Temperature, Power and Safety Limit Controller in One Package

The SERIES EHG® SL10 integrated, multi-function controller from Watlow® is a key component to a powerful system that includes a heater, an adjustable set point temperature controller, a high/low temperature alert, a power switching device and a high temperature safety limit. Its agency recognized controller/safety limit meets UL® 1998 and CE 60730 requirements.

An optional display/communications module can be easily added in the field to provide a digital display indication, an adjustment of set point, RS485 Modbus® communications and other Human Machine Interface (HMI) features. As a scalable system, only what is needed can be purchased.

The EHG SL10 controllers’ easy to install, compact design, inherent reliability and integrated limit functions offer unmatched value. It is designed for easy integration with Watlow heaters to simplify engineering, reduce component count for new equipment and decrease ownership cost. For original equipment manufacturers (OEMs), the EHG SL10 controller’s CE, Semi-S2 compliance and UL® recognition reduces time and costs associated with global agency testing and validation. U.S. Patent Number 8,044,329

Typical Applications
Semiconductor processing
• Gas delivery lines

Life sciences
• Laboratory equipment
• Medical equipment
• Pharmaceutical

Foodservice equipment
• Warming and serving equipment
• Food holding cabinets

Features and Benefits
Extended temperature range -0.4 to 999°F (-18 to 537°C)
• Ideal for demanding environments

Process controller and safety limit in one package
• Meets UL® 1998 and CE 60730 requirements
• Eliminates the need for a thermal fuse on a heater
• Eliminates replacement of heater when fuse fails

Optional display/communications module
• Allows easy upgrade on to base device
• Offers low cost field upgrade
• Provides easy, snap-on installation

Accurate and flexible temperature process controller
• Replaces problematic bi-metal thermostats with accurate electronic temperature process controller
• Allows easy change of process parameters

Extended set point/process range
• Supports broader applications

Ambient operating temperature range 32 to 158°F (0 to 70°C)
• Increases reliability when mounting in harsh temperature environments or in close proximity to heaters

Integrated high/low temperature alert signal relay
• Provides dry contact output to activate external alarm or process function
• Signals control status with three integrated LEDs
• Allows a signal of up to two amp 30VAC/VDC, Form A to alert if process temperature is out of range limits

Health check diagnostics
• Monitors maximum heater process temperature, maximum ambient temperature and thermocouple operation
• Provides health check signal to inform operator that the process is working correctly

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Molex® is a registered trademark of Molex Incorporated.

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Specifications

Operational
• Two, Type K thermocouple inputs - process temperature control and safety limit
• Process temperature output - 10A NO-ARC relay
• Safety limit alarm - 10A relay
• High/low temperature alert - 2A 30VAC/VDC, Form A (single pole, normally open contact)
• On-off temperature controller algorithm, upgraded via communications to PID algorithm (min. cycle time 30 seconds)

Standard Molex® connectors
• Controllers are integral to the heater and are supplied by Watlow

Power
• Isolated universal power supply 85 to 264VAC, 50/60Hz
• Up to 2400 W with 10A switching capability

Features and Benefits (con’t)

Universal power supply
• Allows an input of 85 to 264VAC, 50/60Hz
• Provides safe control of up to 2400 watts with 10 amperes switching in both controller and safety limit

Can be switched from on-off and PID algorithm
• Increases product life (on-off control is default)
• Offers selectable PID control algorithm for tighter temperature uniformity

Universal 1/8 turn mounting bracket
• Allows mounting to most surfaces
• Provides flexible mounting—either horizontally or vertically

Switching Device Comparison Chart

<table>
<thead>
<tr>
<th></th>
<th>T-Stat</th>
<th>Solid State Relay</th>
<th>Watlow NO-ARC Relay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amperage at 77°F (25°C)</td>
<td>10A</td>
<td>10A</td>
<td>10A</td>
</tr>
<tr>
<td>Amperage at 158°F (70°C)</td>
<td>10A</td>
<td>De-rate significantly and add heat sink and air cooling</td>
<td>10A</td>
</tr>
<tr>
<td>Output device life at 10A</td>
<td>Rated 100,000 at 158°F (70°C)</td>
<td>Greater than 10 million cycles at 77°F (25°C)</td>
<td>Greater than 4.5 million cycles at 158°F (70°C)</td>
</tr>
</tbody>
</table>

Dimensions

EHG SL10 Versus Thermostat
(Typical Application)

- Thermostat
- EHG SL10 with 3°C hysteresis
**Optional Upgrade Modules**

These upgrade modules are easy to install because there is no need to reconfigure, rewire or reorder the base unit. No technician is needed for the installation, which creates a seamless, cost-efficient system that can be upgraded.

<table>
<thead>
<tr>
<th>Optional Upgrade Modules</th>
<th>Base Unit</th>
<th>Optional Display Module</th>
<th>Optional Communication Module</th>
<th>Optional Display and Communication Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostics Memory Control Parameters</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ability to Change Temperature Parameters</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Field Adjustable Set Point</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3-Digit 7-Segment LED Display Illuminated</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diagnostic LED’s</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>User Interface Software</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Modbus® RTU Communication</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RS 485</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Modules can be upgraded and are easily replaceable.

The EHG SL10 is available for shipment; please contact a Watlow heater facility for more information.

<table>
<thead>
<tr>
<th>Modules</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Base unit</td>
</tr>
<tr>
<td>007</td>
<td>Display module</td>
</tr>
<tr>
<td>008</td>
<td>Communications module</td>
</tr>
<tr>
<td>002</td>
<td>Display with communications module</td>
</tr>
<tr>
<td>023</td>
<td>Base unit (extended temperature range)</td>
</tr>
<tr>
<td>020</td>
<td>Display module (extended temperature range)</td>
</tr>
<tr>
<td>022</td>
<td>Communications module (extended temperature range)</td>
</tr>
<tr>
<td>021</td>
<td>Display with communications module (extended temperature range)</td>
</tr>
</tbody>
</table>

The EHG SL10 mounting bracket lets you mount the controller in any of four angles.

Additional cables for wiring parallel heater circuits (daisy-chaining) in gas line and other assemblies:
- 4800-0012 - Long cable
- 4800-0022 - Long terminating cable
- 4800-0011 - Short cable
- 4800-0021 - Short terminating cable

The EHG SL10 can be “daisy-chained” for gas line and other assemblies.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Base/Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 8 9 001</td>
<td>Base unit</td>
</tr>
<tr>
<td>7 8 9 007</td>
<td>Display module</td>
</tr>
<tr>
<td>7 8 9 008</td>
<td>Communications module</td>
</tr>
<tr>
<td>7 8 9 002</td>
<td>Display with communications module</td>
</tr>
<tr>
<td>7 8 9 023</td>
<td>Base unit (extended temperature range)</td>
</tr>
<tr>
<td>7 8 9 020</td>
<td>Display module (extended temperature range)</td>
</tr>
<tr>
<td>7 8 9 022</td>
<td>Communications module (extended temperature range)</td>
</tr>
<tr>
<td>7 8 9 021</td>
<td>Display with communications module (extended temperature range)</td>
</tr>
</tbody>
</table>

To be automatically connected to the nearest North American Technical Sales Office:
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