Senasys 2500 Series Thermostats are quality-engineered thermal sensors specifically designed for a variety of major appliances, including clothes dryers, hot liquid and food-dispensing machines, room unit and space heaters, air conditioning systems, copy machines, engine heaters, and wood stoves.

Made to open or close on a temperature rise, the 3/4” Thermostat is rated at 25 AMPS-240 Volts, meets UL Standards 873 and 353 and is available in a single-pole, single-throw device. Temperature calibrations are preset, and all units are subject to 100% mechanical and thermal inspection.

To insure that a safe combination of thermostat and application is achieved, the purchaser must determine product suitability for their individual requirements.

**Key Features and Benefits:**
- Recognized by UL, CSA and European Approval Agencies
- Meets UL Standard 873 and 353
- Manufactured to individual temperature specifications
- Available in a variety of terminal and mounting configurations

**Typical Applications:**
- HVAC Equipment
- Major Appliances
- Industrial Equipment
- Food Service Products

**UL and CSA Listings**

UL and CSA listing of 2500 series thermostats is for use in equipment where the acceptability of the combination of the thermostat and equipment is determined by Underwriter’s Laboratories, Inc. and/or Canadian Standards Association.

<table>
<thead>
<tr>
<th>2500 Series</th>
<th>UL File MH8267</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CSA File LR21048</td>
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<tr>
<td></td>
<td>Consult Factory for Updated Listings</td>
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</tbody>
</table>
Standard Temperature Settings

<table>
<thead>
<tr>
<th>Temperature Set Point Ranges</th>
<th>Tolerance Allowance(^*) ± at temperature set points</th>
<th>Mean Differential</th>
<th>Price Group*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 79°F -18 to 26°C</td>
<td>Open (\pm 6^\circ F) 6 3 6 3 Close (\pm 6^\circ F) 10 to 14 5 to 7</td>
<td>5 to 7</td>
<td>IV</td>
</tr>
<tr>
<td>80 to 200°F 27 to 82°C</td>
<td>5 3 5 3 10 to 14 5 to 7</td>
<td>8 to 11</td>
<td>III</td>
</tr>
<tr>
<td>201 to 250°F 83 to 121°C</td>
<td>5 3 7 4 20 to 29 12 to 16</td>
<td>17 to 22</td>
<td>I</td>
</tr>
<tr>
<td>251 to 350°F 122 to 150°C</td>
<td>6 3 9 5 40 to 59 23 to 33</td>
<td>17 to 22</td>
<td>I</td>
</tr>
</tbody>
</table>

Temperature Calibration Temperatures

If unit falls in overlapping range use higher range.

**With 15 to 19\(^\circ F\) Differential-Maximum Set Point 220\(^\circ F\)**

CALIBRATION TEMPERATURES

The temperature tolerance and differentials listed above are standard. If your requirements are not listed, please consult the factory. The “differential” is the number of degrees between the nominal open and nominal close. For example: A thermostat calibrated to open at 170\(^\circ F\) ± 9\(^\circ F\) has a 40\(^\circ F\) temperature differential.

B501 Cap Small Flange

*Grouped according to level of accuracy required. Group I with greatest latitude is less expensive than Group II, etc.

Contacts are available for millivolt and milliamp applications. Consult factory for exact approval agency listings.
SERIES 2500
TERMINAL & BRACKET OPTIONS

Dimensional Specifications

B502 Cap Large Flange

B503 Bracket

B504 Cap Large Flange

B507 Bracket
Terminals

T501 0° As Shown

T502

T503

T504

T505

T506 0° As Shown

T507

T508 0° As Shown

T509

Screws (Please Specify if Needed When Ordering)
Thermostat Operation
When contacts are closed, current passes from terminal to terminal through the stationary contact to the movable contact which is actuated by the snap movement of the bimetal disc. The disc, which is fully insulated from the switch chamber by the pin and disc retainer, is affected by surface or ambient temperature changes. Upon reaching the opening temperature, the disc snaps from a convex to a concave shape, depressing the pin which opens the contacts. The open circuit allows the temperature to drop and causes the disc to snap to its original position, closing the contacts. A thermostat which closes on a rise in temperature operates in a similar manner, but in reverse action.

Location and Selection of Components
A thermostat can be used to control temperature, to warn in advance of temperatures beyond desired limits, or to shut down an entire system. Response, accuracy, sensitivity, and the ability to sense the thermal parameter in a system depends on the proper selection of a thermostat and its application with respect to location, heat source, electrical load, transfer media, thermal lag, and the design life of the system. Samples of working thermostats or special thermostats with thermocouples installed are available to help you determine the proper combination of location and temperature set points.

Application Parameters
Proper choice of operating temperatures for a thermostat generally depends on many application parameters. The following can have a significant effect on the final operating point of the application:
1. Rate of Temperature Rise
2. Location of the Thermostat
3. Electrical Load
4. Mass of the Thermal System
5. Heat Transfer Medium (air, metal surface, etc.)

Because of these variables, we recommend that initial testing be performed with thermocouple samples to minimize trial and error when choosing final temperatures and tolerances. When requesting thermocouple samples please specify Iron or Copper Constantin and Lead Length.

SENASYS Sensors Part Number
A complete SENASYS part number consists of 3 parts. (Example: 2511 F002-2015) The first group specifies the series. The second group identifies the terminal and bracket combination desired and is generally unique to that series only. The last group is sequentially assigned by SENASYS Sensors’ Application Engineering Dept., and defines the temperature parameters, etc., unique to that device.

Testing Procedures
Temperature testing is performed using either liquid or air as a test medium. To allow for variation in temperature checking methods, a 1°C allowance should be considered. This allowance is for correlation or differences between test instruments. Manufacturing specifications and production testing are to specified requirements and do not make use of the correlation variance.

Creep testing is the verification of an instantaneous change of state of the electrical contacts.

The Dielectric withstand voltage test (Hipot) is performed at a higher voltage for a short duration than the rated voltage of the thermostat. This helps assure satisfactory performance at rated voltage and also the ability of the unit to withstand momentary overpotentials. This test also serves to determine whether insulating materials and spacing are adequate.

Samples and Ordering
To order samples please refer to the form on the inside back cover. If you need assistance call us at (888) 736-2797, or e-mail us at support@senasys.com.
Definitions

**Automatic Reset:** A type of thermostat that will reset itself at a specific temperature; (i.e. a thermostat opens at 150°F and closes or resets itself at 120°F)

**Bimetal:** Two dissimilar metals bonded together to form the disc that actuates the thermostat; upon reaching a specified temperature, the disc snaps over the center.

**Close On Rise:** (COR) refers to operation of the contacts. When the temperature rises to its set point the contacts close or make contact and complete the circuit.

**Dielectric Strength:** Is the deliberate application of a predetermined overvoltage to a thermostat for specified time.

**FLA:** (Full Load Amps) current taken from line by motor when motor is yielding rated hp at rated voltage and frequency.

**Manual Reset:** A bimetal thermostat with a reset button that must be pressed to reset the device.

**Max. Differential:** The maximum allowable difference between the actual opening and the actual closing temperatures.

**Mean Differential:** The difference between the upper and lower nominal set points without regard to tolerances.

**Min. Differential:** (Sometimes called “Deadband”) The minimum allowable difference actual opening temperature and the actual closing temperature.

**Open On Rise:** (OOR) refers to the operation of contacts—when the temperature rises to its set point, the contacts open terminating the circuit.

**Phenolic:** A plastic used as the insulating body of the thermostat.

**Set Point:** The nominal temperature at which the thermostat is to open or close.

**SPST:** (Single Pole/Single Throw) an electrical switch with one set of terminals that terminate or actuate a circuit.

**Tolerance:** The allowable range above and below the set point temperature.

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Quality Control and Application

The entire production process from preassembly to shipping of the final product is supervised by a staff of quality control personnel. Specifications and performance characteristics of SENASYS, Inc. stated herein or in any other SENASYS communication are based upon various testing and quality control procedures established by SENASYS. Information regarding such procedures will be provided upon request. SENASYS reserves the right to alter specifications contained herein as it may deem necessary. Purchasers are advised to test and engineer their products and the application of SENASYS’s products, particularly where the application is one wherein a malfunction could result in damage or injury. Whenever SENASYS provides analysis or information to assist a purchaser in the application of SENASYS’s products, such analysis or information shall not affect any of the foregoing nor shall it constitute a warranty of any kind with respect to said application. Sales by SENASYS are subject to standard terms and conditions set forth in its sales documents. Electrical rating and performance characteristics have been established after testing and review of standard operating conditions. The specifications outlined in the bulletin suggest the performance characteristics when the units are subject to these standard conditions. To ensure that our laboratory test conditions duplicate the performance requirements for the application, all devices should be tested by the purchaser for each application. Terms of all sales be as provided in SENASYS, Inc. standard terms and conditions of sale, including its limited warranty provisions.
REQUEST FOR SAMPLES OR QUOTATION

Company __________________________ Telephone __________________________
Name ______________________________
Street ______________________________
City ___________________ State/Zip __________________

Describe the Application: ___________________________________________________

☐ New Product   ☐ Existing Product

Thermostat Function: ☐ High Limit   ☐ Control   ☐ Manual Reset

Ambient Conditions:
Exposure Temperature Maximum____________ __°F, Duration______________

Minimum____________ __°F, Duration______________

Temperature Rate of Rise______________ __°F per minute______________

Environmental Seal ☐ Hermetic   ☐ Dust Proof   ☐ Unsealed

Electrical Load:
Voltage____________ __ AC  ☐ DC

Resistive__________ AMPS  Inductive____F.L.A._____L.R.A._____

Dielectric________________________ Megohm_____________________

Life Cycles at Specified Load_________________________Cycles

Thermostat Specification:
Contact Open_________ °F± __________ °F Tolerance

Contacts Close_________ °F± __________ F Tolerance (automatic reset only)

Contacts Close Manually ( ) Resettatable By_________ °F

Part Number: SENASYS #____________________ Customer#____________________

Mounting Bracket #_________ Terminal Type ________________________

☐ Exposed Bimetal   ☐ Enclosed Bimetal

Sample Quantity:
_________units Delivery Requested_________________________

Production:
Estimated Usage______________ Annually, Start Date______________

One Time Order Quantity___________________________

Agency Approvals:
☐ UL  ☐ CSA Other_________________________

Quotation Requested:
☐ Yes ☐ No Quantity___________________________

For special configurations, please provide a sketch.