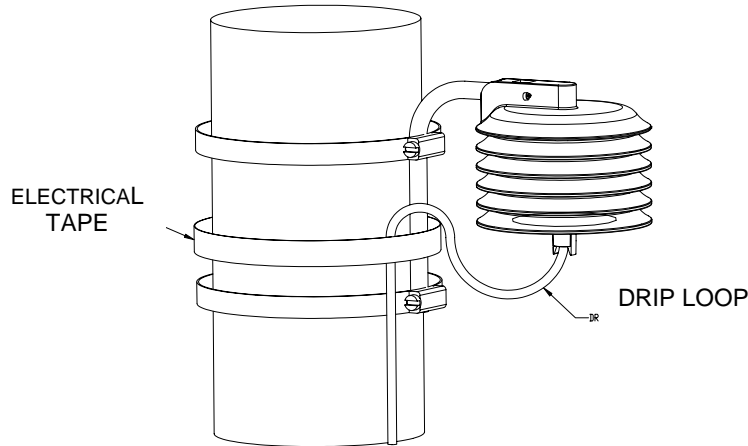# #110S Temperature Sensor

## FEATURES

- Internal reference and linearization provides high accuracy.

- Universal mounting assembly mounts quickly to pipe or tower.

- Six-plate radiation shield allows accurate measurement of ambient air temperature.



ELECTRICAL TAPE

DRIP LOOP

The NRG #110S temperature sensor is a low-cost, durable integrated circuit temperature sensor that provides a high level voltage output signal.  The #110S includes an internal reference, amplifiers, and linearization, and a six-plate UV-stabilized radiation shield.

The sensor is ideal for collecting temperature data for energy density calculations and monitoring air temperature at remote sites.

## SPECIFICATIONS

| Description | Sensor type | integrated circuit temperature sensor with six plate radiation shield |
|---|---|---|
| | Applications | <ul><li>wind resource assessment</li><li>meteorological studies</li><li>environmental monitoring</li></ul> |
| | Sensor range | -40 °C to 52.5 °C (-40 °F to 126.5 °F) |
| | Instrument compatibility | all NRG loggers |
| Output signal | Signal type | linear analog voltage |
| | Transfer function | Temp = (Voltage x 55.55) - 86.38 °C [Temp = (Voltage x 100) - 123.5 °F] |
| | Accuracy | <ul><li>offset is +/- 0.8 °C (1.4 °F) maximum</li><li>nonlinearity is +/- 0.33 °C (+/- 0.6 °F) maximum</li><li>total error +/- 1.1 °C (2 °F) maximum</li></ul> |
| | Electrical time constant | 250 µs |

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| | Output signal range | 0 V to 2.5 V DC |
|---|---|---|
| Response characteristics | Thermal time constant | 10 minutes |
| Power requirements | Supply voltage | 4 V to 35 V DC |
| | Supply current | 300 µA max. (no load on output) |
| Installation | Mounting | attaches to tower with included hose clamps |
| | Tools required | • 8mm (5/16 inch) nut driver or flat blade (-) screwdriver (to install hose clamps)<br>• sheet metal shears or similar (for trimming hose clamps) |
| Environmental | Operating temperature range | -40 °C to 52.5 °C (-40 °F to 126.5 °F) |
| | Operating humidity range | 0 to 100% RH |
| | Lifespan | 10 years + |
| Physical | Connections | wire leads:<br>• signal (clear wire)<br>• ground (black wire)<br>• excitation (red wire)<br>• shield wire for earth ground |
| | Cable length | 5 m (16 feet) |
| | Weight | 0.47 kg (1.04 pounds) |
| | Dimensions | • sensor only: 30.5 mm (1.2 inches) height x 12.7 mm (0.5 inch) diameter<br>• sensor with radiation shield: 127 mm (5 inches) diameter x 127 mm (5 inches) height |
| Materials | Cable | 3 conductor 22 AWG, with overall foil shield and drain wire, chrome PVC jacket |
| | Probe | aluminum, epoxy filled |
| | Shield | UV-stabilized thermoplastic solar radiation shield |