

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

**Artisan Technology Group**
(217) 352-9330 | sales@artisantg.com | artisantg.com

**Full-service, independent repair center**
with experienced engineers and technicians on staff.

**We buy your excess, underutilized, and idle equipment**
along with credit for buybacks and trade-ins.

**Custom engineering**
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

**Expert team | Trust guarantee | 100% satisfaction**

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

**Visit our website - *Click HERE***

# Limits/Alarms

## TLM-8 Thermal Limit

The Watlow Anafaze TLM-8 SERIES is a low-cost solution for multi-channel, redundant temperature monitoring. Each TLM-8 has eight channels to continuously monitor thermocouples, RTDs or thermal switches, making it ideal for multi-zone applications. The resistor key model (TLME) has fixed temperature limits. Choose an individual temperature limit for each channel from the standard list or consult the factory for other limits. The precision model (TLMP) is available with specific limits, which are also field adjustable.

The TLM-8 is equipped with flexible interlocks, which are designed to interface with redundant controls. The alarms latch and require operator intervention to clear, resulting in process and equipment protection. Semiconductor capital equipment OEMs will find these features ideal for meeting SEMI S2-93 safety guidelines.

The TLM-8 is compact and easy to install on a panel or a DIN-rail. No cutout is required, reducing installation and fabrication costs. Troubleshooting is simplified through a self-test diagnostics input which simulates the alarm state.

The TLM-8 bears the CE mark (LVD and EMC Directives), and is UL® listed and FM approved.

### *Applications*

- Any process requiring multi-channel redundant temperature monitoring
- Semiconductor capital equipment requiring SEMI S2-93
- Electronics packaging equipment
- Plastics injection molding and extrusion equipment




### *Features and Benefits*

**Multi-channel monitoring**

- Eight channels in one package make the TLM-8 ideal for multi-zone applications

**Multiple sensor types**

- TLM-8 supports six thermocouple types, RTDs and thermal switches (one sensor type per TLM-8)

**Selectable alarm limits**

- TLM-8 can be ordered with a different temperature limit on each channel
- TLM-P has field adjustable temperature limits

**Compact, easy to install, sub-panel mounting**

- Reduces installation time

**Flexible interlocks**

- Interfaces with redundant controls; ideal for SEMI S2-93 applications

**Self-test diagnostics**

- Simplifies troubleshooting

**Latching alarms**

- Protects process and equipment

**CE, UL® and Factory Mutual (FM) Approvals**

- Global acceptance for safety and EMC compliance



UL® is a registered trademark of Underwriter's Laboratories, Inc.

# Limits/Alarms

## TLM-8 Thermal Limit

***Specifications***

### Analog Inputs

- Eight sensor input channels

### Sensor Inputs (Trip Point Ranges)

- RTD 100Ω, platinum, 2-wire (DIN-curve: -100 to 850°C (-148 to 1562°F)
- Thermal switch
- Type E T/C (TLME: 100 to 801°C (212 to 1474°F); TLMP: 100 to 660°C (212 to 1220°F))
- Type J T/C (100 to 754°C) (212 to 1389°F)
- Type K T/C (100 to 1205°C) (212 to 2201°F)
- Type R T/C (500 to 1720°C) (932 to 3128°F)
- Type S T/C (500 to 1711°C) (932 to 3112°F)
- Type T T/C (100 to 384°C) (212 to 723°F)

### Accuracy

- TLME: ±5 percent of trip point
- TLMP: ±1 percent of trip point

### Repeatability

- <5°C (41°F)

### Digital Inputs

- Alarm acknowledge digital input: 5-30V⎓(dc), optically isolated
- Alarm simulation digital input: 5-30V⎓(dc), optically isolated

### Temperature Coefficient

- 40 ppm / °C accuracy

### Alarm Outputs

For “fail safe” operation, relay contacts are open in alarm and power off condition

- Global: 2 Form A (normally open) electromechanical relays, latching
- Channel: 8 Form A (normally open) electromechanical relays, latching
- Maximum contact rating: 1A @ 125V~(ac) or 60V⎓(dc)
- UL® contact rating: 1A @ 30V⎓(dc)

### Dimensions

- 235 mm x 93 mm x 47 mm (9.25 in. x 3.65 in. x 1.85 in.) (L x W x H), H = 66 mm (2.60 in.) with DIN mount option

### Power Requirements

- 10-26V⎓(dc) ±5 percent, 3.2 watts, class 2 power supply

### Environmental

- Temperature: 0 to 60°C (32 to 140°F) (operating); -20 to 100°C (-4 to 212°F) (storage)
- Relative humidity: 0-95 percent, non-condensing

### Agency Approvals/Compliance

- CE Directives: Low Voltage Directive (LVD) 73/23/EEC, Electromagnetic Compatibility (EMC) Directive 89/336/EEC
- UL® listed: UL® 916 and UL® 508
- C-UL® listed: CSA 22.2-205-M19
- Factory Mutual approval: temperature limit switches 3545

### Miscellaneous

- 8 individual alarm status LEDs (Red)
- 1 supply power LED (Green)

C-UL® is a registered trademark of Underwriter’s Laboratories, Inc.

# Limits/Alarms

## TLM-8 Thermal Limit

### TLME Trip Point Chart - (see Ordering Information, Option 4)

| Temperature | Trip Point |
|---|---|
| **RTD** | |
| Unused Input | A |
| 103˚C (217˚F) | B |
| 121˚C (250˚F) | C |
| 151˚C (304˚F) | D |
| 215˚C (419˚F) | E |
| 324˚C (615˚F) | F |
| 404˚C (759˚F) | G |
| 478˚C (892˚F) | H |
| 584˚C (1083˚F) | I |
| 708˚C (1306˚F) | J |
| 824˚C (1515˚F) | K |
| **Type E T/C** | |
| Unused Input | A |
| 101˚C (214˚F) | B |
| 202˚C (396˚F) | C |
| 302˚C (576˚F) | D |
| 403˚C (756˚F) | E |
| 502˚C (936˚F) | F |
| 600˚C (1112˚F) | G |
| 702˚C (1296˚F) | H |
| 801˚C (1474˚F) | I |
| **Type J T/C** | |
| Unused Input | A |
| 100˚C (212˚F) | B |
| 152˚C (307˚F) | C |
| 202˚C (396˚F) | D |
| 251˚C (484˚F) | E |
| 302˚C (576˚F) | F |
| 350˚C (662˚F) | G |
| 402˚C (756˚F) | H |
| 450˚C (842˚F) | I |
| 502˚C (936˚F) | J |
| 554˚C (1027˚F) | K |
| 600˚C (1112˚F) | L |
| 653˚C (1207˚F) | M |
| 704˚C (1299˚F) | N |
| 754˚C (1389˚F) | O |
| **Type K T/C** | |
| Unused Input | A |
| 100˚C (212˚F) | B |
| 150˚C (302˚F) | C |
| 200˚C (392˚F) | D |
| 252˚C (486˚F) | E |
| 303˚C (577˚F) | F |
| 353˚C (667˚F) | G |
| 401˚C (754˚F) | H |
| 455˚C (851˚F) | I |
| 504˚C (939˚F) | J |
| 556˚C (1033˚F) | K |

| Temperature | Trip Point |
|---|---|
| **Type K T/C (con't)** | |
| 603˚C (1117˚F) | L |
| 651˚C (1204˚F) | M |
| 701˚C (1294˚F) | N |
| 753˚C (1387˚F) | O |
| 807˚C (1485˚F) | P |
| 851˚C (1564˚F) | Q |
| 907˚C (1665˚F) | R |
| 952˚C (1746˚F) | S |
| 998˚C (1828˚F) | T |
| 1057˚C (1935˚F) | U |
| 1101˚C (2014˚F) | V |
| 1157˚C (2115˚F) | W |
| 1205˚C (2201˚F) | X |
| **Type R T/C** | |
| Unused Input | A |
| 501˚C (934˚F) | B |
| 602˚C (1116˚F) | C |
| 708˚C (1306˚F) | D |
| 800˚C (1472˚F) | E |
| 903˚C (1657˚F) | F |
| 999˚C (1830˚F) | G |
| 1100˚C (2012˚F) | H |
| 1206˚C (2203˚F) | I |
| 1306˚C (2383˚F) | J |
| 1410˚C (2570˚F) | K |
| 1497˚C (2727˚F) | L |
| 1593˚C (2899˚F) | M |
| 1720˚C (3128˚F) | N |
| **Type S T/C** | |
| Unused Input | A |
| 506˚C (943˚F) | B |
| 601˚C (1114˚F) | C |
| 700˚C (1292˚F) | D |
| 810˚C (1490˚F) | E |
| 902˚C (1656˚F) | F |
| 1005˚C (1841˚F) | G |
| 1110˚C (2030˚F) | H |
| 1210˚C (2210˚F) | I |
| 1313˚C (2395˚F) | J |
| 1404˚C (2559˚F) | K |
| 1500˚C (2732˚F) | L |
| 1600˚C (2912˚F) | M |
| 1711˚C (3112˚F) | N |
| **Type T T/C** | |
| Unused Input | A |
| 100˚C (212˚F) | B |
| 202˚C (396˚F) | C |
| 291˚C (556˚F) | D |
| 384˚C (723˚F) | E |

F.O.B.: Winona, Minnesota

# TLM-8 Thermal Limit

## *Ordering Information*

**To order, complete the code number to the right with the information below:**

**TLME =** Fixed temperature limits model — **T L M E**

**Sensor Type**

0 = RTD, 100Ω platinum/thermal switch
1 = Type E T/C
2 = Type J T/C
3 = Type K T/C
4 = Type R T/C
5 = Type S T/C
6 = Type T T/C

**Alarm Relays**

0 = Global alarm relays only
1 = Global alarm relays and 8 channel alarm relays

**Mounting**

0 = Panel
1 = DIN-rail

**Trip Point (see Trip Point chart on page 141)**

Channel 1
Channel 2
Channel 3
Channel 4
Channel 5
Channel 6
Channel 7
Channel 8

---

**TLMP =** Precision model with adjustable limits — **T L M P -**

**Sensor Type**

0 = RTD
1 = Type E T/C
2 = Type J T/C
3 = Type K T/C
4 = Type R T/C
5 = Type S T/C
6 = Type T T/C

**Alarm Relays**

0 = Global relays only
1 = Global alarm relays and 8 channel alarm relays

**Mounting**

0 = Panel
1 = DIN-rail

**Trip Point**

U = User specified (specify trip points in description)
D = Default trip points

---

### TLMP Trip Point Descriptions

**If user specified trip points are ordered in the TLMP part number, specify the following information for each channel in the part description:** — **T L M P C H - _ _ _ _**

**Channel Number**

X = Channel number X (1-8)

**Trip Point**

XXXX = Trip point in Celsius. Include leading zeros to make four digits. See table on page 141 for ranges for each sensor type. Unspecified channels will be set to the default limit for the sensor.

**Artisan Technology Group** is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP