Key Features

- ISO9001: 2000 certification
- Factory inspected for continuity and contact resistance
- Global sales and technical support
- Ambient temperature rating from -40ºC to 240ºC (-40ºF to 464ºF)
- 1NT base provides:
  - Low cost
  - High temperature capability
  - Clean processing
  - High impact strength
  - Low static generation
- Bi-metal disc is factory pre-set to achieve:
  - Operation at requested temperatures
  - Tamperproof settings

- Product innovations include:
  - Solid metal-to-metal terminal construction
  - Current free spring
  - One piece transfer mechanism

- Switch actions:
  - Automatic reset: Available with both normally open and normally closed switch logic
  - Manual reset: Mechanical reset device
  - Trip free manual reset: UL M2 class rating that resists consumer tampering
  - One shot: meets agency requirements for single operation device

Applications

- Microwave ovens
- Sandwich makers
- Rice cookers
- Hair dryers
- Fan heaters
- Vacuum cleaners
- Gas / electric furnaces
- Espresso machines
- Tea makers
- Automotive / truck

WORLD CLASS PERFORMANCE

The 1NT has been designed to be applied for use in many HVAC and appliance products as either a regulating or over-temperature safety switch.

The 1NT uses Klixon® technology and is available in several mounting options.

Sensata Technologies has been a leading global supplier of pressure sensors and switches for over 50 years.
Available Constructions

High Profile Construction
Options shown: 90° – 1/4” Q.C. terminals with Surface mount flange

Low Profile Construction
4 Post
Options shown: 45° – 1/4” Q.C. terminals with 4 post and flat Al cup

Manual Reset Construction
Options shown: Flat 1/4” Q.C. terminals with Airstream mount cup

Part Types by Construction
1NT01 Auto Reset / Silver Contacts
1NT11 Auto Reset / Gold Contacts
1NT09 One Shot: -35˚C (-31˚F) Reset
1NT10 One Shot: 0˚C (32˚F) Reset
1NT02 Auto Reset / Silver Contacts
1NT02TL Low Profile / One Shot
1NT20 Auto Reset / Gold Contacts
1NT08 Manual Reset / Silver Contacts
1NT12 Manual Reset / Gold Contacts
1NT15 Trip Free MR / Silver Contacts
1NT19 Trip Free MR / Gold Contacts

Numbering System

Part Number

1NTXX

Part Type
Consult Table Above

Special Processing
A Wire Lead Assy
E Exposed Disc

Switch Type
L Limit*
F Fan**

ID Number
Unique, Customer Specific

Temperature Code

L
Switch Type
L Limit*
F Fan**

150
Operating Temp.
Nominal Open Temperature

F
Temp. Scale
C Celcius

30
Differential
## Nom. Open to Nom. Close
MR Manual Reset

* Limit switch opens on temperature rise
** Fan switch closes on temperature rise

All dimensions mm (in.)
1NT Series Electrical Ratings

The 1NT series of thermostats has been recognized by safety agencies, including UL, Canadian–UL and KEMA. Agency ratings are presented below as a general guide. However, the temperature settings, mechanical, electrical, thermal and environmental conditions of the specific application may differ significantly from agency test conditions. Therefore, the user must not rely solely on the agency ratings presented here, but must perform its own testing of the product to confirm that the thermostat selected will operate as intended over the useful design life of the user’s applications.

**Standard Temperatures, Tolerances and Differential**

**Manual Reset and One-Shot Thermostats**

**Automatic Reset Thermostats**

*KEMA rated at these current levels at specific open/close temperatures. When applying to these electrical levels, nominal open/close temperatures must be considered to determine if the thermostat selected will operate as intended in the user’s application. Please consult a Sensata Engineer for additional clarification.

**Parenthesis indicate inductive load ratings.

** “E” means exposed disc.

---

### UL and C–UL

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. Temp.</th>
<th>Cycles (X 1000)</th>
<th>Electrical Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT01, 02</td>
<td>204 400</td>
<td>100</td>
<td>120 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 9 amps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 - 17 amps*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>240 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 5 amps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 - 17 amps*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>277 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7.2 amps</td>
</tr>
<tr>
<td>1NT08, 15, 08E**</td>
<td>204 400</td>
<td>1 + 5</td>
<td>240 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25 amps</td>
</tr>
<tr>
<td>1NT11, 20</td>
<td>204 400</td>
<td>1-Shot</td>
<td>240 Vac 277 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25 amps 7.2 amps</td>
</tr>
<tr>
<td>1NT12, 19</td>
<td>204 400</td>
<td>100</td>
<td>125 VA 30 Vdc</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 amp</td>
</tr>
<tr>
<td>1NT01E, 02E**</td>
<td>204 400</td>
<td>100</td>
<td>120 Vac 10 amps</td>
</tr>
</tbody>
</table>

* UL rated at these current levels at specific open/close temperatures. When applying to these electrical levels, nominal open/close temperatures must be considered to determine if the thermostat selected will operate as intended in the user’s application. Please consult a Sensata Engineer for additional clarification.

** E” means exposed disc.

### KEMA

<table>
<thead>
<tr>
<th>Type</th>
<th>Max. Temp.</th>
<th>Cycles (X 1000)</th>
<th>Electrical Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1NT01, 02</td>
<td>204</td>
<td>100</td>
<td>240 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0 - 5 amps</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 - 13.5 amps (1.66)A**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>204 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16(5)A</td>
</tr>
<tr>
<td>1NT02TL</td>
<td>204</td>
<td>1 cycle</td>
<td>240 Vac</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16(5)A</td>
</tr>
<tr>
<td>1NT08</td>
<td>204</td>
<td>10</td>
<td>240 Vac 16(5)A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4(1)A</td>
</tr>
<tr>
<td>1NT09</td>
<td>204</td>
<td>1 cycle</td>
<td>240 Vac 16(5)A</td>
</tr>
<tr>
<td>1NT11</td>
<td>204</td>
<td>100</td>
<td>30 Vdc1A</td>
</tr>
<tr>
<td>1NT15</td>
<td>204</td>
<td>10</td>
<td>240 Vac 16(5)A</td>
</tr>
<tr>
<td>1NT20</td>
<td>204</td>
<td>100</td>
<td>30 Vdc1A</td>
</tr>
</tbody>
</table>

* Parenthesis indicate inductive load ratings.

---

### Standard Temperatures, Tolerances and Differential

#### Automatic Reset Thermostats

<table>
<thead>
<tr>
<th>Nominal Top Temperature</th>
<th>Min. Bottom Temperature</th>
<th>Differential</th>
<th>Standard Tolerances</th>
<th>Open</th>
<th>Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C</td>
<td>°F</td>
<td>°C</td>
<td>°F</td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>18 to 27</td>
<td>65 to 80</td>
<td>-33 to -26</td>
<td>11 to 16</td>
<td>±3.0</td>
<td>±5.5</td>
</tr>
<tr>
<td>28 to 80 and *94 to 121</td>
<td>81 to 176 and 177 to 199</td>
<td>-33 to -26</td>
<td>11 to 13</td>
<td>±3.0</td>
<td>±5.5</td>
</tr>
<tr>
<td>122 to 149</td>
<td>250 to 300</td>
<td>50 to 122</td>
<td>11 to 16</td>
<td>±3.5</td>
<td>±6.5</td>
</tr>
<tr>
<td>150 to 177</td>
<td>301 to 399</td>
<td>50 to 122</td>
<td>22 to 33</td>
<td>±3.5</td>
<td>±6.5</td>
</tr>
<tr>
<td>178-204**</td>
<td>351 to 399</td>
<td>50 to 122</td>
<td>22 to 33*</td>
<td>±5.0</td>
<td>±9.0</td>
</tr>
</tbody>
</table>

** Not valid for Fan Devices

** Top Temp for Fan Devices cannot exceed 380˚F (193˚C)
### Accessories and Options

#### Cup Styles

<table>
<thead>
<tr>
<th>Style</th>
<th>Code</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flat Cup</strong></td>
<td>73926</td>
<td>Materials: Aluminum, Stainless Steel or Copper</td>
</tr>
<tr>
<td><strong>3NT Flange Cup</strong></td>
<td>57366</td>
<td>Material: Aluminum or Copper</td>
</tr>
<tr>
<td><strong>Airstream Mount Integral Cup</strong></td>
<td>57611</td>
<td>Material: Aluminum</td>
</tr>
<tr>
<td><strong>Airstream Mount Integral Cup</strong></td>
<td>57607</td>
<td>Material: Stainless Steel</td>
</tr>
<tr>
<td><strong>Wide-Eared Integral Cup</strong></td>
<td>57608</td>
<td>Material: Stainless Steel</td>
</tr>
<tr>
<td><strong>“Tear-Drop” Integral Cup</strong></td>
<td>57609</td>
<td>Material: Stainless Steel</td>
</tr>
<tr>
<td><strong>Large Oval Integral Cup</strong></td>
<td>57612</td>
<td>Material: Aluminum</td>
</tr>
</tbody>
</table>

#### Flanges

<table>
<thead>
<tr>
<th>Style</th>
<th>Code</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Rotation Surface Mount Flange</strong></td>
<td>57336</td>
<td>Available mounting rotation relative to terminals - 0° or 90°</td>
</tr>
<tr>
<td><strong>Loose Ear Surface Mount Flange</strong></td>
<td>27183</td>
<td>Material: Aluminum</td>
</tr>
<tr>
<td><strong>Wide Eared – Fixed Rotation Mounting Flange</strong></td>
<td>57337</td>
<td>Material: Nickel Plated Steel</td>
</tr>
<tr>
<td><strong>Bolt On Assembly</strong></td>
<td>73972</td>
<td>Thread Specs: Metric: M4 x 0.7 - 6G</td>
</tr>
</tbody>
</table>

**All dimensions mm (in.)**
**Accessories and Options (cont.)**

**Terminals**

**Solder Terminal 27182**
- Material: Tin Plated Brass
- Thickness (A): 0.51 (.020) thick
- Width (B): 5.7 (.224) Max.

**Crimp Terminal 27184**
- Material: Tin Plated Brass
- Thickness (A): 0.50 (.020) Ref.
- Width (B): 2.8 (.110) Ref.
- ø 3.22 (.127) Ref.

**Screw Terminal 57200**
- Material: Nickel Plated Steel
- M3 x 0.5 Class 6H Thread
- Thickness (A): 0.8 (.032) Ref.
- Width (B): 5.6 (.220) Ref.

**Weld Terminal 57201**
- Material: Nickel Plated Steel
- Thickness (A): 0.8 (.032) Ref.
- Width (B): 6.42 (.253) Max.

**Weld Terminal 57312**
- Material: Nickel Plated Steel
- Thickness (A): 0.50 (.020) Ref.
- Width (B): 3.5 (.138) Ref.

**Quick Connects**
- Thickness (A): 0.8 (.031) Ref.
- Width (B): 6.3 (.250) Ref.
- Materials: Brass - Solid, Ni, Ag, or Tin Plated
- Steel - Nickel Plated

**Important Notice**

Users are solely responsible for design application and function of the end use product. Users must evaluate the suitability of these devices to their application with respect to temperature settings, mechanical cycle life, electrical loading and environmental conditions. These devices are not environmentally sealed and have exposed electrical components. They are not intended for use in applications where exposure to condensed or dripping liquids, immersion in liquid, or exposure to other environmental contaminants may occur. In such cases, use of environmentally sealed devices such as the 3NT is recommended. Excessive mechanical cycling, high electrical loading or exposure to liquids or environmental contaminants as noted above can compromise electrical insulating properties of the device. Such conditions may result in insulation breakdown and accompanying localized electrical heating. The device may remain permanently closed or open as a result of these conditions, as well as at normal end-of-life.
Sample Order Placement

To enable Sensata Technologies to serve you in a quicker, more efficient manner, please be prepared to provide the following information when requesting samples:

1. Detailed application description
2. Estimated yearly usage.
3. Opening and closing temperatures
4. Max. temperature tolerances allowable
5. Switch type
6. Mounting style desired
7. Terminal orientation and material
8. Electrical load

Other conditions which are likely to affect the 1NT operation should also be described. These include:

1. Maximum temperature exposure
2. Location with respect to heat source
3. Temperature transfer medium (air, metal surface, etc)
4. Possible contamination sources (lint, chemical fumes, liquid, condensation, humidity, etc.)

When ordering thermocouple samples, specify whether J, K, or T type and the lead length desired. Standard wire size is 30 Ga.

Thermostat Handling Tips

1. Exposed disc devices should be kept free of dust and particulates, liquid and condensation. The face of the disc should never be snapped.
2. Mounting screws and drivers for use with smaller integral cups and flanges should be sized to provide adequate clearance to the thermostat body.
3. The installation force applied to the cup face should not exceed 66.7N (15 lbs.)
4. The maximum reset force on the manual reset and trip free button is 22.2N (5 lbs.)

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