ELECTRONIC AND CONTROL PROCESS DEVICES

DATEXEL

DAT5028-DAT5024 SERIES:
Trip amplifiers for DIN rail mounting

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

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

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Trip amplifier with display for universal analog input

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Trip amplifier with dedicated analog input

42 • **DAT 5024E**
Economic, isolated trip amplifier configurable by Dip-Switches

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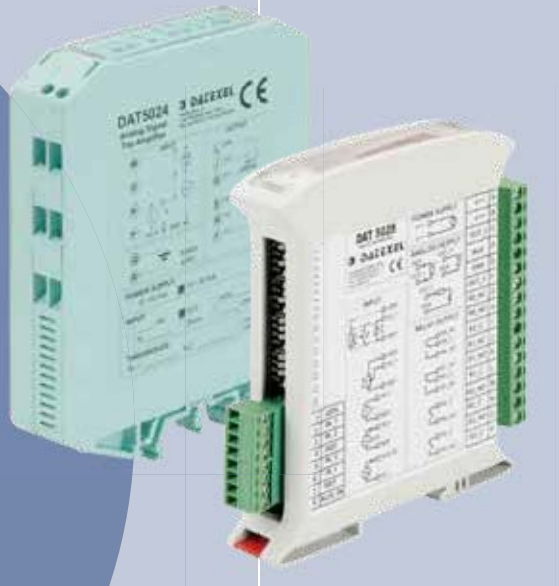
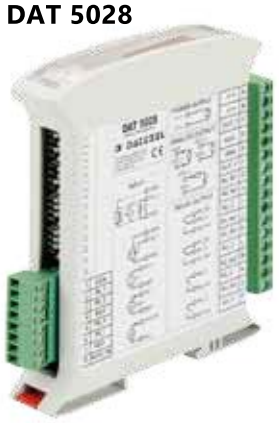


Trip amplifiers

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

TRIP AMPLIFIER WITH DISPLAY FOR UNIVERSAL ANALOG INPUT

DAT 5028



GENERAL DESCRIPTION

The DAT 5028 device is able to acquire RTD or Tc sensors, mV, V or mA input signals connected to the universal analog input.
By means of push-button and 4-digit display on the front panel, four different trip alarms are configurable. Each alarm threshold commands an output relay. Input signal can be retransmitted on the analog output in a Voltage or Current signal, configurable by means of dip-switch on the side of the device.
By means of an internal 16 bit converter, the device guarantees high accuracy and a stable measure versus time and temperature.
The 1500 Vac isolation on all ways removes eventual ground-loop effects, allowing the use of the device even in the heavy environmental conditions.

FEATURES

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

Application areas

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

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

ISOLATION	
Isolation voltage	1500 Vac (on all ways)

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

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

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

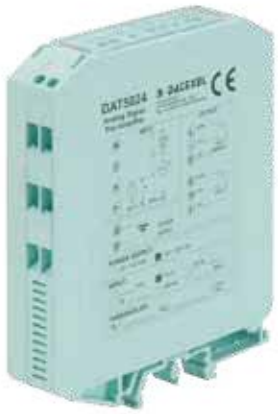
Lead wire res. influence	
RTD (3 wires)	0.05 %/Ω (50 Ω max)
mV, Tc	< 0.8 uV/Ohm
RTD excitation current, Res, Pot	~ 0.7 mA
Pot. Nominal value	2 KOhm
Sample Time	1 sec.
Warm-up time	3 min.

DIGITAL OUTPUT	
n.2 SPDT + n.2 SPST Relay	
Max Load (resistive)	2 A @ 250 Vac (per contact)
	2 A @ 30 Vdc (per contact)
Min Load	5Vdc , 10mA
Voltage Max.	250Vac (50 / 60 Hz) ,110Vdc

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

TRIP AMPLIFIER WITH DEDICATED ANALOG INPUT

DAT 5024



GENERAL DESCRIPTION

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

CE RoHS 2002/95/EC Pb lead-free

Application areas Industries · Board machine · Energy · Food business · Water treatment

POWER SUPPLY	
Power supply voltage	18 ÷ 32 Vdc
Current Consumption	110 mA max @ 24 Vdc
Rever. polarity protection	60 Vdc max
AUXILIARY SUPPLY	
(only for mA input)	> 18 V @ 20 mA

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

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.

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

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

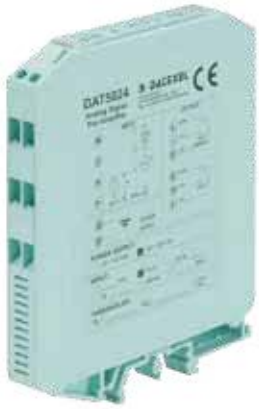
Input calibration (1)	±0.1% f.s.
Linearity (1)	
mV, V, mA	± 0.05% f.s.
Tc, RTD	± 0.2% f.s.
Input impedance	
mV, Tc	> 1 MΩ
V	> 100 KΩ
mA	< 50 Ω
RTD excitation current	
Typical	0.6 mA
Thermal drift (1)	
Full scale	± 0.02 % / °C
CJC comp.	
Tc	± 0.5 °C
Thermal drift CJC	
Full scale	± 0.02 °C/ °C
Line resistance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

RELAY OUTPUT	
N° 2 SPDT	
Contact rating	250 Vac, 2A
Isolation between contact	1000 Vac max

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

ECONOMIC, ISOLATED TRIP AMPLIFIER CONFIGURABLE BY DIP-SWITCHES

DAT 5024E



GENERAL DESCRIPTION

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

FEATURES

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

Application areas

Power Supply	
Power supply voltage	18 ÷ 30 Vdc
Current Consumption	110 mA max @ 24 Vdc
Rever. polarity protection	60 Vdc max
AUXILIARY SUPPLY	
(only for mA input)	> 18 V @ 20 mA

EMC (for industrial environments)		TEMPERATURE AND HUMIDITY	
DIRECTIVE 2004/108/EC		Operative temperature	-20°C ÷ +60°C
Immunity	EN 61000-6-2	Storage temperature	-40°C ÷ +85°C
Emission	EN 61000-6-4	Humidity (not condensed)	0 ÷ 90 %

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.

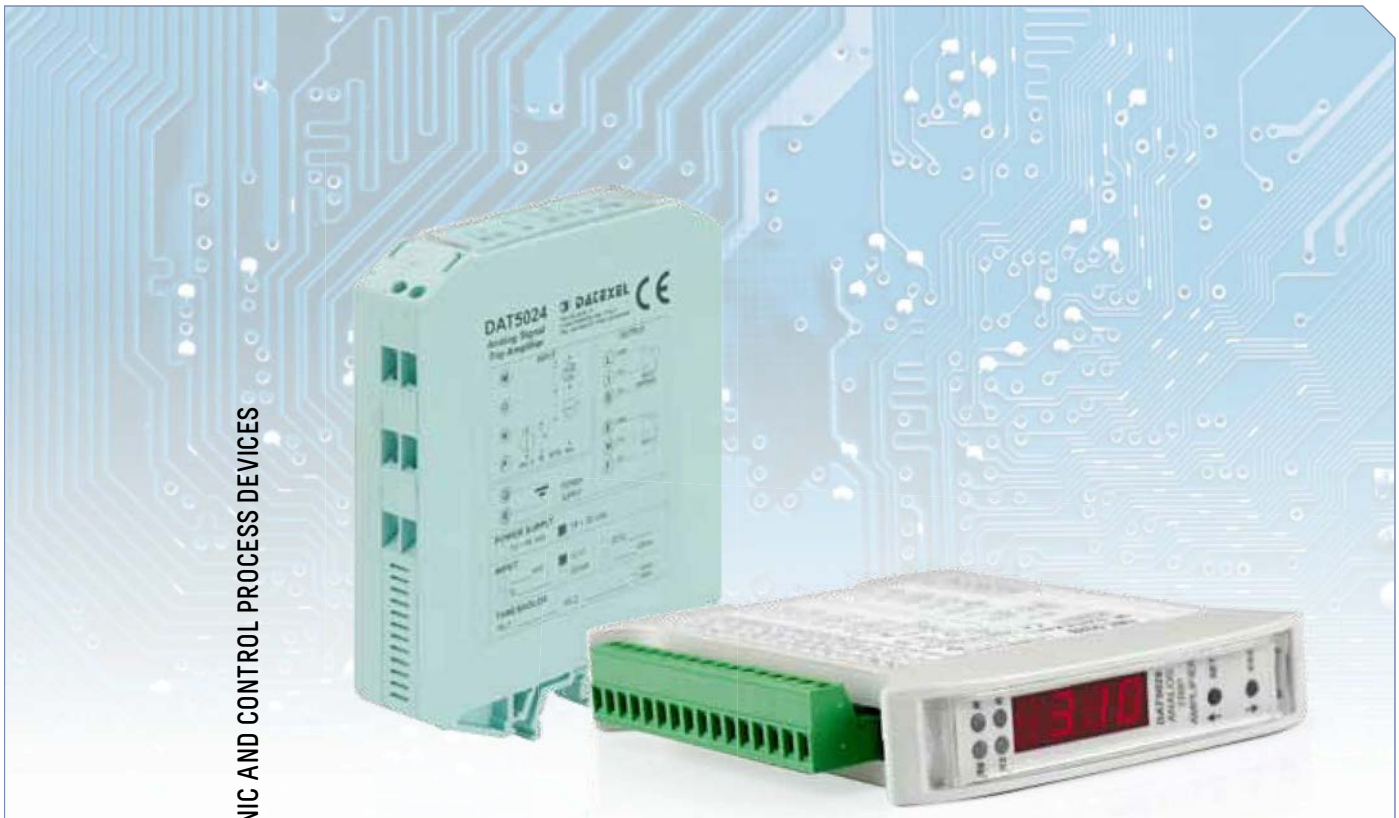
HOUSING	
Material	Self-extinguishing plastic
Dimensions (mm)	W x L x H : 90 x 112 x 12.5
Weight	about 90 g.

INPUT		
Input type	**Min**	**Max**
Voltage	0 V	5 V
	0 V	10 V
	1 V	5 V
	2 V	10 V
Current	0 mA	20 mA
	4 mA	20 mA
Maximum operating voltage (on resistive load)		
125 Vac, 30 Vdc		
Maximum operating current (on resistive load)		
0.5 A @ 125 Vac, 1 A @ 30 Vdc		
Maximum switching capacity (on resistive load)		
62.5 VA, 30 W		
Trip value regulation		
Configurable from 2 to 96 % of f.s.		
Delay time value regulation		
Configurable from 1 to 6 sec.		
Hysteresis value regulation		
Configurable from 1 al 9.5 % of f.s.		

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

RELAY OUTPUT
N° 2 SPDT (Form C)

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



ELECTRONIC AND CONTROL PROCESS DEVICES

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DATEXEL

"DAT5028 / DAT5024 series" trip amplifiers for din rail mounting