DATEXEL

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UNI EN ISO 9001:2008

Distributed I/O Module
8 + 4 digital inputs
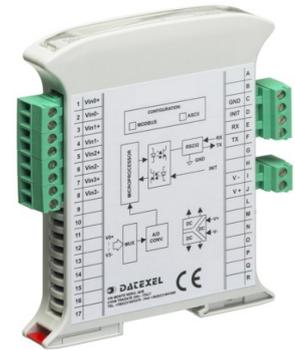**on RS-485 network**

DAT 3148

FEATURES
- **Field Bus data acquisition**
- **Master/Slave communication on RS-485 network**
- **MODBUS RTU/ASCII protocol**
- **8 + 4 (optional) digital inputs**
- **Watch-Dog alarm**
- **Four ways galvanic isolation 2000 Vac**
- **High accuracy**
- **EMC compliance – CE Mark**
- **In compliance to EN-50022 DIN rail mounting**

CE

GENERAL DESCRIPTION
The device DAT 3148 is able to acquire up to 12 digital inputs. The data are transmitted with MODBUS RTU/ASCII on RS-485 network.
The 2000 Vac galvanic isolation between inputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.
The DAT 3148 is in compliance to the Directive 2004/108/EC on the electromagnetic compatibility.
The DAT 3148 is housed in a rough self-extinguishing plastic enclosure of 17.5 mm thickness, suitable for EN 50022 standard DIN rail.

COMMUNICATION PROTOCOLS
On the DAT3000 modules are implemented the following communication protocols:
MODBUS RTU/ASCII Protocol: one of the most used standard communication protocol; it permit to interface the modules of DAT3000 series directly to the greater part of PLC and SCADA software available on the market. For communication setting, refer to the User manual.

OPERATING INSTRUCTIONS
Before to install the device,please read carefully the "Installation instructions" section.
If the correct configuration of the device is unknown, could be impossible to establish a communication with the device; connecting the INIT terminal to the GND terminal, when the devices is power-on, it goes automatically to the default configuration (see the User Manual).
Connect the power supply, the serial bus and the I/O signals as shown in the "Wiring" section.
The "PWR" LED, changes its state in function of the working condition of the device: please refer to the "Light signalling" to verify the correct working of the device.
To make easy the maintenance or the substitution of the device, it is possible the "hot swap" of the terminals.

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

Digital Inputs		Power supply	
Channels	8 + 4 (optional)	Supply Voltage	10 .. 30 Vdc
		Current consumption	35 mA @ 24 Vdc
Input voltage (bipolar)		Reverse Polarity protection	60 Vdc max
OFF State	0 ÷ 3 V		
ON State	10 ÷ 30 V	**Isolation Voltage**	
		Inputs 0÷7 – Inputs 8÷11	1500 Vac 50 Hz, 1 min.
Impedance	4.7 KΩ	Inputs – RS485	2000 Vac 50 Hz, 1 min.
		Inputs – Supply	2000 Vac 50 Hz, 1 min.
		RS-485 – Supply	2000 Vac 50 Hz, 1 min.
		Temperature & Humidity	
Sample time	5 ms	Operating Temperature	-10°C .. +60°C
		Storage Temperature	-40°C .. +85°C
Data Transmission (async. serial)		Non-condensing Humidity	0 .. 90 %
Baud rate	up to 115.2 Kbps		
Max. Distance	1,2 Km – 4000 ft.	**Enclosure**	
		Material	self-extinguishing plastic
		Mounting	EN-50022 DIN rail
		Weight	about 150 g.
		EMC (for industrial environments)	
		Immunity	EN 61000-6-2
		Emission	EN 61000-6-4

INSTALLATION INSTRUCTIONS

The device DAT 3148 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 in the following situations:**
- 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.
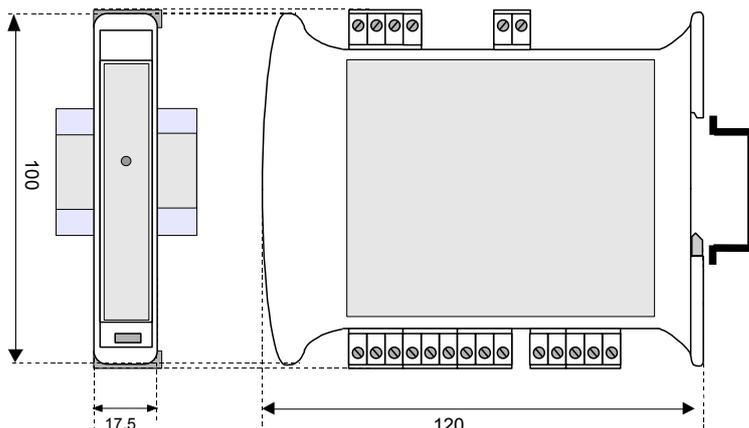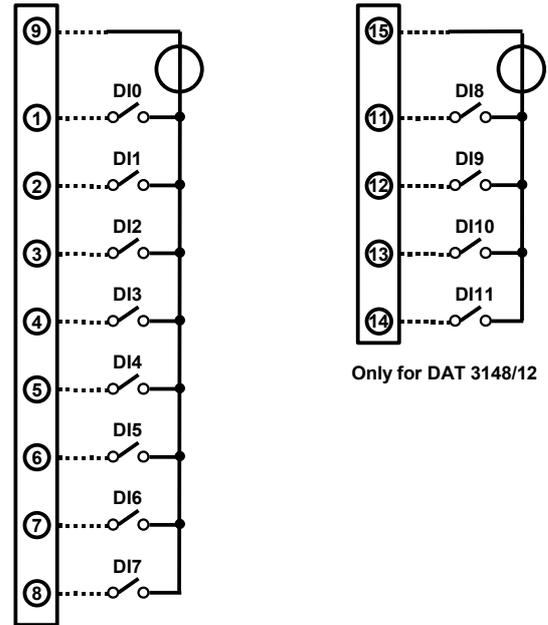
CABLING
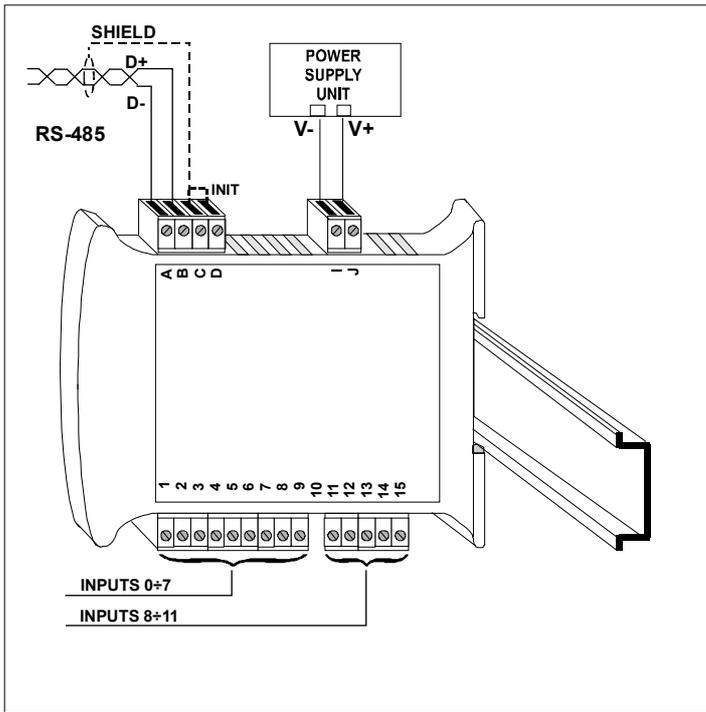
LIGHT SIGNALLING

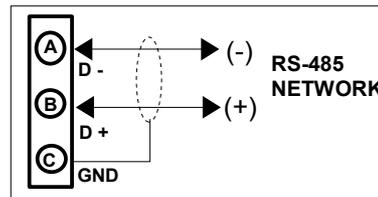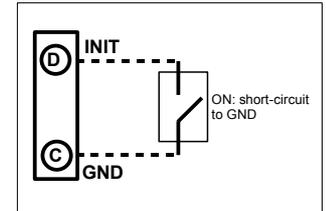| LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered or wrong RS-485 connection
		RAPID BLINK	Communication in progress (the blink frequency depends to the Baud-rate)
		SLOW BLINK	~1 sec. - Watch-Dog Alarm condition

MECHANICAL DIMENSIONS (mm)

WIRING

DIGITAL INPUT WIRING

Only for DAT 3148/12

NOTES: Input channels 0÷7 are insulated from input channels 8÷11

RS-485 NETWORK WIRING

INIT WIRING

ON: short-circuit to GND

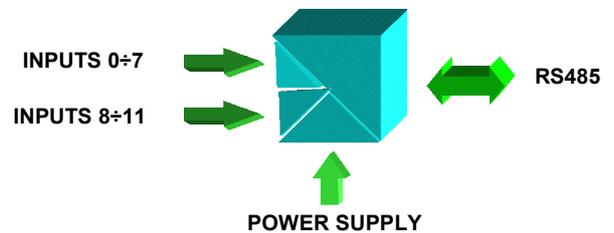### POWER SUPPLY WIRING

10÷30 Vdc

ISOLATION DIAGRAM

INPUTS 0÷7

INPUTS 8÷11

RS485

POWER SUPPLY
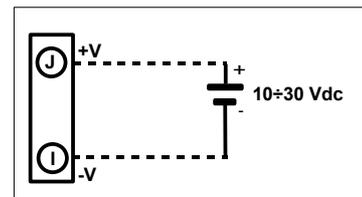
HOW TO ORDER
In the order phase it is mandatory to specify the number of inputs (8 or 12)

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Input number:
8: 8 inputs.
12: 8+4 inputs.

☐ = Mandatory
☐ = Optional