| 5BT SERIES
-65°F to 400°F, SPDT, Welded, Hermetically Sealed ½"

Introduction

The Klixon® 5BT series thermostat is a high reliability, hermetically sealed thermal switch. The single pole, double throw design allows versatility and economy in providing two functions within the same device. Typically these Klixon® switches are used to control and indicate at a preset temperature. One pole can control a cooling fan and the other pole can indicate impending danger.

The 5BT thermostat is the ideal choice where quality and reliability in a double throw device are critical. Customer applications for KLIXON® 5BT thermostats include aerospace blower motors and heaters.

Features

- Single pole, double throw (SPDT)
- Hermetically sealed
- Vacuum baked and back–filled with nitrogen
- High resistance to shock and vibration
- Preset, non–adjustable calibration
- Qualified to MIL-PRF-24236 /24

PERFORMANCE CHARACTERISTICS

Contact Ratings (Resistive) Based on standard differential

30 VAC/DC / 125 VAC	Life Cycles
2.0 Amps	100,000 cycles
3.0 Amps	50,000 cycles

Characteristics

Switch Action	SPDT (snap–action)
Contact Resistance	0.050 ohms maximum per MIL-STD-202, Method 307
Dielectric Strength	1250 VAC, rms, 60 cycles for 1 minute, terminal to case per MIL-STD-202, Method 301
Insulation Resistance	100 megohms min. at 500 VDC
Vibration Resistance	*10-2000 Hz, 10G, per MIL-STD-202, Method 204, Condition D*
Shock Resistance	60G, 11 milliseconds, per MIL-STD-202, Method 213
Acceleration	60G
Hermeticity	1×10^{-8} atm cc/second maximum per MIL-STD-202, Method 112, Condition C

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Characteristics (continued)

Salt Spray Resistance	Per MIL-STD-202, Method 101, Condition B, 5% solution
Humidity	MIL-STD-202, Method 103, Condition A
Sand and Dust	MIL-STD-202, Method 110, Condition A
Weight (average)	Basic Unit: 6.0 grams With bracket: 7.0 grams
Ambient Temperature Range	*-65°F to 450°F, (-53.9°C to +232.2°C)* *Maximum ambient exposure while in the closed position is 200°F above contact closing temperature.*
Operating Temperature Range	-65°F to 400°F, (-53.9°C to +204.4°C)

Operating Temperature

Operating Temperature		Differential		Tolerance	
°F	°C	°F	°C	±°F	±°C
-65	-53.9	30	16.7	10	5.6
-40	-40.0	30	16.7	10	5.6
-15	-26.1	30	16.7	10	5.6
0	-17.8	20	11.1	8	4.4
10	-12.2	20	11.1	8	4.4
20	-6.7	20	11.1	8	4.4
30	-1.1	20	11.1	8	4.4
40	4.4	20	11.1	8	4.4
Operating Temperature		**Differential**		**Tolerance**	
°F	°C	°F	°C	±°F	±°C
50	10.0	20	11.1	8	4.4
60	15.6	20	11.1	8	4.4
70	21.1	20	11.1	8	4.4
80	26.7	20	11.1	8	4.4
90	32.2	20	11.1	8	4.4
100	37.8	20	11.1	8	4.4
110	43.3	20	11.1	8	4.4
120	48.9	20	11.1	8	4.4
Operating Temperature		**Differential**		**Tolerance**	
°F	°C	°F	°C	±°F	±°C
130	54.4	20	11.1	8	4.4
140	60.0	20	11.1	8	4.4
150	65.6	20	11.1	8	4.4
160	71.1	20	11.1	8	4.4
170	76.7	20	11.1	8	4.4
180	82.2	20	11.1	8	4.4
190	87.8	20	11.1	8	4.4
200	93.3	20	11.1	8	4.4

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Operating Temperature (continued)

Operating Temperature		Differential		Tolerance	
°F	°C	°F	°C	±°F	±°C
210	98.9	20	11.1	8	4.4
220	104.4	20	11.1	8	4.4
230	110.0	20	11.1	8	4.4
240	115.6	20	11.1	8	4.4
250	121.1	20	11.1	8	4.4
260	126.7	20	11.1	8	4.4
270	132.2	20	11.1	8	4.4
280	137.8	20	11.1	8	4.4

Operating Temperature		Differential		Tolerance	
°F	°C	°F	°C	±°F	±°C
290	143.3	20	11.1	8	4.4
300	148.9	20	11.1	8	4.4
310	154.4	25	13.9	10	5.6
320	160.0	25	13.9	10	5.6
330	165.6	25	13.9	10	5.6
340	171.1	25	13.9	10	5.6
350	176.7	25	13.9	10	5.6
375	190.6	35	19.4	12	6.7
400	204.4	35	19.4	12	6.7

CONFIGURATIONS

The switches are offered in several versions. Our most common configurations are depicted below, but many other styles are available.

Configuration Options

|	
Terminals	Flattened and Pierced (Flattened and pierced terminals can also be bent at right angles to reduce the overall height.)
	Pin-type (Leads can be welded to pin-type terminals to form an integral unit.)
Wire Leads	Standard 18 gauge, stranded wire leads are available in white or black Teflon insulation, in accordance with MIL-W-22759/11 (Teflon is a Trademark of E. I. Dupont de Namers and Co.)
	Other wires are available upon request. (Wire leads are not available for all styles.)
Finish	The standard plating is copper–nickel, but several other finishes are available.
Mounting Flanges	Top or bottom mounting flanges are available.
Custom Designs	The 5BT device can be custom designed, such as packaging it into a probe thermostat.

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5BT-2

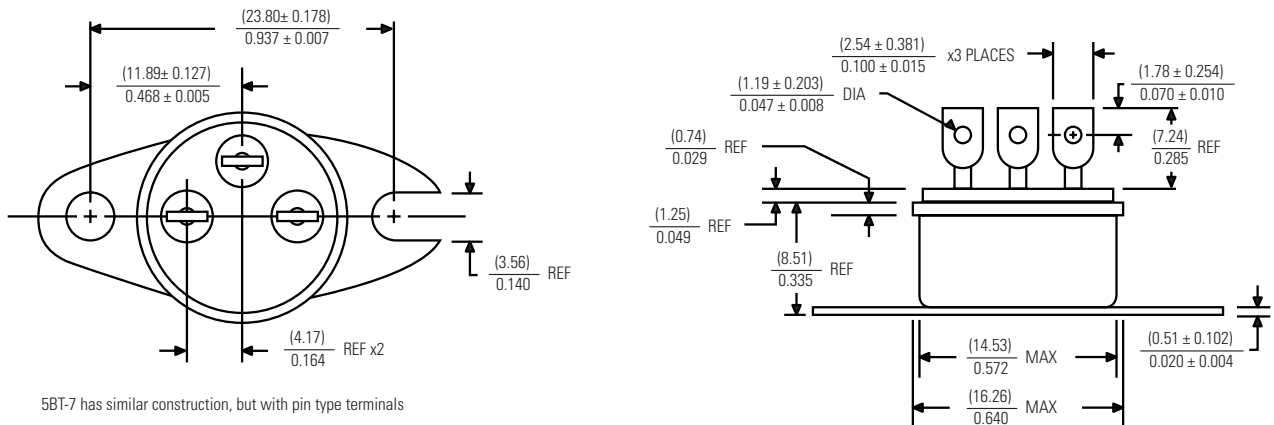Pin Type Terminals | SPDT (Single Pole, Double Throw) | Conforms to MIL-S-24236/24
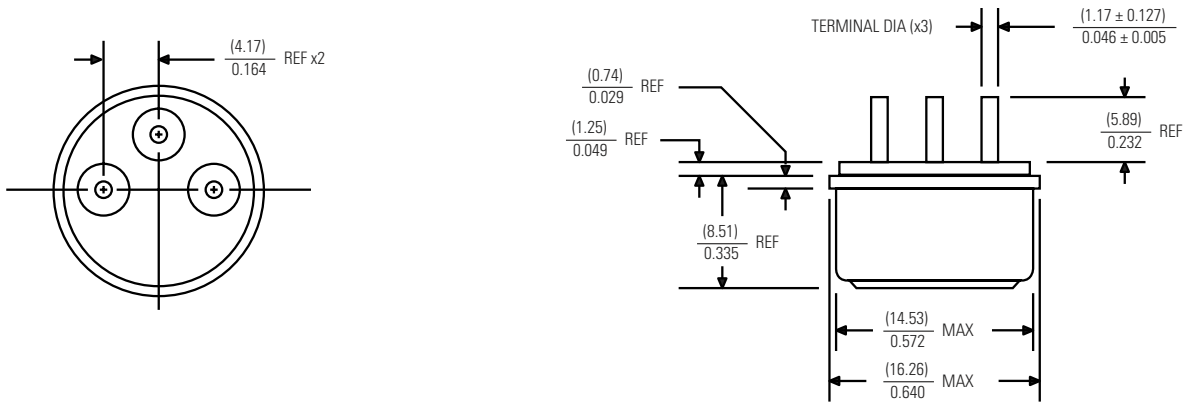
5BT-4

Flattened Pierced Terminals | SPDT (Single Pole, Double Throw) | Conforms to MIL-S-24236/24
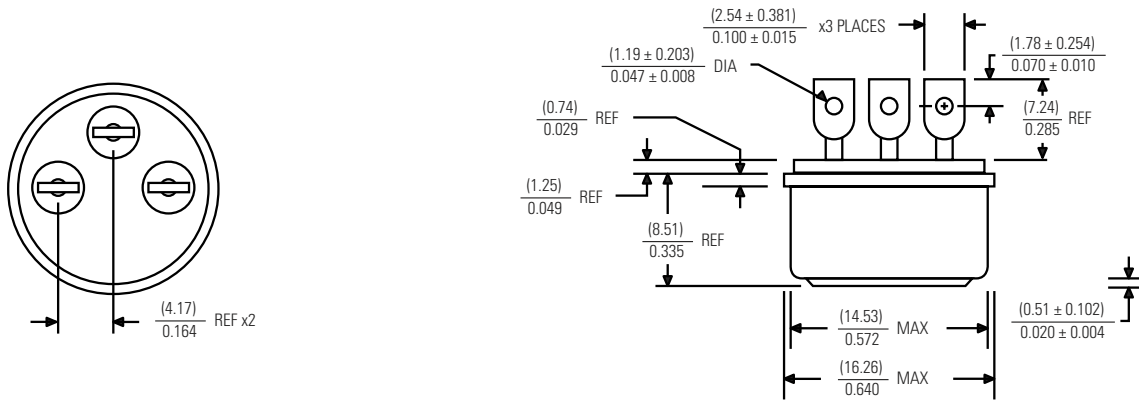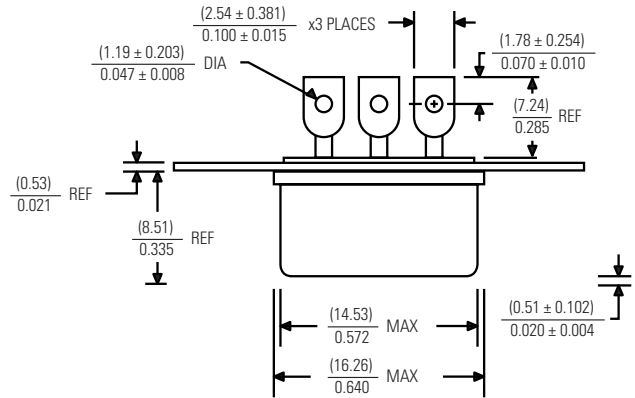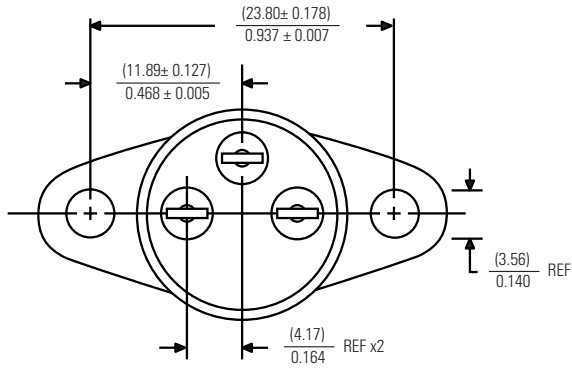

5BT-5

Surface Mount Bracket | SPDT (Single Pole, Double Throw) | Conforms to MIL-S-24236/24
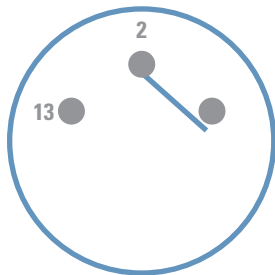

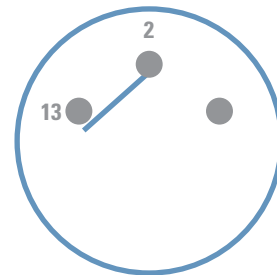5BT-7 has similar construction, but with pin type terminals

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5BT-6

Top Mounting Bracket | SPDT (Single Pole, Double Throw) | Conforms to MIL-S-24236/24

$\frac{(23.80 \pm 0.178)}{0.937 \pm 0.007}$

$\frac{(11.89 \pm 0.127)}{0.468 \pm 0.005}$

$\frac{(3.56)}{0.140}$ REF

$\frac{(4.17)}{0.164}$ REF x2

$\frac{(2.54 \pm 0.381)}{0.100 \pm 0.015}$ x3 PLACES

$\frac{(1.19 \pm 0.203)}{0.047 \pm 0.008}$ DIA

$\frac{(1.78 \pm 0.254)}{0.070 \pm 0.010}$

$\frac{(7.24)}{0.285}$ REF

$\frac{(0.53)}{0.021}$ REF

$\frac{(8.51)}{0.335}$ REF

$\frac{(14.53)}{0.572}$ MAX

$\frac{(16.26)}{0.640}$ MAX

$\frac{(0.51 \pm 0.102)}{0.020 \pm 0.004}$

Low Temperature Contact Position

Terminals 1 & 2 are opened and terminals 2 & 3 are closed at the low temperature settings

High Temperature Contact Position

Terminals 1 & 2 are closed and terminals 2 & 3 are open at the high temperature settings

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WARNINGS

DANGER

RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE
- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

Failure to follow these instructions can result in serious injury, or equipment damage.

Danger — Electric shock risk

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH
- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

Failure to follow these instructions will result in death or serious injury.

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