



Channel RTD to Modbus RTU DAT10019

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FEATURES

- Modbus Slave device on RS-485
- Modbus RTU/ Modbus ASCII protocol
- 8 input channels for RTD or Resistance 2 wires
- 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

8 input channels for RTD 2 wires to Modbus RTU RS-485

DAT 10019









GENERAL DESCRIPTION

The device DAT10019 converts up to 8 analogue input signals into engineering units in digital format. The data are transmitted with MODBUS RTU / MODBUS ASCII protocol over the RS-485 network.

It is possible to connect on input 8 RTD or Resistance 2 wires sensors.

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

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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

Connect power supply, serial bus and analogue inputs 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)

INPUT			Input Accuracy (1)		POWER SUPPLY	10 30 Vdc 60 Vdc max	
Input type	Min	Max	RTD Resistance	±0.05 % f.s. ±0.05 % f.s.	Power supply voltage Reverse polarity protection		
RTD 2 wires Pt100 Pt1000	-200 °C -200 °C	850 °C 200 °C	Linearity (1)	± 0.1 % f.s.	Current consumption (operative)	35 mA max@24Vdc 45 mA max@10Vdc	
Ni100 Ni1000	-60 °C 180 °C -60 °C 150 °C		Sensor excitation current Typical 0.350 mA		ISOLATION Between all the ways 1500 Vac, 50 Hz, 1 min		
RES. 2 wires Low High	0 Ω 0 Ω	500 Ω 2000 Ω	Thermal drift (1) Full scale	± 0.005 % / °C	ENVIRONMENTAL COND Operative Temperature Storage Temperature Humidity (not condensed)	ITIONS -10°C +60°C -40°C +85°C 0 90 %	
			Sample time	0.5 ÷ 1 sec.	Maximum Altitude Installation Category of installation	2000 m Indoor II	
			Data Transmission (RS-485 Baud Rate Max. distance	asynchronous seria 115.2 Kbps 1.2 Km – 4000 ft	MECHANICAL SPECIFICA Material IP Code Wiring	TIONS Self-extinguish plastic P20 vires with diameter 1.8+2.1 mm² /AWG 14-18 1.5 N m 1 compliance with DIN rai tandard EN-50022 shout 200 g.	
					CERTIFICATIONS EMC (for industrial environments) Immunity EN 61000-6-2 Emission EN 61000-6-4		

INSTALLATION INSTRUCTIONS

The DAT10019 is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

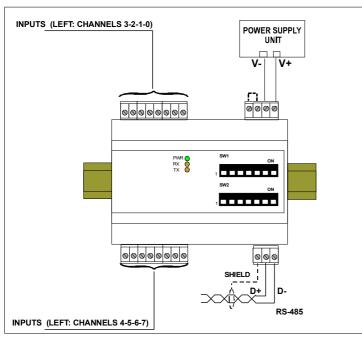
When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:

- 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.

WIRING



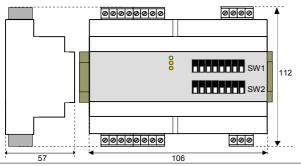
LIGHT SIGNALLING

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

ISOLATION STRUCTURE



MECHANICAL DIMENSIONS (mm)



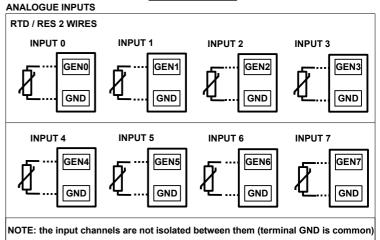


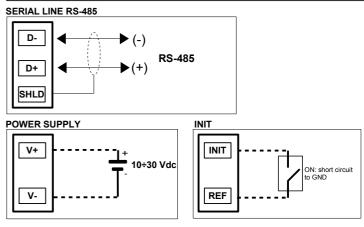
The symbol reported on the product indicates that the product itself must not be

It must be brought to the authorized recycle plant for the recycling of electrical and

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

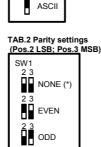




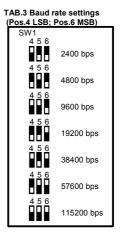
DIP-SWITCHES: TABLES OF CONFIGURATION

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.





SPACE



- 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 ON OFF

HOW TO ORDER

The DAT10019 could be supplied as requested from the customer. Refer to the section "Technical Specifications" for the input type available.

DAT 10019 / Pt100 - Input type

(Pos.1 LSB; Pos.8 MSB)	247						
SW2 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 114	1 2 3 4 5 6 7 8 Address 152	12345678	1 2 3 4 5 6 7 8 Address 190	Address 228
1 2 3 4 5 6 7 8 Address 1	1 2 3 4 5 6 7 8 Address 39	1 2 3 4 5 6 7 8 Address 77		1 2 3 4 5 6 7 8 Address 153	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 191	Address 229
1 2 3 4 5 6 7 8 Address 2	1 2 3 4 5 6 7 8 Address 40	1 2 3 4 5 6 7 8 Address 78				1 2 3 4 5 6 7 8 Address 192	Address 230
1 2 3 4 5 6 7 8 Address 3	1 2 3 4 5 6 7 8 Address 41	1 2 3 4 5 6 7 8 Address 79		1 2 3 4 5 6 7 8 Address 155	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 193	Address 231
1 2 3 4 5 6 7 8 Address 4	1 2 3 4 5 6 7 8 Address 42	1 2 3 4 5 6 7 8 Address 80		1 2 3 4 5 6 7 8 Address 156	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 194	Address 232
1 2 3 4 5 6 7 8 Address 5	1 2 3 4 5 6 7 8 Address 43	1 2 3 4 5 6 7 8 Address 81		1 2 3 4 5 6 7 8 Address 157		Address 195 1 2 3 4 5 6 7 8	Address 233
1 2 3 4 5 6 7 8 Address 6	1 2 3 4 5 6 7 8				1 2 3 4 5 6 7 8	Address 196 1 2 3 4 5 6 7 8	Address 234
1 2 3 4 5 6 7 8 Address 7 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 45 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 83 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 121 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 159 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8	Address 197 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8	Address 235
1 2 3 4 5 6 7 8 Address 8	1 2 3 4 5 6 7 8 Address 46	1 2 3 4 5 6 7 8 Address 84	1 2 3 4 5 6 7 8 Address 122	1 2 3 4 5 6 7 8 Address 160		Address 198 1 2 3 4 5 6 7 8	Address 236
1 2 3 4 5 6 7 8 Address 9	1 2 3 4 5 6 7 8 Address 47	1 2 3 4 5 6 7 8 Address 85	1 2 3 4 5 6 7 8 Address 123	1 2 3 4 5 6 7 8 Address 161	1 2 3 4 5 6 7 8	Address 199 1 2 3 4 5 6 7 8	Address 237
1 2 3 4 5 6 7 8 Address 10		Address 86	1 2 3 4 5 6 7 8 Address 124	Address 162	1 2 3 4 5 6 7 8	Address 200 1 2 3 4 5 6 7 8	Address 238
1 2 3 4 5 6 7 8 Address 11	1 2 3 4 5 6 7 8 Address 49	Address 87	Address 125	Address 163		Address 201 1 2 3 4 5 6 7 8	Address 239
Address 12 1 2 3 4 5 6 7 8	Address 50	1 2 3 4 5 6 7 8 Address 88 1 2 3 4 5 6 7 8	12345678	Address 164 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8		Address 240
Address 13 1 2 3 4 5 6 7 8		Address 89 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8 Address 127	Address 165 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	Address 203 1 2 3 4 5 6 7 8	Address 241
1 2 3 4 5 6 7 8	Address 52	Address 90	1 2 3 4 5 6 7 8	Address 166 1 2 3 4 5 6 7 8	12345678	Address 204 1 2 3 4 5 6 7 8	Address 242
Address 15	1 2 3 4 5 6 7 8	Address 91	1 2 3 4 5 6 7 8		1 2 3 4 5 6 7 8	12345678	Address 243
12345678	Address 54 1 2 3 4 5 6 7 8	Address 92 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	Address 168 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	Address 206	Address 244
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<u>12345678</u>	Address 57	Address 95 1 2 3 4 5 6 7 8	12345678	Address 171 1 2 3 4 5 6 7 8	12345678	Address 209	Address 247
12345678	Address 58	Address 96 1 2 3 4 5 6 7 8	12345678	1 2 3 4 5 6 7 8 Address 172 1 2 3 4 5 6 7 8	12345678	Address 210	
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12345678	12345678	12345678	Address 136	12345678	12345678	Address 212	
12345678	Address 61	1 2 3 4 5 6 7 8	12345678	Address 175	1 2 3 4 5 6 7 8	Address 213	
12345678	Address 62	12345678	Address 138	Address 176 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	Address 214	
12345678	Address 63	12345678	1	12345678	1 2 3 4 5 6 7 8		
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1 2 3 4 5 6 7 8	Address 66 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	12345678	1 2 3 4 5 6 7 8	Address 218	
1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	Address 219	
12345678	1 2 3 4 5 6 7 8	12345678	Address 144 1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	Address 220	
12345678	1 2 3 4 5 6 7 8	12345678	Address 145	12345678	1 2 3 4 5 6 7 8	Address 221 Address 222	
12345678	Address 70 1 2 3 4 5 6 7 8 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12345678	Address 146 1 2 3 4 5 6 7 8 2 4 5 6 7 8 Address 147	1 2 3 4 5 6 7 8 Address 185	1 2 3 4 5 6 7 8	Address 223	
12345678	12345678	12345678	1 2 3 4 5 6 7 8 Address 148	12345678	1 2 3 4 5 6 7 8	Address 224	
12345678	1 2 3 4 5 6 7 8 Address 73	12345678	1 2 3 4 5 6 7 8 1 Address 149	1 2 3 4 5 6 7 8 Address 187	1 2 3 4 5 6 7 8	Address 225	
12345678	1 2 3 4 5 6 7 8 Address 74	12345678	1 2 3 4 5 6 7 8 2 Address 150	1 2 3 4 5 6 7 8 Address 188	1 2 3 4 5 6 7 8	Address 226	
12345678	12345678	12345678	1 2 3 4 5 6 7 8 3 Address 151	12345678	1 2 3 4 5 6 7 8	Address 227	
HOHOOHOO Address 57	Address 75	MODO MIND Address 113	Address 151	Mudiess 189		, (GGI COO EE)	