



Motor Aspirated Temperature & Humidity S1412Z

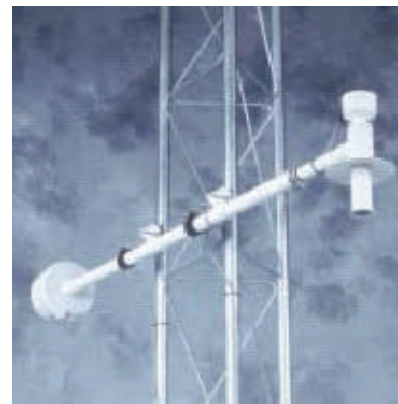
- High air flow rate
- Blocked air flow alarm
- Battery backup

The aspirated radiation shield is designed to provide maximum sensor protection from incoming short wave solar radiation, as well as outgoing long wave radiation—and to provide excellent sensor contact with the incoming ambient air. The relative humidity/temperature probe combines a high accuracy humidity sensor and a 1000 Ω Platinum RTD. Available with 0-1 VDC or 4-20 mA outputs, sensors are mounted in a common junction box.

The sensor shield portion of the instrument employs concentric downward facing intake tubes for thermal separation and isolation of the sensors. The temperature sensor is mounted vertically within the shield. Intake air flows between the inner and outer shield tubes as well as across the sensor. This construction minimizes heat transfer from outer to inner surfaces while providing a low conduction, high reflection outside surface. The white thermoplastic material is a special formulation for maximum weather ability and provides low thermo-conductivity and low heat retention. A secondary radiation shield, mounted below the temperature sensor, blocks reflected radiation during the day and minimizes cooling overnight.

Field testing indicates that in a typical monitoring situation, including maximum solar radiation, rapid nighttime cooling, precipitation, and variable wind conditions, ambient temperature can be continuously measured with an RMS error of less than 0.2 °C. With identical shields and matched sensors at two elevations, delta-T can be measured within 0.10°C.

Currently, this is the only shield with a switch which is essentially a paddle on the end of the air flow tube that is pushed open by the correct amount of air flow. This switch is monitored electronically and the information (open or closed) is included in the data stream. This allows you to tell not only if the fan is operating, but if there is blockage of the air passage (insects, debris, etc.) With other shields, the current drawn by the motor is monitored, however, this was found to be less effective.





Technical Specifications

S1412Z**Radiation Error:**

At 1000 W/m² intensity, ambient temperature: 0.2°C (0.4°F) RMS
Delta-T: 0.05°C (0.1°F) RMS with like shields equally exposed.
Aspiration rate: 3 m/s (10 ft/sec) over temperature sensor flow
switch trips when flow is disrupted

Accuracy:

Temperature: +/- 0.3°C at 0°C (standard)
 +/- 0.1°C at 0°C (optional)
Humidity: 3% from 0 - 100% RH

PHYSICAL

Material: UV stabilized thermoplastic shield, white
 Aluminum cross arm and mounting brackets, white painted

Dimensions:

- Length: 110 - 190 cm (43 - 75 in) adjustable
- Shield: 34 mm (1.3 in) diameter x 10 cm (4 in) length
- Blower Housing: 15 cm (5.9 in) diameter x 9 cm (3.5 in) length
- Weight: 2.4 kg (5.3 lb)