Modbus 16 Digital Output
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Modbus RTU
16 digital outputs type PNP transistor
Communicating over RS-485

DAT 3116

FEATURES
- **Modbus Slave device on RS-485**
- **Modbus RTU/ Modbus ASCII protocol**
- **16 digital outputs type PNP transistor**
- **Communication parameters configurable by PC**
- **Watch-Dog Alarm**
- **Short-Circuit Alarm**
- **Remotely Configurable**
- **1500 Vac 3-ways Galvanic Isolation**
- **LEDs of signalling on front side for power supply and communication**
- **LEDs of signalling on front side for digital inputs and outputs state**
- **Connection by removable screw terminals**
- **High Accuracy**
- **CE mark**
- **DIN rail mounting in compliance with EN-50022**

GENERAL DESCRIPTION

The device DAT3116 is able to drive up to 16 digital outputs type PNP transistor.
The data are transmitted with MODBUS RTU / MODBUS ASCII protocol over the RS-485 network.
To ensure the plant safety, a Watch-Dog timer alarm is provided.
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 housed in a rough self-extinguishing plastic container which allows a high density mounting on EN-50022 standard DIN rail.

COMMUNICATION PROTOCOLS

The device is designed to work with the MODBUS RTU/MODBUS ASCII protocol: standard protocol in field-bus; allows to directly interface DAT3000 series devices to the larger part of PLCs and SCADA applications available on the market.
For the protocol instructions, refer to the User Guide of the device.

USER INSTRUCTIONS

Before to install the device, please read the “Installation Instruction” section.
It is possible to configure the device via software using the INIT modality.
Connect the terminal INIT to the terminal -V; at the power-on the device will be automatically set in the configuration set-up (refer to the User Guide of the device).
Connect power supply, serial bus and digital 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 under nominal conditions)

DIGITAL OUTPUT

Channels	16
Type	PNP
Voltage	10.5÷30 Vdc
Maximum load(*)	500 mA per channel Out 0÷7 max 1 A (bank1) Out 8÷15 max 1 A (bank2)
Inductive load	48 Ω – 2H max

(*) Protection against over-current and temperature
Short-circuit current 1.7 A for each outputs bank
(bank1: outputs from 0 to 7 - bank2: outputs from 8 to 15)

POWER SUPPLY

Power supply voltage	18 .. 30 Vdc
Reverse polarity protection	60 Vdc max
Current consumption (stand-by)	20 mA @ 24 Vdc
Current consumption (16 out ON)	60 mA max@24Vdc 70 mA max@18Vdc

ISOLATION

Between all the ways (RS485, power supply, digital outputs)	1500 Vac, 50 Hz, 1 min

ENVIRONMENTAL CONDITIONS

Operative Temperature	-10°C .. +60°C
Storage Temperature	-40°C.. +85°C
Humidity (not condensed)	0 .. 90 %
Maximum Altitude	2000 m
Installation	Indoor
Category of installation	II
Pollution Degree	2

COMMUNICATION

Data Transmission (RS-485 asynchronous serial)

Baud Rate	up to 115.2 Kbps
Max. distance	1.2 Km – 4000 ft
Protocol	Modbus RTU/Modbus ASCII
Serial Interface	RS485 (2 wires)

MECHANICAL SPECIFICATIONS

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 170 g

CERTIFICATIONS

EMC (for industrial environments)

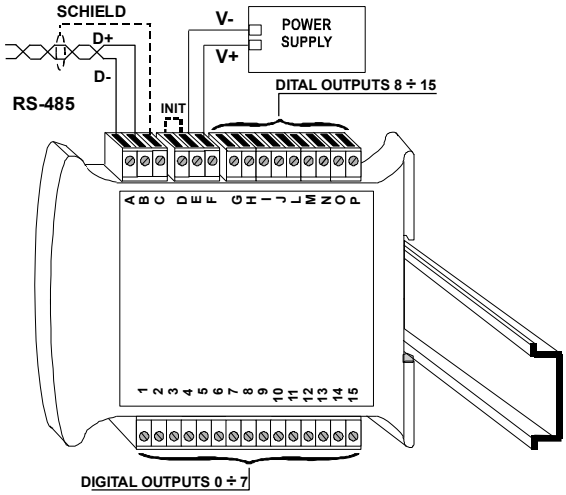
Immunity	EN 61000-6-2
Emission	EN 61000-6-4

INSTALLATION INSTRUCTIONS

The DAT3116 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:

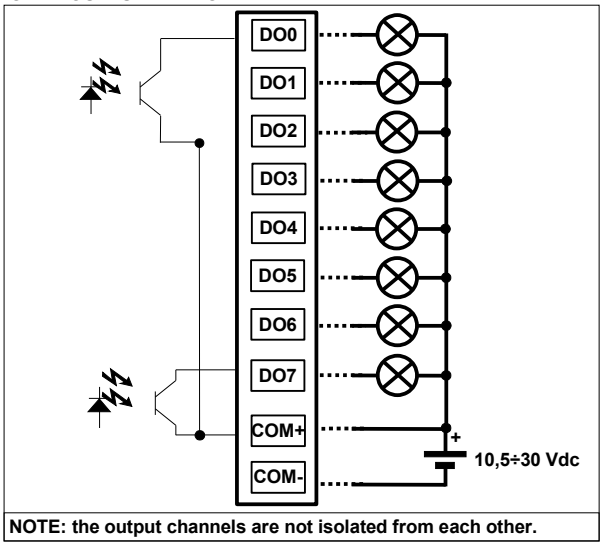
- If panel temperature exceeds 45°C and power supply voltage 10 Vdc. Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover it is suggested to avoid that devices are mounted above appliances generating 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

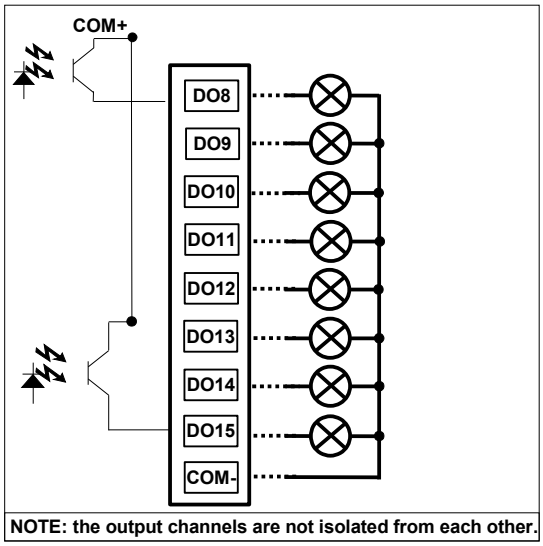


WIRING

DIGITAL OUTPUT WIRING



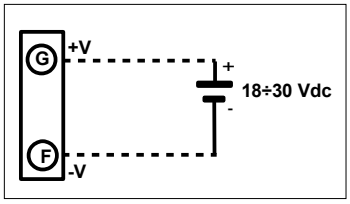
NOTE: the output channels are not isolated from each other.



NOTE: the output channels are not isolated from each other.

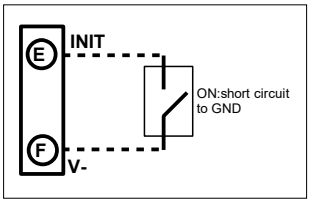
NOTE:
Terminals 10 and P (COM-) are internally connected

POWER SUPPLY (*)

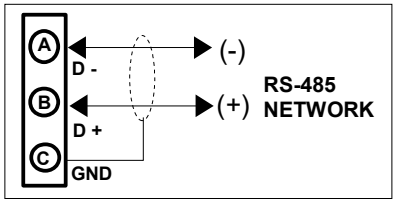


(*) Note: the device must be powered using a power supply unit classified NEC class 2 or SELV

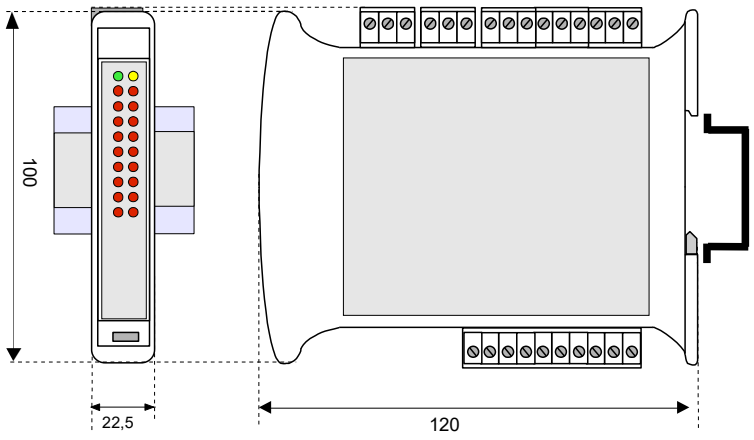
INIT



RS-485 SERIAL PORT



MECHANICAL DIMENSIONS (mm)



LIGHT SIGNALLING

LED	COLOR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINK	~1 sec. - Watch-Dog alarm condition occurred
STS	YELLOW	BLINK	~1 sec. - INIT condition
		ON	Short-Circuit alarm condition occurred
RX	RED	BLINK	Stream of data over receiving line of RS-485
		OFF	No data over receiving line of RS-485
TX	RED	BLINK	Stream of data over transmission line of RS-485
		OFF	No data over transmission line of RS-485
DO*n*	RED	ON	Digital output ON state
		OFF	Digital output OFF state

ISOLATION STRUCTURE

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.

HOW TO ORDER

DAT 3116