

107 and 108

Temperature Probes

The 107 and 108 are rugged, accurate probes that measure air, soil, and water temperature in a variety of applications. These probes consist of a thermistor encapsulated in an epoxy-filled aluminum housing. The housing protects the thermistor allowing the probes to be buried or submerged. The 107 measures from -35° to $+50^{\circ}\text{C}$, the 108 from -5° to $+95^{\circ}\text{C}$.

Please note that the 107 and 108 are not compatible with the CR200(X)-series dataloggers. However, a similar thermistor, the 109, has been developed specifically for our CR200(X)-series dataloggers.

Installation

Air Temperature

When exposed to sunlight, the 107 and 108 probes should be housed in a 41303-5A 6-plate Gill Radiation Shield. The 41303-5A's louvered construction allows air to pass freely through the shield thereby keeping the probe at or near ambient temperature. The shield's white color reflects solar radiation. The 41303-5A attaches to a crossarm, mast, or user-supplied pipe with a 1.0-in. to 2.1-in. outer diameter.

Water Temperature

The probes can be submerged to 50 feet (21 psi). Please note that neither the 107 nor 108 is weighted. Therefore, the installer should either add a weighting system or secure the probe to a fixed, submerged object, such as a piling.

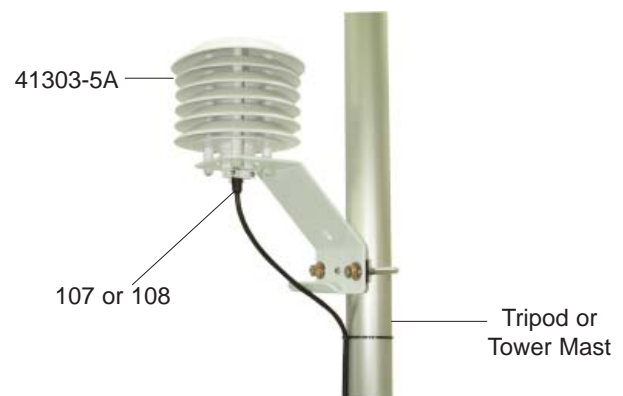
Soil Temperature

The 107 and 108 are suitable for shallow burial only. Placement of the probe's cable inside a rugged conduit may be advisable for long cable runs—especially in locations subject to digging, mowing, traffic, use of power tools, or lightning strikes.

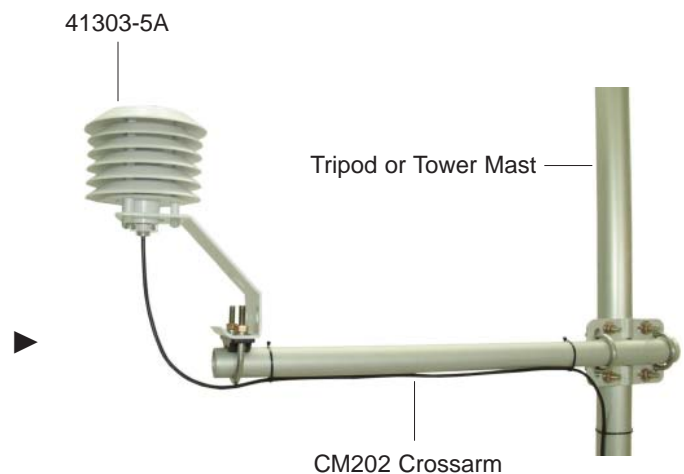
To attach the 41303-5A to a CM202, CM204, or CM206 crossarm, place the 41303-5A's U-bolt in the bottom holes.



Each 107 or 108 probe requires one single-ended channel for measurement.



Above is a probe housed in the 41303-5A radiation shield. The U-bolt is placed in the holes on the side of the bracket to allow the 41303-5A to be attached to a mast or vertical pole.



Recommended Cable Lengths for Air Temperature Measurements

2-m Height		Atop a tripod or tower via a 2-ft crossarm such as the CM202								
Mast/Leg	CM202	CM6	CM106	CM10	CM110	CM115	CM120	UT10	UT20	UT30
9 ft	11 ft	11 ft	14 ft	14 ft	14 ft	19 ft	24 ft	14 ft	24 ft	37 ft

Note: Add two feet to the cable length if mounting the enclosure to the leg base of a CM106, CM110, CM115, or CM120 tripod.

Ordering Information

Temperature Probes

- 107-L** Temperature Probe (-35° to +50°C) with a user-specified cable length; enter the cable length (in feet) after the -L. Recommended cable length is shown above. Must choose a cable termination option (see below).
- 108-L** Temperature Probe (-5° to +95°C) with a user-specified cable length; enter the cable length (in feet) after the -L. Recommended cable length is shown above. Must choose a cable termination option (see below).

Cable Termination Options (choose one)

- PT** Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
- PW** Cable terminates in connector for attachment to a prewired enclosure.

Solar Radiation Shield for Air Temperature Measurements

- 41303-5A** 6-Plate Gill Radiation Shield that houses a 107 or 108 for air temperature measurements.

Specifications

- Sensor:** BetaTherm 100K6A1B Thermistor
- Tolerance**
- 107:** ±0.2°C over 0° to 50°C range
- 108:** ±0.2°C over 0° to 70°C range
- Temperature Measurement Range**
- 107:** -35° to +50°C
- 108:** -5° to +95°C
- Steinhart-Hart Equation Error (CRBasic loggers only):** ≤±0.01°C over measurement range
- Polynomial Linearization Error (Edlog loggers only)**
- 107:** Typically <±0.5°C over measurement range
- 108:** Typically <±0.5°C over -5° to +90°C range
- Time Constant in Air:** 30 to 60 seconds in a wind speed of 5 m sec⁻¹
- Maximum Cable Length:** 1000 ft (305 m)
- Probe Length:** 4.1 in. (10.4 cm)
- Probe Diameter:** 0.3 in. (0.762 cm)
- Weight with 10-ft cable:** 5 oz (136 g)

