

# PRO TOUCH

by **PROCESS TECHNOLOGY**

## Instruction Manual



Photo may vary from actual product



[www.processtechnology.com](http://www.processtechnology.com)

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## **RELATED DOCUMENTS:**

*The following documents are to be used in conjunction with this manual:*

**GETTING STARTED QUICK REFERENCE GUIDE** – Our included guide to all electric heater installation

**PROFACE USER INTERFACE MANUAL** – The Proface HMI model number PFXLM4201TADDC instruction manual can help with all specific details and capabilities of the Proface touch screen display

**ANY** – State or local building codes that would cover the electrical, mechanical, or physical installation of electrical heating and control equipment.

National Electric Code<sup>→</sup>  
NFPA 1999 Copyright  
National Fire Protection Association  
Quincy, Mass. 02269

# INTRODUCTION:

## The ProTouch:

The Process Technology ProTouch is designed to offer a safe, reliable, and innovative method of controlling your process. It contains all finger safe components, low voltage (24vdc) control, as well as the ability to monitor your process via smart phone, tablet, or personal computer. With the ProTouch, you can:

- Maintain your process at a specified set point temperature, in °F or °C
- Record process data via a data log and trend graph
- Monitor and respond to alarms as displayed in the “Alarm Log”
- Manage your process operation with a 7 day integral timer
- Control your process remotely over a network

The control is compatible with all heaters currently offered by Process Technology.

## Warning Labels:

The following symbols and warning labels appear on the unit and in the instruction manual. The table below provides an explanation of each one.




DESCRIPTION	PICTORAL DESCRIPTION
PROTECTIVE EARTH (GROUND)	
WARNING LABEL	 <p><b>WARNING</b> HAZARDOUS VOLTAGE. Contact may cause electric shock or burn. Turn off and lock out system before servicing.</p> <small>©Clarion Safety Systems, LLC clarionsafety.com 14192 Reorder No. 140010-PGW11P1</small>
WARNING LABEL (FRENCH LANGUAGE)	 <p><b>AVERTISSEMENT</b> TENSION DANGEREUSE. Le contact peut provoquer un choc électrique ou une brûlure. Couper et consigner le système avant toute intervention.</p> <small>©Clarion Safety Systems, LLC clarionsafety.com 14192 Reorder No. C2603-05</small>

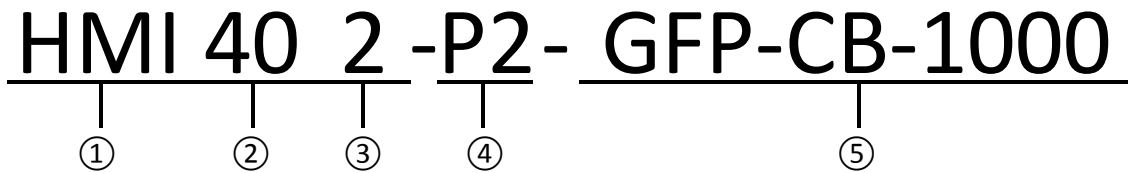
Table 1: Pro Touch Warning Labels

# MODEL NUMBER:

## Model Number Explanation:

Provided below is an example of a typical model number along with an explanation of each part. This key will help you understand your model number.

Model number example:



- ① **Control Series.** The beginning of each model number will designate the product line. In this case, the Pro Touch combination temperature control is designated by “HMI.” Please see the table below regarding
- ② **Contactor Amp Rating.** The numerical portion of the model number will always begin with the amp rating of your temperature control box. This is the maximum allowed amperage the system is designed to handle. Do not exceed this rating.

Model Number	Amp Rating
HMI40	40 Amps
HMI70	70 Amps
HMI125	125 Amps

**Table 2: Amp Rating**

- ③ **Rated Voltage.** The first character following the contactor amp rating will describe the rated Voltage of the heater.

Model Number	Voltage/Phase
1	120V, 1 Phase
2	200-240, 1 or 3 Phase
4	400-480, 3 Phase Only

**Table 3: Voltage/Phase**

- ④ **Protector Style.** This section will show the over-temperature protection style of the unit. The unit can be equipped with either our typical P1/P2 style over-temperature fuses, and may also be equipped with our T/C style over-temperature protection devices such as the P3 or P8.
- ⑤ **Options.** The remaining characters will specify any options included in this system.

<b>Model Number</b>	<b>Option</b>
<b>-GFP</b>	Ground fault protection included with unit.
<b>-CB</b>	Main circuit breaker disconnect with door safety interlock
<b>-LC</b>	Level control circuitry included. Number indicator included to show number of probes in the system. (No numeric prefix shows standard 2 probe capability)
<b>-1000</b>	1000 Ohm RTD sensor input (requires signal conditioner)
<b>-P3/P8</b>	P3 or P8 style thermal protector
<b>-##</b>	Special construction design, consult factory for details

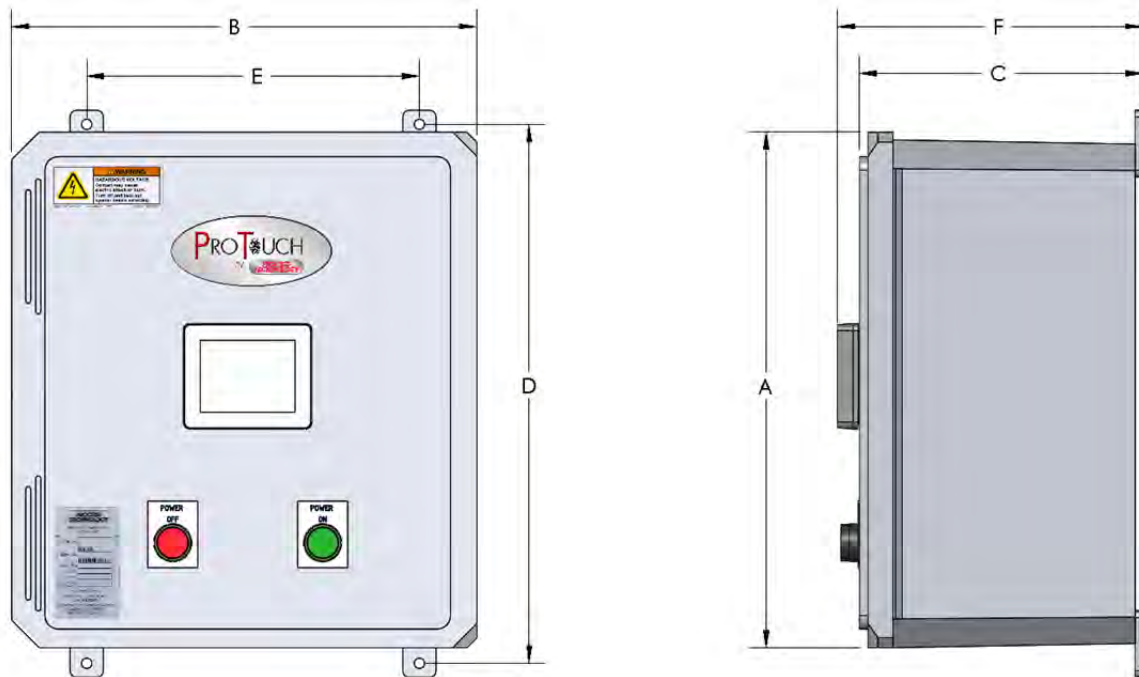
**Table 4: ProTouch Options**

# **FACILITY REQUIREMENTS:**

Before installing the ProTouch combination control confirm the facility requirements listed below.

## **Space Requirements**

The ProTouch combination control comes in three standard unit sizes that house all of the internal switching and logic components necessary to operate the control.



**Figure 1: Mounting Dimensions**

<b>DIMENSION</b>	<b>40 AMP</b>	<b>70 AMP</b>	<b>125 AMP</b>
<b>A</b>	15.49 in (393) mm	28.86 in (733) mm	20.28 in (515) mm
<b>B</b>	13.86 in (352) mm	20.98 in (533) mm	16.34 in (415) mm
<b>C</b>	8.34 in (212) mm	10.57 in (268) mm	8.98 in (228) mm
<b>D</b>	13.88 in (353) mm	24.61 in (625) mm	16.73 in (425) mm
<b>E</b>	10.00 in (254) mm	13.50 in (343) mm	9.65 in (245) mm
<b>F</b>	8.97 in (228) mm	11.20 in (284) mm	9.61 in (244) mm



**Table 5: Mounting Dimensions**

## **Facility Requirements (continued):**

### **Electrical Requirements:**

**NOTE:** Ensure electrical power fusing and disconnects meet local jurisdictional requirements. Ensure external electrical components comply with local requirements before operating this unit.

Reference the model/serial number label to identify the electrical power requirements of this unit.

	<b>Do not exceed the rated voltage. Irreparable damage to the control circuitry may result.</b>
	<b>Ne pas dépasser la tension nominale . Des dommages irréparables aux circuits de contrôle peut entraîner .</b>

## **INSTALLATION:**

**NOTE:** The mounting and installation of this unit should only be performed by qualified personnel.

**NOTE :** Le montage et l'installation de cet appareil ne doivent être effectuées par du personnel qualifié .

### **Inspection and Uncrating:**

Unpack and inspect the controller for damage upon receipt. Any shipping damage claims must be made through the freight carrier that delivered the controller.

### **Positioning and Mounting:**

We recommend that the unit is mounted such that the temperature controller is easily accessed by the operator, safely accessed by the operator, and that the indicator lights are clearly visible.



## **Wiring:**

- 1) Remove front cover of the control side of the cabinet by loosening the cover mounting screws.
- 2) Cut a hole in the top of the enclosure for the incoming power supply to allow for the power supply to enter the top of the enclosure.
- 3) Fuse the incoming line for the rated amperage using an approved electrical disconnect box.
- 4) Connect the leads from the incoming power line to the appropriate terminals (reference the Electrical Schematic) making sure not to disturb existing wiring. Use care that no loose strands of wire are exposed out of the terminal connection. Torque all wires to the specified ratings located on the wiring diagrams and component labels.
- 5) Grounding is done internally from the Incoming Power Strip.
- 6) Please consult the electrical schematic for any further wiring needed.

## **OPERATIONS:**

### **Startup**

On initial startup, you will see the idle screen, which will show the Process Technology Logo, Process Technology's address, as well as the current date, day, and time. In order to move onto the main parameter display, press the red button in the lower right hand corner of the screen.

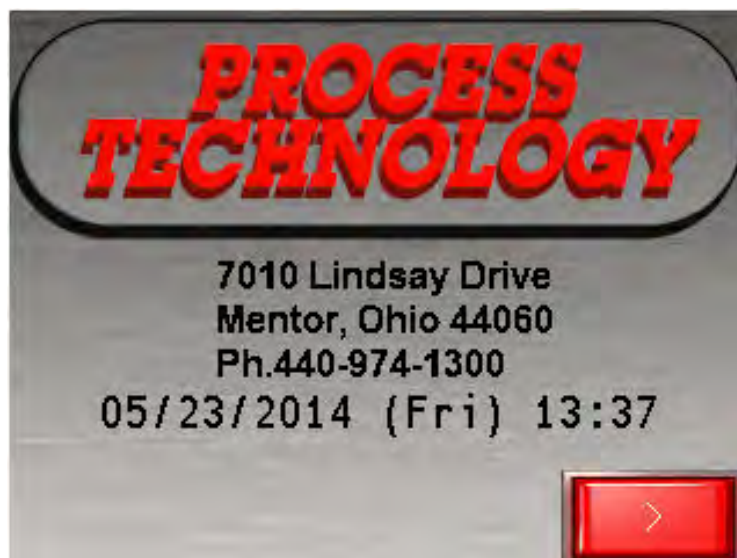


Figure 2: Idle Screen

## Operator Interface Touchscreen/Display:

The operator interface panel is an intelligent flat panel display designed to interchange and display graphical data from a PLC by merely viewing or touching the screen. To ensure the effectiveness of the panel, it is important to take the following precautions:

- Do not press sharp objects against the screen.
- Do not strike the panel with hard objects.
- Do not press the screen with excessive force.

## **Initial Settings**

When first powering up the unit, you must set the date and time set in the control. This is necessary for proper operation of the features included in the Pro Touch controller. To set date and time, you must go into offline mode by accessing the offline menu in under the “Settings Menu,” via instructions on page 12-14. You may also enter Offline Mode by touching the upper left corner of the screen and then quickly (< 1 second) touching the lower right corner of the screen.



**Figure 3: Set Time and Date**

While in offline mode touch the time/date field at the bottom right side of the screen. You will see the screen shown above. Touch fields to change date and time using keypad shown. Press OK to return. Press EXIT to return to normal runtime screens.

## **Control Panel**

On the front panel of the ProTouch, there are two lighted pushbuttons that indicate certain conditions of the controller. Their operation is described in the table below:

## Control Panel (continued):

Light Status	Condition
Green Solid	Controller ON, Mode "Run" activated
Green Flashing (Stand-by mode)	Controller ON, Mode "Stop" Activated
Red Solid	Controller OFF (NO HEATING)
Red Flashing	Alarm Activated, Contactor Disengaged

Table 6: Indicator Light Status

Please note: the controller will only maintain heating if both the mode in the main menu is set to "Run" and the green "Power ON" button is activated on the front of the controller

## Main Display

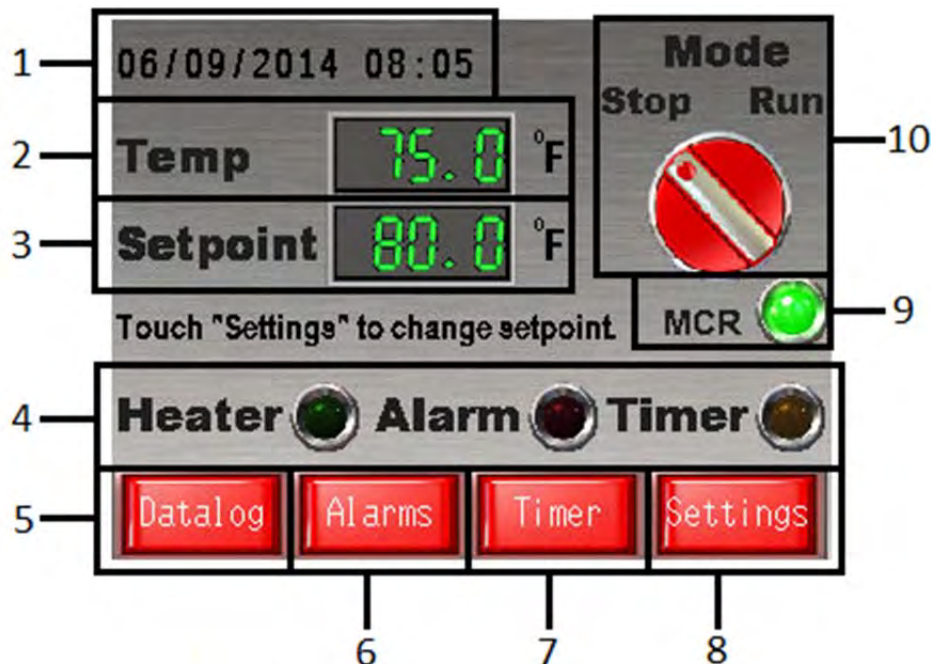


Figure 4: Main Display

On the main display you will see various indicators that help the operator in reading the current process, as well as menu selections to access the different features of the ProTouch. The different items shown on the main menu are described below:

1. Date and Time: This field shows the current date and time that is internally set on the controller. The time is maintained in a 24-hour clock format.
2. Current Temperature: This is the temperature presently read by the process sensor

3. Set Point Temperature: This is the temperature that will be maintained by the combination controller, as set by the operator.
4. Indication lights
  - a. Heater: If illuminated, the contactor is engaged, thus heating is ON
  - b. Alarm: Illuminated if an alarm has been activated
  - c. Timer: The timer has been set to regulate heating
5. Datalog: Access the Datalog screen
6. Alarms: Access alarm settings
7. Timer: Access timer settings
8. Settings: Access main parameter settings
9. MCR Light: This light indicates that the main control relay has closed, giving the contactor the ability to be energized.
10. Heater Mode Selector Switch: This dial has two conditions, Stop and Run
  - a. Stop: This will deactivate heating and initiate the controller's standby mode.
  - b. Run: If the "Power ON" button has been activated and the controller is in standby mode, the green light will become solid and the control will maintain the process set point.

## Settings Menu

The Settings menu is the main menu for adjusting critical process parameters. Under the settings menu, you will be able to adjust the process setpoint, hysteresis, temperature units, operator password, and write data from the data log to an external device for process logging.

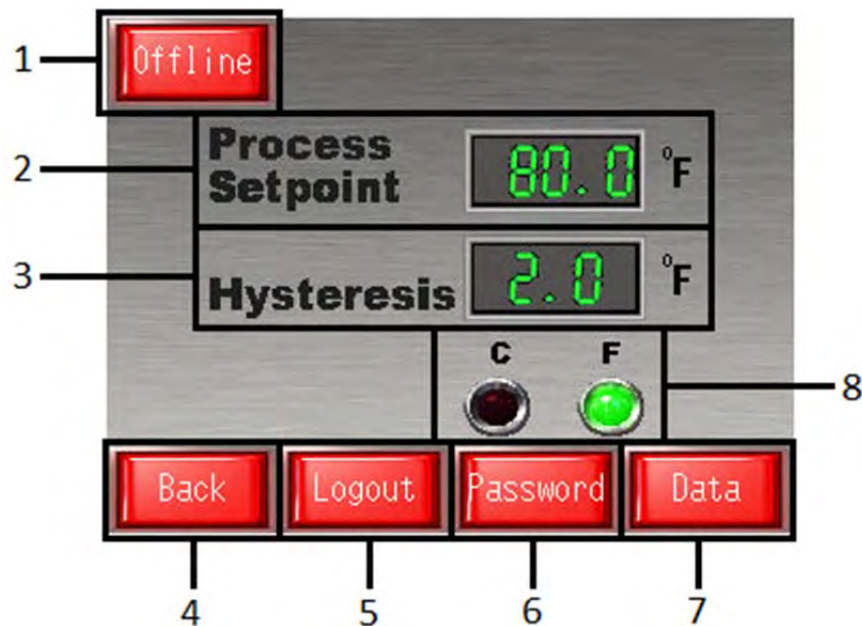


Figure 5: Settings Menu

The fields of the settings menu are described below:

- 1) Offline Key: Press to enter Offline Mode
- 2) Process Setpoint: This is the current temperature that the controller will try to maintain. Press on this field to set your process to your desired temperature
- 3) Hysteresis: This is the temperature range where no process heating will occur before the controller will initiate the system. Once the process setpoint drops by the amount designated by this field, the contactor will pull in and heating will activate. Example: If your process setpoint is 120°F, and your hysteresis is set to 5°F, the control will not activate the heating until the temperature read by your process sensor drops to 115°F.
- 4) Back: Return to Main Menu
- 5) Logout: Log out of operator
- 6) Password: This will access the password menu, which will allow the user to change the operator password. This is described in the following section.
- 7) Data: This will access a menu that will allow you to write the data log to an external USB device if it is connected internally to the control.
- 8) Control Units: The controller can be set to either °F or °C. Please note, when changing between °F and °C, the controller does **not** convert the units between the two scales. So, if you have your bath at 21°F and switch to °C, you will then be operating at 21°C, NOT 70°F

#### **WARNING**

**Please note: when changing between °F and °C, the controller does not convert the units between the two scales.**

*For example: if you have your bath at 21°F and switch to °C, you will then be operating at 21°C, NOT 70°F.*

#### **AVERTISSEMENT**

**S'il vous plaît noter: en cas de changement entre ° F et ° C , le contrôleur ne convertit pas les unités entre les deux échelles.**

*Par exemple: si vous avez votre salle de bain à 21 ° F et passez à ° C , vous serez alors fonctionnant à 21 ° C , pas 70 ° F.*

## **Operator Password**

When first initiating the Settings menu, you will be prompted to enter the operator password. The Default password is "1234." You can change the password of logged in users only. You cannot change the security level.

To change password:

## Operator Password (continued):

- 1) Press SETTINGS button on the main operation screen
- 2) Enter the password as required
- 3) Press PASSWORD button. You will see the following dialog:



Figure 6: Change Password


- 1) You will need to enter the password and the new password. Touch OK. Your new password is saved.
- 2) Pressing the “Logout” key in the “settings” menu will then log out the operator from manipulating anything under the settings menu.

**Offline Mode:** You may access offline mode under the “Settings Menu.” In the top left corner, press the “Offline” button. The unit will then enter offline mode.

**Setting the Setpoint:** To adjust the setpoint of the ProTouch controller, simply press on the number field that is displaying the process setpoint. You will then be prompted with a number pad that you can then use to select the appropriate setpoint for your process. After typing in your desired set point, press the ENTER key to log this into the memory. The set point range is 0°F-999°F, or 0°C-999°C.

**Writing a Data Log:** When pressing the Data key, you will be presented with a large red button that is noted “Write Temperature Log.” This allows the user to write all data saved in the temperature log from the unit to a USB flash drive. Tap “Write Temperature Log” while a device is connected in order to save the data log. This will write as an Excel.csv file to the device of your choosing.

**Removing the USB memory:** In order to to remove the USB memory, you must eject the USB drive in offline mode per the instructions listed above. If the USB memory is present you will see a small blue icon in the lower right corner of your screen

(  ). Touch the blue icon to stop the USB memory and remove device.

## Alarms Menu

With the alarm menu, the user will be able to observe and adjust the alarm conditions that may occur during standard process. When the heater is in alarm mode, the front panel POWER OFF LED will flash and the user will be unable to switch the “mode” key to “run.” The fields of the alarm menu are described below:



**Figure 7: Alarms Menu**

- 1) Alarm Log: The Alarm log will show the date, time, and type of alarm that has tripped. There are multiple alarms that may be shown in the alarm log:

Alarm	Type
Thermal Protector Trip	Undesirably high temperature at thermal protector
Process Temperature Fault	Process Temperature has reached high or low alarm set point

**Table 7: Alarm Log**

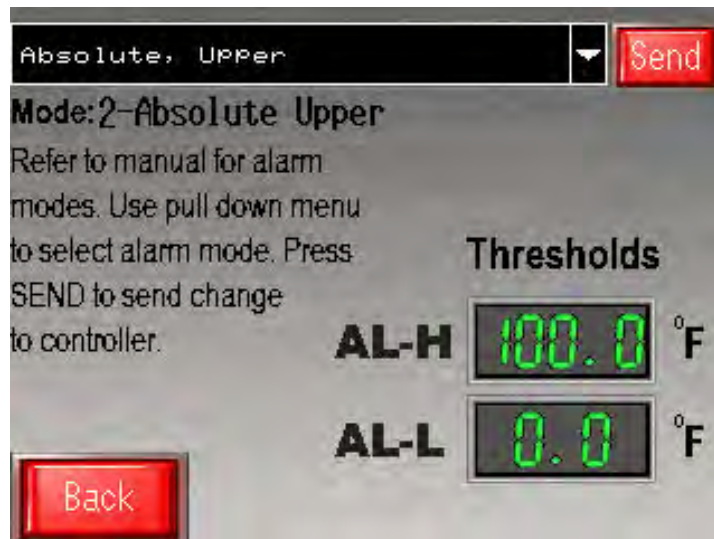
- 2) Back: Return to Main Menu
- 3) History: This will show the alarm history for the unit. Deleting the alarm in the alarm log will not delete the alarm in the alarm history. The alarm history must be cleared manually.
- 4) Alarm Settings: The user is able to manipulate the type of alarm as well as the settings for each type (described in proceeding section)

- 5) Alarm Reset: Once the alarm condition is no longer present, press the alarm reset button to reset the alarm. You must then return the “Mode” dial to “run” in order to continue heating.
- 6) Alarm Silence: This key will silence any audible alarms connected to the system.

## **Alarm Settings**

This menu will grant the user access to setting the alarm temperatures, as well as setting what type of alarm the user desires for their process.

**Setting the Alarms:** Use the dropdown menu to select alarm mode. Press on the various number fields to adjust the settings for the alarm mode designated. For the deviation alarm, set thresholds by touching AL-H and AL-L fields.



**Figure 8: Alarm Settings**



## Alarm Output:

This controller provides 3 types of alarm outputs (See table below). When PV is higher or lower than SV, the alarm output will be enabled.

0 No Alarm Function Output is OFF

SV	Alarm Type	Alarm Output Function
0	None: No alarms	Output is OFF
2	Deviation upper-limit: This alarm output operates when PV value is higher than the setting value $SV+(AL-H)$ .	
6	Absolute value upper-limit: This alarm output operates when PV value is higher than the setting value $AL-H$ .	
8	Deviation upper- and lower-limit with standby sequence: This alarm output operates when PV value reaches set point (SV value) and the value is higher than the setting value $SV+(AL-H)$ or lower than the setting value $SV-(AL-L)$ .	

**Table 8: Alarm Output**

## Datalog Menu

In the datalog menu, the user is able to observe the process over time, as well as display a data trend curve.

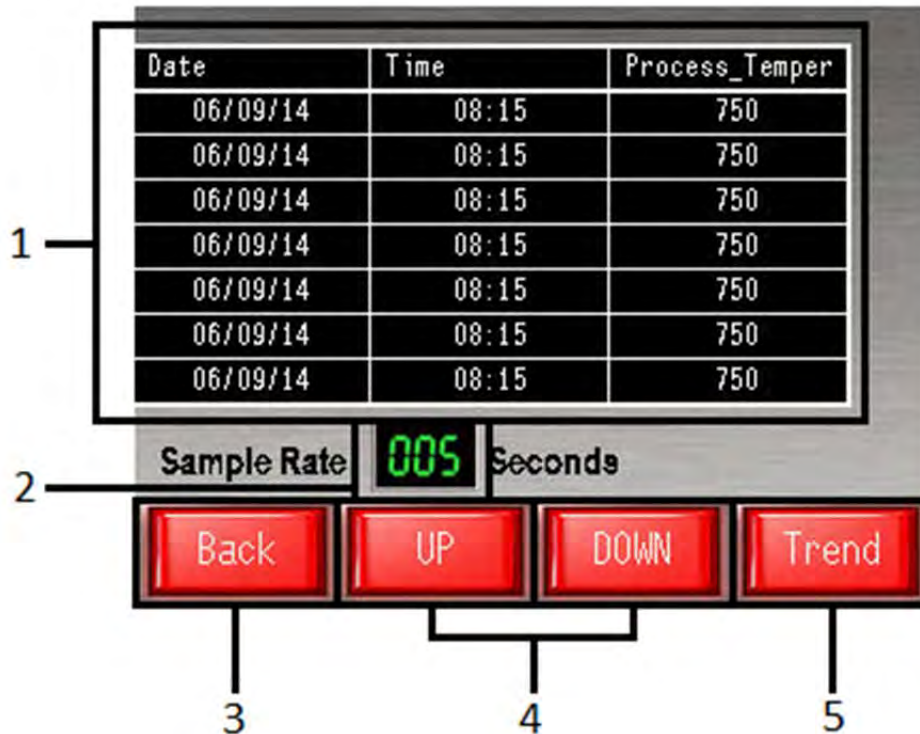
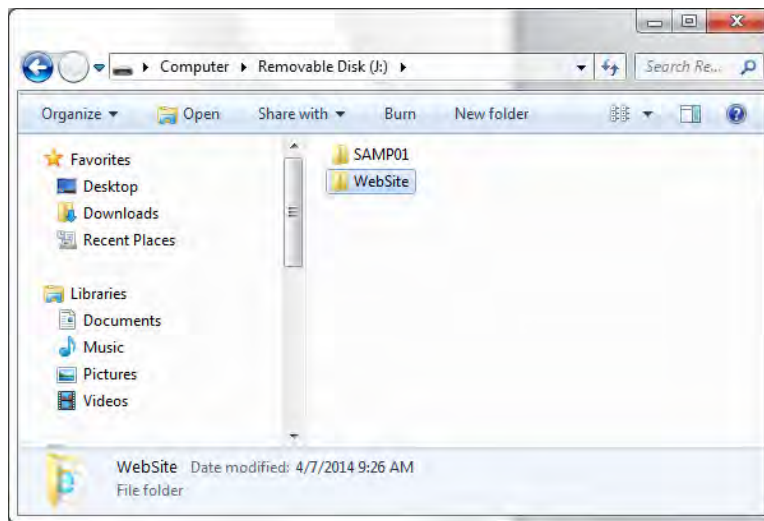


Figure 9: Datalog Menu

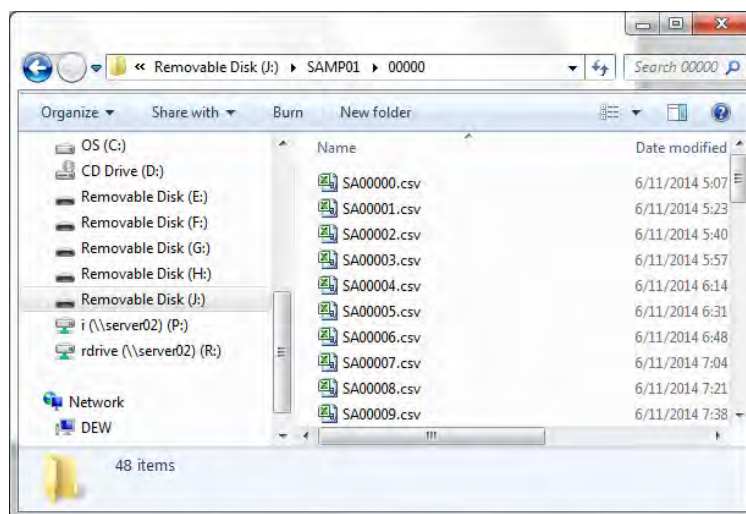
- 1) Data Field: The datalog will keep a current record of the process temperature as it is read by the process sensor. There are three fields kept by the datalog: Date, Time, and Process Setpoint. Notes about the datalog:
  - a. The date is shown in a MONTH/DAY/YEAR format
  - b. Time is in a 24-hour clock format. The controller will log a temperature every 5 seconds.
  - c. The process temperature shows 3 digits, with no decimal. This is your read setpoint temperature, multiplied by 10. So, if you see 737 in the datalog, this is actually 73.7. To read your current temperature, mentally adjust the decimal point one digit to the left.
  - d. The log will update on its own. Press the UP key to refresh the temperature log.
- 2) Sample Rate: The user can set the frequency at which the datalog will collect data samples. Press on the number field to choose the sampling rate.

- 3) Up & Down: These buttons will scroll through the datalog. Press the up key to refresh the datalog.
- 4) Back: Return to main menu
- 5) Trend: Press this key to access the data trend curve.

**Datalog Storage to USB:** If connected, The ProTouch will periodically download collected data samples to the USB memory. This occurs after every 1000 datalog samples. The data is written to a csv file which can later be opened with Excel. Once the directory contains 100 csv files (100,000 samples) the HMI creates a new folder and repeats the above process. Screenshot below shows the USB drive root directory and the contents of drive:\SAMP01\0000.



**Figure 10: Datalog Storage**



**Figure 11: Datalog Storage**

## Integral Timer

The function of the timer is to initiate heat monitoring during specific timer periods as designated on the timer.

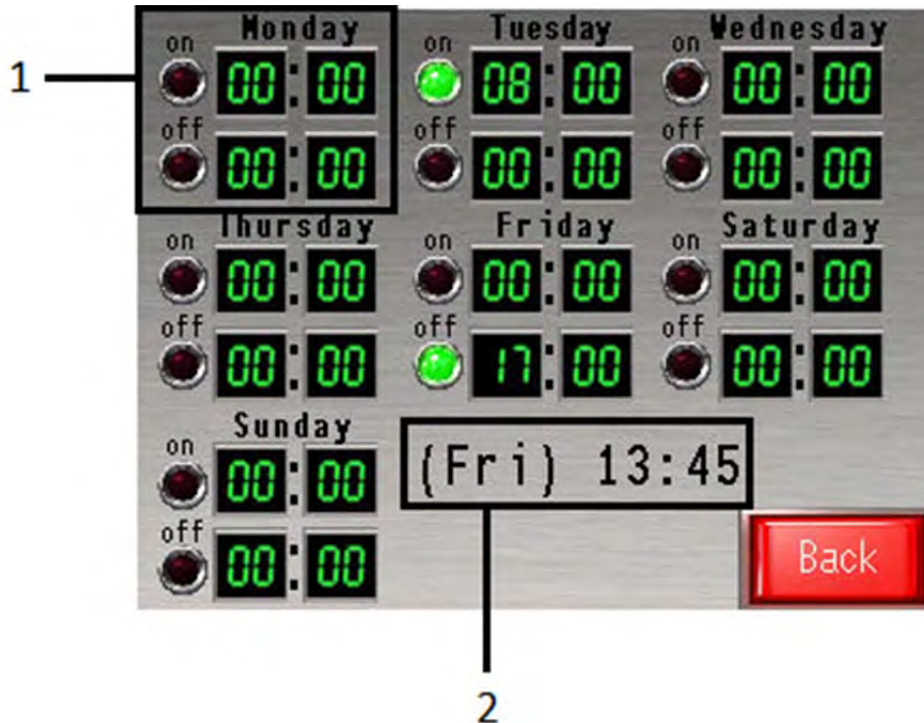


Figure 12: Timer

The timer shows an on and off time for the 7 days of the week, Saturday through Sunday. As consistent with the controller settings, the time is registered on a 24-hour clock.

NOTE: The timer simply allows heating to occur when the controller has been switched to the ON position. In order for the controller to maintain heat regulation with a timer, it must consistently be in the standby mode to activate. The control will not move from an OFF position to Standby due to timer regulation.

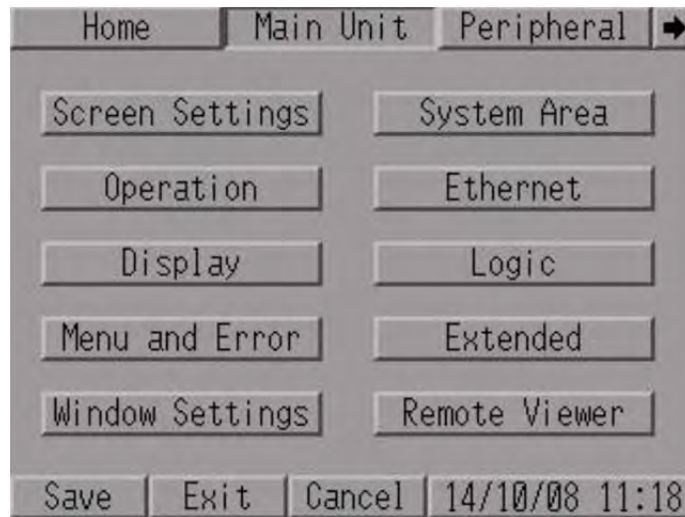
1. Timer field: Each day shows an ON and an OFF time to be set by the user.
2. Current day and time: For convenience, the current day and time is shown in the mid to lower section of the display.

**Setting the Timer:** To set the timer, simply press on the time field for the day of the week you wish to set the specific ON or OFF time you desire. Note, you must do this for both the HOURS and the MINUTES of your designated time. You will then be prompted with a number pad, set the time you desire and press enter. In order to activate this time, press the green light button to the left of the time that you have set.

## Ethernet Settings

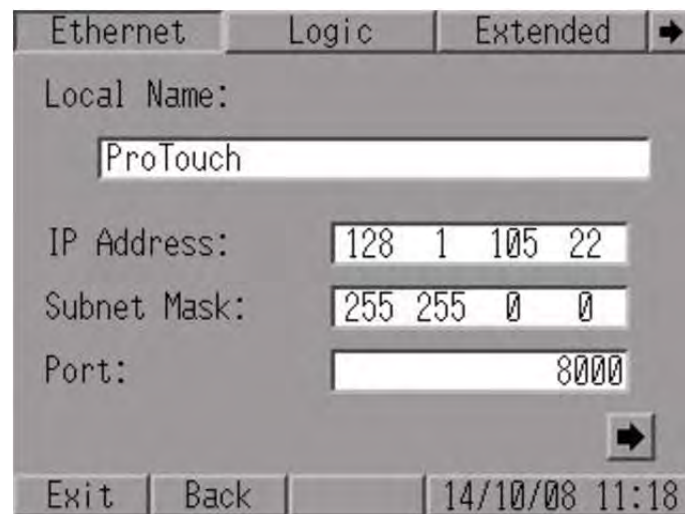
In order to take advantage of the ProTouch's remote capability option, you must set up the Ethernet settings in accordance with your facility requirements.

- 1) When in offline mode, select "Ethernet" under the "Main Unit" menu.



**Figure 13: Main Unit Menu, Offline Mode**

- 2) You will then be able to input the Ethernet settings.



**Figure 14: Ethernet Menu, Offline Mode**

- 3) Set the Local Name, the IP Address, and the Subnet Mask per your facilities requirements. You do not need to change the Port setting, pre-set at 8000.

**NOTE:** If the ProFace Remote HMI software is used the port number for the Remote HMI must **NOT** use the port number above. This creates a port conflict. Use 8000 for above and 10000 for the ProFace Remote HMI

## **ProFace Remote App Software**

The ProFace remote software is necessary in order to take advantage of the remote interface capabilities of the ProTouch controller. The ProFace remote application software is available for both Apple and Android devices at the locations below:

Platform	Website
Apple (iOS: Ver. 5.1 or later / 6.0 or later)	Apple App Store
Android (Android OS: Ver. 2.3 or later / 3.0 or later / 4.0 or later)	Google Play

**Table 9: ProFace Software**

## **WARRANTY:**

All PROCESS TECHNOLOGY equipment, heaters and controls have been carefully inspected before shipping and are warranted to be free from defects in workmanship and materials for a period of one year from date of purchase on a pro-rated basis. At its option, PROCESS TECHNOLOGY will repair or replace any defects that are exhibited under proper and normal use. PROCESS TECHNOLOGY disclaims any responsibility for misuse, misapplication, negligence or improper installation of equipment, tampering or other operating conditions that are beyond its control (such as excessively high or low purge gas supply pressure). PROCESS TECHNOLOGY makes no warranty or representation regarding the fitness for use or the application of its products by the customer.

All products and components not manufactured by PROCESS TECHNOLOGY will carry the original manufacturer's warranty, copies of which are available upon request. PROCESS TECHNOLOGY makes no warranty or representation, expressed or implied, with respect to the products not manufactured by PROCESS TECHNOLOGY.

Products must be installed and maintained in accordance with PROCESS TECHNOLOGY instructions.

PROCESS TECHNOLOGY is not liable for labor costs incurred in removal, reinstallation, or unauthorized repair of the product or for damage of any type including incidental or consequential damage.

PROCESS TECHNOLOGY neither assumes nor authorizes any representative of PROCESS TECHNOLOGY or any other person to assume for it any other liabilities in connection with the sale of the products. This warranty may not be verbally changed or modified by any representative of PROCESS TECHNOLOGY.

### **Shipping Damages:**

Claims against freight carriers for damage in transit must be filed by the customer at the time of delivery or as soon as possible.

### **Returns:**

No product shall be returned to PROCESS TECHNOLOGY without first obtaining a return material authorization (RMA) number from a PROCESS TECHNOLOGY representative. All returns must be freight prepaid. Freight collect or shipments without authorization will be refused.

### **Information:**

PROCESS TECHNOLOGY will endeavor to furnish such advice as it may be able to supply with reference to the use by buyer of any material purchased, but PROCESS TECHNOLOGY makes no guarantees and assumes no obligation or liability for advice given verbally or in print or the results obtained. Buyer assumes all risk and liability that may result from the use of any material, whether used by itself or in combination with other products. No suggestion for product use shall be construed as a recommendation for its use in infringement on any existing patent.

### **Conflict Between Documents:**

Acceptance of this offer is expressly conditioned upon agreement to all terms and conditions contained herein. In the event of a conflict between the terms and conditions of purchaser's purchase order, and PROCESS TECHNOLOGY's terms and conditions, proposal or offer, the latter shall govern.