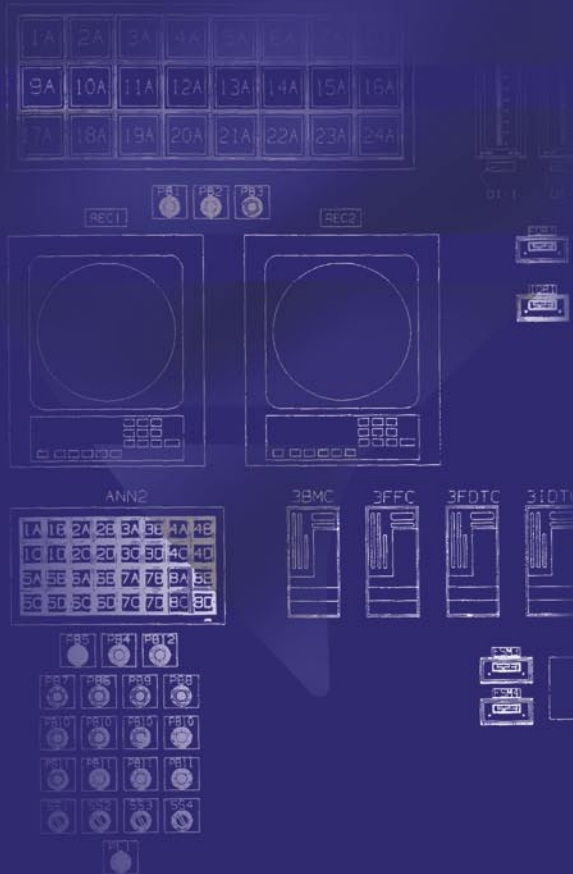


BMS LOGIC+ 85

Burner Management Systems



PLC Based Burner

Management and

Flame Safeguard

Systems Compliant

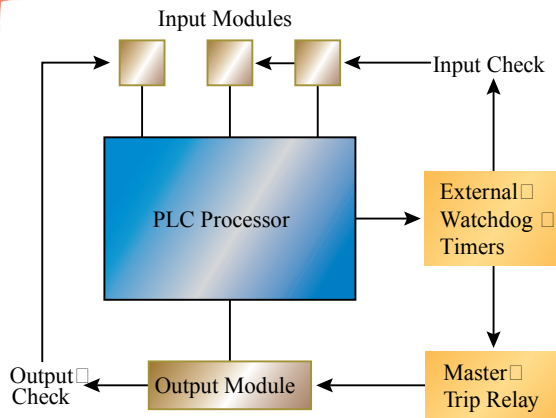
with FM and

NFPA 85



PREFERRED INSTRUMENTS

BMS LOGIC+ Burner Management System



Preferred's *BMS LOGIC+* Custom Burner Management Systems are designed and engineered to provide the safe and reliable start up, operation, and monitoring of oil, gas, coal, alternate fuel and combination fired burners. From a single designated location, operations staff can monitor and manage both flame safeguard and burner control. Preferred's combustion experience insures job specific programming while maintaining the highest level of reliability in the industry.

Smart Engineering

- **Quality Control** assures that Preferred Burner Management Systems are in compliance with all NFPA 85 and FM standards for single or multiple burner furnaces. All systems undergo thorough simulation testing prior to shipment.
- **Dependable Operation** is provided by conservatively rated PLC based solid state electronics and auxiliary components. Nonvolatile EEPROM memory retains program logic during power outages.
- **Maximum Burner "Up Time"** with "paralleled" flame scanners and intelligent fuel changeover logic. Dual redundant scanners generate individual diagnostic warning messages and allow on-line scanner cleaning or replacement without tripping the burner. Fuel changeover logic coupled with clear and definitive instructional messages assure fuel switching is accomplished quickly, safely and reliably.
- **Reliable Low Water Cutout Operation** is assured by PLC monitoring of blowdown. During daily low water cutout blowdown, the PLC monitors the low water cutout interlock for successful operation without tripping the boiler. For manual blowdown, the message center warning alarm notifies the operator if daily blowdown fails to occur. Fully automatic operation can be provided via the addition of a motorized valve.
- **Fail Safe Design** assures a safe and properly sequenced start up and prompt response to any abnormalities should they occur. In the event that an unsafe condition is detected, "normally closed" safety shut off valves and ignition components are immediately de-energized.
- **Redundant Watchdog Timers** are provided with all *LOGIC+* Systems to guard against processor, memory, I/O, and power supply failures.
- **Critical PLC Output Modules** are monitored on a continual basis to assure they are in keeping with the sequence of operation. Failure of an output to pass continual testing results in the immediate shutdown of the system.
- **Critical PLC Input Modules** are monitored at three second intervals. A failed input module results in the immediate shutdown of the system and the annunciation of the failed input card.

- Compliant with all recognized standards
- Sensitive to user preference
- Application specific
- Redundant watchdog timers
- Strict PLC input/output monitoring
- Safe and reliable for single and multiple burner installations

Rigged



Message Centers

The LOGIC+ Message Center displays clearly written messages to indicate operational status, required operator actions, non-trip warning alarms and first out trip alarms. Job specific messages provide ease of operation and rapid troubleshooting. High visibility, long life vacuum fluorescent displays allow viewing in all lighting conditions.

The Message Center display priority system is as follows:

- 1) Burner or System shutdown messages are displayed on a "First Out" basis
- 2) Warning/Alarm messages which do not cause a shutdown are flashed alternately with status messages
- 3) Status messages provide indication of current operation or required operator actions

Quality Cabinets

As a standard, free standing NEMA 12 cabinets with rear access doors (general purpose, NEMA 4 and "Z" Purge alternatives are also available) house the PLC, all necessary microprocessor hardware, power supplies, isolation power supply breakers, fuses, isolation relays, surge suppression equipment, and flame signal processors. Front mounted controls are designed with all hardware necessary for operation including, but not limited to, fuel selector switches, flame scanner meters, indicating lights, etc. Preferred Cabinets are manufactured to comply with UL508 standards.

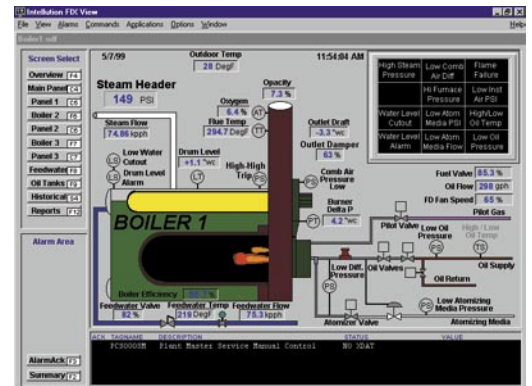
Critical Tracking

Critical information is easily obtained from the LOGIC+ System through the message center, via a remote display, or over a telephone modem to any designated location accessible to a PC or laptop. Operational status and causes of safety lockouts are readily apparent. Pager or recorded message telephone calls can also be placed to a designated party in the event of a shutdown.



Custom Design

BMS LOGIC+ 85 PLC Based Burner Management Systems combine the flexibility of modular design with engineering and manufacturing expertise to insure job specific designs with the highest degree of reliability. Custom settings, alarms, written messages, and graphics all assure a software package specific to the unique needs of each installation and user. Systems can incorporate complete control packages, including burner management and combustion control, or either system can be provided separately. Both single and multiple burner packages are available. All of the hardware necessary for the design, fabrication, and installation of Preferred Burner Management Systems is available in-house, alleviating the expense of multiple vendors, installation, and service costs. Hardware presently in service, or purchased separately by the customer, can also be incorporated.



The BMS Logic+ easily integrates with SCADA/FLEX distributed control systems, giving you the same visual monitoring and control capabilities you have with the cabinet at the convenience of your workstation.

Advantages of Preferred's PLC Based Burner Management Systems

- Safe, reliable, systems for single or multiple burner installations utilizing input/output checking and watchdog timers in accordance with FM and NFPA requirements.
- Message display with clear written messages for ease of operation and rapid troubleshooting. As a standard, three priority levels of display are utilized:
 - 1st out (trip condition)*
 - Alarm only (warning)*
 - Status (purge, ignition, etc.)*
- Choice of Programmable Logic Controllers (Allen-Bradley, Modicon, GE)
- Choice of scanners (Fireye, Honeywell, Iris, Peabody, Coen). Single, dual, dual "redundant" or other application-specific scanning systems are available.
- Choice of options include but are not limited to:
 - Extended Ignition Test Mode*
 - Recycling / Non-Recycling*
 - Automatic Atomizer Post Purge*
 - Redundant Flame Scanners*
 - Fuel Specific Flame Scanners with Automatic Changeover*
 - Low Fire Dual Fuel Changeover*
 - Full Load Dual Fuel Changeover*
 - Simultaneous Firing of Multiple Fuels*
 - Automatic Start/Stop of Auxiliary Fuels Based on Availability*
 - Automatic Start/Stop of Multiple Burners Based on Load*
 - Manual or Automatic Low Water Cutout Blowdown with No Trip*
 - PLC Test Monitoring*
 - Remote/Duplicate Message Center and Start/Stop Controls*
- Communications - Data Highway (manufacture dependent).
- Data Highway expands to SCADA (Supervisory Control and Data Acquisition) via Preferred's SCADA/FLEX system (see Bulletin CS-SCADA).
- All *Logic+* Systems and components are constructed from the highest quality materials and subject to complete operational simulation testing prior to shipment.

Support

From the initial planning, to the final installation of a BMS *LOGIC+* System, Preferred's highly qualified field service department, technicians, and engineers are available to assist you with your project evaluations, specification writing, system design, installation, operations training, routine maintenance, and any other special needs that might arise during the life of the equipment.



Other Systems Also Available

In addition to PLC based burner management systems, Preferred also designs and manufactures complete control systems including transmitters, loop controllers, recorders, indicators, annunciators, panels, actuators, control valves, data acquisition computers, and field service start-up. For further details contact a District Sales Office or your nearest Preferred Instruments Representative. Or you can visit our web site at: www.preferredinstruments.com

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