

# Radiation Shield

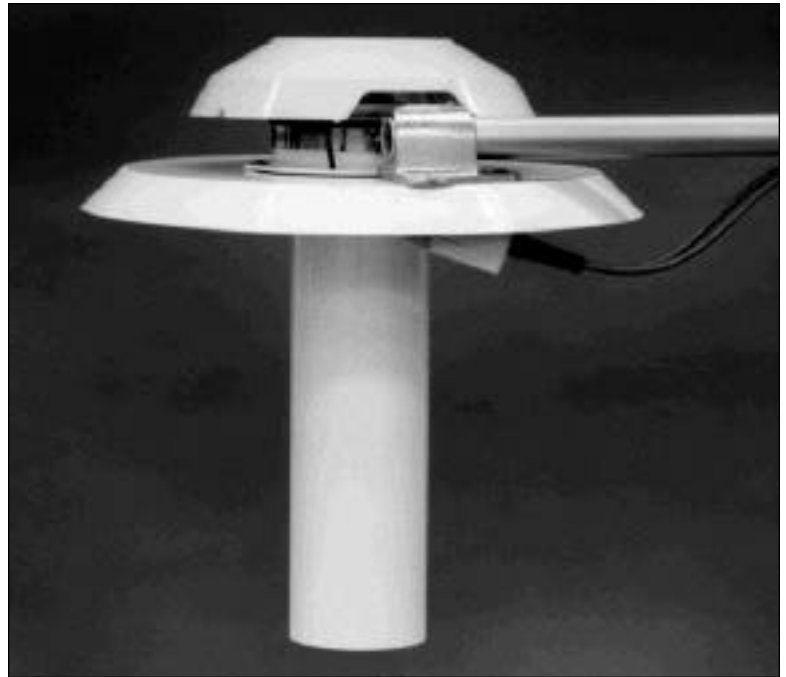
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The Model 077 Motor Aspirated Radiation Shield is designed to continuously sample ambient air with high accuracy for temperature and differential temperature measurements. The shield design greatly reduces errors caused by either solar or terrestrial radiation as well as secondary errors caused by convective heat transfer from the outer shield surfaces.

## Features

- Low power 12 VDC operation
- Will hold a variety of temperature sensors
- Large primary section will accommodate several sensors for Delta T measurements
- Reduces radiation errors to less than 0.15°F
- Radiation errors are independent of outside surface emissivity
- Easy tower servicing
- Sealed terminal box for easy sensor service or calibration
- Permits the installation of up to 4 individual sensors

The Model 077 Radiation Shield can house combinations of temperature, delta temperature and relative humidity sensors.



The Model 077 Radiation Shield

## Operation

Air is drawn into the bottom of the shield through two concentric ports. High velocity air drawn into the outer port scrubs the hot surface air from the exterior radiated surfaces and is exhausted.

The inner port draws in the air sample, a true gas temperature measurement is made and the air is exhausted at the top of the radiation shield. This air flow system prevents convective heat transfer to the sampling stream.

## Construction

The shield is constructed of three lightweight aluminum cylinders which surround the sensors. All outer surfaces have been painted with a high gloss enamel for maximum reflection. All interconnecting materials have been selected to minimize conductive heat transfer between the various shields.

The combination of air flow, symmetrical shield design, and proper selection of surface finishes provide a shield that greatly reduces errors caused by radiation.



## Met One Instruments, Inc.

Corporate Sales & Service: 1600 Washington Blvd., Grants Pass, OR 97526, Phone (541) 471-7111, Fax (541) 471-7116  
Distribution & Service: 3206 Main Street, Suite 106, Rowlett, TX 75088, Phone (972) 412-4747, Fax (972) 412-4716  
<http://www.metone.com> • [metone@metone.com](mailto:metone@metone.com)

# Specifications

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## Performance

Radiation Error: Less than 0.15°F under maximum solar radiation of 1.6 gm-cal/cm/min

Range: -30°C to +70°C standard

Temperature Sensor: (Not supplied)  
Model 060 Thermistor or a variety of other sensors (please specify)

## Electrical Characteristics

Power Inputs: 12 V, less than 200 mA

## Mechanical Characteristics

Mounting: Mounts on horizontal 3/4 inch pipe

Minimum Sensor Length: 4 in (10.1 cm)

Maximum Sensor Length: 8 in (20.3 cm)

Maximum Sensor Diameter: 1 in (2.54 cm)

Weight: 6 lbs (2.72 kg)

## Connections and Mating Cables

Power Cable: PN 2409 Power Cable Assembly

Sensor Cable: PN 2408 Cable Assembly

Additional sensors and special cables, consult factory

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