

Specification Sheet

1. Scope : This specification is applied to thermostat type 22N
2. Structure
  - 2.1 Type : Single pole single throw thermostat with bimetallic disc.
  - 2.2 Type of action : Contacts open on temperature rise. Contacts close on temperature fall. (To be called "A" operation at NGT)
  - 2.3 Insulation distance : To satisfy the UL, CSA, VDE standard.
3. Initial characteristics
  - 3.1 Electrical Rating : Resistive Load AC125V/15A, AC250V/10A
  - 3.2 Operating temperature :  $(xxx \pm xx)^\circ\text{C}$  Open  $(xxx \pm xx)^\circ\text{C}$  Close  
Testing device = Hot air circulation system of NGT manufacture.  
Temperature changing rate =  $1^\circ\text{C}/\text{min}$ . measuring load is LED load of not more than 20mA.  
Maximum ambient temperature =  $200^\circ\text{C}$
  - 3.3 Resistance between terminals : Initial value shall be not more than 30 m ohm measured by Micro Current Ohm Meter.
  - 3.4 Insulation resistance : Not less than 1,000 M ohm measured by DC500V Megger between Live part and dead metal part.
  - 3.5 Dielectric strength : Shall stand AC1,500V for 1 minutes or AC1,800V for 1 second without a breakdown between Live part and Insulator. (leakage current : 5 mA)
4. Test
  - 4.1 Heat test : 24 hour at  $(200 \pm 5)^\circ\text{C}$ .
  - 4.2 Cold test : 24 hour at  $(-30 \pm 2)^\circ\text{C}$ .
  - 4.3 Thermal cycle test : When subjected to 10 cycles, 30 minutes at  $(20 \pm 2)^\circ\text{C} \sim 30$  minutes at  $(200 \pm 5)^\circ\text{C}$ .
  - 4.4 Humidity test : At relative humidity of (95~98%),  $(40^\circ\text{C} \pm 3)^\circ\text{C} \times 24$  hour, thereafter 10 minutes at the room temperature.  
The insulation resistance shall be not less than 10M ohm.
  - 4.5 Vibration test : When subjected to the vertical vibration for 60 minutes under no load, 50 Hz total amplitude of 2 mm gravity acceleration of 10G.
  - 4.6 Drop shock test : Fixed to a steel plate of 10 sq cm  $\times$  1 cm thick and when subjected to the drop from 1 meter high to a wooden floor.
  - 4.7 Endurance test : When subjected to 10,000 cycles, thermal operation at approved voltage and current.
  - 4.8 Terminal strength : When subjected to 8 Kgs. tension to the direction of terminal and 4 kgs. static load to the vertical direction of terminal for 1 minutes, the insulator shall show no abnormalities.

The sample shall satisfy the clauses 3.3~3.5 and the change of the operating temperature shall be within  $\pm 3^\circ\text{C}$  compared with the initial ones after finishing the tests of 4.1~4.6 & 4.8.

The sample shall satisfy the clauses 3.4~3.5 and resistance between terminals shall be not more than 100 m ohm, and the change of the operating temperatures shall be within  $\pm 5^\circ$  compared with the initial ones after finishing the test of 4.7.

## 5. Marking : Stamping on Cap

example    Type of action  $\longrightarrow$  A \* \* \*  $\longleftarrow$  Open temperature  
                   Type  $\longrightarrow$  2 2 N \* \* \* \*  $\longleftarrow$  Style No.  
                   Lot no.  $\longrightarrow$  \* \* \* \*  
                   Factory  $\longrightarrow$  \*  $\triangle$   $\longleftarrow$  VDE mark  
                   ☆ None : Yamagata  
                   ☆ C : California  
                   ☆ S : Singapore

## 6. Recognition :

UL File No. E43273	Resistive Load AC125V/15A, AC250V/10A	100,000 Cycles	200*
	Inductive Load AC125V/15A, AC250V/10A	6,000 Cycles	200*
CSA File No. LR67165~67167	Resistive Load AC125V/15A, AC250V/10A	100,000 Cycles	200*
	Inductive Load AC125V/15A, AC250V/10A	100,000 Cycles	200*
VDE File No. 64516~64518	Resistive Load AC125V/15A, AC250V/10A	10,000 Cycles	200*

NOTE : THIS VERSION IS NOW OBSOLETE - NEW VER  
 IS 21EN  
 REGARDS  
 Noel

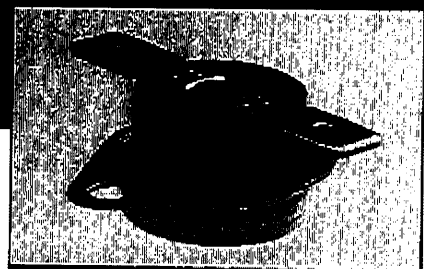


# Automatic Reset

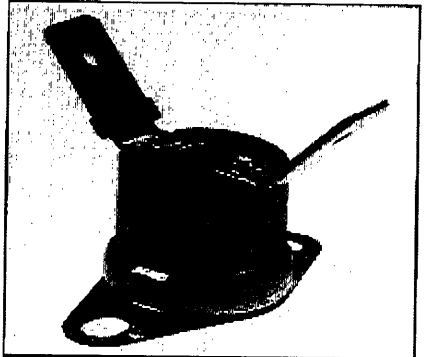
## Quick Action Bimetallic Disc Thermostats

### General Specification

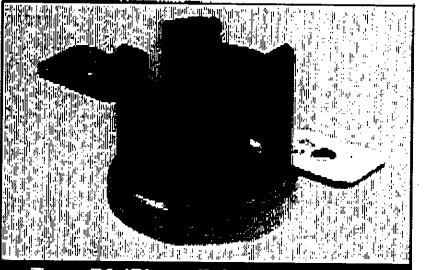
Item	Description				
1 Basic Features	1/2" Disc Insulated Thermostat, SPST				
2 Operation	A: Open on temperature rise B: Close on temperature rise				
3 Temperature Range	-10°C to 100°C	100°C to 130°C	130°C to 180°C	180°C to 210°C	210°C to 250°C
4 Tolerance	4°C	5°C	6°C	8°C	12°C
5 Differential	15°C	25°C	30°C	40°C	50°C
6 Calibration Method	1C/min. Air circulation furnace with a signal current load				
7 Insulation Resistance	More than 1,000 MΩ at DC 500 V with Megger				
8 Dielectric Strength	AC 1,500 V for one minute or AC 1,800 V for one second				
9 Contact Resistance	Less than 30 milliohms				



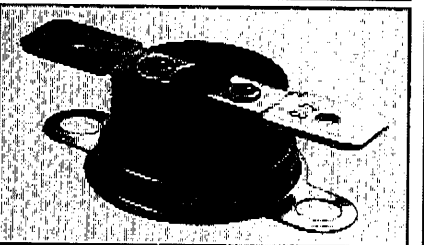
Type 03, 54 (Phenolic)



Type 52 (Ceramic Body)



Type 50 (Phenolic), 09 (Ceramic)



Type 11 (Phenolic), 10 (Ceramic)

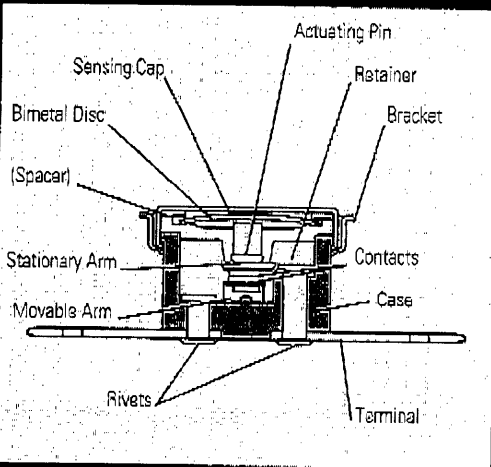
### Phenolic Thermostats: Temperature up to 150°C

Type No.	Feature	Electrical Rating			
03EP	Micro Current	250VAC/30VAC	0.1A	Resistive	100M cycles
11N	Low Profile	125VAC/250VAC	15A/10A	Resistive	100M cycles
50N	Clip-on Mounting	125VAC/250VAC	15A/10A	Resistive	100M cycles
11S	Low Profile	125VAC/250VAC	6A/3A	Resistive	100M cycles
50S	Clip-on Mounting	125VAC/250VAC	6A/3A	Resistive	100M cycles
54N	General Purpose	120VAC/240VAC	15A/10A	Resistive/Inductive	100M cycles

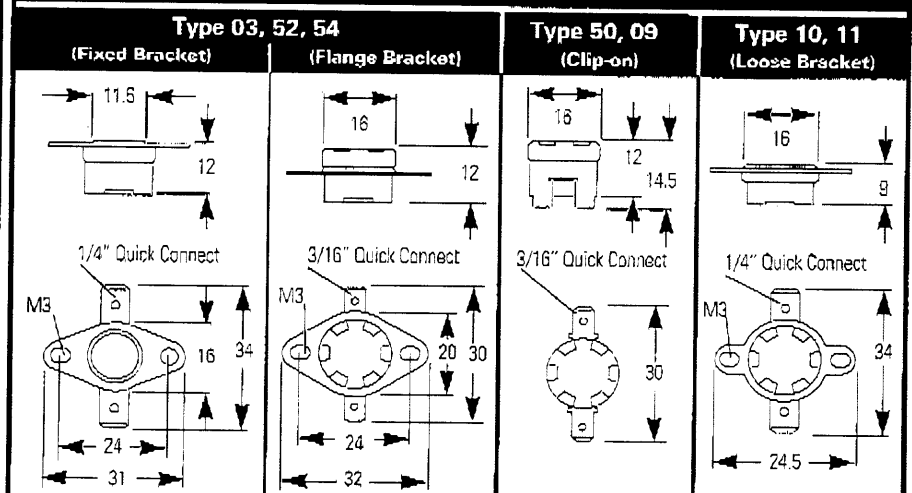
### Ceramic High Temperature Thermostats

Type No.	Feature	Electrical Rating			
09N	Clip-on Mounting	125VAC/250VAC	15A/10A	Resistive	100M cycles
10N	Clip-on Mounting	125VAC/250VAC	15A/10A	Resistive	100M cycles
52N	General Purpose	125VAC/250VAC	15A/10A	Resistive	100M cycles
52N•	General Purpose	125VAC/250VAC	15A/10A	Inductive•	6M cycles

### Structure: Automatic Reset



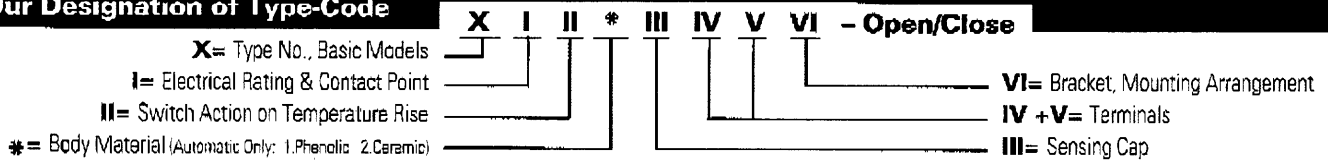
### Dimensions: Automatic Reset





# Thermostat Part Number Key/Variation Chart

## Our Designation of Type-Code



<b>I</b>	<b>N</b>	AC 120V/AC 240V	15A/10A	: Standard Contact Point
	<b>S</b>	AC 120V/AC 250V	6A/3A	: For Short Body
	<b>X</b>	AC 120V/DC 30V	10M-1A	: Cross-Bar Contact Point
	<b>P</b>	AC 120V/DC 6-30V	10M-100mA	: Cross-Bar Contact Point

<b>II</b>	<b>1</b>	Open on rise (operation type A)
	<b>3</b>	Close on rise (operation type B)
	<b>4</b>	Open on rise: one time operation

<b>III</b>	<b>0, 1, 4, T, W</b>	Aluminum	<b>No. 0</b>	<b>No. 1,2,3</b>	<b>No. 4,5</b>	<b>No. 6</b>	<b>No. 7</b>	<b>No. A</b>	<b>No. P</b>	<b>No. S</b>	<b>No. T,U,V</b>	<b>No. W</b>
	<b>2, 7, S, U</b>	Copper Alloy										
	<b>3, 5, 6, A, P, V</b>	Stainless Steel										
	<b>0, 1, 2, 3, A, P, W</b>	Fits w/Bracket #...										
	<b>0</b>	Open Cap										
	<b>T, U, V</b>	Close On Rise (Operation Type B)										
	<b>S</b>	Screw Threads (6-32, 8-32UNC)										
<b>7, P</b>	Tube Mounting											

<b>IV</b>	<b>No. 01 Solder</b>	<b>No. 02 Solder</b>	<b>No. 05 .187 Quick Connect</b>	<b>No. 06/10 .187 Quick Connect</b>	<b>No. 07 Strap</b>
	<b>No. 08 Weld</b>	<b>No. 11 Strap</b>	<b>No. 12 Crimp</b>	<b>No. 14 .187 Quick Connect</b>	<b>No. 27 Tube</b>
	<b>No. 28 Strap</b>	<b>No. 36 .187 Quick Connect</b>	<b>No. 43 .250 Quick Connect</b>	<b>No. 44 .250 Quick Connect</b>	

<b>VI</b>	<b>0</b>	No Bracket		<b>No. 1</b>		<b>No. 2</b>		<b>No. 3</b>		<b>No. 4</b>
	<b>B, E, H</b>	Fixed Bracket		<b>No. 1</b>		<b>No. 2</b>		<b>No. 3</b>		<b>No. 4</b>
	<b>1, 2, 3, 4, A</b>	Loose Bracket		<b>No. 1</b>		<b>No. 2</b>		<b>No. 3</b>		<b>No. 4</b>
	<b>E, A (With Spring)</b>	Tube Mounting		<b>No. 1</b>		<b>No. 2</b>		<b>No. 3</b>		<b>No. 4</b>

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