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# DSA2

D/A converter:

2× temperature from DS18B20 to 0 - 10 V

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# DSA2

## Datasheet

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## Papouch s.r.o.

Address:

**Strasnicka 3164  
102 00 Prague 10  
Czech Republic**

Tel:

**+420 267 314 267**

Internet:

**[www.papouch.com](http://www.papouch.com)**

E-mail:

**[info@papouch.com](mailto:info@papouch.com)**



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**Overview of changes**

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**Version 01/2016 – firmware 1**

- After starting the device, the SNS indicator lights up if no sensor is connected and remains off if a sensor is connected.

**Version 09/2022 – firmware 2**

- The firmware version can be identified by behaviour of the indicator lights after power-up.
- Modification of behaviour when the sensor is disconnected or malfunctions.

## ABOUT THE DEVICE

The DSA2 converter has two channels and can convert the temperature from the connected DS18B20 sensor to an analog output value of 0 to 10 V.

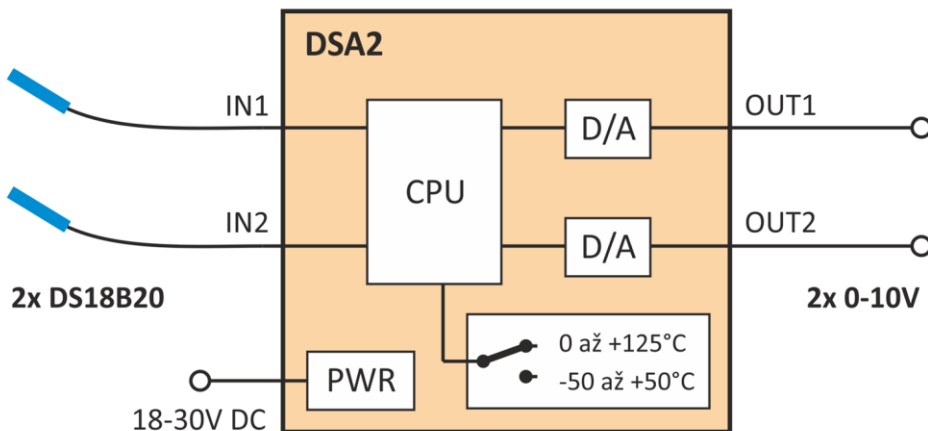


Fig. 1: Schematic diagram of a typical connection

Each channel has an independent activity indicator light and input temperature range setting. The DSA2 is suitable, for example, for connecting a thermometer to a PLC with analog inputs.

## Operation

1. After switching on, it performs the first measurement after one second.
2. It then reads the sensor at 2.5-second intervals.
3. If there is a sensor failure or sensor data error, and the error persists for 10 seconds, the corresponding SNS indicator light will illuminate. The last valid voltage value is held at the OUT output for another 10 seconds. The output is then set to 0 V until a valid temperature reading is obtained from the sensor.

## WIRING



Fig. 2: Power supply and output terminals



Fig. 3: Input terminals

1. PSH input connectors are used for the DS18B20 sensor. The pin connections are indicated on the label.
2. The output connectors – removable screw terminals – are labelled on the label.



Fig. 4: Terminal block labels for power and outputs

3. The DC power supply range is 18 to 30 V DC. The power supply terminal is next to the output terminals.

## CONFIGURATION

A switch under the cover on the front panel is used to configure each sensor separately (S1 is for channel 1, S2 is for channel 2) which input range corresponds to the 0 to 10 V output. It is possible to choose between the following ranges:

- switch is closed → input range 0 to 125 °C → output 0 to 10 V
- switch is open → input range -50 to +50 °C → output 0 to 10 V

**INDICATION**

**ON:** The indicator light is on to indicate that the power supply is connected.

**SNS1** and **SNS2:**

- After startup, both indicator lights flash briefly.
- If a sensor is connected, the indicator light flashes briefly (150 ms) during measurement.
- If the temperature cannot be read from the sensor (disconnected sensor, line interference, etc.), the indicator light flashes for a long time (500 ms).
- If the temperature cannot be read for 10 seconds, the indicator light will turn on.

**TECHNICAL PARAMETERS**

Number of channels .....	2
Input sensor.....	DS18B20
Input range 1, <sup>1</sup> .....	0 to 125 °C
Input range 2 .....	-50 to +50 °C
Output range.....	0 to 10 V
Minimum output voltage.....	typ. 50 mV
Conversion accuracy .....	±(0.3% + 5 mV)
Load resistance .....	min. 5 kΩ
Measurement period.....	1 sec
Power supply range .....	18 to 30 V DC
Current consumption .....	typ. 26 mA at 24 V
Weight .....	typ. 90 g
Dimensions.....	120 × 101 × 23 mm
Degree of protection .....	IP 20
Operating temperature range .....	-20 to +70 °C
Operating humidity .....	0 to 90% non-condensing
Mount.....	on a 35 mm DIN rail

<sup>1</sup> The switch on the front panel is closed.



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