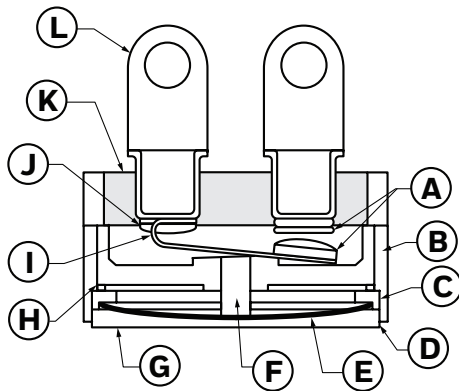


# PRECISION AND HIGH RELIABILITY THERMOSTATS



- A** Contacts
- B** Ceramic insulator
- C** Disc retainer
- D** Laser weld
- E** Bimetal disc
- F** Ceramic transfer pin
- G** Cap
- H** Capping washer
- I** Contact arm
- J** Weld cap
- K** Glass header
- L** Terminal

## POTENTIAL APPLICATIONS

- Commercial aircraft
- Industrial
- HVAC

## 3800 SERIES INDUSTRIAL-GRADE THERMOSTATS FOR SEVERE DUTY APPLICATIONS

The 3800 Series uses the same materials and manufacture as Honeywell's military-grade thermostats, allowing them to be used where high levels of vibration and mechanical shock are common but a military device is not required. Originally designed for use in motor protection applications, the 3800 Series is now used in commercial aircraft and other applications where severe duty may be encountered.

**TABLE 22. 3800 SERIES  
STANDARD OPERATING TEMPERATURE CHARACTERISTICS**

| Operating Temperature Range            | Tolerance    |               | Standard Mean Differential °C [°F] | Optional Max. Differential °C [°F] |
|--|--------------|---------------|------------------------------------|------------------------------------|
|  | Open °C [°F] | Close °C [°F] |                                    |                                    |
| -28.9°C to -12.2°C<br>[-20°F to 10°F]  | ±5,6 [±10]   | ±4,4 [±8]     | 16,7 to 22,2 [30 to 40]            | –                                  |
|  | ±4,4 [±8]    | ±4,4 [±8]     | 11,1 to 16,1 [20 to 29]            | –                                  |
|  | ±3,9 [±7]    | ±3,9 [±7]     | 7,8 to 10,6 [14 to 19]             | –                                  |
|  | ±3,3 [±6]    | –             | –                                  | 4,4 [8]                            |
|  | –            | ±3,3 [±6]     | –                                  | 4,4 [8]                            |
| -11.7°C to 93.3°C<br>[11°F to 200°F]   | ±2,8 [±5]    | ±2,8 [±5]     | 11,1 to 44,4 [20 to 80]            | –                                  |
|  | ±2,8 [±5]    | ±2,8 [±5]     | 8,3 to 10,6 [15 to 19]             | –                                  |
|  | ±2,8 [±5]    | ±2,8 [±5]     | 5,6 to 7,8 [10 to 14]              | –                                  |
|  | ±2,2 [±4]    | –             | –                                  | 4,4 [8]                            |
|  | –            | ±2,2 [±4]     | –                                  | 4,4 [8]                            |
| 93.9°C to 148.9°C<br>[201°F to 300°F]  | ±1,7 [±3]    | –             | –                                  | 3,3 [6]                            |
|  | –            | ±1,7 [±3]     | –                                  | 3,3 [6]                            |
|  | ±4,4 [±8]    | ±3,3 [±6]     | 13,9 to 44,4 [25 to 80]            | –                                  |
|  | ±3,9 [±7]    | ±3,3 [±6]     | 8,3 to 13,3 [15 to 24]             | –                                  |
|  | ±3,3 [±6]    | ±3,3 [±6]     | 6,7 to 7,8 [12 to 14]              | –                                  |
| 149.4°C to 176.7°C<br>[301°F to 350°F] | ±2,8 [±5]    | ±2,8 [±5]     | 5,6 to 7,8 [10 to 14]              | –                                  |
|  | ±2,2 [±4]    | –             | –                                  | 4,4 [8]                            |
|  | –            | ±2,2 [±4]     | –                                  | 4,4 [8]                            |
|  | ±6,7 [±12]   | ±5,6 [±10]    | 19,4 to 44,4 [35 to 80]            | –                                  |
|  | ±5,6 [±10]   | ±5,6 [±10]    | 13,9 to 18,9 [25 to 34]            | –                                  |
| 177.2°C to 204.4°C<br>[351°F to 400°F] | ±4,4 [±8]    | ±4,4 [±8]     | 8,9 to 13,3 [16 to 24]             | –                                  |
|  | ±3,9 [±7]    | ±3,9 [±7]     | 7,8 to 10,0 [14 to 18]             | –                                  |
|  | ±2,8 [±5]    | –             | –                                  | 5,6 [10]                           |
|  | –            | ±2,8 [±5]     | –                                  | 5,6 [10]                           |
|  | ±8,3 [±15]   | ±8,3 [±15]    | 22,2 to 55,6 [40 to 100]           | –                                  |
| 205°C to 232.2°C<br>[401°F to 450°F]   | ±8,3 [±15]   | ±6,7 [±12]    | 16,7 to 21,7 [30 to 39]            | –                                  |
|  | ±5,6 [±10]   | ±5,6 [±10]    | 11,1 to 16,1 [20 to 29]            | –                                  |
|  | ±4,4 [±8]    | ±4,4 [±8]     | 8,9 to 10,6 [16 to 19]             | –                                  |
|  | ±3,3 [±6]    | –             | –                                  | 6,7 [12]                           |
|  | –            | ±3,3 [±6]     | –                                  | 6,7 [12]                           |
| 232.8°C to 260°C<br>[541°F to 500°F]   | ±11,1 [±20]  | ±8,3 [±15]    | 22,2 to 55,6 [40 to 100]           | –                                  |
|  | ±13,9 [±25]  | ±13,9 [±25]   | 33,3 to 66,7 [60 to 120]           | –                                  |

# PRECISION AND HIGH RELIABILITY THERMOSTATS

**TABLE 23. 3800 SERIES SPECIFICATIONS**

| Characteristic   | Parameter   |
|--|---|
| Switch type  | SPST  |
| Reset type   | automatic   |
| Amperage   | see Table 24  |
| Voltage  | 120 Vac (see Table 24)  |
| Operating temp. range  | -28.9°C to 260°C [-20°F to 500°F]   |
| Environmental exposure range                                       | -62°C to 288°C [-80°F to 550°F]   |
| Dielectric strength  | MIL-STD-202 Method 301, 1250 Vac 60 Hz, terminal to case  |
| Insulation resistance  | MIL-STD-202 Method 302 Cond. B, 50 MOhm min., 500 Vdc applied                                       |
| Contact resistance   | MIL-STD-202 Method 307, 50 mOhm max.  |
| Hermetic seal  | MIL-STD-202, Method 112, Cond. 1x10 <sup>-5</sup> atm cc/sec  |
| Vibration (random)   | MIL-STD-202, Method 214, 30 Grms, 20 Hz to 2,000 Hz   |
| Vibration (sinusoidal)   | MIL-STD-202, Method 204, Cond. D 20 G, 20 Hz to 2,000 Hz  |
| Mechanical shock   | MIL-STD-202, Method 213, 400 G  |
| Thermal shock  | MIL-STD-202, Method 107, Cond. B  |
| Acceleration   | MIL-STD-202, Method 212, 20 G   |
| Moisture resistance  | MIL-STD-202, Method 106   |
| Material:*<br>base<br>contacts<br>terminals<br>closure<br>brackets | cold plated steel<br>silver alloy<br>Ni/Fe alloy<br>hermetically sealed<br>cold rolled plated steel |
| Marking  | MIL-STD-1285  |
| Weight   | 7.5 g [0.26 oz] (brackets and wires not included)   |

\*Value-added materials such as brackets and wires may affect operating temperature and environmental temperature ranges.

**TABLE 24. 3800 CONTACT RATINGS**

| Life Cycles | 30 Vac/dc | 120 Vac | 240 Vac |
|-------------|-----------|---------|---------|
| 5,000       | 7 A       | 6 A     | 3 A     |
| 10,000      | 6.5 A     | 5 A     | 2.5 A   |
| 25,000      | 6 A       | 4 A     | 2 A     |
| 50,000      | 5.5 A     | 3 A     | 1.5 A   |
| 100,000     | 5 A       | 2 A     | 1 A     |