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Modbus RTU RS232 4 Digital Input, 8 Digital Output Module

DAT 3188/4

FEATURES

- **Modbus Server device on RS-232**
- **Modbus RTU/ Modbus ASCII protocol**
- **4 digital inputs**
- **8 digital outputs type PNP**
- **Watch-Dog alarm**
- **Four ways galvanic isolation**
- **CE / UL / UKCA mark**
- **DIN rail mounting in compliance with EN-50022**

GENERAL DESCRIPTION

The device DAT 3188/4 is able to acquire up to 4 digital inputs and to drive up to 8 PNP transistor outputs. The data are transmitted with MODBUS RTU/MODBUS ASCII protocol on the RS-485 network (RS-232 interface is available).
To ensure the plant safety, it is provided a Watch-Dog timer alarm.
The isolation between the parts of circuit removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.
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 17.5mm 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.
If the module configuration is unknown, with device powered off, connect the INIT terminal to the GND terminal (ground), at the next power on the device will be auto-configured in the default settings (refer to the User Guide of the device).
Connect power supply, serial bus, digital inputs and transistor outputs as shown in the “Wiring” section.
The “PWR” LED state depends on the working condition of the device: see the "Light Signalling" section to verify the device working state.
To perform configuration and calibration operations, read the instructions in the User Guide of the device.
To simplify handling or replacing of the device, it is possible to remove the wired terminals even with the device powered.

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

DIGITAL INPUTS

Number of Channels	4
Input voltage (bipolar)	OFF State : 0÷3 V ON State : 10÷30 V
Input Impedance	4.7 KOhm
Sample time	5 ms

DIGITAL OUTPUTS

Number of Channels	8
Type	PNP
Voltage	10.5÷30 Vdc
Max. Load	500 mA per channel(*) 1 A per module
Inductive Load	48 Ω – 2H max

(*) Protection against over-current and over-temperature
Short circuit current 1.7 A max.

SERIAL OUTPUT

Data Transmission (asynchronous serial RS-485)	
Baud Rate	115.2 Kbps
Max. distance	1.2 Km – 4000 ft

GENERAL SPECIFICATIONS

Power supply voltage	10 .. 30 Vdc
Reverse polarity protection	60 Vdc max
Max. Current consumption	45 mA

ISOLATION

Between all ways	2000 Vac, 50 Hz, 1 min

ENVIRONMENTAL CONDITIONS

Operative temperature	-10°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 mm² AWG 14-18
Tightening Torque	0.5 N m
Mounting	in compliance with DIN rail standard EN-50022
Weight	about 150 g.

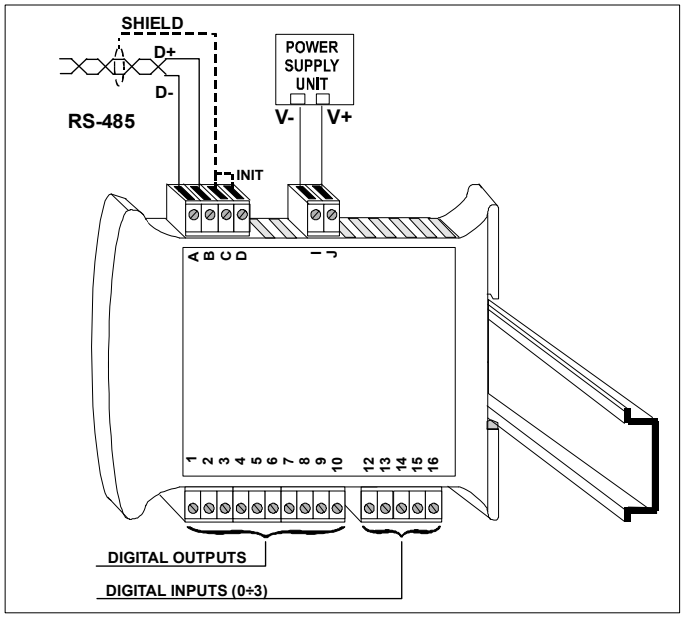
CERTIFICATIONS

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 to be mounted on DIN rail, in vertical position.
For a correct working and a long life of the device, read the following indications.
In case of the devices are mounted side by side, please leave about 5mm between if the temperature in the cabinet higher than 45 °C and high supply voltage (>27Vdc).
Avoid to place raceways or other objects which could obstruct the ventilation slits. 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.
Avoid to install the devices in a site where vibrations are present.
It is recommended to use shielded cable for connecting signals. The shield must be connected to an earth wire provided for this purpose. Moreover it is suggested to avoid routing conductors near power signal cables.

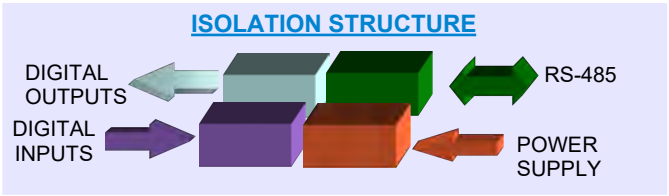
CABLING



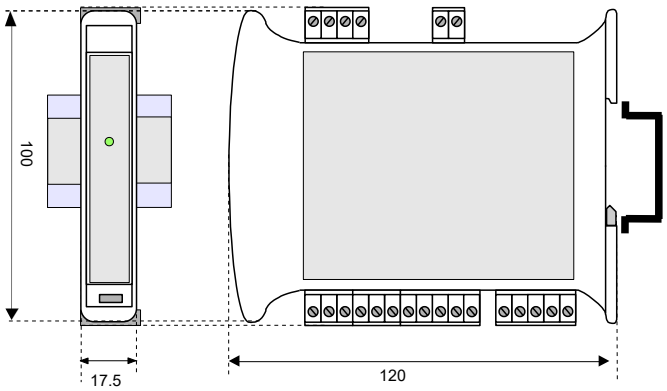
LIGHT SIGNALLING

LED	COLOR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered / Wrong RS-485 cabling.
		FAST BLINKING	Communication in progress (the blinking frequency depends on baud-rate)
		1 second BLINKING	Watch-Dog Alarm condition

ISOLATION STRUCTURE



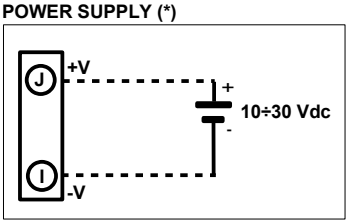
MECHANICAL DIMENSIONS (mm)



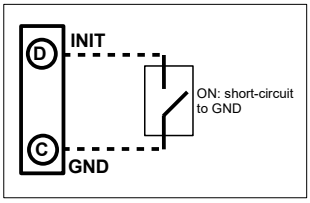
The symbol reported on the product indicates that the product itself must not be considered as a domestic waste.
It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste.
For more information contact the proper office in the user's city , the service for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

WIRING

POWER SUPPLY (*)

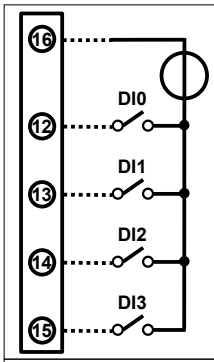


INIT



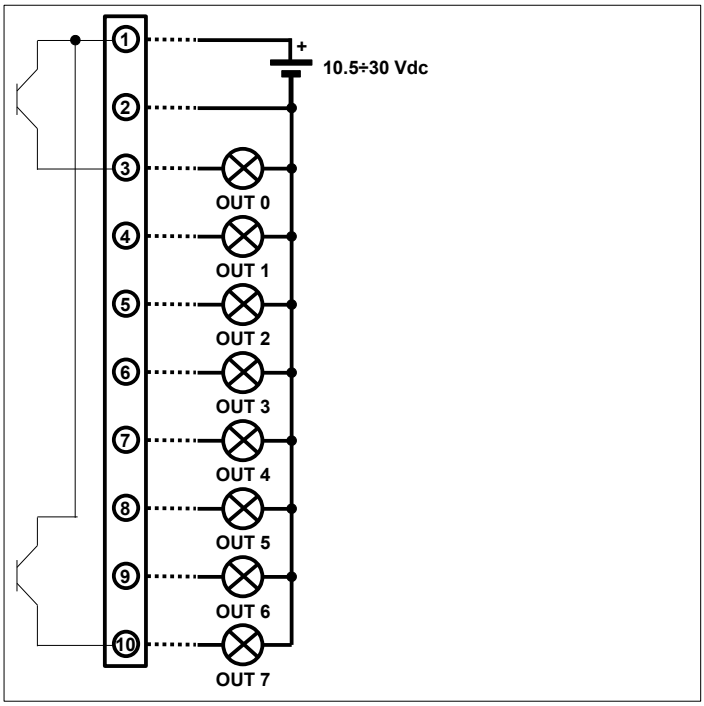
(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV with limited energy

DIGITAL INPUTS

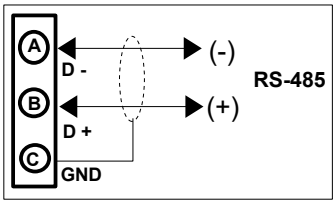


NOTE: Input channels are not insulated between them

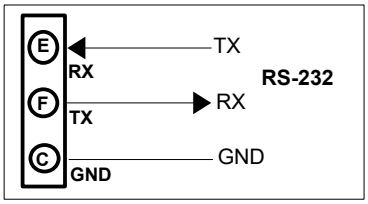
DIGITAL OUTPUTS



RS-485



RS-232



HOW TO ORDER

ORDER CODE:

DAT 3188/4