



FEATURES

- Modbus Slave device on RS-485
- Modbus RTU/ Modbus ASCII protocol
- 4 output channels configurable for voltage and current
- Communication parameters configurable by dip-switches
- Watch-Dog Alarm
- Remotely Configurable
- 1500 Vac 3-ways Galvanic Isolation
- LEDs of signalling on front side for power supply and communication
- Connection by removable screw terminals
- High Accuracy
- CE mark
- DIN rail mounting in compliance with EN-50022

GENERAL DESCRIPTION

The device DAT10024 drives up to 4 voltage signals up to 10V or current up to 20mA connected both in active and passive loop in digital format. 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 output channels are configurable independently.

For each channel it is possible to set:

Type and output value;

preset of the value at the power up (Power-up) separated for output voltage and current;

preset of safety value (Safe) separated for output voltage and current.

It is possible to generate voltage signals up to 10V and current signals up to 20mA, both active or passive loops.

The device guarantees high accuracy and stable measure versus time and temperature.

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 6 module DIN rough self-extinguishing plastic box for 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 DAT10000 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 in two modes: by the dip-switches located on the front of the device or via software using the INIT modality.

Connect the terminal INIT to the terminal REF; 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 analogue 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)

OUTPUT (4 channels)			Output Accuracy	POWER SUPPLY
Output type	Min	Max		
Current mA	0 mA	+20 mA	Current ± 10 µA Voltage ± 5 mV	Power supply voltage 20 .. 30 Vdc Reverse polarity protection 60 Vdc max Current consumption 150 mA max.
Voltage Volt	0 V	+10 V	Thermal drift Full scale ± 0.01 % / °C	ISOLATION On all the ways 1500 Vac, 50 Hz, 1 min
			Load resistance Voltage ≥ 5 KΩ Current ≤ 500 Ω	ENVIRONMENTAL CONDITIONS Operative Temperature -20°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
			Auxiliary Voltage (4 channels) ≥ 13Vdc @ 20mA	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 200 g.
			Response time (from 10 % to 90 %) 15 ms	
			Sample time 50 ms	
			Data Transmission Baud Rate 115.2 Kbps Max. distance 1.2 Km – 4000 ft	CERTIFICATIONS EMC (for industrial environments) Immunity EN 61000-6-2 Emission EN 61000-6-4

INSTALLATION INSTRUCTIONS

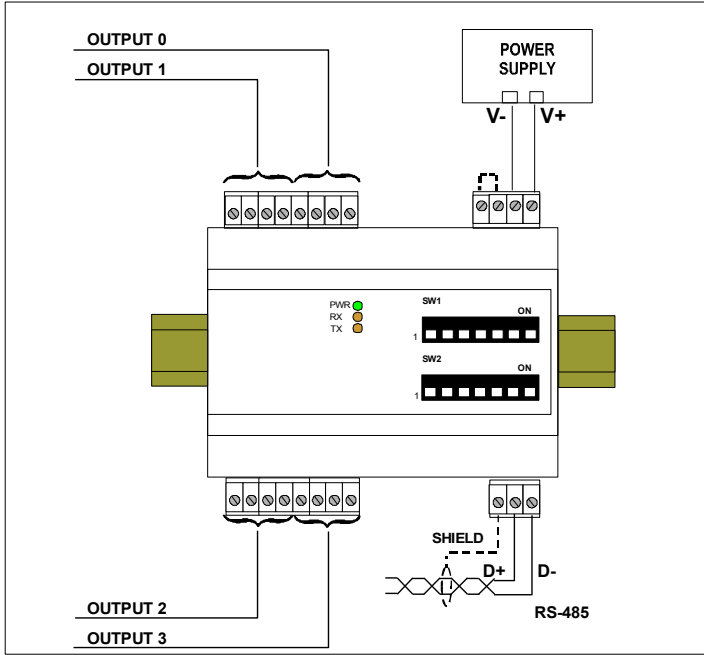
The DAT10024 is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

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 18 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.

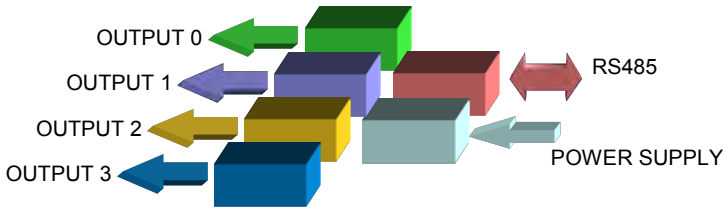
WIRING



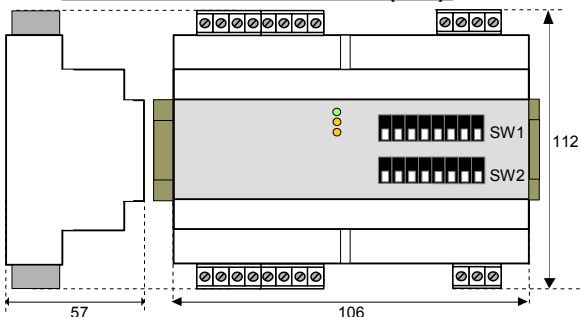
LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINK	~1 sec. - Watch-Dog alarm condition occurred
RX	YELLOW	BLINK	Stream of data over receiving line of RS-485
		OFF	No data over receiving line of RS-485
TX	YELLOW	BLINK	Stream of data over transmission line of RS-485
		OFF	No data over transmission line of RS-485

ISOLATION STRUCTURE



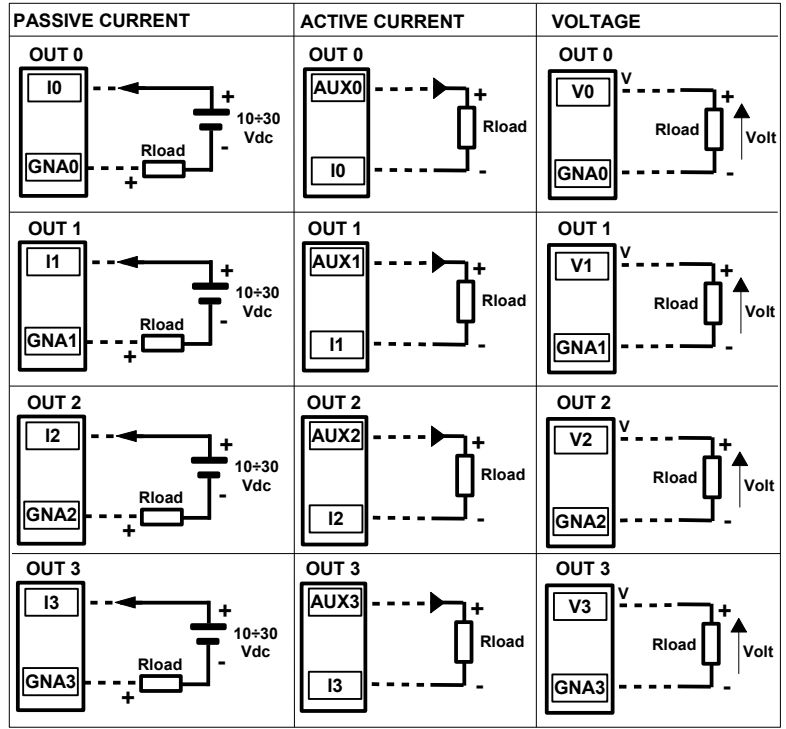
MECHANICAL DIMENSIONS (mm)



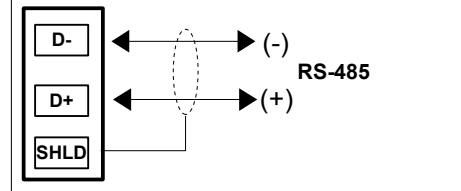
The symbol reported on the product indicates that the product itself must not be considered as a domestic waste. It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste. For more information contact the proper office in the user's city, the service for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

CONNECTIONS

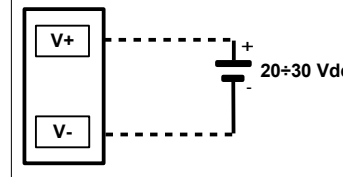
ANALOGUE OUTPUTS



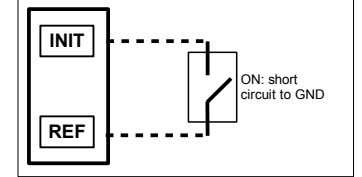
RS-485



POWER SUPPLY



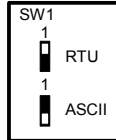
INIT



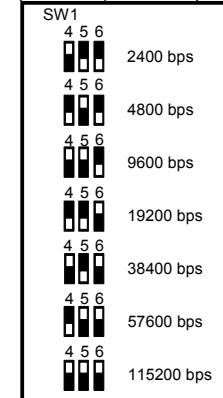
DIP-SWITCHES : TABLES OF CONFIGURATION

Warning: set all the dip-switches in OFF position to access to the device in EEPROM modality (the device will follow all the communication parameters set by software) or INIT. Power-off the device before to change the set of the dip-switches.

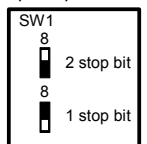
TAB.1 Modality settings (Pos.1)



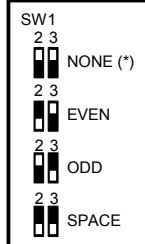
TAB.3 Baud rate settings (Pos.4 LSB; Pos.6 MSB)



TAB.4 Stop Bit settings (Pos.8)



TAB.2 Parity settings (Pos.2 LSB; Pos.3 MSB)



Note (*):

- in Modbus RTU Modality the setting is NONE; number of bit = 8
- in Modbus ASCII Modality the setting is MARK; number of bit = 7

DIP POSITION



HOW TO ORDER

DAT10024 can be supplied with the configuration specified by the customer.

DAT 10024/ 485 / mA — Output type — = Optional

