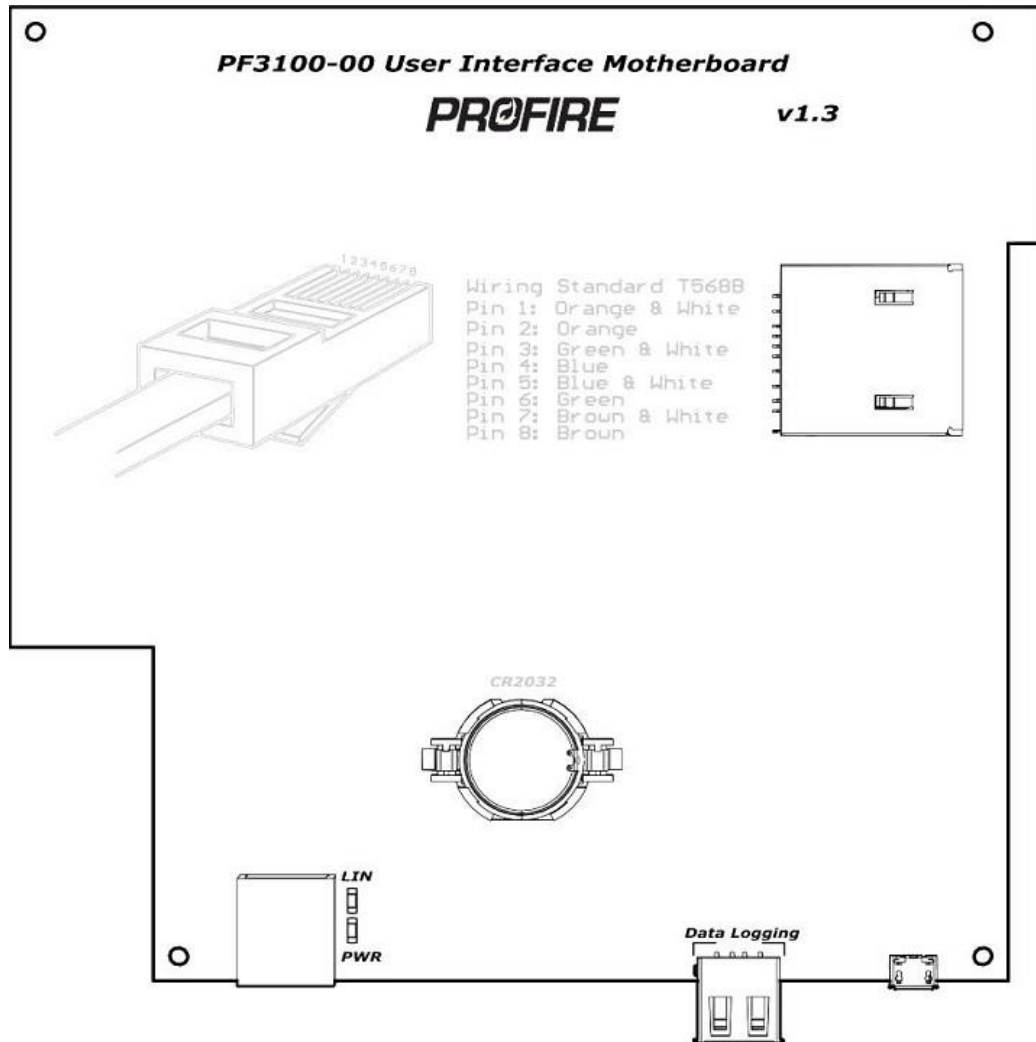


PROFIRE 3100 User Interface Card



The PROFIRE User Interface (UI) Card is designed to provide easy interface between operators and the BMS controller.

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1. Introduction

Functional Description

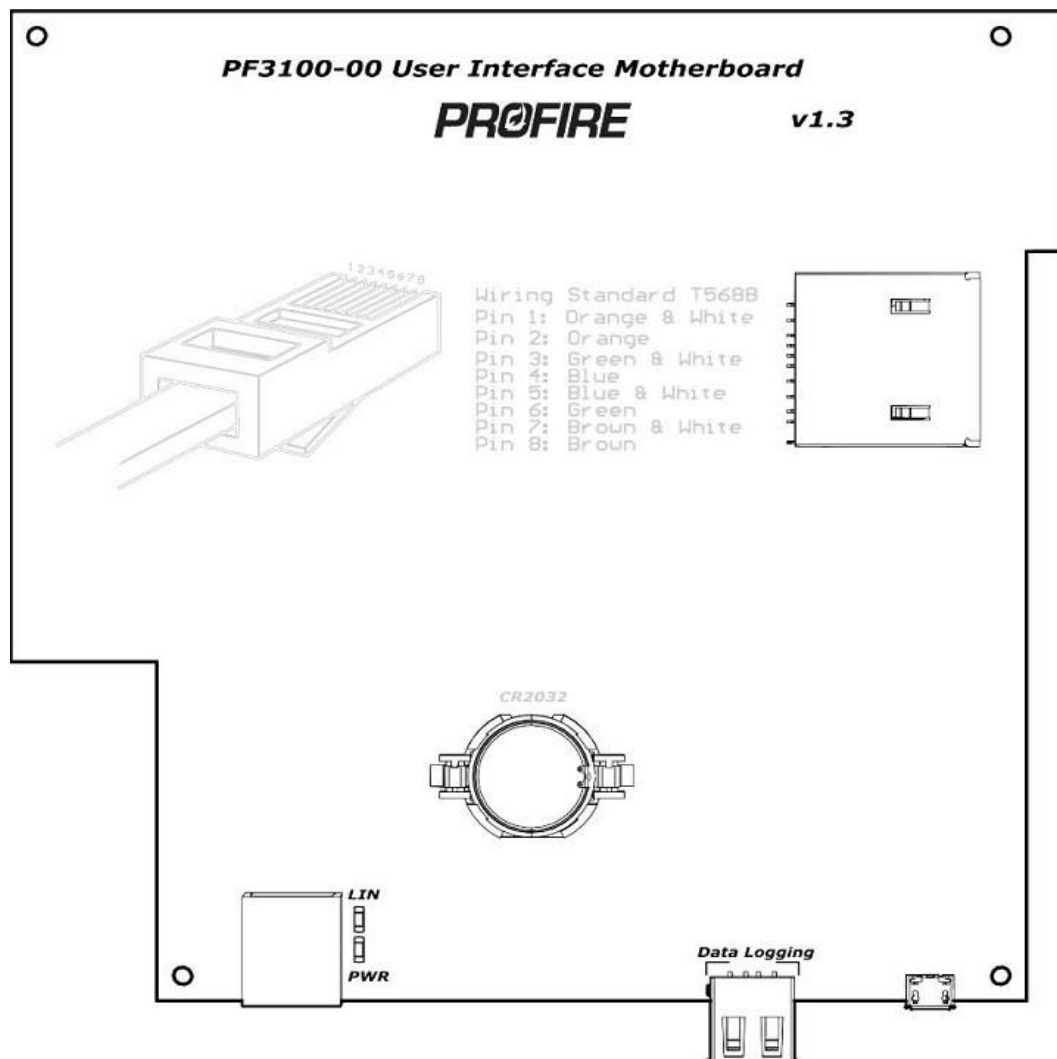
The PF3100 User Interface (UI) card is the primary access point for commissioning and programming the PF3100 system. The UI card is always installed inside a UI enclosure.

The UI card is designed to be used as part of a PF3100 modular system. For additional information, please refer to the Hardware Guide corresponding to the cards specific to your application.

User Interface Card – Hazardous Location Rating

Class I, Div 2, Grp ABCD; T4: type 4, IEC 61508 SIL2, CSA 22.2 No. 60730-2-5, UL 60730-2-5.

2. Card Diagram



Card Specifications

Type	Specifications
Model Number	<i>PF3100-00</i>
PFRN Class	<i>Interface</i>
PFRN Power	<i>Power Consumer</i>
PFRN Ports	<i>1 PFRN Port</i>
Voltage Input	<i>36 VDC through PFRN</i>
Current Draw	<i>1 A Maximum</i>
Display	<i>5.7" TFT-LCD VGA Color</i>
Battery - UI Clock	<i>CR2032, Lithium Coin Cell, 3V, 225mAh</i>
Battery Part Number	<i>Panasonic CR2032</i>
Inputs	<i>None</i>
Outputs	<i>None</i>

Terminal Descriptions

PFRN Connection

The PFRN connection must connect to a BMS UI port either directly, or through a Network or Modbus card.

USB Port

The datalogging USB port is used for downloading event log information and firmware updates. Please refer to PROFIRE's Firmware Update Guide (<http://3100.profireenergy.com/pf3100-documentation/>) for detailed instructions on performing a firmware update. The USB should not be inserted or removed unless the area is known to be non-hazardous, as removing or inserting the USB may cause a spark.

Reset Button

The Reset button will reset the internal processor. This can be used if the application freezes during operation.

Battery

The UI uses a battery that provides power to the clock on the user interface. The battery (usually a Panasonic CR 2032 3V non-rechargeable battery, or other electrically compatible battery) should only be changed if the UI is powered down. The battery should not be inserted or removed unless the area is known to be non-hazardous, as removing the battery may cause a spark. The battery should not need to be changed for approximately 5 years.

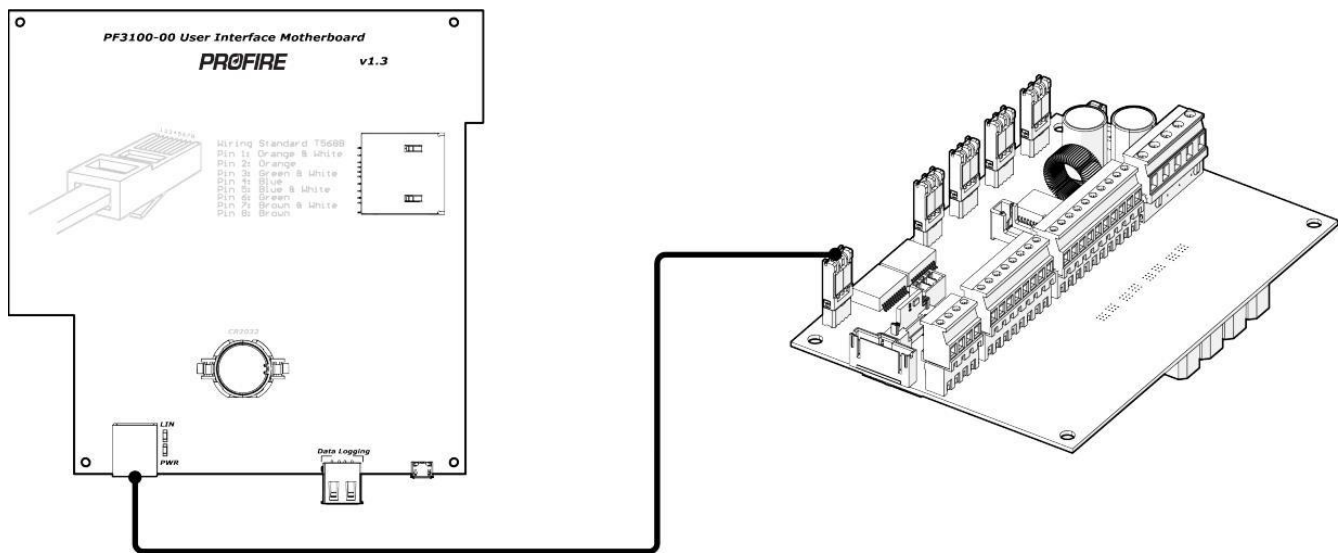
SD Card

An SD card is used for programming the operating system on the User Interface. Please refer to PROFIRE’s PFNIX Software Update Guide (<http://3100.profireenergy.com/pf3100-documentation/>) for detailed instructions on programming and updating PFNIX software. The SD card should not be inserted or removed unless the area is known to be non-hazardous, as doing so may cause a spark.

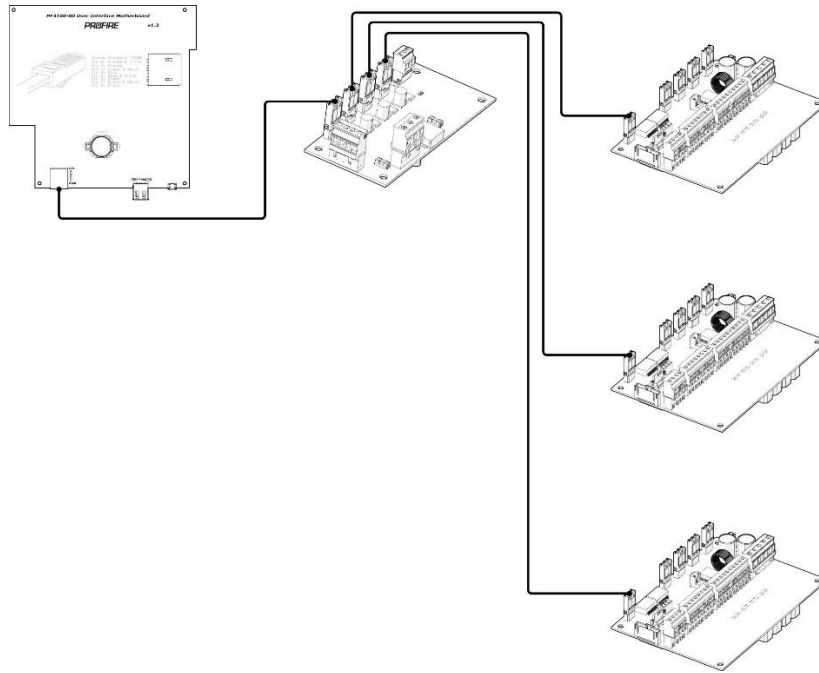
3. Wiring Diagrams

The following diagrams outline the connection of the PFRN to the BMS. They also indicate the connection through a Network or Modbus card to multiple Burner Management Systems.

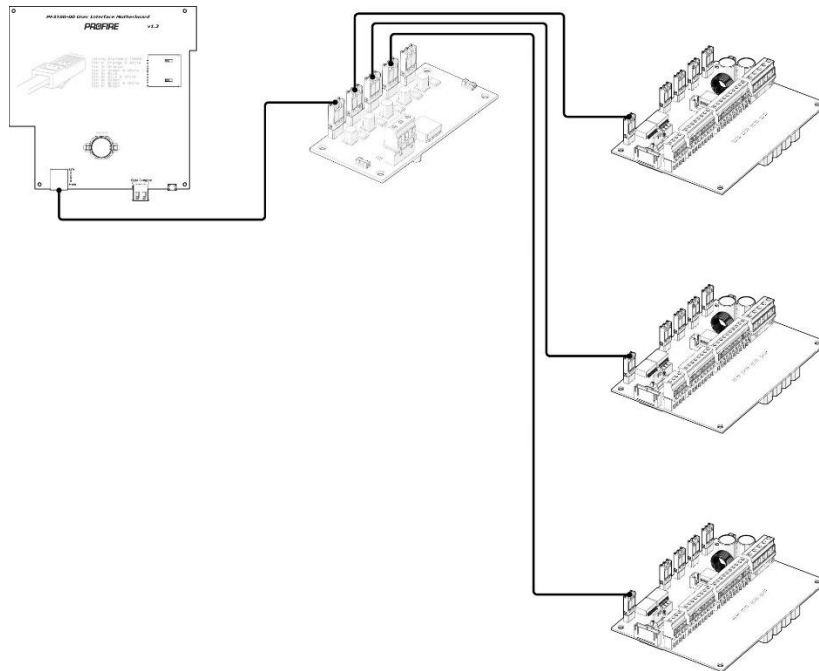
UI Connection to PFRN of BMS



UI Connection to BMS through Modbus Card



UI Connection to BMS through Network Card



4. Instructions for Use

The User Interface (UI) Card is designed to be used with a certified BMS controller as part of the PF3100 platform. The UI hosts an application that allows the operator to commission the PF3100 Burner Management System. The UI can display status information about the appliance including alarms, temperatures, and setpoints, amongst many other items.

The UI is required to commission the system, but it is not required to run the system. When the UI is not connected to the BMS appliance, it is referred to as “headless operation.” This means that the system will run even if the UI is not working, although obviously this is not optimal.

5. Preventative Maintenance and Inspection

In order to ensure that the User Interface card works correctly and efficiently, the following maintenance and inspection procedures should be followed:

- Confirm that the PFRN cable is connected securely.
- Ensure that all wires are connected correctly.
- Routinely check for corrosion.
- Wires must not be frayed or worn, and all insulation must be intact.
- Ensure that no moisture or condensation is apparent on the board or within the enclosure.
- Check that the board does not show any sign of mechanical damage (e.g. – damage from impact from a dropped item such as a screw driver).
- Check that the board does not show any sign of electrical damage. This means that no components should be burnt or damaged in any way.
- Check that an SD card is not present in the UI during normal operation. The SD card is only used to update the application and should not be installed during normal operation.
- Ensure that the battery is not corroded and replace if necessary, when safe to do so.
- Visually check that the LCD screen is operating correctly.
- Check that the keypad buttons operate correctly, and that the ribbon cable connection is attached securely. The keypad can be tested by following the instructions for UI testing as listed below.
- Confirm that the temperature of the board is within ambient temperature operating limits.
- Confirm that the enclosure is secured.
- Check that the device is not subject to excessive vibration.
- Routine inspections should be performed on all equipment. If any abnormality is found, corrective actions should be taken. If the abnormality cannot be corrected, contact PROFIRE as soon as possible.
- A qualified technician should perform any tests necessary to confirm that the equipment is still in a safe condition. The board may be tested for correct operation in a safe environment as follows:
 - Power the UI down.
 - Hold the Multi Button.
 - Power the UI up and keep holding the Multi button until the boot screen appears.
 - Select the UI test.
 - Run the UI test. This will check the screen, LEDs, RTC, and keypad.
 - Upon completion: the user will be prompted to update the PFNIX version. If testing only, do not update the PFNIX version, simply decline the request.

Please note: care should be taken to ensure that testing does NOT damage the equipment in any way.

Cleaning

If the card becomes dirty it can be cleaned with compressed air. Do NOT use solvents, cleaners, or liquids to clean the board. Caution must be exercised when cleaning the board in order to prevent damage from ESD (electrostatic discharge).

6. Enclosure Specifications

The UI card is always mounted in the UIX enclosure.

Specifications	UIX Enclosure
Dimensions	<i>Height 30.9cm (12.15 inches) Width 23.4cm (9.23 inches) Depth 13.4cm (5.28 inches)</i>
Hazloc Rating	<i>Class I Div 2, IP66</i>
Mounting	<i>Channel Bar or Direct Mount</i>
Enclosure Construction	<i>Poly Painted Steel</i>
Operating Temperature	<i>-40°C (-40°F) to 60°C (140°F)</i>
Storage Temperature	<i>-40°C (-40°F) to 60°C (140°F)</i>

Please note: the enclosure is **NOT** a Class I Div 2 enclosure; the UI card and the enclosure together allow the rating. Any additional components will affect the rating and should therefore be taken into consideration.

Important Safety Information

Before installing the PF3100 User Interface (UI) card, please review the list of warnings below. Failure to observe the following warnings may result in death, electrocution, property damage, product damage, and/or government fines.

WARNING: Explosion Hazard

- **Do not disconnect while circuit is live unless area is known to be non-hazardous or equivalent.**
- **Substitution of components may impair suitability for specified zones.**
- **Do not service unless the area is known to be non-hazardous.**
- **Do not open when energized.**
- **Do not plug in or remove connectors unless the area is known to be non-hazardous; this includes the USB, SD card, and battery.**
- **Installation and use must conform to the directions in this guide.**

Installation Warnings

- **Ensure that the PF3100 enclosures are securely closed each time after opening the enclosure. This protects the internal circuitry from moisture damage and other environmental concerns. Moisture damage is not covered by the product warranty.**

7. PROFIRE Contact Information

If you have any concerns or questions about this product, please contact PROFIRE as follows:

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