

Modbus TCP/IP server 8 input channels isolated in pairs for Volt

DAT 8017-V

FEATURES

- Interface Ethernet 10/100 Base-T, Modbus TCP Server
- 8 input channels isolated in pairs
- Passive input up to ± 10 Vdc
- Integrated web server for acquiring the status of the analogue inputs via browser
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, power supply
- Galvanic isolation on all the ways
- UL / CE / UKCA mark
- In compliance to EN-50022 DIN rail mounting



GENERAL DESCRIPTION

The device DAT8017-V is a Modbus TCP server unit that can convert up to 8 analogue signals applied to the input in engineering units in digital format. The inputs can be connected to voltage output sensors. **The input channels are electrically isolated in pairs.** The device guarantees high accuracy and a stable measure versus time and temperature. In order to ensure the safety plant, the device is equipped with a Watch-Dog Timer system. The Ethernet interface allows reading and writing in real time the values of the internal registers of the device. The LEDs of signalling of Ethernet activity and power supply allow a direct monitoring of the system functionality. The built-in Web Server allows the remote visualization, acquisition of the analogue inputs and the access to the main Ethernet programming parameters. The device is also configurable by the software Dev9K, a free IDE developed by DATEXEL. The connection is made by removable screw-terminals (inputs and power supply) and RJ45 plug (Ethernet). The DAT8017-V 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 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 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 (refer to the User Guide of the device). Connect power supply, Ethernet 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 | | | ETHERNET INTERFACE | | GENERAL SPECIFICATIONS | |
|-----------------------------------|------------|-------------------|---|-----------------------|--|---|
| Input type | Min | Max | In compliance with Ethernet IEEE 802.3 | | Power supply voltage | 14 .. 30 Vdc |
| Voltage | | | Network interface | Ethernet 10/100Base-T | Reverse polarity protection | 60 Vdc max |
| Volt | -10 V | +10 V | Protocol | Modbus TCP | Current Consumption | 150 mA max |
| Input Accuracy (1) | | | Max. cable length | 100 meters | ISOLATION (test time : 1 minute) | |
| Volt | | ± 0.05 % f.s. | Number of socket | 16 | Power Supply / Ethernet | 1500 Vac, 50 Hz |
| Linearity (1) | | | | | Inputs / Power supply | 1500 Vac, 50 Hz |
| Volt | | ± 0.1 % f.s. | | | Inputs / Ethernet | 1500 Vac, 50 Hz |
| Input impedance | | | | | Input / Input | 1500 Vac, 50 Hz |
| Thermal drift (1) | | | | | ENVIRONMENTAL CONDITIONS | |
| Full Scale | | ± 0.01 %/°C | | | Operative Temperature | -10°C .. +60°C |
| Sampling time (8 channels) | | 150 ms | | | UL Operative Temperature | -10°C .. +40°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 |
| | | | | | CONNECTIONS | |
| | | | | | Ethernet | RJ-45 (on side) |
| | | | | | Inputs | Screw terminal block |
| | | | | | Power Supply | Screw terminal block |
| | | | | | 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 160g |
| | | | | | 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 |

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

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.

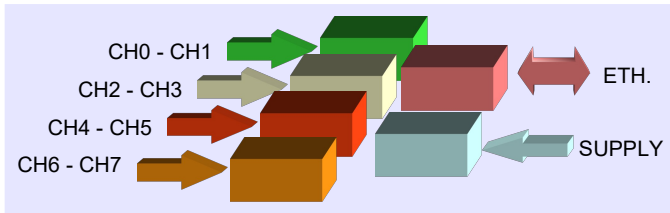
Install the device in a place without vibrations.

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.

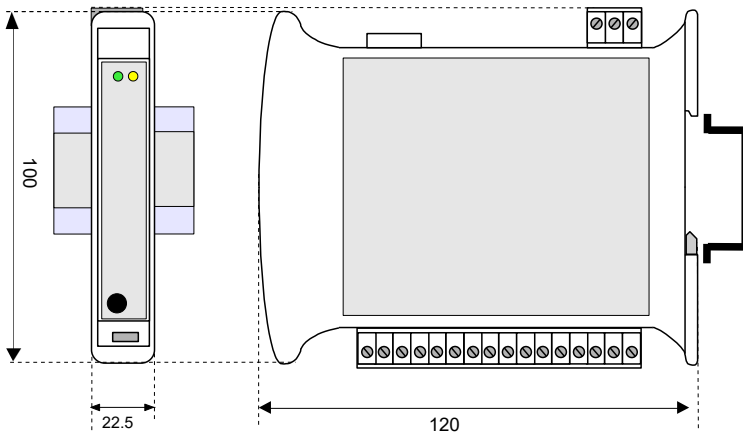
LIGHT SIGNALLING

| 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 |

ISOLATIONS STRUCTURE

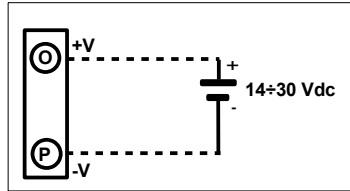


MECHANICAL DIMENSIONS (mm)

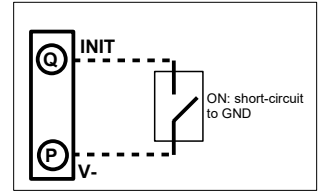


WIRING

POWER SUPPLY(*)



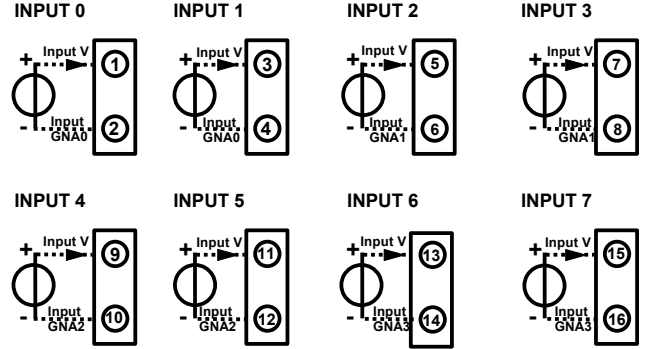
INIT



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

ANALOGUE INPUTS

VOLTAGE



NOTES:

Terminals "2" and "4" (neg. reference "GNA0") are internally connected.
Terminals "6" and "8" (neg. reference "GNA1") are internally connected.
Terminals "10" and "12" (neg. reference "GNA2") are internally connected.
Terminals "14" and "16" (neg. reference "GNA3") are internally connected.
The references "GNA0", "GNA1", "GNA2" and "GNA3" are isolated from each other.

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 |
| 40013 | Watchdog timer | R/W |
| 40031 | Input type Channels (1-0) | R/W |
| 40032 | Input type Channels (3-2) | R/W |
| 40033 | Input type Channels (5-4) | R/W |
| 40034 | Input type Channels (7-6) | R/W |
| 40041 | Analogue Input (0) - Ch0 | RO |
| 40042 | Analogue Input (1) - Ch1 | RO |
| 40043 | Analogue Input (2) - Ch2 | RO |
| 40044 | Analogue Input (3) - Ch3 | RO |
| 40045 | Analogue Input (4) - Ch4 | RO |
| 40046 | Analogue Input (5) - Ch5 | RO |
| 40047 | Analogue Input (6) - Ch6 | RO |
| 40048 | Analogue Input (7) - Ch7 | RO |

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 8017-V "

Note: the device is provided with default configuration as:

IP address : 192.168.1.100

Modbus address: 1