

## Isolated converter

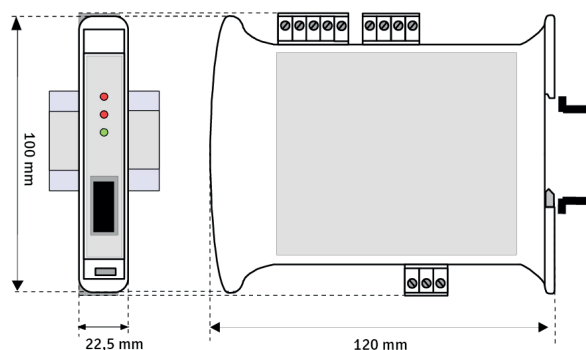
RS232 ↔ RS485

TU-RS485-232-35802W

### Characteristics

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC power supply
- Galvanic isolation
- RS232 connection on DB9 or removable terminals
- Complies with CE-EMC/UL (on request)
- Suitable for DIN rail mounting in compliance with EN-50022

### Dimensions



### General description

The device is an isolated interface converter between asynchronous serials lines RS232 and RS485.

It guarantees a full isolation between the two lines and removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

It is designed to operate either on serial interface RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps.

The transmission is asynchronous without settings of protocol, data format and baud rate. On the line RS-232 are not necessary handshake commands (RTS, CTS, etc..) to control the baud rate.

The device is designed to be easily mounted on DIN rail, optimizing space utilization. Whereas the thermal dissipation allows it, the devices can be mounted side by side, allowing a relevant reduction of space requiring.

Removable screw clamps are used for connection, making it easier to replace modules if necessary and simplifying maintenance.

The device is housed in a rough self-extinguishing plastic container which, thanks to its thin profile of 22.5 mm only, allows a high density mounting on EN-50022 standard DIN rail.

### User instructions

The device DAT3580 converts the serial transmission from RS-232 to RS-485 (2 wires). The data incoming from the line TX of RS-232 (DB9 connector pin 3) are converted and transmitted to the terminals D-E of RS-485. Conversely, the data incoming from the line RX of RS-485 (terminal D and E) are converted and transmitted to the terminal RX of RS-232 (DB9 connector pin 2).

The transmission of the signal follows the logic state of every single bit, then there is not necessary to set the protocol, the data format and the baud-rate.

When the transmission line from the RS-232 is off, the RS-485 driver is in the receive condition (high impedance). when the transmission line from the RS-232 goes on, the RS-485 driver switch immediately to the transmission condition (low impedance). The low impedance is kept for about 150 us, then the line returns automatically to receiver status (high impedance).

## Technical specification

(Typical at 25°C and in the nominal conditions)

### In compliance with standard EIA RS232, RS485 and RS422

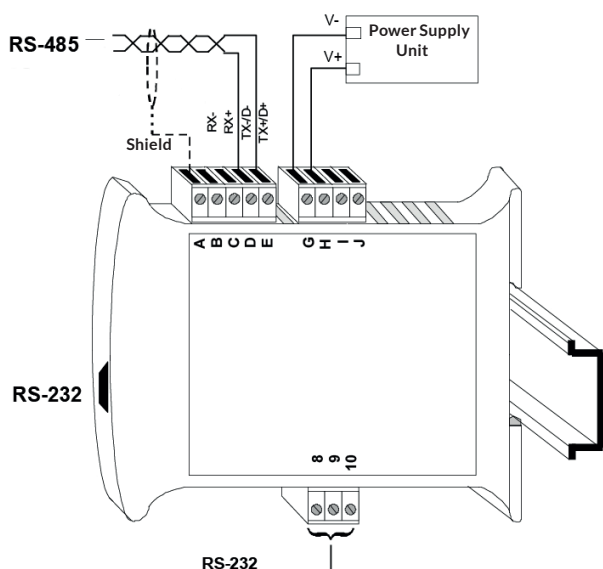
<b>RS-485 Interface</b>	
Baud-rate	up to 115,2 Kbps
Max. distance / baud-rate ratio (recommended) <sup>(1)</sup>	1,2 Km @ 38400 bps 2 Km @ 19200 bps 3 Km @ 9600 bps 4 Km @ 4800 bps 5 Km @ 2400 bps 7 Km @ 1200 bps
Number of modules in multipoint	32 max.
Switching time TX/RX (RS485)	150 us.
Internal terminator resistance	120 Ohm (optional)
<b>Power Supply</b>	
Power supply DC voltage	10 ÷ 30 Vdc
Reverse polarity protection	60 Vdc max
Current consumption	35 mA max.
Connections	
RS-232	DB9 / removable screw terminals
RS-485	removable screw terminals
<b>Isolation</b>	
Power supply / RS232	2000 Vac, 50 Hz, 1 min.
Power supply / RS485	2000 Vac, 50 Hz, 1 min.
RS232 / RS485	2000 Vac, 50 Hz, 1 min.
<b>Environmental conditions</b>	
Operative Temperature	-20 ÷ +60 °C
Operative Temperature (UL)	-10 ÷ +40 °C
Storage Temperature	-40 ÷ +85 °C
Humidity (not condensed)	0 ÷ 90 %
Maximum Altitude	2000 m slm
Installation	Indoor
Category of installation	II
Pollution Degree	2
<b>Mechanical Specifications</b>	
Material	Self-extinguish plastic
IP Code	IP20
Wiring	fili con diametro 0,8÷2,1 mm2 AWG 14-18
Tightening Torque	0,5 N m
Mounting	in compliance with DIN rail standard EN-50022
Weight	about 160 g.
<b>Certification EMC (for industrial environments)</b>	
Immunity	EN 61000-6-2
Emission	EN 61000-6-4

(1) The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

## Installation instructions

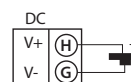
- The device is suitable for fitting to DIN rails in the vertical position.
- **When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:**
  - if panel temperature exceeds 45 °C
  - high power supply value (>27Vdc).
- Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits.
- It is suggested to avoid that devices are mounted above appliances generating heat; their ideal place should be in the lower part of the panel.
- Install the device in a place without vibrations.
- It is suggested to avoid routing conductors near power signal cables and to use shielded cable for connecting signals.

## Cabling

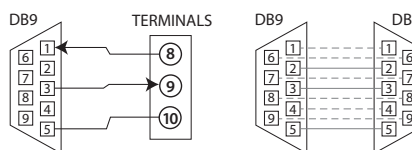


## Wiring

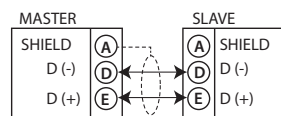
### Power Supply



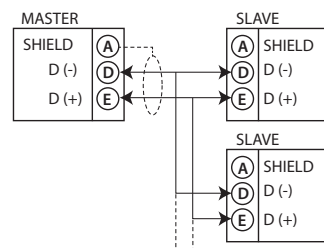
### RS-232



### RS-485 Point to Point



### RS-485 Multi-Point



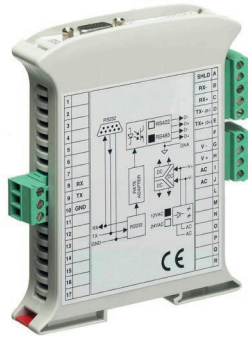
## Light signalling

Led	Color/Status	Description
PWR	● Green ON	Device powered
	● Off	Device not powered
TX	● Red Fast blinking	Data transmitted from port RS232 (blink frequency depends to baud-rate)
	● Off	No communication in progress
RX	● Red Fast blinking	Data transmitted from port RS485 (blink frequency depends to baud-rate)
	● Off	No communication in progress

## Isolation structure



## Order Code



**TU-RS485-232-35802W**

	1	2	-	3	4	5	6	7	-	8	9	10	-	11	12	13	14	15	16
<b>Order Code</b>	T	U	-	R	S	4	8	5	-	2	3	2	-	3	5	8	0	2	W