

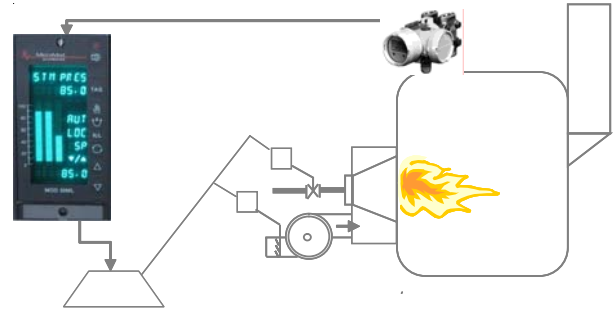


## STEAMPAK Series BoilerPAK

### Combustion Control for Jackshaft Boilers

#### FEATURES

- **Replaces obsolete, hard-to-maintain controls**
- **Easy upgrade from on/off to efficient modulating control**
- **Industry standard communications to HMI and Building Automation systems**
- **Online selection of Pressure Controller or Bias Station functionality**
- **Easy integration with Burner Management systems (BMS)**



#### SYSTEM DESCRIPTION

BoilerPAK is a pre-engineered control package that provides modulating single-point positioning control of fuel and air for a single- or dual-fuel jackshaft boiler. It can be used as a standalone controller or in conjunction with a PlantPAK plant master controller. BoilerPAK can be set up during commissioning to act as a Pressure controller receiving its input signal from a drum pressure transmitter, as a Bias Station receiving its input from a plant master controller, or as a Dual Mode controller, allowing the operator to switch between control strategies if necessary.

When set up as a pressure controller, the pressure control loop receives an input signal from the drum pressure transmitter, compares it to a local setpoint, and generates an output signal to the jackshaft actuator for fuel and air demand. When set up as a Bias Station, the controller receives an input signal from the Plant Master, applies a locally entered bias and generates an output to the jackshaft actuator for fuel and air demand. When the controller is switched from Manual to Automatic mode it automatically detects the difference between total fuel flow and plant demand and applies a bias to provide bumpless transfer to Automatic mode, and the boiler operates according to plant demand. When the controller is in Manual mode the boiler firing rate is decoupled from the plant demand and runs independently.

If the controller is set up for Dual Mode and is being used as a Bias Station, the pressure control loop tracks the output of the Bias station. If the controller is being used as a Pressure controller, the bias station tracks the output of the pressure controller. This provides bumpless transfer in the event the operator must change the function of the controller. The plant master interface can be a hardwired connection to an existing plant master, or a network connection to MicroMod's PlantPAK Plant master controller. An optional interface to FurnacePAK or DrumPAK with the furnace pressure control option is also available.

To provide for additional safety and ease of operation the control strategy includes mode interlocks that prevent the operator from switching to Automatic control mode if the correct Low Fire, Purge and Release-to-Auto signals are not received from the Burner Management System (BMS).

## EQUIPMENT DESCRIPTION

Each BoilerPAK includes:

- BoilerPAK controller, pre-configured for single-point positioning control of a single- or dual-fuel jackshaft boiler
- Optional pressure transmitter
- All necessary documentation for the installation, startup and operation of the system.

The BoilerPAK controller is a multiloop controller with flexible, isolated I/O and a high-visibility display with clear, informative screens for ease of operation. The base controller includes the CPU, power supply, display, and terminal block. The controller memory is non-volatile RAM which contains the configured database and all current process parameters. The power supply is 85-250Vac or 24Vcd, and the front panel is NEMA 4. The controller also provides failsafe and power fail-recovery settings for all configured parameters and output points.

## BoilerPAK OPTIONS

**Plant Master Interface** - Available as a hardwired connection to an existing third party plant master, or with peer-to-peer network communications to MicroMod's PlantPAK Plant Master controller.

**Modbus Communications** - An RS-485 communications module is added to the controller to provide a second network connection for Modbus RTU over RS-485, for connecting the BoilerPAK controller to a host PC or operator graphic panel. Integration into existing Building Automation systems such as Johnson Controls, Siemens and many others can easily be done using standard Modbus communications or OPC client/server architecture.

**Field Instrumentation** - BoilerPAK can be ordered with a gage pressure transmitter for Drum Pressure, and comes pre-configured to match the standard range. The drum pressure transmitter provides local and infinite adjustment of zero and span and has an accuracy of  $\pm 0.075\%$ . Two non-volatile EEPROMs, one in the primary electronics and one in the secondary electronics, back up the transmitter configuration. When replacing the electronics, the new assembly instantly recognizes the original configuration.

For non-standard field instrument ranges contact the factory. Additional field instrumentation (transmitters, flow elements) can be provided on request.

**Standard Application Engineering** - This can include setting up the BoilerPAK controller database to communicate with other SteamPAK controllers, configuration and display of additional alarm and/or data acquisition points, or integration with ViewPAK software.

**Backup Memory Module** - provides redundant, removable non-volatile RAM which backs up the controller database. In addition, if left on the controller during operation, it is updated every 50ms with current process data such as output values, controller mode, tuning parameters etc. This allows immediate re-start of the system after a power outage or equipment failure, with the latest values.

**Additional Data Acquisition / Alarm Points** - depending on the options selected, up to 4 additional inputs or outputs may be specified for data acquisition or alarming. This option typically requires Application Engineering.

**Custom Application Engineering** - if the standard BoilerPAK configuration doesn't meet your application needs, MicroMod will work with you to develop a cost-effective solution to improve your boiler's efficiency and optimize your fuel consumption.

## SteamPAK SERIES

BoilerPAK is just one of MicroMod's pre-engineered packages for industrial and institutional boiler controls. The SteamPAK family includes:

**DrumPAK** - one, two- and three-element drum level control

**PlantPAK** - plant master controller

**TrimPAK** - parallel positioning control with O<sub>2</sub> trim for jackshaft boilers. An ideal and economical way to upgrade a single-point positioning (jackshaft) control system to get maximum combustion efficiency.

**MeterPAK** - Fully metered combustion control system with O<sub>2</sub> trim

**BurnerPAK** - Burner Management Systems

Combustion control packages are also available for High Temperature Hot Water systems.

**Inputs / Outputs:**

- Analog Inputs (4-20mA with transmitter power, isolated)
  - Steam Pressure
  - Plant Master (BoilerPAK-1 only)
- Analog Outputs (4-20mA, isolated)
  - Fuel/Air Actuator
- Digital Inputs (110Vac, isolated)
  - Low Fire
  - Purge
  - Release-to-Auto
- Digital Output (110Vac, isolated)
  - Alarm Horn

**Power Supply:** 85-250V rms, 50-400Hz

**Power Consumption (120V rms, 60Hz, Full load):**  
50W maximum

**Operating temperature:** 0 to +50°C

**Storage Temperature:** -40 to +75°C

**Humidity:** 5 to 95% RH, noncondensing

**ORDERING INFORMATION**

BoilerPAK is a licensed package. The following end-user information must be supplied with each package ordered:

- End-user Company Name
- Complete Address
- Contact Name
- Telephone Number
- Fax Number

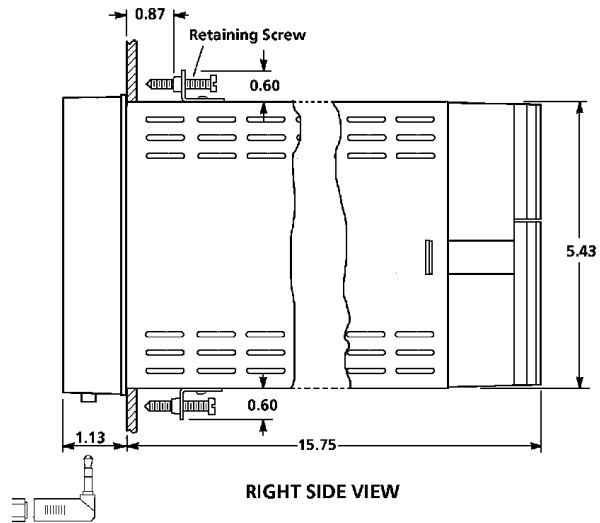
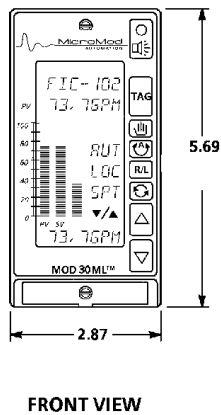
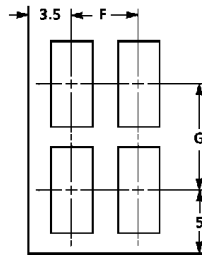
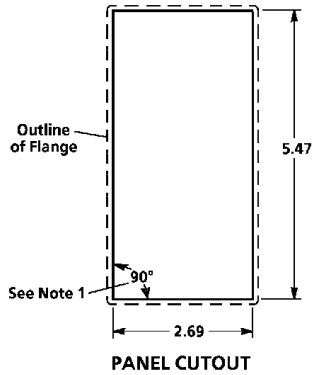
	<b>BLRPAK</b>				
	01 - 06	07	08	09	10
<b>BoilerPAK</b> Preconfigured Jackshaft Controller					
<b>Plant Master Interface</b> None, or hardwired Network to PlantPAK		1 2			
<b>Serial Communication Option</b> None Modbus - <i>for communication to host PC</i>			0 1		
<b>Operator Language</b> English Spanish				E S	
<b>Optional Field Instruments<sup>1</sup></b> None Drum Pressure Transmitter (0 - 348 psi)					0 1

<sup>1</sup>BoilerPAK controllers are pre-ranged for standard field instruments. To order transmitter with non-standard range contact factory.

**Available Options (please specify on order):**

Standard Application Engineering (may include one or more of the following):	
<ul style="list-style-type: none"> <li>Configuration for communication with FurnacePAK or DrumPAK with furnace pressure option</li> <li>Configuration / display of additional data acquisition points</li> <li>Integration with ViewPAK software</li> </ul>	
Backup Memory Module (blank)	2010PZ10000A
Additional data acquisition points (see P-MOD-MODULES):	
<ul style="list-style-type: none"> <li>Analog (hardware only) - per point</li> <li>Digital (hardware only) - per point</li> </ul>	
Custom Application Engineering - per hour	

### MOUNTING DIMENSIONS



The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

Printed in USA August 2008

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