



## FEATURES

- 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 or AC power supply
- Galvanic isolation on all ways
- USB cable on front side
- UL / CE mark
- Suitable for DIN rail mounting in compliance with EN-50022

## GENERAL DESCRIPTION

The device DAT3580-USB is an isolated interface converter between USB port and asynchronous serial lines RS485 or RS422 that guarantees a full isolation between power supply, USB and serial line RS-485 or 422 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 RS-422 full-duplex 4 wires or 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.

The DAT 3580-USB is in compliance with the Directive UL 61010-1 for US market and with the Directive CSA C22.2 No 61010-1 for the Canadian market.

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

Before to install the device, please read the "Installation Instruction" section.

The device DAT3580-USB converts the serial transmission from USB to RS-485 (2 wires) or RS-422 (4 wires) as follows.

The data incoming from the line TX of USB port are converted and transmitted to the terminals D-E of RS-485 and RS-422.

The data incoming from the line RX of RS-485 (terminal D and E) or RS-422 (terminal B and C) are converted and transmitted to the terminal RX of USB port.

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 data transmission from the USB is off, the RS-485 driver is in the receive condition (high impedance); when the data transmission from the USB 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 in high impedance (receiver).

## TECHNICAL SPECIFICATIONS (Typical @ 25 °C and in the nominal conditions)

<b>In compliance with standard</b>		<b>USB 2.0, RS485 and RS422</b>		<b>ISOLATION</b>	
<b>RS485 Interface</b>		Power supply / USB	2000 Vac, 50 Hz, 1 min.	Power supply / RS485-422	2000 Vac, 50 Hz, 1 min.
Baud-rate	up to 115.2 Kbps	USB / RS485-422	2000 Vac, 50 Hz, 1 min.	<b>ENVIRONMENTAL CONDITIONS</b>	
Max. distance / baud-rate ratio (recommended) (1)	1.2 Km – 4000 ft @ 38400 bps 2 Km – 6560 ft @ 19200 bps 3 Km – 9840 ft @ 9600 bps 4 Km – 13100 ft @ 4800 bps 5 Km – 16400 ft @ 2400 bps 7 Km – 23000 ft @ 1200 bps			Operative Temperature	-20°C .. +60°C
Number of modules in multipoint	up to 32	UL Operative Temperature	-10°C .. +40°C	Storage Temperature	-40°C.. +85°C
Switching time TX/RX (RS485)	150 us.	Humidity (not condensed)	0 .. 90 %	Maximum Altitude	2000 m
Internal terminator resistance (optional)	120 Ohm	Installation	Indoor	Category of installation	II
<b>POWER SUPPLY</b>		Pollution Degree	2	<b>MECHANICAL SPECIFICATIONS</b>	
Power supply DC voltage	10 .. 30 Vdc			Material	Self-extinguish plastic
Reverse polarity protection	60 Vdc max			IP Code	IP20
Power supply AC voltage	9 ÷ 18 Vac (18 ÷ 30 Vac optional)			Wiring	wires with diameter 0.8÷2.1 mm <sup>2</sup> /AWG 14-18
Current consumption	35 mA max.			Tightening Torque	0.5 N m
<b>Connection</b>				Mounting	in compliance with DIN rail standard EN-50022
USB	USB connector type "A" ( cable length ~ 1.8 mt. )			Weight	about 160 g.
RS-485/422	removable screw terminals			<b>CERTIFICATIONS</b>	
(1) – The maximum distance depends of: number of devices connected, type of cabling, noises, etc...				<b>EMC ( for industrial environments)</b>	
				Immunity	EN 61000-6-2
				Emission	EN 61000-6-4
				UL	
				US Standard	UL 61010-1
				Canadian Standard	CSA C22.2 No 61010-1
				CCN	NRAQ/NRAQ7
				Typology	Open Type device
				Classification	Industrial Control Equipment
				File Number	E352854

## INSTALLATION INSTRUCTIONS

The DAT 3580-USB is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

**When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:**

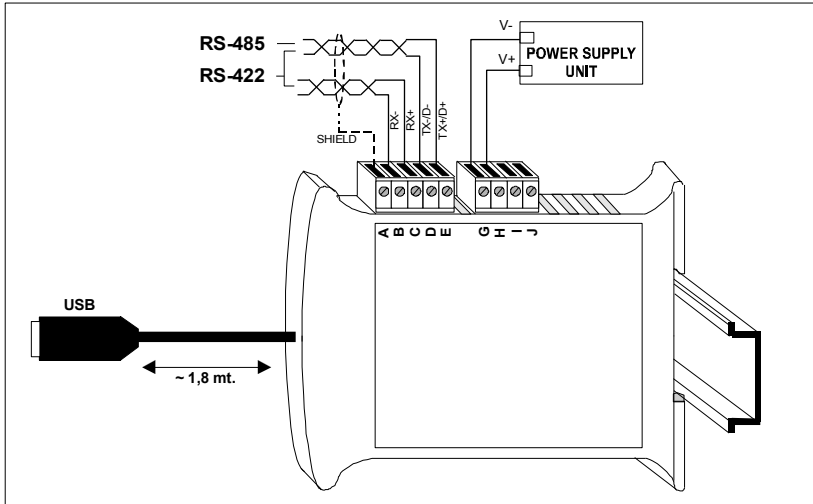
- If panel temperature exceeds 45°C and high power supply value( > 27 Vdc).

Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover 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.

Moreover it is suggested to avoid routing conductors near power signal cables (motors, induction ovens, inverters, etc...) and to use shielded cable for connecting signals.

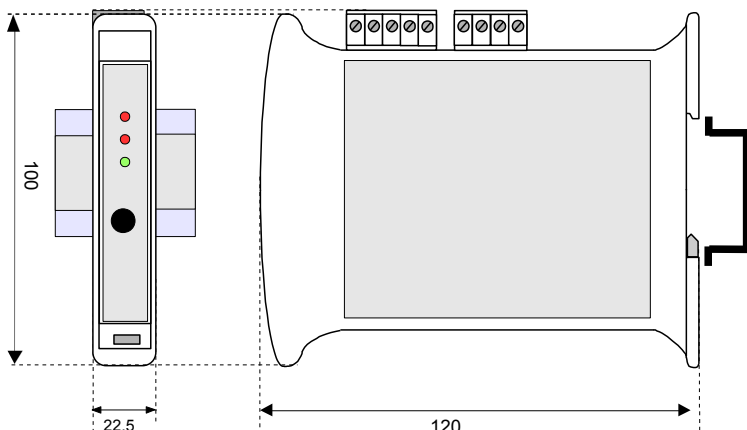
## CABLING



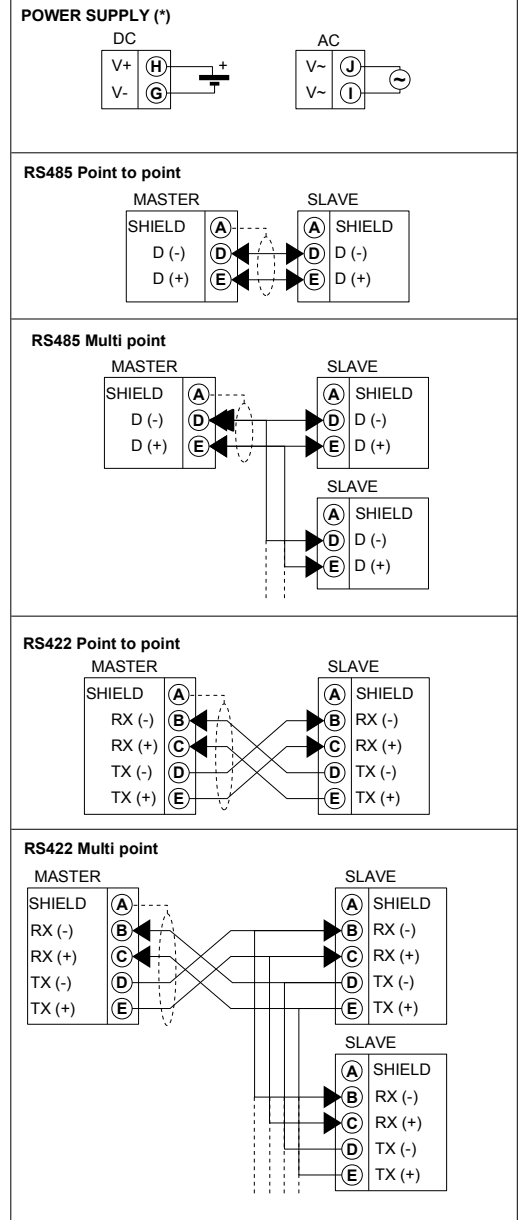
## LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
TX	RED	RAPID BLINK	Data transmission from the USB port (the blink frequency depends to the baud-rate)
		OFF	No communication in progress
RX	RED	RAPID BLINK	Data reception on the RS485/422 port (the blink frequency depends to the baud-rate)
		OFF	No communication in progress

## DIMENSIONS (mm)



## WIRING



(\* Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV

## ISOLATION STRUCTURE



## HOW TO ORDER

In phase of order it is necessary to specify the type of interface (RS485 or RS422) and, if required, the 24Vac power supply option.

DAT 3580-USB / 2W / 24

Type of interface:  
2W: RS-485 (2 wires)  
4W: RS-422 (4 wires)

AC power supply option:  
24 : 24Vac (18+30Vac)

■ = Requested  
□ = Optional