

Thermistor Strings for Thermal Stratification Measurement

Continuous measurement of thermal stratification in water bodies is a valuable tool for predicting changes in water quality. MEA's Thermistor Strings provide a precise way of making such measurements.

Where thermoclines are weak and sensors are only a few hundred millimetres apart, sensor-matching between depths is important. MEA accurately calibrates all Thermistor Strings in a temperature-controlled tank using MEA2173 Calibrator software. MEA's Thermistor Strings have inter-sensor matching equal to or better than $\pm 0.006^{\circ}\text{C}$, and have a measurement resolution of $\sim 0.001^{\circ}\text{C}$.

MEA's Thermistor Strings use the industry standard SDI-12 data bus to return data to any SDI-12 capable Data Logger. 3-core submersible rubber cable provides power and communications between the Logger and the sensors. Standard sensors are submersible to 50m. Strengthened sensors can be made for submersion to 90m.

The sensors are built into 'strings' consisting of one or many sensors: up to 30 per String, 62 sensors total for any one Data Logger. MEA manufactures Thermistor Strings to order; just specify the number of sensors and the depth at which they are to hang. Strings can be buoy-mounted or bottom-anchored depending upon the application.

MEA also builds complete stratification measurement systems, including systems with built-in climate sensors, heat flux sensors, ship-to-shore Modbus radio, remote telemetry access, packet-data transmission to file servers, or radio-linking of sensor strings deployed in lines or grids.

Features and Benefits

- Sensor matching to or better than $\pm 0.006^{\circ}\text{C}$.
- Uses industry standard SDI-12 data bus to return data to any SDI-12 capable Data Logger.
- Submersible to 50m



Specifications for Thermistor String sensors (MEA2173)

Attribute	Min	Typical	Max	Units
Power Supply Voltage	7	12	20	VDC
Current Draw				
Active		3.6		mA
Measuring		3.9		mA
Sleep		0.08	0.10	mA
Resolution				bits per $^{\circ}\text{C}$
-5°C to $+33^{\circ}\text{C}$	0.002	16		
-5°C to $+8^{\circ}\text{C}$		0.001	0.001	
$+8^{\circ}\text{C}$ to $+33^{\circ}\text{C}$		0.002		
$+8^{\circ}\text{C}$ to $+33^{\circ}\text{C}$		0.001		
Accuracy		± 0.02		$^{\circ}\text{C}$
Intra-string matching	± 0.010	± 0.005		$^{\circ}\text{C}$
Inter-string matching	± 0.010	± 0.010		
Operating temperature	-5		+33	$^{\circ}\text{C}$
Submersion depth		50	90* (by order)	m
SDI-12 version compliance			1.3	
Dimensions (excluding cable)		$\text{\O}22 \times \text{L}250$		mm
Weight		250		gm