**R.K. Instruments & Controls**

TECHNICAL DATASHEET

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# Flame Failure Monitor — FFM-5

Brand: R.K. Instruments & Controls | Code/Part No.: FFM-5 | Category: FLAME MONITORING SYSTEMS

## Specifications

| | |
|---|---|
| Product Type | **Flame Failure Monitor (Flame Conduction / Ionization Type)** |
| Model | **FFM-5** |
| Flame Sensing Principle | **Flame Conduction Current via Ionization Electrode — unaffected by** |
| Max. Sensing Electrode Temperature | **1200°C (Continuous Operation)** |
| Burner Capability | **Multi-Burner Monitoring · Dual-Stage (Pilot + Main) Sequencing** |
| Supply Voltage | **230V AC** |
| Pre-Purge / Safety Delay | **3 to 5 Seconds (before Ignition & SV-1 Pilot energize)** |
| Ignition Period | **10 to 12 Seconds (Ignition OFF · SV-2 Main ON after this window)** |
| Flameout Re-Ignition Attempt | **10 Seconds, then Lock Out if flame is not re-established** |
| Sensor Selection | **Rear S1 / S2 Toggle Switch — Primary / Backup Flame Sensor** |
| Bypass Function | **Rear Toggle — Right: Normal Active Sensing · Left: Bench Test Only (never** |
| Protection | **Dedicated Cartridge Fuse (Rear Panel)** |
| Reset | **Front-Panel Yellow RESET Button · External Reset Terminal Provision** |
| Front Panel Indicators | **POWER (Green) · IGNITION (Red) · S. VALVE 1 (Red) · FLAME (Amber) · S.** |
| Output Contacts | **Ignition, SV-1 Pilot & SV-2 Main: COM / NO · Lock Out: COM / NC / NO** |
| Applications | **Gas-Fired Furnaces, Boilers, Flare Chimneys, Special Atmosphere** |
| Manufacturer | **R.K. Instruments & Controls** |




## Description

R.K. Instruments & Controls manufactures the FFM-5 Flame Failure Monitor, a flame-conduction (ionization) type burner safety controller for gas-fired furnaces, boilers, flare chimneys, special atmosphere furnaces and other industrial gas-fired equipment. Unlike optical/UV or infrared flame sensors, the FFM-5 senses flame by conduction current through a heavy-duty high-temperature sensing electrode rated to withstand up to 1200°C continuous operation, so it is unaffected by ambient room light, radiant furnace heat or soot accumulation. It automates a full pilot-and-main sequence: on power-up the POWER LED lights, and after a 3-5 second safety pre-delay the Ignition Transformer and Pilot Solenoid Valve (SV-1) energize together. Once flame touches the sensing rod, an ionization current confirms flame and the FLAME LED lights; ignition cuts off after 10-12 seconds while SV-1 stays energized, and 10-12 seconds later the Main Solenoid Valve (SV-2) energizes to bring the burner to full firing. If the pilot fails to establish within the 10-12 second ignition window, or flame is lost during running (with one 10-second automatic re-ignition attempt), the controller cuts all fuel valves and the ignition transformer, latches into Lock Out with its LOCK OUT LED and alarm/beacon output, and is restarted via the front-panel yellow RESET button or an external reset terminal. The rear panel carries an S1/S2 toggle to select the primary or