



## RECOMMENDED UPPER TEMPERATURE LIMITS FOR THERMOELEMENTS

### Upper Temperature Limits for Protected Thermoelements in Various Wire Sizes (B & S Gauge), °F (°C)

| Thermoelement  | No. 8 Gauge, 0.128 in (3.25 mm) | No. 14 Gauge, 0.064 in. (1.63 mm) | No. 20 Gauge, 0.032 in (0.81 mm) | No. 24 Gauge, 0.020 in (0.51 mm) | No. 28 Gauge, 0.013 in (0.33 mm) | No. 30 Gauge, 0.010 in (0.25 mm) |
|----------------|---------------------------------|-----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| JP             | 1400°F (760°C)                  | 1100°F (590°C)                    | 900°F (480°C)                    | 700°F (370°C)                    | 700°F (370°C)                    | 600°F (320°C)                    |
| JN, TN, EN     | 1600°F (870°C)                  | 1200°F (650°C)                    | 1000°F (540°C)                   | 800°F (430°C)                    | 800°F (430°C)                    | 800°F (430°C)                    |
| TP             |                                 | 700°F (370°C)                     | 500°F (260°C)                    | 400°F (205°C)                    | 400°F (205°C)                    | 300°F (150°C)                    |
| KP, EP, KN     | 2300°F (1260°C)                 | 2000°F (1090°C)                   | 1800°F (980°C)                   | 1600°F (870°C)                   | 1600°F (870°C)                   | 1400°F (760°C)                   |
| RP, SP, RN, SN |                                 |                                   |                                  | 2700°F (1480°C)                  |                                  |                                  |
| BP, BN         |                                 |                                   |                                  | 3100°F (1705°C)                  |                                  |                                  |
| NP, NN         | 2300°F (1260°C)                 | 2000°F (1090°C)                   | 1800°F (980°C)                   | 1600°F (870°C)                   | 1600°F (870°C)                   | 1400°F (760°C)                   |

Note: These limits apply to protected thermoelements in conventional closed-end protection tubes. They do not apply to sheathed thermoelements having compacted mineral insulation. In any general recommendation of thermoelement temperature limits, it is not practicable to take into account special cases. In actual operation, there may be instances where the temperature limits recommended can be exceeded. Likewise, there may be applications where satisfactory life will not be obtained at the recommended temperature limits. However, in general, the temperature limits listed are such as to provide satisfactory thermoelement life when the wires are operated continuously at these temperatures.

### Recommended Upper Temperature Limit for Various Wire Sizes (B & S)

| Thermocouple Type | No. 8 Gauge °F (°C) | No. 14 Gauge °F (°C) | No. 20 Gauge °F (°C) | No. 24 Gauge °F (°C) | No. 28 Gauge °F (°C) |
|-------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| E                 | 1600 (870)          | 1200 (650)           | 1005 (540)           | 805 (430)            | 805 (430)            |
| J                 | 1400 (760)          | 1095 (590)           | 895 (480)            | 700 (370)            | 700 (370)            |
| K and N           | 2300 (1260)         | 1995 (1090)          | 1795 (980)           | 1600 (870)           | 1600 (870)           |
| T                 |                     | 700 (370)            | 500 (260)            | 395 (200)            | 395 (200)            |