Fireye MP102

Fireye 5 Sec. TFI M-Series II Programmer Module User Manual

Model: MP102

Introduction

This manual provides essential information for the installation, operation, maintenance, and troubleshooting of the Fireye 5 Sec. TFI M-Series II Programmer Module. This module is designed for use in commercial-sized heating and process burners, providing automatic ignition and continuous flame monitoring.
Important Safety Information: Always ensure power is disconnected before performing any installation or maintenance. Refer to local codes and regulations for proper installation procedures. Only qualified personnel should install and service this equipment.

Product Overview

The Fireye modular M-Series II Flame safeguard controls are compact, modular burner management systems. They facilitate automatic ignition and continuous flame monitoring for commercial-sized heating and process burners that utilize gas and/or light oil fuels.
Flame sensing is achieved through miniature UV scanners or Flame rod/Photocell detectors, with plug-in amplifier and programmer modules connecting into a standard chassis and wiring base. The interchangeable programmer and amplifier modules offer versatility in selecting control functions, timing, and flame scanning methods.
Functions such as relight, two-stage capability, purge timing, and pilot cutoff are determined by the programmer module. The type of flame scanner (UV, flame rod, or photocell) and Flame Failure Response Time (FFRT) are determined by the amplifier module.
Some programmer modules feature dipswitches for selecting purge timing, pilot trial-for-ignition (PTFI) timing, and recycle or non-recycle operation. LED indicator lights on all programmer modules display the operating status of the control.
In the event of ignition failure or after a safety shutdown, the unit locks out, activating an alarm circuit. A manual reset is required. Remote reset (via remote push-button or power interruption) is available on the MC120R chassis. Post-purge functionality is available on the MC120P chassis.
Test jacks allow for flame signal measurement during operation. A "run-check" switch on specific programmer modules (MP560, MP561, MP562) aids in testing size, position, and pilot stabilization.

Modular M-Series II controls include a safety checking circuit that activates on each start. If flame (real or simulated) is detected before a start or during the purge, the fuel valves will not be energized, and the unit will lock out.



Figure 1: Representative image of a Fireye Programmer Module (MP100 shown, actual model MP102 may vary slightly). This image displays the Fireye MP100 Programmer Module, a component similar in design and function to the MP102. It features the Fireye logo, "PROGRAMMER MODULE" text, and various certifications (FM Approved, CE, cULus Listed). The module is black with green circuit board edges visible on the right side, indicating connection points. The text "FOR INSTALLATION SEE BULLETIN C4000" is also visible.

Setup and Installation

Proper installation is crucial for the safe and efficient operation of the Fireye Programmer Module. Refer to Fireye Bulletin C4000 for detailed installation instructions specific to your system configuration.

Pre-Installation Checks:

- Verify that the module model (MP102) is compatible with your existing Fireye chassis (e.g., MC120R, MC120P) and burner system.
- Ensure all power to the burner system is disconnected at the main breaker before beginning installation.
- Inspect the module for any physical damage. Do not install damaged components.

Installation Steps:

1. Carefully align the programmer module with the designated slot in the Fireye chassis.
2. Gently push the module into place until it is fully seated and secured. Ensure all electrical connections are firm.
3. If applicable, configure dipswitches for purge timing, PTFI timing, and recycle/non-recycle operation according to your system requirements. Refer to the specific chassis manual for dipswitch settings.
4. Once installed, re-connect power to the system.
5. Perform initial system checks as outlined in the Operating section to confirm proper functionality.

Note: *This module is designed for use with specific Fireye amplifier modules and flame scanners. Ensure all components are compatible for optimal performance and safety.*

Operating Instructions

The Fireye Programmer Module operates as part of an integrated flame safeguard system. Its primary function is to manage the ignition sequence and monitor flame presence.

Normal Operation Sequence:

1. **Pre-Purge:** Upon system start-up, the module initiates a pre-purge cycle to clear the combustion chamber of any residual fuel vapors. The duration is determined by the programmer module's settings.
2. **Pilot Ignition:** After pre-purge, the pilot ignition sequence begins. The module energizes the pilot fuel valve and ignition source.
3. **Pilot Flame Establishment:** The flame scanner detects the pilot flame. If a stable pilot flame is established within the Pilot Trial-for-Ignition (PTFI) timing, the sequence proceeds.
4. **Main Flame Ignition:** Once the pilot flame is confirmed, the main fuel valve is energized, and the main burner ignites.
5. **Run Mode:** The module continuously monitors the main flame. If the flame is lost during operation, the module will initiate a safety shutdown.

LED Indicators:

LED indicator lights on the programmer module provide visual feedback on the operating status. Consult the specific Fireye chassis manual for a detailed legend of LED states and their meanings.

Resetting the Module:

In the event of a lockout (e.g., ignition failure, flame loss), the module will activate an alarm circuit. A manual reset is required to restart the system.

- **Manual Reset:** Press the reset button on the module or chassis.
- **Remote Reset:** If configured, a remote push-button or a brief power interruption can also reset the MC120R chassis.

Caution: *Do not repeatedly reset the module without addressing the underlying cause of the lockout. This can lead to unsafe conditions.*

Maintenance

The Fireye Programmer Module is designed for reliable operation with minimal maintenance. However, regular system checks are recommended to ensure continued safety and performance.

Routine Checks:

- **Visual Inspection:** Periodically inspect the module and its connections for any signs of wear, corrosion, or damage.
- **LED Status:** Regularly observe the LED indicators during operation to confirm normal status and identify any fault conditions promptly.
- **Flame Signal Measurement:** Utilize the test jacks on the module to measure the flame signal during operation. Refer to Fireye specifications for acceptable signal ranges.
- **Run-Check Switch (if applicable):** For modules like MP560, MP561, MP562, use the "run-check" switch to assist in testing flame size, position, and pilot stabilization as part of a comprehensive burner tune-up.

Cleaning:

Keep the module and surrounding area clean and free of dust and debris. Use a soft, dry cloth for cleaning.

Do not use abrasive cleaners or solvents.
Warning: *Do not attempt to open or repair the module. Refer all servicing to qualified Fireye service personnel.*

Troubleshooting

This section provides guidance for common issues. For complex problems or issues not listed, contact Fireye technical support or a qualified service technician.

Common Issues and Solutions:

Problem	Possible Cause	Solution
Module in Lockout	Ignition failure Flame loss during operation Flame detected before start/during purge Internal fault	Check fuel supply and ignition source. Verify flame scanner operation and cleanliness. Ensure no residual flame or light is present. Perform manual reset. If lockout persists, contact service.
No LED Indication	No power to chassis Module not seated correctly Module failure	Check power supply to the Fireye chassis. Ensure module is fully inserted into its slot. If power is present and module is seated, module may need replacement.
Intermittent Operation	Unstable flame signal Loose connections Environmental factors (e.g., vibration)	Check flame scanner alignment and cleanliness. Verify all wiring connections are secure. Inspect mounting for stability.

Note: *Always disconnect power before inspecting or servicing any components of the burner system.*

Specifications

The following specifications apply to the Fireye 5 Sec. TFI M-Series II Programmer Module (MP102).

Attribute	Detail
Model Number	MP102
Product Type	Control Module / Programmer Module
Features	Lockout on Flame Failure, LED Indicators, Test Jacks
Flame Failure Response Time (FFRT)	5 Seconds (TFI)
Compatibility	Fireye M-Series II Chassis (e.g., MC120R, MC120P), Fireye UV Scanners, Flame Rods, Photocell Detectors
Power Source	Corded Electric (as part of system)
Alarm Type	Visual (LEDs)

Attribute	Detail
Sensor Type (Determined by Amplifier)	Photoelectric (UV, Flame Rod, Photocell)

For complete technical specifications, refer to the official Fireye product documentation and data sheets for the MP102 module and compatible M-Series II chassis.

Warranty and Support

For specific warranty information regarding the Fireye 5 Sec. TFI M-Series II Programmer Module (MP102), please refer to the official warranty statement provided by Fireye or your authorized distributor at the time of purchase. Warranty terms typically cover defects in materials and workmanship under normal use.

Technical Support:

For technical assistance, troubleshooting beyond this manual, or to locate an authorized service center, please contact Fireye directly through their official website or the contact information provided with your product documentation.
Fireye Official Website: www.fireye.com
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