

# AIR TEMPERATURE SENSOR

## (TA80 Series)

### Features

- $\pm 0.1$  °C typical accuracy ( $-20$  °C to  $+50$  °C)
- Digital semiconductor sensing element
- Strong signal with long cable runs (up to 250m, no signal loss)
- Fully interchangeable tip with no recalibration required
- Excellent long-term stability
- Welded stainless steel tip for protection
- Electronics sealed to IP67
- Australian Made

### Applications

- General meteorology
- 10m and 2m temperature for Inversions
- Industrial ambient temperatures
- Australian Standard weather monitoring
- Irrigation scheduling
- Scientific research
- Process control and automation

At its core, the TA80 integrates a high-precision digital sensing integrated circuit that is factory-trimmed and calibrated against NIST-traceable standards. Combined with Envirodata's robust housing and signal-conditioning electronics, the TA80 achieves  $\pm 0.1$  °C typical accuracy ( $-20$  °C to  $+50$  °C) across the standard meteorological range, delivering proven long-term stability and reliability.

Output is provided as a conditioned digital signal, ready for direct connection to Envirodata weather stations or integration into Modbus RTU/RS485 systems via the FA12 4–20 mA interface module.

The sensor's microprocessor reads the digital signal and provides a very stable square-wave frequency proportional to the air temperature.



*TA80 Air Temperature Sensor*



*SS32 Bottom Mounted Sensor Shelter*

For ambient air temperature readings we recommend that the sensors are located inside a louvered sensor shelter, or radiation screen.

Envirodata's sensor shelters are modern versions of the "Stephenson Screen". Free standing models, or versions designed to sit on a mounting arm or post are available.

The sensor shelters are made from aluminium and stainless steel, and are durable enough for any environment.

# AIR TEMPERATURE SENSOR SPECIFICATIONS

## Sensing Element

- High-accuracy digital semiconductor IC

## Operating / Specified Range (TA80 assembly)

- -20 °C to +50 °C (meteorological range)

## Accuracy (over operating range)

- $\pm 0.1$  °C typical (-20 °C to +50 °C),
- $\pm 0.15$  °C typical (-40 °C to +70 °C),  
Performance based on IC specification

## Resolution

- 0.01 °C (16-bit)

## Calibration Method

- Factory calibrated
- Single-point calibration check performed and supplied with each sensor

## Enclosure

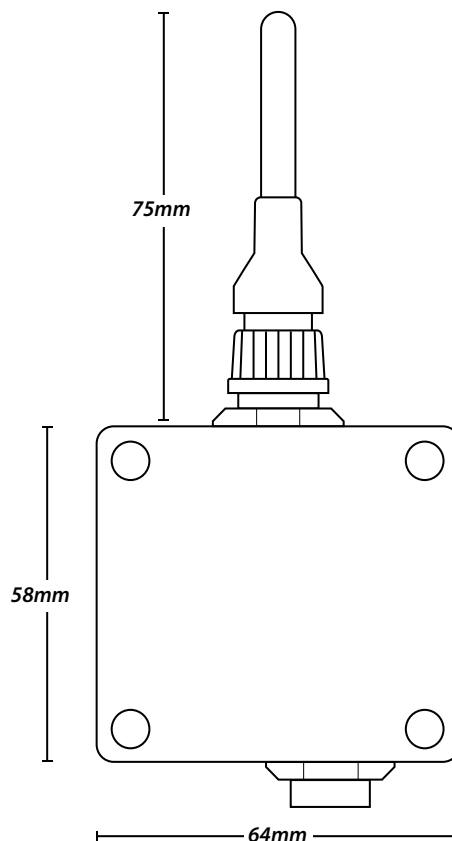
- Electronics fully sealed to IP67
- Welded stainless steel tip

## Operating Conditions

- Temperature (electronics): -40 °C to +70 °C
- Humidity: 0-100% RH (non-condensing)
- Designed for permanent outdoor exposure

## Supply Voltage (Sensor Unit)

- 6 – 20 VDC (nominal 12 VDC)



## Current Drain

- <5 mA typical

## Connector

- 3-pin Conxall male socket (standard)

## Output

- +5 Volt square wave frequency (pulse) proportional to the temperature
- -20°C = 0 Hz
- +60°C = 40 Hz
- 100% linear progression
- Frequency =  $^{\circ}\text{C}/2 + 10$

## Options

- Sensor shelter options:  
SS32 (bottom mount)  
SS33 (top mount)
- FX1M5 - 1.5m cable
- FX16 - 16m cable



Sensor Shelter on a typical 2 metre Weather Station