



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 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 with 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:

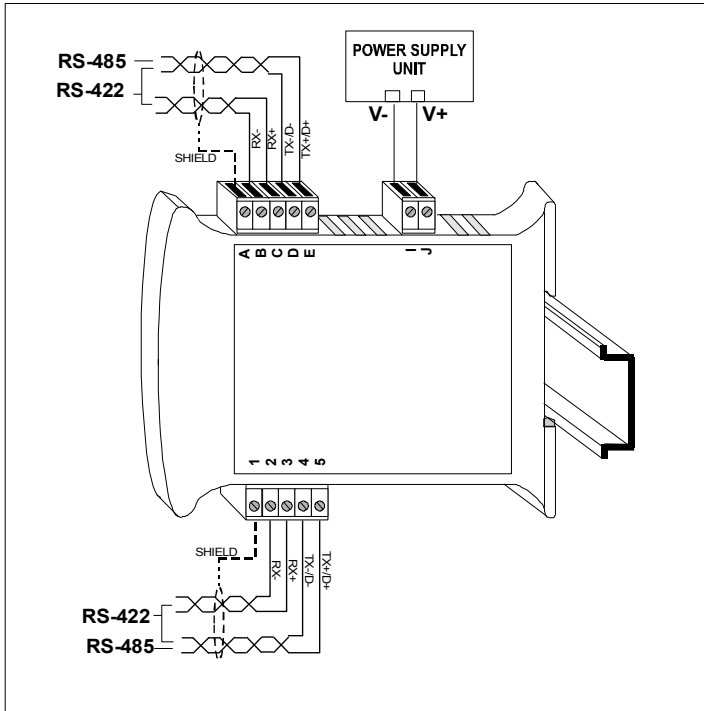
When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:

- 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.

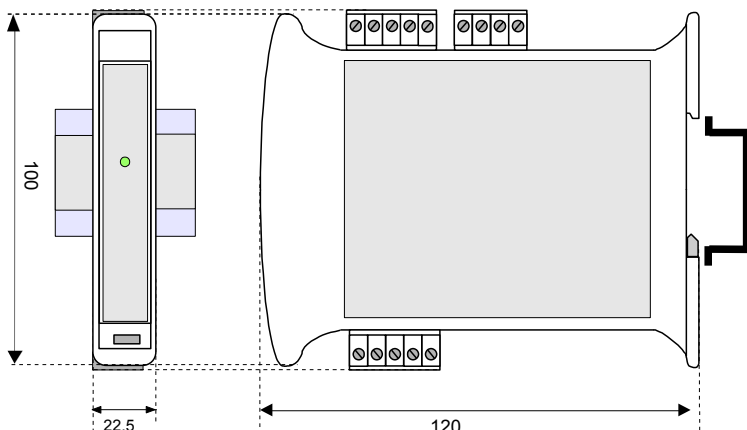
CABLING



LIGHT SIGNALLING

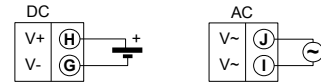
| LED | COLOUR | STATE | DESCRIPTION |
|-----|--------|-------------|--|
| PWR | GREEN | ON | Device powered |
| | | OFF | Device not powered / Wrong RS-485 cabling. |
| | | RAPID BLINK | Communication in progress (blink frequency depends to baud-rate) |

DIMENSIONS (mm)

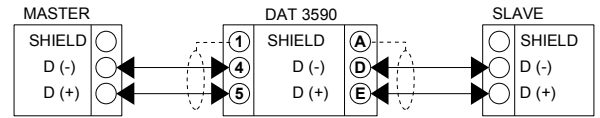


WIRING

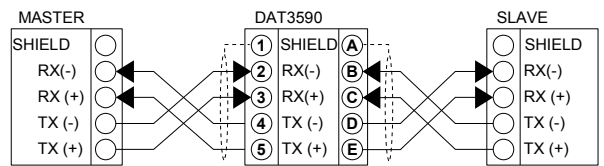
POWER SUPPLY (*)



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 / 4W / 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



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.