WatchDog®

Plant Growth Pup Station

PRODUCT MANUAL

Model #'s
3900PG, 3905PG, 3930PG

Spectrum®
Technologies, Inc.

Quick Start

HARDWARE UNBOXING & ASSEMBLY

FIELD INSTALLATION AND CONFIGURATION

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This manual will familiarize you with the features and operation of your new WatchDog Plant Growth Pup Station. Please read this manual thoroughly before launching the unit.

For customer support or to place an order, call Spectrum Technologies, Inc. at 800-248-8873 or 815-436-4440, FAX at 815-436-4460, or e-mail at info@specmeters.com.

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Introduction

Thank you for purchasing a Watchdog Plant Growth Pup Station for use in a Retriever & Pup Wireless Sensor Network. This manual describes the setup and use of the station

The Sensor Pup component of the Station has been pre-configured to use the Temperature/RH and PAR light sensors. Ports C and D are available for sensors of your choice.

The Pup transmits sensor data to the Retriever either directly or via a Repeater Pup. For details on how to configure the Sensor Pup Station into the network, refer to the "*Retriever and Pup Wireless Network Product Manual*".

Package Contents

- Bagged items:

    * 6 AA alkaline batteries
    * Antenna with stabilizer
    * 2 sets of U-bolt and clamp
    * 2 0.35" (0.9cm) screws

- Temperature/RH sensor assembly (includes aspirated radiation shield, bracket, and solar panel)

- PAR Light sensor

- Manuals

SPECIFICATIONS

Sensor	Measurement	Accuracy	Resolution
Air Temperature	-40° to 257°F -40° to 125°C	±0.54°F(40 to 194°F) ±0.3°C (-40 to 90°C)	0.1°F (0.1°C)
Relative Humidity	0 to 100%	±2% @ 77°F (25°C)	0.1 %
PAR Light	0-3000 µmol/m^2/s	±5%	1 µmol/m^2/s

Pup	
Data Capacity	256 data interval records can be stored on the Pup until it is able to send them to the Retriever
Dimensions	3.75 x 2 x 8 in (9.5 x 5.2 x 20.2 cm)
Power Source	6 AA batteries (Lithium or alkaline)
Battery Life	6 months with alkaline batteries
Operating Temperature	-22 to 130°F (-30 to 55 °C)

Fan/Shield	
Battery	NiMH 4.8 V, 2200 mA-Hr Absent charge, powers fan for 6 to 8 hours to dissipate heat
Solar Panel	2W, 6V
Fan	5V, 350 mA (peak) While Charging: 2960 rpm, 12 ft^3/min (0.34 m^3/min) 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	5.7 x 12.2 x 4.3 in (14.5 x 31 x 11 cm)
Weight (Shield + Pup)	2.78 lbs (1.26 kg)

Temperature/RH Sensor

The Temperature/RH sensor is installed in an aspirated radiation shield (ARS). The aspirator fan induces air flow over the sensor which leads to more accurate data for indoor installations. The radiation shield is shipped fully built.

Preventing the fan from spinning

The ARS is shipped with a magnet attached to the battery pack (under sticker in fig. 1). 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, disconnect the red wire that connects the solar panel to the battery pack, and slowly slide the magnet around until you find a location that the stops fan.

Fig. 1: Battery Enclosure

Deploying the sensor

The sensor can be attached to the top of a pole or post with the included U-Bolts and bracket (fig. 2). Connect the 2.5mm plug to channel A. The solar panel should be oriented so that it is facing the sun. In the northern hemisphere, the panel should be facing south. Configure the Pup using SpecConnect web software or the PC-based Retriever and Pup Launch Utility.

Fig. 2: Mounting Bracket

Replacing the T/RH sensor

The T/RH sensor connects into the bottom plate of the radiation shield (fig. 3). 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.
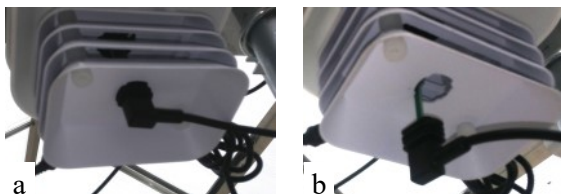

a   b

Fig. 3: T/RH sensor a.) installed and b.) uninstalled

PAR Light Sensor

The PAR light sensor attaches to the three holes on top of the bracket for the aspirated radiation shield. The PAR light sensor needs to be leveled to measure accurately. Adjust the spring mounting screws of the sensor to center the bubble as shown in image to the right.

CENTERED / LEVELED

Installing Batteries

Ensure correct polarity of all AA batteries when placing them in the battery holder. The battery holder has markings that indicate the polarity.

The Pup's batteries will last for about 6 months under normal Retriever-Pup network operation.

Caution: When using the Solar Power Package (item 3999), do not install non-rechargeable batteries in the Pup.

Checking Battery Level

To view the battery level, briefly press the button inside the Pup. The battery state will be indicated by the color of the status LED:
Green = Good; Amber = Low; Red = Replace.

The battery level of the Pup can also be checked with RPLU software on a PC directly connected to the Retriever or remotely via the Spec-Connect website.

Pup Station Installation

The Pup Station should be located in an open, unobstructed, grassy area to ensure accurate measurement of wind, rainfall and sunlight. The station can be mounted to any post that can accommodate the 1.5" (4cm) U-bolt. Unless you are using the mounting tripod (item # 3396TPS), the post should be firmly anchored in the ground.

Connect the U-bolts to the inner side of the bracket. Place the bracket over the top of the post. Attach the Pup Station to the post with the nuts (fig. 1). Do not tighten the U-bolt nuts until you have oriented the station (fig. 2).

Fig. 1. Attaching U-bolt

Fig. 2 Station attached to tripod

Connecting To A Retriever Network

The Pup Station collects data from the sensors connected to its ports. The Pup sends logged data to the Retriever at the interval configured for the network.

Refer to the *Retriever and Pup Wireless Network Product Manual* for detailed instructions.

WARRANTY

This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Materials Authorization (RMA) from Spectrum. Spectrum is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.

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