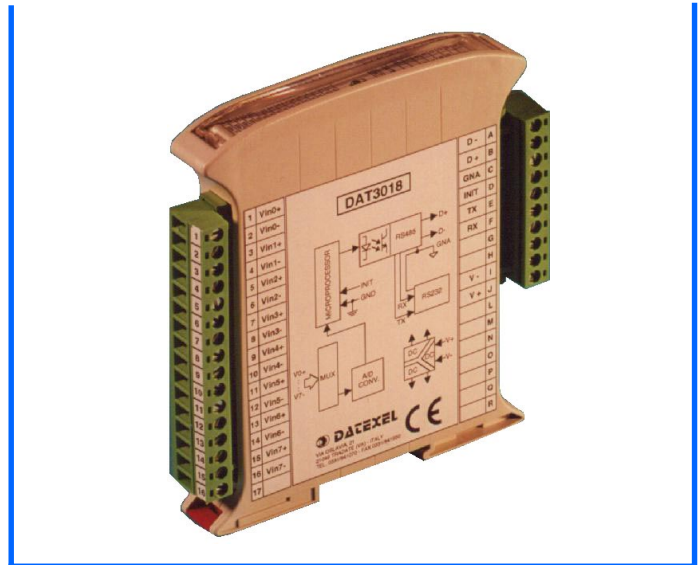


FEATURES

- Sensor-to-computer interface for remote data acquisition**
- 4 inputs for TC, mV and mA**
- Input signal configurable from remote host computer**
- Communication on RS-485 or RS-232 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

DAT3016 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 input signals from thermocouple, mV input and mA input signals (with external resistor) 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, which allows a fast development 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, connected to a 8 channel MUX, which is dedicated to the acquisition of the input signal with the needed accuracy. 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 8 input channel are not isolated between them. The management of the device and the message exchange with it are performed through simple commands sent to its communication port.

The DAT3016 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; 47 Ohm external resistor for current
Lead wire resistance influence < 0.8 uV/Ohm

CHARACTERISTICS & PERFORMANCES

Linearity error +/-0.2% for TC, +/-0.1 % for mV and mA
 Calibration error The larger of +/-0.05% and 5 uV for mV and TC ; +/-0.05% for mA
 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 time 0.5 to 2.0 sec. depending on number of channels on query
 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 TYPE AND RANGES

TC			Voltage		
Input	Min	Max	Input	Min	Max
J	-210 °C	+1200 °C	+/- 50 mV	- 50 mV	+ 50 mV
K	-210 °C	+1372 °C	+/- 100 mV	- 100 mV	+ 100 mV
R	-50 °C	+1767 °C	+/- 500 mV	- 500 mV	+ 500 mV
S	-50 °C	+1767 °C	+/-1000 mV	-1000 mV	+1000 mV
B	+400 °C	+1825 °C			
E	-210 °C	+1000 °C			
T	-210 °C	+400 °C			
N	-210 °C	+1300 °C			

Current		
Input	Min	Max
+/- 20 mA	- 20 mA	+ 20 mA

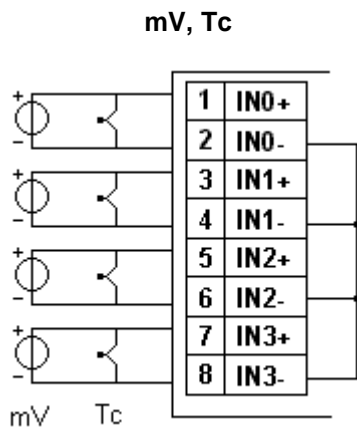
OPERATING INSTRUCTIONS

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".

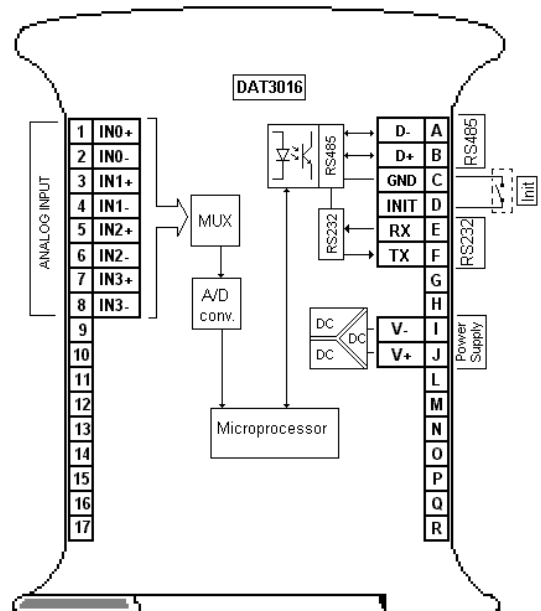
The various phases through which such procedure is performed are fundamentally the followings: set up of the data; set up of the timer watchdog; set up of the alarms; calibration if it is necessary. Then the module is ready for operation.

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".

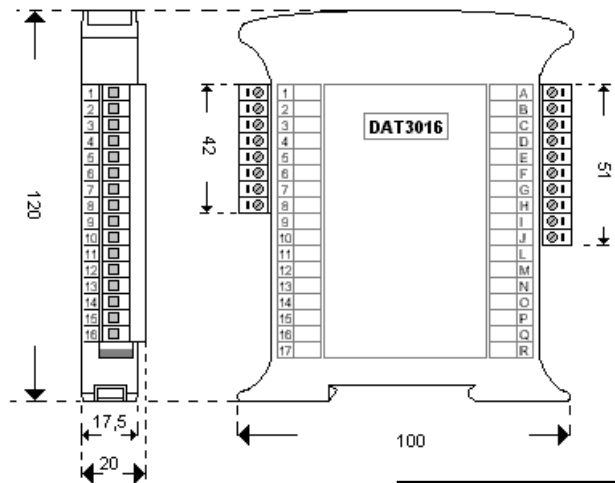
WIRING DIAGRAM



BLOCK DIAGRAM



MECHANICAL DIMENSIONS (mm.)



HOW TO ORDER:

DAT 3016 - -

- "485" = RS-485 communication
- "232" = RS-232 communication
- "A" = ASCII protocol
- "M" = MODBUS protocol

EDIT.12.04-REV.00