# 11041 (M1) SERIES

½" DISC HERMETIC THERMOSTATS, -65°F TO 550°F, SPST

Introduction

The Klixon® M1/11041 series of thermostats are engineered for exceptional vibration and shock resistance to provide reliable switching in the most demanding applications. Prior to the final weld, finished assemblies are vacuum baked and back—filled with dry nitrogen. The inert, dry atmosphere eliminates moisture and other volatilizes to prevent condensation at low temperatures or possible contact contamination at high temperatures. This back—fill also improves the dielectric characteristics of the device and prevents oxidation of the contacts. The M1 thermostat is the ideal choice where quality and reliability are paramount.
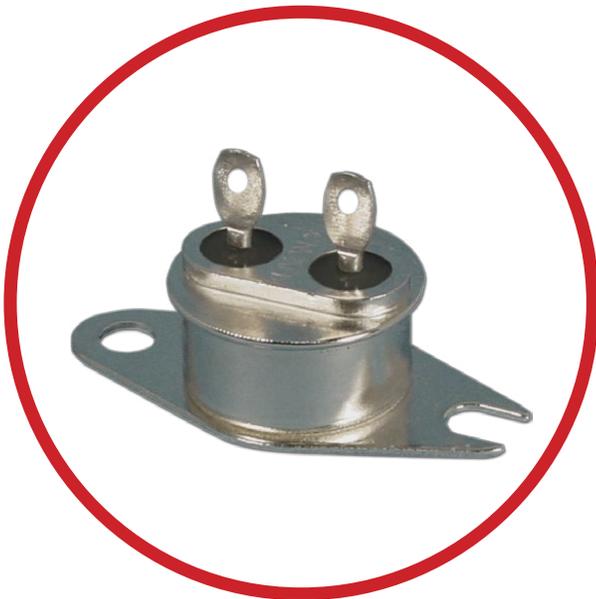
Features

- Single Pole / Single Throw (SPST)
- Preset temperature set points, non-adjustable calibration
- High resistance to shock and vibration
- Hermetically sealed, vacuum baked and back-filled with nitrogen
- Various mounting configurations available
- Qualified to MIL-PRF-24236/1
- Qualified to NASA S-311-P641/05

SPECIFICATIONS

	Cycles	30VDC / 30VAC	125VAC	250VAC
Contact Ratings (Resistive)	100,000	5.0 amps	2.0 amps	1.0 amps
	50,000	5.5 amps	3.0 amps	1.5 amps
	25,000	6.0 amps	4.0 amps	2.0 amps
	10,000	6.5 amps	5.0 amps	2.5 amps
	5,000	7.0 amps	6.0 amps	3.0 amps
	Contact ratings shown are based on the standard differential shown under Standard Temperature Settings			
Operating Temperature	-65°F to 550°F (-53.9°C to 287.8°C)			
Dielectric Strength	1250 VAC, rms, 60 cycles for 1 minute, terminal to case per MIL-STD-202, Method 301			
Contact Resistance	0.050 ohms maximum per MIL-STD-202, Method 307			
Insulation Resistance	100 megohms min. at 500 VDC			
Vibration	5-2000 Hz, 20G, per MIL-STD-202, Method 204, Condition D (monitored) 5-1000 Hz, 100G, per MIL-STD-202, Method 204, Condition D (unmonitored) 1000-2000 Hz, 50G, per MIL-STD-202, Method 204, Condition D (unmonitored)			
Shock	100G, 6 milliseconds, per MIL-STD-202, Method 213			

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Hermeticity	1 x 10⁻⁸ atm cc/sec. maximum, per MIL-STD-202, Method 112, Condition C
Salt Spray	Per MIL-STD-202, Method 101, Condition B, 5% solution
Average Weight	4.8 grams (without bracket) to 5.9 grams (with bracket)
Ambient Temperature Range	-80°F to +550°F (-62.2°C to 287.8°C) *Maximum ambient exposure while in the closed position is 200°F above contact closing temperature.*

Standard Temperature Settings

Sensata can manufacture thermostats to any custom set point temperature within the specified operating temperature range. The table gives standard limits for our thermostats. Contact factory for assistance with custom set point temperatures.

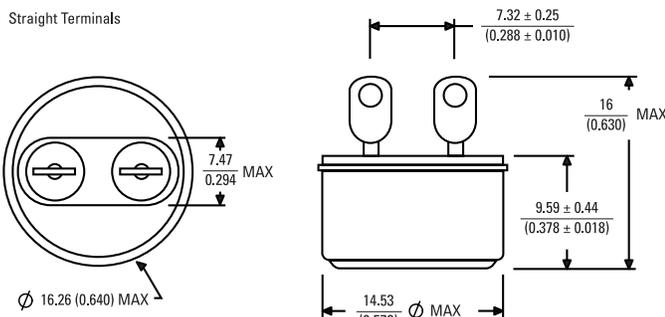| Operating Temp. Range (°F)	Available Differential Range (°F)			Temperature Tolerance (°F)	
	Minimum	**Standard**	**Maximum**	**Open**	**Closed**
-65 to -1	25	30	80	±10	±8
0 to +200	9	20	80	±5	±5
+201 to +300	20	30	80	±8	±6
+301 to +450	30	40	80	±12	±12
+451 to +550	60	70	80	±25	±25

Notes:

1. Thermostat life is reduced when at minimum or maximum differential
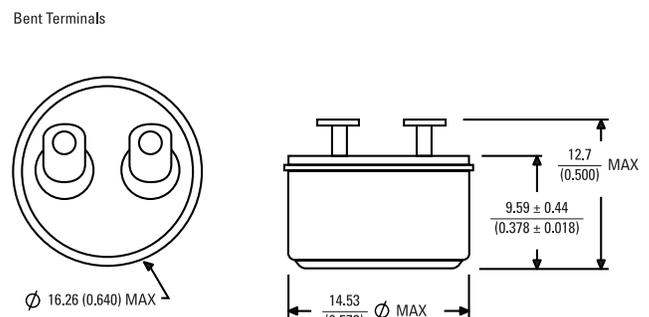2. Differential is the difference between the nominal Open & Close temperature set points

COMMON CONFIGURATIONS

No Bracket | SPST (Single Pole, Single Throw)
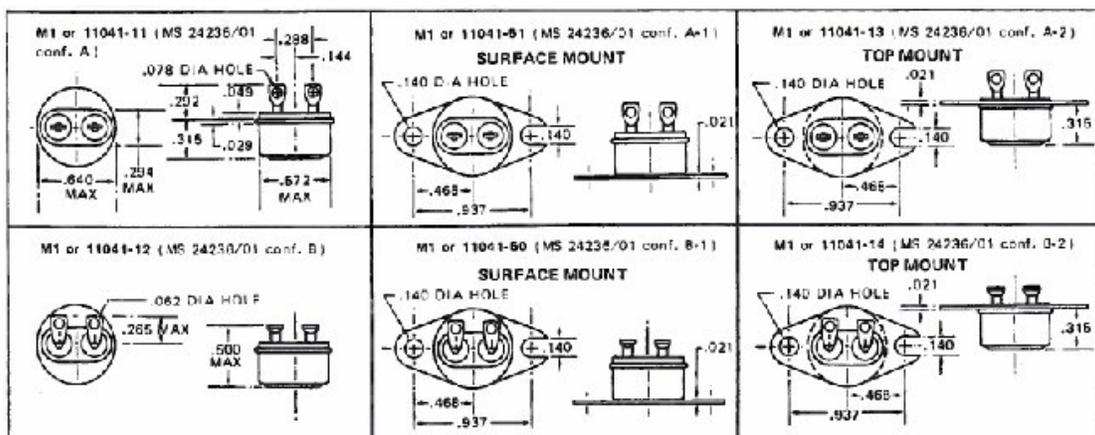All dimensions are in millimeters (Inches).

NOTE: Stud mount, surface and top mounting brackets are available. Dimensions listed are for reference only.
Please contact Sensata for more detailed envelope drawings.

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ORDERING OPTIONS

The example above describes a M1 series thermostat which closes on temperature rise at 110°F, opens at 90°F, has silver contacts, a surface mounting bracket, 90° bent terminals, and is plated with copper/nickel

| M1 | 110 | 090 | 2 | 8 | 2 |

Product Series

Top Temperature Setting (°F)

Use 3 digits (insert minus sign plus two digits for temps below 0°F)

Bottom Temperature Setting (°F)

Use 3 digits (insert minus sign plus two digits for temps below 0°F)

Operation

1 = Open on rise, silver contacts
2 = Close on rise, silver contacts
3 = Open on rise, gold contacts
4 = Close on rise, gold contacts

Mounting and Terminals (See Configurations)

Odd #'s = Flattened and pierced terminals
Even #'s = 90° right angle terminals
1 & 2 = No mounting
3 & 4 = Top mounting bracket
7 & 8 = Surface mounting bracket
9 & 0 = Stud mounting

Plating

2 = Copper / nickel
4 = Tin

Configurations built to the standard tolerances and differentials are available as the M1 series and are described above.

Customers should order an 11041 series thermostat if the application requires custom set point tolerances, differentials, or physical configurations not available as an M1

For applications that require thermostat certified to the M24236, customers must order to the M24236/1 part number.

For applications that require the thermostat to be certified to NASA S-311-P641/05, customers should contact the factory to ensure the correct part number

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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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