

**Product Instruction Sheet** (FORM NO. CLTGM  
PIS)

Installation & Operating  
Instructions for CLTGM  
Series Heater Jackets with  
Optional Digital LED  
Temperature Controllers

**1. RECEIPT OF EQUIPMENT**

The heater jacket and any optional equipment are packed individually for assembly by the customer. Carefully unpack and check each item received against the packing invoice. DO NOT DISCARD ANY PACKING MATERIAL UNTIL THE JACKET AND OPTIONAL EQUIPMENT ARE INSTALLED AND OPERATING PROPERLY.

- 2. INSTALLATION CAUTION:** PROPER SAFETY EQUIPMENT SHOULD BE WORN AT ALL TIMES INCLUDING GOGGLES, PROTECTIVE CLOTHING, STEEL TOED FOOTWEAR, PROTECTIVE GLOVES AND APPLICABLE BREATHING RESPIRATOR OR DEVICE.

**INSTRUCTIONS FOR MOUNTING:**

Refer to supplied assembly drawings and specification sheets for parts labeling and orientation instructions.

- 2.1 Ensure filter housing is affixed to a stable structure with a mounting bracket or installed into secure piping work to provide stability during heater jacket installation and any filter cartridge replacement. Install housing to pipework allowing clearance for installation and removal of cartridges. (Refer to specific housing Product Instruction Sheet for installation instructions and for minimum clearance dimensions).

**3. INSTALLING OF HEATER JACKET AND OPTIONAL EQUIPMENT**

- 3.1. Undo Velcro® strip on Jacket and open Jacket wide enough to secure Heater Jacket around filter housing. Ensure the Jacket is positioned only on the shell portion of the filter housing as shown in Figure 1 and not around the clamp, base assembly or domed portions of the vessel. The Heater Jacket will not function properly and will experience a shortened life if not positioned properly around the shell assembly. Prior to securing Velcro®, rotate Jacket around filter housing until the LED light is in an easily visible position for maintenance personnel. Firmly secure Velcro® strip.



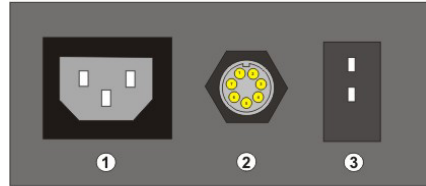
**Figure 1**

### **Heater Jacket without Digital LED Temperature Controller**

- 3.2. Locate Lead Assembly. One end of the Lead Assembly possesses a twist lock connection and the other a standard 3-prong American plug. Other wall plugs are available upon request.
- 3.3. Align the keys in the twist lock end of the Lead Assembly to the connector located in close proximity to the LED light on the Heater Jacket and twist to lock the collar into position.
- 3.4. Plug the 3-prong American plug on the Lead Assembly into the wall socket. The green LED light will illuminate and remain illuminated until the factory programmed temperature set point is reached. Upon reaching the temperature set point, the green LED light will turn off and remain off until the Jacket temperature falls to within 1% of the original factory temperature set point. At this point the green LED will illuminate and remain illuminated until the factory temperature set point is again reached. This process will repeat continuously to ensure the factory temperature set point remains within a 1% full scale tolerance.

### **Heater Jacket with Digital LED Temperature Controller**

- 3.5. Locate the three connector assemblies with ends corresponding to the connection types on the back of the Controller as illustrated in Figure 2: 1) IEC Connector to 110V Power, 2) Connector to Heater Jacket, 3) Connector for J-Type Thermocouple.

**BACK**

Key:

1. IEC Connector to 110V Power
2. Connector to Heater Jacket
3. Connector for Thermocouple

**Figure 2**

- 3.6. First place the 3-inch Thermocouple flat against the filter housing shell running along the length of the vessel and centered between the Clamp and the top of the vessel. Secure the Thermocouple to the filter housing by removing the adhesive backing and pressing firmly into place. Install the Heater Jacket as described in 3.1 ensuring the Thermocouple remains between the filter housing O.D. and the Heater Jacket I.D.
- 3.7. Connect the 2-prong end of the Thermocouple cord assembly to position 3 as illustrated in Figure 2. Locate the 7-pin Connector assembly and connect to the back of the Controller panel at position 2 as illustrated in Figure 2 and the other end to the Heater Jacket connector in close proximity to the LED light on the Heater Jacket by aligning the keys and twisting the collar to lock into position. Locate the IEC/110V power cord assembly and plug the female 3-prong Connector assembly into the back of the Controller panel at position 1 as illustrated in Figure 2 and the other 3-prong American plug end into the 110V power supply at a wall receptacle.
- 3.8. Immediately upon plugging the power supply into the power supply, the red LED readout on the front panel will briefly blink and display the ambient temperature within 2 seconds. After the ambient temperature is registered, the temperature will begin to climb towards the factory programmed set point. Depending upon the initial ambient temperature, the set point should be reached within approximately five minutes. Significantly colder ambient temperatures than 65° to 70°F (18°C to 21°C) will require longer initial heat up times to reach the factory programmed set point.
- 3.9. The green LED light on the Heater Jacket will illuminate and remain illuminated until the factory programmed temperature set point is reached. Upon reaching the temperature set point, the green LED light will turn off and remain off until the Jacket temperature falls to within 1% of the original factory temperature set point. At this point the green LED will illuminate and remain illuminated until the factory temperature set point is again reached. This process will repeat continuously to ensure the factory temperature set point remains within a 1% full scale tolerance.

- 3.10. **BUZZER** - If during normal operation the red LED readout flashes and an internal buzzer activates, an event of alarm or error condition has occurred. To silence the buzzer, press and hold the SET and DOWN ARROW keys. In case of an alarm or error, the following messages will be displayed in the red LED window.

<p><b>Er = Memory Error</b></p> <p><b>-- = Short Circuit Probe Error</b></p> <p><b>∞ = Open Probe Error</b></p>
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- 3.11. In the event of alarm or error condition, perform the following trouble shooting steps:
- a) **Memory Error (Er display)** – The circuitry has been damaged. Unplug 110V power supply from the wall receptacle and from the back of the Controller. Remove remaining two cord assemblies from the Heater Jacket and Controller. Place cord assemblies and Controller in a safe place and open Velcro strip on Heater Jacket. Remove Heater Jacket from Filter Housing. Remove Thermocouple from filter housing. Call factory for instructions.
  - b) **Short Circuit Probe Error (-- display)** – The Thermocouple probe has possibly been damaged. Reset the assembly by unplugging the 110V power supply from the wall receptacle. Wait 60 seconds and plug power supply back into the wall. If a temperature display not does appear then disassemble Heater Jacket and Controller assembly as described in 3.11(a).
  - c) **Open Probe Error (∞ display)** - The Thermocouple probe has possibly been damaged. Reset the assembly by unplugging the 110V power supply from the wall receptacle. Wait 60 seconds and plug power supply back into the wall. If a temperature display not does appear then disassemble Heater Jacket and Controller assembly as described in 3.11(a).

#### 4. PROGRAMMING

- 4.1 **Temperature set point is the only parameter the user can access without code protection.** If a temperature set point is desired that is different than the temperature set point programmed by the factory, proceed with the following steps (Refer to Figure 3 for front panel layout):



**Figure 3**

- a) Press the SET key. SP text will appear on the display.
- b) Press the SET key again. The previously programmed temperature set point value is shown on the display.
- c) The temperature set point value can now be modified with the UP and DOWN ARROW keys.
- d) Upon reaching the desired temperature set point, press the SET key to enter any new values.
- e) Press the SET key and the DOWN ARROW key at the same time to quit programming or wait one minute and the display will automatically exit programming mode and re-display the current probe temperature.

**4.2 Re-programming any of the code protected parameters described in Table 1 may be accomplished by proceeding with the following steps:**

- a) Press the SET key for 8 seconds. The access code value 00 will be shown on the display. (Unit is factory programmed with code set at 00).
- b) A new access code can be set by depressing the UP and DOWN ARROW keys to the desired 1 or 2 digit number (Range: 0 to 255).
- c) Press the SET key to enter the code. If the code is correct, the first parameter label in Table 1 will be shown on the display (SP).
- d) Move to the desired parameter with the UP and DOWN ARROW keys.
- e) Press the SET key to view the value on the display.
- f) The value can now be modified with the UP and DOWN ARROW keys.
- g) Press the SET key to enter the new value and to exit to the text parameter.
- h) Repeat steps (d) through (g) until all necessary parameters are modified.
- i) Press the SET key and DOWN ARROW key at the same time to quit programming or wait one minute and the display will automatically exit programming mode and re-display the current probe temperature.

**NOTE:** *The keyboard code can be reset to ZERO by turning off the controller and turning it on again while keeping the SET key depressed.*

Table 1

Parameter	Description	Units	Range	Explanation
SP	Set point	Degrees	r1 to r2	Used to change to desired regulation temperature
r0	Differential	Degrees	1 to 99°	Used to establish a differential temperature from the set point to establish an alarm condition
r1	Lower value set point	Degrees	0 to 999°	Used to establish lower set point limit
r2	Upper value set point	Degrees	0 to 999°	Used to establish upper set point limit
d0	Heating control	Option	Ht (heat) Co (cool)	Regulation cycles only performed, neither defrosting nor continuous cycles exist. <i>Note: This model is set up only for Heating; DO NOT ADJUST.</i>
c0	Minimum stop time for load	Minutes	0 to 59 minutes	Minimum time between start and stop
c2	Load status during probe error	0/1	Off/On	Load Status during Probe Error. In the event of an open or short circuited probe, the unit will connect or disconnect the load as defined by this parameter.
P1	Ambient probe adjustment	Degrees	-10 to 10°	Used to calibrate ambient probe temperature. If the probe is not placed in the exact point that is to be measured, use a standard thermometer and adjust the difference with parameter.
P5	Ambient probe type	J		DO NOT ADJUST
H5	Parameter access code	Numeric	0 to 255	Used to adjust factory set access code 00.
A0	Alarm 1 differential	Degrees	1 to 999°	The differential temperature associated with A1 parameter.
A1	Alarm 1 threshold	Degrees	0 to 999°	Used to establish the number of degrees to the working set point that initiates an alarm condition.
A2	Alarm 1 exclusion time	Seconds	0 to 999	Used to establish the amount of time the alarm is disabled from instrument activation.
A3	Alarm 1 configuration	Option	Off, 1 or 2	Used to determines the alarm type: A3=0: alarm is disabled; A3=1: alarm is activated if the ambient temperature $\geq$ SP+A1 and deactivated if $<$ +SP+A1-A0; A3=2 alarm is activated if the ambient temperature $\leq$ SP+A1 and deactivated if $>$ +SP+A1-A0.
A4	Alarm 2 differential	Degrees	1 to 999°	The differential temperature associated with A5 parameter.
A5	Alarm 2 threshold	Degrees	0 to 999°	Used to establish the number of degrees to the working set point that initiates an alarm condition.
A6	Alarm 2 exclusion time	Seconds	0 to 999	Used to establish the amount of time the alarm is disabled from instrument activation.
A7	Alarm 2 configuration	Option	Off, 1 or 2	Used to determines the alarm type: A7=0: alarm is disabled; A7=1: alarm is activated if the ambient temperature $\geq$ SP+A5 and deactivated if $<$ +SP+A5-A4; A7=2 alarm is activated if the ambient temperature $\leq$ SP+A5 and deactivated if $>$ +SP+A5-A4.

- All CLTGM Heater Jackets may be cleaned with a standard Isopropanol solution and a soft cloth.

## SPECIFICATIONS

Probe range	0 to 700°C (32 to 999°F) J thermocouple
Input	Type J thermocouple
Output	15 A relay @ 250 VAC resistive
Power Consumption	228W @ 120VAC
Control Type	ON/OFF
Power Requirements	110 VAC
Accuracy	±1° full scale
Display	3-Digit, Red, 1/2" (12.7 mm) digits, plus sign
Resolution	±1 digit
Memory Backup	Nonvolatile memory
Ambient Operating Temperature	14 to 158°F (-10 to 70°C)
Storage Temperature	-4 to 176°F (-20 to 80°C)
Front Panel Rating	NEMA 4X (IP65)
Agency Approvals	CE, UL
Dimensions	2" height X 4" width X 5" depth

**Call the factory or contact your local distributor for replacement parts or any operational questions.**