



Vertical Motor-Aspirated Radiation Shield Model 8195

allweatherinc

Overview

The Model 8195 Vertical Motor-Aspirated Radiation Shield (MARS) provides protected mounting for temperature and humidity probes, shielding them from direct solar heating and precipitation contact. The Model 8195 MARS is a virtually maintenance-free radiation shield constructed of heavy-duty, non-corrosive polymer, and featuring a reliable, long-life 12 V DC fan for continuous aspiration. It accommodates one sensor — a temperature probe, a humidity probe, or a combination temperature/humidity probe. All cable terminations to the MARS are made through weatherproof connectors mounted on the enclosure.

Accuracy by Design

The Model 8195 Vertical Motor-Aspirated Radiation Shield is ideal for use in areas susceptible to hoarfrost accumulation, which tends to happen in the hours preceding sunrise. The larger intake diameter makes sure there is sufficient room for air to pass when hoarfrost is building up. The vertical geometry and the larger surface area associated with the larger intake diameter act together to allow the hoarfrost in contact with the shield to sublime quickly and for the whole piece of accumulated hoarfrost to simply drop out once the sun rises and warms up the surface.

Theory of Operation

The Model 8195 MARS is designed to ventilate a probe to prevent heat buildup, while at the same time shielding it from direct and reflected solar radiation and



- Virtually maintenance-free
- Heavy duty
- Reliable
- Transport Canada Approved

from direct moisture contact. It is constructed of heavy-duty polymer to limit thermal mass, and thereby preventing radiant heating of temperature probes by the tubing. Highly reflective white paint is applied to all exterior surfaces to reflect as much solar radiation as possible.

Air flow through the Model 8195 MARS is virtually free of any obstruction. Spacing is selected to give maximum air flow and at the same time prevent direct solar contact with the probe. Fresh air is forced through the Model 8195 MARS by a fan to allow measurement of the actual air temperature. The exhaust vent of the Model 8195 MARS is above the vent tube, and is

covered at the top to prevent any accumulation of debris or buildup of solid precipitation. Any heat developed by the fan motor or the shield itself will be exhausted away from the vent surrounding the top of the vertical shield, preventing this heat from re-entering the Model 8195 MARS and being measured by the temperature probe.

The tachometer connection from the Model 8195 MARS to the Model 2715 Universal Power and Communication Module (UPCM) allows the fan rotations of the MARS fan motor to be counted and displayed by the data processing system connected to the UPCM.

SENSORS

SPECIFICATIONS

Parameter	Specification
Operating Temperature	-75°C to +60°C (-103°F to +140°F)
Radiation Error	0.28°C (0.5°F) @ 12 V DC 1000 W/m ² solar radiation
Air Flow	35 m/min (114 ft/min) @ 12 V DC
Fan Life	50,000 h @ 40°C
Supply Voltage	7–13.8 V DC
Current Consumption	200 mA @ 12 V DC
Construction Material	PVC

ORDERING INFORMATION

Part Number	Description
8195	Vertical Motor-Aspirated Radiation Shield
M488472-00	Vertical Motor-Aspirated Radiation Shield Pole Mounting Kit

DIMENSIONS & WEIGHTS

Dimensions	Diameter: 21.0 cm (top) × 11.4 cm (bottom) × 47.7 cm H (8.25" × 4.5" × 18.75" H)
Weight	2.7 kg (6 lb)
Shipping Weight	6 kg (13 lb)



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Rev. B 05/2019