User's Manual

PolyTemp™ Remote Control Software for PolyScience Temperature Controllers
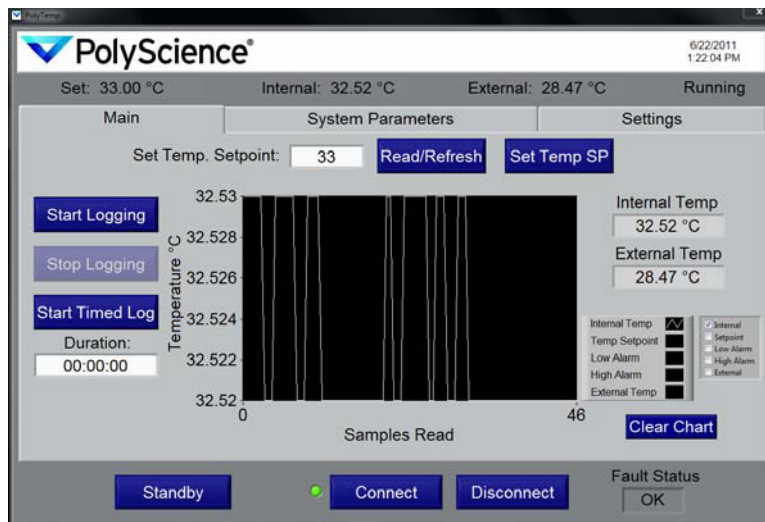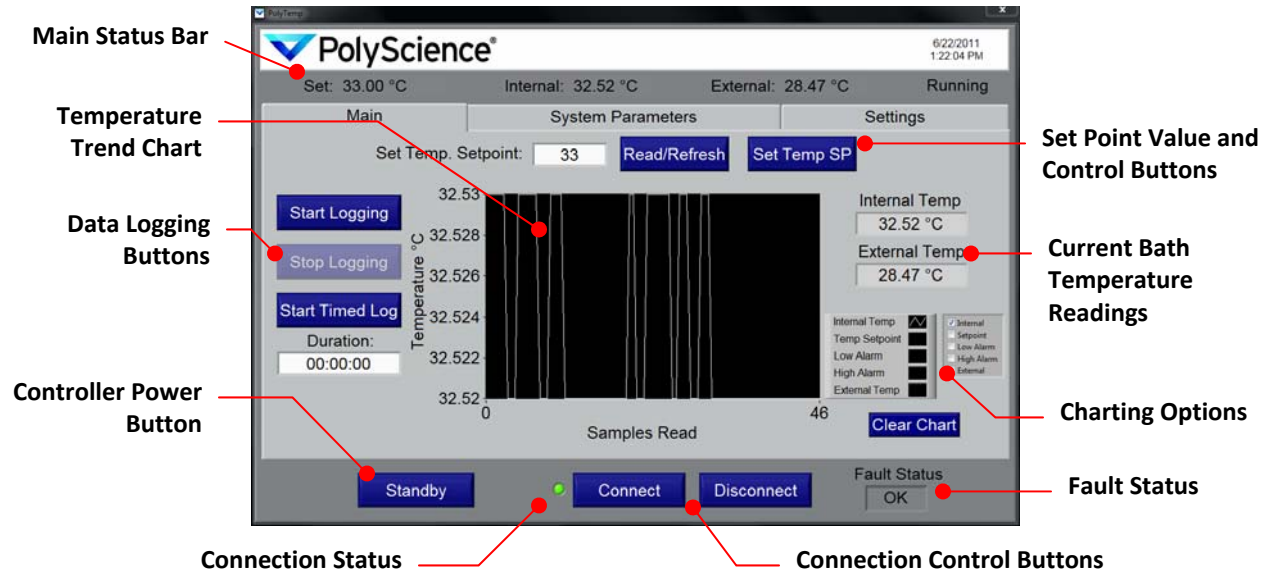
Contents

Introduction

PolyTemp™ software allows you to remotely read and control your PolyScience Temperature Controller from a personal computer. Following is a summary of the functions available from the Main screen. See the "Main Screen" section for additional information.

Main Status Bar

Temperature Trend Chart

Data Logging Buttons

Controller Power Button

Set Point Value and Control Buttons

Current Bath Temperature Readings

Charting Options

Fault Status

Connection Status

Connection Control Buttons

PolyScience®

6/22/2011
1:22:04 PM

Set: 33.00 °C   Internal: 32.52 °C   External: 28.47 °C   Running

Main   System Parameters   Settings

Set Temp. Setpoint: 33   Read/Refresh   Set Temp SP

Start Logging

Stop Logging

Start Timed Log
Duration:
00:00:00

Internal Temp
32.52 °C

External Temp
28.47 °C

Internal Temp
Temp Setpoint
Low Alarm
High Alarm
External Temp

Internal
Setpoint
Low Alarm
High Alarm
External

Clear Chart

32.53
32.528
32.526
32.524
32.522
32.52

Temperature °C

0   Samples Read   46

Standby   Connect   Disconnect

Fault Status
OK

IMPORTANT: To remotely read and control your Temperature Controller, you must first connect via one of the 4 available communication modes. See *Getting Connected*.

Getting Connected

In order to use the powerful functionality of the PolyTemp software, you must first connect successfully to the Temperature Controller. This starts by making the necessary hardwire connection and configuring the communications settings on your Temperature Controller (see the *Operator's Manual* that came with your Controller). Once the Temperature Controller has been connected and configured, proceed as follows:
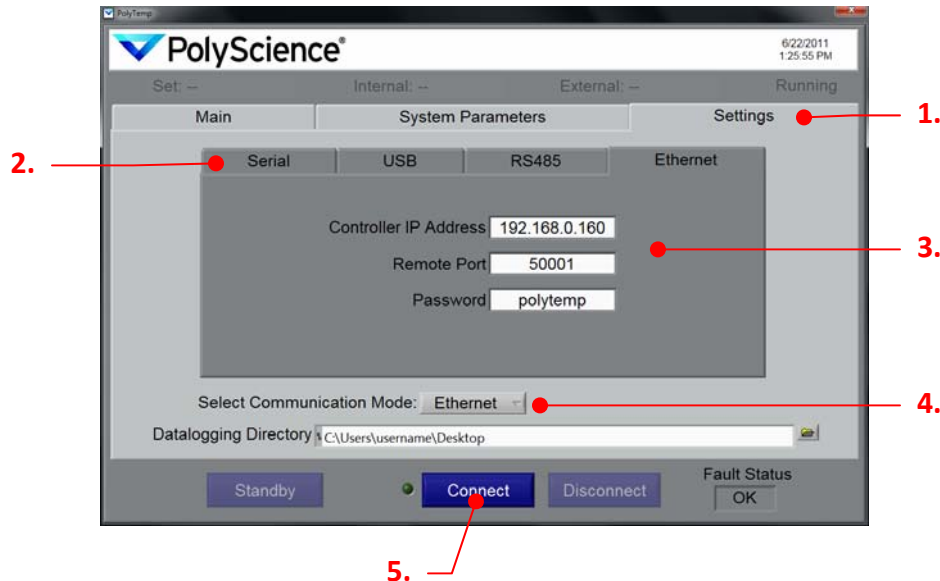
1. Select the Settings tab from the Main screen.
2. Select the desired communication mode tab (Serial, USB, RS485, or Ethernet); the configuration information for that communication mode will be displayed.
3. Enter all required configuration information for the selected communication mode. Fields left blank will result in a connection error. Please note that you may configure the settings for more than one communication mode so that it is available for later use.

Communication Mode	Required Configuration Information
Serial (RS232)	Serial COM Port and Controller Baud Rate
USB	USB port (virtual serial COM; driver needed)
RS485	Port, Assigned Controller Address, and Baud Rate
Ethernet	Assigned Controller IP Address, Remote Port (should be 50001), and Assigned Password to unlock Set commands

4. Choose the communication mode you wish to use from the drop down menu.
5. Click the "Connect" button to connect to the Temperature Controller using the displayed communication mode. The Connection Indicator to the left of the Connect button will glow green upon successful connection.

IMPORTANT: Entering or changing configuration settings does not automatically update the current connection. You must click "Connect" whenever values are changed or a different communication mode is selected.

Main Screen

The Main screen allows you to quickly view important operational parameters, start and stop data logging, change the temperature set point, and turn your Temperature Controller On and Off.
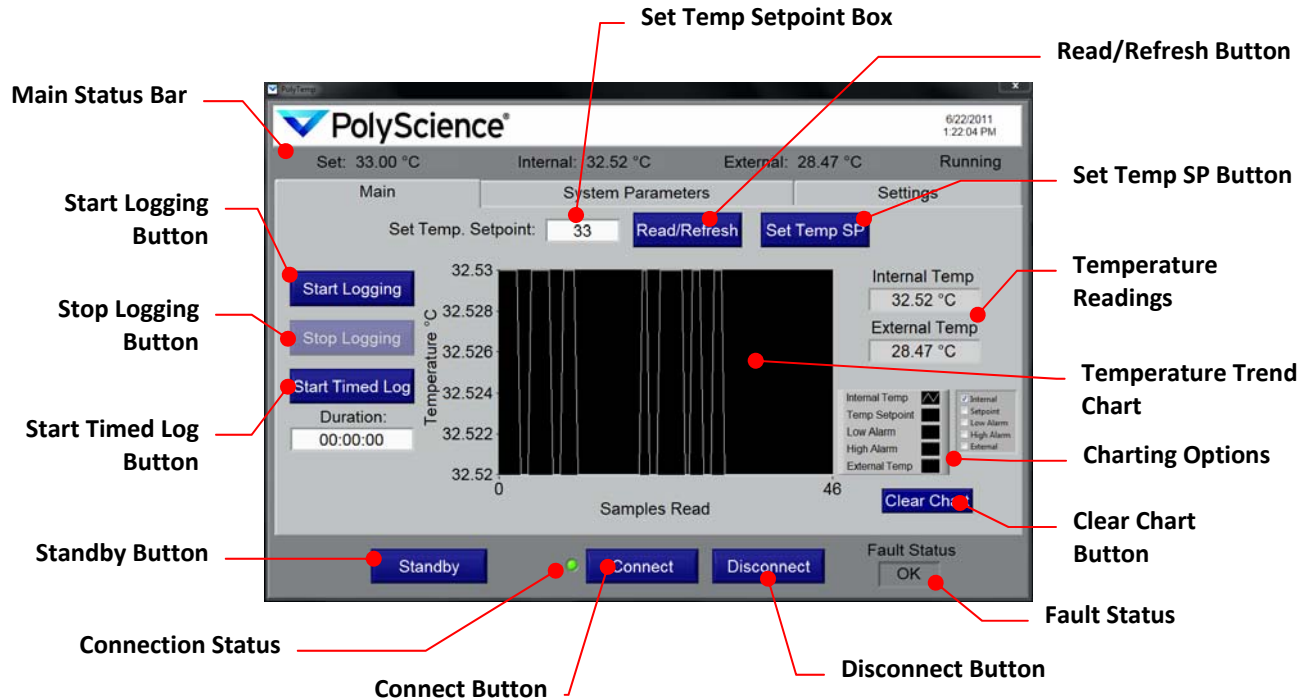
Main Status Bar: Displays the current temperature readings (internal and external), current temperature set point, operating status, and date/time. The Main Status Bar is constantly updated and is visible regardless of the tab selected.

Read/Refresh Button: Reads the Temperature Controller's current set point temperature when pressed. Result is displayed in Set Temp Setpoint box.

Set Temp SP Button: Sends the value entered/displayed in Set Temp Setpoint box to the Temperature Controller.

Set Temp Setpoint Box: Used in conjunction with the Read/Refresh and Set Temp SP Buttons.

Start Logging Button: Loads data logging settings screen (see *Data Logging*).

Stop Logging Button: Ends the current data logging session. This button is only available when data logging is active.

Start Timed Log Button: Loads data logging settings screen (see *Data Logging*).

Temperature Readings: A second display of the internal and external fluid temperature readings. External Temp is displayed only if an external probe is connected to the Temperature Controller.

Temperature Trend Chart: A graphic display of the temperature readings over time. Also permits display of temperature set point and high/low alarm settings.

Charting Options: These check boxes allow you to select the parameters that will be displayed on the Temperature Trend Chart.

Clear Chart Button: Clears plotted information from Temperature Trend Chart.

Fault Status: Displays detected Temperature Controller faults.

Connect Button: Initiates remote control of the Temperature Controller using the currently selected communications mode (see *Getting Connected*).

Disconnect Button: Disconnects remote control.

Standby Button: Places Temperature Controller in Standby mode and disables most functions on Main screen. To take Temperature Controller out of Standby, press the Turn On button.
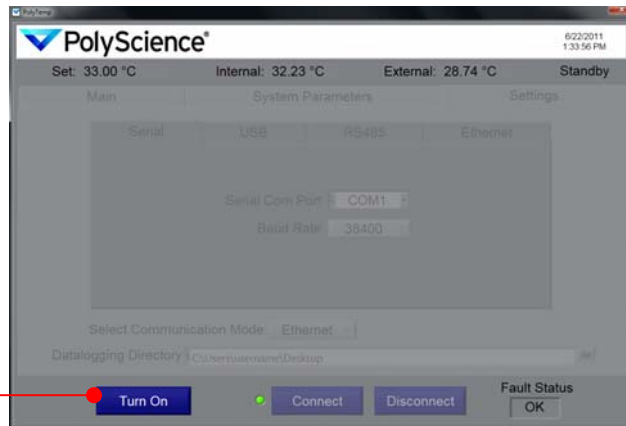

Turn On Button

Turn On Button: Displayed only when Temperature Controller has been placed in the Standby mode. Click to turn Temperature Controller On.

Changing System Parameters

Please note that the System Parameters shown may not be available on all Temperature Controllers. External Control and Auto-Cool are only visible if an external probe is attached and Refrigeration capabilities are present on the controller, respectively.
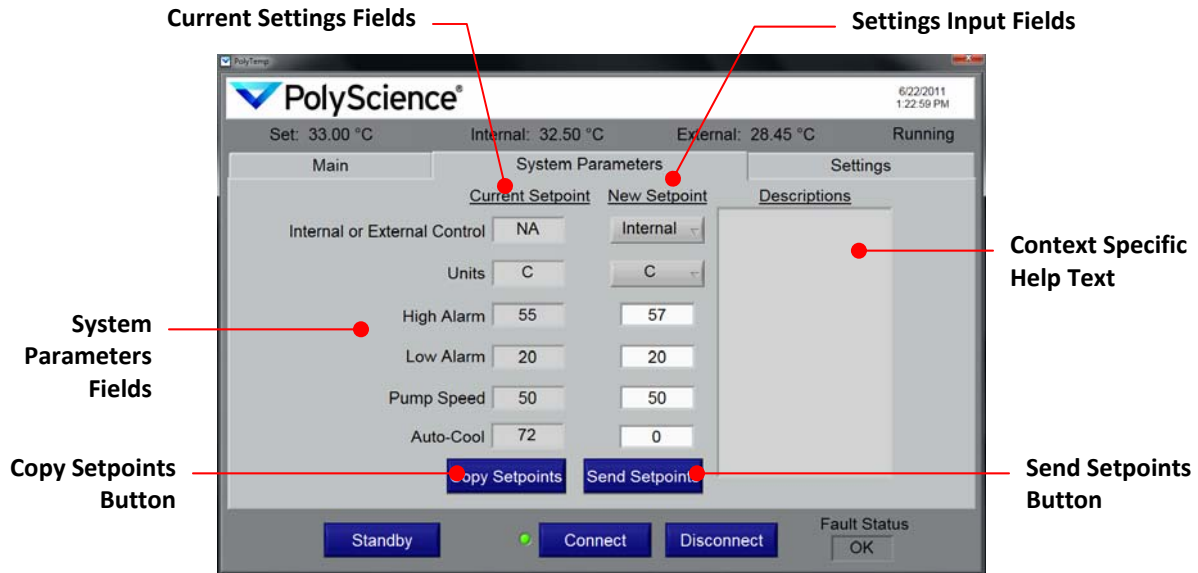
Current Settings Fields: The Temperature Controller's current System Parameters are displayed in the fields in this column. The displayed information is refreshed regularly.

Settings Input Fields: The fields in this column are used to select/enter new System Parameters. Updated information will not be sent to the Temperature Controller until the Send Setpoint button is pressed.

System Parameters Fields: Current settings are shown in the left hand column. New settings are selected and entered in the right hand column.

System Parameter	Description
Interal or External Control	Determines whether temperature control is based on the reading at the internal probe or at the external probe. External is an available choice only when an external probe is connected.
Units	The unit in which temperature is displayed (°C or °F).
High Alarm[1]	The temperature at which the high alarm will be activated.
Low Alarm[1]	The temperature at which the low alarm will be activated.
Pump Speed	Pump speed.
Auto-Cool	The temperature at which the refrigeration system will activate. Shown only when the Temperature Controller is on a refrigerated unit.

1. High and Low Alarm values are limited to a range set on the Temperature Controller. A warning message will appear if you send a value that is outside the limits of the Controller; the value in the New Setpoint field will revert to the nearest acceptable value.

Copy Setpoints Button: Copies the values displayed in the Current Setpoint column to the New Setpoint column. Useful for updating the values in the New Setpoint column to current settings before editing.

Send Setpoints Button: Sends all values displayed in the New Setpoint column to the Temperature Controller.

Context Specific Help Text: Displays help text related to a specific New Setpoint Field when cursor is moved over that field.

CAUTION: The PolyTemp software does not automatically convert the values associated with Alarm and Auto-Cool settings when the temperature unit is changed; you must manually convert those values to the new temperature unit. For example, if you change the temperature unit from °C to °F and your Auto-Cool temperature was set at 70 (in °C), unless you manually convert that value to °F equivalent (158), your Auto-Cool value will remain at 70 (but will now be in °F).

Data Logging

The PolyTemp software allows you to create and save *.tdms files with the temperature history of the Temperature Controller. You have the option of either collecting data until you manually terminate the session (Logging) or collecting data for a fixed amount of time (Timed Log). Timed logging may also be terminated prematurely if necessary. The detection of a fault condition automatically terminates data logging with either method.
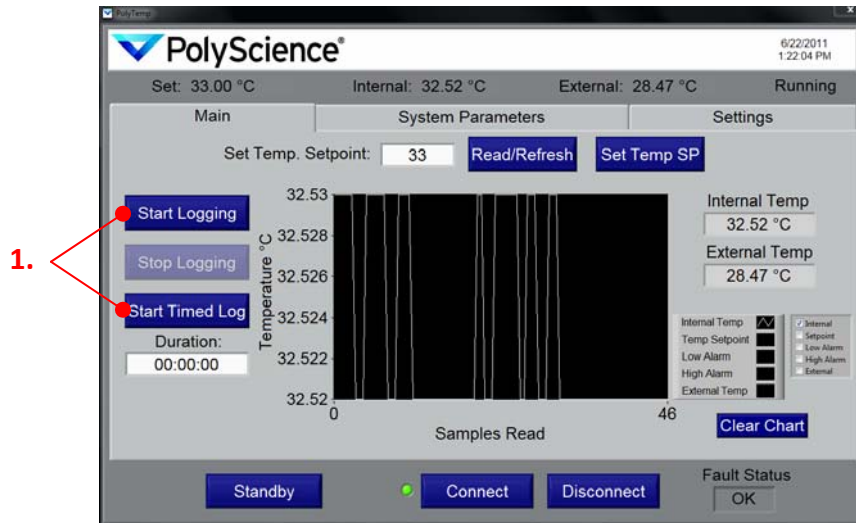
Setup

1. Establish a successful connection to the Temperature Controller (see *Getting Connected*).

2. Select the Settings tab.
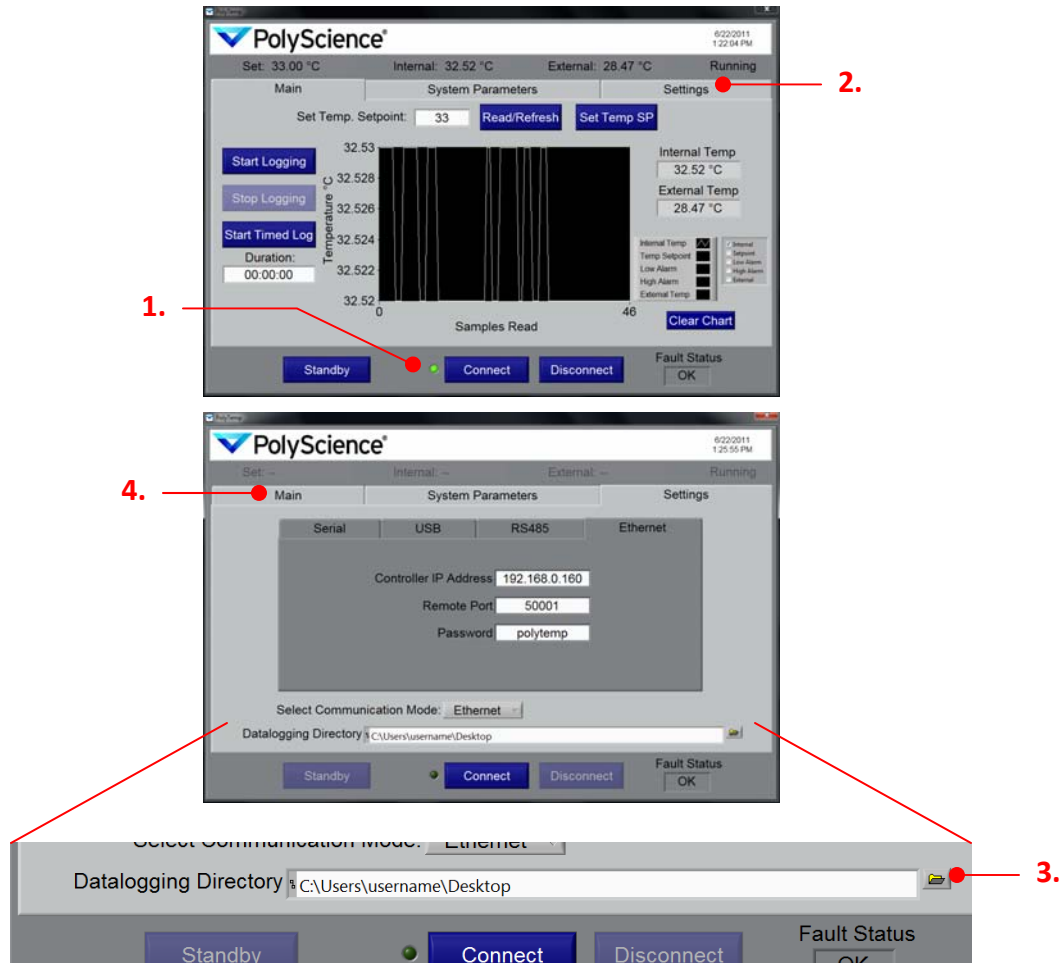
3. Click on the browse button and select the location on your computer where the data logging file is to be saved. An invalid file path will cause an error when you initiate data logging.

4. Click on the Main tab to return to the Main screen.

Logging Data

1. Click on either the Start Logging or Start Timed Log button. This will launch a data logging configuration popup.

2. Enter the pertinent information for the data logging session.
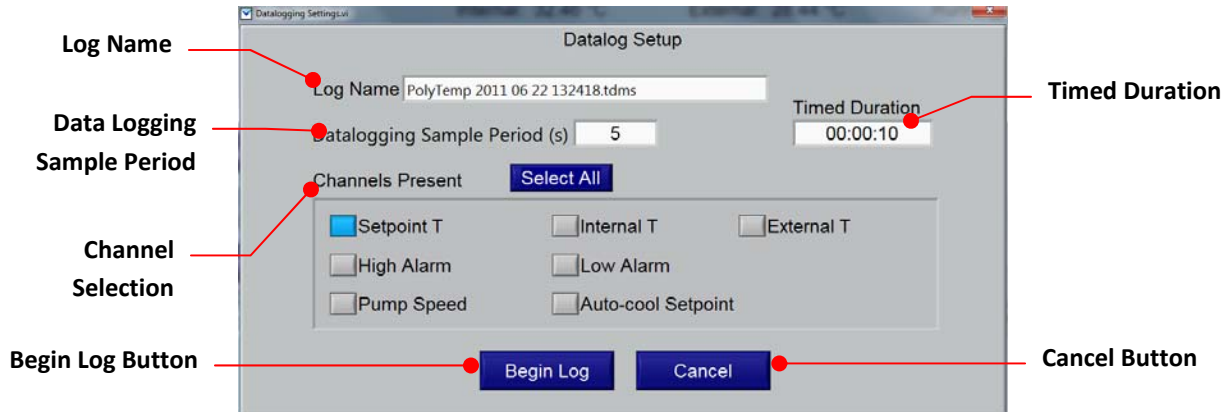
Log Name: The name of the tdms data file; it is a read-only value and is uniquely date stamped (Year Month Date HHMMSS). It is saved in the folder designated in Data Logging Setup.

Data Logging Sample Period: This value determines how often (in seconds) data will be written to file. You may enter samples periods from 1 to 161 seconds.

Timed Duration: If you selected Start Timed Log in step 1, this field is displayed with the most recent value selected. The time format is HH:MM:SS. You may enter any duration from 00:00:01 to 99:59:59.

Channel Selection: This determines what operational information will be logged. You must select at least one channel.

Begin Log Button: Starts the data logging session. The configuration popup will close and data logging will begin.

Cancel Button: Closes the Configuration popup and returns you to the Main screen without initiating data logging. All configuration information will be cleared.

3. Click the Begin Log button. The Main screen will appear and a new temperature trend graph started.
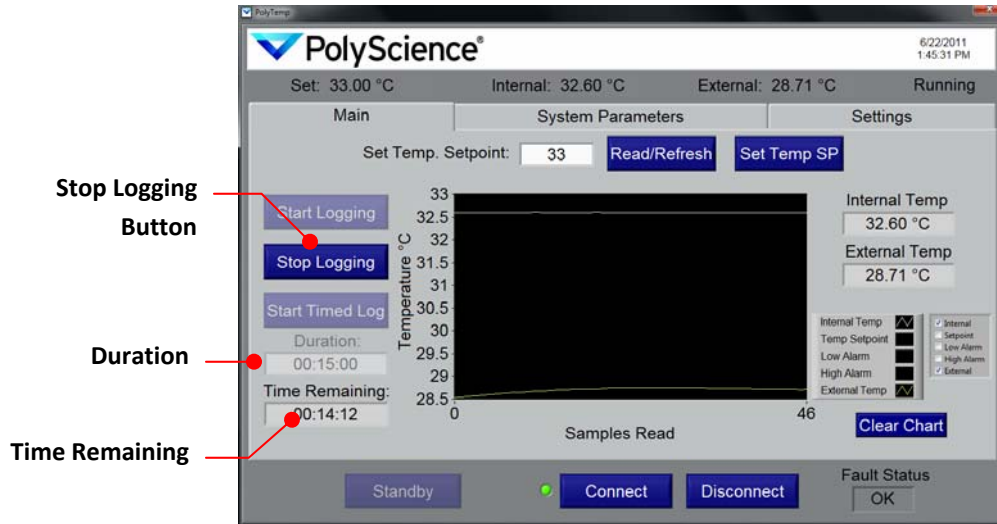
Stop Logging Button: Clicking this button manually terminates the data logging session (even if Timed Log was selected).

Duration: Shows the length of time designated for a Timed Log session.

Time Remaining: Shows the amount of time remaining in a Timed Log session. This field does not appear when a manual data logging session is in progress. Timed logs automatically terminate when Time Remaining reaches 00:00:00.

Viewing Logged Data

A TDMS viewer (an Excel add-on) is required to open and view the saved data logging files. This add-on is included on the Resource Disk you received with your Temperature Controller.

All logged files contain a starting timestamp (*wf_start_time*), seconds between samples (*wf_increment*), and an array of values for each channel logged.

Temperature Units are displayed in the .tdms file in the following format:

- 1 = degree C
- 2 = degree F

Error Messages

Should a problem occur, an error information screen will appear and communication with the Temperature Controller will be disconnected automatically.
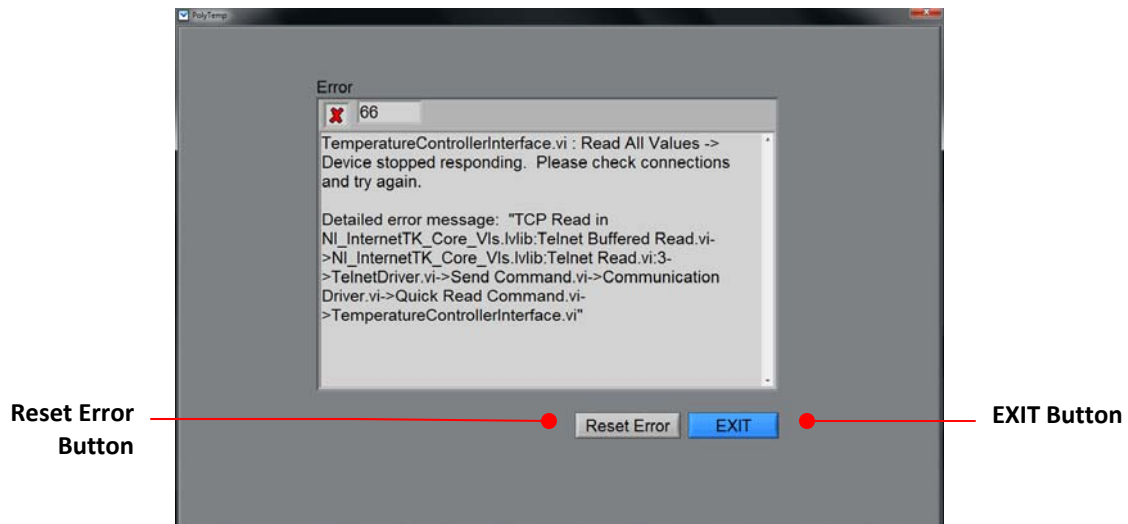
Reset Error Button: Click to return to the Connection screen and re-establish connection to Temperature Controller

EXIT Button: Closes PolyTemp application.