Operation

KL13499 Fermentation Glycol Chiller with Digital Control | 4 Pump Model | Operation

Temperature Adjustment | Reservoir

The temperature of the reservoir is controlled by the STC-1000 controller at the rear of the G40.



Setting the reservoir temperature:

1. Locate the **STC-1000 Temperature Controller**
2. Hold the **S Button** until **F1** is displayed
3. Press **S Button** again which will enter temperature adjustment mode
4. Then hold the **S Button** *and* **Up** ▲ or **Down** ▼ **buttons** simultaneously to adjust the set point temperature of the reservoir
5. Once the desired temperature has been entered, press and release the ⏻ **power** key to save the parameter

Set the temperature on the temperature controller for the reservoir to between -2° and -6°C if using glycol.

Do not set this to a temperature lower than recommended according to this table. If you are only using water in the reservoir and not glycol then do *not* set the temperature of the reservoir to below 2°C

NOTE: Refer here for the full **STC-1000 Instruction manual** ↗

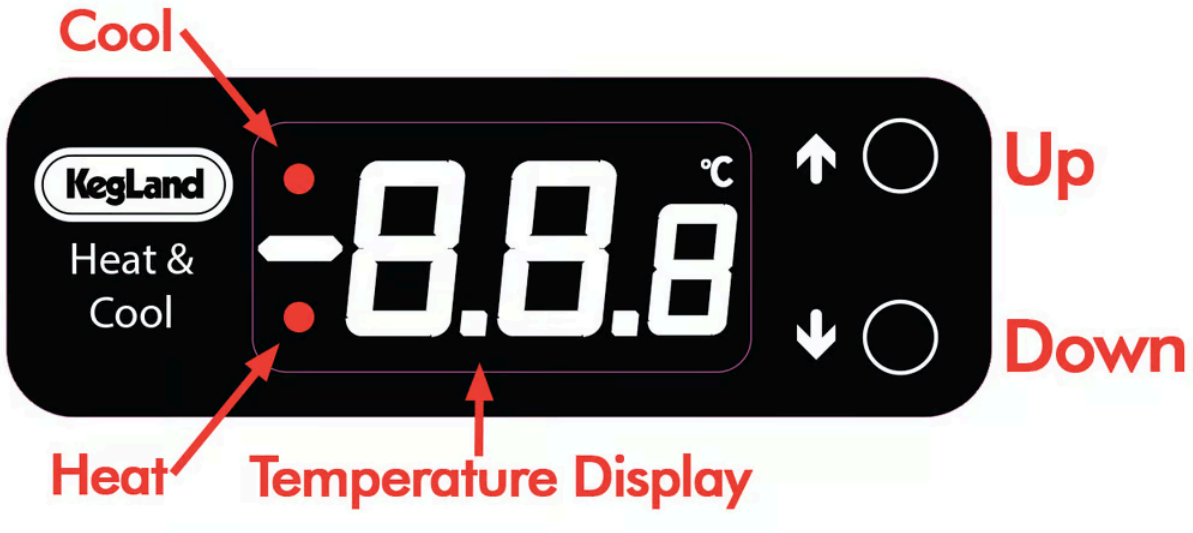
For fermentation control, a glycol mix is greatly preferred as the cooling power of the G40 will be much higher than if used wit water alone. This is because the glycol lowers the freezing point so the reservoir can be set to -5°C or lower (depending on ambient, the water/glycol mix and other factors)

IMPORTANT: If you are only using water in the reservoir and not glycol then do not set the temperature of the reservoir below 2°C

Set Point Temperature | Fermentation Control

The G40 includes temperature controllers on the front of the G40 which controls the switching on and off of the submersible pumps and can also be wired to control an external heating source.

To maintain the desired fermentation temperature, set the front controller(s) connected to the fermenter cooling coil or jacket to the desired set point temperature. Ensure the temperature probe for that controller is in a thermowell for the correct fermenter, or taped to the outside of the fermenter and insulated.



To adjust the parameters of the temperature controllers on the front of the G40 follow these steps

Operation | Front Controllers

Cooling/Heating Indicators

- The Cool Indicator flashes during startup delay
- The Cool Indicator illuminates when cooling is active
- The Heat Indicator* flashes during startup delay
- The Heat Indicator* illuminates when heating is active

Heating is not installed in the Glycol Chiller. The heating relay can be optionally connected to a heating device

Turn Controller On or Off

- Hold the **Down** button for 3 seconds to turn the controller **on** or **off**

Display Set Point Temperature

- Hold the **Up** button for 3 seconds to display the current **Set Point** T**emperature**

Adjust the Set Point Temperature

1. The **Set Point Temperature** can be adjusted whether the controller is On or **Off**
2. Hold the '**Up**' button for 3 seconds until the number on the display starts flashing (this number is the current set point temperature)
3. Press the '**Down**' button to decrease the set temperature or press the '**Up**' button to increase the set temperature
4. Once the correct **Set Point Temperature** is reached, release the buttons and the temperature will be saved once the display stops flashing. If the controller was off when this procedure started it will also turn off.

Cancel Alarm

- If the unit emits an alarm, press any key to cancel the alarm

Parameter Adjustment

1. Hold the "**Up**" and "**Down**" buttons simultaneously for 3 seconds. The first menu code **F0** will appear on the display
2. Press the "**Up**" or "**Down**" buttons to cycle through the parameters **F0**-**F13**
3. Press *both* the "**Up**" and "**Down**" buttons simultaneously to alter the parameter which appears on the display
4. Press the "**Up**" or "**Down**" buttons to change the set value of the parameter selected

If there is no key operation within 5 seconds then the parameter will be set with the displayed value.

The parameters which can be modified are outlined below

Parameters

Parameter	Function	Range	Default	Units
F0	SetPoint range	-40.0 - 90.0	10.0	°C
F1	Minimum value for Set Point	-40.0 - F0	-40.0	°C
F2	Maximum value for Set Point	F0 - 90.0	90.0	°C
F3	Cooling Hysteresis	0.1 - 10.0	0.5	°C
F4	Heating Hysteresis	0.1 - 10.0	0.5	°C
F5	Temperature Probe Calibration	-10.0 - 10.0	0	°C
F6	Cooling Start Delay	1.0 - 10.0	1	Minute
F7	Cooling Start Delay after Power Failure	0 - 300	10	Second
F8	Heating Start Delay	1 - 10.0	1	Minute
F9	Heating Start Delay after Power Failure	0 - 300	10	Second
F10	Max temperature before alarm activation	F11 - 99.9	90.0	°C
F11	Min temperature before alarm activation	-45.0 - F10	-40.0	°C
F12	Alarm Delay	1 - 120	1	Minute
F13	Toggle Celsius/Fahrenheit	0-1	F	N/A

To change any settings on the rear STC-1000 Temperature Controller please refer here for the full **STC-1000 Instruction manual** ↗

Maintenance

If the glycol solution has been stored for an extended period of time then it is suggested to replace the solution, despite glycol having antimicrobial properties.

To replace the glycol empty the reservoir using the drainage port and then refill with the required concentration of glycol using a refractometer to confirm the concentration.

NOTE: It is recommended to drain and replace the gylcol solution every 12 months to avoid freezing issues, as glycol can break down and lose effectiveness over time

Clean out dust from the radiator periodically to maintain optimum efficiency

STC-1000 | Operating Instructions

STC-1000 Operating Instructions

Function

The STC-1000 is a multi purpose Temperature Controller. It allows for temperature controller, adjustable hysteresis, offset calibration and output relay delay. An alarm will sound if the temperature limits are exceeded or a sensor issue is detected

Specification & Size

♦Front panel size: 75x34.5mm LxW
♦Product size: 75x34.5x85mm LxWxD
♦Mounting size: 71x29mm LxW
♦Sensor length: 2m (including the probe)

Technical Parameters

♦Temperature measuring range: -50°C - 99°C
♦Accuracy: ±1°C (-50°C-70°C)
♦Power supply: 220VAC±10%, 50/60Hz
♦Sensor: NTC sensor (1PC)
♦Relay contact capacity: Cool (10A/250VAC); Heat(10A/250VAC)
♦Ambient temperature: 0°C - 60°C
♦Relative humidity: 20-85% (No condensate)

♦Resolution: 0.1°C
♦Sensor Error Delay: 1 minute
♦Power consumption: <3W

♦Storage temperature: -30°C - 75°C

Controls



- Cool Indicator
- Heat indicator
- 3 digit LED Display
- **Power Button** - Power On/Off, Confirm Parameter Adjustment
- **S Button** - Set
- **Up Button**
- **Down Button**

Indicator Light Status

Light	Display	Function
Cooling Indicator	Flashing	Compressor Delay On
Cooling Indicator	On	Cooling Relay On
Heating Indicator	On	Heating Relay On
Set Indicator	On	Paramater Setting Status On

Key Operation

1 Check Parameter

Press and release the ▲ **Up Button.** The current Temperature Setting value is displyed

Press and release the ▼ **Down Button.** The current hysteresis is displayed

2 Set Parameter

Hold the S **Button** for 3 seconds to enter **Parameter Modifying Mode.** The **Set** Indicator light will illumintae, and the display will show **F 1**

Change the displayed Parameter by using the ▲ **Up Button** or the ▼ **Down Button.**

Press the S **Button** to display the current setting for the displayed parameter

To adjust the value of the parameter, hold the S **Button** and use the ▲ **Up Button** or the ▼ **Down Button** to change the value of the parameter. To save the new value, press and release the ⏻ **Power Button.**

If the ⏻ Power Button is not pushed withn 10 seconds, the modified value will not be saved

If there is an error when setting a different parameter value, the display will show **Er** and revert to normal status within 3 seconds

Operation

- To turn the STC-1000 OFF or ON, press and hold the ⏻ **Power Button** for three seconds
- Under normal working conditions, the STC-1000 displays the current measured temperature. The Heat and Cool indicator will illuminate to show if the Heating or Cooling relay is active
- Cooling activates when the measured temperature is greater than the Set Point temperature and the Hysteresis. If the Cooling indicator is flashing, this indicates that the Compressor Delay is active. Cooling will begin when this period ends. When the measured temperature reaches the Set Point temperature, the Cooling Relay will deactivate and cooling will stop.
- Heating activates when the measured temperature is less than the Set Point temperature and the Hysteresis. When the measured temperature reaches the Set Point temperature, the Heating Relay will deactivate and heating will stop.

Menu | Parameter Settings

Parameter Code	Function	Set Range	Default
F1	Temperature Set Point Value	-50.0 - 99.9°C	10.0°C
F2	Hysteresis Set Value	0.3 - 10.0°C	0.5°C
F3	Compressor Delay Time	1 - 10 minutes	3 minutes
F4	Temperature Calibration (offset) Value	-10.0 - 10.0°C	0°C

- Temperature Set Point - this is the set point temperature that you wish to maintain using the STC-1000 Controller
- Hysteresis - this is the allowed value above/below the set point before cooling/heating activates
- Compressor Delay Time - this si the delay before the Cooling relay activates (to prevent excessive compressor use)
- Temperature Calibration (offset) Value - this allows the temperature probe to be calibrated - see **Temperature Calibration** below

NOTE: If the STC-1000 is pre-installed then the default settings mat differ from the above

Temperature Calibration

If there is a large variance between the *displayed* temperature (IE the temperature of the temperature probe and the *actual* internal temperature (as measureed by a calibrated thermometer) then the Temperature Offset can be adjusted from -10°C to 10°C

A Temperature Offset will *offset* the displayed temperature by the entered amount.

Thus, if the displayed temperature is 2°C but the actual internal temperature is 4°C, and offset of +2°C is required.

Note: In most cases this is not necessary to be adjusted.

Error Codes

EE Error

This indicates the temperature probe is unplugged, damaged or faulty. Press any key to cancel the alarm and investigate the source of the error.

HH Error

This indicates the measured temperature as exceeded the temperature mesuring range (-50°C - 99°C). Heating and Coolling will be suspended. Press any key to cancel the alarm. The system will revert when the measured temperature is back within range.

Safety

- Ensure correct wiring is followed (see below for wiring diagram)
- Ensure unit is not connected to electricity when wiring unit
- Do not use unit in areas that exceed temperature, humidity range of the device
- Ensure it is connected to a suitable power outlet
- Minimise/avoid contact between the temperature probe and the power lead to avoid interference

Wiring Diagram

