

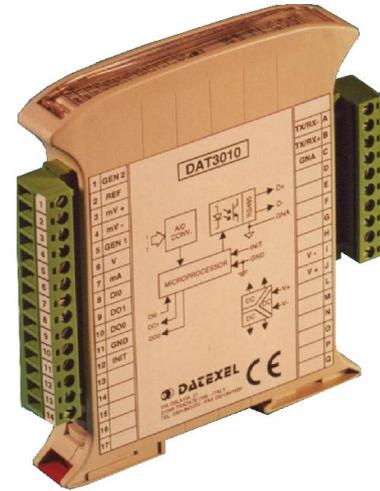
DAT 3010

FEATURES

**Sensor-to-computer interface
for remote data acquisition on Field-Bus,
with ASCII or MODBUS RTU/ASCII protocol.
TC, RTD, mV, mA, V and R universal input
Input signal configurable from remote host computer
Communication on RS-485 line
2000Vac 3-way galvanic Isolation
In compliance with EMC standards - CE mark
17.5 mm. thin profile housing
DIN rail mounting**

APPLICATIONS

- Network data acquisition & control
- Industrial process monitoring
- Factory & building automation
- Distributed measurement & control



GENERAL INFORMATION

DAT3010 signal conditioner converts the analog input signal to engineering units and transmits the data in ASCII format to the remote terminal through the RS-485 port. It is able to handle a large range of input signal and it is configured from the remote host by sending the configuration data on the serial line RS-485. The input signals which can be handled are listed in the apposite table illustrated in the following page.

There are available two different protocols: the **standard ASCII** based protocol, composed by short, simple and intuitive commands, allows a fast develop of the plant management software with simple languages like VisualBasic, C, Delphi. The command set is compatible with similar devices available on the market. The **MODBUS (RTU or ASCII)** protocol, known as a spread standard in Field-Bus, is useful for efficient and reliable management of a plant with great quantity of variables. Thank to this standard, it is possible to directly interface DAT3000 series to the larger part of PLCs and SCADA applications available on the market, with the possibility to connect on the same net DAT3000 devices with other different devices (PLC, Operator Panels, CNC, etc...).

The device is built around a microprocessor core which, over the various tasks performed, has the management of a 16bit A/D converter which is dedicated to the acquisition of the input signal with the needed accuracy. Overmore the DAT3010 has two digital outputs, which can be used as alarm signals, and an input for a digital command signal. With the purpose to assure safe operation of the system, the module has two watchdogs which, in case of failure, can activate an alarm and can force the outputs in a safe condition. 3-way galvanically isolation between input, output and power supply is obtained by means of photocouplers and transformers in such a way to guarantee a 2000Vac isolation. The management of the device and the message exchange with it are performed through simple commands sent to its communication port.

The DAT3010 module, designed, manufactured and tested in strict accordance with the quality assurance standard UNI EN ISO 9001/2000, is in compliance with the directive 89/336/EEC on the electromagnetic compatibility and the CE mark confirms its compliance. The device is housed in a rough self extinguishing plastic container which, thank to its thin profile of 17.5 mm only, allows a high density mounting on DIN rail.

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

INPUT & OUTPUT

| | |
|--------------------------------|---|
| Input impedance | >10 MOhm for mV and TC, >1MOhm for V; 50 Ohm for current |
| Lead wire resistance influence | < 0.8 uV/Ohm for mV, V and TC; <0,005%/Ohm (100 Ohm Max.) for RTD |
| RTD sesor current | 0.350 mA |
| Digital input | 1 channel with "0 logic" from 0 up to 1V and with "1 logic" from 3.5 up to 30V. |
| Digital output | 2 channels, open collector at 30 V with 30 mA max. load current. |

CHARACTERISTICS & PERFORMANCES

| | |
|--------------------------------------|--|
| Linearity error | +/-0.2%for TC, +/-0.1 % for RTD and resistance |
| Calibration error | The larger of +/-0.05% and 5 uV for mV and TC |
| Cold junction compens. error | +/-0.5°C |
| Thermal drift | +/-0.005%/°C |
| Cold junction compens. thermal drift | +/-0.02 °C/°C |
| Reverse polarity protection | 60 Vdc max. |
| Sampling frequency | 10 sampl/sec |
| Bandwidth | 4 Hz |
| Supply voltage | 10÷ 30 Vdc |
| Current consumption | <= 35 mA @ 24 Vdc |
| 3-way isolation | 2000 Vac, 50 Hz, 1 min. |
| Warm up time | 3 min. |
| Electromagnetic Compatibility (EMC) | In compliance with EN50081-2 and EN50082-2 |
| Operating temperature | - 10 ÷ 60 °C |
| Storage temperature | - 40 ÷ 85 °C |
| Relative humidity(not condensing) | 0 ÷ 90 % |
| Dimensions(W x H x T) in mm. | 100 x 120 x 17,5 |
| Weight | 100 g. approx. |

INPUT TYPES AND RANGES

| TC | | | Voltage | | | RTD | | |
|-------|---------|----------|------------|----------|----------|------------|---------|----------|
| Input | Min | Max | Input | Min | Max | Input | Min | Max |
| J | -210 °C | +1200 °C | +/- 50 mV | - 50 mV | + 50 mV | PT100 | -200 °C | +850 °C |
| K | -210 °C | +1372 °C | +/- 100 mV | - 100 mV | + 100 mV | PT1000 | -200 °C | +200 °C |
| R | -50 °C | +1767 °C | +/- 500 mV | - 500 mV | + 500 mV | NI100 | -80 °C | +180 °C |
| S | -50 °C | +1767 °C | +/-1000 mV | -1000 mV | +1000 mV | NI1000 | -60 °C | +150 °C |
| B | +400 °C | +1825 °C | Current | | | Resistance | | |
| E | -210 °C | +1000 °C | Input | Min | Max | Input | Min | Max |
| T | -210 °C | +400 °C | +/- 20 mA | - 20 mA | + 20 mA | Low | 0 Ohm | 500 Ohm |
| N | -210 °C | +1300 °C | | | | High | 0 Ohm | 2000 Ohm |

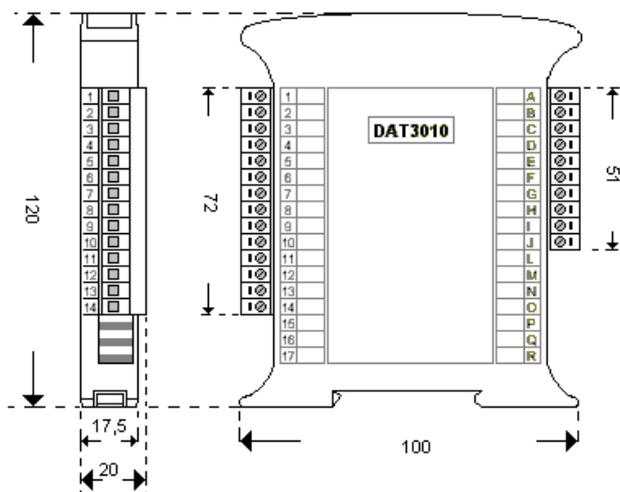
OPERATING INSTRUCTIONS

To put the device in operation it is necessary to make the wiring of power supply, inputs, serial line and digital I/O , as indicated in the "BLOCK DIAGRAM" hereafter illustrated. Then it is necessary to proceed to its configuration following the instructions listed in the "User Manual".

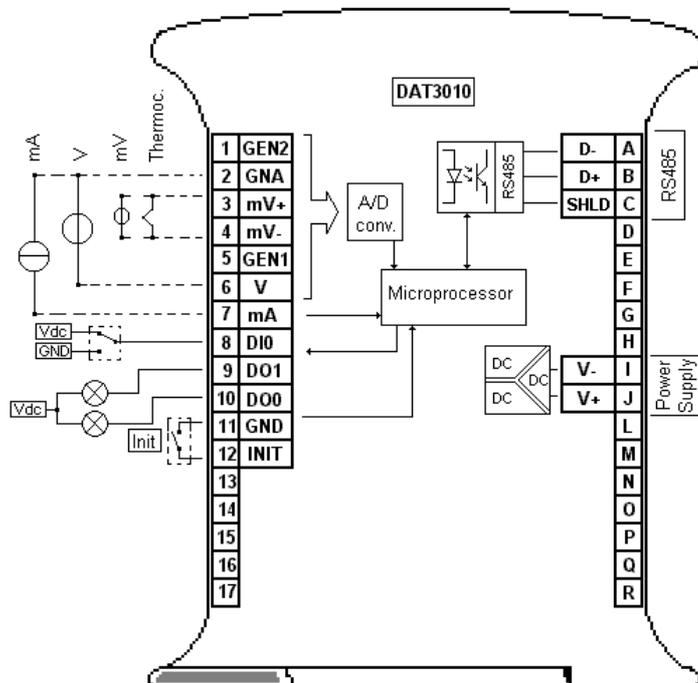
The various phases through which such procedure is performed are fundamentally the followings: set up of the data; set up of the timer watchdog; set up of the alarms; calibration if it is necessary. Then the module is ready for operation.

Please note that the use of pin INIT allows to start up the module, when its address and baud rate are not known, following the default settings listed in the "User manual".

MECHANICAL DIMENSIONS (mm.)



BLOCK DIAGRAM



HOW TO ORDER:

DAT 3010 -
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 | "A" = ASCII protocol
 | "M" = MODBUS protocol

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