

User Manual

Revision 1.010
English

RS485 – Isolator – Repeater – Extender bus line

(Order Code: HD67149-A1)

for Website information:

www.adfweb.com?Product=HD67149-A1

for Price information:

www.adfweb.com?Price=HD67149-A1

Benefits and Main Features:

- ▶ Very easy to configure
- ▶ Low cost
- ▶ Rail mountable
- ▶ Microprocessor for queue data control
- ▶ Galvanic isolation between two RS485 ports
- ▶ Industrial temperature range:
-40°C / 85°C (-40°F / 185°F)



HD67149-A1

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See the following links:

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

Ask it to the following link:

www.adfweb.com?Cmd=helpme

← Benefit

INDEX:

	Page
INDEX	2
UPDATED DOCUMENTATION	2
REVISION LIST	2
WARNING	2
TRADEMARKS	2
SECURITY ALERT	3
EXAMPLES OF CONNECTION	4
CONNECTION SCHEME	5
CHARACTERISTICS	6
CONFIGURATION	6
POWER SUPPLY	7
FUNCTION MODES	8
LEDS	9
RS232	10
RS485	11
USE OF SW67149	12
MECHANICAL DIMENSIONS	14
ORDER CODE	14
ACCESSORIES	14
DISCLAIMER	15
OTHER REGULATIONS AND STANDARDS	15
WARRANTIES AND TECHNICAL SUPPORT	16
RETURN POLICY	16

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.

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REVISION LIST:

Revision	Date	Author	Chapter	Description
1.001	22/04/2010	Fl	All	Revision
1.002	20/05/2010	Dp	All	Revision
1.003	13/02/2013	Nt	All	Added new chapters
1.010	10/10/2013	Fl	All	Software changed (1.100)

WARNING:

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ADFweb.com is not responsible for any error this manual may contain.

TRADEMARKS:

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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

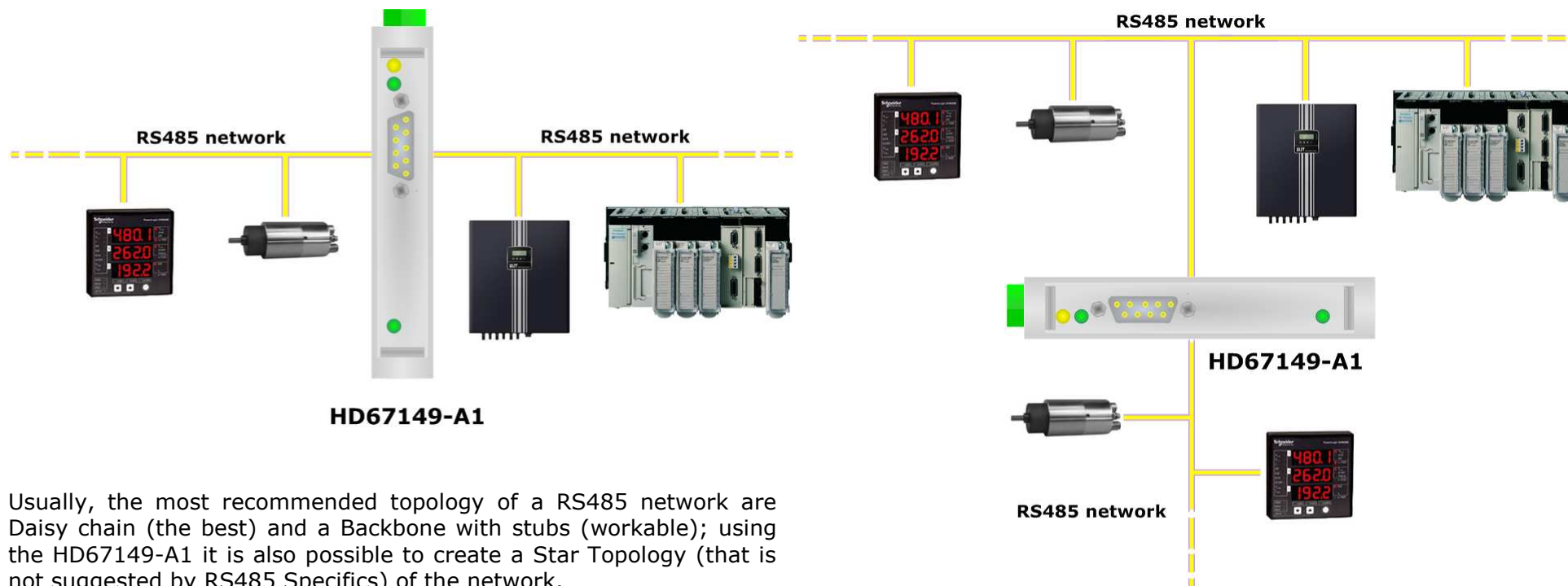
The device is state of the art and is safe. The instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:

 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 or give us a call if you need it.

EXAMPLES OF CONNECTION:



Usually, the most recommended topology of a RS485 network are Daisy chain (the best) and a Backbone with stubs (workable); using the HD67149-A1 it is also possible to create a Star Topology (that is not suggested by RS485 Specifics) of the network.

CONNECTION SCHEME:

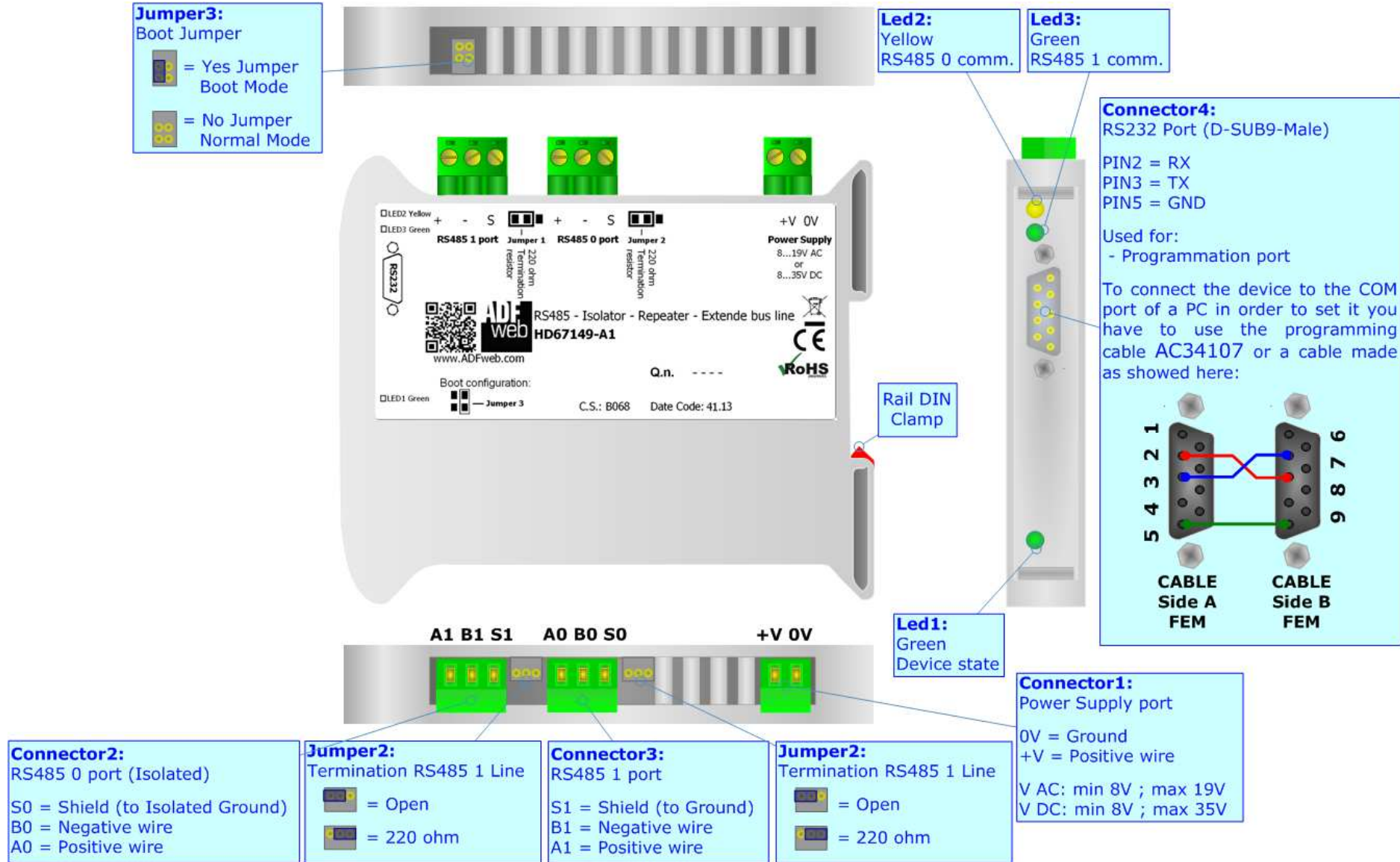


Figure 1: Connection scheme for HD67149-A1

CHARACTERISTICS:

The RS485 Isolator - Repeater has the following characteristics:

- Electrical isolation between two Buses;
- Baud Rate, Parity, StopBit changeable with software;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 8...19V AC or 8...35V DC;
- Wide temperature range: -40°C / 85°C [-40°F / +185°F].

This product is suitable for solving various problems of a RS485 line, extensions of the line, increasing the nodes number, galvanic isolation, to get a strong protection from the sparks noise and electrostatic charges or simply to change the baud rate of the communication.

Suitable for Modbus, BACnet MS/TP protocols and every other protocol that used RS485 like transmission medium.



CONFIGURATION:

You need Compositor SW67149 software on your PC in order to perform the following:

- Define the parameter of RS485 0;
- Define the parameter of RS485 1;
- Update the Firmware.

POWER SUPPLY:

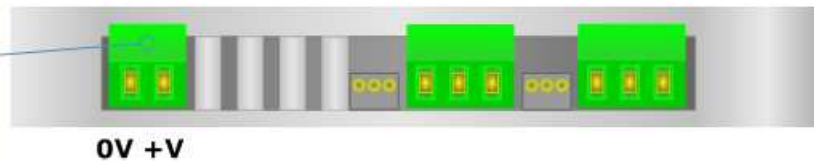
The devices can be powered at 8...19V AC and 8...35V DC. For more details see the two tables below.

VAC 		VDC 	
Vmin	Vmax	Vmin	Vmax
8V	19V	8V	35V

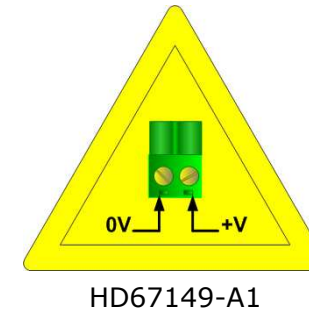
Consumption at 24V DC:

Device	Consumption [W/VA]
HD67149-A1	4

Connector1:
Power Supply port
0V = Ground
+V = Positive wire
V AC: min 8V ; max 19V
V DC: min 8V ; max 35V



Caution: Not reverse the polarity power



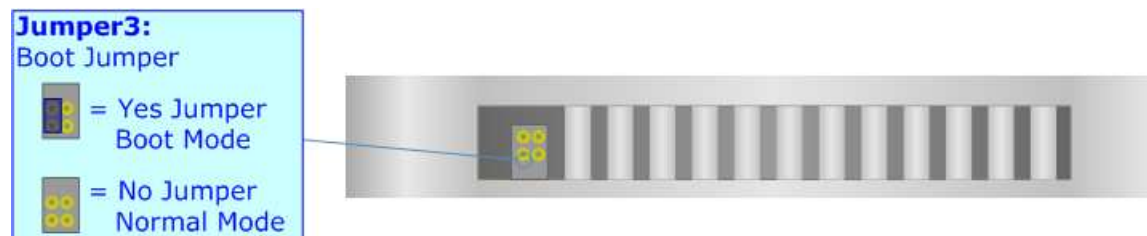
FUNCTION MODES:

The device has got two functions mode depending of the position of the 'Jumper3':

- The first, without any jumper inserted, is used for the normal working of the device;
- The second, with jumper inserted, is used for upload the Project and/or Firmware.

For the operations to follow for the updating, see 'UPDATE DEVICE' section.

According to the functioning mode, the LEDs will have specifics functions, see 'LEDS' section.



LEDS:

The device has got three LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

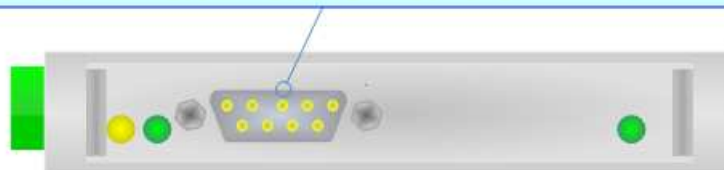
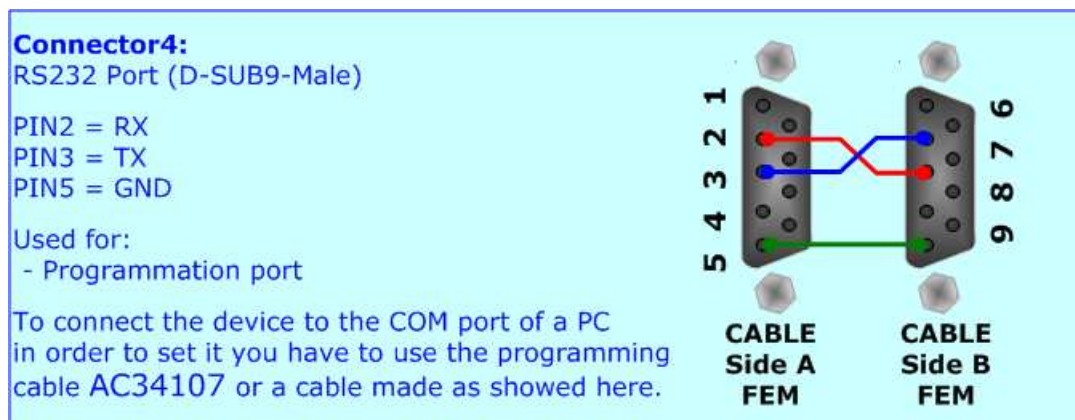
LED	Normal Mode	Boot Mode
1: Device state (green)	Blinks slowly (~1Hz)	Blinks quickly
2: RS485 0 comm. (yellow)	Blinks when receives a byte on RS485 0	OFF
3: RS485 1 comm. (green)	Blinks when receives a byte on RS485 1	OFF



RS232:

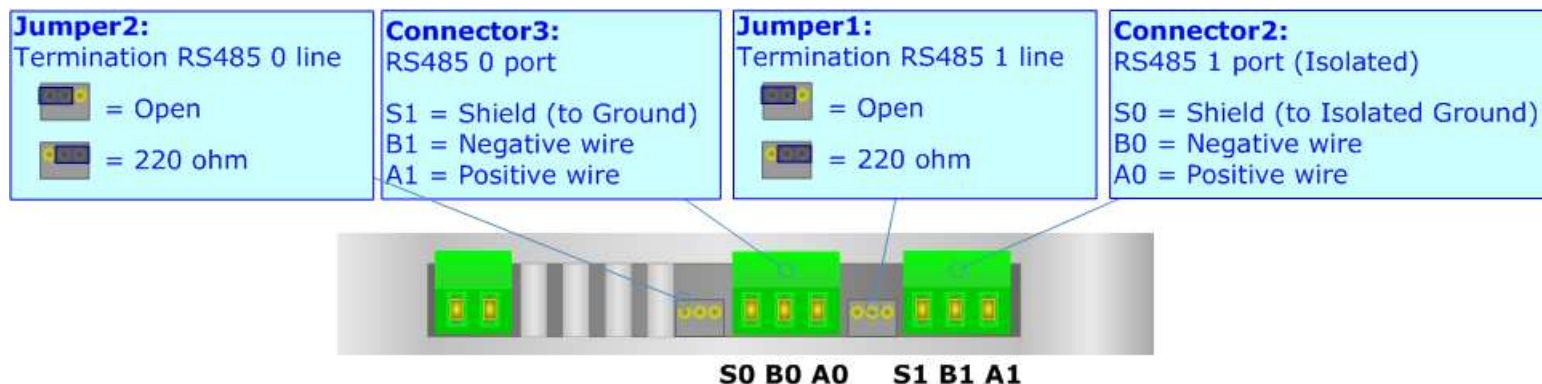
The connection from RS232 socket to a serial port (example one from a personal computer) must be made with a NULL MODEM cable (a serial cable where the pins 2 and 3 are crossed).

It is recommended that the RS232 cable not exceed 15 meters.



RS485:

For terminate the RS485 line with a 220Ω resistor it is necessary to put the 'Jumper1' AND 'Jumper2' like in figure.



The maximum length of the cable should be 1200m (4000 feet).

Here some codes of cables:

- Belden: p/n 8132 - 2x 28AWG stranded twisted pairs conductor + foil shield + braid shield;
- Belden p/n 82842 - 2x 24AWG stranded twisted pairs conductor + foil shield + braid shield;
- Tasker: p/n C521 - 1x 24AWG twisted pair conductor + foil shield + braid shield;
- Tasker: p/n C522 - 2x 24AWG twisted pairs conductor + foil shield + braid shield.

USE OF SW67149:

To configure the Converter, use the available software that runs with Windows, called SW67149. It is downloadable on the site www.adfweb.com and its operation is described in this document. (This manual is referenced to the last version of the software present on our web site). The software works with MSWindows (MS 2000, XP, Vista, Seven, 8; 32/64bit).

When launching the SW67149 the right window appears (Fig. 2).

The Window is divided in three sections, one for the "INIT COM", another for the "RS485 CONFIGURATION" and the other for the "FIRMWARE".

In the field "Com Port" must be selected the COM Port of the PC where the serial cable is connected. When the "Init" button is pressed, it creates the connection between Personal Computer and HD67149.

The means of the fields for "RS485 CONFIGURATION" are:

- In the fields "BaudRate" the baudrate is defined for the RS485 0 and for the RS485 1;
- In the fields "Parity", the parity is defined for the RS485 0 and for the RS485 1;
- In the fields "StopBit" the number of the StopBit is defined for the RS485 0 and for the RS485 1;

When the button "Write Data" is pressed the parameters are written into the HD67149. When the button "Read Data" is pressed the paramaters in the Device are read and written in the fields.



Note:

The operations for update Firmware/Parameters must be made when the HD67149 is on Boot Mode.

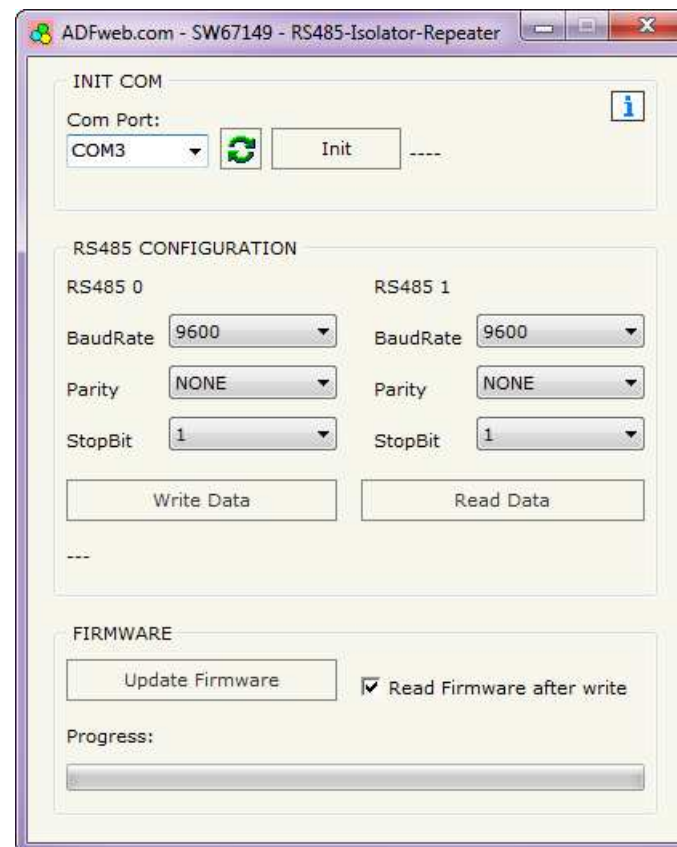


Figure 2: Main window for SW67149

The functions described above shall be made when the device is in Boot. For more details about Boot see "Connection Scheme" (Fig. 1).

If is necessary to update the firmware the button "Update Firmware" must be pressed.

In order to update the firmware in the board, follow these instructions:

- Turn off the device;
- Insert the Boot Jumper (see Fig. 1 for more info);
- Turn on the device;
- Press the "**Update Firmware**" button to start the upload;
- When all the operations are "OK" turn off the device;
- Disconnect the Boot jumper;
- Turn on the Device.

At this point the firmware on the device is correctly update.



Note:

When you install a new version of the software it is better if the first time you do the update of the Firmware in the HD67149-A1 device.



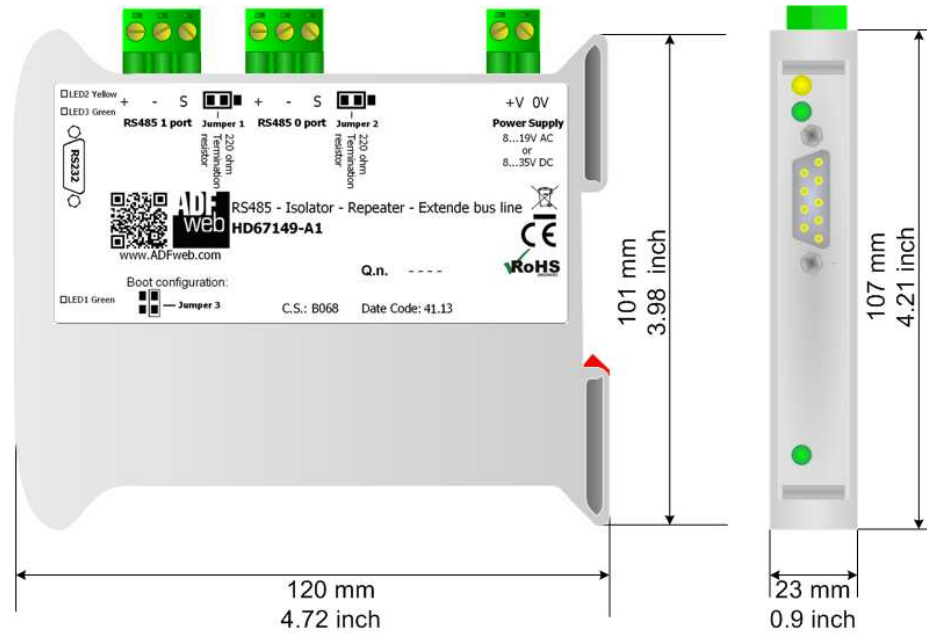
Note:

When you receive the device, for the first time, you have to update also the Firmware in the HD67149-A1 device.



In the case of HD67149-A1 you have to use the software "SW67149": www.adfweb.com/download/filefold/SW67149.zip.

MECHANICAL DIMENSIONS:



Housing: PVC
Weight: 200g (Approx)

Figure 3: Mechanical dimensions scheme

ORDER CODE:

Order Code: **HD67149-A1-** RS485 - Isolator - Repeater - Extender bus line

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.
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. 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.