

TECHNICAL SPECIFICATION OF THERMOSTAT, HB-2

1. APPLICATION SCOPE

HB-2 is an Automatic Reset Thermostat to regulate temperature.

2. STRUCTURE

2-1. Type: Single pole single throw Thermostat using Bi-metal

2-2. Dimension: Please refer to the attachment.

3. SPECIFICATIONS

3-1. Electrical Ratings

Rated Voltage	AC 125 V	AC 240 V	AC 250 V
Rated Current	15 A	15 A	7.5 A
Minimum Current	200 mA		
Rated Load	Resistive Load		

3-2. Temperature

Operating temperature is measured in a convection oven (wind velocity 1~2m/sec, electrically heated) in which the temperature is increased or decreased by 1°C per minute.

3-3. Withstand Voltage

It shall withstand for one minute under AC1,500V/leakage current 10mA, or withstand for one second under AC1,800V/leakage current 10mA between insulated and uninsulated parts.

3-4. Insulation Resistance

Insulation resistance between insulated and uninsulated parts should be over 100MΩ when measured with DC500V tester.

3-5. Contact Resistance

Not greater than 20mΩ between terminals using DC6V/1A voltage drop method. If terminals are connected with wires, the contact resistance of the wires should be considered separately.

4. RELIABILITY TESTING

4-1. Moisture Proof Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in a convection oven set by 90~95% humidity and 40±3°C.

4-2. Heat Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in convection oven set by 150±3°C.

4-3. Cold Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in a convection oven set by -20±3°C.

4-4. Thermal Shock Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after repeated 5 cycles of thermal shock (1 cycle includes 30 minutes in a convection oven set by 150±3°C and 30 minutes set by -20±3°C).

4-5. Vibration Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 30 minutes of vibration in three ways(X, Y, Z) under vibration conditions of 20~60Hz and amplitude of 1mm.

4-6. Drop Shock Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after dropping on 1cm-thick wooden board from the height of 80cm.

4-7. Endurance Test

It should have no defects on each parts, after 10,000 cycles of on-off

operation through repeated heating and cooling with 60Hz rated voltage and rated current(power factor = above 90%). And when measuring the operating temperature with a method of above 3-2, the temperature should be within $\pm 7\%$ compared with initial temperature, and satisfy the requirement of above 3-3 and 3-4 and the contact resistance should be below $100\text{ m}\Omega$ (3-5).

5. PACKING (Standard Type)

5-1. Inner Packing : Small Inner Box

Size : 180mm x 290mm x 90mm

1 Inner Box : 500 pcs

5-2. Outer Packing : Large Carton Box

Size : 480mm x 300mm x 395mm

1 Outer Box : 5,000 pcs (10 inner boxes)

6. MARKING

6-1. Model No.: HB-2

6-2. Operating Temperature

“ N ” - Normal Open Type: On type in normal temperature

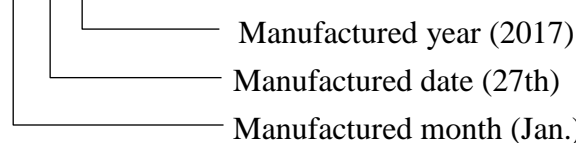
“ R ” - Normal Close Type: Off type in normal temperature

Ex) N120, R80

6-3. Lot Code

Lot Code will include one letter alphabet and three letter number. First letter indicates the month, second and third is the date, and the last is the year of manufacturing.

Ex) A 27 7



* Exceptionally, October: “ X ”, November: “ Y ”, December: “ Z ”

7. PRECAUTIONS

- 7-1. Do not drop the thermostat on the hard ground such as concrete floor. It may cause defects in function.
- 7-2. Do not use the thermostat in applications exceeding the rated voltage and current. Otherwise, the electrical contacts may melt and cause a malfunction.
- 7-3. Thermostat with deformation may not work normally.
- 7-4. In case of any damage to the thermostat from outside force, it may not work normally.
- 7-5. To maintain optimum performance, thermostat should be stored in proper environment without direct sunlight and corrosive gas.

8. Approvals

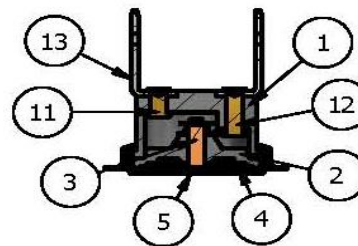
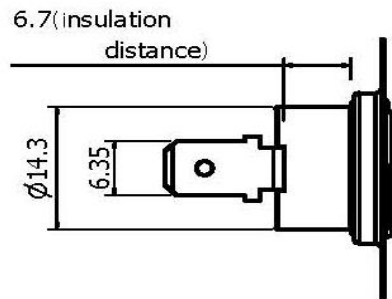
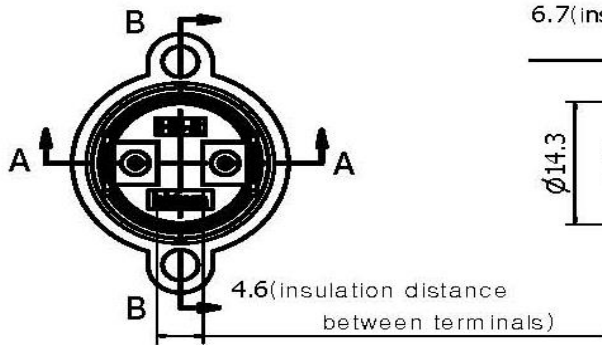
Agency	Standard	Category	Electrical Ratings	Max Temp	File NO.
UL (c-ULus)	UL 873 C22.2 No. 24-93	Limiting Thermostats	AC 125V/15A, 240V/15A, 250V/7.5A 100,000 cycles (HB-2)	150°C	E179705 (HB-2,HB-5)
			AC 125V/15A, 250V/7.5A 100,000 cycles (HB-5)		
TUV	EN 60730-1 EN 60730-2-9	Temperature Controller	AC 125V/15A, 250V/7.5A 100,000 cycles	150°C	B 17 05 99579 006 (HB-2, HB-5)
CQC	GB/T14536.1-2008 GB/T14536.10-2008	Thermostat	AC 125V/15A, 250V/7.5A 10,000 cycles	150°C	CQC17002173860 (HB-2)
					CQC17002173859 (HB-5)
KC	KC60730-1 K60730-2-9	Thermostat	AC 250V/7.5A	150°C	ZH02005-15001 (HB-2, HB-5)
	K60730-2-9		AC 250V/15A		180°C

9. Others

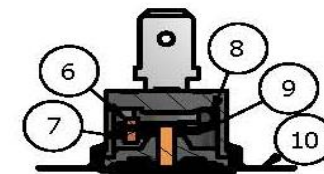
- 8-1. Those subjects which are not defined in this specification or any doubt arising from the execution of the specifications will be discussed separately and added or corrected specially when mutually agreed.
- 8-2. If any doubt arise during the incoming inspection at your end regarding the specifications of the thermal protector, please inform us immediately and we shall make an effort to settle the matter in mutually agreeable way.

8-3. If any doubt arise about the specifications after secondary process at your end, the scope of discussion to settle the matter will be limited to the thermostat only.

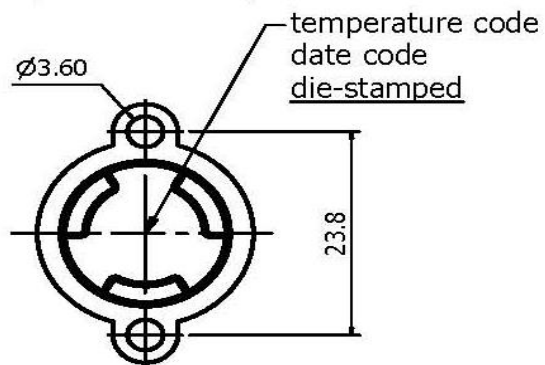
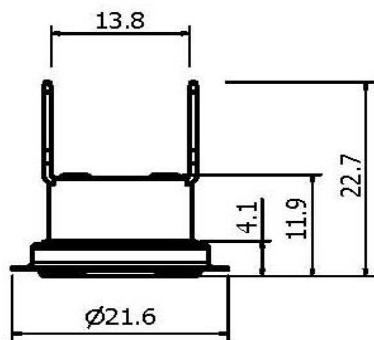
8-4. Specifications described in this leaflet can be changed without any notice for quality improvement.



A-A section



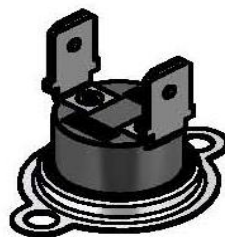
B-B section




Electrical rating
125V/15A, 240V/7.5A

Endurance cycle
100,000 cycle

UL, TUV, CQC acquired



NO.	part's name	material	remark
1	base	bakelite	UL certified 150C
2	cover	bakelite	UL certified 150C
3	guide pin	ceramic	D=1.9
4	disc	bimetal	t=0.2
5	cap	aluminium	t=0.4
6	contact M	AgNi alloy	t=0.2
7	contact S	AgNi alloy	t=0.2
8	spring	BeCu alloy	t=0.15
9	stationary plate	C2680	t=0.5
10	bracket	SPC coated Zn	t=0.3
11	rivet M	brass	D=1.9
12	rivet S	brass	D=1.9
13	terminal 250H	C2680	t=0.8

design	check	approval	date	tolerance	date	remarks
SH Kim	MS Lee			±0.3	2012-12-13	
 SEKI AMERICA						approval-HB2-250VAF
						edition 0

TECHNICAL SPECIFICATION OF THERMOSTAT, HB-5

1. APPLICATION SCOPE

HB-5 is an Automatic Reset Thermostat to regulate temperature.

2. STRUCTURE

2-1. Type: Single pole single throw Thermostat using Bi-metal

2-2. Dimension: Please refer to the attachment.

3. SPECIFICATIONS

3-1. Electrical Ratings

Rated Voltage	AC 125 V	AC 240 V	AC 250 V
Rated Current	15 A	15 A	7.5 A
Minimum Current	200 mA		
Frequency	50 / 60 Hz		
Rated Load	Resistive Load		

3-2. Temperature

Operating temperature is measured in a convection oven (wind velocity 1~2m/sec, electrically heated) in which the temperature is increased or decreased by 1°C per minute.

3-3. Withstand Voltage

It shall withstand for one minute under AC1,500V/leakage current 10mA, or withstand for one second under AC1,800V/leakage current 10mA between insulated and uninsulated parts.

3-4. Insulation Resistance

Insulation resistance between insulated and uninsulated parts should be over

100M Ω when measured with DC500V tester.

3-5. Contact Resistance

Not greater than 50m Ω between terminals using DC6V/1A voltage drop method. If terminals are connected with wires, the contact resistance of the wires should be considered separately.

4. RELIABILITY TESTING

4-1. Moisture Proof Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in a convection oven set by 90~95% humidity and 40 \pm 3 $^{\circ}$ C.

4-2. Heat Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in convection oven set by 150 \pm 3 $^{\circ}$ C.

4-3. Cold Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in a convection oven set by -20 \pm 3 $^{\circ}$ C.

4-4. Thermal Shock Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after repeated 5 cycles of thermal shock (1 cycle includes 30 minutes in a convection oven set by 150 \pm 3 $^{\circ}$ C and 30 minutes set by -20 \pm 3 $^{\circ}$ C).

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It should have no defects on each parts, after 10,000 cycles of on-off operation through repeated heating and cooling with 60Hz rated voltage and rated current(power factor = above 90%). And when measuring the operating temperature with a method of above 3-2, the temperature should be within $\pm 7\%$ compared with initial temperature, and satisfy the requirement of above 3-3 and 3-4 and the contact resistance should be below 100 m Ω (3-5).

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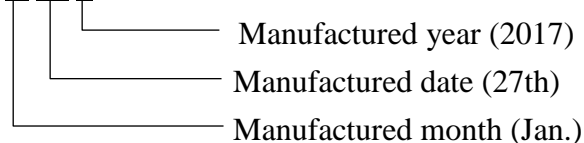
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