

# TotalTemp Technologies, Inc.

## Quick start manual for Watlow EZ Zone retrofit temperature controller

10/1/12

It is strongly recommended that the user read and understand the features and potential risks with using the thermal platform system. Please read the manufacturers platform and product safety manuals. Likewise, in time a more detailed familiarity with the functionality of the Watlow controller will allow safer and more efficient use of the controller's many features.

Thermal platforms are capable of extreme temperatures. "Hands off" should be the general rule. Always be aware of the many potential dangers of extreme temperatures and compressed coolants. Read the more detailed safety warnings in platform manual before using.

**Compatibility:** This controller is designed to work as a replacement to an existing Sigma Systems Model C, CC-3, C4 and CC-4 controller. There are many variations of Sigma Systems controllers, some with redundant failsafe systems and some without. If this controller is to be used with a platform that was designed to use a redundant failsafe system and your Watlow EZ Zone retrofit controller does not happen to be so equipped with a (Smaller Watlow PM3) redundant failsafe system, the controller can still be used, relying solely on the primary overtemp failsafe system(s) and safety features of the EZ Zone. A 'failsafe bypass shorting plug' must be inserted into the 2-pin (Jones) connector on the platform in this case. If the Synergy Retrofit controller is equipped with a redundant (Watlow PM3) failsafe and the platform is not equipped for a redundant failsafe system, an internal jumper is required in the controller box to bypass the redundant failsafe circuit. Be sure to verify that the system you intend to use this controller with **is 20 A. or less.** The retrofit Watlow EZ Zone temperature controller is a universal voltage design that is compatible with systems over the range of 120vac to 240vac.

### **Powering Up:**

The switch on the front powers up the controller which in turn enables the heating cooling and controller circuits. The circuit breaker at the rear protects the heating and cooling circuits. Be certain that this circuit breaker switch on the rear is ON when you intend to use the system. Generally it should be left on. The controller will power up but no heating or cooling can occur with the circuit breaker/switch at the back in the off position.

The two connectors on the umbilical should be connected to the platform before operation is initiated.

The larger connector carries the POWER for heat, and cool, the smaller connector contains the connections for the temperature sensor(s), including redundant failsafe if specified. The controller can be set for latched alarm conditions where user intervention is required after an open sensor reading. If this is the case, should the smaller controller become disconnected, the "open sensor" alarm must be cleared. Additionally if the system is equipped with a high-low failsafe system, the failsafe must manually reset as well. The LL.S display on the failsafe controller indicates the low limit setpoint, the LS.S display indicates high limit set point. The up and down arrows can be used to adjust these limits to values appropriate for your use. Once the temperature within the limits has been established, pressing the 'RESET' button on the failsafe limit will restore operation and within a couple seconds the display will indicate 'SAFE'

**Manual Control:**

Controlling to a setpoint is very straight forward. Under normal conditions, control will start upon power up. Typical configurations will have the EZ button on the front panel programmed to pause control operation. Pressing the EZ button again will resume control at the last (current) setpoint.

To change the setpoint, touch the up/down arrow buttons while the display shows current setpoint and platform temperature. After releasing the arrow button, the controller will drive the platform to the new temperature.

**Exceptions:**

If the display shows “Attn” on the screen, typically this indicates that the probe is disconnected or other alarm condition exists. Refer to detailed Watlow manual for more specific information on error messages.

See note above regarding resetting the optional failsafe limit controller(s)

**PID and other settings:**

Your new TotalTemp retrofit controller has been factory tested and tuned to operate a generic thermal platform with good control accuracy. Should you need to make further adjustments to the control accuracy consult the detailed Watlow Operation manual and visit the LOOP settings. You will likely have good experience with the Autotune function however, it is recommended that your specific load be in place and operating as required and also proper coolant supply with Liquid coolant ready at the inlet port of the platform before altering PID settings.

**Backup and Restore:**

Backup and restore of system settings can be performed from the Factory page, Diagnostics. This is a useful and recommended procedure to become familiar with.

**Controller Handle/Tilt Stand:**

The tilt stand and handle supplied with bench top units is generally light duty and should be treated with care. Avoid allowing the handle to skip over stops to of handle positions. Gently pull side arms of controller outward to change handle positions.

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