Summary

01 Temperature and signal converters (from PAG.1)

02 Temperature and signal transmitters and converters for DIN rail mounting (from PAG.10)

03 Temperature and signal transmitters and converters for use in potentially explosive atmospheres in accordance to the ATEX 94/9/EC directive (from PAG.18)

04 Temperature and signal transmitters and converters, isolators signal splitters (from PAG.28)

05 Trip amplifiers for din rail mounting (from PAG.38)

06 Signal transmitters and converters, galvanic isolators (from PAG.44)

07 Data acquisition and control modules (from PAG.50)

08 Intelligent modules (from PAG.64)

09 A/d interface Modules for plc “DAT6000 SERIES” (from PAG.73)

10 Temperature transmitters for DIN B in-head mounting (from PAG.78)

11 Digital meters and indicators for panel mounting (from PAG.84)

12 MEANWELL DIN rail power supply. Software and interfaces between device and PC (from PAG.90)

Series

SLIM series

SMART series

SMART ATEX series

P.D.S. series

DAT5028 / DAT5024 Trip amplifiers

DAT200 / DAT500 series

DAT3000 series

DAT9000 series

DAT6000 series

DAT1000 series

DAT 9550 / DAT8050 DAT700 series

Accessories 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 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**.

**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
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.
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

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.
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 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.
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.

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

PRODUCT CATALOGUE

DATEXEL

www.datexel.it

SLIM Series
SMART Series
SMART ATEX Series
P.D.S. Series
Trip amplifiers DAT5028 / DAT5024
DAT200 / DAT500 Series
DAT3000 Series
DAT9000 Series
DAT6000 Series
DAT1000 Series
DAT 9550 / DAT8050 DAT700 Series
Accessories and software
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.

INDEX

02 • DAT 4530
Universal isolated converter configurable by Dip-Switch or PC
double output & trip amplifier

03 • DAT 4531 A
Isolated converter for TC and mV configurable by Dip-Switch or PC
DAT 4531 B
Isolated converter for RTD and resistance configurable by Dip-Switch or PC

04 • DAT 4531 C
Isolated converter for PTC/NTC/Pot configurable by Dip-Switch or PC
DAT 4531 D
Isolated converter for voltage and current configurable by Dip-Switch or PC

05 • DAT 4532 A
Double channel, isolated converter for TC and mV configurable by Dip-Switch or PC
DAT 4532 B
Double channel, isolated converter for RTD and resistance configurable by Dip-Switch or PC

06 • DAT 4532 C
Isolated, double channel converter for PTC/NTC/Pot configurable by Dip-Switch or PC
DAT 4532 D
Double channel, isolated converter for voltage and current configurable by Dip-Switch or PC

07 • DAT 4540
Isolated F/V, F/I Converter Configurable by Dip-Switch or PC, Transistor or Relay Outputs
DAT 4631 A
Isolated Splitter / Converter for TC and mV configurable by Dip-Switch or PC

08 • DAT 4631 B
Isolated Splitter / Converter for RTD and resistance configurable by Dip-Switch or PC
DAT 4631 C
Isolated, Splitter / Converter for PTC/NTC/Pot configurable by Dip-Switch or PC

09 • DAT 4631 D
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
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

POWER SUPPLY

- Power supply voltage: 20 .. 30 Vdc
- Rever. polarity protection: 60 Vdc 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 %

CURRENT CONSUMPTION

- Current output: 90 mA max
- Voltage output: 30 mA max

EMC (for industrial environments)

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

ALARM TRIP

- Contact: SPST
- Max Load (resistive):
  - Voltage: 48 V (ac/dc)
  - Current: 0.4 A

HOUSING

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

APPLICATION AREAS

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

INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (CJC int./ext.)</td>
<td>-200°C</td>
<td>1200°C</td>
<td>100°C</td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1300°C</td>
<td>100°C</td>
</tr>
<tr>
<td>K</td>
<td>0°C</td>
<td>1750°C</td>
<td>400°C</td>
</tr>
<tr>
<td>S</td>
<td>0°C</td>
<td>1750°C</td>
<td>400°C</td>
</tr>
<tr>
<td>B</td>
<td>0°C</td>
<td>1850°C</td>
<td>400°C</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>100°C</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>100°C</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>100°C</td>
</tr>
<tr>
<td>Voltage</td>
<td>mV</td>
<td>-100 mV</td>
<td>+90 mV</td>
</tr>
<tr>
<td></td>
<td>mV</td>
<td>-100 mV</td>
<td>+200 mV</td>
</tr>
<tr>
<td></td>
<td>mV</td>
<td>-100 mV</td>
<td>+800 mV</td>
</tr>
<tr>
<td>RTD (2, 3, 4 wires)</td>
<td>Pt100</td>
<td>-200°C</td>
<td>850°C</td>
</tr>
<tr>
<td></td>
<td>Pt1000</td>
<td>-85°C</td>
<td>185°C</td>
</tr>
<tr>
<td></td>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
</tr>
<tr>
<td></td>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
</tr>
<tr>
<td>RES. (2, 3, 4 wires)</td>
<td>0 Ω</td>
<td>500 Ω</td>
<td>50 Ω</td>
</tr>
<tr>
<td></td>
<td>0 Ω</td>
<td>2000 Ω</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Pot. (Rnom.&lt; 50KΩ)</td>
<td>0 %</td>
<td>100 %</td>
<td>10 %</td>
</tr>
<tr>
<td>Voltage</td>
<td>-10 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>1 mA</td>
</tr>
</tbody>
</table>

Calibration (1)

<table>
<thead>
<tr>
<th>mV, V, mA</th>
<th>± 0.1 % f.s (opt. HS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentiometer</td>
<td>± 0.05 % f.s.</td>
</tr>
<tr>
<td>Volt</td>
<td>the higher of ±0.1 % and ±2 mV</td>
</tr>
<tr>
<td>mV, V, mA</td>
<td>± 0.5 % f.s (opt. HS)</td>
</tr>
</tbody>
</table>

Linearity (1)

<table>
<thead>
<tr>
<th>TC, RTD</th>
<th>± 0.1 % f.s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>mV, V, mA</td>
<td>± 0.05 % f.s.</td>
</tr>
</tbody>
</table>

Input Impedance

<table>
<thead>
<tr>
<th>TC, mV</th>
<th>&gt; 10 MΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA</td>
<td>&gt; 22 Ω</td>
</tr>
</tbody>
</table>

Sensor excitation current

| RTD, Res | 400 uA |
| Voltage Aux. | >18 V @ 20 mA |

Line resistance influence (1)

<table>
<thead>
<tr>
<th>TC, mV</th>
<th>&lt; = 0.8 uV/Ohm</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD 3 wires</td>
<td>0.05%/Ω (50 Ω max balanced)</td>
</tr>
<tr>
<td>RTD 4 wires</td>
<td>0.005%/Ω (100 Ω max balanced)</td>
</tr>
</tbody>
</table>

Thermal drift (1)

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

OUTPUT (2 CHANNELS)

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

Output calibration

<table>
<thead>
<tr>
<th>Current</th>
<th>± 7 µA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>± 5 mV</td>
</tr>
<tr>
<td>Voltage Aux.</td>
<td>&gt;12 V @ 20 mA</td>
</tr>
</tbody>
</table>

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 |

Response time (10 - 90% of F.S)

| about 400 ms |
| 100 ms (opt. HS) |
### ISOLATED CONVERTER FOR TC AND mV CONFIGURABLE BY DIP-SWITCH OR PC

**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

### POWER SUPPLY

- Power supply voltage: 18 ... 30 Vdc
- Revers. polarity protection: 60 Vdc max.

### CURRENT CONSUMPTION

- Current output: 35 mA max.
- Voltage output: 20 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)

- 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.

### POWER SUPPLY

- Power supply voltage: 18 ... 30 Vdc
- Revers. polarity protection: 60 Vdc max.

### CURRENT CONSUMPTION

- Current output: 35 mA max.
- Voltage output: 20 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)

- 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

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (CJC int./ext.)</td>
<td>-200°C</td>
<td>1200°C</td>
<td>10°C</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1300°C</td>
<td>10°C</td>
</tr>
<tr>
<td>S</td>
<td>0°C</td>
<td>1750°C</td>
<td>400°C</td>
</tr>
<tr>
<td>R</td>
<td>0°C</td>
<td>1750°C</td>
<td>400°C</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>10°C</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>10°C</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>10°C</td>
</tr>
</tbody>
</table>

**Linearity (1)**

- TC: ± 0.2 % f.s. and ±12 uV
- mV: ± 0.1 % f.s.

**Input calibration (1)**

- mV, TC: ± 0.1 % f.s. and ±12 uV

**Output load Resistance - Road**

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

**Burn-out values**

- Current output: < 500 Ω
- Voltage output: > 10 Ω
- Short circuit current: 26 mA max
- Response time (< 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

**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

### POWER SUPPLY

- Power supply voltage: 18 ... 30 Vdc
- Revers. polarity protection: 60 Vdc max.

### CURRENT CONSUMPTION

- Current output: 35 mA max.
- Voltage output: 20 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)

- 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.
**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.
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035.

**POWER SUPPLY**
- Power supply voltage: 18 .. 30 Vdc.
- Never polarity protection: 60 Vdc max.

**CURRENT CONSUMPTION**
- Current output: 35 mA max.
- Voltage output: 20 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)**
- Immunity: EN 61000-6-2, 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.

---

**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.

**POWER SUPPLY**
- Power supply voltage: 18 .. 30 Vdc.
- Never polarity protection: 60 Vdc max.

**CURRENT CONSUMPTION**
- Current output: 35 mA max.
- Voltage output: 20 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)**
- Immunity: EN 61000-6-2, 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.
### 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

### INPUT (2 CHANNELS)
<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (CJC int./ext.)</td>
<td>-200°C</td>
<td>1300°C</td>
<td>100°C</td>
</tr>
<tr>
<td>X</td>
<td>0°C</td>
<td>1750°C</td>
<td>400°C</td>
</tr>
<tr>
<td>S</td>
<td>0°C</td>
<td>1750°C</td>
<td>400°C</td>
</tr>
<tr>
<td>B</td>
<td>0°C</td>
<td>1850°C</td>
<td>400°C</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>100°C</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>4000°C</td>
<td>100°C</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>100°C</td>
</tr>
</tbody>
</table>

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

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

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

### OUTPUT (2 CHANNELS)
<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

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

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

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

---

### 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

### INPUT (2 CHANNELS)
<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD (2, 3 wires)</td>
<td>-200°C</td>
<td>850°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>-85°C</td>
<td>850°C</td>
<td>30°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
<td>30°C</td>
</tr>
<tr>
<td>RES. (2, 3 wires)</td>
<td>0 Ω</td>
<td>500 Ω</td>
<td>50 Ω</td>
</tr>
<tr>
<td></td>
<td>0 Ω</td>
<td>2000 Ω</td>
<td>500 Ω</td>
</tr>
</tbody>
</table>

### 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

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

### OUTPUT (2 CHANNELS)
<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

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

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

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

---
**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

**POWER SUPPLY**
- Power supply voltage: 18 .. 30 Vdc
- Revers. polarity protection: 60 Vdc max

**CURRENT CONSUMPTION**
- Current output: 55 mA max.
- Voltage output: 25 mA max.

**ISOULATION**
- Among all the ways:
  - Temperature and 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

**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)

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>1 mA</td>
</tr>
</tbody>
</table>

### OUTPUT (2 CHANNELS)

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

**Calibration (1)**
- Current: ± 0.05 % f.s.
- Voltage: ± 0.01 % / °C

**Full scale ± 0.01 % / °C**

---

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

**GENERAL DESCRIPTION**

The isolated double channel 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

**POWER SUPPLY**
- Power supply voltage: 18 .. 30 Vdc
- Revers. polarity protection: 60 Vdc max

**CURRENT CONSUMPTION**
- Current output: 55 mA max.
- Voltage output: 25 mA max.

**ISOULATION**
- Among all the ways:
  - Temperature and 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

**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)

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>1 mA</td>
</tr>
</tbody>
</table>

### OUTPUT (2 CHANNELS)

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

**Calibration (1)**
- Current: ± 0.05 % f.s.
- Voltage: ± 0.01 % / °C

**Full scale ± 0.01 % / °C**

---

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

**Datexel - Model 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 programmied as trip alarm (version "-R"). For the Namur input is continuously checked the integrity of the sensor; in case of fault (short circuit on 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 accordance to EN-50022 and EN-50035 standards

---

**Power supply**

- Power supply voltage: 18...30 Vdc
- Revers 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%
  - Temperature and humidity:
    - Storage temperature: -40°C...+85°C
    - Temperature and humidity:
      - Temperature and humidity:
        - Storage temperature: -40°C...+85°C
        - Temperature and humidity:
          - Storage temperature: -40°C...+85°C

**EMC**

- For industrial environments

**Directive: 2004 / 108 / EC**

- For industrial environments

**Housing**

- Material: Self-extinguishing plastic
- Dimension (mm) W x L x H: 90 x 112 x 22.5
- Weight: about 90 g

---

**Datexel - Model 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 input for TC and mV
- Configurable by dip-switch or PC
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in accordance to EN-50022 and EN-50035

---

**Power supply**

- Power supply voltage: 18...30 Vdc
- Revers polarity protection: 60 Vdc max

**Current consumption**

- Current output: 90 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**

- For industrial environments

**Housing**

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

---

**Datexel - Model 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 input for TC and mV
- Configurable by dip-switch or PC
- On-field reconfigurable
- Galvanic isolation among the ways
- EMC compliant – CE mark
- Suitable for DIN rail mounting in accordance to EN-50022 and EN-50035

---

**Power supply**

- Power supply voltage: 18...30 Vdc
- Revers polarity protection: 60 Vdc max

**Current consumption**

- Current output: 90 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**

- For industrial environments

**Housing**

- Material: Self-extinguishing plastic
- Dimension (mm) W x L x H: 90 x 112 x 12.5
- Weight: about 90 g
**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

### POWER SUPPLY

- Power supply voltage 18...30 Vdc
- Revers 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

- Temperature range -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

**HOUSING**

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

**APPLICATION AREAS**

- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

### INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RTD (2, 3 wires)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>850°C</td>
<td>100°C</td>
</tr>
<tr>
<td>Pt1000</td>
<td>-85°C</td>
<td>185°C</td>
<td>100°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>100°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-40°C</td>
<td>150°C</td>
<td>100°C</td>
</tr>
<tr>
<td>RES. (2, 3 wires)</td>
<td>0 Ω</td>
<td>500 Ω</td>
<td>50 Ω</td>
</tr>
<tr>
<td>RES. (2, 3 wires)</td>
<td>0 Ω</td>
<td>2000 Ω</td>
<td>50 Ω</td>
</tr>
</tbody>
</table>

**Calibration**

- 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**

- RTD: ± 0.1 % f.s.

**Sensor excitation current**

- RTD: 500 uA

**Line resistance influence**

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

**Thermal drift**

- Full scale ± 0.01 % / °C

### OUTPUT (2 CHANNELS)

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 mA or -0.6 V</td>
<td>22 mA or 10.6 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Burn-out values**

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

### 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

### POWER SUPPLY

- Power supply voltage 18...30 Vdc
- Revers 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

- Temperature range -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

**HOUSING**

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

**APPLICATION AREAS**

- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

### INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PTC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KTY81-210</td>
<td>-55°C</td>
<td>150°C</td>
<td>50°C</td>
</tr>
<tr>
<td>KTY81-220</td>
<td>-55°C</td>
<td>150°C</td>
<td>50°C</td>
</tr>
<tr>
<td>KTY84-130</td>
<td>-40°C</td>
<td>300°C</td>
<td>50°C</td>
</tr>
<tr>
<td>KTY84-150</td>
<td>-40°C</td>
<td>300°C</td>
<td>50°C</td>
</tr>
<tr>
<td><strong>NTC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coster 10K</td>
<td>-10°C</td>
<td>100°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Coster 1K</td>
<td>-30°C</td>
<td>40°C</td>
<td>25°C</td>
</tr>
<tr>
<td>Pot. (Rnom. &lt; 50KΩ)</td>
<td>0 %</td>
<td>100 %</td>
<td>10 %</td>
</tr>
</tbody>
</table>

**Calibration**

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

**Linearity**

- PTC, NTC: ± 0.1 % f.s.

**Sensor excitation current**

- PTC, NTC: 500 uA

**Thermal drift**

- Full scale ± 0.01 % / °C

**APPLICATION AREAS**

- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

**OUTPUT (2 CHANNELS)**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 mA or 10.6 V</td>
<td>22 mA or 10.6 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Burn-out values**

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

### OUTPUT (2 CHANNELS)

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 mA or 10.6 V</td>
<td>22 mA or 10.6 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Burn-out values**

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

**Output Load Resistance - Road**

- 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.)

**Application areas**

- Food business
- Board machine
- Water treatment
- Industries

**Response time (10-90% of f.s.): about 500 ms

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

**Application areas**

- Food business
- Board machine
- Water treatment
- Industries

**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
- 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

**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

**POWER SUPPLY**
- Power supply voltage: 18...30 Vdc
- Reverse polarity protection: 60 Vdc max

**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)**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>1 mA</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

**Calibration (1)**
- 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 - Road**
- Current output: < 500 Ω
- Voltage output: > 10 kΩ
- Short circuit current: 26 mA max
- Response time (10~90% of f.s.) 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
- 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

**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

**POWER SUPPLY**
- Power supply voltage: 18...30 Vdc
- Reverse polarity protection: 60 Vdc max

**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)**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>1 mA</td>
</tr>
</tbody>
</table>

**Calibration (1)**
- 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 - Road**
- Current output: < 500 Ω
- Voltage output: > 10 kΩ
- Short circuit current: 26 mA max
- Response time (10~90% of f.s.) about 100 ms

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

**INDEX**

12. **DAT 4035**  
   PC programmable Two wire isolated universal signal transmitter

13. **DAT 4135**  
   PC programmable isolated universal signal converter

14. **DAT 4135/SEL**  
   PC configurable universal signal converter with command of enable/disable output

15. **DAT 4235**  
   PC programmable 3 ways isolated universal signal converter

16. **DAT 4520**  
   Universal converter with Trip Amplifier
SMART SERIES

02

SMART series

Temperature and signal transmitters and converters for DIN rail mounting
### 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

### POWER SUPPLY

- Power supply voltage: 10 .. 30 Vdc
- Reverse polarity protection: 60 Vdc max.

### ISOLATION VOLTAGE

- Input/Power supply: 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
- Dimensions (mm): W x L x H: 90 x 112 x 12.5
- Weight: about 90 g.

### INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (CJC int./ext.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1370°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>B</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

### RTD 2,3,4 wires

<table>
<thead>
<tr>
<th>Resistance type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>850°C</td>
<td>50°C</td>
</tr>
<tr>
<td>N100</td>
<td>-60°C</td>
<td>180°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
<td>50°C</td>
</tr>
</tbody>
</table>

### Voltage

<table>
<thead>
<tr>
<th>Voltage type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>mV</td>
<td>-400 mV</td>
<td>+400 mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>mV</td>
<td>-100 mV</td>
<td>+700 mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>Volt</td>
<td>-10 V</td>
<td>+10 V</td>
<td>500 mV</td>
</tr>
</tbody>
</table>

### Potentiometer

<table>
<thead>
<tr>
<th>Nominal value</th>
<th>0 Ω</th>
<th>200 Ω</th>
<th>50 Ω KΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance 2,3,4 wires</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Resistance 2,3,4 wires

- Low: 0 Ω 300 Ω 10 Ω
- High: 0 Ω 2000 Ω 200 Ω

### Current mA

<table>
<thead>
<tr>
<th>Type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC, mV</td>
<td>0</td>
<td>500</td>
<td>2 mA</td>
</tr>
<tr>
<td>Current</td>
<td>-10 mA</td>
<td>+24 mA</td>
<td>2 mA</td>
</tr>
</tbody>
</table>

### OUTPUT

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>4 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

### Output calibration

- Current: ± 7 uA
**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

**PC PROGRAMMABLE ISOLATED UNIVERSAL SIGNAL CONVERTER**

**DAT 4135**

**POWER SUPPLY**

<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>18 .. 30 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse polarity protection</td>
<td>60 Vdc max.</td>
</tr>
</tbody>
</table>

**CURRENT CONSUMPTION**

| Current output | 40 mA max. |
| Voltage output | 20 mA max. |

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC (JC int./ext.)</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1370°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>-200°C</td>
<td>1000°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>B</td>
<td>-200°C</td>
<td>400°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>1300°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>130°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>RTD 2,3,4 wires</td>
<td>-200°C</td>
<td>850°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>200°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Voltage</td>
<td>-400 mV</td>
<td>+400 mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>mV</td>
<td>-100 mV</td>
<td>+700 mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>Volt</td>
<td>-10 V</td>
<td>+10 V</td>
<td>500 mV</td>
</tr>
<tr>
<td>Potentiometer (Nominal value)</td>
<td>0 Ω</td>
<td>200 Ω</td>
<td>10 %</td>
</tr>
<tr>
<td>200 Ω</td>
<td>500 Ω</td>
<td>10 %</td>
<td></td>
</tr>
<tr>
<td>0.5 KΩ</td>
<td>50 KΩ</td>
<td>10 %</td>
<td></td>
</tr>
<tr>
<td>Resistance 2,3,4 wires</td>
<td>Low</td>
<td>0 Ω</td>
<td>300 Ω</td>
</tr>
<tr>
<td>High</td>
<td>0 Ω</td>
<td>2000 Ω</td>
<td>200 Ω</td>
</tr>
<tr>
<td>Current mA</td>
<td>-10 mA</td>
<td>+24 mA</td>
<td>2 mA</td>
</tr>
</tbody>
</table>

**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 |

**ISOLATION VOLTAGE**

| Input/Power supply-Output | 2000 Vac 50 Hz, 1 min. |
| Current output | +/- 650 Ω |
| Voltage output | +/- 3.5 KΩ |
| Limitation current | about 25 mA |

**TEMPERATURE & HUMIDITY**

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

**DIRECTIVE 2004/108/EC**

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

**HOUSING**

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

**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 |

**OUTPUT calibration**

| Current | ± 7 uA |
| Voltage | ± 5 mV |
PC CONFIGURABLE UNIVERSAL SIGNAL CONVERTER WITH COMMAND OF ENABLE/DISABLE OUTPUT

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

CURRENT CONSUMPTION
- Current output: 40 mA max.
- Voltage output: 20 mA max.

ISOLATION VOLTAGE
- Input/Power supply-Output: 2000 Vac 50 Hz, 1 min.
- Output load resistance (LOAD):
  - Current output: <= 650 Ω
  - Voltage output: >= 3.5 KΩ
- Limitation current: 20 mA max.

SEL INPUT COMMAND
- Disable output: 4÷30 Vdc
- Enable output: 0 Vdc or not connected

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

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

INPUT
- Input type: 
  - 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: -400 mV - +400 mV, 2 mV
    - mV: -100 mV - +700 mV, 2 mV
    - Volt: - 10 V - +10 V, 500 mV
  - Potentiometer (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
    - Current mA:
      - -10 mA: +24 mA, 2 mA
      - 0 mA: +24 mA, 2 mA
  - 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

OUTPUT
- Output type: 
  - 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

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

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

**POWER SUPPLY**
- Power supply voltage: 18 .. 30 Vdc
- Reverse polarity protection: 60 Vdc max.

**CURRENT CONSUMPTION**
- Current output: 70 mA max.
- Voltage output: 50 mA max.

**ISOLATION VOLTAGE**
- Input/Power supply-Output: 2000 Vac 50 Hz, 1 min.
- **OUTPUT LOAD RESISTANCE (RLOAD)**
  - Current output: ≤/= 650 Ω
  - Voltage output: ≥/= 600 Ω
  - Limitation current: 30 mA max.

**EMC (for industrial environments)**
- Immunity EN 61000-6-2
- Emission EN 61000-6-4
- DIRECTIVE 2004/108/EC

**TEMPERATURE & HUMIDITY**
- Operative temperature: -20°C .. +70°C
- Storage temperature: -40°C .. +85°C
- Humidity (not condensed): 0 .. 90 %

**DIRECTIVE 2004/108/EC**
- Water treatment
- Food business
- Energy Board machine
- Industries

**INPUT**

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

**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

**OUTPUT**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>-20 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>-20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Direct voltage</td>
<td>-10 V</td>
<td>10 V</td>
<td>1 V</td>
</tr>
<tr>
<td>Reverse voltage</td>
<td>10 V</td>
<td>-10 V</td>
<td>1 V</td>
</tr>
</tbody>
</table>

**Output calibration**

- Current: ± 7 μA or ± 15 μA
- Voltage: ± 10 mV

(1) referred to input Span (difference between max. and min. values)
(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 output and output is 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
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

**APPLICATION AREAS**
![Application areas]

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

**HOUISNG**
Material Self-extinguishing plastic
Mounting DIN Rail
Dimensions (mm) W x L x H : 120 x 100 x 22.5
Weight about 150 g.
“SMART SERIES” Temperature and signal transmitters and converters for Din rail mounting

Application areas

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

INDEX

20 • DAT 2015 IS
DAT 2015 IS/HT
Universal Intrinsically Safe transmitter

21 • DAT 4035 IS
DAT 4035 IS/HT
Universal Intrinsically Safe isolated transmitter

22 • DAT 4235 IS
Signal Converter with Trip Amplifier for hazardous area sensors

23 • DAT 5030 IS
Current Loop Repeater / Supply for hazardous area sensors

24 • DAT 1010 IS
DAT 1010 IS/HT
Intrinsically safe PC configurable transmitter for RTD

25 • DAT 1015 IS
DAT 1015 IS/HT
Intrinsically safe PC configurable transmitter for universal input

26 • DAT 1065 IS
DAT 1065 IS/HT
Isolated Intrinsically safe PC configurable transmitter for universal input
SMART ATEX SERIES

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

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC J CJC int/ext.</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>0°C</td>
<td>120°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>0°C</td>
<td>200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>Ti</td>
<td>0°C</td>
<td>300°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>Voltage mV</td>
<td>-100 mV</td>
<td>700 mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>Potentiometer (Nominal value)</td>
<td>0 Ω</td>
<td>200 Ω</td>
<td>10%</td>
</tr>
<tr>
<td>200 Ω</td>
<td>500 Ω</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>0.5 KΩ</td>
<td>2 KΩ</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>RES. 2,3,4 wires</td>
<td>Low</td>
<td>0 Ω</td>
<td>300 Ω</td>
</tr>
<tr>
<td>High</td>
<td>0 Ω</td>
<td>2000 Ω</td>
<td>200 Ω</td>
</tr>
</tbody>
</table>

**TEMPERATURE & HUMIDITY**

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

**POWER SUPPLY**

| Power supply voltage | 11 .. 30 Vdc |
| Reverse polarity protection | 60 Vdc max. |

**EX DATA**

<table>
<thead>
<tr>
<th>Output /supply</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ui = 30 V</td>
<td>Uo = 6.2 V</td>
</tr>
<tr>
<td>li = 100 mA</td>
<td>Io = 100 mA</td>
</tr>
<tr>
<td>Pi = 0.75 W</td>
<td>Po = 500 mW</td>
</tr>
<tr>
<td>Li = 0.1 mH</td>
<td>Lo = 3.6 mH</td>
</tr>
<tr>
<td>Ci = 10 nF</td>
<td>Co = 5 uF</td>
</tr>
</tbody>
</table>

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

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

**HOUSING**

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

**APPLICATION AREAS**

- Energy Industries
- Water treatment
- Petrochemical offshore

**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 ±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, V | < 0.4 uV/Ωhm |
| 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. output value | about 22.5 mA |
| Min. output value | about 3.6 mA |

**RESPONSE TIME (10 ÷ 90% of f.s.)**

| 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 |

**OUTPUT CALIBRATION**

| Current | ± 7 uA |
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

- 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

POWER SUPPLY
- Input voltage: 11 .. 30 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
- Dimensions (mm): W x L x H : 90 x 112 x 12.5
- Weight: about 90 g.

INPUT
- Input type: TC CJC int./ext.
- Min: J -200°C  K -200°C  S -50°C  R -50°C  B 400°C  E -200°C  T -200°C  N -200°C
- Max: J 1200°C  K 1370°C  S 1760°C  R 1760°C  B 1820°C  E 1000°C  T 400°C  N 1300°C
- Span min: J 2 mV  K 2 mV  S 2 mV  R 2 mV  B 2 mV  E 2 mV  T 2 mV  N 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 (Nominal value):
  - 0 Ω  200 Ω  10%
  - 200 Ω  500 Ω  10%
  - 0.5 KΩ  2 KΩ  10%

RES. 2,3,4 wires
- Low: 0 Ω  300 Ω  10 Ω
- High: 0 Ω  2000 Ω  200 Ω

OUTPUT
- Output type: Direct current 20 mA  Reverse current 4 mA
- Output calibration: ± 7 uA

EX DATA
- Output /supply
  - Output: Uo = 6.2 V
  - Input: U i = 30 V
- Current loop
  - Io = 100 mA
  - Po = 500 mW
- CJC comp.
  - Li = 0.1 mH
  - Lo = 3.6 mH
  - Ci = 10 nF
  - Co = 5 µF

POWER SUPPLY
- Power supply voltage: 11 .. 30 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
- Dimensions (mm): W x L x H : 90 x 112 x 12.5
- Weight: about 90 g.

INPUT
- Input type: TC CJC int./ext.
- Min: J -200°C  K -200°C  S -50°C  R -50°C  B 400°C  E -200°C  T -200°C  N -200°C
- Max: J 1200°C  K 1370°C  S 1760°C  R 1760°C  B 1820°C  E 1000°C  T 400°C  N 1300°C
- Span min: J 2 mV  K 2 mV  S 2 mV  R 2 mV  B 2 mV  E 2 mV  T 2 mV  N 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 (Nominal value):
  - 0 Ω  200 Ω  10%
  - 200 Ω  500 Ω  10%
  - 0.5 KΩ  2 KΩ  10%

RES. 2,3,4 wires
- Low: 0 Ω  300 Ω  10 Ω
- High: 0 Ω  2000 Ω  200 Ω

OUTPUT
- Output type: Direct current 20 mA  Reverse current 4 mA
- Output calibration: ± 7 uA

SIMPLE ATEX SERIES

EX DATA
- Output /supply
  - Output: Uo = 6.2 V
  - Input: U i = 30 V
- Current loop
  - Io = 100 mA
  - Po = 500 mW
- CJC comp.
  - Li = 0.1 mH
  - Lo = 3.6 mH
  - Ci = 10 nF
  - Co = 5 µF

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
- Dimensions (mm): W x L x H : 90 x 112 x 12.5
- Weight: about 90 g.
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

APPLICATION AREAS
- Energy Industries
- Water treatment
- Petrochemical offshore

SIGNAL CONVERTER WITH TRIP AMPLIFIER FOR HAZARDOUS AREA SENSORS

- 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

TRIP ALARMS
Output type n° 2 Relays SPDT
Contact rating 2A, 250 Vac
Load resistive
Minimum load 5Vac 10mA
Max Voltage 250 Vac (50/60 Hz) 110 Vac
Isolation coil-to-contacts: 2000Vac between contacts: 1000Vac

POWER SUPPLY
Power supply voltage 20 .. 30 Vdc
Reverse polarity protection 60 Vdc max

ISOULATION
Input/Output 2000 Vac, 50 Hz, 1 min.
Input/Supply 2000 Vac, 50 Hz, 1 min.
Supply/Output 1500 Vac, 50 Hz, 1 min.

EMC (for industrial environments)

DIRECTIVE 2004/108/EC

TEMPERATURE & HUMIDITY
Operative temperature -20°C .. +60°C
Humidity (not condensed) 0 .. 90 %

ISOLATION
Input/Output 2000 Vac, 50 Hz, 1 min.
Input/Supply 2000 Vac, 50 Hz, 1 min.
Supply/Output 1500 Vac, 50 Hz, 1 min.

POWER SUPPLY
Power supply voltage 20 .. 30 Vdc
Reverse polarity protection 60 Vdc max

INPUT
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
V 0 V 10 V 500 mV
Current mA
0 mA 20 mA 2 mA

Potentiometer (Nominal value)
0 Ω 200 Ω 10%
200 Ω 500 Ω 10%
0.5 KΩ 2 KΩ 10%

Resistance
Low 0 Ω 300 Ω 10 Ω
High 0 Ω 2000 Ω 200 Ω

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 ±2.2 % 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

OUTPUT
Output type Min Max Span min
TC, mV >= 10 MΩ
V >= 1 MΩ
mA <= 50 Ω

Linearity
TC ± 0.2 % f.s.
RTD ± 0.1 % f.s

Line resistance influence
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.)

RTD excitation current
Typical 0.350 mA
CJC comp. ± 0.5°C

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

Response time (10-90% of f.s.)
about 0.4 sec.

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

EX DATA
Terminals A-B-C-D, E-F-G-H-I-J, K-L
Um=250V

Terminals 1-2-3-4-5-6-7
Terminals 5-6-7
Uo = 7.8 V Uo = 30 V
Io = 32 mA Ii = 100 mA
Po = 140 mW Pi = 0.75W
Lo = 20 mH Li = ~0 mH
Co = 2 uF Ci = 24 nF
Ta : -20 ÷ +55°C

POWER SUPPLY
Power supply voltage 20 .. 30 Vdc
Reverse polarity protection 60 Vdc max

TRIP ALARMS
Output type n° 2 Relays SPDT
Contact rating 2A, 250 Vac
Load resistive
Minimum load 5Vac 10mA
Max Voltage 250 Vac (50/60 Hz) 110 Vac
Isolation coil-to-contacts: 2000Vac between contacts: 1000Vac

POWER SUPPLY
Power supply voltage 20 .. 30 Vdc
Reverse polarity protection 60 Vdc max

INPUT
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
V 0 V 10 V 500 mV
Current mA
0 mA 20 mA 2 mA

Potentiometer (Nominal value)
0 Ω 200 Ω 10%
200 Ω 500 Ω 10%
0.5 KΩ 2 KΩ 10%

Resistance
Low 0 Ω 300 Ω 10 Ω
High 0 Ω 2000 Ω 200 Ω

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 ±2.2 % 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

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

Output calibration
Current ± 7 uA
Voltage ± 10 mV

Output Rload resistance
Current < 650 Ω
Voltage > 4.7 KΩ
**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 (T) G D [ Ex ia ] IIC - [ Ex iaD ]
  according to the Directive ATEX 94/9/EC
- DIN Rail mounting suitable in accordance 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

**POWER SUPPLY**
- Power supply voltage: 20 ÷ 30 Vdc
- Current consumption: 80 mA per channel with Vaux operating
- Reverse polarity protection: 60 Vdc max.

**TEMPERATURE & HUMIDITY**
- Operating temperature: -20°C .. +60°C
- Storage temperature: -40 ÷ 85 °C
- Relative humidity (not condensed): 0 .. 90 %

**HOUSING**
- Material: Self-extinguish plastic
- Mounting: DIN Rail
- Dimensions (mm): 120 x 100 x 22.5

**APPLICATION AREAS**
- Energy Industries
- Water treatment
- Petrochemical offshore

**TERMINALS**
- Input: J-I, A-B-C-D, O-P-Q-R
  - Terminal Voltage: Um=250V
  - Current Io: 93 mA
  - Power Po: 615 mW
  - Inductance Lo: 4.2 mH
  - Capacitance Co: 75 nF
  - Temperature Ta: -20 ÷ +60°C

**INPUT**
- Input signal: Active or passive current loop
- Range:
  - 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.
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

POWER SUPPLY
- Power supply voltage: 11 .. 30 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
- Dimensions: Ø= 43 mm ; H = 24 mm
- Weight: about 50 g.
- Mounting: DIN B head or bigger

APPLICATION AREAS
- Energy Industries
- Water treatment
- Petrochemical offshore

INPUT
- 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 (Nominal value): 0 Ω, 500 Ω, 10%
- RES. 2,3,4 wires
- Low: 0 Ω, 300 Ω, 10 Ω
- High: 0 Ω, 2000 Ω, 200 Ω

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: the higher of ±0.1 % f.s. and ±10 uV

INPUT IMPEDANCE
- mV: > = 10 MΩ

LINEARITY (1)
- RTD: ± 0.1 % f.s.

OUTPUT
- Direct current: 4 mA .. 20 mA
- Reverse current: 4 mA .. 20 mA

OUTPUT CALIBRATION
- Current: ± 7 uA

INTRINSICALLY SAFE PC CONFIGURABLE TRANSMITTER FOR RTD

SMART ATEX SERIES
(1) referred to input Span (difference between max. and min. values)
**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 accordance to the Directive ATEX 94/9/EC
- Suitable for DIN B in-head mounting

**POWER SUPPLY**

<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>11 .. 30 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse polarity protection</td>
<td>60 Vdc max.</td>
</tr>
</tbody>
</table>

**EMC (for industrial environments)**

**DIRECTIVE 2004/108/EC**

**HOUSING**

Material: Self-extinguishing plastic

Dimensions: Ø = 43 mm; H = 24 mm

Weight: about 50 g.

Mounting: DIN B head or bigger

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC CJC int./ext.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1370°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>B</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

**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 (Nominal value) | 0 Ω | 200 Ω | 10% |
| 200 Ω | 500 Ω | 10% |
| 0.5 KΩ | 2 KΩ  | 10%  |

**Resistance**

| Low       | 0 Ω | 300 Ω | 10 Ω |
| High      | 0 Ω | 2000 Ω| 200 Ω |

**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 ±10 uV

**TEMPERATURE & HUMIDITY**

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

**EX DATA**

<table>
<thead>
<tr>
<th>Output /supply</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ui = 30 V</td>
<td>Uo = 6.2 V</td>
</tr>
<tr>
<td>li = 100 mA</td>
<td>Io = 100 mA</td>
</tr>
<tr>
<td>Pi = 0.75 W</td>
<td>Po = 500 mW</td>
</tr>
<tr>
<td>Li = 0.1 mH</td>
<td>Lo = 3.6 mH</td>
</tr>
<tr>
<td>Cl = 10 nF</td>
<td>Co = 5 uF</td>
</tr>
</tbody>
</table>

**T6**: -20 ÷ +55°C
**T5**: -20 ÷ +70°C
**T4**: -20 ÷ +85°C (vers. ‘HT’)

**OUTPUT**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>4 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

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

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

**Application areas**

- Energy Industries
- Water treatment
- Petrochemical offshore

**SMART ATEX SERIES**

**POWER SUPPLY**

<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>11 .. 30 Vdc</th>
</tr>
</thead>
</table>

**TEMPERATURE & HUMIDITY**

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

**EX DATA**

<table>
<thead>
<tr>
<th>Output /supply</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ui = 30 V</td>
<td>Uo = 6.2 V</td>
</tr>
<tr>
<td>li = 100 mA</td>
<td>Io = 100 mA</td>
</tr>
<tr>
<td>Pi = 0.75 W</td>
<td>Po = 500 mW</td>
</tr>
<tr>
<td>Li = 0.1 mH</td>
<td>Lo = 3.6 mH</td>
</tr>
<tr>
<td>Cl = 10 nF</td>
<td>Co = 5 uF</td>
</tr>
</tbody>
</table>

**T6**: -20 ÷ +55°C
**T5**: -20 ÷ +70°C
**T4**: -20 ÷ +85°C (vers. ‘HT’)

**HAUSING**

Material: Self-extinguishing plastic

Dimensions: Ø = 43 mm; H = 24 mm

Weight: about 50 g.

Mounting: DIN B head or bigger

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC CJC int./ext.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1370°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>B</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

**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 (Nominal value) | 0 Ω | 200 Ω | 10% |
| 200 Ω | 500 Ω | 10% |
| 0.5 KΩ | 2 KΩ  | 10%  |

**Resistance**

| Low       | 0 Ω | 300 Ω | 10 Ω |
| High      | 0 Ω | 2000 Ω| 200 Ω |

**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 ±10 uV

**OUTPUT**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>4 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

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

(1) referred to input Span (difference between max. and min. values)
### 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 accordance to the Directive ATEX 94/9/EC
- Suitable for DIN B in-head mounting

### Power Supply
- Power supply voltage: 11..30 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%

### Isolation
- Input - Output/Power supply: 2000 Vac, 50 Hz, 1 min.

### EMC (for industrial environments)
- Immunity: EN 61000-6-2
- Emission: EN 61000-6-4

### Directive 2004/108/EC
- Immunity: EN 61000-6-2
- Emission: EN 61000-6-4

### Input Type

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC CJC int./ext.</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1370°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>B</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

### RTD 2,3,4 wires
- Pt100: -200°C to 850°C
- Pt1000: -200°C to 2000°C
- Ni100: -60°C to 180°C
- Ni1000: -60°C to 150°C

### Voltage
- mV: -100 mV to +700 mV
- Potentiometer (Nominal value): 0 Ω to 2 KΩ

### Res. 2,3,4 wires
- Low: 0 Ω to 300 Ω
- High: 0 Ω to 2000 Ω

### Input Calibration
- 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

### Output Type

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>4 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

### Output Calibration
- Current: ± 7 uA

---

**Application areas**

**Input**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC CJC int./ext.</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1200°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1370°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1760°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>B</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>E</td>
<td>-200°C</td>
<td>1000°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

**RTD 2,3,4 wires**
- Pt100: -200°C to 850°C
- Pt1000: -200°C to 2000°C
- Ni100: -60°C to 180°C
- Ni1000: -60°C to 150°C

**Voltage**
- mV: -100 mV to +700 mV
- Potentiometer (Nominal value): 0 Ω to 2 KΩ

**Res. 2,3,4 wires**
- Low: 0 Ω to 300 Ω
- High: 0 Ω to 2000 Ω

**Input Calibration**
- 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

**Output**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>4 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

**Output Calibration**
- Current: ± 7 uA
SMART series intrinsically safe ATEX94/9/EC temperature and signal transmitters and converters

Application areas:
- Energy
- Water treatment
- Petrochemical offshore
- Industries
“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, DAT5023, 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)

INDEX

30 • DAT 2065
Dip Switch Configurable transmitter for Pt100
DAT 2066
Double channel Dip Switch Configurable transmitter for Pt100

31 • DAT 2165
Dip Switch Configurable converter for Pt100
DAT 2166
Double Channel Dip Switch Configurable converter for Pt100

32 • DAT 2061
Isolated Dip switch configurable converter for Pt100
DAT 2045
Not linearized Dip Switch configurable transmitter for thermocouple

33 • DAT 2145
Not linearized Dip Switch configurable converter for thermocouple
DAT 5020
Dip Switch configurable 3 ways isolated signal converter

34 • DAT 5021
3 ways isolated Dip Switch configurable signal converter
DAT 5022
4 ways isolated Dip Switch configurable signal converter/signal splitter

35 • DAT 5023 lac
Dip Switch configurable converter for AC current signal
DAT 5023 ldc
Isolated converter for DC current signal with fixed input, and Dip Switch configurable output

36 • DAT 5023/V
Dip Switch configurable converter for AC / DC voltage signal
DAT 5025
Isolated programmable Dip Switch converter for Strain Gauge / Bridge sensors
P.D.S. SERIES

04

P.D.S. series Temperature and signal transmitters and converters, isolators, signal splitters
**DAT 2065**

**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

**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.

**INPUT (RTD)**

- **Input type**
  - Min: -50°C
  - Max: 650°C
  - Span min: 50°C

- **Pt100 (2-3 wires)**
  - Min: -50°C
  - Max: 650°C
  - Span min: 50°C

**OUTPUT**

- **Output type**
  - Direct current: 4 mA
  - Max: 20 mA

- **Min. input value programmability**
  - Programmable

- **Input Calibration**
  - the higher of ± 0.1 % of input ± 0.2 °C

- **RTD sensor excitation current**
  - Typ: 0.6 mA

- **Thermal drift**
  - Full Scale: ± 0.02 % / °C

**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**

- **EC (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.

**DOUBLE CHANNEL DIP SWITCH CONFIGURABLE TRANSMITTER FOR 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

**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.

**INPUT (RTD)**

- **Input type**
  - Min: -50°C
  - Max: 650°C
  - Span min: 50°C

- **Pt100 (2-3 wires)**
  - Min: -50°C
  - Max: 650°C
  - Span min: 50°C

**OUTPUT**

- **Output type**
  - Direct current: 4 mA
  - Max: 20 mA

- **Min. input value programmability**
  - Programmable

- **Input Calibration**
  - the higher of ± 0.1 % of input ± 0.2 °C

- **RTD sensor excitation current**
  - Typ: 0.6 mA

- **Thermal drift**
  - Full Scale: ± 0.02 % / °C

**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**

- **EC (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.
DIP SWITCH CONFIGURABLE CONVERTER FOR PT100

DAT 2166

GENERAL DESCRIPTION

The double channel converter DAT 2166 is designed to provide on its 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

POWER SUPPLY

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

CURRENT CONSUMPTION

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 0°
Direct Voltage 0 V 10 V 0°
Min. input value programmability Programmable -50 + 50 °C
Input Calibration (1) The higher of ± 0.1% f.s. and 0.2°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)

Response time (10%–90% of f.s.) about 300 ms

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

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

DOUBLE CHANNEL 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

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 0°
Direct Voltage 0 V 10 V 0°
Min. input value programmability Programmable -50 + 50 °C
Input Calibration (1) The higher of ± 0.1% f.s. and 0.2°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)

Response time (10%–90% of f.s.) about 300 ms

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

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

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

INPUT (RTD)
- Input type: Min Max Span
- Pt100 (2-3 wires): -50°C 650°C 50°C

INPUT (TC)
- Input type: Min Max Span
- 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
- Direct current: 0 mA 20 mA -
- Min. input value programmability
- Programmable
- Input Calibration (1)
  - the higher of ± 0.1 % f.s. and 0.2 °C
  - CJC compensation ± 0.5°C

Thermal drift
- Full Scale ± 0.02 % / °C

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.
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

**POWER SUPPLY**
- Power supply voltage: 18..30 Vdc
- Revers 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
- Emission EN 61000-6-4
- Immunity EN 61000-6-2

**DIRECTIVE 2004 / 108 / EC**
- Good accuracy and performance stability
- Isolated power supply source for passive current transmitter on input
- EMC compliant – CE mark
- DIN rail mounting in compliance with EN-50022 and EN-50035

**APPLICATION AREAS**
- Food business
- Board machine
- Industries
- Water treatment

---

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

**POWER SUPPLY**
- Power supply voltage: 18..32 Vdc
- Revers 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
- Response time (10÷90% of f.s.) about 500 ms

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>-50°C</td>
<td>950°C</td>
<td>100°C</td>
</tr>
<tr>
<td>K</td>
<td>-50°C</td>
<td>1370°C</td>
<td>100°C</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>700°C</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1760°C</td>
<td>700°C</td>
</tr>
<tr>
<td>T</td>
<td>-50°C</td>
<td>450°C</td>
<td>100°C</td>
</tr>
</tbody>
</table>

**OUTPUT**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td>Direct Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td>Min. input value programmability</td>
<td>Programmable</td>
<td>-50 + 50 °C</td>
<td></td>
</tr>
<tr>
<td>Input Calibration</td>
<td>± 0.1 % f.s. and ± 0.2 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CJC compensation</td>
<td>± 0.5°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Scale</td>
<td>± 0.02 % / °C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**APPLICATION AREAS**

---

www.datexel.it
### 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

**CURRENT CONSUMPTION**

Current output with active Power supply aux operative input (20 mA): 90 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**

**EMC**

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 V</td>
<td>5 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1 V</td>
<td>5 V</td>
<td>-</td>
</tr>
</tbody>
</table>

**Output type**

- Current: 0 mA – 20 mA
- Voltage: 0 V – 10 V

**Load resistance (Rload)**

- Voltage output: \(\geq 5 \Omega\)
- Current output: \(\leq 500 \Omega\)

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

**OUTPUT**

**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
- Voltage or Current two independent output channels
- Voltage or current outputs configurable by DIP-switches
- Voltage or current output configurable by DIP-switches
- Isolated power supply source for passive current transmitter on input
- Isolated power supply source for passive loads on outputs
- Isolated power supply source for passive current
- Isolated power supply source for passive current
- DIN rail mounting in compliance with EN-50022 and EN-50035

**Current Consumption**

Current output with active Power supply aux operative input (20 mA): 120 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**

**EMC**

**Input**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 V</td>
<td>5 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1 V</td>
<td>5 V</td>
<td>-</td>
</tr>
</tbody>
</table>

**Output type**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0 V</td>
<td>5 V</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1 V</td>
<td>5 V</td>
<td>-</td>
</tr>
</tbody>
</table>

**Load resistance (Rload)**

- Voltage output: \(\geq 5 \Omega\)
- Current output: \(\leq 500 \Omega\)

(*) = inclusive of hysteresis and power supply variation.
**DIP SWITCH CONFIGURABLE CONVERTER FOR AC CURRENT SIGNAL**

**GENERAL DESCRIPTION**
The converter DAT 5023Idc 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**
- Food business
- Paper machine
- Water treatment
- Industries

**POWER SUPPLY**
- Power supply voltage: 18…30 Vdc
- Revers polarity protection: 60 Vdc max
- Aux. Power Supply OUT: 12 Vdc min @ 20 mA

**CURRENT CONSUMPTION**
Current output with Aux supply output 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% RH

**EMC (for industrial environments)**
- Directive 2004/108/EC
- CENELEC EN 50082-2
- CENELEC EN 50082-3

**APPLICATION AREAS**
- Food business
- Paper machine
- Water treatment
- Industries

---

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

**GENERAL DESCRIPTION**
The converter DAT 5023Idc 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.

**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**
- Food business
- Paper machine
- Water treatment
- Industries

**POWER SUPPLY**
- Power supply voltage: 18…30 Vdc
- Revers polarity protection: 60 Vdc max
- Aux. Power Supply OUT: 12 Vdc min @ 20 mA

**CURRENT CONSUMPTION**
Current output with Aux supply output 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% RH

**EMC (for industrial environments)**
- Directive 2004/108/EC
- CENELEC EN 50082-2
- CENELEC EN 50082-3

**APPLICATION AREAS**
- Food business
- Paper machine
- Water treatment
- Industries

---

**DAT 5023Idc**

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAT5023Idc/A</td>
<td>0÷5 A</td>
<td>0÷60 A</td>
<td>-</td>
</tr>
<tr>
<td>DAT5023Idc/B</td>
<td>0÷5 A</td>
<td>0÷60 A</td>
<td>-</td>
</tr>
<tr>
<td>DAT5023Idc/D</td>
<td>0÷40 A</td>
<td>0÷60 A</td>
<td>-</td>
</tr>
</tbody>
</table>

**Bandwidth (-3dB)**
- 40 Hz = 1kHz

**Input Calibration**
- ±0.1 % f.s.
- ±1 % f.s.

**Thermal drift**
- Full Scale ±0.02 % / °C

---

**OUTDO**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>-</td>
</tr>
</tbody>
</table>

**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.
**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

**POWER SUPPLY**
- Power supply voltage: 18...30 Vdc
- Revers. polarity protection: 60 Vdc max
- Aux. Power Supply Output: 12 Vdc min @ 20 mA

**CURRENT CONSUMPTION**
- Current output with Aux supply output: 80 mA max
- Voltage output: 80 mA max

**TEMPERATURE & HUMIDITY**
- Operative temperature: -20°C ... +60°C
- Storage temperature: -40°C ... +85°C
- Humidity (not condensed): 0 ... 90 %

**EMC**
- Emission: EN 61000-6-4
- Immunity: EN 61000-6-2
- DIRECTIVE 2004 / 108 / EC

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

**APPLICATION AREAS**

**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. 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 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

**POWER SUPPLY**
- Power supply voltage: 18 ... 30 Vdc
- Revers. polarity protection: 60 Vdc max
- Aux. Power Supply Output: 12 Vdc min @ 20 mA

**CURRENT CONSUMPTION**
- Current output: 80 mA max
- Voltage output: 80 mA max

**TEMPERATURE & HUMIDITY**
- Operative temperature: -20°C ... +60°C
- Storage temperature: -40°C ... +85°C
- Humidity (not condensed): 0 ... 90 %

**EMC**
- Emission: EN 61000-6-4
- Immunity: EN 61000-6-2
- DIRECTIVE 2004 / 108 / EC

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

**APPLICATION AREAS**

**OUTPUT**

**DAT 5023/V**

**OUTPUT**
<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td></td>
</tr>
</tbody>
</table>

**DAT 5025**

**OUTPUT**
<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td></td>
</tr>
</tbody>
</table>

(*) = Inclusive of hysteresis and power supply variation.
P.D.S. series temperature and signal transmitters and converters for DIN rail mounting

Application areas

Industries
Board machine
Energy
Food business
Water treatment
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)

INDEX

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
“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)

**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.

**APPLICATION AREAS**
- Energy
- Food business
- Board machine
- Industries
- Water treatment

**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

**DIRECTIVE 2004/108/EC**
- Immunity EN 61000-6-2
- Emission EN 61000-6-4

**POWER SUPPLY**
- Power supply voltage 12 ÷ 30 Vdc
- Current Consumption 120 mA @24Vdc (300mA max)
- Revers. polarity protection 60 Vdc max

**ANALOG INPUT**

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

**ANALOG OUTPUT**

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Accuracy</th>
<th>Linearity</th>
<th>Thermal drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 V</td>
<td>0 / +10 V</td>
<td>±0.1 %</td>
<td>±0.05 %</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>20 mA</td>
<td>0 / +20 mA</td>
<td>±0.1 %</td>
<td>±0.05 %</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

**DIGITAL OUTPUT**

<table>
<thead>
<tr>
<th>n.2 SPDT + n.2 SPST Relay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Load (resistive)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Min Load</td>
</tr>
<tr>
<td>Voltage Max.</td>
</tr>
</tbody>
</table>

**LEAD WIRE RESISTANCE**

<table>
<thead>
<tr>
<th>Resistance Influence</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD (3 wires)</td>
<td>0.05 %/Ω (50 Ω max)</td>
</tr>
<tr>
<td>mV, Tc</td>
<td>&lt; 0.8 uV/Ohm</td>
</tr>
<tr>
<td>RTD excitation current, Res, Pot</td>
<td>~ 0.7 mA</td>
</tr>
<tr>
<td>Pot, Nominal value</td>
<td>2 KOhm</td>
</tr>
<tr>
<td>Sample Time</td>
<td>1 sec.</td>
</tr>
<tr>
<td>Warm-up time</td>
<td>3 min.</td>
</tr>
</tbody>
</table>

**ANALOG OUTPUT**

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Accuracy</th>
<th>Linearity</th>
<th>Thermal drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 V</td>
<td>0 / +10 V</td>
<td>±0.1 %</td>
<td>±0.05 %</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>20 mA</td>
<td>0 / +20 mA</td>
<td>±0.1 %</td>
<td>±0.05 %</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

**LOAD RESISTANCE**

<table>
<thead>
<tr>
<th>Resistance Influence</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (current output)</td>
<td>&lt; 500 Ohm</td>
</tr>
<tr>
<td>Voltage (voltage output)</td>
<td>5 KOhm</td>
</tr>
<tr>
<td>Auxiliary Voltage</td>
<td>&gt;12V</td>
</tr>
</tbody>
</table>
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 input and contacts of relays 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

**POWER SUPPLY**
- Power supply voltage: 18 + 32 V dc
- Current Consumption: 110 mA max @ 24 V dc
- Reverse polarity: 60 Vdc max

**AUXILIARY SUPPLY**
- (only for mA input): > 18 V @ 20 mA

**ISOILATION**
- Input – power supply: 2000 Vac 50 Hz, 1 min
- Input – contact of relays: 2000 Vac 50 Hz, 1 min
- Power supply – contact of relays: 1500 Vac 50 Hz, 1 min.

**EMC (for industrial environments)**
- DIRECTIVE 2004/108/EC
- TEMPERATURE AND HUMIDITY
  - Operative temperature: -30°C ÷ +60°C
  - Storage temperature: -40°C ÷ +85°C
- Immunity
  - EN 61000-6-2
  - EN 61000-6-4
- Emission
  - EN 61000-6-4
- Humidity (not condensed): 0 ÷ 90 %

**HOUSING**
- Material: Self-extinguishing plastic
- Dimensions (mm): W x L x H: 90 x 112 x 22.5
- Weight: about 90 g.

**TRIP AMPLIFIERS**
- Application areas
  - Energy
  - Food business
  - Board machine
  - Industries
  - Water treatment

**TEMPERATURE AND HUMIDITY**
- Operative temperature: -30°C ÷ +60°C
- Storage temperature: -40°C ÷ +85°C
- Humidity (not condensed): 0 ÷ 90 %

**ISOLATION**
- Input – power supply: 2000 Vac 50 Hz, 1 min
- Input – contact of relays: 2000 Vac 50 Hz, 1 min
- Power supply – contact of relays: 1500 Vac 50 Hz, 1 min.

**INPUT**
- Input type* Min Max
  - Voltage
    - 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
  - Thermocouple
    - 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
  - RTD
    - Pt100 -50 °C +400 °C
    - Pt1000 -200 °C +200 °C
    - Ni100 -60 °C +180 °C
    - Ni1000 -60 °C +150 °C
  - Resistance
    - 250 Ω 0 Ω 250 Ω
    - 2 KΩ 0 Ω 2000 Ω
  - Current mA
    - 20 mA 0 mA 20 mA

* 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

### INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td>0 V</td>
<td>10 V</td>
</tr>
<tr>
<td></td>
<td>1 V</td>
<td>5 V</td>
</tr>
<tr>
<td></td>
<td>2 V</td>
<td>10 V</td>
</tr>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
</tr>
<tr>
<td></td>
<td>4 mA</td>
<td>20 mA</td>
</tr>
</tbody>
</table>

### 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

### APPLICATION AREAS

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

### ISOLATION

- Input – Power Supply: 1500 Vac 50 Hz, 1 min
- Input – contact of relays: 1000 Vac 50 Hz, 1 min
- Power Supply – Contact of relays: 1000 Vac 50 Hz, 1 min.

### HOUSING

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

### POWER SUPPLY

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Current Consumption</th>
<th>Rever. polarity protection</th>
<th>AUXILIARY SUPPLY (only for mA input)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply voltage: 18 ÷ 30 Vdc</td>
<td>110 mA max @ 24 Vdc</td>
<td>60 Vdc max</td>
<td>&gt; 18 V @ 20 mA</td>
</tr>
</tbody>
</table>

### RELAY OUTPUT

- N° 2 SPDT (Form C)

---

(1) referred to input Span (difference between max. and min. values)
“DAT5028 / DAT5024 series”
trip amplifiers for din rail mounting

Application areas

- Industries
- Board machine
- Energy
- Food business
- Water treatment
“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).

INDEX

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
DAT200/500 SERIES

DAT200
DAT500
SERIES

Signal transmitters and converters, galvanic isolators
**FIXED RANGE TRANSMITTER FOR POTENTIOMETER**

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

**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.

**APPLICATION AREAS**
- Energy
- Food business
- Board machine
- Industries
- Water treatment

**DIRECTIVE 2004/108/EC**
- Immunity
  - EN 61000-6-2
- Emission
  - EN 61000-6-4

**TEMPERATURE & HUMIDITY**
- Operative temperature: -20°C .. +70°C
- Storage temperature: -40°C .. +85°C
- Humidity (not condensed): 0 .. 90%

**EMC (for industrial environments)**

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

**POWER SUPPLY**
- Power supply voltage: 10 .. 32 Vdc
- Reverse polarity protection: 60 Vdc max

**CURRENT CONSUMPTION**
- Current output: 30 mA max.
- Voltage output: 10 mA max.

**OUTPUT**
- Output type: Current
  - Min: 4 mA
  - Max: 20 mA
- Burn-out values:
  - Max. value output: 25 mA
- Response time (10÷90%): about 500 ms

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min (%)</th>
<th>Max (%)</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentiometer (Room.1 ... 10KΩ)</td>
<td>0%</td>
<td>100%</td>
<td>-</td>
</tr>
<tr>
<td>Calibration</td>
<td>Potentiometer</td>
<td>± 0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>± 0.1 % f.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal drift</td>
<td>Full scale</td>
<td>± 0.02 % / °C</td>
<td></td>
</tr>
</tbody>
</table>

**OUTPUT**

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>-</td>
</tr>
<tr>
<td>Voltage</td>
<td>0 V</td>
<td>10 V</td>
<td>-</td>
</tr>
<tr>
<td>Burn-out values:</td>
<td>Max. value output</td>
<td>25 mA or 15V</td>
<td></td>
</tr>
<tr>
<td>Response time (10÷90%):</td>
<td>about 500 ms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potentiometer (Room.1 ... 10KΩ)</td>
<td>0%</td>
<td>100%</td>
<td>-</td>
</tr>
<tr>
<td>Calibration</td>
<td>Potentiometer</td>
<td>± 0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>± 0.1 % f.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal drift</td>
<td>Full scale</td>
<td>± 0.02 % / °C</td>
<td></td>
</tr>
</tbody>
</table>
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.

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.

## INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version“A”</td>
<td>0 ÷ 5 mV</td>
<td>0 ÷ 200 mV</td>
<td>-</td>
</tr>
<tr>
<td>Version“B”</td>
<td>0 ÷ 200 mV</td>
<td>0 ÷ 20 V</td>
<td>-</td>
</tr>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version“C”</td>
<td>0 ÷ 5 mA</td>
<td>0 ÷ 50 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

**Calibration**
- mV, V, mA ± 0.1 % f.s.
- Linearity ± 0.1 % f.s.
- Thermal drift Full scale ± 0.02 % / °C

## OUTPUT

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn-out values</td>
<td>Max. value output</td>
<td>25 mA</td>
<td></td>
</tr>
<tr>
<td>Response time (10÷90%)</td>
<td>about 300 ms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Burn-out values**
- Max. value output 25 mA
- Response time (10÷90%) about 300 ms

## 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. |

## CONSIDERATIONS

For current or voltage signals, the converter 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.

**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. |

## OUTPUT

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burn-out values</td>
<td>Max. value output</td>
<td>25 mA or 15V</td>
<td></td>
</tr>
<tr>
<td>Response time (10÷90%)</td>
<td>about 300 ms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Burn-out values**
- Max. value output 25 mA or 15V
- Response time (10÷90%) about 300 ms

## POWER SUPPLY

| Power supply voltage | 18 .. 30 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. |

## CURRENT CONSUMPTION

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

## OUTPUT

<table>
<thead>
<tr>
<th>Output type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version“A”</td>
<td>0 ÷ 5 mV</td>
<td>0 ÷ 200 mV</td>
<td>-</td>
</tr>
<tr>
<td>Version“B”</td>
<td>0 ÷ 200 mV</td>
<td>0 ÷ 20 V</td>
<td>-</td>
</tr>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version“C”</td>
<td>0 ÷ 5 mA</td>
<td>0 ÷ 50 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

**Calibration**
- mV, V, mA ± 0.1 % f.s.
- Linearity ± 0.1 % f.s.
- Thermal drift Full scale ± 0.02 % / °C

**INPUT**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version“A”</td>
<td>0 ÷ 5 mV</td>
<td>0 ÷ 200 mV</td>
<td>-</td>
</tr>
<tr>
<td>Version“B”</td>
<td>0 ÷ 200 mV</td>
<td>0 ÷ 20 V</td>
<td>-</td>
</tr>
<tr>
<td>Current</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Version“C”</td>
<td>0 ÷ 5 mA</td>
<td>0 ÷ 50 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

## CONSIDERATIONS

For current or voltage signals, the converter 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.
**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

**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.

**OUTPUT**

Input type Current
Min 0 mA
Max 20 mA
Span min -

Load resistance (Road) From 0 to 700 ohm

Thermal drift Full scale ± 0.02 % / °C

Isolation voltage 3000 Vac, 50 Hz 1 min.

Response time (10÷90%) About 20 ms

**INPUT**

Input type Min Max Span min
Current 0 mA 20 mA -

Max. INPUT signal 50 mA

Load resistance (Road) From 0 to 700 ohm

Thermal drift Full scale ± 0.02 % / °C

Isolation voltage 1500 Vac, 50 Hz 1 min.

Response time (10÷90%) About 20 ms

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

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

**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.

**OUTPUT**

Input type Current
Min 0 mA
Max 20 mA
Span min -

Burn-out values Max. value output 25 mA

Isolation voltage 1500 Vac, 50 Hz 1 min.

Response time (10÷90%) About 20 ms

**INPUT**

Input type Min Max Span min
Current 0 mA 20 mA -

Max. INPUT signal 50 mA

Load resistance (Road) From 0 to 700 ohm

Thermal drift Full scale ± 0.02 % / °C

Bandwidth From 0.5 up to 4 KHz bidirectional within 3 dB
Signal transmitters and converters, galvanic isolators
“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.
DAT3000 SERIES

DAT3000 SERIES
Data acquisition and control modules
**DAT 3580**

**GENERAL DESCRIPTION**

The device DAT3580 is an isolated interface converter between asynchronous serial 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

**POWER SUPPLY**

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

**CURRENT CONSUMPTION**

35 mA typ. @ 24Vdc

**ISOLATIONS**

Power Supply/ RS232
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**

Baud-rate: up to 115.2 Kbps

Max. distance / baud-rate ratio (recommended) (1)

Number of modules in multipoint: 32 max.
Switching time TX/RX (RS485): 150 us.
Internal terminator resistance (optional): 120 Ohm (optional)

**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
- EIA RS232, RS485 and RS422 compliant
- USB 2.0. EIA RS485 and RS422 compliant
- Suitable for DIN rail mounting in compliance with EN-50022

**POWER SUPPLY**

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

**CURRENT CONSUMPTION**

35 mA typ. @ 24Vdc

**ISOLATIONS**

Power Supply/ USB
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**

Baud-rate: up to 115.2 Kbps

Max. distance / baud-rate ratio (recommended) (1)

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.
**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

**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

**Application areas**

- Food business
- MachineIndustries
- Water treatment

---

**GENERAL DESCRIPTION**

The device DAT3590 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

**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

**Application areas**

- Food business
- MachineIndustries
- Water treatment

---

(1) = The maximum distance depends on: number of devices connected, type of cabling, noises, etc...
DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 4 RELAY OUTPUTS ON RS-485 NETWORK

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

POWER SUPPLY
Supply Voltage 18 .. 30 Vdc
Current consumption 45 mA @ 24 Vdc
Rever. Polarity protection 60 Vdc max

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.

ISOLATIONS
Inputs – RS485 1500 Vac 50 Hz, 1 min.
Inputs – 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

DISTRIBUTED I/O MODULE 4 DIGITAL INPUTS + 8 NPN OUTPUTS ON RS-485 NETWORK

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 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
- 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

POWER SUPPLY
Supply Voltage 10 .. 30 Vdc
Current consumption 45 mA @ 24 Vdc
Rever. Polarity protection 60 Vdc max

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.

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
## 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

### DIGITAL INPUTS

<table>
<thead>
<tr>
<th>Input channels</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage (bipolar)</td>
<td>0 ≤ 3 V</td>
</tr>
<tr>
<td>Off State</td>
<td>0 ≤ 3 V</td>
</tr>
<tr>
<td>On State</td>
<td>10 ≤ 30 V</td>
</tr>
<tr>
<td>Impedance</td>
<td>4.7 kΩ</td>
</tr>
<tr>
<td>Data Transmission (asynchronous serial)</td>
<td></td>
</tr>
<tr>
<td>Baud rate</td>
<td>38.4 Kbps</td>
</tr>
<tr>
<td>Max. Distance</td>
<td>1.2 Km - 4000ft</td>
</tr>
<tr>
<td>Sample time</td>
<td>5 ms max</td>
</tr>
</tbody>
</table>

## DISTRIBUTED I/O MODULE 8 DIGITAL INPUTS ON RS-485 NETWORK

### POWER SUPPLY

- Supply Voltage: 10 ... 30 Vdc
- Current consumption: 35 mA @ 24 Vdc
- Reverse 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.

## DISTRIBUTED I/O MODULE 12 DIGITAL INPUTS ON RS-485 NETWORK

### 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

### DIGITAL INPUTS

<table>
<thead>
<tr>
<th>Input channels</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage (bipolar)</td>
<td>0 ≤ 3 V</td>
</tr>
<tr>
<td>Off State</td>
<td>0 ≤ 3 V</td>
</tr>
<tr>
<td>On State</td>
<td>10 ≤ 30 V</td>
</tr>
<tr>
<td>Impedance</td>
<td>4.7 kΩ</td>
</tr>
<tr>
<td>Data Transmission (asynchronous serial)</td>
<td></td>
</tr>
<tr>
<td>Baud rate</td>
<td>38.4 Kbps</td>
</tr>
<tr>
<td>Max. Distance</td>
<td>1.2 Km - 4000ft</td>
</tr>
<tr>
<td>Sample time</td>
<td>5 ms max</td>
</tr>
</tbody>
</table>

## DIGITAL INPUTS

<table>
<thead>
<tr>
<th>Input channels</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage (bipolar)</td>
<td>0 ≤ 3 V</td>
</tr>
<tr>
<td>Off State</td>
<td>0 ≤ 3 V</td>
</tr>
<tr>
<td>On State</td>
<td>10 ≤ 30 V</td>
</tr>
<tr>
<td>Impedance</td>
<td>4.7 kΩ</td>
</tr>
<tr>
<td>Data Transmission (asynchronous serial)</td>
<td></td>
</tr>
<tr>
<td>Baud rate</td>
<td>38.4 Kbps</td>
</tr>
<tr>
<td>Max. Distance</td>
<td>1.2 Km - 4000ft</td>
</tr>
<tr>
<td>Sample time</td>
<td>5 ms max</td>
</tr>
</tbody>
</table>
## 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

## POWER SUPPLY
- Supply Voltage: 10...30 Vdc
- Current consumption: 45 mA @ 24 Vdc
- Reverse Polarity protection: 60 Vdc max

## TEMPERATURE & HUMIDITY
- Operating Temperature: -10°C .. +60°C
- Storage Temperature: -40°C .. +85°C
- Humidity (not condensed): 0 .. 90 %

## ISOlATIONS (Input / Output / RS485 / Supply)
- 2000 Vac 50 Hz, 1 min.

## EMC (for industrial environments)
- Immunity: EN 61000-6-2
- Emission: EN 61000-6-4

## DIGITAL OUTPUTS
- Output channels: 8
- Type: PNP
- Max. Load: 500 mA per channel*
- Inductive Load: 48 Ω - 2 H max.
- Voltage: 10.5 .. 30 Vdc

## ENERGY
- 1 A per module
- 500 mA per channel*
- Short circuit current: 1.7 A max.

### Application areas
- Food business
- Board machine
- Industries
- Water treatment

---

## DISTRIBUTED I/O MODULE 8 DIGITAL INPUTS + 8 PNP OUTPUTS ON RS-485 NETWORK

## 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

## POWER SUPPLY
- Supply Voltage: 10...30 Vdc
- Current consumption: 45 mA @ 24 Vdc
- Reverse Polarity protection: 60 Vdc max

## TEMPERATURE & HUMIDITY
- Operating Temperature: -10°C .. +60°C
- Storage Temperature: -40°C .. +85°C
- Humidity (not condensed): 0 .. 90 %

## ISOlATIONS (Input / Output / RS485 / Supply)
- 2000 Vac 50 Hz, 1 min.

## EMC (for industrial environments)
- Immunity: EN 61000-6-2
- Emission: EN 61000-6-4

## DIGITAL OUTPUTS
- Output channels: 8
- Type: PNP
- Max. Load: 500 mA per channel*
- Inductive Load: 48 Ω - 2 H max.
- Voltage: 10.5 .. 30 Vdc

## ENERGY
- 1 A per module
- 500 mA per channel*
- Short circuit current: 1.7 A max.

### Application areas
- Food business
- Board machine
- Industries
- Water treatment
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 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 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)

POWER SUPPLY
Supply Voltage 18 ÷ 30 Vdc
Current consumption 30 mA (100mA max)
Rever. Polarity protection 60 Vdc max

SERIAL PORT
Type RS-485
Protocol Modbus RTU (Slave)
Baud Rate up to 38400 bps

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

DIRECTIVE 2004 / 108 / EC
Scenario EN 61000-6-2
Scenario EN 61000-6-4

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

ANALOG INPUTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Accuracy</th>
<th>Linearity</th>
<th>Thermal Drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 mV</td>
<td>-100 + +100 mV</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>10 V</td>
<td>-10 + +10 V</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>20 mA</td>
<td>0 + +20 mA</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>-200 + +850 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Pt1K</td>
<td>-200 + +200 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60 + +180 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Ni1K</td>
<td>-60 + +150 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Res</td>
<td>0 + 2000 Ohm</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Pot</td>
<td>20 + 2000 Ohm</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc J</td>
<td>-210 + +1200 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc K</td>
<td>-210 + +1370 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc R</td>
<td>-50 + +1760 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc S</td>
<td>-50 + +1760 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc B</td>
<td>+400 + +1825 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc E</td>
<td>-210 + +1000 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc T</td>
<td>-210 + +400 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc N</td>
<td>-210 + +1300 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

Load 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

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Accuracy</th>
<th>Linearity</th>
<th>Thermal Drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mA</td>
<td>0 + +20 mA</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

Load Resistance < 500 Ohm
Auxiliary Voltage >12V

DIGITAL INPUTS
Input channels 3
Input voltage (bipolar)
OFF State : 0÷3 V
ON State : 10÷30 V
Input Impedance 4,7 KOhm

DIGITAL OUTPUTS
N.1 Solid State Relay (dry contacts)
Max. Voltage 48 V (ac/dc)
Max. Load 0.4A max (resistive)
N.2 Relays SPST
Switching power (resistive load) 2 A @ 250 Vac (per contact)
Minimum load 5 Vdc , 10mA
Max. Voltage 250 Vac (50 / 60 Hz),110Vdc
Max. Temperature 1000 Vac, 50 Hz, 1 min.
Dielectric strength between coil and contacts 4000 Vac, 50 Hz, 1 min.
REMOTE I/O MODULE 4 CHANNELS RTD ON RS-485 NETWORK

**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

**APPLICATION AREAS**

- DIN rail suitable mounting - EN-50022 compliance
- MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available)
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark

**POWER SUPPLY**

Supply Voltage 10 .. 30 Vdc
Current consumption 30 mA @ 24 Vdc
Rever. Polarity protection 60 Vdc max

**HOUING**

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
RTD 2 or 3 wires
Pt100 -200°C 850°C
Pt1000 -200°C 200°C
Ni100 -60°C 180°C
Ni1000 -60°C 150°C
Resistance 2 or 3 wires
Low 0 Ω 500 Ω
High 0 Ω 2000 Ω
Pot. (nom. value)
Low 20 Ω 500 Ω
High 20 Ω 2000 Ω

**APPLICATION AREAS**

- Food business
- Board machine
- Industries
- Water treatment

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

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

**REMOTE I/O MODULE 4 CHANNELS +/-20mA INPUT ON RS-485 NETWORK**

**DAT 3015-I**

**GENERAL DESCRIPTION**

The device DAT 3015-I 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

**APPLICATION AREAS**

- DIN rail suitable mounting - EN-50022 compliance
- MODBUS RTU/ASCII protocol on the RS-485 network (RS-232 interface is available)
- Watch-Dog Alarm
- Configurable from a remote terminal
- 2000 Vac 3-way Galvanic Isolation
- High Accuracy
- EMC compliance – CE mark

**POWER SUPPLY**

Supply Voltage 10 .. 30 Vdc
Current consumption 30 mA @ 24 Vdc
Rever. Polarity protection 60 Vdc max

**HOUING**

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
Current 20 mA -20 mA +20 mA
Input Calibration (1) ± 20 uA
Linearity (1) ± 0.1% f.s.
Input Impedance $$\leq 50 \, \Omega$$
Thermal drift (1) ± 0.005 % / °C

**APPLICATION AREAS**

- Food business
- Board machine
- Industries
- Water treatment

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

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

**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)
REMOTE I/O MODULE 4 CHANNELS +/-10V INPUT ON RS-485 NETWORK

DAT 3016-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 ±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 ±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

INPUT
Type input Min Max Voltage
10 V -10 V +10 V
Input Calibration (1) ±10 mV
Linearity (1) ±0.1% f.s.
Input Impedance >100 KΩ
Thermal drift (1) ±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)

APPLICATION AREAS

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 +/-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 +/-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
Power Supply– Input 2000 Vac 50 Hz, 1 min.
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.

Einheit (1)

mV ± 0.1% f.s.
TC ± 0.2% f.s.
CJC Comp. ± 0.5 °C
Input Impedance mV, TC >1 MΩ
Thermal drift (1) ±0.005% / °C
Full scale ±1 °C
CJC Thermal drift Full scale ±0.02 °C / °C
Lead wire res. influence (1) mV, Tc ±0.5 uV/Thm
Response 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)
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

REMOTE I/O MODULE 8 CHANNELS ± 20mA INPUT ON RS-485 NETWORK

<table>
<thead>
<tr>
<th>POWER SUPPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
</tr>
<tr>
<td>Current consumption</td>
</tr>
<tr>
<td>Rever. Polarity protection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ISOLATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs – RS485</td>
</tr>
<tr>
<td>Power Supply – Input</td>
</tr>
<tr>
<td>Power Supply – RS-485</td>
</tr>
<tr>
<td>2000 Vac 50 Hz, 1 min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPERATURE &amp; HUMIDITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
</tr>
<tr>
<td>Storage Temperature</td>
</tr>
<tr>
<td>Humidity (not condensed)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMC (for industrial environments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTIVE 2004 / 108 / EC</td>
</tr>
<tr>
<td>Immunity</td>
</tr>
<tr>
<td>Emission</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type input</td>
</tr>
<tr>
<td>Current</td>
</tr>
<tr>
<td>Input Calibration (1)</td>
</tr>
<tr>
<td>Linearity (1)</td>
</tr>
<tr>
<td>Input Impedance</td>
</tr>
<tr>
<td>Thermal drift (1)</td>
</tr>
</tbody>
</table>

REMOTE I/O MODULE 8 CHANNELS ±10V INPUT ON RS-485 NETWORK

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

REMOTE I/O MODULE 8 CHANNELS ±10V INPUT ON RS-485 NETWORK

<table>
<thead>
<tr>
<th>POWER SUPPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
</tr>
<tr>
<td>Current consumption</td>
</tr>
<tr>
<td>Rever. Polarity protection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ISOLATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs – RS485</td>
</tr>
<tr>
<td>Power Supply – Input</td>
</tr>
<tr>
<td>Power Supply – RS-485</td>
</tr>
<tr>
<td>2000 Vac 50 Hz, 1 min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPERATURE &amp; HUMIDITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
</tr>
<tr>
<td>Storage Temperature</td>
</tr>
<tr>
<td>Humidity (not condensed)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMC (for industrial environments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTIVE 2004 / 108 / EC</td>
</tr>
<tr>
<td>Immunity</td>
</tr>
<tr>
<td>Emission</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type input</td>
</tr>
<tr>
<td>Voltage</td>
</tr>
<tr>
<td>Input Calibration (1)</td>
</tr>
<tr>
<td>Linearity (1)</td>
</tr>
<tr>
<td>Input Impedance</td>
</tr>
<tr>
<td>Thermal drift (1)</td>
</tr>
</tbody>
</table>

(1) Referred to input Span (difference between max. and min. values)
REMOTE I/O MODULE 8 CHANNELS mV / TC INPUT ON RS-485 NETWORK

GENERAL DESCRIPTION
The device DAT3018 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
- Food business
- Biotechnology
- Industries
- Water treatment
- Food industry

POWER SUPPLY
Supply Voltage 10 ... 30 Vdc
Current consumption 30 mA @ 24 Vdc
Rever. Polarity protection 60 Vdc max

ISOLATIONS
Inputs – RS485
Power Supply – Input 2000 Vac 50 Hz, 1 min.
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

DIMENSIONS
W x L x H : 120 x 100 x 17.5
Weight About 150 g

FEATURES
- Input Calibration (1) ± 0.05% or 5 uV (1)

POWER SUPPLY
Supply Voltage 10 ... 30 Vdc
Current consumption 30 mA @ 24 Vdc
Rever. Polarity protection 60 Vdc max

ISOLATIONS
Inputs – RS485
Power Supply – Input 2000 Vac 50 Hz, 1 min.
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

DIMENSIONS
W x L x H : 120 x 100 x 17.5
Weight About 150 g

FEATURES
- Input Calibration (1) ± 0.05% or 5 uV (1)

REMOTE I/O MODULE 8 CHANNELS RTD INPUT ON RS-485 NETWORK

GENERAL DESCRIPTION
The device DAT3019 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
- Food business
- Biotechnology
- Industries
- Water treatment
- Food industry

INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>25 mV</td>
<td>±25 mV</td>
</tr>
<tr>
<td></td>
<td>100 mV</td>
<td>±100 mV</td>
</tr>
<tr>
<td></td>
<td>250 mV</td>
<td>±250 mV</td>
</tr>
<tr>
<td></td>
<td>1000 mV</td>
<td>±1000 mV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thermocouple</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>-210 °C</td>
<td>+1200 °C</td>
</tr>
<tr>
<td>K</td>
<td>-210 °C</td>
<td>+1372 °C</td>
</tr>
<tr>
<td>R</td>
<td>-50 °C</td>
<td>+1767 °C</td>
</tr>
<tr>
<td>S</td>
<td>-50 °C</td>
<td>+1767 °C</td>
</tr>
<tr>
<td>B</td>
<td>+600 °C</td>
<td>+1825 °C</td>
</tr>
<tr>
<td>E</td>
<td>-210 °C</td>
<td>+1000 °C</td>
</tr>
<tr>
<td>T</td>
<td>-210 °C</td>
<td>+400 °C</td>
</tr>
<tr>
<td>N</td>
<td>-210 °C</td>
<td>+1300 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CJC Comp.</th>
<th>TC ± 0.2% f.s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Impedance</td>
<td>mV, TC ≥ 1 MΩ</td>
</tr>
<tr>
<td>Thermal drift</td>
<td>± 0.005 % / °C</td>
</tr>
<tr>
<td>Thermal drift CJC</td>
<td>Full scale ± 0.02 % / °C</td>
</tr>
<tr>
<td>Lead wire res. influence (1)</td>
<td>mV, TC ≤ 10 mV ≤ 0.5 Ω ≤ 0.5 Ω ≤ 0.25 Ω ≤ 0.125 Ω</td>
</tr>
<tr>
<td>Sample time</td>
<td>0.5 – 2 sec.</td>
</tr>
<tr>
<td>Data Transmission (asynchronous serial)</td>
<td>Baud rate 38.4 Kbps</td>
</tr>
<tr>
<td>Max. Distance</td>
<td>1.2 Km – 4000ft</td>
</tr>
<tr>
<td>Warm-up time</td>
<td>3 min</td>
</tr>
</tbody>
</table>

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

INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD ± 0.2 % f.s.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance 2 or 3 wires</td>
<td>Low : 0 Ω to 2000 Ω</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High : 0 Ω to 2000 Ω</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RTD Calibration (1)</th>
<th>± 0.2 % f.s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTS ± 0.2 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity (1)</td>
<td>± 0.1% f.s.</td>
</tr>
<tr>
<td>Res. (1)</td>
<td>± 0.2% f.s.</td>
</tr>
<tr>
<td>Sample time</td>
<td>0.5 ÷ 2 sec.</td>
</tr>
<tr>
<td>Data Transmission (asynchronous serial)</td>
<td>Baud rate 38.4 Kbps</td>
</tr>
<tr>
<td>Max. Distance</td>
<td>1.2 Km – 4000ft</td>
</tr>
<tr>
<td>Warm-up time</td>
<td>3 min</td>
</tr>
</tbody>
</table>

(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

#### POWER SUPPLY
- Supply Voltage: 18 .. 30 Vdc
- Current consumption: typ. 35 mA @ 24 Vdc, 60 mA max
- Revert. Polarity protection: 60 Vdc max

#### ISOLATIONS
- Output – RS485: power supply – output, 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)
- Immunity: EN 61000-6-2
- Emission: EN 61000-6-4

### DAT 3024

**GENERAL DESCRIPTION**
The DAT 3024 device 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 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 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

#### POWER SUPPLY
- Supply Voltage: 18 .. 30 Vdc
- Current consumption: typ. 35 mA @ 24 Vdc, 100 mA max
- Revert. Polarity protection: 60 Vdc max

#### ISOLATIONS
- Output – RS485: power supply – output, 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)
- Immunity: EN 61000-6-2
- Emission: EN 61000-6-4

---

**REMOTE I/O MODULE 2 CHANNEL V / mA OUTPUT ON RS-485 NETWORK**

**OUTPUT**
- **Output type**
  - Min: 0 V
  - Max: +10 V
- **Voltage**
  - Current: mA 0 mA +20 mA
- **Output calibration**
  - Voltage: ±10 mV
  - Current: ±20 mA
- **Load Resistance**
  - Voltage: > 5 kΩ
  - Current: < 500 Ω

**APPLICATION AREAS**
- Food business
- Machine Industries
- Water treatment

---

**REMOTE I/O MODULE 4 CHANNELS V / mA OUTPUT ON RS-485 NETWORK**

**OUTPUT**
- **Output type**
  - Min: 0 V
  - Max: +10 V
- **Voltage**
  - Current: mA 0 mA +20 mA
- **Output calibration**
  - Voltage: ±10 mV
  - Current: ±20 mA
- **Load Resistance**
  - Voltage: > 5 kΩ
  - Current: < 500 Ω

**APPLICATION AREAS**
- Food business
- Machine Industries
- Water treatment

---
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

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)
- DIRECTIVE 2004 / 108 / EC
- Immunity EN 61000-6-2
- Emission EN 61000-6-4

HOUISING
- 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
- Voltage
- Output calibration
- Load Resistance
- Thermal drift

Rise time
- Analog output Slew-rate
  (independent programation 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
**“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..

### INDEX

- **DAT 9000**
  - Intelligent unit with Ethernet interface
- **DAT 9000-DL**
  - Intelligent unit with Data-logger and Ethernet interface
- **DAT 9001O**
  - Intelligent unit with Ethernet Interface and digital I/O
- **DAT 9000-DL-IO**
  - Intelligent unit with Data-logger, Ethernet interface and digital I/O
- **DAT 9011**
  - Intelligent unit with Ethernet Interface and digital and analogue I/O
- **DAT 9011-DL**
  - Intelligent unit with Data-Logger function, Ethernet Interface and digital and analogue I/O
DAT9000 SERIES

DAT9000 Intelligent units
**INTELLIGENT UNIT WITH ETHERNET INTERFACE**

**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**
- N1 serial interface RS-485 Modbus RTU Master
- N1 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

**POWER SUPPLY**
10 ÷ 30 Vdc

**CURRENT CONSUMPTION**
45 mA typ. @ 24 Vdc (standby)

**ISOLATIONS**
- Power supply / Ethernet REMOV. screw terminals
- RS-485 Master / Slave Remov. screw terminals
- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- EMV (Industrial environments)
- DIRECTIVE 2004 /108 / EC
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- EMC compliance – CE mark
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all the ways
- Suitable for DIN rail mounting in compliance with EN-50022 standard

**CONNECTIONS**
- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- RS-485 Master / Slave Remov. screw terminals

**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.

**Power supply / RS485**
1500 Vac, 50 Hz, 1 min.

**TEMPERATURE & HUMIDITY**
- Operative temperature -20°C + +60°C
- Storage temperature -40°C + +85°C
- Relative humidity (not cond.) 0 ÷ 90 %

**APPLICATION AREAS**
Food business
Machine Industries
Water treatment
Food business
Machine Industries
Water treatment

---

**INTELLIGENT UNIT WITH DATA-LOGGER AND ETHERNET INTERFACE**

**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**
- N1 serial interface RS-485 Modbus RTU Master
- N1 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

**POWER SUPPLY**
10 ÷ 30 Vdc

**CURRENT CONSUMPTION**
45 mA typ. @ 24 Vdc (standby)

**ISOLATIONS**
- Power supply / Ethernet REMOV. screw terminals
- Power supply / RS485 1500 Vac, 50 Hz, 1 min.
- Ethernet / RS485
- RS-485 Master / Slave Remov. screw terminals
- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- EMV (Industrial environments)
- DIRECTIVE 2004 / 108 / EC
- Ethernet IEEE 802.3 EIA RS485 and RS232 compliance
- EMC compliance – CE mark
- LED signalling for Link/Act Ethernet, serial RX-TX, power supply
- Galvanic Isolation on all the ways
- Suitable for DIN rail mounting in compliance with EN-50022 standard

**CONNECTIONS**
- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- RS-485 Master / Slave Remov. screw terminals

**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.

**APPLICATION AREAS**
Food business
Machine Industries
Water treatment
Food business
Machine Industries
Water treatment

---

**MEMORY**
- Type MicroSD
- Memory size Up to 8 GB
- Format FAT16 or FAT32

**RJ-45 connector**
- 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...

---

**ELECTRICAL RATING**
- Voltage 1500 Vac, 50 Hz,
- Frequency 50 Hz.
- Current 80 mA max.

---

**DIMENSIONS**
- Dim. (mm) W x L x H: 120 x 100 x 22.5
- Weight About 160 g.

---

**MOUNTING**
- DIN Rail mounting in compliance with EN-50022 standard

---

**EMC**
- Emission EN 61000-6-4
- Immunity EN 61000-6-2
- DIRECTIVE 2004 / 108 / EC

---

**APPLICATIONS**
- Suitable for DIN rail mounting in compliance with EN-50022 standard

---

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

**Power Supply**

18 ÷ 30 Vdc

**Current Consumption**

45 mA typ. @ 24Vdc (standby)
100 mA max

**EMC (for industrial environments)**

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

**Directives 2004 / 108 / EC**

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

**Isolations**

- Power supply / Ethernet 1500 V, 50 Hz, 1 min.
- Power supply / RS-485 1000 V, 50 Hz, 1 min.
- Ethernet / RS-485 1000 V, 50 Hz, 1 min.
- Inputs / RS-485 2000 V, 50 Hz, 1 min.
- Inputs / Power supply 1000 V, 50 Hz, 1 min.

**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

**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 V, 50 Hz, 1 min.
- Dielectric strength between coil and contacts
  - 4000 V, 50 Hz, 1 min.

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

**Connections**

- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- RS-485 Master / Slave Remov. screw terminals

**Temperatures & Humidity**

- Operational temperature -20°C .. +60°C
- Storage temperature -40°C .. +85°C
- Relative humidity (not cond.) 0 .. 90%

**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.
**DAT 9000-DL-I0**

**GENERAL DESCRIPTION**

The device DAT9000-DL-I0 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

**POWER SUPPLY**

- 18 ÷ 30 Vdc

**CURRENT CONSUMPTION**

- 45 mA typ.@24Vdc (standby)
- 100 mA max

**EMC (for industrial environments)**

**DIRECTIVE 2004 / 108 / EC**

<table>
<thead>
<tr>
<th>Immunity</th>
<th>EN 61000-6-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission</td>
<td>EN 61000-6-4</td>
</tr>
</tbody>
</table>

**APPLICATION AREAS**

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

**DIGITAL INPUTS**

<table>
<thead>
<tr>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input voltage (bipolar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF state</td>
</tr>
<tr>
<td>ON state</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impedance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7 KΩ</td>
</tr>
</tbody>
</table>

**Network interface**

- Ethernet: 10Base-T
- Protocol: Modbus TCP
- RS485 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)

**Compatible SD card**

<table>
<thead>
<tr>
<th>Type</th>
<th>microSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory size</td>
<td>Up to 8 GB</td>
</tr>
<tr>
<td>Format</td>
<td>FAT16 or FAT32</td>
</tr>
</tbody>
</table>

**DIGITAL OUTPUTS**

<table>
<thead>
<tr>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT Relays</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Switching Power (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 A @ 250 Vac (resistive load) per contact</td>
</tr>
<tr>
<td>2 A @ 30 Vdc (resistive load) per contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum load</th>
</tr>
</thead>
<tbody>
<tr>
<td>5Vdc, 10mA</td>
</tr>
</tbody>
</table>

**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.

**TEMPERATURE & HUMIDITY**

- Operative temperature: -20°C .. +60°C
- Storage temperature: -40°C .. +85°C
- Relative humidity (not cond.): 0 .. 90 %

**HOUSING**

<table>
<thead>
<tr>
<th>Material</th>
<th>Self-extinguishing plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting</td>
<td>DIN rail</td>
</tr>
</tbody>
</table>

| Dimensions (mm) W x L x H: 120 x 100 x 22.5 |
| Weight | About 160 g. |

**CONNECTIONS**

- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- RS-485 Master / Slave Remov. screw terminals

**ISOLATIONS**

- Power supply / Ethernet: 1500 Vac, 50 Hz, 1 min.
- Power supply / RS485: 2000 Vac, 50 Hz, 1 min.

**DIGITAL INPUTS**

<table>
<thead>
<tr>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input voltage (bipolar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF state</td>
</tr>
<tr>
<td>ON state</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impedance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7 KΩ</td>
</tr>
</tbody>
</table>

**Network interface**

- Ethernet: 10Base-T
- Protocol: Modbus TCP
- RS485 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)

**Compatible SD card**

<table>
<thead>
<tr>
<th>Type</th>
<th>microSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory size</td>
<td>Up to 8 GB</td>
</tr>
<tr>
<td>Format</td>
<td>FAT16 or FAT32</td>
</tr>
</tbody>
</table>

**DIGITAL OUTPUTS**

<table>
<thead>
<tr>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT Relays</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Switching Power (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 A @ 250 Vac (resistive load) per contact</td>
</tr>
<tr>
<td>2 A @ 30 Vdc (resistive load) per contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum load</th>
</tr>
</thead>
<tbody>
<tr>
<td>5Vdc, 10mA</td>
</tr>
</tbody>
</table>

**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 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

**CONNECTIONS**

- Ethernet RJ-45 (on terminals side)
- RS-232D RJ-45 (on front side)
- RS-485 Master / Slave Outputs
- Screw terminals pitch 5.08mm
- Supply/Inputs/Analogue outputs
- Screw terminals pitch 3.81mm

**APPLICATION AREAS**

- 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.

**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

**EMC (for industrial environments)**

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

**ANALOGUE INPUTS**

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Calibration</th>
<th>Linearity</th>
<th>Thermal Drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>mV</td>
<td>-100 ÷ +100 mV</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>10 V</td>
<td>-10 ÷ +10 V</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>20 mA</td>
<td>-20 ÷ +20 mA</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>-200 ÷ +850 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Pt1K</td>
<td>-200 ÷ +200 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60 ÷ +180 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Ni1K</td>
<td>-60 ÷ +150 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Res</td>
<td>0 ÷ 2000 Ohm</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Pot</td>
<td>20 ÷ 50000 Ohm</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc J</td>
<td>-210 ÷ +1200 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc K</td>
<td>-210 ÷ +1370 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc R</td>
<td>-50 ÷ +1760 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc S</td>
<td>+400 ÷ +1825 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc B</td>
<td>-210 ÷ +1000 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc E</td>
<td>-210 ÷ +400 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>Tc N</td>
<td>-210 ÷ +1300 °C</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

**DIGITAL INPUTS**

- Channels 2
- Input voltage (bipolar)
  - OFF state : 0 ÷ 3 V
  - ON state : 10 ÷ 30 V
- Input impedance 4.7 KOhm
- N°2 Digital counter 32 bit (up to 300 Hz)

**ANALOGUE OUTPUTS (2 CHANNELS)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Calibration</th>
<th>Linearity</th>
<th>Thermal Drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA</td>
<td>4 ÷ +20 mA</td>
<td>±0.05 % f.s.</td>
<td>±0.05 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

**DIGITAL OUTPUTS**

- N°2 SPDT Relays
- Switching Power (resistive load)
  - 2 A @ 250 Vac (per contact)
  - 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)

**TEMPERATURE & HUMIDITY**

- Operative temperature -20°C .. +60°C
- Storage temperature -40°C .. +85°C
- Relative humidity (not cond.) 0 .. 90 %

**APPLICATION AREAS**

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

**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.

**:Isolations voltage (50 Hz, 1 min.)**

| Isolations voltage | 1500 Vac (on all the ways) |

**Sensor excitation current**

<table>
<thead>
<tr>
<th>Type</th>
<th>Calibration</th>
<th>Linearity</th>
<th>Thermal Drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD, Rel, Pot</td>
<td>±0.05 % f.s.</td>
<td>±0.1 % f.s.</td>
<td>100 ppm/°C</td>
</tr>
<tr>
<td>CJC comp.</td>
<td>±1 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample time</td>
<td>1 sec.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warm-up time  (TC,RTD)</td>
<td>3 min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Weight**

| Weight | About 190 g. |
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
- NTi serial interface RS-485 Modbus RTU Master
- NTi serial interface RS-485/232 Modbus RTU Slave
- NTi Slot for microSD card
- Interface Ethernet 10Base-T, Modbus TCP
- NTi universal analogue input + NTi current and voltage analogue input
- NT2 digital Inputs
- Auxiliary supply to power sensors on field
- NT2 passive 4-20 mA analogue outputs
- NT2 SPDT Relay Outputs

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

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

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 ÷ +850 °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., ±0.01 % 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 ±0.05 % 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 ÷ +600 °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

Input impedance
TC, mV > = 10 MΩ
Auxiliary voltage >14 V @ 20 mA
Line resistance influence
RTD 3 wires 0.05 %/Ω (50 Ω max)
< 0.8 uV/Ohm

DIGITAL INPUTS
Channels 2
Input voltage (bipolar) OFF state : 0÷3 V
ON state : 10÷30 V
Input impedance 4.7 KΩm
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
2 SPDT Relays
Switching Power (resistive load) 2 A @ 250 Vac (per contact)
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...

www.datexel.it
“DAT9000 SERIES” intelligent units

Application areas:
- Industries
- Board machine
- Energy
- Food business
- Water treatment

Industries

Board machine

Energy

Food business

Water treatment

www.datexel.it
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.

INDEX

74 • DAT 6011
  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 SERIES

A/D interface modules for PLC
A/D INTERFACE FOR PLC 2 INPUT CHANNELS FOR mV OR Tc

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 ± 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

INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>mV, Tc</td>
<td>± 1 MD</td>
</tr>
<tr>
<td>Thermal drift (1)</td>
<td>Full Scale</td>
<td>± 0.005 % / °C</td>
</tr>
<tr>
<td>Thermal drift CJC</td>
<td>Full Scale</td>
<td>± 0.02 % / °C</td>
</tr>
<tr>
<td>Line resistance influence</td>
<td>mV, Tc</td>
<td>&lt; 0.8 uV/Ohm</td>
</tr>
</tbody>
</table>

DIGITAL INTERFACE
Voltage on terminals
ON state
Input impedance
(ENABLE, CLK) 4.7 KOhm
Minimum output load
(DATA) 560 Ohm

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.

A/D INTERFACE FOR PLC 2 INPUT CHANNELS FOR RTD, Res

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

INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD</td>
<td>± 0.05 % / °C</td>
<td></td>
</tr>
<tr>
<td>Ni100</td>
<td>&lt; 0.05%/Ohm</td>
<td></td>
</tr>
<tr>
<td>Ni1000</td>
<td>&lt; 0.05%/Ohm</td>
<td></td>
</tr>
<tr>
<td>Potentiometer</td>
<td>± 0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Input channels</td>
<td>± 0.2 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Input calibration (1)</td>
<td>± 0.05% f.s.</td>
<td></td>
</tr>
</tbody>
</table>

DIGITAL INTERFACE
Voltage on terminals
ON state
Input impedance
(ENABLE, CLK) 4.7 KOhm
Minimum output load
(DATA) 560 Ohm

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

www.datexel.it
### A/D INTERFACE FOR PLC 2 INPUT CHANNELS FOR V, mA

**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 ± 10 V and ± 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

### 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
- Power supply– PLC 50 Hz, 1 min.

### 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

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>-10 V</td>
<td>+10 V</td>
</tr>
<tr>
<td>Current</td>
<td>-20 mA</td>
<td>+20 mA</td>
</tr>
<tr>
<td>Input channels</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Input calibration (1)</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity (1)</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Input impedance</td>
<td>V</td>
<td>&gt;= 100 kΩ</td>
</tr>
<tr>
<td></td>
<td>mA</td>
<td>&lt;= 50 Ω</td>
</tr>
<tr>
<td>Thermal drift (1)</td>
<td>Full Scale</td>
<td>± 0.005 % / °C</td>
</tr>
</tbody>
</table>

### DIGITAL INTERFACE
- Voltage on terminals typical 24 Vdc (30 Vdc max.)
- ON state >9 Vdc
- Input impedance (ENABLE, CLK) 4.7 KΩhm
- Minimum output load (DATA) 560 Ohm (2)
- Max. frequency Clock signal 500 Hz
- Rise / Fall time (Tf) < 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

**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 ± 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

### 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
- Power supply– PLC 50 Hz, 1 min.

### 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

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>-50 mV</td>
<td>+50 mV</td>
</tr>
<tr>
<td>100 mV</td>
<td>-100 mV</td>
<td>+100 mV</td>
</tr>
<tr>
<td>500 mV</td>
<td>-500 mV</td>
<td>+500 mV</td>
</tr>
<tr>
<td>1000 mV</td>
<td>-1000 mV</td>
<td>+1000 mV</td>
</tr>
<tr>
<td>Thermocouple</td>
<td>J</td>
<td>-210 °C ... +1200 °C</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>-210 °C ... +1372 °C</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>-50 °C ... +1767 °C</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>-50 °C ... +1767 °C</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>-210 °C ... +1825 °C</td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>-210 °C ... +1825 °C</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>-210 °C ... +1825 °C</td>
</tr>
<tr>
<td>Input channels</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Input calibration (1)</td>
<td>±0.05 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity (1)</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tc</td>
<td>± 0.2 % f.s.</td>
</tr>
<tr>
<td></td>
<td>Cold junction compensation</td>
<td>± 0.5 °C</td>
</tr>
</tbody>
</table>

### DIGITAL INTERFACE
- Voltage on terminals typical 24 Vdc (30 Vdc max.)
- ON state >9 Vdc
- Input impedance (ENABLE, CLK) 4.7 KΩhm
- Minimum output load (DATA) 560 Ohm (2)
- Max. frequency Clock signal 500 Hz
- Rise / Fall time (Tf) < 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 +/- 20 mA

**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 ± 20 mA

**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.

**INPUT**

```
<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>-20 mA</td>
<td>+20 mA</td>
</tr>
<tr>
<td>mA</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
</tbody>
</table>
```

**DIGITAL INTERFACE**

```
<table>
<thead>
<tr>
<th>Voltage on terminals</th>
<th>typical 24 Vdc (30 Vdc max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input impedance</td>
<td>(ENABLE, CLK)</td>
</tr>
<tr>
<td>Minimum output load</td>
<td>(DATA)</td>
</tr>
<tr>
<td>Max. frequency</td>
<td>Clock signal</td>
</tr>
<tr>
<td>Rise / Fall time</td>
<td>(Tr)</td>
</tr>
</tbody>
</table>
```

(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

**ISOLATION VOLTAGE**

```
INPUT – PLC
Power supply – INPUT 2000 Vac
Power supply – PLC 50 Hz, 1 min.
```

**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
```

**POWER SUPPLY**

```
Power supply voltage 18 .. 30 Vdc
Current consumption 30 mA @ 24 Vdc
Rever. polarity protection 60 Vdc max
```

**HOUSING**

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

---

A/D INTERFACE FOR PLC 4 INPUT CHANNELS FOR +/- 10V

**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 ± 10 V

**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.

**INPUT**

```
<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>-10 V</td>
<td>+10 V</td>
</tr>
<tr>
<td>mA</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>±0.1 % f.s.</td>
<td></td>
</tr>
</tbody>
</table>
```

**DIGITAL INTERFACE**

```
<table>
<thead>
<tr>
<th>Voltage on terminals</th>
<th>typical 24 Vdc (30 Vdc max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input impedance</td>
<td>(ENABLE, CLK)</td>
</tr>
<tr>
<td>Minimum output load</td>
<td>(DATA)</td>
</tr>
<tr>
<td>Max. frequency</td>
<td>Clock signal</td>
</tr>
<tr>
<td>Rise / Fall time</td>
<td>(Tr)</td>
</tr>
</tbody>
</table>
```

(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

**ISOLATION VOLTAGE**

```
INPUT – PLC
Power supply – INPUT 2000 Vac
Power supply – PLC 50 Hz, 1 min.
```

**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
```

**POWER SUPPLY**

```
Power supply voltage 18 .. 30 Vdc
Current consumption 30 mA @ 24 Vdc
Rever. polarity protection 60 Vdc max
```

**HOUSING**

```
Material Self-extinguishing plastic
Dim. (mm) W x L x H : 90 x 112 x 12.5
Weight  about 90 g.
```
“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 accordance to the DIRECTIVE ATEX 94/9/EC. (see p. 24 to 26).
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)

POWER SUPPLY

<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>10 .. 32Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse polarity protection</td>
<td>60 Vdc max</td>
</tr>
</tbody>
</table>

TEMPERATURE & HUMIDITY

<table>
<thead>
<tr>
<th>Operative temperature</th>
<th>-40°C .. +85°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature</td>
<td>-40°C .. +85°C</td>
</tr>
<tr>
<td>Humidity (not condensed)</td>
<td>0 .. 90 %</td>
</tr>
</tbody>
</table>

EMC (for industrial environments)

DIRECTIVE 2004/108/EC

<table>
<thead>
<tr>
<th>Immunity</th>
<th>EN 61000-6-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission</td>
<td>EN 61000-6-4</td>
</tr>
</tbody>
</table>

HOUSING

<table>
<thead>
<tr>
<th>Material</th>
<th>PC + ABS V0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting</td>
<td>DIN B head or bigger</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>Ø= 43 mm ; H = 24 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>about 50 g.</td>
</tr>
</tbody>
</table>

INPUT

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD 2,3,4 wires</td>
<td>-200°C</td>
<td>850°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>200°C</td>
<td>400°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>240°C</td>
</tr>
<tr>
<td>Voltage</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal value</td>
<td>0 Ω 200 Ω 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 Ω 500 Ω 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.5 KΩ 2 KΩ 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES. 2,3,4 wires</td>
<td>Low</td>
<td>0 Ω 300 Ω 10 Ω</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>0 Ω 2000 Ω 200 Ω</td>
<td></td>
</tr>
</tbody>
</table>

Input calibration

| 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 |

Input impedance

| mV | >= 10 MΩ |

Linearity (1)

| RTD | ± 0.1 % f.s |

OUTPUT

| Direct current | 4 mA | 20 mA | 4 mA |
| Reverse current | 20 mA | 4 mA | 4 mA |

Output calibration

| Current | ± 7 uA |

Application areas

www.datexel.it
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)

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
---|---|---|---
TC CJC int./ext. | -200°C | 1200°C | 2 mV
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 | 0 Ω | 200 Ω | 10%
---|---|---|---
| 200 Ω | 500 Ω | 10%
| 0.5 KΩ | 2 KΩ | 10%

Potentiometer (Nominal value)
Resistance 2,3,4 wires
Low | 0 Ω | 300 Ω | 10 Ω
High | 0 Ω | 2000 Ω | 200 Ω

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 °C
Res. High the higher of ±0.2 % f.s. or ±1 °C
mV, TC the higher of ±0.1 % f.s. or ±18 uV

OUTPUT
Direct current 4 mA 20 mA 4 mA
Reverse current 20 mA 4 mA 4 mA

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

Application areas
Industry Energy Food Business Board Machine Industries Water Treatment
**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)

**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.

**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.

**APPLICATION AREAS**
- Energy
- Food business
- Board machine
- Industries
- Water treatment

**POWER SUPPLY**

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD 2,3,4 wires</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>850°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Pt1000</td>
<td>-200°C</td>
<td>200°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Voltage</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mV</td>
<td>-100mV</td>
<td>+700mV</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

**ON-BOARD RESISTANCE INFLUENCE (1)**

<table>
<thead>
<tr>
<th>mV</th>
<th>&lt;=0.8 uV/Ohm</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD 3 wires</td>
<td>0.05 %/Ω (50 Ω balanced max.)</td>
</tr>
<tr>
<td>RTD 4 wires</td>
<td>0.005 %/Ω (100 Ω balanced max.)</td>
</tr>
</tbody>
</table>

**RTDexcitation current**
- Typical: 0.350 mA
- Full scale: ± 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

**Output calibration**
- Current: ± 7 uA

**Input calibration (1)**

| Low               | 0 Ω   | 300 Ω | 10 Ω |
| High              | 0 Ω   | 2000 Ω| 200 Ω |

**Input impedance**

| mΩ                | >= 10 MΩ |

**Linearity (1)**

| RTD               | ± 0.1 % f.s |
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

INPUT
- 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)

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.

RTD 2,3,4 wires

<table>
<thead>
<tr>
<th>Type</th>
<th>Min</th>
<th>Max</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>850°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Pt1000</td>
<td>-200°C</td>
<td>200°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
<td>50°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
<td>50°C</td>
</tr>
</tbody>
</table>

Voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>Min</th>
<th>Max</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>mV</td>
<td>-100 mV</td>
<td>+700 mV</td>
<td>2 mV</td>
</tr>
</tbody>
</table>

Potentiometer (Nominal value)

<table>
<thead>
<tr>
<th>Value</th>
<th>0 Ω</th>
<th>200 Ω</th>
<th>500 Ω</th>
<th>0.5 KΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>

Resistance 2,3,4 wires

<table>
<thead>
<tr>
<th>Type</th>
<th>Min</th>
<th>Max</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0 Ω</td>
<td>330 Ω</td>
<td>10 Ω</td>
</tr>
<tr>
<td>High</td>
<td>0 Ω</td>
<td>2000 Ω</td>
<td>200 Ω</td>
</tr>
</tbody>
</table>

OUTPUT

<table>
<thead>
<tr>
<th>Type</th>
<th>Min</th>
<th>Max</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct current</td>
<td>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
<tr>
<td>Reverse current</td>
<td>20 mA</td>
<td>4 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

Output calibration
- ± 7 uA

(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).

INDEX

86 • DAT 9550
Remote Graphic Display on RS-485 with Modbus RTU protocol

   • DAT 8050
Loop powered 4 digit LED programmable digital indicator

87 • DAT 701
3.5 digit LED digital indicator

   • DAT 702
3.5 digit LCD digital indicator

88 • DAT 733
3.5 digit LCD digital indicator

   • DAT 734
3.5 digit LCD or LED display digital thermometer for Pt100

89 • DAT 735
3.5 digit LCD or LED display digital thermometer for Thermocouple
DAT9550
DAT8050
DAT700 SERIES
Digital indicators for panel mounting
REMOTE GRAPHIC DISPLAY ON RS-485 WITH MODBUS RTU PROTOCOL

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

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
- 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

LOOP POWERED 4 DIGIT LED PROGRAMMABLE DIGITAL INDICATOR

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 visualization 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

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 visualization 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

INPUT
- Input signal
- Voltage drop-out
- Limitation current

DISPLAY
- Type of visualization
- Digit height
- Range of visualization (*)
- Minimum measurable current
- Maximum measurable current

CHARACTERISTICS AND PERFORMANCES
- Reading accuracy
- Resolution
- Response time
- Thermal drift

(*)= default visualization : 4.00 ÷ 20.00
ACCESSORIES AND SOFTWARE

**Power Supply:**
- Power Supply MEANWELL MDR-series

**Accessories / Software:**
All of the DATEXEL devices configurable by PC need, for their configuration, 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**

INDEX

92 • **MDR 20-12 / MDR 40-12 / MDR 60-12 / MDR 100-12**
Power Supply DIN rail

93 • **MDR 20-24 / MDR 40-24 / MDR 60-24 / MDR 100-24**
Power Supply DIN rail

94 • **SOFTWARE**

**PRODAT USB**
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
Power Supply MEANWELL. Devices and software with interface between devices and PC.
DIN RAIL POWER SUPPLY

MDR-60-12

<table>
<thead>
<tr>
<th>INPUT</th>
<th>85...264 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>12 VDC @ 5 A</td>
</tr>
</tbody>
</table>

MDR-20-12

<table>
<thead>
<tr>
<th>INPUT</th>
<th>85...264 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>12 VDC @ 1.67 A</td>
</tr>
</tbody>
</table>

MDR-100-12

<table>
<thead>
<tr>
<th>INPUT</th>
<th>85...264 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>12 VDC @ 7.5 A</td>
</tr>
</tbody>
</table>

MDR-40-12

<table>
<thead>
<tr>
<th>INPUT</th>
<th>85...264 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>12 VDC @ 3.33 A</td>
</tr>
</tbody>
</table>

Application areas

Other devices are available on request. For more technical information log on to the website: www.meanwell.com
DIN RAIL POWER SUPPLY

**MDR-60-24**

- **Input**: 85...264 VAC, 120...370 VDC
- **Output**: 24 VDC @ 2.5 A

**MDR-20-24**

- **Input**: 85...264 VAC, 120...370 VDC
- **Output**: 24 VDC @ 1 A

**MDR-100-24**

- **Input**: 85...264 VAC, 120...370 VDC
- **Output**: 24 VDC @ 4 A

**MDR-40-24**

- **Input**: 85...264 VAC, 120...370 VDC
- **Output**: 24 VDC @ 1.7 A

**Application areas**

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

Other devices are available on request. For more technical information log on to the website: 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**

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

---

**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**

- Available Hard Disk space: 2 MB

**Application areas**

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

---

**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**

- Available Hard Disk space: 2 MB

**Application areas**

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

---

**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**

- Energy
- Food business
- Board machine
- Industries
- Water treatment
**General conditions**
The sale of the products described, in this catalog, is in compliance with the requirements listed below that are considered in force after formal order will be accepted only if received by us in writing. These terms and conditions of sale (including any type of written specification, quotation and / or additional terms and conditions) will determine only the sale of all goods and services (including, without limitation, hardware, software and accessories in the Catalog and described in the proper price list). The receipt or acceptance of delivery by the buyer of any product ordered or purchased will constitute your acceptance of these terms and conditions.

**Minimum billable amount**
The minimum billable amount for each order is € 150.00. For orders less than this amount, for orders more than one device for which the total amount does not exceed the minimum billable (€ 150.00) will be required to pay on delivery or bank transfer at ready goods.

**Payment terms**
All payments must be made with a bank document. At the first delivery cash payment or bank transfer is required. Unless otherwise agreed, payment standards are provided within 30 calendar days from date of invoice. In case of late or missed payment, the company DATEXEL act in accordance with the provisions of Legislative Decree n. 231 October 9, 2002 as required by Directive 2000/35/EC.

**Prices**
All prices quoted in the catalog list are exclusive of VAT Ex-works our factory Work Tradate (VA).

**Guarantee**
All products are guaranteed against defects and manufacturing faults under current law. We don’t accept returns for repair or replacement under warranty even if not previously authorized. The transportation costs of any product returned for repair or replacement even if under warranty are responsibility of the buyer. Will not be accepted unless agreed in advance, collect shipments (if received materials c / repair or replace, under warranty, shipped freight collect, the same will be rejected). The guarantee of all material we produce is valid for a period of 24 months from date of shipment. All work done under warranty will be ex works DATEXEL (VA). All repaired or replaced products are covered for the remaining period by the remaining term of the original warranty. Are not covered, by warranty products or components subject to wear.

**Repairs**
Unless otherwise specified, the return devices shall be subject to repair. In advance DATEXEL will provide, to the customer, by fax or e-mail, a document that will be described the type of fault / anomaly. This document, once completed, will be returned to DATEXEL that examined the content, will grant the authorization to return by providing all necessary information regarding the individual appearing on the shipping document and the method of delivery. It will care by DATEXEL, than, to inform the internal staff responsible for return acceptance. Upon receipt of the goods, authorized personnel will verify that the same is accompanied by the documents agreed during a return authorization and will repair or replace the defective product. If the goods were not accompanied by the documents mentioned above can be made to the sender rejected. Will not be repaired under warranty all products received outside the period of 24 months from the delivery date and all products that are damaged due to misuse or failure to comply with the conditions of use indicated on identification labels and related technical data sheets.

**Order cancellation**
Any cancellation of an order, by the customer, before the shipment must be notified in writing, by fax or e-mail. It will be discretion of the DATEXEL staff whether to accept or reject such request. DATEXEL also has the right to cancel an order for right cause at any time upon written notice.
GENERAL CONDITIONS OF SALE

Claims and liability limitation
Any complaints must be received from DATEXEL within 8 days of receipt of goods. To the fullest extent permitted by applicable law, DATEXEL will not be responsible for disruption or loss of profits, revenues, materials or any form of liability for incidental, indirect or consequential damages of any kind arising from the misuse of its products.

Force majeure
DATEXEL will not be responsible for any loss, damage or delays due to causes beyond its reasonable control, including, without limitation, acts of God, causes or omissions attributable to the buyer, causes of civil or military authority, fires, strikes, floods, epidemics, quarantine restrictions, wars, riots, acts of terrorism, delays in transportation or transportation embargoes.

Changes or order replacement
All requested changes of order, including those relating to the type, scope and delivery of products, must be documented in writing and are subject to prior approval and price adjustment, programming and other relevant terms and conditions by DATEXEL, which, however reserves the right to reject any change that is deemed unsafe, technically inadvisable or inconsistent with the established technical, or quality, standard criteria, or is not compatible with their ability to design or production. DATEXEL also reserves the right to make substitutions using the latest version or set of replacement or an equivalent product that has the comparable shape, size and functions.

Responsibility
DATEXEL will not be responsible for problems, breakages, accidents due to lack of knowledge or lack of compliance with the requirements indicated on products for its use or on technical Data Sheets. DATEXEL is also not responsible for problems caused by not authorized changes made on their products. DATEXEL reserves the right to make changes to its products without obligation to promptly update their technical documentation.

Technical data
The technical data in this catalog are provided only as a guideline for compatibility verification with the application of the product’s user and does not constitute a functional guarantee or performance of any kind.

DATEXEL
Reserves the right to modify or change the content of this publication without notice at any time.