

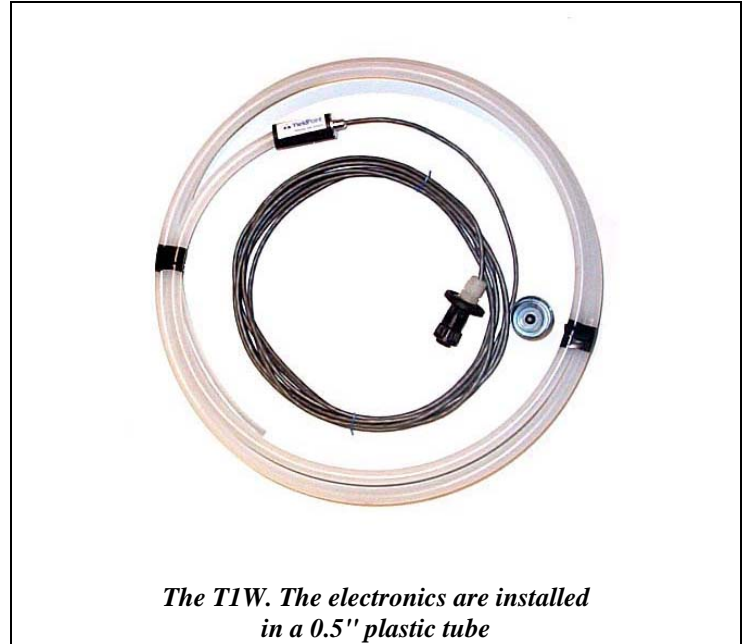
TEMP PRODUCT LINE: T1W Series - Digital ThermoStrings

Features:

- ▲ High accuracy and resolution.
- ▲ Inherently digital electronics
- ▲ Resolution of 0.1°C
- ▲ Digitally trimmed calibration at 0°C and 25°C with Calibration coeffs. Stored in Flash EEPROM
- ▲ Accuracy of +/-0.25°C (-25 to 50°C)
- ▲ Entire network put in SLEEP Mode between readings to minimize self heating inaccuracies and energy use.
- ▲ On board micro-controller provides output in real world units (10Hz/°C)
- ▲ °F readout (10Hz/°F) available on request.
- ▲ Immunity to hostile environment - Triple encapsulation.
- ▲ High survivability to blasts and vibration
- ▲ Easy to install and maintain. Arrives on site fully assembled.
- ▲ Low cost readout unit and telemetry- DESTINY
- ▲ PalmOS using SensorSYNC™
- ▲ Easy to interface with PLC's
- ▲ Form 1 to 32 temperature sensors along a single ThermoString

Geotechnical thermal management solutions usually involve the deployment of temperatures in a borehole i.e. linear array of single temperature sensors. Multiple arrays of boreholes may be used to obtain 3-D temperature distributions in such applications as ground freezing, nuclear waste disposal and the curing of concrete or backfill.

For such applications the complexity and cost of the thermal monitoring solution can be dramatically reduced by the adoption of Dallas Semiconductor's 1-Wire™ (i.e. micro-LAN) configuration as shown in the figure. YieldPoint has implemented up to 32 (more are quite possible) temperature sensors, each with a unique ID, residing on a single 1-Wire bus within the sensor. YieldPoint's unique TEMP-T1W series uses Dallas 1-Wire technology to cost-effectively create digital thermostrings of high accuracy. A micro-controller master in the head of the instrument manages the network, and, outputs a frequency modulated signal from the instrument.



The TIW. The electronics are installed in a 0.5" plastic tube

PalmOS

YieldPoint has recently introduced the SensorSYNC™ solution for to enable TEMP sensors to be polled using a PalmOS handheld device. SensorSYNC™ reads the data, makes all necessary conversions, stores the data to a database, and allows comparison with previous datasets. For sensor arrays that exceed 10 individual temperature sensors this option is strongly recommended.

Specifications:

TEMP-T1W-1 Single sensor

Dimensions: Sensor length 22mm
Sensor OD 16mm
Leadwire: 3 conductor shielded

Range -40-125°C
Accuracy <+/-0.5°C (typ +/-0.25°C)
Resolution 0.1°C (10Hz/°C)

°F readout available on request.

Signal Processing

The inherently digital nature of the signals eliminates the necessity for expensive analog-to-digital conversion and results in low cost readout unit that reads data in real world units (10Hz/°C). The sensor output is a frequency modulated digital signal that can be read by a low cost electronic meter or tachometer or the digital channels of a PLC. The signals themselves are robust (0-5V square waves) can be transmitted over 1000ft of lead-wire, and if broken the lead-wire can be twisted and taped together. Frequency modulation is preferred for the harsh mining environment where amplitude signals are prone to inaccuracies.

The product line ranges can be configured to your specification with individual temp sensors as close together a 50mm.

Manual Readout

Readout can be made using YieldPoint's low cost manual readout box, with a backlit LCD. An on-board microcontroller performs diagnostics on the leadwires, recognizes the sensor type and ID and outputs the displacement and temperature data in mm and °C. A jumper inside the unit can be used to configure the unit for either SI or imperial units.

Automatic Data Retrieval

Clusters of TEMP sensors can be read from a single readout box (maximum 6 TEMP instruments (TF1, TF5, TF10) per unit). In turn the multiple readout boxes can be networked together using DESTINY (Digitally Enabled Sensor Transducer and Instrumentation Network from YieldPoint). This is a low cost, low maintenance RS-485 network and money by transmitting data (modbus protocol), that can save time directly to a central control room or an engineer's desktop. Alternatively the data can be interfaced with the mine's existing PLC network.

ThermoStrings

TEMP -TIW Thermostrings

Up to 32 sensors per string

Dimensions: String length <50m

OD: 18mm. Triple encapsulation

Leadwire: 3 conductor shielded.

Range -40-125°C

Accuracy +/-0.25°C (-20 to +25°C)

Resolution 0.1°C (10Hz/°C)

Digitally trimmed using on board microcontroller.

°F readout available on request.

