

# User Manual

Revision 2.002  
English

## Modbus Master - Datalogger

(Order Code: HD67112)

for Website information:

[www.adfweb.com?Product=HD67112](http://www.adfweb.com?Product=HD67112)

for Price information:

[www.adfweb.com?Price=HD67112](http://www.adfweb.com?Price=HD67112)

### Benefits and Main Features:

- ▶ Designed for serious use
- ▶ Standard RS485 up to 115Kbps ready for ModBUS RTU protocol
- ▶ Configurable store variables list
- ▶ Different configurable sample time
- ▶ Included Configuration Software
- ▶ Rail DIN mounting



HD67112

For other Datalogger:

#### **Datalogger Modbus RTU Slave**

See the following link:

[www.adfweb.com?Product=HD67113](http://www.adfweb.com?Product=HD67113)

#### **Datalogger CANopen**

See the following link:

[www.adfweb.com?Product=HD67133](http://www.adfweb.com?Product=HD67133)

Do you have an your customer protocol?

See the following links:

[www.adfweb.com?Product=HD67003](http://www.adfweb.com?Product=HD67003)

Do you need to choose a device? do you want help?

Ask it to the following link:

[www.adfweb.com?Cmd=helpme](http://www.adfweb.com?Cmd=helpme)

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**UPDATED DOCUMENTATION:**

Dear customer, we thank you for your attention and we remind you that you need to check that the following document is:

- Updated
- Related to the product you own

To obtain the most recently updated document, note the "document code" that appears at the top right-hand corner of each page of this document.

With this "Document Code" go to web page [www.adfweb.com/download/](http://www.adfweb.com/download/) and search for the corresponding code on the page. Click on the proper "Document Code" and download the updates.

To obtain the updated documentation for the product that you own, note the "Document Code" (Abbreviated written "Doc. Code" on the label on the product) and download the updated from our web site [www.adfweb.com/download/](http://www.adfweb.com/download/)

**REVISION LIST:**

Revision	Date	Author	Chapter	Description
1.005	19/06/2005	Ddt	All	documentation code changed
1.006	22/06/2007	Av	All	Revision
1.007	26/06/2007	Av	All	Revision
2.000	13/07/2007	Av	All	New document format
2.001	21/05/2010	Dp	All	Revision
2.002	15/02/2013	Nt	All	Added new chapters

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**SECURITY ALERT:****GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device are required for each individual application, legal and safety regulation. The same applies also when using accessories.

**INTENDED USE**


Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

**QUALIFIED PERSONNEL**

The device can be used only by qualified personnel, strictly in accordance with the specifications. Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

**RESIDUAL RISKS**

The device is state of the art and is safe. The instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:

 This symbol indicates that non-observance of the safety instructions is danger for people to serious injury or death and / or the possibility of damage.

**CE CONFORMITY**

The declaration is made by us. You can send an email to [support@adfweb.com](mailto:support@adfweb.com) or give us a call if you need it.

**FEATURES:**

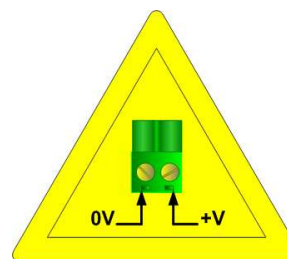
- Stand-alone hardware recorder
- real time clock
- 1 Mbyte of memory
- export data in format MSEXcel (format CSV)
- Electrical isolation between RS232 and RS485
- Mountable on Rail DIN
- Max Baud Rate 115.200 bps
- Power Supply 12...18V AC, 3 VA or 12...24V DC
- Temperature range -20°C to 70°C
- EMS EN 61000-6-2

**POWER SUPPLY:**

Recommended Power Supply	
VDC	VAC
24v	12v

VDC		VAC	
Vmin	Vmax	Vmin	Vmax
8v	35v	8v	19v

**Caution: Not reverse the polarity power .**



HD67112

**CHARACTERISTICS:**

The Datalogger Modbus allows the following:

- a serial port RS485 , to acquire field data
- an internal real time clock
- a memory
- a serial port RS232
  - to program the device
  - to download the data acquired.

The Datalogger is able to read data from a RS485 line through the ModBUS protocol, and then save the data that it read in the internal memory.

The Datalogger is organized in Commands and the Commands are subdivided into Groups.

A Command is a request for the ModBUS RS485 to read.

A Command is defined based on the following:

- Device Slave Address
- type of data to read ( 3 :input register, 4: status register )
- Data Address in the slave Device
- number of data to read (beginning with: "Data Address")

The Groups are combinations of Commands which have the same time of scanning.

The scanning time is expressed in seconds and represents the time that the Datalogger waits before re-reading the data in that Group.

**SOFTWARE USES:**

To configure the datalogger, use the available software that runs with windows, called SW67112. It is downloadable on the site <http://www.adfweb.com/home/download/download.asp>

(This manual is referenced to the last version of the software present on our web site)

The software allows for:

- programming the RS485 parameters,
- defining and regrouping the commands,
- monitoring the state of the Datalogger
- programming the data and time of the Datalogger
- downloading the acquired data from the Datalogger
- exporting the data downloaded in a format compatible with Excel.
- drawing the graphics
- cancelling the Datalogger memory

**THE PROJECT:**

The Project contains the combination of information necessary for the configuration of the DataLogger device.

The Project is saved in a folder in the Personal Computer where the software DataLogger-Management is installed.

The DataLogger-Management software allows for:

- Creating, Modifying, Saving the Project in the Personal Computer
- Uploading and downloading the Project in the DataLogger device

The Project must be uploaded in the internal DataLogger so that it can be configured.

To read the recorded data in the DataLogger device, the DataLogger-Management software must know the Project that is uploaded in the DataLogger.

If the Project is not available in the Personal Computer's folder, it is possible to download it from the DataLogger device so that all the most important information will be recovered, otherwise the descriptive Commands and Groups information will be lost.

**THE INTERFACE:**

**CONNECTION:**

The “connection” window (Fig. 1) allows Personal Computer RS232 port connects to the DataLogger device.

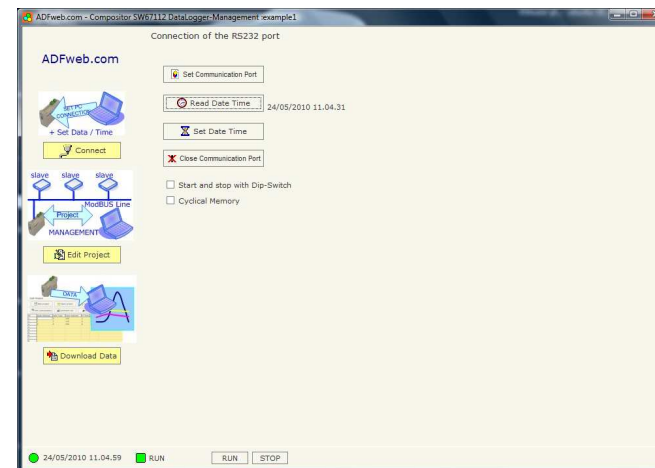


Figure 1: “Connection” window

The “Set Communication port” (Fig.2) button serves to connect the DataLogger device to Personal Computer.



Figure 2: “Select communication port” window



The "Set Date Time" button serves to create the date and internal time clock for the DataLogger device.

When the connection of the Device is activated, the software will monitor the DataLogger device functions, the function states are visible in the "Status Bar" at the bottom of the main screen of the software.

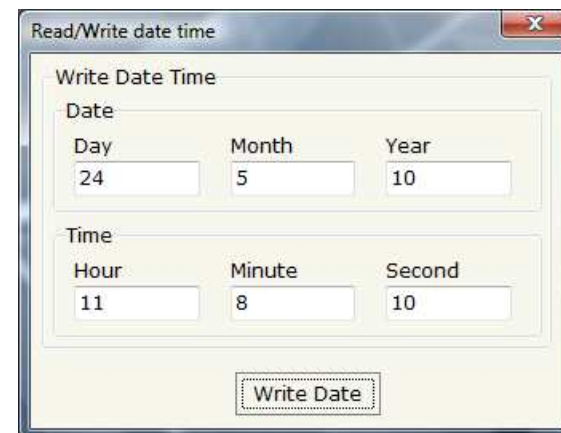


Figure 3: "Read/write date time" window

### The "Status Bar"

Led = state of connection

Red = port RS232 not connected

Yellow = port RS232 connected and DataLogger device not detected

Green = DataLogger connected to software

Date -Time: this Label indicates the date and time of the DataLogger (this can be different from the time in the PC).

The Stop/ Run Buttons serve to block the DataLogger from functioning (readings do not occur on the 485 line) or vice-versa to reactivate it.

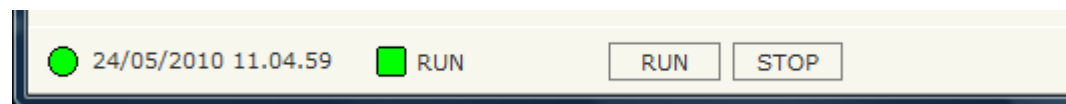


Figure 4: Status bar

**EDIT PROJECT:**

The "New Project" button creates the folder which contains the entire device configuration. A device configuration can also be imported and exported:

- To clone the configurations of the Gateway in order to configure another Gateway device in the same manner, it is necessary to maintain the folder and all its contents.
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open it with the button "Open Project".

Upload project , allows the Project present in the Datalogger device to be brought to the Personal Computer, where it then will be saved with the name, "Temp\_prj", and all descriptive references will be lost.

When a new project is created or an existent project is open, it will be possible to access the various configuration sections of the software.

**Set Communication.**

By pressing the "Set Comm" button the window "Set communication" appears (Fig. 5):

- In the field "Baud Rate", the velocity of the serial is defined;
- In the field "Parity", the serial parity is defined;
- "MB Timeout" is the maximum time that the device attends for the answer from the Slave interrogated.

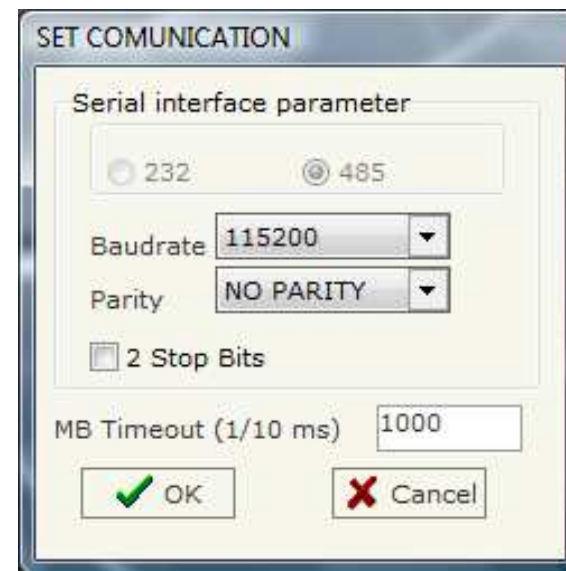


Figure 5: "Set communication" window

**Command List:**

This grid allows for the creation of a list of ModBUS commands to be carried out on the 485 line.

By pressing the "Comman list" button the "Command list" window appears (Fig. 6):

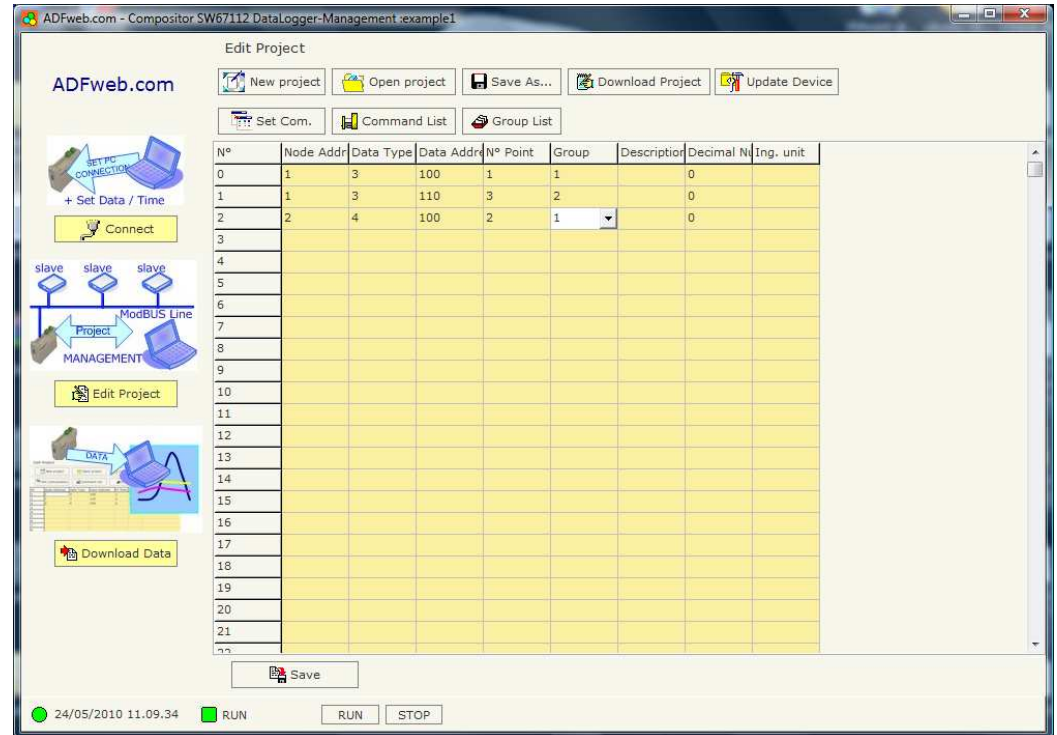


Figure 6: "Command list" window

- Node address: indicates the address of the Slave ModBUS .
- Data type: type of data to be read ( 3 :input register, 4: status register ).
- Data Address: the address of the first Word to read in the slave Device.
- Point No.: number of data to read ( beginning with Data Address).
- Group : Group it belongs to.
- Description : Mnemonic String.
- Decimal Number : Represents the digit of decimal (if is a real value)
- Ing. Unit : It is the Measure Unit of the data

**GROUP LIST:**

The Group List grid sets up the scanning interval (expressed in seconds) for each group of Commands. The Update device functions to allow for the downloading of all of the parameters within the DataLogger.

The programming of parameters is an action that is performed when the "firmware" is downloaded. For downloading firmware click on Update device and then follow the instruction on screen.

By pressing the "Group list" button the "Group list" window appears (Fig. 7):

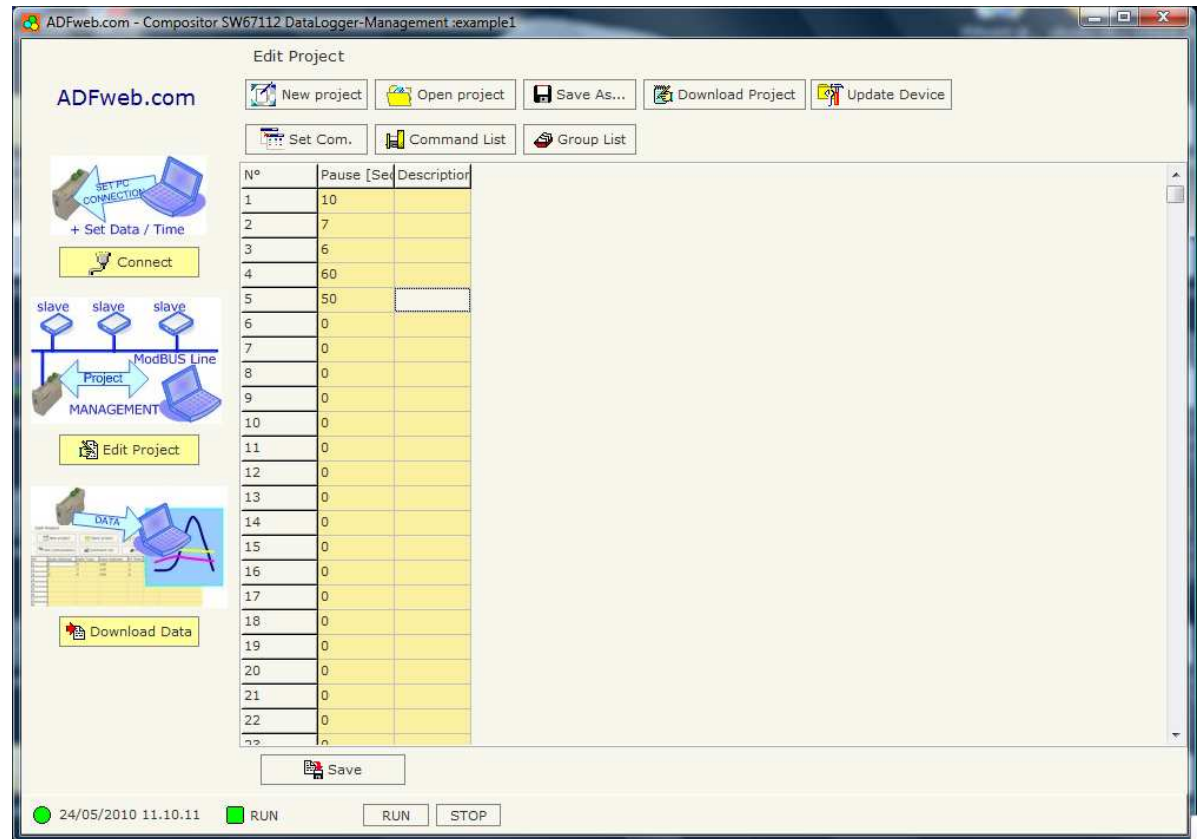


Figure 7: "Group list" window

**UPDATE DEVICE:**

The Update device functions to allow for the downloading of all of the parameters within the DataLogger.

The programming of parameters is an action that is performed when the "firmware" is downloaded.

For downloading firmware click on Update device and then follow the instruction on screen (Fig. 8).

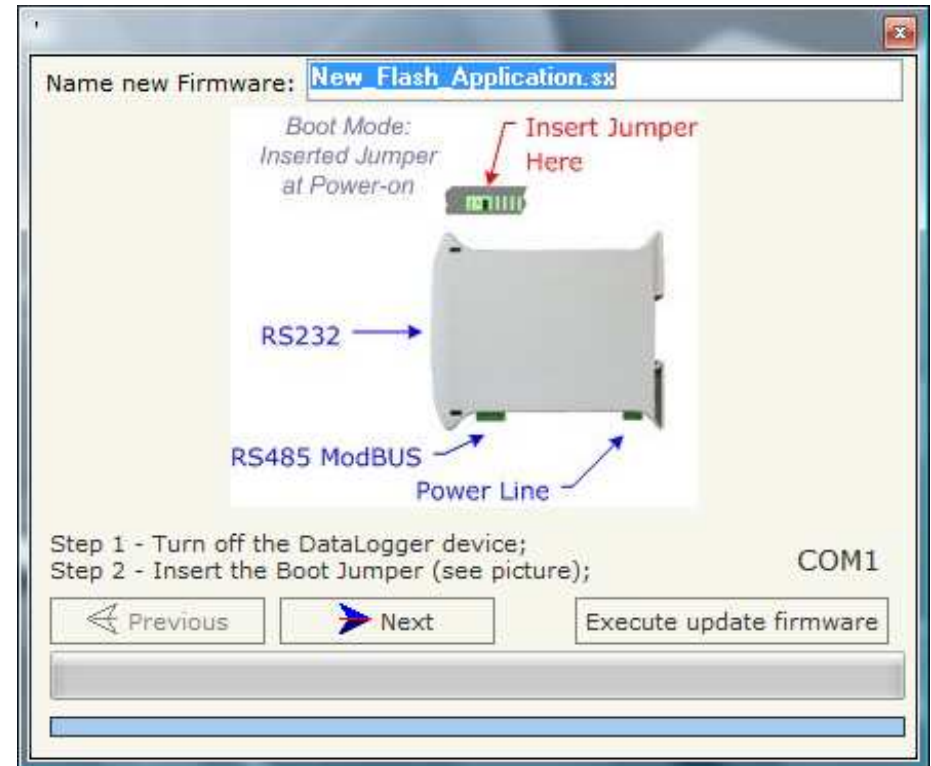


Figure 8: "update device" window

**DOWNLOAD DATA SECTION:**

By pressing the "Download data" button, the "Download data" window appears (Fig. 9):

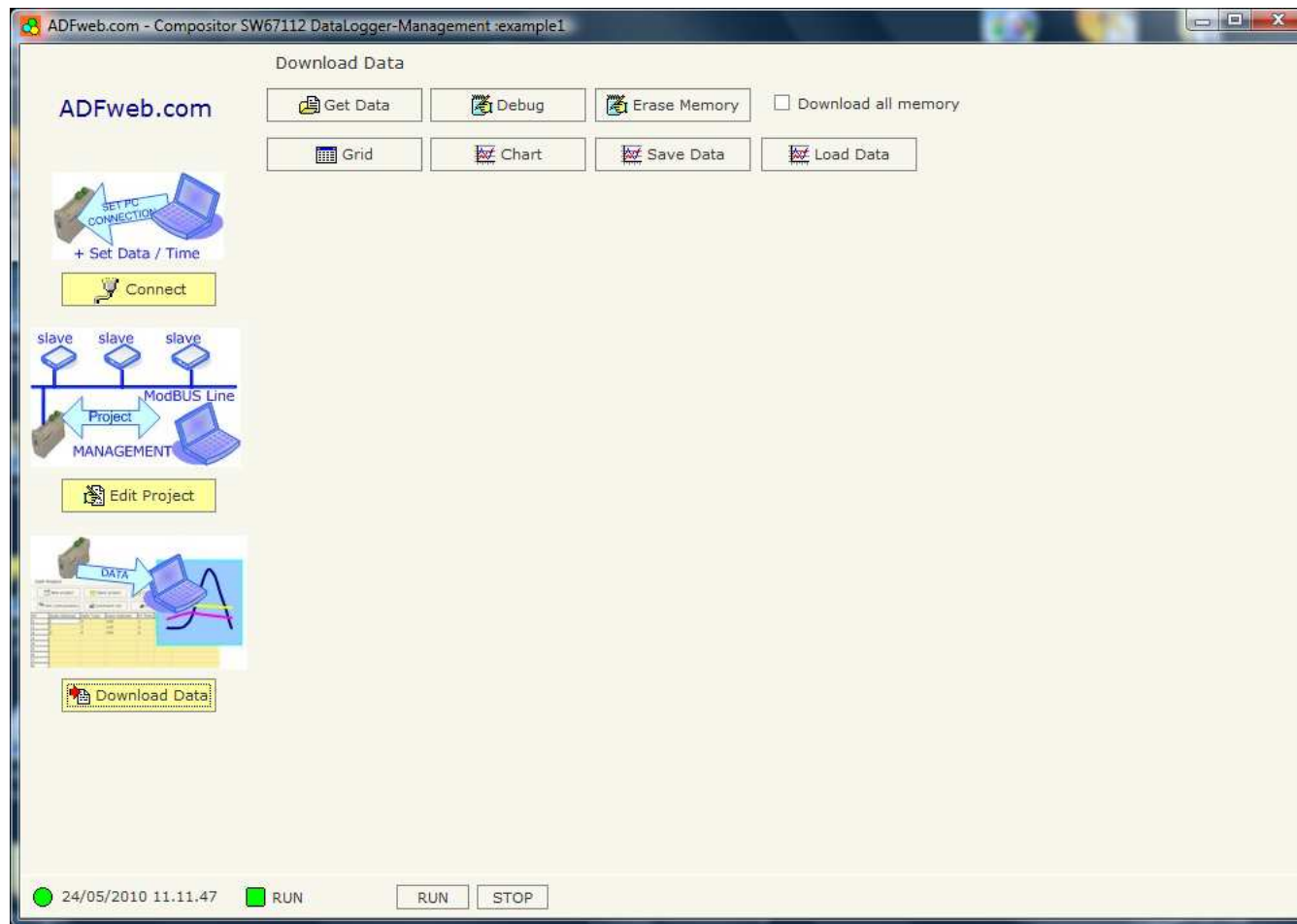


Figure 9: "Download data" window

### Get data

Permits the scanning data from the DataLogger device to be downloaded. The reading can last a long time if there is a lot of recorded data inside the DataLogger device.

By pressing the "Get data" button the "Get Data" window appears (Fig. 10):

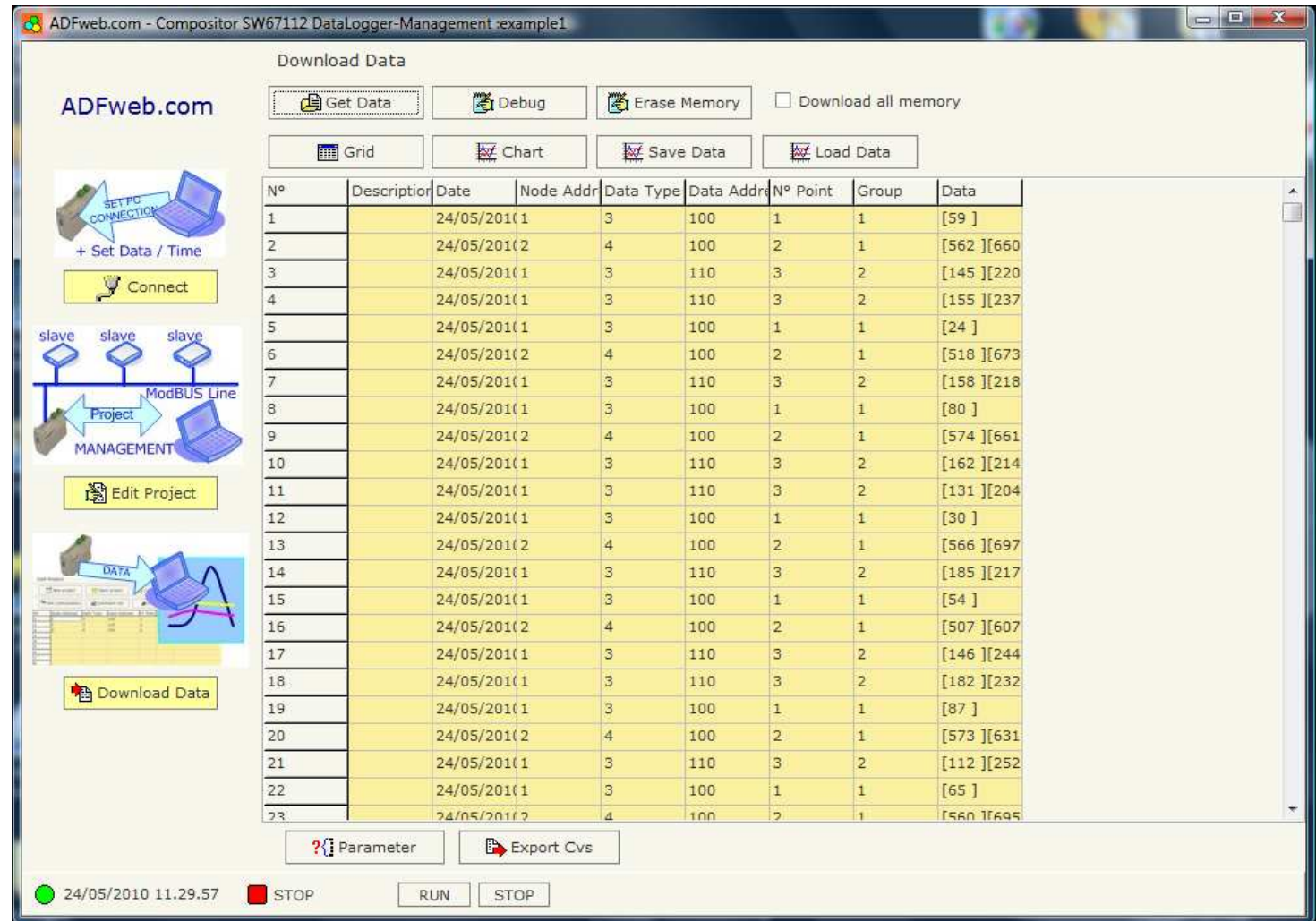


Figure 10: "Get data" window

It is possible to filter the data visualized in the grid by pressing the button, "Parameter".  
By pressing the "Parameter" button, the "Filter & Param" window appears (Fig. 11):

In the same screen, it is possible to choose the visualization format for the following values: Decimal, hexadecimal, or Boolean.  
It is also possible to hide the index column .

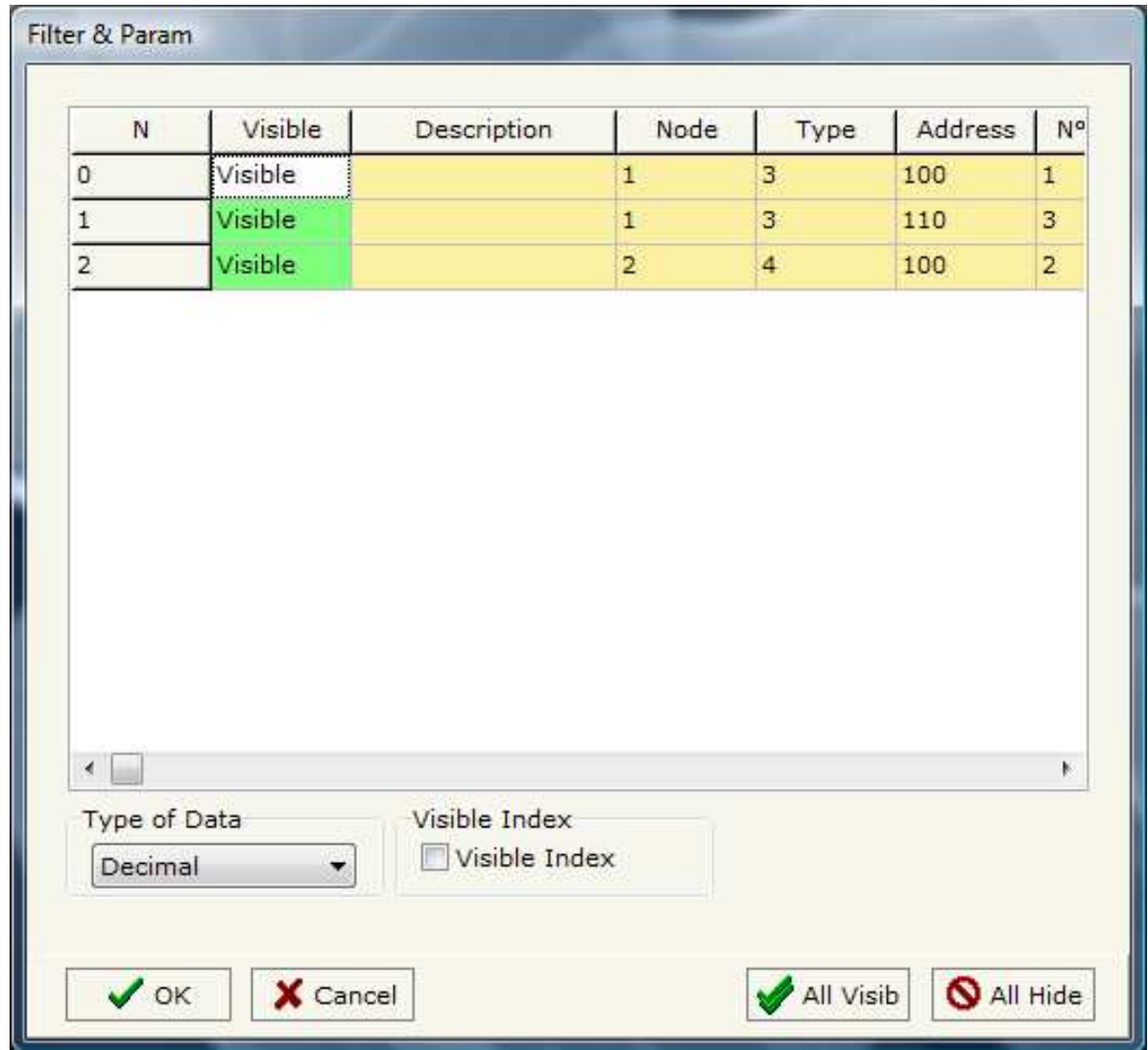


Figure 11: "Filter & Param" window



**GRAPHICS:**

By selecting only one command, it is possible to map out the data graphics taken from the DataLogger device.

Erase memory: the function that allows all the DataLogger device memory to be erased so that the DataLogger device can rewrite from the beginning.

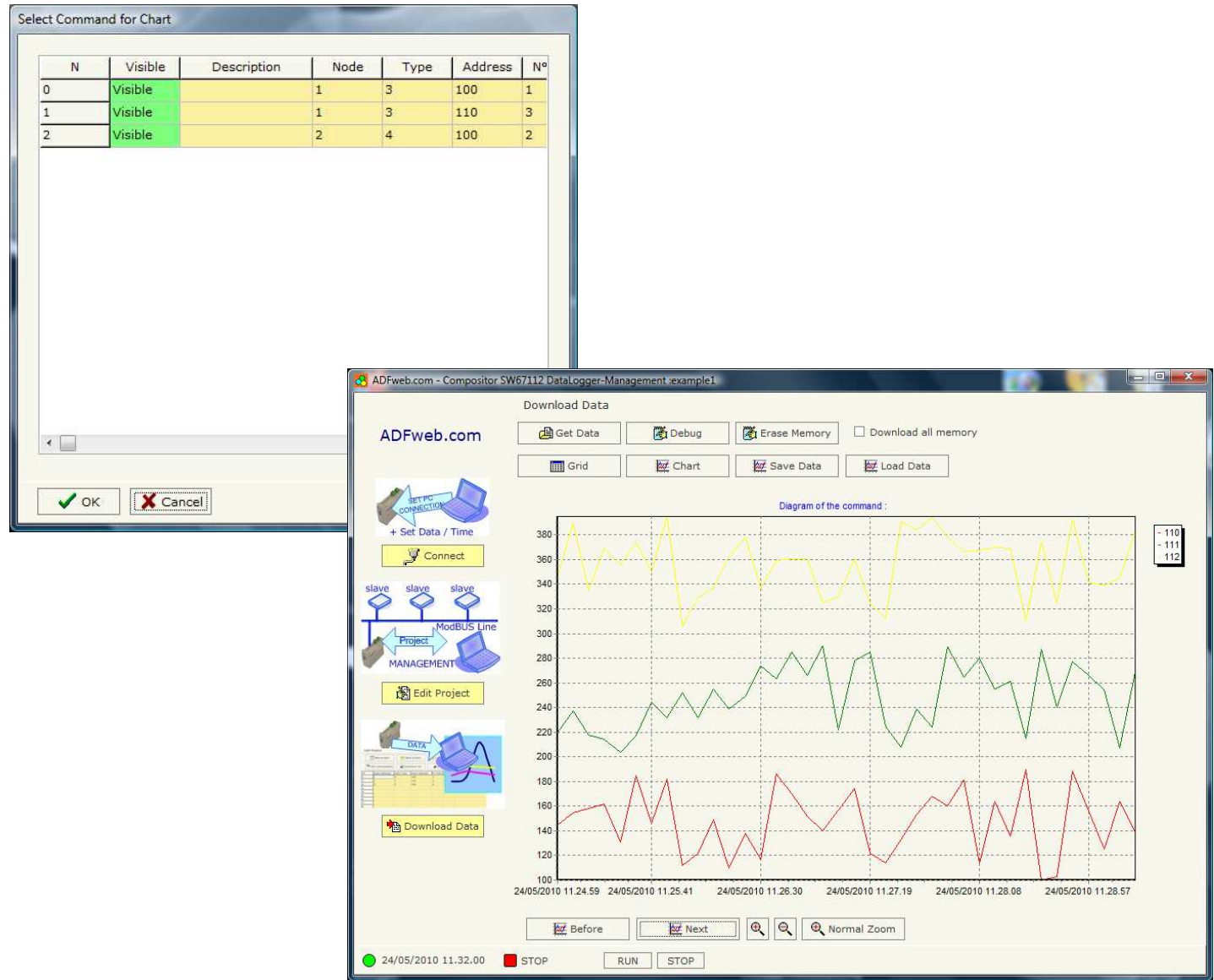


Figure 12: "Select Command for Chart" and "Chart" window

**CONNECTION SCHEME:**

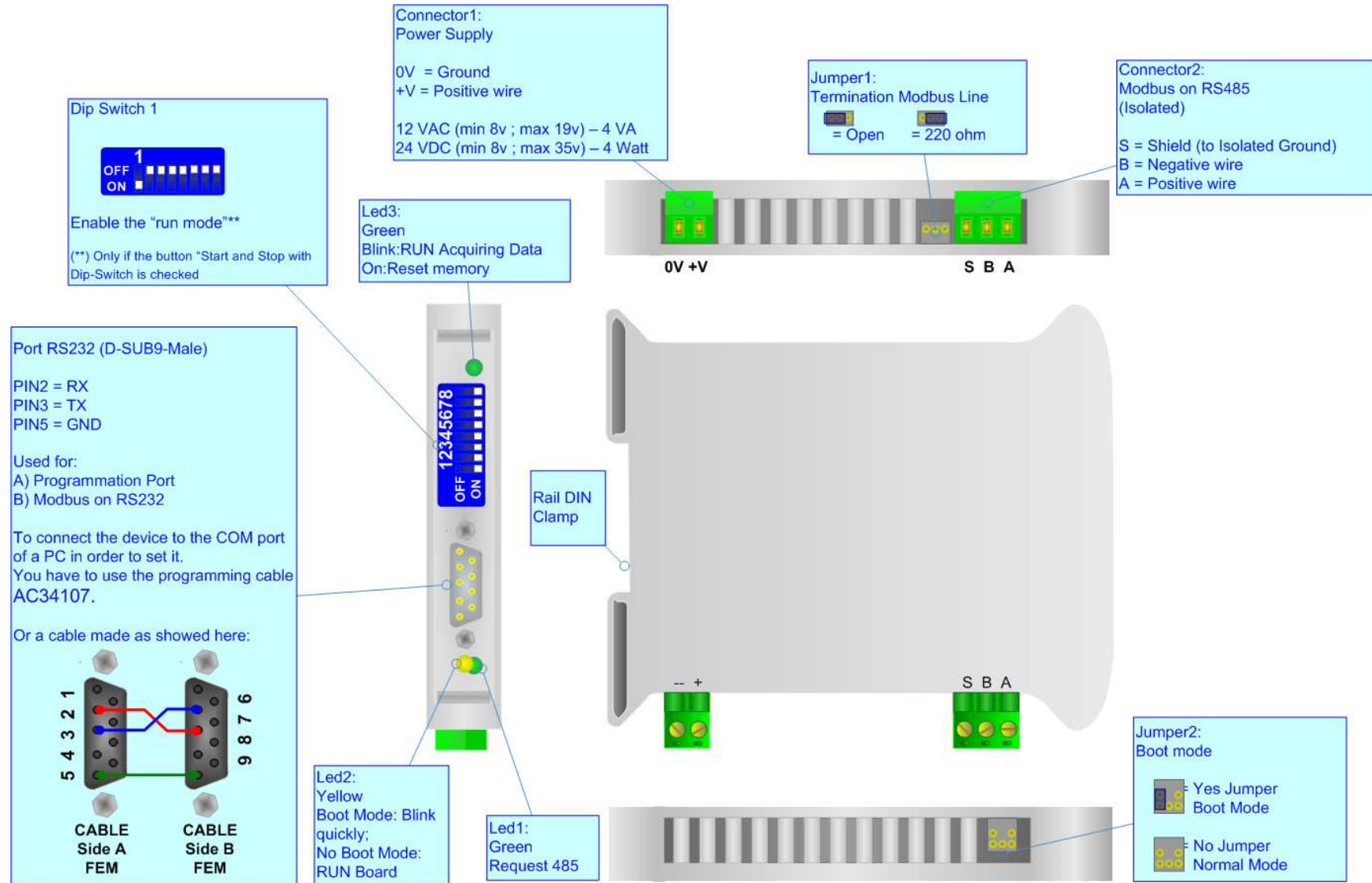


Figure 13: Connection scheme for HD67112

**CHARACTERISTICS OF THE CABLES:**

The connection from RS232 socket to a serial port (example one from a personal computer), must be made with a NULL MODEM cable (a serial cable where the pins 2 and 3 are crossed).

It is recommended that the RS232C Cable not exceed 15 meters.

The connection at RS485 socket must be done with twisted and shielded cable.

The terminal resistor must be inserted when the CS485 Plus is at the end of the line, using the Terminator jumper.

**MECHANICAL DIMENSIONS:**

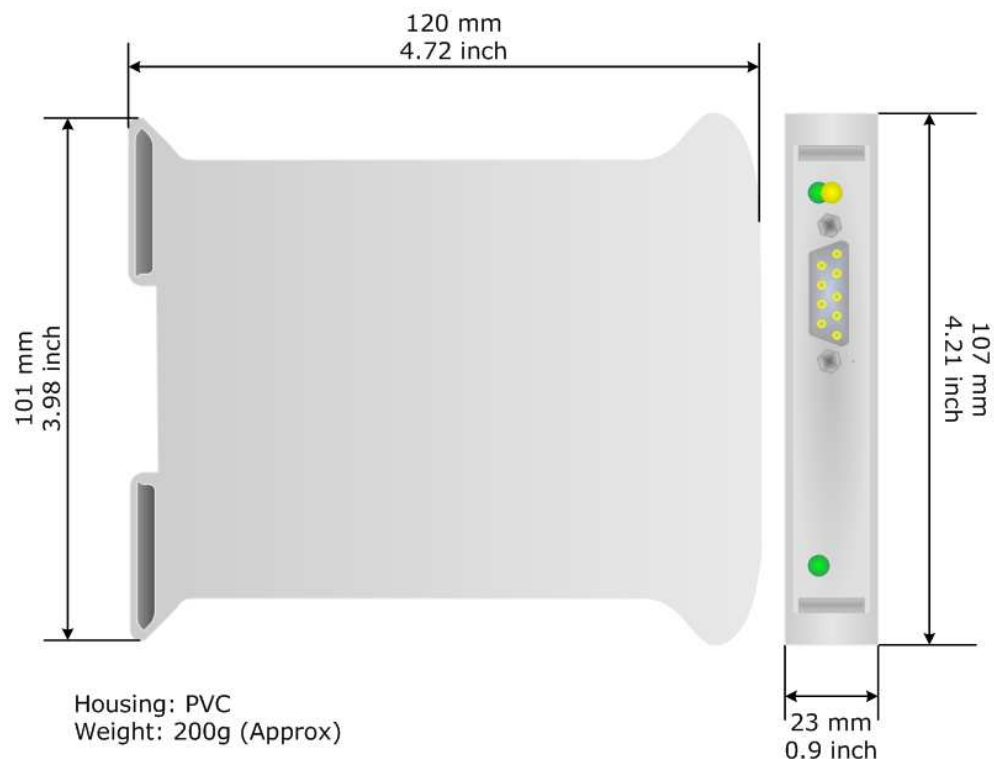


Figure 14: Mechanical dimensions scheme

**ORDER CODE:**

Order Code: **HD67112** - Modbus Master - Datalogger

**ACCESSORIES:**

Order Code: **AC34107** - Null Modem Cable Fem/Fem DSub 9 Pin 1,5 m

Order Code: **AC34114** - Null Modem Cable Fem/Fem DSub 9 Pin 5 m

Order Code: **AC34001** - Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V AC

Order Code: **AC34002** - Rail DIN - Power Supply 110V AC 50/60Hz – 12 V AC

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## OTHER REGULATIONS AND STANDARDS

### WEEE INFORMATION



Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

### RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE



The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

### CE MARKING



The product conforms with the essential requirements of the applicable EC directives.

**WARRANTIES AND TECHNICAL SUPPORT:**

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at [www.adfweb.com](http://www.adfweb.com). Otherwise contact us at the address support@adfweb.com

**RETURN POLICY:**

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- 1) Obtain a Product Return Number (PRN) from our internet support at [www.adfweb.com](http://www.adfweb.com). Together with the request, you need to provide detailed information about the problem.
- 2) Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.

**PRODUCTS AND RELATED DOCUMENTS:**

Part	Description	URL
HD67118	Converter RS232 to RS485 Isolated	<a href="http://www.adfweb.com?Product=HD67118">www.adfweb.com?Product=HD67118</a>
HD67119	Converter USB 2.0 to RS485 Isolated	<a href="http://www.adfweb.com?Product=HD67119">www.adfweb.com?Product=HD67119</a>
HD67007	Gateway Modbus TCP Server to RTU Master	<a href="http://www.adfweb.com?Product=HD67007">www.adfweb.com?Product=HD67007</a>
HD67010	Gateway Modbus TCP Client to RTU Slave	<a href="http://www.adfweb.com?Product=HD67010">www.adfweb.com?Product=HD67010</a>