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.
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 accordance to the Directive ATEX 94/9/EC
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035

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

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

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

EX DATA
Output /supply Input
Ui = 30 V Uo = 6.2 V
li = 100 mA Io = 100 mA
Pi = 0.75 W Po = 500 mW
Li = 0.1 mH Lo = 3.6 mH
Ci = 10 nF Co = 5 uF

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

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

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

APPLICATION
Application areas
Power supply voltage 11 .. 30 Vdc
Reverse polarity protection 60 Vdc max.

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

INPUT
Input type Min Max Span min
TC CJC int./ext. J -200°C 1200°C 2 mV
K -200°C 1370°C 2 mV
S -50°C 1760°C 2 mV
R -50°C 1760°C 2 mV
B 400°C 1820°C 2 mV
E -200°C 1000°C 2 mV
T -200°C 400°C 2 mV
N -200°C 1300°C 2 mV

RTD 2,3,4 wires
Pt100 -200°C 850°C 50°C
Pt1000 -200°C 200°C 50°C
Ni100 -60°C 180°C 50°C
Ni1000 -60°C 150°C 50°C

Voltage
mV -100 mV +700 mV 2 mV
Potentiometer (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 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

EX DATA
Output /supply Input
Ui = 30 V Uo = 6.2 V
li = 100 mA Io = 100 mA
Pi = 0.75 W Po = 500 mW
Li = 0.1 mH Lo = 3.6 mH
Ci = 10 nF Co = 5 uF

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

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

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

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

INPUT
Input type Min Max Span min
TC CJC int./ext.
J -200°C 1200°C 2 mV
K -200°C 1270°C 2 mV
S -50°C 1760°C 2 mV
R -50°C 1760°C 2 mV
B 400°C 1820°C 2 mV
E -200°C 1000°C 2 mV
T -200°C 400°C 2 mV
N -200°C 1300°C 2 mV
RTD 2,3,4 wires
Pt100 -200°C 850°C 50°C
Pt1000 -200°C 200°C 50°C
Ni100 -60°C 180°C 50°C
Ni1000 -60°C 150°C 50°C
Voltage mV -100 mV +700 mV 2 mV
Potentiometer (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 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 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

**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**
- n° 2 Relays SPDT

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

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

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

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

**REM.**

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

**INPUT**

<table>
<thead>
<tr>
<th>TC CJC int./ext.</th>
<th>Min</th>
<th>Max</th>
<th>Span min</th>
</tr>
</thead>
<tbody>
<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>E</td>
<td>400°C</td>
<td>1820°C</td>
<td>2 mV</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>1000°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
- 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 °C
- Res. High: the higher of ±0.2 % f.s. and ±1 °C
- mV, TC: the higher of ±0.1 % f.s. and ±10 mV
- V: the higher of ±0.2 % f.s. and ±2 Ω
- mA: the higher of ±0.1 % f.s. and ±6 uV

**OUTPUT**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>0 V</th>
<th>10 V</th>
<th>1 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

**Output calibration**
- Current: ± 7 uA
- Voltage: ± 10 mV

**Output Rload resistance**
- Current: < 650 Ω
- Voltage: > 4.7 KΩ

**Temperatures & Humidity**

- Immunity EN 61000-6-2
- Emission EN 61000-6-4
DAT 5030 IS

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

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

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

Available in 4 different versions:
- DAT5030 IS A Single channel
- DAT5030 IS B Double channel
- DAT5030 IS AH Single channel HART compatible
- DAT5030 IS BH Double channel HART compatible

POWER SUPPLY
<table>
<thead>
<tr>
<th>Power supply voltage</th>
<th>20 ÷ 30 Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption</td>
<td>80 mA per channel with Vaux operating</td>
</tr>
<tr>
<td>Reverse polarity protection</td>
<td>60 Vdc max.</td>
</tr>
</tbody>
</table>

TEMPERATURE & HUMIDITY
| Operating temperature | -20°C .. +60°C |
| Storage temperature   | -40 ÷ + 85 °C |
| Relative humidity     | 0 .. 90 % |

<table>
<thead>
<tr>
<th>EMC (for industrial environments)</th>
<th>DIRECTIVE 2004/108/EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunity</td>
<td>EN 61000-6-2</td>
</tr>
<tr>
<td>Emission</td>
<td>EN 61000-6-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOUSING</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Self-extinguish plastic</td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN Rail</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>120 x 100 x 22.5</td>
</tr>
<tr>
<td>Single CH</td>
<td>about 100 g.</td>
</tr>
<tr>
<td>Double CH</td>
<td>about 160 g.</td>
</tr>
</tbody>
</table>

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 linearity error.

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

SMART ATEX SERIES
EnergyIndustries
Water treatment
petrochemical offshore
Application areas
TEMPERATURE & HUMIDITY
Operating temperature  -20°C .. +60°C
Storage temperature -40 ÷ 85 °C
Relative 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-extinguish plastic
Mounting DIN Rail
Dimensions (mm) 120 x 100 x 22.5
WEIGHT
Single CH about 100 g.
Double CH about 160 g.

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

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

(*) = inclusive of hysteresis, power supply variation and linearity 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 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
-20°C .. +85°C (vers. ‘HT’)
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

INPUT
Input type Min Max Span min
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
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
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

EX DATA
Output /supply Input
Ui = 30 V Uo = 6.2 V
li = 100 mA Io = 100 mA
Pi = 0.75 W Po = 500 mW
Li = 0.1 mH Lo = 3.6 mH
Ci = 10 nF Co = 5 uF
T6 : -20 ÷ +55°C
T5 : -20 ÷ +70°C
T4 : -20 ÷ +85°C (vers. ‘HT’)

APPLICATION AREAS
Energy Industries
Water treatment
petrochemical offshore

EX DATA
Output /supply Input
Ui = 30 V Uo = 6.2 V
li = 100 mA Io = 100 mA
Pi = 0.75 W Po = 500 mW
Li = 0.1 mH Lo = 3.6 mH
Ci = 10 nF Co = 5 uF
T6 : -20 ÷ +55°C
T5 : -20 ÷ +70°C
T4 : -20 ÷ +85°C (vers. ‘HT’)

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### 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

- **Power supply voltage**: 11 .. 30 Vdc
- **Reverse polarity protection**: 60 Vdc max.

### EMC (for industrial environments)

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

### Directive 2004/108/EC

- **Material**: Self-extinguishing plastic
- **Dimensions**: Ø = 43 mm ; H = 24 mm
- **Weight**: about 50 g.
- **Mounting**: DIN B head or bigger

### Input Calibration (1)

- **RTD 2, 3, 4 wires**
  - **Pt100**: Min: -200°C, Max: 850°C, Span: 50°C
  - **Ni100**: Min: -60°C, Max: 180°C, Span: 50°C
  - **Ni1000**: Min: -60°C, Max: 150°C, Span: 50°C
- **Voltage**
  - Min: -100 mV, Max: +700 mV, Span: 2 mV
- **Potentiometer (Nominal value)**
  - 0 Ω, 200 Ω, 500 Ω, 0.5 KΩ, 2 KΩ
- **Resistance**
  - Low: 0 Ω, 300 Ω, 10 Ω
  - High: 0 Ω, 2000 Ω, 200 Ω
- **mV, TC**
  - the higher of ±0.1 % ± 0.2 °C
- **Response time (10÷90% of f.s.)**
  - about 400 ms

### Output Calibration

- **Current**: ± 7 uA

### Table: Temperature & Humidity

<table>
<thead>
<tr>
<th>Temperature &amp; Humidity</th>
<th>Operative temperature</th>
<th>Storage temperature</th>
<th>Humidity (not condensed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20°C .. +70°C</td>
<td>-40°C .. +85°C</td>
<td>0 .. 90 %</td>
<td></td>
</tr>
</tbody>
</table>

### Table: Power Supply

<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>-100 mV</td>
<td>+700 mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>0 Ω</td>
<td>200 Ω</td>
<td>10%</td>
</tr>
<tr>
<td>Resistance</td>
<td>200 Ω</td>
<td>500 Ω</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>0.5 KΩ</td>
<td>2 KΩ</td>
<td>10%</td>
</tr>
</tbody>
</table>

### Table: Linearity (1)

<table>
<thead>
<tr>
<th>Linearity (1)</th>
<th>TC, mV</th>
<th>± 0.2 % f.s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD</td>
<td>± 0.1 % f.s.</td>
<td></td>
</tr>
</tbody>
</table>

### Table: Line Resistance Influence

<table>
<thead>
<tr>
<th>Line resistance influence</th>
<th>TC, mV</th>
<th>±0.8 uV/Ohm</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD 3-wires</td>
<td>±0.05 %/Ω (50 Ω balanced max.)</td>
<td></td>
</tr>
<tr>
<td>RTD 4-wires</td>
<td>±0.005 %/Ω (100 Ω balanced max.)</td>
<td></td>
</tr>
</tbody>
</table>

### Table: RTD Excitation Current

<table>
<thead>
<tr>
<th>RTD excitation current</th>
<th>Typical</th>
<th>0.350 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJC comp.</td>
<td>± 0.5 °C</td>
<td></td>
</tr>
</tbody>
</table>

### Table: Thermal Drift (1)

<table>
<thead>
<tr>
<th>Thermal drift (1)</th>
<th>Full scale ± 0.01 % / °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJC</td>
<td>± 0.01 % / °C</td>
</tr>
</tbody>
</table>

### Table: Burn-out Values

<table>
<thead>
<tr>
<th>Burn-out values</th>
<th>Max. output value</th>
<th>about 22.5 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. output value</td>
<td>about 3.6 mA</td>
<td></td>
</tr>
</tbody>
</table>

### Table: Response Time (10÷90% of f.s.)

<table>
<thead>
<tr>
<th>Response time (10÷90% of f.s.)</th>
<th>about 400 ms</th>
</tr>
</thead>
</table>

### 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>
<tr>
<td>Output calibration</td>
<td>Current</td>
<td>± 7 uA</td>
<td></td>
</tr>
</tbody>
</table>
DAT 1065 IS
DAT 1065 IS/HT

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

FEATURES
- Configurable input for RTD, mV, TC, Resistance and Potentiometer
- High accuracy
- Configurable by Personal Computer
- 4 ÷ 20 mA configurable output on current loop
- Galvanic isolation at 2000 Vac
- On-field reconfigurable
- Applicable in zones with explosion risk (ZONE 0)
- Programming of the unit measure as °C or °F
- EMC compliant – CE mark
- PROTECTION MODE: II 1 G Ex ia IIC certified in acc. 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 Vac 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
- SMART ATEX SERIES

HOUSING
- Material Self-extinguishing plastic
- Mounting DIN B head or bigger
- Dimensions (mm) Ø = 43 mm ; H = 24 mm
- Weight about 90 g.

EX DATA
- Output /supply Input
  - Ui = 30 V Uo = 6.2 V
  - li = 100 mA lo = 100 mA
  - Pi = 0.75 W Po = 500 mW
  - Li = 0.1 mH Lo = 3.6 mH
  - Ci = 10 nF Co = 5 uF

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

APPLICATION AREAS
- Energy Industries
- Water treatment
- Petrochemical offshore

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 -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

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
- Output type
  - Direct current 4 mA 20 mA 4 mA
  - Reverse current 20 mA 4 mA

Output calibration
- Current ± 7 uA

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