

SERIES LS Safety Limit

Watlow's New SERIES LS Safety Limit Meets Stringent Safety Requirements

As manufacturers are required to meet tighter safety standards, Watlow® has addressed this need with its new SERIES LS safety limit. This new limit meets UL® 1998 and EN 60730 safety requirements and will shut down a system to prevent damage to equipment or injury to personnel.

Watlow's SERIES LS is recommended for any application where control failure could cause the temperature of the application to continue to increase resulting in large product scrap costs, damage to system equipment or potential fire hazard.

The SERIES LS provides increased safety due to the use of a factory fixed set point, factory fixed hysteresis and the use of redundant temperature sensors to protect against a single point sensor failure. Either sensor can initiate an overtemperature limit condition along with a deviation between sensors greater than the process comparison value.

Watlow's new SERIES LS offers fixed limit set point temperature values that are customer definable in the product configuration part number. It is available with a potted module design configuration and push-on, quick connect spade terminals to provide the electrical connections.

Typical Applications

- Foodservice equipment
- Industrial machinery
- Medical equipment
- Packaging equipment
- Plastics processing equipment



Features and Benefits

Fixed limit set point

- Provides tamper-proof operation
- Offers control flexibility

Dual channel sensors

- Detects sensor faults
- Provides a fail-safe design
- Verifies firmware
- Prevents sensor deviation and sensor placement errors

High-limit operation

- Provides application flexibility

Fahrenheit or Celsius operation

- Delivers application flexibility

Sensor break protection

- Offers positive system shutdown

Agency approvals

- Meets certification requirements/compliance

Microprocessor-based technology

- Ensures accurate and repeatable protection

Status notification

- Signals user of status with two integrated LEDs
- Provides health check signal to inform operator that the process is working correctly

Three-year warranty

- Ensures product support and reliability

Specifications

Controller

- Microprocessor based, limit controller
- Customer defined hysteresis, model number dependent
- High limit, factory selectable
- Automatic reset on power loss
- Input filter time: 1 second

Thermocouple Sensor Input

- Ungrounded
- Type J and K thermocouple types
- >10 M Ω input impedance

Input Accuracy Span Range

- Type J: 0 to 764°F (-18 to 406°C)
- Type K: 0 to 999°F (-18 to 537°C)
- Calibration accuracy: $\pm 6^\circ\text{C}$, $\pm 1^\circ$ at standard conditions and actual calibration ambient
- Temperature stability: ± 0.3 degree per degree change in ambient

Allowable Operating Ranges

- Type J: 32 to 626°F (0 to 330°C)
- Type K: 32 to 820°F (0 to 438°C)

Output Types

- Electromechanical relay, Form A, minimum load current: 100mA, 8A resistive load, 120VA pilot duty, 120/240VAC maximum, inductive, electrical life 6,000 cycles at rated current

Agency Approvals

- UL® / EN 60730-1, 2, 9 automatic electronic controls for household and similar use. File #E43684
- UL® 1998 software review class B
- W.E.E.E.; CE – see Declaration of Conformity
- RoHS directive (2011-65-EU)

Terminals

- 0.25 in. (6.4 mm) quick connect, push-on terminals

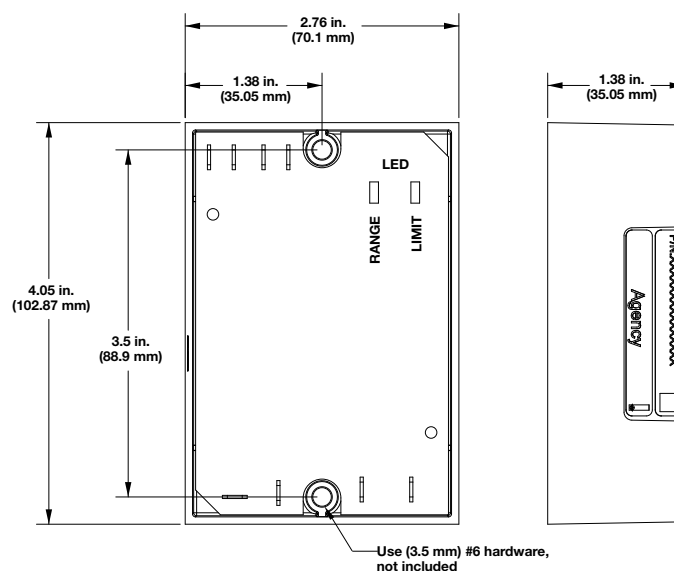
Power

- 100-240VAC +10%; -15%; 50/60Hz, $\pm 5\%$
- 10VA maximum power consumption
- Data retention upon power failure via nonvolatile memory

Environment

- Operating temperature: 32 to 158°F (0 to 70°C)
- Storage temperature: -40 to 185°F (-40 to 85°C)
- Relative humidity: 0 to 90% RH, non-condensing

Dimensional Drawing



Ordering Information

Part Number

① ②	③	④	⑤	⑥	⑦ ⑧ ⑨ ⑩	⑪ ⑫ ⑬	⑭ ⑮
LS	Set Point	Package	Sensor Type and Scale	Limit Type	High Set Point Temp. Value	Hysteresis	Custom Options
LS	F	4		W			AA

③	Set Point
F =	Fixed set point

④	Package
4 =	Potted case, spade terminals

⑤	Sensor Type and Scale
H =	T/C Type J Fahrenheit (32 to 626°F)
J =	T/C Type J Celsius (0 to 330°C)
K =	T/C Type K Fahrenheit (32 to 820°F)
L =	T/C Type K Celsius (0 to 438°C)

⑥	Limit Type
W =	High limit, power cycle to reset

⑦ ⑧ ⑨ ⑩	High Set Point Temperature Value
XXXX =	A zero (0) is used in the left most digit of the set point

⑪ ⑫ ⑬	Hysteresis
XXX =	The temperature differential below the limit set point at which a reset is possible. Limit high set point - hysteresis must be greater than or equal to the low sensor range

⑭ ⑮	Custom Options
AA =	Standard

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