

FEATURES

- Interface Ethernet 10/100 Base-T, Modbus TCP Server
- N.8 Digital inputs
- N.8 PNP outputs
- Built-in Web server to acquire the digital inputs state and drive the digital outputs via web browser
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, power supply
- LED signalling for digital inputs and outputs state
- Galvanic isolation on all the ways
- UL / CE / UKCA mark
- In compliance to EN-50022 DIN rail mounting



GENERAL DESCRIPTION

The device DAT8188 is a Modbus TCP server unit with 8 digital input channels and 8 PNP outputs. For the digital inputs are available up to 4 counters 32 bit with measure of frequency up to 300 Hz. The Ethernet interface allows to read and write in real time the value of device's internal registers.

The built-in Web Server allows the remote visualization and acquisition of the digital inputs state, to drive the digital outputs and access to and configure the main Ethernet parameters via web browser. The device is also configurable by the software *Dev9K*, a free IDE developed by DATEXEL. The device realizes a full electrical isolation between the lines, introducing a valid protection against the effects of all ground loops eventually existing in industrial applications. The LEDs of signalling of Ethernet activity, input and output state and power supply allow a direct monitoring of the system functionality. The connection is made by removable screw-terminals (inputs, outputs and power supply) and RJ45 plug (Ethernet).

The DAT8188 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 enclosure 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. To configure the device use the INIT modality. Connect the terminal INIT to the terminal -V (refer to the User Guide of the device). Connect power supply, Ethernet, digital inputs and relay outputs as shown in the "Wiring" section. The LEDs 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 (WET CONTACTS)		ETHERNET INTERFACE		GENERAL SPECIFICATIONS		
Channels	8	In compliance with Ethernet IEEE 802.3		Power supply voltage	10 .. 30 Vdc	
Input voltage (bipolar)		Network interface Ethernet 10/100Base-T Protocol Modbus TCP Max. cable length 100 meters Number of socket 16	Reverse polarity protection	60 Vdc max	ISOLATION (test time : 1 minute) Power Supply / Ethernet 1500 Vac, 50 Hz Inputs / Power supply 1500 Vac, 50 Hz Inputs / Ethernet 1500 Vac, 50 Hz Input / Output 1500 Vac, 50 Hz	
OFF state	0 ÷ 3 V		Current Consumption	290 mA max		
ON state	10 ÷ 30 V		ENVIRONMENTAL CONDITIONS			
Impedance	4.7 KΩ		Operative Temperature -10°C .. +60°C			
Sample time	5 ms	UL Operative Temperature -10°C .. +40°C				
Number of counters	4	Storage Temperature -40°C .. +85°C				
Counters register bit-length	32 bit	Humidity (not condensed) 0 .. 90 %				
Counters frequency	up to 300 Hz	Maximum Altitude 2000 m				
Minimum pulse width	1 ms	Installation Indoor				
DIGITAL OUTPUT		Category of installation II				
Channels	8	Pollution Degree 2				
Type	PNP	CONNECTIONS				
Voltage	10.5÷30 Vdc	Ethernet RJ-45 (on side)				
Max Load(*) per channel	500 mA	Inputs / Outputs Screw terminal block				
per module	1 A	Power Supply Screw terminal block				
Inductive Load	48 Ω – 2H max	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 160 g				
		EMC (for 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				

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

INSTALLATION INSTRUCTIONS

The device is suitable for fitting to DIN rails in vertical position.

For optimum operation and long life follow these instructions:

When the devices are installed side by side it is necessary to separate them by at least:

- 10 mm if the UL certification is required.

- 5 mm if the UL certification is not required.

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.

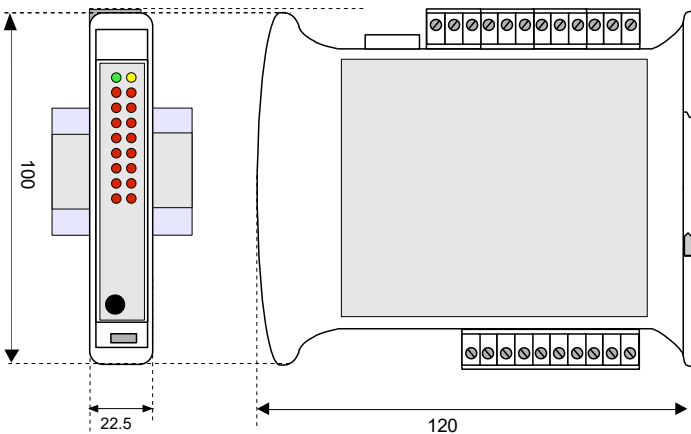
LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINK	Watchdog alarm
STS	YELLOW	OFF	Device in RUN modality
		BLINK	Device in INIT modality
I n	RED	ON	Digital Inputs High Level (1)
		OFF	Digital Inputs Low Level (0)
O n	RED	ON	Digital Outputs High Level (1)
		OFF	Digital Outputs Low Level (0)

MAPPING MODBUS REGISTERS

Register Position	Description	Access
40002	Firmware [0]	RO
40003	Firmware [1]	RO
40004	Name [0]	R/W
40005	Name [1]	R/W
40007	Node ID	R/W
40011	System Flags	R/W
40012	Power Up / Safe	R/W
40013	Watchdog timer	R/W
40031	Digital Outputs	R/W
40032	Digital Inputs	RO
40033	Digital Inputs Rise Latch	R/W
40034	Digital Inputs Fall Latch	R/W
40035	Freq. Digital Input 0	RO
40036	Freq. Digital Input 1	RO
40037	Freq. Digital Input 2	RO
40038	Freq. Digital Input 3	RO
40039	32 bit Counter Digital Input 0	R/W
40041	32 bit Counter Digital Input 1	R/W
40043	32 bit Counter Digital Input 2	R/W
40045	32 bit Counter Digital Input 3	R/W

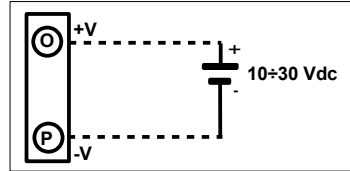
MECHANICAL DIMENSIONS (mm)



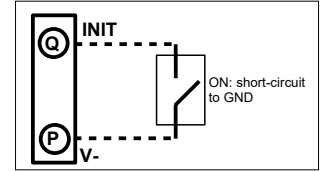
The symbol reported on the product indicates that the product itself must not be considered as a domestic waste. It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste. For more information contact the proper office in the user's city, the service for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

WIRING

POWER SUPPLY(*)

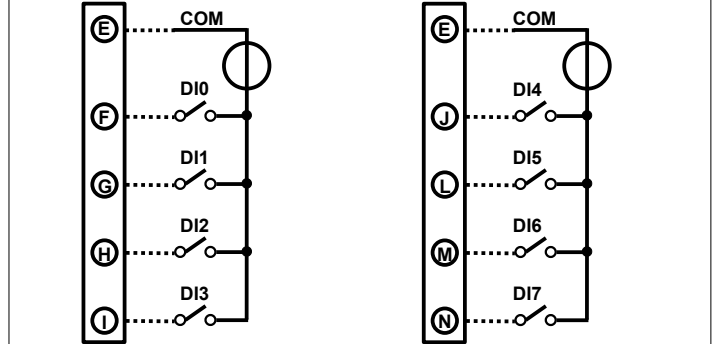


INIT



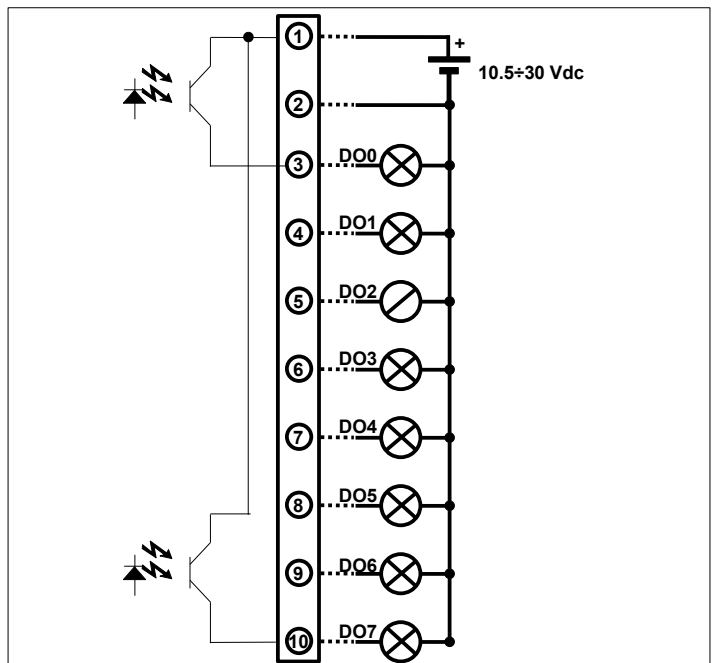
(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV and Limited Energy

DIGITAL INPUTS



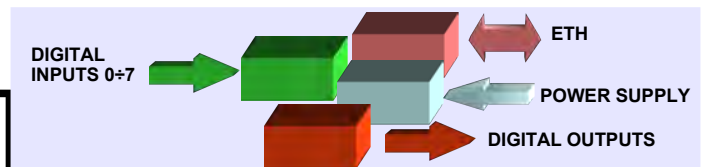
NOTE: the input channels are not isolated between them

DIGITAL OUTPUTS



NOTE: the output channels are not isolated between them

ISOLATION STRUCTURE



HOW TO ORDER

“ DAT 8188 “

Note: the device is provided with default configuration as:

IP address : 192.168.1.100

Modbus address: 1