

BUS CONVERTER

**DAT 3580 : Converter
RS232 to RS422 / RS485**

**DAT 3590 : Repeater
RS422 / RS485**

**Characteristics**

Asynchronous Serial Data Transmission
Automatic fitting of Baud-Rate
Transmission rate up to 115,2 Kbaud
Distance up to 1200 m
Point-to-point or Multipoint connection
24 Vdc or 12 Vac Power supply
Isolated Galvanically at 2000Vac (3 ways)
Serial line connection on DB9
and removable terminals
Suitable for DIN Rail mounting

APPLICATIONS

- Connession of RS-232 equipments
to RS-485 or RS-422 equipments
- RS-232 link extension
- Noise protection on industrial environments

Introduction

The DAT3580 is an interface converter between RS-232 and RS-485 or RS-422 serial line. It allows a full electric isolation between the lines together with an effective protection against the noise that can be verified in the industrial environments.

The DAT3590 is a RS485 or RS422 serial line repeater. It that allows to expand the net over the standard limits.

These modules has been studied for work, both in RS422 4-wires full-duplex interface and in RS485 2-wires half-duplex interface, up to 115,2Kbps. Both the DAT3580 and the DAT3590 are presented in two versions:

“2w” (2-wires) = recommended for RS-485 interface

“4w” (4-wires) = recommended for RS-422 interface

The “2w” version can adapt itself automatically to both the RS-485 and the RS-422 network.

The “4w” version can be used also as RS-485 interface through proper external wiring.

The transmission is Asynchronous, without protocol, data format and baud rate settings needed. On the RS232 line, thanks to a particular internal circuit, they don't need RTS or DTR hand-shake signals, for the data flow control.

The 2000Vac isolation between input, output and power supply is obtained by the use of optoisolators over the data line and a DC/DC converter on power supply.

These modules has been studied for being able to be assembled on the DIN-rail in simple way and with the maximum use of the spaces. In fact, if the conditions of dissipation allow it, the modules can be assembled one beside the other allowing so a considerable reduction of the space occupied. For the connection extractable type screw terminals are employed. Thanks to this, the user can directly remove the modules simplifying so their maintenance.

Characteristics

- **Asynchronous serial data transmission**
- **Baud Rate up to 115,2 Kbps**
- **Distance up to 1200 m, expandable with repeater**
- **Point-to point or Multipoint connection**

- **24Vdc or 12 Vac Power supply
(24 Vac opt.)**

- **Complete isolating at 2000 Vac
with optocouplers and DC/DC converter**

- **DB9 connector on RS-232 line**
- **DIN Rail mounting housing**

DAT3580 Pin Assignment Table:

PIN	Name	Description
A	GNA	Shield RS485/422
B	RX-	RS422 Receiver
C	RX+	
D	TX- / D-	RS422 Transmitter
E	TX+ / D+	RS485 RX/TX
G	V-	Ground Power Supply
H	V+	24Vdc Power Supply
I	AC	12Vac
J	AC	
8	RX	To RS232 Receiver
9	TX	To RS232 Transmitter
10	GND	Ground RS232

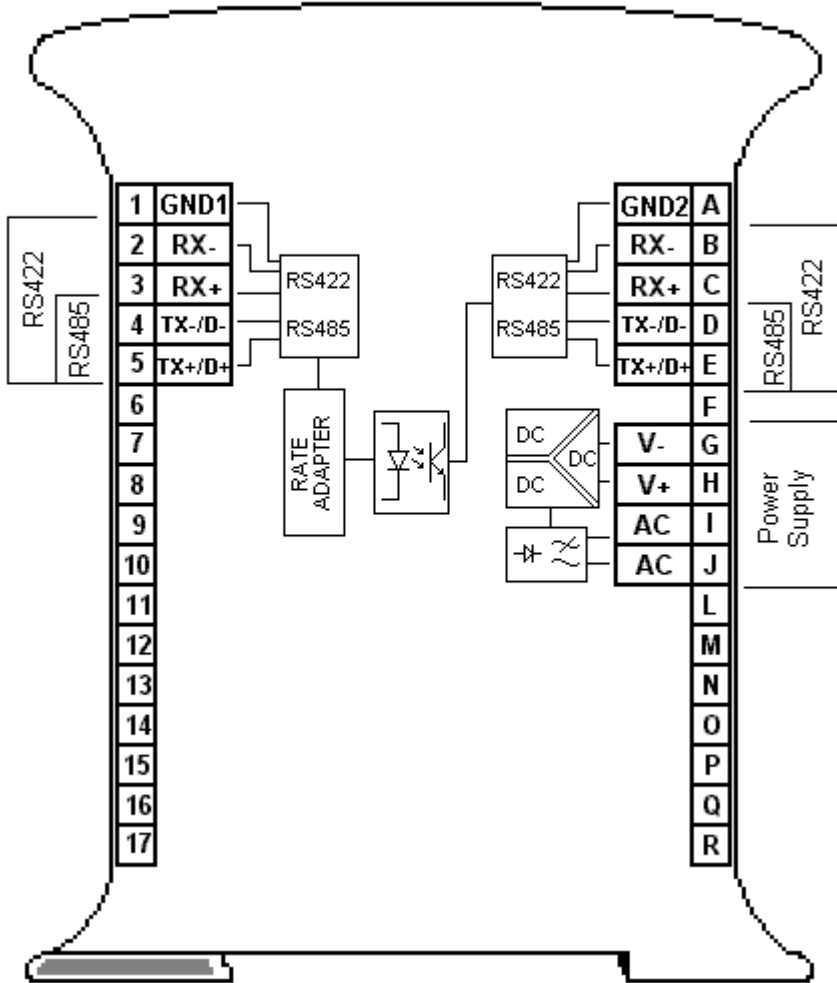
DB9	RS232
2	Receiver
3	Transmitter
5	Ground

PC to DAT3580 (RS-232) Connection:

PC			DAT3580	
	DB9	DB25	DB9	TERMINALS
rx	2	3 ←	2	8
tx	3	2 →	3	9
gnd	5	7	5	10

For the connection, use a “pin-to-pin” cable

DAT3590 Pin Assignment



DAT3590 Pin Assignment Table:

PIN	Name	Description
A	GND2	Shield RS485/422
B	RX-	RS422 Receiver
C	RX+	
D	TX- / D-	RS422 Transmitter
E	TX+ / D+	RS485 RX/TX
G	V-	Ground Power Supply
H	V+	24Vdc Power Supply
I	AC	12Vac
J	AC	
1	GND1	Shield RS485/422
2	RX-	RS422 Receiver
3	RX+	
4	RX/TX-	RS422 Transmitter
5	RX/TX+	RS485 RX/TX

Technical Specifications

(typical @ 25°C and under nominal conditions)

In conformance with EIA RS-232 , RS-422 and RS-485 standards

Baud Rate: up to 115200 Kbs

Distance/Rate (for point-to-point connections):

Distance	Rate
1.2 Km	115.2 Kbps 57.6 Kbps
3 Km	9.600 bps

Distance	Rate
4 Km	4.800 bps
5 Km	2.400 bps
7 Km	1.200 bps

Line impedance: 120 ohm (tip.)

*Terminals that can be connected
in multipoint RS-485:* 32 max

Power Consumption: 35mA max. @ 24Vdc

Supply Voltage: +10 to +30 Vdc

9 to 18 Vac

24 Vac Optional

RS232 connection: DB9 socket connector/
Screw Terminal Blocks

RS422 and RS485: Screw Terminal Blocks

Temperature and Humidity

Ambient Temperature : -10 to +60 °C
Store Temperature : -30 to +90 °C
Humidity (not condensing) : 0 ÷ 90 %

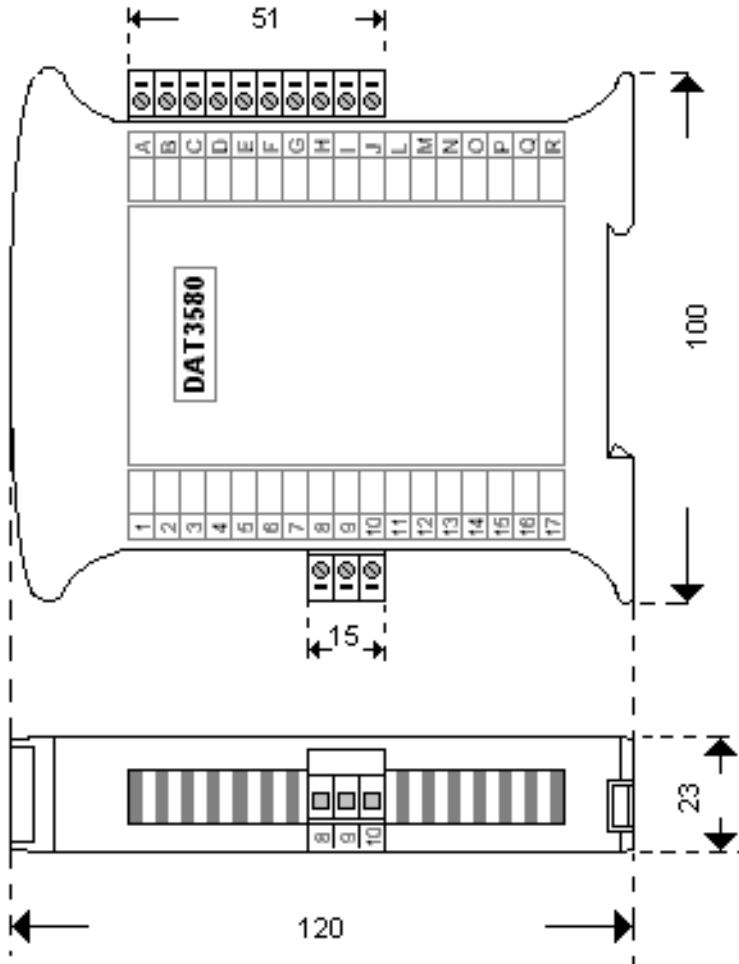
EMC

Emission : EN50081-2
Immunity : EN50082-2
RF Immunity : tested @ 10 V/m up to 1000 Mhz

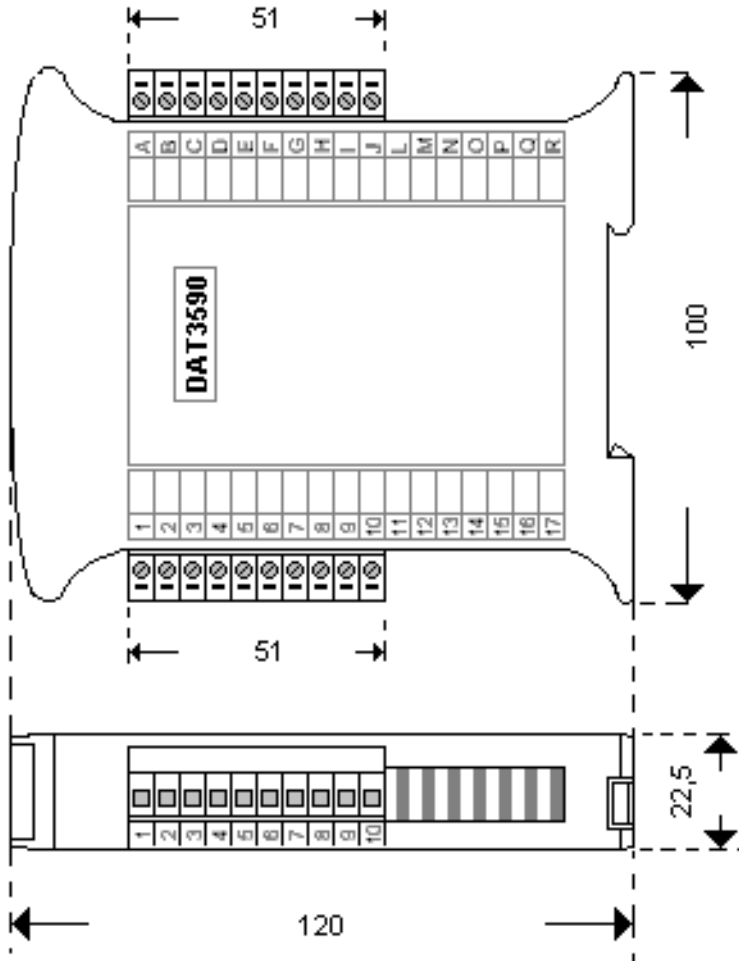
Housing

Material : Selfextinguishing plastic
Mounting : DIN rail
Weight : Approx. 100 g.
Dimensions :
(W x H x T) in mm 100 X 120 X 22,5

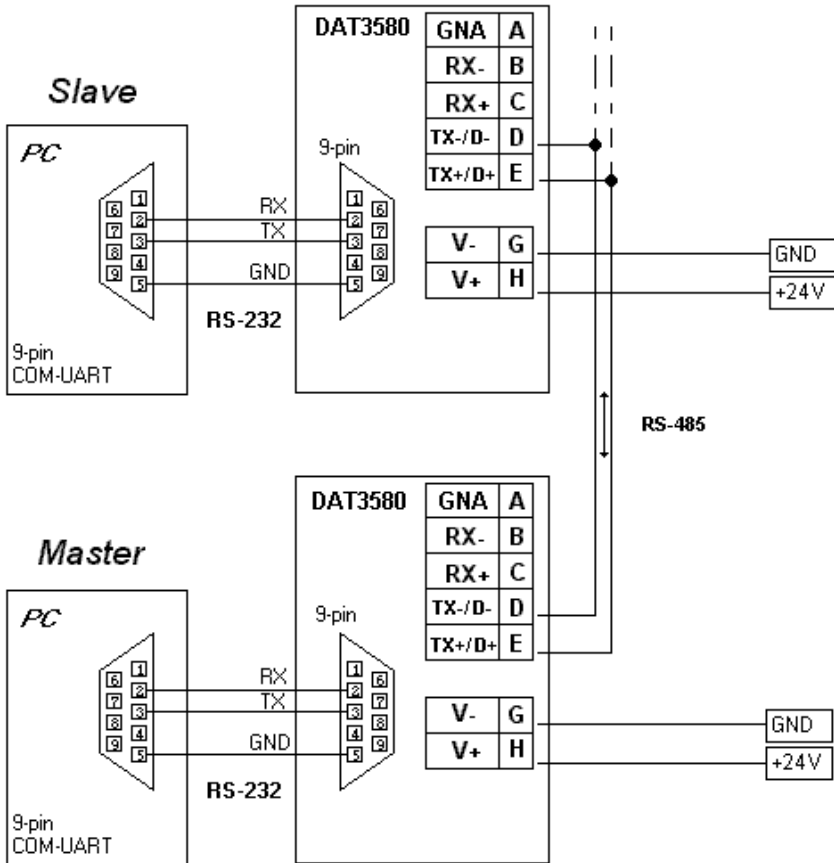
DAT3580 Mechanical dimensions:



DAT3590 Mechanical Dimensions:

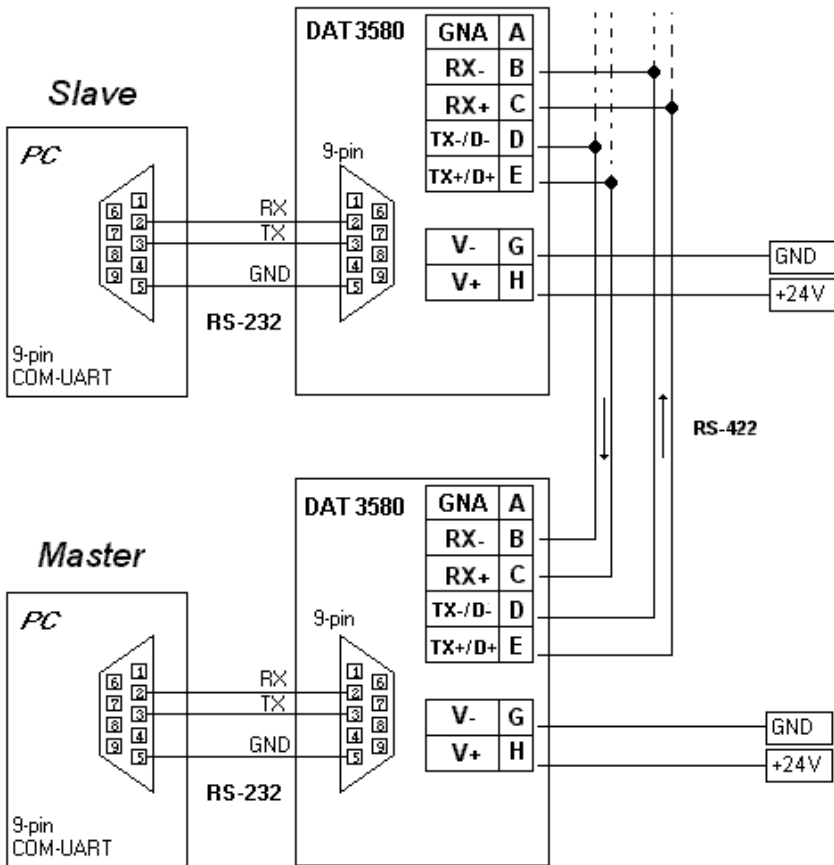


DAT3580 - RS-485 Wiring



The “2w” version can be used also for 4-wires (RS-422) networks, making the connections described for the “4w” version, because it automatically adapt itself to work in both RS-485 and RS-422 networks. Using the “2w” version for RS-422 multipoint networks, there is that each module in the net, both master and slave, receives all the messages sent by any other module of the same net..

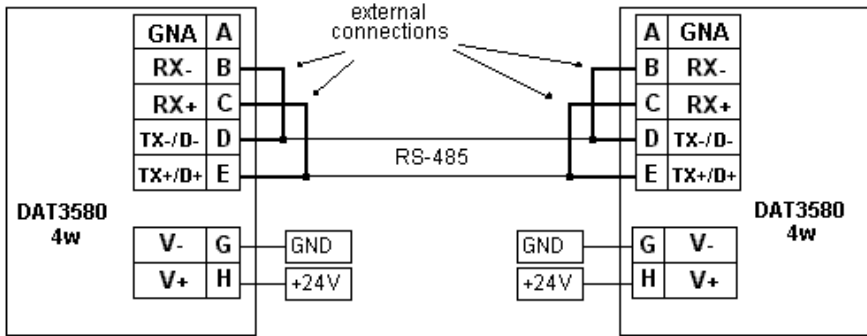
DAT3580 - RS-422 Wiring



In a RS-422 multipoint network, the “4w” version discard the reception between the slaves of the net, that in some applications can be undesired. The “4w” version can be used also for 2-wires (RS-485) networks, connecting between them the pins:

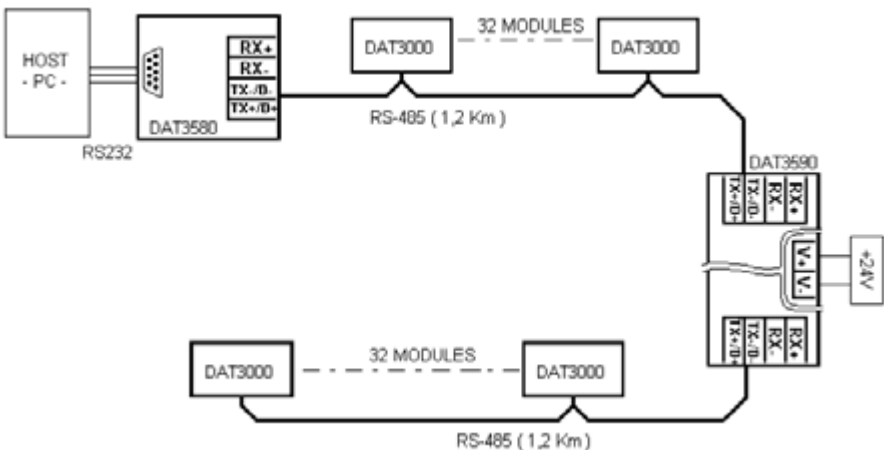
TX+ with RX+ and TX- with RX- of any RS-422 interface of the modules connected in the net (see figure). Connecting transmission with reception, the module auto-receives itself, all the messages transmitted by the module are immediately received by the same module.

Connection of two DAT3580-4w in RS-485 configuration.



DAT3590 Wiring

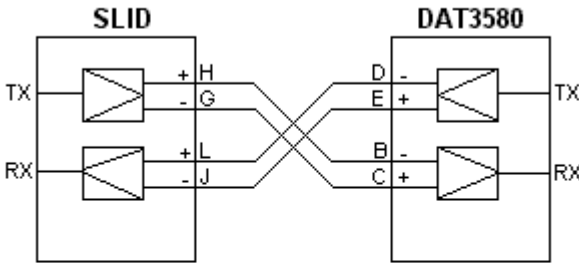
For the connections, refer to DAT3580 wiring. Also the DAT3590 is separared in “2w” and “4w” version as described for the DAT3580. The figure below shown a typical RS-485 net with repeater.



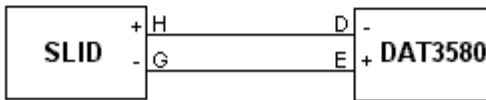
Compatibility

The DAT3580 is compatible with the old “**SLID RS232/422-485 ISO**” Datexel converter, following the connections shown below.

RS-422 CONNECTION



RS-485 CONNECTION





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Datexel reserves its right to modify the characteristics of its products
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