ADFweb
Industrial Electronic Devices

User Manual

Revision 1.000
English

CAN / PROFIBUS Slave - Converter

(Order Code: HD67417)

for Website information:
www.adfweb.com?Product=HD67417

for Price information:
www.adfweb.com?Price=HD67417

Benefits and Main Features:

► Very easy to configure

► Low cost

► PROFIBUS Baudrate up to 12M

► Wide supply input range

► Isolation between two buses

► Industrial temperature range:
   -40°C / 105°C (-40°F / 221°F)

HD67417

For others Gateways / Bridges:

CANopen to Modbus

See also the following links:
www.adfweb.com?Product=HD67001 (Modbus RTU Master)
www.adfweb.com?Product=HD67502 (Modbus RTU Slave)
www.adfweb.com?Product=HD67504 (Modbus TCP Master)
www.adfweb.com?Product=HD67505 (Modbus TCP Slave)

For others Gateways / Bridges:
For **CAN bus 2.0A** and/or **CAN bus 2.0B** to **Modbus**

See also the following links:
www.adfweb.com?Product=HD67011 (Modbus RTU Slave)
www.adfweb.com?Product=HD67012 (Modbus RTU Master)
www.adfweb.com?Product=HD67514 (Modbus TCP Slave)
www.adfweb.com?Product=HD67515 (Modbus TCP Master)

Do you have an your customer protocol?

See the following links:
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

INDEX:

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/ 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/

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	17/11/2012	Ff	All	First release version

WARNING:

ADFweb.com reserves the right to change information in this manual about our product without warning.
ADFweb.com is not responsible for any error this manual may contain.

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Industrial Electronic Devices

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.

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CHARACTERISTICS:

The "HD67417" series are rugged devices used to interface CAN devices with a PROFIBUS Master.
With his particular enclosure, equipped with four fixing lugs, makes available the mounting of the device in any plane surface (horizontal, vertical, oblique).
It is possible to have the device varnished or totally resined and also in both cases with "Mini-Fit®" connectors or "AMP SuperSeal 1.5" connectors. If is resined, the enclosure, like the "AMP SuperSeal 1.5" connectors, is waterproof (IP67).

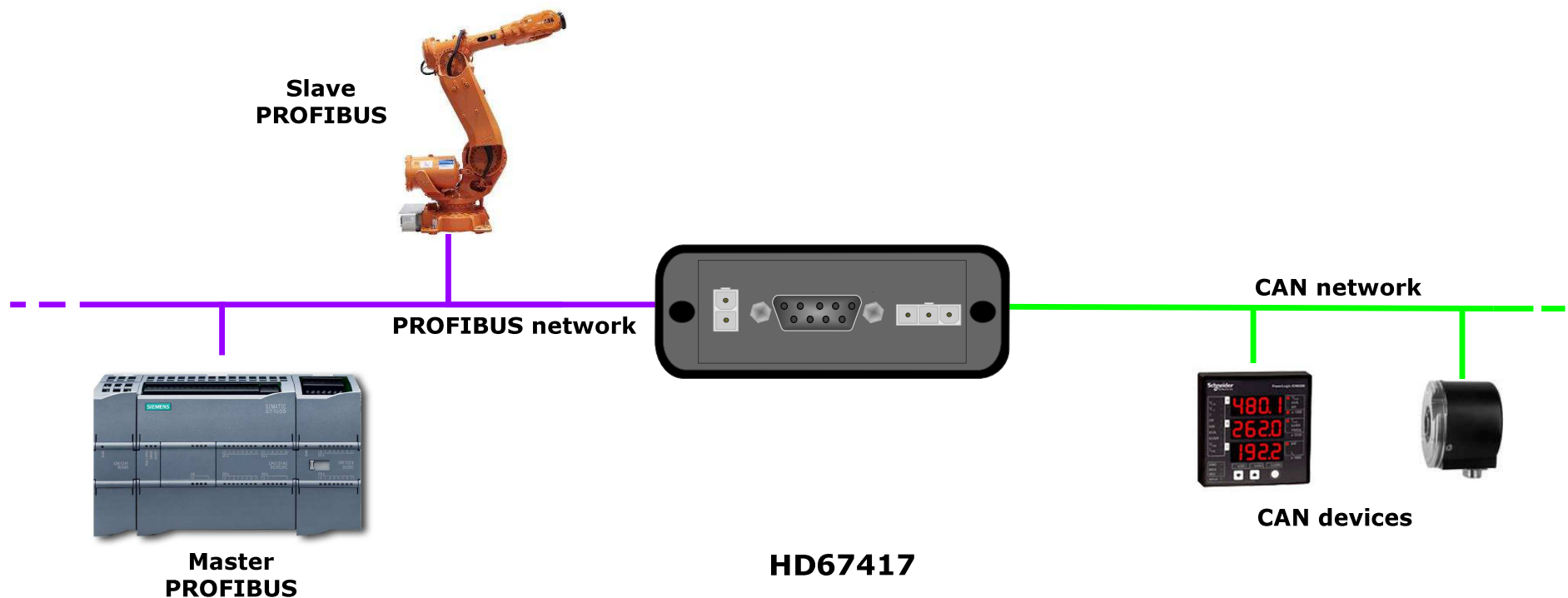All the four series have these characteristics:

- Triple 4kV isolation between Power Supply / PROFIBUS / CANopen;
- Varnished / Resined (optionally);
- Wide power supply input range: 8…26V AC | 10…40V DC;
- Mini-Fit® / AMP SuperSeal 1.5 connectors;
- Metal enclosure with fixing lugs;
- Possibility to use Metal hose clamps for fixing it without using lugs;
- Microprocessor for data control;
- Wide temperature range: -40°C / 105°C (-40°F / 221°F).

CONFIGURATION:

You need Compositor SW67417 software on your PC in order to perform the following:

- Define the parameter of the CANopen;
- Define the parameter of the PROFIBUS;
- Define SDO Server informations;
- Define SDO Client informations;
- Define PDO informations (RPDO/TPDO);
- Define NodeGuarding informations;
- Transmit CANopen frames;
- Create a GSD File;
- Update the device.

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EXAMPLE OF CONNECTION:

**Slave
PROFIBUS**

CAN network

PROFIBUS network

CAN devices

**Master
PROFIBUS**

HD67417

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CONNECTION SCHEME:

Connector3:
CAN port

Hi = High wire
Lo = Low wire
Shl1 = Shield (to Isolated Ground)

Connector2:
PROFIBUS
(Isolated Port)

PIN3 = wire A
PIN5 = GND (to Isolated Ground)
PIN6 = Positive wire
PIN8 = wire B

5 4 3 2 1

9 8 7 6

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V AC: min 8V ; max 26V
V DC: min 10V ; max 40V

Figure 1-1: Connection scheme for HD67417-E4x-xxx

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Connector3:
CAN port

Hi = High wire
Lo = Low wire
Shl1 = Shield (to Isolated Ground)

Lo →
Shl1 →
Hi →

Connector2:
PROFIBUS
(Isolated Port)

PIN3 = wire A
PIN5 = GND (to Isolated Ground)
PIN6 = Positive wire
PIN8 = wire B

5 4 3 2 1

9 8 7 6

Connector1:
Power Supply port

0V = Ground
+V = Positive wire

V AC: min 8V ; max 26V
V DC: min 10V ; max 40V

0V →
+V →
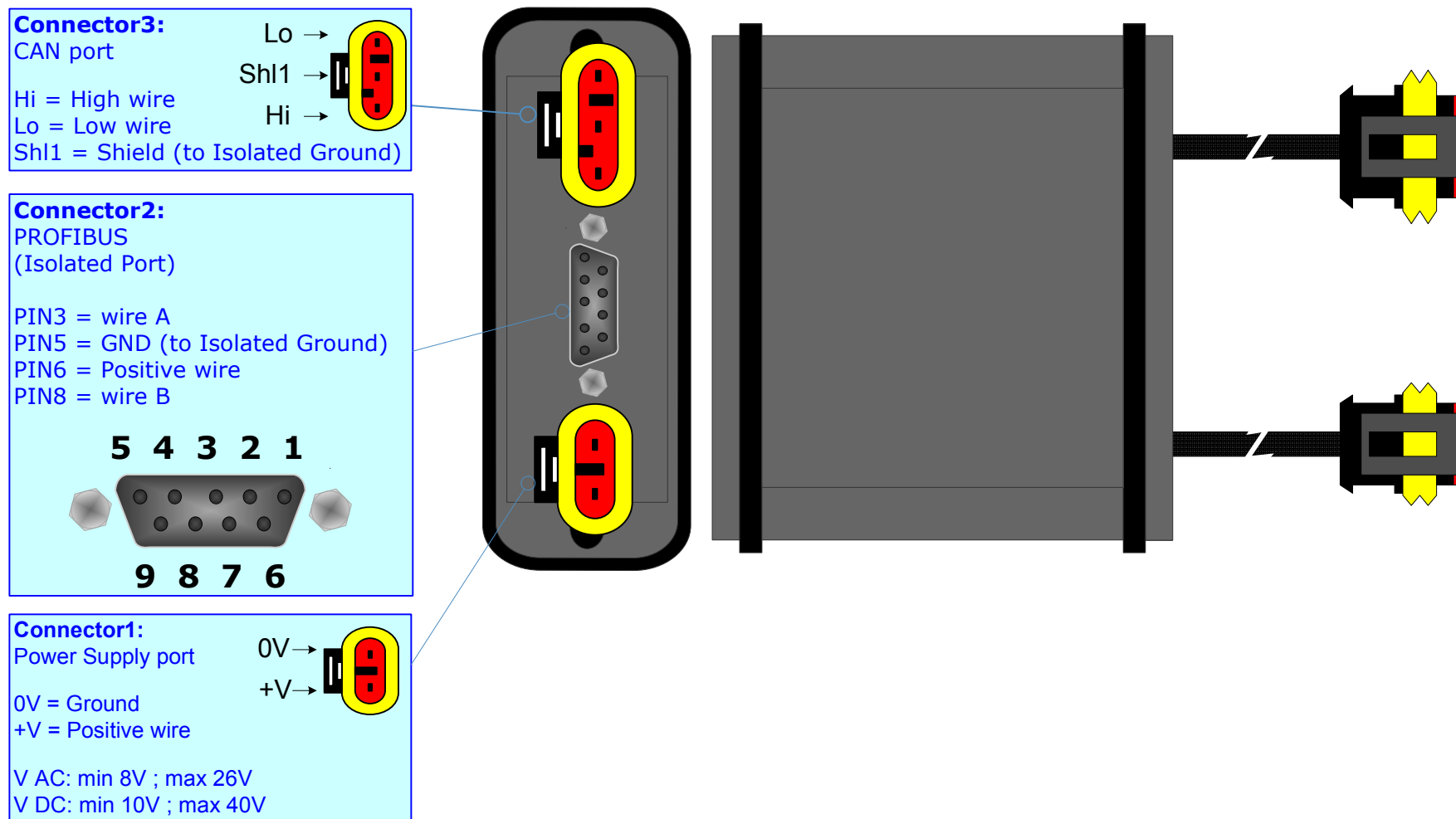
Figure 1-2: Connection scheme for HD67417-E7x-xxx

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POWER SUPPLY:

The devices can be powered between a wide range of tensions. For more details see the two tables below.

	VAC $\sim$		VDC	
	Vmin	**Vmax**	**Vmin**	**Vmax**
HD67417-Exx-xxx	**8V**	**26V**	**10V**	**40V**

Consumption at 24V DC:

Device	W/VA
HD67417-Exx-xxx	4

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

0V
+V
HD67417-E4x-xxx

+V 0V
HD67417-E7x-xxx
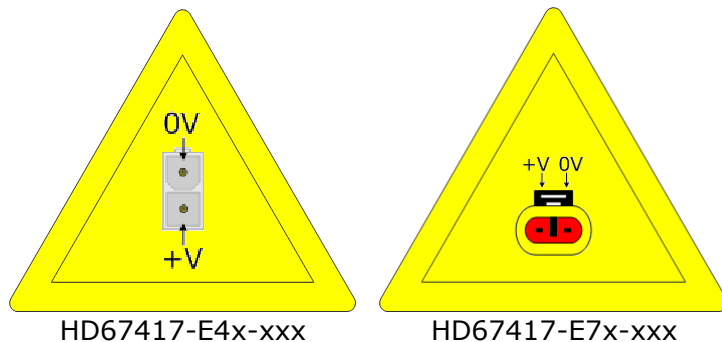
Note: It is possible to use also negative tensions. In this case the polarity must be inverted.

Connector1:
Power Supply port
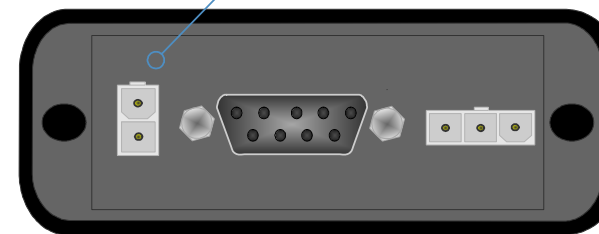
0V = Ground
+V = Positive wire

← 0V
← +V

V AC: min 8V ; max 26V
V DC: min 10V ; max 40V

Connector1:
Power Supply port

+V 0V

0V = Ground
+V = Positive wire

V AC: min 8V ; max 26V
V DC: min 10V ; max 40V
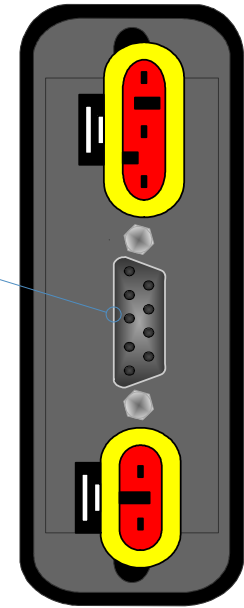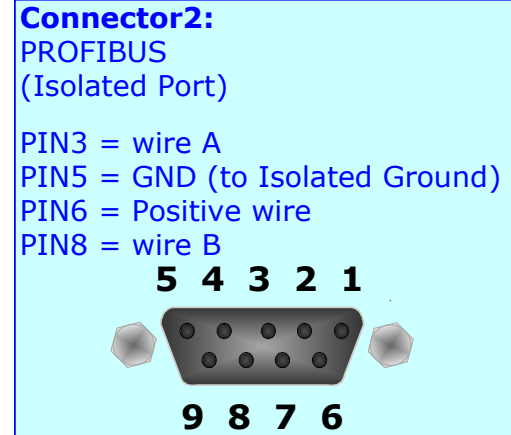
Industrial Electronic Devices
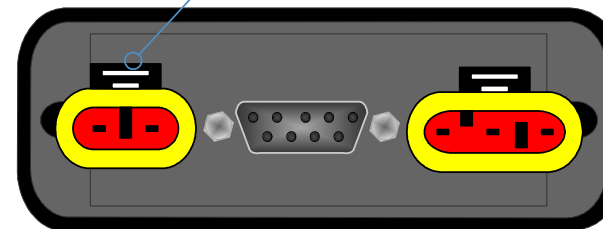
PROFIBUS:

The PROFIBUS uses a 9-pin D-SUB connector. The pin assignment is defined like in the right figure.

Here some codes of cables:

- Belden: p/n 183079A - Continuous Armor DataBus® ISA/SP-50 PROFIBUS Cable;

Connector2:
PROFIBUS
(Isolated Port)

PIN3 = wire A
PIN5 = GND (to Isolated Ground)
PIN6 = Positive wire
PIN8 = wire B

5 4 3 2 1

9 8 7 6

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CAN:

The connection of CAN in the HD67417-E4x-xxx device must be made with a 3way MiniFit Female connector. The pinout of Male Mini-Fit connector of the board is at right side of the page.

The connection of CAN in the HD67417-E7x-xxx device must be made with a AMP SuperSeal 1.5 Male connector. The pinout of Female connector of the board is at right side of the page.
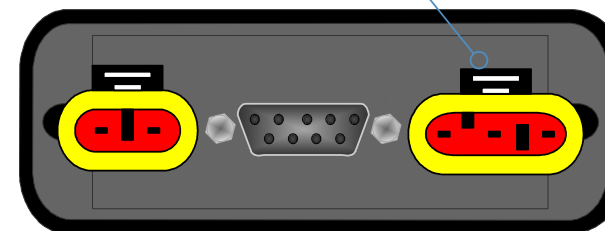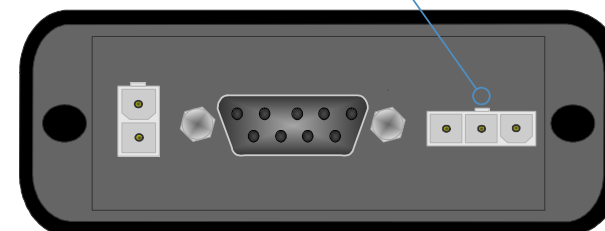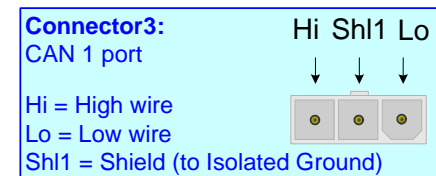
The termination of CAN line, with a 120Ω resistor, in the HD67417-Exx-xxx is made internally of the device; when the order is performed. If the device have the CANopen terminated the code is the follow: HD67417-Exx-Yx; otherwise is this other: HD67417-Exx-Nx.

Cable characteristics:

DC parameter:		Impedance	70	Ohm/m
AC parameters:		Impedance	120	Ohm/m
		Delay	5	ns/m

Length	Baud Rate [bps]	Length MAX [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

Connector3:
CAN 1 port

Hi Shl1 Lo

Hi = High wire
Lo = Low wire
Shl1 = Shield (to Isolated Ground)

Connector3:
CAN 1 port

Hi Shl1 Lo

Hi = High wire
Lo = Low wire
Shl1 = Shield (to Isolated Ground)

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USE OF COMPOSITOR SW67417:

To configure the Converter, use the available software that runs with Windows, called SW67417. 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).
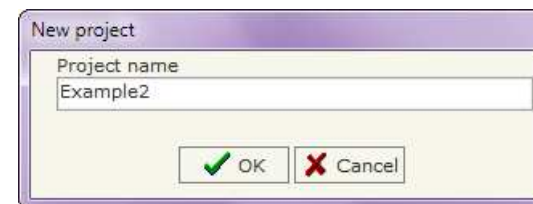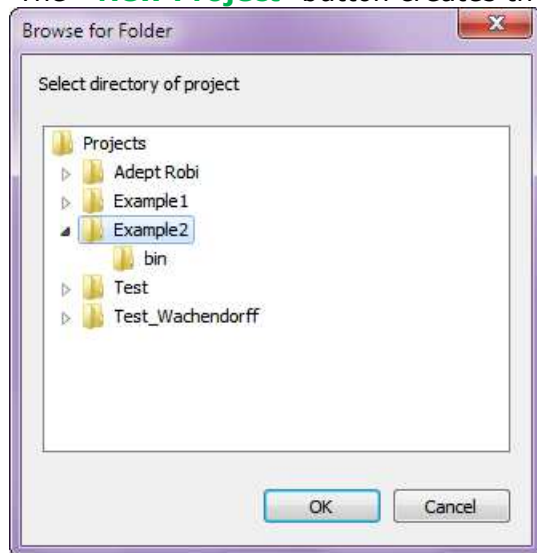
When launching the SW67417 the right window appears (Fig. 2).

Figure 2: Main window for SW67417
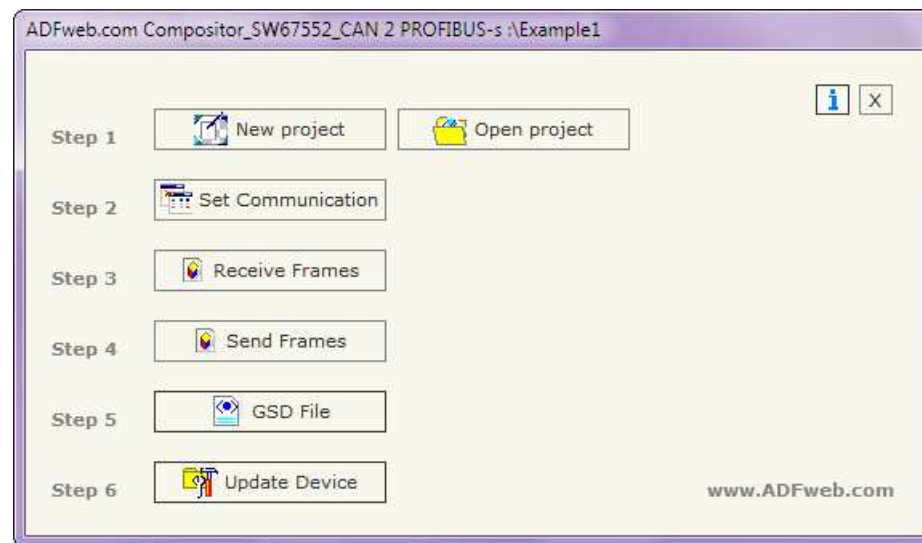
NEW PROJECT / OPEN PROJECT:

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 / PROFIBUS Slave – Converter" 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**".

SET COMMUNICATION:

This section defines the fundamental communication parameter of two Buses, CAN bus and PROFIBUS.

By Pressing the "**Set Communication**" button from the main window for SW67417 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The window is divided in two sections, one for the CAN and the other for the PROFIBUS.

The means of the fields for "CAN" are:

- In the field "**Baud Rate**" the velocity of the CAN bus is defined;
- If the field "**CAN Bus 2.0A**" is checked, the CAN with a CobID of 11Bit is used; otherwise if the field "**CAN Bus 2.0B**" is checked the CAN with a CobID of 29Bit is used;
- If the field "**Send Frame on Data Change**" is checked, the frame is sent when the data are changed from the PROFIBUS Master. Otherwise if the field "**Send Frame Every xx ms**" is checked all CAN frames will be sended in cyclic way, with the delay decided by user between every cicle;
- In the field "**Time out Data**" insert a time; when this time is elapsed and the data are not reliable, the data are setted to 0xFF.

The means of the fields for "PROFIBUS" are:

- In the field "**ID Dev.**" the address for the PROFIBUS side is defined;
- If the field "**Create GSD file from CAN Mapping**" is checked, when you create the "GSD File" every CAN Frame is insert in a Module, otherwise if this field isn't checked a Module contains up to 64 byte.

Figure 3: "Set Communication" window

RECEIVE FRAMES:

By pressing the "**Receive Frames**" button from the main window for SW67417 (Fig. 2) the window "Receive Frames" appears (Fig. 4).

The data of the columns have the following meanings:

- In the field "**Cob-ID**" the COB_ID of the CAN bus is defined;
- In the field "**Dimension**" the number of byte of CAN frame is defined;
- In the field "**Swap**" if it is necessary it is possible to create a swap of data bytes;
- If the field "**Delete**" is checked the data in the frame will be erased after the "TimeOut Data" is expired;
- In the field "**Mnemonic**" the description for the frame is defined.
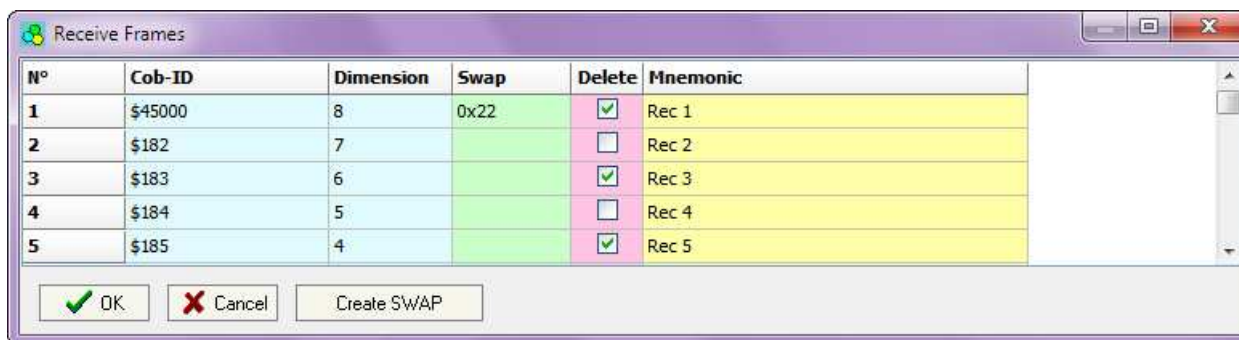

Figure 4: "Receive Frames" window

By pressing the "**Create Swap**" button from the "Receive Frames" window, the window "Byte Swap" appears (Fig. 5).
This window help you to modify the "Swap" field.
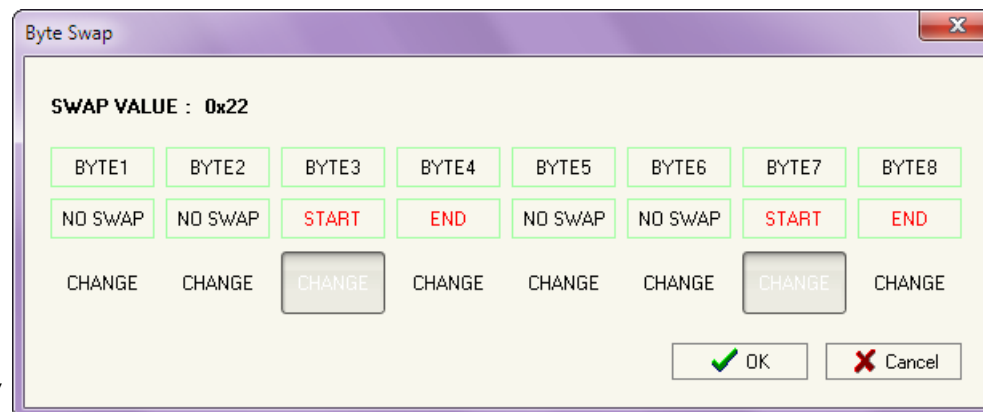
Figure 5: "Byte Swap" window

SEND FRAMES:

By pressing the "**Send Frames**" button from the main window for SW67417 (Fig. 2) the window "Send Frames" appears (Fig. 6).

The data of the column have the following meanings:

 ➭ In the field "**COB ID**" the COB_ID of the CAN bus is defined;
 ➭ In the field "**Dimension**" the number of byte of CAN frame is defined;
 ➭ In the field "**Swap**" if it is necessary it is possible to create a swap of data bytes;
 ➭ In the field "**Mnemonic**" the description for the frame is defined.

Figure 6: "Send Frames" window

By pressing the "**Create Swap**" button from the "Receive Frames" window, the window "Byte Swap" appears (Fig. 7).
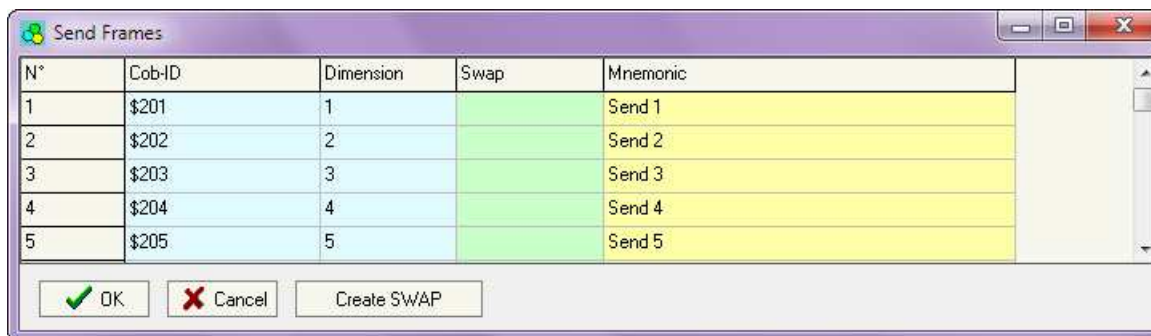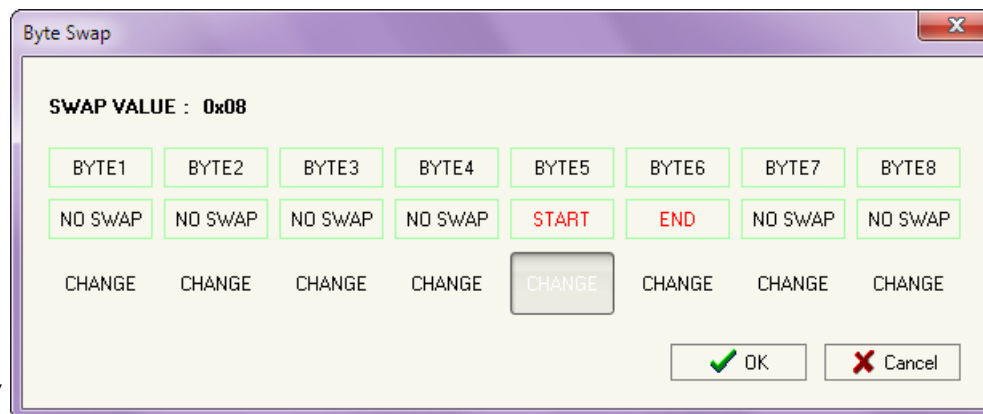This window help you to modify the "Swap" field.

Figure 7: "Byte Swap" window

GSD FILE:

By pressing the "*GSD File*" button it is possible to save the GSD file for the PROFIBUS side.
With this feature you can save the configuration of the gateway of the PROFIBUS side.

Note:
    When you import the .gsd file on your Master PROFIBUS you have to add all the modules that are present inside it.

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UPDATE DEVICE:

By pressing the "**Update Device**" button it is possible to load the created Configuration into the device; and also the Firmware, if is necessary.

In order to load the parameters or update the firmware in the Converter, follow these instructions:

- Connect the AC67400 to the PC;
- Connect the CAN port of AC67400 to CAN port of HD67417;
- Feed the HD67417;
- Turn on the device;
- Select the "**COM port**" and press the "*Connect*" button;
- Press the "*Next*" button;
- Select which operations you want to do.
- Press the "*Execute update firmware*" button to start the upload;
- When all the operations are "OK" turn off the device;
- Disconnect the AC67400;
- Turn on the device.

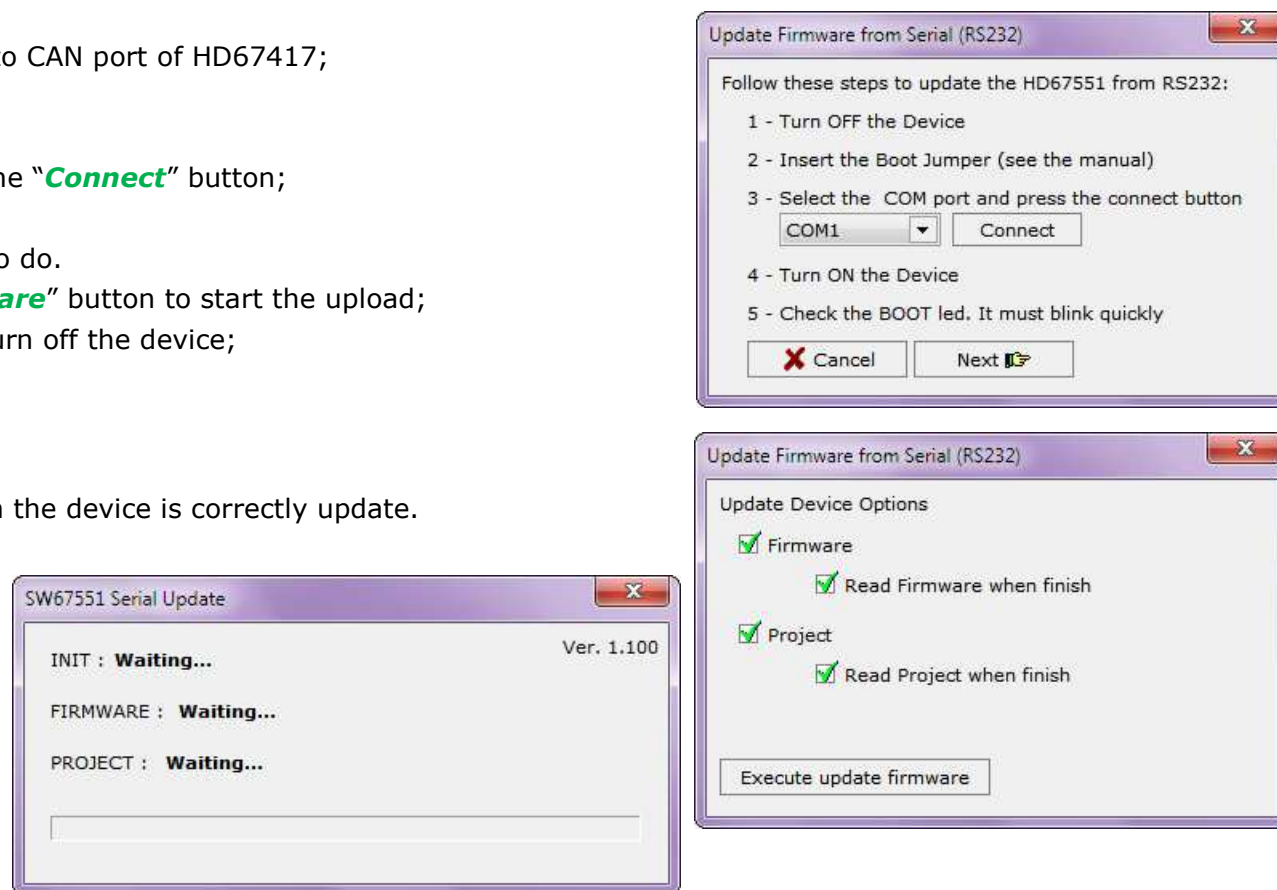At this point the configuration/firmware on the device is correctly update.

Figure 10: "Update Device" windows

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 HD67417 device.

Note:
   When you receive the device, for the first time, you have to update also the Firmware in the HD67417 device.

Warning:
   If the Fig. 9 appears when you try to do the Update before require assistance try these points:

Figure 11: "Protection" window

+ Check if the serial COM port selected is the correct one;
+ Check if the AC67400 is connected between the PC and the device;
+ Try to repeat the operations for the updating;
+ If you are using a dongle try with a native COM port or change the dongle;
+ Try with another PC;
+ Try to restart the PC;
+ If you are using the program inside a Virtual Machine, try to use in the main Operating System;
+ If you are using Windows Seven or Vista or 8, make sure that you have the administrator privileges;
+ Take attention at Firewall lock.

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MECHANICAL DIMENSIONS:

ADFweb.com S.r.l

E-type enclosure measures
without fixing lugs

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74

40

51,5

92

105

B6

Type A

ADFweb.com S.r.l

E-type enclosure measures
with fixing lugs Type A

ADFweb

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40

112,5

95

60

83

Type B

ADFweb.com S.r.l

E-type enclosure measures
with fixing lugs Type B

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Type C

ADFweb.com S.r.l			
Via Strada Nuova, 17 IT-31010 Mareno di Piave TREVISO (ITALY) TEL +39.0438.30.91.31 FAX +39.0438.49.20.99	E-type enclosure measures with fixing lugs Type C		

40
112,5
95
92
105

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ORDERING INFORMATIONS:

The ordering part number is formed by a valid combination of the following:

HD67417 – E y z – s f

Fixing lugs
A: Type 1
B: Type 2
C: Type 3

CAN Termination
Y: Terminated with 120Ω
N: Not terminated

Varnished/Resinated
V: Varnished
R: Resined

Connectors Type
4: MiniFit
7: SuperSeal 1.5

Enclosure Type
E: Metal enclosure

Device Family
HD67417 = CAN / PROFIBUS Slave - Converter
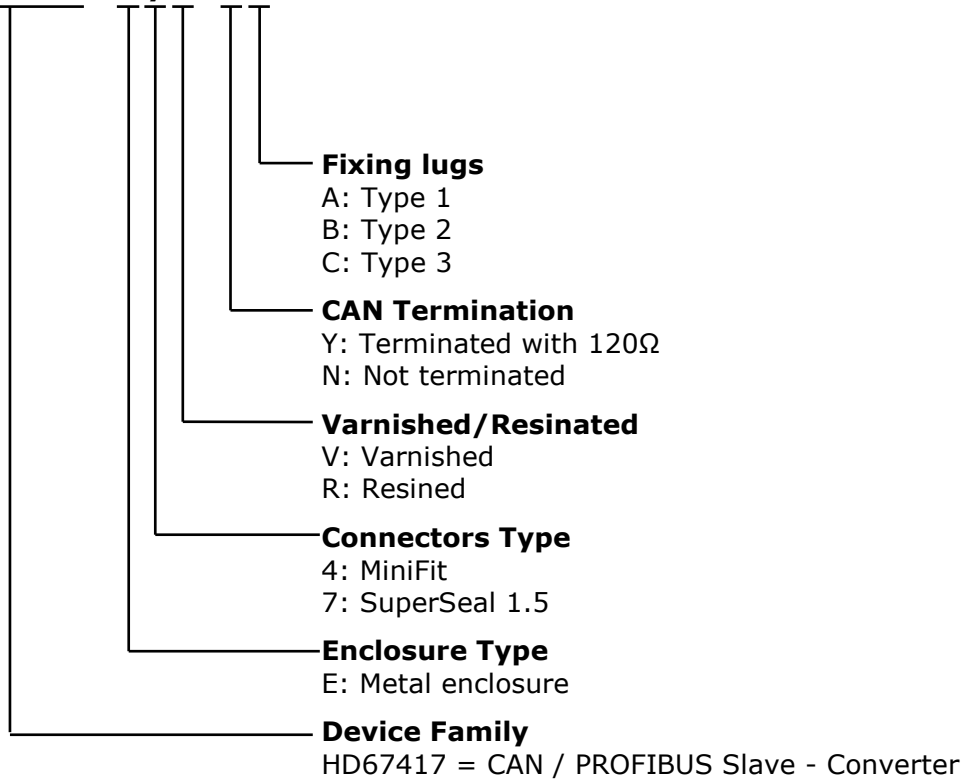
ACCESSORIES:

Order Code: **AC67400**   -   CAN interface to configure devices

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For losses due to fire, earthquake, third party access or other accidents, or intentional or accidental abuse, misuse, or use under abnormal conditions repairs are charged to the user. ADFweb.com S.r.l. will not be liable for accidental loss of use or inability to use this product, such as loss of business income. ADFweb.com S.r.l. shall not be liable for consequences of improper use.

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.

Industrial Electronic Devices

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.

PRODUCTS AND RELATED DOCUMENTS:

Part	Description	URL
HD67121	Gateway CANopen / Canopen	www.adfweb.com?product=HD67121
HD67502	Gateway CANopen / Modbus - RTU	www.adfweb.com?product=HD67502
HD67505	Gateway CANopen / Modbus – Ethernet TCP	www.adfweb.com?product=HD67505
HD67134	Gateway CANopen / DeviceNet	www.adfweb.com?product=HD67134
HD67117	CAN bus Repeater	www.adfweb.com?product=HD67117
HD67216	CAN bus Analyzer	www.adfweb.com?product=HD67216