TempVue™20

Pt100 Digital Air Temperature Sensor

Meets World Meteorological Organization Recommendations

Digital ambient air-temperature sensor

Overview

The TempVue™20 provides even greater flexibility to customers wanting the next generation of air-temperature measurements. This sensor meets all relevant World Meteorological Organization (WMO) temperature recommendations, but with a digital output that ensures maximum flexibility to meet all application needs.

Designed with the customer in mind, the TempVue 20 easily interfaces with Campbell Scientific or third-party data loggers and fits a wide range of aspirated and passive temperature shields. The sensor comes with a short cable attached and terminates into an M12 connector, providing exceptional convenience, environmental protection, and data integrity for use in a variety of applications.

Benefits and Features

- Status information, measurement averaging options, and calibration information onboard
- Meets all relevant temperature WMO recommendations
- High measurement stability over both time and temperature
- Incredibly easy to install or remove for calibration checks
- Durable and protected for even the harshest environmental conditions
- Calibration certificate included

Detailed Description

The TempVue 20 consists of a wire-wrapped, four-wire Pt100 Resistance Temperature Detector (RTD) element encapsulated in an epoxy-filled, stainless-steel housing. The thin yet robust housing, combined with the Pt100 sensing element, result in a sensor that meets the WMO guideline for step response time (20 seconds) with an ambient wind speed of only 1 m/s (3.3 ft/s). The digital TempVue 20 also gives users much more measurement confidence than an analog sensor is able to provide, such as status information and the removal of any hassles regarding calibration inputs.

The TempVue 20 has a maximum measurement uncertainty of only 0.3 Kelvin over the entire measurement range of -60° to +60°C, with only 0.1 Kelvin over the most common temperature range of -40° to +40°C.

Specifications

Sensor Description	Platinum Resistance Thermometer (Pt100)
Measurement Uncertainty	▪ ±0.3°C (-60 to -40°C and 40 to 60°C) ▪ ±0.1°C (-40° to +40°C)
Temperature Measurement Range	-60° to +60°C (-76° to +140°F)
Time Constant in Air	20 s for a wind speed of 1 m/s (3.3 ft/s)
Resolution	Two decimal places (0.01°C)
Connector Type	M12 (to extend beyond 1 m [3 ft] standard cable length)
Probe Diameter	1.9 cm (0.75 in.) maximum
Probe Length	12.1 cm (4.75 in.) tip to end of cable gland
Extended Probe Length	18.1 cm (7.125 in.) tip to end of extender piece
Total Length	97.16 cm (38.25 in.) tip to end of connector
Weight	70 g (0.15 lb) for probe with extender piece, including standard 1 m (3 ft) cable with M12 connector

Power

Voltage Range	6 to 16 Vdc
Current	150 µA

TempVue 20-SDI-12

SDI-12 Compatibility	Version 1.4

TempVue 20-Modbus

Communications Protocol	Modbus RTU protocol (over RS-485)
Communications Format	Eight data bits, one stop bit, even parity as a result
Baud Rate	19,200 bps as default (user-configurable)