

Temperature sensors

SPECIFICATIONS

Sensor models:

TA1 Air Temperature
TS1 Soil Temperature
TG1 Grass Temperature
TL1 Leaf Temperature
TB1 Black Globe Temperature
TW1 Water Temperature

Measurement Units: Degrees Celsius/degrees Fahrenheit (software selectable)

Temperature Range: -20°C to +60°C (custom ranges available)

Accuracy: +/- 0.1°C

Resolution Low: 0.01°C

Resolution High: 0.002°C

Humidity Range: 0-100%

Sensor Type: Surface-mounted transistor (others available)

Output: Serial data ASCII format plus either voltage 0-1 or 0-2.5V or frequency +5V pulse (2-10Hz)

Options: 4-20mA

Power requirements:

Power Supply: 5-28V DC unregulated

Current Drain: < 1.5mA

Cable lengths:

TA1: 0.8 m **TS1:** 4.0 m

TG1: 4.0 m **TL1:** 4.0 m

TB1: 4.0 m **TW1:** 2.0 m

Maximum cable length 4km using Monibus communications

Sensor dimensions:

Length: 225mm

Diameter: 25mm

Weight: 230g (except for the TB1, which is < 500g)

Related products:

EnviroStation™ automatic weather station

SL5 Smart Logger

SS1 Mini Single Sensor Shelter

SS4 Sensor Shelter

SS6 Aspirated Sensor Shelter

TA2 Wet & Dry Bulb

Temperature Sensor

SI8 PC Interface Module

ICT International manufactures a range of “smart” temperature sensors for various environmental applications ranging from measurement of ambient conditions and crop temperature monitoring, to cattle comfort (heat stress) analysis.



Standard sensors use a miniature diode-connected transistor sensor mounted either at the end of a 4mm thick stainless-steel tube, projecting from the electronic sensor housing, or on an extension cable for attachment to plants or tree canopies. Other non-standard sensor types such as thermocouples, RTDs and precision quartz sensors are available for high temperature, process and laboratory applications.

The sensing element is connected to a microprocessor-controlled electronics package and provides an output in 0.01°C steps in low-resolution mode. A higher resolution providing steps of 0.002°C is available with appropriate sensors. Resolution depends on the type of sensor and the span selected. (Note: The resolution figures quoted above are for standard configurations only).

Accuracy and resolution

The microprocessor in every ICT temperature sensor provides a variety of features such as control and alarm outputs, 16-bit resolution (1 part in 65,000) and dual output signals. Each unit is provided with a multi-point calibration curve for maximum accuracy across the range.

With most systems, changeover of a sensor requires either re-calibration of the system or resetting of parameters in the data logger or other data collection devices. ICT’s “smart” sensors eliminate this requirement as the on-board microprocessors in each ensure all sensor types exhibit the same electronic specifications and therefore, identical performance.

All ICT sensors conform to global algorithm in all output modes, and for operation in digital, voltage or current mode, sensors are supplied with individual calibration certificates to enable software conversion to engineering units. In serial mode, the sensor reports in engineering units and the global algorithm is implemented internally.

Applications

- Temperature measurement
- Automatic weather stations
- Horticulture and agriculture
- Atmospheric pressure monitoring
- Meteorology
- Micro climate studies
- Laboratory - high accuracy
- Equipment control
- Animal and human comfort

Features

- Low power consumption
- Stainless-steel housing
- Weatherproof construction
- Robust design
- Frequency, voltage or serial data output
- Dual control/alarm-output
- Multiple calibration points
- Independent/stand-alone operation
- Customer configured alarm/control set-points