



| SF-50 USER MANUAL





Save lives. Lower costs. Reduce emissions.

We are dedicated to providing quality, American-made safety control systems for industrial burners. The system has been developed through thousands of hours of critical design, engineering, and field testing.

- *SureFire BMS*



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1.1 | System Introduction

The SureFire-50 is an Automated Pilot Maintainer designed to ensure consistent pilot operation across firetube and pit flare applications. This innovative system eliminates the need for manual pilot ignition by maintaining a steady, automated standing pilot.

1.2 | Classifications

This pilot maintainer is not a certified system.

1.3 | Variations

Automated Standing Pilot

- Removes the hassle of manually relighting pilots, ensuring uninterrupted operation.

Pit Flare Mode

- Replaces unreliable fence chargers with a more dependable ignition system.

One-Time Automated Ignition Setup

- Eliminates the need for repeated manual ignition, streamlining operations and improving efficiency.

1.4 | WARNINGS

- Explosion hazard – Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not replace fuses unless power has been switched off or the area is known to be non-hazardous.

For any information regarding our warranty policy, go to our website or scan the QR Code.



2

SF-50

DESCRIPTION



PRODUCT DESCRIPTION

2.1 | Enclosure

The SF-50 system is housed in a metallic NEMA 4 enclosure that contains the circuit board and the membrane keypad.



The NEMA 4 enclosure provides a high level of protection against harsh outdoor elements, including:

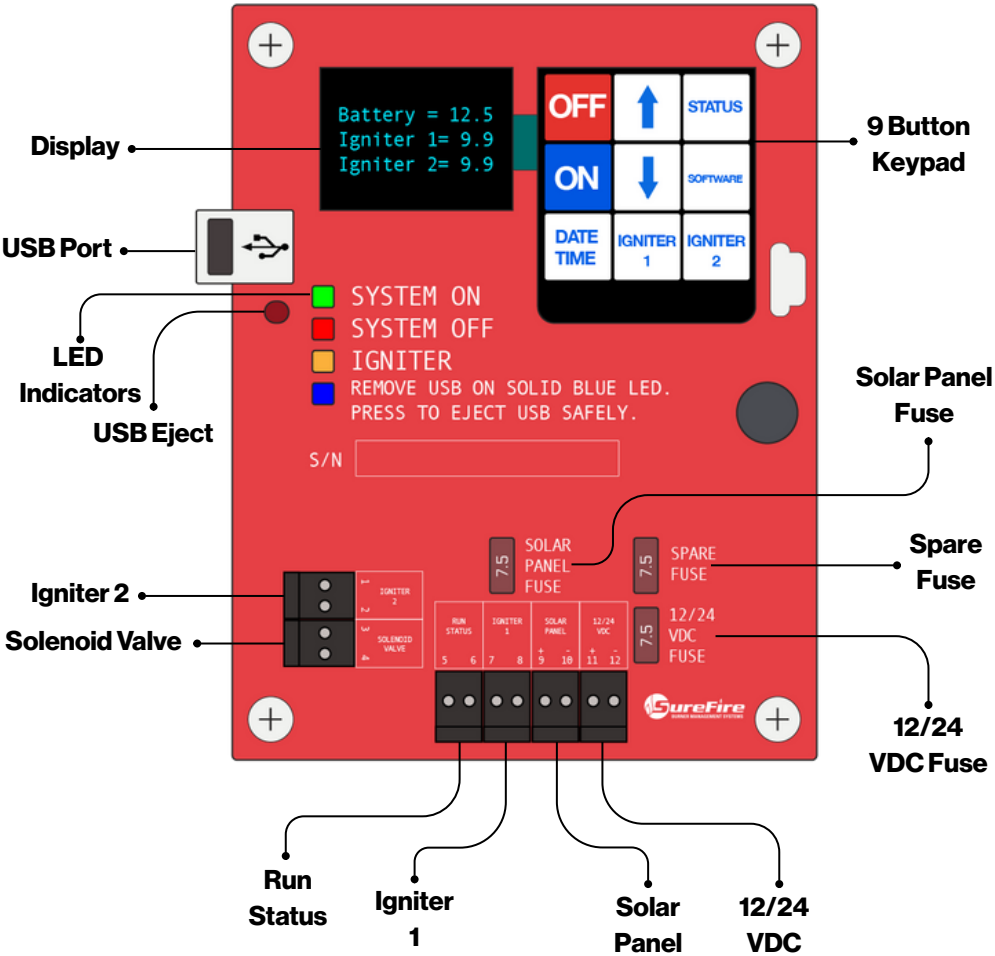
- Protection from windblown dust
- Protection against water damage, including rain, sleet, snow, splashing, and direct water contact
- Corrosion protection
- Protection from the external formation of ice

2.2 | Warning

When drilling holes in the enclosure, ensure that IP66 fittings are used.

2.3 | Circuit Board

The **SF-50** is controlled by state-of-the-art, non-arcing electronics that ensure pilot operations. It features 4 LED indicators and an LED display for easy monitoring. Additionally, the system is equipped with individual terminal blocks and a power connector to simplify wiring and installation.



2.4 | Keypad Description



OFF

- Turns the system off.
- Unlocks the system.



ON

- Turns the system on.



DATE/TIME

- Displays and adjusts date and time for data logging purposes.



UP ARROW

- Increases the selected value.



DOWN ARROW

- Decreases the selected value.



IGNITER 1

- Displays and adjusts the following values:
 - Igniter timing
 - Igniter ohm setpoint



STATUS

- Displays the status associated with the current operational state.



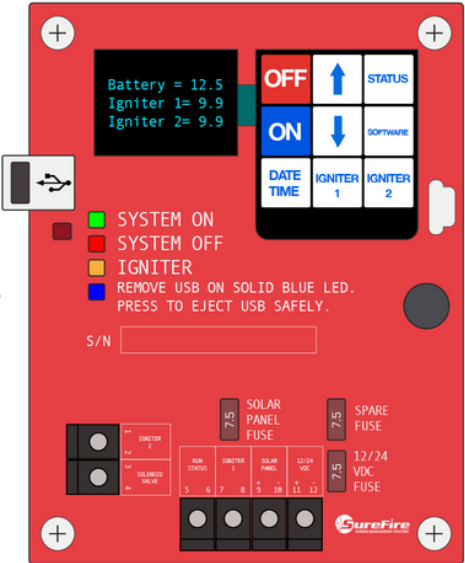
SOFTWARE

- Displays or selects the operational software version.



IGNITER 2

- Displays and adjusts the following values:
 - Pre-purge timing
 - Igniter ohm setpoint
 - Flame proof timing



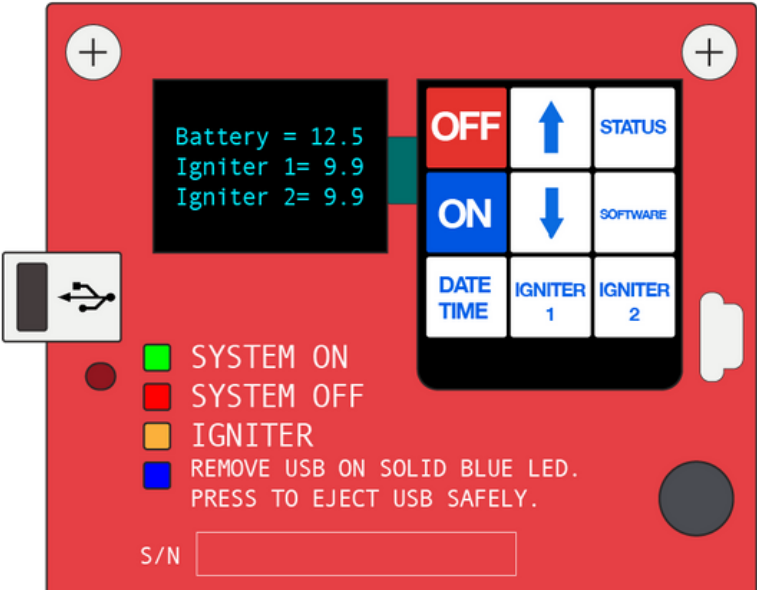
2.5 | LED Indicators

The circuit board's LEDs illuminate through the lid of the enclosure. The LEDs indicate the following:

LED Indicator	Status
GREEN	- This LED will illuminate in a solid state if the on button has been pressed and the ignition sequence is progressing properly. - The LED will illuminate in a flashing state if a cautionary code is observed.
RED	- This LED will illuminate in a solid state if the off button is pressed. - This LED will illuminate in a flashing state if a shutdown mode is observed.
AMBER	- This LED will illuminate in a solid state when the igniter is energized - This LED will illuminate in a flashing state when a shutdown code or cautionary code is observed that correlates with the igniter.
BLUE	This LED will illuminate when the button is pushed and USB is ready to be ejected.

2.6 | Graphic Overlay & Display

The graphic overlay is used to interface with the system and acquire system data. The display provides live feedback of the operating status.



3.1 | SureFire FT-Series Ignition Units

The SF-50 is compatible with the listed FT series ignition units. Each unit is specifically designed for Flare, Pit Flare or Fire Tube applications. The FT-series ignition units are suitable for piloted and on-demand ignition applications.

3.2 | FTL-F Ignition Units

The FTL-F series ignition units are designed for flare application. They will operate in conjunction with the SF-50 while in the MIU mode.



3.3 | FT-1 Ignition Unit

The FT-1 ignition unit is designed for piloted burner within a firetube application. This unit utilizes the igniter ohm values to verify the presence of the pilot flame, features an armored wiring harness with direct termination to the SF-50 controller.



For proper pilot placement and flame sensing selection, please contact **SureFire Tech Support at 505-333-2876** or your local SureFire representative.

4

MIU MODE

INSTALLATION AND
OPERATION



MECHANICAL INSTALLATION | ELECTRICAL INSTALLATION | SYSTEM OPERATION

Mechanical Installation Guide

4.1 | SF-50 Enclosure

1. The enclosure must be mounted on a pole, stand, or building that can support at least 10 lbs.
2. The SureFire 50 includes a mounting bracket kit (Screw size is 10/32).
3. Using the bracket kit mount the metallic enclosure onto the apparatus ensuring the enclosure is level.
4. Install conduit seal-off fittings for all electrical connections to the enclosure.
5. When installing conduit fittings into the enclosure, ensure the position is either on the side of the box or on the bottom of the box, but never on top. Ensure that conduit fittings are water proof.
6. Installation must comply with the National Electric Code.

4.2 | WARNING:

- Before attempting any welding, disconnect all wires going to the circuit board. Any damage caused by welding to the SureFire BMS is NOT covered under warranty.
- Before terminating any wires, ensure that no power is supplied to the controller.
- Any damage caused by standing on or using the enclosure as a step is NOT covered under warranty.

4.3 | SureFire FT-Series Ignition Unit On A Flare

1. Ensure **all** gas is turned off and locked out/tagged out.
2. Install the SureFire FTL-F Ignition Unit.
 - *The FTL-F Ignition Unit produces a flame pattern that extends past the nozzle, 9-12 inches.*
3. Secure the supply gas tubing and the wiring harnesses back to the flare body, ensuring their stability in windy conditions.

Electrical Installation Guide

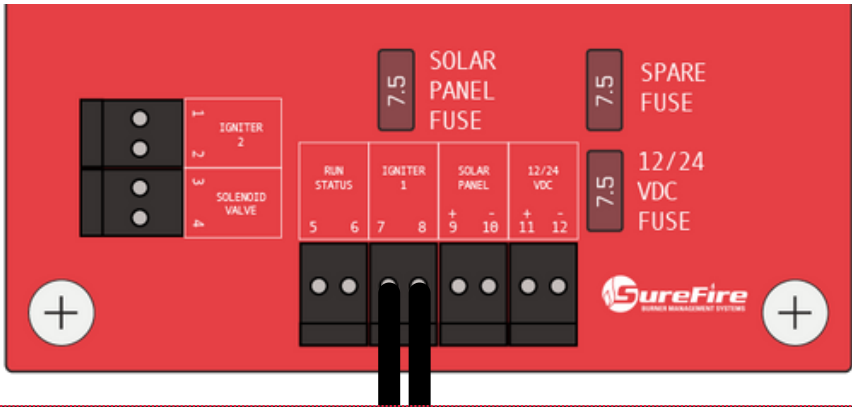
4.4 | Igniter 1

Functions:

Provides ignition for the system in MIU mode and Pit Flare mode.

Installation:

- 1. The SureFire igniter has two white wires, which are not polarity-sensitive.
- 2. Referencing the table below, run the appropriate wire gauge to the **SF-50** enclosure.
- 3. When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
- 4. For future troubleshooting, label or color-code all wiring for easy identification.
- 5. Terminate the two wires into terminals **7 and 8**.



Ignition Unit Specifications

Ignition Unit @ Inrush	6.5 Amps Inrush
Ignition Unit @ Steady State	2.0 Amps Nominal (during ignition only)

Igniter Wiring Requirements

16 AWG	10 foot length - Copper Stranded
14 AWG	20 foot length - Copper Stranded
12 AWG	30 foot length - Copper Stranded

4.5 | Solar Panel

Functions:

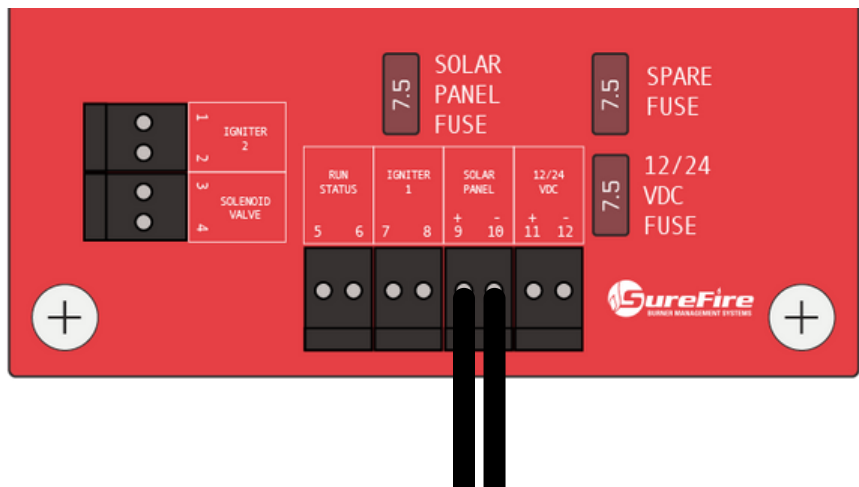
The **SF-50** has a built-in solar charge regulator that allows a solar panel to charge a battery without the need for an external charge controller.

Installation:

- 1.Run a pair of 18-gauge, stranded copper wires from the solar panel to the **SF-50**.
- 2.Ensure the wiring arrangement is suitable for outdoor use.
- 3.Connect the positive (+) terminal to terminal 9.
- 4.Connect the negative (-) terminal to terminal 10.

Notes:

- The maximum rating for the solar panel is 100 watts.
- The circuit board has an internal charge controller to charge a 12 VDC battery, if a battery is connected to terminals **11 and 12**.



Solar Panel Specifications	
Solar Panel	12 VDC / 100 W

4.6 | 12/24 VDC

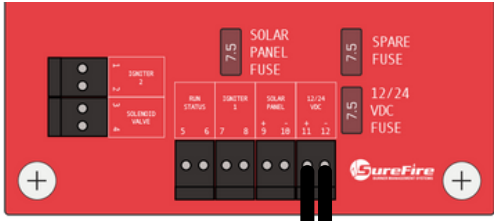
Functions:

This port allows three methods of voltage supply to power the **SF-50**:

- 12 VDC power supply
- 24 VDC power supply
- 12 VDC battery

Installation:

- 1.Referencing the table below, run the appropriate wire gauge from the power supply device to the **SF-50** enclosure.
- 2.When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
- 3.For future troubleshooting, label or color-code all wiring for easy identification.
- 4.Connect the positive (+) terminal to terminal **11**.
- 5.Connect the negative (-) terminal to terminal **12**.



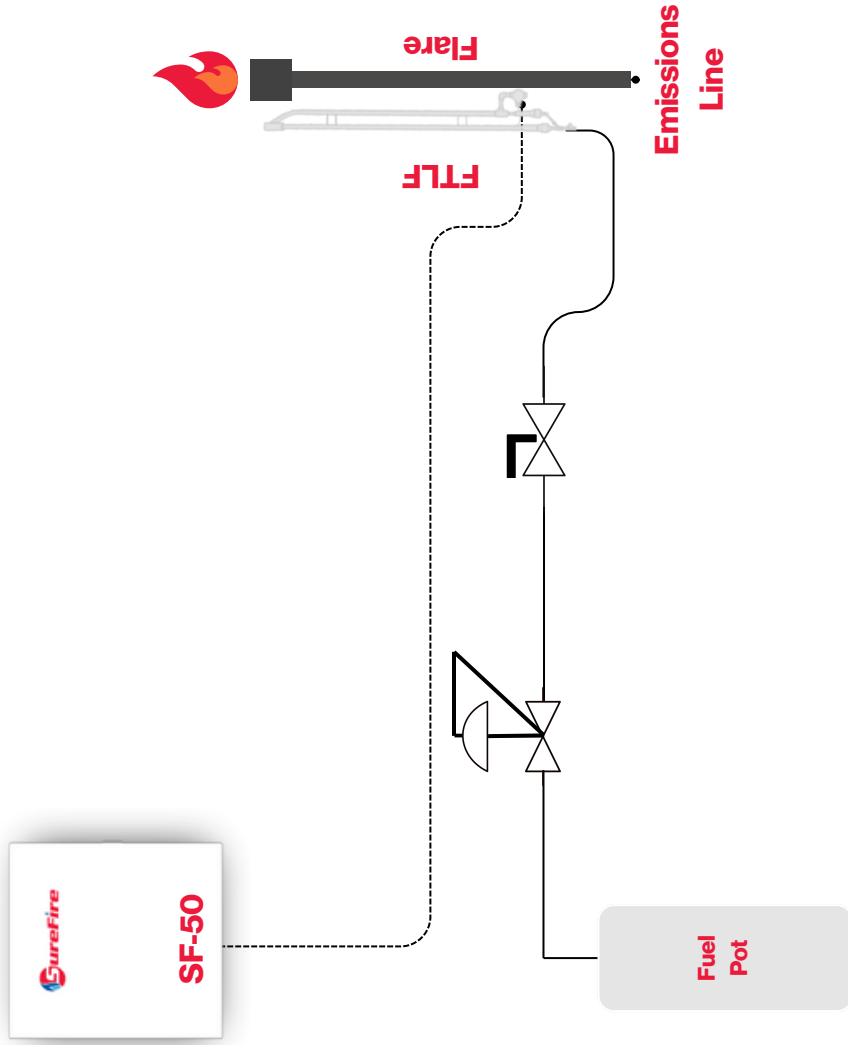
Power Supply Specifications

Battery Volts	12 - 13.4 VDC
12 VDC Power Supply	Set @ 13.4 VDC Rated at min 10 Amps
24 VDC Power Supply	Set at 24.0 VDC Rated at min 10 Amps
Max System Amperage	7.8 Amp / 0.4 Amp Avg.

Battery/Power Supply Wiring Requirements

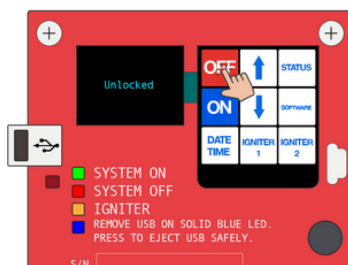
16 AWG	10 foot length - Copper Stranded
14 AWG	20 foot length - Copper Stranded
12 AWG	30 foot length - Copper Stranded

MIU Application

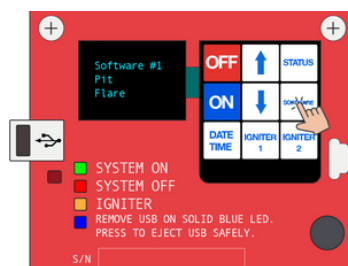


4.7 | MIU Setup

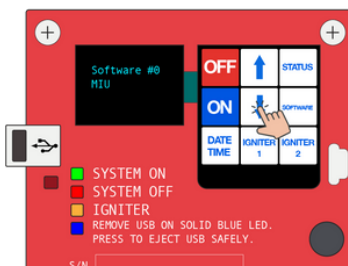
1. Unlock the system: Press and hold the “off” button for 5 second. (The screen will display “unlocked”)



2. Press the “software” button: The screen will display the current software mode.



3. Press the “down” arrow until you change the software mode to mode “0-MIU”.



4.8 | MIU Sequence of Operation:

1. The **ON button** is pressed: **Green LED Solid ON.**



2. The audible alarm activates for **5 seconds**. Simultaneously, **Igniter #1 is energized with 13 VDC.** – **Green and Yellow LEDs: Solid ON**



3. Once the audible alarm ends, **fuel gas should be introduced to the flare pilot.** – **Green and Yellow LEDs: Solid ON**

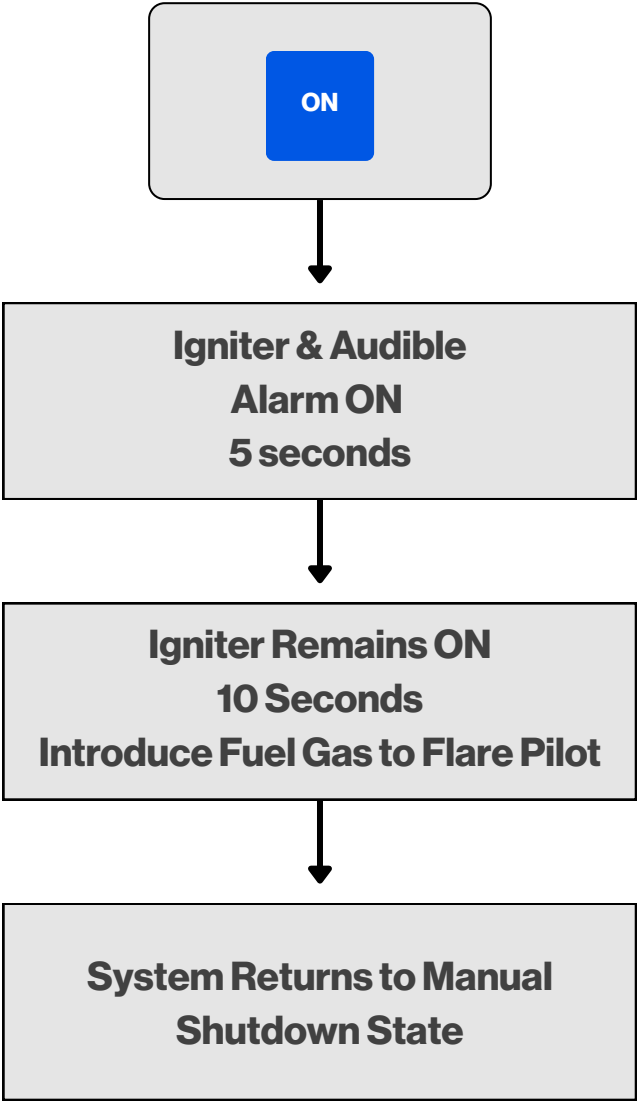


4. The **igniter remains energized** for an additional **10 seconds.** – Green and Yellow LEDs: Solid ON

Ignition should occur, and the flare pilot should now be lit.

5. **After** the igniter has been energized for a total of **15 seconds**, it will be de-energized, and the **unit will return to a manual shutdown state.** – Red LED: Solid ON

MIU Flow Chart



5

PIT FLARE MODE

INSTALLATION AND OPERATION



MECHANICAL INSTALLATION | ELECTRICAL INSTALLATION | SYSTEM OPERATION

5.1 | SF-50 Enclosure

1. The enclosure must be mounted on a pole, stand, or building that can support at least 10 lbs.
2. The SureFire 50 includes a mounting bracket kit (Screw size is 10/32).
3. Using the bracket kit mount the metallic enclosure onto the apparatus ensuring the enclosure is level.
4. Install conduit seal-off fittings for all electrical connections to the enclosure.
5. When installing conduit fittings into the enclosure, ensure the position is either on the side of the box or on the bottom of the box, but never on top. Ensure that conduit fittings are water proof.
6. Installation must comply with the National Electric Code.

5.2 | WARNING:

- Before attempting any welding, disconnect all wires going to the circuit board. Any damage caused by welding to the SureFire BMS is NOT covered under warranty.
- Before terminating any wires, ensure that no power is supplied to the controller.
- Any damage caused by standing on or using the enclosure as a step is NOT covered under warranty.

5.3 | SureFire Igniter on a Pit Flare

1. Ensure all gas turned off and locked out/tagged out.
2. Install the SureFire igniter in the designated entry point.
3. Secure the supply gas tubing and the wiring harnesses back to the flare body, ensuring their stability in windy conditions.

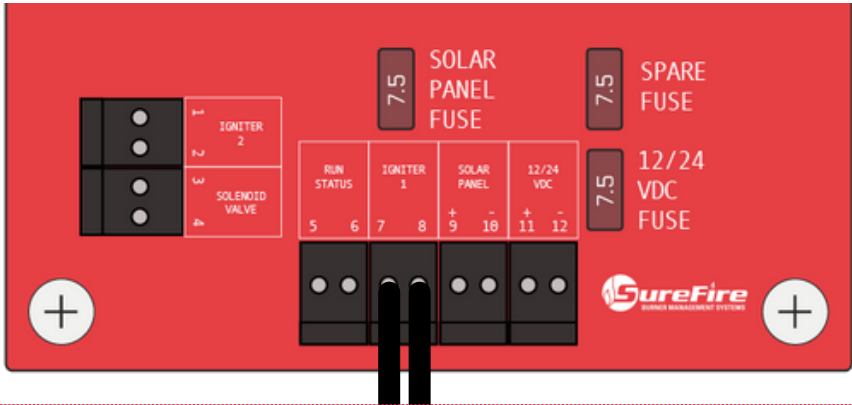
5.5 | Igniter 1

Functions:

Provides ignition for the system in MIU mode and Pit Flare mode.

Installation:

- 1. The SureFire igniter has two white wires, which are not polarity-sensitive.
- 2. Referencing the table below, run the appropriate wire gauge to the **SF-50** enclosure.
- 3. When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
- 4. For future troubleshooting, label or color-code all wiring for easy identification.
- 5. Terminate the two wires into terminals **7 and 8**.



Ignition Unit Specifications	
Ignition Unit @ Inrush	6.5 Amps Inrush
Ignition Unit @ Steady State	2.0 Amps Nominal (during ignition only)
Igniter Wiring Requirements	
16 AWG	10 foot length - Copper Stranded
14 AWG	20 foot length - Copper Stranded
12 AWG	30 foot length - Copper Stranded

5.6 | Solar Panel

Functions:

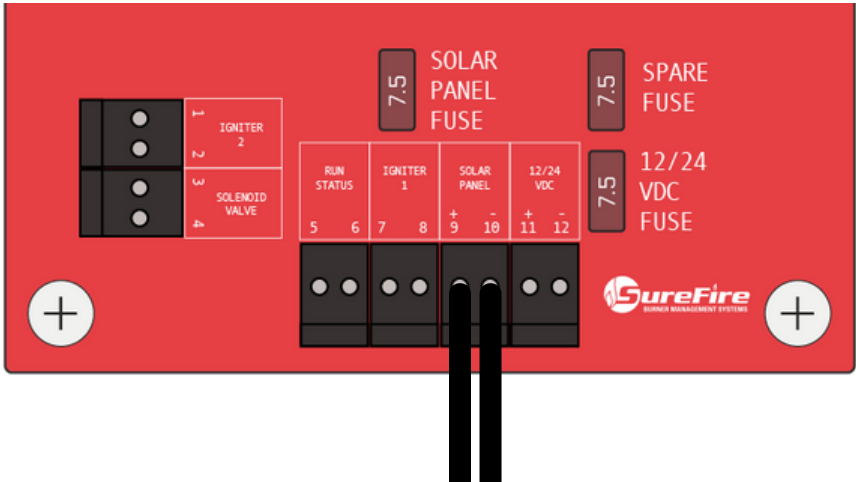
The **SF-50** has a built-in solar charge regulator that allows a solar panel to charge a battery without the need for an external charge controller.

Installation:

- 1. Run a pair of 18-gauge, stranded copper wires from the solar panel to the **SF-50**.
- 2. Ensure the wiring arrangement is suitable for outdoor use.
- 3. Connect the positive (+) terminal to terminal 9.
- 4. Connect the negative (-) terminal to terminal 10.

Notes:

- The maximum rating for the solar panel is 100 watts.
- The circuit board has an internal charge controller to charge a 12 VDC battery, if a battery is connected to terminals **11 and 12**.



Solar Panel Specifications	
Solar Panel	12 VDC / 100 W

5.7 | 12/24 VDC

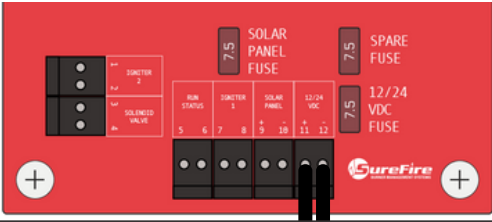
Functions:

This port allows three methods of voltage supply to power the **SF-50**:

- 12 VDC power supply
- 24 VDC power supply
- 12 VDC battery

Installation:

- 1.Referencing the table below, run the appropriate wire gauge from the power supply device to the **SF-50** enclosure.
- 2.When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
- 3.For future troubleshooting, label or color-code all wiring for easy identification.
- 4.Connect the positive (+) terminal to terminal **11**.
- 5.Connect the negative (-) terminal to terminal **12**.



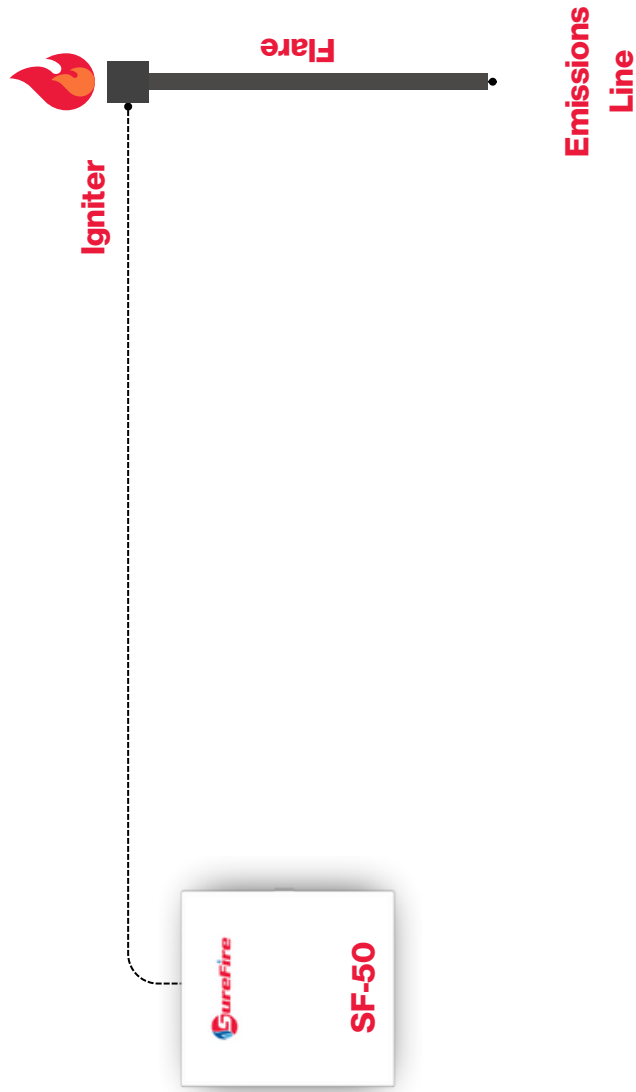
Power Supply Specifications

Battery Volts	12 - 13.4 VDC
12 VDC Power Supply	Set @ 13.4 VDC Rated at min 10 Amps
24 VDC Power Supply	Set at 24.0 VDC Rated at min 10 Amps
Max System Amperage	7.8 Amp / 0.4 Amp Avg.

Battery/Power Supply Wiring Requirements

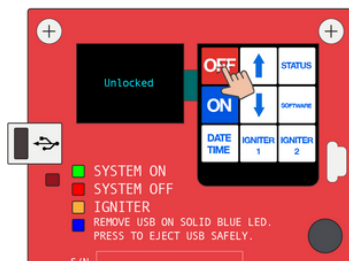
16 AWG	10 foot length - Copper Stranded
14 AWG	20 foot length - Copper Stranded
12 AWG	30 foot length - Copper Stranded

Pit Flare Application

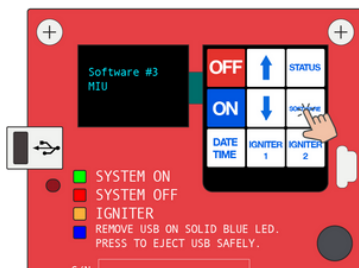


5.8 | Pit Flare Setup

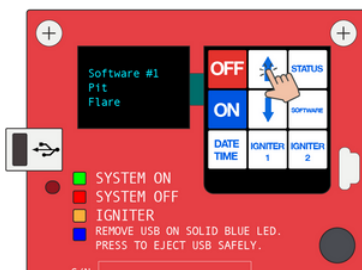
1. Unlock the system: Press and hold the “off” button for 5 second. (The screen will display “unlocked”)



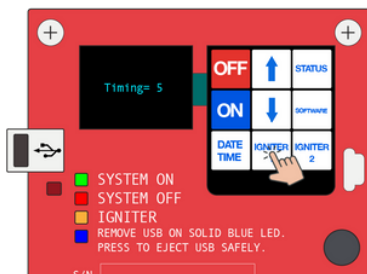
2. Press the “software” button: The screen will display the current software mode.



3. Press the “Up or Down” arrow until you change the software mode to mode “1-Pit flare”.



4. Adjust the igniter timing by pressing the “igniter 1” button; pressing the igniter button one time will display on the screen, “timing = x”. (The setting is the seconds in between ignition attempts.)



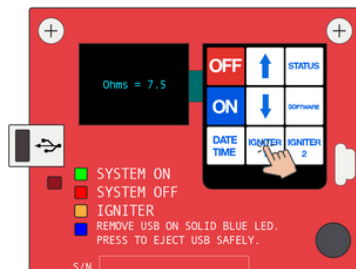
You can press the “Up” or “Down” arrow to adjust the timing.

Note: Seconds range from 5 to 600 seconds.

5. Second Function:

- If you press “igniter 1” a second time, it will display “ohms=7.5”
- this setting is the igniter 1 caution set point. (You can press the up or down arrow button to adjust this set point.)

Note: The ohm range is from 3.0-9.9 ohms.



5.9 Pit Flare Sequence of Operation:

1. The **ON button** is pressed: **Green LED Solid ON.**

2. The igniter timing countdown occurs – **Green LED Solid ON**

3. The last 5 seconds of the igniter timing countdown, the audible alarm will be active – **Green LED Solid ON**

4. The Igniter # 1 is energized with 13 VDC– **Green and Yellow LED Solid ON**

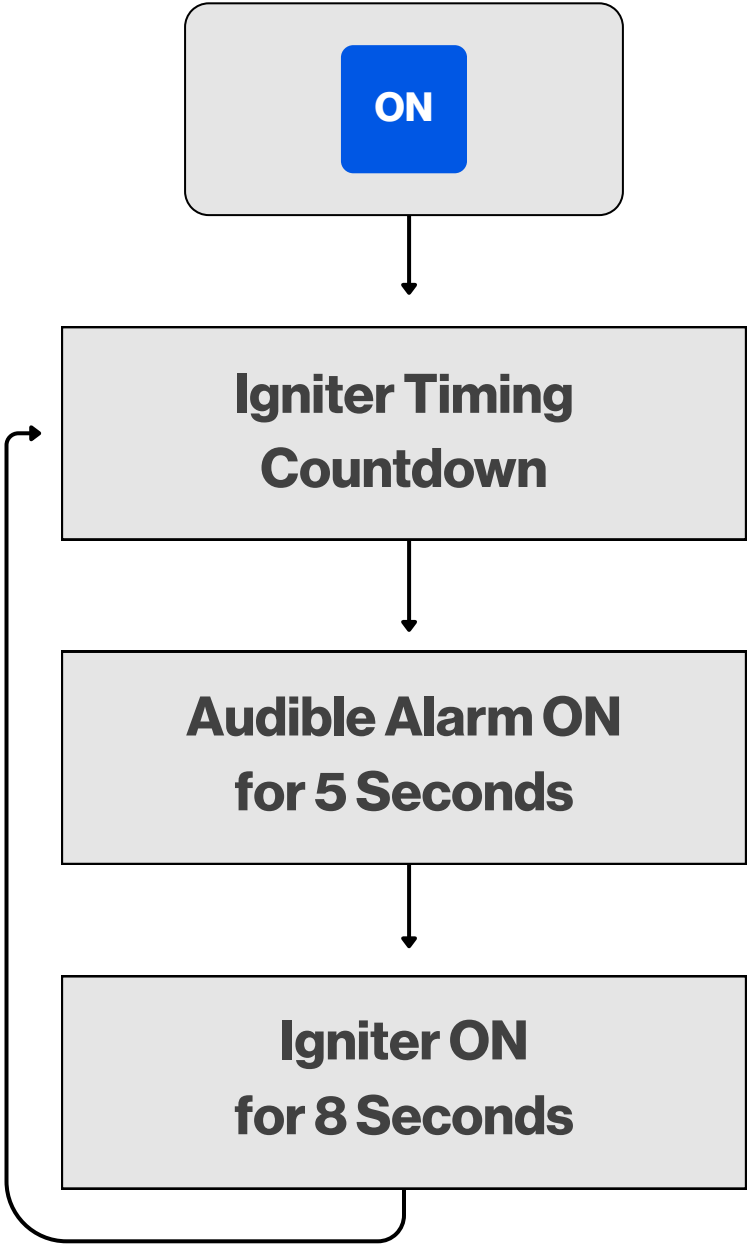
5. The igniter # 1 remains energized for 8 seconds **Green and Yellow LED Solid ON**

6. The igniter # 1 remains energized for 8 seconds **Green and Yellow LED Solid ON**

7. At the end of the 8 seconds, the igniter # 1 is de-energized and the igniter timing countdown occurs – **Green LED Solid ON.**



Pit Flare Flow Chart



6

STANDING PILOT MODE

INSTALLATION AND OPERATION



MECHANICAL INSTALLATION | ELECTRICAL INSTALLATION | SYSTEM OPERATION

6.1 | SF-50 Enclosure

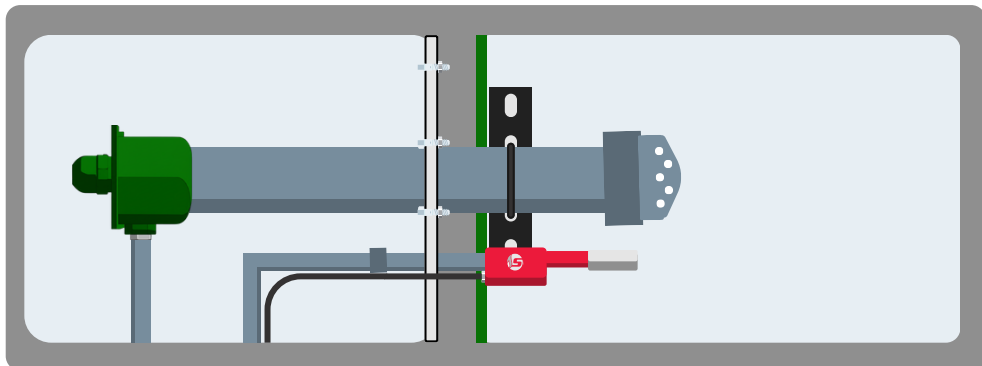
1. The enclosure must be mounted on a pole, stand, or building that can support at least 10 lbs.
2. The SureFire 50 includes a mounting bracket kit (Screw size is 10/32).
3. Using the bracket kit mount the metallic enclosure onto the apparatus ensuring the enclosure is level.
4. Install conduit seal-off fittings for all electrical connections to the enclosure.
5. When installing conduit fittings into the enclosure, ensure the position is either on the side of the box or on the bottom of the box, but never on top. Ensure that conduit fittings are water proof.
6. Installation must comply with the National Electric Code.

6.2 | WARNING:

- Before attempting any welding, disconnect all wires going to the circuit board. Any damage caused by welding to the SureFire BMS is NOT covered under warranty.
- Before terminating any wires, ensure that no power is supplied to the controller.
- Any damage caused by standing on or using the enclosure as a step is NOT covered under warranty.

6.3 | SureFire FT-Series Ignition Unit On A Firetube

1. Ensure the supply gas is turned off and locked out/tagged out.
2. Remove the flame arrestor.
3. Remove the existing pilot nozzle.
4. Clean out the existing pilot mixer and pilot orifice.
 - *Ensure that the orifice diameter is a #72.*
5. Install the SureFire FT-1 Ignition Unit on the pipe nipple that is screwed in to the mixer.
 - *Ensure the pilot nozzle is 1 inch shorter than the main burner nozzle.*
6. Run the wiring harness into an external junction box.
7. Re-install the flame arrestor.



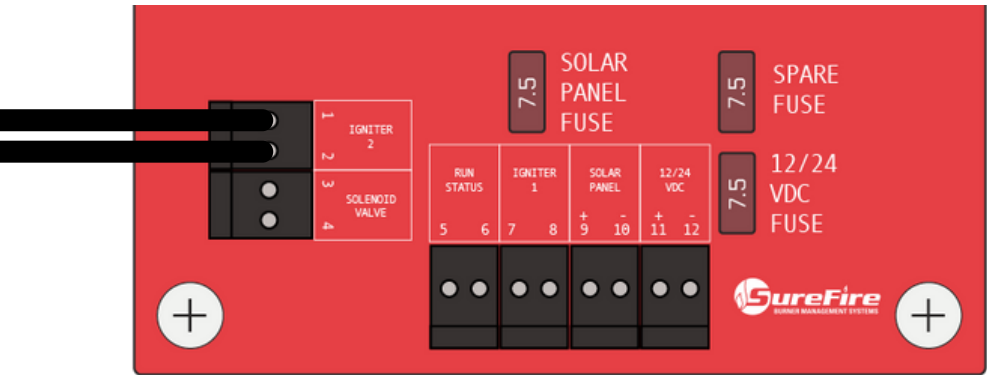
6.4 | Igniter 2

Functions:

Provides ignition for the system in standing pilot mode and dual igniter mode.

Installation:

- 1. The SureFire igniter has two white wires, which are not polarity-sensitive.
- 2. Install a conduit box on the flame arrestor (for firetube applications) for wire termination.
- 3. Referencing the table below, run the appropriate wire gauge from the junction box to the **SF-50** enclosure.
- 4. When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
- 5. For future troubleshooting, label or color-code all wiring for easy identification.
- 6. Terminate the two wires into terminals **1 and 2**.



Ignition Unit Specifications

Ignition Unit @ Inrush	6.5 Amps Inrush
Ignition Unit @ Steady State	2.0 Amps Nominal (during ignition only)

Igniter Wiring Requirements

16 AWG	10 foot length - Copper Stranded
14 AWG	20 foot length - Copper Stranded
12 AWG	30 foot length - Copper Stranded

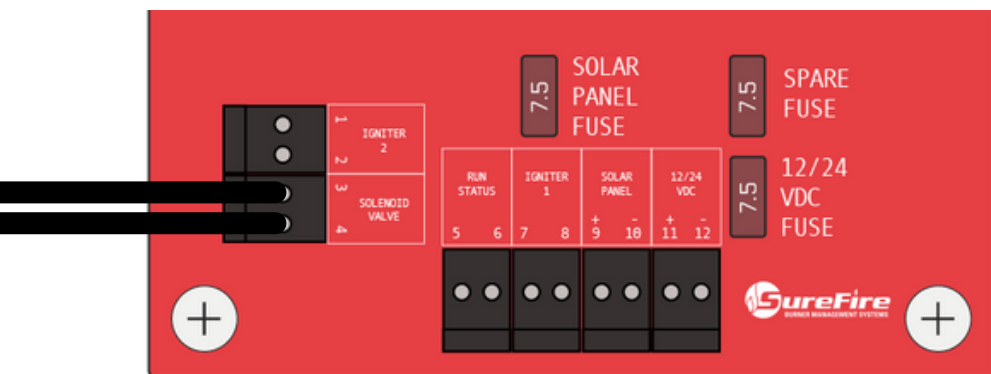
6.5 | Solenoid Valve

Functions:

Controls the electrical actuation of the solenoid valve in standing pilot mode and dual igniter mode.

Installation:

1. The ASCO valve has three wires: two red and one green. For this application, the two red wires will be used (not polarity-sensitive), while the green wire will not be used.
2. Install a conduit box onto the electrical fitting on the ASCO valve.
3. Use 18-gauge, stranded copper wire for this device.
4. When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
5. For future troubleshooting, label or color-code all wiring for easy identification.
6. Terminate the two red wires into terminals **3 and 4**.



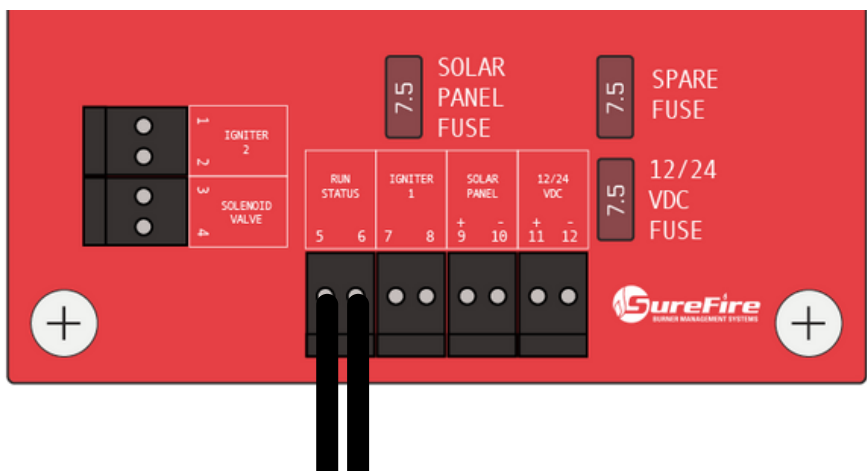
6.6 | Run Status

Functions:

Provides a continuity-based feedback for remote monitoring of the system’s operating state.

Installation:

- 1.Run a pair of 18-gauge, stranded copper wires from the **SF-50** to the onsite PLC/RTU device.
- 2.When terminating wires, ensure proper electrical fittings are used to maintain proper operation and moisture resistance.
- 3.For future troubleshooting, label or color-code all wiring for easy identification.
- 4.Terminate the two wires into terminals **5 and 6**.



Unit Status	Run Status	Green LED	Red LED
Manual OFF	Open	OFF	ON
Shutdown	Open	OFF	Blinking
Standby	Open	Blinking	OFF
Unit ON	Closed	ON	OFF

6.7 | Solar Panel

Functions:

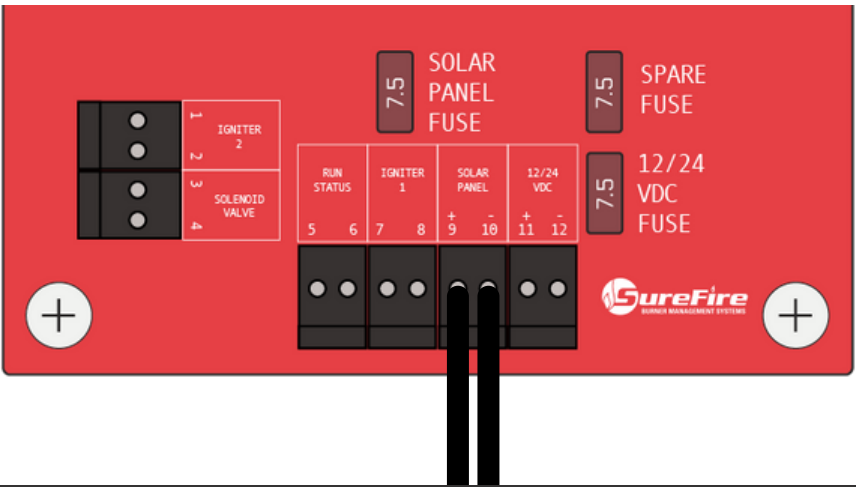
The **SF-50** has a built-in solar charge regulator that allows a solar panel to charge a battery without the need for an external charge controller.

Installation:

- 1.Run a pair of 18-gauge, stranded copper wires from the solar panel to the **SF-50**.
- 2.Ensure the wiring arrangement is suitable for outdoor use.
- 3.Connect the positive (+) terminal to terminal 9.
- 4.Connect the negative (-) terminal to terminal 10.

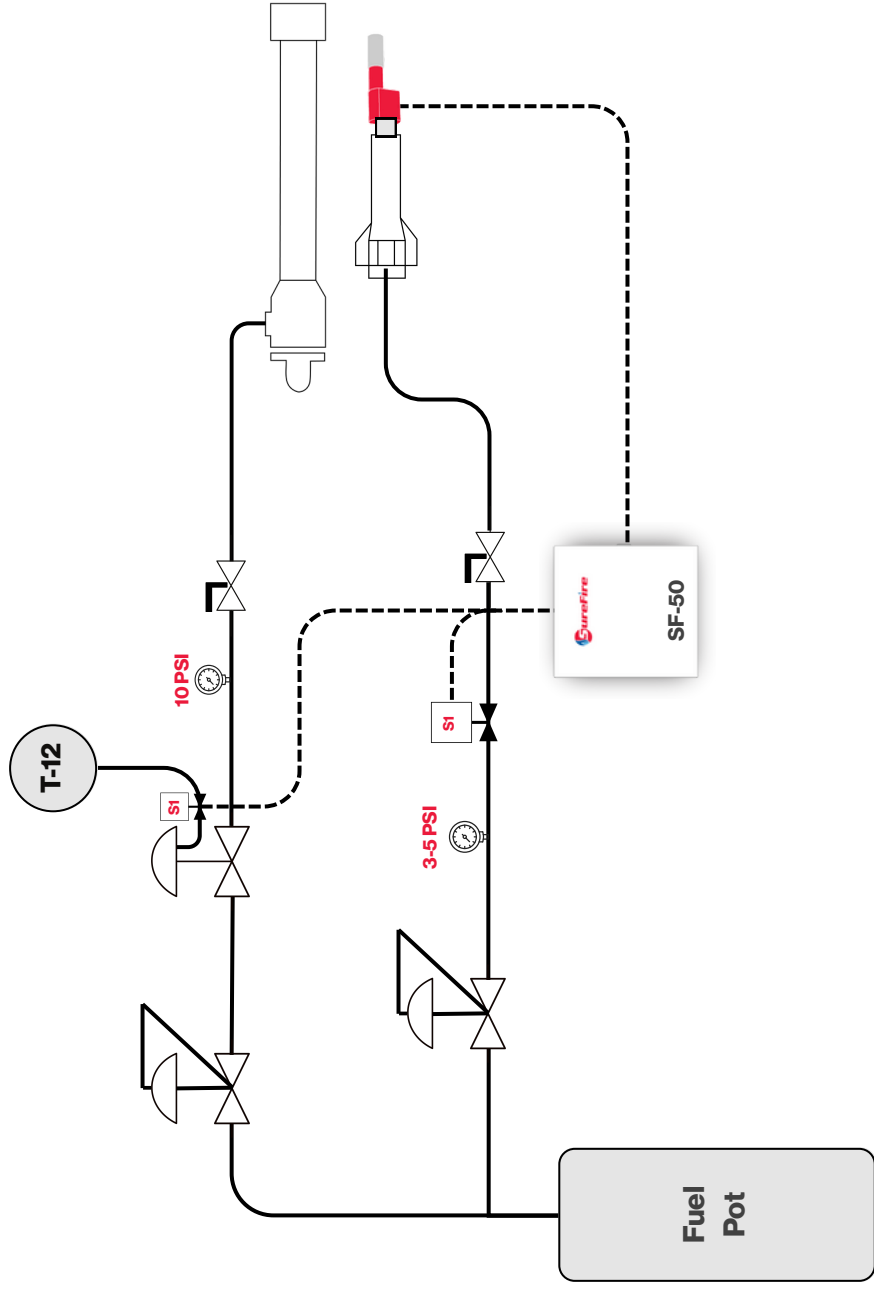
Notes:

- The maximum rating for the solar panel is 100 watts.
- The circuit board has an internal charge controller to charge a 12 VDC battery, if a battery is connected to terminals **11 and 12**.



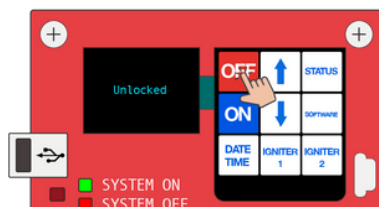
Solar Panel Specifications	
Solar Panel	12 VDC / 100 W

Standing Pilot Application

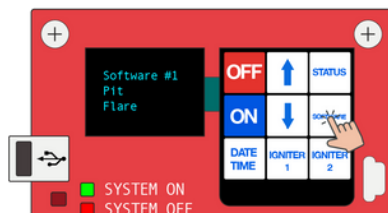


6.9 | Standing Pilot Setup

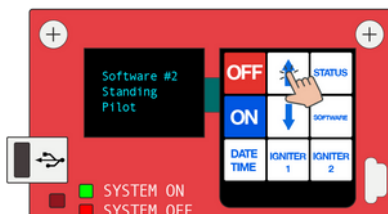
1. Unlock the system: Press and hold the “off” button for 5 second. (The screen will display “unlocked”)



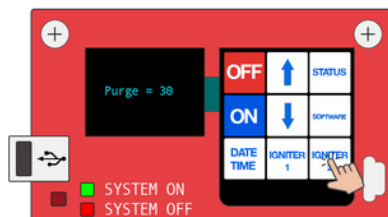
2. Press the “software” button: The screen will display the current software mode.



3. Press the “Up or Down” arrow until you change the software mode to mode “2-standing pilot”.



4. Adjust the igniter timing by pressing the “igniter 2” button; pressing the igniter button one time will display on the screen, “purge =30”. (This setting is the seconds before each ignition attempt.)



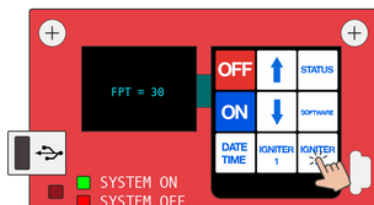
You can press the “Up” or “Down” arrow to adjust the timing.

Note: Seconds range from 20 to 600 seconds.

6.10 | Second Function:

- If you press “igniter 2” a second time, it will display “FPT = 30”.
- This setting is the flame proof timing set point. (You press the Up or Down arrow to adjust the timing.)

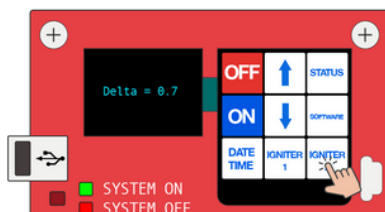
Note: The flame proof timing options range from 30, 60, 90, & 120.



6.11 | Third Function:

- If you press “igniter 2” a third time, it will display “delta=0.7”
- This setting is the required ohm increase to sense a flame. (the system will take a snapshot of the igniter's ohm value prior to ignition i.e. 1.6 then as the flame is created the ohms value will increase reflecting the presence of a flame on the pilot burner. If the detected ohms value remains 0.7 above the snapshot value of 1.6 i.e. 2.3 then the system continues to sense a flame allowing the gas to flow and a pilot burner to run. If the ohms value drops below the 0.7 increase the system will shut down and restart the ignition sequence.)

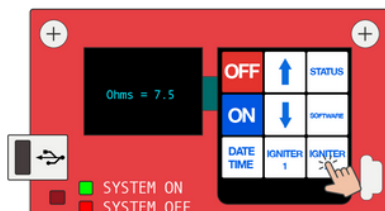
Note: The ohm range is from 3.0-9.9 ohms.



6.12 | Fourth Function:

- If you press “igniter 2” a fourth time, it will display “ohms=7.5”
- This setting is the igniter 2 caution set point. (You can press the up or down arrow button to adjust this set point.)

Note: The ohm range is from 3.0-9.9 ohms.

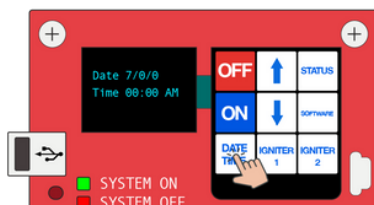


6.13 | Date Time

- Displays or selects the date and time for the data logging function
- The screen will show the date on the top half of the screen (month / day / year) and the time on the bottom half of the screen (00:00 AM / PM).

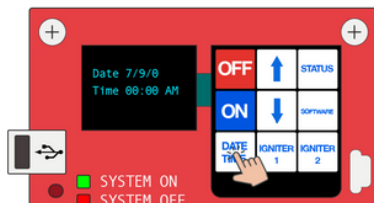
How to Set the Date and Time:

- Unlock the system.
- Press the Date/Time button once – the month will start flashing.
- Use the up/down arrows to adjust the month.



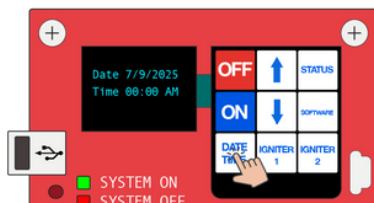
How to Adjust the Day

- Press Date/Time again – the day will flash.
- Use the up/down arrows to adjust the day.



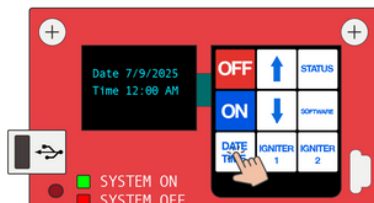
How to Adjust the Year

- Press Date/Time again – the year will flash.
- Use the up/down arrows to adjust the year.



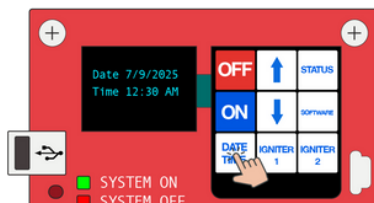
How to Adjust the Hour

- Press Date/Time again – the hour will flash.
- Use the up/down arrows to adjust the hour.



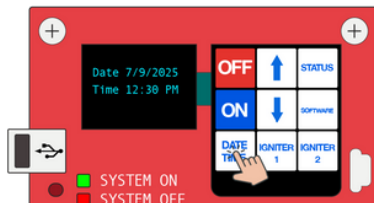
How to Adjust the Minutes

- Press Date/Time again – the minutes will flash.
- Use the up/down arrows to adjust the minutes.



How to Adjust the AM/PM

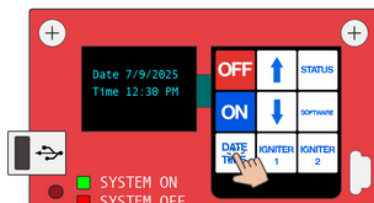
- Press Date/Time again – the AM/PM will flash.
- Use the up/down arrows to adjust AM/PM.



How to Save Changes

- Press Date/Time one final time to save and exit.

Note: Selectable date and time values are limited to standard ranges for each field.



6.14 | Standing Pilot Sequence of Operation:

1. The **ON button** is pressed: **Green LED Solid ON**.

2. The igniter timing (pre-purge) countdown occurs – **Green LED Solid ON**

3. The last 5 seconds of the igniter timing countdown, the audible alarm will be active – **Green LED Solid ON**

4. At the end of the igniter timing countdown, the ohm's resistance of the igniter is observed (Ohm value # 1) by the SF-50 – **Green LED Solid ON**

5. The Igniter # 2 is energized with 13 vdc – **Green and Yellow LED Solid ON**

6. The igniter # 2 remains energized for 8 seconds – **Green and Yellow LED Solid ON**

7. At the end of the 8 seconds, the solenoid valve is energized and opens while the igniter # 2 remains energized for an additional 5 seconds – **Green and Yellow LED Solid ON**

8. At the end of the 8 seconds, the solenoid valve is energized and opens while the igniter # 2 remains energized for an additional 5 seconds – **Green and Yellow LED Solid ON**

9. At the end of the additional 5 second countdown, the igniter is de-energized and the 30 second FPT (flame proof timing) countdown occurs. – **Green LED Solid ON**

10. At the end of the FPT timing, the ohm's resistance of the igniter is again observed (ohm value # 2) to determine if the pilot has been lit. – **Green LED Solid ON**



- If the ohm value # 2 is higher than ohm value # 1 by a minimum of the value selected in the “Delta” setting, the pilot has been successfully lit.
 - i.e. if ohm value # 1 = 1.7Ω and the delta is $.8\Omega$, any ohm reading higher than 2.5Ω ($1.7 + .8$) equals a successful ignition.
- If the ohm value # 2 does not reflect the necessary delta increase above ohm value # 1, then the pilot was not successfully lit.

11. If the pilot was successfully lit, the system will remain in an on state until a pilot loss scenario or interruption occurs. – **Green LED Solid ON**

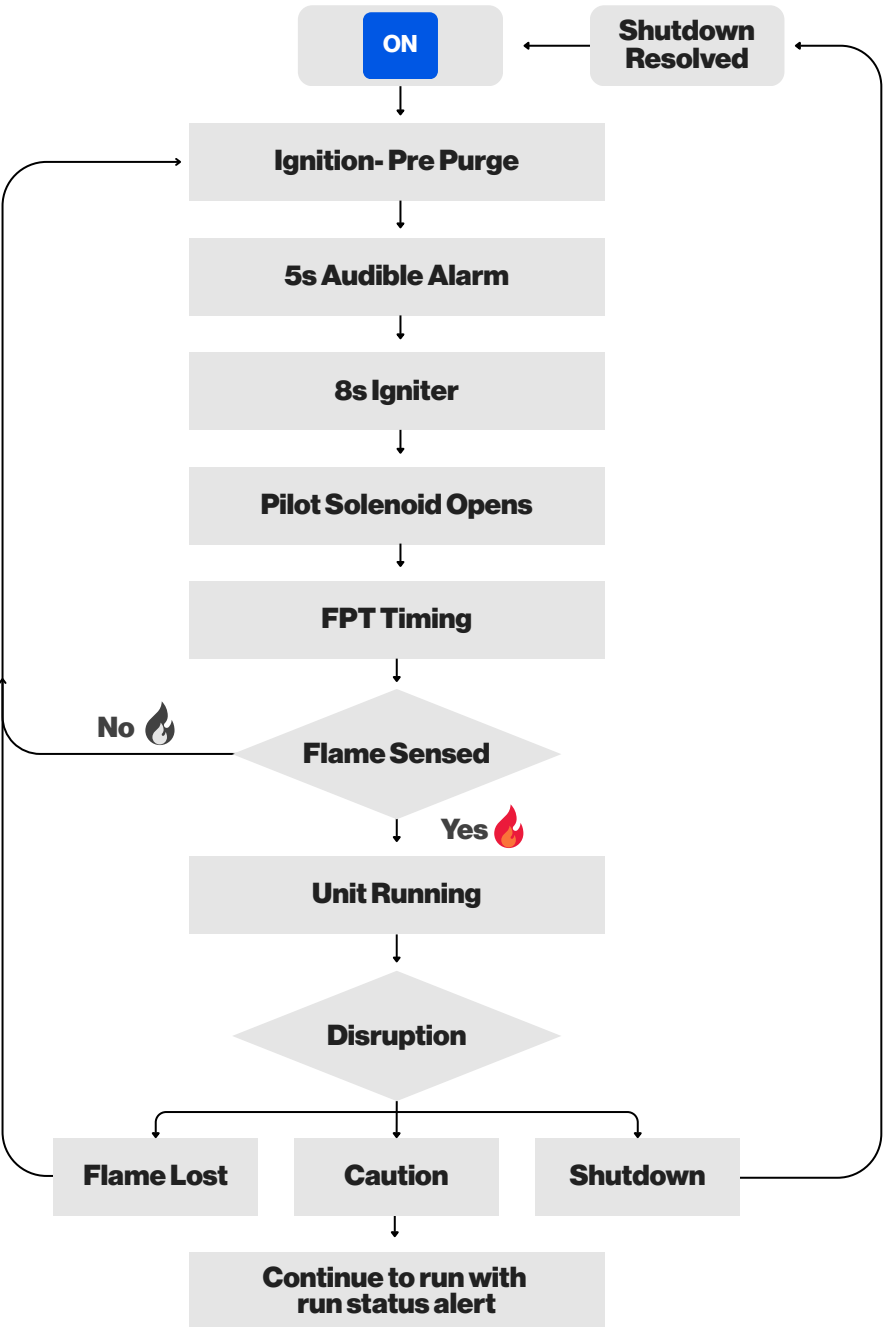
12. If the pilot ignition was unsuccessful, then the igniter timing (pre-purge) begins, and the process starts over. – **Green LED Solid ON**

Dual Mode of Operation:

- The sequencing listed in the pit flare and standing pilot mode occur simultaneously with the igniter preference being given to the standing pilot mode of operation.



Standing Pilot Flow Chart



7

DUAL MODE

INSTALLATION AND OPERATION



MECHANICAL INSTALLATION | ELECTRICAL INSTALLATION | SYSTEM OPERATION

7.1 | Dual Mode Description

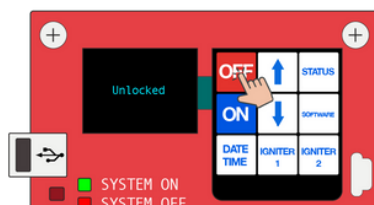
The dual mode function is a combination of the pit flare mode and standing pilot mode, operating simultaneously. The purpose for this mode is to control both a pit flare and a pilot burner with one control box.

Reference page **17** for pit flare operation.

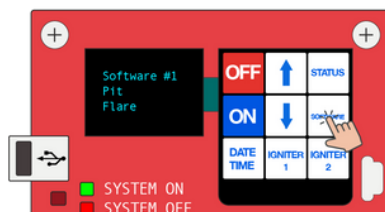
Reference page **27** for standing pilot operation.

7.2 | Dual: Software Mode 3

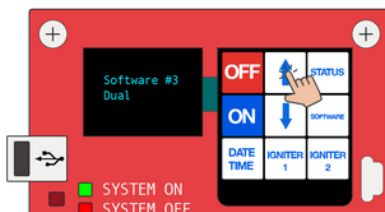
Unlock the system: Press and hold the “off” button for 5 second. (The screen will display “unlocked”)



2. Press the “software” button: The screen will display the current software mode.



3. Press the “Up or Down” arrow until you change the software mode to mode “3-dual”.

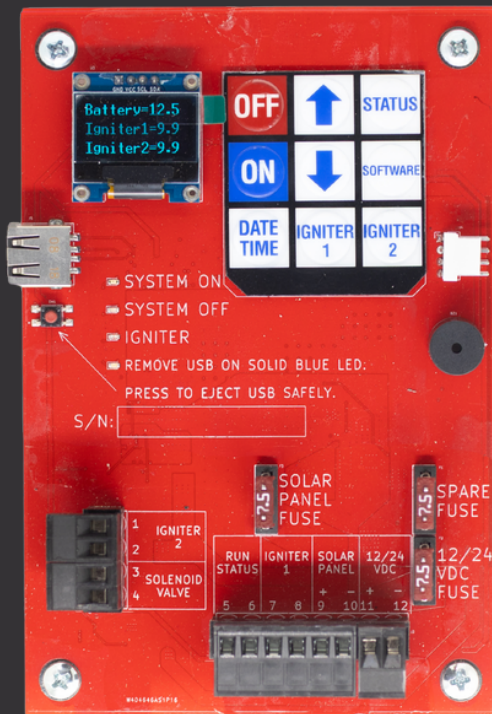


Contact technical support for additional information.

505-333-2876.

8

TROUBLE SHOOTING GUIDE



SYSTEM SETUP | SEQUENCE OF OPERATION

Code	Alarm Out	Cause	LED	
System Running	Not active	The on button has been pressed and no errors, standbys or caution codes are present.	Green LED ON	
Manual shutdown	Not Active	Only occurs if the off button has been pressed/ no other standbys, shutdowns, or cautionary codes will be observed.	Green LED ON	
Low Battery Caution	Active	The battery voltage dropped below 10.8 vdc	Blinking Green LED	
Battery Dead	Active	- The battery voltage dropped below 9.8 vdc - If the battery volts returns to 12.8 vdc, the system will restart. - If the battery volts drops below 9.8 vdc, the display and leds will turn off to preserve the battery life. If a button is pressed, the display will turn on for 5 seconds and then shut off once again.	Green LED ON	
Igniter #1 Shutdown	Active	- The Igniter port is observing 0 ohms. - This indicates that either the igniter is damaged or the wiring has become disconnected. - Use a DMM to observe the ohms value on igniter. If the igniter is showing a value of 0, then the igniter is damaged and needs replaced. If the igniter is showing a proper value, then the wiring has become disconnected and needs to be re-terminated.	Red Flashing	Yellow Flashing
Igniter #2 Shutdown				
Igniter #1 Caution	Active	- The igniter port is observing an ohm value that is higher than the igniter ohm set point. - This indicates that either the igniter is damaged or the wiring has become shorted. - Use a DMM to observe the ohm value on the igniter. If the igniter is showing an elevated value, then the igniter is damaged and needs to be replaced.	Green Flashing	Yellow Flashing
Igniter #2 Caution				

24/7 CARE FOR OUR CLIENTS.



Contact Info:

SureFire Farmington, NM Office:

Mailing Address: 1910 Rustic Place, Farmington, NM 87401

Phone: 505-333-2878

SureFire Technical Support:

Phone: (505) 333 - 2876

For SureFire Product Updates Please Visit:

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