MSTA – AIR TEMPERATURE SENSOR (Rev.2 010717)

Description

The thermometers *micro* series consist of an air temperature transducer with high accuracy and a microprocessor for the management of the measure.

The transducers are mounted inside of special screens that protect the temperature sensor from the solar radiation; these shields are made in aluminum treated with special white paints that maintain the white color over time to allow easy cleaning and maintenance.

Another shield consists of sensor support that covers the screens avoiding that the snow and other debris from the sky could deposited above the sensor: in this way the screens remains more clean and white avoiding blackening that cause alterations of the temperature measurement and preserves the proper ventilation of the transmitter.

Every sensor includes an universal bracket that allow to fix it easily over vertical or horizontal mast, walls etc.

Measuring principle

The temperature transducer is a Platinum thermoresistance (Pt 100Ω @0°C). The changing of Pt100 resistance is transformed in a current or voltage linear signal proportional with the temperature.

Advantages

- ✓ **Short time response**
- ✓ **Good linearity**
- ✓ **Mechanical robustness**
- ✓ **Reliability**
- ✓ **Long Life-time**

Main Applications

- ✓ **Meteorology** – weather measures
- ✓ **Agro- meteorology and irrigation systems**
- ✓ **Hydrogeology**
- ✓ **Eolic and anemometric station**
- ✓ **Photovoltaic plant –** Accuracy measure of temperature
- ✓ **Environmental monitoring**

Geoves Snc
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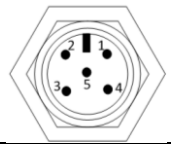
Technical Features

Models	mSTA-N	mSTA-I	mSTA-V
Range	-50…+100 °C	-40…+60 °C (other range on request)	
Transducer		Pt100 1/3DIN	
Electrical output (others on request)	**4 wires Pt100**	**4…20mA**	**0…5Vdc**
Power supply	none	+9…24Vdc	+9…24Vdc
Consumption	1mA (ref.)	4…20mA	5mA max
Accuracy	±0.1°C	±0.2°C	
Repeatibility		±0.1°C	
Long-time stability		< 0,04 °C/year	
Time response (63% of final variation)		< 8s	
Maintenance		Check > 36 months	
Working Temperature		-50…+85°C	
Connector		IP68 plug circular connector (cable excluded)	
Mounting		Cod. STF-UNI: standard support for mounting on horizontal or vertical pipe ømax:42mm	
Materials		White painted aluminum, polycarbonate and stainless steel	
Dimensions and weight		ø170 x 170 x 100mm, 430g	

Accessories

Cable	Shielded cable for outdoor conditions. Available lengths: 4, 12, 22m (others on request)
Cod. **CSxx** (xx=meters of cable)	Sensor Cable with IP68 connector (sensor side) and pins (datalogger side)
Cod. **CSDxx**	Sensor Cable with IP68 connector (sensor side) and terminal (Geoves datalogger side)

Elecrical Connection

Model	**mSTA-N**	**mSTA-I**	**mSTA-V**
Electrical output	**4 wires Pt100**	**4…20mA** (where 4mA=-40°C; 20mA=+60°C)	**0…5Vdc** (where 0Vdc=-40°C; 5Vdc=+60°C)
Load resistance shunt		25…440Ω (tip.100Ω)	
IP68 Connector (sensor side) 	Pin1: High Pt100 V+ Pin2: Low Pt100 V- Pin3: High Pt100 I+ (1mA) Pin4: Low Pt100 Gnd Pin5:	Pin1: Iout+ Pin2: Pin3: Pin4: Gnd Pin5: +Vdc (9…24Vdc)	Pin1: Vout+ Pin2: Vout- Pin3: Pin4: Gnd Pin5: +Vdc (9…24Vdc)

Sensor Installation

Sensor type	Installation height	Localization, orienting and technical advises for a correct installation
Air Temperature	1,2…2 m from the ground	Over turf (recommended) or natural surface where the grass was not present; not install the sensor on paved surfaces or they can radiate heat; besides do not install where the air flow is stagnant or in strong drafts (eg. near doors, gullies, etc ...). Distance from any obstacles> 1.5m. SIGNAL TRANSMISSION The electronic circuit is designed in way of the signal increases linearly with temperature. In the presence of cables transmitting strong currents or machines causing electromagnetic interference is required connection cables of the transmitter in a separate channel or at a certain distance so that the disturbances are screened. In the model with voltage output is recommended to use shielded cable for connections.

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