



TrueTemp™ TCU Series Water Temperature Control Units

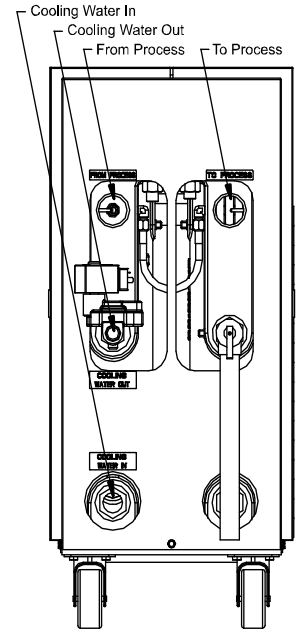
Reference Manuals (PN: 682.88106.00 and 682.92012.00) for Complete Operation and Installation Instructions

(Available online at www.acscustomerservice.com)

Quickstart Installation Checklist

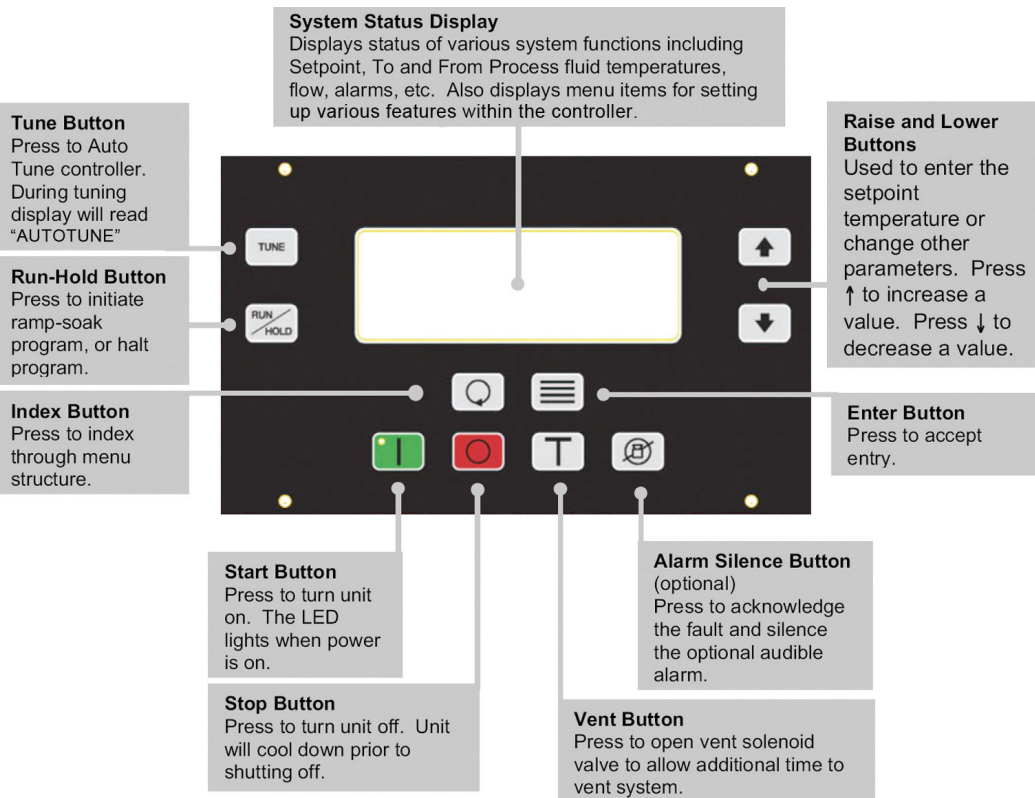
(Refer to main manual for complete installation instructions).

1. Connect 3-phase power based on nameplate data.
2. Install properly sized plumbing between temperature control unit and primary processing equipment (supply and return).
3. Install properly sized plumbing between temperature control unit and cooling water supply and return. Cooling water supply must be at least 16 psi (110kPa/1.1bar) for a 250° F (121°C) configuration and 55 psi (379kPa/3.8bar) for a 300° F (149°C) configuration.
4. Ensure proper pump rotation. (The pump should be moving clockwise while looking at the motor end).



Controller Interface

(Refer to main manual and controller manual for complete operating instructions).



LCD Display

A 4-line by 20-character liquid crystal display (LCD) will show operational status, alarms and programming menus.

1st Line. The first line of the LCD continuously displays the 'To Process' temperature.

2nd Line. The second line of the LCD continuously displays the 'Setpoint' temperature.

3rd Line. The third line of the LCD continuously displays the 'From Process' temperature; the delta temperature of the 'To Process' and the 'From Process'; and the flow in GPM or LPM, if applicable.

4th Line. The fourth line of the LCD will display all menu items used in the controller setup. Also displayed are the status of the pump, outputs for the heater, as well as cooling and elapsed time for the vent cycle. The fourth line will also explain all alarm conditions and operating status.

LED Indicator Lights

The Advanced Controller has one LED that will light up to indicate the control process has been started. This LED is located inside the Start button of the controller's front panel. When power is applied, the LED will remain off until the Start button is pushed. The LED will then illuminate green.



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This Quick Start Guide can be used only if the Advanced Controller has been properly installed and wired. All operators must be familiar with the Operation and Installation Manual before proceeding.

Turning the Power On

When AC power is first applied to the unit, the following sequence of events will occur:

1. The LCD backlight lights up.
2. The LCD displays dashes.
3. The LCD displays the PROM Rev/Date.
4. The LCD displays "SelfTest in Progress."
5. If the 'Debug' parameter is enabled, the following messages about Option Cards will be displayed:

- Re-Transmit Detected
- Cool Analog Detected
- Heat Analog Detected
- Serial Comm Detected
- None Installed

6. The LED segments turn off.
7. The LCD backlight turns off.
8. The LCD displays "Power Available/System OFF."

At this point a Manual Vent Operation can be initialized for 8 seconds by pressing the Vent button

The unit is now in a standby mode of operation. No system process control will occur until the Start button is pressed

Starting the Unit

Press the Start button to begin the following sequence of events:

1. The green LED inside the Start button lights up.
2. The LCD backlight lights up.
3. The Pump Output turns on.
4. The LCD displays the setpoint value, process temperature, return temperature, and delta temperature.
5. If the Auto Vent Cycle parameter is enabled, the Vent Output turns on, and the LCD displays "Vent Time = m:ss."
6. When the Auto Vent timer expires or if the Auto Vent Cycle parameter is disabled, the LCD displays "RUNNING," and system control begins.

Stopping the Unit

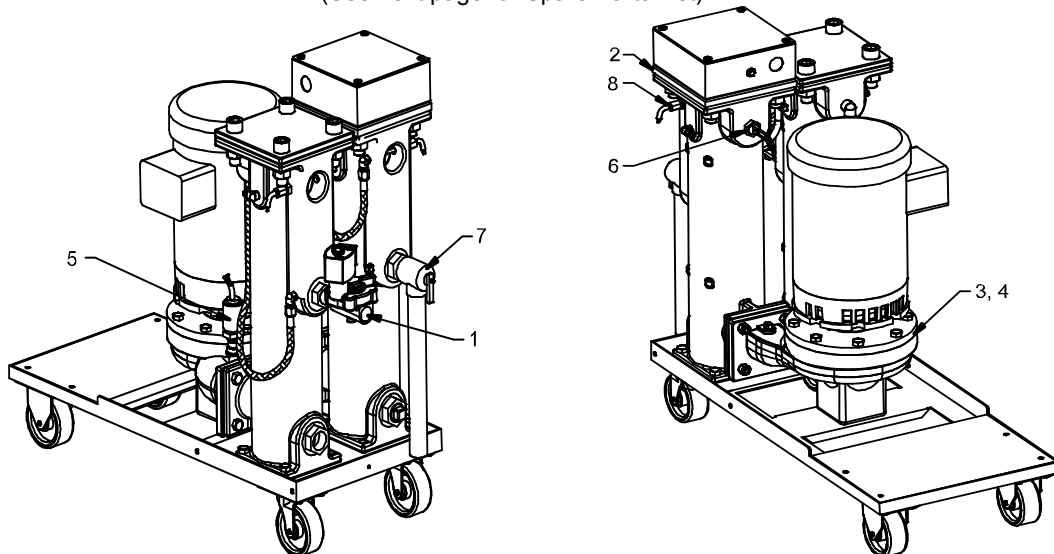
While the system is running, press the Stop button to shut down the system. If the process temperature is below 150°F, the system will immediately shut down. If the current process temperature is above 150°F (66° C), pressing the Stop button will begin the following sequence of events:

1. The LCD displays "SHUTDOWN [Cool Down]."
2. The setpoint changes to 150° F (66° C).
3. The Heat Outputs will turn off.
4. The Cool Output will turn on.
5. The system waits for the process temperature to drop down to 150° F (66° C).
6. At 150° F (66° C), the LCD displays "SHUTTING DOWN."
7. All outputs immediately turn off.
8. The system recycles to the "Power Available/System OFF" state.

Note: Pressing the Stop button a second time while the controller is in the "SHUTDOWN [Cool Down]" mode will abort this cool down operation and the system will immediately go into the "SHUTTING DOWN" phase of the operation.

Spare Parts Location

(See next page for Spare Parts List)





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Spare Parts List
 (See previous page for Spare Parts Location)

Cooling Valves	Standard Solenoid		Modulating				
	1	¼-inch (0.64 cm)	732.00186.00	NA			
	½-inch (1.27 cm)	732.00188.00	044.00512.00 – Cv = 0.4 044.00512.01 – Cv = 1.3 044.00512.02 – Cv = 2.2 044.00512.03 – Cv = 4.4				
	¾-inch (1.91 cm)	732.00189.00	044.00512.04 – Cv = 5.5 044.00512.05 – Cv = 7.5				
	1-inch (2.54 cm)	732.00190.00	044.00512.06 – Cv = 10 044.00512.07 – Cv = 14				
	1¼-inch (3.18 cm)	NA	044.00512.08 – Cv = 20				
	1½-inch (3.8 cm)	732.00191.00	NA				
Immersion Heaters	230/3/60		460/3/60		575/3/50		
	2	9-kW	722.00137.02	722.00137.01	722.00137.08		
		9-kW contactor (2 req'd)	726.00268.02	726.00267.02	726.00267.02		
		12-kW	722.00137.03	722.00137.04	722.00137.22		
		12-kW contactor (2 req'd)	726.00270.02	726.00265.02	726.00265.02		
Motor Pumps	230/3/60		460/3/60		575/3/50		
	3	¾-HP (0.56 kW)	075.00708.00 – 250 °F (121°C) 075.00708.01 – 300 °F (149°C)	075.00708.00 – 250 °F (121°C) 075.00708.01 – 300 °F (149°C)	075.00744.00 – 250 °F (121°C) 075.00744.01 – 300 °F (149°C)	075.00744.00 – 250 °F (121°C) 075.00744.01 – 300 °F (149°C)	
		¾-HP MCP	726.00304.02	726.00303.02	726.00302.02		
		1-HP (0.75 kW)	075.00709.00 – 250 °F (121°C) 075.00709.01 – 300 °F (149°C)	075.00709.00 – 250 °F (121°C) 075.00709.01 – 300 °F (149°C)	075.00745.00 – 250 °F (121°C) 075.00745.01 – 300 °F (149°C)	075.00745.00 – 250 °F (121°C) 075.00745.01 – 300 °F (149°C)	
		1-HP MCP	726.00305.02	726.00303.02	726.00303.02		
		2-HP (1.50 kW)	075.00710.00 – 250 °F (121°C) 075.00710.01 – 300 °F (149°C)	075.00710.00 – 250 °F (121°C) 075.00710.01 – 300 °F (149°C)	075.00746.00 – 250 °F (121°C) 075.00746.01 – 300 °F (149°C)	075.00746.00 – 250 °F (121°C) 075.00746.01 – 300 °F (149°C)	
		2-HP MCP	726.00306.02	726.00304.02	726.00303.02		
		3-HP (2.24 kW)	075.00711.00 – 250 °F (121°C) 075.00711.01 – 300 °F (149°C)	075.00711.00 – 250 °F (121°C) 075.00711.01 – 300 °F (149°C)	075.00747.00 – 250 °F (121°C) 075.00747.01 – 300 °F (149°C)	075.00747.00 – 250 °F (121°C) 075.00747.01 – 300 °F (149°C)	
		3-HP MCP	726.00306.02	726.00305.02	726.00304.02		
		5-HP (3.73 kW)	075.00712.00 – 250 °F (121°C) 075.00712.01 – 300 °F (149°C)	075.00712.00 – 250 °F (121°C) 075.00712.01 – 300 °F (149°C)	075.00748.00 – 250 °F (121°C) 075.00748.01 – 300 °F (149°C)	075.00748.00 – 250 °F (121°C) 075.00748.01 – 300 °F (149°C)	
		5-HP MCP	726.00316.02	726.00306.02	726.00305.00		
		7.5-HP (5.60 kW)	075.00713.00 – 250 °F (121°C) 075.00713.01 – 300 °F (149°C)	075.00713.00 – 250 °F (121°C) 075.00713.01 – 300 °F (149°C)	075.00749.00 – 250 °F (121°C) 075.00749.01 – 300 °F (149°C)	075.00749.00 – 250 °F (121°C) 075.00749.01 – 300 °F (149°C)	
		7.5-HP MCP	726.00317.02	726.00316.02	726.00306.02		
Pump Seal Kits		250 °F (121°C) (SC/C/EPDM)		300 °F (149°C) (SC/SC/EPDM)			
		4	¾-HP (0.56 kW)	162.00024.104	162.00024.107		
		1-HP (0.75 kW)	162.00024.104	162.00024.107			
		2-HP (1.50 kW)	162.00024.104	162.00024.107			
		3-HP (2.24 kW)	162.00024.104	162.00024.107			
		5-HP (3.73 kW)	162.00024.105	162.00024.113			
		7.5-HP (5.60 kW)	162.00024.105	162.00024.113			
Common Parts							
	5A	250 °F (121°C) pressure switch **	692.86688.00K				
	5B	300 °F (149°C) pressure switch **	692.86688.01K				
	6A	250 °F (121°C) safety thermostat	724.00665.00				
	6B	300 °F (149°C) safety thermostat	724.00666.00				
	7	Relief valve	044.00138.00				
	8	1000 ohm RTD probe	692.07369.29				
	Temperature control module (AEC Advanced) with relay outputs		601.00523.00				
AEC Document #	2005-spares-tcu						

** Reference complete manual (PN: 682.88106.00) for proper settings and installation.



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Troubleshooting - Quick Guide

Problem	Possible cause	Solution
Unit does not turn on.	No power.	Check main disconnect, fuses, wiring, and power lead to unit.
	Wrong voltage supplied to unit.	Voltage must be within plus or minus 10% of nameplate rating.
	Defective on/off switch.	Replace.
	Control circuit fuse blown.	Replace.
	Defective control transformer.	Check transformer.
Unit does not run.	Broken or loose wire in pump motor control circuit.	Locate and repair.
	Pump motor contactor holding coil is open.	Repair or replace.
	Low water pressure light on.	Check for at least 16 psig (110.32 kPa/1.1 bars) water pressure on WATER IN or CITY WATER MAKEUP .
	Water supply to unit is turned off.	Open water supply.
	Pump overload light on.	Reset and test each leg for balanced amp draws.
Temperature fluctuations/ rapid cycling from hot to cold.	Undersized connectors/water lines.	Increase size of connectors/water lines.
	Long connecting lines between unit and mold.	Move the unit closer to the mold and shorten connecting lines.
	Serpentine flow through mold.	Connect lines for parallel flow instead of series flow.
	Blocked water line in mold.	Check mold for metal chips or lime buildup. Clean mold.
	Quick disconnect fitting with check valve.	Remove and replace fitting or valve.
	Lime buildup in unit piping.	Clean or replace.
Unit overheats or does not cool.	Drain is plugged or excessive back pressure is in drain line.	Clear drain line or eliminate back pressure condition.
	Faulty solenoid valve.	Test solenoid valve by pressing VENT button and listen for valve operation. Replace if faulty.
	Controller Cool output relay open.	Replace output relay.
	Solenoid valve is not operating, but COOL LED is on.	Set process temperature to minimum and check for magnetism on solenoid coil top.
	Solenoid coil circuit is open.	Check coil resistance. If MΩ range, replace solenoid coil.
	Modulating valve is not operating, but OUT2 LED is on.	Set process temperature to minimum and check for complete travel of valve.
	Insufficient pressure differential between cooling WATER IN and OUT lines.	Find a means to get less back pressure in the WATER OUT line.
	Cooling valve is undersize.	Replace cooling valve with a larger valve.
Unit does not heat/cannot achieve set point	Defective heater contactor.	Visually inspect coil and contacts; repair/replace defective contactors.
	Defective immersion heater.	Check resistance on all three (3) legs of the heater with an ohm meter. If not all equal, contact factory for replacement heater.
	Heater contactor is not energizing, but HEAT LED is on.	Set process temperature to maximum and check for control voltage at heater contactor.
	Faulty/dirty solenoid valve.	Press VENT button several times to flush the valve.