



METEOROLOGICAL INSTRUMENTS

**MODEL 41003, 41003-2, 41003P
MULTI-PLATE RADIATION SHIELD**

INSTRUCTION MANUAL

WARRANTY AND ASSISTANCE

R.M. YOUNG PRODUCTS are warranted by CAMPBELL SCIENTIFIC (CANADA) CORP. ("CSC") to be free from defects in materials and workmanship under normal use and service for **twelve (12) months** from date of shipment unless specified otherwise. CSC's obligation under this warranty is limited to repairing or replacing (at CSC's option) defective products. The customer shall assume all costs of removing, reinstalling, and shipping defective products to CSC. CSC will return such products by surface carrier prepaid. This warranty shall not apply to any CSC products which have been subjected to modification, misuse, neglect, accidents of nature, or shipping damage. This warranty is in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose. CSC is not liable for special, indirect, incidental, or consequential damages.

Products may not be returned without prior authorization. To obtain a Return Merchandise Authorization (RMA), contact CAMPBELL SCIENTIFIC (CANADA) CORP., at (780) 454-2505. An RMA number will be issued in order to facilitate Repair Personnel in identifying an instrument upon arrival. Please write this number clearly on the outside of the shipping container. Include description of symptoms and all pertinent details.

CAMPBELL SCIENTIFIC (CANADA) CORP. does not accept collect calls.

Non-warranty products returned for repair should be accompanied by a purchase order to cover repair costs.



CAMPBELL SCIENTIFIC
C A N A D A C O R P .

11564 - 149 street - edmonton - alberta - T5M 1W7
tel 780.454.2505 fax 780.454.2655

www.campbellsci.ca



MODEL 41003

MULTI-PLATE RADIATION SHIELD

INSTRUCTION SHEET 41003-90
REV01-03

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 flat surface. For best performance, the shield should be placed in a location with the following characteristics:

- Good air circulation around shield.
- Away from large masses (buildings, masts, solar panels) especially metal items.
- Away from exhaust vents, electrical machinery and motors.
- Away from 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 includes universal adapter for sensors to 12.5mm diameter.

Model 41003P includes custom sensor adapter that can be machined for sensors 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.

Aluminum mounting bracket, white

Stainless steel U-bolt mounting clamp.

Dimensions:

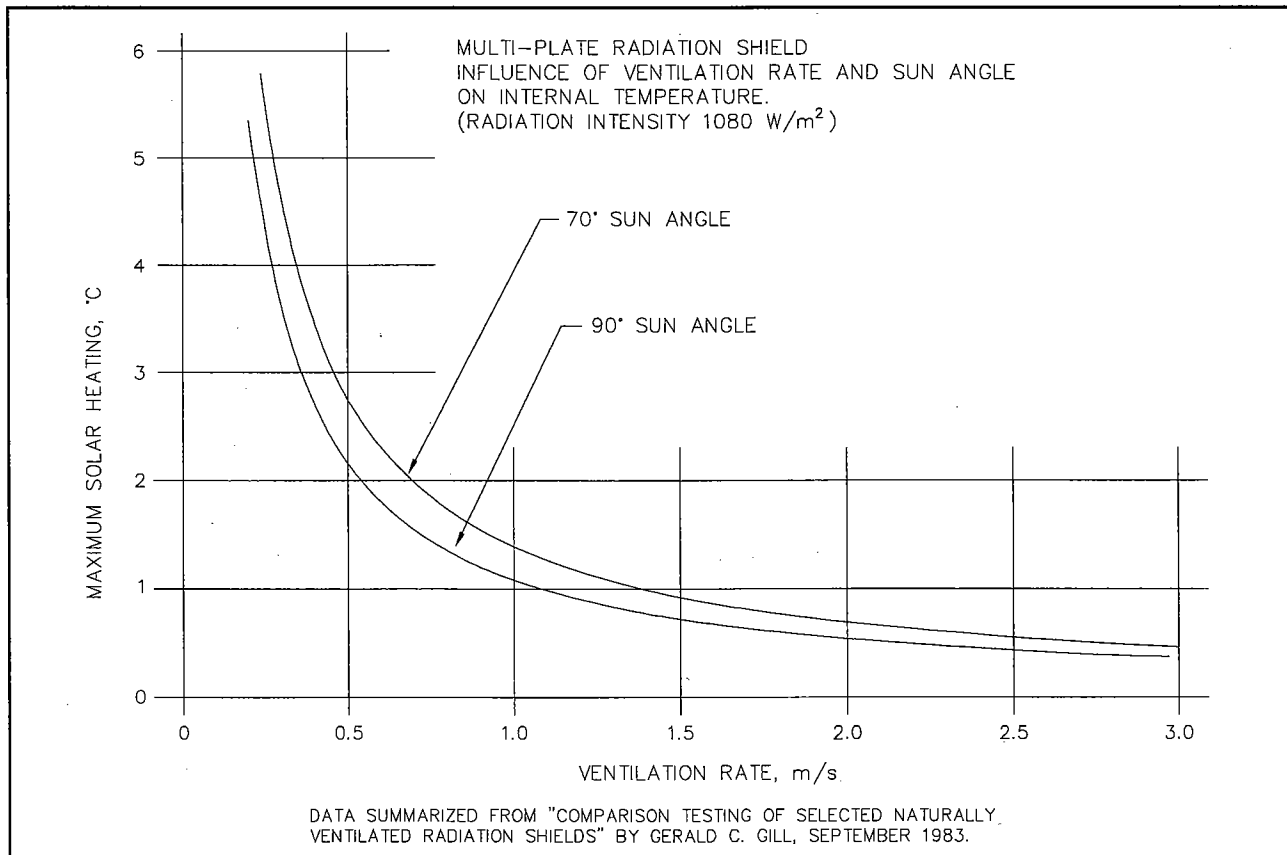
12 cm (4.7 in) D x 27 cm (10.6 in) H

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.

Gamill, 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.

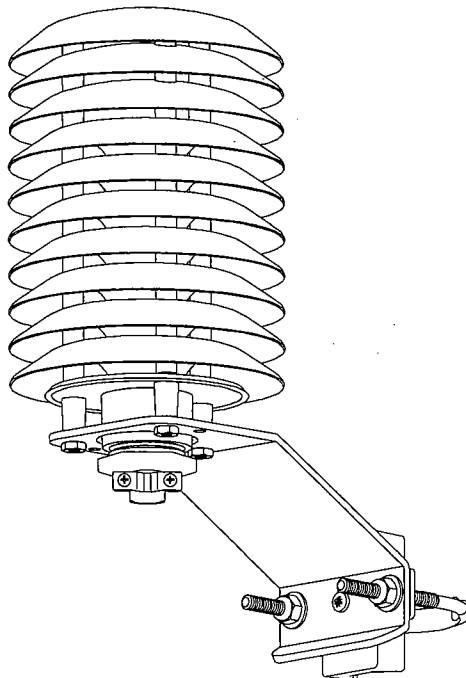
Payne, R.E., "The MR: A Meteorological Data Sensing, Recording and Telemetry Package for Use on Moored Buoys", Journal of Atmospheric and Oceanic Technology, Vol. 5, No. 2, 1988, pp. 286-297.

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.

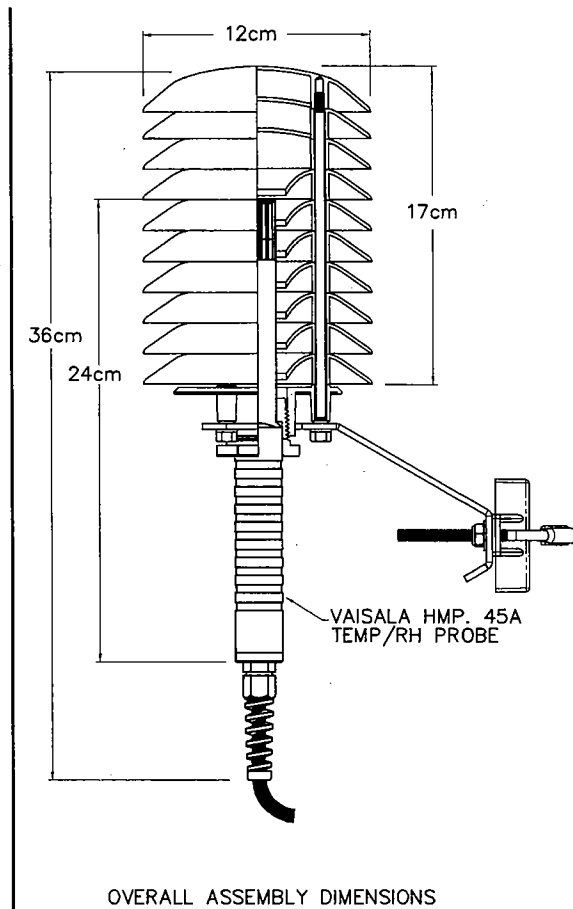
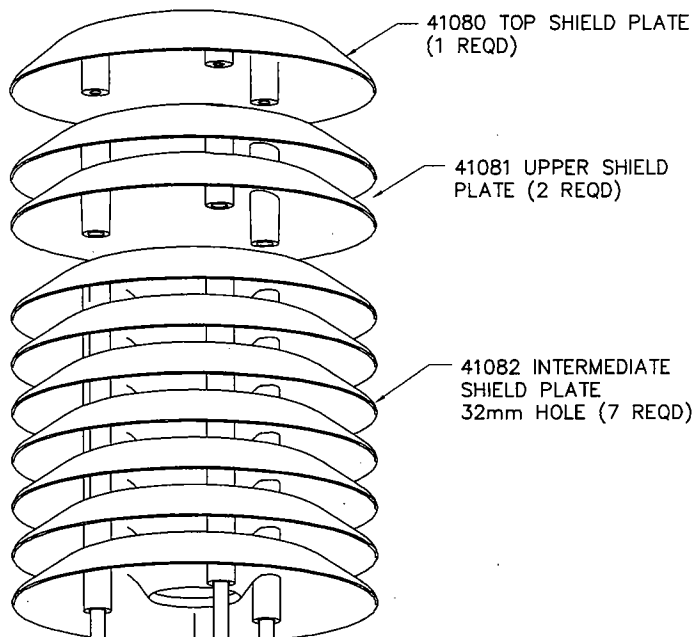
Anderson, T., and Mattison, I., "A Field Test of Thermometer Screens", Report 900426, Swedish Meteorological and Hydrological Institute, 1990, 15 pp., 19 figs.





YOUNG

MODEL 41003-2 MULTI-PLATE RADIATION SHIELD - 10 PLATE



41055 MULTI PLATE STUD (178mm), (3 REQD)

41054 O-RING 008 (3 REQD)

41045 SENSOR MOUNTING PLATE

41050 MOUNTING BRACKET ASSY

41051 OFFSET PLATE

#10-32 WHITE NYLON NUT (3 REQD)

1/4-20 STOP NUT (2 REQD)

1/4 SS FLAT WASHER (2 REQD)

#8 x 3/8 SHT METAL SCREW

41052 V-BLOCK

41053 U BOLT, NUTS & WASHERS

U-BOLT CLAMPS TO 25mm TO 50mm (1" TO 2") DIAMETER

41046DS-24A PROBE ADAPTER FOR VAISALA HMP45 PROBE

MODEL 41003-2	DWG	PRD 01/03
MULTI-PLATE RADIATION SHIELD (10 PLATE)	DWN JMT	DWG 02/03
FOR VAISALA HMP 45A	CHK	E41003-2
R.M. YOUNG CO. TRAVERSE CITY, MI 49686 U.S.A. 231-946-3980		

