



MODEL 41003 MULTI-PLATE RADIATION SHIELD

INSTRUCTION SHEET 41003-90
REV C012114

INTRODUCTION

The Multi-Plate Radiation Shield protects temperature and relative humidity sensors from error-producing solar radiation and precipitation. This shield relies on a combination of plate geometry, material and natural ventilation to provide effective shielding.

INSTALLATION

The Multi-Plate Radiation Shield is designed to be mounted on a relatively flat open area. For best performance, the shield should be placed in a location with the following characteristics:

- Good air circulation around shield.
- Away from large masses (asphalt, masts, solar panels) especially metal items.
- Away from building exhaust vents, electrical machinery and motors.
- Away from standing water, water fountains and sprinklers.

MAINTENANCE

The Multi-Plate Radiation Shield requires no regular maintenance in normal use. Dirt or dust accumulation on the plates and bracket can be cleaned with soap and water. **Do not use solvents.**

SPECIFICATIONS

Sensor Mounting:

Model 41003:

Universal adapter for sensors up to 16mm diameter.

Model 41003P-24:

A 24mm adapter for standard YOUNG sensors.

Model 41003P:

Custom sensor adapter that can be machined for sensors up to 26mm diameter.

Radiation Error: 1080 W/m² intensity

0.4°C (0.7°F) RMS @ 3 m/s (6.7 mph)

0.7°C (1.3°F) RMS @ 2 m/s (4.5 mph)

1.5°C (2.7°F) RMS @ 1 m/s (2.2 mph)

Construction:

UV stabilized white thermoplastic plates.

Stainless Steel Plate Studs.

Aluminum mounting bracket, white powder coated.

Stainless steel U-bolt mounting clamp.

Dimensions:

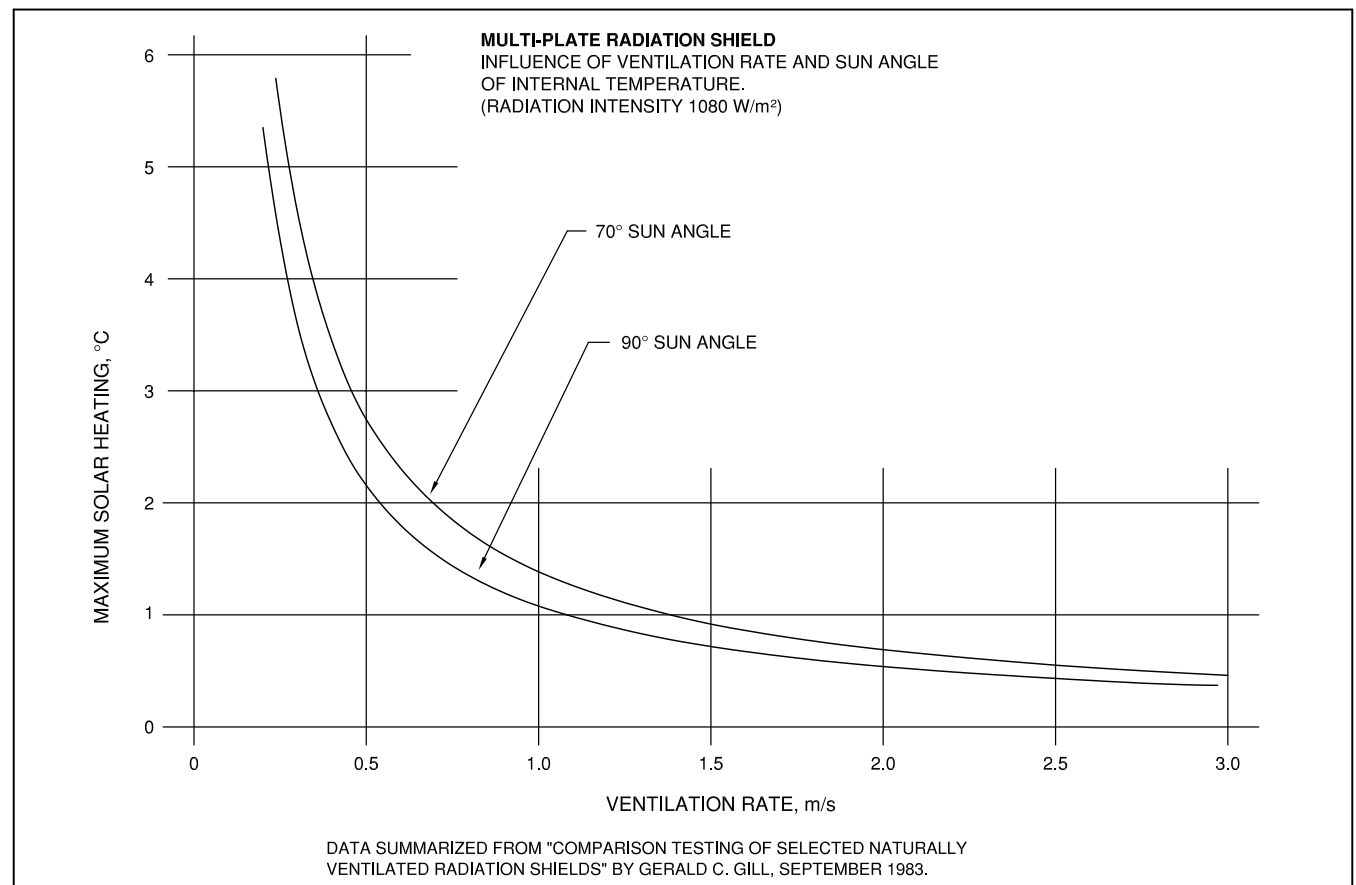
13 cm (5.1 in) D x 27 cm (10.6 in) H

Mounting fits vertical pipe 25-50 mm (1-2 in) diameter

Weight:

Net wt 0.7 kg (1.6 lb)

Ship wt 1.4 kg (3.2 lb)





REFERENCES: MULTI- PLATE RADIATION SHIELD

References containing additional information about development and applications of the Multi-Plate Radiation Shield are listed below in chronological order:

Gill, G.C., "Development of a Small Rugged Radiation Shield for Air Temperature Measurements on Drifting Buoys", Report to NOAA Data Buoy Office for Development Contract #01 -7-038-827 (IF) 1979, 23 pp, 17 figs.

Gill, G.C., "Comparison Testing of Selected Naturally Ventilated Solar Radiation Shields", Report to NOAA Data Buoy Office for Development Contract #NA-82-OA-A-266, 1983, 15 pp., 15 figs.

Gammill, B., "Temperature Sensor Shield Comparison" Internal Test Report, Physical Science Laboratory, New Mexico State University, 1985.

Payne, R.E., "Air Temperature Shield Tests", WHOI-87-40, Woods Hole Oceanographic Institution, 1987, 22 pp.

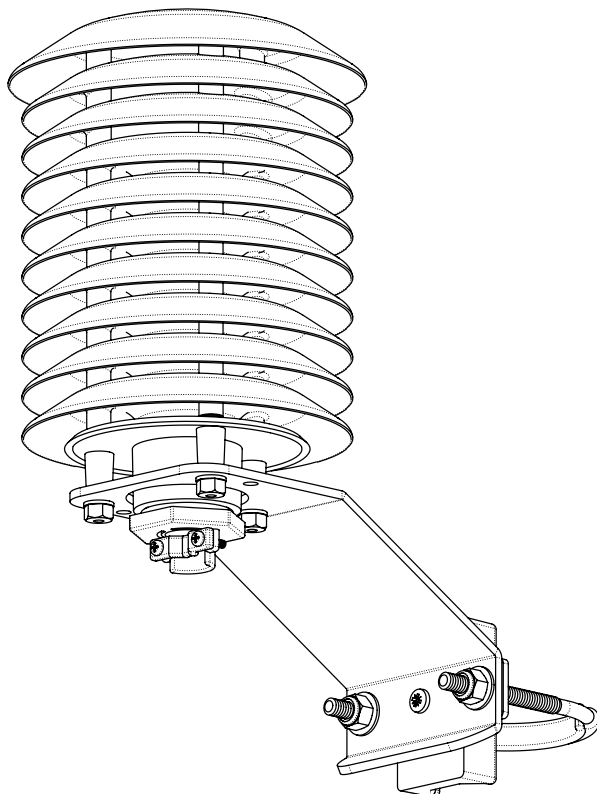
Payne, R.E., "The MR: A Meteorological Data Sensing, Recording and Telemetry Package for Use on Moored Buoys", Journal of Atmospheric and Oceanic Technology, Vol. 5, No. 2, 1988, pp. 286-297.

Crescenti, G.H., Payne, R.E., and Weller, R.A., "Improved Meteorological Measurements from Buoys and Ships (I MET): Preliminary Comparison of Solar Radiation Air Temperature Shields", WHOI.-89-46/IMET TR-89-03, Woods Hole Oceanographic Institution, 1989, 53 pp.

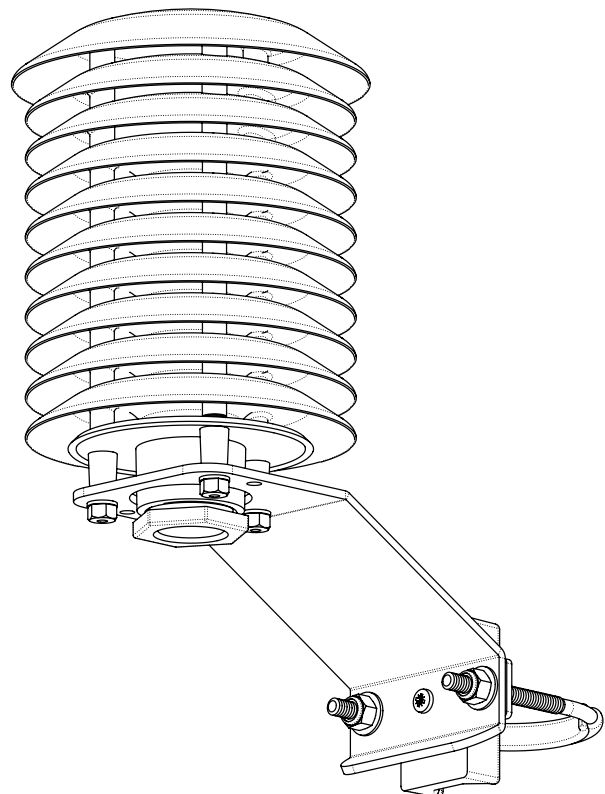
Weller, R.A., and Hosom, D.S. "Improved Meteorological Measurements from Buoys and Ships for the World Ocean Circulation Experiment", Proceedings Oceans '89, Seattle, IEEE, 1989, pp. 1410-1415.

Fougere, A.J., Brown, N.L., and Hobart, E., "Digital Output Temperature Sensing Module for Oceanographic & Atmospheric Measurements", Proceedings Marine Instrumentation '90, San Diego, Marine Technology Society, 1990, pp. 46-51.

Anderson, T., and Mattison, I., "A Field Test of Thermometer Screens", Report 900426, Swedish Meteorological and Hydrological Institute, 1990, 15 pp., 19 figs.



41003
Multi Plate Radiation Shield
Sensor Diameter 0-16mm



41003P
Multi Plate Radiation Shield
41003P-24 for standard YOUNG Pobes
41003P Customer Specified Adapter