boiler manager™

Troubleshooting

johnson burners

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Troubleshooting

Common problems

Burner will not start

Any of the following may be applicable.

1. The burner selector switch is set to **OFF**. Set the switch to **ON**.

2. The fuel selector switch is set to a fuel that is not enabled. Select a fuel that is enabled or enable the desired fuel. This setting is located on the Burner Control Options page in the OEM section.

3. The fuel selector switch is set to a fuel that has not yet been commissioned. Select a fuel that has been commissioned or proceed to commission the burner to fire the desired fuel.

4. A safety shutdown has the system in a lockout condition. After taking note of the shut down information and taking appropriate action, reset the burner by pressing the **Burner Reset** button on the front door of the panel and pressing the **Alarm Reset** button on the Primary Safety Control page in the Operation section.

5. There is no call for heat. Either wait for the steam pressure or outlet water temperature to drop below the Boiler Start setpoint or raise the start setpoint higher than the currently measured value. This setting is located on the Miscellaneous Settings page in the Setup section.

6. The fuel selector switch is set to **AUTO**, automatic fuel transfer is enabled and a fuel transfer is in progress. As the transfer completes, the burner should automatically restart on its own.

7. The burner was left in commissioning mode. Force the commissioning mode to end by setting the burner selector switch to **OFF**. Then set the switch back to ON to see if the burner will start. If it does not, then that fuel may not have been successfully commissioned.

8. The burner was left in the calibration mode. Go to any Calibration page in the Setup section and set the **Calibrate** setting to **OFF**. Note that if any actuator calibration had been changed, the burner must be commissioned again before it can be set to fire.

9. An internal wiring or component fault may exist within the Boiler Manager. This can include opening of a fuse or circuit breaker, loss of connection of a wire to a terminal or failure of any of the following components.

    a. One of the 24VDC power supplies

b. The burner ON/OFF selector switch or the fuel selector switch

c. The oil select relay

d. One or more PLC input or output modules

e. The primary safety control

Cannot select the fuel I want to fire

Any of the following may be applicable.

1. The option to fire the desired fuel has not been enabled on this system. The gas and oil firing options are accessible from the Burner Control Options page in the OEM section.

2. The desired fuel has not yet been commissioned. A qualified service technician must commission the burner to fire this fuel prior to normal use.

How do I enable or disable low fire hold on burner startup

Low fire hold is an option that is part of the cold start control. Go to the Cold Start Settings page in the Setup section and set the **Low Fire Hold** setting to **ON** or **OFF** as desired. There are several other options available on this page as well.

Status of the cold start control can be found on the Primary Controls page in the Operation section.

How can I see alarms

From most pages, press the **Alarms** button found along the bottom bezel towards the left end of the screen. This will open the Alarm History page.

How can I clear alarms

From most pages, press the **Alarms** button found along the bottom bezel towards the left end of the screen. This will open the Alarm History page. On the Alarm History page, press the **Clear All** button found along the bottom. This will clear all alarms from the list that are no longer active and that have been reset.

If an alarm still appears after pressing the **Clear All** button even if the alarm is suspected of not being active, press the **Alarm Reset** button on the Primary Safety Control page in the Operation section.

Settings, configuration, or commissioning data seems to be lost

Any of the following may be applicable.

1. Changing certain options within the OEM section will clear other settings and data. In some cases, complete burner commission on one or both fuels will need to be repeated.

2. The display does not have a working connection to the PLC. Check that the Ethernet cable connection between the display and the PLC are in place. If the display and PLC are connected to an Ethernet switch be sure the switch is powered on and functional.

3. The commissioning process may not have been completed correctly. Generally if commissioning is aborted for any reason, all steps that were saved are retained but commissioning will still need to be repeated.

Home Page

Reading(s) not appearing on Home page boiler graphic

Any of the following may be applicable.

1. The display does not have a working connection to the PLC.

2. The option for the desired reading is not enabled in the OEM section. Go to the OEM section and enable the appropriate "control" or "input" option.

Fuel selected does not match fuel selector switch position

Any of the following may be applicable.

1. The option to fire the desired fuel has not been enabled on this system. The gas and oil firing options are accessible from the Burner Control Options page in the OEM section.

2. The desired fuel has not yet been commissioned. A qualified service technician must commission the burner to fire this fuel prior to normal use.

3. The fuel selection was changed while the burner is still firing. The new selection does not take effect until the burner is shut down.

4. The fuel selector switch is set to **AUTO**, automatic fuel transfer is enabled and the system is calling for a specific fuel (either primary or secondary) according to whether the outdoor air temperature switch is opened or closed. The selection for which fuel is primary can be set on the Miscellaneous Settings page in the Setup section.

Primary Controls Page

A window is blank

A blank window in the upper left quadrant indicates that neither the steam pressure control nor the water temperature control is enabled. One of these controls must be enabled in the OEM section before it appears in the window.

Steam Pressure

The control will not go into automatic mode

Any of the following may be applicable.

1. The steam pressure input signal has failed. If it is preferred that the control should not go to manual mode when this occurs, set the **Man on PV Fail** setting to **OFF**. This setting is on the Steam Pressure Settings page in the Setup section. Note that if the input signal fails but the control stays in automatic mode, the control will be held in a standby state with the output held constant.

2. The furnace pressure control is in manual mode (if furnace pressure control is enabled). The furnace pressure control must be in automatic mode before the steam pressure control can modulate the firing rate in automatic mode. To change the furnace pressure control to automatic, go to the Secondary Controls page in the Operation section, press the **Adjust** button in the Furnace Draft Pressure window and then set the **Auto** switch to **ON** in the popup window.

3. The selected fuel is not commissioned. The fuel must be successfully commissioned before the Steam Pressure control can be set to automatic mode and modulate the firing rate.

The control is in automatic mode but the output will not modulate the firing rate

Any of the following may be applicable.

1. The burner is not firing.

2. Cold start is activated with either low fire hold active or a delay in progress before ramping up the setpoint. Either wait for the cold start sequence to complete or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Cold Start window and then press the **Cold Start Abort** button in the popup window.

3. The steam pressure input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the firing rate manually set.

4. The steam pressure is above setpoint and the control is already at minimum firing rate.

5. The steam pressure is below setpoint and the control is already at maximum firing rate.

6. The steam pressure setpoint high and low limits have been set equal to each other.

I cannot adjust the setpoint

Any of the following may be applicable.

1. Cold start may be active with the setpoint ramping option enabled. Either wait for the cold start sequence to end, abort the sequence or disable the setpoint ramping option.

a. To abort cold start, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Cold Start window and then press the **Cold Start Abort** button in the popup window.

b. To disable the cold start setpoint ramping option, go to the Cold Start Settings page in the Setup section and set the **Ramp Setpoint** option to **OFF**.

2. The control is in manual mode and the option to force the setpoint to track the process value is enabled. Either set the control to automatic mode or disable this option. To disable the option, go to the Steam Pressure Settings page in the Setup section and set the **SP Track in Man** option to **OFF**.

3. The boiler master mode is active (with the boiler master option enabled) and the option to force the setpoint to track the process value during this time is enabled. Either turn off the boiler master mode or disable the tracking option.

    a. To turn off the boiler master mode, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Steam Pressure window and then set the **Boiler Mstr Mode** switch to **OFF** on the popup window.

    b. To disable the tracking option, go to the Steam Pressure Settings page in the Setup section and set the **SP Track in BM** option to **OFF**.

I cannot raise or lower the setpoint any further

The setpoint is at the setpoint high or low limit. If the setpoint limit needs to be changed, go to the Steam Pressure Settings page in the Setup section and adjust the **SP High Limit** or **SP Low Limit** setting as desired.

I cannot adjust the output (firing rate)

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up (ignition sequence) or is shutting down.

2. The control is in automatic mode.

3. Cold start is activated with the low fire hold option enabled. Either wait for the cold start sequence to complete or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Cold Start window and then press the **Cold Start Abort** button in the popup window.

The output (firing rate) changed unexpectedly

The steam pressure input signal has failed and the option to force a fixed firing rate during this time is enabled. If this feature is not needed, go to the Steam Pressure Settings page in the Setup section and set the **Out on PV Fail** option to **OFF**.

If the option is desired but the firing rate needs to be adjusted, simply place the control in manual mode and adjust the output as needed.

I cannot raise or lower the output (firing rate) any further

The firing rate is at the high or low limit for that fuel. If the firing rate limit needs to be changed, go to the Parallel Positioning Settings page or the Full Metering Settings page (whichever is applicable) and adjust the **FR High Lim** or **FR Low Lim** for the desired fuel.

During commissioning, absolute limits for the firing rate are established for each fuel. The user adjustable limit settings on the Settings page cannot be set outside of the range of the absolute limits.

I cannot turn on the Boiler Master mode

The boiler master option has not been enabled. To enable it go to the Boiler Control Options page in the OEM section and set the **Boiler Master Control** option to **ON**.

Water Temperature

Many of the issues with the water temperature control are similar to those for the steam pressure control. They are however listed here somewhat redundantly so that references specific to the water temperature control can be shown.

The control will not go into automatic mode

Any of the following may be applicable.

1. The water temperature input signal has failed. If it is preferred that the control should not go to manual mode when this occurs, set the **Man on PV Fail** setting to **OFF**. This setting is on the Outlet Water Temperature Settings page in the Setup section. Note that if the input signal fails but the control stays in automatic mode, the control will be held in a standby state with the output held constant.

2. The furnace pressure control is in manual mode (if furnace pressure control is enabled). The furnace pressure control must be in automatic mode before the water temperature control can modulate the firing rate in automatic mode. To change the furnace pressure control to automatic, go to the Secondary Controls page in the Operation section, press the **Adjust** button in the Furnace Draft Pressure window and then set the **Auto** switch to **ON** in the popup window.

3. The selected fuel is not commissioned. The fuel must be successfully commissioned before the water temperature control can be set to automatic mode and modulate the firing rate.

The control is in automatic mode but the output will not modulate the firing rate

Any of the following may be applicable.

1. The burner is not firing.

2. Cold start is activated with either low fire hold active or a delay in progress before ramping up the setpoint occurs. Either wait for the cold start sequence to complete or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Cold Start window and then press the **Cold Start Abort** button in the popup window.

3. The outlet water temperature input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the firing rate manually set.

4. The water temperature is above setpoint and the control is already at minimum firing rate.

5. The water temperature is below setpoint and the control is already at maximum firing rate.

6. The water temperature setpoint high and low limits have been set equal to each other.

I cannot adjust the setpoint

Any of the following may be applicable.

1. Cold start may be active with the setpoint ramping option enabled. Either wait for the cold start sequence to end, abort the sequence or disable the setpoint ramping option.

    a. To abort cold start, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Cold Start window and then press the **Cold Start Abort** button in the popup window.

    b. To disable the cold start setpoint ramping option, go to the Cold Start Settings page in the Setup section and set the **Ramp Setpoint** option to **OFF**.

2. The control is in manual mode and the option to force the setpoint to track the process value is enabled. Either set the control to automatic mode or disable this option. To disable the option, go to the Outlet Water Temperature Settings page in the Setup section and set the **SP Track in Man** option to **OFF**.

3. The boiler master mode is active (with the boiler master option enabled) and the option to force the setpoint to track the process value during this time is enabled. Either turn off the boiler master mode or disable the tracking option.

    a. To turn off the boiler master mode, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Water Temperature window and then set the **Boiler Mstr Mode** switch to **OFF** on the popup window.

    b. To disable the tracking option, go to the Outlet Water Temperature Settings page in the Setup section and set the **SP Track in BM** option to **OFF**.

I cannot raise or lower the setpoint any further

The setpoint is at the setpoint high or low limit. If the setpoint limit needs to be changed, go to the Outlet Water Temperature Settings page in the Setup section and adjust the **SP High Limit** or **SP Low Limit** setting as desired.

I cannot adjust the output (firing rate)

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up (ignition sequence) or is shutting down.

2. The control is in automatic mode.

3. Cold start is activated with the low fire hold option enabled. Either wait for the cold start sequence to complete or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the **Adjust** button in the Cold Start window and then press the **Cold Start Abort** button in the popup window.

The output (firing rate) changed unexpectedly

The outlet water temperature input signal has failed and the option to force a fixed firing rate during this time is enabled. If this feature is not needed, go to the Outlet Water Temperature Settings page in the Setup section and set the **Out on PV Fail** option to **OFF**.

If the option is desired but the firing rate needs to be adjusted, simply place the control in manual mode and adjust the output as needed.

I cannot raise or lower the output (firing rate) any further

The firing rate is at the high or low limit for that fuel. If the firing rate limit needs to be changed, go to the Parallel Positioning Settings page or the Full Metering Settings page (whichever is applicable) and adjust the **FR High Lim** or **FR Low Lim** for the desired fuel.

During commissioning, absolute limits for the firing rate are established for each fuel. The user adjustable limit settings on the Settings page cannot be set outside of the range of the absolute limits.

I cannot turn on the Boiler Master mode

The boiler master option has not been enabled. To enable it go to the Boiler Control Options page in the OEM section and set the **Boiler Master Control** option to **ON**.

Boiler Master

Boiler Master control is not showing

A blank window in the upper right quadrant indicates that the Boiler Master control is not enabled. This control must be enabled in the OEM section before it appears in the window.

Control will not go into automatic mode

Any of the following may be applicable.

1. The remote demand input signal has failed. If it is preferred that the control should not go to manual mode when this occurs, set the "Man on Dmd Fail" setting to OFF. This setting is on the Boiler Master Settings page in the Setup section. Note that if the input signal fails but the control stays in automatic mode, the control will be held in a standby state with the output held constant.

2. The Furnace Pressure control is in manual mode (if furnace pressure control is enabled). The Furnace Pressure control must be in automatic mode before the Boiler Master control can modulate the firing rate in automatic mode. To change the Furnace Pressure control to automatic, go to the Secondary Controls page in the Operation section, press the Adjust button in the Furnace Draft Pressure window and then set the Auto switch to ON in the popup window.

3. The selected fuel is not commissioned. The fuel must be successfully commissioned before the Boiler Master control can be set to automatic mode and modulate the firing rate.

The control is in automatic mode but the output will not modulate the firing rate

Any of the following may be applicable.

1. The burner is not firing.

2. The control that provides the remote demand signal (not part of the Boiler Manager) may be in manual mode or being held at a fixed value.

3. Cold start is activated with either low fire hold active or a delay in progress before ramping up the setpoint occurs. Either wait for the cold start sequence to complete or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the Adjust button in the Cold Start window and then press the Cold Start Abort button in the popup window.

4. The remote demand input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the firing rate manually set.

5. The remote demand continues to fall but the control is already at minimum firing rate.

6. The remote demand continues to rise but the control is already at maximum firing rate.

The firing rate will not reach maximum while the control is in automatic mode

The remote demand is at maximum but a negative bias setting is keeping the firing rate from reaching maximum output.

The firing rate will not reach minimum while the control is in automatic mode

The remote demand is at minimum but a positive bias setting is keeping the firing rate from reaching minimum output.

I cannot adjust the bias

Any of the following may be applicable. During this time the bias always tracks the difference between the firing rate set by the user and the remote demand.

1. The burner is not firing.
2. The control is in manual mode.
3. The control is not active but instead either the Steam Pressure or Water Temperature control is in control of the firing rate.
4. The remote demand input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the firing rate manually set.
5. Cold start may be active with low fire hold active. Either wait for the cold start sequence to end or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the Adjust button in the Cold Start window and then press the Cold Start Abort button in the popup window.

I cannot adjust the output (firing rate)

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up (ignition sequence) or is shutting down.
2. The control is in automatic mode.
3. Cold start is activated with the low fire hold active. Either wait for the cold start sequence to complete or abort the sequence. To abort cold start, go to the Primary Controls page in the Operation section, press the Adjust button in the Cold Start window and then press the Cold Start Abort button in the popup window.

The output (firing rate) changed unexpectedly

The remote demand input signal has failed and the option to force a fixed firing rate during this time is enabled. If this feature is not needed, go to the Boiler Master Settings page in the Setup section and set the Out on Dmd Fail option to OFF.

If the option is desired but the firing rate needs to be adjusted, simply place the control in manual mode and adjust the output as needed.

I cannot raise or lower the output (firing rate) any further

The firing rate is at the high or low limit for that fuel. If the firing rate limit needs to be changed, go to the Parallel Positioning Settings or the Full Metering Settings (whichever is applicable) and adjust the FR High Lim or FR Low Lim for the desired fuel.

During commissioning, absolute limits for the firing rate are established for each fuel. The user adjustable limit settings on the Settings page cannot be set outside of the range of the absolute limits.

I cannot turn off the Boiler Master mode

The Steam Pressure Control and the Outlet Water Temperature Control options are all disabled so that the Boiler Master option is the only choice for driving the firing rate.

Cold Start

Cold start does not activate

Any of the following may be applicable.

1. None of the four options as listed below for cold start are enabled. Cold start cannot activate until at least one of these settings is enabled. These settings can be found on the Cold Start Settings page in the Setup section.

    a. SP Tracks PV

    b. Low Fire Hold

    c. Ramp Setpoint

    d. Delay SP Ramp

2. Setpoint tracking or setpoint ramping was expected and the Boiler Master control is active. These options are only applicable to the Steam Pressure Control or the Water Temperature Control. The Boiler Master does not have a "setpoint" as such.

3. The water temperature switch was open (below setpoint temperature) but cold start did not occur. The water temperature switch option is not enabled. Go to the Cold Start Settings page in the Setup section and set the Water Temp sw option to ON.

Cold start activates always or when not expected

Any of the following may be applicable.

1. If the cold start feature is not needed, go to the Cold Start Settings page in the Setup section and set all four options listed below to OFF.

    a. SP Tracks PV

    b. Low Fire Hold

    c. Ramp Setpoint

    d. Delay SP Ramp

2. The water temperature switch option is selected but there is no water temperature switch. Either install a water temperature switch or go to the Cold Start Settings page in the Setup section and set the Water Temp sw option to OFF. An open signal (no voltage to input terminal) will cause the cold start sequence to start each time the burner starts. When the Water Temp sw option is set to OFF, the Cold Start control uses the measured outlet water temperature to determine when to activate the control.

3. The water temperature switch option is selected but the switch may be faulty or the wiring to it faulty. Test the switch and wiring to ensure they are working correctly. An open signal (no voltage to input terminal) will cause the cold start sequence to start each time the burner starts.

4. The water temperature switch option is not selected. The cold start control in this case expects to use the measured outlet water temperature. In this case any of the following may be applicable.

    a. Measured water temperature is not available if the Steam Pressure Control option is enabled. Both the Steam Pressure Control and the Water Temperature Control share the same physical input to the system. With the Steam Pressure Control selected, the signal that would be water temperature is actually steam pressure. Therefore the cold start control is incorrectly using the steam pressure measurement as a water temperature measurement. In this situation, a water temperature switch must be installed and the Water Temp sw option set to ON. This option is on the Cold Start Settings page in the Setup section.

    b. The measured outlet water temperature signal has failed.

    c. The measured outlet water temperature is below the setpoint at which cold start activates. If the setpoint setting needs to be changed, go to the Cold Start Settings page in the Setup section and change the Temp Limit settings as desired.

Water Level

Water level control is not showing

A blank window in the lower right quadrant indicates that the Water Level control is not enabled. This control must be enabled in the OEM section before it appears in the window.

The control will not go into automatic mode

The water level input signal has failed. If it is preferred that the control should not go to manual mode when this occurs, set the "Man on PV Fail" setting to OFF. This setting is on the Water Level Settings page in the Setup section. Note that if the input signal fails but the control stays in automatic mode, the control will be held in a standby state with the output held constant.

The control is in automatic mode but the output will not modulate feedwater valve

Any of the following may be applicable.

1. The water level input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the valve position manually set.

2. The water level is above setpoint and the control is already at minimum output.

3. The water level is below setpoint and the control is already at maximum output.

4. The water level setpoint high and low limits have been set equal to each other.

I cannot raise or lower the setpoint any further

The setpoint is at the setpoint high or low limit. If the setpoint limit needs to be changed, go to the Water Level Settings page in the Setup section and adjust the SP High Limit or SP Low Limit setting as desired.

I cannot adjust the output (valve position)

The control is in automatic mode. Set the control to manual mode before trying to adjust the valve position directly.

The output (valve position) changed unexpectedly

Any of the following may be applicable.

1. The water level input signal has failed and the option to force a fixed valve position during this time is enabled. If this feature is not needed, go to the Water Level Settings page in the Setup section and set the Out on PV Fail option to OFF.

2. If 2 element water level control is enabled and the control is in automatic mode, the steam flow signal may have changed value suddenly or have failed. In two element mode, the valve position changes in proportion to changes of steam rate.

The output (valve position) changes too much or too little in automatic mode

If 2 element water level control is enabled, the valve position changes in proportion to changes of steam rate. If the proportion of valve change relative to steam flow change is too

much or too little, go to the Water Level Settings page in the Setup section and adjust the Flow FF gain setting. Raising the setting increases valve modulation with changes in steam flow. Lowering the setting reduces valve modulation.

Two Element Mode is enabled but One Element Mode is on

Any of the following may be applicable.

1. The steam flow input signal has failed. The control is always forced to one element mode when the steam flow signal is not available.

2. The steam flow has dropped. Two element water level control can be set to revert to one element mode when the steam flow drops below a setpoint level. If the transition setpoint needs to be changed or this feature disabled, go to the Water Level Settings page in the Setup section. On this page there are two settings labeled Min Steam Flow 2E. The selector switch enables or disables the feature. The numerical setting sets the minimum flow setpoint below which the control is forced to one element mode.

Changing the control's deadband, proportional gain, or integral time has no effect

When two element control has been enabled, the control operates using two independent sets of control tuning parameters. One set is used during one element mode and the other during two element mode so that the two modes can individually be tuned for best performance. When making changes to these settings, be sure to adjust the set that is more the intended mode.

Secondary Controls Page

Furnace Draft Pressure

Furnace draft pressure controls are not showing

A blank window in the upper left quadrant indicates that the Furnace Draft Pressure control is not enabled. This control must be enabled in the OEM section before it appears in the window.

The control will not go into automatic mode

Any of the following may be applicable.

1. The furnace pressure input signal has failed. If it is preferred that the control should not go to manual mode when this occurs, set the "Man on PV Fail" setting to OFF. This setting is on the Furnace Pressure Settings page in the Setup section. Note that if the input signal fails but the control stays in automatic mode, the control will be held in a standby state with the output held constant.

2. The furnace pressure setpoint high and low limits have been set equal to each other. Adjust one or both of these limits so that the high limit is greater than the low limit.

The control is in automatic mode but the output will not modulate outlet damper

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up or shutting down. Once the burner is firing and the controls released to auto-modulation the control will modulate the damper while in automatic mode.

2. The furnace pressure input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the damper position manually set.

3. The furnace pressure is above setpoint and the control is already at maximum output.

4. The furnace pressure is below setpoint and the control is already at minimum output.

I cannot adjust the setpoint

The option is enabled to have the setpoint be generated automatically as a function of firing rate. To disable the option, go to the Furnace Pressure Settings page in the Setup section and set the SP from FR option to OFF.

I cannot raise or lower the setpoint any further

The setpoint is at the setpoint high or low limit. If the setpoint limit needs to be changed, go to the Furnace Pressure Settings page in the Setup section and adjust the SP High Limit or SP Low Limit setting as desired.

I cannot adjust the output (outlet damper position)

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up (ignition sequence) or is shutting down.

2. The control is in automatic mode.

The output (firing rate) changed unexpectedly

The furnace pressure input signal has failed and the option to force a fixed damper position during this time is enabled. If this feature is not needed, go to the Furnace Pressure Settings page in the Setup section and set the Out on PV Fail option to OFF.

If the option is desired but the damper position needs to be adjusted, simply place the control in manual mode and adjust the output as needed.

Oxygen Trim

Oxygen trim controls are not showing

A blank window in the upper right quadrant indicates that the Oxygen Trim control is not enabled. This control must be enabled in the OEM section before it appears in the window.

The control is in automatic mode but the output (trim value) will not modulate

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up or shutting down. Once the burner is firing and the controls released to auto-modulation the control will modulate the air trim value while in automatic mode.

2. The stack oxygen input signal has failed. The only remedy is to determine the cause of the signal failure and repair it. The control can always be placed in manual mode and the air trim value manually set.

3. The firing rate is below a minimum level. The control can be set to suspend automatic operation when the firing rate drops below a setpoint level. If the transition setpoint needs to be changed or this feature disabled, go to the Stack Oxygen Settings page in the Setup section. On this page there are two settings labeled Min FR for Auto. The selector switch enables or disables the feature. The numerical setting sets the minimum firing rate below which automatic mode is suspended.

4. The stack oxygen level is above setpoint and the control is already at minimum output.

5. The stack oxygen level is below setpoint and the control is already at maximum output.

The control is in automatic mode but the output remains at (trim value) will not modulate

Any of the first three items listed in the above scenario may be applicable. When any of these cases occurs, the control is slowly driven back to the "null" trim output value of 0 %.

Why are the control's output and the trim value different

The control's output modulates in the range of -10 to +10 percent which roughly represents the range of trimming of the combustion air. The trim value represents a multiplier that is used to adjust the fan speed or measured air flow to put that trimming into effect. A control output of -10% corresponds to a trim value of 0.9. A control output of +10% corresponds to a trim value of 1.1. When the control is at 0% for no trimming the trim value is at 1.0.

I cannot adjust the setpoint

The control's setpoint is not user adjustable but instead is generated as a function of firing rate. That response is recorded automatically during the commissioning process and cannot be altered. However, to give the operator the ability to offset the setpoint a small amount, a setpoint bias adjustment is available. The bias allows the operator to adjust the setpoint so that its response curve rides slightly above or below the original curve. The bias is limited to the range of -2 to +2 % oxygen. To adjust the bias value, go to the Secondary Controls page in the Operation section. Press the Adjust button in the Oxygen Trim control window. On the popup window, press the Setpoint Bias setting and enter a new value.

I cannot adjust the output to change the trimming value

Any of the following may be applicable.

1. The burner is not firing, is in the process of starting up (ignition sequence) or is shutting down.

2. The control is in automatic mode.

Flue Gas Damper

Flue gas damper controls are not showing

A blank window in the lower left quadrant indicates that the Flue Gas Damper control is not enabled. This control must be enabled in the OEM section before it appears in the window.

I cannot adjust anything

The flue gas damper control does not have any user adjustable controls. The burner combustion controls must maintain direct control of the damper at all times since the flue gas rate directly affects the safe operation of the burner combustion process.

Ambient Compensation

Ambient compensation controls are not showing

A blank window in the lower right quadrant indicates that the Ambient Compensation control is not enabled. This control must be enabled in the OEM section before it appears in the window.

I cannot adjust anything

If both the Oxygen Trim control and ambient temperature compensation are enabled together then the compensation control does not have any user adjustable controls. If direct manual control of combustion air trimming is needed in this situation, go to the Oxygen Trim control (also found on the Secondary Controls page) and press the Adjust button. On the popup window set the Auto selector to OFF and then set the Output to the desired trim value. Note that during this time, ambient temperature compensation is still in effect. The only way to disable the compensation is to disable the feature in the OEM section.

Burner Controls Page

I cannot adjust anything

None of the controls found on this page have any user adjustable controls. The burner combustion controls must maintain direct control of the fuel and air actuators at all times in order to maintain combustion within a safe fuel to air ratio range.

For a system that is using parallel positioning controls the fan speed and the fuel valve and air damper positions are all driven directly by the firing rate and are not individually user adjustable. Placing the Steam Pressure, Outlet Water Temperature or Boiler Master control in manual mode and then manually adjusting the firing rate still does not give the operator individual actuator control.

For a system that is using full metering controls the fuel and air flow controls are always set to automatic mode and the setpoint of each control is generated by the control system. The operator does not have the ability to set any of the flow controls to manual mode and directly adjust the actuator values.

Primary Safety Control Page

Wrong flame safeguard is shown

Go to the Other Options page in the OEM section and set the BMS is Fireye switch to ON for a Fireye system or OFF for a Honeywell system.

Fault code shows for Honeywell

When the Honeywell burner control detects a fault, it will display a fault code on its local keyboard display module. That same fault code is displayed on the Primary Safety Control page.

There are over 200 fault codes that the Honeywell burner control can generate and so they are not listed in this document. To identify the fault, the user is referred to the Honeywell documentation. At the time of this writing, the "S7800A1142 Keyboard Display Module" Honeywell document lists these codes with their descriptive meanings in table 23. Most of the time, a fault should correspond to a specific alarm condition that the Boiler Manager also detects and shows as an alarm. It is possible that a fault more specific to the Honeywell control occurs that the Boiler manager does not detect at which time the Honeywell fault code provides the best way to identify the problem.

Trend Pages

I cannot find the signal I want to measure on any of the trends

Each of the signals that the Boiler Manager senses has a dedicated trend pen. Several other system values such as firing rate are also included. The tables below list all of the available signals that are included on each trend graph. If the desired signal is not found in any of these tables, it is not available for trending. It is not possible for a user to add other signals to the trends. However, signals that are not needed can be hidden from view.

Boiler Trend Graph

Pen Name	Pen Color	Description
Firing Rate	White	Firing rate
Setpoint	Cyan	Pressure or temperature setpoint
Process Value	Orange	Pressure or temperature process value

Burner Trend Graph, Parallel Positioning

Tag	Pen Color	Description
Firing Rate	White	Firing rate
Fan Speed	Cyan	Combustion air fan speed
Air Damper	Green	Combustion air damper position
Gas Valve	Orange	Gas control valve position
Oil Valve	Violet	Oil control valve position
FG Damper	Yellow	Flue gas damper position

Burner Trend Graph, Metering

Tag	Pen Color	Description
Firing Rate	White	Firing rate
Air Flow	Cyan	Air flow process value
Gas Flow	Green	Gas flow process value
Oil Flow	Orange	Oil flow process value
FG Damper	Violet	Flue gas damper position

Furnace Trend Graph

Tag	Pen Color	Description
Firing rate	White	Firing rate
Gas Pressure	Orange	Gas pressure
Oil Pressure	Violet	Oil pressure
Stack Oxygen	Cyan	Stack oxygen
Furnace Pressure	Yellow	Furnace pressure
Stack Temp	Red	Stack temperature

Other Trend Graph

Tag	Pen Color	Description
Steam Flow	Red	Steam flow
Water Level	Cyan	Water level
Ambient Temp	Yellow	Ambient temperature
Comb Air Temp	Green	Combustion air temperature
Inlet Water Temp	Violet	Inlet water temperature

Signal I want to monitor does not appear

First verify that the signal is available on one of the trends. The tables above list all available signals that are included. Users cannot add additional signals to a trend graph.

If the signal to be trended is available per the tables above, it may simply be hidden. To unhide a signal, follow these steps.

1. Along the bottom of each trend graph is an area that identifies the signal name for each pen color. If this area is not currently visible, press the up arrow button located in the button left corner of the trend graph to make this region visible.

2. Each pen label has a small button with an icon of an eye on it. If the eye appears closed, the pen is hidden on the graph. An open eye causes the pen to be visible on the graph. Pressing the eye button toggles the visibility of the pen on the graph.

I do not need a signal on a trend

To hide a signal's pen on any trend graph, follow these steps.

1. Along the bottom of each trend graph is an area that identifies the signal name for each pen color. If this area is not currently visible, press the up arrow button located in the button left corner of the trend graph to make this region visible.

2. Each pen label has a small button with an icon of an eye on it. If the eye appears closed, the pen is hidden on the graph. An open eye causes the pen to be visible on the graph. Pressing the eye button toggles the visibility of the pen on the graph.

A pen that is hidden still has its signal trended and logged to the flash drive. It just is not visible. The pen can be made visible again at any time and the pen's trend data will appear without any lapse in data samples.

Trend does not seem to be updating

The graph is in a paused state. Press the Pause button in the upper right corner of the trend graph to resume trending.

When a trend graph is paused, it is still recording all data in the background. Pausing the graph simply stops the update of the graph. Once the graph is resumed, the graph will update with all current trend data without any lapse in data samples.

Commissioning Start Page

Commissioning start button isn't showing

Any of the following may be applicable.

1. The burner is already firing. Th3e burner must be stopped with the post purge shut down sequence completed before commissioning can be started again.

2. Calibration of all actuators (except for the feedwater valve) has not been completed. Go to the Calibration pages in the Setup section to calibrate each actuator. Actuators that are not used for a specific burner installation do not need to be calibrated. Their calibration status always remains "done".

3. The calibration mode has been left on. Go to the Calibration pages in the Setup section and set the Calibration selector switch to OFF.

4. The commissioning process has already been started. Usually the Commissioning Start page will be replaced with the Commissioning Pre-Purge page a few seconds after pressing the Start button.

Commissioning started (button pressed) but still waiting at Start page

The Commissioning Pre-Purge page which is the next page in the sequence automatically appears once the BMS starts the burner pre-purge sequence. If the BMS does not begin this step, then one of the following items may be preventing it.

1. The burner on/off switch is set to off.

2. The fuel selector switch is set to a fuel that is not enabled. Select a fuel that is enabled or enable the desired fuel. This setting is located on the Burner Control Options page in the OEM section.

3. A safety shutdown has the system in a lockout condition. After taking note of the shut down information and taking appropriate action, reset the burner by pressing the Burner Reset button on the front door of the panel and pressing the Alarm Reset button on the Primary Safety Control page in the Operation section.

4. There is no call for heat. Either wait for the steam pressure or outlet water temperature to drop below the Boiler Start setpoint or raise the start setpoint higher than the currently measured value. This setting is located on the Miscellaneous Settings page in the Setup section.

5. One of the main or recycling limits is open which can include any of the following as applicable.

    a. Burner latch switch

    b. Low water cutout switch

    c. Auxiliary low water cutout switch

d. High water cutout switch

6. The fuel valve proof of closure switch(es) may not be closed.

7. The fuel selector switch is set to AUTO, automatic fuel transfer is enabled and a fuel transfer is in progress. The commissioning process should not be started with the fuel selector switch set to AUTO mode. Set the switch to the fuel type to be commissioned to continue.

8. An internal wiring or component fault may exist within the Boiler Manager. This can include opening of a fuse or circuit breaker, loss of connection of a wire to a terminal or failure of any of the following components.

    a. One of the 24VDC power supplies

    b. The burner ON/OFF switch or the fuel selector switch

    c. The oil select relay

    d. One or more PLC I/O modules

    e. The primary safety control

9. There may be a problem or fault with the BMS. Consult the documentation for the Fireye or Honeywell burner control for troubleshooting procedures. The Primary Safety Control page in the Operation section will indicate a particular fault condition if one has been detected by the BMS. For Fireye systems, the Message text may indicate this. For Honeywell systems, a fault code may be listed.

Calibration mode on indicator is showing

The calibration mode has been left on. Go to the Calibration pages in the Setup section and set the Calibration selector switch to OFF.

Calibration needed indicator is showing

Calibration of all actuators (except for the feedwater valve) has not been completed. Go to the Calibration pages in the Setup section to calibrate each actuator. Actuators that are not used for a specific burner installation do not need to be calibrated. Their calibration status always remains "done".

Fuel selected does not match fuel selector switch position

The fuel selector switch is set to a fuel that is not enabled. Select a fuel that is enabled or enable the desired fuel. This setting is located on the Burner Control Options page in the OEM section.

Can't backup commissioning data

Pressing the Backup button on the Commissioning Start page will save the all current commissioning data for the specified fuel to the back up area. If this button is not visible, then any of the following items may be preventing it.

1. The burner is firing. The burner must be stopped and the post-purge sequence completed before the button will appear.

2. The fuel has not yet been successfully commissioned.

3. The specified fuel is not actually enabled.

Can't restore commissioning data

Pressing the Restore button on the Commissioning Start page will restore the previously saved commissioning data from the back up area for immediate use. All existing data present before pressing the Restore button will be lost. If this button is not visible, then any of the following items may be preventing it.

1. The burner is firing. The burner must be stopped and the post-purge sequence completed before the button will appear.

2. Commissioning is active. Stop the commissioning mode by pressing the Abort button found on each of the Commissioning pages.

3. The specified fuel is not actually enabled.

4. The current context of the fuel is not the same as when the original commissioning data was saved. To see the difference in context between the current and saved data for the fuel, press the Context button found on the Commissioning Start page. In the popup window that appears, all indicator pairs for each item must be equal (i.e. both on or both off) for the context to be equal and the Restore button to be visible.

5. No commissioning data was previously saved. To see if saved data exists, press the Context button found on the Commissioning Start page. If there is saved data, the date and time that commissioning data was completed will show at the bottom in the popup window that appears. If there is no saved data, the time and date will show zeros.

Commissioning Pre-Purge Page

Cannot adjust anything or seem to do anything

Any of the following may be applicable.

1. The Pre-Purge page was accessed in preview mode. The preview mode is provided so that the high fire pre-purge settings can be viewed at any time. It also provides a chance to see this step of the commissioning for training or to become familiar with the system. During preview mode, nothing can be set or changed. To exit preview mode, press the Preview Done button.

2. The purge settings have already been saved and the Pre-purge cycle is already under way. The only way to go back and change the pre-purge settings is to first abort the current commissioning cycle and start the process again.

The actuator I want to adjust isn't showing

Any of the following may be applicable.

1. Only the four actuators listed below have pre-purge settings. The two fuel valves are always forced to minimum position during the pre-purge cycle.

    a. Combustion air fan

    b. Combustion air damper

    c. Flue gas damper

    d. Outlet damper

2. The actuator has not been enabled for this particular burner installation.

The pre-purge setting for an actuator has changed

Only one set of pre-purge settings are stored by the Boiler Manager regardless of which fuel is selected to fire. If the commissioning process had previously been completed for a fuel but then repeated for the other fuel and the pre-purge settings changed for that second fuel, the settings will retained the last saved value.

Commissioning Ignition Page

Cannot adjust anything or seem to do anything

Any of the following may be applicable.

1. The Ignition page was accessed in preview mode. The preview mode is provided so that the low fire ignition settings can be viewed at any time. It also provides a chance to see this step of the commissioning for training or to become familiar with the system. During preview mode, nothing can be set or changed. To exit preview mode, press the Preview Done button.

2. The ignition settings have already been saved and the ignition cycle is already under way. The only way to go back and change the ignition settings is to first abort the current commissioning cycle and start the process again.

The actuator I want to adjust isn't showing

Any of the following may be applicable.

1. Only the four actuators listed below have ignition settings. The flue gas damper is always forced to minimum position during the ignition cycle.

    a. Combustion air fan

    b. Combustion air damper

    c. Fuel valve

    d. Outlet damper

2. The actuator has not been enabled for this particular burner installation.

Commissioning Curve Builder Page

Cannot adjust anything or seem to do anything

Any of the following may be applicable.

1. The Curve Builder page was accessed in preview mode. The preview mode provides a chance to see this step of the commissioning for training or to become familiar with the system. During preview mode, nothing can be set or changed. To exit preview mode, press the Preview Done button.

2. Edit mode is active and the current step has already been saved. To be able to adjust the actuators again at the current step, press the Change button. Otherwise proceed to the next or previous step.

The actuator I want to adjust isn't showing

The actuator has not been enabled for this particular burner installation.

I cannot directly type in a new actuator value

This is intentional to prevent sudden excessive movement of one actuator relative to the other actuators since such an action could adversely change the fuel to air ratio and cause a flame out or worse.

The ability to move individual actuators by directly entering values does exist during pre-purge and ignition (prior to establishing a flame) since doing so at that stage does not pose the risk that exists once the combustion process is under way.

I need to go back to the previous step but no button appears to do this

Any of the following may be applicable.

1. The current step is 1. There is no previous step.

2. If the Save button is visible then the current step has not yet been saved. Press the Save button to save the step and then the Back button should appear.

3. Confirm mode is active and the Confirm button is visible. Press the Confirm button and then the Back button should appear.

4. The system has paused the ability to change steps to allow time for all actuators to move into position. Simply wait a few seconds and the Back and/or Next step buttons should appear. When a step is first accessed, the system prevents changing the step number for 15 seconds to prevent the possibility of actuators becoming too much out of sync with each other. During this time, the message "Paused for actuator movement" appears under the step number.

I need to go forward to the next step but no button appears to do this

Any of the following may be applicable.

1. The current step is 16. There is no next step. The Boiler Manager will accept up to sixteen commissioning points for each fuel. A minimum of five steps are required to finish the commissioning process.

2. If the Save button is visible then the current step has not yet been saved. Press the Save button to save the step and then the Next button should appear.

3. Edit mode is active and the current step has not yet been set to new values. In edit mode when a step is saved and then the next step accessed, the next step inherits the current actuator values from the previous step. However, this new step cannot be saved until the fuel valve position is increased by at least 1 %. The system also limits the fuel valve position to an increase of no more than 10 % higher than the previous step. Adjust the fuel valve along with all other applicable actuators as desired for the next curve step and then the Save button should appear. Once the Save button is pressed, then the Next button should appear.

4. Confirm mode is active and the Confirm button is visible. Press the Confirm button and then the Next button should appear.

5. Confirm mode is active and the current step is set as the highest step. If additional steps need to be added above the current step, edit mode must be re-entered.

6. The system has paused the ability to change steps to allow time for all actuators to move into position. Simply wait a few seconds and the Back and/or Next step buttons should appear. When a step is first accessed, the system prevents changing the step number for 15 seconds to prevent the possibility of actuators becoming too much out of sync with each other. During this time, the message "Paused for actuator movement" appears under the step number.

In edit mode I cannot adjust an actuator

The current step has already been saved. To be able to adjust the actuators again at the current step, press the Change button. Otherwise proceed to the next or previous step.

How do I finish edit mode

The Confirm Mode button appears while in edit mode once the proper conditions exist to exit edit mode and enter confirm mode. The Confirm mode button is not visible until the current step number must is at least 5.

I'm ready to finish commissioning but no button appears to do this

To finish the commissioning process, the following steps and criteria are required. When the Finish button is visible and then pressed, the commissioning mode is completed.

1. A minimum of five steps must be saved in edit mode.

2. The mode must be changed to confirm mode. The Confirm Mode button will not appear until at least five saved steps exist.

    a. The step on which the Confirm Mode button is pressed becomes the highest step. Once in confirm mode, no additional steps can be added without going back to edit mode.

3. All of the saved steps must then be individually confirmed.
4. Once all steps have been confirmed, the Finish button should appear.
5. Press the Finish button.

Curve Plots Page

No plot data is shown

All three plot pens are set to Off. Select one or more pens to a desired value to plot.

Calibration Pages

Calibration done indicator is on even though calibration has not been completed

If an actuator is not enabled for the specific burner application then its calibration done indicator will always be lit to help identify that the actuator doesn't need to be calibrated.

Bar graph doesn't match what I think it should be

The value shown by the bar graph may not necessarily match up with the other readings shown on the calibration page (except for the Raw Output value) or even with the readings at or position of the actuator.

The bar graph value represents the signal level in percent sent from the Boiler Manager to the actuator and is valid only during calibration. It is equivalent to the 4-20mA signal that is electrically sent to the actuator. During calibration, the Raw Output value follows the bar graph value.

During normal operation, the bar graph value is meaningless.

Raw input seems wrong or too different from raw output

If an actuator's built in calibration has not been used or a "bench" calibration of the actuator not performed such that the actuator's feedback signal is not configured to match the drive signal, then the Raw Input and Raw Output values on the Calibration page will not match either. This is the purpose of having the Calibration feature built in to the Boiler Manager so that using the actuator's built in calibration capability is not needed.

On some actuators the feedback signal may represent a different range than the drive signal. A VFD for example might be configured so that the 0 to 100% drive signal represents a limited range of speed control (e.g. 30 to 60 Hz) but the feedback signal may represent the full range (e.g. 0 to 60 Hz).

In another example, an actuator may have a resistance feedback signal (e.g. 0 to 135 ohms). Since the Boiler Manager accepts only 4-20 mA signals some sort of electrical conversion needs to be done on the feedback signal. This conversion may introduce range inconsistencies between the actual feedback signal and the signal sensed by the Boiler Manager.

The Calibration feature of the Boiler Manager is intended to account for these situations.

Output and raw output seem to move in opposite directions

The calibration procedure on the Boiler Manager includes the ability to accommodate inverse acting actuators. If the actuator is such that 4 mA (0%) drives the actuator to maximum and 20mA (100%) drives it to minimum, then the output and raw output values will indeed appear as reverse acting relative to each other.

Input and raw input seem to move in opposite directions

The calibration procedure on the Boiler Manager includes the ability to accommodate actuators in which the feedback is inverse acting relative to actuator movement. If the actuator is such that changing the signal to it so that it moves in the direction of minimum to maximum results in a feedback signal that decreases in the direction of 100 to 0 %, then the input and raw input values will indeed appear as reverse acting relative to each other.

Hardware Problems

Can I change the PLC hardware

Yes, they can be purchased through Johnson Burners. The modules and parts are standard Modicon (Schneider Electric) parts. Although these can be obtained through a Schneider Electric distributor, purchasing them through Johnson Burners assures additional support to when replacing the part or in the event there are problems or questions.

How do I change the PLC hardware

The PLC hardware is all modular with all wiring connection made using removable plugs. Generally a module can be removed by first disconnecting all power sources from the equipment, removing all connections to the module and then removing the module.

Each module including the power supply and processor have a retaining screw at the top of the module that must be unscrewed before the module can be removed. The modules pivot out from the rack such that the top of the module pulls forward while the bottom of the module stays in place.

For a detailed procedure, refer to the Modicon M340 documentation provided by Schneider Electric.

What happens to option unlock codes when I change PLC hardware

The unlock codes for a specific Boiler Manager are linked to the SD memory card in the PLC. If the PLC is replaced and the original SD card inserted in the new PLC, then the same unlock codes are applicable. However, the codes as well as all settings and commissioning data will be cleared as the new PLC memory will be empty.

Can I update the PLC software

Yes although it requires a specific application program and having the original PLC software file. If this becomes necessary, contact Johnson Burners for details.

Can I see the software in the PLC

The software within the PLC is proprietary to Johnson Burners and is password protected. Users with the application software for the PLC (Unity Pro) will not be able to view or access the Boiler Manager logic.

Can I update the display software

Yes. There are a few ways. If this becomes necessary, contact Johnson Burners for details.

What do the various LEDs on the PLC indicate

The processor has indicator lights that provide diagnostic information as listed in the table below.

RUN (green)	on	PLC functioning normally, program running
	flashing	PLC in STOP mode or blocked by a software detected error
	off	PLC not configured (absent, invalid, or incompatible application)
ERR (red)	on	Processor or system detected error
	flashing	• PLC not configured (absent, invali d or incompatible application) • PLC blocked by a software detected error
	off	Normal status (no internal detected errors)
I/O (red)	on	• Input/output detected error originating from a module or channel • Configuration detected error
	off	Normal status (no internal detected errors)
SER COM (yellow)	flashing	Data exchange on the serial connection in progress (receiving or Sending)
	off	No data exchange on the serial connection
CARDERR (red)	on	• Memory card absent • Memory card not recognized • Memory card content differs from the application saved in the processor
	off	• Memory card recognized • Memory card content identical to the application saved in the processor
ETH ACT (green)	on	Ethernet link detected, no communications activity
	off	No Ethernet link detected
	flashing	Ethernet link and communications activity detected
ETH STS (green)	on	Communication OK
	2 flashes	Invalid MAC address
	3 flashes	Ethernet link not connected
	4 flashes	Duplicate IP address
	5 flashes	Waiting for a server IP address
	6 flashes	Secure and safe mode (with default IP address)
	7 flashes	Configuration conflict between rotary switches and internal configuration
ETH 100 (green)	on	Ethernet transmission at 100 Mbit/s (Fast Ethernet)
	off	Ethernet transmission at 10 Mbit/s (Ethernet) or no link detected
CARDAC (green) *	on	Access to the card is enabled
	flashing	Activity on the card; during each access, the card LED is set to OFF, then back to ON
	off	Access to the card is disabled

* This LED is located under the memory card door.

Miscellaneous Problems

I do not know any of the access passwords.

The Boiler Manager is shipped from the factory with a default password of "9999" for both the Engineer and Technician users. Once a system is setup on site, a person with proper authority should modify these passwords to suit the site's policies and procedures. At that time, users will need to contact this person to obtain access passwords. Johnson Burners does not maintain a list of site specific passwords.

In the event that no one can remember any of the passwords, contact Johnson Burners for assistance. Access may be reset but all setup data including commissioning data may be lost so it is best to store passwords in a safe place.

On power up, display dialog shows "Detecting USB for logging data" message

If the display continues to show this message at startup, a USB flash drive is not plugged in to USB port or the flash drive is not recognized. Either plug in a known working USB drive or press the Ignore button.

This message will show indefinitely until either a flash drive is recognized or the "Ignore" button is pressed.

If a USB drive is plugged in but is not recognized, it may be corrupted, not working or formatted with an incompatible file structure.

"RTE-004: Log buffer memory is full" message appears along top of screen

A USB flash drive is not plugged in to USB port or flash drive is full.

"RTE-002: Log failed. …" message appears along top of screen

A USB flash drive is not plugged in to USB port or flash drive is full.

Various messages appear along bottom of screen

Alarms are shown along the bottom of the screen. If more than one alarm is active, each alarm is shown for about 4 seconds and then the next alarm appears.

Where is data logged

Data is logged to the USB flash drive. Logged data includes alarms and trend data. If no flash drive is plugged into the USB port, either the "RTE-002" or "RTE-004" message will appear at the top of the display. RTE represents Run Time Error.

Where is the USB flash drive

The USB port for the flash drive is on the bottom edge of the display (facing down). When facing the back of the display it is near the right end.

Can I remove or install the USB flash drive

A flash drive should only be removed by following the procedure below.

1. Go to the System Settings page in the Setup section. If a flash drive is presently install and in use, the Ready indicator will be green. If it is DO NOT REMOVE it yet. If it is not green, it can be removed immediately.

2. Press the Eject button. The system will attempt to flush existing data to the drive and then the Ready light will turn off.

3. When the Ready light is off and the message below it indicates "USB flash drive can be safely removed.", then the drive can be unplugged. The system will not recognize the flash drive until it is removed and re-plugged in.

To install a flash drive, simply plug it in at any time. After a few moments, the Ready light on the System Settings page in the Setup section will turn green if the drive is recognized.

What files are on the flash drive

The system creates a folder called "Log" in the root folder of the drive. All data written by the system to the drive ends up in this folder.

Two types of files are written. The files with the extension "log" are used by the system. The files with the extension "txt" are for your use.

The system creates one text file per day for all alarms and one text file per day for each trend graph. At midnight the existing day's files are kept and new files are started.

The alarm text files are named "Alarm_YYMMDD.txt" where YY is replaced with the last two digits of the year, MM replaced with the month and DD replaced with the day. So for example, a file named "Alarm_110423" holds a complete listing of all alarms from April 23rd, 2011.

The trend graph text files are named similarly except that there are four trend graphs. Each day a set of four text files for the trend graphs is created using the naming convention listed below. The YYMMDD convention is the same as described above.

1. Boiler Trends_Various_YYMMDD.txt

2. Burner Trends, PP_Various_YYMMDD.txt -or- Burner Trends, MTR_Various_YYMMDD.txt

3. Furnace Trends_Various_YYMMDD.txt

4. Other Trends_Various_YYMMDD.txt

The format of each text file is the same. Each file starts with a header row that lists the headings for each column of data. After this each line represents an alarm event for the alarm log or a capture of each pen reading for each trend graph.

Each line starts with the time and date followed by the alarm message or the set of pen readings as listed in the header row. The values in each row are tab separated.

The pen names listed in the header row are the actual tag names used by the system. Since these are not very descriptive, the list below correlates each tag name with its description.

The units are always percent of range as specified by the Minimum and Maximum settings on the Analog Input Scaling page in the Setup section.

Boiler Trend Graph (Boiler Trends_Various_YYMMDD.txt)

Tag	Description
ZIC_BLM_FRRL	Firing rate
BQ_BLRH_PCT	Pressure or temperature setpoint
BIC_BLRH_PV_PCT	Pressure or temperature process value

Burner Trend Graph, Parallel Positioning (Burner Trends, PP_Various_YYMMDD.txt)

Tag	Description
ZIC_BLM_FRRL	Firing rate
SIT_CAF_PCT	Combustion air fan speed
ZIT_CAD_PCT	Combustion air damper position
ZIT_GCV_PCT	Gas control valve position
ZIT_OCV_PCT	Oil control valve position
ZIT_FGD_PCT	Flue gas damper position

Burner Trend Graph, Metering (Burner Trends, MTR_Various_YYMMDD.txt)

Tag	Description
ZIC_BLM_FRRL	Firing rate
FIC_AIRF_PV_PCT	Air flow process value
FIC_GASF_PV_PCT	Gas flow process value
FIC_OILF_PV_PCT	Oil flow process value
ZIT_FGD_PCT	Flue gas damper position

Furnace Trend Graph (Furnace Trends, PP_Various_YYMMDD.txt)

Tag	Description
ZIC_BLM_FRRL	Firing rate
PIT_GASP_PCT	Gas pressure
PIT_OILP_PCT	Oil pressure
AIT_STOX_PCT	Stack oxygen
PIT_FRNP_PCT	Furnace pressure
TIT_STKT_PCT	Stack temperature

Other Trend Graph (Other Trends, PP_Various_YYMMDD.txt)

Tag	Description
FIT_STMF_PCT	Steam flow
LIT_WTRL_PCT	Water level
TIT_OAT_PCT	Ambient temperature
TIT_CAT_PCT	Combustion air temperature
TIT_INWT_PCT	Inlet water temperature

Is there a way to remotely access the display

Yes. Use the following steps. Steps 1 thru 5 only need to be done once for each new computer. Thereafter start at step 6.

1. Open a web browser on a computer that is connected to the same Ethernet network as the display. Currently only computers with the Microsoft Windows OS are supported.

2. For the URL, enter the default IP address "192.168.0.10".

3. When the web page with the C-more logo appears, click on the "Remote Access" link.

4. When the next web page appears, click on the link appropriate to your network setup.

5. The web browser will prompt you to save (or possibly run) a file named "EA-CON_IP=[192.168.0.10_11102].exe". Save this file and close the web browser.

6. Run the "EA-CON_IP=[192.168.0.10_11102].exe" application file whenever remote access is desired.

7. A "Password" popup window will appear. Type in "guest" for the User Name and leave the Password field empty. And then press the OK button.

8. After a brief delay the display image will appear. Remote access is read only. No settings or actions can be performed remotely. However, buttons that select a new page do work so that screen navigation from the remote computer is possible. The remote connection always displays the same page as is currently showing on the local display.

Remote access is not working

Any of the following may be applicable.

1. Remote access lockout may be on. To unlock it, press the "Remote Access" button in the upper right corner of any page in the Operation section. Then on the Remote Access Control popup window, set remote Lockout to OFF.

2. The remote computer is not on the same physical network as the display. As shipped from Johnson Burners, a non-customized Boiler Manager is wired such that the Ethernet connection between the display and the PLC are directly connected to each other without an intervening Ethernet switch (hub). To access this network, an Ethernet switch needs to be installed between these two devices to create a network. Then any remote computers that are to access the Boiler Manager must then be connected to that Ethernet switch.

3. The IP address used to access the display is not correct. The default IP address for the display is 192.168.0.10. For customized systems or when multiple units are connected together on an Ethernet network, contact Johnson Burners to find out what IP addresses have been assigned to each display.

4. The remote computer must be on the same "subnet" on the Ethernet network as the display. The default display subnet is 192.168.0 (with a mask of 255.255.255.0). The remote computer must be on this same subnet and have the same subnet mask.

How do I adjust time and date

The clock/calendar adjustment controls are found on the System Settings page in the Setup section. To adjust the time or date, the Adjustment switch must first be set to ON.

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