DIGI-SENSE®
THE STANDARD IN PRECISION MEASUREMENT

User Manual

Cole-Parmer® 12-Channel Benchtop Data Logging Thermocouple Thermometer

Model: 92000-02

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Introduction

The Cole-Parmer® 12-Channel Benchtop Data Logging Thermocouple Thermometer with 5” resistive touchscreen display. All 12 channels are easily viewed from one screen. Each channel can be configure to either J, K, T, B, N, S, R, and E type thermocouples. Alarm conditions can be configured for each channel. Data points can be stored in the devices memory and available for download in CSV file format through the data acquisition software (DAQ). The DAQ software is included with the device for real-time visual display of all channels on your personal computer. The device is supplied with a grid-mounting clamp that is located on the back of the device.

Unpacking

Check individual parts against the list of items below. If anything is missing or damaged, please contact your instrument supplier immediately.

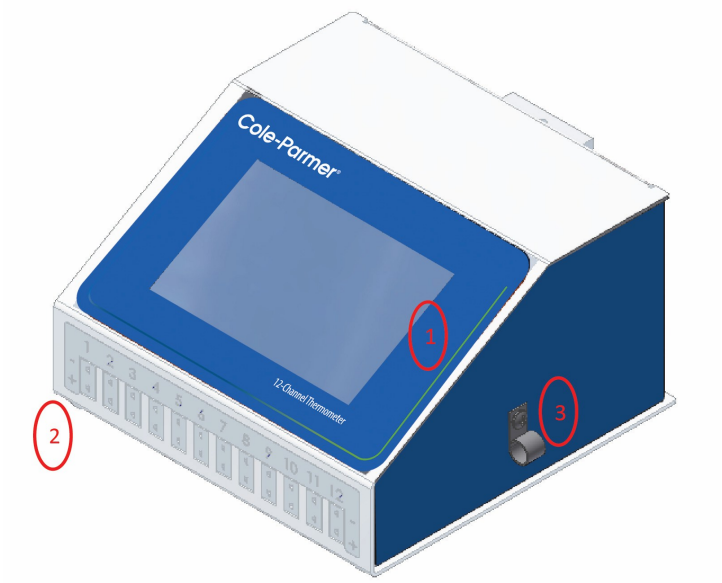
1. 12-Channel Benchtop Data Logging Thermocouple Thermometer
2. Grid support bracket (attached to the back of the thermometer)
3. 4GB USB Stick
4. (1) Metal thermocouple routing holder (attached to device)
5. USB 2.0 Type A (Male) to Micro-USB B 5 pin (Male)
6. Power Cord
7. Plug adapter kit

Initial Setup

- Install 12-channel device in safe operating area.
- Connect the thermocouple sensor(s) to the thermocouple input connector(s) located on the bottom of the front panel. All thermocouple inputs do not have to be utilized for the device to operate.
- Plug the supplied power cord into the IEC connector on the back panel of the device.
- Turn power switch to the ON position.

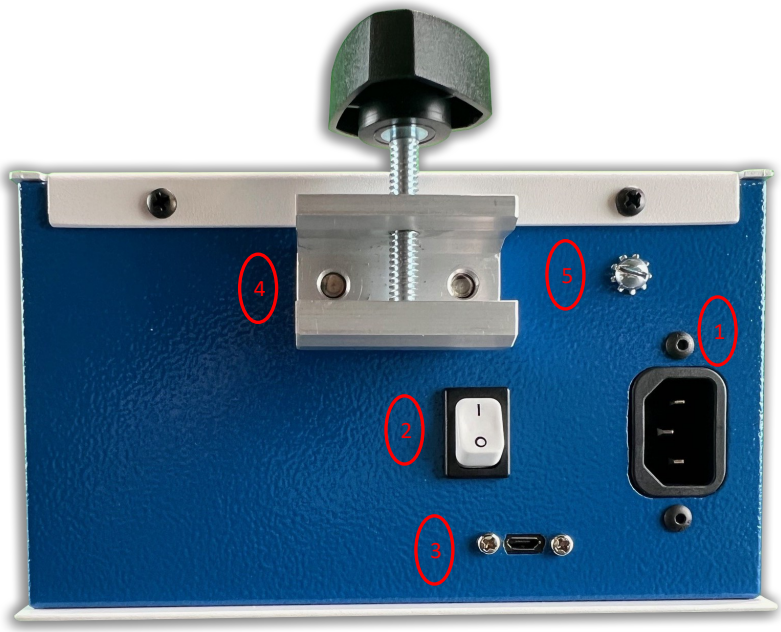
Front Panel

1. **5” resistive Touchscreen—**Display temperatures, as well as, allow the user to interface with the device.
2. **Thermocouple input -** Thermocouple connection point for each channel.
3. **Cable Holder -** Metal cable holder is located on one side of the control. See page 14 for proper cable routing.

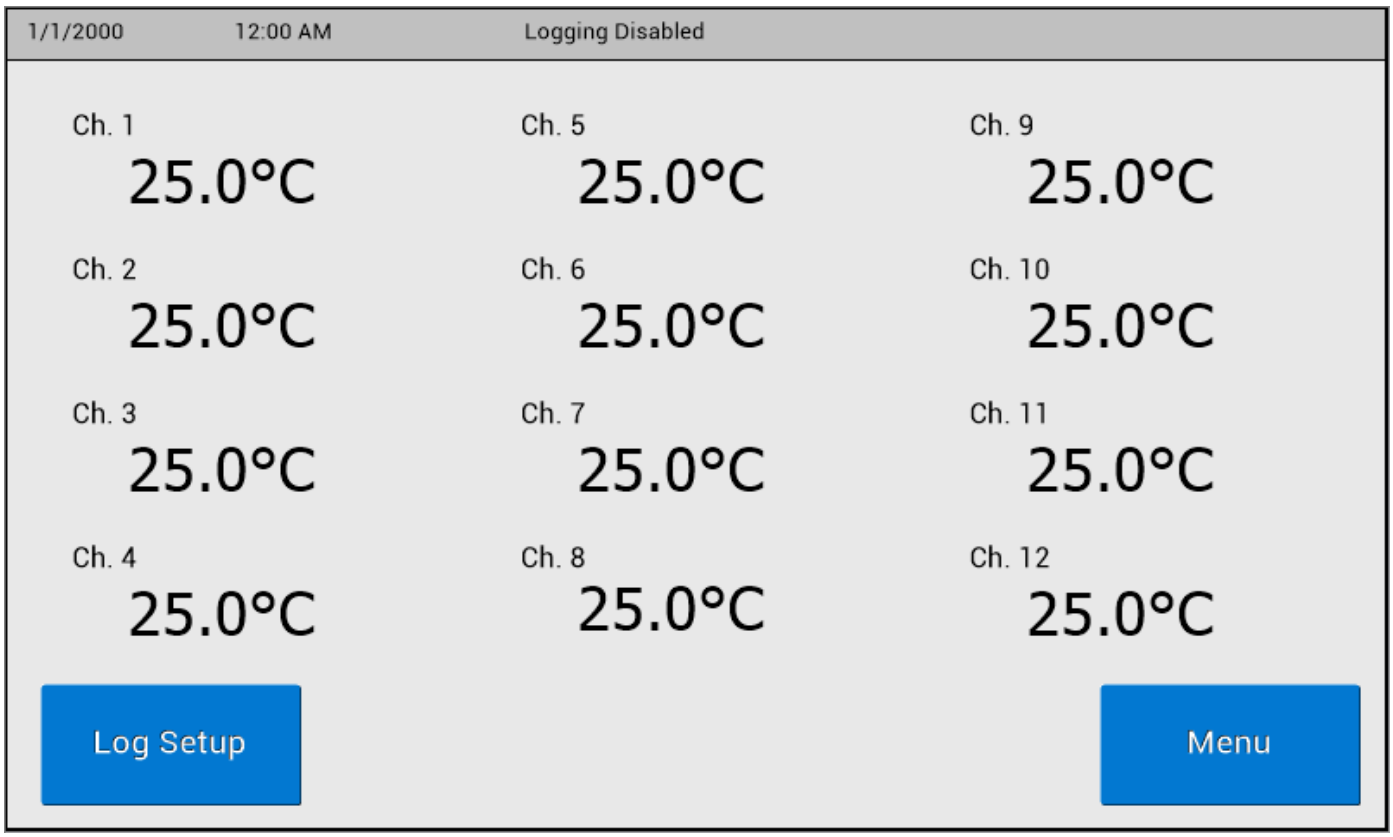


Back Panel

1. **Power input** - Connection point for the provided AC power cord.
2. **Power Switch** - Turns the device power on and off.
3. **USB Communication Port** - Communication port for use with the DAQ software. This will allow live graphing of the real time temperature data. The DAQ software also gives the user the capability of downloading saved logs on the device.
4. **Grid Bracket Holder** - This can be used to mount the device. It allows the device to swivel up or down on a horizontal bar to allow for optimal viewing angle of the display.
5. **GND Screw -** Chassis ground point for the internal electrical components.

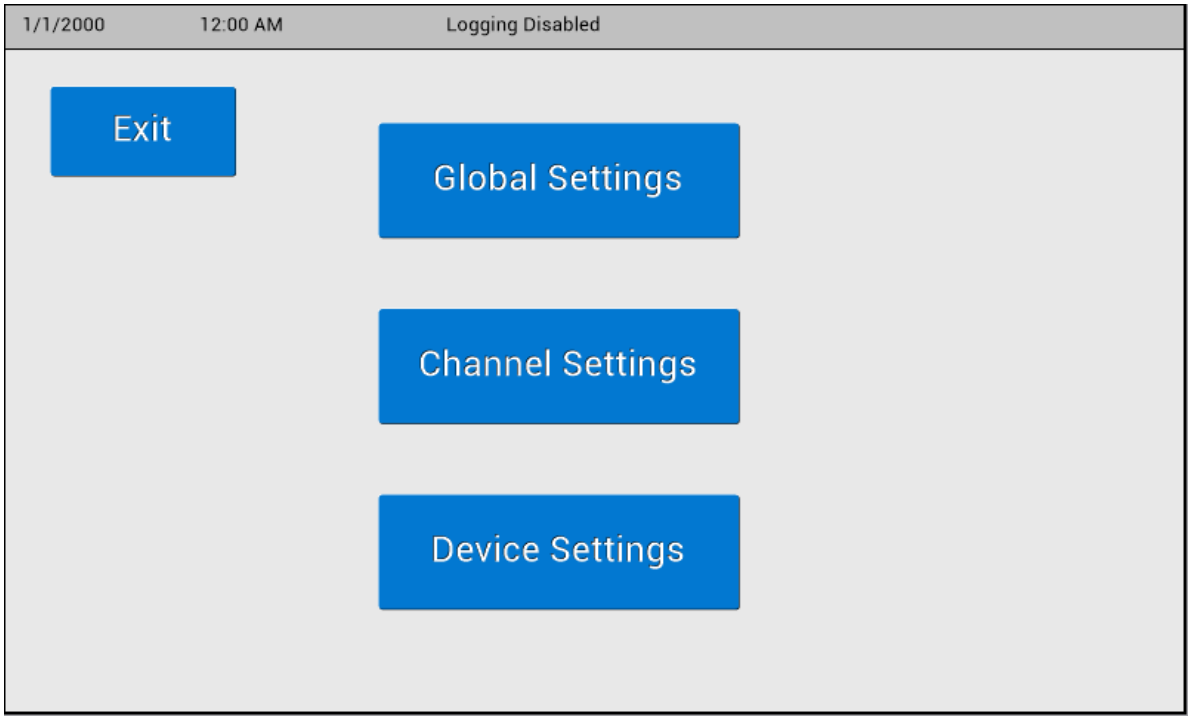


Main Display Screen



- The active display screen that will be visible upon starting the device.
- Two main buttons that will be active from this screen.
  - “Menu” button and the “Log Setup” button.
    - “Menu” button is pressed the main menu will appear.
    - “Log Setup” will display a screen to setup and start data logs.
- Each displayed temperature reading also acts as a button to go to the settings for that individual channel.

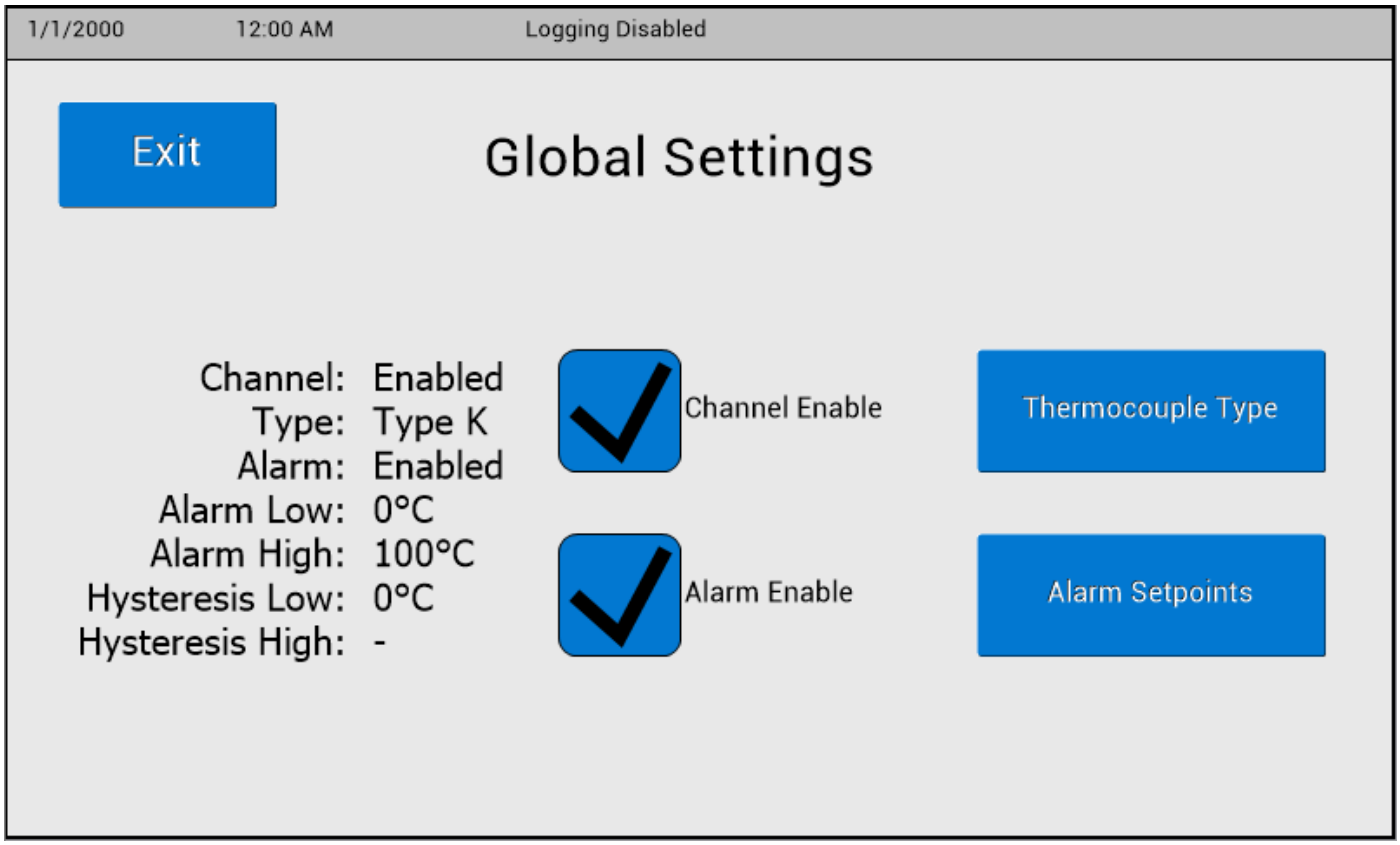
Menu Screen



Main Menu:

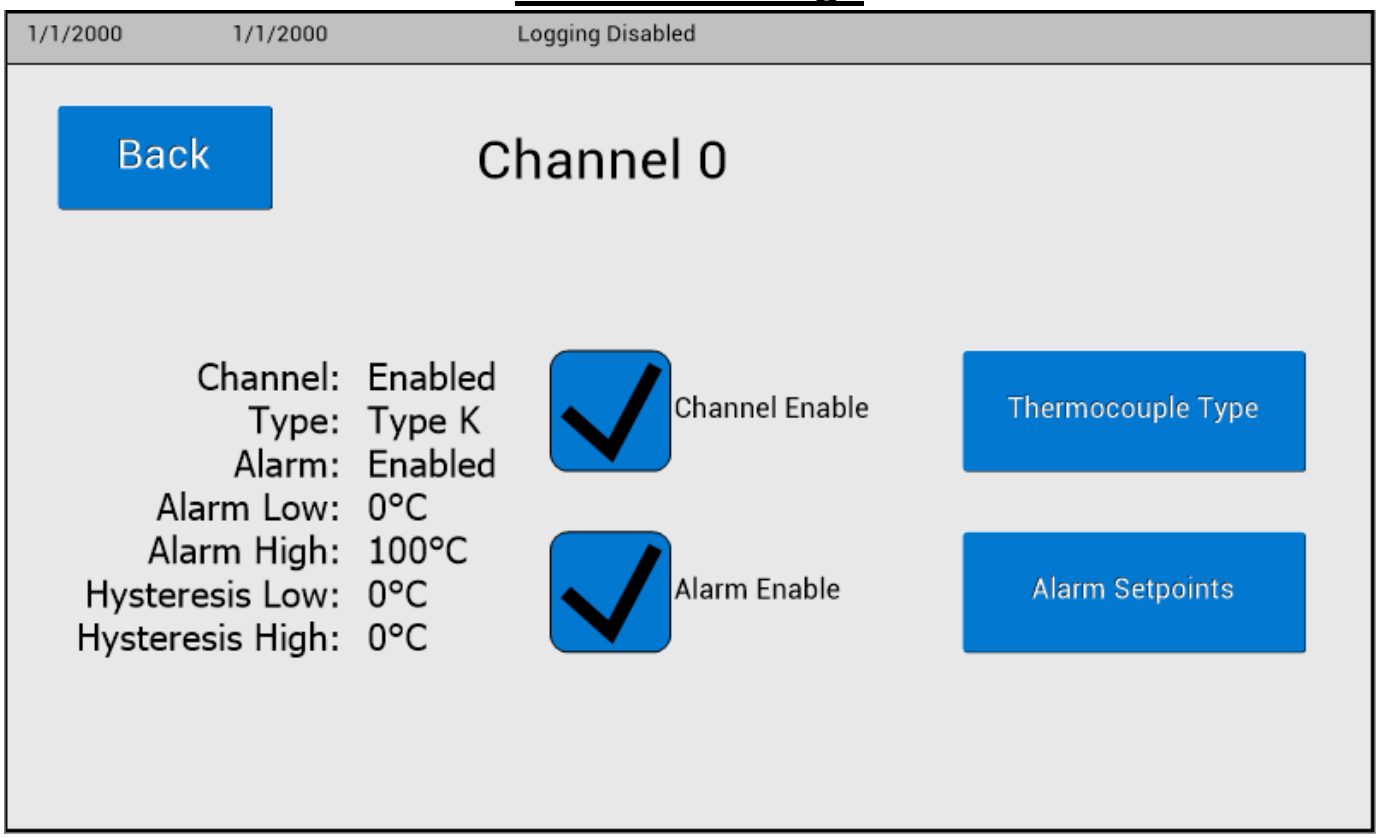
- The device has 3 setup screens.
  - **Global**
    - Settings completed within global settings will occur to all 12 channels synchronously.
  - **Channel**
    - Settings completed within the channel settings will only occur to the individual channel selected.
  - **Device**
    - Following settings are available in device settings:
      - Temperature Scale
      - Data Log Period
      - Logging options during power failure
      - Calibrate Screen
      - Set Time
- Use the Exit button to return to the Main Display Screen.

Global Settings



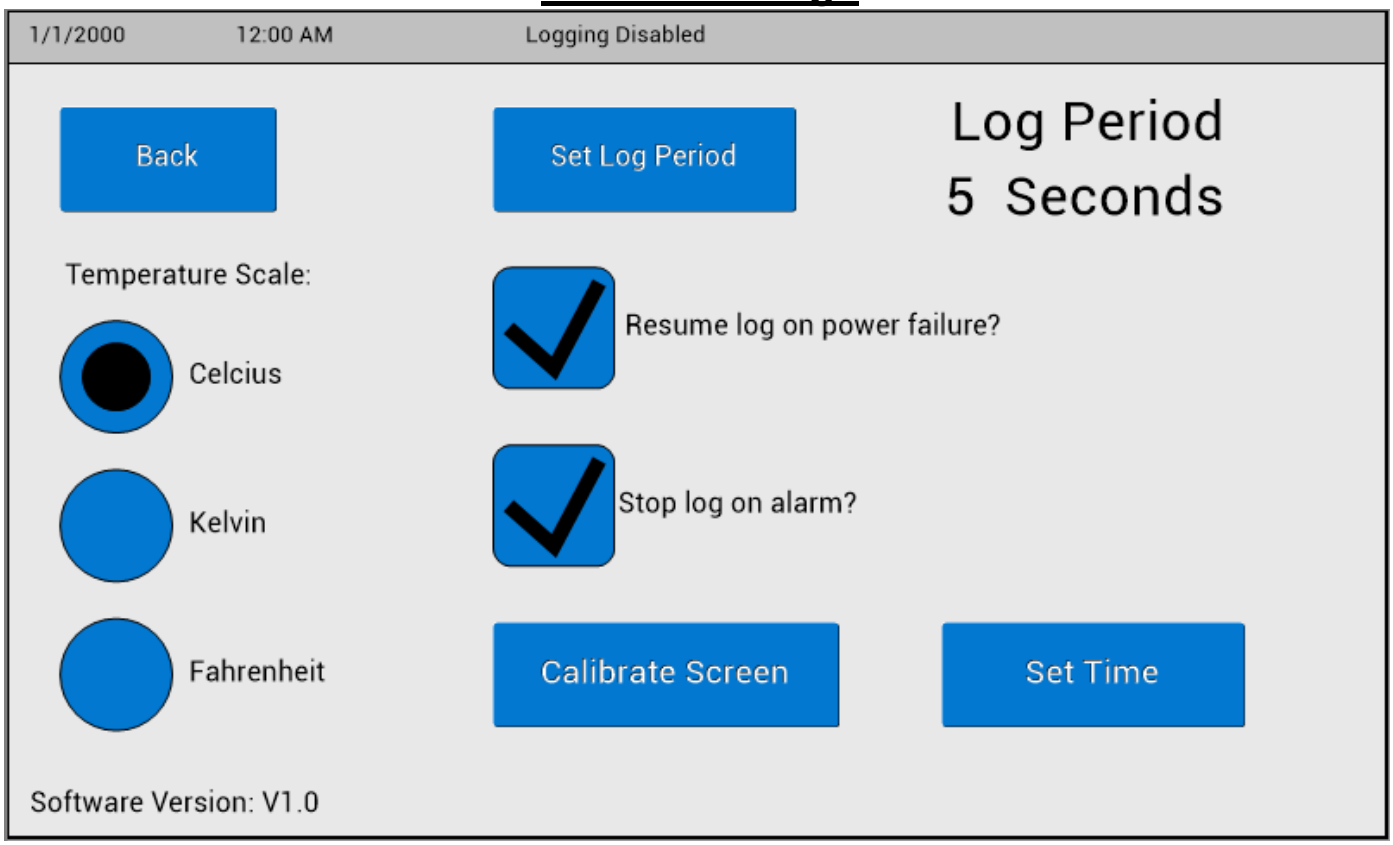
- The settings for all channels can be changed on this screen synchronously.
    - If the settings for all channels are not currently the same, the device will read “various”.
- The Channel Enable box allows for enabling / disabling all channels simultaneously .
- The Alarm Enable box allows for enabling / disabling all alarms simultaneously .
- The Thermocouple Type button will send the device to the screen with all of the available thermocouple types. This screen is displayed on page 10.
- The Alarm Setpoints button will allow the user to setup alarm conditions that will occur for all active channels. This screen will be displayed on page 10.
- The Exit button will send the screen back to the Main Menu.

Channel Settings



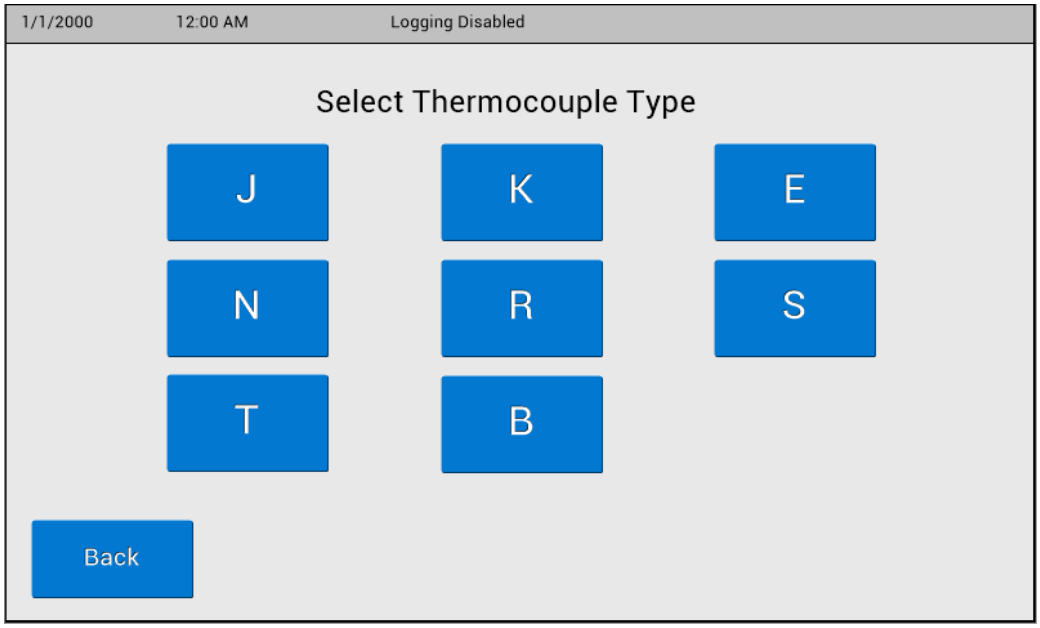
- The settings for individual channels can be changed on this screen.
  - This allows the device to monitor different processes all at the same time.
  - This screen is activated after a specific channel is selected from the channel select screen or when the user clicks the temperature reading on the main display screen.
- The Channel Enable box allows for enabling / disabling the selected channel.
- The Alarm Enable box allows for enabling / disabling the alarm on the selected channel.
- The Thermocouple Type button will send the device to the screen with all of the available thermocouple types. This screen is displayed on page 10.
- The Alarm Setpoints button will allow the user to setup alarm conditions for each individual channel. This screen will be displayed on page 10.
- The Exit button will send the screen back to the Main Menu.

Device Settings



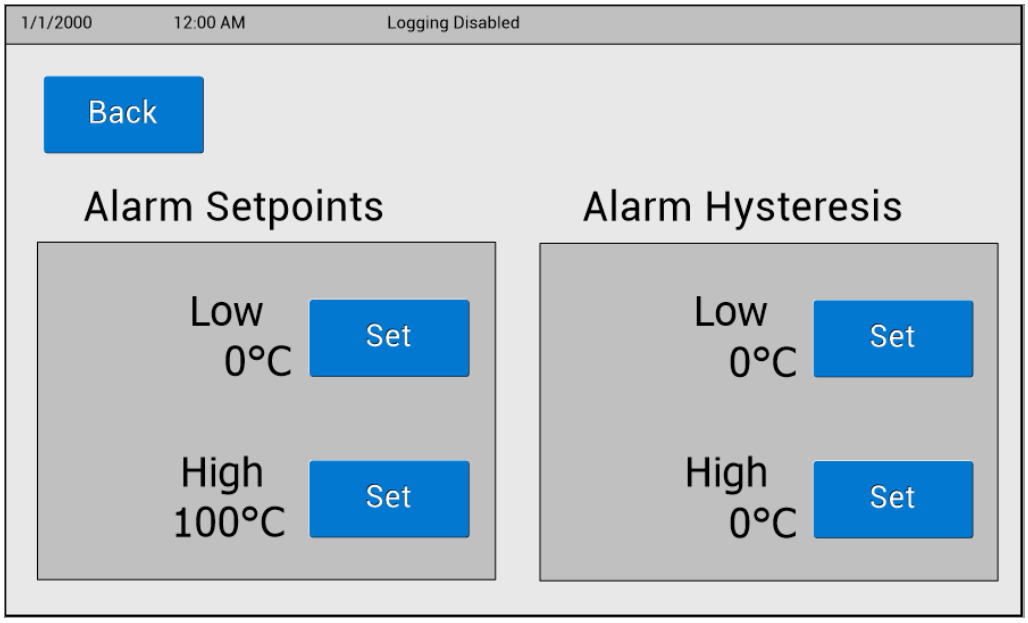
- The settings for the device can be adjusted from this screen.
- The temperature scale will change the units the device is measuring in.
- The Set Log Period button will send the device to a keypad that will allow for changing the frequency of samples when doing an internal data log.
- The Resume log on power failure box will allow the device to immediately continue a data log when the device is turned back on after a power cycle.
- The Stop log on alarm box will allow the device to stop a data log if an alarm condition is reached.
- The Calibrate Screen button should be used if the touchscreen is not registering where is clicked or if a button appears to be in a different spot that expected.
- The Set Time button will allow for setting the date and time on the device. This is displayed on the upper part of the screen. It is also used for data points on internal logs.
- The Back button is used to send the device back to the Main Menu.

Thermocouple Type



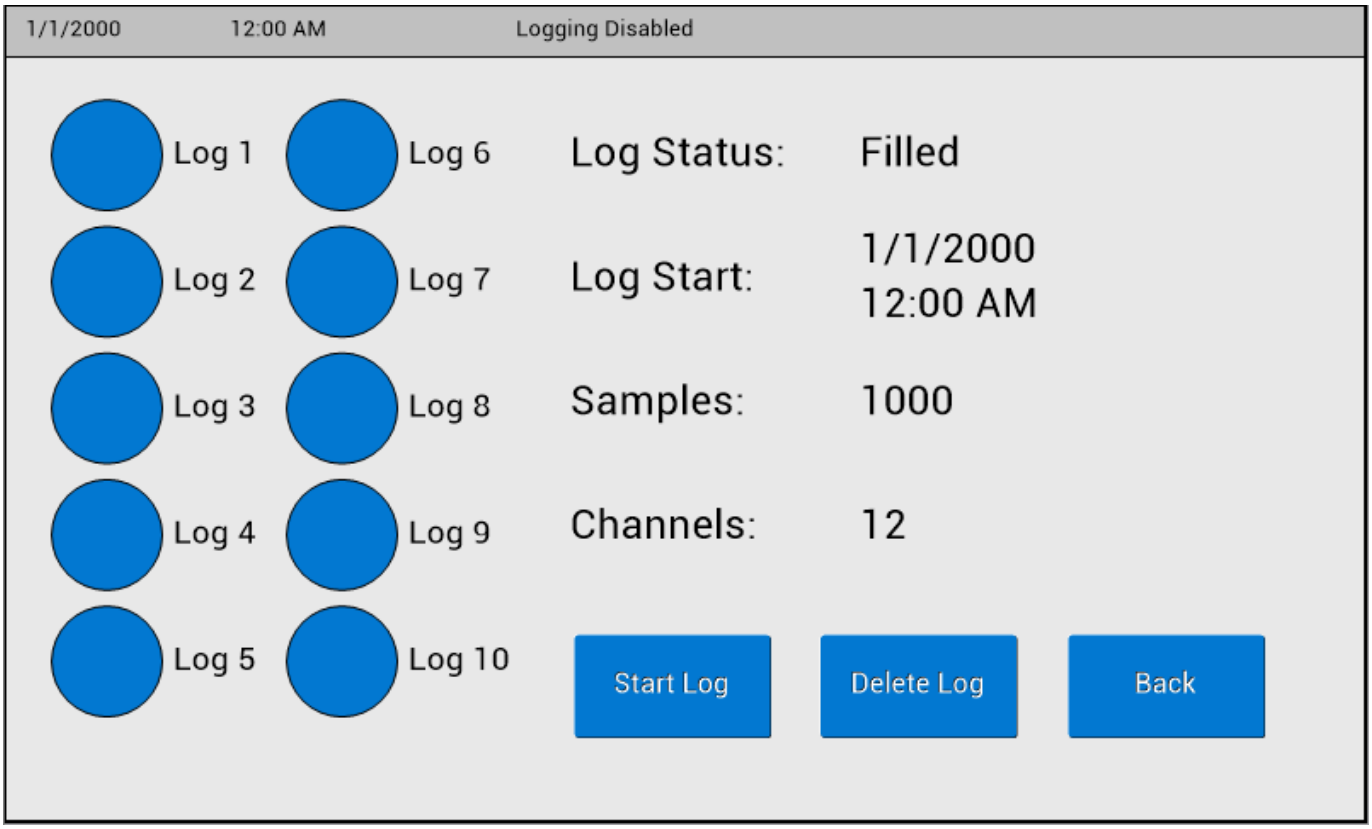
- Allows user to select a thermocouple type. This could be globally or for a specific selected channel.

Alarm Setpoints



- When the SET buttons are selected a keypad screen will appear with on screen prompting to assist.
- Alarm set points allows for setting a high and low value that will alert when the set point temperature is reached.
- Alarm hysteresis allows for a band of deviation that the alarm will continue to happen after the alarm condition has been reached.

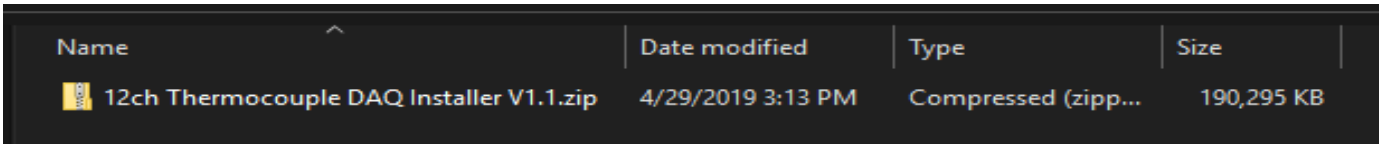
Log Setup



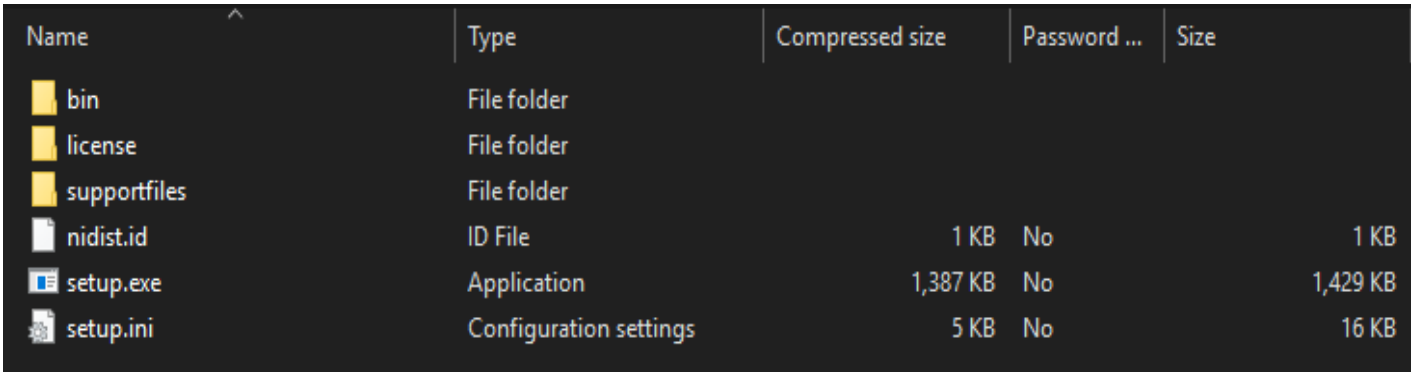
- The device can store a total of 10 different logs at a time.
  - They are saved by the date and time started.
  - They are saved in CSV format and can be extracted through the DAQ Software.
- This screen will allow for checking the status of the data logs.
- Logs can be started or deleted from this screen by simply selecting one of the 10 logs and then selecting the appropriate button for the action to be performed.

Installing DAQ Software

- Move entire12ch Thermocouple DAQ Installer file folder to your computer.

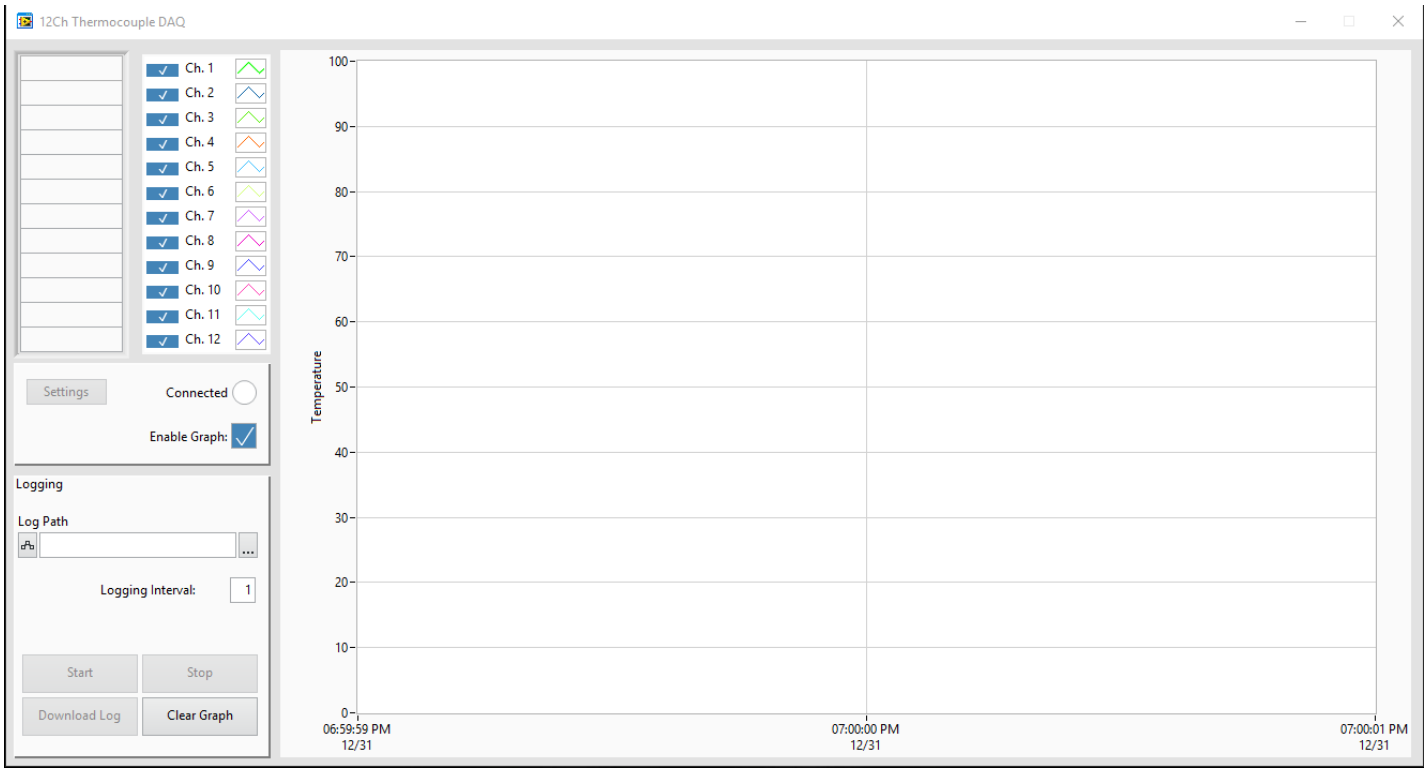


- Execute the setup.exe file to install the software.



- 12ch Thermocouple DAQ will appear in your installed software applications.

DAQ Operations:



1. Connect the 12-Channel Benchtop Data Logging Thermocouple Thermometer to the computer with the supplied USB cable. Then power on the device. Start the installed DAQ software.
2. When the computer detects the device it will make the circle next to “Connected” blue.
3. If it is desired to not view all active channels, simply click the check mark beside the channel indicator. Check means it will be displayed and unchecked means it will not be displayed.
4. Any of the settings for the device can be changed from this software as well. Simply click the settings button and change the desired settings. **WARNING:** changing settings while the device is graphing will cause a break in the graph while the settings menu is open.
5. To start a log from the DAQ, select a log path and give the file a name. Then select the start button. The data will then begin to save to the file on the computer. Press stop when the desired length of the log has been reached.
6. To download internally saved logs (Discussed on pg. 11) from the device, select the Download Log button and then select the log that is desired to be downloaded.
7. To clear the graph after a log is complete simply select the clear graph button.

Thermocouple Connection Example:

Example uses 12 thermocouples

The clip on ferrites that are supplied with the unit will help shield any external electrical noise being generated around the unit from impeding the displayed temperature. Improper routing of the thermocouple(s) and not using the provided ferrites could cause erratic displayed temperatures.

Specifications for 12-Channel Monitoring Device

Power input: 90~264VAC, 1A

Operating environment: 32 to 77ºF (0 to 25ºC); 90% RH, noncondensing

Maximum altitude: 2187 yd. (2000 m)

Pollution degree: 2 (normally only nonconductivity pollution occurs)

Installation category II: local level (connect to branch circuit and not directly to a main circuit, such as a fuse panel)

Storage: 32 to 140ºF (0 to 60ºC); 5 to 80% RH, noncondensing

Fuse: Internal 1 Amp Fuse

Power Cord: SJT-18-3 18AWG, 10 amp, 120VAC, less than 9 ft (3 m) in length

Process memory: data retention upon power failure via nonvolatile memory

Dimensions (W x H x D): 6" x 6.5" x 4" (15.24 x 16.51 x 10.16 cm)

USB: Micro-USB B 5-pin (Male) to USB type A (Male) with shielded cable required for connection to device.

Typical Scan Rate Values and Log Time Days:

Scan Rate (sec)	Log Time days hours:min:sec	Data Points per Log
2	6 20 : 36 : 32	296, 296
4	13 17 : 13 : 05	296, 296
6	20 12 : 49 : 36	296, 296
8	27 10 : 26 : 10	296, 296
10	34 07 : 02 : 41	296, 296
20	68 14 : 05 : 25	296, 296
30	102 21 : 08 : 03	296, 296

Specifications for Sensor Input

- Thermocouple (grounded or nongrounded)
- Automatic cold junction compensation and break protection for sensor

Temperature Range:

Type J	**-310 to 1832°F (-190 to 1000°C)**
Type K	**-328 to 2502°F (-200 to 1372°C)**
Type T	**-328 to 752°F (-200 to 400°C)**
Type R	**32 to 3214°F (0 to 1768°C)**
Type S	**32 to 3214°F (0 to 1768°C)**
Type E	**-328 to 1832°F (-200 to 1000°C)**
Type B	**392 to 3272°F (200 to 1800°C)**
Type N	**-328 to 2372°F (-200 to 1300°C)**

Sensor accuracy

Calibration accuracy: ±0.1% of span or ±1°C

Accuracy span is 1000°F (540°C) minimum

Calibration ambient temperature @ 22°C ±3°C

Temperature Stability: ±0.1°C/°C rise in ambient maximum

Safety Precautions

DANGER: DO NOT REMOVE COVER! HIGH VOLTAGE IS PRESENT IN THE THERMOMETER. Contact supplier for service.

WARNING: Specifications for the power cord: see page 15.

WARNING: If Static Event occurs please power cycle the device.

EC Declaration of Conformity

Manufacture's Name: Glas-Col, LLC

Manufacture's Address: 711 Hulman Street
Terre Haute, IN 47802 U.S.A.

Declares that the product

Product Name: Temperature Monitor
Model Numbers: 92000-02

Conforms to the following Product Specifications:

EMC: EN 61326-1-2015 Electrical Equipment for Measurement, Control and Laboratory Use
Using the following:

EN 55011: 2016+2017	ISM RADIO FREQUENCY EQUIPMENT, CLASS B
EN 61000-3-2:2006	(IEC 61000-3-2: 2014) HARMONICS
EN 61000-3-2:2008	(IEC 61000-3-3:2013) FLICKER

Immunity Test:

EN 61000-4-2: 2009	ESD
EN 61000-4-3: 2010	RADIATED RF SUSCEPTIBILITY
EN 61000-4-4:2012	ELECTRICAL FAST TRANSIENT / BURST
EN 61000-4-5:2014	SURGE
EN 61000-4-6:2014	RF CONDUCTED SUSCEPTIBILITY
EN 61000-4-11:2004	VOLTAGE DIPS AND INTERRUPTIONS

Safety: IEC 61010-1:2010, 3rd Edition, Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory use – Part 1: General Requirements

RoHS

We, the undersigned, hereby declare that the equipment specified above conforms to the above directive(s).

Manufacturer: Glas-Col

James Jacso
Signature

James Jacso

Director Sales/Marketing
Position

Terre Haute, IN
Place

4/22/2019
Date

Maintenance

- Simple preventive maintenance steps include keeping the thermometer clean. Protect it from overload, excessive dirt, oil and corrosion.
- Cleaning: If cleaning is necessary, use only a damp cloth with water only. Wipe only the exterior of the control chassis.

CATALOG NUMBERS **92000-02**

SERIAL NUMBER _____

DATE OF PURCHASE _____

For Product and Ordering Information, Contact:

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