Spyder Robotics

Herpstat Digital Proportional Thermostat

Thank you for choosing the Herpstat digital proportional thermostat. This product offers the following features:

- Proportional heating constantly monitors and adjusts amount of heat necessary to maintain a target temperature (Usable range from 50˚F to 140˚F or 10˚C to 60˚C). Can also be used in non-proportional (on / off) mode
- Night Drop capability when used with optional cable
- Precision Sensor with internal resolution of .1125 ˚F and is accurate to ± .9 ˚F
- Allows display and setting in tenths of a degree
- Sensor Matching allows the user to digitally calibrate the sensor output to match other equipment
- Power Matching allows the user to increase / decrease the proportional power output curve to match the enclosures efficiency.
- Cooling function allows Herpstat to control basic cooling devices
- High / Low temperature tracking helps monitor heating system and enclosure efficiency
- All settings are retained in memory even if power is lost
- Temperature can be set / displayed in Fahrenheit or Celsius
- Easy to read 3 digit LED display with heat output indicator
- Removable sensor allows for easy replacement if necessary
- Easily mounts to enclosures with built in hanger
- Internal error detection shuts off heat if sensor fails or is disconnected
- 500 Watt output sufficient for most incubators, rack systems, enclosures, and vivariums
- 1 year limited warranty

Hardware Installation

WARNING – FIRE OR ELECTRICAL SHOCK MAY RESULT FROM MISUSE.

1. Insert the connector on the temperature probe into the jack on the top left side of the Herpstat. If using the optional night drop cable plug it into the jack below the temperature probe.
2. Attach the Herpstat power plug to a standard wall outlet.
3. Attach heating device to any of the three outlets on the Herpstat. These devices may include heat tape, heat coils, mats or other resistive load heating devices. Not recommended for use with rock heating devices or other devices that come in direct contact with the animal. In cooling mode the outlets can be used for emergency fans. **Do not exceed 500 watts.**

Setting the Temperature / Night Drop

The default setting for the Herpstat is to display in Fahrenheit and is preset to 85 degrees (30˚C). To adjust the temperature follow these steps:

1. Press and hold the **Adjust Temperature** button until you see the progress bar indicating that you are entering a menu. The target temperature will then be displayed.
2. Press the **+** or **–** until the desired temperature is indicated.
3. After 5 seconds of inactivity the progress bar will appear.
4. The Herpstat will then display the night drop setting. This is adjustable in tenths of a degree to a maximum of 20˚F (10˚C). If a night drop cable is not attached these settings will not affect the operation of the Herpstat.
5. After 5 seconds of inactivity the progress bar will appear indicating it is leaving the menu. During this time it also saves your new settings into memory.

Checking the High / Low Temperatures

Herpstat will monitor the highest and lowest temperature recorded. To view these temperatures press and hold the **Display High/Low** button until the progress bar is displayed and then release. Continuing to hold the **Display High/Low** button after the progress bar for 5 seconds will reset the High/Low to the current temperature.

Option Menu

To enter the Option Menu:

1. Remove power from wall outlet.
2. Press and Hold the **–** button.
3. Reinsert power into wall outlet with the – button depressed.
4. Once the display shows release the button.

While in the Option Menu use the **+** button to toggle between settings. Use the **–** button to advance to the next option.

Celsius/Fahrenheit
The first option is the Display Mode. The default setting is to display temperature in Fahrenheit. After changing display modes the target temperature and night drop setting will be reset to the default setting.

Heating / Cooling
The second option is the Heating / Cooling Mode. The default setting is set for heat operations. The cooling mode feature allows fan units or cooling devices to be used with the Herpstat instead of heating devices. In cooling mode Herpstat uses a non-proportional ON/OFF functionality. This mode may not be compatible with all cooling devices and is intended to be used in conjunction with emergency backup fans for enclosures.

Proportional / Nonproportional
The third option is the Proportional / Nonproportional Mode. The default setting is for Proportional. This option is only available if the Herpstat is set to Heat Mode. Proportional mode gives a smooth increase or decrease in power output to the heating devices for variable heat. Nonproportional works as a standard ON/OFF style thermostat.

Power Matching Mode (*options:* LOW2 LOW1 Std HI1 HI2)
The fourth option is the Power Matching Mode. The default setting is Std (standard) mode. This option is only available if the Herpstat is set to Proportional Mode. This mode allows you to adjust the power curve of the Herpstat to match the enclosures efficiency and better maintain the target temperature.

Sensor Matching
The Sensor Matching Menu allows users to match the Herpstat to other temperature sensing equipment. If no change is necessary simply wait 10 seconds and the setting will be saved automatically before Herpstat begins normal operation.

Note: The Herpstat sensor is very accurate in its default setting. Modifications in this menu are not typically necessary.

Start by selecting the direction in which to change using the **–** button to toggle between R for raise or L for lower temperature or " 0.0" for no change. Once you have selected the direction use the + button to set the offset adjustment. The number indicated is in tenths of a degree and will allow a maximum of 2 degrees offset. When finished, wait 10 seconds and the setting will be saved automatically before Herpstat begins normal operation.

Understanding the Heat Output Indicator

The LED next to the display indicates the output condition of the Herpstat.

Red indicates 100% power is being applied.

Yellow indicates the temperature is close to the target temperature. Slightly less than full power is applied to the output. (Proportional Mode Only)

Green indicates the temperature is at or very close to the target temperature. A small to medium amount of power is applied to maintain temperature. (Proportional Mode Only)

OFF indicates no power is currently applied.

Method of Operation

If the target temperature is set to 88 degrees Fahrenheit the Heat Output Indicator would display the following:

Proportional Mode (Heating)

87.2°F	Red LED	Full power.
87.3°F	Red LED	Power is slightly reduced.
87.4°F	Red LED	Power is slightly reduced.
87.5°F	Yellow LED	Power is slightly reduced.
87.6°F	Yellow LED	Power is slightly reduced.
87.7°F	Yellow LED	Power is slightly reduced.
87.8°F	Green LED	Power is slightly reduced.
87.9°F	Green LED	Power is slightly reduced.
88.0°F	Green LED	Power is slightly reduced.
88.1°F	Not Lit	Power is completely off.

Nonproportional Mode (Heating)
Heat is applied until the temperature exceeds 88.5°F.
Temperature is allowed to drop to 88.0°F before heat is reapplied. This floating method avoids unnecessary wear on the heating system.

Nonproportional Mode (Cooling)
If the temperature reaches 88°F power is applied to the cooling device until the temperature drops below 87.5°F.

Operation Tips

When setting up a new environment allow a minimum of one hour for the temperature to stabilize. Keep in mind that all items in the enclosure are warming up including the enclosure walls. Probe placement may require experimentation to achieve proper temperature regulation.

Use the Heat Output Indicator to evaluate your enclosure's efficiency. After an enclosure has been operating for an hour monitor the color of the LED. If the LED is green then the enclosure is typically well matched to the heating system. If the LED often remains or fluctuates between red and orange then the enclosure requires additional heat to meet the target temperature. This can be done by adjusting the Power Matching Mode.

Adjusting the Power Matching Mode to match an enclosure's efficiency is especially important for incubators. This setting adjusts the power output curve of the Herpstat. The settings from lowest to highest power output are LO2 LO1 Nor HI1 HI2. Once an enclosure has stabilized watch the tenths of a degree.

If the temperature is set for 92.5 degrees and the power output is set to Std (standard) the following would be true:

If the temperature increases to 92.3 but never reaches the target temperature then increase the power output to HI1 or HI2 if necessary.

If the temperature gets to the target temperature and overshoots watch the tenths of a degree closely. When the temperature starts to drop, if it stays within that last tenth (92.4 or 92.3) and then increases and overshoots again the power needs to be decreased. Try Lo1 or Lo2 if necessary.

If the temperature gets to the target temperature and overshoots then drops to 92.2 or lower then the power output most likely needs to be increased. Try Hi1 or Hi2 if necessary.

Each time a change is made to the power matching mode allow another 30 minutes to regulate.

Herpstat Error Code Descriptions

Er1=Sensor not present
Er2=Sensor is shorted
Er3=Invalid Sensor reading

Getting Help

Questions or comments can be e-mailed to:
support@herpstat.com
To purchase accessories please visit us on the web at:
http://www.herpstat.com

1 Year Limited Warranty

Spyder Robotics warrants this product to be free from defects in workmanship and material for a period of one year from the date of purchase by the original purchaser. The warranty period shall not extend beyond 3 years from the date Spyder Robotics shipped the product. During this warranty period Spyder Robotics will repair or replace, at its option, any component parts that in its opinion prove to be defective. Replacement parts may be new or serviceable used parts at Spyder Robotics option, of equal or better quality to those being replaced. This warranty does not extend and shall not apply to products that have been subjected to misuse, neglect, accident, or improper installation.

THIS LIMITED WARRANTY AND REMEDY ARE EXCLUSIVE AND EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MECHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SPYDER ROBOTICS BE LIABLE FOR LOST PROFITS, LOSS OF GOODWILL, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

If you return your product to Spyder Robotics for warranty service, proof of purchase may be required. A Return Material Authorization (RMA) number must be obtained prior to the return. Spyder Robotics is not responsible for material returned without the RMA number clearly printed on the outside of the shipping container. To request an RMA number, contact Spyder Robotics with the description of failure, serial number of device, and date of purchase via e-mail at **returns@spyderrobotics.com**. Products to be returned to Spyder Robotics must be returned, shipping and insurance prepaid, by the original purchaser to the address below**.**

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