

User Manual

Revision 1.002
English

Gateway / Bridge CAN from/to DeviceNet Slave

(Order Code: HD67235-A1, HD67235-A3, HD67235-A4)

for Website information:

www.adfweb.com?Product=HD67235-A1
www.adfweb.com?Product=HD67235-A3
www.adfweb.com?Product=HD67235-A4

for Price information:

www.adfweb.com?Price=HD67235-A1
www.adfweb.com?Price=HD67235-A3
www.adfweb.com?Price=HD67235-A4

Benefits and Main Features:

- ▶ Very easy to configure
- ▶ Low cost
- ▶ Rail mountable
- ▶ Wide supply input range
- ▶ Galvanic isolation between two buses



HD67235-A1



HD67235-A3



HD67235-A4

For others Gateways / Bridges:

CANopen to DeviceNet

See also the following links:

www.adfweb.com?Product=HD67134

CAN bus to Modbus

See also the following links:

www.adfweb.com?Product=HD67011

(Modbus RTU Master)

www.adfweb.com?Product=HD67012

(Modbus RTU Slave)

www.adfweb.com?Product=HD67014

(Modbus TCP Master)

www.adfweb.com?Product=HD67515

(Modbus TCP Slave)

CAN bus to CAN bus

See also the following link:

www.adfweb.com?Product=HD67221

Do you have an your customer protocol?

See the following link:

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

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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 documents:

- 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/ and search for the corresponding code on the page. Click on the proper "Document Code" and download the update.

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/

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	01/02/2010	FI	All	First release version
1.001	23/04/2010	FI	All	Change Fig.1
1.002	16/07/2010	FT	All	Revision

WARNING:

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

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CONNECTION SCHEME:

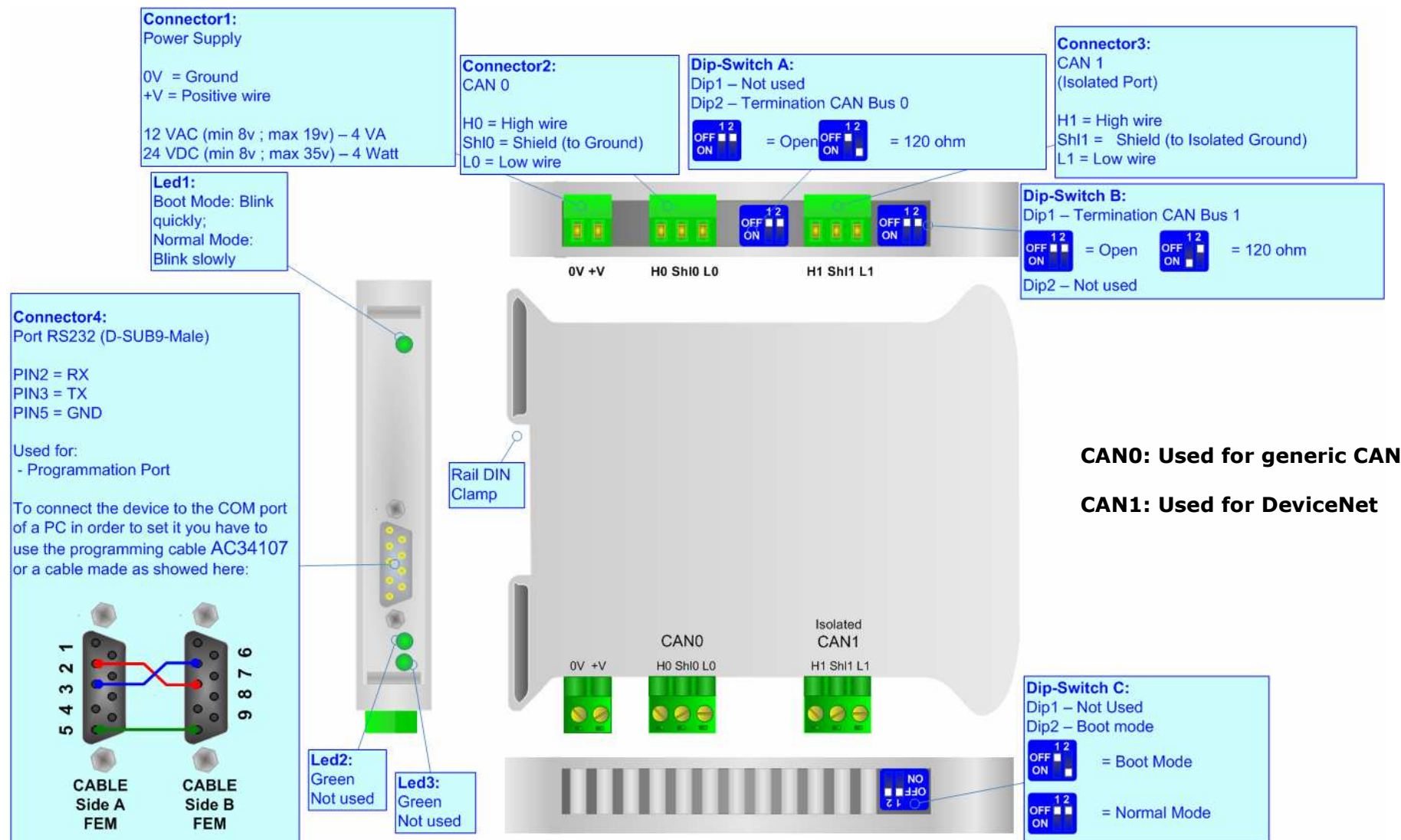


Figure 1: Connection scheme for HD67235-A1

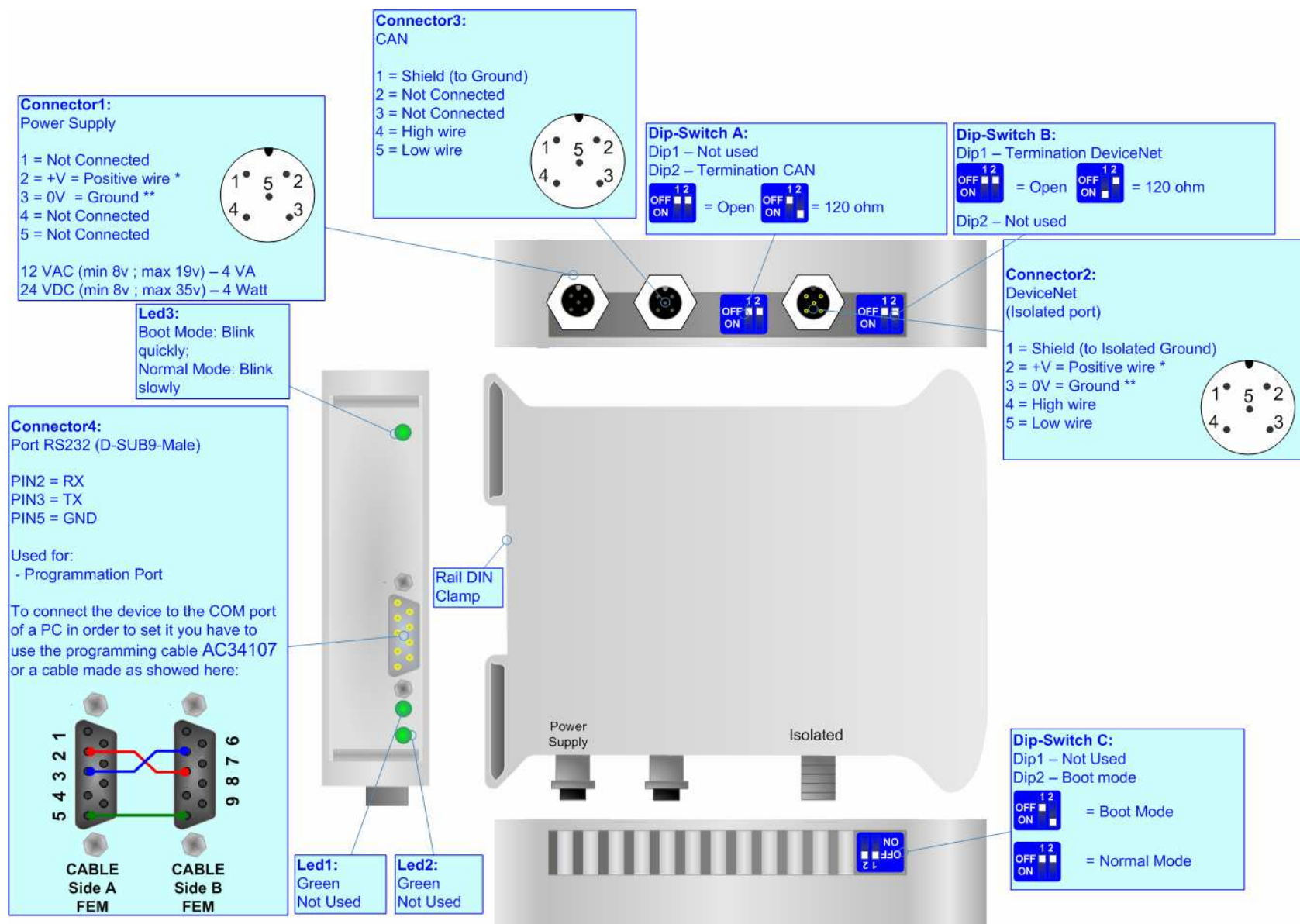


Figure 1: Connection scheme for HD67235-A3

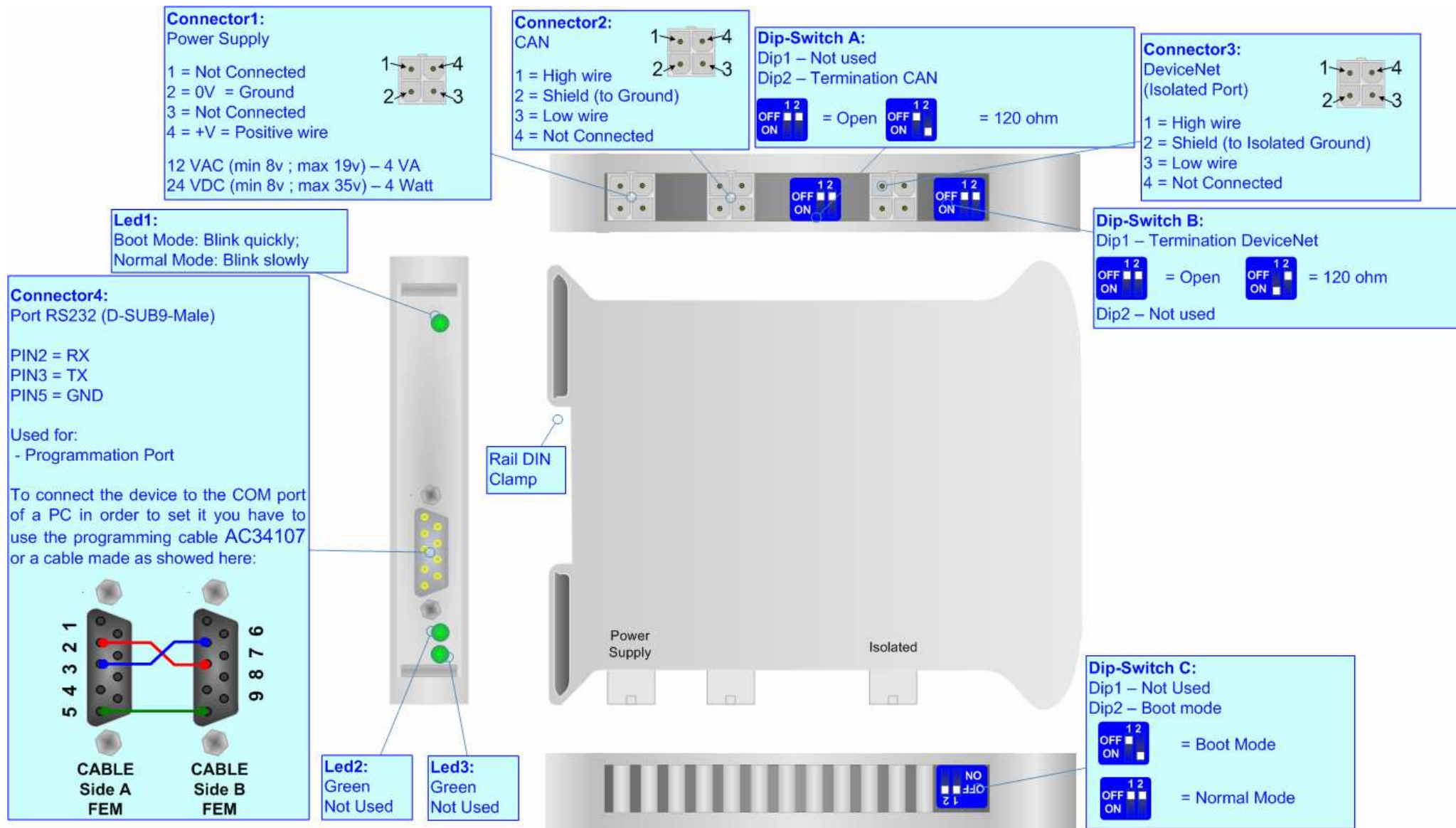


Figure 1: Connection scheme for HD67235-A4

CHARACTERISTICS:

The CAN from/to DeviceNet Gateway allows the following characteristics:

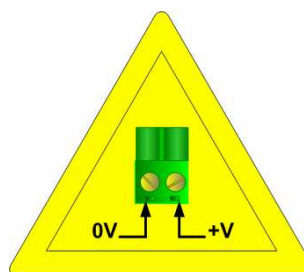
- Up to 455 bytes in reading and 455 bytes in writing;
- Two-directional information between CAN bus and DeviceNet bus;
- Electrical isolation between two buses;
- 7mm Creepage Distance between CAN1 and all other components (power lines, CAN0, RS232) of the board;
- 35mm Rail DIN mounting;
- CAN0: Used for generic CAN;
- CAN1: Used for DeviceNet
- Temperature range -30°C to 70°C.

POWER SUPPLY:

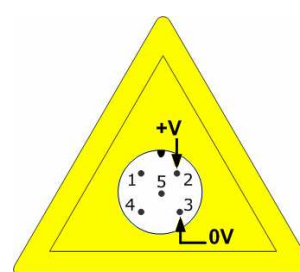
Recommended Power Supply	
VDC	VAC
24v	12v

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

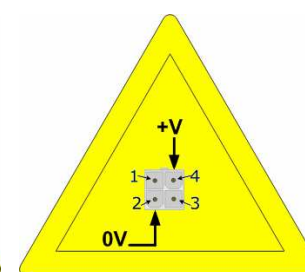
Caution: Not reverse the polarity power .



HD67235-A1



HD67235-A3



HD67235-A4

CONFIGURATION:

You need Compositor SW67235 software on your PC in order to perform the following:

- Define the parameters of CAN;
- Define the parameters of DeviceNet;
- Define the CAN frames that the gateway can accept;
- Define the CAN frames that the gateway sends through the CAN line;
- Define the map of CAN byte that must be written in the DeviceNet array;
- Define the map of which DeviceNet bytes must be written in CAN frames;
- Update the Firmware and/or the Project.

USE OF COMPOSITOR SW67235:

To configure the Gateway, use the available software that runs with Windows, called SW67235. It is downloadable on the site www.adfweb.com and its operation is described in this document.

When launching the SW67235 the right window appears (Fig. 2).

NEW PROJECT / OPEN PROJECT:

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

- To clone the configurations of a Programmable CAN to DeviceNet Gateway in order to configure another 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 the new folder with the button "Open Project".

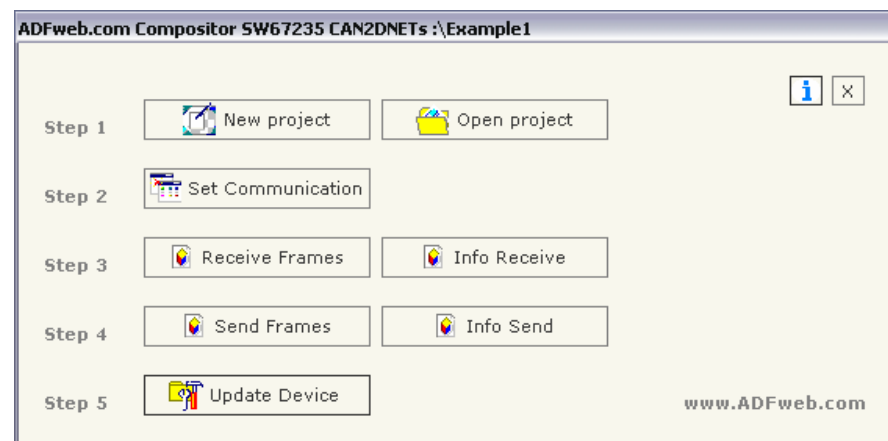


Figure 2: Main window for SW67235

SET COMMUNICATION:

This section defines the fundamental communication parameters of two Buses CAN and DeviceNet.

By pressing the "Set Communication" button from the main window for SW67235 (Fig. 2) the "SET COMMUNICATION" window appears (Fig. 3).

This window is divided in two sections, one for the CAN and the other for the DeviceNet.

The means of the fields for the "CAN" section are:

- In the "Baud rate" field the CAN baudrate is defined;
- In the field "CAN Type" you can select the type of CAN bus (CAN 2.0A 11Bit or CAN 2.0B 29Bit);
- If the field "Send Frame on Data Change" is checked, the frame is sent when the data change; otherwise if the field "Send Frame Every xx ms" is checked the frame defined in the "Send Frames" table is sent after the time that you will insert in the field;
- "TimeOut DATA" is the time that the device attends before cancel the data of a frame if the "Delete" field is checked in "Receive Frames" window.

The means of the fields for the "DeviceNet" section are:

- In the "ID Dev." field the Gateway address of the DeviceNet is defined.
- In the "Baud rate" field the DeviceNet baud rate is defined;
- In the field "Number Byte IN" the number of byte from the DeviceNet to the gateway is defined (at maximum it is possible to use 455 byte);
- In the field "Number Byte OUT" the number of byte from the gateway to the DeviceNet is defined (at maximum it is possible to use 455 byte).

The screenshot shows a software window titled "SET COMMUNICATION". It is divided into two main sections: "CAN" and "DeviceNET".

CAN Section:

- Baud rate:** A dropdown menu set to "1000K".
- CAN Type:** Two radio buttons: "CAN 2.0A 11Bit" (unselected) and "CAN 2.0B 29Bit" (selected).
- Send Data:** Two radio buttons: "Send Frame on Data Change" (unselected) and "Send Frame Every" (selected). The "Send Frame Every" option has a text input field containing "65535".
- TimeOut DATA:** A text input field containing "10000" followed by a unit "s".

DeviceNET Section:

- ID Dev.:** A text input field containing "63".
- Baud rate:** A dropdown menu set to "500K".
- Number Byte IN:** A text input field containing "455".
- Number Byte OUT:** A text input field containing "455".

At the bottom of the window are two buttons: "OK" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 3: "Set Communication" window

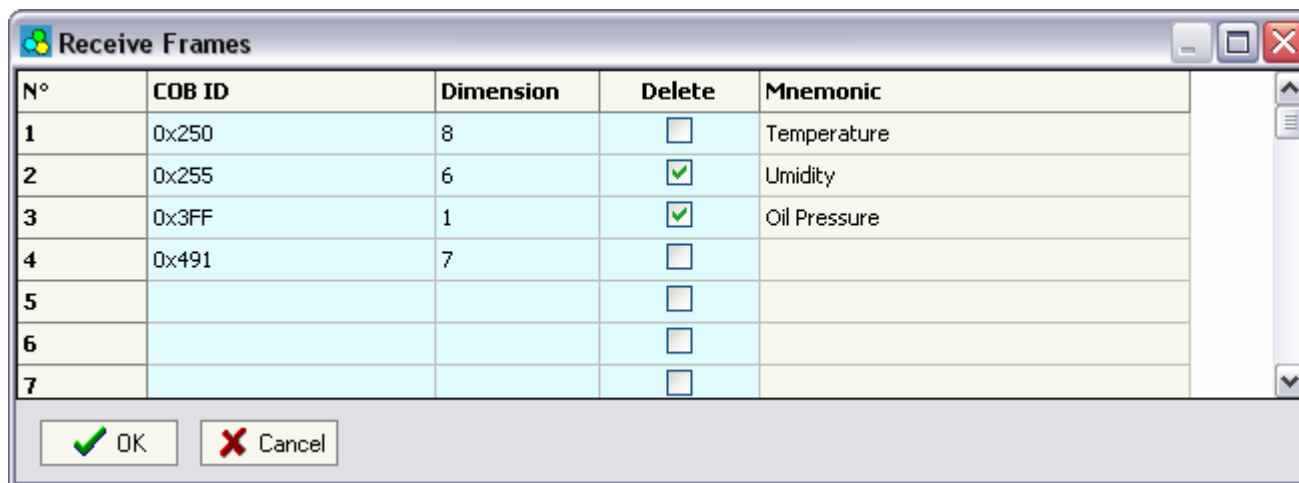
RECEIVE FRAMES:

By pressing the "Receive Frames" button from the main window for SW67235 (Fig. 2) the "Receive Frames" window appears (Fig. 4).

The COB inserted in this table contains the Output data of DeviceNet. These frames are accepted by the gateway.

The data of the columns have the following meanings:

- In the field "COB ID" insert the COB of the CAN frame;
- In the field "Dimension" insert the number of byte of the COB (from 1 to 8);
- If the field "Delete" is checked the data in the frame will be erased after the "TimeOut DATA" is expired;
- In the field "Mnemonic" it is possible to insert a brief description.



N°	COB ID	Dimension	Delete	Mnemonic
1	0x250	8	<input type="checkbox"/>	Temperature
2	0x255	6	<input checked="" type="checkbox"/>	Umidity
3	0x3FF	1	<input checked="" type="checkbox"/>	Oil Pressure
4	0x491	7	<input type="checkbox"/>	
5			<input type="checkbox"/>	
6			<input type="checkbox"/>	
7			<input type="checkbox"/>	

OK Cancel

Figure 4: "Receive Frames" window

INFO RECEIVE:

By pressing the "Info Receive" button from the main window for SW67235 (Fig. 2) the "Receive Frames Info" window appears (Fig. 5).

- In the "COB ID" field there are the COB ID that you have inserts in the "Receive Frames" window;
- In the "Bytes" field select the correspondence of the byte in DeviceNet.

For Example:

Byte 1 of frame CAN go to byte 127 in DeviceNET:
the first byte of CAN frame is 0x11 in the byte 127 of DeviceNET I can read 0x11.

COB ID	Bytes
0x250	Byte 1 of frame CAN go to byte 127 in DeviceNET
0x255	Byte 2 of frame CAN go to byte 126 in DeviceNET
0x3FF	Byte 3 of frame CAN go to byte 125 in DeviceNET
0x491	Byte 4 of frame CAN go to byte 124 in DeviceNET
	Byte 5 of frame CAN go to byte 122 in DeviceNET
	Byte 6 of frame CAN go to byte 100 in DeviceNET
	Byte 7 of frame CAN go to byte none in DeviceNET Not in use
	Byte 8 of frame CAN go to byte none in DeviceNET Not in use

Figure 5: "Receive Frames Info" window

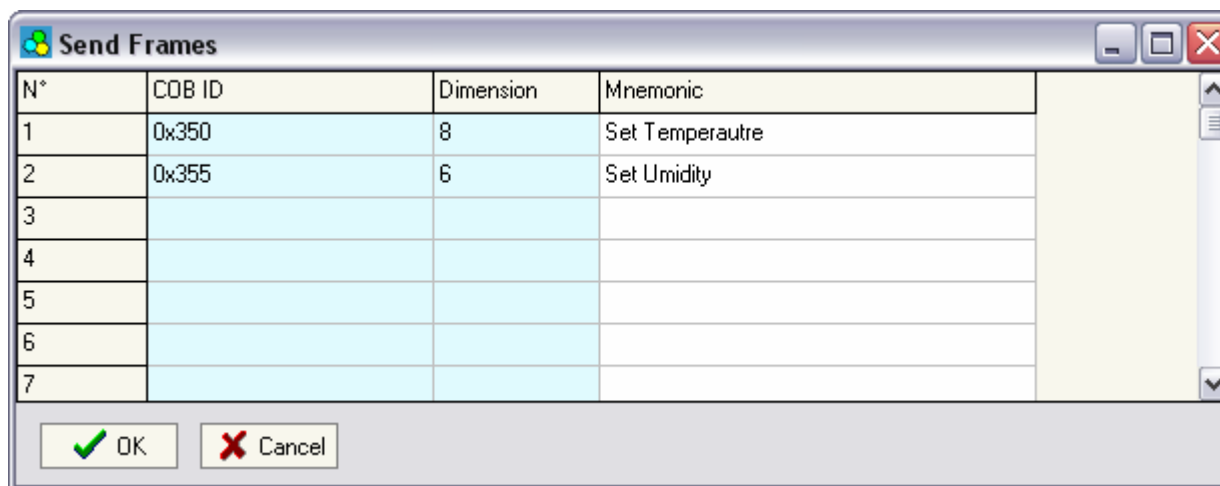
SEND FRAMES:

By pressing the "Send Frames" button from the main window for SW67235 (Fig. 2) the "Send frames" window appears (Fig. 6).

The COB inserted in this table contains the Input data of DeviceNet. These frames are sent by the gateway.

The data of the columns have the following meanings:

- In the field "COB ID" insert the COB of the CAN frame;
- In the field "Dimension" insert the number of byte of the COB (from 1 to 8);
- In the field "Mnemonic" it is possible to insert a brief description.



N°	COB ID	Dimension	Mnemonic
1	0x350	8	Set Temperautre
2	0x355	6	Set Umidity
3			
4			
5			
6			
7			

Figure 6: "Send Frames" window

INFO SEND:

By pressing the "Info Send" button from the main window for SW67235 (Fig. 2) the "Send Frames Info" window appears (Fig. 7).

- In the "COB ID" field there are the COB ID that you have inserts in the "Send frames" window;
- In the field "Bytes" select the correspondence of the byte in DeviceNet

For Example:

Byte 1 of frame CAN is byte 0 in DeviceNet:
the byte 0 of DeviceNet is 0x22, the first byte of CAN frame with COB=0x350 will be 0x22.

COB ID	Bytes
0x350	Byte 1 of frame CAN is the byte 0 of DeviceNET
0x355	Byte 2 of frame CAN is the byte 1 of DeviceNET
	Byte 3 of frame CAN is the byte 2 of DeviceNET
	Byte 4 of frame CAN is the byte 3 of DeviceNET
	Byte 5 of frame CAN is the byte 4 of DeviceNET
	Byte 6 of frame CAN is the byte 450 of DeviceNET
	Byte 7 of frame CAN is the byte 6 of DeviceNET
	Byte 8 of frame CAN is the byte 7 of DeviceNET

OK Cancel

Figure 7: "Send Frames Info" window

UPDATE DEVICE:

Section "Update Device" (Fig. 5):

In order to load the Project and/or update the Firmware in the gateway, follow these instructions:

- Turn OFF the device;
- Connect the Null Modem cable from your PC to the Gateway;
- Insert the Boot Jumper (For more info see the "Connection scheme");
- Turn ON the device;
- Check the "BOOT Led". It must blink quickly (For more info see the "Connection scheme");
- Select the COM port and press the "Connect" button;
- Press the "Next" button;
- Select the operations you want to do. You can select only "Firmware", only "Project" or both of them;
- Press the "Execute update firmware" button to start the upload;
- When all the operations are "OK" turn OFF the device;
- Disconnect the Boot Jumper;
- Disconnect the RS232 Cable;
- Turn ON the device.

At this point the configuration/firmware on the device is correctly updated.

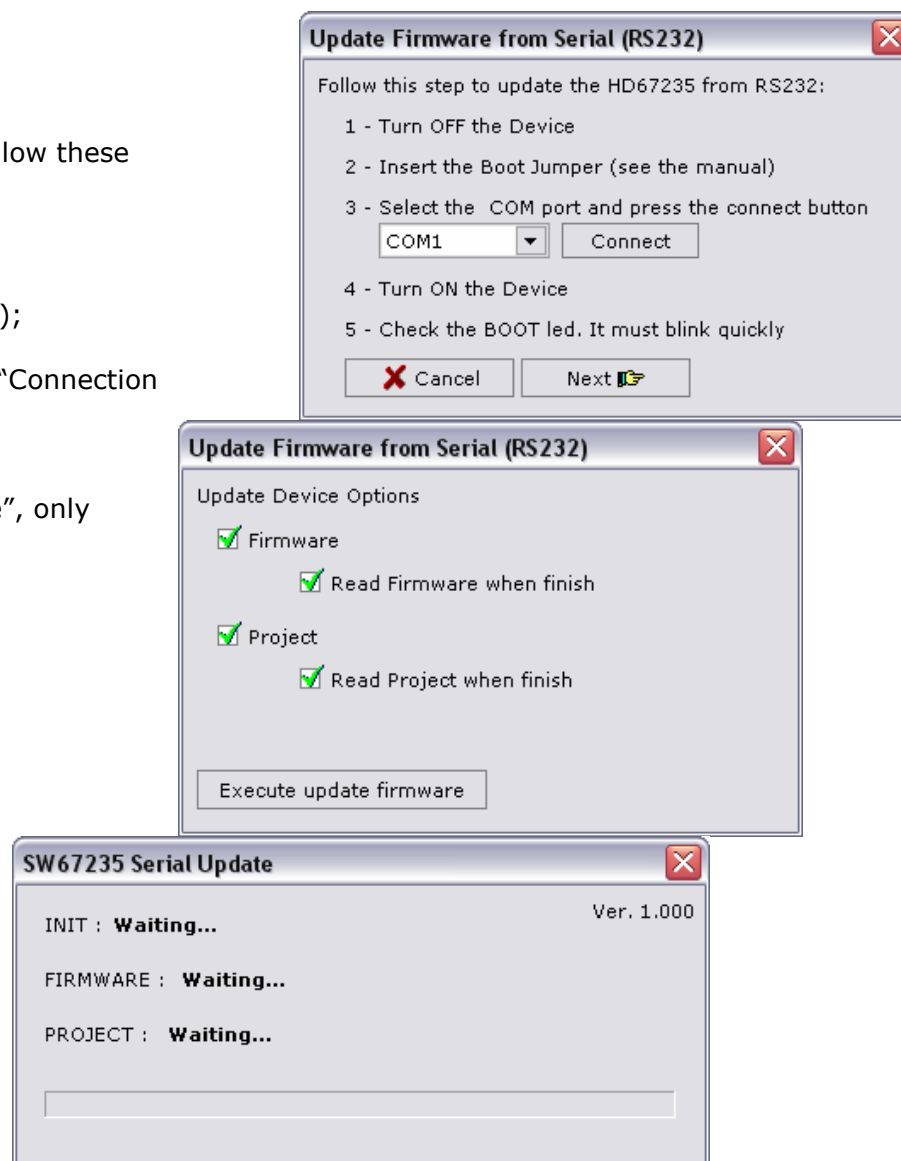


Figure 8: "Update Device" windows

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.

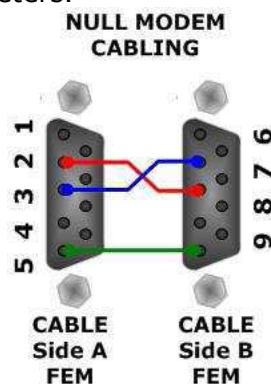


Figure 9: Null modem cabling

CAN BUS CABLE CHARACTERISTICS:

DC parameter:		Resistenza	70 Ohm/m
AC parameters:		Impedance	120 Ohm/m
		Delay	5 ns/m
Length:		Baud Rate [bps]	MAX Length [m]
		10 K	5000
		20 K	2500
		50 K	1000
		100 K	650
		125 K	500
		250 K	250
		500 K	100
		800 K	50
		1000 K	25

MECHANICAL DIMENSIONS:

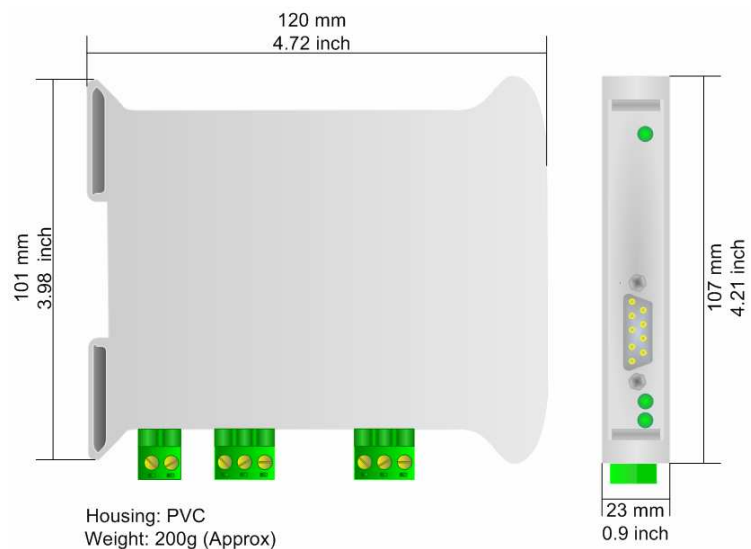


Figure 16: Mechanical dimensions scheme for HD67235-A1

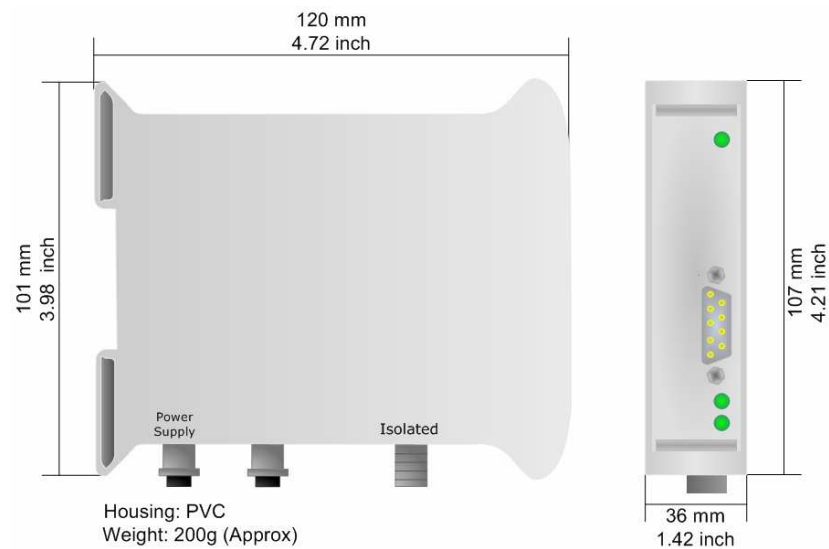


Figure 17: Mechanical dimensions scheme for HD67235-A3

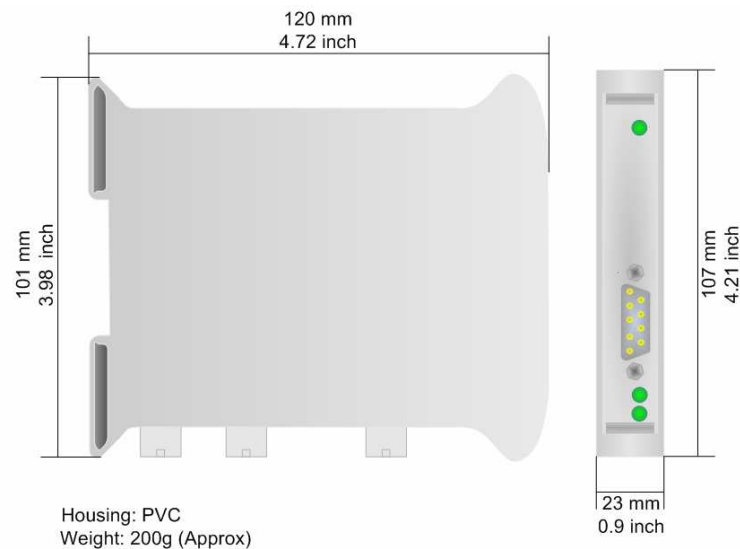


Figure 18: Mechanical dimensions scheme for HD67235-A4

ORDER CODE:

- Order Code: **HD67153-A1-** Gateway – CANopen from/to DeviceNet Master
- Order Code: **HD67153-A3-** Gateway – CANopen from/to DeviceNet Master
- Order Code: **HD67153-A4-** Gateway – CANopen from/to DeviceNet Master

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

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).
- 3) 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
HD67117	CAN Repeater/Isolator	www.adfweb.com?Product=HD67117
HD67116	Can Analyzer	www.adfweb.com?Product=HD67116
HD67221	Translate CAN bus Gateway	www.adfweb.com?Product=HD67221