

ELECTRONIC AND CONTROL PROCESS DEVICES



01 CATALOGUE



EXPERTISE RELIABILITY PROFESSIONALISM

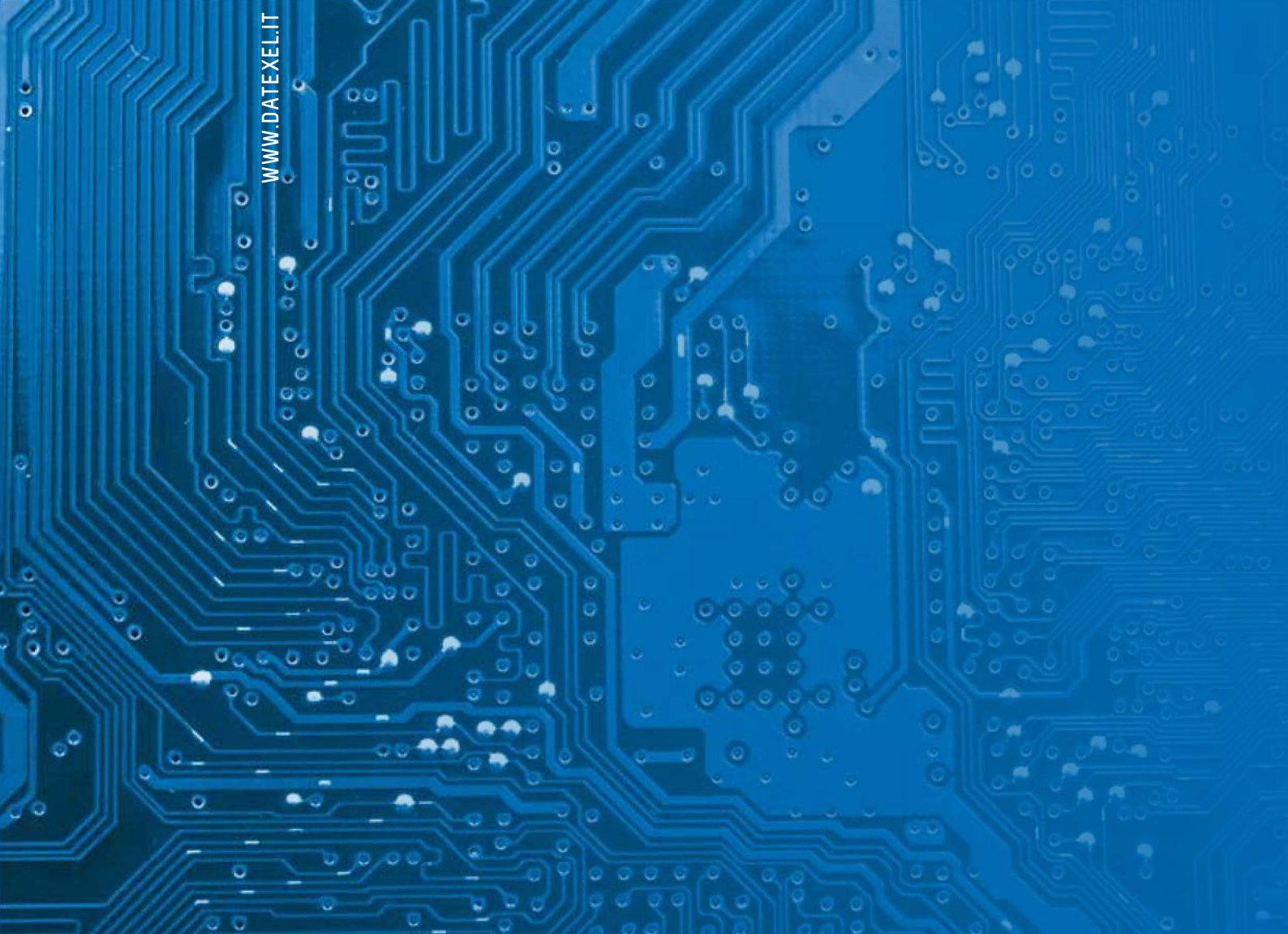
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ELECTRONIC AND CONTROL PROCESS DEVICES



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# Summary Series

|   |                                      |
|---|--------------------------------------|
| <b>01</b><br>Temperature and signal<br>converters (from <b>PAG.1</b> )  | SLIM<br>series                       |
| <b>02</b><br>Temperature and signal transmitters<br>and converters for DIN rail mounting (from <b>PAG.10</b> )  | SMART<br>series                      |
| <b>03</b><br>Temperature and signal transmitters and converters for use<br>in potentially explosive atmospheres in according to the<br>ATEX 94/9/EC directive  (from <b>PAG.18</b> ) | SMART ATEX<br>series                 |
| <b>04</b><br>Temperature and signal transmitters<br>and converters, isolators signal splitters (from <b>PAG.28</b> )  | P.D.S.<br>series                     |
| <b>05</b><br>Trip amplifiers for din<br>rail mounting (from <b>PAG.38</b> )   | DAT5028 / DAT5024<br>Trip amplifiers |
| <b>06</b><br>Signal transmitters and converters,<br>galvanic isolators (from <b>PAG.44</b> )  | DAT200 / DAT500<br>series            |
| <b>07</b><br>Data acquisition and control modules<br>(from <b>PAG.50</b> )  | DAT3000<br>series                    |
| <b>08</b><br>Intelligent modules<br>(from <b>PAG.64</b> )   | DAT9000<br>series                    |
| <b>09</b><br>A/d interface Modules for plc<br>"DAT6000 SERIES" (from <b>PAG.73</b> )  | DAT6000<br>series                    |
| <b>10</b><br>Temperature transmitters for DIN B<br>In-head mounting (from <b>PAG.78</b> )   | DAT1000<br>series                    |
| <b>11</b><br>Digital meters and<br>Indicators for panel mounting (from <b>PAG.84</b> )  | DAT 9550 / DAT8050<br>DAT700 series  |
| <b>12</b><br>MEANWELL DIN rail power supply.<br>Software and interfaces between device and PC (from <b>PAG.90</b> )   | Accessories<br>and software          |



- Temperature and signal converters **SLIM series**

(PAG.1 / PAG.9)



- Temperature and signal transmitters and converters **SMART series**

(PAG.10 / PAG.17)



- Temperature and signal transmitters and converters for use in potentially explosive atmospheres. **ATEX 94/9/EC**

(PAG.18 / PAG.27)



- Temperature and signal transmitters and converters for DIN rail mounting **P.D.S. series**

(PAG.28 / PAG.37)



- Trip amplifiers for din rail mounting **DAT5024/5028 series**

(PAG.38 / PAG.43)



- Signal transmitters and converters **DAT200 series**  
Galvanic isolators **DAT500 series**

(PAG.44 / PAG.49)





- Data acquisition and control modules **DAT3000 series**

(PAG.50 / PAG.63)



- Intelligent units **DAT9000 series**

(PAG.64 / PAG.71)



- A/D interface Modules for PLC **DAT6000 series**

(PAG.72 / PAG.77)



- Temperature transmitters for DIN B In-head mounting **DAT1000 series**

(PAG.78 / PAG.83)



- Digital meters and indicators for panel mounting **DAT9550, DAT8050, DAT700 series**

(PAG.84 / PAG.89)



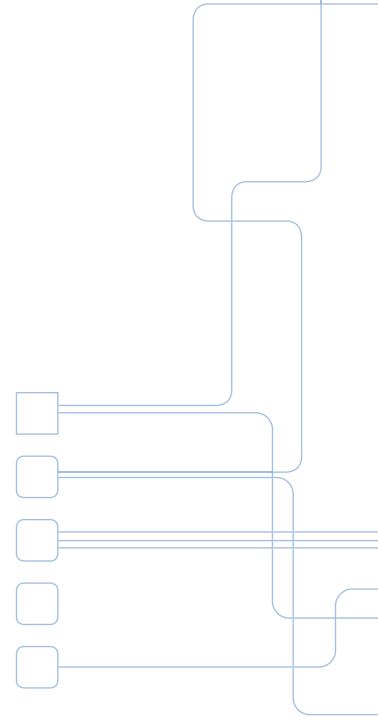
- Meanwell power supply **MDR series**

(PAG.92 / PAG.93)



- Accessories and software

(PAG.94 / PAG.95)



## The Company



The success of a company depends on many factors:  
**expertise, reliability, professionalism.**

If all this is also true for **DATEXEL**, nevertheless it is not enough to draw a full picture.

**DATEXEL** was founded in 1992 on the commitment and ambitions of a few partners as a small provincial company, and through the years became a **consolidated entity** that today **operates on national and international markets** as a **manufacturer of electronic equipment for industrial automation and process control.**

EXPERTISE • RELIABILITY • PROFESSIONALISM

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**Products that represent innovative solutions capable of satisfying the requirements of the main industrial automation sectors:**

- Energy production
- Oil
- Foodstuffs
- Pharmaceutical
- Chemical industry
- Water processing
- Automation & engineering
- Paper

## A wide range of products

The DATEXEL range is vast and complete: Transmitters, Temperature converters (both analogue and digital), Galvanic isolators, Signal splitters, Distributed I/O modules, A/D interface modules for PLC, Trip amplifiers, Power suppliers, Current loop isolators, Digital meters and Indicators.



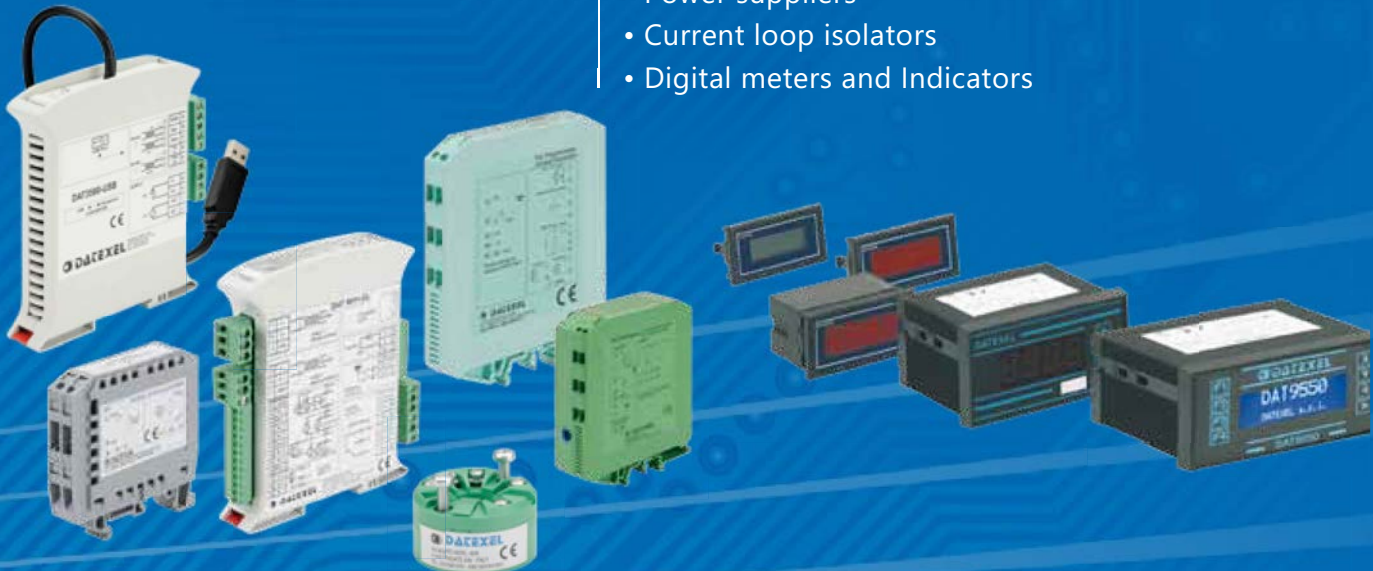
Products that represent innovative solutions capable of satisfying the requirements of the main industrial automation sectors: energy production, oil, foodstuffs, pharmaceutical, chemical industry, water processing, automation & engineering, paper.

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### The DATEXEL range is vast and complete:

- Transmitters
- Temperature converters (both analogue and digital)
- Galvanic isolators
- Signal splitters
- Distributed I/O modules
- A/D interface modules for PLC
- Trip amplifiers
- Power suppliers
- Current loop isolators
- Digital meters and Indicators





## The synergy

But behind the equipments and systems branded DATEXEL, there is the dedication and professionalism of our employees. All work processes (design, assembly, testing) are carried out within our company.

DATEXEL is organized:

- **DESIGN/ RESEARCH & DEVELOPMENT**
- **PRODUCTION**
- **SALES ITALY / ABROAD**
- **ADMINISTRATION and PURCHASING**
- **QUALITY**



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## Constant research and development

Technological innovation and the constant search for integrated solutions allow us to offer our customers an exclusive service: the work process is carried out automatically with the use of cutting-edge machinery (pick and place for assembly), and the products are 100% tested, also thanks to the use of specific software applications and instruments regularly subjected to calibration.

EXPERTISE • RELIABILITY • PROFESSIONALISM

## The team



All departments and offices are perfectly integrated and compatible one with the other. And each one contributes to the company's overall success.

Specifically, the **SALES, RESEARCH & DEVELOPMENT-DESIGN, PRODUCTION** units play a crucial role.

During the design phase, a team of specialized technicians assists the customer, identifying all its specific needs and requirements.

In the **PRODUCTION** department, duly trained personnel handle the manufacture and finishing of **DATEXEL** equipment, as well as the final testing (before the delivery).

In a constantly evolving sector such as industrial automation, **RESEARCH & DEVELOPMENT** represents a strategic department capable of acquiring and maintaining **COMPETITIVE ADVANTAGES**.

## The ambitions

The company's growth and expansion philosophy translates into a wider and wider product offer.

As a result, qualified personnel are always searching for customers and distributors in order to acquire new markets: not only in Italy, but in EC and non-EC countries too, specifically in developing countries such as Brazil, South Africa, Australia and China.

New and distant horizons then: the same horizons that DATEXEL is striving to reach in the areas of quality and innovation as well.



## Quality control

DATEXEL invests significantly in **RESEARCH & DEVELOPMENT**, obtaining first-class results thanks to the contribution of highly **specialized researchers and technicians**.

And let's not forget the **QUALITY** factor: **DATEXEL** has taken on the quality challenge, developing a careful study of production processes and paying great attention to materials and innovative systems.

Operating daily in full compliance with **quality standards** has made it possible for **DATEXEL** to obtain its certification according to Standard **UNI EN ISO 9001** (1996), subsequently converted into the current standard **ISO 9001:2008**.

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Another important acknowledgement is the ATEX 94/9/EC certification, concerning the type-approval of safety requirements for equipment and protection systems intended for use in potentially explosive atmospheres.

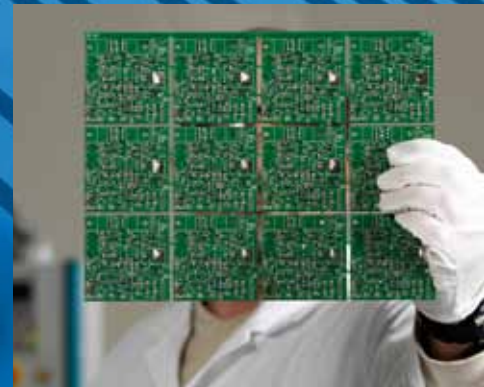
Lastly, in July 2006 DATEXEL conformed to the RoHS Directive (regulation 2002/95/EC) which sets restrictions on the use of certain hazardous substances when building various types of electric and electronic equipment, thus offering environmental guarantees as well with its products.





A well-structured organization, operating in facilities that cover a surface area of 450 square meters, with spaces efficiently subdivided into three macro areas: managerial, technical, production.

With regards to the sales area, DATEXEL relies on an in-company division that interacts with Customers on a daily basis in handling the usual commercial activities (issuing proposals or negotiating discounts or delivery times), through a capillary network of distributors (in Italy and abroad) that coordinates and provides assistance with an uninterrupted series of contacts.



The products of Datexel cover several type of applications due to a wide variety of conditions of use and ambient factors:

**Industries:**



Industrial automation and control process linked to all sectors.

**Food business:**



Food production, Cellars, dairies, pasta production, packaging and bottling lines.

**Energy:**



Thermal, hydropower, alternative energy (photovoltaic, solar, geothermal, wind, etc...)

**Board Machine - Industrial automation:**



Process control in steel plants, steel works, cement works, pharmaceutical, food and paper industry, etc.

**Water treatment:**



Water recycling, dams, remote control and management, data-logging.

**Petrochemical offshore:**



Process control in the petrochemical and offshore sectors.

ELECTRONIC AND CONTROL PROCESS DEVICES



[www.datexel.it](http://www.datexel.it)

PRODUCT CATALOGUE



SLIM Series

01

SMART Series

02

SMART ATEX Series

03

P.D.S. Series

04

Trip amplifiers  
DAT5028 / DAT5024

05

DAT200 / DAT500  
Series

06

DAT3000  
Series

07

DAT9000  
Series

08

DAT6000  
Series

09

DAT1000  
Series

10

DAT 9550 / DAT8050  
DAT700 Series

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Accessories  
and software

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## Temperature and signal converters "SLIM SERIES"

The line of converters "SLIM series" has been designed to provide to the user the highest flexibility in the signals conversion.

The series is composed of:

- Converters for universal input with double output and trip amplifier (**DAT4530**)
- Single channel converters dedicated for typology of input (**DAT4531**)
- Double channel converters (two independent inputs and outputs) dedicated for typology of input (**DAT4532**)
- Signal splitters dedicated for typology of input (**DAT4631**)
- Mathematical modules (**DAT4632D**)
- Frequency converters (**DAT4540**)

It is possible to program the devices either via dip-switches to set the most common input and output ranges or via Personal Computer using the software DATESOFT by which the user can personalize the input and output ranges for his own necessities.

**All of these features are available in only 12.5 mm thickness.**

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double output & trip amplifier
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- 04 • DAT 4531 C**  
Isolated converter for PTC/NTC/Pot configurable by Dip-Switch or PC  
**DAT 4531 D**  
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Isolated Splitter / Converter for voltage and current configurable by Dip-Switch or PC  
**DAT 4632 D**  
Isolated mathematical module for voltage and current input configurable by Dip-Switch or PC

SLIM SERIES

01



**SLIM series** Temperature and signal converters

**DAT4530**

**GENERAL DESCRIPTION**

The universal isolated converter DAT 4530 is able to measure and linearise voltage, current and resistance signals, potentiometers and the standard thermocouples and Sensors with, if required, the cold junction compensation, the wires compensation. For mV, V and mA input it is possible to set an option for the fast sampling (option HS) or to extract the square root of the measured signal (option SQRT). In function of programming, the measured values are converted in a current or voltage signal on the two outputs. Moreover an output contact is available as trip alarm. The device guarantees high accuracy and performances stability both versus time and temperature.

**FEATURES**

- Universal configurable input for: mV, TC, RTD, Res, Potentiometer, V and mA
- Two outputs configurable in current or voltage
- Trip alarm
- Configurable by dip-switch or PC

- High accuracy
- On-field reconfigurable
- Galvanic isolation among all the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035


**Application areas**


| POWER SUPPLY               |              | ISOLATION          |                        | TEMPERATURE AND HUMIDITY |                |
|----------------------------|--------------|--------------------|------------------------|--------------------------|----------------|
| Power supply voltage       | 20 .. 30 Vdc | Among all the ways | 1500 Vac, 50 Hz, 1 min | Operative temperature    | -20°C .. +60°C |
| Rever. polarity protection | 60 Vdc max)  |                    |                        | Storage temperature      | -40°C .. +85°C |
|                            |              |                    |                        | Humidity (not condensed) | 0 .. 90 %      |

| CURRENT CONSUMPTION |            | EMC (for industrial environments)  |              | ALARM TRIP                   |              | HOUSING         |                             |
|---------------------|------------|------------------------------------|--------------|------------------------------|--------------|-----------------|-----------------------------|
| Current output      | 90 mA max. | <b>DIRECTIVE : 2004 / 108 / EC</b> |              | Contact                      | SPST         | Material        | Self-extinguishing plastic  |
| Voltage output      | 30 mA max. | Immunity                           | EN 61000-6-2 | <b>Max Load (resistive):</b> |              | Dimensions (mm) | W x L x H : 90 x 112 x 12.5 |
|                     |            | Emission                           | EN 61000-6-4 | Voltage                      | 48 V (ac/dc) |                 |                             |
|                     |            |                                    |              | Current                      | 0.4 A        | Weight          | about 90 g.                 |

| INPUT                         |                                 |         |          |
|-------------------------------|---------------------------------|---------|----------|
| Input type                    | Min                             | Max     | Span min |
| <b>TC (CJC int./ext.)</b>     |                                 |         |          |
| J                             | -200°C                          | 1200°C  | 100°C    |
| K                             | -200°C                          | 1300°C  | 100°C    |
| S                             | 0°C                             | 1750°C  | 400°C    |
| R                             | 0°C                             | 1750°C  | 400°C    |
| B                             | 0°C                             | 1850°C  | 400°C    |
| E                             | -200°C                          | 1000°C  | 100°C    |
| T                             | -200°C                          | 400°C   | 100°C    |
| N                             | -200°C                          | 1300°C  | 100°C    |
| <b>Voltage</b>                |                                 |         |          |
| mV                            | -100 mV                         | +90 mV  | 5 mV     |
| mV                            | -100 mV                         | +200 mV | 10 mV    |
| mV                            | -100 mV                         | +800 mV | 20 mV    |
| <b>RTD (2, 3, 4 wires)</b>    |                                 |         |          |
| Pt100                         | -200°C                          | 850°C   | 50°C     |
| Pt1000                        | -85°C                           | 185°C   | 30°C     |
| Ni100                         | -60°C                           | 180°C   | 50°C     |
| Ni1000                        | -60°C                           | 150°C   | 30°C     |
| <b>RES. (2, 3, 4 wires)</b>   | 0 Ω                             | 500 Ω   | 50 Ω     |
|                               | 0 Ω                             | 2000 Ω  | 50 Ω     |
| <b>Pot. (Rnom. &lt; 50KΩ)</b> | 0 %                             | 100 %   | 10 %     |
| <b>Voltage</b>                | -10 V                           | 10 V    | 1 V      |
| <b>Current</b>                | 0 mA                            | 20 mA   | 1 mA     |
| <b>Calibration (1)</b>        |                                 |         |          |
| mV, TC                        | the higher of ±0.1 % and ±12 μV |         |          |
| RTD                           | the higher of ±0.1 % and ±0.2°C |         |          |
| Res.                          | the higher of ±0.1 % and ±0.15  |         |          |
| Potentiometer                 | ± 0.05 % f.s.                   |         |          |
| Volt                          | the higher of ±0.1 % and ± 2 mV |         |          |
| mA                            | the higher of ±0.1 % and ± 6 μA |         |          |
| mV, V, mA                     | ± 0.5 % f.s (opt. HS)           |         |          |

(1) referred to the input Span (difference between max. and min.)

| Linearity (1)                        |                               |
|--------------------------------------|-------------------------------|
| TC, RTD                              | ± 0.1 % f.s.                  |
| mV, V, mA                            | ± 0.05 % f.s.                 |
| <b>Input impedance</b>               |                               |
| TC, mV                               | >= 10 MΩ                      |
| mA                                   | ~22 Ω                         |
| <b>Sensor excitation current</b>     |                               |
| RTD, Res                             | 400 μA                        |
| Voltage Aux.                         | >18 V @ 20 mA                 |
| <b>Line resistance influence (1)</b> |                               |
| TC, mV                               | <=0.8 μV/Ohm                  |
| RTD 3 wires                          | 0.05%/Ω (50 Ω max balanced)   |
| RTD 4 wires                          | 0.005%/Ω (100 Ω max balanced) |
| <b>Thermal drift (1)</b>             |                               |
| Full scale                           | ± 0.01 % / °C                 |
| CJC                                  | ± 0.01 % / °C                 |
| <b>CJC compensation</b>              | ± 0.5°C                       |

| OUTPUT (2 CHANNELS)                   |                |       |          |
|---------------------------------------|----------------|-------|----------|
| Output type                           | Min            | Max   | Span min |
| Current                               | 0 mA           | 20 mA | 4 mA     |
| Voltage                               | 0 V            | 10 V  | 1 V      |
| <b>Output calibration</b>             |                |       |          |
| Current                               | ± 7 μA         |       |          |
| Voltage                               | ± 5 mV         |       |          |
| <b>Voltage Aux.</b>                   | >12V @ 20 mA   |       |          |
| <b>Burn-out values</b>                |                |       |          |
| Max. output value                     | 22 mA or 11 V  |       |          |
| Min. output value                     | 0 mA or -0.6 V |       |          |
| <b>Output load Resistance - Rload</b> |                |       |          |
| Current output                        | < 500 Ω        |       |          |
| Voltage output                        | > 10 KΩ        |       |          |
| Short circuit current                 | 30 mA max      |       |          |
| <b>Response time (10÷ 90% of F.S)</b> |                |       |          |
| about 400 ms                          |                |       |          |
| 100 ms (opt. HS)                      |                |       |          |



## ISOLATED CONVERTER FOR TC AND mV CONFIGURABLE BY DIP-SWITCH OR PC

**DAT 4531 A**



### GENERAL DESCRIPTION

The isolated converter DAT 4531 A is able to measure and linearise the standard thermocouples with internal or external cold junction compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for TC and mV
- Configurable output in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 35 mA max. |
| Voltage output | 20 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

#### TC (CJC int./ext.)

|   |        |        |       |
|---|--------|--------|-------|
| J | -200°C | 1200°C | 100°C |
| K | -200°C | 1300°C | 100°C |
| S | 0°C    | 1750°C | 400°C |
| R | 0°C    | 1750°C | 400°C |
| B | 0°C    | 1850°C | 400°C |
| E | -200°C | 1000°C | 100°C |
| T | -200°C | 400°C  | 100°C |
| N | -200°C | 1300°C | 100°C |

#### Voltage

|    |         |         |       |
|----|---------|---------|-------|
| mV | -100 mV | +90 mV  | 5 mV  |
| mV | -100 mV | +200 mV | 10 mV |
| mV | -100 mV | +800 mV | 20 mV |

#### Input calibration (1)

|        |                            |
|--------|----------------------------|
| mV, TC | > ± 0.1 % f.s. and ± 12 uV |
|--------|----------------------------|

#### Linearity (1)

|    |              |
|----|--------------|
| TC | ± 0.2 % f.s. |
| mV | ± 0.1 % f.s. |

#### Input impedance (1)

|        |          |
|--------|----------|
| TC, mV | >= 10 MΩ |
|--------|----------|

### Line resistance influence (1)

|        |               |
|--------|---------------|
| TC, mV | <= 0.8 uV/Ohm |
|--------|---------------|

### Thermal drift (1)

|            |              |
|------------|--------------|
| Full scale | ± 0.01% / °C |
| CJC        | ± 0.01% / °C |

### CJC compensation

|  |         |
|--|---------|
|  | ± 0.5°C |
|--|---------|

### OUTPUT

| Output type | Min | Max | Span min |
|-------------|-----|-----|----------|
|-------------|-----|-----|----------|

|         |      |       |      |
|---------|------|-------|------|
| Current | 0 mA | 20 mA | 4 mA |
| Voltage | 0 V  | 10 V  | 1 V  |

### Output calibration

|         |        |
|---------|--------|
| Current | ± 7 uA |
| Voltage | ± 5 mV |

### Burn-out values

|                   |                |
|-------------------|----------------|
| Max. output value | 22 mA or 11 V  |
| Min. output value | 0 mA or -0.6 V |

### Output load Resistance - Rload

|                |         |
|----------------|---------|
| Current output | < 500 Ω |
| Voltage output | > 10 KΩ |

### Short circuit current

|  |           |
|--|-----------|
|  | 26 mA max |
|--|-----------|

### Response time (10÷90% of f.s.)

|  |              |
|--|--------------|
|  | about 500 ms |
|--|--------------|

(1) referred to the input Span (difference between max. and min.)

## ISOLATED CONVERTER FOR RTD AND RESISTANCE CONFIGURABLE BY DIP-SWITCH OR PC

**DAT 4531 B**



### GENERAL DESCRIPTION

The isolated converter DAT 4531 B is able to measure and linearise the standard RTD and resistances with 2 or 3 wires cable compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for RTD and resistance
- Configurable output in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 35 mA max. |
| Voltage output | 20 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

#### RTD (2, 3 wires)

|                   |        |        |      |
|-------------------|--------|--------|------|
| Pt100             | -200°C | 850°C  | 50°C |
| Pt1000            | -85°C  | 185°C  | 30°C |
| Ni100             | -60°C  | 180°C  | 50°C |
| Ni1000            | -60°C  | 150°C  | 30°C |
| RES. (2, 3 wires) | 0 Ω    | 500 Ω  | 50 Ω |
|                   | 0 Ω    | 2000 Ω | 50 Ω |

#### Calibration (1)

|           |                                       |
|-----------|---------------------------------------|
| RTD       | the higher of ±0.1 % f.s. and ±0.2°C  |
| Low Res.  | the higher of ±0.1 % f.s. and ±0.15 Ω |
| High Res. | the higher of ±0.2 % f.s. and ±1 Ω    |

#### Linearity (1)

|     |              |
|-----|--------------|
| RTD | ± 0.1 % f.s. |
|-----|--------------|

#### Sensor excitation current

|          |        |
|----------|--------|
| RTD, Res | 500 uA |
|----------|--------|

#### Line resistance influence (1)

|             |                             |
|-------------|-----------------------------|
| RTD 3 wires | 0.05%/Ω (50 Ω max balanced) |
|-------------|-----------------------------|

#### Thermal drift (1)

|            |              |
|------------|--------------|
| Full scale | ± 0.01% / °C |
|------------|--------------|

### OUTPUT

| Output type | Min | Max | Span min |
|-------------|-----|-----|----------|
|-------------|-----|-----|----------|

|         |      |       |      |
|---------|------|-------|------|
| Current | 0 mA | 20 mA | 4 mA |
| Voltage | 0 V  | 10 V  | 1 V  |

### Output calibration

|         |        |
|---------|--------|
| Current | ± 7 uA |
| Voltage | ± 5 mV |

### Burn-out values

|                   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

### Output load Resistance - Rload

|                |         |
|----------------|---------|
| Current output | < 500 Ω |
| Voltage output | > 10 KΩ |

### Short circuit current

|  |           |
|--|-----------|
|  | 26 mA max |
|--|-----------|

### Response time (10÷90% of f.s.)

|  |              |
|--|--------------|
|  | about 500 ms |
|--|--------------|

(1) referred to the input Span (difference between max. and min.)

**DAT 4531 C**



**GENERAL DESCRIPTION**

The isolated converter DAT 4531 C is able to measure and linearise the standard PTC and NTC sensors and potentiometers. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

**FEATURES**

- Configurable input for PTC, NTC and Pot.
- Configurable output in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 35 mA max. |
| Voltage output | 20 mA max. |

**ISOLATION**

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

**TEMPERATURE AND HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE : 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT**

| Input type                       | Min                                  | Max   | Span min |
|----------------------------------|--------------------------------------|-------|----------|
| <b>PTC</b>                       |                                      |       |          |
| KTY81-210                        | -55°C                                | 150°C | 50°C     |
| KTY81-220                        | -55°C                                | 150°C | 50°C     |
| KTY84-130                        | -40°C                                | 300°C | 50°C     |
| KTY84-150                        | -40°C                                | 300°C | 50°C     |
| <b>NTC</b>                       |                                      |       |          |
| Coster 10K                       | -10°C                                | 100°C | 50°C     |
| Coster 1K                        | -30°C                                | 40°C  | 25°C     |
| Pot. (Rnom. < 50KΩ)              | 0 %                                  | 100 % | 10 %     |
| <b>Calibration (1)</b>           |                                      |       |          |
| PTC, NTC                         | the higher of ±0.1 % f.s. and ±0.2°C |       |          |
| Potentiometer                    | ± 0.05 % f.s.                        |       |          |
| <b>Linearity (1)</b>             |                                      |       |          |
| PTC, NTC                         | ± 0.1 % f.s.                         |       |          |
| <b>Sensor excitation current</b> |                                      |       |          |
| PTC,NTC                          | 500 uA                               |       |          |
| <b>Thermal drift (1)</b>         |                                      |       |          |
| Full scale                       | ± 0.01% / °C                         |       |          |

(1) referred to the input Span (difference between max. and min.)

**OUTPUT**

| Output type                           | Min            | Max   | Span min |
|---------------------------------------|----------------|-------|----------|
| Current                               | 0 mA           | 20 mA | 4 mA     |
| Voltage                               | 0 V            | 10 V  | 1 V      |
| <b>Output calibration</b>             |                |       |          |
| Current                               | ± 7 uA         |       |          |
| Voltage                               | ± 5 mV         |       |          |
| <b>Burn-out values</b>                |                |       |          |
| Max. output value                     | 22 mA or 11 V  |       |          |
| Min. output value                     | 0 mA or -0.6 V |       |          |
| <b>Output load Resistance - Rload</b> |                |       |          |
| Current output                        | < 500 Ω        |       |          |
| Voltage output                        | > 10 KΩ        |       |          |
| Short circuit current                 | 26 mA max      |       |          |
| <b>Response time (10÷90% of f.s.)</b> | about 500 ms   |       |          |

SLIM SERIES

4

**ISOLATED CONVERTER FOR VOLTAGE AND CURRENT CONFIGURABLE BY DIP-SWITCH OR PC**

**DAT 4531 D**



**GENERAL DESCRIPTION**

The isolated converter DAT 4531 D is able to measure voltage and current signals. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

**FEATURES**

- Configurable input for voltage and current
- Configurable output in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 35 mA max. |
| Voltage output | 20 mA max. |

**ISOLATION**

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

**TEMPERATURE AND HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE : 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT**

| Input type               | Min                                  | Max   | Span min |
|--------------------------|--------------------------------------|-------|----------|
| Voltage                  | 0 V                                  | 10 V  | 1V       |
| Current                  | 0 mA                                 | 20 mA | 1 mA     |
| <b>Calibration (1)</b>   |                                      |       |          |
| Volt                     | the higher of ±0.1 % f.s. and ± 2 mV |       |          |
| mA                       | the higher of ±0.1 % f.s. and ± 6 uA |       |          |
| <b>Linearity (1)</b>     |                                      |       |          |
| V, mA                    | ± 0.05 % f.s.                        |       |          |
| <b>Input impedance</b>   |                                      |       |          |
| Volt                     | ≥ 1 MΩ                               |       |          |
| Current                  | ≤ 50 Ω                               |       |          |
| <b>Thermal drift (1)</b> |                                      |       |          |
| Full scale               | ± 0.01% / °C                         |       |          |

**OUTPUT**

| Output type                           | Min             | Max   | Span min |
|---------------------------------------|-----------------|-------|----------|
| Current                               | 0 mA            | 20 mA | 4 mA     |
| Voltage                               | 0 V             | 10 V  | 1 V      |
| <b>Output calibration</b>             |                 |       |          |
| Current                               | ± 7 uA          |       |          |
| Voltage                               | ± 5 mV          |       |          |
| <b>Burn-out values</b>                |                 |       |          |
| Max. output value                     | 22 mA or 10.6 V |       |          |
| Min. output value                     | 0 mA or -0.6 V  |       |          |
| <b>Output load Resistance - Rload</b> |                 |       |          |
| Current output                        | < 500 Ω         |       |          |
| Voltage output                        | > 10 KΩ         |       |          |
| Short circuit current                 | 26 mA max       |       |          |
| <b>Response time (10÷90% of f.s.)</b> | about 100 ms    |       |          |

(1) referred to the input Span (difference between max. and min.)

**DOUBLE CHANNEL, ISOLATED CONVERTER FOR TC AND mV CONFIGURABLE BY DIP-SWITCH OR PC**

**DAT 4532 A**



**GENERAL DESCRIPTION**

The isolated converter DAT 4532 A is able to measure and linearise the standard thermocouples with internal or external cold junction compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature. The double channel allows the high density mounting where is necessary to reduce the encumbrances.

**FEATURES**

- Configurable input for TC and mV
- Configurable output in Current or Voltage
- Configuration by PC allows to program the two channels with two independent settings
- Double channel in the same enclosure
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

**ISOLATION**

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

**TEMPERATURE AND HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE : 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT (2 CHANNELS)**

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

| TC (CJC int./ext.) |        |        |       |
|--------------------|--------|--------|-------|
| J                  | -200°C | 1200°C | 100°C |
| K                  | -200°C | 1300°C | 100°C |
| S                  | 0°C    | 1750°C | 400°C |
| R                  | 0°C    | 1750°C | 400°C |
| B                  | 0°C    | 1850°C | 400°C |
| E                  | -200°C | 1000°C | 100°C |
| T                  | -200°C | 400°C  | 100°C |
| N                  | -200°C | 1300°C | 100°C |

| Voltage |         |         |       |
|---------|---------|---------|-------|
| mV      | -100 mV | +90 mV  | 5 mV  |
| mV      | -100 mV | +200 mV | 10 mV |
| mV      | -100 mV | +800 mV | 20 mV |

| Input calibration (1) |                                      |
|-----------------------|--------------------------------------|
| mV, TC                | the higher of ±0.1 % f.s. and ±12 uV |

| Linearity (1) |              |
|---------------|--------------|
| TC            | ± 0.2 % f.s. |
| mV            | ± 0.1 % f.s. |

| Input impedance |          |
|-----------------|----------|
| TC, mV          | >= 10 MΩ |

**Line resistance influence (1)**

|        |              |
|--------|--------------|
| TC, mV | <=0.8 uV/Ohm |
|--------|--------------|

**Thermal drift (1)**

|                         |               |
|-------------------------|---------------|
| Full scale              | ± 0.01 % / °C |
| CJC                     | ± 0.01 % / °C |
| <b>CJC compensation</b> | ± 0.5°C       |

**OUTPUT (2 CHANNELS)**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | 4 mA     |
| Voltage     | 0 V  | 10 V  | 1 V      |

| Output calibration |        |
|--------------------|--------|
| Current            | ± 7 uA |
| Voltage            | ± 5 mV |

| Burn-out values   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

| Output load Resistance - Rload |           |
|--------------------------------|-----------|
| Current output                 | < 500 Ω   |
| Voltage output                 | > 10 KΩ   |
| Short circuit current          | 26 mA max |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

(1) referred to the input Span (difference between max. and min.)

**DOUBLE CHANNEL, ISOLATED CONVERTER FOR RTD AND RESISTANCE CONFIGURABLE BY DIP-SWITCH OR PC**

**DAT 4532 B**



**GENERAL DESCRIPTION**

The isolated double channel converter DAT 4532 B is able to measure and linearise the standard RTD and resistances with 2 or 3 wires cable compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature. The double channel allows the high density mounting where is necessary to reduce the encumbrances.

**FEATURES**

- Configurable input for RTD and resistance
- Configurable output in current or voltage
- Double channel in the same enclosure
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

**ISOLATION**

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

**TEMPERATURE AND HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE : 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT (2 CHANNELS)**

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

| RTD (2, 3 wires)         |        |        |      |
|--------------------------|--------|--------|------|
| Pt100                    | -200°C | 850°C  | 50°C |
| Pt1000                   | -85°C  | 185°C  | 30°C |
| Ni100                    | -60°C  | 180°C  | 50°C |
| Ni1000                   | -60°C  | 150°C  | 30°C |
| <b>RES. (2, 3 wires)</b> | 0 Ω    | 500 Ω  | 50 Ω |
|                          | 0 Ω    | 2000 Ω | 50 Ω |

| Calibration (1) |                                       |
|-----------------|---------------------------------------|
| RTD             | the higher of ±0.1 % f.s. and ±0.2°C  |
| Low Res.        | the higher of ±0.1 % f.s. and ±0.15 Ω |
| High Res.       | the higher of ±0.2 % f.s. and ± 1 Ω   |

| Linearity (1) |              |
|---------------|--------------|
| RTD           | ± 0.1 % f.s. |

| Sensor excitation current |        |
|---------------------------|--------|
| RTD, Res                  | 500 uA |

| Line resistance influence (1) |                              |
|-------------------------------|------------------------------|
| RTD 3 wires                   | 0.05 %/Ω (50 Ω max balanced) |

| Thermal drift (1) |               |
|-------------------|---------------|
| Full scale        | ± 0.01 % / °C |

**OUTPUT (2 CHANNELS)**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | 4 mA     |
| Voltage     | 0 V  | 10 V  | 1 V      |

| Output calibration |        |
|--------------------|--------|
| Current            | ± 7 uA |
| Voltage            | ± 5 mV |

| Burn-out values   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

| Output load Resistance - Rload |           |
|--------------------------------|-----------|
| Current output                 | < 500 Ω   |
| Voltage output                 | > 10 KΩ   |
| Short circuit current          | 26 mA max |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

| Response time (10÷90% of f.s.) |              |
|--------------------------------|--------------|
|                                | about 500 ms |

SLIM SERIES

5



## DOUBLE CHANNEL, ISOLATED CONVERTER FOR PTC/NTC/POT CONFIGURABLE BY DIP-SWITCH OR PC

DAT 4532 C



### GENERAL DESCRIPTION

The isolated double channel converter DAT 4532 C is able to measure and linearise the standard PTC and NTC sensors and potentiometers. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature. The double channel allows the high density mounting where is necessary to reduce the encumbrances.

### FEATURES

- Configurable input for PTC, NTC and Pot.
- Configurable output in current or voltage
- Double channel in the same enclosure
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

|                                    |              |
|------------------------------------|--------------|
| <b>DIRECTIVE : 2004 / 108 / EC</b> |              |
| Immunity                           | EN 61000-6-2 |
| Emission                           | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT (2 CHANNELS)

| Input type                       | Min                                   | Max   | Span min |
|----------------------------------|---------------------------------------|-------|----------|
| <b>PTC</b>                       |                                       |       |          |
| KTY81-210                        | -55°C                                 | 150°C | 50°C     |
| KTY81-220                        | -55°C                                 | 150°C | 50°C     |
| KTY84-130                        | -40°C                                 | 300°C | 50°C     |
| KTY84-150                        | -40°C                                 | 300°C | 50°C     |
| <b>NTC</b>                       |                                       |       |          |
| Coster 10K                       | -10°C                                 | 100°C | 50°C     |
| Coster 1K                        | -30°C                                 | 40°C  | 25°C     |
| Pot. (Rnom. < 50KΩ)              | 0 %                                   | 100 % | 10 %     |
| <b>Calibration (1)</b>           |                                       |       |          |
| PTC, NTC                         | the higher of ±0.1 % f.s. and ±0.2 °C |       |          |
| Potentiometer                    | ± 0.05 % f.s.                         |       |          |
| <b>Linearity (1)</b>             |                                       |       |          |
| PTC, NTC                         | ± 0.1 % f.s.                          |       |          |
| <b>Sensor excitation current</b> |                                       |       |          |
| PTC,NTC                          | 500 uA                                |       |          |
| <b>Thermal drift (1)</b>         |                                       |       |          |
| Full scale                       | ± 0.01 % / °C                         |       |          |

(1) referred to the input Span (difference between max. and min.)

### OUTPUT (2 CHANNELS)

| Output type                           | Min             | Max   | Span min |
|---------------------------------------|-----------------|-------|----------|
| Current                               | 0 mA            | 20 mA | 4 mA     |
| Voltage                               | 0 V             | 10 V  | 1 V      |
| <b>Output calibration</b>             |                 |       |          |
| Current                               | ± 7 uA          |       |          |
| Voltage                               | ± 5 mV          |       |          |
| <b>Burn-out values</b>                |                 |       |          |
| Max. output value                     | 22 mA or 10.6 V |       |          |
| Min. output value                     | 0 mA or -0.6 V  |       |          |
| <b>Output load Resistance - Rload</b> |                 |       |          |
| Current output                        | < 500 Ω         |       |          |
| Voltage output                        | > 10 KΩ         |       |          |
| Short circuit current                 | 26 mA max       |       |          |
| <b>Response time (10÷90% of f.s.)</b> | about 500 ms    |       |          |

SLIM SERIES

6

## DOUBLE CHANNEL, ISOLATED CONVERTER FOR VOLTAGE AND CURRENT CONFIGURABLE BY DIP-SWITCH OR PC

DAT 4532 D



### GENERAL DESCRIPTION

The isolated converter DAT 4532 D is able to measure voltage and current signals. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature. The double channel allows the high density mounting where is necessary to reduce the encumbrances.

### FEATURES

- Configurable input for voltage and current
- Configurable output in current or voltage
- Double channel in the same enclosure
- Configurable by dip-switch or PC
- Two independent channels
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

|                                    |              |
|------------------------------------|--------------|
| <b>DIRECTIVE : 2004 / 108 / EC</b> |              |
| Immunity                           | EN 61000-6-2 |
| Emission                           | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT (2 CHANNELS)

| Input type               | Min                                  | Max   | Span min |
|--------------------------|--------------------------------------|-------|----------|
| Voltage                  | 0 V                                  | 10 V  | 1 V      |
| Current                  | 0 mA                                 | 20 mA | 1 mA     |
| <b>Calibration (1)</b>   |                                      |       |          |
| Volt                     | the higher of ±0.1 % f.s. and ± 2 mV |       |          |
| mA                       | the higher of ±0.1 % f.s. and ± 6 uA |       |          |
| <b>Linearity (1)</b>     |                                      |       |          |
| V, mA                    | ± 0.05 % f.s.                        |       |          |
| <b>Input impedance</b>   |                                      |       |          |
| Volt                     | ≥ 1 MΩ                               |       |          |
| Current                  | ≤ 50 Ω                               |       |          |
| <b>Thermal drift (1)</b> |                                      |       |          |
| Full scale               | ± 0.01 % / °C                        |       |          |

### OUTPUT (2 CHANNELS)

| Output type                           | Min             | Max   | Span min |
|---------------------------------------|-----------------|-------|----------|
| Current                               | 0 mA            | 20 mA | 4 mA     |
| Voltage                               | 0 V             | 10 V  | 1 V      |
| <b>Output calibration</b>             |                 |       |          |
| Current                               | ± 7 uA          |       |          |
| Voltage                               | ± 5 mV          |       |          |
| <b>Burn-out values</b>                |                 |       |          |
| Max. output value                     | 22 mA or 10.6 V |       |          |
| Min. output value                     | 0 mA or -0.6 V  |       |          |
| <b>Output load Resistance - Rload</b> |                 |       |          |
| Current output                        | < 500 Ω         |       |          |
| Voltage output                        | > 10 KΩ         |       |          |
| Short circuit current                 | 26 mA max       |       |          |
| <b>Response time (10÷90% of f.s.)</b> | about 100 ms    |       |          |

(1) referred to the input Span (difference between max. and min.)

# ISOLATED FREQUENCY TO VOLTAGE, FREQUENCY TO CURRENT CONVERTER CONFIGURABLE BY DIP-SWITCH OR PC, TRANSISTOR OR RELAY OUTPUTS

**DAT 4540**



### GENERAL DESCRIPTION

The isolated frequency converter DAT 4540 is able to measure, up to 20 KHz, the frequency of TTL, Namur, NPN, PNP and Tachometer digital signals. In function of programming, the measured values are converted in a current or voltage signal. Moreover two relays are available in order to be programmed as trip alarm (version "-R"). For the Namur input is continuously checked the integrity of the sensor; in case of fault (short circuit or interruption), on the transistor output is generated an alarm. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Measure of the frequency for the following digital contacts input: Namur, TTL, NPN, PNP, Tachometer, Volt
- Configurable output as current or voltage
- Double optional trip alarm
- Fault alarm condition for Namur sensor
- Configurable by Dip-switch or PC

- High accuracy
- On-field reconfigurable
- Galvanic isolation among all ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in according to EN-50022 and EN-50035 standards



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                                       |            |
|---------------------------------------|------------|
| Current output                        | 90 mA max. |
| Voltage output                        | 30 mA max. |
| (+ 10mA for each relay output active) |            |

### ISOLATION

|                    |                        |
|--------------------|------------------------|
| Among all the ways | 1500 Vac, 50 Hz, 1 min |
|--------------------|------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|                 |                            |
|-----------------|----------------------------|
| Material        | Self-extinguishing plastic |
| DAT 4540 (mm)   | WxLxH: 90 x 112 x 12.5     |
| DAT 4540-R (mm) | WxL xH: 90 x 112 x 22.5    |
| Weight          | about 90 g.                |

### INPUT

#### Namur ( DIN 19234 )

|                     |              |
|---------------------|--------------|
| Low level Trig.     | < 1.2 mA     |
| High level Trig.    | > 2.1 mA     |
| Voltage Aux.        | 8.2 V – 8 mA |
| Impedance           | ~ 1000 Ohm   |
| Interruption Alarm  | < 0.2 mA     |
| Short Circuit Alarm | > 7.0 mA     |

#### TTL

|                  |           |
|------------------|-----------|
| Low level Trig.  | < 0.8 V   |
| High level Trig. | > 2.0 V   |
| Impedance        | > 20 KOhm |

#### PNP

|                  |              |
|------------------|--------------|
| Low level Trig.  | < 4.0 V      |
| High level Trig. | > 7.0 V      |
| Voltage Aux.     | 17 V – 20 mA |
| Impedance        | ~ 2.2 KOhm   |

#### Tachometer

|                  |            |
|------------------|------------|
| Low level Trig.  | < -50 mV   |
| High level Trig. | > +50 mV   |
| Impedance        | > 100 KOhm |

#### Voltage (programmable)

|               |                  |
|---------------|------------------|
| Level Trigger | 0.05 V ÷ 7.0 V   |
| Voltage Aux.  | 5 ÷ 17 V @ 20 mA |
| Impedance     | > 20 KOhm        |

### Frequency

0.1 Hz ÷ 20 KHz

### Sample Time

< 50ms + period

### OUTPUT

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | 4 mA     |
| Voltage     | 0 V  | 10 V  | 1 V      |

#### Output calibration

|              |              |
|--------------|--------------|
| Current      | ± 7 uA       |
| Voltage      | ± 5 mV       |
| Voltage Aux. | >12V @ 20 mA |

#### Burn-out values

|                   |                |
|-------------------|----------------|
| Max. output value | 22 mA or 11 V  |
| Min. output value | 0 mA or -0.6 V |

#### Output load Resistance - Rload

|                       |           |
|-----------------------|-----------|
| Current output        | < 500 Ω   |
| Voltage output        | > 10 KΩ   |
| Short circuit current | 30 mA max |

### RELAY OUTPUTS

#### Relay Outputs (Only for version "-R")

|                             |              |
|-----------------------------|--------------|
| N° 2 SPDT                   |              |
| Max. load (Resistive)       | 250 Vac, 2A  |
| Isolation between terminals | 1000 Vac max |

#### Transistor Output

|                       |               |
|-----------------------|---------------|
| Max. load (Resistive) | 30 Vdc, 100mA |
|-----------------------|---------------|

# ISOLATED SPLITTER/CONVERTER FOR TC AND mV CONFIGURABLE BY DIP-SWITCH OR PC

**DAT 4631 A**



### GENERAL DESCRIPTION

The isolated splitter/converter DAT 4631 A is able to measure and linearise the standard thermocouples with internal or external cold junction compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for TC and mV
- Double output configurable in current or voltage
- Configurable by dip-switch or PC
- High accuracy

- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                        |
|--------------------|------------------------|
| Among all the ways | 1500 Vac, 50 Hz, 1 min |
|--------------------|------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

#### TC (CJC int./ext.)

|   |        |        |       |
|---|--------|--------|-------|
| J | -200°C | 1200°C | 100°C |
| K | -200°C | 1300°C | 100°C |
| S | 0°C    | 1750°C | 400°C |
| R | 0°C    | 1750°C | 400°C |
| B | 0°C    | 1850°C | 400°C |
| E | -200°C | 1000°C | 100°C |
| T | -200°C | 400°C  | 100°C |
| N | -200°C | 1300°C | 100°C |

#### Voltage

|    |         |         |       |
|----|---------|---------|-------|
| mV | -100 mV | +90 mV  | 5 mV  |
| mV | -100 mV | +200 mV | 10 mV |
| mV | -100 mV | +800 mV | 20 mV |

#### Input calibration (1)

mV, TC the higher of ±0.1 % f.s. and ±12 uV

#### Linearity (1)

|    |              |
|----|--------------|
| TC | ± 0.2 % f.s. |
| mV | ± 0.1 % f.s. |

#### Input impedance (1)

|        |          |
|--------|----------|
| TC, mV | >= 10 MΩ |
|--------|----------|

### Line resistance influence (1)

|        |              |
|--------|--------------|
| TC, mV | <=0.8 uV/Ohm |
|--------|--------------|

#### Thermal drift (1)

|            |              |
|------------|--------------|
| Full scale | ± 0.01% / °C |
| CJC        | ± 0.01% / °C |

#### CJC compensation

± 0.5°C

### OUTPUT (2 CHANNELS)

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | 4 mA     |
| Voltage     | 0 V  | 10 V  | 1 V      |

#### Output calibration

|         |        |
|---------|--------|
| Current | ± 7 uA |
| Voltage | ± 5 mV |

#### Burn-out values

|                   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

#### Output load Resistance - Rload

|                       |           |
|-----------------------|-----------|
| Current output        | < 500 Ω   |
| Voltage output        | > 10 KΩ   |
| Short circuit current | 26 mA max |

#### Response time (10÷90% of f.s.)

about 500 ms

(1) referred to the input Span (difference between max. and min.)

## ISOLATED SPLITTER/CONVERTER FOR RTD AND RESISTANCE CONFIGURABLE BY DIP-SWITCH OR PC

DAT 4631 B



### GENERAL DESCRIPTION

The isolated Splitter/converter DAT 4631 B is able to measure and linearise the standard RTD and resistances with 2 or 3 wires cable compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for RTD and resistance
- Double output configurable in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

#### RTD (2, 3 wires)

|        |        |       |      |
|--------|--------|-------|------|
| Pt100  | -200°C | 850°C | 50°C |
| Pt1000 | -85°C  | 185°C | 30°C |
| Ni100  | -60°C  | 180°C | 50°C |
| Ni1000 | -60°C  | 150°C | 30°C |

#### RES. (2, 3 wires)

|  |     |        |      |
|--|-----|--------|------|
|  | 0 Ω | 500 Ω  | 50 Ω |
|  | 0 Ω | 2000 Ω | 50 Ω |

#### Calibration (1)

|           |                                       |
|-----------|---------------------------------------|
| RTD       | the higher of ±0.1 % f.s. and ±0.2 °C |
| Low Res.  | the higher of ±0.1 % f.s. and ±0.15 Ω |
| High Res. | the higher of ±0.2 % f.s. and ± 1 Ω   |

#### Linearity (1)

|     |              |
|-----|--------------|
| RTD | ± 0.1 % f.s. |
|-----|--------------|

#### Sensor excitation current

|          |        |
|----------|--------|
| RTD, Res | 500 uA |
|----------|--------|

#### Line resistance influence (1)

|             |                              |
|-------------|------------------------------|
| RTD 3 wires | 0.05 %/Ω (50 Ω max balanced) |
|-------------|------------------------------|

#### Thermal drift (1)

|            |               |
|------------|---------------|
| Full scale | ± 0.01 % / °C |
|------------|---------------|

### OUTPUT (2 CHANNELS)

| Output type | Min | Max | Span min |
|-------------|-----|-----|----------|
|-------------|-----|-----|----------|

|         |      |       |      |
|---------|------|-------|------|
| Current | 0 mA | 20 mA | 4 mA |
| Voltage | 0 V  | 10 V  | 1 V  |

#### Output calibration

|         |        |
|---------|--------|
| Current | ± 7 uA |
| Voltage | ± 5 mV |

#### Burn-out values

|                   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

#### Output load Resistance - Rload

|                       |           |
|-----------------------|-----------|
| Current output        | < 500 Ω   |
| Voltage output        | > 10 KΩ   |
| Short circuit current | 26 mA max |

#### Response time (10÷90% of f.s.)

|  |              |
|--|--------------|
|  | about 500 ms |
|--|--------------|

(1) referred to the input Span (difference between max. and min.)

## ISOLATED, SPLITTER/CONVERTER FOR PTC/NTC/POT CONFIGURABLE BY DIP-SWITCH OR PC

DAT 4631 C



### GENERAL DESCRIPTION

The isolated Splitter/converter DAT 4631 C is able to measure and linearise the standard PTC and NTC sensors and potentiometers. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for PTC, NTC and Pot.
- Double output configurable in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type | Min | Max | Span min |
|------------|-----|-----|----------|
|------------|-----|-----|----------|

#### PTC

|           |       |       |      |
|-----------|-------|-------|------|
| KTY81-210 | -55°C | 150°C | 50°C |
| KTY81-220 | -55°C | 150°C | 50°C |
| KTY84-130 | -40°C | 300°C | 50°C |
| KTY84-150 | -40°C | 300°C | 50°C |

#### NTC

|            |       |       |      |
|------------|-------|-------|------|
| Coster 10K | -10°C | 100°C | 50°C |
| Coster 1K  | -30°C | 40°C  | 25°C |

#### Pot. (Rnom. < 50KΩ)

|  |     |       |      |
|--|-----|-------|------|
|  | 0 % | 100 % | 10 % |
|--|-----|-------|------|

#### Calibration (1)

|               |                                       |
|---------------|---------------------------------------|
| PTC, NTC      | the higher of ±0.1 % f.s. and ±0.2 °C |
| Potentiometer | ± 0.05 % f.s.                         |

#### Linearity (1)

|          |              |
|----------|--------------|
| PTC, NTC | ± 0.1 % f.s. |
|----------|--------------|

#### Sensor excitation current

|         |        |
|---------|--------|
| PTC,NTC | 500 uA |
|---------|--------|

#### Thermal drift (1)

|            |               |
|------------|---------------|
| Full scale | ± 0.01 % / °C |
|------------|---------------|

### OUTPUT (2 CHANNELS)

| Output type | Min | Max | Span min |
|-------------|-----|-----|----------|
|-------------|-----|-----|----------|

|         |      |       |      |
|---------|------|-------|------|
| Current | 0 mA | 20 mA | 4 mA |
| Voltage | 0 V  | 10 V  | 1 V  |

#### Output calibration

|         |        |
|---------|--------|
| Current | ± 7 uA |
| Voltage | ± 5 mV |

#### Burn-out values

|                   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

#### Output load Resistance - Rload

|                       |           |
|-----------------------|-----------|
| Current output        | < 500 Ω   |
| Voltage output        | > 10 KΩ   |
| Short circuit current | 26 mA max |

#### Response time (10÷90% of f.s.)

|  |              |
|--|--------------|
|  | about 500 ms |
|--|--------------|

(1) referred to the input Span (difference between max. and min.)



## ISOLATED SPLITTER/CONVERTER FOR VOLTAGE AND CURRENT CONFIGURABLE BY DIP-SWITCH OR PC

**DAT 4631 D**



### GENERAL DESCRIPTION

The isolated Splitter/converter DAT 4631 D is able to measure voltage and current signals. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for voltage and current
- Double output configurable in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type | Min  | Max   | Span min |
|------------|------|-------|----------|
| Voltage    | 0 V  | 10 V  | 1 V      |
| Current    | 0 mA | 20 mA | 1 mA     |

#### Calibration (1)

|      |  |
|------|--|
| Volt | the higher of $\pm 0.1\%$ f.s. and $\pm 2$ mV      |
| mA   | the higher of $\pm 0.1\%$ f.s. and $\pm 6$ $\mu$ A |

#### Linearity (1)

|       |                   |
|-------|-------------------|
| V, mA | $\pm 0.05\%$ f.s. |
|-------|-------------------|

#### Input impedance

|         |                     |
|---------|---------------------|
| Volt    | $\geq 1$ M $\Omega$ |
| Current | $\leq 50$ $\Omega$  |

#### Thermal drift (1)

|            |                   |
|------------|-------------------|
| Full scale | $\pm 0.01\%$ / °C |
|------------|-------------------|

### OUTPUT (2 CHANNELS)

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | 4 mA     |
| Voltage     | 0 V  | 10 V  | 1 V      |

#### Output calibration

|         |                 |
|---------|-----------------|
| Current | $\pm 7$ $\mu$ A |
| Voltage | $\pm 5$ mV      |

#### Burn-out values

|                   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

#### Output load Resistance - Rload

|                                       |                   |
|---------------------------------------|-------------------|
| Current output                        | $< 500$ $\Omega$  |
| Voltage output                        | $> 10$ K $\Omega$ |
| Short circuit current                 | 26 mA max         |
| <b>Response time (10÷90% of f.s.)</b> | about 100 ms      |

(1) referred to the input Span (difference between max. and min.)

## ISOLATED MATHEMATICAL MODULE FOR VOLTAGE AND CURRENT INPUT CONFIGURABLE BY DIP-SWITCH OR PC

**DAT 4632 D**



### GENERAL DESCRIPTION

The isolated converter DAT 4632 D is able to measure voltage and current signals, execute a programmable mathematical function and provide on output a normalized current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.

### FEATURES

- Configurable input for voltage and current
- Configurable output in current or voltage
- Calculation function (two independent outputs)
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among all the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 55 mA max. |
| Voltage output | 25 mA max. |

### ISOLATION

|                    |                           |
|--------------------|---------------------------|
| Among all the ways | 1500 Vac,<br>50 Hz, 1 min |
|--------------------|---------------------------|

### TEMPERATURE AND HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE : 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT (2 CHANNELS)

| Input type | Min  | Max   | Span min |
|------------|------|-------|----------|
| Voltage    | 0 V  | 10 V  | 1 V      |
| Current    | 0 mA | 20 mA | 1 mA     |

#### Calibration (1)

|      |  |
|------|--|
| Volt | the higher of $\pm 0.1\%$ f.s. and $\pm 2$ mV      |
| mA   | the higher of $\pm 0.1\%$ f.s. and $\pm 6$ $\mu$ A |

#### Linearity (1)

|       |                   |
|-------|-------------------|
| V, mA | $\pm 0.05\%$ f.s. |
|-------|-------------------|

#### Input impedance

|         |                     |
|---------|---------------------|
| Volt    | $\geq 1$ M $\Omega$ |
| Current | $\leq 50$ $\Omega$  |

#### Thermal drift (1)

|            |                   |
|------------|-------------------|
| Full scale | $\pm 0.01\%$ / °C |
|------------|-------------------|

### OUTPUT (2 CHANNELS)

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | 4 mA     |
| Voltage     | 0 V  | 10 V  | 1 V      |

#### Output calibration

|         |                 |
|---------|-----------------|
| Current | $\pm 7$ $\mu$ A |
| Voltage | $\pm 5$ mV      |

#### Burn-out values

|                   |                 |
|-------------------|-----------------|
| Max. output value | 22 mA or 10.6 V |
| Min. output value | 0 mA or -0.6 V  |

#### Output load Resistance - Rload

|                                       |                   |
|---------------------------------------|-------------------|
| Current output                        | $< 500$ $\Omega$  |
| Voltage output                        | $> 10$ K $\Omega$ |
| Short circuit current                 | 26 mA max         |
| <b>Response time (10÷90% of f.s.)</b> | about 100 ms      |

(1) referred to the input Span (difference between max. and min.)



## **“SMART SERIES” Temperature and signal transmitters and converters for DIN rail mounting**

*The SMART series devices can accept on their input several types of signals coming from the field; the series is composed of:*

- *4÷20 mA two wires isolated Transmitter for universal input (**DAT4035**)*
- *Isolated Converters for universal input with configurable output as voltage or current (**DAT4135, DAT 4235**)*
- *Isolated Converter for universal input with configurable output as voltage or current and trip amplifier (**DAT4520**)*

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PC programmable 3 ways isolated universal signal converter
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Universal converter with Trip Amplifier

02



**SMART series** Temperature and signal transmitters and converters for DIN rail mounting



**DAT 4035**



**GENERAL DESCRIPTION**

The transmitter DAT 4035 is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a standard active current signal, conversion of a voltage signal even coming from a potentiometer connected on its input. Moreover the DAT 4035 is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4÷20 mA current signal. The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, TC, mV, V, mA, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- 4 ÷ 20 mA configurable output on current loop

- On-field reconfigurable
- Galvanic isolation at 2000 Vac
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



| POWER SUPPLY                |              | ISOLATION VOLTAGE  |                        | TEMPERATURE & HUMIDITY   |                |
|-----------------------------|--------------|--------------------|------------------------|--------------------------|----------------|
| Power supply voltage        | 10 .. 30 Vdc | Input/Power supply | 2000 Vac 50 Hz, 1 min. | Operative temperature    | -20°C .. +70°C |
| Reverse polarity protection | 60 Vdc max.  |                    |                        | Storage temperature      | -40°C .. +85°C |
|                             |              |                    |                        | Humidity (not condensed) | 0 .. 90 %      |

| EMC (for industrial environments) |              | HOUSING         |                             |
|-----------------------------------|--------------|-----------------|-----------------------------|
| <b>DIRECTIVE 2004/108/EC</b>      |              | Material        | Self-extinguishing plastic  |
| Immunity                          | EN 61000-6-2 | Dimensions (mm) | W x L x H : 90 x 112 x 12.5 |
| Emission                          | EN 61000-6-4 | Weight          | about 90 g.                 |

| INPUT                                |         |         |          |
|--------------------------------------|---------|---------|----------|
| Input type                           | Min     | Max     | Span min |
| <b>TC (CJC int./ext.)</b>            |         |         |          |
| J                                    | -200°C  | 1200°C  | 2 mV     |
| K                                    | -200°C  | 1370°C  | 2 mV     |
| S                                    | -50°C   | 1760°C  | 2 mV     |
| R                                    | -50°C   | 1760°C  | 2 mV     |
| B                                    | 400°C   | 1820°C  | 2 mV     |
| E                                    | -200°C  | 1000°C  | 2 mV     |
| T                                    | -200°C  | 400°C   | 2 mV     |
| N                                    | -200°C  | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |         |         |          |
| Pt100                                | -200°C  | 850°C   | 50°C     |
| Pt1000                               | -200°C  | 200°C   | 50°C     |
| Ni100                                | -60°C   | 180°C   | 50°C     |
| Ni1000                               | -60°C   | 150°C   | 50°C     |
| <b>Voltage</b>                       |         |         |          |
| mV                                   | -400 mV | +400 mV | 2 mV     |
| mV                                   | -100 mV | +700 mV | 2 mV     |
| Volt                                 | - 10 V  | +10 V   | 500 mV   |
| <b>Potentiometer (Nominal value)</b> | 0 Ω     | 200 Ω   | 10 %     |
|                                      | 200 Ω   | 500 Ω   | 10 %     |
|                                      | 0.5 KΩ  | 50 KΩ   | 10 %     |
| <b>Resistance 2,3,4 wires</b>        |         |         |          |
| Low                                  | 0 Ω     | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω     | 2000 Ω  | 200 Ω    |
| <b>Current mA</b>                    | -10 mA  | +24 mA  | 2 mA     |
| <b>Input impedance</b>               |         |         |          |
| TC, mV                               | ≥ 10 MΩ |         |          |
| Volt                                 | ≥ 1 MΩ  |         |          |
| Current                              | ~ 50 Ω  |         |          |

| INPUT                                 |                                      |
|---------------------------------------|--------------------------------------|
| Input calibration (1)                 |                                      |
| RTD                                   | the higher of ±0.1% f.s. and ±0.2°C  |
| Res. Low                              | the higher of ±0.1% f.s. and ±0.15 Ω |
| Res. High                             | the higher of ±0.2% f.s. and ±1 Ω    |
| mV, TC                                | the higher of ±0.1% f.s. and ±18 uV  |
| Volt                                  | the higher of ±0.1% f.s. and ± 2 mV  |
| mA                                    | the higher of ±0.1% f.s. and ± 6 uA  |
| <b>Linearity (1)</b>                  |                                      |
| TC                                    | ± 0.2 % f.s.                         |
| RTD                                   | ± 0.1 % f.s.                         |
| <b>Line resistance influence (1)</b>  |                                      |
| TC, mV,V                              | <=0.4 uV/Ohm                         |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)        |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.)      |
| <b>RTD excitation current</b>         |                                      |
| Typical                               | 0.350 mA                             |
| <b>CJC Comp.</b>                      | ± 0.5 °C                             |
| <b>Thermal drift (1)</b>              |                                      |
| Full scale                            | ± 0.01 % / °C                        |
| CJC                                   | ± 0.01 % / °C                        |
| <b>Burn-out values</b>                |                                      |
| Max. value output                     | about 22.5 mA                        |
| Min. value output                     | about 3.6 mA                         |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                         |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |

# PC PROGRAMMABLE ISOLATED UNIVERSAL SIGNAL CONVERTER

## DAT 4135



### GENERAL DESCRIPTION

The converter DAT 4135 is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a standard active current signal, conversion of a voltage signal even coming from a potentiometer connected on its input. Moreover the DAT 4135 is able to measure and linearise the standard thermocouples with internal cold junction compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both in time and in temperature.

### FEATURES

- Configurable input for RTD, TC, mV, V, mA, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- Configurable output in current or voltage
- On-field reconfigurable
- Galvanic isolation at 2000 Vac
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



| POWER SUPPLY                |              | ISOLATION VOLTAGE                     |                        | TEMPERATURE & HUMIDITY   |                             |
|-----------------------------|--------------|---------------------------------------|------------------------|--------------------------|-----------------------------|
| Power supply voltage        | 18 .. 30 Vdc | Input/Power supply-Output             | 2000 Vac 50 Hz, 1 min. | Operative temperature    | -20°C .. +70°C              |
| Reverse polarity protection | 60 Vdc max.  | <b>OUTPUT LOAD RESISTANCE (RLOAD)</b> |                        | Storage temperature      | -40°C .. +85°C              |
|                             |              | Current output                        | <= 650 Ω               | Humidity (not condensed) | 0 .. 90 %                   |
|                             |              | Voltage output                        | >/= 3.5 KΩ             |                          |                             |
| Limitation current          |              | about 25 mA                           |                        |                          |                             |
| CURRENT CONSUMPTION         |              | EMC (for industrial environments)     |                        | HOUSING                  |                             |
| Current output              | 40 mA max.   | <b>DIRECTIVE 2004/108/EC</b>          |                        | Material                 | Self-extinguishing plastic  |
| Voltage output              | 20 mA max.   | Immunity                              | EN 61000-6-2           | Dimensions (mm)          | W x L x H : 90 x 112 x 12.5 |
|                             |              | Emission                              | EN 61000-6-4           | Weight                   | about 90 g.                 |

| INPUT                                   |                                       |         |          |
|---|---------------------------------------|---------|----------|
| Input type                              | Min                                   | Max     | Span min |
| <b>TC (CJC int./ext.)</b>               |                                       |         |          |
| J                                       | -200°C                                | 1200°C  | 2 mV     |
| K                                       | -200°C                                | 1370°C  | 2 mV     |
| S                                       | -50°C                                 | 1760°C  | 2 mV     |
| R                                       | -50°C                                 | 1760°C  | 2 mV     |
| B                                       | 400°C                                 | 1820°C  | 2 mV     |
| E                                       | -200°C                                | 1000°C  | 2 mV     |
| T                                       | -200°C                                | 400°C   | 2 mV     |
| N                                       | -200°C                                | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>                  |                                       |         |          |
| Pt100                                   | -200°C                                | 850°C   | 50°C     |
| Pt1000                                  | -200°C                                | 200°C   | 50°C     |
| Ni100                                   | -60°C                                 | 180°C   | 50°C     |
| Ni1000                                  | -60°C                                 | 150°C   | 50°C     |
| <b>Voltage</b>                          |                                       |         |          |
| mV                                      | -400 mV                               | +400 mV | 2 mV     |
| mV                                      | -100 mV                               | +700 mV | 2 mV     |
| Volt                                    | - 10 V                                | +10 V   | 500 mV   |
| <b>Potentiometer</b><br>(Nominal value) | 0 Ω                                   | 200 Ω   | 10 %     |
|   | 200 Ω                                 | 500 Ω   | 10 %     |
|   | 0.5 KΩ                                | 50 KΩ   | 10 %     |
| <b>Resistance 2,3,4 wires</b>           |                                       |         |          |
| Low                                     | 0 Ω                                   | 300 Ω   | 10 Ω     |
| High                                    | 0 Ω                                   | 2000 Ω  | 200 Ω    |
| <b>Current mA</b>                       | -10 mA                                | +24 mA  | 2 mA     |
| <b>Input calibration (1)</b>            |                                       |         |          |
| RTD                                     | the higher of ±0.1 % f.s. and ±0.2°C  |         |          |
| Res. Low                                | the higher of ±0.1 % f.s. and ±0.15 Ω |         |          |
| Res. High                               | the higher of ±0.2 % f.s. and ±1 Ω    |         |          |
| mV, TC                                  | the higher of ±0.1 % f.s. and ±18 uV  |         |          |
| Volt                                    | the higher of ±0.1 % f.s. and ± 2 mV  |         |          |
| mA                                      | the higher of ±0.1 % f.s. and ± 6 uA  |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| Input impedance                       |                                 |
| TC, mV                                | >= 10 MΩ                        |
| Volt                                  | >= 1 MΩ                         |
| Current                               | ~ 50 Ω                          |
| <b>Linearity (1)</b>                  |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence (1)</b>  |                                 |
| TC, mV,V                              | <=0.8 uV/Ohm                    |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC Comp.</b>                      | ± 0.5°C                         |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. value output                     | about 23 mA or 10.8 Vdc         |
| Min. value output                     | about 0 mA or 0 Vdc             |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 0 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 0 mA  | 4 mA     |
| Direct voltage            | 0 V    | 10 V  | 1 V      |
| Reverse voltage           | 10 V   | 0 V   | 1 V      |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |
| Voltage                   | ± 5 mV |       |          |

**DAT 4135/SEL**

**GENERAL DESCRIPTION**

The converter DAT 4135/SEL is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a standard active current signal, conversion of a voltage signal even coming from a potentiometer connected on its input. Moreover the DAT 4135/SEL is able to measure and linearise the standard thermocouples with internal cold junction compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, TC, mV, V, mA, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- Configurable output in current or voltage
- On-field reconfigurable
- Galvanic isolation at 2000 Vac
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035


**Application areas**


| POWER SUPPLY                |              | ISOLATION VOLTAGE                 |                        | SEL INPUT COMMAND        |                             |
|-----------------------------|--------------|-----------------------------------|------------------------|--------------------------|-----------------------------|
| Power supply voltage        | 18 .. 30 Vdc | Input/Power supply-Output         | 2000 Vac 50 Hz, 1 min. | Disable output           | 4÷30 Vdc                    |
| Reverse polarity protection | 60 Vdc max.  | OUTPUT LOAD RESISTANCE (RLOAD)    |                        | Enable output            | 0 Vdc or not connected      |
|                             |              | Current output                    | <= 650 Ω               | TEMPERATURE & HUMIDITY   |                             |
|                             |              | Voltage output                    | >/= 3.5 KΩ             | Operative temperature    | -20°C .. +70°C              |
|                             |              | Limitation current                | 20 mA max.             | Storage temperature      | -40°C .. +85°C              |
| CURRENT CONSUMPTION         |              | EMC (for industrial environments) |                        | Humidity (not condensed) | 0 .. 90 %                   |
| Current output              | 40 mA max.   | DIRECTIVE 2004/108/EC             |                        | HOUSING                  |                             |
| Voltage output              | 20 mA max.   | Immunity                          | EN 61000-6-2           | Material                 | Self-extinguishing plastic  |
|                             |              | Emission                          | EN 61000-6-4           | Dimensions (mm)          | W x L x H : 90 x 112 x 12.5 |
|                             |              |                                   |                        | Weight                   | about 90 g.                 |

| INPUT                                |                                      |         |          |
|--------------------------------------|--------------------------------------|---------|----------|
| Input type                           | Min                                  | Max     | Span min |
| <b>TC (CJC int./ext.)</b>            |                                      |         |          |
| J                                    | -200°C                               | 1200°C  | 2 mV     |
| K                                    | -200°C                               | 1370°C  | 2 mV     |
| S                                    | -50°C                                | 1760°C  | 2 mV     |
| R                                    | -50°C                                | 1760°C  | 2 mV     |
| B                                    | 400°C                                | 1820°C  | 2 mV     |
| E                                    | -200°C                               | 1000°C  | 2 mV     |
| T                                    | -200°C                               | 400°C   | 2 mV     |
| N                                    | -200°C                               | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |                                      |         |          |
| Pt100                                | -200°C                               | 850°C   | 50°C     |
| Pt1000                               | -200°C                               | 200°C   | 50°C     |
| Ni100                                | -60°C                                | 180°C   | 50°C     |
| Ni1000                               | -60°C                                | 150°C   | 50°C     |
| <b>Voltage</b>                       |                                      |         |          |
| mV                                   | -400 mV                              | +400 mV | 2 mV     |
| mV                                   | -100 mV                              | +700 mV | 2 mV     |
| Volt                                 | - 10 V                               | +10 V   | 500 mV   |
| <b>Potentiometer (Nominal value)</b> | 0 Ω                                  | 200 Ω   | 10%      |
|                                      | 200 Ω                                | 500 Ω   | 10%      |
|                                      | 0.5 KΩ                               | 50 KΩ   | 10%      |
| <b>Resistance 2,3,4 wires</b>        |                                      |         |          |
| Low                                  | 0 Ω                                  | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω                                  | 2000 Ω  | 200 Ω    |
| <b>Current mA</b>                    | -10 mA                               | +24 mA  | 2 mA     |
| <b>Input calibration (1)</b>         |                                      |         |          |
| RTD                                  | the higher of ±0.1% f.s. and ±0.2°C  |         |          |
| Res. Low                             | the higher of ±0.1% f.s. and ±0.15 Ω |         |          |
| Res. High                            | the higher of ±0.2% f.s. and ±1 Ω    |         |          |
| mV, TC                               | the higher of ±0.1% f.s. and ±18 uV  |         |          |
| Volt                                 | the higher of ±0.1% f.s. and ± 2 mV  |         |          |
| mA                                   | the higher of ±0.1% f.s. and ± 6 uA  |         |          |

| INPUT                                 |                                |
|---------------------------------------|--------------------------------|
| <b>Input impedance</b>                |                                |
| TC, mV                                | >= 10 MΩ                       |
| Volt                                  | >= 1 MΩ                        |
| Current                               | ~ 50 Ω                         |
| <b>Linearity (1)</b>                  |                                |
| TC                                    | ± 0.2 % f.s.                   |
| RTD                                   | ± 0.1 % f.s.                   |
| <b>Line resistance influence (1)</b>  |                                |
| TC, mV,V                              | <=0.8 uV/Ohm                   |
| RTD 3 wires                           | 0.05%/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005%/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                |
| Typical                               | 0.350 mA                       |
| <b>CJC Comp.</b>                      | ± 0.5°C                        |
| <b>Thermal drift (1)</b>              |                                |
| Full scale                            | ± 0.01% / °C                   |
| CJC                                   | ± 0.01% / °C                   |
| <b>Burn-out values</b>                |                                |
| Max. value output                     | about 23 mA or 10.8 Vdc        |
| Min. value output                     | about 0 mA or 0 Vdc            |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                   |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 0 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 0 mA  | 4 mA     |
| Direct voltage            | 0 V    | 10 V  | 1 V      |
| Reverse voltage           | 10 V   | 0 V   | 1 V      |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |
| Voltage                   | ± 5 mV |       |          |



# PC PROGRAMMABLE 3 WAYS ISOLATED UNIVERSAL SIGNAL CONVERTER

## DAT 4235



### GENERAL DESCRIPTION

The converter DAT 4235 is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a standard active current signal, conversion of a voltage signal even coming from a potentiometer connected on its input. Moreover the DAT 4235 is able to measure and linearise the standard thermocouples with internal cold junction compensation. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both in time and in temperature.

### FEATURES

- Configurable input for RTD, TC, mV, V, mA, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- Configurable output in current or voltage
- On-field reconfigurable
- Galvanic isolation at 2000 Vac on the 3 ways
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



| POWER SUPPLY                |              | ISOLATION VOLTAGE                     |                        | TEMPERATURE & HUMIDITY   |                             |
|-----------------------------|--------------|---------------------------------------|------------------------|--------------------------|-----------------------------|
| Power supply voltage        | 18 .. 30 Vdc | Input/Power supply-Output             | 2000 Vac 50 Hz, 1 min. | Operative temperature    | -20°C .. +70°C              |
| Reverse polarity protection | 60 Vdc max.  | <b>OUTPUT LOAD RESISTANCE (RLOAD)</b> |                        | Storage temperature      | -40°C .. +85°C              |
|                             |              | Current output                        | <= 650 Ω               | Humidity (not condensed) | 0 .. 90 %                   |
|                             |              | Voltage output                        | >= 600 Ω               |                          |                             |
| Limitation current          | 30 mA max.   |                                       |                        |                          |                             |
| CURRENT CONSUMPTION         |              | EMC (for industrial environments)     |                        | HOUSING                  |                             |
| Current output              | 70 mA max.   | <b>DIRECTIVE 2004/108/EC</b>          |                        | Material                 | Self-extinguishing plastic  |
| Voltage output              | 50 mA max.   | Immunity                              | EN 61000-6-2           | Dimensions (mm)          | W x L x H : 90 x 112 x 12.5 |
|                             |              | Emission                              | EN 61000-6-4           | Weight                   | about 90 g.                 |

| INPUT                                |                                       |         |          |
|--------------------------------------|---------------------------------------|---------|----------|
| Input type                           | Min                                   | Max     | Span min |
| <b>TC (CJC int./ext.)</b>            |                                       |         |          |
| J                                    | -200°C                                | 1200°C  | 2 mV     |
| K                                    | -200°C                                | 1370°C  | 2 mV     |
| S                                    | -50°C                                 | 1760°C  | 2 mV     |
| R                                    | -50°C                                 | 1760°C  | 2 mV     |
| B                                    | 400°C                                 | 1820°C  | 2 mV     |
| E                                    | -200°C                                | 1000°C  | 2 mV     |
| T                                    | -200°C                                | 400°C   | 2 mV     |
| N                                    | -200°C                                | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |                                       |         |          |
| Pt100                                | -200°C                                | 850°C   | 50°C     |
| Pt1000                               | -200°C                                | 200°C   | 50°C     |
| Ni100                                | -60°C                                 | 180°C   | 50°C     |
| Ni1000                               | -60°C                                 | 150°C   | 50°C     |
| <b>Voltage</b>                       |                                       |         |          |
| mV                                   | -400 mV                               | +400 mV | 2 mV     |
| mV                                   | -100 mV                               | +700 mV | 2 mV     |
| Volt                                 | - 10 V                                | +10 V   | 500 mV   |
| <b>Potentiometer (Nominal value)</b> | 0 Ω                                   | 200 Ω   | 10%      |
|                                      | 200 Ω                                 | 500 Ω   | 10%      |
|                                      | 0.5 KΩ                                | 50 KΩ   | 10%      |
| <b>Resistance 2,3,4 wires</b>        |                                       |         |          |
| Low                                  | 0 Ω                                   | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω                                   | 2000 Ω  | 200 Ω    |
| <b>Current mA</b>                    | -10 mA                                | +24 mA  | 2 mA     |
| <b>Input calibration (1)</b>         |                                       |         |          |
| RTD                                  | the higher of ±0.1 % f.s. and ±0.2°C  |         |          |
| Res. Low                             | the higher of ±0.1 % f.s. and ±0.15 Ω |         |          |
| Res. High                            | the higher of ±0.2 % f.s. and ±1 Ω    |         |          |
| mV, TC                               | the higher of ±0.1 % f.s. and ±18 uV  |         |          |
| Volt                                 | the higher of ±0.1 % f.s. and ± 2 mV  |         |          |
| mA                                   | the higher of ±0.1 % f.s. and ± 6 uA  |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| Input impedance                       |                                 |
| TC, mV                                | >= 10 MΩ                        |
| Volt                                  | >= 1 MΩ                         |
| Current                               | ~ 50 Ω                          |
| <b>Linearity (1)</b>                  |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence (1)</b>  |                                 |
| TC, mV,V                              | <=0.8 uV/Ohm                    |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC Comp.</b>                      | ± 0.5°C                         |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. value output                     | about 25 mA or 10.8 Vdc         |
| Min. value output                     | about -25 mA or -10.8 Vdc       |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

| OUTPUT                    |                       |        |          |
|---------------------------|-----------------------|--------|----------|
| Output type               | Min                   | Max    | Span min |
| Direct current            | -20 mA                | 20 mA  | 4 mA     |
| Reverse current           | 20 mA                 | -20 mA | 4 mA     |
| Direct voltage            | -10 V                 | 10 V   | 1 V      |
| Reverse voltage           | 10 V                  | -10 V  | 1 V      |
| <b>Output calibration</b> |                       |        |          |
| Current                   | ± 7 uA or ± 15 uA (2) |        |          |
| Voltage                   | ± 10 mV               |        |          |

(2) referred to the output ± 20 mA.

**DAT 4520**



**GENERAL DESCRIPTION**

The DAT 4520 device measures mV, V, mA or resistance signals, and can be directly connected to Thermocouple, RTD or potentiometer sensors.

The input signal is filtered, linearised, amplified and transferred to the output circuit, that converts it in a 0-10V range or 0-20mA range signal. Auxiliary power supply allows to supply the output current loop. Moreover, the device is able to control two trip alarm relay outputs. DAT 4520 has a 3 way isolation: input is 2000 Vac isolated from power supply and output; power supply and output are 1500 Vac isolated between them.

**FEATURES**

- Configurable input for Tc, RTD, Res, mV, V, mA, Potentiometer
- High accuracy
- Configurable by Personal Computer
- 0 to 10V, 0 to 20mA configurable output
- On-field reconfigurable
- 2000 Vac galvanic isolation between input, output
- Programming of the unit measure as °C or °F
- EMC compliance – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



SMART SERIES

|                             |  |  |                        |                                   |                              |
|-----------------------------|--|--|------------------------|-----------------------------------|------------------------------|
| <b>TRIP ALARMS</b>          |  | <b>Isolation voltage</b>                 |                        | <b>TEMPERATURE &amp; HUMIDITY</b> |                              |
| Output type                 | n° 2 Relay SPDT  | Input/Output                             | 2000 Vac, 50 Hz, 1min. | Operative temperature             | -20°C .. +60°C               |
| Contact rating              | 2A, 250 Vac<br>2A, 30 Vdc                              | Input/Supply                             | 2000 Vac, 50 Hz, 1min. | Storage temperature               | -40°C .. +85°C               |
| Load                        | resistive  | Supply/Output                            | 1500 Vac, 50 Hz, 1min. | Humidity (not condensed)          | 0 .. 90 %                    |
| Minimum load                | 5Vdc, 10mA   | <b>EMC (for industrial environments)</b> |                        | <b>HOUSING</b>                    |                              |
| Voltage max                 | 250 Vac (50/60 Hz)<br>110 Vdc                          | <b>DIRECTIVE 2004/108/EC</b>             |                        | Material                          | Self-extinguishing plastic   |
| Isolation voltage           | coil-to-contacts: 2000Vac<br>between contacts: 1000Vac | Immunity                                 | EN 61000-6-2           | Mounting                          | DIN Rail                     |
| <b>POWER SUPPLY</b>         |  | Emission                                 | EN 61000-6-4           | Dimensions (mm)                   | W x L x H : 120 x 100 x 22.5 |
| Power supply voltage        | 20 .. 30 Vdc   |  |                        | Weight                            | about 150 g.                 |
| Reverse polarity protection | 60 Vdc max.  |  |                        |                                   |                              |

| <b>INPUT</b>                         |         |         |          |
|--------------------------------------|---------|---------|----------|
| Input type                           | Min     | Max     | Span min |
| <b>TC (CJC int./ext.)</b>            |         |         |          |
| J                                    | -200°C  | 1200°C  | 2 mV     |
| K                                    | -200°C  | 1370°C  | 2 mV     |
| S                                    | -50°C   | 1760°C  | 2 mV     |
| R                                    | -50°C   | 1760°C  | 2 mV     |
| B                                    | 400°C   | 1820°C  | 2 mV     |
| E                                    | -200°C  | 1000°C  | 2 mV     |
| T                                    | -200°C  | 400°C   | 2 mV     |
| N                                    | -200°C  | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |         |         |          |
| Pt100                                | -200°C  | 850°C   | 50°C     |
| Pt1000                               | -200°C  | 200°C   | 50°C     |
| Ni100                                | -60°C   | 180°C   | 50°C     |
| Ni1000                               | -60°C   | 150°C   | 50°C     |
| <b>Voltage</b>                       |         |         |          |
| mV                                   | -100 mV | +700 mV | 2 mV     |
| Volt                                 | 0 mV    | 10 V    | 500 mV   |
| <b>Potentiometer (Nominal value)</b> | 0 Ω     | 200 Ω   | 10%      |
|                                      | 200 Ω   | 500 Ω   | 10%      |
|                                      | 0.5 KΩ  | 50 KΩ   | 10%      |
| <b>Resistance 2,3,4 wires</b>        |         |         |          |
| Low                                  | 0 Ω     | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω     | 2000 Ω  | 200 Ω    |
| <b>Current mA</b>                    | 0 mA    | 20 mA   | 2 mA     |

| <b>Input calibration (1)</b> |                                       |
|------------------------------|---------------------------------------|
| RTD                          | the higher of ±0.1 % f.s. and ±0.2°C  |
| Res. Low                     | the higher of ±0.1 % f.s. and ±0.15 Ω |
| Res. High                    | the higher of ±0.2 % f.s. and ±1 Ω    |
| mV, TC                       | the higher of ±0.1 % f.s. and ±10 uV  |
| Volt                         | the higher of ±0.1 % f.s. and ± 2 mV  |
| mA                           | the higher of ±0.1 % f.s. and ± 6 uA  |

| <b>INPUT</b>                          |                                 |
|---------------------------------------|---------------------------------|
| <b>Input impedance</b>                |                                 |
| TC, mV                                | >= 10 MΩ                        |
| Volt                                  | >= 1 MΩ                         |
| Current                               | ~ 50 Ω                          |
| <b>Linearity (1)</b>                  |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence (1)</b>  |                                 |
| TC, mV,V                              | <=0.8 uV/Ohm                    |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC Comp.</b>                      |                                 |
|                                       | ± 0.5°C                         |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Response time (10÷90% of f.s.)</b> |                                 |
|                                       | about 400 ms                    |

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

| <b>OUTPUT</b>                 |          |       |          |
|-------------------------------|----------|-------|----------|
| Output type                   | Min      | Max   | Span min |
| Direct voltage                | 0 V      | 10 V  | 1 V      |
| Direct current                | 0 mA     | 20 mA | 4 mA     |
| <b>Output calibration</b>     |          |       |          |
| Current                       | ± 7 uA   |       |          |
| Voltage                       | ± 10 mV  |       |          |
| <b>Output Load Resistance</b> |          |       |          |
| Current                       | < 650 Ω  |       |          |
| Voltage                       | > 4.7 KΩ |       |          |

ELECTRONIC AND CONTROL PROCESS DEVICES

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### “SMART SERIES” Temperature and signal transmitters and converters for Din rail mounting

Application areas

- Industries
- Board machine
- Energy
- Food business
- Water treatment

SMART SERIES

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### Intrinsically safe smart series ATEX94/9/EC

The Intrinsically Safe SMART Series devices, type-approved according to Directive ATEX94/9/EC, are subdivided into three different product categories: universal input transmitters to be installed in a potentially explosive atmosphere (Zone 0) codes: **DAT 2015 IS, DAT 4035 IS, DAT 1010 IS, DAT 1015 IS, DAT 1065 IS.**

Converters / Barriers for universal input or current loop (0-4.....20 mA), suitable for installation in safe zone for connections towards zone 0. codes:

#### **DAT 4235 IS in the following versions:**

**A**= Converter/Barrier, **B**= Double trip amplifier,  
**C**= Converter/Barrier + Double trip amplifier.

#### **DAT 5030 IS in the following versions:**

**A**= Single-channel barrier, **AH**= HART transparent single-channel barrier, **B**= Double-channel barrier, **BH**= HART transparent double-channel barrier.

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Isolated Intrinsically safe PC configurable transmitter for universal input



ATEX94/9/EC

# 03



**SMART ATEX series** Transmitters and converters for use in potentially explosive atmospheres

**DAT 2015 IS  
DAT 2015 IS/HT**



**GENERAL DESCRIPTION**

The transmitter DAT 2015 IS is able to execute many functions such as measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input.  
Moreover the DAT 2015 IS is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4÷20 mA current signal.  
The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, mV, Tc, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- 4 ÷ 20 mA configurable output on current loop
- On-field reconfigurable
- Applicable in zones with explosion risk (ZONE 0)
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- PROTECTION MODE: II 1 G Ex ia IIC certified in according to the Directive ATEX 94/9/EC
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



SMART ATEX SERIES

| POWER SUPPLY                             |              | TEMPERATURE & HUMIDITY   |  | EX DATA  |             |
|--|--------------|--------------------------|--|--|-------------|
| Power supply voltage                     | 11 .. 30 Vdc | Operative temperature    | -20°C .. +70°C<br><b>-20°C .. +85°C (vers. 'HT')</b> | Output /supply   | Input       |
| Reverse polarity protection              | 60 Vdc max.  | Storage temperature      | -40°C .. +85°C                                       | Ui = 30 V  | Uo = 6.2 V  |
|  |              | Humidity (not condensed) | 0 .. 90 %  | Ii = 100 mA  | Io = 100 mA |
| <b>EMC (for industrial environments)</b> |              | <b>HOUSING</b>           |  | Pi = 0.75 W  | Po = 500 mW |
| <b>DIRECTIVE 2004/108/EC</b>             |              | Material                 | Self-extinguishing plastic                           | Li = 0.1 mH  | Lo = 3.6 mH |
| Immunity                                 | EN 61000-6-2 | Dimensions (mm)          | W x L x H : 90 x 112 x 12.5                          | Ci = 10 nF   | Co = 5 uF   |
| Emission                                 | EN 61000-6-4 | Weight                   | about 90 g.  | T6 : -20 ÷ +55°C<br>T5 : -20 ÷ +70°C<br><b>T4 : -20 ÷ +85°C (vers. 'HT')</b> |             |

| INPUT                                |         |         |          |
|--------------------------------------|---------|---------|----------|
| Input type                           | Min     | Max     | Span min |
| <b>TC CJC int./ext.</b>              |         |         |          |
| <b>J</b>                             | -200°C  | 1200°C  | 2 mV     |
| <b>K</b>                             | -200°C  | 1370°C  | 2 mV     |
| <b>S</b>                             | -50°C   | 1760°C  | 2 mV     |
| <b>R</b>                             | -50°C   | 1760°C  | 2 mV     |
| <b>B</b>                             | 400°C   | 1820°C  | 2 mV     |
| <b>E</b>                             | -200°C  | 1000°C  | 2 mV     |
| <b>T</b>                             | -200°C  | 400°C   | 2 mV     |
| <b>N</b>                             | -200°C  | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |         |         |          |
| Pt100                                | -200°C  | 850°C   | 50°C     |
| Pt1000                               | -200°C  | 200°C   | 50°C     |
| Ni100                                | -60°C   | 180°C   | 50°C     |
| Ni1000                               | -60°C   | 150°C   | 50°C     |
| <b>Voltage</b>                       |         |         |          |
| mV                                   | -100 mV | +700 mV | 2 mV     |
| <b>Potentiometer (Nominal value)</b> | 0 Ω     | 200 Ω   | 10%      |
|                                      | 200 Ω   | 500 Ω   | 10%      |
|                                      | 0.5 KΩ  | 2 KΩ    | 10%      |
| <b>RES. 2,3,4 wires</b>              |         |         |          |
| Low                                  | 0 Ω     | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω     | 2000 Ω  | 200 Ω    |

| INPUT                                 |                                       |
|---------------------------------------|---------------------------------------|
| <b>Input calibration (1)</b>          |                                       |
| RTD                                   | the higher of ±0.1 % f.s. and ±0.2 °C |
| Res. Low                              | the higher of ±0.1 % f.s. and ±0.15 Ω |
| Res. High                             | the higher of ±0.2 % f.s. and ±1 Ω    |
| mV, TC                                | the higher of ±0.1 % f.s. and ±10 uV  |
| <b>Input impedance</b>                |                                       |
| TC, mV                                | >= 10 MΩ                              |
| <b>Linearity (1)</b>                  |                                       |
| TC                                    | ± 0.2 % f.s.                          |
| RTD                                   | ± 0.1 % f.s.                          |
| <b>Line resistance influence (1)</b>  |                                       |
| TC, mV,V                              | <=0.4 uV/Ohm                          |
| RTD 3-wires                           | 0.05 %/Ω (50 Ω balanced max.)         |
| RTD 4-wires                           | 0.005 %/Ω (100 Ω balanced max.)       |
| <b>RTD excitation current</b>         |                                       |
| Typical                               | 0.350 mA                              |
| <b>CJC comp.</b>                      | ± 0.5 °C                              |
| <b>Thermal drift (1)</b>              |                                       |
| Full scale                            | ± 0.01 % / °C                         |
| CJC                                   | ± 0.01 % / °C                         |
| <b>Burn-out values</b>                |                                       |
| Max. output value                     | about 22.5 mA                         |
| Min. output value                     | about 3.6 mA                          |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                          |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |



**UNIVERSAL INTRINSICALLY SAFE ISOLATED TRANSMITTER**
**DAT 4035 IS  
DAT 4035 IS/HT**

**GENERAL DESCRIPTION**

The isolated transmitter DAT 4035 IS is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input.  
Moreover the DAT 4035 IS is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4÷20 mA current signal.  
The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, mV, Tc, Resistance and Potentiometer
  - High accuracy
  - Configurable by Personal Computer
  - 4 ÷ 20 mA configurable output on current loop
  - Galvanic isolation at 2000 Vac
  - On-field reconfigurable
- Applicable in zones with explosion risk (ZONE 0)
  - Programming of the unit measure as °C or °F
  - EMC compliant – CE mark
  - PROTECTION MODE: II 1 G Ex ia IIC certified in according to the Directive ATEX 94/9/EC
  - Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035


**Application areas**


| POWER SUPPLY                             |              | TEMPERATURE & HUMIDITY   |  | EX DATA  |             |
|--|--------------|--------------------------|--|--|-------------|
| Power supply voltage                     | 11 .. 30 Vdc | Operative temperature    | -20°C .. +70°C<br><b>-20°C .. +85°C (vers. 'HT')</b> | Output /supply   | Input       |
| Reverse polarity protection              | 60 Vdc max.  | Storage temperature      | -40°C .. +85°C                                       | Ui = 30 V  | Uo = 6.2 V  |
|  |              | Humidity (not condensed) | 0 .. 90 %  | Ii = 100 mA  | Io = 100 mA |
| <b>EMC (for industrial environments)</b> |              | <b>HOUSING</b>           |  | Pi = 0.75 W  | Po = 500 mW |
| <b>DIRECTIVE 2004/108/EC</b>             |              | Material                 | Self-extinguishing plastic                           | Li = 0.1 mH  | Lo = 3.6 mH |
| Immunity                                 | EN 61000-6-2 | Dimensions (mm)          | W x L x H : 90 x 112 x 12.5                          | Ci = 10 nF   | Co = 5 uF   |
| Emission                                 | EN 61000-6-4 | Weight                   | about 90 g.  | T6 : -20 ÷ +55°C<br>T5 : -20 ÷ +70°C<br><b>T4 : -20 ÷ +85°C (vers. 'HT')</b> |             |

| INPUT                                |         |         |          |
|--------------------------------------|---------|---------|----------|
| Input type                           | Min     | Max     | Span min |
| <b>TC CJC int./ext.</b>              |         |         |          |
| J                                    | -200°C  | 1200°C  | 2 mV     |
| K                                    | -200°C  | 1370°C  | 2 mV     |
| S                                    | -50°C   | 1760°C  | 2 mV     |
| R                                    | -50°C   | 1760°C  | 2 mV     |
| B                                    | 400°C   | 1820°C  | 2 mV     |
| E                                    | -200°C  | 1000°C  | 2 mV     |
| T                                    | -200°C  | 400°C   | 2 mV     |
| N                                    | -200°C  | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |         |         |          |
| Pt100                                | -200°C  | 850°C   | 50°C     |
| Pt1000                               | -200°C  | 200°C   | 50°C     |
| Ni100                                | -60°C   | 180°C   | 50°C     |
| Ni1000                               | -60°C   | 150°C   | 50°C     |
| <b>Voltage</b>                       |         |         |          |
| mV                                   | -100 mV | +700 mV | 2 mV     |
| <b>Potentiometer (Nominal value)</b> | 0 Ω     | 200 Ω   | 10%      |
|                                      | 200 Ω   | 500 Ω   | 10%      |
|                                      | 0.5 KΩ  | 2 KΩ    | 10%      |
| <b>RES. 2,3,4 wires</b>              |         |         |          |
| Low                                  | 0 Ω     | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω     | 2000 Ω  | 200 Ω    |

| INPUT                                 |                                       |
|---------------------------------------|---------------------------------------|
| <b>Input calibration (1)</b>          |                                       |
| RTD                                   | the higher of ±0.1 % f.s. and ±0.2 °C |
| Res. Low                              | the higher of ±0.1 % f.s. and ±0.15 Ω |
| Res. High                             | the higher of ±0.2 % f.s. and ±1 Ω    |
| mV, TC                                | the higher of ±0.1 % f.s. and ±10 uV  |
| <b>Input impedance</b>                |                                       |
| TC, mV                                | >= 10 MΩ                              |
| <b>Linearity (1)</b>                  |                                       |
| TC                                    | ± 0.2 % f.s.                          |
| RTD                                   | ± 0.1 % f.s.                          |
| <b>Line resistance influence (1)</b>  |                                       |
| TC                                    | <=0.8 uV/Ohm                          |
| RTD 3-wires                           | 0.05 %/Ω (50 Ω balanced max.)         |
| RTD 4-wires                           | 0.005 %/Ω (100 Ω balanced max.)       |
| <b>RTD excitation current</b>         |                                       |
| Typical                               | 0.350 mA                              |
| <b>CJC comp.</b>                      |                                       |
|                                       | ± 0.5 °C                              |
| <b>Thermal drift (1)</b>              |                                       |
| Full scale                            | ± 0.01 % / °C                         |
| CJC                                   | ± 0.01 % / °C                         |
| <b>Burn-out values</b>                |                                       |
| Max. output value                     | about 22.5 mA                         |
| Min. output value                     | about 3.6 mA                          |
| <b>Response time (10÷90% of f.s.)</b> |                                       |
|                                       | about 400 ms                          |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |

**DAT 4235 IS**



**GENERAL DESCRIPTION**

The DAT 4235 IS device is a galvanic isolated Intrinsically Safety Barrier, defined as "Associated Apparatus". The input measures mV, V, mA or resistance signals, and can be directly connected to Thermocouple, RTD or potentiometer sensors. The input signal is filtered, linearized, amplified and transferred to the output circuit, that converts it in a 0-10V range or 0-20mA range signal.

**FEATURES**

- Configurable input Tc, RTD, Res, mV, V, mA, Potentiometer
- High accuracy
- Configurable by PC
- 0 to 10V , 0 to 20mA configurable output
- 2000 Vac galvanic isolation between input and output
- Programming of the unit measure as °C / °F
- EMC compliance - CE mark
- PROTECTION MODE: II (1) G D [ Ex ia ] IIC - [ Ex iaD ] in according to the Directive ATEX 94/9/EC

- Suitable for DIN rail mounting in according to EN-50022

**Available in 3 different versions:**

- **DAT4235 IS A** Signal converter
- **DAT4235 IS B** Double trip amplifier
- **DAT4235 IS C** Signal converter + Double trip amplifier



**Application areas**



SMART ATEX SERIES

| TRIP ALARMS                 |  | ISOLATION                                |                        | TEMPERATURE & HUMIDITY   |                         | EX DATA  |                 |
|-----------------------------|--|--|------------------------|--------------------------|-------------------------|--|-----------------|
| Output type                 | n° 2 Relays SPDT                                       | Input/Output                             | 2000 Vac, 50 Hz, 1min. | Operative temperature    | -20°C .. +60°C          | Terminals A-B-C-D; E-F-G-H-I-J; K-L<br>Um=250V |                 |
| Contact rating              | 2A , 250 Vac   | Input/Supply                             | 2000 Vac, 50 Hz, 1min. | Humidity (not condensed) | 0 .. 90 %               | Terminals 1-2-3-4-5-6-7                        | Terminals 5-6-7 |
| Load                        | resistive  | Supply/Output                            | 1500 Vac, 50 Hz, 1min. |                          |                         | Uo = 7.8 V                                     | Uo = 30 V       |
| Minimum load                | 5Vdc, 10mA   |  |                        |                          |                         | Io = 32 mA                                     | Ii = 100 mA     |
| Max Voltage                 | 250 Vac (50/60 Hz) 110 Vdc                             |  |                        |                          |                         | Po = 140 mW                                    | Pi = 0.75W      |
| Isolation                   | coil-to-contacts: 2000Vac<br>between contacts: 1000Vac | <b>EMC (for industrial environments)</b> |                        | <b>HOUSING</b>           |                         | Lo = 20 mH                                     | Li = ~0 mH      |
|                             |  | <b>DIRECTIVE 2004/108/EC</b>             |                        | Material                 | Self-extinguish plastic | Co = 2 uF                                      | Ci = 24 nF      |
| <b>POWER SUPPLY</b>         |  | Immunity                                 | EN 61000-6-2           | Mounting                 | DIN Rail                | Ta : -20 ÷ +55°C                               |                 |
| Power supply voltage        | 20 .. 30 Vdc   | Emission                                 | EN 61000-6-4           | Dimensions               | 120 x 100 x 22.5        |  |                 |
| Reverse polarity protection | 60 Vdc max   |  |                        | Weight                   | about 150 g.            |  |                 |

| INPUT                                |                                       |         |          |
|--------------------------------------|---------------------------------------|---------|----------|
| Input type                           | Min                                   | Max     | Span min |
| <b>TC CJC int./ext.</b>              |                                       |         |          |
| J                                    | -200°C                                | 1200°C  | 2 mV     |
| K                                    | -200°C                                | 1370°C  | 2 mV     |
| S                                    | -50°C                                 | 1760°C  | 2 mV     |
| R                                    | -50°C                                 | 1760°C  | 2 mV     |
| B                                    | 400°C                                 | 1820°C  | 2 mV     |
| E                                    | -200°C                                | 1000°C  | 2 mV     |
| T                                    | -200°C                                | 400°C   | 2 mV     |
| N                                    | -200°C                                | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |                                       |         |          |
| Pt100                                | -200°C                                | 850°C   | 50°C     |
| Pt1000                               | -200°C                                | 200°C   | 50°C     |
| Ni100                                | -60°C                                 | 180°C   | 50°C     |
| Ni1000                               | -60°C                                 | 150°C   | 50°C     |
| <b>Voltage</b>                       |                                       |         |          |
| mV                                   | -100 mV                               | +700 mV | 2 mV     |
| V                                    | 0 V                                   | 10 V    | 500 mV   |
| <b>Current mA</b>                    |                                       |         |          |
|                                      | 0 mA                                  | 20 mA   | 2 mA     |
| <b>Potentiometer (Nominal value)</b> | 0 Ω                                   | 200 Ω   | 10%      |
|                                      | 200 Ω                                 | 500 Ω   | 10%      |
|                                      | 0.5 KΩ                                | 2 KΩ    | 10%      |
| <b>Resistance</b>                    |                                       |         |          |
| Low                                  | 0 Ω                                   | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω                                   | 2000 Ω  | 200 Ω    |
| <b>Input calibration (1)</b>         |                                       |         |          |
| RTD                                  | the higher of ±0.1 % f.s. and ±0.2 °C |         |          |
| Res. Low                             | the higher of ±0.1 % f.s. and ±0.15 Ω |         |          |
| Res. High                            | the higher of ±0.2 % f.s. and ±1 Ω    |         |          |
| mV, TC                               | the higher of ±0.1 % f.s. and ±10 uV  |         |          |
| V                                    | the higher of ±0.2 % f.s. and ±2 Ω    |         |          |
| mA                                   | the higher of ±0.1 % f.s. and ±6 uV   |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| <b>Input impedance</b>                |                                 |
| TC, mV                                | >= 10 MΩ                        |
| V                                     | >= 1 MΩ                         |
| mA                                    | <= 50 Ω                         |
| <b>Linearity</b>                      |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence</b>      |                                 |
| TC, mV,V                              | <=0.8 uV/Ohm                    |
| RTD 3-wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4-wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC comp.</b>                      | ± 0.5°C                         |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Response time (10±90% of f.s.)</b> | about 0.4 sec.                  |

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

| OUTPUT                         |          |       |          |
|--------------------------------|----------|-------|----------|
| Output type                    | Min      | Max   | Span min |
| Voltage                        | 0 V      | 10 V  | 1 V      |
| Current                        | 0 mA     | 20 mA | 4 mA     |
| <b>Output calibration</b>      |          |       |          |
| Current                        | ± 7 uA   |       |          |
| Voltage                        | ± 10 mV  |       |          |
| <b>Output Rload resistance</b> |          |       |          |
| Current                        | < 650 Ω  |       |          |
| Voltage                        | > 4.7 KΩ |       |          |

## CURRENT LOOP REPEATER / SUPPLY FOR HAZARDOUS AREA SENSORS

### DAT 5030 IS



#### GENERAL DESCRIPTION

The DAT 5030 IS device is a galvanic isolated Intrinsically Safety Barrier, defined as "Associated Apparatus". The input can measure 0-20 mA or 4-20 mA current loops, both active or passive mode; auxiliary power supply is available to supply the current loop through the hazardous area (ZONE 0). The measure is converted in output as voltage signal (0-10V or 2-10V) or current signal (0-20mA or 4-20mA). Auxiliary power supply is available to supply the current loop connected to the output.

#### FEATURES

- 0-20mA or 4-20mA active or passive configurable input
- 0-10V, 2-10V, 0-20mA, 4-20mA configurable output
- Configurable by DIP – switch
- Single or Double Channel
- HART Compatible on request
- Galvanic isolation on all ways
- Power supply for current loop in hazardous area (ZONE 0)
- EMC compliance – CE Mark

- PROTECTION MODE: II (1) G D [ Ex ia ] IIC - [ Ex iaD ] according to the Directive ATEX 94/9/EC
- Din Rail mounting suitable in according to EN-50022

#### Available in 4 different versions:

- DAT5030 IS A Single channel
- DAT5030 IS B Double channel
- DAT5030 IS AH Single channel HART compatible
- DAT5030 IS BH Double channel HART compatible



#### Application areas



| POWER SUPPLY                |                                       | TEMPERATURE & HUMIDITY            |                | HOUSING         |                         |
|-----------------------------|---------------------------------------|-----------------------------------|----------------|-----------------|-------------------------|
| Power supply voltage        | 20 ÷ 30 Vdc                           | Operating temperature             | -20°C .. +60°C | Material        | Self-extinguish plastic |
| Current consumption         | 80 mA per channel with Vaux operating | Storage temperature               | -40 ÷ 85 °C    | Mounting        | DIN Rail                |
| Reverse polarity protection | 60 Vdc max.                           | Relative humidity (not condensed) | 0 .. 90 %      | Dimensions (mm) | 120 x 100 x 22.5        |

| ISOLATION        |                         | EMC (for industrial environments) |              | WEIGHT    |              |
|------------------|-------------------------|-----------------------------------|--------------|-----------|--------------|
| Input/Output     | 2000 Vac @ 50 Hz, 1min. | <b>DIRECTIVE 2004/108/EC</b>      |              | Single CH | about 100 g. |
| Input/Supply     | 2000 Vac @ 50 Hz, 1min. | Immunity                          | EN 61000-6-2 | Double CH | about 160 g. |
| Supply/Output    | 1500 Vac @ 50 Hz, 1min. | Emission                          | EN 61000-6-4 |           |              |
| Between channels | 2000 Vac @ 50 Hz, 1min. |                                   |              |           |              |

| INPUT            |                                |
|------------------|--------------------------------|
| Input signal     | Active or passive current loop |
| <b>Range</b>     |                                |
| Configurable     | 0÷20 mA , 4÷20 mA              |
| Zero regulation  | ± 5 %                          |
| Span regulation  | ± 5 %                          |
| Auxiliary Supply | > 15V @ 20mA                   |
| Input impedance  | < 25 Ω                         |

| OUTPUT                  |                                     |
|-------------------------|-------------------------------------|
| Output signal           |                                     |
| Configurable            | 4÷20 mA, 0÷20 mA, 0÷10 V and 2÷10 V |
| Output Rload resistance |                                     |
| Voltage                 | > 5 KΩ                              |
| Current                 | < 500 Ω                             |
| Auxiliary Supply        | > 12V @ 20mA                        |

| PERFORMANCES                       |                                 |
|------------------------------------|---------------------------------|
| Calibration error                  | ± 0.1 % of f.s.                 |
| Linearity error (*)                | ± 0.2 % of f.s.                 |
| Thermal drift                      | 0.02 % of Full scale/°C         |
| Response time (10÷90% of f.s.)     | < 0.2 sec.                      |
| Frequency response (HART Protocol) | bidirectional 0.5 ÷ 4 Khz @ 3dB |

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

| EX DATA                                 |             |
|---|-------------|
| Terminals J-I; A-B-C-D; O-P-Q-R Um=250V |             |
| <b>Terminals 4-6; 14-16;</b>            |             |
| Uo = 26.4 V                             | Ui = 30 V   |
| Io = 93 mA                              | Ii = 100 mA |
| Po = 615 mW                             | Pi = 0.75W  |
| Lo = 4.2 mH                             | Li = ~0 mH  |
| Co = 75 nF                              | Ci = 12 nF  |
| <b>Terminals 6-5; 16-15;</b>            |             |
| Uo = 1.2 V                              | Ui = 30 V   |
| Io = 46 mA                              | Ii = 100 mA |
| Po = 14 mW                              | Pi = 0.75W  |
|   | Li = ~0 mH  |
|   | Ci = 12 nF  |
| Ta : -20 ÷ +60°C                        |             |



**DAT 1010 IS  
DAT 1010 IS/HT**

**GENERAL DESCRIPTION**

The transmitter DAT 1010 IS is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input. The measured values are converted in a 4÷20 mA current signal. The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, mV, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- 4 ÷ 20 mA configurable output on current loop
- On-field reconfigurable
- Applicable in zones with explosion risk (ZONE 0)
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- PROTECTION MODE: II 1 G Ex ia IIC certified in according to the Directive ATEX 94/9/EC
- Suitable for DIN B in-head mounting


**Application areas**


SMART ATEX SERIES

| POWER SUPPLY                      |              | TEMPERATURE & HUMIDITY   |  | EX DATA  |             |
|-----------------------------------|--------------|--------------------------|--|--|-------------|
| Power supply voltage              | 11 .. 30 Vdc | Operative temperature    | -20°C .. +70°C<br><b>-20°C .. +85°C (vers. 'HT')</b> | Output /supply   | Input       |
| Reverse polarity protection       | 60 Vdc max.  | Storage temperature      | -40°C .. +85°C                                       | Ui = 30 V  | Uo = 6.2 V  |
| EMC (for industrial environments) |              | Humidity (not condensed) | 0 .. 90 %  | Ii = 100 mA  | Io = 100 mA |
| DIRECTIVE 2004/108/EC             |              | HOUSING                  |  | Pi = 0.75 W  | Po = 500 mW |
| Immunity                          | EN 61000-6-2 | Material                 | Self-extinguishing plastic                           | Li = 0.1 mH  | Lo = 3.6 mH |
| Emission                          | EN 61000-6-4 | Dimensions               | Ø= 43 mm ; H = 24 mm                                 | Ci = 10 nF   | Co = 5 uF   |
|                                   |              | Weight                   | about 50 g.  | T6 : -20 ÷ +55°C<br>T5 : -20 ÷ +70°C<br><b>T4 : -20 ÷ +85°C (vers. 'HT')</b> |             |
|                                   |              | Mounting                 | DIN B head or bigger                                 |  |             |

| INPUT                            |                                       |         |          |
|----------------------------------|---------------------------------------|---------|----------|
| Input type                       | Min                                   | Max     | Span min |
| <b>RTD 2,3,4 wires</b>           |                                       |         |          |
| Pt100                            | -200°C                                | 850°C   | 50°C     |
| Pt1000                           | -200°C                                | 200°C   | 50°C     |
| Ni100                            | -60°C                                 | 180°C   | 50°C     |
| Ni1000                           | -60°C                                 | 150°C   | 50°C     |
| <b>Voltage</b>                   |                                       |         |          |
| mV                               | -100 mV                               | +700 mV | 2 mV     |
| Potentiometer<br>(Nominal value) | 0 Ω                                   | 200 Ω   | 10%      |
|                                  | 200 Ω                                 | 500 Ω   | 10%      |
|                                  | 0.5 KΩ                                | 2 KΩ    | 10%      |
| <b>RES. 2,3,4 wires</b>          |                                       |         |          |
| Low                              | 0 Ω                                   | 300 Ω   | 10 Ω     |
| High                             | 0 Ω                                   | 2000 Ω  | 200 Ω    |
| <b>Input calibration (1)</b>     |                                       |         |          |
| RTD                              | the higher of ±0.1 % f.s. and ±0.2°C  |         |          |
| Res. Low                         | the higher of ±0.1 % f.s. and ±0.15 Ω |         |          |
| Res. High                        | the higher of ±0.2 % f.s. and ±1 Ω    |         |          |
| mV                               | the higher of ±0.1 % f.s. and ±10 uV  |         |          |
| <b>Input impedance</b>           |                                       |         |          |
| mV                               | ≥ 10 MΩ                               |         |          |
| <b>Linearity (1)</b>             |                                       |         |          |
| RTD                              | ± 0.1 % f.s.                          |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| <b>Line resistance influence (1)</b>  |                                 |
| mV                                    | ≤ 0.8 uV/Ohm                    |
| RTD 3-wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4-wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. output value                     | about 22.5 mA                   |
| Min. output value                     | about 3.6 mA                    |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |

# INTRINSICALLY SAFE PC CONFIGURABLE TRANSMITTER FOR UNIVERSAL INPUT

## DAT 1015 IS DAT 1015 IS/HT



### GENERAL DESCRIPTION

The transmitter DAT 1015 IS is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input. Moreover the DAT 1015 IS is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4÷20 mA current signal. The device guarantees high accuracy and performances stability both in time and in temperature.

### FEATURES

- Configurable input for RTD, mV, TC, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- 4 ÷ 20 mA configurable output on current loop
- On-field reconfigurable

- Applicable in zones with explosion risk (ZONE 0)
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- PROTECTION MODE: II 1 G Ex ia IIC certified in according to the Directive ATEX 94/9/EC
- Suitable for DIN B in-head mounting



### Application areas



| POWER SUPPLY                             |              | TEMPERATURE & HUMIDITY   |  | EX DATA   |                         |
|--|--------------|--------------------------|--|---|-------------------------|
| Power supply voltage                     | 11 .. 30 Vdc | Operative temperature    | -20°C .. +70°C<br><b>-20°C .. +85°C (vers. 'HT')</b> | Output /supply  | Input                   |
| Reverse polarity protection              | 60 Vdc max.  | Storage temperature      | -40°C .. +85°C                                       | U <sub>i</sub> = 30 V   | U <sub>o</sub> = 6.2 V  |
|  |              | Humidity (not condensed) | 0 .. 90 %  | I <sub>i</sub> = 100 mA   | I <sub>o</sub> = 100 mA |
| <b>EMC (for industrial environments)</b> |              | <b>HOUSING</b>           |  | P <sub>i</sub> = 0.75 W   | P <sub>o</sub> = 500 mW |
| <b>DIRECTIVE 2004/108/EC</b>             |              | Material                 | Self-extinguishing plastic                           | L <sub>i</sub> = 0.1 mH   | L <sub>o</sub> = 3.6 mH |
| Immunity                                 | EN 61000-6-2 | Dimensions               | Ø= 43 mm ; H = 24 mm                                 | C <sub>i</sub> = 10 nF  | C <sub>o</sub> = 5 µF   |
| Emission                                 | EN 61000-6-4 | Weight                   | about 50 g.  | T <sub>6</sub> : -20 ÷ +55°C<br>T <sub>5</sub> : -20 ÷ +70°C<br><b>T<sub>4</sub> : -20 ÷ +85°C (vers. 'HT')</b> |                         |
|  |              | Mounting                 | DIN B head or bigger                                 |   |                         |

| INPUT                                   |                                       |         |          |
|---|---------------------------------------|---------|----------|
| Input type                              | Min                                   | Max     | Span min |
| <b>TC CJC int./ext.</b>                 |                                       |         |          |
| J                                       | -200°C                                | 1200°C  | 2 mV     |
| K                                       | -200°C                                | 1370°C  | 2 mV     |
| S                                       | -50°C                                 | 1760°C  | 2 mV     |
| R                                       | -50°C                                 | 1760°C  | 2 mV     |
| B                                       | 400°C                                 | 1820°C  | 2 mV     |
| E                                       | -200°C                                | 1000°C  | 2 mV     |
| T                                       | -200°C                                | 400°C   | 2 mV     |
| N                                       | -200°C                                | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>                  |                                       |         |          |
| Pt100                                   | -200°C                                | 850°C   | 50°C     |
| Pt1000                                  | -200°C                                | 200°C   | 50°C     |
| Ni100                                   | -60°C                                 | 180°C   | 50°C     |
| Ni1000                                  | -60°C                                 | 150°C   | 50°C     |
| <b>Voltage</b>                          |                                       |         |          |
| mV                                      | -100 mV                               | +700 mV | 2 mV     |
| <b>Potentiometer</b><br>(Nominal value) | 0 Ω                                   | 200 Ω   | 10%      |
|   | 200 Ω                                 | 500 Ω   | 10%      |
|   | 0.5 KΩ                                | 2 KΩ    | 10%      |
| <b>Resistance</b>                       |                                       |         |          |
| Low                                     | 0 Ω                                   | 300 Ω   | 10 Ω     |
| High                                    | 0 Ω                                   | 2000 Ω  | 200 Ω    |
| <b>Input calibration (1)</b>            |                                       |         |          |
| RTD                                     | the higher of ±0.1 % f.s. and ±0.2 °C |         |          |
| Res. Low                                | the higher of ±0.1 % f.s. and ±0.15 Ω |         |          |
| Res. High                               | the higher of ±0.2 % f.s. and ±1 Ω    |         |          |
| mV, TC                                  | the higher of ±0.1 % f.s. and ±10 µV  |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| <b>Input impedance</b>                |                                 |
| TC, mV                                | >= 10 MΩ                        |
| <b>Linearity (1)</b>                  |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence</b>      |                                 |
| TC, mV                                | <=0.8 µV/Ohm                    |
| RTD 3-wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4-wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC comp.</b>                      | ± 0.5 °C                        |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. output value                     | about 22.5 mA                   |
| Min. output value                     | about 3.6 mA                    |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 µA |       |          |

**DAT 1065 IS  
DAT 1065 IS/HT**



**GENERAL DESCRIPTION**

The isolated transmitter DAT 1065 IS is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input. Moreover the DAT 1065 IS is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4÷20 mA current signal. The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, mV, TC, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- 4 ÷ 20 mA configurable output on current loop
- Galvanic isolation at 2000 Vac
- On-field reconfigurable

- Applicable in zones with explosion risk (ZONE 0)
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- PROTECTION MODE: II 1 G Ex ia IIC certified in according to the Directive ATEX 94/9/EC
- Suitable for DIN B in-head mounting



**Application areas**



SMART ATEX SERIES

| POWER SUPPLY                             |                         | TEMPERATURE & HUMIDITY   |  | EX DATA  |             |
|--|-------------------------|--------------------------|--|--|-------------|
| Power supply voltage                     | 11 .. 30 Vdc            | Operative temperature    | -20°C .. +70°C<br><b>-20°C .. +85°C (vers. 'HT')</b> | Output /supply   | Input       |
| Reverse polarity protection              | 60 Vdc max.             | Storage temperature      | -40°C .. +85°C                                       | Ui = 30 V  | Uo = 6.2 V  |
| <b>ISOLATION</b>                         |                         | Humidity (not condensed) | 0 .. 90 %  | Ii = 100 mA  | Io = 100 mA |
| Input - Output/Power supply              | 2000 Vac, 50 Hz, 1 min. | <b>HOUSING</b>           |  | Pi = 0.75 W  | Po = 500 mW |
| <b>EMC (for industrial environments)</b> |                         | Material                 | Self-extinguishing plastic                           | Li = 0.1 mH  | Lo = 3.6 mH |
| <b>DIRECTIVE 2004/108/EC</b>             |                         | Mounting                 | DIN B head or bigger                                 | Ci = 10 nF   | Co = 5 uF   |
| Immunity                                 | EN 61000-6-2            | Dimensions (mm)          | Ø = 43 mm ; H = 24 mm                                | T6 : -20 ÷ +55°C<br>T5 : -20 ÷ +70°C<br><b>T4 : -20 ÷ +85°C (vers. 'HT')</b> |             |
| Emission                                 | EN 61000-6-4            | Weight                   | about 90 g.  |  |             |

| INPUT                                |                                       |         |          |
|--------------------------------------|---------------------------------------|---------|----------|
| Input type                           | Min                                   | Max     | Span min |
| <b>TC CJC int./ext.</b>              |                                       |         |          |
| J                                    | -200°C                                | 1200°C  | 2 mV     |
| K                                    | -200°C                                | 1370°C  | 2 mV     |
| S                                    | -50°C                                 | 1760°C  | 2 mV     |
| R                                    | -50°C                                 | 1760°C  | 2 mV     |
| B                                    | 400°C                                 | 1820°C  | 2 mV     |
| E                                    | -200°C                                | 1000°C  | 2 mV     |
| T                                    | -200°C                                | 400°C   | 2 mV     |
| N                                    | -200°C                                | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |                                       |         |          |
| Pt100                                | -200°C                                | 850°C   | 50°C     |
| Pt1000                               | -200°C                                | 200°C   | 50°C     |
| Ni100                                | -60°C                                 | 180°C   | 50°C     |
| Ni1000                               | -60°C                                 | 150°C   | 50°C     |
| <b>Voltage</b>                       |                                       |         |          |
| mV                                   | -100 mV                               | +700 mV | 2 mV     |
| <b>Potentiometer (Nominal value)</b> | 0 Ω                                   | 200 Ω   | 10%      |
|                                      | 200 Ω                                 | 500 Ω   | 10%      |
|                                      | 0.5 KΩ                                | 2 KΩ    | 10%      |
| <b>RES. 2,3,4 wires</b>              |                                       |         |          |
| Low                                  | 0 Ω                                   | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω                                   | 2000 Ω  | 200 Ω    |
| <b>Input calibration (1)</b>         |                                       |         |          |
| RTD                                  | the higher of ±0.1 % f.s. and ±0.2°C  |         |          |
| Res. Low                             | the higher of ±0.1 % f.s. and ±0.15 Ω |         |          |
| Res. High                            | the higher of ±0.2 % f.s. and ±1 Ω    |         |          |
| mV, TC                               | the higher of ±0.1 % f.s. and ±10 uV  |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| <b>Input impedance</b>                |                                 |
| TC, mV                                | >= 10 MΩ                        |
| <b>Linearity (1)</b>                  |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence (1)</b>  |                                 |
| TC, mV                                | <=0.4 uV/Ohm                    |
| RTD 3-wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4-wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC comp.</b>                      | ± 0.5 °C                        |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. output value                     | about 22.5 mA                   |
| Min. output value                     | about 3.6 mA                    |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |



ELECTRONIC AND CONTROL PROCESS DEVICES

[www.datexel.it](http://www.datexel.it)



**SMART series intrinsically safe ATEX94/9/EC  temperature and signal transmitters and converters**



Application areas





## "P.D.S. SERIES": temperature and signal transmitters and converters for DIN rail mounting

The P.D.S. (programmable by dip-switches) series transmitters and converters can accept on their input signals coming from 2 or 3 wires Pt100, Thermocouple and Strain Gauge sensors or Voltage and Current signals.

- Single and double channel 4÷20 mA two wires transmitters for Pt100 input without galvanic isolation (**DAT2065, DAT2066**)
- 4÷20 mA two wires transmitter for Thermocouple input without galvanic isolation (**DAT2045**)
- Single and double channel converters for Pt100 input with configurable output as voltage or current without galvanic isolation (**DAT2165, DAT2166**)
- Isolated converter for Pt100 input with configurable output as voltage or current (**DAT2061**)
- Converter for Thermocouple input with configurable output as voltage or current without galvanic isolation (**DAT2145**)
- Isolated signal converters with configurable input and output as voltage or current (**DAT5020, DAT5021, DAT5023I, DAT5023V**)
- Isolated signal splitter with configurable input and output as voltage or current (**DAT5022**)
- Isolated signal converter for Strain Gauge input with configurable output as voltage or current (**DAT5025**)

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**P.D.S. series** Temperature and signal transmitters and converters, isolators, signal splitters



**DAT 2065**



**GENERAL DESCRIPTION**

The transmitter DAT 2065 is designed to provide on its output a linearised 4÷20 mA current loop signal proportional with the temperature characteristic of the Pt100 sensor connected on its input. It is possible to connect on the input both 3 wires and 2 wires Pt100.

**FEATURES**

- Configurable Input for Pt100
- Good accuracy and performance stability
- Configurable by DIP-switches
- 4 to 20 mA linearised output on current loop
- Unit of measure configurable in °C or °F
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 10 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 80 g.                 |

**INPUT (RTD)**

| Input type        | Min   | Max   | Span min |
|-------------------|-------|-------|----------|
| Pt100 (2-3 wires) | -50°C | 650°C | 50°C     |

**OUTPUT**

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 4 mA | 20 mA | -        |

**Min. input value programmability**

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

**Input Calibration (1)**

the higher of ± 0.1 % f.s. and 0.2 °C

**RTD sensor excitation current**

|      |        |
|------|--------|
| Typ. | 0.6 mA |
|------|--------|

**Thermal drift (1)**

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

**Linearity error (\*)**

± 0.15 % of f.s.

**Burn-out values**

|                   |        |
|-------------------|--------|
| Max. value output | >20 mA |
|-------------------|--------|

**Line resistance influence (1)**

0.05 % f.s. / Ω (100 Ω max balanced for wire)

|                                       |              |
|---------------------------------------|--------------|
| <b>Response time (10÷90% of f.s.)</b> | about 300 ms |
|---------------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

P.D.S. SERIES

**DOUBLE CHANNEL DIP SWITCH CONFIGURABLE TRANSMITTER FOR PT100**

**DAT 2066**



**GENERAL DESCRIPTION**

The double channel transmitter DAT 2066 is designed to provide on the output two linearised 4÷20 mA current loop signals proportional with the temperature characteristics of the Pt100 sensors connected on its inputs. It is possible to connect on the input both 3 wire Pt100 and 2 wire Pt100.

**FEATURES**

- Configurable double Input for Pt100
- Good accuracy and performance stability
- Configurable by DIP-switches
- 4 to 20 mA linearised double output on current loop
- 1000 Vac isolation among the channels
- Unit of measure configurable in °C or °F
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 10 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 80 g.                 |

**INPUT (RTD)**

| Input type        | Min   | Max   | Span min |
|-------------------|-------|-------|----------|
| Pt100 (2-3 wires) | -50°C | 650°C | 50°C     |

**OUTPUT**

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 4 mA | 20 mA | -        |

**Min. input value programmability**

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

**Input Calibration (1)**

the higher of ± 0.1 % f.s. and 0.2 °C

**RTD sensor excitation current**

|      |        |
|------|--------|
| Typ. | 0.6 mA |
|------|--------|

**Thermal drift (1)**

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

**Linearity error (\*)**

± 0.15 % of f.s.

**Burn-out values**

|                   |        |
|-------------------|--------|
| Max. value output | >20 mA |
|-------------------|--------|

**Line resistance influence (1)**

0.05 % f.s. / Ω (100 Ω max balanced for wire)

|                                       |              |
|---------------------------------------|--------------|
| <b>Response time (10÷90% of f.s.)</b> | about 300 ms |
|---------------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

## DIP SWITCH CONFIGURABLE CONVERTER FOR PT100

DAT 2165



### GENERAL DESCRIPTION

The converter DAT 2165 is designed to provide on its output a linearised voltage or current signal proportional with the temperature characteristic of the Pt100 sensor connected on its input. It is possible to connect on the input both 3 wires and 2 wires Pt100.

### FEATURES

- Configurable Input for Pt100
- Good accuracy and performance stability
- Configurable by DIP-switches
- Linearised voltage or current output
- Unit of measure configurable in °C or °F
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 40 mA max. |
| Voltage output | 10 mA max. |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 80 g.                 |

### INPUT (RTD)

| Input type        | Min   | Max   | Span min |
|-------------------|-------|-------|----------|
| Pt100 (2-3 wires) | -50°C | 650°C | 50°C     |

### OUTPUT

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 0 mA | 20 mA | -        |
| Direct Voltage | 0 V  | 10 V  | -        |

### Min. input value programmability

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

### Input Calibration (1)

the higher of ± 0.1 % f.s. and 0.2 °C

### RTD sensor excitation current

|      |        |
|------|--------|
| Typ. | 0.6 mA |
|------|--------|

### Thermal drift (1)

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

### Linearity error (\*)

± 0.15 % of f.s.

### Burn-out values

|                   |                    |
|-------------------|--------------------|
| Max. value output | >20 mA or > 10 Vdc |
|-------------------|--------------------|

### Line resistance influence (1)

0.05 % f.s. / Ω (100 Ω max balanced for wire)

|                                       |              |
|---------------------------------------|--------------|
| <b>Response time (10÷90% of f.s.)</b> | about 300 ms |
|---------------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

## DOUBLE CHANNEL DIP SWITCH CONFIGURABLE CONVERTER FOR PT100

DAT 2166



### GENERAL DESCRIPTION

The double channel converter DAT 2166 is designed to provide on the output two linearised voltage or current signals proportional with the temperature characteristics of the Pt100 sensors connected on its inputs. It is possible to connect on the input both 3 wire and 2 wire Pt100.

### FEATURES

- Configurable double Input for Pt100
- Good accuracy and performance stability
- Configurable by DIP-switches
- Linearised double voltage or current output
- 1000 Vac isolation among the channels
- Unit of measure configurable in °C or °F
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION (for each channel)

|                |            |
|----------------|------------|
| Current output | 40 mA max. |
| Voltage output | 15 mA max. |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 80 g.                 |

### INPUT (RTD)

| Input type        | Min   | Max   | Span min |
|-------------------|-------|-------|----------|
| Pt100 (2-3 wires) | -50°C | 650°C | 50°C     |

### OUTPUT

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 0 mA | 20 mA | -        |
| Direct Voltage | 0 V  | 10 V  | -        |

### Min. input value programmability

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

### Input Calibration (1)

the higher of ± 0.1 % f.s. and 0.2 °C

### RTD sensor excitation current

|      |        |
|------|--------|
| Typ. | 0.6 mA |
|------|--------|

### Thermal drift (1)

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

### Linearity error (\*)

± 0.15 % of f.s.

### Burn-out values

|                   |                    |
|-------------------|--------------------|
| Max. value output | >20 mA or > 10 Vdc |
|-------------------|--------------------|

### Line resistance influence (1)

0.05 % f.s. / Ω (100 Ω max balanced for wire)

|                                       |              |
|---------------------------------------|--------------|
| <b>Response time (10÷90% of f.s.)</b> | about 300 ms |
|---------------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

**DAT 2061**



**GENERAL DESCRIPTION**

The converter DAT 2061 is designed to provide on its output a linearised voltage or current signal proportional with the temperature characteristic of the Pt100 sensor connected on its input. It is possible to connect on the input both 3 wires and 2 wires Pt100.

**FEATURES**

- Input for RTD type Pt100
- Unit of measure configurable in °C or °F
- Zero and Span values configurable by DIP-switches
- Voltage or current output
- Output values configurable by DIP-switches
- Galvanic isolation at 2000 Vac between input / output and power supply
- Good accuracy and performance stability
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 60 mA max. |
| Voltage output | 40 mA max. |

**ISOLATION**

2000 Vac, 50 Hz, 1 min.

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 80 g.                 |

**INPUT (RTD)**

| Input type        | Min   | Max   | Span min |
|-------------------|-------|-------|----------|
| Pt100 (2-3 wires) | -50°C | 650°C | 50°C     |

**OUTPUT**

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 0 mA | 20 mA | -        |
| Direct Voltage | 0 V  | 10 V  | -        |

**Min. input value programmability**

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

**Input Calibration (1)**

the higher of ± 0.1 % f.s. and 0.2 °C

**RTD sensor excitation current**

|      |        |
|------|--------|
| Typ. | 0.6 mA |
|------|--------|

**Thermal drift (1)**

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

**Linearity error (\*)**

± 0.15 % of f.s.

**Burn-out values**

|                   |                    |
|-------------------|--------------------|
| Max. value output | >20 mA or > 10 Vdc |
|-------------------|--------------------|

**Line resistance influence (1)**

0.05 % f.s. / Ω (100 Ω max balanced for wire)

|                                       |              |
|---------------------------------------|--------------|
| <b>Response time (10÷90% of f.s.)</b> | about 500 ms |
|---------------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

**NOT LINEARIZED DIP SWITCH CONFIGURABLE TRANSMITTER FOR THERMOCOUPLE**

**DAT 2045**



**GENERAL DESCRIPTION**

The transmitter DAT 2045 is designed to provide on its output a 4÷20 mA current loop signal linear and proportional with the value of voltage generated from the thermocouple connected to its input. The DAT 2045 doesn't execute the linearisation of the input signal; this feature allows to use the transmitter with acquisition systems with an internal linearisation software.

**FEATURES**

- Configurable Input for thermocouples type K, J, R, S and T
- Good accuracy and performance stability
- Configurable by DIP-switches
- 4 to 20 mA "voltage linear" output on current loop
- Unit of measure configurable in °C or °F
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 10 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | About 90 g.                 |

**INPUT (TC)**

| Input type | Min   | Max    | Span min |
|------------|-------|--------|----------|
| J          | -50°C | 950°C  | 100°C    |
| K          | -50°C | 1370°C | 100°C    |
| S          | -50°C | 1760°C | 700°C    |
| R          | -50°C | 1760°C | 700°C    |
| T          | -50°C | 450°C  | 100°C    |

**OUTPUT**

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 4 mA | 20 mA | -        |

**Min. input value programmability**

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

**Input Calibration (1)**

the higher of ± 0.1 % f.s. and 0.2 °C

|                         |         |
|-------------------------|---------|
| <b>CJC compensation</b> | ± 0.5°C |
|-------------------------|---------|

**Thermal drift (1)**

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

**Linearity error (\*)**

± 0.05 % of f.s.

**Burn-out values**

|                   |        |
|-------------------|--------|
| Max. value output | >20 mA |
|-------------------|--------|

**Input Impedance**

10 MΩ

**Line resistance influence (1)**

0.2 μV / Ω

|                                       |              |
|---------------------------------------|--------------|
| <b>Response time (10÷90% of f.s.)</b> | about 500 ms |
|---------------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

P.D.S. SERIES

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## NOT LINEARIZED DIP SWITCH CONFIGURABLE CONVERTER FOR THERMOCOUPLE

DAT 2145



### GENERAL DESCRIPTION

The converter DAT 2145 is designed to provide on its output a voltage or current signal linear and proportional with the value of voltage generated from the thermocouple connected to its input. The DAT 2145 doesn't execute the linearisation of the input signal; this feature allows to use the converter with acquisition systems with an internal linearisation software.

### FEATURES

- Configurable Input for thermocouples type K, J, R, S and T
- Good accuracy and performance stability
- Configurable by DIP-switches
- Voltage or current "voltage linear" output
- Unit of measure configurable in °C or °F
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |              |
|----------------------------|--------------|
| Power supply voltage       | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max   |

### CURRENT CONSUMPTION

|                |            |
|----------------|------------|
| Current output | 40 mA max. |
| Voltage output | 10 mA max. |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | About 90 g.                 |

### INPUT (TC)

| Input type | Min   | Max    | Span min |
|------------|-------|--------|----------|
| J          | -50°C | 950°C  | 100°C    |
| K          | -50°C | 1370°C | 100°C    |
| S          | -50°C | 1760°C | 700°C    |
| R          | -50°C | 1760°C | 700°C    |
| T          | -50°C | 450°C  | 100°C    |

### OUTPUT

| Output type    | Min  | Max   | Span min |
|----------------|------|-------|----------|
| Direct current | 4 mA | 20 mA | -        |
| Direct Voltage | 0 V  | 10 V  | -        |

### Min. input value programmability

|              |             |
|--------------|-------------|
| Programmable | -50 ÷ 50 °C |
|--------------|-------------|

### Input Calibration (1)

the higher of ± 0.1 % f.s. and 0.2 °C

|                  |         |
|------------------|---------|
| CJC compensation | ± 0.5°C |
|------------------|---------|

### Thermal drift (1)

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

### Linearity error (\*)

± 0.05 % of f.s.

### Burn-out values

|                   |                  |
|-------------------|------------------|
| Max. value output | >20 mA or 10 Vdc |
|-------------------|------------------|

### Input Impedance

10 MΩ

### Line resistance influence (1)

0.2 μV / Ω

|                                |              |
|--------------------------------|--------------|
| Response time (10÷90% of f.s.) | about 500 ms |
|--------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis, power supply variation and linearisation error.

## DIP SWITCH CONFIGURABLE 3 WAYS ISOLATED SIGNAL CONVERTER

DAT 5020



### GENERAL DESCRIPTION

The converter DAT 5020 is designed to provide on its output a voltage or current signal proportional with the value of the normalised signal or the potentiometer applied on its input. The user can program the input and output ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device. The 2000 Vac isolation between input, power supply and output eliminates the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications. On the input side, an auxiliary supply source isolated from the power supply is provided; this allows to connect on input both active and passive current loops.

### FEATURES

- Input for voltage, current and potentiometer signal
- Voltage or current configurable output
- High number of Input / output configuration
- Galvanic isolation at 2000 Vac on the 3 ways
- Isolated power supply source for passive current transmitter on input
- Good accuracy and performance stability
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 32 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply          | 18 Vdc min @ 20 mA |

### Current consumption

|  |             |
|--|-------------|
| Current output with active Power supply aux operative input (20 mA): | 110 mA max. |
| Voltage output   | 80 mA max.  |

### ISOLATION

|              |                        |
|--------------|------------------------|
| All the ways | 2000 Vac, 50 Hz, 1 min |
|--------------|------------------------|

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 80 g.                 |

### INPUT

| Input type | Min   | Max   | Span min |
|------------|-------|-------|----------|
| Current    | 0 mA  | 20 mA | -        |
| Voltage    | -10 V | 10 V  | -        |

### Potentiometer

|                          |     |       |   |
|--------------------------|-----|-------|---|
| (Rnom. from 1kΩ to 5 kΩ) | 0 % | 100 % | - |
|--------------------------|-----|-------|---|

### Max input signal

30 Vdc or 50 mA

### Input Calibration (1)

± 0.1 % f.s.

### Linearity (\*)

± 0.15 % f.s.

### Input Impedance

|         |                           |
|---------|---------------------------|
| Voltage | >/= 1 MΩ, Current: ~ 50 Ω |
|---------|---------------------------|

### Thermal drift (1)

|            |               |
|------------|---------------|
| Full Scale | ± 0.02 % / °C |
|------------|---------------|

### OUTPUT

| Output type | Min   | Max   | Span min |
|-------------|-------|-------|----------|
| Current     | 0 mA  | 20 mA | -        |
| Voltage     | -10 V | 10 V  | -        |

### Max output signal

15 Vdc or 30 mA

|                                |              |
|--------------------------------|--------------|
| Response time (10÷90% of f.s.) | about 500 ms |
|--------------------------------|--------------|

(1) = referred to the input Span (difference between max. and min.)

(\*) = inclusive of hysteresis and power supply variation.



**DAT 5021**



**GENERAL DESCRIPTION**

The converter DAT 5021 is designed to provide on its output a voltage or current signal proportional with the value of the normalised signal applied on its input. The user can program the input and output ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device.

**FEATURES**

- Input for voltage and current signal
- Input range configurable by DIP-switches
- Isolated power supply source for passive current transmitter on input
- Isolated power supply source for passive loads on output
- Voltage or current output configurable by DIP-switches
- Galvanic isolation at 2000 Vac between input, power supply and output
- Good accuracy and performance stability
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 30 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply OUT      | 12 Vdc min @ 20 mA |
| Aux. Power Supply IN       | 18 Vdc @ 20 mA     |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | About 90 g.                 |

**OUTPUT**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
|             | 4 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |
|             | 2 V  | 10 V  | -        |
|             | 0 V  | 5 V   | -        |
|             | 1 V  | 5 V   | -        |

**CURRENT CONSUMPTION**

Current output with active Power supply aux operative input (20 mA): 90 mA max.  
Voltage output: 40 mA max.

**ISOLATION**

All the ways: 2000 Vac, 50 Hz, 1 min

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**DIRECTIVE 2004 / 108 / EC**

**INPUT**

| Input type | Min  | Max   | Span min |
|------------|------|-------|----------|
| Current    | 0 mA | 20 mA | -        |
|            | 4 mA | 20 mA | -        |
| Voltage    | 0 V  | 10 V  | -        |
|            | 2 V  | 10 V  | -        |
|            | 0 V  | 5 V   | -        |
|            | 1 V  | 5 V   | -        |

**Input Calibration**: ± 0.1 % f.s.

**Linearity (\*)**: ± 0.05 % f.s.

**Thermal drift**

Full Scale: ± 0.02 % / °C

**Response time (from 10 to 90 % of f.s.)**: < 10 ms

**Load resistance (Rload)**

Voltage output: >/= 5 KΩ

Current output: </= 500 Ω

(\*) = inclusive of hysteresis and power supply variation.

P.D.S. SERIES

**4 WAYS ISOLATED DIP SWITCH CONFIGURABLE SIGNAL CONVERTER/SIGNAL SPLITTER**

**DAT 5022**



**GENERAL DESCRIPTION**

The converter DAT 5022 is designed to provide on its output two voltage or current signals proportional with the value of the normalised signal applied on its input. The user can program the input and outputs ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device.

**FEATURES**

- Input for voltage and current signal
- Input range configurable by DIP-switches
- Voltage or Current two independent output channels
- Voltage or current outputs configurable by DIP-switches
- Isolated power supply source for passive current transmitter on input
- Isolated power supply source for passive loads on outputs
- Galvanic isolation at 2000 Vac between input, power supply and outputs
- Good accuracy and performance stability
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 30 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply OUT      | 12 Vdc min @ 20 mA |
| Aux. Power Supply IN       | 18 Vdc @ 20 mA     |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | About 90 g.                 |

**OUTPUT (2 CHANNELS)**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
|             | 4 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |
|             | 2 V  | 10 V  | -        |
|             | 0 V  | 5 V   | -        |
|             | 1 V  | 5 V   | -        |

**CURRENT CONSUMPTION**

Current output with active Power supply aux operative input (20 mA): 120 mA max.  
Voltage output: 60 mA max.

**ISOLATION**

All the ways: 2000 Vac, 50 Hz, 1 min

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**DIRECTIVE 2004 / 108 / EC**

**INPUT**

| Input type | Min  | Max   | Span min |
|------------|------|-------|----------|
| Current    | 0 mA | 20 mA | -        |
|            | 4 mA | 20 mA | -        |
| Voltage    | 0 V  | 10 V  | -        |
|            | 2 V  | 10 V  | -        |
|            | 0 V  | 5 V   | -        |
|            | 1 V  | 5 V   | -        |

**Input Calibration**: ± 0.1 % f.s.

**Linearity (\*)**: ± 0.05 % f.s.

**Thermal drift**

Full Scale: ± 0.02 % / °C

**Response time (from 10 to 90 % of f.s.)**: < 10 ms

**Load resistance (Rload)**

Voltage output: >/= 5 KΩ

Current output: </= 500 Ω

(\*) = inclusive of hysteresis and power supply variation.

## DIP SWITCH CONFIGURABLE CONVERTER FOR AC CURRENT SIGNAL

DAT 5023Iac



### GENERAL DESCRIPTION

The converter DAT 5023Iac is designed to detect the TRMS value of the AC current signal from 0÷5 A to 0÷60 A applied on its input providing a voltage or current output signal. The user can program the input and output ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device. The 2000 Vac isolation between power supply and output eliminates the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications. The measure of the input signal is executed by a cross connector and a Hall effect transducer; this allows to isolate the input side from the output and power supply.

### FEATURES

- Input for AC current signal
- Build-in cross connector (8mm diameter)
- Measure by Hall effect transducer
- True Root Mean Square (TRMS) measure
- Galvanic isolation at 2000 Vac
- Isolated power supply source for passive loads on output
- Independent zero and full scale regulations
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 30 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply OUT      | 12 Vdc min @ 20 mA |

### CURRENT CONSUMPTION

|  |            |
|--|------------|
| Current output with Aux supply out operative (20 mA): 90 mA max. |            |
| Voltage output   | 60 mA max. |

### ISOLATION

|              |                        |
|--------------|------------------------|
| All the ways | 2000 Vac, 50 Hz, 1 min |
|--------------|------------------------|

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 22.5 |
| Weight    | About 170 g.                |

### INPUT

| Input type   | Min    | Max    | Span min |
|--------------|--------|--------|----------|
| DAT5023Iac/A | 0÷5 A  | 0÷10 A | -        |
| DAT5023Iac/B | 0÷20 A | 0÷30 A | -        |
| DAT5023Iac/D | 0÷40 A | 0÷60 A | -        |

### Bandwidth (-3dB)

40 Hz ÷ 1KHz

**Input Calibration** ± 0.1 % f.s.

**Linearity (\*)** ±1% f.s.

### Thermal drift

Full Scale ± 0.02 % / °C

### OUTPUT

| output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
|             | 4 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |
|             | 2 V  | 10 V  | -        |
|             | 0 V  | 5 V   | -        |
|             | 1 V  | 5 V   | -        |

### Load resistance (Rload)

Voltage output > / = 5 KΩ

Current output < / = 500 Ω

**Response time (10÷90% of f.s.)** About 400 ms

(\*) = inclusive of hysteresis and power supply variation.

## ISOLATED CONVERTER FOR DC CURRENT SIGNAL WITH FIXED INPUT AND DIP SWITCH CONFIGURABLE OUTPUT

DAT 5023I dc



### GENERAL DESCRIPTION

The converter DAT 5023I dc is designed to convert the DC current signal from 0÷5 A to 0÷60 A applied on its input in a voltage or current output signal. The device is available in three versions (A, B and D) in function of the input current value. The user can program the output ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device.

### FEATURES

- Input for DC current signal
- Build-in cross connector (8mm diameter)
- Measure by Hall effect transducer
- Galvanic isolation at 2000 Vac
- Isolated power supply source for passive loads on output
- Independent zero and full scale regulations
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 30 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply OUT      | 12 Vdc min @ 20 mA |

### CURRENT CONSUMPTION

|  |            |
|--|------------|
| Current output with Aux supply out operative (20 mA): 90 mA max. |            |
| Voltage output   | 60 mA max. |

### ISOLATION

|              |                        |
|--------------|------------------------|
| All the ways | 2000 Vac, 50 Hz, 1 min |
|--------------|------------------------|

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 22.5 |
| Weight    | About 170 g.                |

### INPUT

| Input type                 | Min   | Max    | Span min |
|----------------------------|-------|--------|----------|
| Current (A) <sup>(1)</sup> | 0÷5 A | 0÷60 A | -        |

**Input Calibration** ± 0.1 % f.s.

**Linearity (\*)** ±1% f.s.

### Thermal drift

Full Scale ± 0.02 % / °C

### OUTPUT

| output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
|             | 4 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |
|             | 2 V  | 10 V  | -        |
|             | 0 V  | 5 V   | -        |
|             | 1 V  | 5 V   | -        |

### Load resistance (Rload)

Voltage output > / = 5 KΩ

Current output < / = 500 Ω

**Response time (10÷90% of f.s.)** About 400 ms

(1) = To choose the input range refer to the technical data sheet.

(\*) = inclusive of hysteresis and power supply variation.

**DAT 5023/V**



**GENERAL DESCRIPTION**

The converter DAT 5023/V is designed to detect the TRMS value of the AC voltage signal or to convert the DC voltage signal applied on its input in a voltage or current output signal. The user can program the input type and output ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device. The 1500 Vac isolation between input, power supply and output eliminates the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications.

**FEATURES**

- Input for AC/DC voltage signal
- Dedicated measure inputs
- Input type of measure ( AC / DC ) configurable by DIP-switches
- True Root Mean Square (TRMS) measure
- Isolated power supply source for passive loads on output
- Voltage or current output configurable by DIP-switches
- Galvanic isolation at 1500 Vac between input, power supply and output
- Good accuracy and performance stability
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 30 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply OUT      | 12 Vdc min @ 20 mA |

**CURRENT CONSUMPTION**

Current output with Aux supply out operative (20 mA): 80 mA max.

|                |            |
|----------------|------------|
| Voltage output | 60 mA max. |
|----------------|------------|

**ISOLATION**

|              |                        |
|--------------|------------------------|
| All the ways | 1500 Vac, 50 Hz, 1 min |
|--------------|------------------------|

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | About 90 g.                 |

**INPUT**

| Input type <sup>(1)</sup> | Min      | Max       | Span min |
|---------------------------|----------|-----------|----------|
| Voltage (Vac)             | 0÷36 Vac | 0÷550 Vac | -        |
| Voltage (Vdc)             | 0÷36 Vdc | 0÷550 Vdc | -        |

**Bandwidth (-3dB)**

40 Hz ÷ 1KHz

**Input Calibration** ± 0.1 % f.s.

**Linearity (\*)**

**(AC)** ±1 % f.s. **(DC)** ± 0.1 % f.s.

**Thermal drift**

Full Scale ± 0.02 % / °C

**OUTPUT**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
|             | 4 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |
|             | 2 V  | 10 V  | -        |
|             | 0 V  | 5 V   | -        |
|             | 1 V  | 5 V   | -        |

**Load resistance (Rload)**

|                                       |             |
|---------------------------------------|-------------|
| Voltage output                        | >/= 5 KΩ    |
| Current output                        | </= 500 Ω   |
| <b>Response time (10÷90% of f.s.)</b> | (AC) 250 ms |
|                                       | (DC) 20 ms  |

(1) = To choose the input range refer to the technical data sheet.

(\*) = Inclusive of hysteresis and power supply variation.

P.D.S. SERIES

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**ISOLATED PROGRAMMABLE DIP SWITCH CONVERTER FOR STRAIN GAUGE / BRIDGE SENSORS**

**DAT 5025**



**GENERAL DESCRIPTION**

The converter DAT 5025 is designed to provide on its output a voltage or current signal linear and proportional with the output voltage coming from the output of a bridge transducer applied on its input. The user can program the bridge excitation voltage value, the input and the output ranges by the proper DIP-switches available after opening the suitable door located on the side of device. The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device.

**FEATURES**

- Input for Strain-Gauge
- Input range configurable from 0÷10 mV up to 0÷200 mV or from ± 5 mV up to ± 200 mV
- Current limiter on the input side
- Galvanic isolation at 2000 Vac on the 3 ways
- Isolated power supply source for passive loads on output
- Independent zero and full scale regulations
- EMC compliant – CE mark
- Din rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                    |
|----------------------------|--------------------|
| Power supply voltage       | 18 .. 30 Vdc       |
| Rever. polarity protection | 60 Vdc max         |
| Aux. Power Supply OUT      | 12 Vdc min @ 20 mA |

**CURRENT CONSUMPTION**

Current output with active Power supply aux operative (20 mA): 120 mA max.

|                |            |
|----------------|------------|
| Voltage output | 80 mA max. |
|----------------|------------|

**ISOLATION**

|              |                        |
|--------------|------------------------|
| All the ways | 2000 Vac, 50 Hz, 1 min |
|--------------|------------------------|

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +60°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | About 90 g.                 |

**INPUT**

| Input type <sup>(1)</sup> | Min    | Max      | Span min |
|---------------------------|--------|----------|----------|
| Strain-Gauge              | 0 mV   | 10 mV    | -        |
|                           | 0 mV   | 200 mV   | -        |
|                           | ± 5 mV | ± 200 mV | -        |

**Bridge excitation voltage (Vexc)**

**3.60 Vdc ± 0.1%** (with bridge's resistance included between 100 Ω and 10 KΩ)

**10 Vdc ± 0.1%** (with bridge's resistance included between 300 Ω and 10 KΩ)

**Bridge excitation current**

65 mA max.

**Input Calibration** ± 0.1 % f.s.

**Linearity (\*)** ± 0.1 % f.s.

**Thermal drift**

Full Scale ± 0.01 % / °C

**OUTPUT**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
|             | 4 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |
|             | 2 V  | 10 V  | -        |
|             | 0 V  | 5 V   | -        |
|             | 1 V  | 5 V   | -        |

**Load resistance (Rload)**

|  |           |
|--|-----------|
| Voltage output                         | >/= 5 KΩ  |
| Current output                         | </= 500 Ω |
| <b>Response time (10÷ 90% of f.s.)</b> | 40 ms     |

(1) = To choose the input range refer to the technical data sheet.

(\*) = Inclusive of hysteresis and power supply variation.



ELECTRONIC AND CONTROL PROCESS DEVICES



## P.D.S. series temperature and signal transmitters and converters for DIN rail mounting

[www.datexel.it](http://www.datexel.it)



Industries



Board machine



Energy

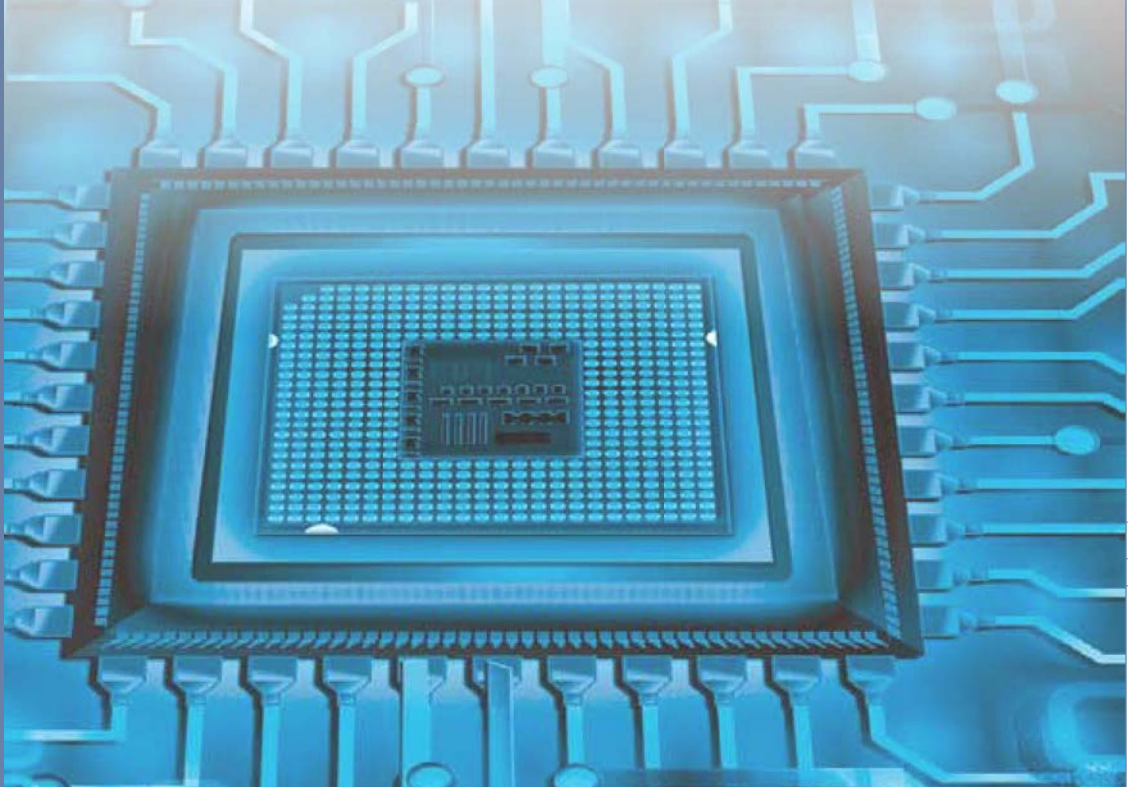


Food business



Water treatment

Application areas







### **DAT5028-DAT5024 SERIES: Trip amplifiers for DIN rail mounting**

*The devices of the "DAT5028 - DAT5024" series can accept on input several types of sensor coming from the field.*

- *TRIP AMPLIFIERS with universal analog input configurable by Dip-switch indication on display of the trip level value (**DAT5028**)*
- *TRIP AMPLIFIERS with dedicated analog input (**DAT5024**)*
- *TRIP AMPLIFIERS with configurable input Voltage or Current (**DAT5024E**)*

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- 40 • DAT 5028**  
Trip amplifier with display for universal analog input
- 41 • DAT 5024**  
Trip amplifier with dedicated analog input
- 42 • DAT 5024E**  
Economic, isolated trip amplifier configurable by Dip-Switches

05



**Trip amplifiers** "DAT5028 / DAT5024 series" trip amplifiers for DIN rail mounting

**DAT 5028**



**GENERAL DESCRIPTION**

The DAT 5028 device is able to acquire RTD or Tc sensors, mV, V or mA input signals connected to the universal analog input. By means of push-button and 4-digit display on the front panel, four different trip alarms are configurable. Each alarm threshold commands an output relay. Input signal can be retransmitted on the analog output in a Voltage or Current signal, configurable by means of dip-switch on the side of the device.

By means of an internal 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. The 1500 Vac isolation on all ways removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Universal Analog Input : Voltage, Current, TC, RTD, Resistance
- 2 SPDT + 2 SPST Relay Outputs (Version with 4 trips)
- 2 SPDT Relay Outputs (Version with 2 trips)
- 1 V/mA Analog Output for signal transmission
- 1500 Vac galvanic isolation on all ways
- High Accuracy
- EMC compliance – CE Mark
- DIN rail suitable mounting (EN-50022)



**Application areas**



**POWER SUPPLY**

|                            |                           |
|----------------------------|---------------------------|
| Power supply voltage       | 12 ÷ 30 Vdc               |
| Current Consumption        | 120 mA @24Vdc (300mA max) |
| Rever. polarity protection | 60 Vdc max                |

**TEMPERATURE AND HUMIDITY**

|                          |               |
|--------------------------|---------------|
| Operative temperature    | -30°C ÷ +60°C |
| Storage temperature      | -40°C ÷ +85°C |
| Humidity (not condensed) | 0 ÷ 90 %      |

**ISOLATION**

Isolation voltage 1500 Vac (on all ways)

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|                 |                             |
|-----------------|-----------------------------|
| Material        | Self-extinguishing plastic  |
| Mounting        | DIN Rail                    |
| Dimensions (mm) | W x L x H : 90 x 112 x 22.5 |
| Weight          | about 150 g.                |

**ANALOG INPUT**

| Type   | Range           | Accuracy     | Linearity   | Thermal drift |
|--------|-----------------|--------------|-------------|---------------|
| 100 mV | -100 / +100 mV  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| 10 V   | -10 / +10 V     | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| 20 mA  | 0 / 20 mA       | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Pt100  | -200 / +850 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Pt1K   | -200 / +200 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Ni100  | -60 / +180°C    | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Ni1K   | -60 / +150 °C   | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Res    | 0 / 2 Kohm      | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Pot    | 0 / 100 %       | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc J   | -210 / +1200 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc K   | -210 / +1370 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc R   | -50 / +1760 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc S   | -50 / +1760 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc B   | +400 / +1825 C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc E   | -210 / +1000 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc T   | -210 / +400 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc N   | -210 / +1300 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |

**Lead wire res. influence**

|               |                     |
|---------------|---------------------|
| RTD (3 wires) | 0.05 %/Ω (50 Ω max) |
| mV, Tc        | < 0.8 uV/Ohm        |

|   |          |
|---|----------|
| <b>RTD excitation current, Res, Pot</b> | ~ 0.7 mA |
| <b>Pot. Nominal value</b>               | 2 KOhm   |
| <b>Sample Time</b>                      | 1 sec.   |
| <b>Warm-up time</b>                     | 3 min.   |

**DIGITAL OUTPUT**

|                                  |   |
|----------------------------------|---|
| <b>n.2 SPDT + n.2 SPST Relay</b> |   |
| Max Load (resistive)             | 2 A @ 250 Vac (per contact)<br>2 A @ 30 Vdc (per contact) |
| Min Load                         | 5Vdc , 10mA   |
| Voltage Max.                     | 250Vac (50 / 60 Hz) ,110Vdc                               |

**ANALOG OUTPUT**

| Type                     | Range   | Accuracy    | Linearity    | Thermal drift |
|--------------------------|---|-------------|--------------|---------------|
| 10 V                     | 0 / +10 V   | ±0.1 % f.s. | ±0.05 % f.s. | 100 ppm/°C    |
| 20 mA                    | 0 / +20 mA  | ±0.1 % f.s. | ±0.05 % f.s. | 100 ppm/°C    |
| <b>Load Resistance</b>   | < 500 Ohm (current output)<br>> 5 KOhm (voltage output) |             |              |               |
| <b>Auxiliary Voltage</b> | >12V  |             |              |               |

## TRIP AMPLIFIER WITH DEDICATED ANALOG INPUT

### DAT 5024



#### GENERAL DESCRIPTION

The trip amplifier DAT 5024 is able to accept on its input a wide range of normalised voltage signals, normalised current signals coming from both active and passive current loop, signals coming from RTDs, Thermocouples and resistance sensors. The input type and the input range are fixed: refer to the section "Technical Specifications", table " Input type " to order the device. The Threshold 1 is programmed as high alarm, while, by dip-switches, it is possible to set the Threshold 2 either as high or low alarm. The trip level of each threshold can be adjusted by the potentiometers and checked by the test-points located on the front of the device. It is possible to adjust by potentiometers also the values of the hysteresis level and delay time. The isolation between input and power supply is 2000 Vac. The isolation between power supply and contacts of relays is 1500 Vac. The isolations eliminate the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications.

#### FEATURES

- Available analog inputs: RTD, TC, Voltage, Resistance and Current
- Two independent threshold: two high alarm or one high and one low alarm
- Trip level and hysteresis adjustable by potentiometer
- Delay time adjustable by potentiometer up to 25 sec.
- Two relays SPDT 250Vac, 2A
- Galvanic isolated among the three ways
- High accuracy
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



#### Application areas



| POWER SUPPLY                                   |                     | EMC (for industrial environments) |              | TEMPERATURE AND HUMIDITY |               |
|--|---------------------|-----------------------------------|--------------|--------------------------|---------------|
| Power supply voltage                           | 18 ÷ 32 Vdc         | <b>DIRECTIVE 2004/108/EC</b>      |              | Operative temperature    | -30°C ÷ +60°C |
| Current Consumption                            | 110 mA max @ 24 Vdc | Immunity                          | EN 61000-6-2 | Storage temperature      | -40°C ÷ +85°C |
| Rever. polarity protection                     | 60 Vdc max          | Emission                          | EN 61000-6-4 | Humidity (not condensed) | 0 ÷ 90 %      |
| <b>AUXILIARY SUPPLY</b><br>(only for mA input) |                     |                                   |              |                          |               |
|  | > 18 V @ 20 mA      |                                   |              |                          |               |

| ISOLATION                        |                        | HOUSING         |                             |
|----------------------------------|------------------------|-----------------|-----------------------------|
| Input – power supply             | 2000 Vac 50 Hz, 1 min  | Material        | Self-extinguishing plastic  |
| Input – contact of relays        | 2000 Vac 50 Hz, 1 min  | Dimensions (mm) | W x L x H : 90 x 112 x 22.5 |
| Power supply – contact of relays | 1500 Vac 50 Hz, 1 min. | Weight          | about 90 g.                 |

| INPUT               |         |          |
|---------------------|---------|----------|
| Input type*         | Min     | Max      |
| <b>Voltage</b>      |         |          |
| 50 mV               | 0 mV    | +50 mV   |
| 100 mV              | 0 mV    | +100 mV  |
| 500 mV              | 0 mV    | +250 mV  |
| 1 V                 | 0 mV    | +1 V     |
| 10 V                | 0 mV    | +10 V    |
| <b>Thermocouple</b> |         |          |
| J                   | -210 °C | +1200 °C |
| K                   | -210 °C | +1370 °C |
| R                   | -50 °C  | +1760 °C |
| S                   | -50 °C  | +1760 °C |
| B                   | +400 °C | +1820 °C |
| E                   | -210 °C | +1000 °C |
| T                   | -210 °C | +400 °C  |
| N                   | -210 °C | +1300 °C |
| <b>RTD</b>          |         |          |
| Pt100               | -50 °C  | +400 °C  |
| Pt1000              | -200 °C | +200 °C  |
| Ni100               | -60 °C  | +180 °C  |
| Ni1000              | -60 °C  | +150 °C  |
| <b>Resistance</b>   |         |          |
| 250 Ω               | 0 Ω     | 250 Ω    |
| 2 KΩ                | 0 Ω     | 2000 Ω   |
| <b>Current mA</b>   |         |          |
| 20 mA               | 0 mA    | 20 mA    |

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Input calibration (1)</b>         | ±0.1% f.s.                          |
| <b>Linearity (1)</b>                 |                                     |
| mV, V, mA                            | ± 0.05% f.s.                        |
| Tc, RTD                              | ± 0.2% f.s.                         |
| <b>Input impedance</b>               |                                     |
| mV, Tc                               | > 1 MΩ                              |
| V                                    | > 100 KΩ                            |
| mA                                   | < 50 Ω                              |
| <b>RTD excitation current</b>        |                                     |
| Typical                              | 0.6 mA                              |
| <b>Thermal drift (1)</b>             |                                     |
| Full scale                           | ± 0.02 % / °C                       |
| <b>CJC comp.</b>                     |                                     |
| Tc                                   | ± 0.5 °C                            |
| <b>Thermal drift CJC</b>             |                                     |
| Full scale                           | ± 0.02 °C/ °C                       |
| <b>Line resistance influence (1)</b> |                                     |
| mV, Tc                               | < 0.8 uV/Ohm                        |
| <b>Threshold</b>                     | Adjustable from 2 up to 98% f.s.    |
| <b>Hysteresis</b>                    | Adjustable from 0.5 up to 10 % f.s. |
| <b>Delay</b>                         | Adjustable up to 25 sec.            |

| RELAY OUTPUT              |              |
|---------------------------|--------------|
| <b>N° 2 SPDT</b>          |              |
| Contact rating            | 250 Vac, 2A  |
| Isolation between contact | 1000 Vac max |

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

\* Specify in phase of order



**DAT 5024E**



**GENERAL DESCRIPTION**

The DAT 5024E is an economic trip amplifier able to accept on its input normalised voltage and current signals coming from both active and passive current loops. Both the trips can be configured as high or low alarm, the adjustment of the trip values is performed by the potentiometers THR1 and THR2 located on the front side of the device. The adjustment of the hysteresis and delay value can be performed by the potentiometers accessible opening the suitable door located on the side of the device. On the devices are foreseen the following isolation power supply/input: 1500 Vac; contact of relays/output-input: 1000 Vac.

**FEATURES**

- Input for Voltage and Current
- Two independent thresholds
- Type of alarm programmable by dip-switch as high or low
- Galvanic isolated among the ways
- Trip level and hysteresis adjustable by potentiometers
- Delay time adjustable by potentiometer from 1 up to 6 sec.
- Two relays SPDT (Form C)
- Good accuracy and linearity
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



| Power Supply               |                     | EMC (for industrial environments) |              | TEMPERATURE AND HUMIDITY |               |
|----------------------------|---------------------|-----------------------------------|--------------|--------------------------|---------------|
| Power supply voltage       | 18 ÷ 30 Vdc         | <b>DIRECTIVE 2004/108/EC</b>      |              | Operative temperature    | -20°C ÷ +60°C |
| Current Consumption        | 110 mA max @ 24 Vdc | Immunity                          | EN 61000-6-2 | Storage temperature      | -40°C ÷ +85°C |
| Rever. polarity protection | 60 Vdc max          | Emission                          | EN 61000-6-4 | Humidity (not condensed) | 0 ÷ 90 %      |
| AUXILIARY SUPPLY           |                     |                                   |              |                          |               |
| (only for mA input)        | > 18 V @ 20 mA      |                                   |              |                          |               |

| ISOLATION                        |                        | HOUSING         |                             |
|----------------------------------|------------------------|-----------------|-----------------------------|
| Input – Power Supply             | 1500 Vac 50 Hz, 1 min  | Material        | Self-extinguishing plastic  |
| Input – contact of relays        | 1000 Vac 50 Hz, 1 min  | Dimensions (mm) | W x L x H : 90 x 112 x 12.5 |
| Power Supply – Contact of relays | 1000 Vac 50 Hz, 1 min. | Weight          | about 90 g.                 |

| INPUT      |      |       |
|------------|------|-------|
| Input type | Min  | Max   |
| Voltage    | 0 V  | 5 V   |
|            | 0 V  | 10 V  |
|            | 1 V  | 5 V   |
|            | 2 V  | 10 V  |
| Current    | 0 mA | 20 mA |
|            | 4 mA | 20 mA |

| Input calibration (1) |               |
|-----------------------|---------------|
| ±0.1% f.s.            |               |
| Thermal drift (1)     |               |
| Full scale            | ± 0.02 % / °C |

| RELAY OUTPUT       |
|--------------------|
| N° 2 SPDT (Form C) |

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

| Maximum operating voltage (on resistive load)  |
|--|
| 125 Vac, 30 Vdc                                |
| Maximum operating current (on resistive load)  |
| 0.5 A @ 125 Vac, 1 A @ 30 Vdc                  |
| Maximum switching capacity (on resistive load) |
| 62.5 VA, 30 W                                  |
| Trip value regulation                          |
| Configurable from 2 to 96 % of f.s.            |
| Delay time value regulation                    |
| Configurable from 1 to 6 sec.                  |
| Hysteresis value regulation                    |
| Configurable from 1 al 9.5 % of f.s.           |

ELECTRONIC AND CONTROL PROCESS DEVICES



## “DAT5028 / DAT5024 series” trip amplifiers for din rail mounting

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Application areas



TRIP AMPLIFIERS



### **"DAT200, DAT500 SERIES": signal transmitters and converters, galvanic isolators**

The transmitters and converters of the DAT200 series can accept on their input signal coming from potentiometer sensors (DAT205) or voltage and current signals (DAT207) The series is composed of:

- Not isolated transmitter for potentiometer input from 1 Kohm up to 10 Kohm. Powered from 4÷20 mA current loop (**DAT205 2W**).
- Not isolated converter for potentiometer input from 1 Kohm up to 10 Kohm. Fixed range (**DAT205 3W**).
- Not isolated transmitter for mV, V, mA input . Fixed range. Powered from 4÷20 mA current loop (**DAT207 2W**).
- Not isolated converter for mV, V, mA input . Fixed range. (**DAT207 3W**).
- Self-powered, 3000 Vac isolated converter for 0÷20 mA current loop. (**DAT511**).
- Self-powered, 1500 Vac isolated converter for 0÷20 mA current loop. Hart compatible (**DAT511-H**).

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- 46 • **DAT 205 2W**  
Fixed range Transmitter for potentiometer  
**DAT 205 3W**  
Fixed range Converter for potentiometer
- 47 • **DAT 207 2W**  
Fixed range transmitter for mV,V and mA signals  
**DAT 207 3W**  
Converter for mV,V and mA signals
- 48 • **DAT 511**  
Self-powered current loop isolator  
**DAT 511/H**  
Self-powered current loop isolator HART compatible

# 06



**DAT200** Signal transmitters and  
**DAT500** converters, galvanic  
**SERIES** isolators



**DAT 205 2W**

**GENERAL DESCRIPTION**

The transmitter DAT 205 2W is designed to provide on output a 4÷20 mA current loop linearised signal proportional with the variation of resistance introduced from the potentiometer connected to its input; to make the measure, a 1 Vdc voltage reference is provided at the ends of the potentiometer. The regulation of the zero and full-scale value are made using the ZERO and SPAN potentiometers; there is not influence between the regulations.

**FEATURES**

- Input for potentiometer
- Zero and Span values adjustable by potentiometers
- Independent Zero and Span adjustment
- 4÷20 mA current loop linearised output
- High accuracy
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035


**Application areas**

**POWER SUPPLY**

|                             |              |
|-----------------------------|--------------|
| Power supply voltage        | 10 .. 32 Vdc |
| Reverse polarity protection | 60 Vdc max   |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**
**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 62 x 64 x 17   |
| Weight    | about 50 g.                |

**INPUT**

| Input type                      | Min | Max  | Span min |
|---------------------------------|-----|------|----------|
| Potentiometer (Rnom.1 ... 10KΩ) | 0%  | 100% | -        |

**Calibration**

|               |              |
|---------------|--------------|
| Potentiometer | ± 0.1 % f.s. |
|---------------|--------------|

**Linearity**

|              |
|--------------|
| ± 0.1 % f.s. |
|--------------|

**Thermal drift**

|            |               |
|------------|---------------|
| Full scale | ± 0.02 % / °C |
|------------|---------------|

**OUTPUT**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 4 mA | 20 mA | -        |

**Burn-out values**

|                   |       |
|-------------------|-------|
| Max. value output | 25 mA |
|-------------------|-------|

|                               |              |
|-------------------------------|--------------|
| <b>Response time (10÷90%)</b> | about 500 ms |
|-------------------------------|--------------|

DAT200, DAT500 SERIES

**DAT 205 3W**

**GENERAL DESCRIPTION**

The converter DAT 205 3W is designed to provide on output a linearised voltage or current signal proportional with the variation of resistance introduced from the potentiometer connected to its input; to make the measure, a 1 Vdc voltage reference is provided at the ends of the potentiometer. The regulations of the zero and full-scale value are made using the ZERO and SPAN potentiometers; there is not influence between the regulations.

**FEATURES**

- Input for potentiometer
- Zero and Span values adjustable by potentiometers
- Independent Zero and Span adjustment
- Output in voltage or current
- High accuracy
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035


**Application areas**

**POWER SUPPLY**

|                             |              |
|-----------------------------|--------------|
| Power supply voltage        | 18 .. 30 Vdc |
| Reverse polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 30 mA max. |
| Voltage output | 10 mA max. |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**
**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 62 x 64 x 17   |
| Weight    | about 50 g.                |

**INPUT**

| Input type                      | Min | Max  | Span min |
|---------------------------------|-----|------|----------|
| Potentiometer (Rnom.1 ... 10KΩ) | 0%  | 100% | -        |

**Calibration**

|               |              |
|---------------|--------------|
| Potentiometer | ± 0.1 % f.s. |
|---------------|--------------|

**Linearity**

|              |
|--------------|
| ± 0.1 % f.s. |
|--------------|

**Thermal drift**

|            |               |
|------------|---------------|
| Full scale | ± 0.02 % / °C |
|------------|---------------|

**OUTPUT**

| Output type | Min  | Max   | Span min |
|-------------|------|-------|----------|
| Current     | 0 mA | 20 mA | -        |
| Voltage     | 0 V  | 10 V  | -        |

**Burn-out values**

|                   |              |
|-------------------|--------------|
| Max. value output | 25 mA or 15V |
|-------------------|--------------|

|                               |              |
|-------------------------------|--------------|
| <b>Response time (10÷90%)</b> | about 500 ms |
|-------------------------------|--------------|

**FIXED RANGE TRANSMITTER FOR mV, V AND mA SIGNALS**
**DAT 207 2W**

**GENERAL DESCRIPTION**

The transmitter DAT 207 2W is designed to provide on output a 4÷20 mA current loop signal proportional with the variation of the normalised current or voltage signal applied to its input.

**FEATURES**

- Input for current or voltage signals
- Zero and Span values adjustable by potentiometers
- Independent Zero and Span adjustment
- 4÷20 mA current loop output
- High accuracy
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

**The transmitter is available in 3 different versions:**

- DAT 207A 2W to measure voltage signals included between 0 ÷ 5 mV and 0 ÷ 200 mV;
- DAT 207B 2W to measure voltage signals included between 0 ÷ 200 mV and 0 ÷ 20 V;
- DAT 207C 2W to measure current signals between 0 ÷ 5 mA and 0 ÷ 50 mA.


**Application areas**

**POWER SUPPLY**

|                             |              |
|-----------------------------|--------------|
| Power supply voltage        | 10 .. 32 Vdc |
| Reverse polarity protection | 60 Vdc max   |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**
**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 62 x 64 x 17   |
| Weight    | about 50 g.                |

**INPUT**

| Input type           | Min        | Max           | Span min |
|----------------------|------------|---------------|----------|
| <b>Voltage</b>       |            |               |          |
| Version "A"          | 0 ÷ 5 mV   | 0 ÷ 200 mV    | -        |
| Version "B"          | 0 ÷ 200 mV | 0 ÷ 20 V      | -        |
| <b>Current</b>       |            |               |          |
| Version "C"          | 0 ÷ 5 mA   | 0 ÷ 50 mA     | -        |
| <b>Calibration</b>   |            |               |          |
| mV, V, mA            |            | ± 0.1 % f.s.  |          |
| <b>Linearity</b>     |            |               |          |
| ± 0.1 % f.s.         |            |               |          |
| <b>Thermal drift</b> |            |               |          |
| Full scale           |            | ± 0.02 % / °C |          |

**OUTPUT**

| Output type                   | Min  | Max          | Span min |
|-------------------------------|------|--------------|----------|
| Current                       | 4 mA | 20 mA        | -        |
| <b>Burn-out values</b>        |      |              |          |
| Max. value output             |      | 25 mA        |          |
| <b>Response time (10÷90%)</b> |      | about 300 ms |          |

**CONVERTER FOR mV, V AND mA SIGNALS**
**DAT 207 3W**

**GENERAL DESCRIPTION**

The converter DAT 207 3W is designed to provide on output a 4÷20 mA current loop signal proportional with the variation of the normalised current or voltage signal applied to its input.

**FEATURES**

- Input for current or voltage signals
- Zero and Span values adjustable by potentiometers
- Independent Zero and Span adjustment
- Output in voltage or current
- High accuracy
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

**The converter is available in 3 different versions:**

- DAT 207A 3W to measure voltage signals included between 0 ÷ 5 mV and 0 ÷ 200 mV;
- DAT 207B 3W to measure voltage signals included between 0 ÷ 200 mV and 0 ÷ 20 V;
- DAT 207C 3W to measure current signals between 0 ÷ 5 mA and 0 ÷ 50 mA.


**Application areas**

**POWER SUPPLY**

|                             |              |
|-----------------------------|--------------|
| Power supply voltage        | 18 .. 30 Vdc |
| Reverse polarity protection | 60 Vdc max   |

**CURRENT CONSUMPTION**

|                |            |
|----------------|------------|
| Current output | 30 mA max. |
| Voltage output | 10 mA max. |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**
**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 62 x 64 x 17   |
| Weight    | about 50 g.                |

**INPUT**

| Input type           | Min        | Max           | Span min |
|----------------------|------------|---------------|----------|
| <b>Voltage</b>       |            |               |          |
| Version "A"          | 0 ÷ 5 mV   | 0 ÷ 200 mV    | -        |
| Version "B"          | 0 ÷ 200 mV | 0 ÷ 20 V      | -        |
| <b>Current</b>       |            |               |          |
| Version "C"          | 0 ÷ 5 mA   | 0 ÷ 50 mA     | -        |
| <b>Calibration</b>   |            |               |          |
| mV, V, mA            |            | ± 0.1 % f.s.  |          |
| <b>Linearity</b>     |            |               |          |
| ± 0.1 % f.s.         |            |               |          |
| <b>Thermal drift</b> |            |               |          |
| Full scale           |            | ± 0.02 % / °C |          |

**OUTPUT**

| Output type                   | Min  | Max          | Span min |
|-------------------------------|------|--------------|----------|
| Current                       | 0 mA | 20 mA        | -        |
| Voltage                       | 0 V  | 10 V         | -        |
| <b>Burn-out values</b>        |      |              |          |
| Max. value output             |      | 25 mA or 15V |          |
| <b>Response time (10÷90%)</b> |      | about 300 ms |          |

**DAT 511**



**GENERAL DESCRIPTION**

The transmitter DAT 511 is a passive 0÷20 mA current loop isolator. The input current, variable from 0 up to 20 mA, is converted in an output current of the same value but keeping a galvanic isolation from the input circuit. The converter is a passive isolator: this means that the device employs the measurement signal to power it self, so it does not require any external power supply.

**FEATURES**

- 0÷20 mA isolated conversion
- No external supply required
- 3000 Vac galvanic isolation
- Good accuracy and performance stability
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -20°C .. +70°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 62 x 64 x 17   |
| Weight    | About 60 g.                |

**INPUT**

| Input type                     | Min  | Max           | Span min |
|--------------------------------|------|---------------|----------|
| Current                        | 0 mA | 20 mA         | -        |
| <b>Max. INPUT signal</b>       |      | 50 mA         |          |
| <b>Load resistance (Rload)</b> |      |               |          |
| From 0 to 700 ohm              |      |               |          |
| <b>Thermal drift</b>           |      |               |          |
| Full scale                     |      | ± 0.02 % / °C |          |

**OUTPUT**

| Output type                   | Min  | Max                     | Span min |
|-------------------------------|------|-------------------------|----------|
| Current                       | 0 mA | 20 mA                   | -        |
| <b>Burn-out values</b>        |      | Max. value output 25 mA |          |
| <b>Isolation voltage</b>      |      |                         |          |
| 3000 Vac, 50 Hz 1 min.        |      |                         |          |
| <b>Response time (10÷90%)</b> |      | About 20 ms             |          |

DAT200, DAT500 SERIES

**SELF-POWERED CURRENT LOOP ISOLATOR HART COMPATIBLE**

**DAT 511/H**



**GENERAL DESCRIPTION**

The transmitter DAT 511/H is a passive 0÷20 mA current loop isolator. The input current, variable from 0 up to 20 mA, is converted in an output current of the same value but keeping a galvanic isolation from the input circuit. The device allows the bidirectional communication of signals HART protocol compatible. The converter is a passive isolator: this means that the device employs the measurement signal to power itself, so it does not require any external power supply.

**FEATURES**

- 0÷20 mA isolated conversion
- Hart compatible
- No external supply required
- 1500 Vac galvanic isolation
- Good accuracy and performance stability
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | 0°C .. +55°C   |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 62 x 64 x 17   |
| Weight    | About 60 g.                |

**INPUT**

| Input type                                     | Min  | Max          | Span min |
|--|------|--------------|----------|
| Current  | 0 mA | 20 mA        | -        |
| <b>Max. INPUT signal</b>                       |      | 50 mA        |          |
| <b>Load resistance (Rload)</b>                 |      |              |          |
| From 0 to 700 ohm                              |      |              |          |
| <b>Thermal drift</b>                           |      |              |          |
| Full scale                                     |      | ± 0.02% / °C |          |
| <b>Bandwidth</b>                               |      |              |          |
| From 0.5 up to 4 KHz bidirectional within 3 dB |      |              |          |

**OUTPUT**

| Output type                   | Min  | Max                     | Span min |
|-------------------------------|------|-------------------------|----------|
| Current                       | 0 mA | 20 mA                   | -        |
| <b>Burn-out values</b>        |      | Max. value output 25 mA |          |
| <b>Isolation voltage</b>      |      |                         |          |
| 1500 Vac, 50 Hz 1 min.        |      |                         |          |
| <b>Response time (10÷90%)</b> |      | About 20 ms             |          |



ELECTRONIC AND CONTROL PROCESS DEVICES



## Signal transmitters and converters, galvanic isolators

[www.datexel.it](http://www.datexel.it)



Application areas

DAT200, DAT500 SERIES





## "DAT3000 SERIES" data acquisition and control modules

The distributed I/O modules of the DAT3000 series represent a complete solution for the acquisition and control of the analog and digital I/O signals. The series is composed of:

- Serial line converters and repeaters (**DAT3580, DAT3580 USB, DAT3580 MBTCP, DAT3590**).
- Modules for digital inputs and outputs (**DAT3130, DAT3140, DAT3148/8, DAT3148/12, DAT3188/4, DAT3188/8**).
- Modules for analog inputs (**DAT3011, DAT3014, DAT3015, DAT3016, DAT3017, DAT3018, DAT3019**).
- Modules with analog outputs (**DAT3022, DAT3024, DAT3028**).

The devices communicate on the RS-485 serial line by the MODBUS RTU communication protocol and are able to communicate with the host computer on multipoint net using only two wires.

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Remote I/O module 4 channels mV / TC input on RS-485 network
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Remote I/O module 8 channels ±20mA input on RS-485 network  
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Remote I/O module 8 channels ±10V input on RS-485 network
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Remote I/O module 8 channels mV / TC input on RS-485 network  
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Remote I/O module 2 channels V / mA output on RS-485 network  
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Remote I/O module 4 channels V / mA output on RS-485 network
- 63 • **DAT 3028**  
Remote I/O module 8 channels Voltage output on RS-485 network

# 07



**DAT3000 SERIES** Data acquisition and control modules

**DAT 3580**



**GENERAL DESCRIPTION**

The device DAT3580 is an isolated interface converter between asynchronous serials lines RS232 and RS485 or RS422 that guarantees a full isolation between power supply, serial line RS-232 and serial line RS-485 or 422 removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. It is designed to operate either on serial interface RS-422 full-duplex 4 wires or RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps. The transmission is asynchronous without settings of protocol, data format and baud rate. On the line RS-232 are not necessary handshake commands (RTS, CTS, etc..) to control the baud rate.

**FEATURES**

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC or AC power supply
- Galvanic isolation on all ways
- RS232 connection on DB9 or removable terminals
- EMC compliance – CE mark
- EIA RS232, RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



**Application areas**



**POWER SUPPLY**

10 ÷ 30 Vdc  
9 ÷ 18 Vac (18 ÷ 30 Vac optional)

**CURRENT CONSUMPTION**

35 mA typ. @ 24Vdc

**ISOLATIONS**

|                         |                         |
|-------------------------|-------------------------|
| Power Supply/ RS232     | 2000 Vac, 50 Hz, 1 min. |
| Power Supply/ RS485-422 |                         |
| RS232 / RS485-422       |                         |

**TEMPERATURE & HUMIDITY**

|                          |               |
|--------------------------|---------------|
| Operative temperature    | -20°C ÷ +60°C |
| Storage temperature      | -40°C ÷ +85°C |
| Humidity (not condensed) | 0 ÷ 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 150 g.                 |

**CONNECTION**

|            |                                   |
|------------|-----------------------------------|
| RS-232     | DB9 and removable screw terminals |
| RS-485/422 | removable screw terminals         |

**RS485 Interface**

|  |                    |
|--|--------------------|
| <b>Baud-rate</b>   | up to 115.2 Kbps   |
| <b>Max. distance / baud-rate ratio (recommended) (1)</b> | 1.2 Km @ 38400 bps |
|  | 2 Km @ 19200 bps   |
|  | 3 Km @ 9600 bps    |
|  | 4 Km @ 4800 bps    |
|  | 5 Km @ 2400 bps    |
| 7 Km @ 1200 bps  |                    |
| <b>Number of modules in multipoint</b>                   | 32 max.            |
| <b>Switching time TX/RX (RS485)</b>                      | 150 us.            |
| <b>Internal terminator resistance (optional)</b>         | 120 Ohm (optional) |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DAT3000 SERIES

**DAT 3580-USB**



**GENERAL DESCRIPTION**

The device DAT3580-USB is an isolated interface converter between USB port and asynchronous serial lines RS485 or RS422 that guarantees a full isolation between power supply, USB and serial line RS-485 or 422 removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. It is designed to operate either on serial interface RS-422 full-duplex 4 wires or RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps. The transmission is asynchronous without settings of protocol, data format and baud rate.

**FEATURES**

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC or AC power supply
- Galvanic isolation on all ways
- EMC compliance – CE mark
- USB 2.0. EIA RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



**Application areas**



**POWER SUPPLY**

10 ÷ 30 Vdc  
9 ÷ 18 Vac (18 ÷ 30 Vac optional)

**CURRENT CONSUMPTION**

35 mA typ. @ 24Vdc

**ISOLATIONS**

|                         |                         |
|-------------------------|-------------------------|
| Power Supply/ USB       | 2000 Vac, 50 Hz, 1 min. |
| Power Supply/ RS485-422 |                         |
| USB / RS485-422         |                         |

**TEMPERATURE & HUMIDITY**

|                          |               |
|--------------------------|---------------|
| Operative temperature    | -20°C ÷ +60°C |
| Storage temperature      | -40°C ÷ +85°C |
| Humidity (not condensed) | 0 ÷ 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 150 g.                 |

**CONNECTION**

|            |                           |
|------------|---------------------------|
| USB        | USB cable integrated      |
| RS-485/422 | removable screw terminals |

**RS485 Interface**

|  |                    |
|--|--------------------|
| <b>Baud-rate</b>   | up to 115.2 Kbps   |
| <b>Max. distance / baud-rate ratio (recommended) (1)</b> | 1.2 Km @ 38400 bps |
|  | 2 Km @ 19200 bps   |
|  | 3 Km @ 9600 bps    |
|  | 4 Km @ 4800 bps    |
|  | 5 Km @ 2400 bps    |
| 7 Km @ 1200 bps  |                    |
| <b>Number of modules in multipoint</b>                   | 32 max.            |
| <b>Switching time TX/RX (RS485)</b>                      | 150 us.            |
| <b>Internal terminator resistance (optional)</b>         | 120 Ohm (optional) |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

## ETHERNET ISOLATED GATEWAY MODBUS TCP ↔ MODBUS RTU

DAT 3580-MBTCP



### GENERAL DESCRIPTION

The gateway DAT3580-MBTCP allows to connect the Modbus RTU devices of a RS-485 network to the Ethernet network through the Modbus TCP protocol. By means of the Telnet interface it is possible to configure all the Modbus TCP side options (IP address, subnet mask, etc..) and the Modbus RTU side options (baud rate, etc...). The device guarantees a full isolation between lines, allowing the use even in the heavy environmental conditions.

### FEATURES

- Network interface
- Ethernet 10/100Base-T, Modbus TCP
- Telnet configuration
- RJ45 connection
- RS-485 Serial interface
- Modbus RTU Master
- Baud rate up to 115.2 Kbps
- Distance up to 1200 m, up to 32 devices in multipoint
- Removable screw-terminal connection
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 and RS485 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



### Application areas



### POWER SUPPLY

18 ÷ 30 Vdc

### CURRENT CONSUMPTION

45 mA typ. @ 24Vdc (sleep mode)

80 mA max

### ISOLATIONS

|                        |                         |
|------------------------|-------------------------|
| Power Supply/ Ethernet | 1500 Vac, 50 Hz, 1 min. |
| Power Supply/ RS485    | 2000 Vac, 50 Hz, 1 min. |
| Ethernet / RS485       | 2000 Vac, 50 Hz, 1 min. |

### TEMPERATURE & HUMIDITY

|                          |               |
|--------------------------|---------------|
| Operative temperature    | -20°C ÷ +60°C |
| Storage temperature      | -40°C ÷ +85°C |
| Humidity (not condensed) | 0 ÷ 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 150 g.                 |

### CONNECTION

|          |                           |
|----------|---------------------------|
| Ethernet | RJ-45                     |
| RS-485   | removable screw terminals |

### Network interface

Ethernet 10/100 Base-T

### Protocol

Modbus TCP

### Connection

RJ-45

### Baud-rate (RS-485)

up to 115.2 Kbps

### Max. distance / baud-rate ratio (recommended) (1)

|                    |
|--------------------|
| 1.2 Km @ 38400 bps |
| 2 Km @ 19200 bps   |
| 3 Km @ 9600 bps    |
| 4 Km @ 4800 bps    |
| 5 Km @ 2400 bps    |
| 7 Km @ 1200 bps    |

### Number of modules in multipoint

32 max.

### Switching time TX/RX (RS485)

150 us.

### Internal terminator resistance (optional)

120 Ohm (optional)

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

## REPEATER/ ISOLATOR RS485 / 422

DAT 3590



### GENERAL DESCRIPTION

The device DAT 3590 is an isolated repeater between asynchronous serials lines RS485 or RS422 that guarantees a full isolation between power supply and serial line removing eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. It is designed to operate either on serial interface RS-422 full-duplex 4 wires or RS485 half-duplex 2 wires, with a baud-rate transmission up to 115.2 Kbps. The transmission is asynchronous without settings of protocol, data format and baud rate.

### FEATURES

- Asynchronous serial data transmission
- Automatic baud-rate fitting up to 115.2 Kbps
- Distance up to 1200 m
- Point to point connection or multipoint connection up to 32 modules
- DC or AC power supply
- Galvanic isolation
- EMC compliance – CE mark
- EIA RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022



### Application areas



### POWER SUPPLY

10 ÷ 30 Vdc

9 ÷ 18 Vac (18÷24 Vac optional)

### CURRENT CONSUMPTION

35 mA @ 24Vdc

### ISOLATIONS

|                         |                         |
|-------------------------|-------------------------|
| Power Supply/ RS485-422 | 2000 Vac, 50 Hz, 1 min. |
| RS485-422 / RS485-422   | 2000 Vac, 50 Hz, 1 min. |

### TEMPERATURE & HUMIDITY

|                          |               |
|--------------------------|---------------|
| Operative temperature    | -20°C ÷ +60°C |
| Storage temperature      | -40°C ÷ +85°C |
| Humidity (not condensed) | 0 ÷ 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 150 g.                 |

### CONNECTION

|           |                           |
|-----------|---------------------------|
| RS485/422 | removable screw terminals |
|-----------|---------------------------|

### Baud-rate

up to 115.2 Kbps

### Max. distance / baud-rate ratio (recommended) (1)

|                    |
|--------------------|
| 1.2 Km @ 38400 bps |
| 2 Km @ 19200 bps   |
| 3 Km @ 9600 bps    |
| 4 Km @ 4800 bps    |
| 5 Km @ 2400 bps    |
| 7 Km @ 1200 bps    |

### Number of modules in multipoint

32 max.

### Switching time TX/RX (RS485)

150 us.

### Internal terminator resistance (optional)

120 Ohm

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...



**DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 4 RELAY OUTPUTS ON RS-485 NETWORK**

**DAT 3130**



**GENERAL DESCRIPTION**

The device DAT 3130 is able to acquire up to 4 digital inputs and to drive up to 4 relay outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network. To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. The 1500 Vac galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

**FEATURES**

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 4 digital inputs
- 4 relay outputs (2 SPDT + 2 SPST)

- Watch-Dog alarm
- Configurable from a remote terminal
- Three ways galvanic isolation 1500 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 18 .. 30 Vdc   |
| Current consumption        | 45 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS**

|                 |                        |
|-----------------|------------------------|
| Inputs – RS485  | 1500 Vac 50 Hz, 1 min. |
| Inputs – Supply |                        |
| RS-485 – Supply |                        |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 210 g.                 |

**DIGITAL INPUTS**

|  |                 |
|--|-----------------|
| <b>Input channels</b>                          | 4               |
| <b>Input voltage (bipolar)</b>                 |                 |
| OFF State                                      | 0 ÷ 3 V         |
| ON State                                       | 10 ÷ 30 V       |
| <b>Impedance</b>                               | 4.7 KΩ          |
| <b>Data Transmission (asynchronous serial)</b> |                 |
| Baud rate                                      | up to 38.4 Kbps |
| Max. Distance                                  | 1.2 Km - 4000ft |
| <b>Sample time</b>                             | 5 ms max        |

**OUTPUT**

|  |   |
|--|---|
| <b>Output channels</b>                     | 4   |
| <b>Type</b>                                | n° 2 SPDT relays<br>n° 2 SPST N.O. relays |
| <b>Switching power (max.)</b>              |   |
| 2 A @ 250 Vac (resistive load) per contact |   |
| 2 A @ 30 Vdc (resistive load) per contact  |   |
| <b>Minimum load</b>                        | 5Vdc , 10mA                               |
| <b>Max. Voltage</b>                        | 250Vac (50 / 60 Hz), 110Vdc               |

DAT3000 SERIES

**DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 8 NPN OUTPUTS ON RS-485 NETWORK**

**DAT 3140**



**GENERAL DESCRIPTION**

The device DAT 3140 is able to acquire up to 4 digital inputs and to drive up to 8 transistor outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network. To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. The galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

**FEATURES**

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 4 digital inputs
- 8 digital outputs, NPN type

- Watch-Dog alarm
- Configurable from a remote terminal
- Galvanic isolation on all ways
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 45 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS**

|                  |                        |
|------------------|------------------------|
| Inputs – Outputs | 1000 Vac 50 Hz, 1 min. |
| Inputs – RS485   | 2000 Vac 50 Hz, 1 min. |
| Inputs – Supply  | 2000 Vac 50 Hz, 1 min. |
| Outputs – RS485  | 2000 Vac 50 Hz, 1 min. |
| Outputs – Supply | 2000 Vac 50 Hz, 1 min. |
| RS-485 – Supply  | 2000 Vac 50 Hz, 1 min. |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 210 g.                 |

**DIGITAL INPUTS**

|  |                 |
|--|-----------------|
| <b>Input channels</b>                          | 4               |
| <b>Input voltage (bipolar)</b>                 |                 |
| OFF State                                      | 0 ÷ 3 V         |
| ON State                                       | 10 ÷ 30 V       |
| <b>Impedance</b>                               | 4.7 KΩ          |
| <b>Data Transmission (asynchronous serial)</b> |                 |
| Baud rate                                      | up to 38.4 Kbps |
| Max. Distance                                  | 1.2 Km - 4000ft |
| <b>Sample time</b>                             | 20 ms max       |

**OUTPUT**

|                                |  |
|--------------------------------|--|
| <b>Output channels</b>         | 8  |
| <b>Type</b>                    | NPN                                      |
| <b>Max. Load</b>               | 600 mA per channel<br>3 A max per module |
| <b>Max. Voltage</b>            | 30 Vdc                                   |
| <b>Over-current protection</b> | NO                                       |

## DISTRIBUTED I/O MODULE 8 DIGITAL INPUTS ON RS-485 NETWORK

DAT 3148/8



### GENERAL DESCRIPTION

The device DAT 3148/8 is able to acquire up to 8 digital inputs. The data are transmitted with MODBUS RTU/ASCII on RS-485 network. To assure safe operation of the system, the device is equipped with two Watch-Dog timers. The 2000 Vac galvanic isolation between inputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

### FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 8 digital inputs
- Watch-Dog alarm
- Configurable from a remote terminal
- Four ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 35 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

### ISOLATIONS

|                 |                        |
|-----------------|------------------------|
| Input 0÷7       | 1500 Vac 50 Hz, 1 min. |
| Inputs – RS485  | 2000 Vac 50 Hz, 1 min. |
| Inputs – Supply | 2000 Vac 50 Hz, 1 min. |
| RS-485 – Supply | 2000 Vac 50 Hz, 1 min. |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

Immunity EN 61000-6-2

Emission EN 61000-6-4

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 210 g.                 |

### DIGITAL INPUTS

|  |                 |
|--|-----------------|
| <b>Input channels</b>                          | 8               |
| <b>Input voltage (bipolar)</b>                 |                 |
| OFF State                                      | 0 ÷ 3 V         |
| ON State                                       | 10 ÷ 30 V       |
| <b>Impedance</b>                               | 4.7 KΩ          |
| <b>Data Transmission (asynchronous serial)</b> |                 |
| Baud rate                                      | 38.4 Kbps       |
| Max. Distance                                  | 1.2 Km - 4000ft |
| <b>Sample time</b>                             | 5 ms max        |

## DISTRIBUTED I/O MODULE 12 DIGITAL INPUTS ON RS-485 NETWORK

DAT 3148/12



### GENERAL DESCRIPTION

The device DAT 3148/12 is able to acquire up to 12 digital inputs. The data are transmitted with MODBUS RTU/ASCII on RS-485 network. To assure safe operation of the system, the device is equipped with two Watch-Dog timers. The 2000 Vac galvanic isolation between inputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

### FEATURES

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 12 digital inputs
- Watch-Dog alarm
- Configurable from a remote terminal
- Four ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 35 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

### ISOLATIONS

|                  |                        |
|------------------|------------------------|
| Input 0÷7 / 8÷11 | 1500 Vac 50 Hz, 1 min. |
| Inputs – RS485   | 2000 Vac 50 Hz, 1 min. |
| Inputs – Supply  | 2000 Vac 50 Hz, 1 min. |
| RS-485 – Supply  | 2000 Vac 50 Hz, 1 min. |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

Immunity EN 61000-6-2

Emission EN 61000-6-4

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 210 g.                 |

### DIGITAL INPUTS

|  |                 |
|--|-----------------|
| <b>Input channels</b>                          | 12              |
| <b>Input voltage (bipolar)</b>                 |                 |
| OFF State                                      | 0 ÷ 3 V         |
| ON State                                       | 10 ÷ 30 V       |
| <b>Impedance</b>                               | 4.7 KΩ          |
| <b>Data Transmission (asynchronous serial)</b> |                 |
| Baud rate                                      | 38.4 Kbps       |
| Max. Distance                                  | 1.2 Km - 4000ft |
| <b>Sample time</b>                             | 5 ms max        |

**DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 8 PNP OUTPUTS ON RS-485 NETWORK**

**DAT 3188/4**



**GENERAL DESCRIPTION**

The device DAT 3188/4 is able to acquire up to 4 digital inputs and to drive up to 8 transistor outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network (is available the RS-232 interface model). To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. Also, the outputs are protected against over currents and over temperature. The 2000 Vac galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

**FEATURES**

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 4 digital inputs
- 8 digital outputs, PNP type
- Over-temperature and over-current protection
- Watch-Dog alarm
- All the ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 45 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS (Input / Output / RS485 / Supply)**

2000 Vac 50 Hz, 1 min.

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 210 g.                 |

**DIGITAL INPUTS**

|  |                 |
|--|-----------------|
| <b>Input channels</b>                          | 4               |
| <b>Input voltage (bipolar)</b>                 |                 |
| OFF State                                      | 0 ÷ 3 V         |
| ON State                                       | 10 ÷ 30 V       |
| <b>Impedance</b>                               | 4.7 KΩ          |
| <b>Data Transmission (asynchronous serial)</b> |                 |
| Baud rate                                      | 115.2 Kbps      |
| Max. Distance                                  | 1.2 Km - 4000ft |
| <b>Sample time</b>                             | 5 ms max        |

**DIGITAL OUTPUTS**

|                        |                     |
|------------------------|---------------------|
| <b>Output channels</b> | 8                   |
| <b>Type</b>            | PNP                 |
| <b>Max. Load</b>       | 500 mA per channel* |
|                        | 1 A per module      |
| <b>Inductive Load</b>  | 48 Ω - 2 H max.     |
| <b>Voltage</b>         | 10.5 ÷ 30 Vdc       |

(\*) = Protection against over-current and over-temperature  
Short circuit current 1.7 A max.

DAT3000 SERIES

**DISTRIBUTED I/O MODULE 8 DIGITAL INPUTS + 8 PNP OUTPUTS ON RS-485 NETWORK**

**DAT 3188/8**



**GENERAL DESCRIPTION**

The device DAT 3188/8 is able to acquire up to 8 digital inputs and to drive up to 8 transistor outputs. The data are transmitted with MODBUS RTU/ASCII protocol on RS-485 network (is available the RS-232 interface model). To assure safe operation of the system, the device is equipped with two Watch-Dog timers: in case of alarm, the outputs are forced automatically on the safe configuration. Also, the outputs are protected against over currents and over temperature. The 2000 Vac galvanic isolation between inputs, outputs, power supply and RS-485 serial line cancels any ground-loop effect noise, allowing the use of the device in worst ambient conditions.

**FEATURES**

- Field Bus data acquisition
- Master/Slave communication on RS-485 network
- MODBUS RTU/ASCII protocol
- 8 digital inputs
- 8 digital outputs, PNP type
- Over-temperature and over-current protection
- Watch-Dog alarm
- All the ways galvanic isolation 2000 Vac
- High accuracy
- EMC compliance – CE Mark
- In compliance to EN-50022 DIN rail mounting



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 45 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS (Input / Output / RS485 / Supply)**

2000 Vac 50 Hz, 1 min.

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 210 g.                 |

**DIGITAL INPUTS**

|  |                 |
|--|-----------------|
| <b>Input channels</b>                          | 8               |
| <b>Input voltage (bipolar)</b>                 |                 |
| OFF State                                      | 0 ÷ 3 V         |
| ON State                                       | 10 ÷ 30 V       |
| <b>Impedance</b>                               | 4.7 KΩ          |
| <b>Data Transmission (asynchronous serial)</b> |                 |
| Baud rate                                      | 115.2 Kbps      |
| Max. Distance                                  | 1.2 Km - 4000ft |
| <b>Sample time</b>                             | 5 ms max        |

**DIGITAL OUTPUTS**

|                        |                     |
|------------------------|---------------------|
| <b>Output channels</b> | 8                   |
| <b>Type</b>            | PNP                 |
| <b>Max. Load</b>       | 500 mA per channel* |
|                        | 1 A per module      |
| <b>Inductive Load</b>  | 48 Ω - 2 H max.     |
| <b>Voltage</b>         | 10.5 ÷ 30 Vdc       |

(\*) = Protection against over-current and over-temperature  
Short circuit current 1.7 A max.

# UNIVERSAL REMOTE I/O MODULE ON RS-485 NETWORK

## DAT 3011



### GENERAL DESCRIPTION

The device DAT 3011 is able to acquire RTD or Tc sensors, mV, V or mA input signals connected to the universal analog input. Moreover a second V/mA analog input is available. The device is able to acquire up to 3 digital inputs and to drive one solid-state relay and two SPST relays. Data values are transmitted with MODBUS RTU protocol on the RS-485 network. By means of a 16 bit converter, the device guarantee a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 1500 Vac isolation on all ways (Power Supply / RS485 / Universal input / V-mA input / Digital inputs / Relay outputs) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

### FEATURES

- Field-Bus remote data acquisition
- RS-485 Modbus RTU (Slave) communication
- 1 Universal Analog Input
- 1 V/mA Analog Input
- 2 0-20mA Analog Outputs
- 3 Digital Inputs
- 1 SSR Digital Output + 2 Relay Outputs
- Watch-Dog Alarm
- 1500 Vac galvanic isolation on all ways
- High Accuracy
- EMC compliance – CE Mark
- DIN rail suitable mounting (EN-50022)



### Application areas



| POWER SUPPLY               |                   | SERIAL PORT |                    | TEMPERATURE & HUMIDITY   |                |
|----------------------------|-------------------|-------------|--------------------|--------------------------|----------------|
| Supply Voltage             | 18 ÷ 30 Vdc       | Type        | RS-485             | Operating Temperature    | -10°C .. +60°C |
| Current consumption        | 30 mA (100mA max) | Protocol    | Modbus RTU (Slave) | Storage Temperature      | -40°C .. +85°C |
| Rever. Polarity protection | 60 Vdc max        | Baud Rate   | up to 38400 bps    | Humidity (not condensed) | 0 .. 90 %      |

| EMC (for industrial environments) |              | ISOLATIONS        |                         | HOUSING         |                              |
|-----------------------------------|--------------|-------------------|-------------------------|-----------------|------------------------------|
| <b>DIRECTIVE 2004 / 108 / EC</b>  |              | Type of Isolation | 1500 Vac ( on all ways) | Material        | Self-extinguishing plastic   |
| Immunity                          | EN 61000-6-2 |                   |                         | Mounting        | DIN rail                     |
| Emission                          | EN 61000-6-4 |                   |                         | Dimensions (mm) | W x L x H : 120 x 100 x 22.5 |
|                                   |              |                   |                         | Weight          | About 150 g.                 |

| ANALOG INPUTS            |                 |                     |             |               |
|--------------------------|-----------------|---------------------|-------------|---------------|
| Type                     | Range           | Accuracy            | Linearity   | Thermal Drift |
| 100 mV                   | -100 ÷ +100 mV  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| 10 V                     | -10 ÷ +10 V     | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| 20 mA                    | 0 ÷ +20 mA      | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Pt100                    | -200 ÷ +850 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Pt1K                     | -200 ÷ +200 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Ni100                    | -60 ÷ +180 °C   | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Ni1K                     | -60 ÷ +150 °C   | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Res                      | 0 ÷ 2000 Ohm    | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Pot                      | 20 ÷ 2000 Ohm   | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc J                     | -210 ÷ +1200 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc K                     | -210 ÷ +1370 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc R                     | -50 ÷ +1760 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc S                     | -50 ÷ +1760 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc B                     | +400 ÷ +1825 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc E                     | -210 ÷ +1000 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc T                     | -210 ÷ +400 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Tc N                     | -210 ÷ +1300 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |
| Lead wire res. influence |                 |                     |             |               |
| RTD (3 wires)            |                 | 0.05 %/Ω (50 Ω max) |             |               |
| mV, Tc                   |                 | < 0.8 uV/Ohm        |             |               |
| Excitation current       |                 |                     |             |               |
| RTD, Res, Pot            |                 | ~ 0.7 mA            |             |               |
| Sample time              |                 |                     |             |               |
|                          |                 | 1 sec.              |             |               |
| Warm-up time             |                 |                     |             |               |
|                          |                 | 3 min.              |             |               |

| ANALOG OUTPUT            |            |              |             |               |
|--------------------------|------------|--------------|-------------|---------------|
| Type                     | Range      | Accuracy     | Linearity   | Thermal Drift |
| 20 mA                    | 0 ÷ +20 mA | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| <b>Load Resistance</b>   |            | < 500 Ohm    |             |               |
| <b>Auxiliary Voltage</b> |            | >12V         |             |               |

| DIGITAL INPUTS                 |   |
|--------------------------------|---|
| <b>Input channels</b>          | 3                                       |
| <b>Input voltage (bipolar)</b> | OFF State : 0÷3 V<br>ON State : 10÷30 V |
| <b>Input Impedance</b>         | 4.7 KOhm                                |

| DIGITAL OUTPUTS                                      |   |
|--|---|
| N.1 Solid State Relay (dry contacts)                 |   |
| <b>Max. Voltage</b>                                  | 48 V (ac/dc)  |
| <b>Max. Load</b>                                     | 0.4A max (resistive)                                      |
| N.2 Relays SPST                                      |   |
| <b>Switching power (resistive load)</b>              | 2 A @ 250 Vac (per contact)<br>2 A @ 30 Vdc (per contact) |
| <b>Minimum load</b>                                  | 5 Vdc , 10mA  |
| <b>Max. Voltage</b>                                  | 250 Vac (50 / 60 Hz) ,110Vdc                              |
| <b>Dielectric strength between contacts</b>          | 1000 Vac, 50 Hz, 1 min.                                   |
| <b>Dielectric strength between coil and contacts</b> | 4000 Vac, 50 Hz, 1 min.                                   |



**DAT 3014**



**GENERAL DESCRIPTION**

The DAT 3014 device is able to acquire up to 4 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect RTD, Potentiometers or Resistance signals. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- RTD, Resistance and Potentiometer configurable input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS**

|                      |                        |
|----------------------|------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz, 1 min. |
| Power Supply– Input  |                        |
| Power Supply– RS-485 |                        |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

**INPUT**

| Input type                     | Min    | Max    |
|--------------------------------|--------|--------|
| <b>RTD 2 or 3 wires</b>        |        |        |
| Pt100                          | -200°C | 850°C  |
| Pt1000                         | -200°C | 200°C  |
| Ni100                          | -60°C  | 180°C  |
| Ni1000                         | -60°C  | 150°C  |
| <b>Resistance 2 or 3 wires</b> |        |        |
| Low                            | 0 Ω    | 500 Ω  |
| High                           | 0 Ω    | 2000 Ω |
| <b>POT. (nom. value)</b>       |        |        |
| Low                            | 20 Ω   | 500 Ω  |
| High                           | 20 Ω   | 2000 Ω |

**Input Calibration (1)**

|      |              |
|------|--------------|
| RTD  | ±0.05 % f.s. |
| Res. | ±0.05 % f.s. |
| Pot. | ±0.05 % f.s. |

**Linearity (1)**

|     |              |
|-----|--------------|
| RTD | ± 0.1 % f.s. |
|-----|--------------|

**Lead wire res. influence (1)**

|                 |                              |
|-----------------|------------------------------|
| RTD/res.3 wires | 0.05 %/Ω (50 Ω max balanced) |
|-----------------|------------------------------|

**RTD excitation current**

|         |          |
|---------|----------|
| Typical | 0.350 mA |
|---------|----------|

**Thermal drift (1)**

|            |               |
|------------|---------------|
| Full scale | ± 0.01 % / °C |
|------------|---------------|

**Sample time**

|  |              |
|--|--------------|
|  | 0.5 ÷ 1 sec. |
|--|--------------|

**Data Transmission (asynchronous serial)**

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

**Warm-up time**

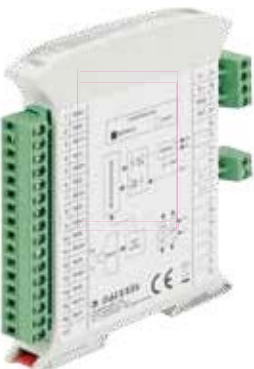
|  |        |
|--|--------|
|  | 3 min. |
|--|--------|

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

DAT3000 SERIES

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**DAT 3015-I**



**GENERAL DESCRIPTION**

The device DAT 3015I is able to acquire on input up to 4 analog current signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to ± 20mA current signals. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- Up to ± 20mA input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS**

|                      |                        |
|----------------------|------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz, 1 min. |
| Power Supply– Input  |                        |
| Power Supply– RS-485 |                        |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

**INPUT**

| Input type                   | Min            | Max    |
|------------------------------|----------------|--------|
| <b>Current</b>               |                |        |
| 20 mA                        | -20 mA         | +20 mA |
| <b>Input Calibration (1)</b> |                |        |
| ± 20 uA                      |                |        |
| <b>Linearity (1)</b>         |                |        |
| ± 0.1% f.s.                  |                |        |
| <b>Input Impedance</b>       |                |        |
| < / = 50 Ω                   |                |        |
| <b>Thermal drift (1)</b>     |                |        |
| Full scale                   | ± 0.005 % / °C |        |

**Sample time**

|  |              |
|--|--------------|
|  | 0.5 ÷ 1 sec. |
|--|--------------|

**Data Transmission (asynchronous serial)**

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

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

## REMOTE I/O MODULE 4 CHANNELS +/-10V INPUT ON RS-485 NETWORK

DAT 3015-V



### GENERAL DESCRIPTION

The device DAT 3015V is able to acquire on input up to 4 analog voltage signals. Data values are transmitted with MODBUS RTU/ ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to  $\pm 10V$  voltage signals. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

### FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- Up to  $\pm 10V$  input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

### ISOLATIONS

|                      |                           |
|----------------------|---------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz,<br>1 min. |
| Power Supply– Input  |                           |
| Power Supply– RS-485 |                           |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

### INPUT

| Type input                   | Min                | Max              |
|------------------------------|--------------------|------------------|
| <b>Voltage</b>               |                    |                  |
| 10 V                         | -10 V              | +10 V            |
| <b>Input Calibration (1)</b> |                    | $\pm 10$ mV      |
| <b>Linearity (1)</b>         |                    | $\pm 0.1\%$ f.s. |
| <b>Input Impedance</b>       |                    | > 100 K $\Omega$ |
| <b>Thermal drift (1)</b>     |                    |                  |
| Full scale                   | $\pm 0.005$ % / °C |                  |

### Sample time

0.5  $\div$  1 sec.

### Data Transmission (asynchronous serial)

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

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

## REMOTE I/O MODULE 4 CHANNEL mV / TC INPUT ON RS-485 NETWORK

DAT 3016



### GENERAL DESCRIPTION

The DAT 3016 device is able to acquire up to 4 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect Thermocouples or up to  $\pm 1V$  voltage signals. The Cold Junction compensation for thermocouples is performed internally. By means of a 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions. The DAT 3016 is in compliance with the Directive 2004/108/EC on the electromagnetic compatibility. The device is housed in a rough self-extinguishing plastic container which, thanks to its thin profile of 17.5mm only, allows a high density mounting on EN-50022 standard DIN rail.

### FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel input
- Up to  $\pm 1V$  and TC configurable input Type J,K,R,S,B,E,T,N
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

### ISOLATIONS

|                      |                           |
|----------------------|---------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz,<br>1 min. |
| Power Supply– Input  |                           |
| Power Supply– RS-485 |                           |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

### INPUT

| Input type          | Min      | Max      |
|---------------------|----------|----------|
| <b>Voltage</b>      |          |          |
| 25 mV               | -25 mV   | +25 mV   |
| 100 mV              | -100 mV  | +100 mV  |
| 250 mV              | -250 mV  | +250 mV  |
| 1000 mV             | -1000 mV | +1000 mV |
| <b>Thermocouple</b> |          |          |
| J                   | -210 °C  | +1200 °C |
| K                   | -210 °C  | +1372 °C |
| R                   | -50 °C   | +1767 °C |
| S                   | -50 °C   | +1767 °C |
| B                   | +400 °C  | +1825 °C |
| E                   | -210 °C  | +1000 °C |
| T                   | -210 °C  | +400 °C  |
| N                   | -210 °C  | +1300 °C |

### Input Calibration (1)

the higher of  $\pm 0.05\%$  or 5  $\mu V$  (1)

### Linearity (1)

|    |                  |
|----|------------------|
| mV | $\pm 0.1\%$ f.s. |
| TC | $\pm 0.2\%$ f.s. |

### CJC Comp.

|  |              |
|--|--------------|
|  | $\pm 0.5$ °C |
|--|--------------|

### Input Impedance

|        |                  |
|--------|------------------|
| mV, TC | $>=1$ M $\Omega$ |
|--------|------------------|

### Thermal drift (1)

|            |                    |
|------------|--------------------|
| Full scale | $\pm 0.005$ % / °C |
|------------|--------------------|

### CJC Thermal drift

|            |                    |
|------------|--------------------|
| Full scale | $\pm 0.02$ °C / °C |
|------------|--------------------|

### Lead wire res. influence (1)

|        |                    |
|--------|--------------------|
| mV, Tc | < 0.8 $\mu V$ /Ohm |
|--------|--------------------|

### Response time

|  |                   |
|--|-------------------|
|  | 0.5 $\div$ 1 sec. |
|--|-------------------|

### Data Transmission (asynchronous serial)

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

### Warm-up time

|  |        |
|--|--------|
|  | 3 min. |
|--|--------|

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

**DAT 3017-I**



**GENERAL DESCRIPTION**

The device DAT 3017I is able to acquire on input up to 8 analog current signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to ± 20mA current signals. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel input
- Up to ± 20mA input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS**

|                      |                           |
|----------------------|---------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz,<br>1 min. |
| Power Supply– Input  |                           |
| Power Supply– RS-485 |                           |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

**Sample time**

|              |
|--------------|
| 0.5 ÷ 2 sec. |
|--------------|

**Data Transmission (asynchronous serial)**

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

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

**INPUT**

| Type input                   | Min            | Max         |
|------------------------------|----------------|-------------|
| <b>Current</b>               |                |             |
| 20 mA                        | -20 mA         | +20 mA      |
| <b>Input Calibration (1)</b> |                | ± 20 uA     |
| <b>Linearity (1)</b>         |                | ± 0.1% f.s. |
| <b>Input Impedance</b>       |                | <=50 Ω      |
| <b>Thermal drift (1)</b>     |                |             |
| Full scale                   | ± 0.005 % / °C |             |

DAT3000 SERIES

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**DAT 3017-V**



**GENERAL DESCRIPTION**

The devices DAT 3017V is able to acquire on input up to 8 analog voltage signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect up to ± 10V voltage signals. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel input
- Up to ± 10V input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

**ISOLATIONS**

|                      |                           |
|----------------------|---------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz,<br>1 min. |
| Power Supply– Input  |                           |
| Power Supply– RS-485 |                           |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

**Sample time**

|              |
|--------------|
| 0.5 ÷ 2 sec. |
|--------------|

**Data Transmission (asynchronous serial)**

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

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

**INPUT**

| Type input                   | Min            | Max         |
|------------------------------|----------------|-------------|
| <b>Voltage</b>               |                |             |
| 10 V                         | -10 V          | +10 V       |
| <b>Input Calibration (1)</b> |                | ± 10 mV     |
| <b>Linearity (1)</b>         |                | ± 0.1% f.s. |
| <b>Input Impedance</b>       |                | > 100 KΩ    |
| <b>Thermal drift (1)</b>     |                |             |
| Full scale                   | ± 0.005 % / °C |             |

## REMOTE I/O MODULE 8 CHANNELS mV / TC INPUT ON RS-485 NETWORK

DAT 3018



### GENERAL DESCRIPTION

The device DAT 3018 is able to acquire up to 8 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect Thermocouples or up to +/- 1V voltage signals. The Cold Junction compensation for thermocouples is performed internally. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

### FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel input
- Up to +/- 1V and TC configurable input ± 1V and TC Type J,K, R,S,B,E,T,N
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

### ISOLATIONS

|                      |                        |
|----------------------|------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz, 1 min. |
| Power Supply– Input  |                        |
| Power Supply– RS-485 |                        |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

### INPUT

| Input type          | Min      | Max      |
|---------------------|----------|----------|
| <b>Voltage</b>      |          |          |
| 25 mV               | -25 mV   | +25 mV   |
| 100 mV              | -100 mV  | +100 mV  |
| 250 mV              | -250 mV  | +250 mV  |
| 1000 mV             | -1000 mV | +1000 mV |
| <b>Thermocouple</b> |          |          |
| J                   | -210 °C  | +1200 °C |
| K                   | -210 °C  | +1372 °C |
| R                   | -50 °C   | +1767 °C |
| S                   | -50 °C   | +1767 °C |
| B                   | +400 °C  | +1825 °C |
| E                   | -210 °C  | +1000 °C |
| T                   | -210 °C  | +400 °C  |
| N                   | -210 °C  | +1300 °C |

### Input Calibration (1)

The higher of ± 0.05% or 5 uV (1)

### Linearity (1)

|                  |             |
|------------------|-------------|
| mV               | ± 0.1% f.s. |
| TC               | ± 0.2% f.s. |
| <b>CJC Comp.</b> | ± 0.5 °C    |

### Input Impedance

|        |            |
|--------|------------|
| mV, TC | > / = 1 MΩ |
|--------|------------|

### Thermal drift (1)

|            |                |
|------------|----------------|
| Full scale | ± 0.005 % / °C |
|------------|----------------|

### Thermal drift CJC

|            |               |
|------------|---------------|
| Full scale | ± 0.02 % / °C |
|------------|---------------|

### Lead wire res. influence (1)

|        |              |
|--------|--------------|
| mV, TC | < 0.8 uV/Ohm |
|--------|--------------|

### Sample time

|  |              |
|--|--------------|
|  | 0.5 ÷ 2 sec. |
|--|--------------|

### Data Transmission (asynchronous serial)

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

### Warm-up time

|  |       |
|--|-------|
|  | 3 min |
|--|-------|

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

## REMOTE I/O MODULE 8 CHANNELS RTD INPUT ON RS-485 NETWORK

DAT 3019



### GENERAL DESCRIPTION

The device DAT 3019 is able to acquire up to 8 analog input signals. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to connect 2-wires RTD sensors or up to 2 KΩ resistance signals. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

### FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel 2 wires input
- Pt100, Pt1K, Ni100, Ni1K and resistance up to 2 KΩ configurable input
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Supply Voltage             | 10 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. Polarity protection | 60 Vdc max     |

### ISOLATIONS

|                      |                        |
|----------------------|------------------------|
| Inputs – RS485       | 2000 Vac 50 Hz, 1 min. |
| Power Supply– Input  |                        |
| Power Supply– RS-485 |                        |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

### INPUT

| Input type                     | Min    | Max    |
|--------------------------------|--------|--------|
| <b>RTD 2 wires</b>             |        |        |
| Pt100                          | -200°C | 850°C  |
| Pt1000                         | -200°C | 200°C  |
| Ni100                          | -60°C  | 180°C  |
| Ni1000                         | -60°C  | 150°C  |
| <b>Resistance 2 or 3 wires</b> |        |        |
| Low                            | 0 Ω    | 500 Ω  |
| High                           | 0 Ω    | 2000 Ω |

### Input Calibration (1)

|      |             |
|------|-------------|
| RTD  | ±0.2 % f.s. |
| Res. | ±0.2 % f.s. |

### Linearity (1)

|     |              |
|-----|--------------|
| RTD | ± 0.2 % f.s. |
|-----|--------------|

### Excitation current RTD

|         |          |
|---------|----------|
| Typical | 0.450 mA |
|---------|----------|

### Thermal drift (1)

|            |               |
|------------|---------------|
| Full scale | ± 150 ppm/ °C |
|------------|---------------|

### Sample time

|  |              |
|--|--------------|
|  | 0.5 ÷ 2 sec. |
|--|--------------|

### Data Transmission (asynchronous serial)

|               |                 |
|---------------|-----------------|
| Baud rate     | 38.4 Kbps       |
| Max. Distance | 1.2 Km - 4000ft |

### Warm-up time

|  |        |
|--|--------|
|  | 3 min. |
|--|--------|

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



**DAT 3022**



**GENERAL DESCRIPTION**

The DAT 3022 device generates up to 2 output analog signals from digital commands. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to generate voltage signals up to 10V and current signals up to 20mA, both active or passive loops. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (or RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 2 channel output
- Voltage or Current configurable outputs
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



**Application areas**



**POWER SUPPLY**

|                            |                               |
|----------------------------|-------------------------------|
| Supply Voltage             | 18 .. 30 Vdc                  |
| Current consumption        | typ. 35 mA @ 24 Vdc 60 mA max |
| Rever. Polarity protection | 60 Vdc max                    |

**ISOLATIONS**

|                      |                        |
|----------------------|------------------------|
| Output – RS485       | 2000 Vac 50 Hz, 1 min. |
| Power Supply– Output |                        |
| Power Supply– RS-485 |                        |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

**OUTPUT**

| Output type               | Min     | Max    |
|---------------------------|---------|--------|
| <b>Voltage</b>            |         |        |
| V                         | 0 V     | +10 V  |
| <b>Current</b>            |         |        |
| mA                        | 0 mA    | +20 mA |
| <b>Output calibration</b> |         |        |
| Voltage                   |         | ±10 mV |
| Current                   |         | ±20 mA |
| <b>Load Resistance</b>    |         |        |
| Voltage                   | > 5 KΩ  |        |
| Current                   | < 500 Ω |        |

**Thermal drift**

|                          |                           |
|--------------------------|---------------------------|
| Full scale               | 100 ppm /°C               |
| <b>Auxiliary Voltage</b> | > 12V @ 20mA (2 channels) |

**Rise time**

| Analog output Slew-rate (independent programming for each channel) |              |
|--|--------------|
| Voltage V/s  | Current mA/s |
| 0.125  | 0.250        |
| 0.250  | 0.500        |
| 0.500  | 1.000        |
| 1.000  | 2.000        |
| 2.000  | 4.000        |
| 4.000  | 8.000        |
| Immediate  | Immediate    |

**Data Transmission (asynchronous serial)**

|               |                 |
|---------------|-----------------|
| Baud rate     | 115.2 Kbps      |
| Max. Distance | 1.2 Km - 4000ft |

DAT3000 SERIES

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**DAT 3024**



**GENERAL DESCRIPTION**

The device DAT 3024 generates up to 4 output analog signals from digital commands. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to generate voltage signals up to 10V and current signals up to 20mA, both active or passive loops. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

**FEATURES**

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 4 channel output
- Voltage or Current configurable outputs
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



**Application areas**



**POWER SUPPLY**

|                            |                                |
|----------------------------|--------------------------------|
| Supply Voltage             | 18 .. 30 Vdc                   |
| Current consumption        | typ. 35 mA @ 24 Vdc 100 mA max |
| Rever. Polarity protection | 60 Vdc max                     |

**ISOLATIONS**

|                      |                        |
|----------------------|------------------------|
| Output – RS485       | 2000 Vac 50 Hz, 1 min. |
| Power Supply– Output |                        |
| Power Supply– RS-485 |                        |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**EMC (for industrial environments)**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

**OUTPUT**

| Output type               | Min     | Max    |
|---------------------------|---------|--------|
| <b>Voltage</b>            |         |        |
| V                         | 0 V     | +10 V  |
| <b>Current</b>            |         |        |
| mA                        | 0 mA    | +20 mA |
| <b>Output calibration</b> |         |        |
| Voltage                   |         | ±10 mV |
| Current                   |         | ±20 mA |
| <b>Load Resistance</b>    |         |        |
| Voltage                   | > 5 KΩ  |        |
| Current                   | < 500 Ω |        |

**Thermal drift**

|                          |                           |
|--------------------------|---------------------------|
| Full scale               | 100 ppm /°C               |
| <b>Auxiliary Voltage</b> | > 12V @ 20mA (4 channels) |

**Rise time**

| Analog output Slew-rate (independent programming for each channel) |              |
|--|--------------|
| Voltage V/s  | Current mA/s |
| 0.125  | 0.250        |
| 0.250  | 0.500        |
| 0.500  | 1.000        |
| 1.000  | 2.000        |
| 2.000  | 4.000        |
| 4.000  | 8.000        |
| Immediate  | Immediate    |

**Data Transmission (asynchronous serial)**

|               |                 |
|---------------|-----------------|
| Baud rate     | 115.2 Kbps      |
| Max. Distance | 1.2 Km - 4000ft |

## REMOTE I/O MODULE 8 CHANNELS VOLTAGE OUTPUT ON RS-485 NETWORK

DAT 3028



### GENERAL DESCRIPTION

The device DAT 3028 generates up to 8 output analog signals from digital commands. Data values are transmitted with MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available). It is possible to generate voltage signals up to 10V. By means of a 16 bit converter, the device guarantees a high accuracy and a stable measure versus time and temperature. To ensure the plant safety, two Watch-Dog timer alarms are provided. The 2000 Vac isolation between input, power supply and serial line RS-485 (o RS-232) removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

### FEATURES

- Field-Bus remote data acquisition
- RS-485 Master/Slave communication type
- MODBUS RTU/ASCII protocol
- 8 channel 0-10 V output
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark
- DIN rail suitable mounting - EN-50022 compliance



### Application areas



### POWER SUPPLY

|                            |                                |
|----------------------------|--------------------------------|
| Supply Voltage             | 18 .. 30 Vdc                   |
| Current consumption        | typ. 35 mA @ 24 Vdc 100 mA max |
| Rever. Polarity protection | 60 Vdc max                     |

### ISOLATIONS

|                      |                           |
|----------------------|---------------------------|
| Output – RS485       | 2000 Vac 50 Hz,<br>1 min. |
| Power Supply– Output |                           |
| Power Supply– RS-485 |                           |

### TEMPERATURE & HUMIDITY

|                          |                |
|--------------------------|----------------|
| Operating Temperature    | -10°C .. +60°C |
| Storage Temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

### EMC (for industrial environments)

### DIRECTIVE 2004 / 108 / EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 17.5 |
| Weight    | About 150 g.                 |

### OUTPUT

| Output type               | Min         | Max    |
|---------------------------|-------------|--------|
| <b>Voltage</b>            |             |        |
| V                         | 0 V         | +10 V  |
| <b>Output calibration</b> |             | ±10 mV |
| <b>Load Resistance</b>    |             | > 5 KΩ |
| <b>Thermal drift</b>      |             |        |
| Full scale                | 100 ppm /°C |        |

### Rise time

Analog output Slew-rate  
(independent programming for each channel)

### Voltage V/s

|           |
|-----------|
| 0.125     |
| 0.250     |
| 0.500     |
| 1.000     |
| 2.000     |
| 4.000     |
| Immediate |

### Data Transmission (asynchronous serial)

|               |                 |
|---------------|-----------------|
| Baud rate     | 115.2 Kbps      |
| Max. Distance | 1.2 Km - 4000ft |



# DATEXEL

ELECTRONIC AND CONTROL PROCESS DEVICES



## "DAT9000 SERIES" Intelligent units

*The DAT9000 Series intelligent units were designed by DATEXEL to offer its customers products that, thanks to their capabilities, allow them to manage various architectures in the area of small to medium size automation systems and process control through the connection of a network of MODBUS RTU Master/Slave devices connected by way of RS-485.*

*The DAT9000 units read and write the parameters of the field devices to which they are connected, processing functions of the logical/mathematical type, including complex ones, such as for example: alarms, linearization, means, square roots, etc..*

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Intelligent unit with Data-Logger function, Ethernet Interface and digital and analogue I/O



**DAT9000** Intelligent  
**SERIES** units



**DAT 9000**



**GENERAL DESCRIPTION**

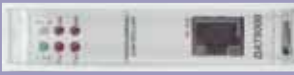
The device DAT9000 is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value.

Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to:

- Programming of the Control Logic
- Monitor, request of data, programming in real time the Intelligent Unit
- Direct programming and request of data from the Slave devices connected on the RS-485 Master.

**FEATURES**

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- Interface Ethernet 10Base-T, Modbus TCP
- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard



**Application areas**



**POWER SUPPLY**

10 ÷ 30 Vdc

**CURRENT CONSUMPTION**

45 mA typ.@24Vdc (standby)

80 mA max

**ISOLATIONS**

|                         |                            |
|-------------------------|----------------------------|
| Power supply / Ethernet | 1500 Vac, 50 Hz,<br>1 min. |
| Power supply / RS485    |                            |
| Ethernet / RS485        |                            |

**TEMPERATURE & HUMIDITY**

|                               |               |
|-------------------------------|---------------|
| Operative temperature         | -20°C ÷ +60°C |
| Storage temperature           | -40°C ÷ +85°C |
| Relative humidity (not cond.) | 0 ÷ 90 %      |

**CONNECTIONS**

|                       |                           |
|-----------------------|---------------------------|
| Ethernet              | RJ-45 (on terminals side) |
| RS-232D               | RJ-45 (on front side)     |
| RS-485 Master / Slave | Remov. screw terminals    |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 160 g.                 |

**Network interface**

|                                 |                    |
|---------------------------------|--------------------|
| Ethernet                        | 10 Base-T          |
| Protocol                        | Modbus TCP         |
| <b>RS-485 Interface</b>         |                    |
| Baud-rate                       | up to 38.4 Kbps    |
| Max. distance (1)               | 1.2 Km @ 38.4 Kbps |
| Number of modules in multipoint | up to 32           |
| Internal termination resistance | 120 Ohm (optional) |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DAT9000 SERIES

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**INTELLIGENT UNIT WITH DATA-LOGGER AND ETHERNET INTERFACE**

**DAT 9000-DL**



**GENERAL DESCRIPTION**

The device DAT9000 DL is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working, managing up to 8 task of recording memorized on files saved on the microSD card. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. By Ethernet it is possible to get access to the files saved on the microSD card when the Data-Logger function is active.

Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to: Programming of the Control Logic; Monitor, request of data, programming in real time the Intelligent Unit; Direct programming and request of data from the Slave devices connected on the RS-485 Master.

**FEATURES**

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- N.1 slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard



**Application areas**



**POWER SUPPLY**

10 ÷ 30 Vdc

**CURRENT CONSUMPTION**

45 mA typ.@24Vdc (standby)

100 mA max

**ISOLATIONS**

|                         |                            |
|-------------------------|----------------------------|
| Power supply / Ethernet | 1500 Vac, 50 Hz,<br>1 min. |
| Power supply / RS485    |                            |
| Ethernet / RS485        |                            |

**TEMPERATURE & HUMIDITY**

|                               |               |
|-------------------------------|---------------|
| Operative temperature         | -20°C ÷ +60°C |
| Storage temperature           | -40°C ÷ +85°C |
| Relative humidity (not cond.) | 0 ÷ 90 %      |

**CONNECTIONS**

|                       |                           |
|-----------------------|---------------------------|
| Ethernet              | RJ-45 (on terminals side) |
| RS-232D               | RJ-45 (on front side)     |
| RS-485 Master / Slave | Remov. screw terminals    |

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                              |
|-----------|------------------------------|
| Material  | Self-extinguishing plastic   |
| Mounting  | DIN rail                     |
| Dim. (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight    | About 160 g.                 |

**Network interface**

|                                 |                    |
|---------------------------------|--------------------|
| Ethernet                        | 10 Base-T          |
| Protocol                        | Modbus TCP         |
| <b>RS-485 Interface</b>         |                    |
| Baud-rate                       | up to 38.4 Kbps    |
| Max. distance (1)               | 1.2 Km @ 38.4 Kbps |
| Number of modules in multipoint | up to 32           |
| Internal termination resistance | 120 Ohm (optional) |

**Compatible SD card**

|             |                |
|-------------|----------------|
| Type        | microSD        |
| Memory size | Up to 8 GB     |
| Format      | FAT16 or FAT32 |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

## INTELLIGENT UNIT WITH ETHERNET INTERFACE AND DIGITAL I/O

### DAT 9000IO



#### GENERAL DESCRIPTION

The device DAT9000IO is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working. Moreover, the device is equipped with 4 digital inputs channels and 2 relay outputs. On digital inputs are available 32-bit counters and the measure of the frequency up to 300Hz.

By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to:

- Programming of the Control Logic
- Monitor, request of data, programming in real time the Intelligent Unit.
- Direct programming and request of data from the Slave devices connected on the RS-485 Master.

#### FEATURES

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- Interface Ethernet 10Base-T, Modbus TCP
- N.4 Digital Inputs
- N.2 SPDT Relay Outputs
- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital inputs and digital outputs state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard



#### Application areas



| POWER SUPPLY                      |              | CONNECTIONS             |                           | TEMPERATURE & HUMIDITY        |                              |
|-----------------------------------|--------------|-------------------------|---------------------------|-------------------------------|------------------------------|
| 18 ÷ 30 Vdc                       |              | Ethernet                | RJ-45 (on terminals side) | Operative temperature         | -20°C .. +60°C               |
| CURRENT CONSUMPTION               |              | RS-232D                 | RJ-45 (on front side)     | Storage temperature           | -40°C .. +85°C               |
| 45 mA typ.@24Vdc (standby)        |              | RS-485 Master / Slave   | Remov. screw terminals    | Relative humidity (not cond.) | 0 .. 90 %                    |
| 100 mA max                        |              | ISOLATIONS              |                           | HOUSING                       |                              |
| EMC (for industrial environments) |              | Power supply / Ethernet | 1500 Vac, 50 Hz, 1 min.   | Material                      | Self-extinguishing plastic   |
| DIRECTIVE 2004 / 108 / EC         |              | Power supply / RS-485   |                           | Mounting                      | DIN rail                     |
| Immunity                          | EN 61000-6-2 | Ethernet / RS-485       | 2000 Vac, 50 Hz, 1 min.   | Dimensions (mm)               | W x L x H : 120 x 100 x 22.5 |
| Emission                          | EN 61000-6-4 | Inputs / RS-485         |                           | Weight                        | About 190 g.                 |
|                                   |              | Inputs / Power supply   |                           |                               |                              |

| DIGITAL INPUTS                  |                    |
|---------------------------------|--------------------|
| Channels                        | 4                  |
| Input voltage (bipolar)         |                    |
| OFF state                       | 0 ÷ 3 V            |
| ON state                        | 10 ÷ 30 V          |
| Impedance                       | 4.7 KΩ             |
| Frequency                       | up to 300 Hz       |
| Network interface               |                    |
| Ethernet                        | 10Base-T           |
| Protocol                        | Modbus TCP         |
| RS-485 Interface                |                    |
| Baud-rate                       | up to 38.4 Kbps    |
| Max. distance (1)               | 1.2 Km @ 38.4 Kbps |
| Number of modules in multipoint | up to 32           |
| Internal termination resistance | 120 Ohm (optional) |

| DIGITAL OUTPUTS                               |             |
|---|-------------|
| Channels                                      | 2           |
| Type  | SPDT Relays |
| Switching Power (max.)                        |             |
| 2 A @ 250 Vac (resistive load) per contact    |             |
| 2 A @ 30 Vdc (resistive load) per contact     |             |
| Minimum load                                  | 5Vdc , 10mA |
| Max. voltage                                  |             |
| 250Vac (50 / 60 Hz) , 30Vdc                   |             |
| Dielectric strength between contacts          |             |
| 1000 Vac, 50 Hz, 1 min.                       |             |
| Dielectric strength between coil and contacts |             |
| 4000 Vac, 50 Hz, 1 min.                       |             |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

**DAT 9000-DL-IO**

**GENERAL DESCRIPTION**

The device DAT9000-DL-IO is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working, managing up to 8 task of recording memorized on files saved on the microSD card. The device is equipped with 4 digital inputs channels and 2 relay outputs. For the digital inputs, are also available 32 bit counters and the measure of the frequency up to 300 Hz. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. By Ethernet it is possible to get access to the files saved on the microSD card when the Data-Logger function is active. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to: Programming of the Control Logic; Monitor, request of data, programming in real time the Intelligent Unit; Direct programming and request of data from the Slave devices connected on the RS-485 Master.

**FEATURES**

- N.1 serial interface RS-485 Modbus RTU Master
- N.1 serial interface RS-485/232 Modbus RTU Slave
- N.1 slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- N.4 Digital Inputs + N.2 SPDT Relays
- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital input and output state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard


**Application areas**


DAT9000 SERIES

| POWER SUPPLY                      |              | CONNECTIONS             |                           | TEMPERATURE & HUMIDITY        |                              |
|-----------------------------------|--------------|-------------------------|---------------------------|-------------------------------|------------------------------|
| 18 ÷ 30 Vdc                       |              | Ethernet                | RJ-45 (on terminals side) | Operative temperature         | -20°C .. +60°C               |
| CURRENT CONSUMPTION               |              | RS-232D                 | RJ-45 (on front side)     | Storage temperature           | -40°C .. +85°C               |
| 45 mA typ.@24Vdc (standby)        |              | RS-485 Master / Slave   | Remov. screw terminals    | Relative humidity (not cond.) | 0 .. 90 %                    |
| 100 mA max                        |              | ISOLATIONS              |                           | <b>HOUSING</b>                |                              |
| EMC (for industrial environments) |              | Power supply / Ethernet | 1500 Vac, 50 Hz, 1 min.   | Material                      | Self-extinguishing plastic   |
| <b>DIRECTIVE 2004 / 108 / EC</b>  |              | Power supply / RS485    |                           | Mounting                      | DIN rail                     |
| Immunity                          | EN 61000-6-2 | Ethernet / RS485        | 2000 Vac, 50 Hz, 1 min.   | Dimensions (mm)               | W x L x H : 120 x 100 x 22.5 |
| Emission                          | EN 61000-6-4 | Inputs / RS485          |                           | Weight                        | About 160 g.                 |
|                                   |              | Inputs / Power supply   |                           |                               |                              |

| DIGITAL INPUTS                  |                    |
|---------------------------------|--------------------|
| <b>Channels</b>                 | 4                  |
| <b>Input voltage (bipolar)</b>  |                    |
| OFF state                       | 0 ÷ 3 V            |
| ON state                        | 10 ÷ 30 V          |
| <b>Impedance</b>                | 4.7 KΩ             |
| <b>Network interface</b>        |                    |
| Ethernet                        | 10Base-T           |
| Protocol                        | Modbus TCP         |
| <b>RS485 Interface</b>          |                    |
| Baud-rate                       | up to 38.4 Kbps    |
| Max. distance (1)               | 1.2 Km @ 38.4 Kbps |
| Number of modules in multipoint | up to 32           |
| Internal termination resistance | 120 Ohm (optional) |
| <b>Compatible SD card</b>       |                    |
| Type                            | microSD            |
| Memory size                     | Up to 8 GB         |
| Format                          | FAT16 or FAT32     |

| DIGITAL OUTPUTS                                      |             |
|--|-------------|
| <b>Channels</b>                                      | 2           |
| <b>Type</b>  | SPDT Relays |
| <b>Switching Power (max.)</b>                        |             |
| 2 A @ 250 Vac (resistive load) per contact           |             |
| 2 A @ 30 Vdc (resistive load) per contact            |             |
| <b>Minimum load</b>                                  | 5Vdc, 10mA  |
| <b>Max. voltage</b>                                  |             |
| 250Vac (50 / 60 Hz), 30Vdc                           |             |
| <b>Dielectric strength between contacts</b>          |             |
| 1000 Vac, 50 Hz, 1 min.                              |             |
| <b>Dielectric strength between coil and contacts</b> |             |
| 4000 Vac, 50 Hz, 1 min.                              |             |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

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**INTELLIGENT UNIT WITH ETHERNET INTERFACE AND DIGITAL AND ANALOGUE I/O**
**DAT 9011**

**GENERAL DESCRIPTION**

The device DAT9011 is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working. The device is equipped with one universal analogue input channel, one channel for Volt and mA input, two digital inputs and 2 relay outputs. On input an Auxiliary source is available to supply passive sensors on the field. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to program the Control Logic, to monitor, to request data and programming in real time the Intelligent Unit, to program directly the Slave devices connected on the RS-485 Master and to request data from them.

**FEATURES**

- N°1 serial interface RS-485 Modbus RTU Master
- N°1 serial interface RS-485/232 Modbus RTU Slave
- Interface Ethernet 10Base-T, Modbus TCP
- N°1 universal analogue input + N°1 current and voltage analogue input
- N°2 digital Inputs
- Auxiliary supply to power sensors on field
- N°2 passive 4-20 mA analogue outputs
- N°2 SPDT Relay Outputs
- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital inputs and digital outputs state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard


**Application areas**


| POWER SUPPLY                             |                     | CONNECTIONS                        |                              | TEMPERATURE & HUMIDITY        |                              |
|--|---------------------|------------------------------------|------------------------------|-------------------------------|------------------------------|
| Power supply Voltage                     | 9 ÷ 30 Vdc          | Ethernet                           | RJ-45 (on terminals side)    | Operative temperature         | -20°C .. +60°C               |
| Current consumption @ 24 Vdc             | 60 mA (170 mA max)  | RS-232D                            | RJ-45 (on front side)        | Storage temperature           | -40°C .. +85°C               |
| Current consumption @ 10 Vdc             | 147 mA (300 mA max) | RS-485 Master / Slave              | Screw terminals pitch 5.08mm | Relative humidity (not cond.) | 0 .. 90 %                    |
| Reverse polarity protection              | 60 Vdc max          | Outputs Relay                      | Screw terminals pitch 3.81mm | <b>HOUSING</b>                |                              |
| <b>EMC (for industrial environments)</b> |                     | Supply/Inputs/ Analogue outputs    |                              | Material                      | Self-extinguishing plastic   |
| <b>DIRECTIVE 2004 / 108 / EC</b>         |                     | <b>ISOLATIONS</b>                  |                              | Mounting                      | DIN rail                     |
| Immunity                                 | EN 61000-6-2        | Isolations voltage (50 Hz, 1 min.) | 1500 Vac (on all the ways)   | Dimensions (mm)               | W x L x H : 120 x 100 x 22.5 |
| Emission                                 | EN 61000-6-4        |                                    |                              | Weight                        | About 190 g.                 |

| ANALOGUE INPUTS                  |                 |                     |             |               |  |
|----------------------------------|-----------------|---------------------|-------------|---------------|--|
| Type                             | Range           | Calibration         | Linearity   | Thermal Drift |  |
| 100 mV                           | -100 ÷ +100 mV  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| 10 V                             | -10 ÷ +10 V     | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| 20 mA                            | -20 ÷ +20 mA    | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Pt100                            | -200 ÷ +850 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Pt1K                             | -200 ÷ +200 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Ni100                            | -60 ÷ +180 °C   | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Ni1K                             | -60 ÷ +150 °C   | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Res                              | 0 ÷ 2000 Ohm    | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Pot                              | 20 ÷ 50000 Ohm  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Tc J                             | -210 ÷ +1200 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Tc K                             | -210 ÷ +1370 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Tc R                             | -50 ÷ +1760 °C  | ±0.1 % f.s.         | ±0.2 % f.s. | 100 ppm/°C    |  |
| Tc S                             | -50 ÷ +1760 °C  | ±0.1 % f.s.         | ±0.2 % f.s. | 100 ppm/°C    |  |
| Tc B                             | +400 ÷ +1825 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Tc E                             | -210 ÷ +1000 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Tc T                             | -210 ÷ +400 °C  | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| Tc N                             | -210 ÷ +1300 °C | ±0.05 % f.s.        | ±0.1 % f.s. | 100 ppm/°C    |  |
| <b>Input impedance</b>           |                 | Tc, mV >= 10 MΩ     |             |               |  |
|                                  |                 | Volt >= 1 MΩ        |             |               |  |
|                                  |                 | Current ~ 22 Ω      |             |               |  |
| <b>Auxiliary voltage</b>         |                 | >14 V @ 20 mA       |             |               |  |
| <b>Line resistance influence</b> |                 |                     |             |               |  |
| RTD 3 wires                      |                 | 0.05 %/Ω (50 Ω max) |             |               |  |
| mV, Tc                           |                 | < 0.8 uV/Ohm        |             |               |  |

| Sensor excitation current                     |   |   |              |               |
|---|---|---|--------------|---------------|
| RTD, Res, Pot                                 | ~ 400 uA                                |   |              |               |
| <b>CJC comp.</b>                              | ± 1 °C                                  |   |              |               |
| <b>Sample time</b>                            | 1 sec.                                  |   |              |               |
| <b>Warm-up time (TC,RTD)</b>                  | 3 min.                                  |   |              |               |
| DIGITAL INPUTS                                |   |   |              |               |
| <b>Channels</b>                               | 2                                       |   |              |               |
| <b>Input voltage (bipolar)</b>                | OFF state : 0÷3 V<br>ON state : 10÷30 V |   |              |               |
| <b>Input impedance</b>                        | 4.7 KOhm                                |   |              |               |
| <b>N°2 Digital counter</b>                    | 32 bit (up to 300 Hz)                   |   |              |               |
| ANALOGUE OUTPUTS (2 CHANNELS)                 |   |   |              |               |
| Type  | Range                                   | Calibration   | Linearity    | Thermal Drift |
| 20 mA   | 4 ÷ +20 mA                              | ±0.05 % f.s.  | ±0.05 % f.s. | 100 ppm/°C    |
| DIGITAL OUTPUTS                               |   |   |              |               |
| N.2 SPDT Relays                               |   |   |              |               |
| Switching Power (resistive load)              |   | 2 A @ 250 Vac (per contact)<br>2 A @ 30 Vdc (per contact) |              |               |
| Minimum load                                  | 5Vdc , 10mA                             |   |              |               |
| Max. voltage                                  | 250Vac (50 / 60 Hz) ,110Vdc             |   |              |               |
| Dielectric strength between contacts          | 1000 Vac, 50 Hz, 1 min.                 |   |              |               |
| Dielectric strength between coil and contacts | 4000 Vac, 50 Hz, 1 min.                 |   |              |               |
| Serial Ports RS-485 (Master & Slave)          |   |   |              |               |
| Protocol                                      | Modbus RTU                              |   |              |               |
| Baud Rate                                     | up to 115.2 Kbps                        |   |              |               |
| Max. recommended distance (1)                 | 1.2 Km @ 38.4 Kbps                      |   |              |               |
| Number of modules in multipoint               | up to 32                                |   |              |               |
| Internal termination resistance               | 120 Ohm (optional)                      |   |              |               |

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...



**DAT 9011-DL**

**GENERAL DESCRIPTION**

The device DAT9011-DL is an Intelligent unit able to control a network of slave Modbus RTU devices connected on serial line RS-485 Master executing the reading and writing of the field values and performing the logical and mathematical functions necessary for the system working and managing up to 8 tasks of storage data. The data are saved on microSD card; it is possible to get access to the saved files by means of the Ethernet connection. The device is equipped with one universal analogue input channel, one channel for Volt and mA input, two digital inputs and 2 relay outputs. On input an Auxiliary source is available to supply passive sensors on the field. By means of the Ethernet interface or the RS-485 "SLAVE" or RS-232 ports it is possible to read and write, in real time, the internal registers value. Moreover, by means of the Ethernet interface, or by the RS-485 "SLAVE" or RS-232 ports it is possible to program the Control Logic, to monitor, to request data and programming in real time the Intelligent Unit, to program directly the Slave devices connected on the RS-485 Master and to request data from them.

**FEATURES**

- N°1 serial interface RS-485 Modbus RTU Master
- N°1 serial interface RS-485/232 Modbus RTU Slave
- N°1 Slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- N°1 universal analogue input + N°1 current and voltage analogue input
- N°2 digital Inputs
- Auxiliary supply to power sensors on field
- N°2 passive 4-20 mA analogue outputs
- N°2 SPDT Relay Outputs
- Functional Block programming software
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- LED signalling for digital inputs and digital outputs state
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- Suitable for DIN rail mounting in compliance with EN-50022 standard


**Application areas**


DAT9000 SERIES

**POWER SUPPLY**

|                              |                     |
|------------------------------|---------------------|
| Power supply Voltage         | 9 ÷ 30 Vdc          |
| Current consumption @ 24 Vdc | 60 mA (170 mA max)  |
| Current consumption @ 10 Vdc | 147 mA (300 mA max) |
| Reverse polarity protection  | 60 Vdc max          |

**CONNECTIONS**

|                                 |                              |
|---------------------------------|------------------------------|
| Ethernet                        | RJ-45 (on terminals side)    |
| RS-232D                         | RJ-45 (on front side)        |
| RS-485 Master / Slave           | Screw terminals pitch 5.08mm |
| Outputs Relay                   | Screw terminals pitch 3.81mm |
| Supply/Inputs/ Analogue outputs | Screw terminals pitch 3.81mm |

**TEMPERATURE & HUMIDITY**

|                               |                |
|-------------------------------|----------------|
| Operative temperature         | -20°C .. +60°C |
| Storage temperature           | -40°C .. +60°C |
| Relative humidity (not cond.) | 0 .. 90 %      |

**EMC (for industrial environments)**
**DIRECTIVE 2004 / 108 / EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

|                                    |                            |
|------------------------------------|----------------------------|
| <b>ISOLATIONS</b>                  |                            |
| Isolations voltage (50 Hz, 1 min.) | 1500 Vac (on all the ways) |

**HOUSING**

|                 |                              |
|-----------------|------------------------------|
| Material        | Self-extinguishing plastic   |
| Mounting        | DIN rail                     |
| Dimensions (mm) | W x L x H : 120 x 100 x 22.5 |
| Weight          | About 190 g.                 |

**ANALOGUE INPUTS**

| Type   | Range           | Calibration  | Linearity   | Thermal Drift |
|--------|-----------------|--------------|-------------|---------------|
| 100 mV | -100 ÷ +100 mV  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| 10 V   | -10 ÷ +10 V     | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| 20 mA  | -20 ÷ +20 mA    | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Pt100  | -200 ÷ +850 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Pt1K   | -200 ÷ +200 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Ni100  | -60 ÷ +180 °C   | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Ni1K   | -60 ÷ +150 °C   | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Res    | 0 ÷ 2000 Ohm    | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Pot    | 20 ÷ 50000 Ohm  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc J   | -210 ÷ +1200 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc K   | -210 ÷ +1370 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc R   | -50 ÷ +1760 °C  | ±0.1 % f.s.  | ±0.2 % f.s. | 100 ppm/°C    |
| Tc S   | -50 ÷ +1760 °C  | ±0.1 % f.s.  | ±0.2 % f.s. | 100 ppm/°C    |
| Tc B   | +400 ÷ +1825 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc E   | -210 ÷ +1000 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc T   | -210 ÷ +400 °C  | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |
| Tc N   | -210 ÷ +1300 °C | ±0.05 % f.s. | ±0.1 % f.s. | 100 ppm/°C    |

|                                  |   |
|----------------------------------|---|
| <b>Input impedance</b>           | Tc, mV >= 10 MΩ<br>Volt >= 1 MΩ<br>Current ~ 22 Ω |
| <b>Auxiliary voltage</b>         | >14 V @ 20 mA                                     |
| <b>Line resistance influence</b> |   |
| RTD 3 wires                      | 0.05 %/Ω (50 Ω max)                               |
| mV, Tc                           | < 0.8 uV/Ohm                                      |

|                                  |          |
|----------------------------------|----------|
| <b>Sensor excitation current</b> |          |
| RTD, Res, Pot                    | ~ 400 uA |
| <b>CJC comp.</b>                 | ± 1 °C   |
| <b>Sample time</b>               | 1 sec.   |
| <b>Warm-up time (TC,RTD)</b>     | 3 min.   |

**DIGITAL INPUTS**

|                         |   |
|-------------------------|---|
| <b>Channels</b>         | 2   |
| Input voltage (bipolar) | OFF state : 0 ÷ 3 V<br>ON state : 10 ÷ 30 V |
| Input impedance         | 4.7 KOhm                                    |
| N°2 Digital counter     | 32 bit (up to 300 Hz)                       |

**ANALOGUE OUTPUTS (2 CHANNELS)**

| Type  | Range      | Calibration  | Linearity    | Thermal Drift |
|-------|------------|--------------|--------------|---------------|
| 20 mA | 4 ÷ +20 mA | ±0.05 % f.s. | ±0.05 % f.s. | 100 ppm/°C    |

**DIGITAL OUTPUTS**

|   |   |
|---|---|
| <b>N.2 SPDT Relays</b>                        |   |
| Switching Power (resistive load)              | 2 A @ 250 Vac (per contact)<br>2 A @ 30 Vdc (per contact) |
| Minimum load                                  | 5Vdc , 10mA   |
| Max. voltage                                  | 250Vac (50 / 60 Hz) ,110Vdc                               |
| Dielectric strength between contacts          | 1000 Vac, 50 Hz, 1 min.                                   |
| Dielectric strength between coil and contacts | 4000 Vac, 50 Hz, 1 min.                                   |

**Serial Ports RS-485 (Master & Slave)**

|                                 |                    |
|---------------------------------|--------------------|
| Protocol                        | Modbus RTU         |
| Baud Rate                       | up to 115.2 bps    |
| Max. distance (1)               | 1.2 Km @ 38.4 Kbps |
| Number of modules in multipoint | up to 32           |
| Internal termination resistance | 120 Ohm (optional) |

**Compatible SD card**

|             |                |
|-------------|----------------|
| Type        | microSD        |
| Memory size | Up to 8 GB     |
| Format      | FAT16 or FAT32 |

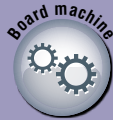
(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

ELECTRONIC AND CONTROL PROCESS DEVICES



**"DAT9000 SERIES"**  
**intelligent units**

[www.datexel.it](http://www.datexel.it)



Application areas

DAT9000 SERIES

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## "DAT6000 SERIES": A/D interface modules for PLC

*The DAT6000 series devices are an evolution in the connection techniques of the analog signals to the PLC.*

*Each device amplify, linearise, filter and isolate the analog signal coming from the sensors on field and convert it in an high resolution 16 bits length "word" digital signal that is transferred to the PLC by the data line of the controller.*

*The data transfer is controlled by the PLC trough a clock signal generated on its digital port; at each pulse of clock is transferred a bit of the data.*

*By few and simple instructions the PLC is able to acquire more analog signals on a single digital input. Moreover each module has an Enable signal, that allows the controller to multiplexing more devices to one data line and one clock signal.*

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A/D interface for PLC 2 input channels for mV or Tc
- DAT 6012**  
A/D interface for PLC 2 input channels for RTD, Res
- 75 • **DAT 6013**  
A/D interface for PLC 2 input channels for V, mA
- DAT 6021**  
A/D interface for PLC 4 input channels for mV, Tc
- 76 • **DAT 6023-I**  
A/D interface for PLC 4 input channels for +/- 20 mA
- DAT 6023-V**  
A/D interface for PLC 4 input channels for +/- 10V



**DAT6000** A/D interface modules  
**SERIES** for PLC



**DAT 6011**



**GENERAL DESCRIPTION**

The devices of the DAT6000 series are an evolution in the techniques of connection of analog signals to PLC. The devices of this series amplify, linearise, isolate, filter and convert the analog signals coming from various sensors in a high resolution. The digital signal can be connected to any input of the PLC.

**FEATURES**

- Acquisition of analogue signals on PLC's digital I/O
- Analogue input to any PLC or micro PLC
- Up to 16-bit resolution with Full Scale high accuracy
- 2 input channels
- Configurable input for voltage up to  $\pm 1V$  or Tc type J,K, R,S,B,E,T,N
- Configurable by DIP-switch
- Galvanic isolation at 2000 Vac on three ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Power supply voltage       | 18 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. polarity protection | 60 Vdc max     |

**ISOLATION VOLTAGE**

|                     |                           |
|---------------------|---------------------------|
| INPUT – PLC         | 2000 Vac<br>50 Hz, 1 min. |
| Power supply– INPUT |                           |
| Power supply– PLC   |                           |

**TEMPERATURE AND HUMIDITY**

|                       |                |
|-----------------------|----------------|
| Operative temperature | -10°C .. +60°C |
| Storage temperature   | -40°C .. +85°C |
| Humidity (not cond)   | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT**

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

**INPUT CHANNELS**

|                       |   |
|-----------------------|---|
| Input calibration (1) | 2 |
|-----------------------|---|

**Linearity (1)**

|    |                  |
|----|------------------|
| mV | $\pm 0.1$ % f.s. |
| Tc | $\pm 0.2$ % f.s. |

|                                   |              |
|-----------------------------------|--------------|
| <b>Cold junction compensation</b> | $\pm 0.5$ °C |
|-----------------------------------|--------------|

**Input impedance**

|        |                     |
|--------|---------------------|
| mV, Tc | $\geq 1$ M $\Omega$ |
|--------|---------------------|

**Thermal drift (1)**

|            |                    |
|------------|--------------------|
| Full Scale | $\pm 0.005$ % / °C |
|------------|--------------------|

**Thermal drift CJC**

|            |                   |
|------------|-------------------|
| Full Scale | $\pm 0.02$ % / °C |
|------------|-------------------|

**Line resistance influence**

|        |                |
|--------|----------------|
| mV, Tc | $< 0.8$ uV/Ohm |
|--------|----------------|

**DIGITAL INTERFACE**

|                             |                              |
|-----------------------------|------------------------------|
| <b>Voltage on terminals</b> | typical 24 Vdc (30 Vdc max.) |
|-----------------------------|------------------------------|

|                 |          |
|-----------------|----------|
| <b>ON state</b> | $>9$ Vdc |
|-----------------|----------|

**Input impedance**

|               |          |
|---------------|----------|
| (ENABLE, CLK) | 4.7 KOhm |
|---------------|----------|

**Minimum output load**

|        |             |
|--------|-------------|
| (DATA) | 560 Ohm (2) |
|--------|-------------|

**Max. frequency**

|              |        |
|--------------|--------|
| Clock signal | 500 Hz |
|--------------|--------|

**Rise / Fall time**

|      |            |
|------|------------|
| (Tr) | $< 0.2$ ms |
|------|------------|

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

(2) The load on the output DATA is controlled with the current taken from the ENABLE signal.

DAT 6000 SERIES

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**A/D INTERFACE FOR PLC 2 INPUT CHANNELS FOR RTD, Res**

**DAT 6012**



**GENERAL DESCRIPTION**

The devices of the DAT6000 series are an evolution in the techniques of connection of analog signals to PLC. The devices of this series amplify, linearise, isolate, filter and convert the analog signals coming from various sensors in a high resolution. The digital signal can be connected to any input of the PLC.

**FEATURES**

- Acquisition of analog signals on PLC's digital I/O
- Analog input to any PLC or micro PLC
- Up to 16-bit resolution with Full Scale high accuracy
- 2 input channels
- Configurable input for Pt100, Pt1000, Ni100, Ni1000, Resistance and Potentiometers up to 2 Kohm
- Configurable by DIP-switch
- Galvanic isolation at 2000 Vac on three ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Power supply voltage       | 18 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. polarity protection | 60 Vdc max     |

**ISOLATION VOLTAGE**

|                     |                           |
|---------------------|---------------------------|
| INPUT – PLC         | 2000 Vac<br>50 Hz, 1 min. |
| Power supply– INPUT |                           |
| Power supply– PLC   |                           |

**TEMPERATURE AND HUMIDITY**

|                       |                |
|-----------------------|----------------|
| Operative temperature | -10°C .. +60°C |
| Storage temperature   | -40°C .. +85°C |
| Humidity (not cond)   | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT**

| Input type           | Min        | Max           |
|----------------------|------------|---------------|
| <b>RTD</b>           |            |               |
| Pt100                | -200 °C    | +850 °C       |
| Pt1000               | -200 °C    | +200 °C       |
| Ni100                | -80 °C     | +180 °C       |
| Ni1000               | -60 °C     | +150 °C       |
| <b>Resistance</b>    |            |               |
| 500 $\Omega$         | 0 $\Omega$ | 500 $\Omega$  |
| 2 K $\Omega$         | 0 $\Omega$ | 2000 $\Omega$ |
| <b>Potentiometer</b> |            |               |
| $< 500 \Omega^*$     | 0 %        | 100 %         |
| $< 2 K\Omega^*$      | 0 %        | 100 %         |

**Input channels**

|                       |   |
|-----------------------|---|
| Input calibration (1) | 2 |
|-----------------------|---|

**Linearity (1)**

|           |                  |
|-----------|------------------|
| Res, Pot. | $\pm 0.1$ % f.s. |
| RDT       | $\pm 0.2$ % f.s. |

|                                      |               |
|--------------------------------------|---------------|
| <b>RTD / Res. excitation current</b> | 0.350 mA typ. |
|--------------------------------------|---------------|

**Thermal drift (1)**

|            |                    |
|------------|--------------------|
| Full Scale | $\pm 0.005$ % / °C |
|------------|--------------------|

**Line resistance influence**

|          |                 |
|----------|-----------------|
| RTD, Res | $< 0.05\%$ /Ohm |
|----------|-----------------|

(50  $\Omega$  max , 3 wires connection)

**DIGITAL INTERFACE**

|                             |                              |
|-----------------------------|------------------------------|
| <b>Voltage on terminals</b> | typical 24 Vdc (30 Vdc max.) |
|-----------------------------|------------------------------|

|                 |          |
|-----------------|----------|
| <b>ON state</b> | $>9$ Vdc |
|-----------------|----------|

**Input impedance**

|               |          |
|---------------|----------|
| (ENABLE, CLK) | 4.7 KOhm |
|---------------|----------|

**Minimum output load**

|        |             |
|--------|-------------|
| (DATA) | 560 Ohm (2) |
|--------|-------------|

**Max. frequency**

|              |        |
|--------------|--------|
| Clock signal | 500 Hz |
|--------------|--------|

**Rise / Fall time**

|      |            |
|------|------------|
| (Tr) | $< 0.2$ ms |
|------|------------|

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

(2) The load on the output DATA is controlled with the current taken from the ENABLE signal

\* nominal value

## A/D INTERFACE FOR PLC 2 INPUT CHANNELS FOR V, mA

DAT 6013



### GENERAL DESCRIPTION

The devices of the DAT6000 series are an evolution in the techniques of connection of analog signals to PLC. The devices of this series amplify, linearise, isolate, filter and convert the analog signals coming from various sensors in a high resolution. The digital signal can be connected to any input of the PLC.

### FEATURES

- Acquisition of analog signals on PLC's digital I/O
- Analog input to any PLC or micro PLC
- Up to 16-bit resolution with Full Scale high accuracy
- 2 input channels
- Configurable input for  $\pm 10$  V and  $\pm 20$  mA

- Configurable by DIP-switch
- Galvanic isolation at 2000 Vac on three ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Power supply voltage       | 18 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. polarity protection | 60 Vdc max     |

### ISOLATION VOLTAGE

|                     |                           |
|---------------------|---------------------------|
| INPUT – PLC         |                           |
| Power supply– INPUT | 2000 Vac<br>50 Hz, 1 min. |
| Power supply– PLC   |                           |

### TEMPERATURE AND HUMIDITY

|                       |                |
|-----------------------|----------------|
| Operative temperature | -10°C .. +60°C |
| Storage temperature   | -40°C .. +85°C |
| Humidity (not cond)   | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004/108/EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type                   | Min                   | Max              |
|------------------------------|-----------------------|------------------|
| <b>Voltage</b>               |                       |                  |
| 10 V                         | -10 V                 | +10 V            |
| <b>Current</b>               |                       |                  |
| 20 mA                        | -20 mA                | +20 mA           |
| <b>Input channels</b>        |                       |                  |
|                              |                       | 2                |
| <b>Input calibration (1)</b> |                       |                  |
|                              |                       | $\pm 0.1$ % f.s. |
| <b>Linearity (1)</b>         |                       |                  |
|                              |                       | $\pm 0.1$ % f.s. |
| <b>Input impedance</b>       |                       |                  |
| V                            | $\geq 100$ K $\Omega$ |                  |
| mA                           | $\leq 50$ $\Omega$    |                  |
| <b>Thermal drift (1)</b>     |                       |                  |
| Full Scale                   | $\pm 0.005$ % / °C    |                  |

### DIGITAL INTERFACE

|                             |                              |
|-----------------------------|------------------------------|
| <b>Voltage on terminals</b> | typical 24 Vdc (30 Vdc max.) |
| <b>ON state</b>             | $>9$ Vdc                     |
| <b>Input impedance</b>      |                              |
| (ENABLE, CLK)               | 4.7 K $\Omega$ m             |
| <b>Minimum output load</b>  |                              |
| (DATA)                      | 560 Ohm (2)                  |
| <b>Max. frequency</b>       |                              |
| Clock signal                | 500 Hz                       |
| <b>Rise / Fall time</b>     |                              |
| (Tr) $< 0.2$ ms             |                              |

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

(2) The load on the output DATA is controlled with the current taken from the ENABLE signal

## A/D INTERFACE FOR PLC 4 INPUT CHANNELS FOR mV, TC

DAT 6021



### GENERAL DESCRIPTION

The devices of the DAT6000 series are an evolution in the techniques of connection of analog signals to PLC. The devices of this series amplify, linearise, isolate, filter and convert the analog signals coming from various sensors in a high resolution. The digital signal can be connected to any input of the PLC.

### FEATURES

- Acquisition of analogue signals on PLC's digital I/O
- Analogue input to any PLC or micro PLC
- Up to 16-bit resolution with Full Scale high accuracy
- 4 input channels
- Configurable input for  $\pm 1$  V or Tc type J,K, R,S,B,E,T,N
- Configurable by DIP-switch

- Galvanic isolation at 2000 Vac on three ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



### Application areas



### POWER SUPPLY

|                            |                |
|----------------------------|----------------|
| Power supply voltage       | 18 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. polarity protection | 60 Vdc max     |

### ISOLATION VOLTAGE

|                     |                           |
|---------------------|---------------------------|
| INPUT – PLC         |                           |
| Power supply– INPUT | 2000 Vac<br>50 Hz, 1 min. |
| Power supply– PLC   |                           |

### TEMPERATURE AND HUMIDITY

|                       |                |
|-----------------------|----------------|
| Operative temperature | -10°C .. +60°C |
| Storage temperature   | -40°C .. +85°C |
| Humidity (not cond)   | 0 .. 90 %      |

### EMC (for industrial environments)

#### DIRECTIVE 2004/108/EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

### HOUSING

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

### INPUT

| Input type                        | Min              | Max               |
|-----------------------------------|------------------|-------------------|
| <b>Voltage</b>                    |                  |                   |
| 50 mV                             | -50 mV           | +50 mV            |
| 100 mV                            | -100 mV          | +100 mV           |
| 500 mV                            | -500 mV          | +500 mV           |
| 1000 mV                           | -1000 mV         | +1000 mV          |
| <b>Thermocouple</b>               |                  |                   |
| J                                 | -210 °C          | +1200 °C          |
| K                                 | -210 °C          | +1372 °C          |
| R                                 | -50 °C           | +1767 °C          |
| S                                 | -50 °C           | +1767 °C          |
| B                                 | +400 °C          | +1825 °C          |
| E                                 | -210 °C          | +1000 °C          |
| T                                 | -210 °C          | +400 °C           |
| N                                 | -210 °C          | +1300 °C          |
| <b>Input channels</b>             |                  |                   |
|                                   |                  | 4                 |
| <b>Input calibration (1)</b>      |                  |                   |
|                                   |                  | $\pm 0.05$ % f.s. |
| <b>Linearity (1)</b>              |                  |                   |
| mV                                | $\pm 0.1$ % f.s. |                   |
| Tc                                | $\pm 0.2$ % f.s. |                   |
| <b>Cold junction compensation</b> |                  |                   |
|                                   |                  | $\pm 0.5$ °C      |

### Input impedance

|                                  |                     |
|----------------------------------|---------------------|
| mV, Tc                           | $\geq 1$ M $\Omega$ |
| <b>Thermal drift (1)</b>         |                     |
| Full Scale                       | $\pm 0.005$ % / °C  |
| <b>Thermal drift CJC</b>         |                     |
| Full Scale                       | $\pm 0.02$ % / °C   |
| <b>Line resistance influence</b> |                     |
| mV, Tc                           | $< 0.8$ uV/Ohm      |

### DIGITAL INTERFACE

|                             |                              |
|-----------------------------|------------------------------|
| <b>Voltage on terminals</b> | typical 24 Vdc (30 Vdc max.) |
| <b>ON state</b>             | $>9$ Vdc                     |
| <b>Input impedance</b>      |                              |
| (ENABLE, CLK)               | 4.7 K $\Omega$ m             |
| <b>Minimum output load</b>  |                              |
| (DATA)                      | 560 Ohm (2)                  |
| <b>Max. frequency</b>       |                              |
| Clock signal                | 500 Hz                       |
| <b>Rise / Fall time</b>     |                              |
| (Tr) $< 0.2$ ms             |                              |

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

(2) The load on the output DATA is controlled with the current taken from the ENABLE signal

**DAT 6023-I**



**GENERAL DESCRIPTION**

The devices of the DAT6000 series are an evolution in the techniques of connection of analog signals to PLC. The devices of this series amplify, linearise, isolate, filter and convert the analog signals coming from various sensors in a high resolution. The digital signal can be connected to any input of the PLC.

**FEATURES**

- Acquisition of analog signals on PLC's digital I/O
- Analog input to any PLC or micro PLC
- Up to 16-bit resolution with Full Scale high accuracy
- 4 input channels
- Configurable input for  $\pm 20$  mA
- Configurable by DIP-switch
- Galvanic isolation at 2000 Vac on three ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Power supply voltage       | 18 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. polarity protection | 60 Vdc max     |

**ISOLATION VOLTAGE**

|                     |                           |
|---------------------|---------------------------|
| INPUT – PLC         |                           |
| Power supply– INPUT | 2000 Vac<br>50 Hz, 1 min. |
| Power supply– PLC   |                           |

**TEMPERATURE AND HUMIDITY**

|                       |                |
|-----------------------|----------------|
| Operative temperature | -10°C .. +60°C |
| Storage temperature   | -40°C .. +85°C |
| Humidity (not cond)   | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT**

| Input type                   | Min              | Max    |
|------------------------------|------------------|--------|
| <b>Current</b>               |                  |        |
| 20 mA                        | -20 mA           | +20 mA |
| <b>Input channels</b>        | 4                |        |
| <b>Input calibration (1)</b> | $\pm 0.1$ % f.s. |        |
| <b>Linearity (1)</b>         | $\pm 0.1$ % f.s. |        |

**Input impedance**

|    |                  |
|----|------------------|
| mA | $\leq 50 \Omega$ |
|----|------------------|

**Thermal drift (1)**

|            |                    |
|------------|--------------------|
| Full Scale | $\pm 0.005$ % / °C |
|------------|--------------------|

**DIGITAL INTERFACE**

|                             |                              |
|-----------------------------|------------------------------|
| <b>Voltage on terminals</b> | typical 24 Vdc (30 Vdc max.) |
| <b>ON state</b>             | $>9$ Vdc                     |
| <b>Input impedance</b>      |                              |
| (ENABLE, CLK)               | 4.7 KOhm                     |
| <b>Minimum output load</b>  |                              |
| (DATA)                      | 560 Ohm (2)                  |
| <b>Max. frequency</b>       |                              |
| Clock signal                | 500 Hz                       |
| <b>Rise / Fall time</b>     | (Tr) $< 0.2$ ms              |

(1) referred to input Span (difference between max. and min. values)  
 (2) The load on the output DATA is controlled with the current taken from the ENABLE signal

DAT 6000 SERIES

**A/D INTERFACE FOR PLC 4 INPUT CHANNELS FOR +/- 10V**

**DAT 6023-V**



**GENERAL DESCRIPTION**

The devices of the DAT6000 series are an evolution in the techniques of connection of analog signals to PLC. The devices of this series amplify, linearise, isolate, filter and convert the analog signals coming from various sensors in a high resolution. The digital signal can be connected to any input of the PLC.

**FEATURES**

- Acquisition of analog signals on PLC's digital I/O
- Analog input to any PLC or micro PLC
- Up to 16-bit resolution with Full Scale high accuracy
- 4 input channels
- Configurable input for  $\pm 10$  V
- Configurable by DIP-switch
- Galvanic isolation at 2000 Vac on three ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



**Application areas**



**POWER SUPPLY**

|                            |                |
|----------------------------|----------------|
| Power supply voltage       | 18 .. 30 Vdc   |
| Current consumption        | 30 mA @ 24 Vdc |
| Rever. polarity protection | 60 Vdc max     |

**ISOLATION VOLTAGE**

|                     |                           |
|---------------------|---------------------------|
| INPUT – PLC         |                           |
| Power supply– INPUT | 2000 Vac<br>50 Hz, 1 min. |
| Power supply– PLC   |                           |

**TEMPERATURE AND HUMIDITY**

|                       |                |
|-----------------------|----------------|
| Operative temperature | -10°C .. +60°C |
| Storage temperature   | -40°C .. +85°C |
| Humidity (not cond)   | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                             |
|-----------|-----------------------------|
| Material  | Self-extinguishing plastic  |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight    | about 90 g.                 |

**INPUT**

| Input type                   | Min              | Max   |
|------------------------------|------------------|-------|
| <b>Voltage</b>               |                  |       |
| 10V                          | -10 V            | +10 V |
| <b>Input channels</b>        | 4                |       |
| <b>Input calibration (1)</b> | $\pm 0.1$ % f.s. |       |
| <b>Linearity (1)</b>         | $\pm 0.1$ % f.s. |       |

**Input impedance**

|      |                       |
|------|-----------------------|
| Volt | $\geq 100$ K $\Omega$ |
|------|-----------------------|

**Thermal drift (1)**

|            |                    |
|------------|--------------------|
| Full Scale | $\pm 0.005$ % / °C |
|------------|--------------------|

**DIGITAL INTERFACE**

|                             |                              |
|-----------------------------|------------------------------|
| <b>Voltage on terminals</b> | typical 24 Vdc (30 Vdc max.) |
| <b>ON state</b>             | $>9$ Vdc                     |
| <b>Input impedance</b>      |                              |
| (ENABLE, CLK)               | 4.7 KOhm                     |
| <b>Minimum output load</b>  |                              |
| (DATA)                      | 560 Ohm (2)                  |
| <b>Max. frequency</b>       |                              |
| Clock signal                | 500 Hz                       |
| <b>Rise / Fall time</b>     | (Tr) $< 0.2$ ms              |

(1) referred to input Span (difference between max. and min. values)  
 (2) The load on the output DATA is controlled with the current taken from the ENABLE signal



ELECTRONIC AND CONTROL PROCESS DEVICES



**"DAT6000 SERIES"**  
**A/D interface modules for PLC**

[www.datexel.it](http://www.datexel.it)



**Application areas**

DAT 6000 SERIES





### **"DAT1000 SERIES": temperature transmitters for DIN B in-head mounting**

*The transmitters of the DAT1000 series can accept at their input signals coming from 2,3 or 4 wires Pt100, thermocouple and potentiometer sensors or voltage signals (mV).The devices provide a 4÷20 mA two wire current loop output signal.*

*The series is composed of devices with input configurable by PC with or without galvanic isolation. Moreover it is available a version of the transmitters of the DAT1000 series developed for the use in potentially explosive atmospheres certified in according to the DIRECTIVE ATEX 94/9/EC. (see p. 24 to 26).*

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- 80 • **DAT 1010**  
Two wire transmitter for RTD programmable by PC
- 81 • **DAT 1015**  
Two wire universal transmitter programmable by PC
- 82 • **DAT 1061**  
Isolated two wire Transmitter for RTD programmable by PC
- 83 • **DAT 1066**  
Isolated two wire universal transmitter programmable by PC



**DAT1000 SERIES** Temperature transmitters for DIN B in-head mounting

**DAT 1010**



**GENERAL DESCRIPTION**

The transmitter DAT 1010 is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input.

The measured values are converted in a 4÷20 mA current signal .

The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, mV, Resistance and Potentiometer
- 4 ÷ 20 mA configurable output on current loop
- Configurable by Personal Computer
- High accuracy

- On-field reconfigurable
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN B in-head mounting
- Option for DIN rail mounting in compliance with EN-50022 ("KIT DIN RAIL" Option)



**Application areas**



**POWER SUPPLY**

Power supply voltage 10 .. 32Vdc

Reverse polarity protection 60 Vdc max

**TEMPERATURE & HUMIDITY**

Operative temperature -40°C .. +85°C

Storage temperature -40°C .. +85°C

Humidity (not condensed) 0 .. 90 %

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

Immunity EN 61000-6-2

Emission EN 61000-6-4

**HOUSING**

Material PC + ABS V0

Mounting DIN B head or bigger

Dimensions (mm) Ø= 43 mm ; H = 24 mm

Weight about 50 g.

**INPUT**

| Input type                  | Min                                  | Max    | Span min |
|-----------------------------|--------------------------------------|--------|----------|
| <b>RTD 2,3,4 wires</b>      |                                      |        |          |
| Pt100                       | -200°C                               | 850°C  | 50°C     |
| Pt1000                      | -200°C                               | 200°C  | 50°C     |
| Ni100                       | -60°C                                | 180°C  | 50°C     |
| Ni1000                      | -60°C                                | 150°C  | 50°C     |
| <b>Voltage</b>              |                                      |        |          |
| mV                          | -100mV                               | +700mV | 2 mV     |
| <b>Potentiometer</b>        |                                      |        |          |
| Nominal value               | 0 Ω                                  | 200 Ω  | 10%      |
|                             | 200 Ω                                | 500 Ω  | 10%      |
|                             | 0.5 KΩ                               | 2 KΩ   | 10%      |
| <b>RES. 2,3,4 wires</b>     |                                      |        |          |
| Low                         | 0 Ω                                  | 300 Ω  | 10 Ω     |
| High                        | 0 Ω                                  | 2000 Ω | 200 Ω    |
| <b>Input calibration(1)</b> |                                      |        |          |
| RTD                         | the higher of ±0.1 % f.s. or ±0.2 °C |        |          |
| Res. Low                    | the higher of ±0.1 % f.s. or ±0.15 Ω |        |          |
| Res. High                   | the higher of ±0.2 % f.s. or ±1 Ω    |        |          |
| mV                          | the higher of ±0.1 % f.s. or ±18 uV  |        |          |
| <b>Input impedance</b>      |                                      |        |          |
| mV                          | ≥ 10 MΩ                              |        |          |
| <b>Linearity (1)</b>        |                                      |        |          |
| RTD                         | ± 0.1 % f.s                          |        |          |

**INPUT**

|                                       |                                 |
|---------------------------------------|---------------------------------|
| <b>Line resistance influence(1)</b>   |                                 |
| mV                                    | <=0.8 uV/Ohm                    |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. value output                     | about 21.6 mA                   |
| Min. value output                     | about 3.5 mA                    |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

**OUTPUT**

| Output type               | Min    | Max   | Span min |
|---------------------------|--------|-------|----------|
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |

DAT1000 SERIES

80

**TWO WIRE UNIVERSAL TRANSMITTER PROGRAMMABLE BY PC**
**DAT 1015**

**GENERAL DESCRIPTION**

The transmitter DAT 1015 is able to execute many functions such as: measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input.

Moreover the DAT 1015 is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4÷20 mA current signal.

The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, TC, mV, Resistance and Potentiometer
- 4 ÷ 20 mA configurable output on current loop
- Configurable by Personal Computer
- High accuracy

- On-field reconfigurable
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN B in-head mounting
- Option for DIN rail mounting in compliance with EN-50022 ("KITDIN RAIL" Option)


**Application areas**


| POWER SUPPLY                |             | TEMPERATURE & HUMIDITY   |                |
|-----------------------------|-------------|--------------------------|----------------|
| Power supply voltage        | 10 .. 32Vdc | Operative temperature    | -40°C .. +85°C |
| Reverse polarity protection | 60 Vdc max  | Storage temperature      | -40°C .. +85°C |
|                             |             | Humidity (not condensed) | 0 .. 90 %      |

| EMC (for industrial environments) |              | HOUSING         |                      |
|-----------------------------------|--------------|-----------------|----------------------|
| <b>DIRECTIVE 2004/108/EC</b>      |              | Material        | PC + ABS V0          |
| Immunity                          | EN 61000-6-2 | Mounting        | DIN B head or bigger |
| Emission                          | EN 61000-6-4 | Dimensions (mm) | Ø= 43 mm ; H = 24 mm |
|                                   |              | Weight          | about 50 g.          |

| INPUT                                |                                      |         |          |
|--------------------------------------|--------------------------------------|---------|----------|
| Input type                           | Min                                  | Max     | Span min |
| <b>TC CJC int./ext.</b>              |                                      |         |          |
| J                                    | -200°C                               | 1200°C  | 2 mV     |
| K                                    | -200°C                               | 1370°C  | 2 mV     |
| S                                    | -50°C                                | 1760°C  | 2 mV     |
| R                                    | -50°C                                | 1760°C  | 2 mV     |
| B                                    | 400°C                                | 1820°C  | 2 mV     |
| E                                    | -200°C                               | 1000°C  | 2 mV     |
| T                                    | -200°C                               | 400°C   | 2 mV     |
| N                                    | -200°C                               | 1300°C  | 2 mV     |
| <b>RTD 2,3,4 wires</b>               |                                      |         |          |
| Pt100                                | -200°C                               | 850°C   | 50°C     |
| Pt1000                               | -200°C                               | 200°C   | 50°C     |
| Ni100                                | -60°C                                | 180°C   | 50°C     |
| Ni1000                               | -60°C                                | 150°C   | 50°C     |
| <b>Voltage</b>                       |                                      |         |          |
| mV                                   | -100 mV                              | +700 mV | 2 mV     |
| <b>Potentiometer (Nominal value)</b> | 0 Ω                                  | 200 Ω   | 10%      |
|                                      | 200 Ω                                | 500 Ω   | 10%      |
|                                      | 0.5 KΩ                               | 2 KΩ    | 10%      |
| <b>Resistance 2,3,4 wires</b>        |                                      |         |          |
| Low                                  | 0 Ω                                  | 300 Ω   | 10 Ω     |
| High                                 | 0 Ω                                  | 2000 Ω  | 200 Ω    |
| <b>Input calibration(1)</b>          |                                      |         |          |
| RTD                                  | the higher of ±0.1 % f.s. or ±0.2 °C |         |          |
| Res. Low                             | the higher of ±0.1 % f.s. or ±0.15 Ω |         |          |
| Res. High                            | the higher of ±0.2 % f.s. or ±1 Ω    |         |          |
| mV, TC                               | the higher of ±0.1 % f.s. or ±18 uV  |         |          |

| INPUT                                 |                                 |
|---------------------------------------|---------------------------------|
| <b>Input impedance</b>                |                                 |
| TC, mV                                | >= 10 MΩ                        |
| <b>Linearity (1)</b>                  |                                 |
| TC                                    | ± 0.2 % f.s.                    |
| RTD                                   | ± 0.1 % f.s.                    |
| <b>Line resistance influence(1)</b>   |                                 |
| TC, mV                                | <=0.8 uV/Ohm                    |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>CJC comp.</b>                      | ± 0.5°C                         |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| CJC                                   | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. value output                     | about 21.6 mA                   |
| Min. value output                     | about 3.5 mA                    |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

| OUTPUT                    |        |       |          |
|---------------------------|--------|-------|----------|
| Output type               | Min    | Max   | Span min |
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |



**DAT 1061**



**GENERAL DESCRIPTION**

The isolated transmitter DAT 1061 is able to execute many functions such as : measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input. The measured values are converted in a 4÷20 mA current signal. The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, mV, Resistance and Potentiometer
- Galvanic isolation at 1500 Vac
- 4 ÷ 20 mA configurable output on current loop
- Configurable by Personal Computer
- High accuracy
- On-field reconfigurable
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN B in-head mounting
- Option for DIN rail mounting in compliance with EN-50022 (“DIN RAIL” Option)



**Application areas**



**POWER SUPPLY**

|                             |             |
|-----------------------------|-------------|
| Power supply voltage        | 07 .. 32Vdc |
| Reverse polarity protection | 60 Vdc max  |

**ISOLATION VOLTAGE**

|                            |                        |
|----------------------------|------------------------|
| Input- output/Power supply | 1500 Vac, 50 Hz,1 min. |
|----------------------------|------------------------|

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**TEMPERATURE & HUMIDITY**

|                          |                |
|--------------------------|----------------|
| Operative temperature    | -40°C .. +85°C |
| Storage temperature      | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 %      |

**HOUSING**

|                 |                      |
|-----------------|----------------------|
| Material        | PC + ABS V0          |
| Mounting        | DIN B head or bigger |
| Dimensions (mm) | Ø= 43 mm ; H = 24 mm |
| Weight          | about 50 g.          |

**Input**

| Input type                    | Min                                  | Max    | Span min |
|-------------------------------|--------------------------------------|--------|----------|
| <b>RTD 2,3,4 wires</b>        |                                      |        |          |
| Pt100                         | -200°C                               | 850°C  | 50°C     |
| Pt1000                        | -200°C                               | 200°C  | 50°C     |
| Ni100                         | -60°C                                | 180°C  | 50°C     |
| Ni1000                        | -60°C                                | 150°C  | 50°C     |
| <b>Voltage</b>                |                                      |        |          |
| mV                            | -100mV                               | +700mV | 2 mV     |
| <b>Potentiometer</b>          |                                      |        |          |
| Nominal value                 | 0 Ω                                  | 200 Ω  | 10%      |
|                               | 200 Ω                                | 500 Ω  | 10%      |
|                               | 0.5 KΩ                               | 50 KΩ  | 10%      |
| <b>Resistance 2,3,4 wires</b> |                                      |        |          |
| Low                           | 0 Ω                                  | 300 Ω  | 10 Ω     |
| High                          | 0 Ω                                  | 2000 Ω | 200 Ω    |
| <b>Input calibration(1)</b>   |                                      |        |          |
| RTD                           | the higher of ±0.1 % f.s. or ±0.2 °C |        |          |
| Res. Low                      | the higher of ±0.1 % f.s. or ±0.15 Ω |        |          |
| Res. High                     | the higher of ±0.2 % f.s. or ±1 Ω    |        |          |
| mV                            | the higher of ±0.1 % f.s. or ±10 uV  |        |          |
| <b>Input impedance</b>        |                                      |        |          |
| mV                            | ≥ 10 MΩ                              |        |          |
| <b>Linearity (1)</b>          |                                      |        |          |
| RTD                           | ± 0.1 % f.s                          |        |          |

**Input**

|                                       |                                 |
|---------------------------------------|---------------------------------|
| <b>Line resistance influence(1)</b>   |                                 |
| mV                                    | <=0.8 uV/Ohm                    |
| RTD 3 wires                           | 0.05 %/Ω (50 Ω balanced max.)   |
| RTD 4 wires                           | 0.005 %/Ω (100 Ω balanced max.) |
| <b>RTD excitation current</b>         |                                 |
| Typical                               | 0.350 mA                        |
| <b>Thermal drift (1)</b>              |                                 |
| Full scale                            | ± 0.01 % / °C                   |
| <b>Burn-out values</b>                |                                 |
| Max. value output                     | about 20.5 mA                   |
| Min. value output                     | about 3.8 mA                    |
| Value max. fault                      | about 21.6 mA                   |
| Value min. fault                      | about 3.5 mA                    |
| <b>Response time (10÷90% of f.s.)</b> | about 400 ms                    |

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

**OUTPUT**

| Output type               | Min    | Max   | Span min |
|---------------------------|--------|-------|----------|
| Direct current            | 4 mA   | 20 mA | 4 mA     |
| Reverse current           | 20 mA  | 4 mA  | 4 mA     |
| <b>Output calibration</b> |        |       |          |
| Current                   | ± 7 uA |       |          |

**ISOLATED TWO WIRE UNIVERSAL TRANSMITTER PROGRAMMABLE BY PC**
**DAT 1066**

**GENERAL DESCRIPTION**

The isolated transmitter DAT 1066 is able to execute many functions such as : measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal even coming from a potentiometer connected on its input.

Moreover the DAT 1066 is able to measure and linearise the standard thermocouples with internal cold junction compensation.

The measured values are converted in a 4÷20 mA current signal.

The device guarantees high accuracy and performances stability both in time and in temperature.

**FEATURES**

- Configurable input for RTD, TC, mV, Resistance and Potentiometer
- Galvanic isolation at 1500 Vac
- 4 ÷ 20 mA configurable output on current loop
- Configurable by Personal Computer
- High accuracy

- On-field reconfigurable
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- Suitable for DIN B in-head mounting
- Option for DIN rail mounting in compliance with EN-50022 ("KITDIN RAIL" Option)


**Application areas**


| POWER SUPPLY                      |                        | TEMPERATURE & HUMIDITY   |                      |
|-----------------------------------|------------------------|--------------------------|----------------------|
| Power supply voltage              | 07 .. 32Vdc            | Operative temperature    | -40°C .. +85°C       |
| Reverse polarity protection       | 60 Vdc max             | Storage temperature      | -40°C .. +85°C       |
| ISOLATION VOLTAGE                 |                        | Humidity (not condensed) | 0 .. 90 %            |
| Input- output/Power supply        | 1500 Vac, 50 Hz,1 min. | HOUSING                  |                      |
| EMC (for industrial environments) |                        | Material                 | PC + ABS V0          |
| DIRECTIVE 2004/108/EC             |                        | Mounting                 | DIN B head or bigger |
| Immunity                          | EN 61000-6-2           | Dimensions (mm)          | Ø= 43 mm ; H = 24 mm |
| Emission                          | EN 61000-6-4           | Weight                   | about 50 g.          |

| Input                            |         |         |          |
|----------------------------------|---------|---------|----------|
| Input type                       | Min     | Max     | Span min |
| TC CJC int./ext.                 |         |         |          |
| J                                | -200°C  | 1200°C  | 2 mV     |
| K                                | -200°C  | 1370°C  | 2 mV     |
| S                                | -50°C   | 1760°C  | 2 mV     |
| R                                | -50°C   | 1760°C  | 2 mV     |
| B                                | 400°C   | 1820°C  | 2 mV     |
| E                                | -200°C  | 1000°C  | 2 mV     |
| T                                | -200°C  | 400°C   | 2 mV     |
| N                                | -200°C  | 1300°C  | 2 mV     |
| RTD 2,3,4 wires                  |         |         |          |
| Pt100                            | -200°C  | 850°C   | 50°C     |
| Pt1000                           | -200°C  | 200°C   | 50°C     |
| Ni100                            | -60°C   | 180°C   | 50°C     |
| Ni1000                           | -60°C   | 150°C   | 50°C     |
| Voltage                          |         |         |          |
| mV                               | -100 mV | +700 mV | 2 mV     |
| Potentiometer<br>(Nominal value) | 0 Ω     | 200 Ω   | 10%      |
|                                  | 200 Ω   | 500 Ω   | 10%      |
|                                  | 0.5 KΩ  | 50 KΩ   | 10%      |
| Resistance 2,3,4 wires           |         |         |          |
| Low                              | 0 Ω     | 300 Ω   | 10 Ω     |
| High                             | 0 Ω     | 2000 Ω  | 200 Ω    |

| OUTPUT             |        |       |          |
|--------------------|--------|-------|----------|
| Output type        | Min    | Max   | Span min |
| Direct current     | 4 mA   | 20 mA | 4 mA     |
| Reverse current    | 20 mA  | 4 mA  | 4 mA     |
| Output calibration |        |       |          |
| Current            | ± 7 uA |       |          |

| Input                          |                                      |
|--------------------------------|--------------------------------------|
| Input calibration(1)           |                                      |
| RTD                            | the higher of ±0.1 % f.s. or ±0.2 °C |
| Res. Low                       | the higher of ±0.1 % f.s. or ±0.15 Ω |
| Res. High                      | the higher of ±0.2 % f.s. or ±1 Ω    |
| mV, TC                         | the higher of ±0.1 % f.s. or ±10 uV  |
| Input impedance                |                                      |
| TC, mV                         | >= 10 MΩ                             |
| Linearity (1)                  |                                      |
| TC                             | ± 0.2 % f.s.                         |
| RTD                            | ± 0.1 % f.s.                         |
| Line resistance influence(1)   |                                      |
| TC, mV                         | <=0.8 uV/Ohm                         |
| RTD 3 wires                    | 0.05 %/Ω (50 Ω balanced max.)        |
| RTD 4 wires                    | 0.005 %/Ω (100 Ω balanced max.)      |
| RTD excitation current         |                                      |
| Typical                        | 0.350 mA                             |
| CJC comp.                      |                                      |
|                                | ± 0.5°C                              |
| Thermal drift (1)              |                                      |
| Full scale                     | ± 0.01 % / °C                        |
| CJC                            | ± 0.01 % / °C                        |
| Burn-out values                |                                      |
| Max. value output              | about 20.5 mA                        |
| Min. value output              | about 3.8 mA                         |
| Value max. fault               | about 21.6 mA                        |
| Value min. fault               | about 3.5 mA                         |
| Response time (10÷90% of f.s.) |                                      |
|                                | about 400 ms                         |

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



## Digital indicators for panel mounting DAT9550, DAT8050 and "DAT700 SERIES"

*The series is composed of devices dedicated to process and temperature measurement.*

*The **DAT9550** is graphic display size 48 x 96 mm communicating on RS-485 with MODBUS RTU protocol.*

*The **DAT8050** is a programmable digital indicator for current loop size 48x96 mm with 4 digit LED visualization.*

*The **DAT700** series is composed of devices size 36x72 mm (**DAT701, DAT702, DAT733, DAT734, DAT735**).*

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**DAT9550**  
**DAT8050**  
**DAT700 SERIES** Digital indicators for panel mounting



**DAT 9550**



**GENERAL DESCRIPTION**

The device DAT 9550 is a graphic display designed for panel mounting and communicating with Modbus RTU protocol on RS-485 and RS-232 serial Slave port. Moreover on the device there is a RS-485 Master port by means of which it is possible to communicate with the eventual Modbus Slave devices connected. It can be used as Slave peripheral for the visualization of the data coming from the Intelligent Units of the DAT9000 series or from a PC, PLC or panel operator.

**FEATURES**

- Graphic display 132x32 pixels
- RS-485/RS-232 Modbus-RTU Slave Interface
- RS-485 Modbus-RTU Master Interface
- Remotely programmable
- Connection by removable screw-terminals (power

- supply & RS-485) and RJ45 (RS-232)
- Compact enclosure dimensions (DIN 48 x 96 mm)
- Galvanic Isolation on all the ways
- EMC compliance – CE mark
- Suitable for panel mounting in compliance with DIN-43700



**Application areas**



**POWER SUPPLY**

|                      |  |
|----------------------|--|
| Power supply voltage | 10 ÷ 30 Vdc                                  |
| Current consumption  | 45 mA typ. @ 24Vdc (standby,max. brightness) |
|                      | 80 mA max                                    |

**ISOLATIONS**

|                     |                         |
|---------------------|-------------------------|
| Power supply/ RS485 | 1500 Vac, 50 Hz, 1 min. |
|---------------------|-------------------------|

**TEMPERATURE & HUMIDITY**

|                           |                |
|---------------------------|----------------|
| Operative temperature     | -20°C .. +60°C |
| Storage temperature       | -30°C .. +80°C |
| Humidity (not condensing) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**CONNECTIONS**

|               |                                 |
|---------------|---------------------------------|
| RS-232D       | RJ-45                           |
| RS-485/Supply | Removable screw terminal blocks |

**HOUSING**

|           |  |
|-----------|--|
| Material  | Noryl self-extinguishing plastic (UL94-V0) |
| Mounting  | Panel mounting                             |
| Dim. (mm) | W x L x T : 96 x 48 x 74                   |
| Weight    | about 160 g.                               |

**In compliance with IEE 802.3 EIA RS-485 and RS-232**

|                                 |                    |
|---------------------------------|--------------------|
| Baud-rate                       | up to 38.4 Kbps    |
| Max. distance (1)               | 1.2 Km @ 38.4 Kbps |
| Internal termination resistance | 120 Ohm (optional) |

**Display**

|              |                                |
|--------------|--------------------------------|
| Graphic Area | 132x32 pixel<br>13.2 * 48.1 mm |
|--------------|--------------------------------|

(1) = The maximum distance depends of: number of devices connected, type of cabling, noises, etc...

DIGITAL INDICATORS

**LOOP POWERED 4 DIGIT LED PROGRAMMABLE DIGITAL INDICATOR**

**DAT 8050**



**GENERAL DESCRIPTION**

The digital panel indicator DAT 8050 accept on the input a 4 - 20 mA current loop signal. The input current signal is used to supply the device introducing a 5 Vdc voltage drop-out on the current loop, so is not required any external supply source. The user can program the visualisation of the measure in the range from -1999 up to 9999 points in order to set the values of the physical or electrical parameter transmitted on the current loop in the desired format. The programming of the visualization is made by the buttons "SET" and "ENTER" located on the front side of the instrument.

**FEATURES**

- 4÷20 mA loop powered
- Voltage Drop-out < 5V
- High accuracy and linearity
- 0.52" LED display

- Visualization configurable on the front side
- Connections on removable screw terminals
- Compact case size (DIN 48 x 96 mm)
- EMC compliance - CE mark



**Application areas**



**TEMPERATURE & HUMIDITY**

|                           |                |
|---------------------------|----------------|
| Operative temperature     | -20°C .. +60°C |
| Storage temperature       | -40°C .. +85°C |
| Humidity (not condensing) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |  |
|-----------|--|
| Material  | Noryl self-extinguishing plastic (UL94-V0) |
| Dim. (mm) | W x H x T : 48 x 96 x 74                   |
| Weight    | about 150 g.                               |

**INPUT**

|                    |           |
|--------------------|-----------|
| Input signal       | 4 ÷ 20 mA |
| Voltage drop-out   | < 5 V     |
| Limitation current | < 50 mA   |

**DISPLAY**

|                            |  |
|----------------------------|--|
| Type of visualization      | 4 digits LED   |
| Digit height               | 0.52"  |
| Range of visualization (*) | Programmable on the front side, from "-1999" up to "9999", with High: 1( on left side). Low: -1( on left side) |
| Minimum measurable current | 3.8 mA (visualization "Lo" in case of lower measure)   |
| Maximum measurable current | 20.2 mA (visualization "Hi" in case of higher measure)   |

**CHARACTERISTICS AND PERFORMANCES**

|                  |  |
|------------------|--|
| Reading accuracy | the better than ± 0.05 % of f.s. or ± 1 digit. |
| Resolution       | 4 uA   |
| Response time    | < 0.5 sec.                                     |
| Thermal drift    | ± 0.01 % of f.s. / °C                          |

(\*)= default visualization : 4.00 ÷ 20.00

### 3.5 DIGIT LED DIGITAL INDICATOR

DAT 701



#### GENERAL DESCRIPTION

The DAT 701 is a 3.5 digit LED digital indicator with high accuracy and reliability able to measure the normalised current or voltage signal applied to its input .

In function of the parameters requested in phase of order, the following versions of the device are available:

- DAT 701 V - A: measure of voltage signal with amplitude from  $\pm 200$  mV up to  $\pm 20$  V ;
- DAT 701 V - B: measure of voltage signal with amplitude from  $\pm 2$  V up to  $\pm 200$  V;
- DAT 701 I - A: measure of current signal with amplitude from  $\pm 200$  mA up to  $\pm 2$  mA;
- DAT 701 I - B: measure of current signal with amplitude from  $\pm 2$  mA up to  $\pm 200$  mA.

#### FEATURES

- Voltage or current inputs
- Programmable decimal point and Attenuation ratio
- High accuracy and linearity
- Auto-zero
- Measuring freeze by command
- Options for low consumption or high brightness
- EMC compliant – CE mark
- Low profile (15 mm) DIN 36 x 72 mm housing
- Mounting on panel in according to DIN-43700 standard



#### Application areas



#### TEMPERATURE & HUMIDITY

|                           |                |
|---------------------------|----------------|
| Operative temperature     | -10°C .. +60°C |
| Storage temperature       | -40°C .. +85°C |
| Humidity (not condensing) | 0 .. 90 %      |

#### EMC (for industrial environments)

#### DIRECTIVE 2004/108/EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

#### HOUSING

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Mounting  | Panel mounting             |
| Dim. (mm) | W x H x T : 72 x 36 x 15   |
| Weight    | about 50 g.                |

#### INPUT

|                             |  |
|-----------------------------|--|
| Configuration               | Bipolar, true differential                                   |
| <b>Input impedance</b>      |  |
| Voltage                     | basic scale: 10 M $\Omega$<br>attenuated scale: 1 M $\Omega$ |
| Current                     | From 1 $\Omega$ up to 1K $\Omega$                            |
| Maximum input signal        | 2.5 full scale   |
| Common mode voltage         | $\pm 2$ V referred to the power supply ground                |
| Common mode rejection ratio | 86 dB  |
| Normal mode rejection ratio | 50 dB @ 50 Hz  |
| Decimal point programming   | From front side, on three decades                            |

#### VISUALISATION

|                            |   |
|----------------------------|---|
| Scale of visualisation     | 2000 points (from 0 up to 1999 or from -1999 up to 0) |
| Out of range visualisation | High = 1; Low = -1                                    |
| Type of visualization      | 3.5 digit standard LED display (version S)            |
| Display LED                | 3.5 digit high efficiency LED display (version H)     |
| Digit height               | 0.52 "  |

#### CHARACTERISTICS AND PERFORMANCES

|                      |                     |
|----------------------|---------------------|
| Reading accuracy     | $\pm 0.1$ % of f.s. |
| Thermal drift        | 0.005 % of f.s./°C  |
| Reading rate         | 3 read/second       |
| Power supply voltage | 5 Vdc $\pm 5$ %     |
| Current consumption  | Version S: 90 mA    |
|                      | Version H: 180 mA   |

### 3.5 DIGIT LCD DIGITAL INDICATOR

DAT 702



#### GENERAL DESCRIPTION

The DAT 702 is a 3.5 digit LCD digital indicator with high accuracy and reliability able to measure the normalised current or voltage signal applied to its input .

In function of the parameters requested in phase of order, the following versions of the device are available:

- DAT 702 V - A: measure of voltage signal with amplitude from  $\pm 200$  mV up to  $\pm 20$  V ;
- DAT 702 V - B: measure of voltage signal with amplitude from  $\pm 2$  V up to  $\pm 200$  V;
- DAT 702 I - A: measure of current signal with amplitude from  $\pm 200$   $\mu$ A up to  $\pm 2$  mA;
- DAT 702 I - B: measure of current signal with amplitude from  $\pm 2$  mA up to  $\pm 200$  mA.

#### FEATURES

- Voltage or current inputs
- Programmable decimal point and Attenuation ratio
- High accuracy and linearity
- Auto-zero
- Measuring freeze by command
- Single power supply voltage (5 Vdc or 9 Vdc)
- EMC compliant – CE mark
- Low profile (15 mm) DIN 36 x 72 mm housing
- Mounting on panel in according to DIN-43700 standard



#### Application areas



#### TEMPERATURE & HUMIDITY

|                           |                |
|---------------------------|----------------|
| Operative temperature     | -10°C .. +60°C |
| Storage temperature       | -40°C .. +85°C |
| Humidity (not condensing) | 0 .. 90 %      |

#### EMC (for industrial environments)

#### DIRECTIVE 2004/108/EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

#### HOUSING

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Mounting  | Panel mounting             |
| Dim. (mm) | W x H x T : 72 x 36 x 15   |
| Weight    | about 50 g.                |

#### INPUT

|                             |  |
|-----------------------------|--|
| Configuration               | Bipolar, true differential                                   |
| <b>Input impedance</b>      |  |
| Voltage                     | basic scale: 10 M $\Omega$<br>attenuated scale: 1 M $\Omega$ |
| Current                     | From 1 $\Omega$ up to 1K $\Omega$                            |
| Maximum input signal        | 2.5 full scale   |
| Common mode voltage         | $\pm 2$ V referred to the power supply ground                |
| Common mode rejection ratio | 86 dB  |
| Normal mode rejection ratio | 50 dB @ 50 Hz  |
| Decimal point programming   | From rear side, on three decades                             |

#### VISUALISATION

|                       |   |
|-----------------------|---|
| Type of visualization | Static polarised Liquid Cristal Display for wide angle of visualization |
| Digit height          | 0.35"   |

#### CHARACTERISTICS AND PERFORMANCES

|                      |                              |
|----------------------|------------------------------|
| Reading accuracy     | $\pm 0.1$ % of f.s.          |
| Thermal drift        | 0.005 % of f.s./°C           |
| Reading rate         | 3 read/second                |
| Power supply voltage | Version 5 : 5 Vdc $\pm 5$ %  |
|                      | Version 9 : 9 Vdc $\pm 10$ % |
| Current consumption  | Version 5 : 3 mA             |
|                      | Version 9 : 0.5 mA           |

**DAT 733**



**GENERAL DESCRIPTION**

The DAT 733 is a current loop, 3.5 digit LCD digital indicator with high accuracy and reliability. By dip-switches and potentiometers, it is possible to set the visualisation of the input measure in engineering units in a range included between 100 and 2000 points, to set the zero point between -1999 and 1999 and the position of the decimal point.

**FEATURES**

- 4 ÷ 20 mA current loop self-powered
- Visualisation configurable in engineering units
- High accuracy and linearity
- Measure freezing by command
- EMC compliant – CE mark
- DIN 36 x 72 mm housing
- Mounting on panel in according to DIN 43700 standard



**Application areas**



**TEMPERATURE & HUMIDITY**

|                           |                |
|---------------------------|----------------|
| Operative temperature     | -10°C .. +60°C |
| Storage temperature       | -40°C .. +80°C |
| Humidity (not condensing) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Mounting  | Panel mounting             |
| Dim. (mm) | W x H x T : 72 x 36 x 39   |
| Weight    | About 100 g.               |

**INPUT**

|                                |  |
|--------------------------------|--|
| Signal type                    | 4 ÷ 20 mA from current loop  |
| Voltage drop                   | 2.5 V  |
| Maximum input signal           | 50 mA  |
| Visualisation settings         | By dip switch and regulation by potentiometers   |
| Zero value visualisation range | From -1999 up to 1999  |
| Scales of visualisation        | Scale 1 from 100 up to 700 points<br>Scale 2 from 700 up to 1400 points<br>Scale 3 from 1400 up to 2000 points |

**Decimal point setting**

From rear side, on three decades by dip-switch

**Out of scale visualisation**

High: 1( on left side). Low: -1( on left side)

**VISUALISATION**

|                       |   |
|-----------------------|---|
| Type of visualization | Static polarised Liquid Crystal Display for wide angle of visualisation |
| Digit height          | 0.35"   |

**CHARACTERISTICS AND PERFORMANCES**

|                  |                                    |
|------------------|------------------------------------|
| Reading accuracy | ±0.1 % del f.s.                    |
| Thermal drift    | 0.005 % of f.s./°C                 |
| Reading rate     | 3 read/second                      |
| Power supply     | Self-powered from the input signal |

DIGITAL INDICATORS

**3.5 DIGIT LCD OR LED DISPLAY DIGITAL THERMOMETER FOR PT100**

**DAT 734**



**GENERAL DESCRIPTION**

The DAT 734 is a 3.5 digit LCD or LED display, digital thermometer for Pt100 2 or 3 wires sensor with high accuracy and reliability. The range of measure must be chosen in phase of order between the two options : -50 ÷ 200 °C or 0 ÷ 600 °C.

**FEATURES**

- Input for Pt100 2 or 3 wires sensors
- Visualisation on LCD or LED display
- High accuracy
- Measure freezing by command
- Low current consumption
- EMC compliant – CE mark
- DIN 36 x 72 mm housing
- Mounting on panel in according to DIN 43700 standard



**Application areas**



**TEMPERATURE & HUMIDITY**

|                                    |                |
|------------------------------------|----------------|
| Operative temperature              | -10°C .. +60°C |
| Storage temperature                | -40°C .. +80°C |
| Relative Humidity (not condensing) | 0 .. 90 %      |

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

**HOUSING**

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Mounting  | Panel mounting             |
| Dim. (mm) | W x H x T : 72 x 36 x 39   |
| Weight    | About 100 g.               |

**INPUT**

|                            |  |
|----------------------------|--|
| Signal type                | 2 or 3 wires Pt100 sensor                      |
| Input range                | -50 ÷ 200 °C / 0 ÷ 600 °C                      |
| Out of scale visualisation | High: 1 (on left side). Low: -1 (on left side) |

**VISUALISATION**

|   |   |
|---|---|
| Type of visualization (LCD - Version C) | Static polarised Liquid Cristal Display for wide angle of visualization |
| Digit height                            | 0.35"   |
| Type of visualization (LED - Version D) | High efficiency LED display or standard LED display                     |
| Digit height                            | 0.52"   |

**CHARACTERISTICS AND PERFORMANCES**

|                      |                   |
|----------------------|-------------------|
| Reading accuracy     | ± 0.25 % of f.s.  |
| Response time        | 800 ms            |
| Power supply voltage | 5 Vdc ± 5 %       |
| Thermal drift        | 0.02 % of f.s./°C |

**Current consumption**

|           |  |
|-----------|--|
| Version D | 180 mA (high efficiency), 90 mA (standard) |
| Version C | 10 mA                                      |



### 3.5 DIGIT LCD OR LED DISPLAY DIGITAL THERMOMETER FOR THERMOCOUPLE

DAT 735



#### GENERAL DESCRIPTION

The DAT 735 is a 3.5 digit LCD or LED display, digital thermometer for Thermocouple sensor type E, K, J, N, S and T with high accuracy and reliability.

#### FEATURES

- Input for Thermocouple sensors type E, K, J, N, S and T
- Visualisation on LCD or LED display
- High accuracy
- Measure freezing by command
- Low current consumption
- EMC compliant – CE mark
- DIN 36 x 72 mm housing
- Mounting on panel in according to DIN-43700 standard



#### Application areas



#### TEMPERATURE & HUMIDITY

|                           |                |
|---------------------------|----------------|
| Operative temperature     | -10°C .. +60°C |
| Storage temperature       | -40°C .. +80°C |
| Humidity (not condensing) | 0 .. 90 %      |

#### EMC (for industrial environments)

#### DIRECTIVE 2004/108/EC

|          |              |
|----------|--------------|
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |

#### HOUSING

|           |                            |
|-----------|----------------------------|
| Material  | Self-extinguishing plastic |
| Mounting  | Panel mounting             |
| Dim. (mm) | W x H x T : 72 x 36 x 39   |
| Weight    | About 100 g.               |

#### INPUT

|                                   |   |
|-----------------------------------|---|
| Signal type                       | Thermocouple type E, K, J, N, S and T                 |
| <b>Ranges of measure</b>          |   |
| Thermocouple type E               | 0 ÷ 900 °C  |
| Thermocouple type K               | 0 ÷ 1200 °C   |
| Thermocouple type J               | 0 ÷ 600 °C  |
| Thermocouple type N               | 0 ÷ 1200 °C   |
| Thermocouple type S               | 0 ÷ 1600 °C   |
| Thermocouple type T               | 0 ÷ 300 °C  |
| <b>Out of scale visualisation</b> | High: 1 (On the left side); Low -1 (On the left side) |

#### VISUALISATION

|   |   |
|---|---|
| Type of visualization (LCD - Version C) | Static polarised Liquid Cristal Display for wide angle of visualization |
| Digit height                            | 0.35"   |
| Type of visualization (LED - Version D) | High efficiency LED display or standard LED display                     |
| Digit height                            | 0.52"   |

#### CHARACTERISTICS AND PERFORMANCES

|                            |   |
|----------------------------|---|
| Reading accuracy           | ±0.25 % of f.s.                                       |
| Cold Junction Compensation | ±0.5 °C   |
| Thermal drift              | 0.02 % of f.s./°C                                     |
| Response time              | 800 ms  |
| Power supply voltage       | 5 Vdc ± 5 %   |
| Current consumption        | Version D: 180 mA (high efficiency), 90 mA (standard) |



ELECTRONIC AND CONTROL PROCESS DEVICES





## ACCESSORIES AND SOFTWARE

### **Power Supply:**

- Power Supply MEANWELL MDR-series

### **Accessories / Software:**

All of the DATEXEL devices configurable by PC need, for their configuraton, special software combined with communication interface between device and PC.

Configuration interface with USB INPUT (**PRODAT USB**)

The software available to configure the DATEXEL devices are the following:

- PROSOFT: configuration software for **SMART + SMART IS** series devices
- DATESOFT: configuration software for **SLIM series** devices
- DEV 9K: configuration software for intelligent unit **DAT9000 series**

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Configuration interface for USB port
  - PROSOFT**  
Configuration software for SMART series devices
  - DATESOFT**  
Configuration software for SLIM series devices
  - Dev 9K**  
Configuration software for intelligent units DAT9000 series

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**ACCESSORIES  
AND SOFTWARE**

Power Supply MEANWELL.  
Devices and software with  
interface between devices  
and PC.

**MDR-60-12**



**CBCE**



|               |               |
|---------------|---------------|
| <b>INPUT</b>  | 85...264 VAC  |
|               | 120...370 VDC |
| <b>OUTPUT</b> | 12 VDC @ 5 A  |

**MDR-20-12**



**CBCE**



|               |                 |
|---------------|-----------------|
| <b>INPUT</b>  | 85...264 VAC    |
|               | 120...370 VDC   |
| <b>OUTPUT</b> | 12 VDC @ 1.67 A |

**MDR-100-12**



**CBCE**



|               |                |
|---------------|----------------|
| <b>INPUT</b>  | 85...264 VAC   |
|               | 120...370 VDC  |
| <b>OUTPUT</b> | 12 VDC @ 7.5 A |

**MDR-40-12**



**CBCE**



|               |                 |
|---------------|-----------------|
| <b>INPUT</b>  | 85...264 VAC    |
|               | 120...370 VDC   |
| <b>OUTPUT</b> | 12 VDC @ 3.33 A |

**Application areas**



Other devices are available on request. For more technical information log on to the website: [www.meanwell.com](http://www.meanwell.com)

**DIN RAIL POWER SUPPLY**

**MDR-60-24**



|               |                |
|---------------|----------------|
| <b>INPUT</b>  | 85...264 VAC   |
|               | 120...370 VDC  |
| <b>OUTPUT</b> | 24 VDC @ 2.5 A |

**MDR-20-24**



|               |               |
|---------------|---------------|
| <b>INPUT</b>  | 85...264 VAC  |
|               | 120...370 VDC |
| <b>OUTPUT</b> | 24 VDC @ 1 A  |

**MDR-100-24**



|               |               |
|---------------|---------------|
| <b>INPUT</b>  | 85...264 VAC  |
|               | 120...370 VDC |
| <b>OUTPUT</b> | 24 VDC @ 4 A  |

**MDR-40-24**



|               |                |
|---------------|----------------|
| <b>INPUT</b>  | 85...264 VAC   |
|               | 120...370 VDC  |
| <b>OUTPUT</b> | 24 VDC @ 1.7 A |

**Application areas**



Other devices are available on request. For more technical information log on to the website: [www.meanwell.com](http://www.meanwell.com)



**CONFIGURATION INTERFACE FOR USB PORT**

**PRODAT-USB**



**GENERAL DESCRIPTION**

The program interface PRODAT USB is suitable to program, by proper software, all the DATEXEL devices of SMART and SLIM series using any Personal Computer, both desktop and laptop type with USB serial port.

**Application areas**



**CONFIGURATION SOFTWARE FOR SMART SERIES DEVICES**

**PROSOFT**



**GENERAL DESCRIPTION**

PROSOFT is a software developed by Datexel srl, running under the operative system Windows® and designed to program and visualize the measure of the converters and transmitters programmable by PC.

To operate with PROSOFT it is necessary to use the programming interface (PRODAT) between the P.C. and the device; refer to prosoft user guide to use the right interface and device.

**SYSTEM REQUIREMENTS**

**Operative System.....Windows® 98 / 2000 / NT / ME / XP / Vista / Win 7**  
**Available Hard Disk space.....2 MB**

**Application areas**



**CONFIGURATION SOFTWARE FOR SLIM SERIES DEVICES**

**DATESOFT**



**GENERAL DESCRIPTION**

DATESOFT is a software developed by Datexel srl, running under the operative system Windows® designed to program and visualize the measure of the converters programmable by PC.

To operate with DATESOFT it is necessary to use the programming interface (PRODAT) between the P.C. and the device on programming.

**SYSTEM REQUIREMENTS**

**Operative System.....Windows® 98 / 2000 / NT / ME / XP / Vista / Win 7**  
**Available Hard Disk space.....2 MB**

**Application areas**



**CONFIGURATION SOFTWARE FOR INTELLIGENT UNITS DAT9000 SERIES**

**Dev 9K**



**GENERAL DESCRIPTION**

Dev9K is an Integrated Development Environment running under the Windows® Operative System that allows to design and debug the applications based on the DAT9000 series intelligent units.

With Dev9K it is possible to set the DAT9000 series devices to execute I/O read and write operations (DAT3000 series), mathematical and logic operations and timers. Moreover it is possible to read and write in real time the Internal Registers of the Controller or connect it directly to the slave devices connected to its Modbus Master Port.

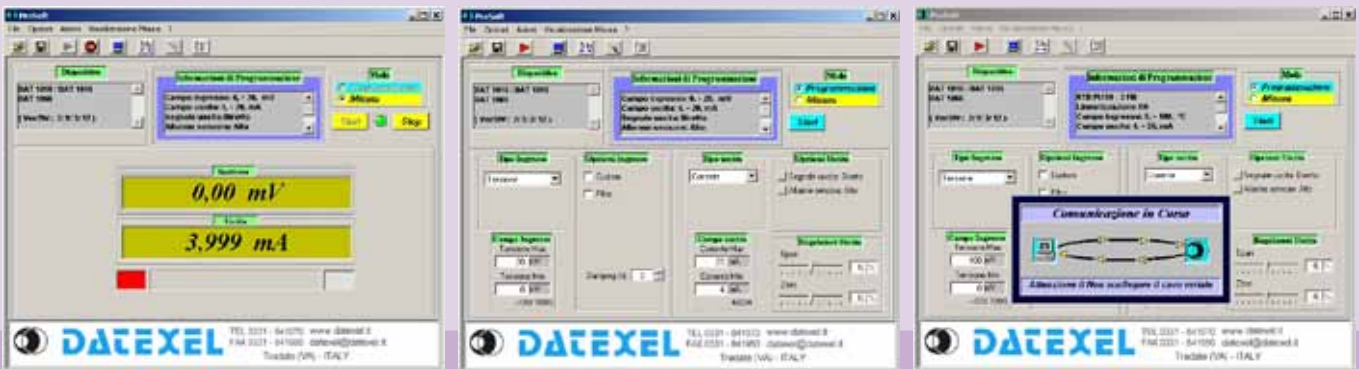
**SYSTEM REQUIREMENTS**

**Operative System.....Windows 2000 / NT / ME / XP / Vista / Win 7**  
**Available Hard Disk space.....2 MB**

**Application areas**



# DATEXEL: CONFIGURATION SOFTWARE



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ELECTRONIC AND CONTROL PROCESS DEVICES

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