

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
- UL / CE mark
- Suitable for DIN rail mounting in compliance with EN-50022

GENERAL DESCRIPTION

The device DAT 3590 is an isolated repeater between asynchronous serials lines RS485 or RS422 that guarantees a full isolation between power supply and serial line removing 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 3590 is in compliance with the Directive 2004/108/EC on the electromagnetic compatibility.

The DAT 3590 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 DAT 3590 transmits the data incoming on the RS-485 (2 wires) or RS-422 (4 wires) in bidirectional mode; the data incoming on the line RX (pins D-E for RS-485 or B-C for RS-422) are isolated and transmitted on the line TX (pins D-E).

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 is off, the RS-485 driver is in the receive condition (high impedance); when the data transmission 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 to keep free the line in case of error.

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

In compliance with standard		RS485 and RS422		ISOLATION	
RS485 Interface				Power supply / RS485-422	2000 Vac, 50 Hz, 1 min.
Baud-rate		up to 115.2 Kbps		RS485-422 / RS485-422	2000 Vac, 50 Hz, 1 min.
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		ENVIRONMENTAL CONDITIONS	
Number of modules in multipoint		up to 32		Operative Temperature	-20°C .. +60°C
Switching time TX/RX (RS485)		150 us.		UL Operative Temperature	-10°C .. +40°C
Internal terminator resistance (optional)		120 Ohm		Storage Temperature	-40°C.. +85°C
POWER SUPPLY				Humidity (not condensed)	0 .. 90 %
Power supply DC voltage		10 .. 30 Vdc		Maximum Altitude	2000 m
Reverse polarity protection		60 Vdc max		Installation	Indoor
Power supply AC voltage		9 ÷ 18 Vac (18 ÷ 30 Vac optional)		Category of installation	II
Current consumption		35 mA max.		Pollution Degree	2
Connection		removable screw terminals		MECHANICAL SPECIFICATIONS	
RS-485/422				Material	Self-extinguish plastic
				IP Code	IP20
				Wiring	wires with diameter 0.8÷2.1 mm ² /AWG 14-18
				Tightening Torque	0.5 N m
				Mounting	in compliance to DIN rail standard EN-50022
				Weight	about 160 g.
				CERTIFICATIONS	
				EMC (for industrial environments)	
				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
(1) – The maximum distance depends of: number of devices connected, type of cabling, noises, etc...					

INSTALLATION INSTRUCTIONS

The DAT 3590 is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

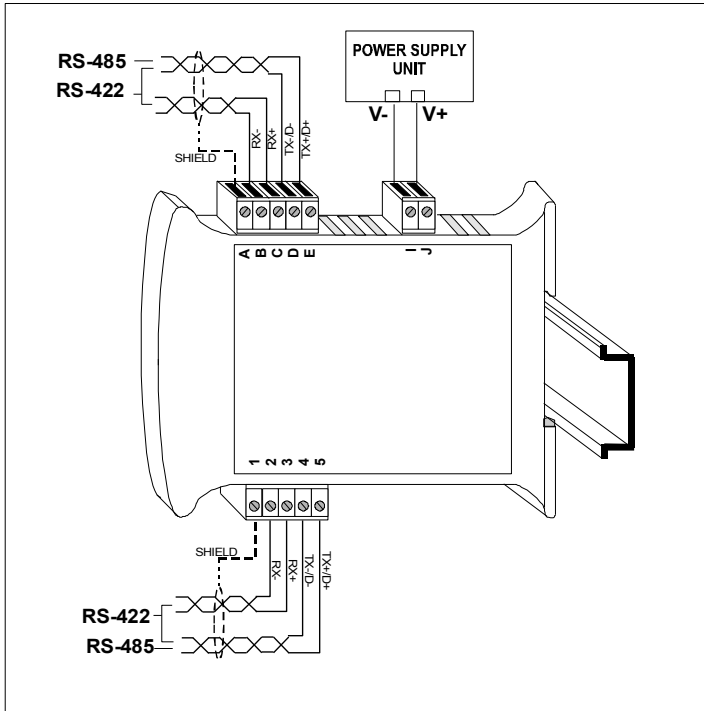
When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:

- 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.

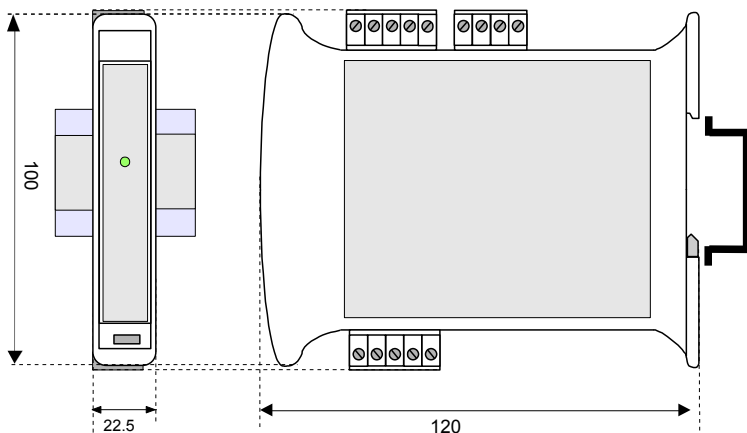
CABLING



LIGHT SIGNALLING

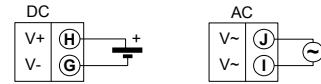
LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered / Wrong RS-485 cabling.
		RAPID BLINK	Communication in progress (blink frequency depends to baud-rate)

DIMENSIONS (mm)

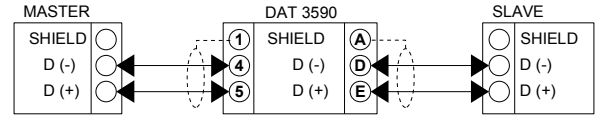


WIRING

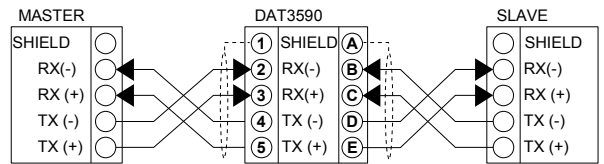
POWER SUPPLY (*)



RS485

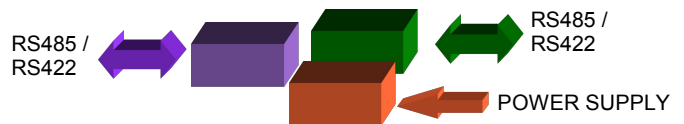


RS422



(*) 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 3590 / 2W / 12

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

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

■ = Requested
□ = Optional