Herpstat HP User's Manual

Thank you for choosing the Herpstat HP (High Power) digital thermostat. This product offers the following features:

- High Powered ON/OFF style control of heating or cooling devices. (usable range from 40˚F to 150˚F or 4˚C to 65˚C).
- Temperature sensor included with an internal resolution of .1125 ˚F and is accurate to ± .9 ˚F
- Can be used with optional humidity sensor to control humidity instead of heating/cooling.
- Can be used with optional humidity sensor for heating while monitoring humidity.
- Built in Safety Relay gives backup protection against a main relay failure causing a "run away" heating situation.
- Built in electrical tracking that typically improves relay contact life providing longer product life.
- User selectable temperature ramping.
- Sensor Matching allows the user to digitally calibrate the sensor output to match other equipment.
- Selectable day/night schedules with nighttime temperature setting.
- High/Low tracking helps monitor heating system and enclosure efficiency.
- High/Low threshold alarms.
- Settings are retained in memory even if power is lost. *
- Power Outage detection/tracking.
- Temperature can be set/displayed in Fahrenheit or Celsius.
- Easy to read backlit LCD display.
- 12ft removable sensor allows for easy replacement if necessary.
- Audible alarm system.
- Internal error detection shuts off heat if sensor fails or is disconnected.
- Flanged mount for easy mounting to enclosure or wall.
- Handles up to 12.5 amps / 1500 watts.
- Replaceable fuse.
- 7ft input electrical cord.   7ft two prong (non-grounded) output cord.
- 1 year limited warranty

* Software clock is reset and features requiring the clock are disabled on power loss.

Hardware Installation

WARNING: FIRE OR ELECTRICAL SHOCK MAY RESULT FROM MISUSE. FOR INDOOR USE ONLY!
Do not exceed 1500 watts or 12.5 amps.

1. Insert the temperature probe plug into jack on the side of the Herpstat HP.

2. Attach the Herpstat's power cable to a standard 120V electrical outlet.

3. Attach the heating or cooling device to the Herpstat's AC outlet.   This thermostat is recommended for use with oil filled heaters, cooling fans, or humidity control devices within a room.   This thermostat is not recommended for individual control of cages, racks or enclosures.   Not compatible with metal rack systems or other devices that require grounded 3 prong cords.

Installation Tips:

Do not use aluminum tape on the probe tip. This can cause false readings and poor regulation.

Route the probe wires so that they are not in direct contact with the 120vac cables going to the heating devices. Preferably leave at least a few inches between the probe wires and the AC lines to avoid cross talk/electrical interference issues.

Mount the Herpstat in a dry location. Do not submerge the probe. During operation it is normal for the Herpstat's enclosure to be warm to the touch.

Electrical surges can often damage a thermostat. Use a good quality surge suppressor connected to the wall outlet and plug the Herpstat into it when possible.

Setup Procedure

Note: The Enter button is used to select options while the Plus and Minus buttons are used to alter the options or navigate the menu.   If no selection is made after a period of time the unit will return to operation automatically. While in the menu system the AC power to the output is turned off for safety.

Day Temp	Temp Swing	Alarm Setup	Nite Cycle	System Setup	Safety Relay
Day RH	RH Swing				

(RH options available when optional humidity sensor used and device in RH mode.)

Press the Enter button to display the initial menu screen. This menu allows you to select the daytime temperature, RH levels, the alarm setup, optional nighttime settings, and the system setup.

Day Temp:
The Daytime Temperature setting is the temperature the device will try to reach during the Day Cycle. If the Nite Cycle is disabled then the Daytime Temperature setting will be used for the full 24hrs.

Temp Swing:
The temp swing is the amount of degrees the thermostat will allow the temperature to drop once it has reached its target temp before it reapplies power.

Day RH:
The desired Daytime Humidity setting when the unit is in RH mode and controlling a humidity device. If the Nite Cycle is disabled then the Day RH setting will be used for the full 24hrs.

RH Swing:
TheRH Swing is the amount of the thermostat will allow the humidity to drop once it has reached its target humidity level before it reapplies power.

Alarm Setup:
Enter this menu to enable the safety alarms.

HL Alarm =OFF	High Alarm	Low Alarm	Timeout =OFF

HL Alarm=OFF/ON
To Enable/Disable the High/Low Alarms press the Enter button while on this display.

High Alarm:
This setting is the highest temperature or humidity level (depending on mode) at which the audible alarm triggers if breached.

Low Alarm:
This setting is the lowest temperature or humidity level (depending on mode) at which the audible alarm triggers if breached.

Timeout=OFF/ON *(HL Alarm must be ON for this option to be enabled)*
To Enable/Disable the Low Alarm Safety Timeout press the Enter button while on this display. This option is used to add an additional safety measure should the temperature probe be dislodged from its normal position which typically results in a "run away" heating scenario.

During initial power or after exiting the menu:
If enabled the timeout waits a 30 minute period. During this time any low alarms will not be triggered. At the end of the timeout if the temperature has not exceeded the LowTemp Alarm setting the Herpstat will shut power off to the heating device and display an alert message as well as beep. Pressing the Plus button will reset the timeout for another 30 minutes. If the temperature exceeds the LowTemp Alarm setting the timeout will automatically disable and the LowTemp alarm will function as normal.

During normal operation (beyond 30 minutes from powering up or exiting the menu):
If the temperature drops below the LowTemp Alarm setting the timeout is triggered (starts a internal 30 minute countdown). The LowTemp alert is still active during this scenario and will have the audible beep. Pressing the Plus button while on the temperature readout display will temporarily mute the alarm. After the 30 minutes if the temp has not returned and exceeded the LowTemp Alarm setting the Herpstat will shut power off to the heating device and display an alert message as well as beep. Pressing the Plus button will reset the timeout for another 30 minutes.

Nite Cycle:
Enter this menu to enable the night time temperature options. The System Clock must be set before this menu is selectable.

IMPORTANT: This device uses a software based clock. Instead of a hardware based clock chip this devices uses a software based clock. This works the same as most alarm clocks by counting the pulses on your households electrical line which is regulated by your power company. In most cases this provides a very stable method of keeping time. However, when power is disconnected the thermostat will not continue to keep track of time. On power up the device reverts to the Day Temp and the Nite Cycle options are disabled until the system clock is set. This method allows the Herpstat cost to remain low while still providing some additional advanced features which would not be otherwise possible.

EnableNC =OFF	Nite Temp	NC Start Time	NC End Time	Ramping
	Nite RH			

(RH options available when optional humidity sensor used and device in RH mode.)

Enable NC=OFF/ON
To Enable/Disable the Nite Cycle press the Enter button while on this display.

Nite Temp:
This setting is the temperature the device will maintain during the Nite Cycle.

Nite RH:
This setting is the humidity level the device will maintain during the Nite Cycle.

NC Start Time:
This setting adjusts what time the Nite Cycle starts.

NC End Time:
This setting adjusts what time the Nite Cycle ends.

Ramping:
This setting adjusts how long it will take to switch between the DayTemp and NiteTemp settings allowing a smooth transition up to 10 hours.

System Setup

Sensor Type	System Mode	System Clock	Temp Match	RH Match	Display Mode	Master Reset	Relay Info

Note: Adjust the System Clock if using Nite Cycle options.

Sensor Type:
This setting selects between the temperature only type sensor (included) or the optional humidity/temperature sensor.

System Mode:
Select the System Mode option and set it to either Heat, Cool, or RH (Humidity).

System Clock:
This setting adjusts the system clock's time. While setting the time the Plus button increments the hour and the Minus button increments the minute.

Temp Match:
The Temp Match setting is used to alter the temperature read by the probe to match other equipment. *Note:*

RH Match:
The Sensor Adjust setting is used to alter the humidity level read by the probe to match other equipment.

Note: The sensors used in the Herpstat Probes are typically more accurate than most other equipment. Adjustments to Match settings are usually not necessary.

Display Mode:
This setting adjusts whether to display temperature in Celsius or Fahrenheit.

Master Reset:
Selecting this will reset all settings in the device to factory defaults.

Relay Info:
This menu will show the number of cycles the main power relay (R Count) and the number of cycles of the safety relay (SR Count) have gone through. Relay contacts degrade over time and this information is similar to an odometer. Higher wattage use will degrade relay contacts more quickly. This data will not indicate when replacement is necessary and is for information purposes only.

Safety Relay: Options: On Any Error, Only on H-Alarm

This setting determines what course of action will take place during an error condition. This controls the built in safety relay which can cut power to the AC output circuit in the event of a failure of the main power control relay. Once the error condition is corrected the device will return to normal operations. ***On Any Error*** triggers the safety relay if any error condition exists while the ***H-Alarm*** option only triggers the safety relay if the High Alarm has been triggered. Any invalid sensor reading also will trigger the safety relay.

The Display

In normal operation the Minus button will toggle between the available displays while the Plus button will activate special features of that display. The Enter button will activate the menu system.

76 (80) ✳	H=89.1 L=88.5	DayTime 10:28 AM	Power Reset=3

72 (80) 64% ✳

(Showing main display for Heating or Cooling mode in combination with optional humidity sensor)

80 ✳ 43% (62%)

(Showing main display for humidity control mode in combination with optional humidity sensor)

Main Display:
This display shows the current temperature from the attached probe as well a humidity if the optional humidity sensor is used. If an error occurs a description will be shown instead of the output information. In heating or cooling mode the temperature the device is trying to achieve is in parentheses. In humidity control mode the humidity level desired is in parentheses. When ramping is enabled the value in parentheses will change according to the time based curve.

Special Symbols:

An arrow symbol will appear if it is currently in a ramping session. A right arrow ($\rightarrow$) will appear if the ramp is increasing. A left arrow ($\leftarrow$) will appear if the ramp is decreasing. A minus sign (**-**) will appear if a Low Alarm has been breached. A plus sign (**+**) will appear if a High Alarm has been breached. A asterisk (*) will appear when power is applied to the output. A hourglass will appear if the night cycle has been enabled but the clock has not been set due to a power cycle.

Recorded High / Low Temperatures:
This display indicates the highest and lowest temperature recorded for the probe. Pressing the + button will reset the High/Low to the current reading. An additional High / Low display will show if the optional humidity probe is used.

System Information:
This display indicates the internal clock time and indicates the current time schedule which the Herpstat is adhering to. If the Nite Cycle is disabled this display will not show.

Power Outage Monitor:
Each time the Herpstat is powered on it increments the Power Outage Monitor. To reset the monitor to zero press the + button.

Getting the most out of your Herpstat
(Troubleshooting)

Should the device not work as expected it's possible one of the menu settings was set incorrectly. It may be easier to reset the device to its factory default settings than to figure out which setting is causing the issue. To do this enter the menu and perform the Master Reset option under the System Settings menu.

Do not use aluminum tape on the probe tip. This can cause false readings and poor regulation.

Route the probe wires so that they are not in direct contact with the 120vac cables going to the heating devices. Preferably leave at least a few inches between the probe wires and the AC lines to avoid cross talk/electrical interference issues.

If the unit appears to have no power then the safety fuse may have been overloaded. Unplug the Herpstat from power and remove the four screws holding the case together. Remove the front cover and remove the four screws that hold the circuit board to the case. Remove the circuit board carefully by tilting the board towards the side with the button switches and sliding the board out sideways. On the rear of the circuit board is a 3AG (6.32x32mm) fast acting fuse rated at 12.5 amps. Inspect and replace if necessary. Do not exceed the 12.5 amp rating. Reassemble in reverse order.

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.spyderrobotics.com