

Installation and Operating Instructions

LIMIT Temperature Controller



PK523-2
0037-75551
September 2018

LIMIT Temperature Control

The LIMIT protects expensive heaters and sensitive materials from damaging over temperature conditions. It is designed for industrial and commercial applications that require high temperature protection.

The LIMIT features a Form C latching, manually resettable relay output that de-energizes whenever the sensed temperature exceeds the set point temperature.

The DIN Rail mounting feature allows quick installation without drilling or extra hardware. Slots are also provided for direct panel mounting.

Two methods are provided to reset an alarm condition. (1) The Limit alarm has a reset pushbutton on the unit and (2) reset terminals are provided for resetting the alarm from a remote pushbutton.

Mounting

The LIMIT can be surface mounted or DIN rail mounted. It can be mounted to any suitable flat surface using two #6 screws (not supplied). To install simply position the top set of rear clips over the top of the DIN rail. Then swing the bottom of the controller toward the rail applying pressure until the lower clips snap on to the bottom of the DIN rail. To remove apply pressure to the top of the controller's base and move the bottom of the controller toward you. Then lift the top of the controller off the upper DIN rail. The housing rating is NEMA 1.

⚠ WARNING

ELECTRIC SHOCK HAZARD. Read and understand all instructions before installing, servicing or operating LIMIT controller. Failure to do so could result in personal injury or property damage.

⚠ WARNING

The Heating system designer is responsible for the safety of the equipment and must determine the suitability of this temperature LIMIT controller with other electric heating equipment. Where the consequences of failure could result in personal injury or property damage, back-up controls are essential.

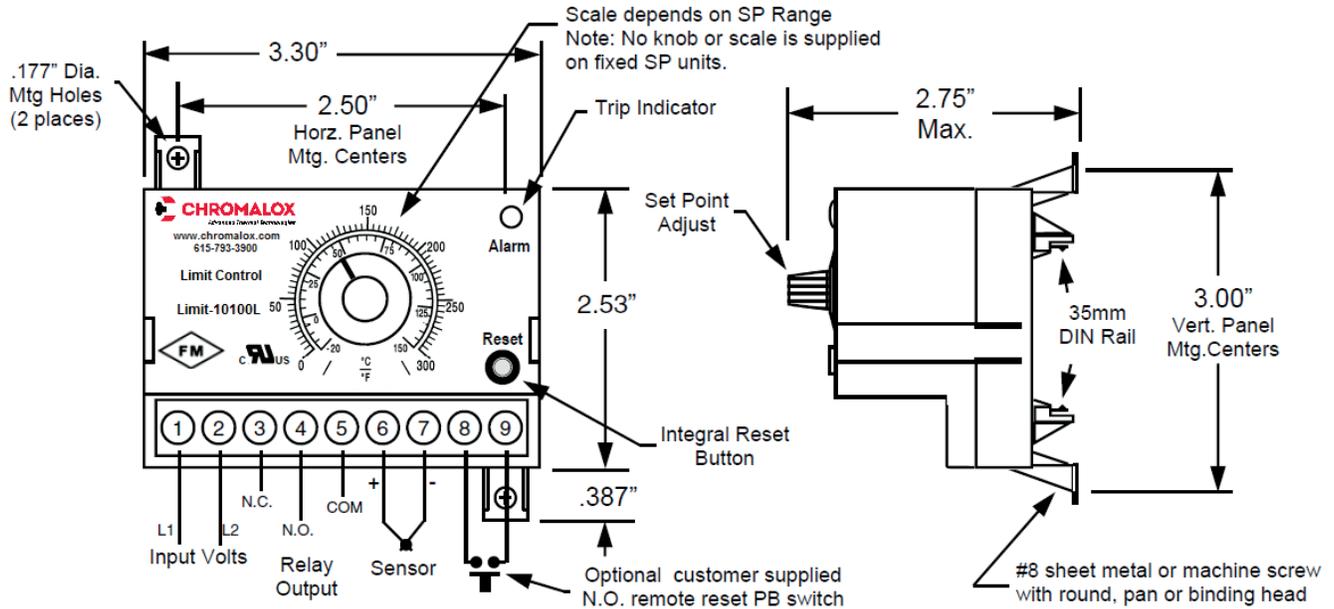
⚠ CAUTION

This controller must be mounted in an enclosure suitable for protection against normally expected operation environments and to minimize unauthorized tampering with the limit settings.

⚠ WARNING

FIRE/EXPOSION HAZARD. This heater is not intended for use in hazardous atmospheres where flammable vapors, gases, liquids or other combustible atmospheres are present as defined in the National Electrical Code. Failure to comply can result in personal injury or property damage.

Dimensions



*Each LIMIT requires its own contact input for reset. A single contact input cannot be used to reset multiple LIMITS.

Operation

The set point temperature is adjustable by turning the integral dial. If the set point is exceeded, contacts 4 and 5 will open. It will remain in this state until the temperature drops below the set point and the controller is manually reset. Manual reset can be accomplished by one of the following means:

- Press the "reset button".
- A momentary switch closure between terminals 8 and 9.
- Interrupt power to the control.

Maintenance

No specific maintenance is required. However, it is recommended that all wiring be checked periodically for loose connections and damaged wires. Disconnect power to the panel before any maintenance is performed. Check wires and tighten connections.

⚠ WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing LIMIT controller. Failure to do so could result in personal injury or property damage.

Troubleshooting

Experience has proven that many control problems are not caused by a defective instrument. Some of the common causes of failure are broken sensors, open fuses and poor wire connections. If these points have been checked and the control still does not function, it is suggested that the instrument be returned for inspection. Use adequate packing materials to prevent damage in shipment.

Custom Controllers

Custom temperature ranges and fixed set point units are available to meet your specific application needs.

Wiring

Carefully follow the terminal diagram pictured on the controller's housing and shown above. The power and load wiring should be 18 AWG or larger size. Be sure to observe that the ratings for voltage and current are not exceeded. All local and national electrical codes must be followed.

Use only the sensor type as indicated on the control and maintain correct polarity. THE RED THERMOCOUPLE LEAD ALWAYS CONNECTS TO THE NEGATIVE (-) TERMINAL. To reduce electrical noise, the thermocouple wire must be isolated from any power or heater wiring. Shielded thermocouple wire may be necessary in high noise environments or when lead lengths exceed 10 feet (3 m). Thermocouples are tip sensitive and must be in good mechanical contact with the load.

The remote reset terminals allow for a remote push-button (on the panel door) to reset the LIMIT alarm. If multiple units are mounted in a panel, the remote reset terminals cannot be wired in parallel. The remote push-button needs a separate contact block for each LIMIT. A single contact input cannot be used to reset multiple LIMITs.

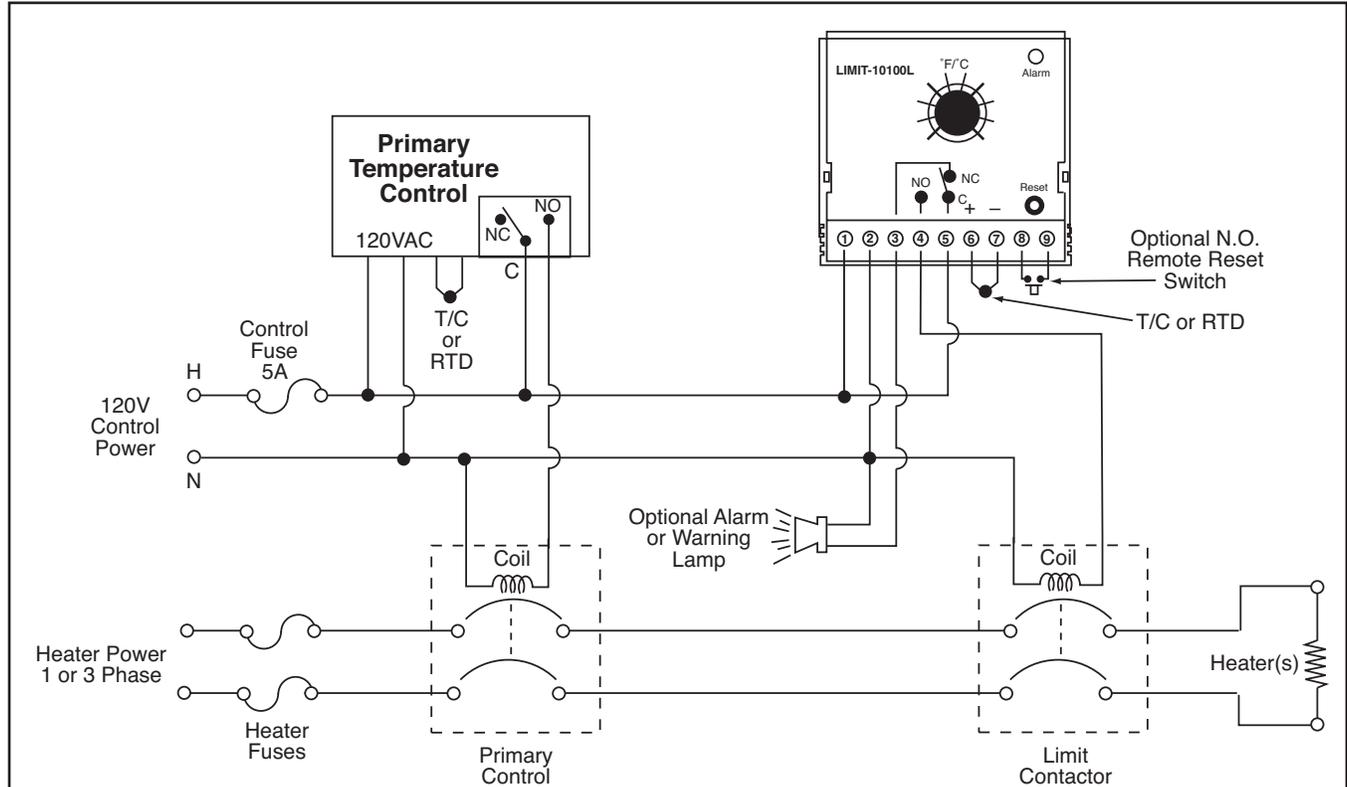
⚠ WARNING

ELECTRIC SHOCK HAZARD. Any installation involving **LIMIT** temperature controllers must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard. Failure to do so could result in personal injury or property damage.

⚠ WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing **LIMIT** controller. Failure to do so could result in personal injury or property damage.

Typical Wiring Diagram



Specifications

Power Input:..... 120VAC or 24VAC \pm 15%,
50/60Hz, 3VA max. standard

Control Output:SPDT Relay rated 3.8 Amps Res.
and 1.5 Amps Pilot Duty 120 VAC.
100,000 cycles.

Control Mode: Latching with Manual Reset
or power off.

Reset Function:..... Integral reset switch standard;
terminals available for
optional remote reset switch

Set Point Adjustment:Local SP dial adjustment.

Compensation (TC only):Automatic cold junction
compensation.

Control Stability:Typically less than
 \pm 5 μ V/ $^{\circ}$ F ambient and 0.1% of
SPAN/% rated line voltage.

Set Point Accuracy:..... \pm 3% of FS maximum
at 25 $^{\circ}$ C and rated line voltage.

Sensor Break Protection:..... Contacts 4 & 5 open for
thermocouple or RTD break.

Ambient Operating Temperature:..... 0 - 55 $^{\circ}$ C
(32 - 131 $^{\circ}$ F).

Noise Rejection: Common Mode Rejection
60dB Series Mode Rejection 120dB

Trip Indicator:.... LED Illuminates when controller trips

Mechanical

Enclosure Material:..... Noryl, Black color.

Field Terminations:Screw Terminals with
wire clamping plates and
touch safe shield.

Mounting: 35mm DIN rail or surface mounting.

Sensor Inputs

Sensor	Range
J T/C	0 to 1400 $^{\circ}$ F, -20 to 760 $^{\circ}$ C
K T/C	0 to 2300 $^{\circ}$ F, -20 to 1260 $^{\circ}$ C
RTD	0-850 $^{\circ}$ F / -20 $^{\circ}$ C - 455 $^{\circ}$ C

Ordering Information

Model	PCN	Temperature Range	Input Type	Input Power
LIMIT-10100L	309200	0-1400 $^{\circ}$ F / -20 $^{\circ}$ C - 760 $^{\circ}$ C	J T/C	120 Vac
LIMIT-10200L	309219	0-2300 $^{\circ}$ F / -20 $^{\circ}$ C - 1260 $^{\circ}$ C	K T/C	120 Vac
LIMIT-10400L	309243	0-850 $^{\circ}$ F / -20 $^{\circ}$ C - 455 $^{\circ}$ C	RTD	120 Vac
LIMIT-10101L	309235	0-1400 $^{\circ}$ F / -20 $^{\circ}$ C - 760 $^{\circ}$ C	J T/C	24 Vac

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at
<http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

Chromalox
103 Gamma Drive
Pittsburgh, PA 15238
(412) 967-3800
www.chromalox.com