

M-Bus 10 Converters Data Sheet

M-Bus Converters (C01 - C04)

C01 C02 C03 C04



Features

- Serial ports RS232 and RS485
- Up to 10 simultaneously connected slave devices
- ESD protection for the RS232/485 data line
- 1000 VDC isolation protection
- Power supply: +12 to +30 VDC or 24 VAC
- Transmission speed up to 9600 bps
- Tx, Rx and power LED indicators
- RS485 embedded termination 120 ohm
- Operating temperatures: -40°C to +75°C
- DIN-rail mounting
- Compact size - single module format (1M)
- Dimensions: 90x56.4x17.5 mm
- 3 years warranty
- Customization of OEM is welcomed

Introduction

C01 - C04 family products are reliable M-Bus electrical standard converters. They enable communication in master mode with up to 10 simultaneously connected slave devices. Dedicated EMC integrated circuits guarantee improved connection quality by limiting the impact of interferences typical for an industrial environment.

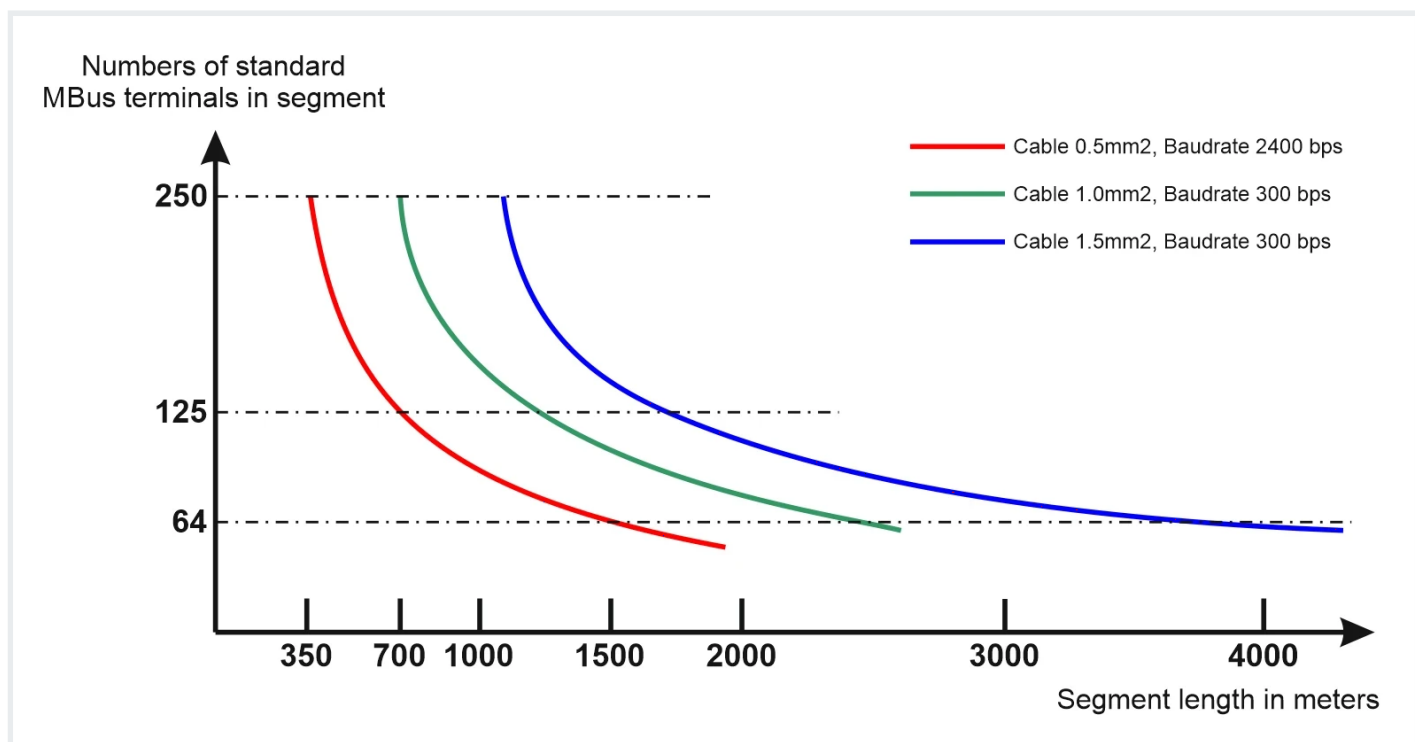
Specifications

Redisage PN	C01	C02	C03	C04
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Converter ports		Serial	1 x passive RS232	1 x active RS232	1 x RS485	1 x active RS232/RS485
		M-Bus	1 x M-Bus master with up to 10 x slaves			
Power		Voltage	12-30 VDC / 24 VAC			
		Power	< 1 W			
Frame ground connection			yes			
Serial interface		RS232	TxD, RxD, GND			
		RS485	A, B			
		M-Bus	MBus+, MBus -			
1000 VDC isolation side			RS232	RS232	RS485	RS232/RS485
Baud rate			up to 9600 bps			
LED indicators			communication Tx, Rx, power			
			RS232 OK	N/A		
RS485 termination			120 ohm manually enabled			
Connector		RS232	3-pin terminal block max. 2.5 mm ² wire			
		RS485	3-pin terminal block max. 2.5 mm ² wire			
		Power	3-pin terminal block max. 2.5 mm ² wire			
		M-Bus	3-pin terminal block max. 2.5 mm ² wire			
Transmission distance		RS485	max. 1,200 m at 9.6 kbps; max. 400 m at 115.2 kbps (Belden 9841 2P twisted-pair cable, if different cables are used, the transmission distance may change)			
		RS232	max. 15 m at 115.2 kbps			

M-Bus	see: M-Bus max. transmission distance	
Mounting and enclosure	DIN rail, plastic PA - UL 94 V0, black/green	
Temperatures	-40°C to +75°C operating and storage	
Humidity	10 - 90% RH, non-condensing	
ESD protection	±4 kV contact discharge / ±8 kV air discharge	
Certification	CE, RoHS, EMC, LVD	
Norms	61000-6-2 - Immunity standard for industrial environments 61000-6-4 - Emission standard for industrial environments	

M-Bus max. transmission distance



Passive vs. Active RS232

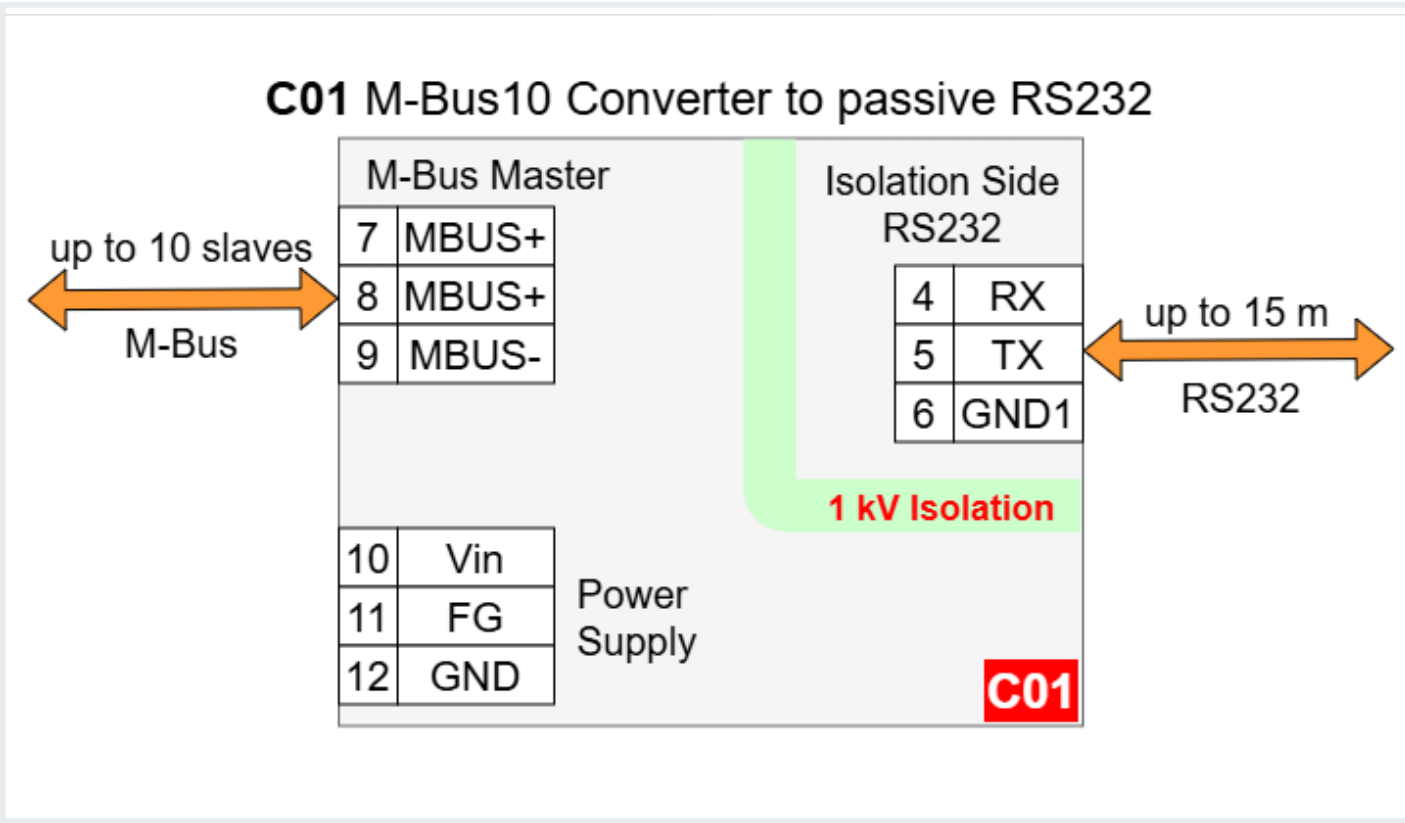
Devices equipped with a **passive RS232 interface** do not include an internal voltage converter. In this case, the connected external device must supply the necessary voltage to drive the RS232 data lines. This means the RS232 port is functional only when connected to a host device capable of providing the required signaling levels.

In contrast, devices with an **active RS232 interface** feature an integrated voltage converter that generates the appropriate RS232 voltage levels internally. As a result, the data lines are powered

by the converter itself, ensuring proper signal levels regardless of the capabilities of the connected device.

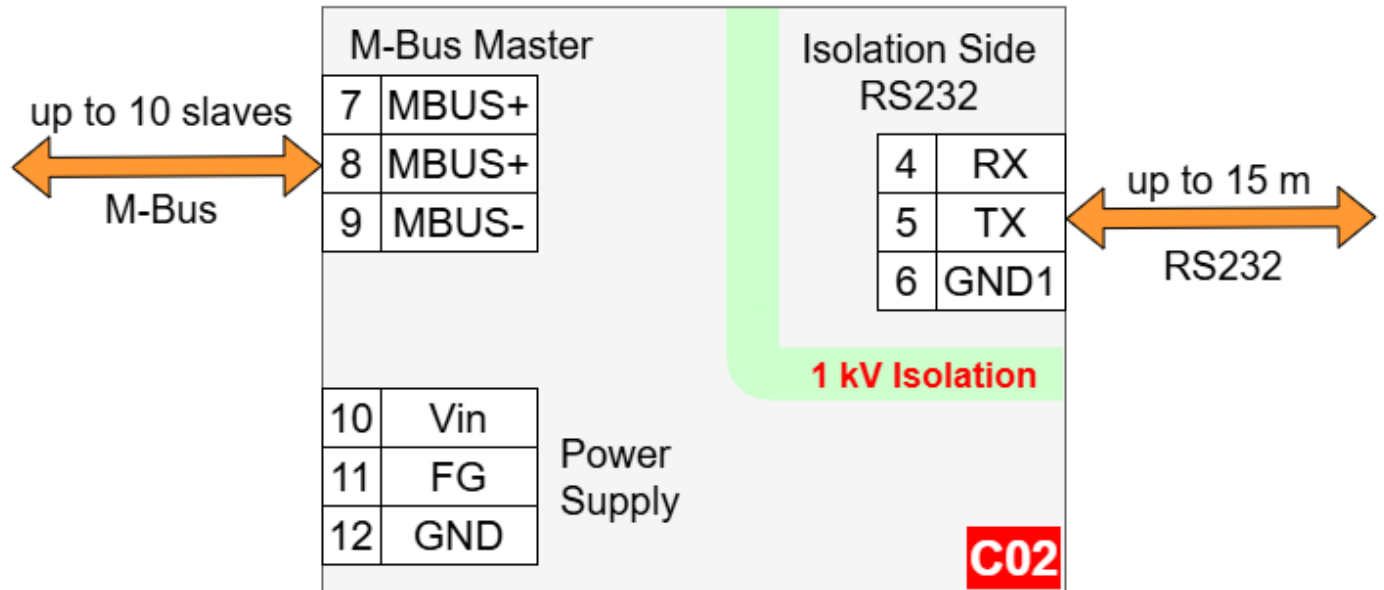
Variants

C01 - M-Bus10 Converter to passive RS232



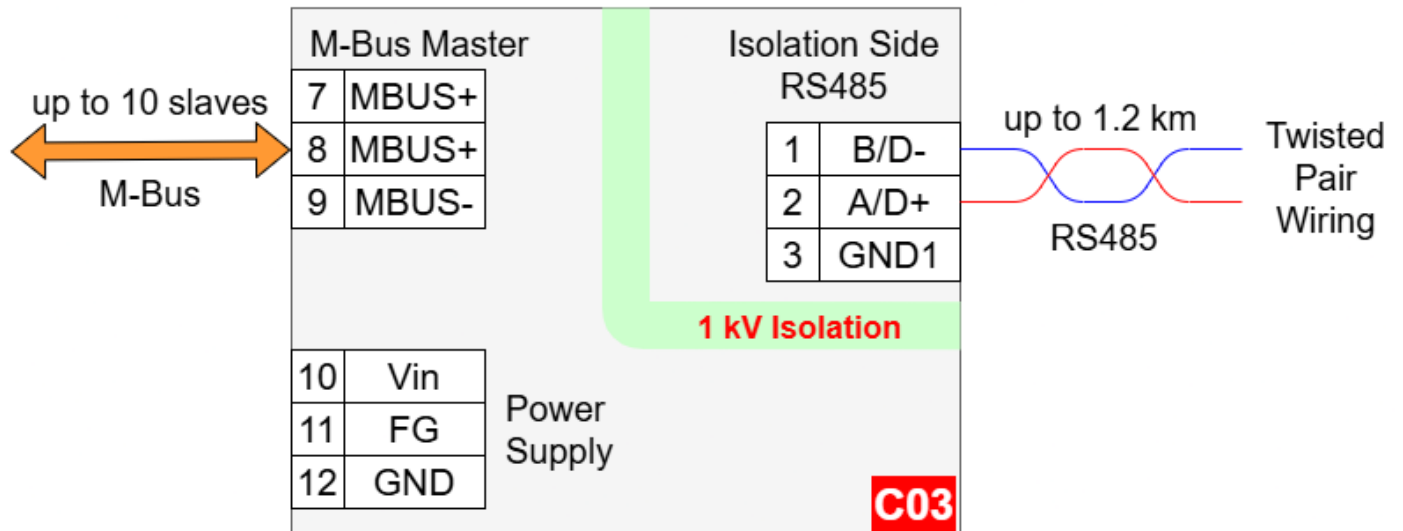
C02 - M-Bus10 Converter with active RS232 interface

C02 M-Bus10 Converter to active RS232



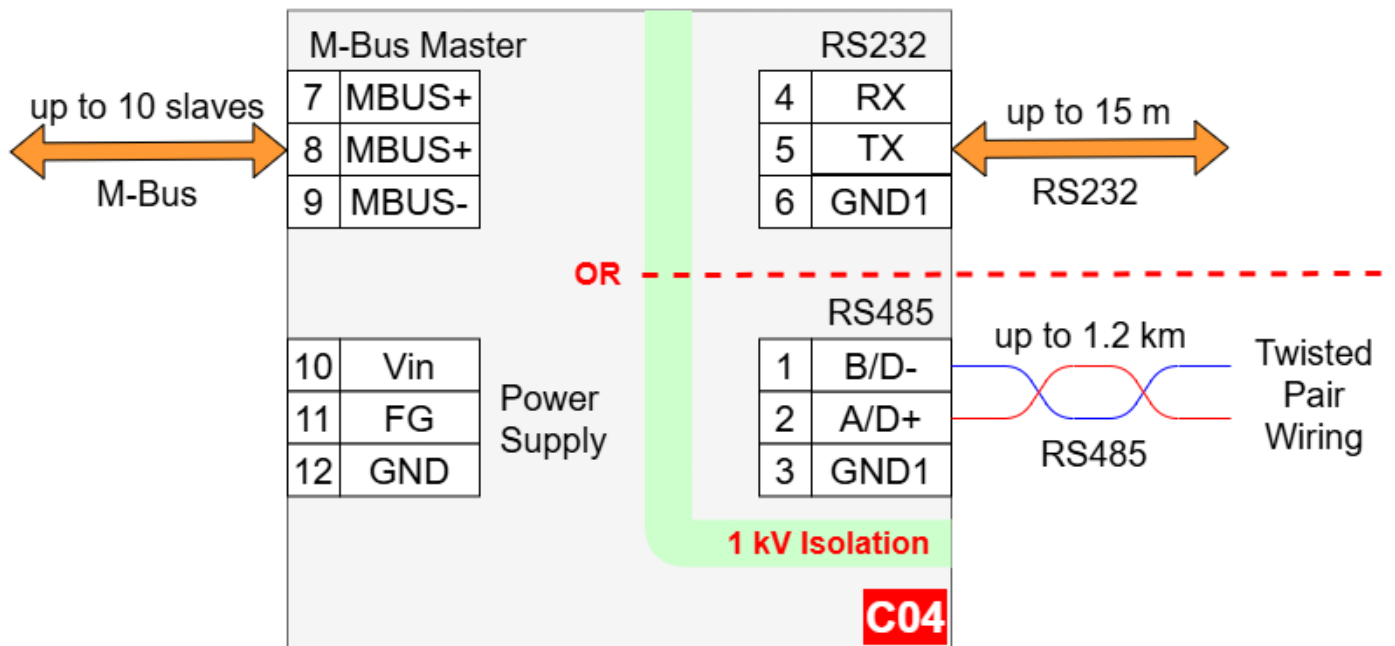
C03 - M-Bus10 Converter to RS485

C03 M-Bus10 Converter to RS485



C04 - M-Bus10 Converter to RS232/RS485 with active RS232/RS485 interface

C04 M-Bus10 Converter to RS232/RS485

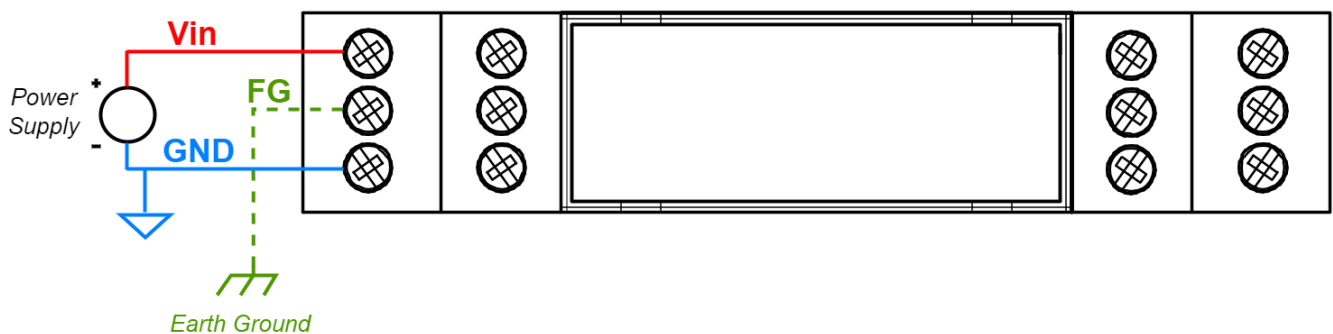


In the C04 gateway user can use only RS232 or only RS485 interface of one port as they occupy the same internal bus of the device.

Frame ground FG

Electronic circuits are constantly prone to electrostatic discharge ESD. Redisa Electronics modules feature a design for the frame ground terminal block FG. The frame ground provides a path for bypassing ESD, which provides enhanced static protection ESD abilities and ensures the module is more reliable. Connecting FG terminal block to the earth ground will bypass the ESD disturbances outside the device so will provide a better level of protection against ESD.

Frame Ground FG connection reference drawing is provided below.



If earth ground is not available FG can be left floating or it can be connected with the power supply GND.

Pin assignments

C01

C01

MBus Converter
Passive RS232 Side

123456789012345

Power: 12-30V/DC <1W
24V/AC
Temperature: -40°C +75°C
Ports: 1xRS232
1xMBus up to 10 slaves
Baud: up to 9600 bps
REV1 MADE IN EU

NC	6 Gnd1	9 MBus-	10 Gnd
	5 Tx1	8 MBus+	11 FG
	4 Rx1	7 MBus+	12 Vin





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C02

C02

MBus Converter
Active RS232 Side

123456789012345

Power: 12-30V/DC <1W
24V/AC
Temperature: -40°C +75°C
Ports: 1xRS232
1xMBus up to 10 slaves
Baud: up to 9600 bps

NC	6 Gnd1	9 MM-	12 Gnd
	5 Tx1	8 MM+	11 FG
	4 Rx1	7 MM+	10 Vin





RoHS
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C03

C03

MBus RS485
Converter

123456789012345

Power: 12-30V/DC <1W
24V/AC
Temperature: -40°C +75°C
Ports: 1xRS485
1xMBus up to 10 slaves
Baud: up to 9600 bps
REV1 MADE IN EU

3 Gnd1	NC	9 MM-	12 Gnd
2 A1		8 MM+	11 FG
1 B1		7 MM+	10 Vin

1 Bias +	3 Bias -	ON	VE
2 Port 1 terminator	4 NC	1	2 3 4

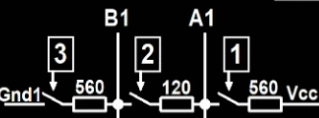




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C04

C04

MBus RS232 RS485
Converter

123456789012345

Power: 12-30V/DC <1W
24V/AC
Temperature: -40°C +75°C
Ports: 1xRS232 1xRS485
1xMBus up to 10 slaves
Baud: up to 9600 bps
REV1 MADE IN EU

3 Gnd1	6 Gnd1	9 MM-	12 Gnd
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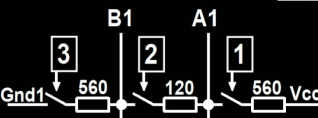




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Enclosure dimensions

1U Module Enclosure
98 x 17.5 x 56.4
Units: mm

DISCLAMER NOTES

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Datasheet-ID:

SC-D

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