

TEMPERATURE SENSORS WITH A DIGITAL OUTPUT FOR OUTDOOR ENVIRONMENT

097.11en

DESCRIPTION AND APPLICATION

These temperature sensors are designed for contact temperature measurement of gaseous substances in outdoor or industrial areas, on building walls, but also in rooms, offices or in production halls. The temperature sensors are easy to install thanks to the unique "S-head" design of the SENSIT s.r.o. company.

The sensors consist of a plastic head and a metal case, where the sensing element for temperature measurement (sensor) is placed. In the head, there is a terminal block with a converter located, to which a supply cable for sensor supply and digital output signal according to the sensor type is connected through a cable grommet or a connector. The basic versions of digital outputs are:

SD 112A, SD 112AK – MODBUS/RTU communication protocol, communication via the RS485 bus

SD 114A, SD 114AK – CANopen/CiA DS 301 communication protocol, communication via the CAN bus

SD 115A, SD 115AK – DS 18B20 digital temperature sensor, communication via the 1-Wire bus

SD 116A, SD 116AK – TSic 206, 506 and 716 digital temperature sensors, ZACWire communication protocol



TEMPERATURE SENSORS WITH A CONNECTION HEAD

The temperature range of sensor use is defined in the table of technical parameters for the individual versions of sensors. The sensors meet the ingress protection of IP 65 according to EN 60529, as amended. Recommended installation of the sensor:

- for measurement of outdoor air temperature – the installation is recommended on the coolest side of the building (the northern or the northwest one) in a way that the sensor is not exposed to a direct sun light. The installation is recommended in 2/3 of the height of the building wall.
- for measurement of indoor air temperature in rooms, offices or in production halls – the installation is recommended on an inner wall at the height of 1.5 m, in areas of movement of persons, at places not exposed to sunlight and not influenced by heat from heating radiators or lighting

The sensors are designed to be operated in a chemically non-aggressive environment, the use must be chosen with regard to the temperature and chemical resistance of the sensor head.

ACCESSORIES

- CONEC 43-00092 connection plug
- connection cables with a straight RKT connector or right-angled RKWT connector

DECLARATION, CERTIFICATES, CALIBRATION

Manufacturer provides **EU Declaration of Conformity**.

Calibration – The entire production passes through a final metrological inspection, which is carried out by comparing with standards or working measuring instruments. Continuity of the standards and working measuring instruments is ensured within the meaning of Section 5 of Act No. 505/1990 on Metrology. The manufacturer offers to supply the sensors calibrated in the SENSIT s.r.o. laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an accredited laboratory.

SPECIFICATIONS

Sensor type (K - with connector)	SD 112A SD112AK	SD 114A SD 114AK	SD 115A SD 115AK	SD 116A SD 116AK
Output signal	RS 485 / MODBUS RTU	CAN / CANOpen-CiA DS 301	1-Wire / DS18B20	ZacWire / TSic x06
Measuring range	-30 to 70 °C		-30 to 100 °C	TSic 206 and 306 -30 to 100 °C TSic 506 and 716 -10 to 60 °C
Accuracy of the electronics *)	± 0.2 °C			
Type / Accuracy of the sensing element *)	Pt 1000 / ± (0.3 °C + 0.0005 t)	Pt 100 / ± (0.3 °C + 0.0005 t)	± 0.5 °C in the range of -10 to 80 °C ± 2 °C in the range of -30 to 100 °C	TSic 206 ± 0.5 °C in the range of 10 to 90 °C TSic 306 ± 0.3 °C in the range of 10 to 90 °C TSic 506 ± 0.1 °C in the range of 5 to 45 °C TSic 716 ± 0.07 °C in the range of 25 to 45 °C
Supply voltage (U)	15 to 30 V DC		3 to 5.5 V DC	
Rated supply voltage (Un)	24 V DC		5 V DC	
			3.3 V DC	

OTHER PARAMETERS

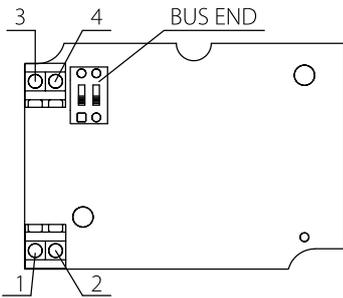
Consumption / Supply current	maximum: 500 mW typical: 300 mW	1 mA	30 µA
Working conditions	ambient temperature: -30 to 70 °C	ambient temperature: -30 to 100 °C	TSic 206 and 306 -30 to 100 °C TSic 506 and 716 -10 to 60 °C
	relative air humidity: max. 100%		
	atmospheric pressure: 70 to 107 kPa		
Ingress protection	IP 65 in accordance with EN 60529, as amended		
Length of the stem	50 mm		
Standard stem diameter	6 ± 0.2 mm		
Material of the stem	stainless steel DIN 1.4301		
Insulation resistance	> 200 MΩ at 500 V/DC, 25°C ± 3 °C; humidity < 85 %		
Dimensions of the head	70 × 63 × 34 mm		
Material of the head	POLYAMIDE		
Connector type in the head (for sensors with a connector)	RSFM4 - M12- Lumberg		
Recommended wire cross-section (for sensors with a grommet)	0.14 to 1 mm ²	0.35 to 1.5 mm ²	
Weight	min. 150 g	min. 100 g	

*) Measurement error of SD 112A and SD 114A temperature sensors depends on the flow rate and supply voltage (method error) and can be within -1.0 to 1.5 °C.

WIRING DIAGRAM

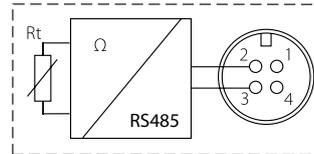
SD 112A

with a grommet



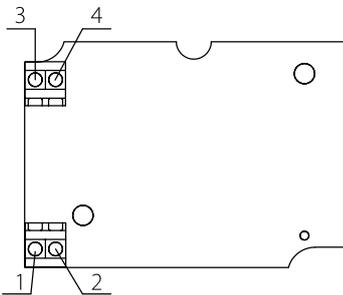
- 1 – power supply
- 2 – power supply
- 3 – data bus – K+
- 4 – data bus – K-

with a connector



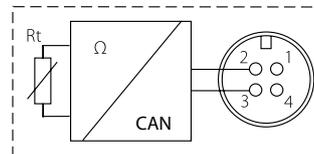
SD 114A

with a grommet



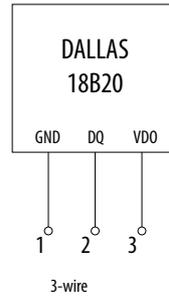
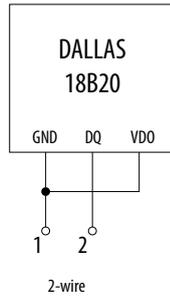
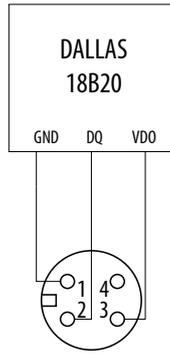
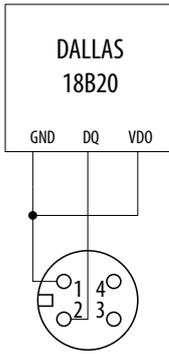
- 1 – power supply - U+
- 2 – power supply - GND
- 3 – data bus - CAN_L
- 4 – data bus - CAN_H

with a connector

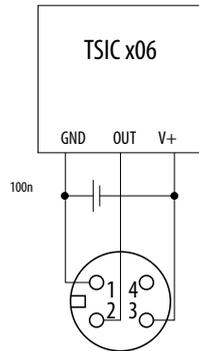
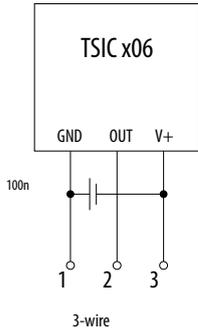


WIRING DIAGRAM

SD105



SD116A



DIMENSIONAL DRAFT

