



**Plastic Process Equipment, Inc.**

# EDGE PLUS

**User Manual**



Plastic Process Equipment, Inc.

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## ***WARRANTY***

PPE mainframes are warranted to be free of defective material and workmanship for a period of 90 days from date of sale unless otherwise noted. Warranty does not apply to normal maintenance or wear items. This Warranty will not extend to goods subjected to misuse, abuse, neglect, accident or improper installation or maintenance, or products or goods which have been altered, modified or repaired by anyone other than seller or its authorized and approved representatives.

## ***LIABILITY***

Plastic Process Equipment, Inc.'s liability arising from, or in any way connected with, the items sold shall be limited exclusively to repair or replacement, at seller's sole option. In no event shall seller be liable for any incidental, consequential or special damages of any kind or nature whatsoever. This includes, but is not limited to, lost profits arising from items sold, or in any way connected with this agreement. Here under, in tort (including without limitation, negligence, failure to warn, or strict liability).

***INSTALLATION AND SERVICE SHOULD BE PERFORMED BY QUALIFIED  
PERSONNEL ONLY!***

#### LOCATION:

The proper location is important for dependable service. The control systems should be located so as to allow free air movement into and out of the mainframe. Consideration should be given to allow the least exposure to heat, dust/dirt, moisture, and corrosive vapors. The front of the system must be readily accessible for set up and adjustment purposes.

It is recommended that a service disconnect switch be installed. This will provide a convenient means to completely disconnect all power from the temperature control system.

#### CONNECTING INPUT POWER:

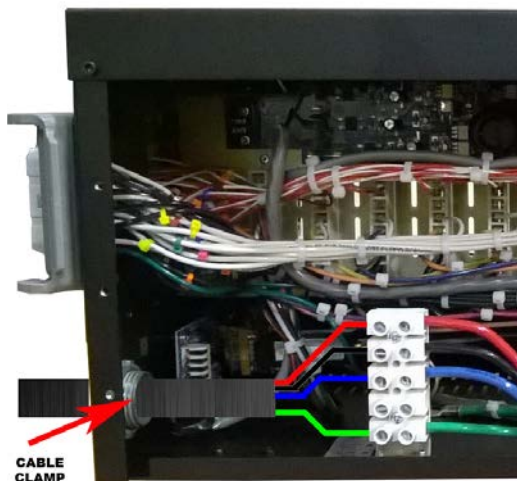
1. Remove the input power access panel, located on the left side of the mainframe (Fig. 1a), by removing the 4 socket head screws. (9/64" hex wrench)
2. Select input cable size and configuration based on load requirements and local electrical codes. Feed the cable through the cable clamp on the rear of the mainframe. (Fig. 1b)
4. Strip wires and insert into the terminal block and tighten screws securely. (Label applied to the panel will indicate factory wiring setup Fig. 1b).
5. Replace the access panel.
6. Take up excess slack in the cable and secure with the strain relief clamp.
7. Route the AC input cable to a branch circuit (service) disconnect switch and connect to the fused side of the switch. Be sure the ground lead is attached to a proper earth ground.
8. Insert appropriate fuses for the main service fuse box.

Fig. 1a



RED/L1  
BLACK/L2  
BLUE/L3  
MpN/Neu  
GND

Fig. 1b



#### Power Input Requirements

Domestic: 240VAC 3 Phase 4-wire with Ground, 50 – 60Hz

Export: 380-415VAC 3 Phase 5-wire, with Neutral+ Ground, 50-60 Hz

#### Note:

Domestic: L1, L2, L3+Ground

Export: L1, L2, L3+NEU+Ground

## Alarm/Relay Output & Remote Standby Input Connector



Figure 2

| Pin # | Function             |
|-------|----------------------|
| 1     | Remote Standby Input |
| 2     |                      |
| 3     | Alarm/Relay Output   |
| 4     |                      |

### Standby Input

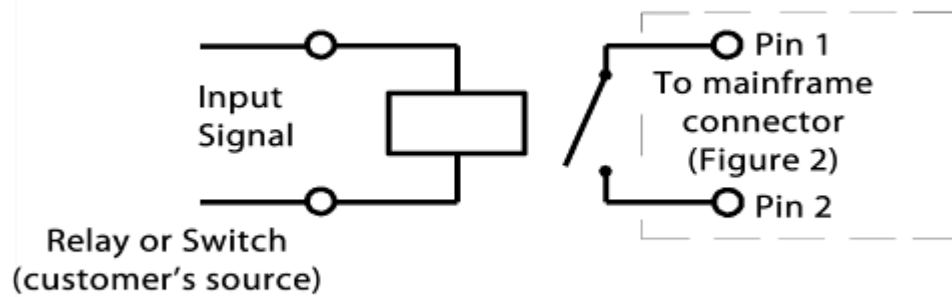


Figure 2a

### Alarm/Relay Output

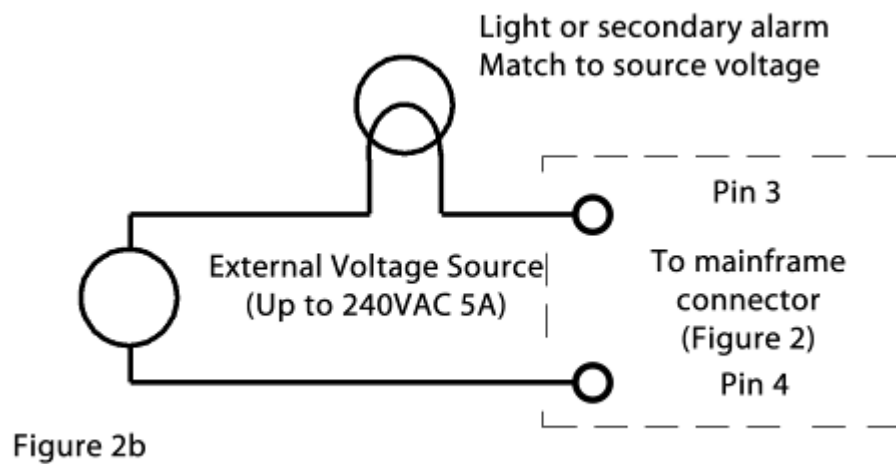
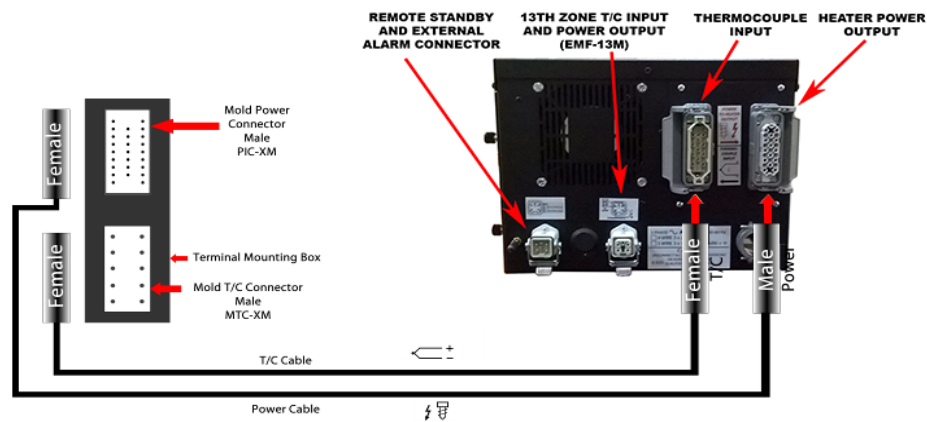
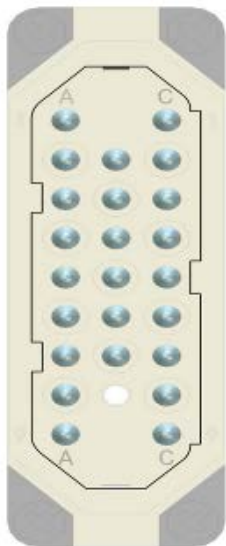


Figure 2b

Typical Mainframe

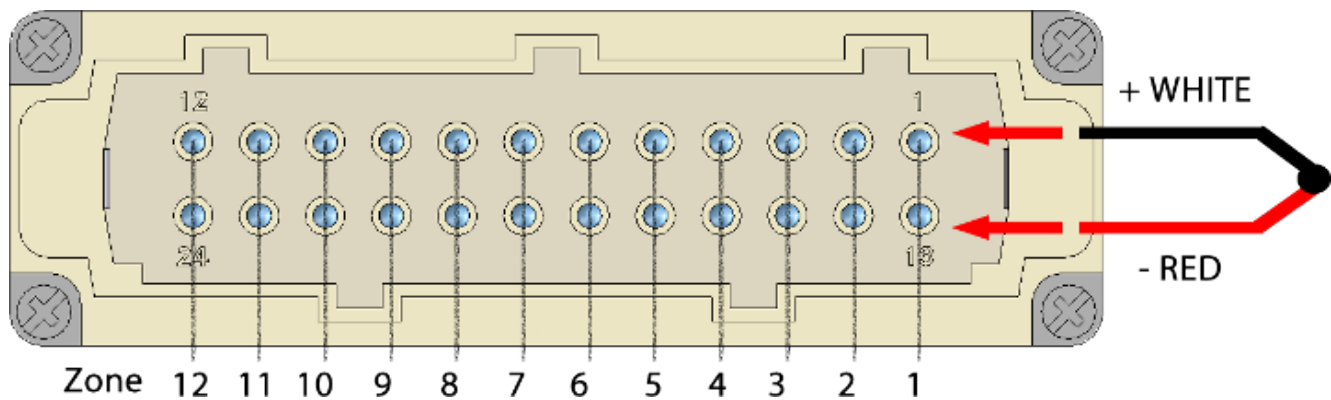


Power Output Connector Pinout



| Pin | Zone    | Pin | Zone   | Pin | Zone    |
|-----|---------|-----|--------|-----|---------|
| A1  | Zone 1  |     |        | C1  | Zone 8  |
| A2  |         | B2  | Zone 5 | C2  |         |
| A3  | Zone 2  | B3  |        | C3  | Zone 9  |
| A4  |         | B4  | Zone 6 | C4  |         |
| A5  | Zone 3  | B5  |        | C5  | Zone 10 |
| A6  |         | B6  | Zone 7 | C6  |         |
| A7  | Zone 4  | B7  |        | C7  | Zone 11 |
| A8  |         | B8  |        | C8  |         |
| A9  | Zone 12 |     |        | C9  | Zone 12 |

Thermocouple Input Pinout (Mold Side)



Display Mounting

The user has the option of mounting the display on the mainframe, or remotely. To mount on the mainframe, unscrew the two mounting screws on the top angle. Attach the display and secure the screws. The display power adapter can now be plugged into the top outlet. If the display is being mounted remotely, use the included 120VAC plug adapter.



Included in the display box is a small antenna. Screw the antenna into the socket located on the controller side rear of the mainframe. This is for the wireless connection to the display.

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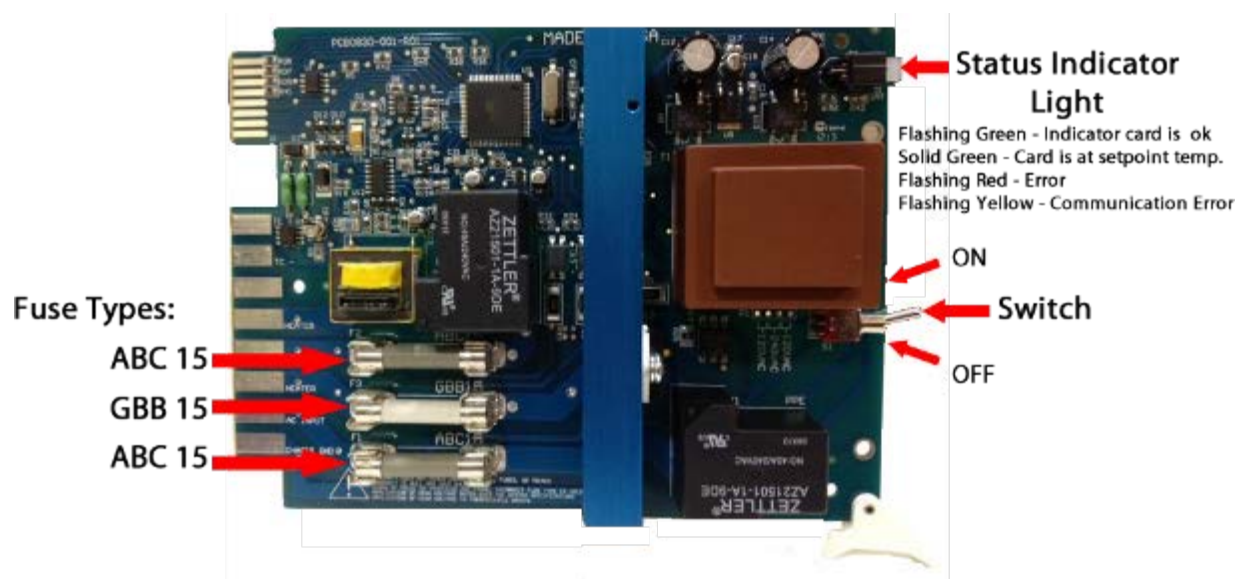
UPDATE:

Due to new advancements, the wireless technology used currently no longer requires an external antenna. If the USB dongle is not already attached (as shown below), simply plug it into the USB port of the display provided.



## Installing Controller Cards in the Mainframe

1. If controller cards are not pre-installed in the mainframe, follow directions below.



## Powering Up the System

1. Unscrew the four thumbscrews on the right side access panel to open the controller door.
2. Slide cards in and make sure they are properly inserted.
3. Turn the card switches to the ON position.
4. Close the right side door and secure the screws.
5. Turn Main Breaker on.
6. Turn the display on by pressing the marked power button on the top left for a few seconds. The computer will boot and the welcome page will appear after a few seconds.
7. From factory, the sample profile "EDGExx" is provided.
8. Press START on the welcome screen, the screen will go to the standard view.



9. Press "Select All." Quick Settings window will appear. Enter your required setpoint.
10. Press "Auto"
11. Press OK
12. Controllers will start in Soft Start mode if the temperature is below 212°F and will go into Auto Mode after the soft start duration time.
13. For detailed setup, follow instructions below, or in the Edge Plus Help screen on the computer.

## Overview

|  |  |
|--|--|
| Supports up to 240 Zones                               | 3 Phase Voltage Monitor                      |
| Intuitive Control Panel Design                         | Real-time Failure Monitoring                 |
| Data Logging   | Current Monitoring                           |
| Reporting Utilities                                    | Over Current Protection                      |
| Data Analysis Utilities                                | Open Fuse Detection                          |
| 2D/3D Graphing   | High Voltage T/C Circuit Protection          |
| Unlimited Number of Mold Profiles                      | TRIAC Fuse Protection                        |
| User Level Security                                    | Strobe Light& Siren for Alarms               |
| Ability to View Pictures, Documents, etc. at Station   | Reverse, Open and Shorted T/C Alarms         |
| Intelligent Diagnostics Mode                           | User Defined Over/Under Temperature Alarms   |
| High Speed RS485 Communications (115,200 bps)          | Open and Shorted Heater/TRIAC alarms         |
| Even Heat Rise Functions                               | Global/Group/Individual Select Functionality |
| Thermocouple Slaving with Grouping                     | Automatic and Manual Operation Modes         |
| Average Power Output without Grouping                  | Standby & Boost Modes                        |
| Hot Swappable Control Cards                            | User Defined Soft Start Time                 |
| Single Zone Integrity                                  | User Defined Boost Time and Temperature      |
| 15 Amps per Zone                                       | Heater Wattage and Resistance Monitoring     |
| Intelligent Algorithm Compensation for Any Heater Type | Automatic Setting of Heater Maximum Amperage |
| Adaptive PID Power Control Algorithms                  | Selective Power Output Controls              |

Specifications subject to change.

Welcome / Login Screen



Upon starting the system, the user will see the Welcome screen first. This is where a user will log in/ log out. If a profile is pre-loaded, it will be listed on the page along with the system run status.

Factory defaulted user profile is:

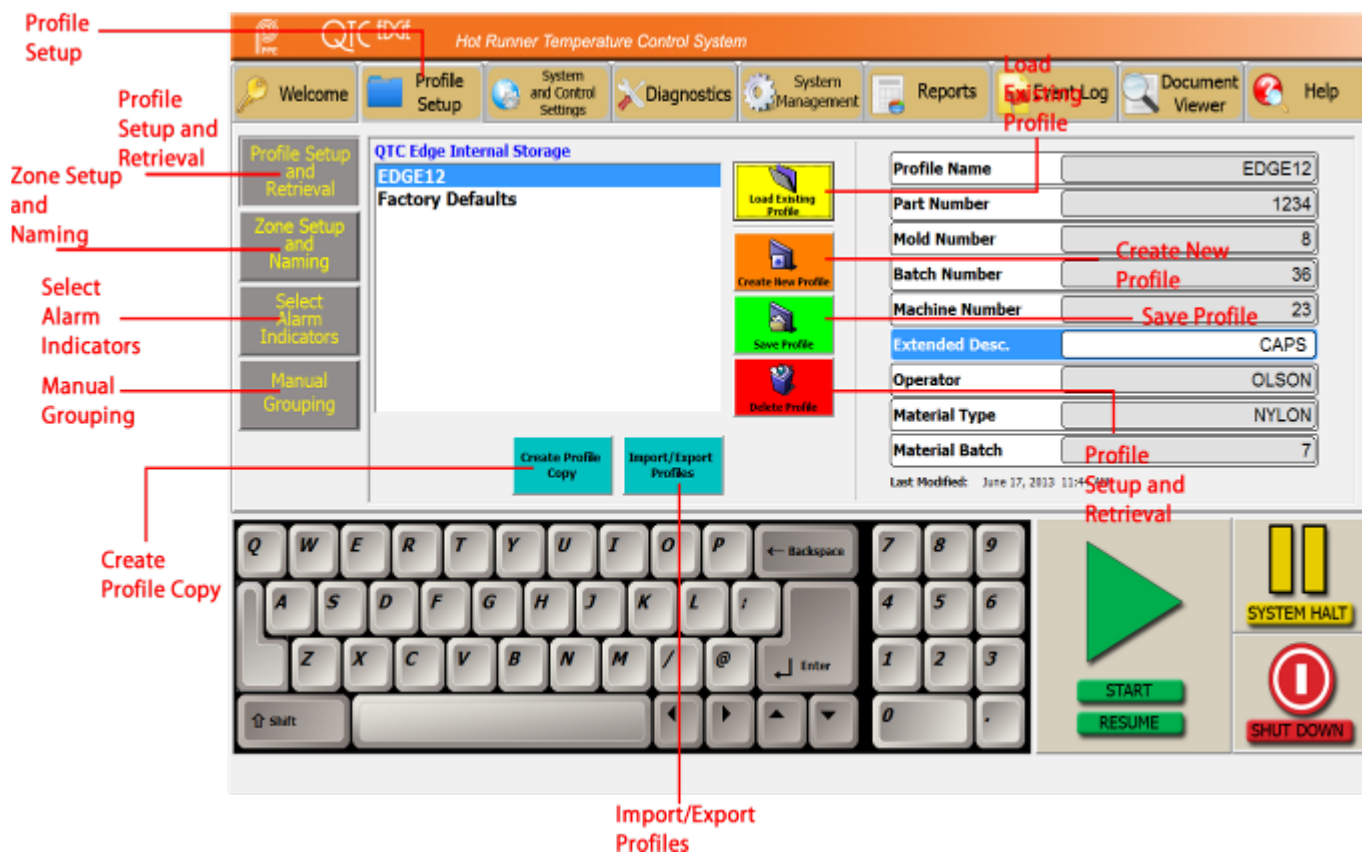
Username: Administrator

Password: admin

Only accounts with administrator access can create/delete new users and set restrictions.

## Profile Setup (Setup & Retrieval)

---



## Profiles

Details of a particular mold and controller setup are stored into individual profiles. A user can create multiple profiles for different molds that the system is used on.

## Profile Creation

To create a new mold profile:

- Press "**Create New Profile.**" In the menu, "**NEW PROFILE**" will appear, make sure it is highlighted (in blue).
- On the right side, give the profile a unique name, and fill in the various job details as needed.
- When finished, press "**Save Profile**"

The "**Save Profile**" button must be pressed everytime you make a change to the profile details. When finished, the next step is to goto "[Zone Setup and Naming](#)" to set up the controllers in the profile.

## Create Profile Copy

For instances where another profile is needed, and the settings are similar to ones in a profile already created, the user can copy the profile in order to save time. In order to create a copy:

- highlight the profile to copy in the menu, then press "**Create Profile Copy**". A copy of the original profile will appear.
- Highlight the copy in the menu, and change the name and profile details as needed.
- When finished, press "**Save Profile**".

Again, "**Save Profile**" must be pressed to save any changes made to the profile.

## Import/Export Profiles

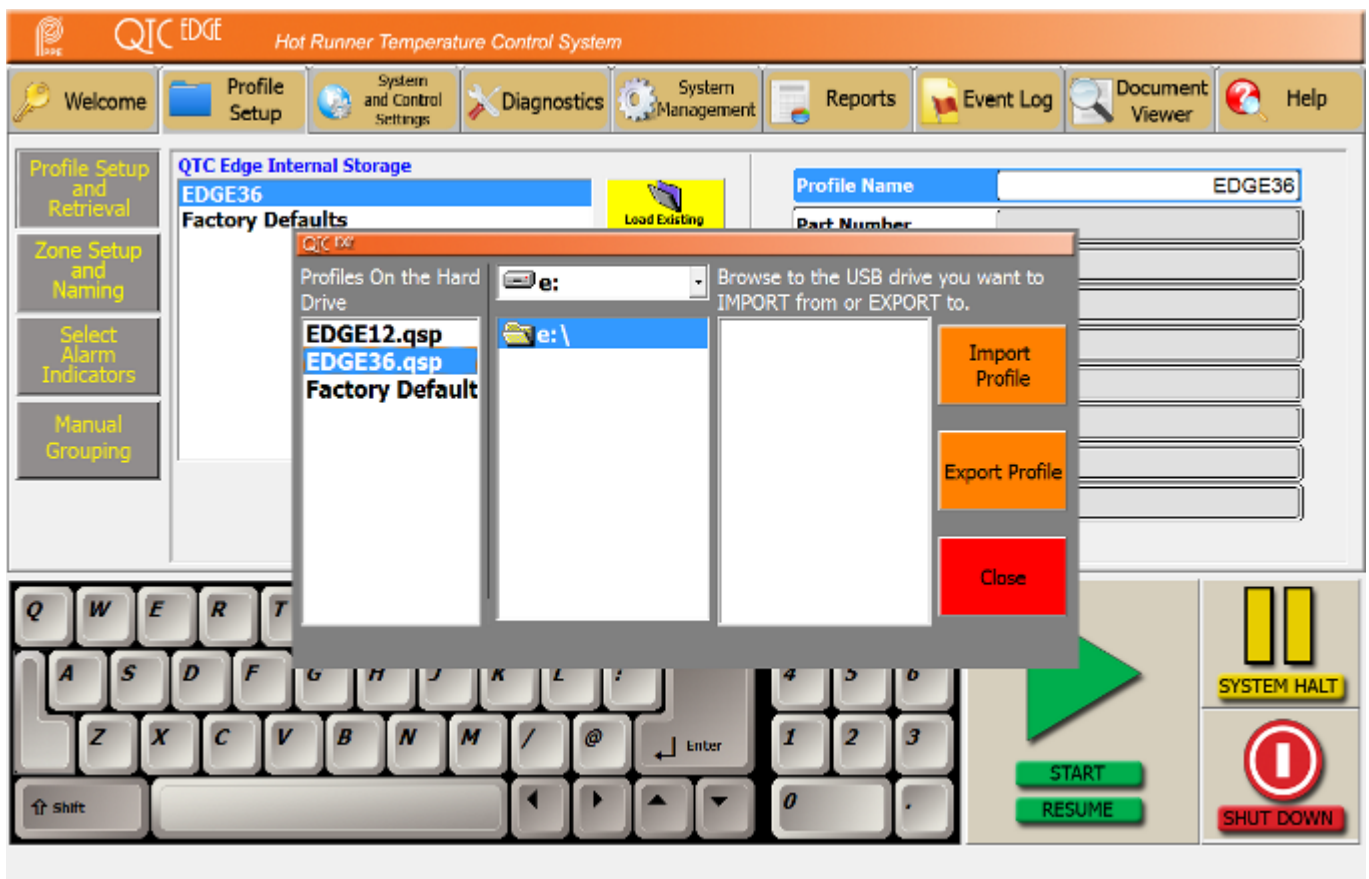
If a profile is needed on another system, the user can import and export profiles from a usb key.

### Import:

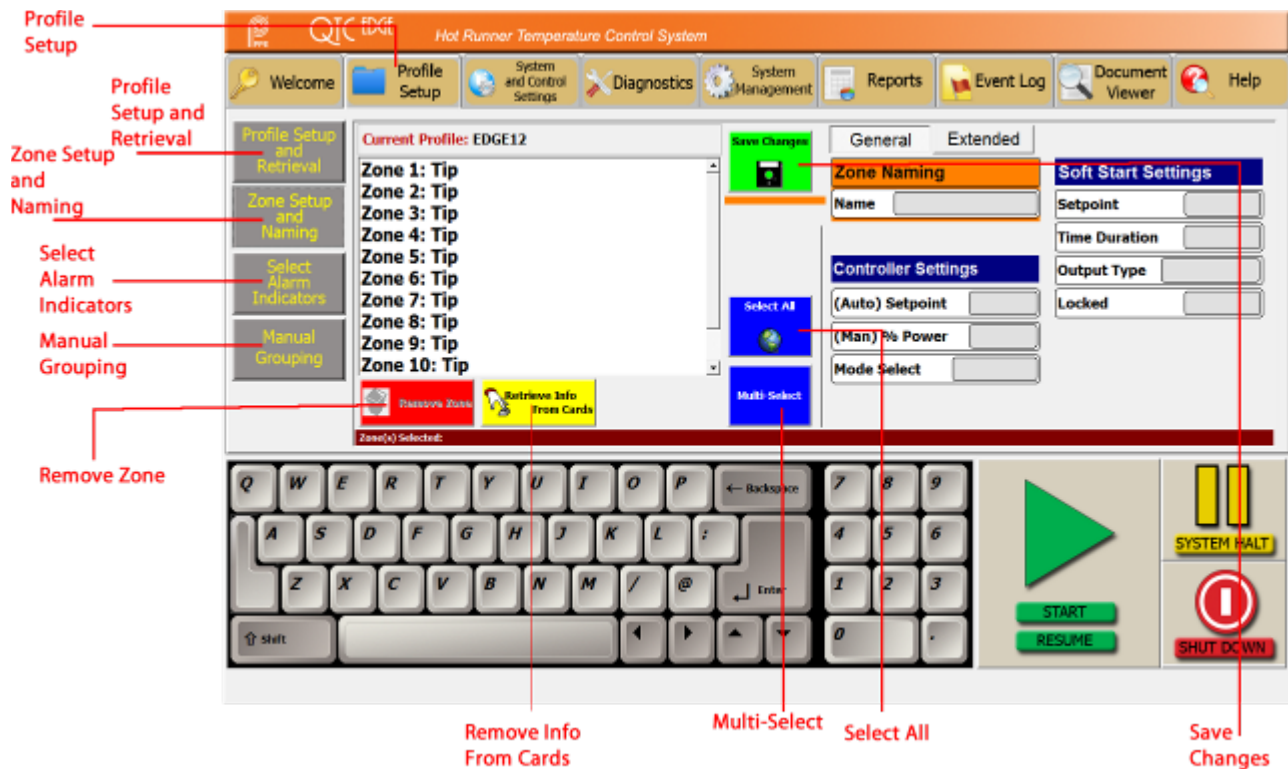
- Insert a USB flash drive into the USB slot on the right side of the display. Wait approximately 15 seconds for the flash drive to register on the system.
- Press "**Import/Export Profiles**" and the import/export window will appear.
- In the drive pulldown menu, choose the drive letter of the usb flash drive(usually **e:**).
- Choose the directory on the drive your profiles are saved to on the drive, and the profiles will appear on the menu to the right.
- Select the profile you would like to import, then press "**Import Profile**". The profile should now appear on the left menu.
- When finished press "**Close**".

### Export:

- Insert a USB flash drive into the USB slot on the right side of the display. Wait approximately 15 seconds for the flash drive to register on the system.
- Press "**Import/Export Profiles**" and the import/export window will appear.
- In the drive pulldown menu, choose the drive letter of the usb flash drive (usually **e:**).
- Choose the directory on the drive where you would like to save the profile.
- On the left side choose the profile to export, then press "**Export**".
- When finished press "**Close**".



### Profile Setup (Zone Setup)



## Zone Setup and Naming

Upon creating a new profile, there are no zones setup by default, and is indicated by "none" on the zone listing.

### Individual Zones:

- Select a zone to adjust. The screen will switch over to the naming screen automatically. Choose a name from the list or create a new name. Make sure the name you want is highlighted and press "**Apply Name**". You should see the name appear in the "**Name**" box to the right.
- Adjust controller settings on the right of the screen as needed in both "**General**" and "**Extended**".
- When finished, press "**Save Changes**" to save the settings.

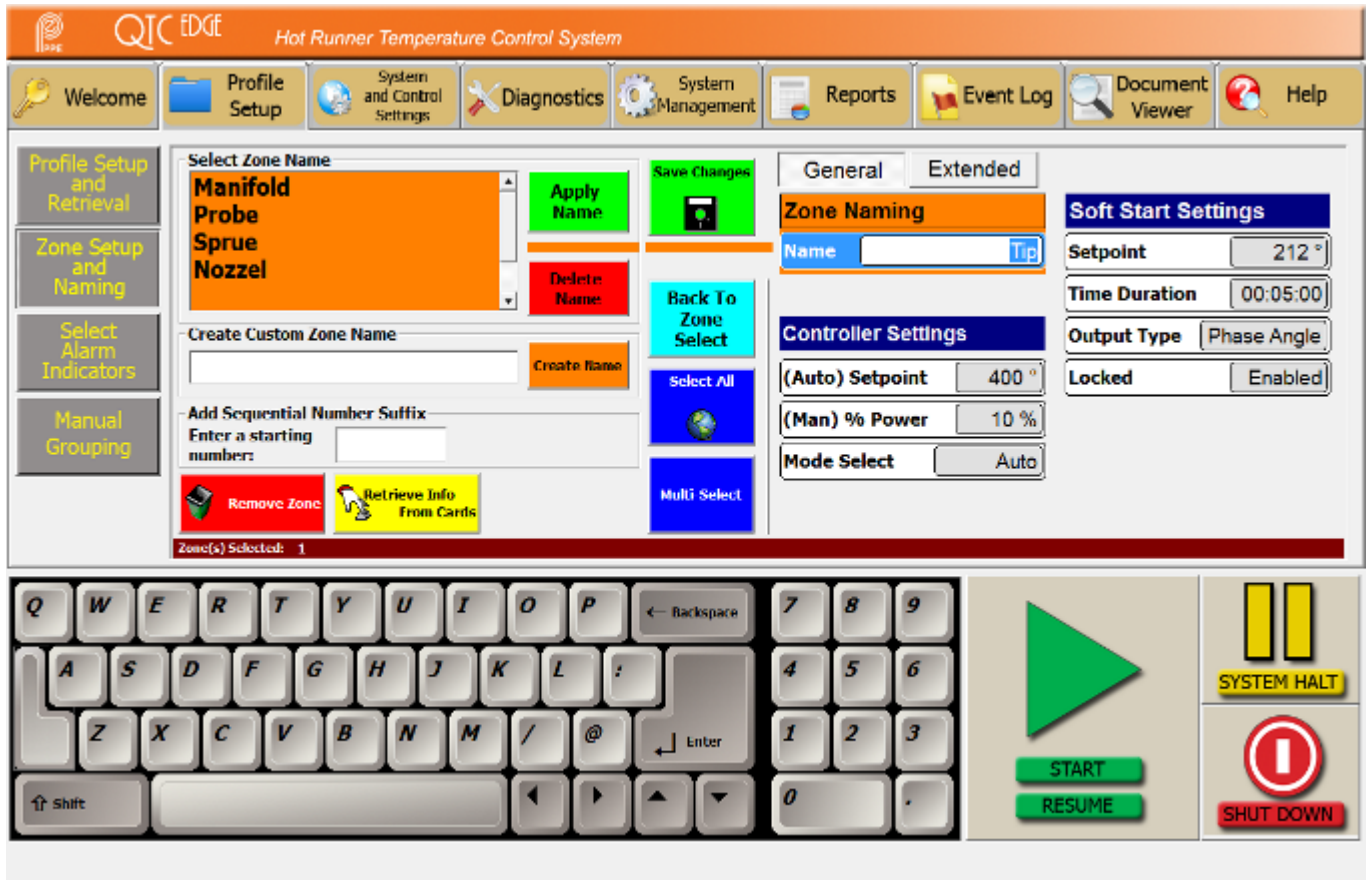
### Multiple or All Zones:

- Press the "**Multi-Select**" and choose the zones to change, or press "**Select All**".
- Press the "**Zone Naming**" box to the right. Choose a name or create a name and make sure it is highlighted in the "**Select Zone Name**" Box.
- Press "**Apply Name**". You should see the name appear in the "**Name**" box to the right.
- Adjust controller settings that appear on the right side of the screen as needed in both "**General**" and "**Extended**".
- When finished, press "**Save Changes**" to save settings.

### Creating a Name:

- When in the "Zone Naming" page, type a name into the "**Create Custom Zone Name**" box.

- Press "Create Name" when finished. The new name should appear in the "Select Zone Name" list.



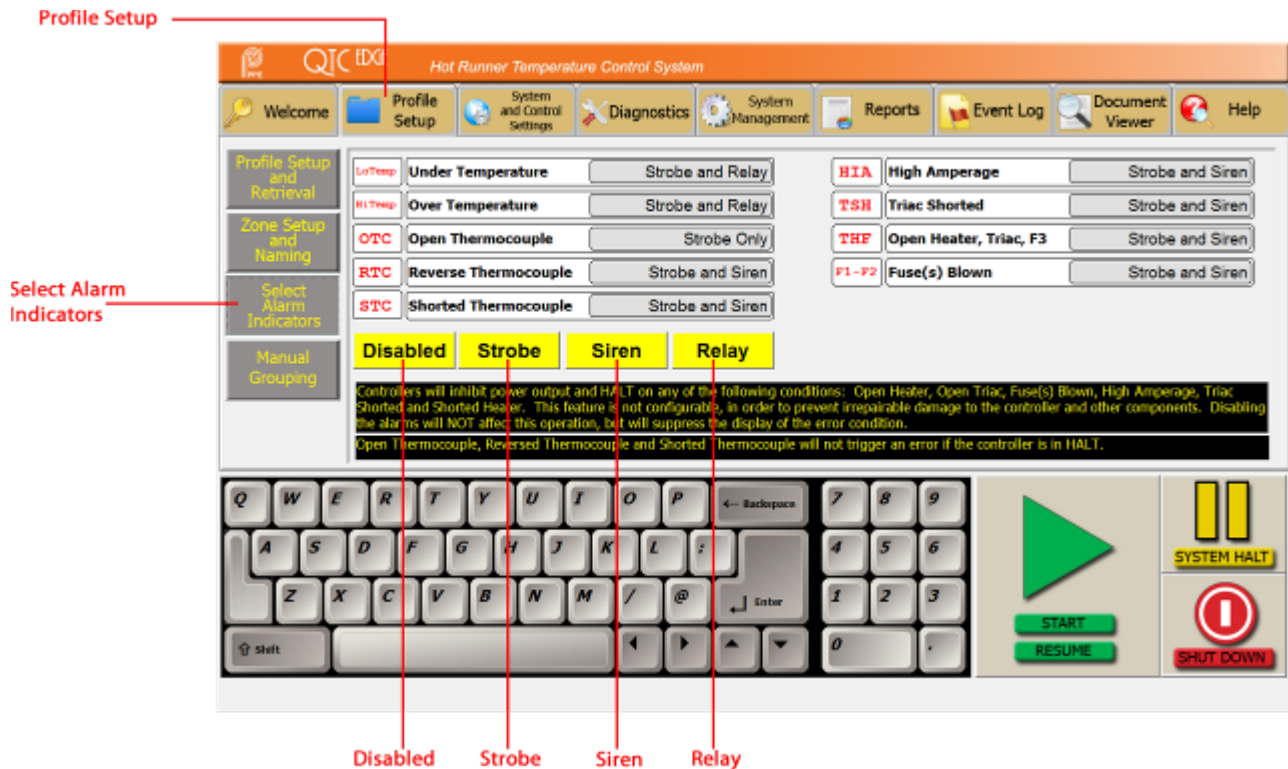
### Copying Zone Information To Other Zones

In many cases, multiple zones will have the same settings and parameters. To avoid entering the same information:

- Select the source zone that has the settings and parameters you wish to copy to other zones.
- Press the "Multi-Select" button and choose the other zones you wish to copy the settings to.
- When finished, press "Save Changes"

### Profile Setup (Alarms)





## Setting the Alarms

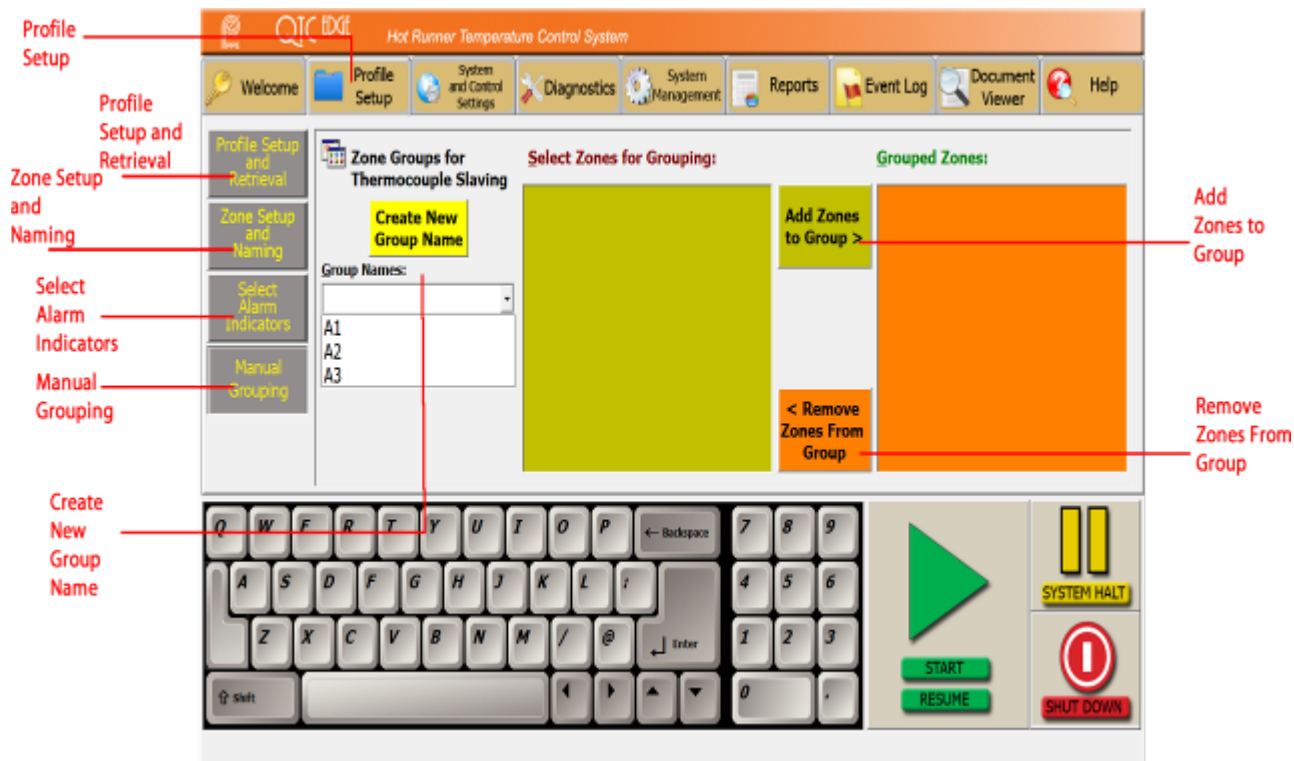
Error conditions can trigger one of three types of alarm indicators.

- Strobe: flashing indicator light.
- Siren: audible siren alarm.
- Relay: external relay where a light or alarm can be connected.

To change which alarm indicators are triggered:

- Choose the error condition to change.
- Press the "Relay", "Siren", or "Strobe" buttons to enable/disable as preferred. To prevent all alarms from triggering, choose "Disable"

## Profile Setup (Manual Grouping)



## Zone Grouping for Thermocouple Slaving

Thermocouple slaving requires controllers to be placed into groups. When an open thermocouple error occurs, if the zone is in a group, it will "slave" from a zone in the same group to control temperature. If it cannot find a zone to slave from, the controller will switch to APO (average power output) mode to control temperature.

### Creating Groups

- Press "**Create New Group Name**"
- Type in a name for the group.
- Press "**Save Group Name**"
- Create as many groups as necessary
- Choose a group from the dropdown list
- The "Select Zones for Groupings" list will populate with the controllers that can be put into groups. Press the zones you wish to add to the selected group. The zone will highlight when pressed.
- When finished, press "Add Zones to Group" and the zones will move to the "Grouped Zones" list.
- Press "Save Group or Changes" to save.

### Auto Grouping

If the "Enable Auto Grouping" checkmark is checked (in System and Control Settings), while the system is running, it will automatically put the controllers into groups based on the Setpoint temperature, max current of the heaters, and PID settings. If changes need to be made to the groups, or you still want to create your own groups, you may do so in the **Manual Grouping** page.

When grouped, the controller display will have a color to identify which group they are in. If the controller is not grouped, the display will have the standard blue color while running.



**QTC EDGE** Hot Runner Temperature Control System

Welcome | Profile Setup | System and Control Settings | Diagnostics | System Management | Reports | Event Log | Document Viewer | Help

**Profile Setup and Retrieval**

**Zone Setup and Naming**

Select Alarm Indicators

Manual Grouping

**Zone Groups for Thermocouple Slaving**

Group Names:

**Save Group Name**

**Select Zones for Grouping:**

- Zone 13 - Nozzel
- Zone 14 - Nozzel
- Zone 15 - Nozzel
- Zone 16 - Nozzel
- Zone 17 - Nozzel
- Zone 18 - Nozzel
- Zone 19 - Nozzel
- Zone 20 - Nozzel
- Zone 21 - Nozzel
- Zone 22 - Nozzel
- Zone 23 - Nozzel
- Zone 24 - Nozzel

**Add Zones to Group >**

**< Remove Zones From Group**

**Grouped Zones:**

- Zone 1 - Nozzel
- Zone 2 - Nozzel
- Zone 3 - Nozzel
- Zone 4 - Nozzel
- Zone 5 - Nozzel
- Zone 6 - Nozzel
- Zone 7 - Nozzel
- Zone 8 - Nozzel
- Zone 9 - Nozzel
- Zone 10 - Nozzel
- Zone 11 - Nozzel
- Zone 12 - Nozzel

**START** **RESUME** **SYSTEM HALT** **SHUT DOWN**

**QTC EDGE** Hot Runner Temperature Control System

Welcome | Profile Setup | System and Control Settings | Diagnostics | System Management | Reports | Event Log | Document Viewer | Help

**Profile Setup and Retrieval**

**Zone Setup and Naming**

Select Alarm Indicators

Manual Grouping

**Zone Groups for Thermocouple Slaving**

**Create New Group Name**

Group Names:

**Delete Group Name**

**Select Zones for Grouping:**

- Zone 13 - Nozzel
- Zone 14 - Nozzel
- Zone 15 - Nozzel
- Zone 16 - Nozzel
- Zone 17 - Nozzel
- Zone 18 - Nozzel
- Zone 19 - Nozzel
- Zone 20 - Nozzel
- Zone 21 - Nozzel
- Zone 22 - Nozzel
- Zone 23 - Nozzel
- Zone 24 - Nozzel

**Add Zones to Group >**

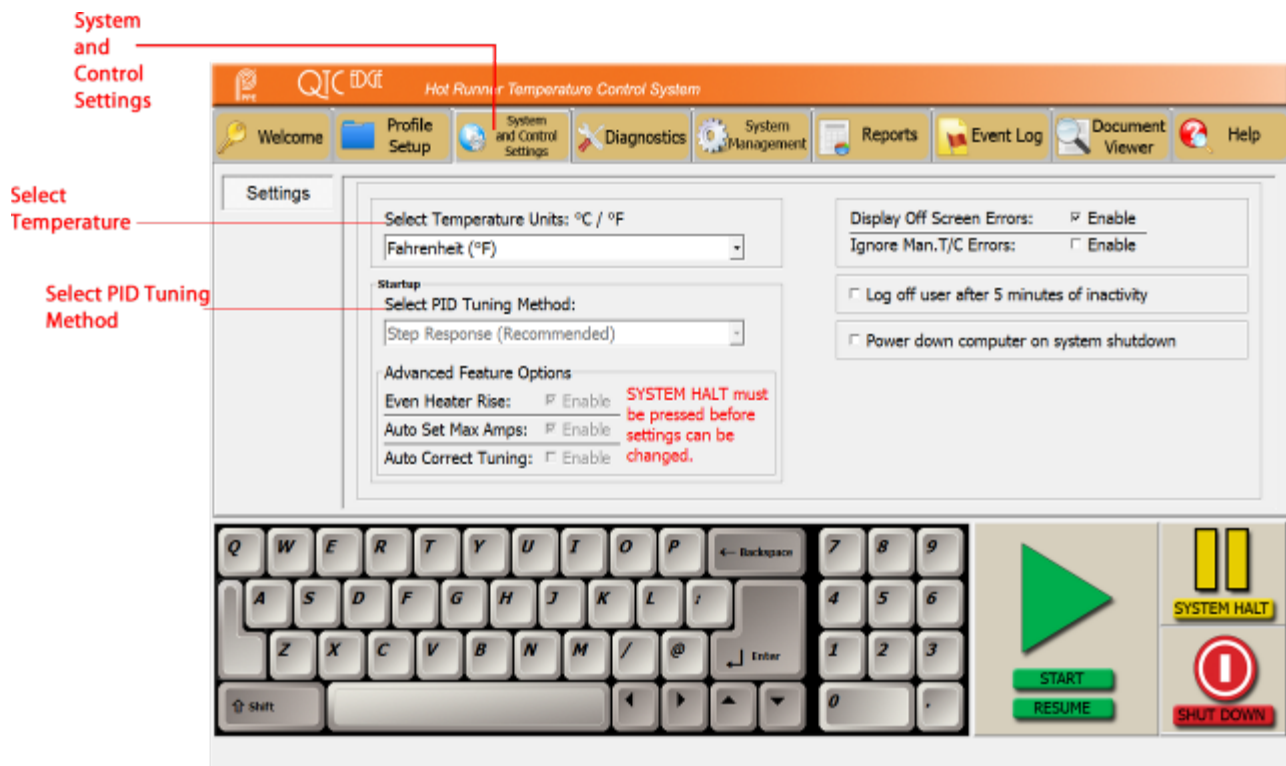
**Save Group or Changes**

**< Remove Zones From Group**

**Grouped Zones:**

- Zone 1 - Nozzel
- Zone 2 - Nozzel
- Zone 3 - Nozzel
- Zone 4 - Nozzel
- Zone 5 - Nozzel
- Zone 6 - Nozzel
- Zone 7 - Nozzel
- Zone 8 - Nozzel
- Zone 9 - Nozzel
- Zone 10 - Nozzel
- Zone 11 - Nozzel
- Zone 12 - Nozzel

**START** **RESUME** **SYSTEM HALT** **SHUT DOWN**



### Select Temperature Units

Select to display Fahrenheit or Celcius

### Startup

Select PID Tuning Method:

- Step Response: recommended for all types of heaters.
- Bang Bang: used when unusual disturbances affect the heater.

### Advanced Feature Options

- Even Heater Rise: check this to enable "Even Heater Rise". Even Heater Rise is used to get all heaters up to setpoint temperature at the same time.
- Auto Set Max Amps: check this to enable the controller to find the maximum amperage of the heater automatically. This function is to automatically set the current limit for the HiA error condition.
- Auto Correct Tuning: check this to enable the controller to enter "Bang Bang Mode" automatically if the regular tuning fails.

### Other Features:

- Display Off Screen Errors: In the event that an error occurs on a controller that is not on the current page, the system will automatically jump to the page the zone that is erroring is on. If more than 1 error occurs and the page is not visible, the controller will switch to the "Global View" to show which zones are erroring.
- Ignore Manual T/C Errors: Enabling this will disable thermocouple related alarms if the controller is in Manual (Open Loop) Mode.
- Log off user after 5 minutes of inactivity: for security purposes, this can be enabled to automatically log off the user after 5 minutes of no screen activity (no user action).

- Power Down Computer on System Shutdown: Used to shut down Windows at the same time the Temperature Control Program does. This is recommended to always be checked.

## Diagnostics (Zone Information)

**Diagnostics**

**Zone Information**

**Wire Testing**

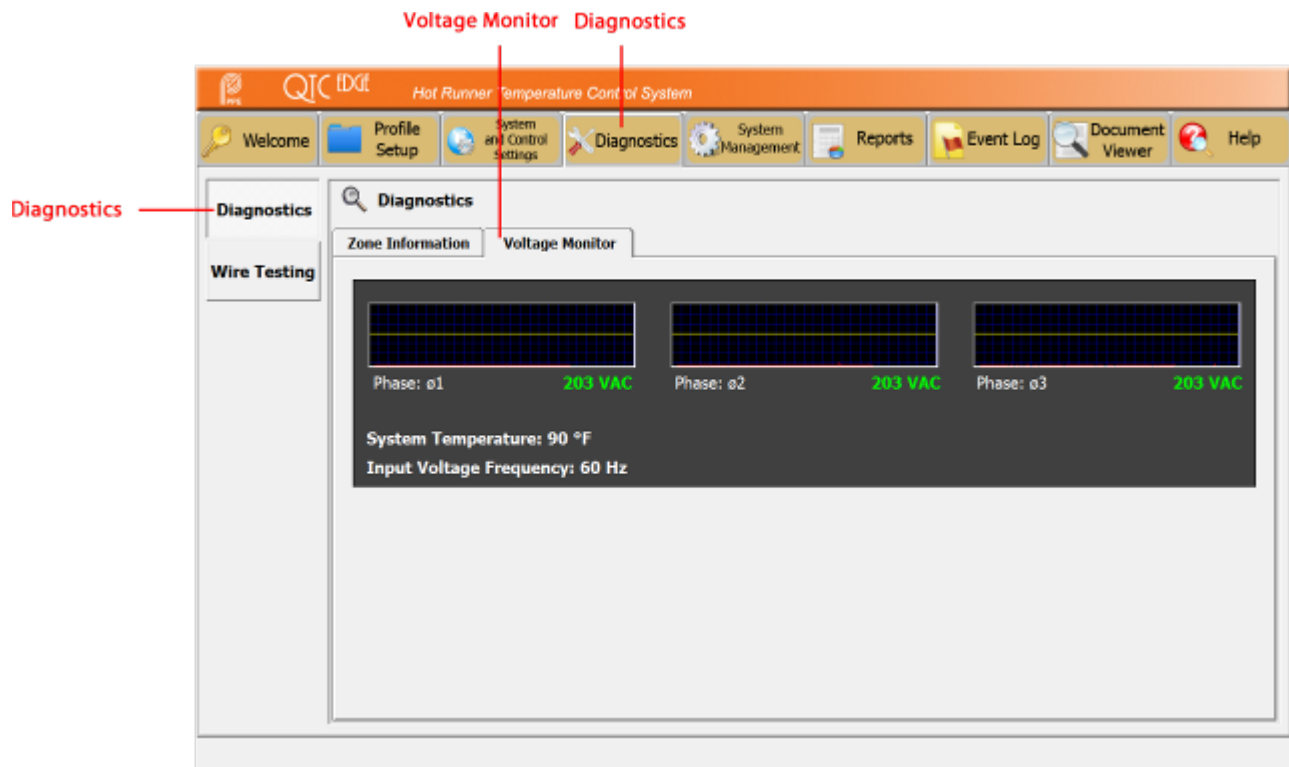
| Status | Zone | Err Code | Err Desc. | Date  | Time  | Setpoint | Process Temp | Mode | S/N | Cal Date | FW Ver | TC Type |
|--------|------|----------|-----------|-------|-------|----------|--------------|------|-----|----------|--------|---------|
| Normal | 1    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 308°F        | Auto | 139 | 06/13    | 10.08  | Type J  |
| Normal | 2    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 323°F        | Auto | 140 | 06/13    | 10.08  | Type J  |
| Normal | 3    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 335°F        | Auto | 141 | 06/13    | 10.08  | Type J  |
| Normal | 4    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 333°F        | Auto | 142 | 06/13    | 10.08  | Type J  |
| Normal | 5    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 326°F        | Auto | 143 | 06/13    | 10.08  | Type J  |
| Normal | 6    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 309°F        | Auto | 144 | 06/13    | 10.08  | Type J  |
| Normal | 7    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 314°F        | Auto | 145 | 06/13    | 10.08  | Type J  |
| Normal | 8    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 333°F        | Auto | 146 | 06/13    | 10.08  | Type J  |
| Normal | 9    | 0000     | OK        | 06/13 | 12:29 | 400°F    | 330°F        | Auto | 147 | 06/13    | 10.08  | Type J  |
| Normal | 10   | 0000     | OK        | 06/13 | 12:29 | 400°F    | 326°F        | Auto | 148 | 06/13    | 10.08  | Type J  |
| Normal | 11   | 0000     | OK        | 06/13 | 12:29 | 400°F    | 313°F        | Auto | 149 | 06/13    | 10.08  | Type J  |
| Normal | 12   | 0000     | OK        | 06/13 | 12:29 | 410°F    | 195°F        | Soft | 150 | 06/13    | 10.08  | Type J  |

Profile Loaded: EDGE12

Buttons: Scan Zones, Show Errors Only, Reset Errors, Add/Remove Column Information, Print Info, Email Info

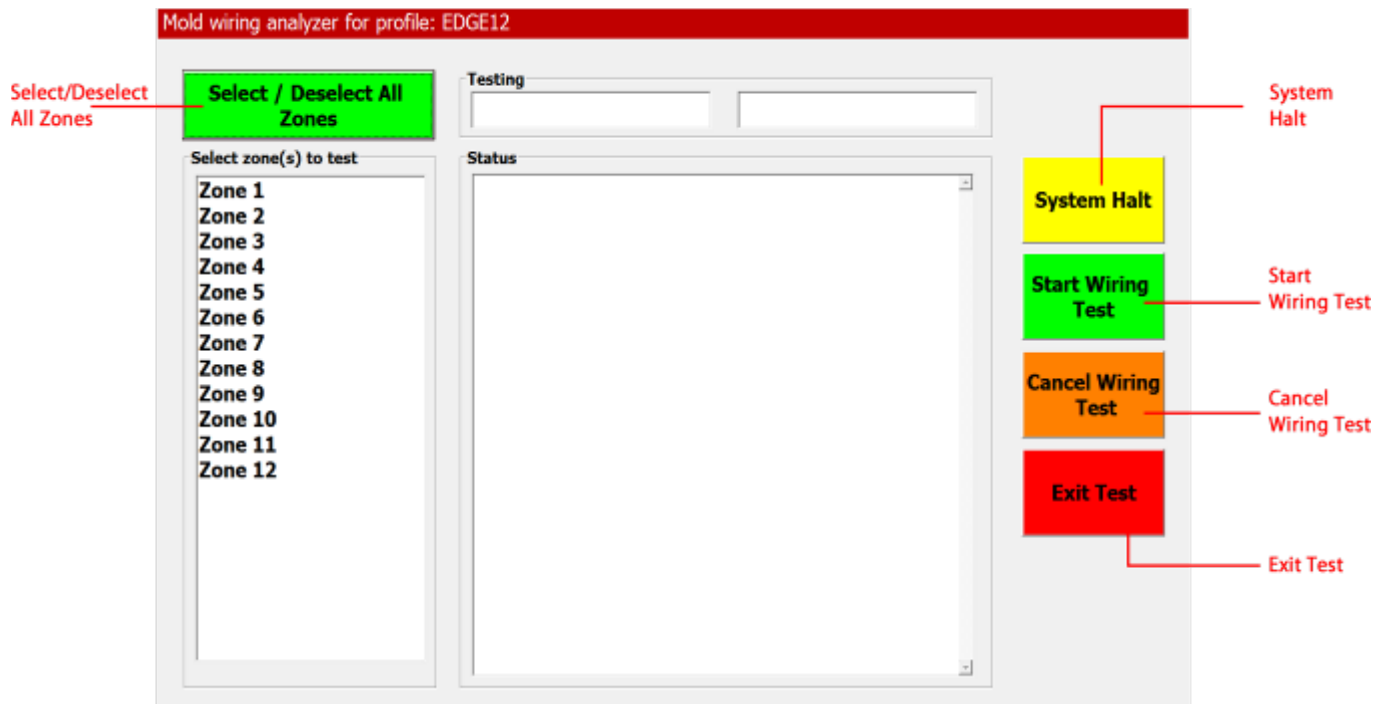
Basic information of controllers can be displayed here. Press "**Scan Zones**" and the system will retrieve information from the cards and display them. "**Show Errors Only**" filters the results to only zones that have an error condition. "**Reset Errors**" will reset the errors of the zones. To customize the data viewable, press "**Add/Remove Column Information**" and choose what column information to display by checking or unchecking the respective boxes. The information shown can be printed to xps or sent by Email. Click [here](#) for more information on Email Setup.

## Diagnostics (Voltage Monitor)



System voltage, frequency, and temperature is displayed for general purposes.

## Diagnostics (Wire Testing)

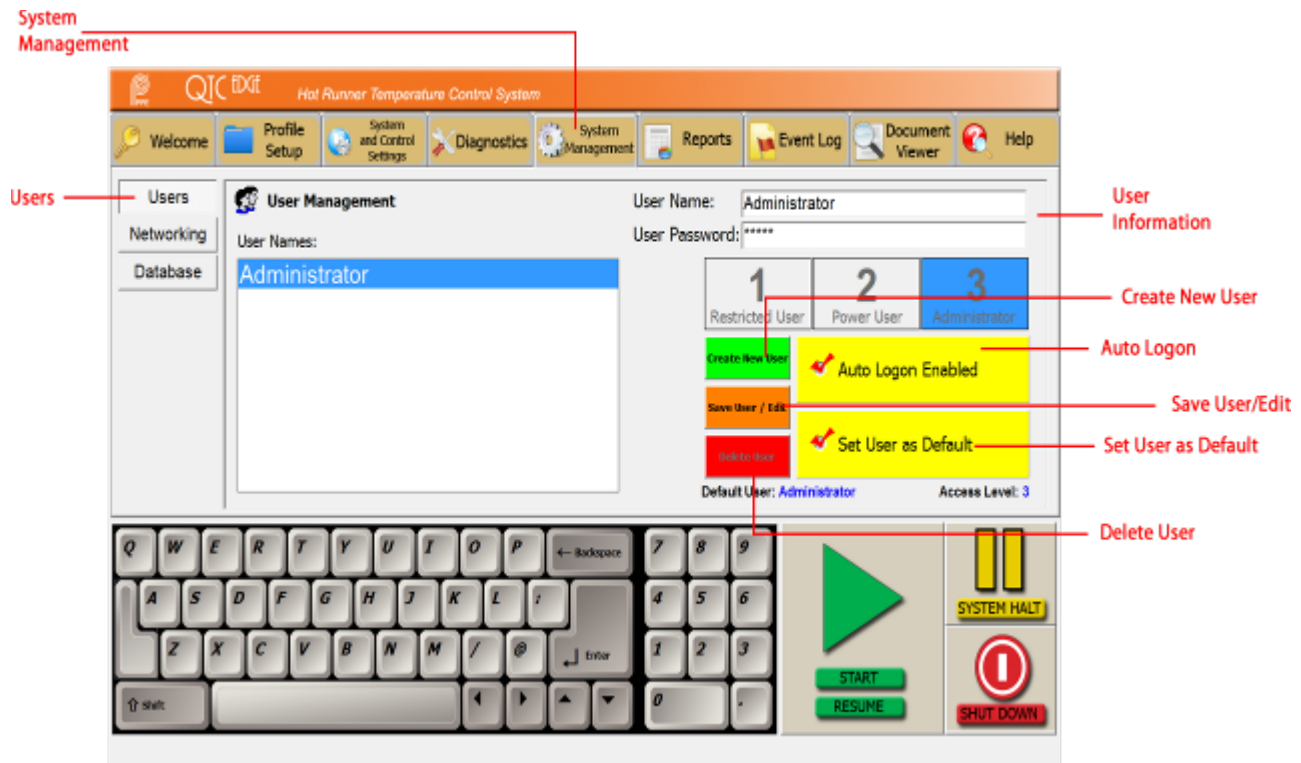


Wire testing allows the user to check connectivity of the wiring. Tests are conducted on both thermocouple and power wiring. The system must be in "**System HALT**" in order to test. For faster results, do tests when the mold is cold. To test:

- If the system isn't halted, press "**System Halt**"
- Select the zones to be tested in the list.
- Press "**Start Wiring Test**". The tests can take several minutes per zone. If there is a wiring fault, a description of the fault will be listed in the "**Status**" box.
- If you wish to cancel the test, press "**Cancel Wiring Test**"
- When finished, press "**Exit Test**" to go back to the main menu.

## System Management (Users)

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## User Profiles

Three security levels are available for users: **"Restricted"**, **"Power User"**, and **"Administrator"**.

- **Restricted:** Least access. Users of this access level can only start, halt, and change the temperature of a controller card.
- **Power User:** Medium access. Users of this level access have the ability to do most functions, including editing profiles and changing controller parameters. Access to administrative functions is restricted (User properties, system properties, etc.)
- **Administrator:** Full access. Users of this level have full access to all system controls. Only the administrator can manage user details and system properties.

The system comes preloaded with an Administrator account. This account cannot be deleted unless another administrator account has been created.

## Create a New User:

- Press **"Create New User"**
- Type in a new user name and password for the new account.
- Choose an appropriate access level for the user. The button should highlight.
- Press **"Save User/Edit"**

## Auto Logon to Default Account

The option to have a specific user account load upon system startup is available.

- Choose a name from the User Names list.
- Press the **"Auto Logon Enabled"** and **"Set User As Default"** buttons. Both boxes should now be checked.
- The specified user name will now be automatically loaded upon system startup.

## System Management (Networking)

**System Management**

**Company Name**

**Networking**

**E-mail**

**Drive/Path**

QIC EDGE Hot Runner Temperature Control System

Welcome Profile Setup System and Control Settings Diagnostics System Management Reports Event Log Document Viewer Help

Users Networking Database

Company Name: Company Name Here

Networking Drive/Path: C:\Program Files\Sabre

Email

SMTP Host: mail.your-smtp-host.com

Port: 25

Password: \*\*\*\*\*

From: qstar@yourcompany.com

To: service@yourcompany.com

Cc: service@yourcompany.com

Subject: Q-Star Zone Information Report

Q W E R T Y U I O P Backspace 7 8 9

A S D F G H J K L : Enter 4 5 6

Z X C V B N M / @ 1 2 3

Shift 0 .

START RESUME SYSTEM HALT SHUT DOWN

### Company Name

Type in your company name here. This will appear on reports and emails sent from this system.

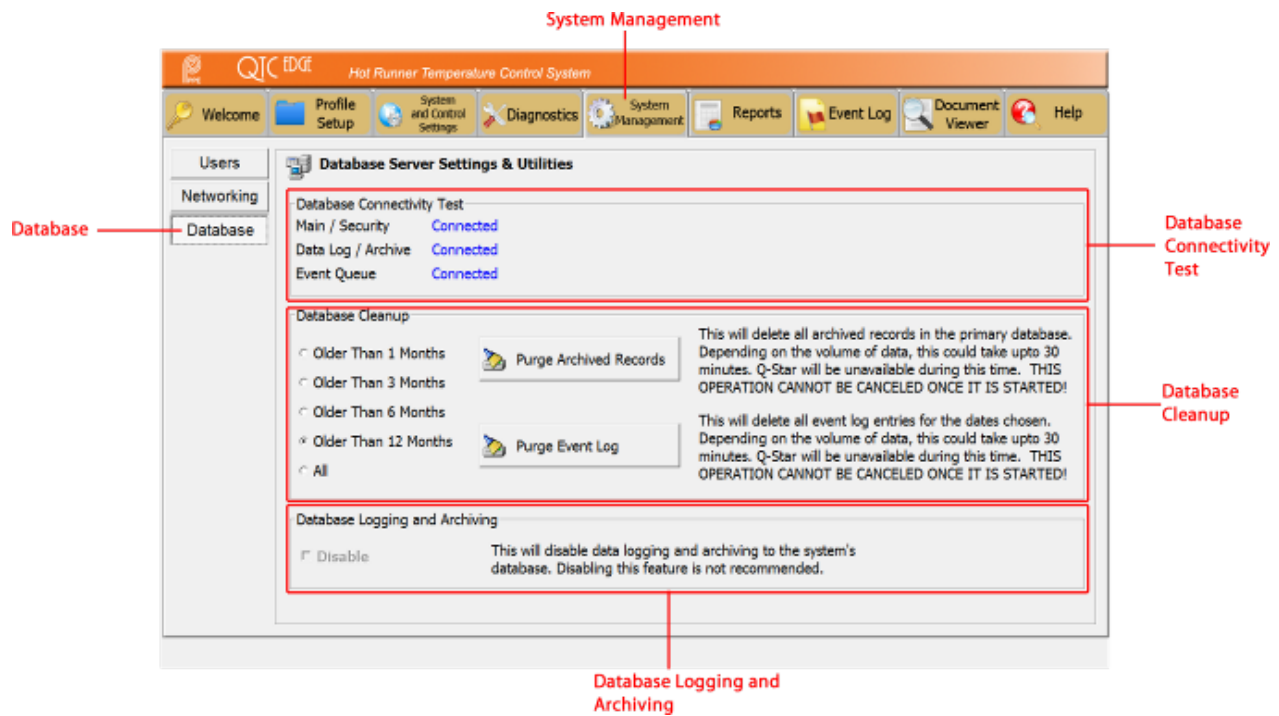
### Email

To set up the email, have your IT person create an email address for the system.

- SMTP Host: Mail server address
- Port: default = 25
- Password: password of the email account to be used
- From: address of the email account to be used
- To: address to send data to
- Cc: carbon copy address if data needs to be sent to another address
- Subject: subject line to be added to the email

## System Management (Database)





### Database Connectivity Test

Indicates if the database is properly connected.

### Database Cleanup

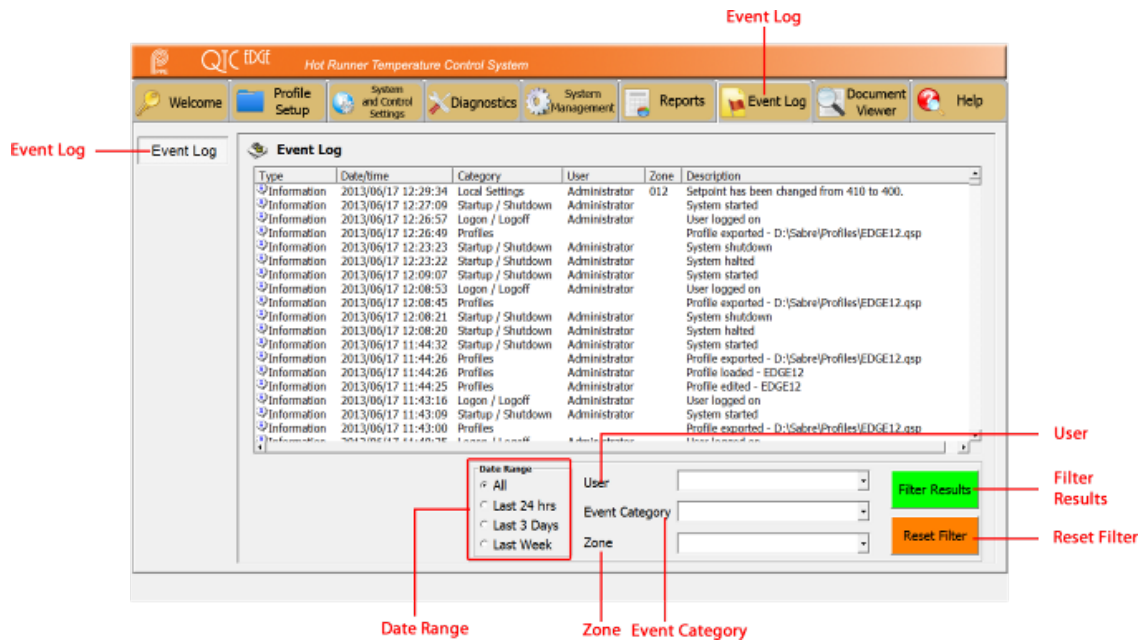
Used to clean out the database and Event Log

### Disable Database Logging/Archive

This disables all database functions. The system will still operate normally, but no records will be available.

## Event Log

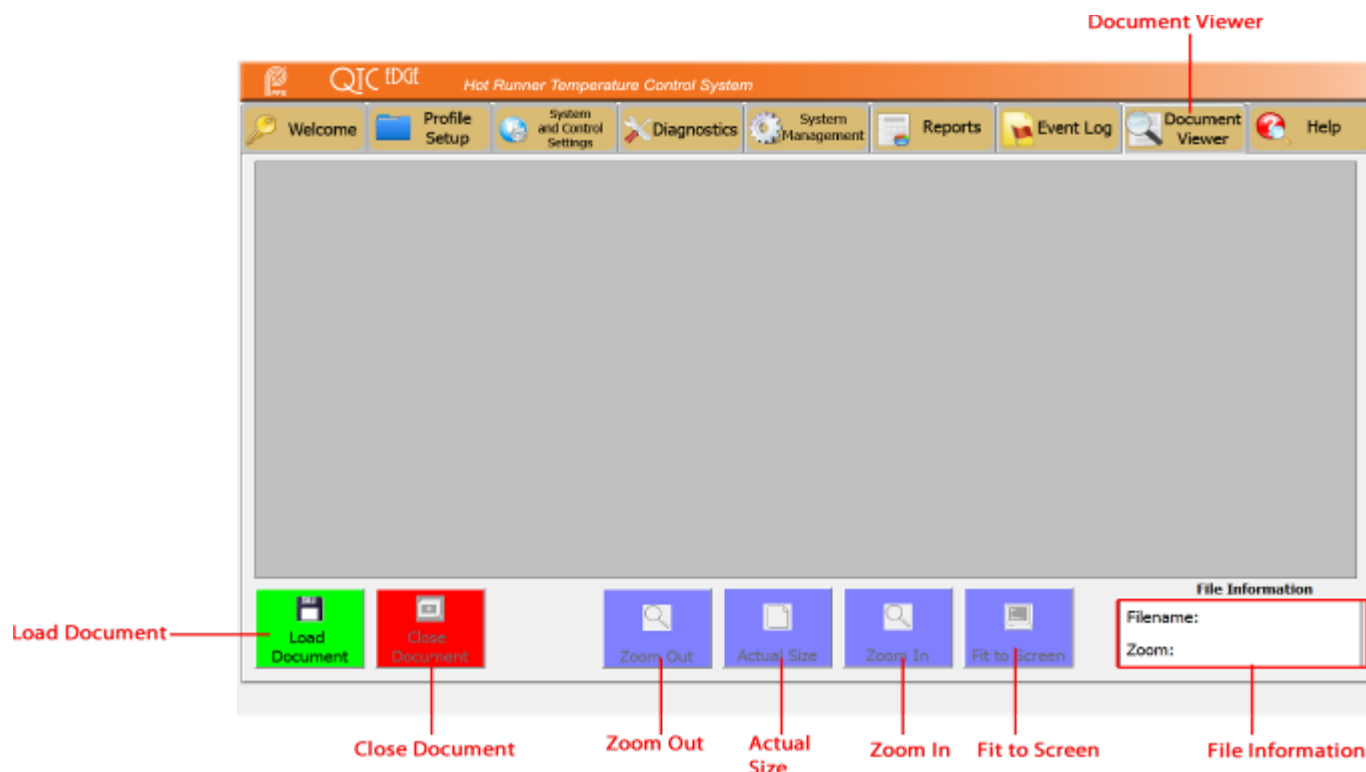




Event viewer shows events during runtime. Events include log in/log off, profile edits, controller adjustments, controller errors, etc.

Results can be filtered by date, user, zone, or event type.

## Document Viewer



### Loading and Reading Documents

Document viewer can load picture, text, html, or xps files. Files can also be imported from or exported to USB flash drive.

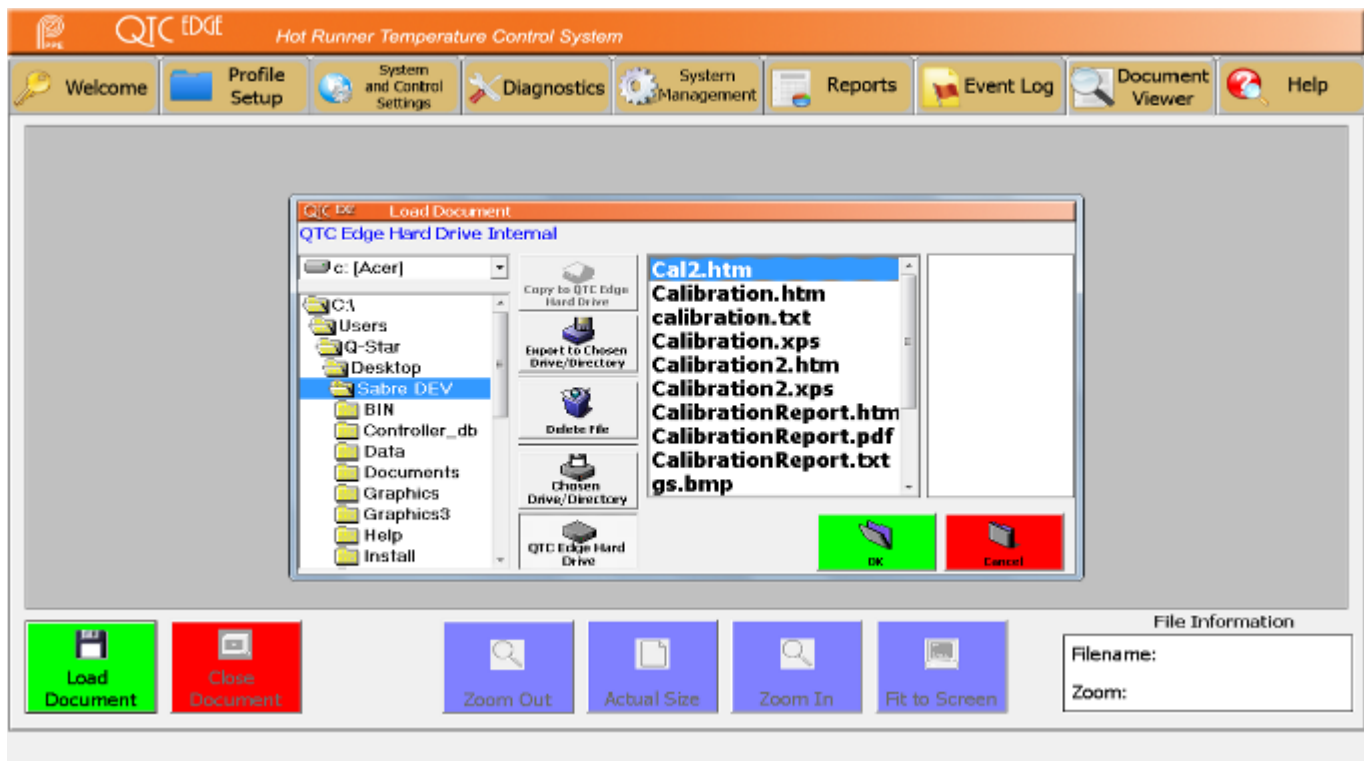
Load a Document:

- Press "**Load Document**"
- Choose a document from the list on the right side.
- Press "**OK**" and the document will load to the window.

To copy a document to a USB drive:

- Insert a USB flash drive into the display.
- Press "**Load Document**"
- Choose the USB drive letter from the drop down box.
- Press "**Chosen Drive/Directory**"
- Choose the file you wish to copy to the usb drive from the list on the right.
- Press "**Export to Chosen Drive/Directory**"

The file will now be on the USB flash drive to transport to another pc to read/print/save.

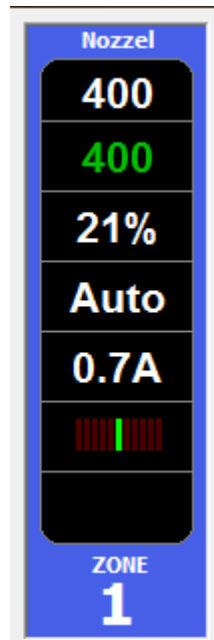




## Standard View

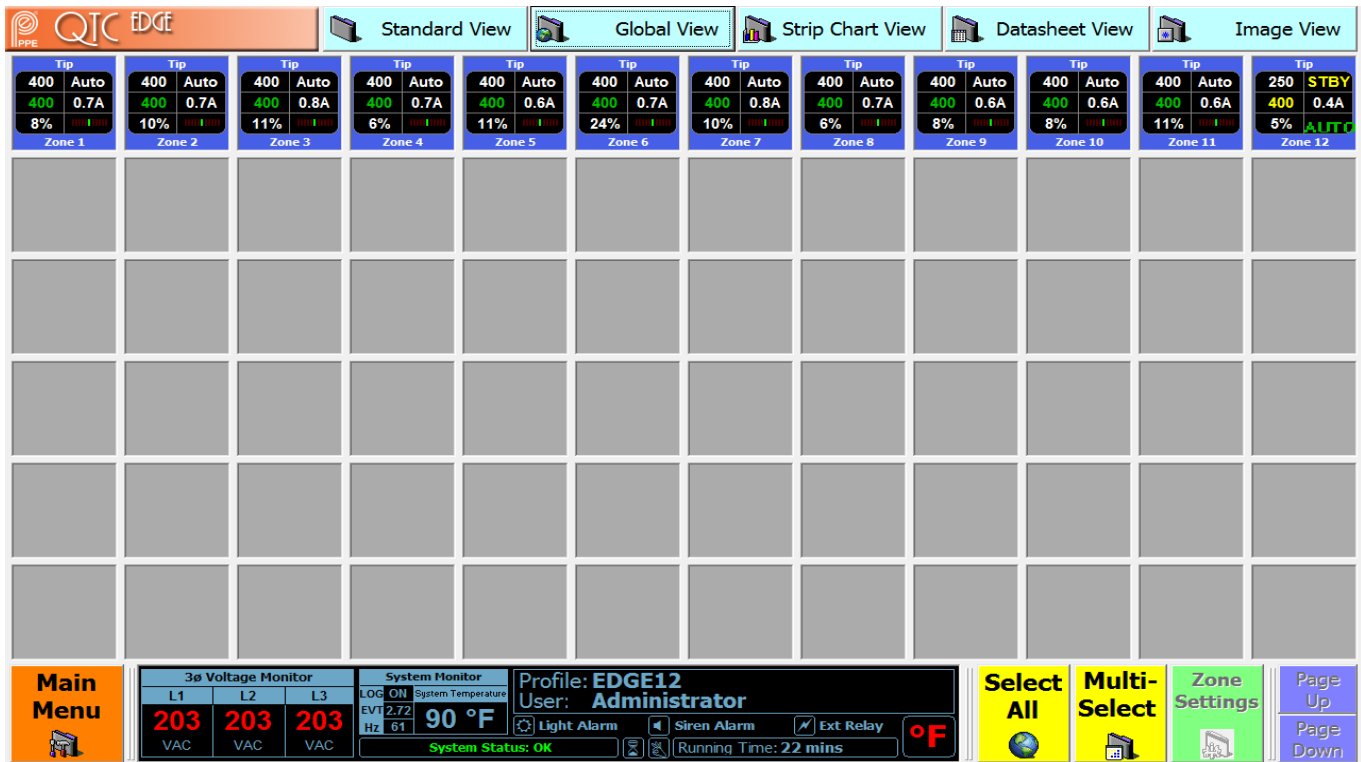
In standard view, depending on the system size, up to 48 zones can be displayed per page. The standard view displays:

Process Temp.  
Setpoint Temp.  
Percentage Pwr  
Mode  
Current  
Meter  
Status

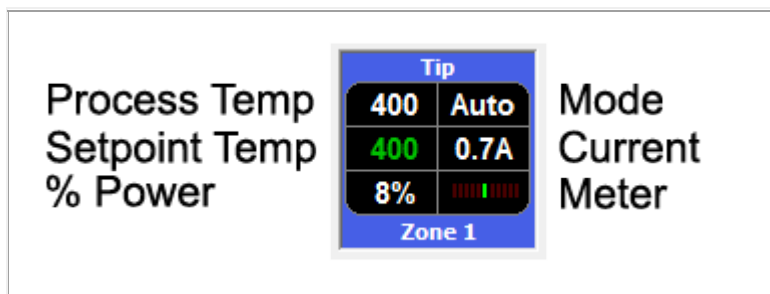


Upon an error condition, the process temperature window will display thermocouple errors. The status window will display secondary errors and if the controller is in slave mode or apo mode. In standby and boost modes, status window will display if the controller is in auto or manual modes.

## Global View

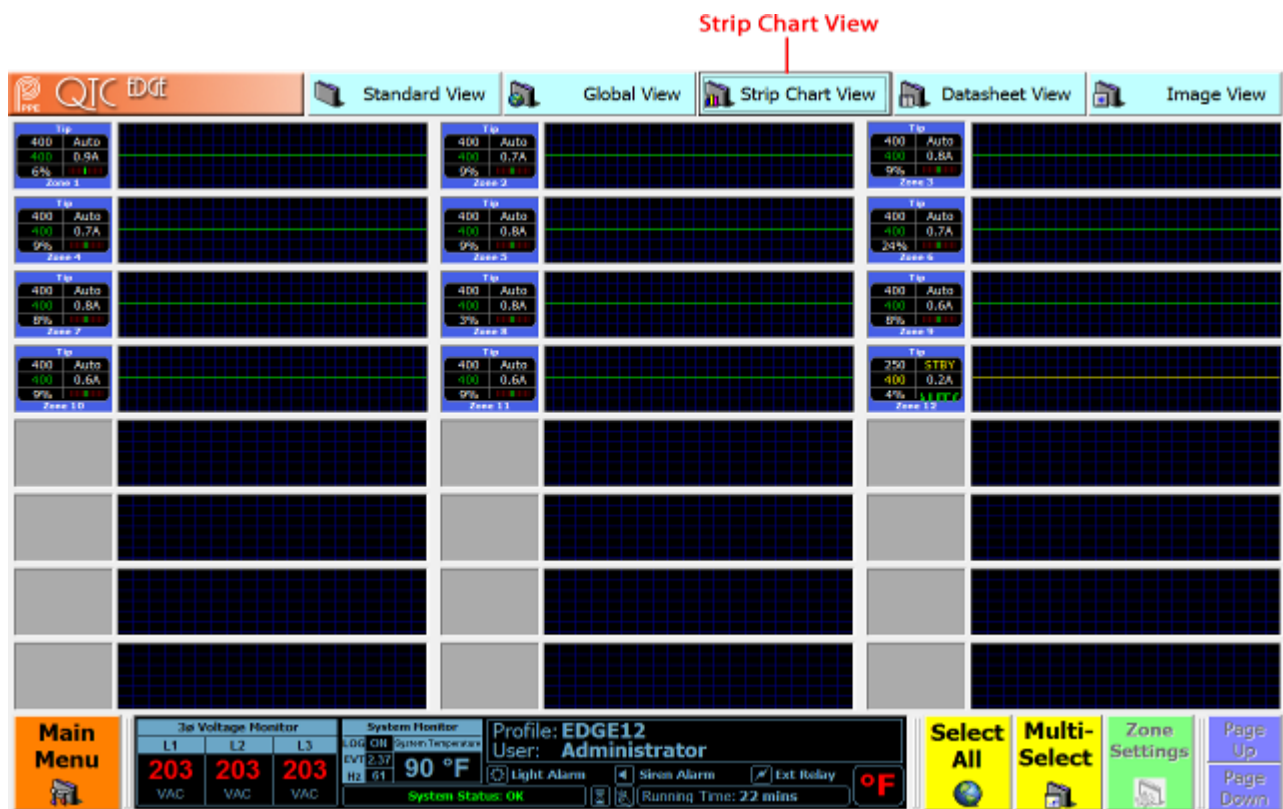


The global view allows for more controllers to be seen at one time. Depending on the system size, 72 - 240 zones can be displayed per page.



The process temperature window will display thermocouple errors. The meter window will be replaced and display secondary errors and if the controller is in slave mode or apo mode. In standby and boost modes, the meter window will display if the controller is in auto or manual modes.

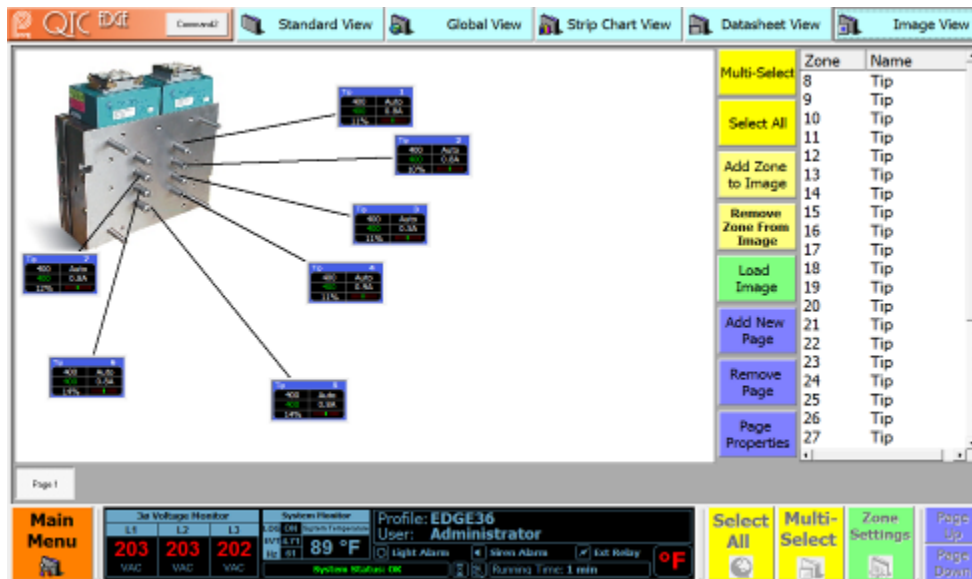
## Strip Chart View



The strip chart view displays a visual representation of the temperature on a line graph. If the temperature deviates from setpoint, the line will be displayed in red above or below the setpoint line which is in yellow. When at setpoint, the line will turn green. 24 zones are displayed per page. The controller layout is the same as the global view.

## Datasheet View



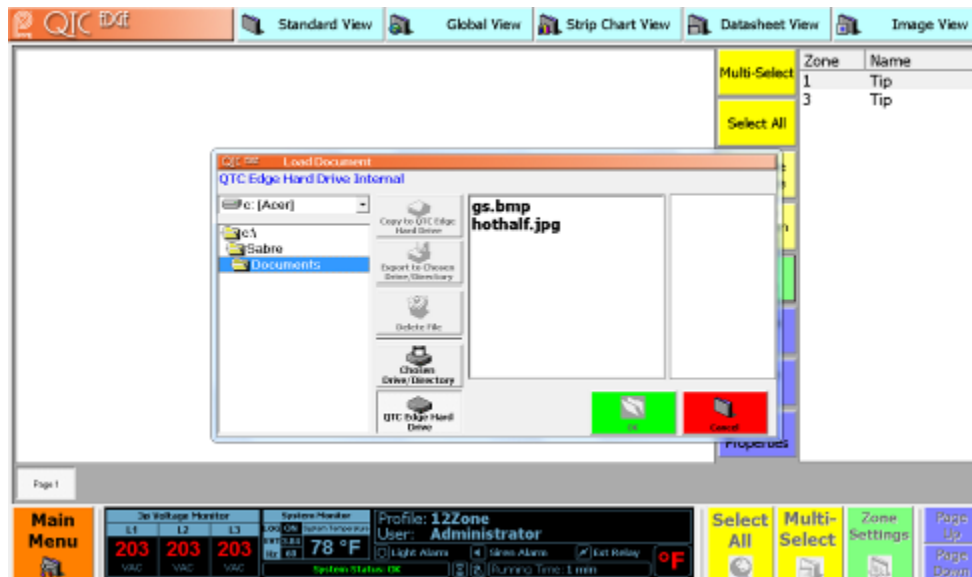


The Image View allows for a photograph of the mold to be applied to the window. Controllers are placed as an overlay on the image and can be moved around to a desired position. A line can be drawn from the controller to the point it is controlling. The same image can be used on multiple pages for better organization of controls.

### Load an Image

To load an image, the image must be in the documents folder of the system.

- Insert the USB flash drive with the image you want to use into the display. Wait approximately 15 seconds for the system to recognize the drive.
- Press **"Load Image"**
- Choose the USB drive and highlight the image you want to use.
- Press **"Copy to QTC Edge Hard Drive"** The image file should now appear on the list to the right.
- Choose the image from the list and press **"OK"**.
- The image should now appear on the main screen.



### Soft Start





If the controller is under 212° Fahrenheit, the controller will start in "Soft Start" mode. During this time, the controller will control as 212° Fahrenheit for a time (adjustable in parameters) to bake out moisture.

When the time elapses, the controller will go into Auto or Manual mode depending on the previously set conditions.

## Tune Mode



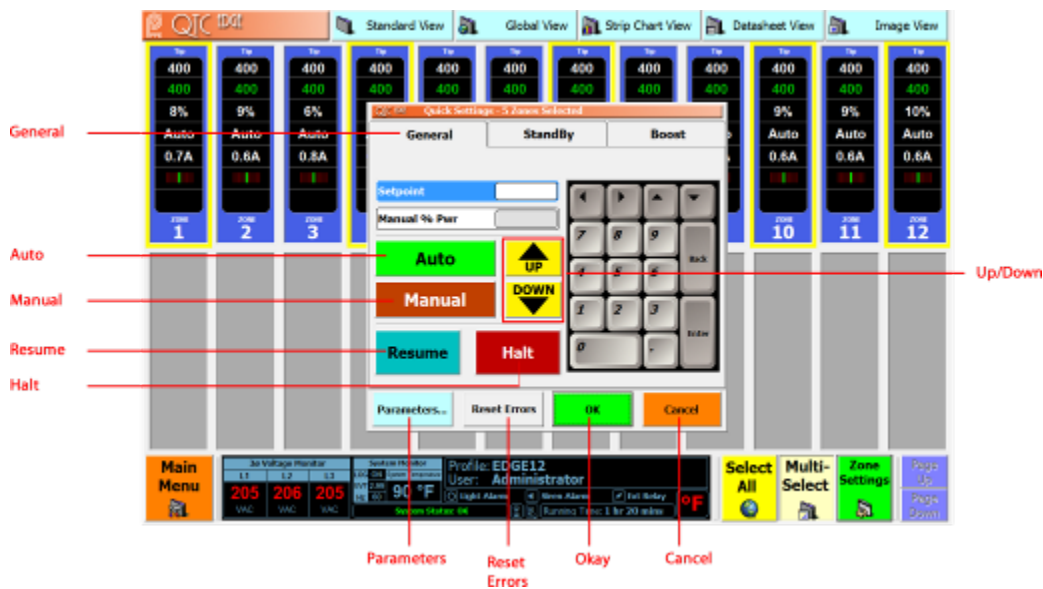
Tune mode occurs after the controller leaves Soft Start mode. During this time, the controller calculates PID values to save precision values to control the heater.

## Auto Mode



Automatic (closed loop) mode  
To put a single controller into Auto mode:

- Press the controller to put into auto mode. The Quick Settings window will pop up.
- The "**General**" tab is defaulted.
- Press "**Setpoint**" and input the setpoint temperature desired.
- Press the "**Auto**" button.
- Press "**OK**"



For multiple or all controllers:

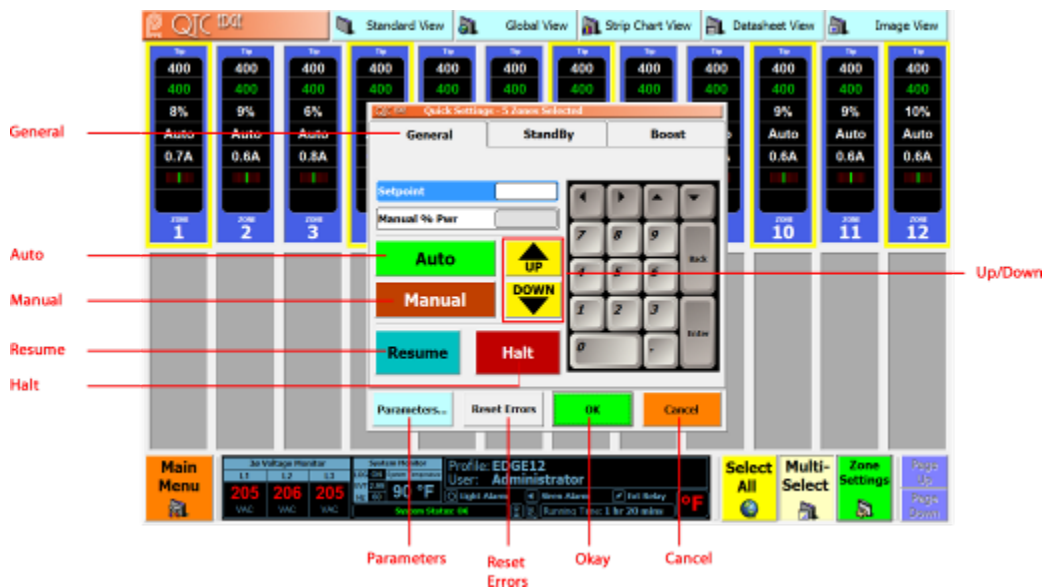
- Press "**Multi-Select**" and select which controllers you want to put into Auto Mode, then press "**Zone Settings**", or press "**Select All**" and the "**Quick Settings**" window will automatically appear.
- Follow the same steps as above for the single controller.

## Manual Mode



Manual Percentage Power (open loop) mode  
To put a single controller into manual mode:

- Press the controller to put into manual mode. The Quick Settings window will pop up.
- The "**General**" tab is defaulted.
- Press "**Manual % Pwr**" and input the percentage power desired.
- Press the "**Manual**" button.
- Press "**OK**"



For multiple or all controllers:

- Press "**Multi-Select**" and select which controllers you want to put into Manual Mode, then press "**Zone Settings**", or press "**Select All**" and the "**Quick Settings**" window will automatically appear.
- Follow the same steps as above for the single controller.

## Standby Mode

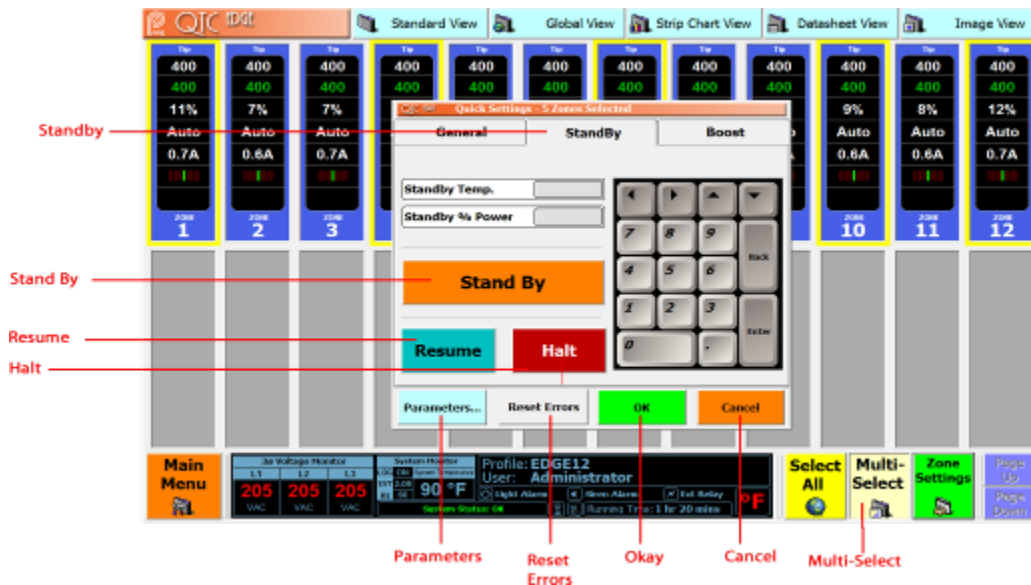


Standby mode puts the controller temperature to preset idle temperature. To enable standby mode for a single controller:

- Press the controller you want to put into standby, the quick settings box will appear.
- Press the **"Standby"** tab.
- If the controller is in auto mode, input the standby temperature. If the controller is in manual mode, input the manual standby % power.
- Press the **"Standby"** button.
- Press **"OK"**

For multiple or all controllers:

- Press **"Multi-Select"** and select which controllers you want to put into Standby Mode, then press **"Zone Settings"**, or press **"Select All"** and the **"Quick Settings"** window will automatically appear.
- Follow the same steps as above for the single controller.



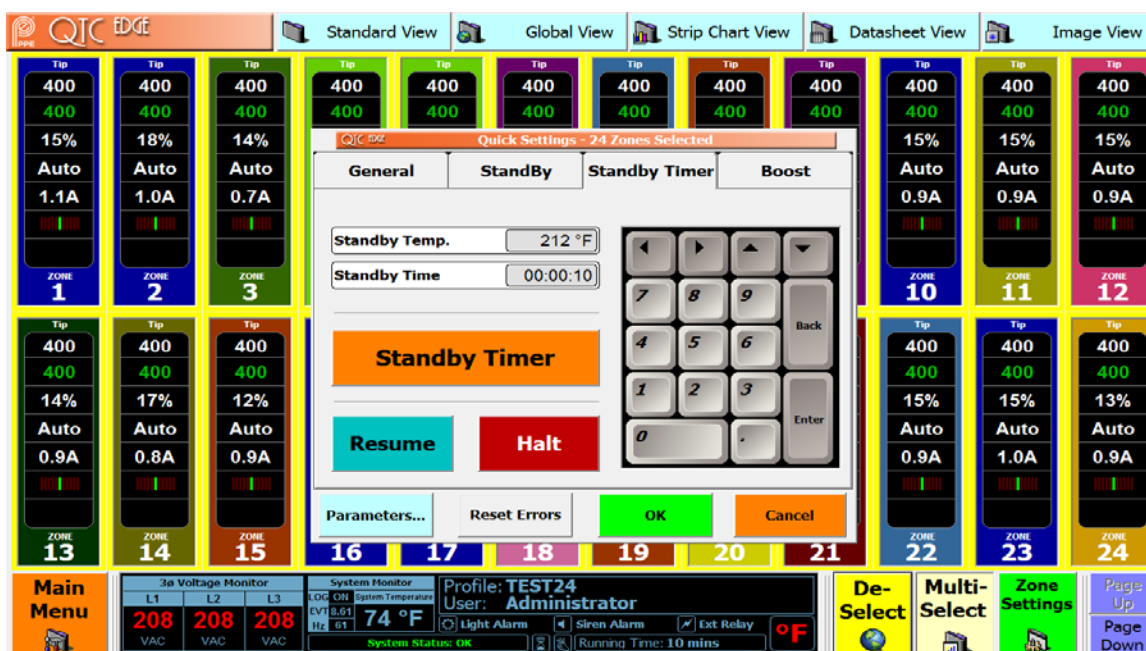
## Standby With Timer Mode

Standby with Timer mode puts the controller temperature to a preset idle temperature for a specified amount of time. To enable standby with Timer mode for a single controller:

- Press the controller you want to put into standby with timer mode, the quick settings box will appear.
- Press the "**Standby Timer**" tab.
- Input the standby temperature, then input the time required. A maximum of 24 hours may be applied. The format of the time must be HH:MM:SS (H = hours, M = minutes, S = seconds).
- Press the "**Standby Timer**" button.
- Press "**OK**"

For multiple or all controllers:

- Press "**Multi-Select**" and select which controllers you want to put into Standby with Timer Mode, then press "**Zone Settings**", or press "**Select All**" and the "**Quick Settings**" window will automatically appear.
- Follow the same steps as above for the single controller.



## Boost Mode

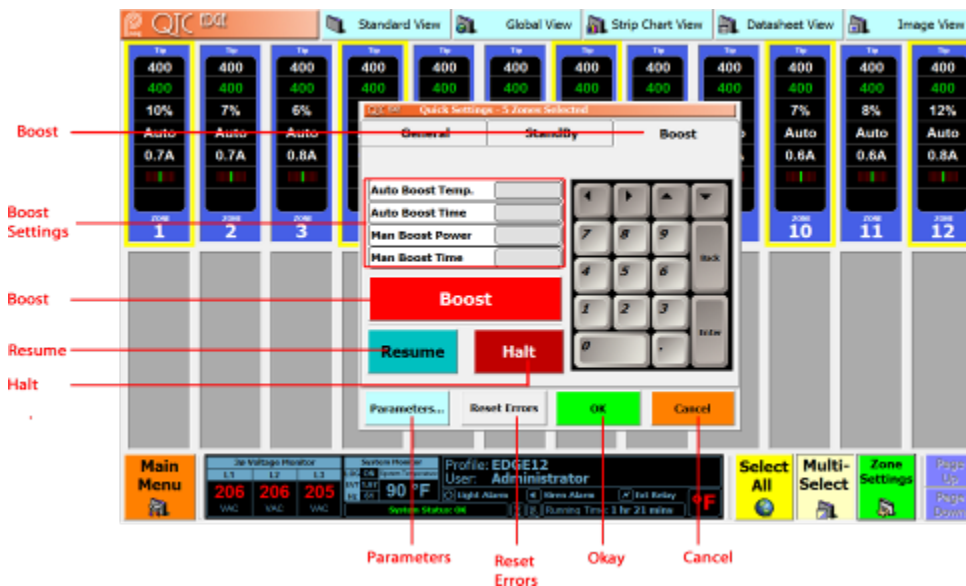


Boost mode increases the temperature to preset limit for a specified amount of time. To enable boost mode for a single controller:

- Press the controller you want to put into boost, the quick settings box will appear.
- Press the "**Boost**" tab.
- If the controller is in auto mode, input the temperature to increase by, and the duration time. If the controller is in manual mode, input the manual boost power to increase by, and the duration time.
- Press the "**Boost**" button.
- Press "**OK**"

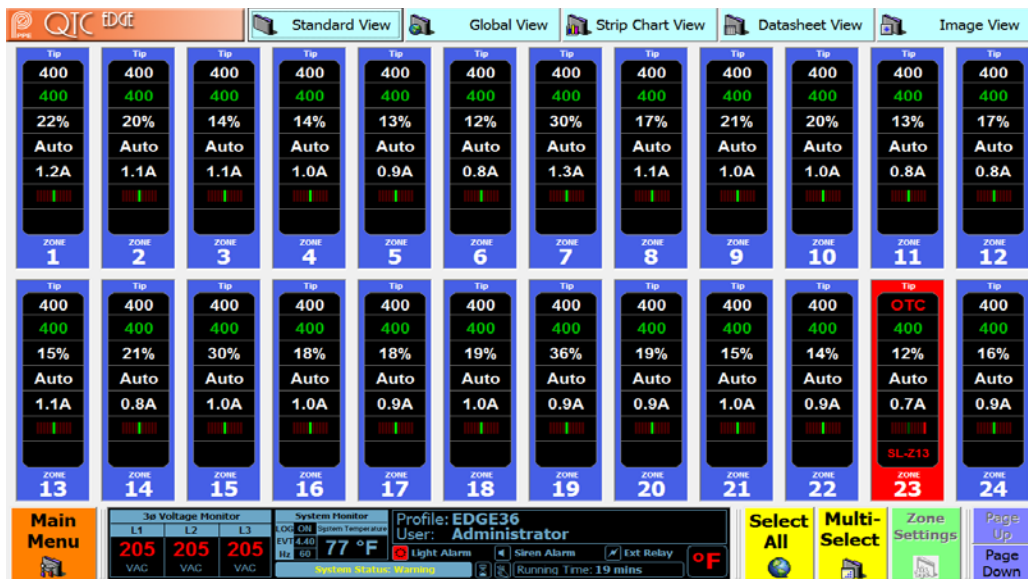
For multiple or all controllers:

- Press "**Multi-Select**" and select which controllers you want to put into Boost Mode, then press "**Zone Settings**", or press "**Select All**" and the "**Quick Settings**" window will automatically appear.
- Follow the same steps as above for the single controller.



## Slave Mode





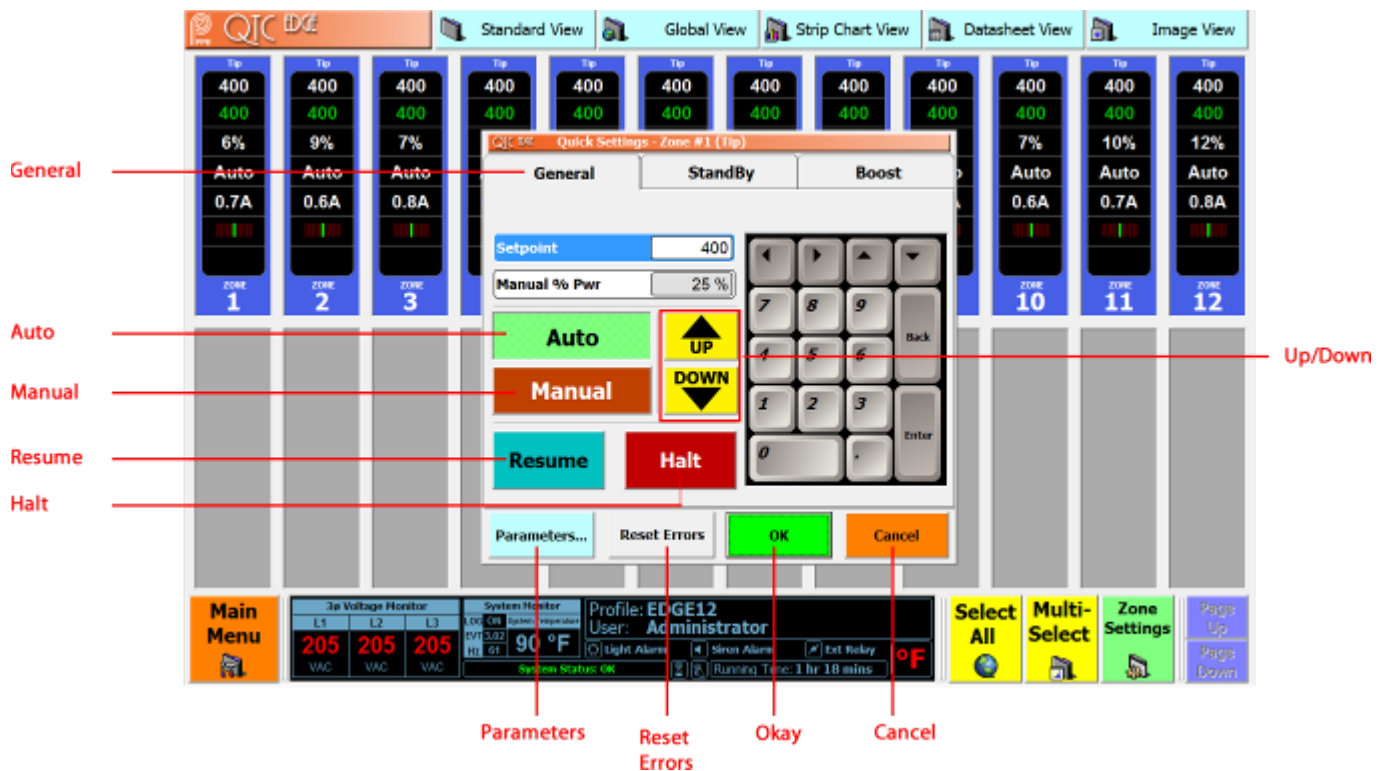
If a zone has been grouped, upon the detection of an Open Thermocouple Error, the controller will search the group for a controller to slave from. The controller will display SL and the zone it is slaving from on the bottom in the status window.

## APO Mode



If a controller is not grouped, or it fails to find a zone to slave from, it will automatically go into APO (Average Power Output) mode. APO will be displayed in the "Status" window and a percentage power output will be present on the display.

## Quick Settings (General)

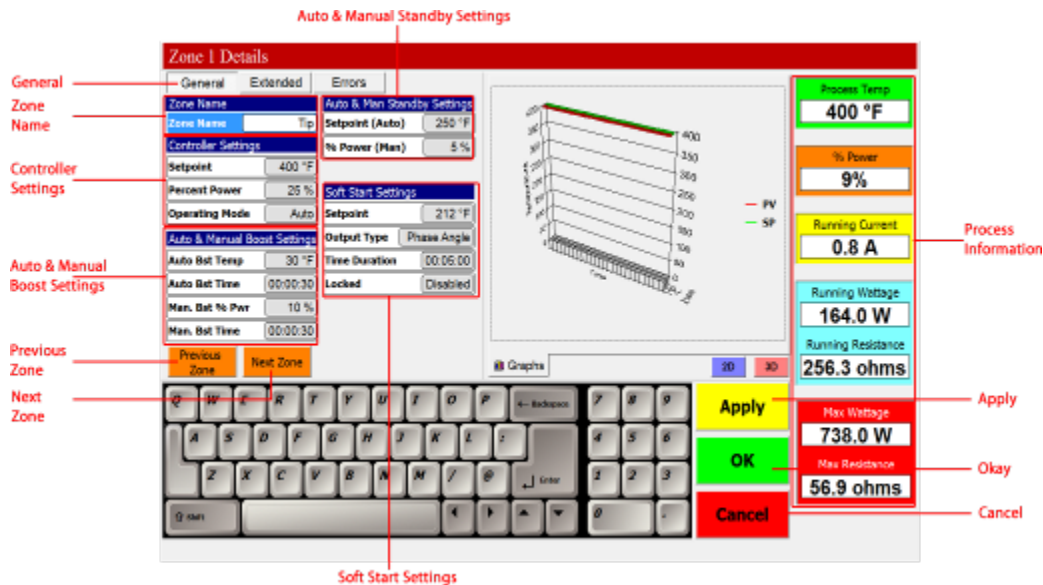


The quick settings gives access to the most common functions available for the controller including:

- Changing Temperature
- Changing Percentage Power
- Changing Mode
- Enabling [Boost](#) or [Standby](#) Modes
- Resetting Controller errors once they are repaired
- Access to controller parameters (only a user with Power User or Administrator Priviledges has access).

## Zone Details (General)



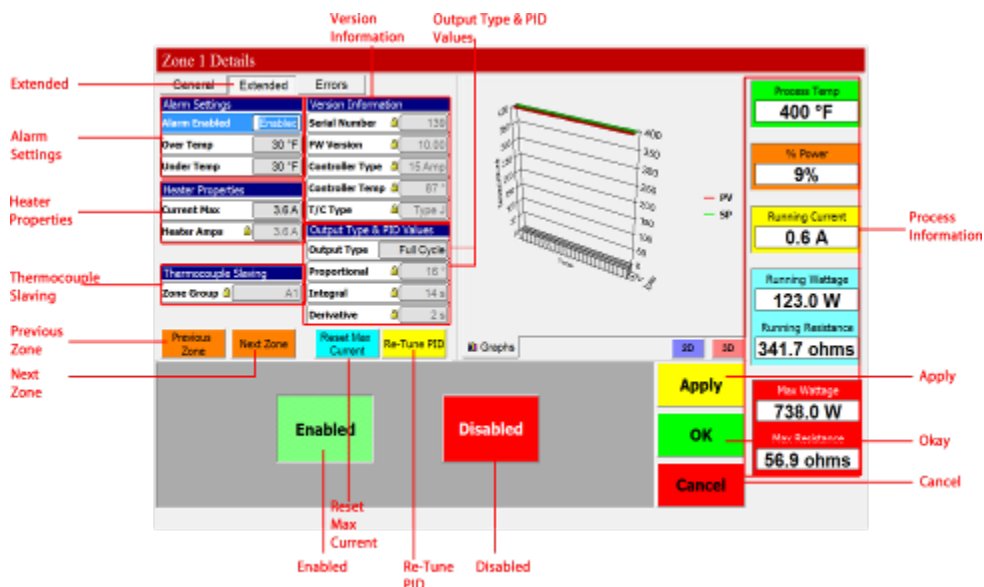


The zone details page can be reached from the Quick Settings window by pressing "**Parameters**". The parameters of the zone can be viewed and adjusted from this page. Parameters with the Lock symbol cannot be adjusted.

Soft Start Settings:

- Setpoint: The temperature which the zone controls at during Soft Start.
- Output Type: Control output type used during Soft Start.
- Time Duration: Time duration for Soft Start.
- Locked: prevents the controller from being taken out of Soft Start until the time duration has elapsed.

## Zone Details (Extended)



## Alarm Settings

Enables or disables the alarms for the selected zone

## Heater Properties

Setting for the current max to be set. If the controller exceeds the current set, a HiA error will occur.

## Thermocouple Slaving

Displays the Group the zone belongs to.

## Version Information

Displays misc. information about the controller.

## Output Type and PID Values

Output Type sets the output control type of the controller.

If the controller is unstable, the PID can be retuned by pressing "**Re-tune PID**"

If the detect max current setting is enabled, but the Max Current needs to be reset, press "**Reset Max Current**"

## Zone Details (Errors)

The screenshot displays the 'Zone 1 Details' interface with the 'Errors' tab selected. The interface includes a list of possible errors, a 'Reset Zone Controller Card' button, a 'Previous Zone' button, and a 'Next Zone' button. A keyboard is shown at the bottom with 'Apply', 'OK', and 'Cancel' buttons highlighted. On the right, a 'Process Information' panel shows various metrics.

**Errors**

**Possible Errors**

- ☐ Under Temperature
- ☐ Over Temperature
- ☐ Open T/C (OTC)
- ☐ Reversed T/C (RTC)
- ☐ Shorted T/C (STC)
- ☐ Fuse 1 Blown (F1)
- ☐ Fuse 2 Blown (F2)
- ☐ Triac, Heater, Fuse 3 Open (THF)
- ☐ Over Current Detected (HIA)
- ☐ Triac Shorted (TSH)
- ☐ No Line Voltage (Line)

**Reset Zone Controller Card**

Resetting the zone controller card under certain error conditions such as HIA, TSH, or THF is not recommended as damage to the controller can occur!

**Previous Zone** **Next Zone**

**Process Information**

- Process Temp: 400 °F
- % Power: 10%
- Running Current: 0.7 A
- Running Wattage: 143.5 W
- Running Resistance: 292.9 ohms
- Max Wattage: 738.0 W
- Max Resistance: 56.9 ohms

**Apply** **OK** **Cancel**

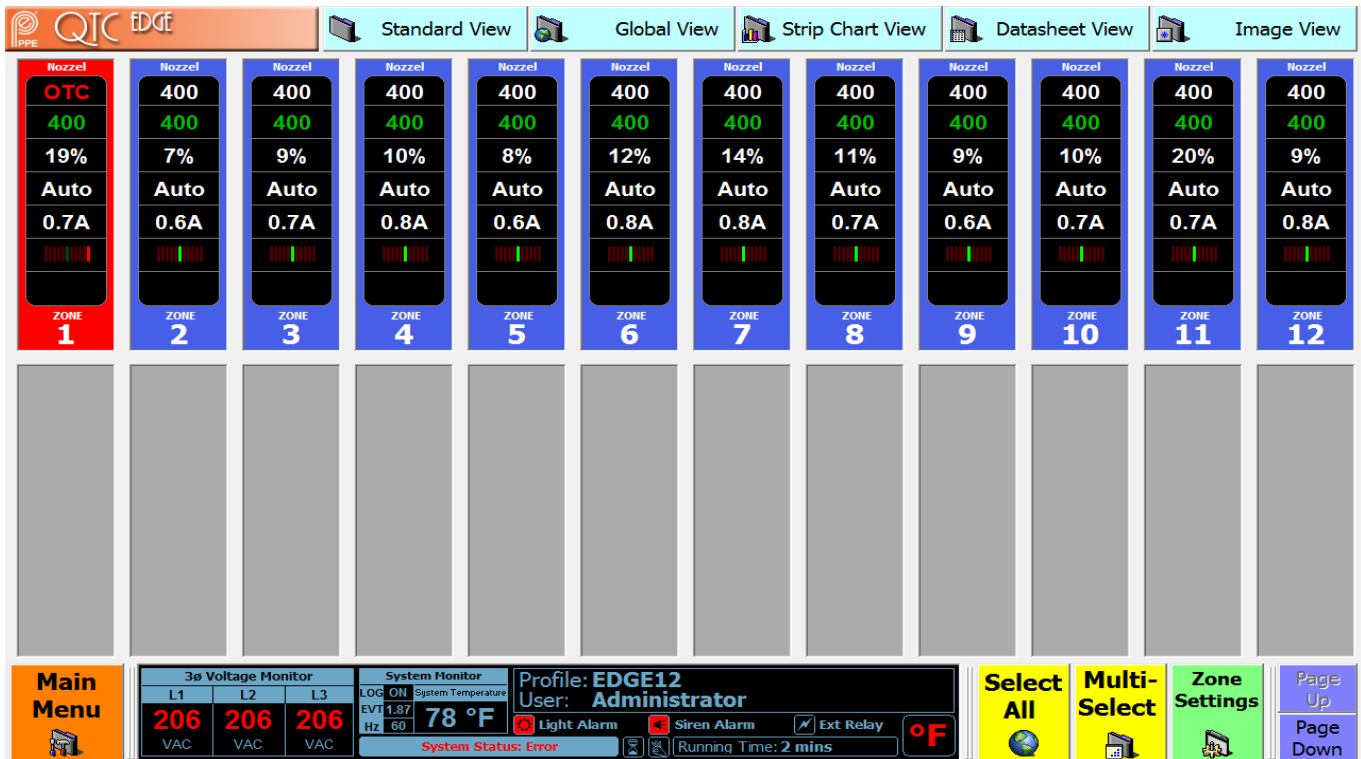
This page displays any error conditions of the controller. If the problem has been fixed, the error must be reset if the system has not been shut down. To reset, press "Reset Zone Controller Card"

## General Errors

- Lo Temp: temperature is below the alarm set limits (adjustable in parameters)

- Hi Temp: temperature is above the alarm set limits (adjustable in parameters)
- F1/F2: Open Fuse. This indicates an input power fuse has blown.

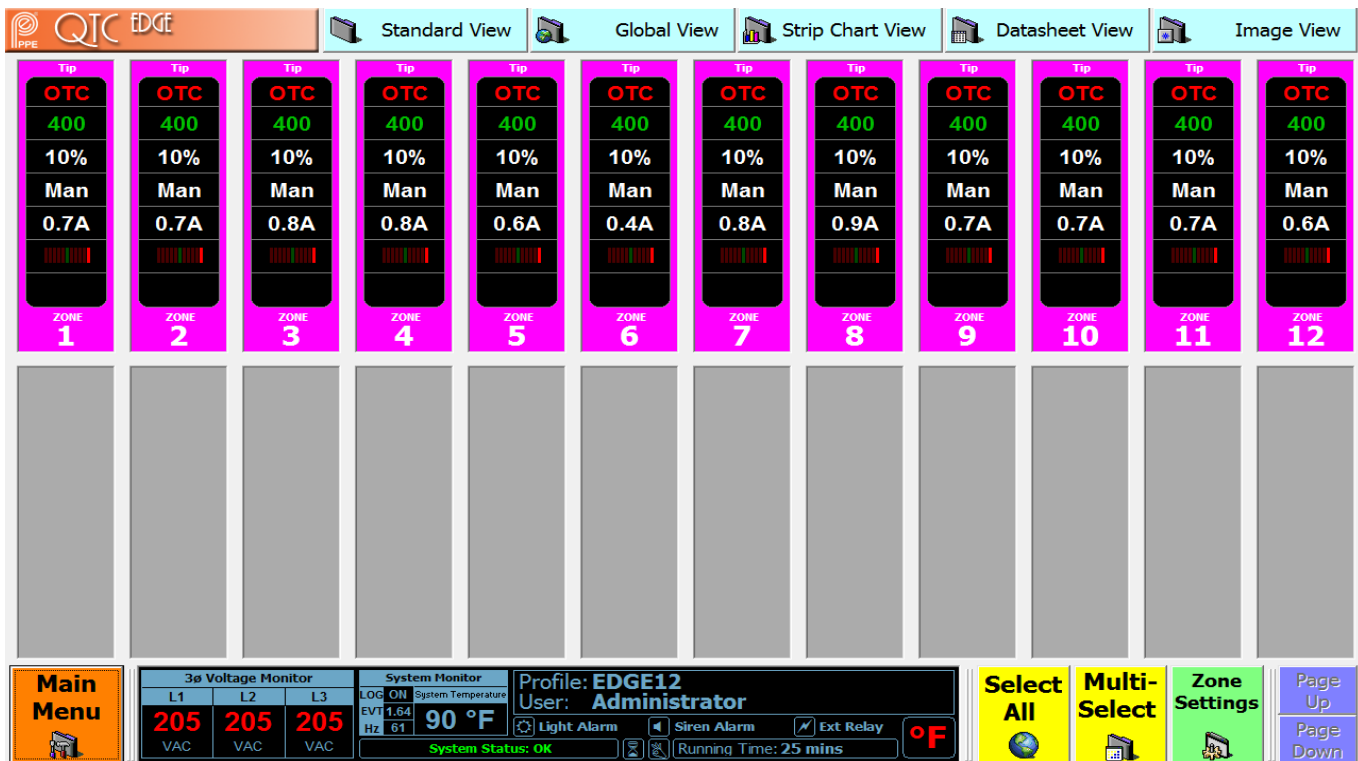
## Thermocouple Errors



Errors are displayed in place of the Process Temperature if they occur. Thermocouple errors include:

- OTC: Open Thermocouple. If the controller is in a group, the controller will find a zone to slave from. If it is unsuccessful in finding a zone, the controller will go into APO (average power output) providing the controller was at setpoint.
- STC: Shorted Thermocouple. The controller will Halt if this error occurs. Time can be extended or disabled in controller parameters (for heaters with very slow rise in temperature).
- RTC: Reversed Thermocouple. The controller will Halt if this error occurs.

If the controller is in Manual Mode without a thermocouple, the border of the controller will turn magenta.



## Power Output Errors

- **HiA:** Over current detection. If the heater load exceeds the current limit set in the controller parameters (or exceeds the auto max amps set), the controller will automatically halt in this condition.
- **THF:** Open TRIAC, Heater, or Blown F3 Fuse. If the controller does not increase in temperature, there is no current, and power output is 100%, the controller will automatically halt in this condition.
- **TSH:** TRIAC shorted. If the controller detects that there is current, when the output should be 0%, the controller will automatically halt in this condition.

## Shutdown Procedure

## Standard Shutdown Procedure

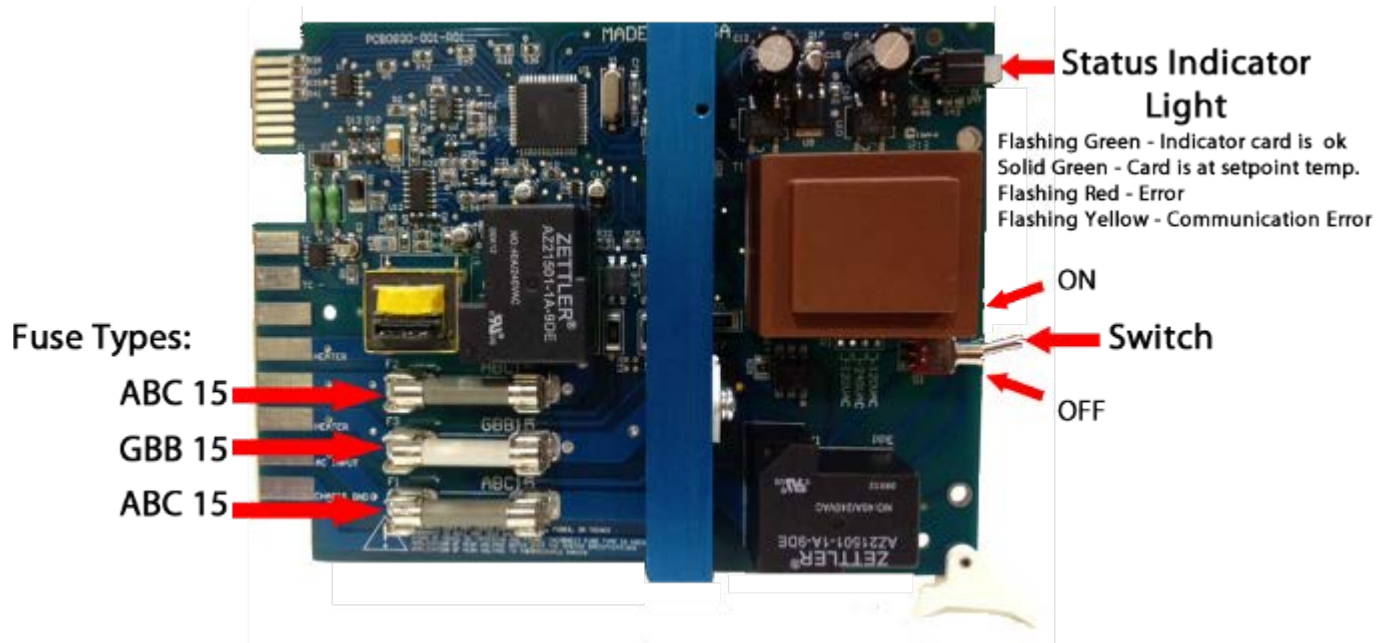
### **If you require the system to start with the controllers in HALT mode**

Press **SELECT ALL**, then **HALT**, then press **OK**. The controllers will halt. Press **MAIN MENU**, then press **SHUT DOWN**.

### **If you require the system to start with controllers in AUTO or MAN modes (last running mode)**

Press **MAIN MENU**, then **SHUT DOWN**. The computer will still send the halt command to the controllers, but the next time the system is started, it will start in the last mode it was running in (AUTO/MANUAL).

After either procedure has been done, wait for the computer to shut down completely, then you may switch the breaker to the **OFF** position.



The QTC-Edge Controller cards are modular single zone units capable of up to 15amps. Failure of 1 card does not force a user to shut down the whole system to repair. A card can be replaced with a new card. The QTC-Edge system will detect the new card and prompt the user to reprogram the card with the data of the previous card.

The controller cards offer both input and output protection. Card inputs are protected by 2 ABC-15 user replaceable fuses. The TRIAC output is protected by a GBB-15 very fast acting fuse.\*

**\*WARNING:** Fuses must be replaced with the same type and rating or equivalent. The GBB-15 is a very fast acting fuse and must be replaced with an equivalent.

Warranty may be void if any other type fuse is used.