

Repeater/ Isolator RS485

DAT 3590

FEATURES

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multi-point connection up to 32 modules
- DC or AC power supply
- Galvanic isolation
- CE / UL / UKCA mark
- 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 lines 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 device 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.

It 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 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 it 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 set in receive condition (high impedance); when the data transmission goes on the RS-485 driver switches 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)

RS-485 / RS422		GENERAL SPECIFICATIONS	
In compliance with standard RS485 and RS422		DC power supply voltage (UL)	10 .. 30 Vdc
Baud-rate up to 115.2 Kbps		Reverse polarity protection	60 Vdc max
Cable Length 1200 m / 4000 ft max		AC power supply voltage (UL)	9 .. 18 Vac
The reachable maximum distance depends on the number of devices connected, on the type of cable used and its immunity against noises.		optional:	18 .. 30 Vac
Number of modules in multipoint up to 32		Max. Current consumption	35 mA
Switching time TX/RX (RS485) 150 us.		ISOLATION	
Internal terminator resistance (optional) 120 Ohm		Among all the ways	2000 Vac, 50 Hz, 1 min
Connection removable screw terminals		ENVIRONMENTAL CONDITIONS	
		Operative temperature	-20°C .. +60°C
		UL Operative Temperature	-10°C .. +40°C
		Storage temperature	-40°C .. +85°C
		Humidity (not condensing)	0 .. 90 %
		Maximum Altitude	2000 m slm
		Installation	Indoor
		Category of Installation	II
		Pollution Degree	2
		MECHANICAL SPECIFICATIONS	
		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 with DIN rail standard EN-50022
		Weight	about 160 g.
		CERTIFICATIONS	
		EMC (for the Industrial Environments)	
		Immunity	EN 61000-6-2
		Emission	EN 61000-6-4
		UKCA (ref S.I. 2016 N°1091)	
		Immunity	BS EN 61000-6-2
		Emission	BS 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 device is suitable for fitting to DIN rails in the vertical position.

For optimum operation and long life follow these instructions:

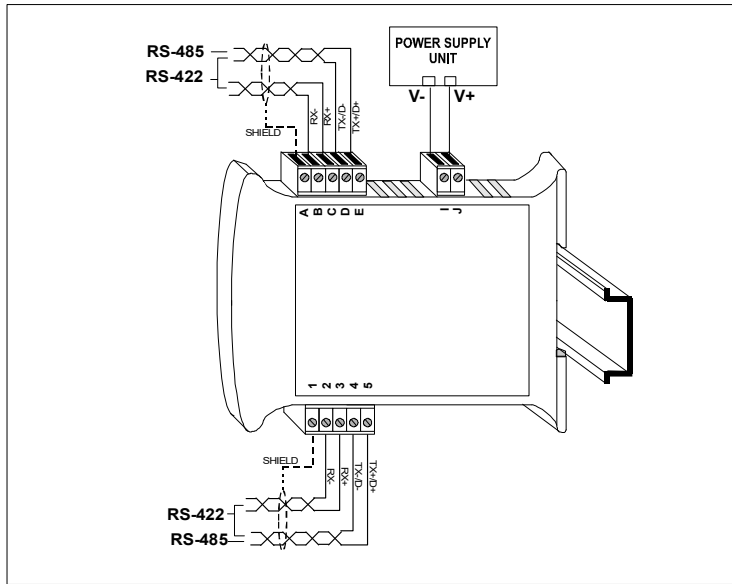
When the devices are installed side by side it may be necessary to separate them by at least 5 mm if panel temperature exceeds 45°C and high power supply value (> 27Vdc).

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

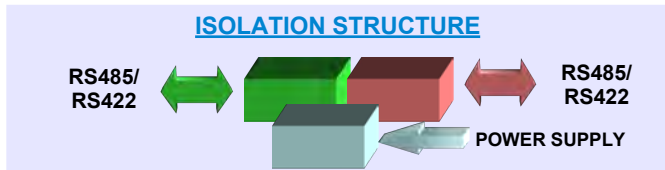
CABLING



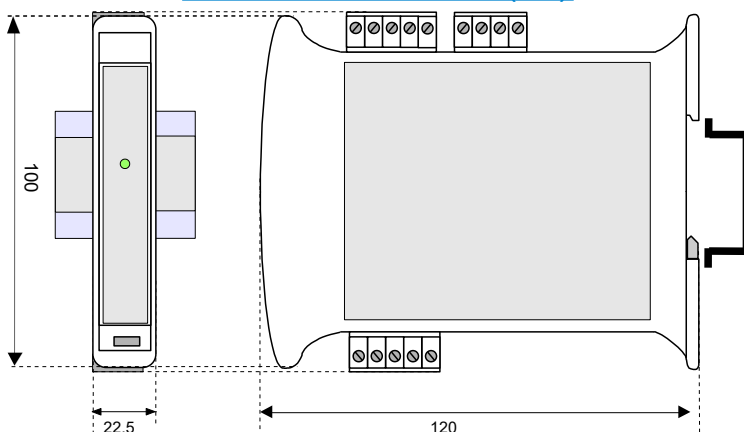
LIGHT SIGNALLING

LED	COLOR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered / Wrong serial line wiring.
		FAST BLINK	Communication in progress (blink frequency depends to baud-rate)

ISOLATION STRUCTURE



MECHANICAL DIMENSIONS (mm)



The symbol reported on the product indicates that the product itself must not be considered as a domestic waste. It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste. For more information contact the proper office in the user's city, the service for the waste treatment or the supplier from which the product has been purchased.

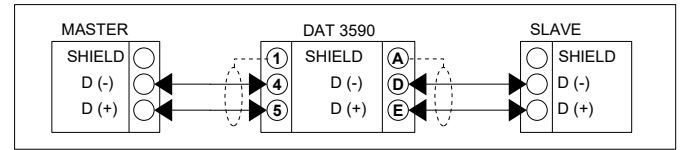
WIRING

POWER SUPPLY (*)

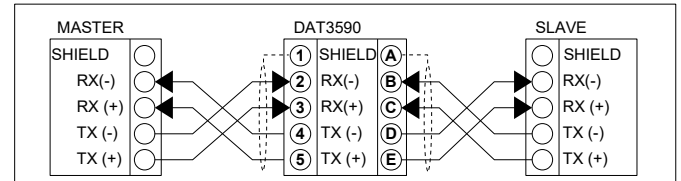


(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV with limited energy

RS485



RS422



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