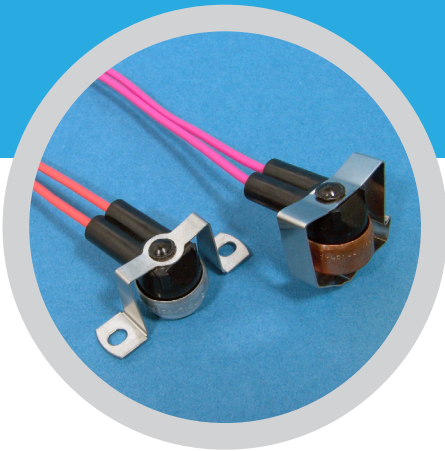




## **KLIXON® | 3NT SERIES**

### Fixed Temperature Thermostats

#### WORLD CLASS PERFORMANCE

The 3NT is an automatic reset thermostat designed for use as part of a temperature control system. Incorporating a unique dry seal, this device is protected from common environmental hazards such as water, dust, oil, etc. The 3NT is UL/CSA and KEMA/ENEC approved.

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

#### Key Features

- Automatic reset
- Small and easy to mount
- Fast thermal response
- Innovative dry seal design - protects from moisture and dust
- Reliable 100K cycle life
- High temperature - to 275°F (135°C)

#### General Description

The 3NT thermostat from Sensata Technologies is an automatic reset thermostat designed to meet your specific application requirements. Its patented and tamper proof Klixon® snap action bi-metal disc provides reliable and repeatable switch actuation. This product is suitable for electrical loads ranging from dry circuits to 10A @ 240 Vac.

The core of the 3NT is the proven 1NT thermostat. Recognized by major worldwide agencies, hundreds of millions of the 1NT device are in the field today used in a variety of HVAC, appliance, automotive and specialty applications. Manufactured since 1981, the 1NT thermostat is produced at ISO 9000 certified manufacturing sites.

The dry seal also allows direct integration of the thermostat into a wire harness eliminating the need for extra connections.

#### Applications

Its small size, a variety of mounting options and outstanding thermal response make the 3NT an excellent choice as a temperature control for dehumidifiers, freezers, heat pumps, ice makers, refrigerators, or nearly any place where a fixed temperature control device is required.



**Application Shown:**  
*Residential heat pump*

## Design Specifications

### Operating Temperature:

-20 to 135°C (-4 to 275°F)

### Ambient Temperature:

-40°C to maximum wire lead insulation temperature rating:

PVC - 105°C

XLP - 125°C

(Allow 15°C de-rating below wire insulation rating at maximum 10A current)

### Minimum Nominal

### Temperature Differential:

8°C (15°F)

### Dielectric Strength:

750 Vrms

1500 Vrms terminals to case

Switch Configurations

### Switch Configurations

3NT thermostats are SPST switches which typically reset automatically. Single operation function is available.

Sensata recommends standard silver contacts for most applications. Customers may prefer to specify gold contacts for low voltage (<12V) or low current (less than 100mA) applications. Min. 25 m Amp

### Standard Wire Leads:

18 AWG (1/32" or 1/16" wall thickness 105°C PVC)

16 AWG (1/32" thick, 105°C, PVC insulation)

1/32" wall thickness 125°C XLP insulation available upon request

A wide variety of wire lead terminals are available from stock. Custom termination support is available.

## Agency Approvals

|                          | File Number | Category       |
|--------------------------|-------------|----------------|
| UL (USA) <sup>1</sup>    | SA995       | Category SDFY2 |
| UL (CANADA) <sup>1</sup> | SA995       | Category SDFY8 |
| KEMA (ENEC)              | 2014531.16  | EN 60730-2-9   |

<sup>1</sup> Recognized to US and Canadian requirements by Underwriters Laboratories (UL873 and C22.2 No. 24).

## Electrical Ratings

| Agency              | Cycles x1000 | Volts   | FLA  | LRA  | Amps (resistive) | VA  |
|---------------------|--------------|---------|------|------|------------------|-----|
| UL<br>(USA, Canada) | 100          | 120 Vac | 5.8  | 34.8 | 10               | 125 |
|                     | 100          | 240 Vac | 2.9  | 17.4 | 10               | 125 |
|                     | 30           | 120 Vac | 10.0 | 40.0 |                  |     |
|                     | 30           | 240 Vac | 10.0 | 40.0 |                  |     |
|                     | 100          | 30 Vdc  |      |      | 1                |     |
| ENEC (Europe)       | 30           | 240 Vac |      |      | 16               |     |

## Standard Temperatures and Tolerances

| Nominal Top Temperature |            | Nominal Differential |         | Open Temperature Tolerance |      | Close Temperature Tolerance |      |
|-------------------------|------------|----------------------|---------|----------------------------|------|-----------------------------|------|
| °F                      | °C         | °F                   | °C      | °F                         | °C   | °F                          | °C   |
| 32 to 80                | 0 to 27    | 20 - 29              | 11 - 16 | ±5.5                       | ±3   | ±7.5                        | ±4   |
|                         |            | 30 - 38              | 17 - 21 | ±5.5                       | ±3   | ±8.5                        | ±4.5 |
|                         |            | 50 - 60              | 22 - 33 | ±5.5                       | ±3   | ±10                         | ±5.5 |
| 81 to 167               | 28 to 75   | 20 - 23              | 11 - 13 | ±5.5                       | ±3   | ±7.5                        | ±4   |
|                         |            | 24 - 29              | 14 - 16 | ±5.5                       | ±3   | ±8.5                        | ±4.5 |
|                         |            | 30 - 59              | 17 - 33 | ±5.5                       | ±3   | ±10                         | ±5   |
| *168 to 199             | *76 to 93  | 20 - 23              | 11 - 13 | ±5.5                       | ±3   | ±7.5                        | ±4   |
|                         |            | 24 - 29              | 14 - 16 | ±5.5                       | ±3   | ±8.5                        | ±4.5 |
|                         |            | 30 - 59              | 17 - 33 | ±5.5                       | ±3   | ±9                          | ±5   |
| *200 to 249             | *94 to 121 | 20 - 29              | 11 - 16 | ±6.5                       | ±3.5 | ±8.5                        | ±4   |
|                         |            | 30 - 38              | 17 - 21 | ±6.5                       | ±3.5 | ±10                         | ±4.5 |
|                         |            | 39 - 59              | 22 - 33 | ±6.5                       | ±3.5 | ±12                         | ±6.5 |
|                         |            | 50 - 99              | 34 - 55 | ±10                        | ±5.5 | ±20                         | ±11  |
| 250 to 275              | 122 to 135 | 24 - 38              | 14 - 21 | ±7.5                       | ±4   | ±10                         | ±5.5 |
|                         |            | 39 - 59              | 22 - 33 | ±7.5                       | ±4   | ±14.5                       | ±8   |
|                         |            | 60 - 99              | 34 - 55 | ±10                        | ±5.5 | ±20                         | ±11  |

\*Minimum bottom temperature of 50°C (122°F)

## Numbering System

### Part Number

| <b>3NT</b>         | <b>01</b>                | <b>L</b>                               | <b>H</b>                                        | <b>XXXX</b>                          |
|--------------------|--------------------------|----------------------------------------|-------------------------------------------------|--------------------------------------|
| Sensata P/N Series | Contact Material         | Switch Opening Logic                   | Dry Seal Construction                           | ID Number                            |
|                    | 01 - Silver<br>11 - Gold | L - On Temp. Rise<br>F - On Temp. fall | H - High Temp. (Silicon rubber)<br>N - No leads | Customer and<br>Application Specific |

### Temperature Code

| <b>L</b>             | <b>50</b>                   | <b>F</b>                      | <b>30</b>                                                        |
|----------------------|-----------------------------|-------------------------------|------------------------------------------------------------------|
| Switch Type          | Operating Temperature       | Temp. Code                    | Differential                                                     |
| L - Limit<br>F - Fan | Nominal Opening Temperature | C - Celsius<br>F - Fahrenheit | Difference between Nominal Open and<br>Nominal Close Temperature |

## Typical Physical Characteristics Dimensions in mm (inches)

|                                                                                                                                        |                                                                                                                                                                            |                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <p><b>Basic 3NT Dimensions</b></p>                                                                                                     | <p><b>Surface Mount Clip</b></p>                                                                                                                                           | <p><b>Surface Mount Clip</b></p>                                   |
| <p><b>Locking Tube Mount Clip (3/8 Inch Shown)</b></p> <p>Additional Clips Available for<br/>[ø1/4], [ø5/16], [ø1/2], [ø5/8] Tubes</p> | <p><b>Open Tube Mount Clip (3/8 Inch Shown at 90° CCW Rotation)</b> 90° and 180° CW Rotations Available</p> <p>Additional Clips Available for<br/>[ø1/2], [ø5/8] Tubes</p> | <p><b>Snap Tube Mount Clip For 7/8 Inch and 1/2 Inch Tubes</b></p> |

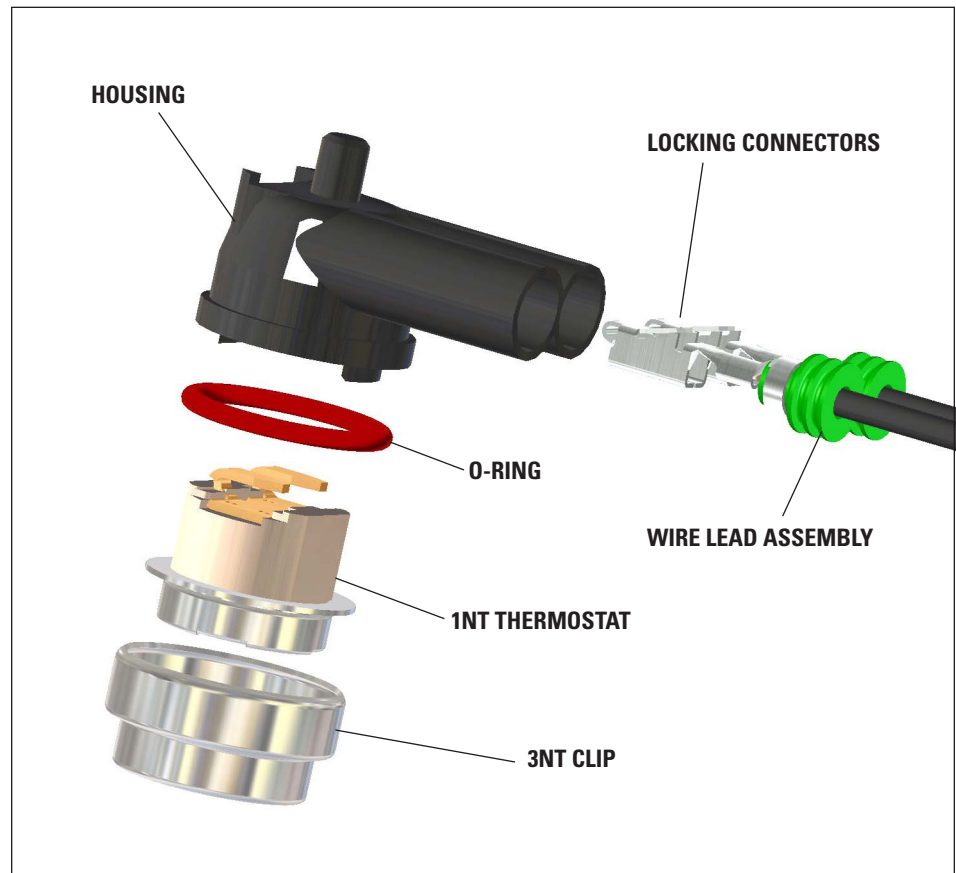
## Ordering Samples

Sensata encourages the use of engineering test samples to assist in your thermostat specification process. Please call or FAX the following information for the fastest possible sampling lead times:

1. Customer product application
2. Electrical load requirements: voltage, current, power factor (inductive loads)
3. Nominal setpoint temperatures (opening and closing)
4. Maximum allowable temperature setpoint tolerances (see table for standards)
5. Mounting style desired:
  - flat surface – screw hole or snap-in
  - tube – diameter and orientation
6. Cup material (aluminum or copper)
7. Lead wire specifications (length, wire gage, terminations, insulation type and thickness)
8. Estimated annual usage

Non-functional thermocouple samples are available to determine thermostat setpoints. Please specify thermocouple type (J,K,T) and length. Standard wire size is 30 gauge.

## 3NT Dry Seal Design



**Important Notice:** The 3NT is not hermetically sealed, and should not be submerged in liquid. For such applications, please contact Sensata Technologies for advice.



The World Depends on Sensors and Controls

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