

# KLIXON® | 1NT SERIES

## Fixed Temperature Thermostats

### WORLD CLASS PERFORMANCE

The 1NT has been designed to be applied as a safety device for use in many HVAC and appliance products. Using patented Klixon® technology and available in several mounting options, this device has a proven track record of quality and long term reliability.

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

### Key Features

- ISO9001: 2000 certification
- Recognized by 9 worldwide agencies
- Factory inspected for continuity, function and contact resistance
- Global sales and technical support
- Ambient temperature rating from -40°C to 240°C (-40°F to 464°F)
- 1NT base provides
  - Low cost
  - High temperature capability
  - Clean processing
  - High impact strength
  - Low static generation
- Factory pre-set bi-metal disc ensures:
  - Safe and reliable operation
  - Tamperproof settings
- Life-expanding 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

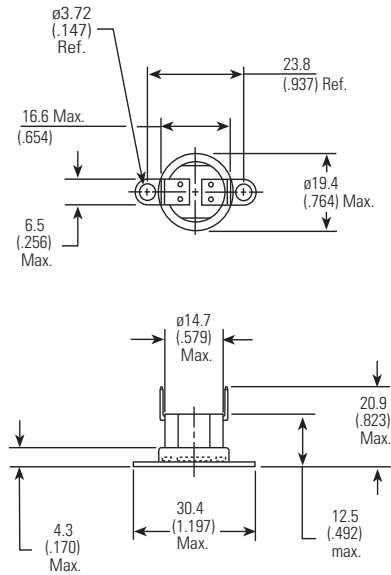
The 1NT thermostat is used in a variety of applications. This device helps ensure the safe operation of many types of HVAC products and home appliances. Sensata thermostats operate in coffee and tea makers, microwave ovens, sandwich makers, rice cookers, hair dryers, fan heaters, vacuum cleaners and gas furnaces. Many different mounting and switch action options are available. Our stringent manufacturing standards ensure the safe and reliable operation of our devices. Our products and complete thermal protection solutions are based on decades of experience and an unwavering commitment to product improvement.



## Available Constructions

### High Profile Construction

Options shown: 90°– 1/4" Q.C. terminals with Surface mount flange



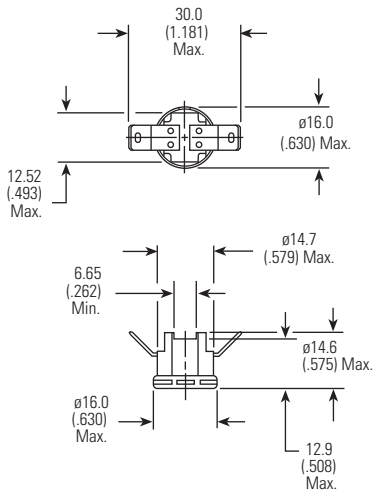
#### Part Types by Construction

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

### Low Profile Construction

#### 4 Post

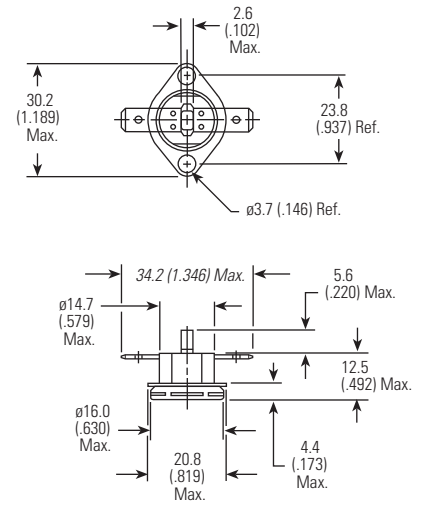
Options shown: 45°– 1/4" Q.C. terminals with 4 post & flat Al cup



1NT02 Auto Reset / Silver Contacts  
 1NT02TL Low Profile / One Shot  
 1NT20 Auto Reset / Gold Contacts

### Manual Reset Construction

Options shown: Flat 1/4" Q.C. terminals with Airstream mount cup

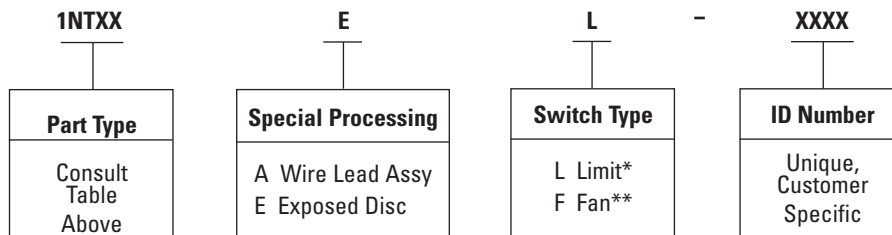


1NT08 Manual Reset / Silver Contacts  
 1NT12 Manual Reset / Gold Contacts  
 1NT15 Trip Free MR / Silver Contacts  
 1NT19 Trip Free MR / Gold Contacts

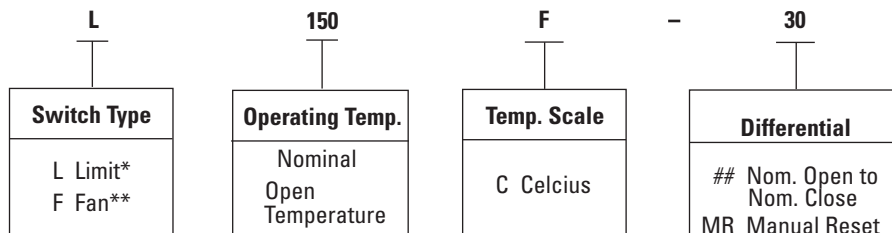
All dimensions mm (in.)

## Numbering System

### Part Number



### Temperature Code



\* Limit switch opens on temperature rise  
 \*\* fan switch closes on temperature rise

## 1NT Series Electrical Ratings1

### UL and CSA

Type	Max. Temp.		Cycles (X 1000)	Electrical Rating	
	°C	°F			
NT01,02	204	400	100	120 - 240 Vac 277 Vac	1 - 10 amps 10 - 17 amps* 7.2 amps
1NT08, 15, 08E	204	400	1 + 5	240 Vac	25 amps
1NT09, 10	204	400	1-Shot	240 Vac 277 Vac	25 amps 7.2 amps
1NT11,20	204	400	100	125 VA 30 Vdc	1 amp
1NT12, 19	204	400	1 + 5	125 VA	
1NT01E, 02E	204	400	100	120 Vac	10 amps

\*Premium pricing for high capacity contacts.

### ENEC

Type	Max. Temp.	Cycles (X 1000)	Electrical Rating
	°C		
1NT01, 02	204	100	240 Vac 13.5 (1.66)A
		30	240 Vac
		30	400 Vac 4(1)A
1NT02TL	204	1	240 Vac 16(5)A
1NT08	204	10	240 Vac 16(5)A
		10	400 Vac 4(1)A
1NT09	204	1	240 Vac 16(5)A
1NT11	204	100	30 Vdc 1A
1NT15	204	10	240 Vac 16(5)A
1NT20	204	100	30 Vdc 1A

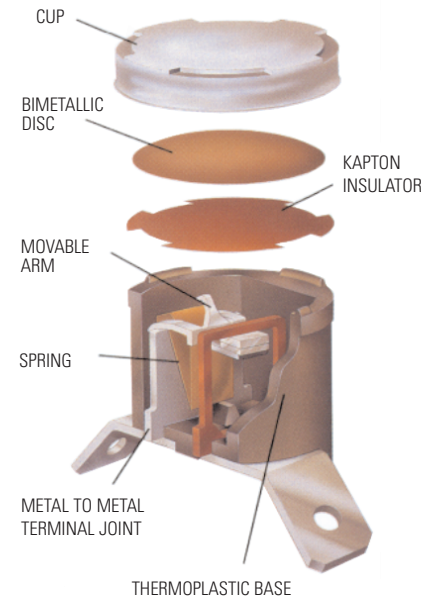
## Standard Temperatures, Tolerances and Differential

### Automatic Reset Thermostats

Nominal Top Temperature		Min. Bottom Temperature		Differential		Standard Tolerances			
						Open		Close	
°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
18 to 27	65 to 80	-33	-26	11 to 16	20 to 29	±3.0	±5.5	±4.0	±7.5
				17 to 21	30 to 38	±3.0	±5.5	±4.5	±8.5
				22 to 33	39 to 59	±3.0	±5.5	±5.5	±10.0
28 to 80 and *81 to 93	81 to 176 and 177 to 199	-33	-26	11 to 13	20 to 23	±3.0	±5.5	±4.0	±7.5
				14 to 16	24 to 29	±3.0	±5.5	±4.5	±8.5
				17 to 33	30 to 59	±3.0	±5.5	±5.0	±9.0
*94 to 121	*200 to 249	50	122	11 to 16	20 to 29	±3.5	±6.5	±4.5	±8.5
				17 to 21	30 to 38	±3.5	±6.5	±5.5	±10.0
				22 to 33	39 to 59	±3.5	±6.5	±6.5	±12.0
				34 to 55	60 to 99	±5.5	±10.0	±10.0	±20.0
122 to 149	250 to 300	50	122	14 to 21	24 to 38	±4.0	±7.5	±5.5	±10.0
				21 to 33	39 to 59	±4.0	±7.5	±8.0	±14.5
				34 to 55	60 to 99	±5.5	±10.0	±11.0	±20.0
150 to 177	301 to 399	50	122	22 to 33	39 to 59	±5.0	±9.0	±9.0	±16.5
				34 to 44	60 to 79	±5.5	±10.0	±11.0	±20.0
				45 to 55	80 to 99	±5.5	±10.0	±11.0	±20.0
178-204**	351 to 399	50	122	22 to 33*	39 to 59	±5.0	±9.0	±9.0	±16.5
				34 to 44	60 to 79	±5.5	±10.0	±10.0	±20.0
				45 to 55	80 to 99	±5.5	±10.0	±10.0	±20.0

\* Not valid for Fan Devices

\*\* Top Temp for Fan Devices cannot exceed 380°F (193°C)



### Manual Reset and One-Shot Thermostats

Nominal Top Temperature		Open Tolerances	
°C	°F	°C	°F
<60	<140	±4.0	±7.5
61 TO 160	141 to 320	±5.0	±9.0
161 TO 204	321 to 399	±6.0	±11.0

# Accessories and Options

## Cup Styles

<p><b>Airstream Mount Integral Cup 57611</b> Material: Aluminum Available mounting rotation relative to terminals - 0° or 90° Closed Bottom Only</p> <p>Top View Dimensions:          - Overall width: 30.2 (1.189) Max.          - Terminal spacing: 23.8 (.937) Ref.          - Terminal diameter: <math>\phi 3.7</math> (.146) Ref.          - Terminal height: 20.8 (.819) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.34 (.013) Ref.</p> <p>Side View Dimensions:          - Mounting hole offset: 4.5 (.177) Max.          - Mounting hole diameter: 16.0 (.630) Max.</p>	<p><b>Flat Cup 73926</b> Materials: Aluminum, Stainless Steel or Copper</p> <p>Top View Dimensions:          - Overall width: 16.26 (.640) Max.          - Mounting hole diameter: 16.0 (.630) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 3.94 (.155) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.30 (.012) Ref.</p>	<p><b>3NT Flange Cup 57366</b> Material: Aluminum or Copper Closed Bottom Only</p> <p>Top View Dimensions:          - Overall width: 19.7 (.776) Max.          - Mounting hole diameter: 16.5 (.650) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 5.5 (.217) Max.          - Mounting hole diameter: 16.5 (.650) Max.          - Mounting hole offset: 0.5 (.020) Ref.</p>	<p><b>Airstream Mount Integral Cup 27185</b> Material: Stainless Steel Available mounting rotation relative to terminals 0° or 90° with Open Bottom 0°, 45° or 90° with Closed Bottom</p> <p>Top View Dimensions:          - Overall width: 30.2 (1.189) Max.          - Terminal spacing: 23.8 (.937) Ref.          - Terminal diameter: <math>\phi 3.7</math> (.146) Ref.          - Terminal height: 20.8 (.819) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.25 (.010) Ref.</p> <p>Side View Dimensions:          - Mounting hole offset: 4.4 (.173) Max.          - Mounting hole diameter: 16.0 (.630) Max.</p> <p>Note:  <b>Available Diameter Mounting Holes</b>          with open bottom: 3.7 (.146)          with closed bottom: 3.7 (.146) / 4.2 (.165) or none</p>
<p><b>Airstream Mount Integral Cup (slotted mounting holes) 57367</b> Material: Aluminum Available mounting rotation relative to terminals - 0° or 90° Closed Bottom Only</p> <p>Top View Dimensions:          - Overall width: 32.15 (1.266) Max.          - Terminal spacing: 24.5 (.965) Ref.          - Terminal diameter: <math>\phi 3.7</math> (.146) Ref.          - Terminal height: 20.15 (.793) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 3.4 (.134) Ref.</p> <p>Side View Dimensions:          - Mounting hole offset: 5.5 (.217) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.5 (.020) Ref.</p>	<p><b>Wide-Eared Integral Cup 57608</b> Material: Stainless Steel Available mounting rotation relative to terminals - 0° or 90° Closed Bottom Only</p> <p>Top View Dimensions:          - Overall width: 43.28 (1.704) Max.          - Terminal spacing: 31.75 (1.250) Ref.          - Terminal diameter: <math>\phi 4.75</math> (.187) Ref.          - Mounting hole diameter: 16.0 (.630) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 4.6 (.181) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.25 (.010) Ref.</p>	<p><b>"Tear-Drop" Integral Cup 57609</b> Material: Stainless Steel Available mounting rotation relative to terminals - 0° or 90° Closed Bottom Only</p> <p>Top View Dimensions:          - Overall width: 43.28 (1.704) Max.          - Terminal spacing: 21.72 (.855) Max.          - Terminal diameter: <math>\phi 4.75</math> (.187) Ref.          - Mounting hole diameter: 16.0 (.630) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 4.6 (.181) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.25 (.010) Ref.</p> <p>Note:          90° mounting option is also available with 57612 teardrop shaped stiffening flange upon customer request.</p>	<p><b>Large Oval Integral Cup 59122</b> Material: Aluminum Available mounting rotation relative to terminals - 0° or 90° with Open Bottom 0°, 45° or 90° with Closed Bottom</p> <p>Top View Dimensions:          - Overall width: 51.1 (2.010) Max.          - Terminal spacing: 39.67 (1.562) Ref.          - Terminal diameter: <math>\phi 3.7</math> (.146) Ref.          - Terminal height: 38.3 (1.508) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.33 (.013) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 5.3 (.209) Max.          - Mounting hole diameter: 16.0 (.630) Max.          - Mounting hole offset: 0.33 (.013) Ref.</p>
<p><b>Flanges</b></p> <p><b>Fixed Rotation Surface Mount Flange 57336</b> Material: Aluminum or Nickel Plated Steel Available mounting rotation relative to terminals - 90° with Aluminum -- 0°, 90° / or 57°, 127°, 135° CCW with Nickel Plated Steel</p> <p>Top View Dimensions:          - Overall width: 19.4 (.764) Max.          - Terminal spacing: 23.8 (.937) Ref.          - Terminal diameter: <math>\phi 3.72</math> (.147) Ref.          - Mounting hole diameter: 18.4 (.724) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 3.51 (.139) Max.          - Mounting hole diameter: 18.4 (.724) Max.          - Mounting hole offset: 0.38 (.015) Ref.</p>	<p><b>Loose Ear Surface Mount Flange 27183</b> Material: Aluminum</p> <p>Top View Dimensions:          - Overall width: 19.4 (.764) Max.          - Terminal spacing: 23.8 (.937) Ref.          - Terminal diameter: <math>\phi 3.72</math> (.147) Ref.          - Mounting hole diameter: 18.4 (.724) Max.          - Hole diameter: <math>\phi 14.9</math> (.587) Ref.</p> <p>Side View Dimensions:          - Mounting hole offset: 3.81 (.150) Max.          - Mounting hole diameter: 18.4 (.724) Max.          - Mounting hole offset: 0.38 (.015) Ref.</p>	<p><b>Wide Eared - Fixed Rotation Mounting Flange 57337</b> Material: Nickel Plated Steel Available mounting rotation relative to terminals - 45° CCW</p> <p>Top View Dimensions:          - Overall width: 43.28 (1.704) Max.          - Terminal spacing: 31.75 (1.250) Ref.          - Terminal diameter: <math>\phi 4.75</math> (.187) Ref.          - Mounting hole diameter: 18.4 (.724) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: 3.81 (.150) Max.          - Mounting hole diameter: 18.4 (.724) Max.          - Mounting hole offset: 0.38 (.015) Ref.</p>	<p><b>Bolt On Assembly 73972</b> Thread Specs:          Metric: M4 x 0.7 - 6G          M5 x 0.8 - 6G          Stud Length:          Metric: 6.15, 7.00, 8.00, 9.00 (with M4)          8.00 (with M5)          English: 6 x 32 - 1/2" Long          8 x 32 - 1/2" Long          Material:          Stud: Zinc Plated Steel          Cap: Aluminum</p> <p>Top View Dimensions:          - Overall width: 15.90 (.626) Max.          - Mounting hole diameter: 13.74 (.541) Max.</p> <p>Side View Dimensions:          - Mounting hole offset: Lgth. Varies</p>

All dimensions mm (in.)

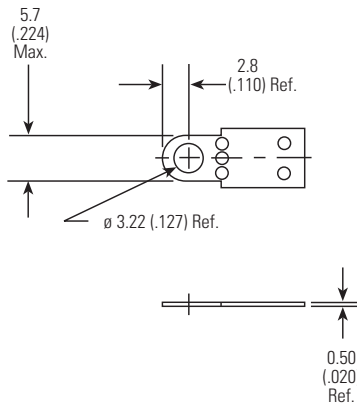
## Accessories and Options (cont.)

### Terminals

#### Solder Terminal

**27182\***

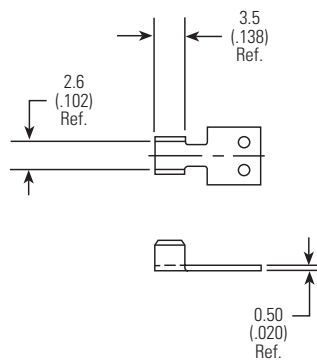
Material: Tin Plated Brass



#### Crimp Terminal

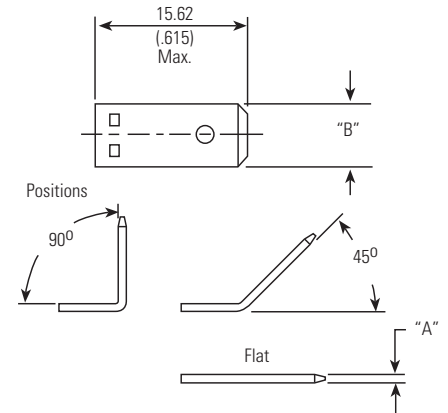
**27184\***

Material: Tin Plated Brass



#### Quick Connects

	27132	27162*	27163
Thickness (A):	0.8(.031)	0.5(.020)	0.8(.031)
Width (B):	6.3(.250)	4.8(.187)	4.8(.187)
Materials:	Brass - Solid, Ni, Ag, or Tin Plated	Steel - Nickel Plated	

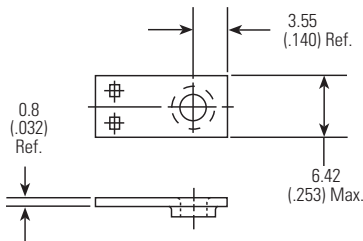


#### Screw Terminal

**57200**

Material: Nickel Plated Steel

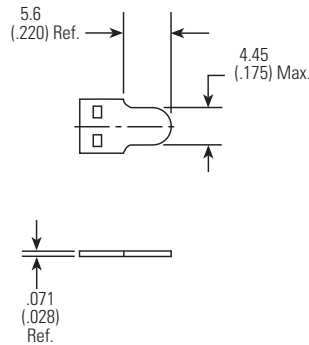
M3 x 0.5 Class 6H Thread



#### Weld Terminal

**57201**

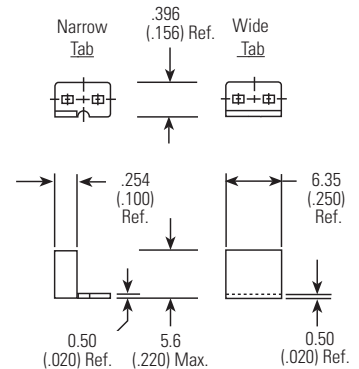
Material: Nickel Plated Steel



#### Weld Terminal

**57312\***

Material: Nickel Plated Steel



## 1NT Series Agency Listings

Agency: Type / Country:	UL USA	CSA CANADA	ENEC Europe	METI Japan
1NT01, 02	•	•	•	•
1NT08	•	•	•	•
1NT09, 10	•	•	•	•
1NT11, 12, 19, 20	•	•	•	•
1NT15	•	•	•	•
1NT01E, 02E	•	•	•	•
Series				
Reference Numbers	File: E9977 Category: XAPX2	Report: LR3890 Class: 4823-02	KEMA cert # EN2014531.16	

\*\* Consult Sensata Technologies for additional details regarding specifications and agency listings.

## 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:

- Detailed application description
- Estimated yearly usage.
- Opening and closing temperatures
- Max. temperature tolerances allowable
- Switch type
- Mounting style desired
- Terminal orientation and material
- Electrical load

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

- Maximum temperature exposure
- Location with respect to heat source
- Temperature transfer medium (air, metal surface, etc)
- Possible contamination sources (lint, chemical fumes, 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

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

\*10A Max. on all terminals 0.51 (.020) thick  
All dimensions mm (in.)

## Marketing / Sales Offices

### The Americas

#### Brazil

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Fax: 81 550 90 1330

Important Notice: The 1NT is not a sealed device and should not be used in applications where exposure to high moisture, dripping liquids, or immersion or direct contact to liquid may occur. In such applications, use of the 3NT or other environmentally sealed devices is recommended.



#### SENSATA TECHNOLOGIES

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