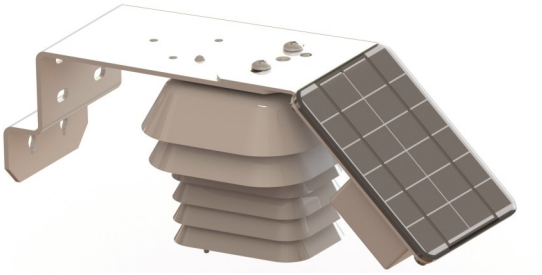
# Digital Temperature/ RH Sensor with Aspirated Radiation Shield

## PRODUCT MANUAL

Item # 3613ARS



**Introduction**

Thank you for purchasing a Digital Temperature/RH Sensor with Aspirated Radiation Shield (ARS). To ensure temperature and humidity sensors output accurate meteorological data, they are usually housed inside a radiation shield. However, solar radiation of the surface of the shield will lead to the interior being heated above air temperature. Under outdoor conditions, natural airflow is usually sufficient to ensure air temperature readings are accurate. But when the sensor is located indoors (such as in a greenhouse), the air is often stagnant, which leads to insufficient circulation. The solar-powered fan forces air through the shield to ensure that the sensor is measuring ambient air.

Note: The sensor is designed for use with WatchDog Pups. It will NOT work with the WatchDog Weather Stations, Mini Stations or Micro Stations.

**Preventing the fan from spinning**

The ARS is shipped with a magnet attached to the battery pack (fig. 1). The magnet is located beneath an orange sticker between the wires. The magnet prevents the fan from receiving power from the battery. This prevents the battery from being depleted when not in use. The magnet must be removed to allow the fan to spin overnight or during low light conditions. The magnet does not prevent the fan from receiving power directly from the solar panel. To completely interrupt fan operation, cover the solar panel or disconnect the red wire that connects the solar panel to the battery pack. When fully charged, the battery should power the fan for 6 to 8 hours to dissipate any heat in the shield.

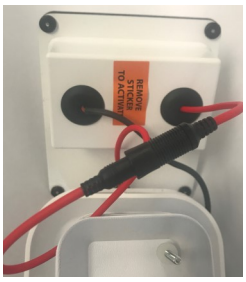



Fig. 1: Battery Enclosure

Fig. 2: Mounting Bracket

Fig. 3: Solar Panel

**Deploying the sensor**

The sensor can be attached to the top of a pole or post with the included U-Bolt and bracket (fig. 2). The 2.5mm plug connects to any of the Pup's external channels. The solar panel (fig. 3) should be oriented so that it is facing the sun. In the northern hemisphere, the panel should be facing south. Note that the Pup can be attached to the mounting bracket (fig. 2).

Configure the Pup using SpecConnect web software or the PC-based Retriever and Pup Launch Utility.

**Replacing the T/RH sensor**

The T/RH sensor connects into the bottom plate of the radiation shield (fig. 4). To remove the sensor, rotate the sensor 90 degrees. This will allow the molding to be removed from the slot. To install the sensor, push the sensor up through the wide portion of slot and rotate it 90 degrees to keep it from falling out.

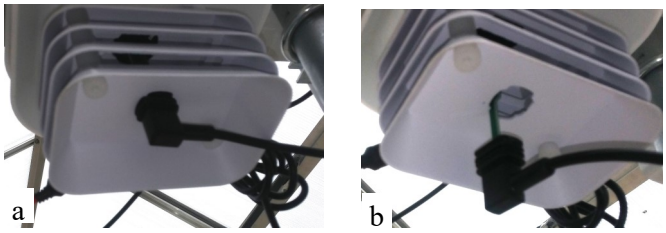



Fig. 4: T/RH sensor a.) installed and b.) uninstalled

## Specifications

| | | | |
|---|---|---|---|
| **Battery** | NiMH 4.8 V, 2200 mA-Hr | | |
| **Solar Panel** | 2W, 6V | | |
| **Fan** | 5V, 350 mA (peak)<br>While Charging: 2960 rpm, 12 $ft^3$/min (0.34 $m^3$/min)<br>Battery Only: 2450 rpm, 9.9 $ft^3$/min (0.28 $m^3$/min) | | |
| **Operating Temperature** | 14 to 140°F (-10 to 60 °C) | | |
| **Dimensions**<br>**Panel**<br><br>**Shield** | <br>5.3 x 4.3 x 0.1 inches<br>13.5 x 11.0 x 0.3 cm<br><br>4.1 x 3.5 x 2.6 inches<br>10.5 x 9.0 x 6.5 cm | <br>**Battery**<br><br>**Bracket** | <br>3.5 x 2.2 x 1.2 inches<br>9.0 x 5.5 x 3.0 cm<br><br>6.1 x 3.7 x 3.5 inches<br>15.5 x 9.5 x 9.0 cm |
| **Air Temperature** | Range<br>-40° to 257°F<br>-40° to 125°C | Resolution<br>0.1°F (0.1°C) | Accuracy<br>±0.36°F(32 to 194°F)<br>±0.2°C (0 to 90°C) |
| **Relative Humidity** | Range<br>0 to 100% | Resolution<br>0.1 %RH | Accuracy<br>±2% @ 77°F (25°C) |
| **Weight** | 2 lbs (0.9 kg) | | |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