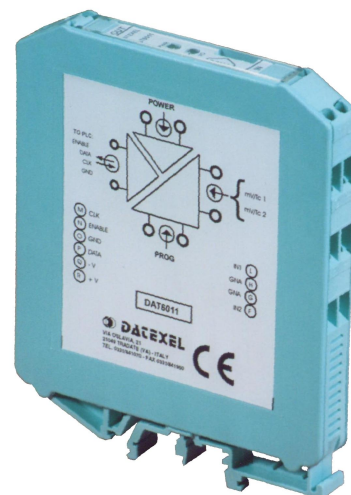


FEATURES

- Analog Signal Acquisition on PLC digital I/O
- Analog Input to any PLC, even microPLC
- Isolated to eliminate Ground Loops
- 16-bits resolution with high F.S. accuracy
- Tc or mV input
- 2 analog inputs operation
- 12.5 mm. thin profile housing

APPLICATIONS

- Factory Automation
- Building Automation
- Agriculture Automation
- Chemical Industry Measurement
- Security system
- Machine Control


GENERAL INFORMATION

The DAT6000 series is an evolution in the connection techniques of the analog signals to the PLC.

The devices of this Serie perform many functions such as: amplification, linearization, isolation, filtering and conversion of analog signals coming from various types of sensors, in a high resolution digital signal. The digital signal is transferred to the PLC by a bus connected at any one of controller's digital inputs. It is composed by a series of 16-bit 'words' containing the values of the analog signals to be measured. The transfer is PLC controlled by a clock signal coming from one its output ports. The query of device is made supplying to it an enabling signal (ENABLE) and a clock signal (CLK). If the ENABLE is high, a bit composing the reading is provided on the output (DATA) at every clock pulse.

Few and simple instructions loaded into the PLC enable it to acquire up to two analog signals on a single digital input.

Every reading cycle is composed of 1 synchronism bit followed of a 16 bit word for each analog input signal (channel). So each reading is composed of 33 bits. The rising front of the ENABLE signal, handled by the controller, resets the reading cycle, avoiding the reading of unused channels. The Enable signal can be used also to "multiplexing" more devices to the same digital input of the PLC.

The DAT6011 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 12.5 mm only, allows a high density mounting on DIN rail.

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

Channels:
Input type:

2 inputs for mV or Tc
 ± 50 mV to ± 1 V
Tc J, K, T, E, R, S, B, N

Calibration Accuracy:

$\pm 0.1\%$ F.S. for mV and Tc

Linearity:

$\pm 0.2\%$ for Tc

Cold Junction Compensation

$\pm 0.5^\circ\text{C}$

Thermal drift

$\pm 0.005\%$ F.S. / $^\circ\text{C}$

Lead wire influence

< 0.8 $\mu\text{V}/\Omega\text{m}$

Sampling rate

10 samp./sec

Band width

4 Hz

DIGITAL INTERFACE

Voltage on terminals:

24 Vdc typical (30 Vdc max.)

ON state:

> 9 Vdc

Input impedance (ENABLE, CLK):

4.7 K Ω m

Minimum output load (DATA):

560 Ω m

Maximum Clock signal frequency:

500 Hz

Rise time (Tr)

< 0.2 ms

SUPPLY

Supply Voltage

18 ÷ 30 Vdc

Supply Current

35 mA @ 24 Vdc

Polarity reversal protection

60 Vdc max.

3-way isolation

2000 Vac, 50 Hz, 1 min.

Electromagnetic Compatibility (EMC)

In compliance with EN50081-2 and EN50082-2

Operating temperature

- 10 ÷ 60 $^\circ\text{C}$

Storage temperature

- 40 ÷ 85 $^\circ\text{C}$

Relative humidity(not condensing)

0 ÷ 90 %

Dimensions(W x H x T) in mm.

90 x 98 x 12.5 mm

Weight

50 g. approx.

INPUT TYPES AND RANGES

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

OPERATING INSTRUCTIONS

To put the device in operation it is necessary to make the wiring of power supply, analog input and the digital output to the controller as indicated in the "BLOCK DIAGRAM" hereafter illustrated.

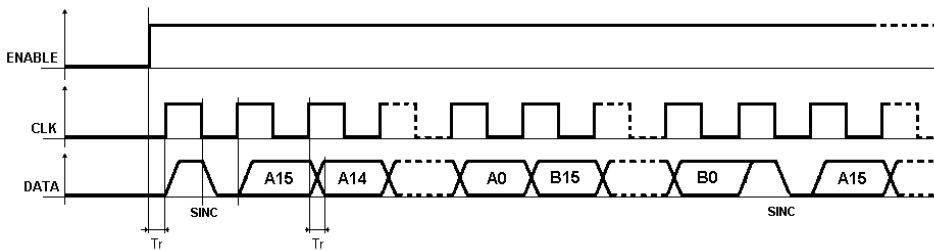
The device can be configured via dip-switch (SW1..SW3); so it is possible to set up to 8 different input types, as shown in the table below. The coupling between the dip-switch setting and relative input type can be programmed by using the 'PRO6000' software and the PRODAT-03 program interface unit. By this way it is possible to reconfigure the module for a wide range of input signal types at any time. Both the inputs have the same configuration. Consequently the input signals must be of the same type.

Moreover the CLK signal's digital filter can be set to 1ms or 10ms (half-period duration) by a dip-switch (SW4).

The above described settings can be defined at the order phase, getting a module already set to work; otherwise the device is supplied in compliance to the following settings:

Input : Table B, 50mV / Digital Filter : 1ms

DATA READING

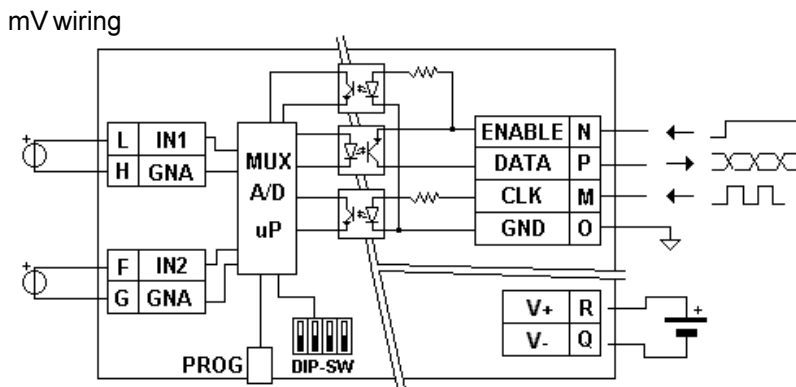


DIP-SWITCH CONFIGURATION

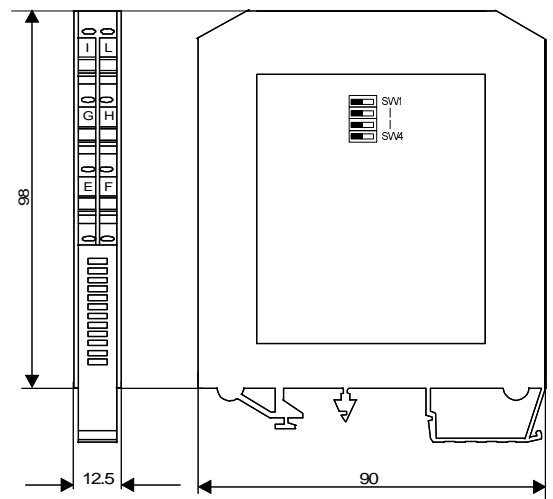
SW3	SW2	SW1	Input A Tab	Input B Tab
0	0	0	Tc J	50 mV
0	0	1	Tc K	100 mV
0	1	0	Tc T	500 mV
0	1	1	Tc E	1000 mV
1	0	0	Tc R	---
1	0	1	Tc S	---
1	1	0	Tc B	---
1	1	1	Tc N	---

SW4	Digital Filter (CLK)
0	1 ms (500 Hz)
1	10 ms (50 Hz)

BLOCK DIAGRAM



MECHANICAL DIMENSIONS (mm.)



HOW TO ORDER:

DAT 6011 - A - Tc K - 1ms

"A" = Tab A Inputs (Tc)

"B" = Tab B Inputs (mV)

Input type

Digital filter

EDIT.09.03-REV.02