

43347 RTD Temperature Probe and 43502 Aspirated Radiation Shield



The 43347 probe

RM Young's 43347 RTD Temperature Probe is typically housed in a 43502 Aspirated Radiation Shield to provide high accuracy measurements for air temperature applications. Two probes can be used to measure the delta temperature, where a 43347 probe is mounted in a 43502 shield attached to the tower at 2 m and 10 m height. The temperature difference of the two measurement heights is calculated and used to determine atmospheric stability. The 43347 may also be housed in a 41003-5 or Met21 Naturally Aspirated Shield if fan-driven aspiration is not required.

43347 RTD Temperature Probe

The 43347 probe has a 1000 ohm RTD that accurately measures ambient air temperature. The 43347 probe is supplied with a three point calibration that allows the RTD to have an uncertainty of only $\pm 0.1^{\circ}\text{C}$



The 43502 attached to a vertical pole

43502 Aspirated Radiation Shield

The 43502 employs concentric downward facing intake tubes and a small canopy shade to isolate the temperature probe from direct and indirect radiation. The 43347 probe mounts vertically in the centre of the intake tubes. A brushless 12 Vdc blower motor pulls ambient air into the shield and across the probe to reduce radiation errors. This allows temperature to be measured with an RMS error of less than $\pm 0.2^{\circ}\text{C}$. The blower operates off a 100-240 Vac to 12 Vdc power supply.

Mounting

Mounting for the 43502 radiation shield is by a u-bolt which is used to attach the shield to a mast, tower leg, or vertical pipe with up to 50 mm OD. By moving the u-bolt to the other set of holes, the 43502 can be attached to a crossarm.

You will need the #27251 split nut to use the 43347 with the 41003-5 10-plate naturally aspirated radiation shield.

Features

43347

Uses RTD for highly accurate air temperature measurements

Suitable for measuring delta T (typically 2 and 10-metre measurement heights) to calculate atmospheric stability class

Mounts inside 43502 Aspirated Radiation Shield (uses 6.5 W)

Manufactured by R. M. Young

43502

Usually used with 43347 RTD probe but can accommodate other temperature and humidity sensors

Mounting bracket included on the shield attaches to posts or masts up to 50 mm in diameter

Specifications

43347 RTD Temperature Probe

Sensing Element:	HY-CAL 1000 ohm Platinum RTD supplied in 4-wire configuration
Temperature Range:	±50°C
Accuracy:	±0.1°C with NIST calibration
Temperature Coefficient:	0.00375 ohm/°C
Weight:	0.54 kg (1.2 lbs)
Dimensions:	17.8 cm (7") overall length 0.318 cm (0.125") probe tip diameter 5.72 cm (2.25") probe tip length
Fan life:	Design life is 9 years in non-corrosive atmospheres.

43502 Aspirated Radiation Shield

Aspiration Rate:	5 to 11 m s ⁻¹ (16-36 fps) depending on sensor size
Ambient Temperature:	<0.2°C (0.4°F) RMS (@1000 W/m ² intensity)
Delta T:	<0.05°C (0.1°F) RMS with like shields equally exposed
Power Required:	12 to 14 Vdc @ 500 mA for blower
Dimensions:	33 cm (13") overall length 20 cm (8") overall diameter
Mounting:	V-Block and U-Bolt for vertical pipe with 2.5-5.0 cm (1.0" to 2.0") diameter

Ordering Information

- 43347 R.M. Young RTD NIST calibrated Temperature Probe in 4-wire configuration with 3 m standard cable. Other cable lengths available in 5 m increments e.g. 5, 10, 15 m.
- 4WPB1K 4 wire PRT module (1k) required if not using the current excitation outputs of a CR3000 or CR5000.
- 43502 R.M. Young Aspirated Radiation Shield with AC power supply. (1.8 m lead)
- 006903 Suitable power cable for 43502 - specify required length in metres to reach AC power supply.