Data Sheet

Modbus Ethernet Gateways (G01 - G03 & G14 - G16)

Features

- 2-mode Ethernet Modbus Gateway
- Ethernet converter to RS232/RS485
- ESD protection for the RS485 data line
- Power supply: +12 to +30 VDC
- Transmission speed up to 115200 bps
- Tx, Rx and power LED indicators
- RS485 embedded termination 120 ohm
- Operating temperatures: -40°C to +75°C
- DIN rail mounting
- Dimensions: 90x56.4x22.5 mm
- 3 years warranty
- Customization of OEM is welcomed

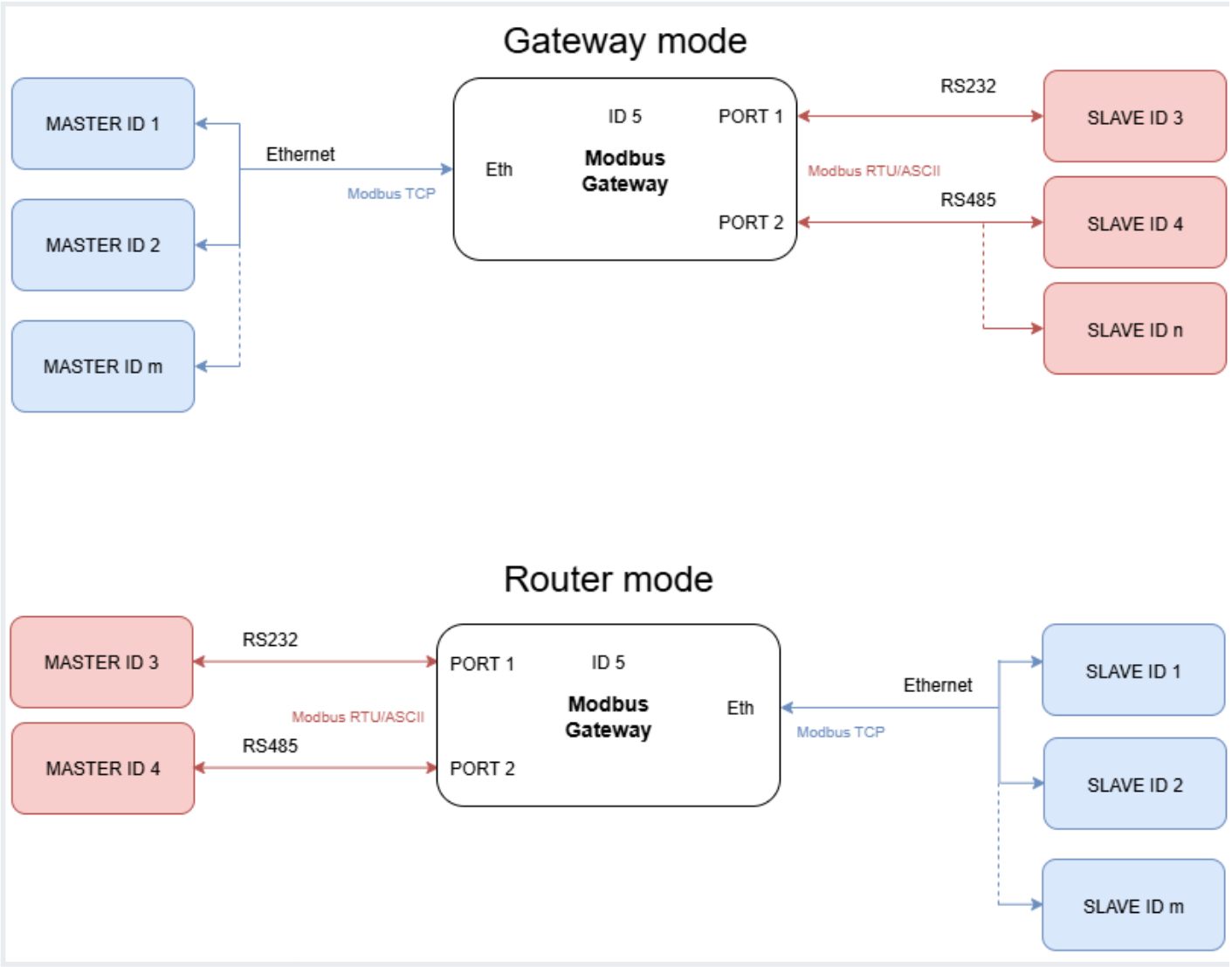
Introduction

Devices are based on G01 - G03 gateways (**ESP32 Xtensa LX6 microcontroller**) and G14 - G16 gateways (**STM32F4 microcontroller**) depending on needed ports and interfaces.

Dedicated EMC integrated circuits guarantee improved connection quality by limiting the impact of interference typical for an industrial environment.

Modbus gateways allow data transmission between LAN hosts and serial devices by converting Modbus protocols (Modbus TCP and Modbus RTU/ASCII). They are intended to be used in industrial networks especially in the field of Industry 4.0 but not only. Apart from extending the capabilities of industrial devices, they can be also adapted up to user’s requirements and needs.

Transmission is carried out by two modes: Gateway and Router. In the Gateway mode, the port is used to communicate with Slave devices, but in the Router mode with Master devices. It is also possible to set up different modes on every port. Block diagrams below describe how each of these modes works.



The device has max 20 sockets open in Gateway mode and max 8 in Router mode. It is possible to increase this value at client's request.

Specification

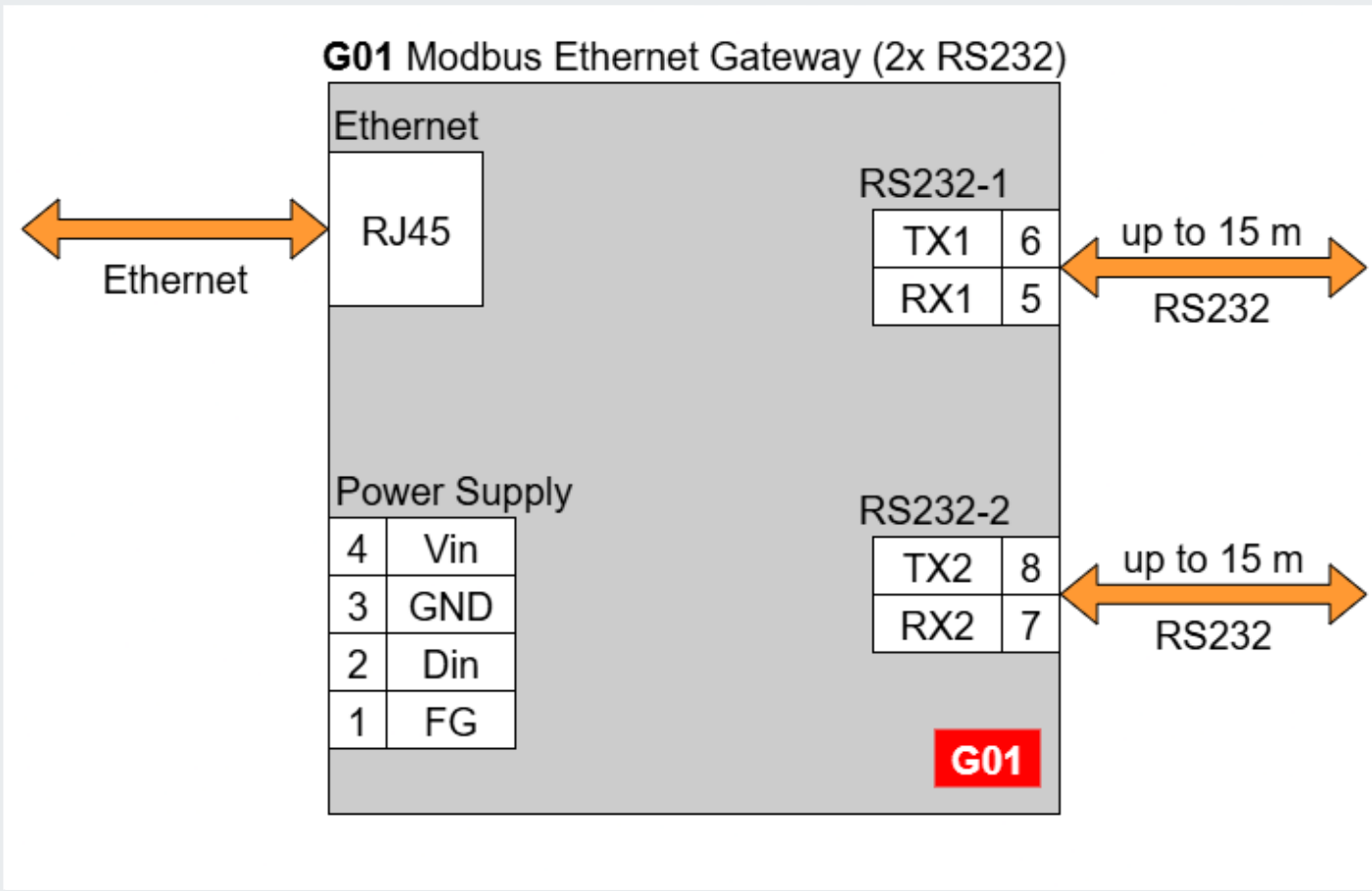
Redisage PN		G01	G02	G03	G14	G15	G16
Ports	RS232	2x	-	-	4x	2x	-
	RS485	-	1x	-	-	2x	4x
	RS232/RS485	-	-	2x	-	-	-

Redisage PN		G01	G02	G03	G14	G15	G16
Microcontroller		ESP32			STM32F4		
WiFi		N/A					
Power	Voltage	12-30 VDC					
	Power	< 1 W					
Frame ground connection		yes					
Baud rate		up to 115200 bps					
LED indicators		communication Tx, Rx and power					
RS485 termination		120 ohm manually enabled					
Connector	RS232/RS485	8-pin terminal block max. 2.5 mm^2 wire					
	Power	3-pin terminal block max. 2.5 mm^2 wire					
	Ethernet	RJ45					
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					
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					

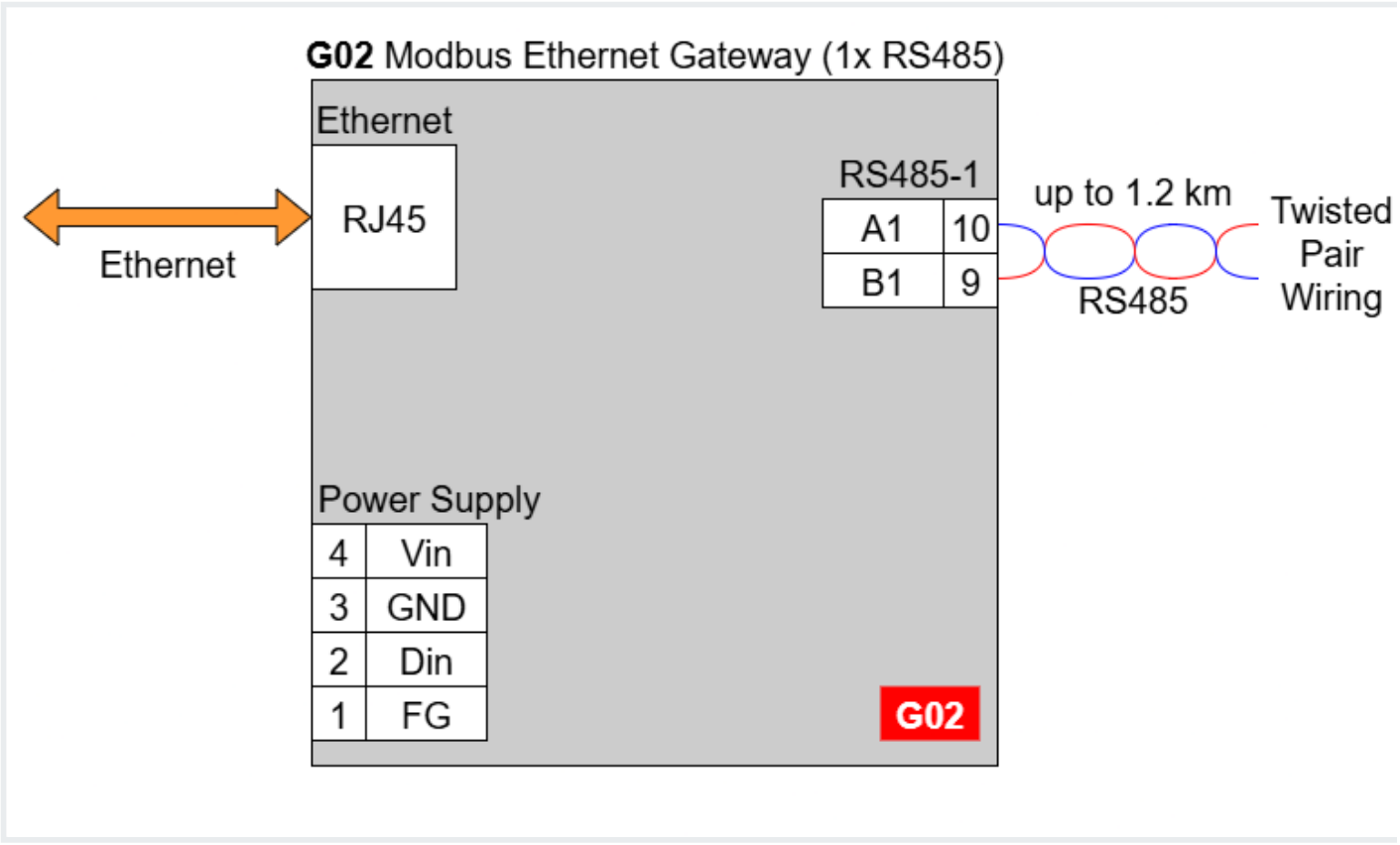
Redisage PN	G01	G02	G03	G14	G15	G16
Certification	CE, RoHS, EMC, LVD					
Norms	61000-6-2 - Immunity standard for industrial environments 61000-6-4 - Emission standard for industrial environments					

Variants

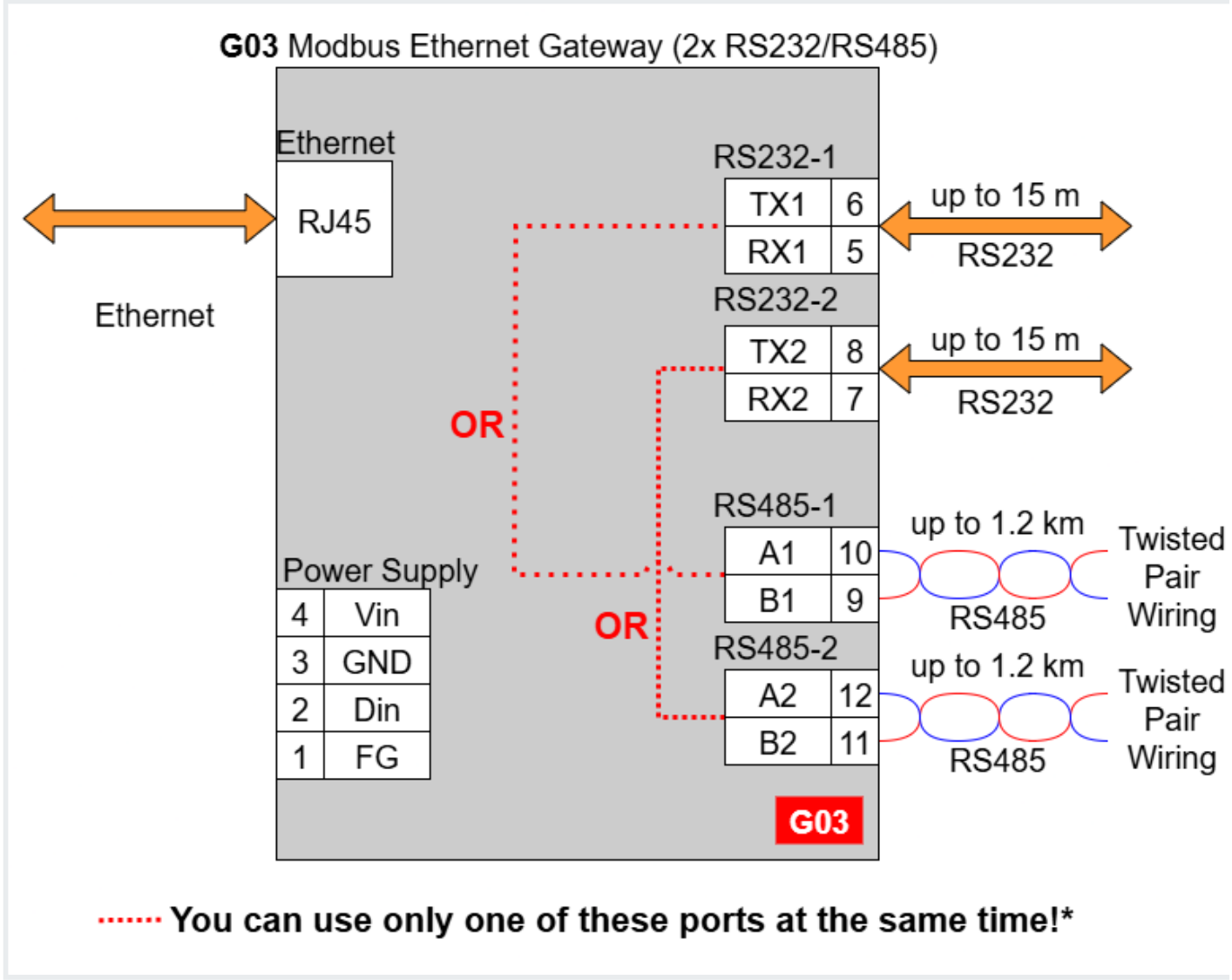
G01 - Ethernet Modbus Gateway 2x RS232



G02 - Ethernet Modbus Gateway 1x RS485

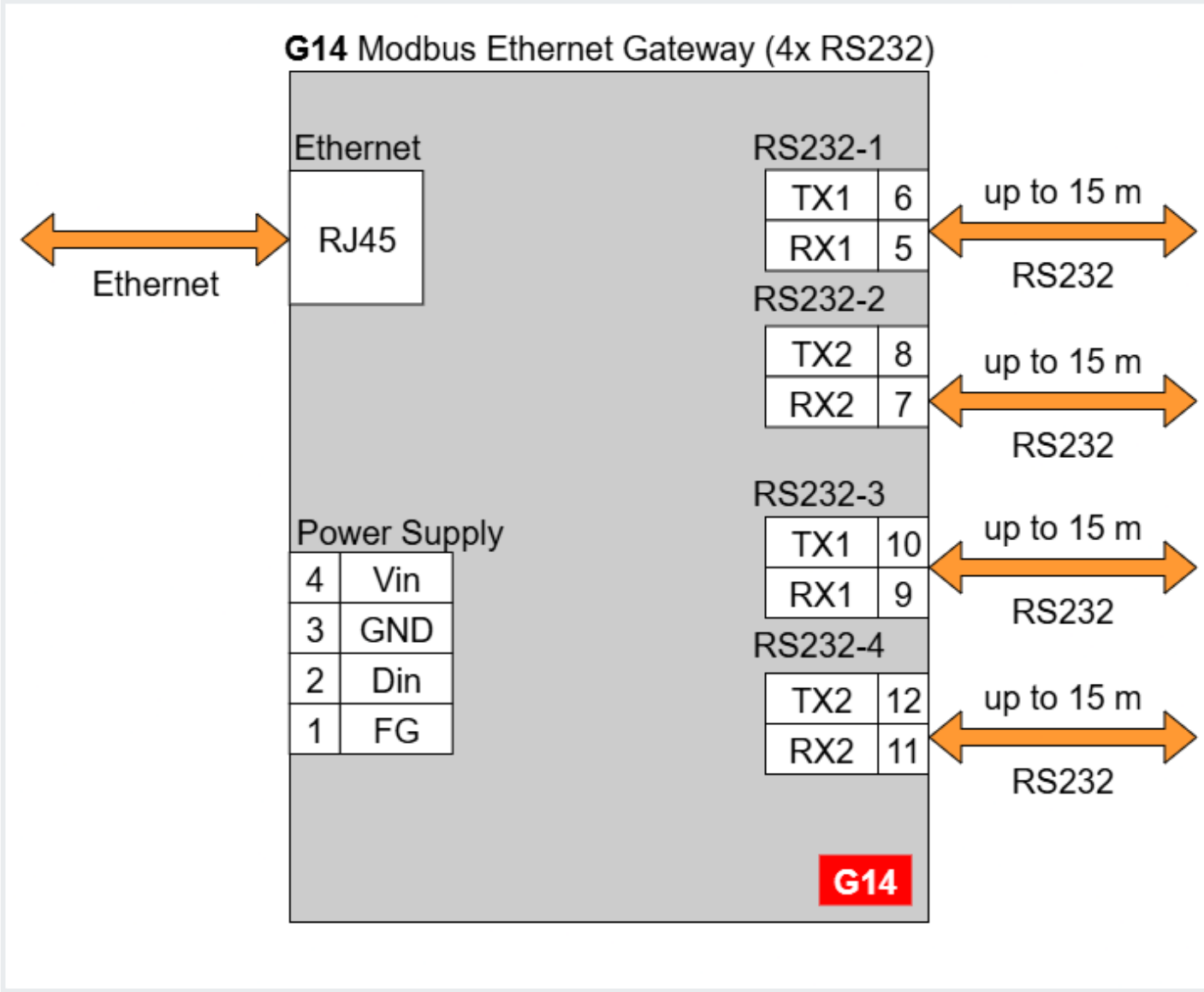


G03 - Ethernet Modbus Gateway 2x RS232/RS485

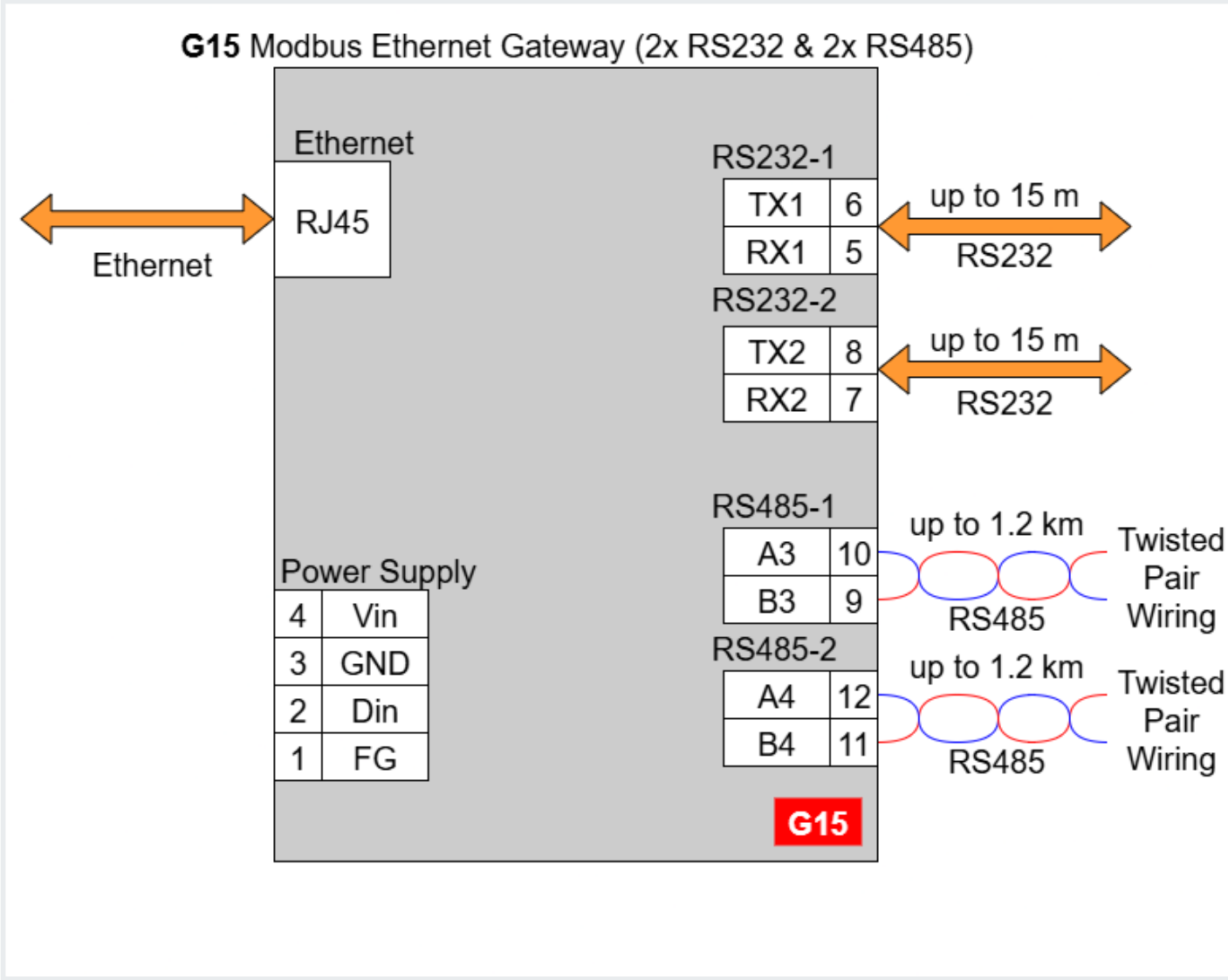


In the G03 gateway user should use only RS232 or only RS485 interface of one port as they occupy the same internal bus of the device. It means, don't use pairs: RS232-1 & RS485-1 at the same time and RS232-2 & RS485-2 at the same time!

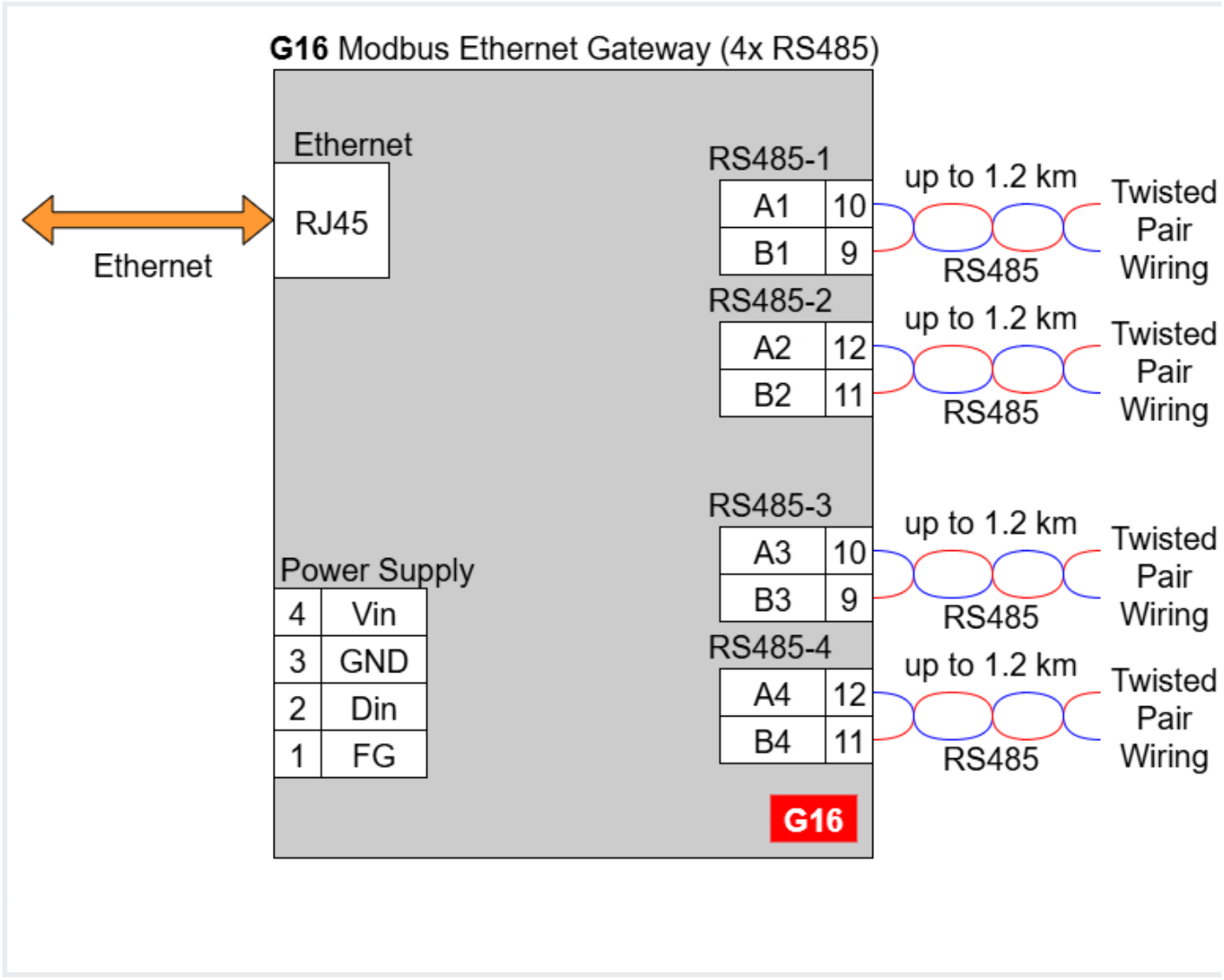
G14 - Ethernet Modbus Gateway 4x RS232



G15 - Ethernet Modbus Gateway 2x RS232 & 2x RS485



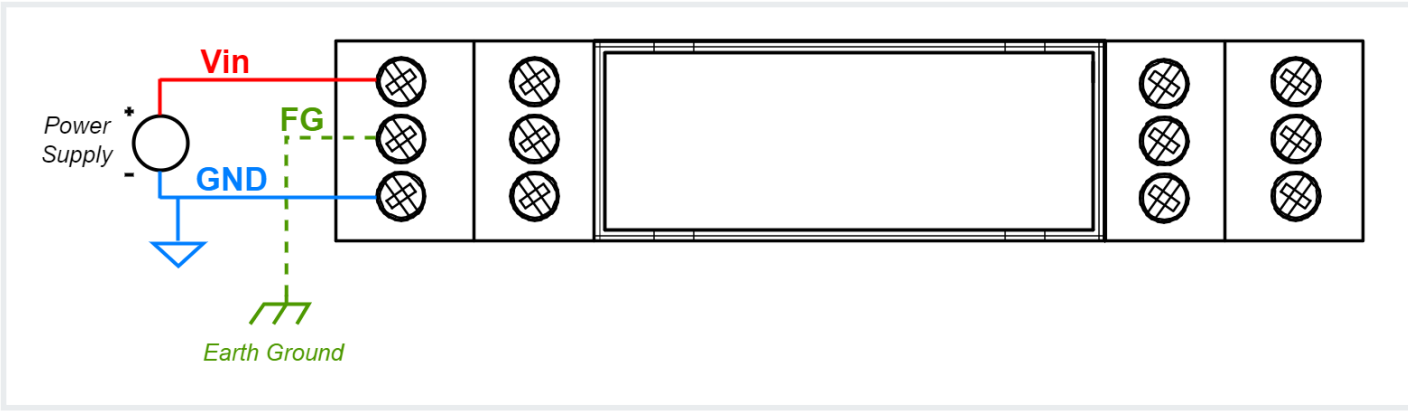
G16 - Ethernet Modbus Gateway 4x RS485



Frame ground FG

Electronic circuits are constantly prone to electrostatic discharge ESD. Redisage 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.

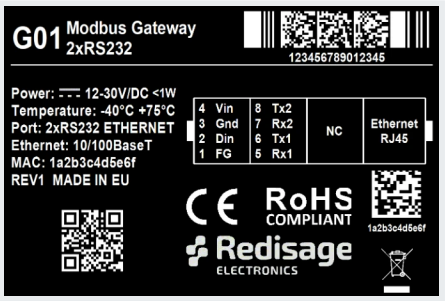
Frame Ground FG connection reference drawing is provided below.



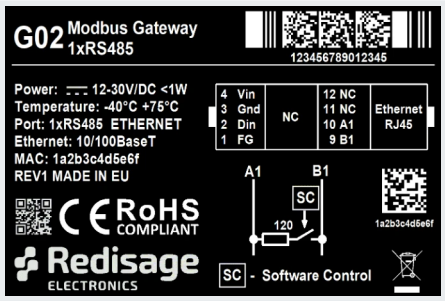
If earth ground is not available FG can be left floating or it can be connected with the power supply GND.

Pin assignments

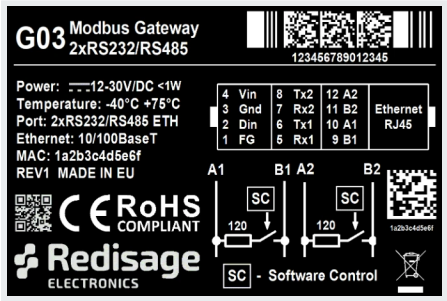
G01



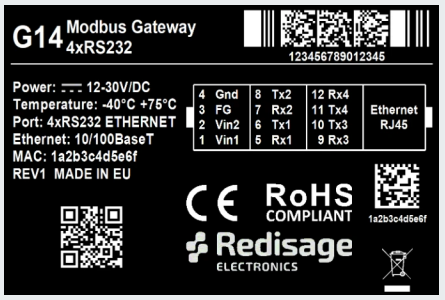
G02



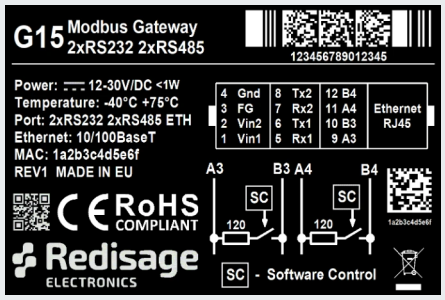
G03



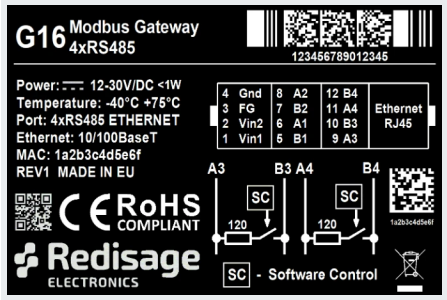
G14



G15



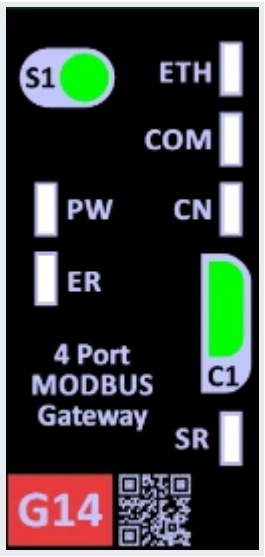
G16



LED indicators

Modbus Gateways G01 - G03	Modbus Gateways G14 - G16

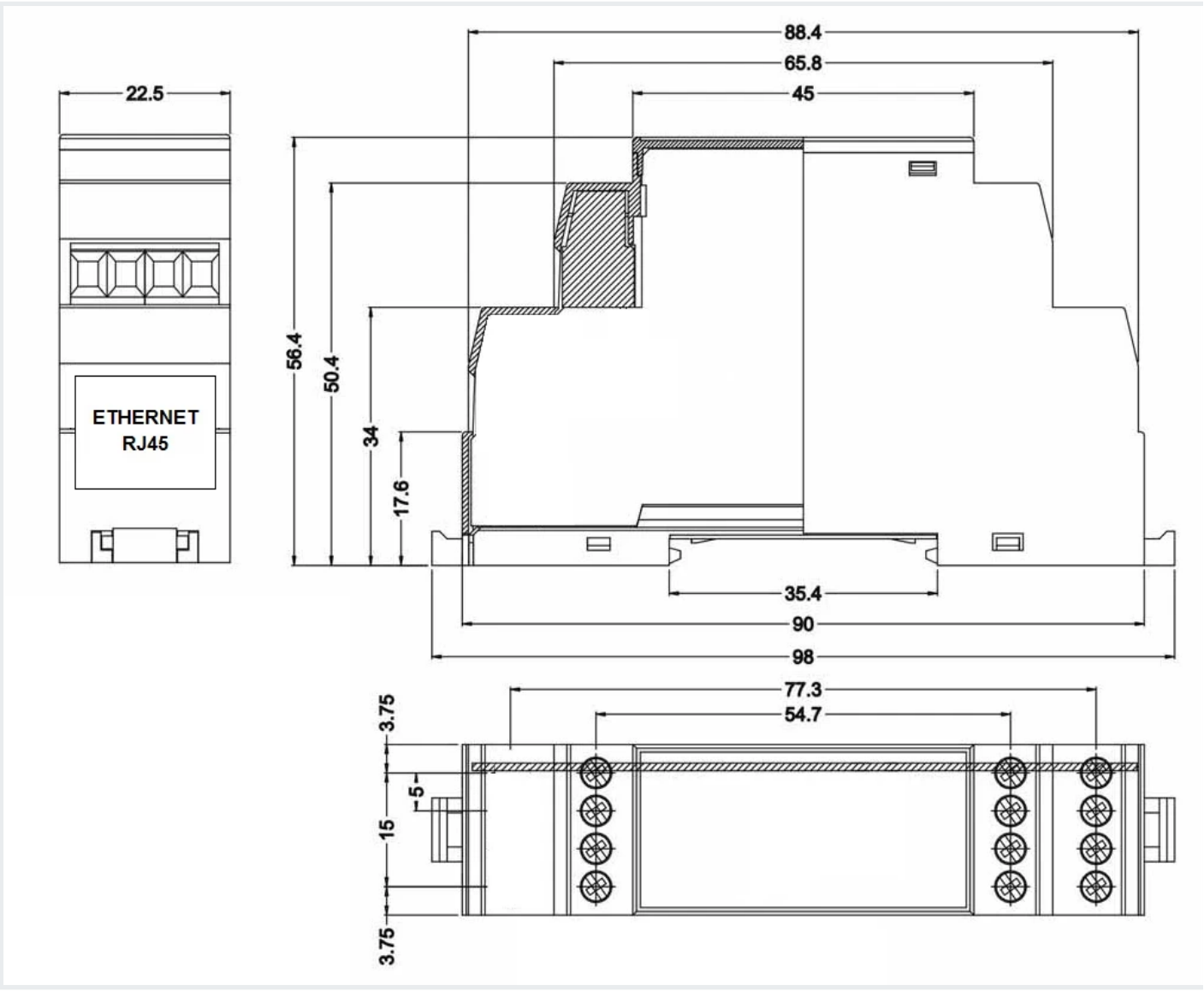
LED indicator	Color	Function
PW	Blue	Power
ETH	Green	Network activity
ST	Orange	Console mode
	Red	Service mode



LED indicator	Color	Function
PW	Blue	Power
ETH	Green	Network activity
CN	Yellow	Console mode
COM	Green	RS232/RS485 activity
SR	Red	Service mode
ER	Yellow	Error

Enclosure dimensions

2U Module Enclosure
98 x 22.5 x 56.4
Units: mm



Additional notes

Related information and links		
Ordering information	Accessories	Similar products

Products family sample photo

https://redisage.com

DISCLAMER NOTES

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

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SR-D

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