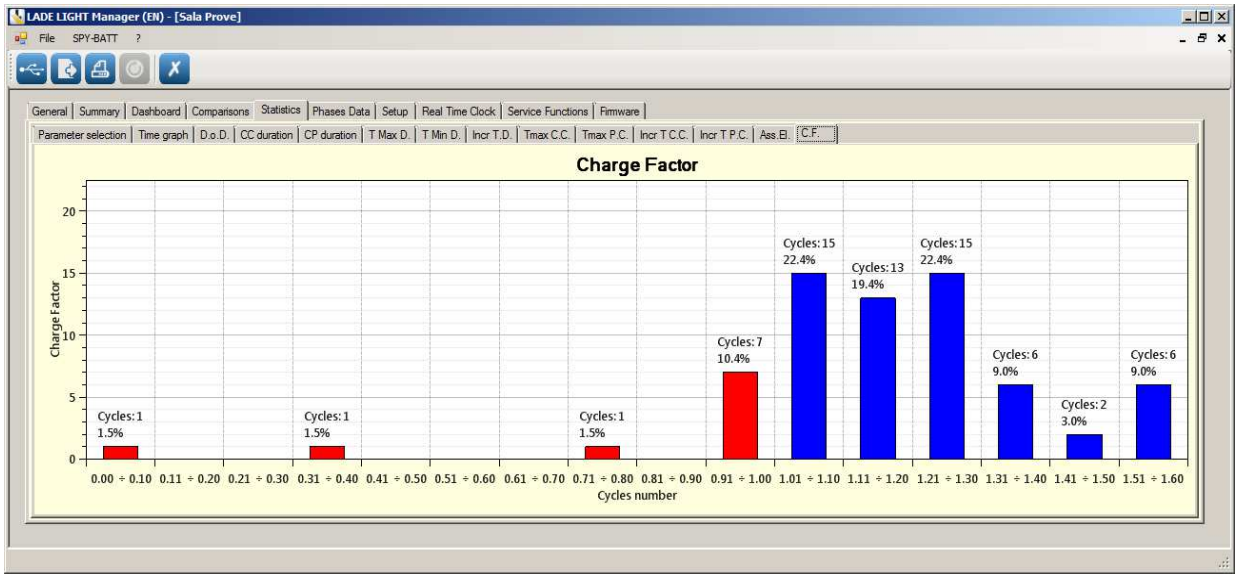
12.13. Ass El. window **(Percentage of Electrolyte Absence – N° of Phases)**

This graph show number of cycle, in percentage with respect to the total number of phases, in which has been reached a too low electrolyte level in the battery.



12.14. C.F. window **(Charge Factor)**

This graph show the distribution in the cycles of the average charging factor as a percentage of all of the cycles performed.



NOTE:

In graph from 12.3. to 12.14. the BLUE colour indicates a "normal value",
The RED colour indicates that the value is out of admitted range.

Activating the print from any of the windows from 12.3 to 12.14 will be printed the two pages of ***General report*** and all statistics charts (from 12.3 to 12.14, 6 total pages).

13. PHASES Data window

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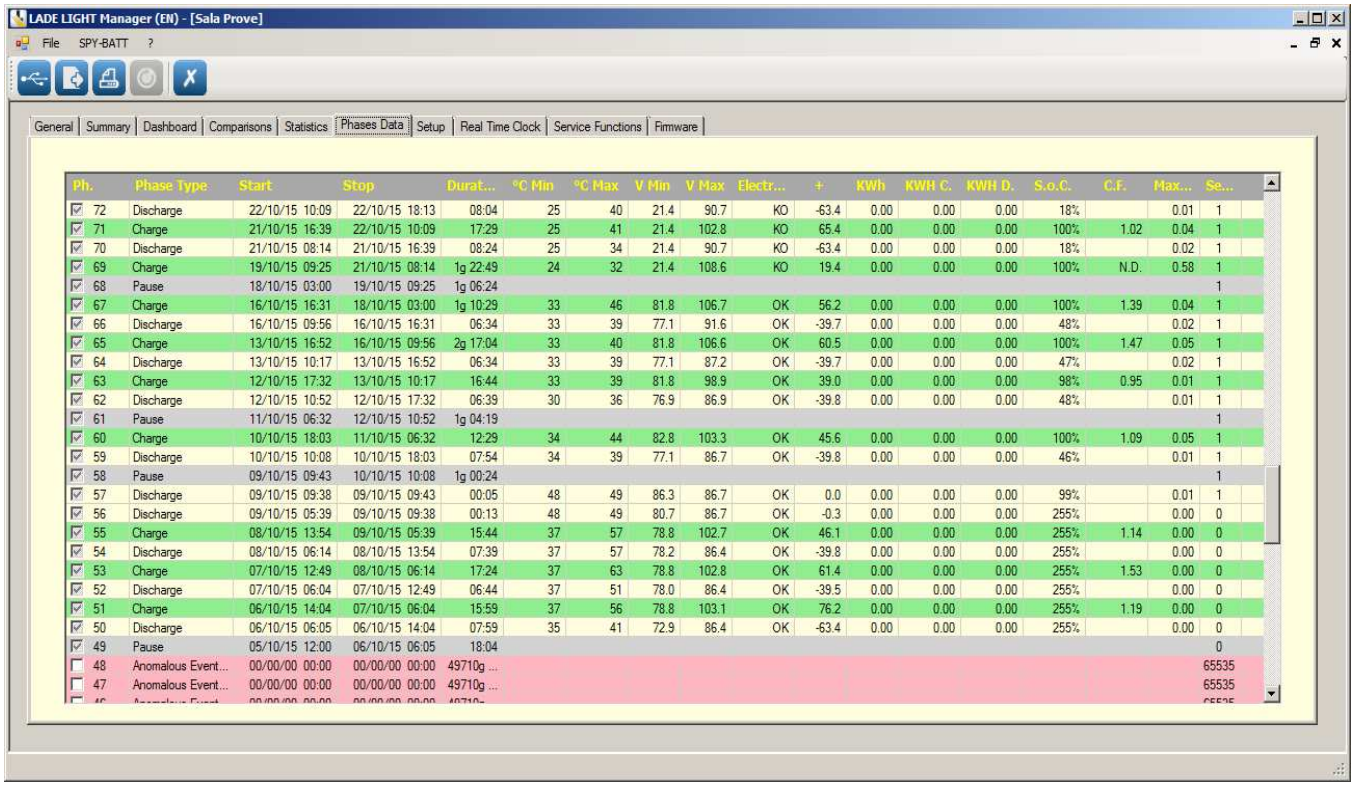
This window presents the complete list of all events registered, in chronological order from the more to the least recent.



Ph.	Phase Type	Start	Stop	Durat...	°C Min	°C Max	V Min	V Max	Electr...	+	KWh	KWH C.	KWH D.	S.o.C.	C.F.	Max...	Se...
72	Discharge	22/10/15 10:09	22/10/15 18:13	08:04	25	40	21.4	90.7	KO	-63.4	0.00	0.00	0.00	18%		0.01	1
71	Charge	21/10/15 16:39	22/10/15 10:09	17:29	25	41	21.4	102.8	KO	65.4	0.00	0.00	0.00	100%	1.02	0.04	1
70	Discharge	21/10/15 08:14	21/10/15 16:39	08:24	25	34	21.4	90.7	KO	-63.4	0.00	0.00	0.00	18%		0.02	1
69	Charge	19/10/15 09:25	21/10/15 08:14	1g 22:49	24	32	21.4	108.6	KO	19.4	0.00	0.00	0.00	100%	N.D.	0.58	1
68	Pause	18/10/15 03:00	19/10/15 09:25	1g 06:24													1
67	Charge	16/10/15 16:31	18/10/15 03:00	1g 10:29	33	46	81.8	106.7	OK	56.2	0.00	0.00	0.00	100%	1.39	0.04	1
66	Discharge	16/10/15 09:56	16/10/15 16:31	06:34	33	39	77.1	91.6	OK	-39.7	0.00	0.00	0.00	48%		0.02	1
65	Charge	13/10/15 16:52	16/10/15 09:56	2g 17:04	33	40	81.8	106.6	OK	60.5	0.00	0.00	0.00	100%	1.47	0.05	1
64	Discharge	13/10/15 10:17	13/10/15 16:52	06:34	33	39	77.1	87.2	OK	-39.7	0.00	0.00	0.00	47%		0.02	1
63	Charge	12/10/15 17:32	13/10/15 10:17	16:44	33	39	81.8	98.9	OK	39.0	0.00	0.00	0.00	98%	0.95	0.01	1
62	Discharge	12/10/15 10:52	12/10/15 17:32	06:39	30	36	76.9	86.9	OK	-39.8	0.00	0.00	0.00	48%		0.01	1
61	Pause	11/10/15 06:32	12/10/15 10:52	1g 04:19													1
60	Charge	10/10/15 18:03	11/10/15 06:32	12:29	34	44	82.8	103.3	OK	45.6	0.00	0.00	0.00	100%	1.09	0.05	1
59	Discharge	10/10/15 10:08	10/10/15 18:03	07:54	34	39	77.1	86.7	OK	-39.8	0.00	0.00	0.00	46%		0.01	1
58	Pause	09/10/15 09:43	10/10/15 10:08	1g 00:24													1
57	Discharge	09/10/15 09:38	09/10/15 09:43	00:05	48	49	86.3	86.7	OK	0.0	0.00	0.00	0.00	99%		0.01	1
56	Discharge	09/10/15 05:39	09/10/15 09:38	00:13	48	49	80.7	86.7	OK	-0.3	0.00	0.00	0.00	255%		0.00	0
55	Charge	08/10/15 13:54	09/10/15 05:39	15:44	37	57	78.8	102.7	OK	46.1	0.00	0.00	0.00	255%	1.14	0.00	0
54	Discharge	08/10/15 06:14	08/10/15 13:54	07:39	37	57	78.2	86.4	OK	-39.8	0.00	0.00	0.00	255%		0.00	0
53	Charge	07/10/15 12:49	08/10/15 06:14	17:24	37	63	78.8	102.8	OK	61.4	0.00	0.00	0.00	255%	1.53	0.00	0
52	Discharge	07/10/15 06:04	07/10/15 12:49	06:44	37	51	78.0	86.4	OK	-39.5	0.00	0.00	0.00	255%		0.00	0
51	Charge	06/10/15 14:04	07/10/15 06:04	15:59	37	56	78.8	103.1	OK	76.2	0.00	0.00	0.00	255%	1.19	0.00	0
50	Discharge	06/10/15 06:05	06/10/15 14:04	07:59	35	41	72.9	86.4	OK	-63.4	0.00	0.00	0.00	255%		0.00	0
49	Pause	05/10/15 12:00	06/10/15 06:05	18:04													0
48	Anomalous Event...	00/00/00 00:00	00/00/00 00:00	49710g ...													65535
47	Anomalous Event...	00/00/00 00:00	00/00/00 00:00	49710g ...													65535

For each event are presented the following parameters:

- ***Ph.:*** Number of event.
- ***Phase type:*** Charge (GREEN row) – Discharge (YELLOW row) – Pause (GREY row).
- ***Start:*** Starting date and time of the event registration.
- ***Stop:*** Ending date and time of the event registration.
- ***Duration:*** Total duration of the event (days : hours : minutes).
- ***°C Min.:*** Minimum Temperature registered during the event expressed in Celsius degrees.
- ***°C Max.:*** Maximum Temperature registered during the event expressed in Celsius degrees.
- ***Vmin:*** Minimum tension of the battery registered during the event.
- ***Vmax:*** Maximum tension of the battery registered during the event.
- ***Electrolyte:*** Status of the electrolyte (OK= sufficient level, KO= low level).
- ***Ah:*** In Discharge: Ampere-Hour ceded by the battery - In Charge: Ampere-Hour charged by the battery.
- ***KWh:*** Total energy managed during the event expressed in kilowatts-hour.
- ***KWh C.:*** Energy charged in the battery during the event expressed in kilowatt-hour.
- ***KWh S.:*** Energy supplied by the battery during the event of discharge expressed in kilowatt-hour.
- ***S.o.C.:*** Index of the status of charge of the battery reached in that event.
- ***C.F.:*** Charge Factor.
- ***Max. Sbil.:*** Maximum recorded unbalance between the various sectors related to the battery voltage sockets.
- ***Setup:*** Type of configuration SPY_BATT in use during the registration of the event.

By double clicking on any Charge or Discharge event row, it is possible to see the detailed analysis of the selected event.

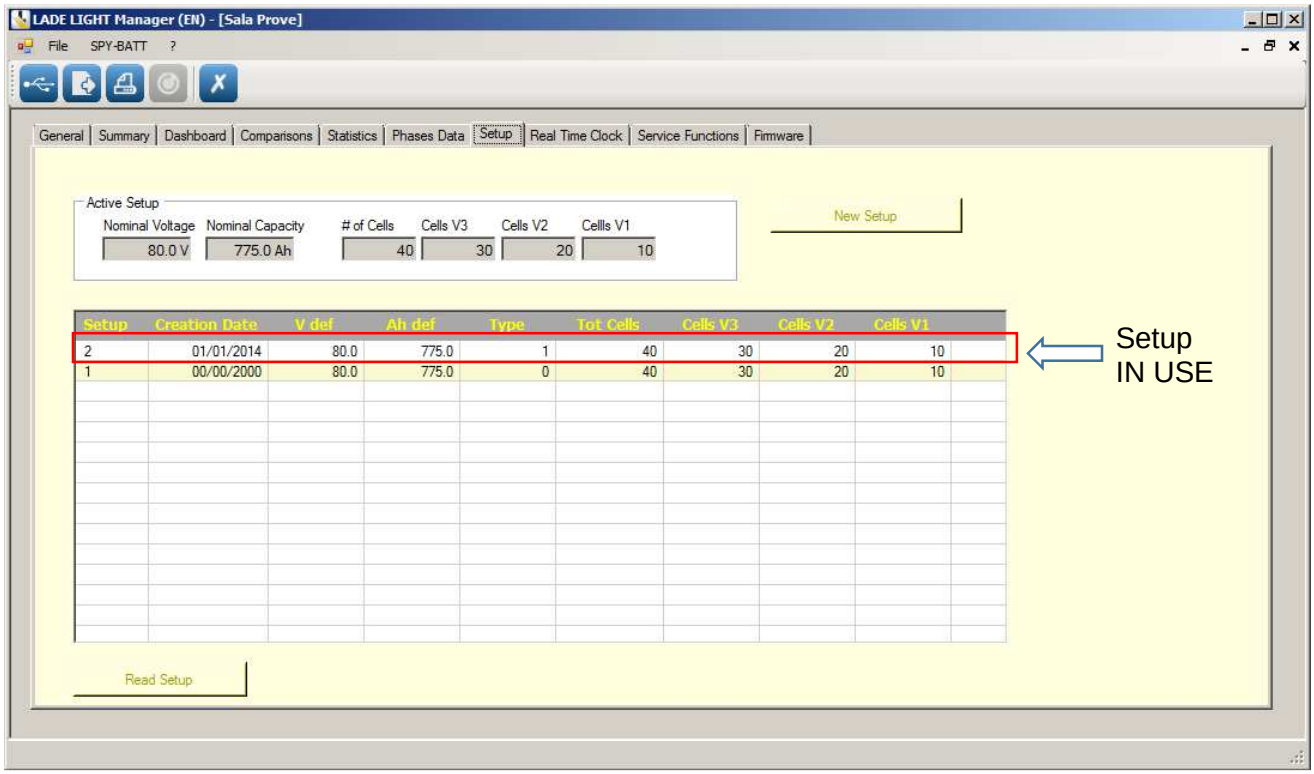
In this way, the first window of ***PHASE Chart graph*** *(in Detail section)* automatically appears.
(See par. ***12.2.1****. :* ***PHASE Chart graph***).

This function is not available on PAUSE phase, because these phases not contain meaningful data.

In the table, it is also possible to find the registrations of ***Anomalous Event*** that will be highlighted in red.

14. SETUP Window:

In the **Setup** window, it is possible to create a new **Setup** for the connected **SPY_BATT.**
This function is mainly used to perform the first installation of the **SPY-BATT** (See the ***SPY-BATT installation manual***), but also to create a new setup of the same device.



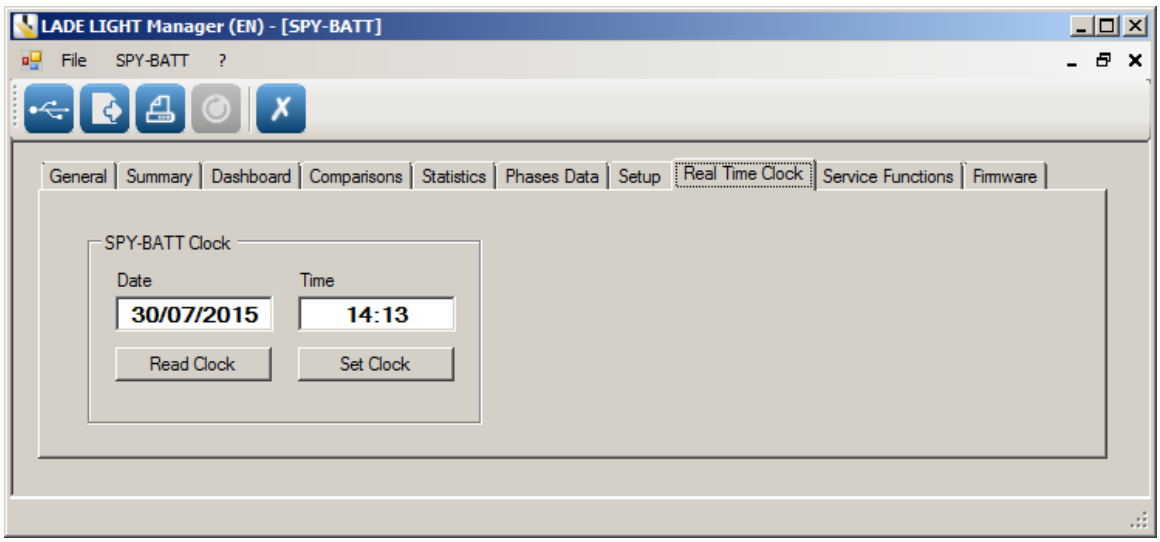
NOTE: The first configuration in the list is the one in current use. Other configurations present in the list cannot be reactivated on the SPY-BATT. If you want to revert to an earlier configuration, although already present in the table, you will have to redefine it as new.

To create a new configuration, fill in all the fields of the section ***Active Setup*** and click the button ***New Setup.*** (This operation is possible only if a **SPY-BATT** is connected).

In the summary table, are presented all the configurations saved on the **SPY-BATT**. If a **SPY-BATT** is connected to the PC, by click the button ***Read Setup***, the table will be updated with the setups present in the device memory.

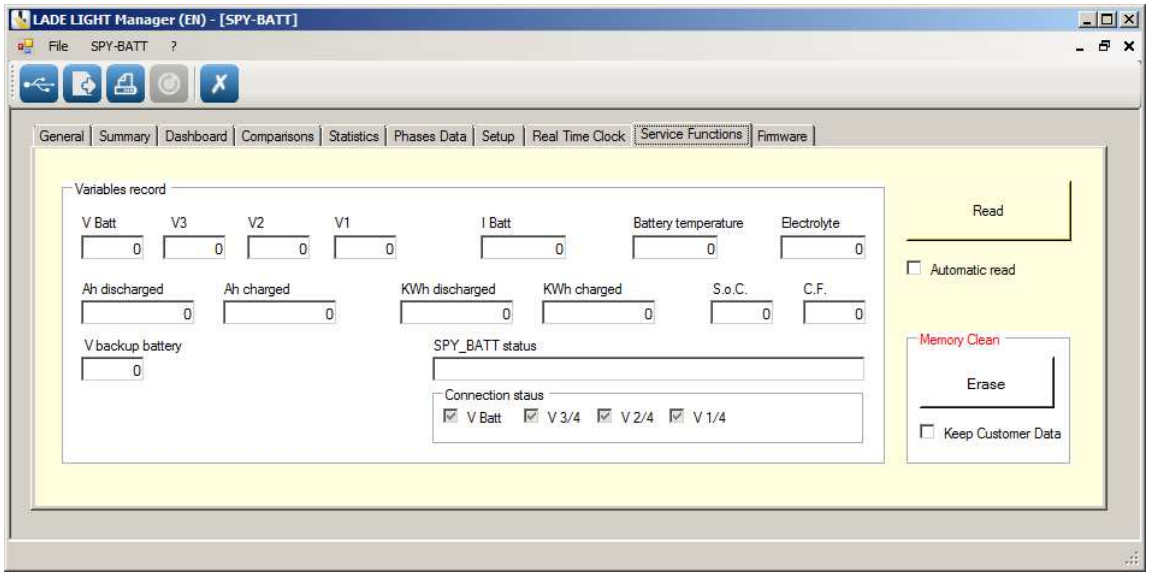
15. REAL TIME CLOCK Window:

Click the button **Read Clock** to verify the date and time of the connected device.
Click the button **Set Clock** to automatically update the date and time of the device with the date and time of the PC in use.



16. SERVICE FUNCTIONS Window:

To verify all the connections of the **SPY-BATT** on the battery, open the window ***Service Functions.***



By activating the button **Read**, the values in section **Variables record,** are updates with the real values read in that moment from the **SPY-BATT:**

- Voltage ***V Batt.***
- Voltage of the intermediate sockets **V3 – V2 – V1.**
- Current of charge or discharge **I Batt.**
- Battery temperature.
- Electrolyte presence.

By select the box ***Automatic read***, the values will be read and update every 5 seconds.

This function is basically used to verify the correct sequence of the connections of the **SPY-BATT** after the first installation. (See the ***SPY-BATT installation manual***).

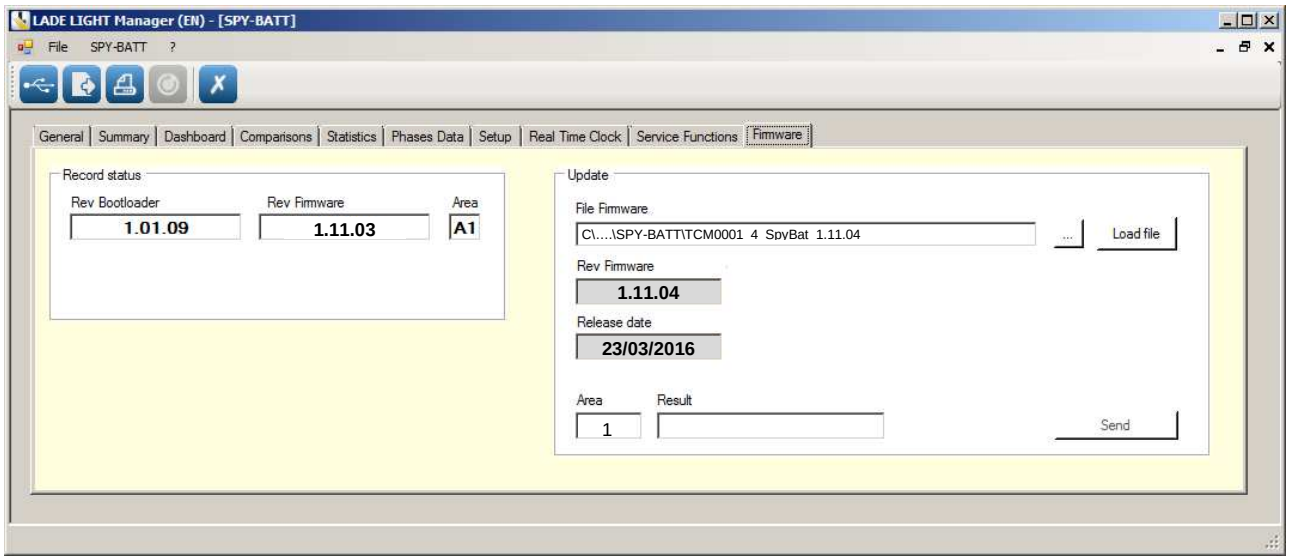
The button ***Erase,*** in the **Memory Clean** box, can be used to delete all data present on the connected ***SPY-BATT***.

You can erase only the ***Data memory*** and preserve the ***Customer data*** selecting ***Keep Customer data*** function in ***Memory clean*** section.

!!! WARNING !!!
Data cancelled will be permanently lost. To execute this operation,
a specific deletion code may be asked by the system. Ask for this code to the producer.

17. FIRMWARE Window:

In **Record status** section, are shows the Bootloader and Firmware revisions of the connected **SPY-BATT**.



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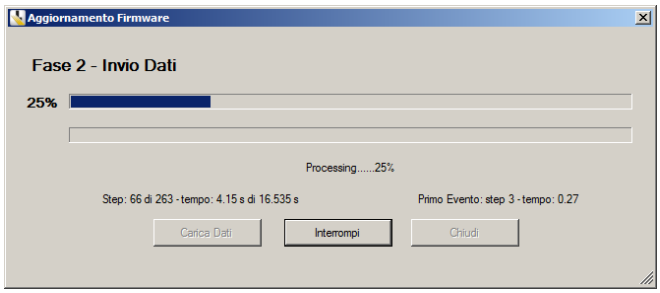
In the section **Update** it is possible to update the Firmware of the connected device with a more recent version, available for download from the website ***www.spybatt.it.***

WARNING: It is suggested to save the data of the SPY-BATT before executing the Firmware update, as a sudden odd interruption of the download may delete data in the memory.

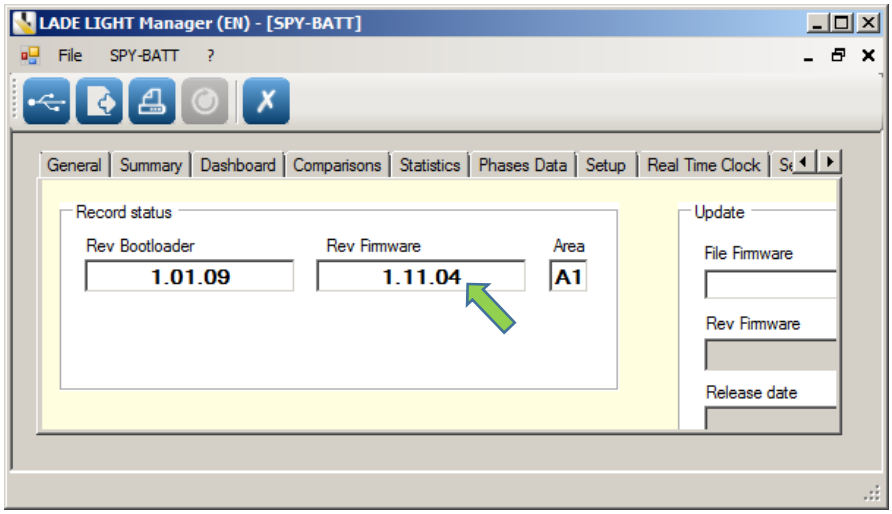
To execute the update of the firmware:

- Download and save the new Firmware on the PC.
- Select the origin path of the file through the button …
- Upload the file by activating the button ***Load file***
- Update the firmware by clicking the button ***Send.***

Wait for the download….



The fields of the section ***Record status*** will be updated with the new version of the Firmware.



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