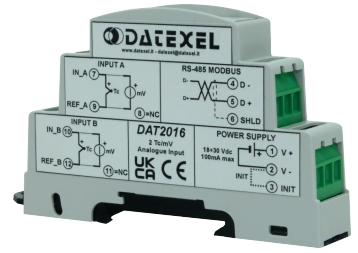


# MODBUS RTU/ MODBUS ASCII SERVER DEVICE

## DAT2016

### FEATURES

- MODBUS RTU/ MODBUS ASCII Protocol
- 2 isolated input channels
- Configurable input for Voltage(mV) and Thermocouple
- Watch-Dog Alarm
- Remotely Configurable
- 1000 Vac Galvanic Isolation among all of the ways
- LED of signalling on front side for power supply, INIT condition and communication
- Connection by screw terminals
- High accuracy
- CE / UKCA mark
- DIN rail mounting in compliance with EN-50022



### GENERAL DESCRIPTION

The device DAT 2016 is able to convert 2 analog input signals; it is possible to connect on input Thermocouple sensors and voltages in mV. The data are transmitted with MODBUS RTU/MODBUS ASCII protocol on the RS-485 network.

The input channels are isolated between them.

The device guarantees high accuracy and stable measure versus time and temperature. 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 housed in a 1 module DIN rough self-extinguishing plastic box for 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, in order to recover the device power it off, connect the INIT terminal to V- terminal (ground) and power on the device. It will be set to the default settings (refer to the User Guide of the device).

Connect power supply, serial bus and analogue inputs as shown in the "Wiring" section.

The state of LEDs changes depending 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.

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

INPUT			SERIAL OUTPUT		GENERAL SPECIFICATION	
Input type	Min	Max	Data Transmission			
<b>Tc CJC int/ext</b>			RS-485 asynchronous serial		Power supply voltage	18 .. 30 Vdc
J	-200°C	1200°C	Baud Rate	115.2 Kbps	Reverse polarity protection	40 Vdc max
K	-200°C	1300°C	Parity supported	Even / Odd / None	<b>Max. Current consumption</b>	40 mA
S	0°C	1750°C	Stop bit supported		<b>ISOLATION</b>	
R	0°C	1750°C	Max. distance	1 / 2	Among all the ways	1000 Vac,
B	400°C	1800°C		1.2 Km – 4000 ft		50 Hz, 1 min
E	-200°C	1000°C			<b>ENVIRONMENTAL CONDITIONS</b>	
T	-200°C	400°C			Operative temperature	-10°C .. +60°C
N	-200°C	1300°C			Storage temperature	-40°C .. +85°C
<b>Voltage</b>					Humidity (not condensing)	0 .. 90 %
mV	-100 mV	+100 mV			Maximum Altitude	2000 m slm
mV	-100 mV	+200 mV			Installation	Indoor
mV	-100 mV	+800 mV			Category of Installation	II
<b>Input calibration (1)</b>					Pollution Degree	2
mV		±0.05 % f.s.			<b>MECHANICAL SPECIFICATIONS</b>	
Tc		±0.05 % f.s.			Material	Self-extinguish plastic
<b>Linearity (1)</b>					IP Code	IP40
mV		±0.1 % f.s.			Wiring	wires with diameter
Tc		±0.2 % f.s.				0,08+3,3 mm <sup>2</sup>
<b>Lead wire resistance influence (1)</b>	< 0.8 uV/Ω					AWG 12-28
<b>Input impedance (2)</b>	1 MΩ				Tightening Torque	0.5 N m
<b>CJC compensation</b>	± 1 °C				Mounting	in compliance with DIN rail standard EN-50022
<b>Thermal drift (1)</b>					Weight	about 60 g.
Full scale		± 0.01 % / °C			<b>CERTIFICATIONS</b>	
CJC		± 0.01 % / °C			<b>EMC ( for the Industrial Environments )</b>	
<b>Sample time</b>	150 ms				Immunity	EN 61000-6-2
<b>Warm-up time</b>	3 min.				Emission	EN 61000-6-4
					<b>UKCA (ref S.I. 2016 N°1091 )</b>	
					Immunity	BS EN 61000-6-2
					Emission	BS EN 61000-6-4

(1) Referred to input Span (difference between max. and min. values)

(2) A pull-up resistor (10MΩ) is tied to internal +3V for sensor break



2-Channel Thermocouple to Modbus RTU Converter – DAT2016

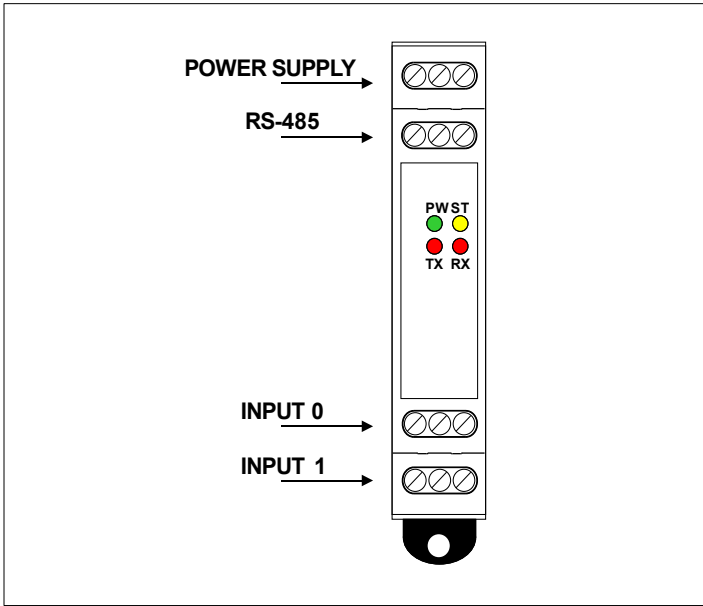
Phone: +1 561 779 5660

E-mail : [Info@datexel.com](mailto:Info@datexel.com) - Web Site [www.datexel.com](http://www.datexel.com)

## INSTALLATION INSTRUCTIONS

The device 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 if panel temperature exceeds 45°C. 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.

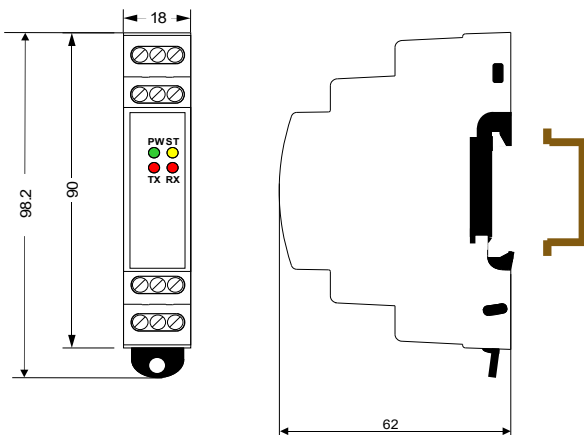
### CABLING



### LIGHT SIGNALLING

LED	COLOR	STATE	DESCRIPTION
PW	GREEN	ON	Device powered
		OFF	Device not powered
		BLINK	~1 sec. - Watch-Dog alarm condition active
RX	RED	BLINK	RS-485 data reception in progress
		OFF	No data reception from RS-485
TX	RED	BLINK	RS-485 data transmission in progress
		OFF	No data transmission to RS-485
ST	YELLOW	BLINK	~1 sec. - Device in INIT mode
		OFF	Standard working

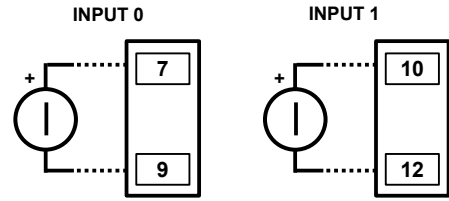
### MECHANICAL DIMENSIONS (mm)



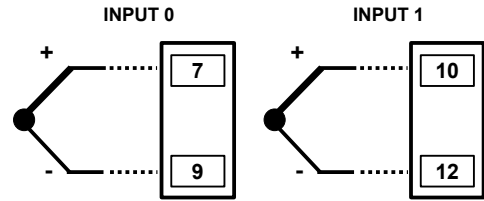
## WIRING

### ANALOG INPUTS

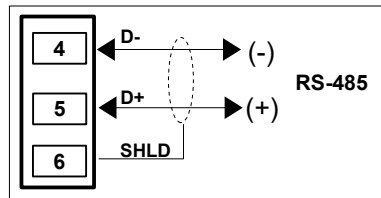
#### VOLTAGE



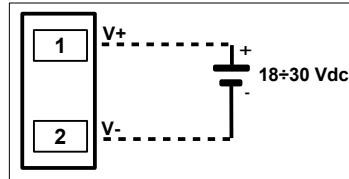
#### TC



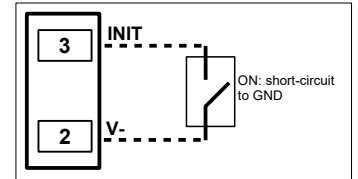
### RS-485



### POWER SUPPLY(\*)

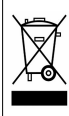
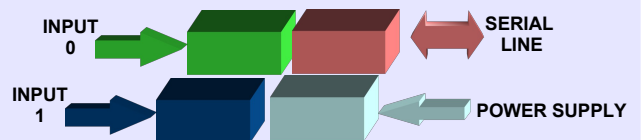


### INIT



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

### 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

The device can be supplied with the input configuration specified by the customer. Refer to section "Technical Specifications" for the available input type

DAT2016 /