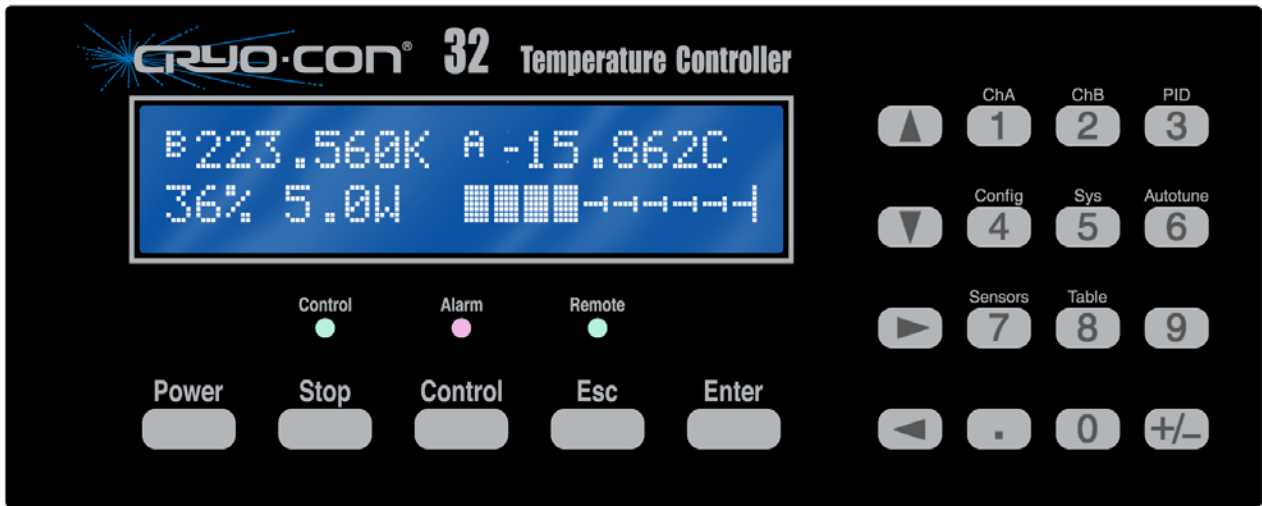


A Quick Start Guide to the Model 32



Basic Front Panel Operation

Pressing the **Power** key will toggle the controller's AC power on and off. This key must be pressed and held for two seconds before power will toggle.

Pressing the **Stop** key will immediately disengage both control loops. Pressing the **Control** key will engage them.

The Home Status Display

Pressing the **Home** key will return the screen to the Home Display from anywhere in the sub-menus. The Home Display is the primary display for instrument status information.

Several Home Displays are available so that the user can see desired information without additional clutter. To scroll through the available displays, press the **▲** or **▼** key.

Accessing the heater set point

To instantly access the set point for control loop #1 from the Home Status Display, press the **Loop 1** key. This will take the display directly to the Loop #1 set-point entry field.

Use the keypad to enter the desired set point and press the **Enter** key.

From this display, you can use the **▲** and **▼** keys to gain quick access to the control loop's PID tuning values.

Configuring a temperature sensor

To access the Input Channel Setup menu for input A, press the **ChA** key, or for input B, the **ChB** key.

The first line of this menu is used to change the sensor units. An example is shown here.

To change the sensor units, use the **▲** or **▼** right and left arrow keys (**▶** or **◀**) to scroll through the available options. When the desired units are shown, press the **Enter** key to make the selection.

Next, go to the sensor selection field by pressing the down arrow (**▼**) key. This field is used to select the actual sensor type. Use the right and left arrow keys (**▶** or **◀**) to scroll through the available sensors. When the desired sensor is shown, press the **Enter** key to make the selection.

A summary of sensor selections is shown here:

Sensor	Description
None	Disable input channel.
Cryo-con S700	Cryo-con S700 series Silicon Diode.
LS DT-670	Lakeshore Silicon Diode Curve 11 for DT-670 series diodes.
LS DT-470	Lakeshore Silicon Diode Curve 10 for DT470 series diodes.
CD-12A	Cryo Industries CD-12A Silicon Diode.
SI 410	SI-410 Silicon Diode Curve.
Pt100 385	DIN43760 standard 100Ω Platinum RTD.
Pt1K 385	1000Ω at 0°C Platinum RTD using DIN43760 standard calibration curve.
Pt10K 385	10KΩ at 0°C Platinum RTD.
RO-105 AC	SI RO-105 RuOx sensor, AC excitation.
RO-105 DC 10uA	SI RO-105 RuOx sensor, 10μA DC excitation.
RO-600 AC	SI RO-600 RuOx sensor, AC excitation.
RhFe 27, 1mA	Rhodium-Iron, 27 Ohms at 0°C
TC type K TC type E TC type T	Thermocouples type K, E and T, Direct input to the controller. Visible only on units with the Thermocouple option installed.
User Sensor 1	User supplied sensor #1.
User Sensor 2	User supplied sensor #2.
User Sensor 3	User supplied sensor #3.
User Sensor 4	User supplied sensor #4.

Display Options

Configuration options for all channels and control loops are located in the System menu and may be accessed by pressing the **Sys** key.

The Display TC is used to smooth temperature data with filters from 0.5 to 16 seconds.

This is useful to provide stable readings in noisy environments.

The Display Resolution field will set the number of significant digits shown in temperature displays. Settings 1, 2, 3 or Full.

Configuring the Loop #1 Output

Before using the Loop #1 (main heater) control output, it is essential that the proper load resistance and output range be selected.

- ❑ Press the **Loop 1** key to go to the Control Loop Setup menu for Loop #1.
- ❑ Use the up arrow and down arrow keys (▲ and ▼) to scroll to the Htr Resistance field and then use the left and right arrow keys (▶ or ◀) to select between a 50 Ohm and a 25 Ohm heater and then press the **Enter** key.
- ❑ Use the up arrow and down arrow keys (▲ and ▼) to scroll to the Range field and then select Hi, Mid or Low:

1 Htr Resistance: 50Ω

Range	Max. Output Power	
	25Ω	50Ω
Hi	25 Watts	50 Watts
Mid	2.5 Watts	5.0 Watts
Low	0.25 Watts	0.50 Watts

Next, the control type should be set by scrolling to the Type field and selecting the desired loop operating mode.

1 Type: PID

Control Modes are:

Type	Description
Off	Control loop is disabled.
Man	Manual control mode. Here, a constant heater output power is applied. The Pman field selects the output power as a percentage of full-scale.
Table	PID control mode where the PID coefficients are generated from a stored, user supplied PID table.
PID	Standard PID control.
RampP	Temperature ramp control.

Configuring the Loop #2 Output

The second control loop of a Model 32B controller is a fixed 10-Watt output that is matched to a 50Ω resistive load. Therefore, there are no load resistance or range settings to configure.

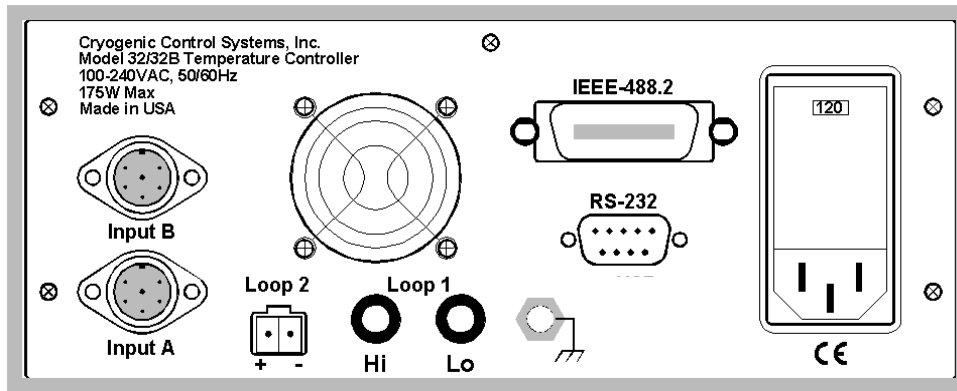
On the standard Model 32, the second control loop is a zero to 10.0 Volt output that is intended to drive a booster supply or other voltage controlled device. It is not a heater output.

All other configuration settings from Loop #1 also apply to Loop #2.

Changing the Set Point

To change the set point, press the **Loop 1** or **Loop 2** key. The display will go directly to the set point for the selected control loop.

Rear Panel Connections




AC Power Connection

Before connecting AC power, check the input voltage setting through the window on the power entry module to ensure that it is set properly.

Sensor Connections

Silicon Diode and all resistor type sensors should be connected to the Model 32 using the four-wire method. It is strongly recommended that sensors be connected using shielded, twisted pair wire. Wires are connected as shown below and the shield should be connected to the metal backshell of the connector.

Pin	Function
1	Excitation (-), I-
2	Sense (-), V-
3	Do not connect
4	Sense (+), V+
5	Excitation (+), I+



Note: The input connectors on the Model 32 will mate with either DIN-5 or DIN-6 plugs. Wiring is identical. If a DIN-6 plug is used, Pin 6 is not connected.

Thermocouple sensors use a special connector that is provided with the controller. Sensor connection is made at the screw terminals. Proper polarity of the sensor wires is required.

Loop #1 Connection

Primary Heater Output (Loop #1) connections are made using the two-pin banana plug shown here. Pin One (HI) is the positive output and Pin Two (Lo) is the ground return. The shield of the output cable should be connected to the third pin of the banana plug.

Ensure that the heater is floating, as the Model 32 does not support grounded heaters.