

User Manual

Revision 2.001
English

M-Bus Master / RS232 - Converter

(Order Codes: HD67020-B2-3, HD67020-B2-10)

for Website information:

www.adfweb.com?Product=HD67020

for Price information:

www.adfweb.com?Price=HD67020-B2-3

www.adfweb.com?Price=HD67020-B2-10

Benefits and Main Features:

- ▶ Low cost
- ▶ No configuration software needed
- ▶ Mountable on 35mm DIN rail
- ▶ Electrical isolation between RS232 and M-Bus
- ▶ Industrial temperature range:
-40°C / 70°C (-40°F / 158°F)



HD67020-B2-3



HD67020-B2-10

For other M-Bus products see also the following link:

Converter M-Bus / ...

- www.adfweb.com?Product=HD67021 (...RS232)
- www.adfweb.com?Product=HD67022 (...RS485)
- www.adfweb.com?Product=HD67024 (...USB)
- www.adfweb.com?Product=HD67030 (...Ethernet)

Converter M-Bus / Modbus ...

- www.adfweb.com?Product=HD67029M-232 (...on RS232)
- www.adfweb.com?Product=HD67029M-485 (...on RS485)

Analyzer / Scanner / Sniffer M-Bus

www.adfweb.com?Product=HD67031

M-Bus – Repeater - Isolator

www.adfweb.com?Product=HD67032

Converter M-Bus / ...

- www.adfweb.com?Product=HD67044M (...Modbus TCP)
- www.adfweb.com?Product=HD67053M (...PROFIBUS)
- www.adfweb.com?Product=HD67051-B2 (...CANopen)
- www.adfweb.com?Product=HD67058-B2 (...DeviceNet)

M-Bus – Concentrator - Datalogger

- www.adfweb.com?Product=HD67054M (Serial/Modem)
- www.adfweb.com?Product=HD67057-B2-xxx (Ethernet)

M-Bus Slave / Modbus Master - Converter

www.adfweb.com?Product=HD67059M-232

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 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	30/09/2011	Fl	All	First release version
2.000	28/08/2012	Fl	All	Revision
2.001	04/04/2013	Nt	All	Added new chapters

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.

TRADEMARKS:

All trademarks mentioned in this document belong to their respective owners.

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.

CONNECTION SCHEME:

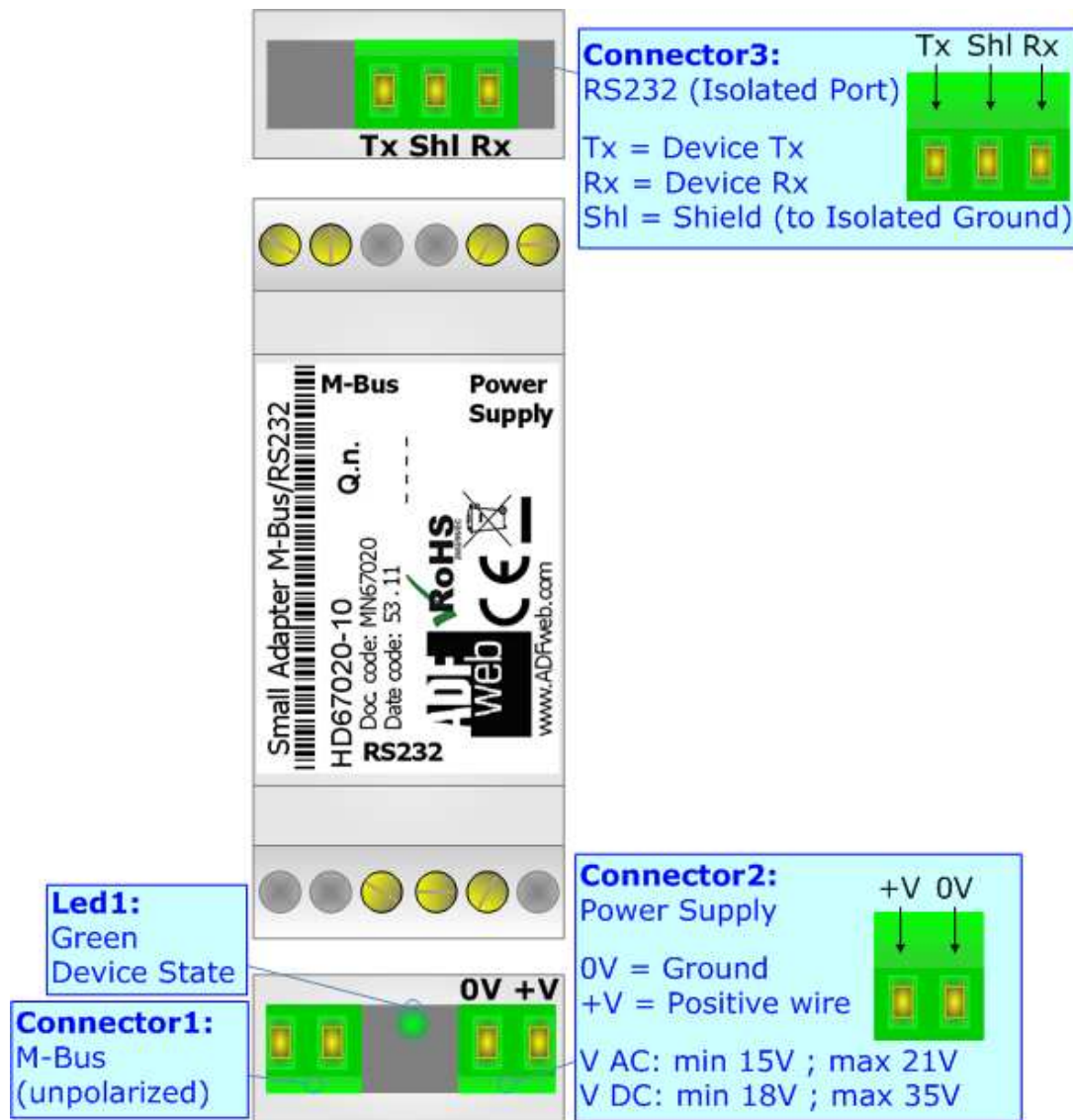
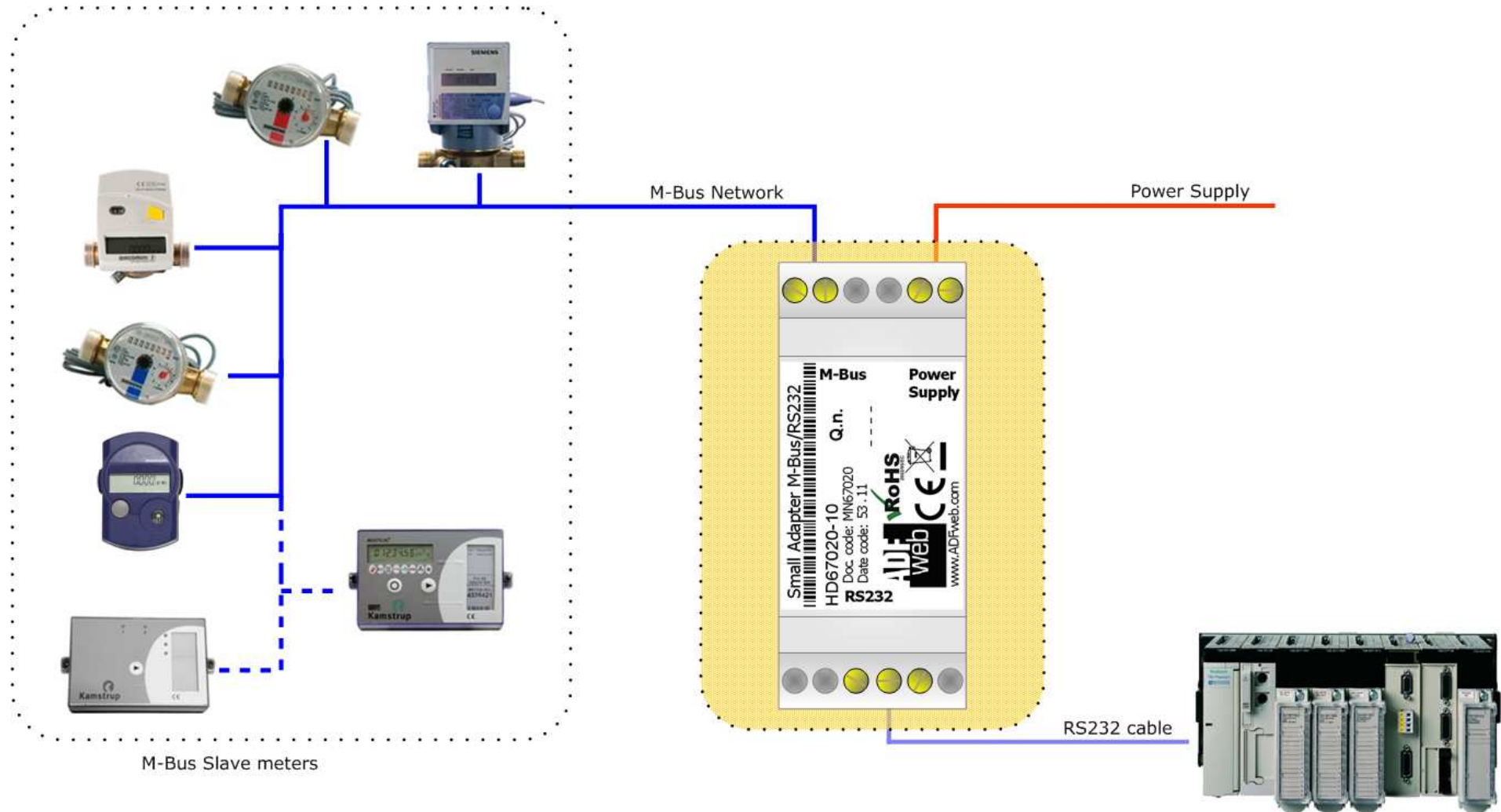


Figure 1: Connection scheme for HD67020-B2-3, HD67020-B2-10

EXAMPLE OF CONNECTION:



CHARACTERISTICS:

The HD67020-B2-xx is an M-Bus Master / RS232 Converter.

The M-Bus / RS232 Converter allows the following characteristics:

- ↘ Electrical isolation between RS232 and M-Bus;
- ↘ No configuration software needed;
- ↘ Mountable on 35mm Rail DIN;
- ↘ Power Supply 15...21V AC or 18...35V DC;
- ↘ Overcurrent and short-circuit protection on the M-Bus;
- ↘ Baudrate: from 300 to 38400, Parity: None, Odd, Even;
- ↘ Temperature range -40°C to 70°C.

At the Converter can be connected up to 10 standard M-Bus devices (1,5mA). This number depends of the code expressed by the xx number:

- ↘ HD67020-B2-3 support up to 3 M-Bus devices;
- ↘ HD67020-B2-10 support up to 10 M-Bus devices.

The product allows to use an existent M-Bus program or allows to create an own program. It is necessary only to write the M-Bus frames on Serial RS232 and then receive the reply. For information about M-Bus see the link: www.m-bus.com.

**Note:**

The device gives back an echo of the data send on RS232 before sending the reply of the slave.

POWER SUPPLY:

The devices can be powered at 15...21V AC and 18...35V DC. The consumption depends to the code of the device. For more details see the two tables below.

VAC		VDC	
Vmin	Vmax	Vmin	Vmax
15V	21V	18V	35V

Consumption at 24V DC:

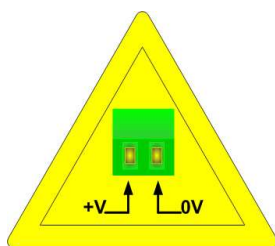
Device	No Load [W/VA]	Full Load [W/VA]*
HD67020-B2-3	1.4	1.9
HD67020-B2-10		2.4

* This value is with all the Slave M-Bus devices of the code (3,10) connected to the line

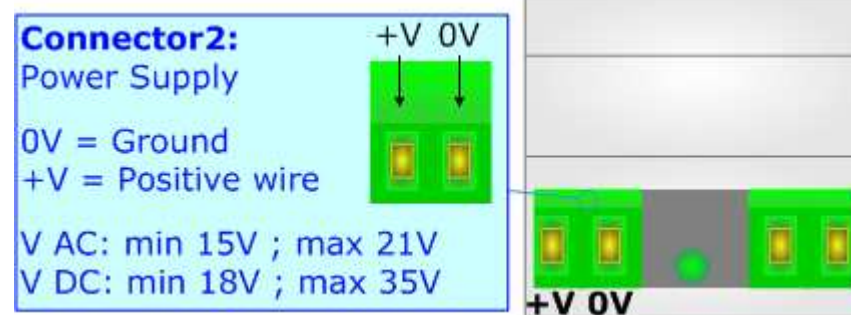


Warning:

Not reverse the polarity power



HD67020-B2-xx



CONFIGURATION:

The device doesn't need to be configured. The baudrate is automatically detected at RS232 side and used (the same) to the M-Bus side.

CHARACTERISTICS OF THE CABLES:

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 RS232C Cable not exceed 15 meters.

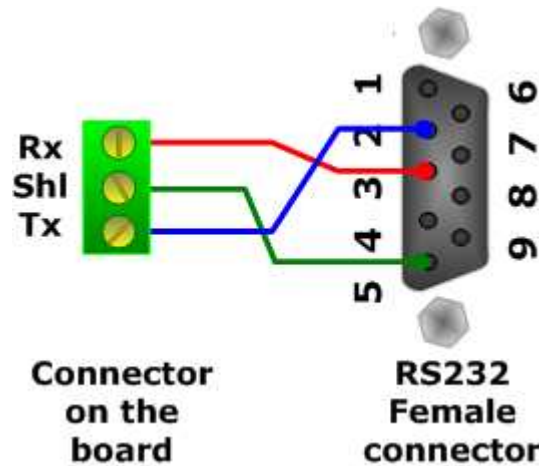
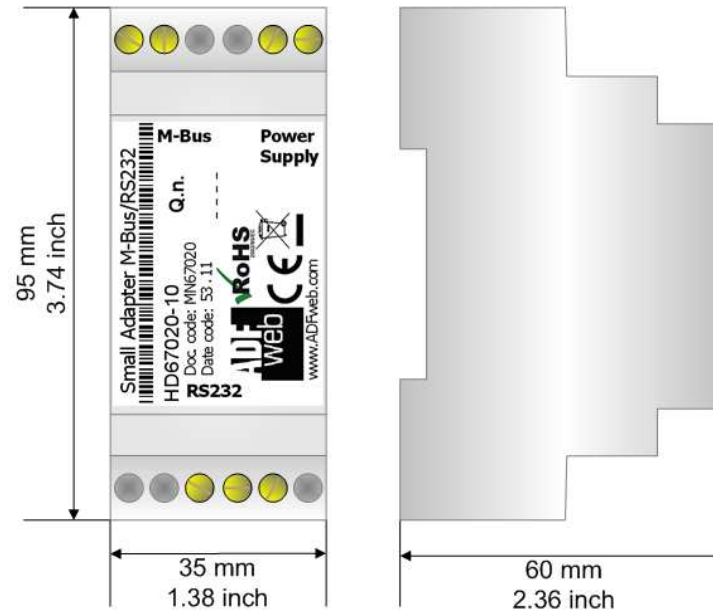


Figure 3: Null modem cabling

M-Bus:

A two wire standard telephone cable (JYStY N*2*0.8 mm) is used as the transmission medium for the M-Bus. The maximum distance between a slave and the repeater is 350m; this length corresponds to a cable resistance of up 29Ω. This distance applies for the standard configuration having Baud rates between 300 and 9600 Baud, and a maximum of 250 slaves. The maximum distance can be increased by limiting the Baud rate and using fewer slaves, but the bus voltage in the space state must at no point in a segment fall below 12V, because of the remote powering of the slaves. In the standard configuration the total cable length should not exceed 1000m, in order to meet the requirement of a maximum cable capacitance of 180nF. *(Taken from M-Bus specifics)*

MECHANICAL DIMENSIONS:



Housing: PVC
Weight: 200g (Approx)

Figure 4: Mechanical dimensions scheme for HD67020-B2-3, HD67020-B2-10

ORDER CODES:

- Order Code: **HD67020-B2-3** - M-Bus Master / RS232 - Converter (up to 3 slaves connected to M-Bus)
- Order Code: **HD67020-B2-10** - M-Bus Master / RS232 - Converter (up to 10 slaves connected to M-Bus)

ACCESSORIES:

- Order Code: **APW020** - Power Supply for M-Bus Master device that supports up to 20 Slaves
- 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

DISCLAIMER

All technical content within this document can be modified without notice. The content of the document content is a recurring audit. 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.

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
HD67120	Converter Ethernet to RS232/RS485	www.adfweb.com?product=HD67120
HD67119	Converter USB 2.0 to RS485 Isolated	www.adfweb.com?product=HD67119
HD67507	Gateway Modbus TCP Server to RTU Master	www.adfweb.com?product=HD67507
HD67510	Gateway Modbus TCP Client to RTU Slave	www.adfweb.com?product=HD67510