THERMISTOR

The BDI Thermistor Probes are supplied inside a housing at the end of a cable ready to be attached to a structure, or buried in concrete or in the ground. Thermistor Probes are particularly well suited for measuring the heat of hydration in concrete and RCC dams.

EMBEDDABLE THERMISTOR

Thermistors have a negative temperature coefficient (NTC) where their resistance decreases with increasing temperature. The NTC can be as large as several percent per degree C, which allows the thermistor to detect minute changes in temperature. Thermistors are very small, which means they will respond quickly to temperature changes.

Thermistors have a non-linear output that can be represented by the Steinhart-Hart Equation:

$$T_C = \frac{1}{A + B(\ln R) + C(\ln R)^3} - 273.2$$

Where T is the temperature in degrees Centigrade and R is the resistance in ohms.

Thermistors are selected at the factory which conform with this equation, either to a standard accuracy of ±0.5°C.

The correspondence between the resistance output in ohms and the equivalent temperature in degrees Celsius is presented in tabular form with each thermistor or thermistor string. The high resistance of the thermistor affords it a distinct measurement advantage inasmuch as a four-wire resistance measurement to compensate for cable effects is not required, as may be the case with RTDs (Resistance Temperature Detectors). Thermistor output is nominally 3000 ohms at 25°C and around this temperature the rate of change of resistance is approximately 130 ohms / °C. For greater accuracy the resistance of the cable leading to the thermistor can be taken into account (with non-addressable sensors).

THERMISTOR PROBES TECHNICAL SPECS	
RANGE	–20° to +80°C
RESOLUTION	0.1°C
ACCURACY [1]	±0.5°C
HOUSING	PVC
LENGTH × DIAMETER	50 x 12mm

CONCRETE CURING TEMPERATURE MONITORING