

# PlantPAK

## Plant Master Controller

*Quick response to large load changes*

*Operate all boilers from a single point*

*Bring boilers on line as needed*

- Supervisory steam setpoint for 3 individual Boiler Master controllers
- Lead/Lag option for boiler sequencing
- Steam feedforward option anticipates demand changes
- Hours-of-operation meter
- Use with BoilerPAK, TrimPAK, MeterPAK or third-party combustion control system
- Field Flexibility - enable options as needed
- Pre-engineered and pre-configured with application-specific documentation
- **2 Year Warranty**



If you have multiple boilers supplying a common header, sudden or large variations in steam demand can result in reduced efficiency and even boiler shutdowns. PlantPAK is a pre-engineered, pre-configured control package that provides the master steam setpoint for up to three boilers, improving response to load changes and ensuring a more steady steam supply.

A Lead/Lag Sequence option turns boilers on or off as the plant demand requires. A Start command is sent from the PlantPAK controller to each boiler's Burner Management System. Once the lag boilers are running, the PlantPAK controller modulates all boilers in parallel. PlantPAK will attempt to start each boiler in turn, and if the final sequence does not match the original configured sequence, the PlantPAK controller automatically changes its sequence and sequence indication to match the actual order in which the boilers start. When demand drops below a user-configurable point for a selected time period, the PlantPAK begins taking the boilers offline in inverse order.

The Lead/Lag option also includes an Hours of Operation meter and display for each boiler, and indication of the number of days the current sequence has been in operation.

## TAKE CONTROL WITH PLANTPAK

Whether you're using steam for processing or heating, whether you have package or field-erected boilers, ensuring a safe and consistent steam supply is paramount. We also know that in today's economic climate, you have to consider total installed cost.

## Reduce Installation & Startup Cost

PlantPAK comes ready to install, with application-specific documentation. All you need to do is enter the operating parameters specific to your boiler. All entries for engineering unit ranges, alarm trip points, and other commissioning data are made through the front panel of the controller. No special software or external programming device is required for installation, startup, or operation.

## Improve Response to Load Changes

With PlantPAK you can easily handle large and rapid load changes. With the Lead/Lag option boilers are brought on line according to plant demand and a user-defined sequence. As demand decreases, boilers are returned to Low Fire status in inverse order. Logic in the PlantPAK program prevents two "lag" boilers from shutting down at the same time, unless locally commanded by the BMS

## Field Flexibility

PlantPAK's program allows you to enable the Lead/Lag sequence and steam feedforward options in the field, as your measurement devices and budget permit. The Steam Feedforward option uses total plant steam flow from the main header as a feedforward signal to the control loop. And PlantPAK can be used with existing Boiler Master controllers or with MicroMod's BoilerPAK, TrimPAK or MeterPAK combustion controls.

## SPECIFICATIONS

### PROCESS I/O

#### Analog Inputs

4-20mA, isolated, with 24Vdc isolated transmitter power  
Steam Header Pressure  
Steam Flow (with steam feedforward option)

#### Analog Outputs, 4-20mA, isolated

Boiler 1 Demand  
Boiler 2 Demand  
Boiler 3 Demand

#### Discrete Inputs

110Vac, isolated - with Lead/Lag option  
Boiler 1 Running  
Boiler 2 Running  
Boiler 3 Running

#### Discrete Outputs

110Vac NO, Mechanical Relay  
Alarm Horn  
110Vac solid state, isolated - with Lead/Lag option  
Boiler 1 Start  
Boiler 2 Start  
Boiler 3 Start

Communication: RS-485 Modbus RTU (standard)

### OPERATING CHARACTERISTICS

#### Power Supply:

85-250V rms, 50-400Hz

#### Power Consumption (120V rms, 60Hz, Full load):

50W maximum

### PHYSICAL CHARACTERISTICS

Dimensions: 2.87" W x 5.69" H x 15.75" D  
(72.9mm W x 144.5mm H x 400mm D)

Panel Cutout: 2.69" W x 5.47" H (68.3mm W x 138.9 mm H)

Weight: Base instrument, no modules - 4.7 lbs (2.13 kg)  
With full module compliment - 6.0 lbs (2.72 kg)

### ENVIRONMENTAL CHARACTERISTICS

Ambient Temperature Limits: 0 to 50°C

Storage Temperature Limits: -40 to +75°C

Relative Humidity Limits: 5 to 95%, non-condensing

Enclosure Classification: NEMA type 14