

MODELS STH-S331, ST-0031, SH-S300, STS-0031

LAST GENERATION OF TEMPERATURE AND RELATIVE HUMIDITY PROBES

The STH-S331 model Temperature and Relative Humidity probe is a combined measuring instrument that allows monitoring both parameters with a single mechanical assembly.

The STH-S331 is a completely new type of probe that is in a class of its own in terms of accuracy and performance.

The STH-S331 temperature and relative humidity sensor is normally connected to METEODATA/HYDRODATA 2000/3000 data acquisition systems.

The two sensing elements (Temperature and Relative Humidity) come up bound to a nylon plastic casing, which, on the one hand, allows an easy installation thanks to its direct coupling to solar radiation shields both with natural and forced cooling and, on the other hand, makes easier the connection to the measuring and/or acquisition system using a single 7-pin IP66 connector.

TEMPERATURE

The temperature sensor housed in the STH-S331 probe is based on a 44031 thermistor, provides a highly accurate and stable temperature measurement.

The STH-S331 model temperature and relative humidity probe can optionally include a second temperature measurement function with pt100 RTD sensor.

RELATIVE HUMIDITY

The STH-S331 takes the humidity measurement technology to a whole new level of performance and reliability. It also boasts a unique calibration and adjustment process as well as many other superb innovations. The probe offers the best possible reproducibility and a superb system accuracy of $\pm 0.8\%$ RH.



Model 41003 Multi-Plate Radiation Shield



Model 43502 Aspirated Radiation Shield

The relative humidity / temperature probe should always be installed in a protective radiation shield to ensure accurate data at outdoor environments (models 41003 and 43502 are often installed). This shield protects the sensors from error-causing solar radiation and precipitation.



The STH-S331 probe should be placed in locations with good air circulation around the shield, away from large masses (e.g. buildings, masts, etc.), away from electrical machinery and motors and away from water fountains and sprinklers.



Model STS-0031: Soil and Water Temperature sensor, installed inside a short stainless steel cylindrical sheath mounted on a PVC body for thermal isolation. The cable output is waterproof.

LAST GENERATION TEMPERATURE AND RELATIVE HUMIDITY PROBES	
STH-S331	Air Temperature and Relative Humidity
ST-0031	Air Temperature
SH-S300	Air Relative Humidity
STS-0031	Soil and Water Temperature

GENERAL SPECIFICATIONS
STH-S331, ST-0031, SH-S300, STS-0031

General information

Provided parameters Temperature and Relative Humidity

Power supply

VCC 3.2 - 5.5 VDC ±0%

Vref 2.5 V ±1mV

Power consumption

Nominal 3 mA @ 12 VDC

Protection

Grade IP65 / IP66
ST-0031, STS-0031 IP67

Temperature and Relative Humidity Output

0...1 V

Conformity to standards

CE / EMC Immunity EMC Directive
2004/108/EG: EN61000-6-1: 2001,
EN61000-6-2: 2005,
EN61000-6-3: 2005,
EN61000-6-4:2001 + A11

Solder type Lead free (RoHS Directive)

FDA / GAMP Directives Compatible

Sensor Thermistor
pt100 RTD option

TEMPERATURE MEASUREMENT
STH-S331, ST-0031, STS-0031

Range	Factory default: -40° to +60°C Optional: -30° to +70°C Other ranges available
Accuracy	±0.1°C
Resolution	0.01°C
Storage & operating temp.	-80° to +75°C
Max. Time constant	1s oil under agitation 10s air
Min. Dissipation constant	8mW/°C oil under agitation 1mW/°C air

RELATIVE HUMIDITY MEASUREMENT
STH-S331, SH-S300

Measurement range	0-100% RH
Max. Humidity at sensor	100% RH upto 80°C 75% RH at 100°C 45% RH at 125°C 15% RH at 150°C
Accuracy (23°C, 3.3VDC)	±0.8% RH
Resolution	0.1%
Repeatability	0.3% RH
Long Term stability	<1% RH/year
Sensor time constant	Typical 10 sec, 63% of a 35 to 80% RH step change (1 m/sec air flow)
Sensor	Capacitive