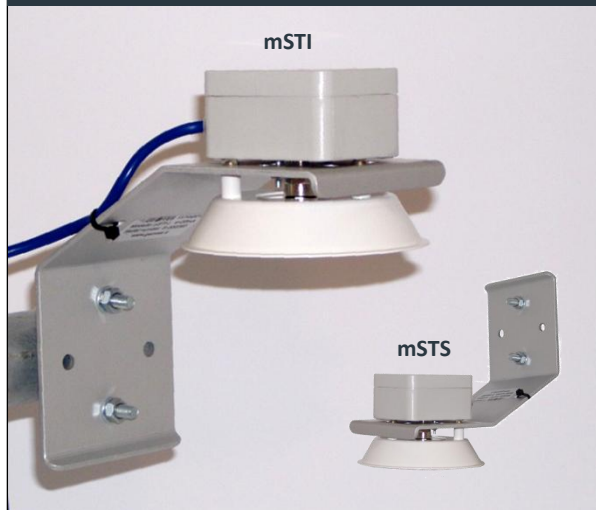


mSTI, mSTS – AIR TEMPERATURE SENSORS for indoor and ground surface measurements (Rev.1 010215)



Description

The thermometers *micro* series consist of an air temperature transducer with high accuracy and a microprocessor for the management of the measure. Every sensor includes an universal bracket that allow to fix it easily over vertical or horizontal mast ($\varnothing 42\text{mm}$ max), or on the wall.

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.

Besides the shields are made in aluminum treated with special white paints that maintain the white color over time to allow easy cleaning and maintenance.

Measuring principle

The temperature transducer is a Platinum thermoresistance (Pt 100 Ω @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 span

Main applications

The sensors are available in two versions, both with 4...20mA output (Vers. -I) or 0...5Vdc (Vers. -V), suitable for the following applications:

- **mSTS:** Thermometer for ground surface measurements. Typical applications: Agrometeorology for measurements at grass level
- **mSTI:** Indoor Thermometer. Typical applications: rooms temperature such as cabins, industrial sheds, greenhouses, buildings, etc...

Technical features

Models	mSTI-N mSTS-N	mSTI-I mSTS-I	mSTI-V mSTS-V
Range	-50...+100 °C		
Transducer	-40...+60 °C (other range on request)		
Output	Pt100 1/3DIN		
Power supply	4 wires Pt100	4...20mA	0...5Vdc
Consumption	none	+9...24Vdc	+9...24Vdc
Accuracy	1mA (ref.)	4...20mA	5mA max
Repeatability	±0.1°C	±0.2°C	
Longtime stability	±0.1°C		
Time response @ 63% of final variation	< 0,04 °C/year		
Maintenance	< 8s		
	Checkup > 36 months		

Working Temperature	-50...+85°C
Connector	IP68 plug connector (cable excluded)
Mounting	Cod. STF-UNI: standard support for mounting on horizontal or vertical pipe Ømax:42mm
Housing	White painted aluminum
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)

Electrical Connection

Version of thermometer	mSTI-N mSTS-N	mSTI-I mSTS-I	mSTI-V mSTS-V
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
mSTS Ground surface air temperature	Ground surface	Grassy surface recommended or natural surface where the grass was not present; do not install the sensor on asphalt surfaces or those that may radiate heat; also do not install where the air flow is stagnant or in the presence of strong air currents (eg near doors, canyons, etc.).
mSTI Indoor air temperature	Height or position suitable to the application	Wall fixing in a position far from heat / cooling or radiant sources so that the sensor can detect a diffused sample of the indoor environment. The sensor should normally be positioned at man height to avoid the radiant effect of the flooring. The electronic circuit is designed so that the signal increases linearly with increasing temperature. In the presence of cables transmitting strong currents or machines that cause electromagnetic disturbances, it is necessary to arrange the connection cables of the transmitter in a separate channel or at a certain distance so that the disturbances are shielded. In the model with voltage output it is recommended to use a shielded cable for the connections.