

MOTOR ASPIRATED RADIATION SHIELD

FEATURES

- **Accurate to 0.2°F (0.1°C)**
- **Easy Access to Sensors**
- **Quick Release Sensor Mount**
- **High MTBF Ball Bearing Motor**
- **Accepts a Variety of Sensors**
- **Optional Airflow Warning Device**

Climatronics Motor-Aspirated Solar Radiation Shield, Motor TS-10 (P/N 100325), utilizes a triple-shield design and fan to provide the constant mass flow rate past the sensor(s) necessary to yield accurate temperature values. This shield is superior to a naturally aspirated shield, which relies on the wind conditions for sensor ventilation. Constant flow plus superior protection from incoming short-wave solar radiation and outgoing long wave radiation make the TS-10 shield a requirement for the most critical ambient measurements.

The TS-10 includes a quick release sensor mount assembly and a motor housing with safety chain to facilitate field-testing and scheduled preventative maintenance. This permits "on-site" calibration without tools. The aspirator motor, which features a recirculating oil bath ball bearing design for the utmost in reliability, provides a continuous fresh air sample to the temperature sensor(s) at a rate of approximately 10ft/sec (3m/s) regardless of the prevailing wind conditions. The combination of forced aspiration with the highly effective triple-shield design insures that measurements errors due to direct or reflected radiation at any angle or temperature range do not exceed 0.2°F (0.1°C).

The TS-10 is modified for a dew point sensor by attaching a dew point shield. The shield is designed to provide stable dew point measurements while maintaining a sensor aspiration rate that does not degrade the response of the sensor.

A flow switch to indicate any obstruction of normal air flow or motor failure is available as an option. The device consists of a small vane that trips a SPDT switch, depending on airflow volume. The contacts of this switch are wired to the signal connector and may be applied to an input port of a data acquisition system. The entire aspirated shield is painted with a highly reflective and wear-resistant white paint and comes supplied with hardware for mounting on vertical pipes of various diameters. This aspirated shield will accommodate a variety of temperature, dew point or relative humidity sensors and combinations thereof.



SPECIFICATIONS

Shield Effectiveness	Under radiation intensities of 1100 W/m ² (1.6 cal/cm ² /min) measurement errors due to radiation will not exceed 0.2°F (0.1°C)
Aspiration Rate	10 ft/sec (3 m/s) at sensor location
Operating Temperature	-40° to 130°F (-40° to 55°C)
Power Requirement	120/220V 60/50 Hz @ 0.2A (+12VDC @ 0.3A, Optional)
Weight	12 lbs (5.4 kg)
Air Flow Detector	Detects air flow failure (NO/NC) contact output through connector
Shipping Data	Weight: 15 lbs (6.8 kg) Volume: 3.3 ft ³ (0.094 m ³)

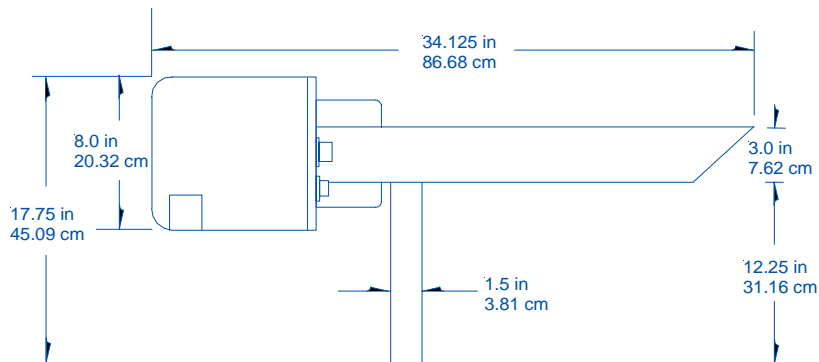
The diagram to the right shows the two exterior configurations of the TS-10 Motor-Aspirated Shield.



Options for the TS-10 Motor-Aspirated Shield (P/N 100325)*

Option	Part Number	Description
Temperature	100093	Standard Thermistor Temperature Sensor
	100093-2	Extended Range Thermistor Temperature Sensor
	100093-3	Fast Response Thermistor Temperature Sensor
	100826	Platinum 100 Ohm 4 wire Temperature
Dew Point Temperature	101197	Lithium Chloride Dew Point Sensor Safe Start for Dew Point Bobbin
Relative Humidity	102273,102425,101812	Capacitive Element Humidity Sensors
Flow Switch	100179	Air Flow Detector
Power Input		110/60, 220/50 VAC/Hz or 12 VDC
Mounting		¾, 1.0 or 1-¼ in Vertical Pipe

*Contact the factory or consult the individual data sheets for detailed specifications on these sensors



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