



# ***PF2200 - FD***

*SOFTWARE RELEASE NOTES*

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## 2 INTRODUCTION

### SCOPE

This document is meant to provide customers with a list of changes for each software bundle release. The notes are categorized by their software bundle release version (e.g. AA-B.C.D). Where:

AA: Product Variant Type (e.g. FD – Forced Draft)

B: Major Software Release (typically with new features)

C: Minor Software Release (typically with fixes / changes)

D: Build Number (internal use only)

Modification to software is generally split up into three main categories:

NEW: Software modifications that add additional functionality (e.g. features).

CHANGES: Software modifications which modify existing behavior.

FIXES: Software modifications which correct identified issues (e.g. bugs).

### KNOWN SAFETY ISSUES

Description	Work Around	Affected Version(s)	Fixed Version
In weakly grounded systems, excessive sparking may cause phantom key presses and/or board resets.	Ensure proper grounding. Avoid excessive sparking in weakly grounded systems (e.g. Use a standing pilot, dial back the gas pressure).	FD 1.0.3	N/A
Shutdown codes may be inadvertently cleared by a power cycle or low voltage event.	Update the system firmware to FD-1.1.3 or newer version.	FD 1.0.3	FD 1.1.3
When Pilot 2 is Enabled, the Maximum Post-Ignition time is 10.6 seconds instead of the published 2.5 seconds.	None	FD 1.0.3	FD 2.0.4
When UV Flame Detect Mode is set to Main Only, interrupted pilots are not being used and the UV flame scanner is positioned such that it detects both pilot and main flames, the system can erroneously declare main flame detected based off of the pilot flame.	Set Pilot Off Mode to Interrupted or ensure that the UV flame scanner is positioned to detect main flame only.	FD 1.0.3	FD 2.0.4

## 3 RELEASE NOTES

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### FD 2.1.2

SB 2.1.2 was released on Feb. 4, 2021.

#### NEW

- Added Modbus Input Register 33740 and Holding Register 43740 for reading the cascaded PID setpoint.

#### CHANGES

- When using cascaded PID, the bath process setpoint is now displayed in the correct temperature units (was previously unitless).

#### FIXES

- Fixed an issue where the Aux In spans would be interpreted as Celsius instead of Fahrenheit when using Process Setpoint Adjust (with temperature units configured as Fahrenheit).
- Fixed a bug where flame detect circuit diagnostic data was being erroneously acquired during ignition. In setups which have a single rod for both flame detection and ignition, ignition noise would cause the flame detect circuit diagnostic data to be unreliable and potentially cause a nuisance shutdown.

## FD 2.0.4

FD 2.0.4 was released on Sep. 30, 2020. It includes major feature additions and software fixes based on customer feedback.

### NEW

- Added Independent Pilot Control functionality. This allows the operator to set the minimum number of pilots running in dual pilot systems. Extinguished pilots can be relit without shutting the system down either by using the start button on the UI or the external switch. Additionally, extinguished pilots may attempt to auto relight for up to 2 minutes.
- Added **Fan Mode** setting for selecting between *Forced Draft* and *Purge Only* fan modes. The *Forced Draft* mode is for forced draft systems while the *Purge Only* mode is for natural draft systems with a forced air purge.
- Added an independent **Level/Flow Control Setpoint** for use when the **Status Contact Mode** is set to *Level/Flow Control*. This allows users to operate the status contact at an independent setpoint from the **High Level/Flow Trip Setpoint**. For example, the system can now use the status contact for pump control while retaining the ability to trip on a high level. The *Level/Flow Control Setpoint Configuration* alarm was added to ensure the new **Level/Flow Control Setpoint** is between the **Level/Flow Control Low/High Trip Setpoints**.
- Added a popup dialog to all numeric settings to allow for better fine-grained control of setting values.
- Hardware product variant information has been added to the info screen.
- Added the **UI Comm Loss** setting. If enabled, the system will shut down if communication between the UI and BMS is lost.
- Added alert numbers to both the status screen and the event log.
- Added the ability to log Bath 2 temperature (in addition to Bath 1) as well as individual valve run times.

### CHANGES

- Level and flow units have now been split. Users can now configure the Level/Flow and Aux Inputs independently (e.g. Level/Flow could be configured for level units, while Aux In 1 could be configured for flow units).
- **Level/Flow Delay** and **Low Pressure Delay** settings are no longer editable while running.
- Valve PWM minimum value has been reduced from 10% to 1%.
- Data Logging and Event Logging improvements:
  - Updated data log naming format to prevent potential sharing of data across different BMS'. The data log root directory will now contain a unique serial number for that particular BMS. Each file generated for the data log will contain the name of the status that its logging. Added the BMS serial number to the header of each file as well.
  - Updated the event log folder names to use the BMS hardware serial number for differentiation between BMS'.
  - Added timestamp so the user can see date when a file was created.
  - Added event log export button to event log options dialog. Activating this will concatenate all event log files into a single csv file. Added a progress dialog for this operation.
- Misc. Settings Backup improvements:
  - Each BMS will get their own folder for backups (based on serial).

- Updated the bundle version number in the settings backup file to be human readable.
- Added serial number to the backup file.
- System diagnostics screen(s) updated to support proper display of the external switch and digital input states.
- Temperature faults that occur on inputs that are set to *Display Only* now ring in as warnings on the UI (instead of alarms).
- Setpoints are now properly gated while the system is running to prevent erroneous shutdowns due to configuration errors. For example, it is no longer possible to set a Process Setpoint above an associated Main Off Setpoint and shut the system down while running. Note that setpoints are **NOT** gated while the system is stopped.
- Increased **Level/Flow Span Min/Max Spans** from 100000L to 10000000L.
- Analog output fault alarms have been changed to warnings in order to avoid erroneous shutdowns due to non-safety critical elements.
- Valve run time diagnostics are now cumulative across the entire power on time of the system instead of resetting when the valves close. Pilot 1 and Pilot 2 run times can also now be tracked independently.
- Replaced Accumulated Relights with Pilot and Main Flame Establishment Failures on the diagnostics screen.
- Proof of light off / pilot / purge positions are now considered disabled if TCV manual override is enabled.
- **PID Configuration** warning has been changed to an alarm.
- Added the **TCV Manual Override Enabled** warning to notify the user when the TCV is in manual override mode.

## FIXES

- Added low temperature compensation to Aux Out 1, Aux Out 2 and the TCV Output, making these outputs accurate over all temperature and current ranges.
- Aux input spans are now locked to the correct values when mapped to a pressure/level/flow that is using % or mA units. Previously these spans were modifiable which was confusing.
- Fixed a bug where the **POC Contact Failed to Open** warning would fail to clear once the mains were closed.
- Fixed an issue where the incorrect rate limiting was being applied to the PID controller.
- Fixed a bug where main flame could be erroneously detected based off of pilot flame. This is only an issue if **UV Flame Detect Mode** is set to *Main Only*, interrupted pilots are not being used, and the UV flame scanner is positioned such that it detects both pilot and main flames. The system now proves the absence of main flame before lighting off the main.
- Fixed an issue where the user could shut the system down when adjusting Bath setpoints via Modbus. Bath setpoint adjustments are now gated such that configuration alarms cannot occur while the system is running.
- Fixed a bug where the **Purge Timer** status variable was incorrectly reading 0 during pre-purge.
- Fixed a bug where the system would leave the pilot state (on cold start) once all process temps were below the associated main off setpoints instead of the associated process setpoints.
- Fixed a bug where various temperature warnings would be incorrectly masked by other warnings.

## **FD 1.2.0**

FD 1.2.0 was released July 23, 2020. This hotfix release fixes a Modbus issue preventing some devices from receiving messages from the PF2200.

### **FIXES**

- Fixed a bug where the BMS would incorrectly add an additional zero byte to the end of Modbus packets in some situations. This would prevent the master Modbus device from receiving messages from the PF2200.

## FD 1.1.3

FD 1.1.3 was released Feb 24, 2020. This minor release adds UV pilot detection and fixes various issues found in the FD 1.0 firmware. This release is for Field Trial purposes ONLY.

### NEW

- Added UV pilot detection. UV detection can now be set to one of 3 modes: Disabled, UV Pilot & Main, Main only detection.

### CHANGES

- Removed the weak main flame quality warning bit. This feature may be added back in the future as an improved diagnostic.

### FIXES

- Low voltage threshold alarms have been lowered to 9.5V in 12V mode and 19V in 24 V mode. This will help to prevent nuisance shutdowns.
- Proof of light off position was improperly checked during startup which could cause nuisance shutdowns. This check has been fixed.
- Start contact and external switch must now perform a double action toggle in order to clear a shutdown code or to start the system (start contact only). Previously the system could inadvertently clear a shutdown code during power on through means of a false toggle on the external switch or start contact.
- Fixed an issue where the user interface LCD would stop updating (lock up) after ~35 days.



## **FD 1.0.3**

FD 1.0.3 was released Jan 20, 2020 and is the first major release of the Forced Draft product variant. This release is for Field Trial purposes ONLY.

### **NEW**

- Initial release

### **CHANGES**

- Initial release

### **FIXES**

- Initial release

## 4 DOCUMENT REVISION HISTORY

Document Version	Date	Description of Changes
v4.0	Feb. 4, 2021	Updated for FD 2.1.2 release
v3.0	Sep. 30, 2020	Updated for FD 2.0.4 release
v2.0	Feb. 24, 2020	Updated for FD 1.1.3 release
v1.0	Jan. 20, 2020	Initial document release (linked to FD 1.0.3 bundle release).



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