ELECTRONIC AND CONTROL PROCESS DEVICES

DATEXEL

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

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

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

# INDEX

# 04

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

## DIP SWITCH CONFIGURABLE TRANSMITTER FOR PT100

### DAT 2065

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

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

**Application areas**


| POWER SUPPLY | |
|---|---|
| Power supply voltage | 10 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max |
| **TEMPERATURE & HUMIDITY** | |
| Operative temperature | -20°C .. +70°C |
| Storage temperature | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 % |
| **EMC** (for industrial environments) | |
| **DIRECTIVE 2004 / 108 / EC** | |
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |
| **HOUSING** | |
| Material | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight | about 80 g. |

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

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Direct current | 4 mA | 20 mA | - |
| **Min. input value programmability** | | | |
| Programmable | | -50 ÷ 50 °C | |
| **Input Calibration** (1) | | | |
| the higher of ± 0.1 % f.s. and 0.2 °C | | | |
| **RTD sensor excitation current** | | | |
| Typ. | | 0.6 mA | |
| **Thermal drift** (1) | | | |
| Full Scale | | ± 0.02 % / °C | |

| **Linearity error** (*) | |
|---|---|
| ± 0.15 % of f.s. | |
| **Burn-out values** | |
| Max. value output | >20 mA |
| **Line resistance influence** (1) | |
| 0.05 % f.s. / Ω (100 Ω max balanced for wire) | |
| **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 linearisation error.

## DOUBLE CHANNEL DIP SWITCH CONFIGURABLE TRANSMITTER FOR PT100

### DAT 2066

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

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

**Application areas**


| POWER SUPPLY | |
|---|---|
| Power supply voltage | 10 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max |
| **TEMPERATURE & HUMIDITY** | |
| Operative temperature | -20°C .. +70°C |
| Storage temperature | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 % |
| **EMC** (for industrial environments) | |
| **DIRECTIVE 2004 / 108 / EC** | |
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |
| **HOUSING** | |
| Material | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight | about 80 g. |

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

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Direct current | 4 mA | 20 mA | - |
| **Min. input value programmability** | | | |
| Programmable | | -50 ÷ 50 °C | |
| **Input Calibration** (1) | | | |
| the higher of ± 0.1 % f.s. and 0.2 °C | | | |
| **RTD sensor excitation current** | | | |
| Typ. | | 0.6 mA | |
| **Thermal drift** (1) | | | |
| Full Scale | | ± 0.02 % / °C | |

| **Linearity error** (*) | |
|---|---|
| ± 0.15 % of f.s. | |
| **Burn-out values** | |
| Max. value output | >20 mA |
| **Line resistance influence** (1) | |
| 0.05 % f.s. / Ω (100 Ω max balanced for wire) | |
| **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 linearisation error.

## DIP SWITCH CONFIGURABLE CONVERTER FOR PT100

**DAT 2165**

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**: Industries, Board machine, Energy, Food business, Water treatment

| POWER SUPPLY | |
|---|---|
| Power supply voltage | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max |
| **CURRENT CONSUMPTION** | |
| Current output | 40 mA max. |
| Voltage output | 10 mA max. |
| **TEMPERATURE & HUMIDITY** | |
| Operative temperature | -20°C .. +70°C |
| Storage temperature | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 % |
| **EMC** (for industrial environments) | |
| **DIRECTIVE 2004 / 108 / EC** | |
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |
| **HOUSING** | |
| Material | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight | about 80 g. |

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

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Direct current | 0 mA | 20 mA | - |
| Direct Voltage | 0 V | 10 V | - |
| **Min. input value programmability** | | | |
| Programmable | | -50 ÷ 50 °C | |
| **Input Calibration** (1) | | | |
| the higher of ± 0.1 % f.s. and 0.2 °C | | | |
| **RTD sensor excitation current** | | | |
| Typ. | | 0.6 mA | |
| **Thermal drift** (1) | | | |
| Full Scale | | ± 0.02 % / °C | |

| **Linearity error** (*) | |
|---|---|
| ± 0.15 % of f.s. | |
| **Burn-out values** | |
| Max. value output | >20 mA or > 10 Vdc |
| **Line resistance influence** (1) | |
| 0.05 % f.s. / Ω (100 Ω max balanced for wire) | |
| **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 linearisation error.



## DOUBLE CHANNEL DIP SWITCH CONFIGURABLE CONVERTER FOR PT100

**DAT 2166**

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**: Industries, Board machine, Energy, Food business, Water treatment

| POWER SUPPLY | |
|---|---|
| Power supply voltage | 18 .. 30 Vdc |
| Rever. polarity protection | 60 Vdc max |
| **CURRENT CONSUMPTION (for each channel)** | |
| Current output | 40 mA max. |
| Voltage output | 15 mA max. |
| **TEMPERATURE & HUMIDITY** | |
| Operative temperature | -20°C .. +70°C |
| Storage temperature | -40°C .. +85°C |
| Humidity (not condensed) | 0 .. 90 % |
| **EMC** (for industrial environments) | |
| **DIRECTIVE 2004 / 108 / EC** | |
| Immunity | EN 61000-6-2 |
| Emission | EN 61000-6-4 |
| **HOUSING** | |
| Material | Self-extinguishing plastic |
| Dim. (mm) | W x L x H : 90 x 112 x 12.5 |
| Weight | about 80 g. |

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

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Direct current | 0 mA | 20 mA | - |
| Direct Voltage | 0 V | 10 V | - |
| **Min. input value programmability** | | | |
| Programmable | | -50 ÷ 50 °C | |
| **Input Calibration** (1) | | | |
| the higher of ± 0.1 % f.s. and 0.2 °C | | | |
| **RTD sensor excitation current** | | | |
| Typ. | | 0.6 mA | |
| **Thermal drift** (1) | | | |
| Full Scale | | ± 0.02 % / °C | |

| **Linearity error** (*) | |
|---|---|
| ± 0.15 % of f.s. | |
| **Burn-out values** | |
| Max. value output | >20 mA or > 10 Vdc |
| **Line resistance influence** (1) | |
| 0.05 % f.s. / Ω (100 Ω max balanced for wire) | |
| **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 linearisation error.

## ISOLATED DIP SWITCH CONFIGURABLE CONVERTER FOR PT100

### DAT 2061

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

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

**Application areas**: Industries, Board machine, Energy, Food business, Water treatment

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

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

| ISOLATION |
|---|
| 2000 Vac, 50 Hz, 1 min. |

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

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

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

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

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

| Min. input value programmability | |
|---|---|
| Programmable | -50 ÷ 50 °C |

| Input Calibration (1) |
|---|
| the higher of ± 0.1 % f.s. and 0.2 °C |

| RTD sensor excitation current | |
|---|---|
| Typ. | 0.6 mA |

| Thermal drift (1) | |
|---|---|
| Full Scale | ± 0.02 % / °C |

| Linearity error (*) |
|---|
| ± 0.15 % of f.s. |

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

| Line resistance influence (1) |
|---|
| 0.05 % f.s. / Ω (100 Ω max balanced for wire) |

| 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.

## NOT LINEARIZED DIP SWITCH CONFIGURABLE TRANSMITTER FOR THERMOCOUPLE

### DAT 2045

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

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

**Application areas**: Industries, Board machine, Energy, Food business, Water treatment

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

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

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

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

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

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

| Min. input value programmability | |
|---|---|
| Programmable | -50 ÷ 50 °C |

| Input Calibration (1) |
|---|
| the higher of ± 0.1 % f.s. and 0.2 °C |

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

| Thermal drift (1) | |
|---|---|
| Full Scale | ± 0.02 % / °C |

| Linearity error (*) |
|---|
| ± 0.05 % of f.s. |

| Burn-out values | |
|---|---|
| Max. value output | >20 mA |

| Input Impedance |
|---|
| 10 MΩ |

| Line resistance influence (1) |
|---|
| 0.2 µV / Ω |

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

(1) = referred to the input Span (difference between max. and min.)
(*) = inclusive of hysteresis, power supply variation and linearisation error.

## NOT LINEARIZED DIP SWITCH CONFIGURABLE CONVERTER FOR THERMOCOUPLE

### DAT 2145

**GENERAL DESCRIPTION**

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

**FEATURES**

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

**Application areas**

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

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

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

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

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

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

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

| **Min. input value programmability** | |
|---|---|
| Programmable | -50 ÷ 50 °C |
| **Input Calibration** (1) | |
| the higher of ± 0.1 % f.s. and 0.2 °C | |
| **CJC compensation** | ± 0.5°C |
| **Thermal drift** (1) | |
| Full Scale | ± 0.02 % / °C |

| **Linearity error** (*) |
|---|
| ± 0.05 % of f.s. |
| **Burn-out values** |
| Max. value output >20 mA or 10 Vdc |
| **Input Impedance** |
| 10 MΩ |
| **Line resistance influence** (1) |
| 0.2 µV / Ω |
| **Response time (10÷90% of f.s.)** about 500 ms |

(1) = referred to the input Span (difference between max. and min.)
(*) = inclusive of hysteresis, power supply variation and linearisation error.



## DIP SWITCH CONFIGURABLE 3 WAYS ISOLATED SIGNAL CONVERTER

### DAT 5020

**GENERAL DESCRIPTION**

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

**FEATURES**

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

**Application areas**

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

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

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

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

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| Voltage | -10 V | 10 V | - |
| **Potentiometer** | | | |
| (Rnom. from 1KΩ to 5 KΩ ) | 0 % | 100 % | - |
| **Max input signal** | | | |
| 30 Vdc or 50 mA | | | |
| **Input Calibration** (1) | | | |
| ± 0.1 % f.s. | | | |
| **Linearity** (*) | | | |
| ± 0.15 % f.s. | | | |

| **Input Impedance** | |
|---|---|
| Voltage | >/= 1 MΩ, Current: ~ 50 Ω |
| **Thermal drift** (1) | |
| Full Scale | ± 0.02 % / °C |

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| Voltage | -10 V | 10 V | - |
| **Max output signal** | | | |
| 15 Vdc or 30 mA | | | |
| **Response time (10÷90% of f.s.)** | | about 500 ms | |

(1) = referred to the input Span (difference between max. and min.)
(*) = inclusive of hysteresis and power supply variation.

## 3 WAYS ISOLATED DIP SWITCH CONFIGURABLE SIGNAL CONVERTER

**DAT 5021**

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**: Industries, Board machine, Energy, Food business, Water treatment

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

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

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

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

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Input Calibration** | ± 0.1 % f.s. | | |
| **Linearity** (*) | ± 0.05 % f.s. | | |
| **Thermal drift** | | | |
| Full Scale | ± 0.02 % / °C | | |
| **Response time (from 10 to 90 % of f.s.)** | < 10 ms | | |

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Load resistance (Rload)** | | | |
| Voltage output | >/= 5 KΩ | | |
| Current output | </= 500 Ω | | |

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

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

**DAT 5022**

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**: Industries, Board machine, Energy, Food business, Water treatment

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

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

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

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

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Input Calibration** | ± 0.1 % f.s. | | |
| **Linearity** (*) | ± 0.05 % f.s. | | |
| **Thermal drift** | | | |
| Full Scale | ± 0.02 % / °C | | |
| **Response time (from 10 to 90 % of f.s.)** | < 10 ms | | |

| OUTPUT (2 CHANNELS) | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Load resistance (Rload)** | | | |
| Voltage output | >/= 5 KΩ | | |
| Current output | </= 500 Ω | | |

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

## DIP SWITCH CONFIGURABLE CONVERTER FOR AC CURRENT SIGNAL

**DAT 5023Iac**

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**


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

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

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

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

**EMC** (for industrial environments)

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type** | **Min** | **Max** | **Span min** |
| DAT5023Iac/A | 0÷5 A | 0÷10 A | - |
| DAT5023Iac/B | 0÷20 A | 0÷30 A | - |
| DAT5023Iac/D | 0÷40 A | 0÷60 A | - |
| **Bandwidth (-3dB)** | | | |
| 40 Hz ÷ 1KHz | | | |
| **Input Calibration** | ± 0.1 % f.s. | | |
| **Linearity** (*) | ±1 % f.s. | | |
| **Thermal drift** | | | |
| Full Scale | ± 0.02 % / °C | | |

| OUTPUT | | | |
|---|---|---|---|
| **output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Load resistance (Rload)** | | | |
| Voltage output | >/= 5 KΩ | | |
| Current output | </= 500 Ω | | |
| **Response time (10÷90% of f.s.)** | About 400 ms | | |

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

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

**DAT 5023Idc**

### 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.
The user can program the output ranges by the proper DIP-switches available after opening the suitable door located on the side of device.
The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device.

### FEATURES

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

**Application areas**


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

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

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

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

**EMC** (for industrial environments)

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type** | **Min** | **Max** | **Span min** |
| Current (A) (1) | 0÷5 A | 0÷60 A | - |
| **Input Calibration** | ± 0.1 % f.s. | | |
| **Linearity** (*) | ±1 % f.s. | | |
| **Thermal drift** | | | |
| Full Scale | ± 0.02 % / °C | | |

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

| OUTPUT | | | |
|---|---|---|---|
| **output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Load resistance (Rload)** | | | |
| Voltage output | >/= 5 KΩ | | |
| Current output | </= 500 Ω | | |
| **Response time (10÷90% of f.s.)** | About 400 ms | | |

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

# DIP SWITCH CONFIGURABLE CONVERTER FOR AC / DC VOLTAGE SIGNAL

## DAT 5023/V

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**


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

| CURRENT CONSUMPTION | |
|---|---|
| Current output with Aux supply out operative (20 mA): 80 mA max. | |
| Voltage output | 60 mA max. |

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

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

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type**(1) | **Min** | **Max** | **Span min** |
| Voltage (Vac) | 0÷36 Vac | 0÷550 Vac | - |
| Voltage (Vdc) | 0÷36 Vdc | 0÷550 Vdc | - |
| **Bandwidth (-3dB)** | | | |
| 40 Hz ÷ 1KHz | | | |
| **Input Calibration** | ± 0.1 % f.s. | | |
| **Linearity** (*) | | | |
| **(AC)** ±1 % f.s. | **(DC)** ± 0.1 % f.s. | | |
| **Thermal drift** | | | |
| Full Scale | ± 0.02 % / °C | | |

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Load resistance (Rload)** | | | |
| Voltage output | >/= 5 KΩ | | |
| Current output | </= 500 Ω | | |
| **Response time (10÷90% of f.s.)** | (**AC**) 250 ms | | |
| | (**DC**) 20 ms | | |

(1) = To choose the input range refer to the technical data sheet.
(*) = Inclusive of hysteresis and power supply variation.

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

## DAT 5025

### GENERAL DESCRIPTION

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

### FEATURES

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

**Application areas**


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

| CURRENT CONSUMPTION | |
|---|---|
| Current output with active Power supply aux operative (20 mA): 120 mA max. | |
| Voltage output | 80 mA max. |

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

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

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

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

| INPUT | | | |
|---|---|---|---|
| **Input type**(1) | **Min** | **Max** | **Span min** |
| Strain-Gauge | 0 mV | 10 mV | - |
| | 0 mV | 200 mV | - |
| | ± 5 mV | ± 200 mV | - |
| **Bridge excitation voltage (Vexc)** | | | |
| **3.60 Vdc ± 0.1%** (with bridge's resistance included between 100 Ω and 10 KΩ) | | | |
| **10 Vdc ± 0.1%** (with bridge's resistance included between 300 Ω and 10 KΩ) | | | |
| **Bridge excitation current** | | | |
| 65 mA max. | | | |
| **Input Calibration** | ± 0.1 % f.s. | | |
| **Linearity** (*) | ± 0.1 % f.s. | | |
| **Thermal drift** | | | |
| Full Scale | ± 0.01 % / °C | | |

| OUTPUT | | | |
|---|---|---|---|
| **Output type** | **Min** | **Max** | **Span min** |
| Current | 0 mA | 20 mA | - |
| | 4 mA | 20 mA | - |
| Voltage | 0 V | 10 V | - |
| | 2 V | 10 V | - |
| | 0 V | 5 V | - |
| | 1 V | 5 V | - |
| **Load resistance (Rload)** | | | |
| Voltage output | >/= 5 KΩ | | |
| Current output | </= 500 Ω | | |
| **Response time (10÷ 90% of f.s.)** | | | 40 ms |

(1) = To choose the input range refer to the technical data sheet.
(*) = Inclusive of hysteresis and power supply variation.


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**Application areas**