INLINE PILOT

TABLE OF CONTENTS

ILP MANUAL & INSTALLATION GUIDE

1 PRODUCT INFORMATION

- **1.1 Features**
- **1.2 Specifications**
- **1.3 System Diagram**

2 INSTALLATION

- **2.1 Important Safety Information**
- **2.2 Connect the System**
- **2.3 Test the Hardware (optional)**
- **2.4 Install the System**
- **2.5 Troubleshooting: Common Problems & Solutions**

1 | PRODUCT INFORMATION

The Inline Pilot (ILP) is a unique pilot design that uses a single internal, inline ignitor and flame detection rod to provide reliable ignition and flame detection. The pilot body consists of an optimized internal diffuser and welded shell assembly. The assembly is connected to a base hub through a cylindrical spacer tube. This spacer tube comes in several length options. The base hub accommodates the upstream mixer and inline flame rod base connection via two threaded input ports.

One of the key features of the ILP is the use of Profire's patented Near Field Ionization (NFI) technology. Profire utilizes a unique diffuser design which orients the flame to flow past the internal flame detection rod resulting in superior flame detection via ionization.

1.1 | Features

The Profire Energy Inline Pilot is designed for the following:

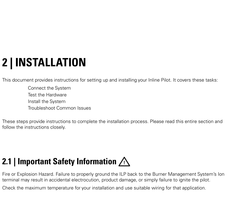
1. Reliable lighting even in extreme environmental conditions
2. Continues to function below the normal operating inlet gas pressure even in adverse conditions
3. Simple installation
4. Reliable flame anchoring and detection using NFI with no rod fouling problems
5. One easily removable, internal ignition and flame detection rod fitted inside a custom combustion nozzle
6. Automatically aspirates air into the mixture to make up any deficits for maintaining a sustained flame

1.2 | Specifications

	API	EPM
Version Description	Compact Inline Pilot	Standard Inline Pilot
Approx. Cylindrical Length	101.6 mm (4 in)	152.4 mm (6 in)
Approx. Length	95.25 in (38.1 mm)	139.5 in (57.5 mm)
Diameter	1.5 in (3.8 cm)	1.5 in (3.8 cm)
Typical Operating PSI	2.25 psi (optimal 3.5 psi)	2.25 psi (optimal 3.5 psi)
Burner Nozzle Construction	316 Stainless Steel	316 Stainless Steel
Orifice Size	#55 included	#55 included
Max Operating Temperature	1500 °F (815 °C)	1500 °F (815 °C)
Nozzle-Port Number	SNC 150 PNP	SNC 150 PNP

*Other orifice sizes are available for use with the ILP. See the troubleshooting section for more details.

1.3 | System Diagram



2 | INSTALLATION

This document provides instructions for setting up and installing your Inline Pilot. It covers these tasks:

- Connect the System
- Test the Hardware
- Install the System
- Troubleshoot Common Issues

These steps provide instructions to complete the installation process. Please read this entire section and follow the instructions closely.

2.1 | Important Safety Information ⚠

Fire or Explosion Hazard. Failure to properly ground the ILP back to the Burner Management System's ion terminal may result in accidental electrocution, product damage, or simply failure to ignite the pilot.

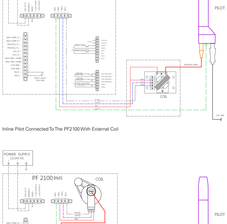
Check the maximum temperature for your installation and use suitable wiring for that application.

2.2 | Connect the System

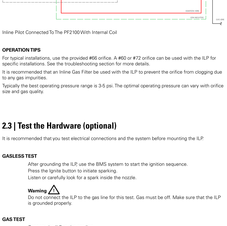
Connect the appropriate wires to the BMS terminals as described. Connect the gas line adapter fitting and gas line to the source.

NOTE: The Inline Pilot MUST be grounded to a suitable ground via the included grounding screw/ green screw/ located on the rear of the Inline Pilot base hub.

USING THE ILP WITH THE PF2100 BURNER MANAGEMENT SYSTEM



Inline Pilot Connected To The PF2100 With External Coil



Inline Pilot Connected To The PF2100 With Internal Coil

OPERATION TIPS

For typical installations, use the provided **#55** orifice. A **#50** or **#72** orifice can be used with the ILP for specific installations. See the troubleshooting section for more details.

It is recommended that an Inline Gas Filter be used with the ILP to prevent the orifice from clogging due to any gas impurities.

Typically the best operating pressure range is 3-5 psi. The optimal operating pressure can very with orifice size and gas quality.

2.3 | Test the Hardware (optional)

It is recommended that you test electrical connections and the system before mounting the ILP.

GASLESS TEST

After grounding the ILP, use the BMS system to start the ignition sequence.
Press the Ignite button to initiate sparking.
Listen or carefully look for a spark inside the nozzle.

Warning ⚠
Do not connect the ILP to the gas line for this test. Gas must be off. Make sure that the ILP is grounded properly.

GAS TEST

Connect the ILP to the gas line.
Press the Ignite button to initiate sparking.
The ILP will spark and the gas flowing up to the nozzle.
As soon as there is flame, the sparking will stop and the BMS will switch to flame detection.

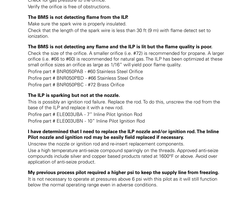
NOTE: The flame is very efficient and may be difficult to see in daylight or direct light. Check that the Flame LED on the BMS is on.

Once you have successfully completed the system tests, turn off the flame and proceed with installing the system in your application.

NOTE: Testing with a gas other than the process fuel may have different results.

2.4 | Install the System

Secure the ILP to the burner using clamps that fit your specific installation and the provided struts.
Assemble the hardware as shown in the following diagram:



ILP Bracket Installation

INSTALLATION TIPS

For horizontal applications, install the ILP parallel to the primary burner, just behind the primary nozzle burner holes or outlet.

For vertical applications such as combustors, install the ILP vertical with the exit of the pilot nozzle just below the primary burner outlet.

Avoid direct flame impingement from the primary burner on the nozzle. Direct flame impingement on the Inline Pilot tube body behind the pilot nozzle may result in the loss of flame and will decrease the lifespan of the product.

2.5 | Troubleshooting: Common Problems & Solutions

The Inline Pilot will not light.
Turn the gas off and make sure the ILP is grounded properly. During the lighting sequence, confirm there is a spark inside the nozzle.
Check for gas pressure to the orifice.
Verify the orifice is free of obstructions.

The BMS is not detecting flame from the ILP
Make sure the spark wire is properly insulated.
Check that the length of the spark wire is less than 30 ft (9 m) with flame detect set to minimum.

The BMS is not detecting any flame and the ILP is lit but the flame quality is poor.
Check the size of the orifice. A smaller orifice (i.e. #72) is recommended for propane. A larger orifice (i.e. #50 to #55) is recommended for natural gas. The ILP has been optimized at these small orifice sizes. Avoid using orifices as large as 1/16" and avoid poor flame quality.
Profire part # BNP50SPBD - #50 Stainless Steel Orifice
Profire part # BNP55SPBD - #55 Stainless Steel Orifice
Profire part # BNP50SPBD - #72 Brass Orifice

The ILP is sparking but not at the nozzle.
This is possibly an ignition rod failure. Replace the rod. To do this, unscrew the rod from the base of the ILP and replace it with a new rod.
Profire part # ELEIGSTLBA - 7" Inline Pilot Ignition Rod
Profire part # ELEIGCLBA - 10" Inline Pilot Ignition Rod

I have determined that I need to replace the ILP nozzle and/or ignition rod. The Inline Pilot nozzle and ignition rod may be easily field replaced if necessary.
Unscrew the nozzle or ignition rod and re-insert replacement components.
Use a high temperature anti-seize compound sparingly on the threads. Approved anti-seize compounds must not contain nickel or copper based products rated at 1000°F or above. Avoid over application of anti-seize products.

My previous process pilot required a higher psi to keep the supply line from freezing.
It is not necessary to operate at pressures above 6 psi with this pilot as it will still function below the normal operating range even in adverse conditions.

Contact your Profire Sales representative to order parts or for further assistance.
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