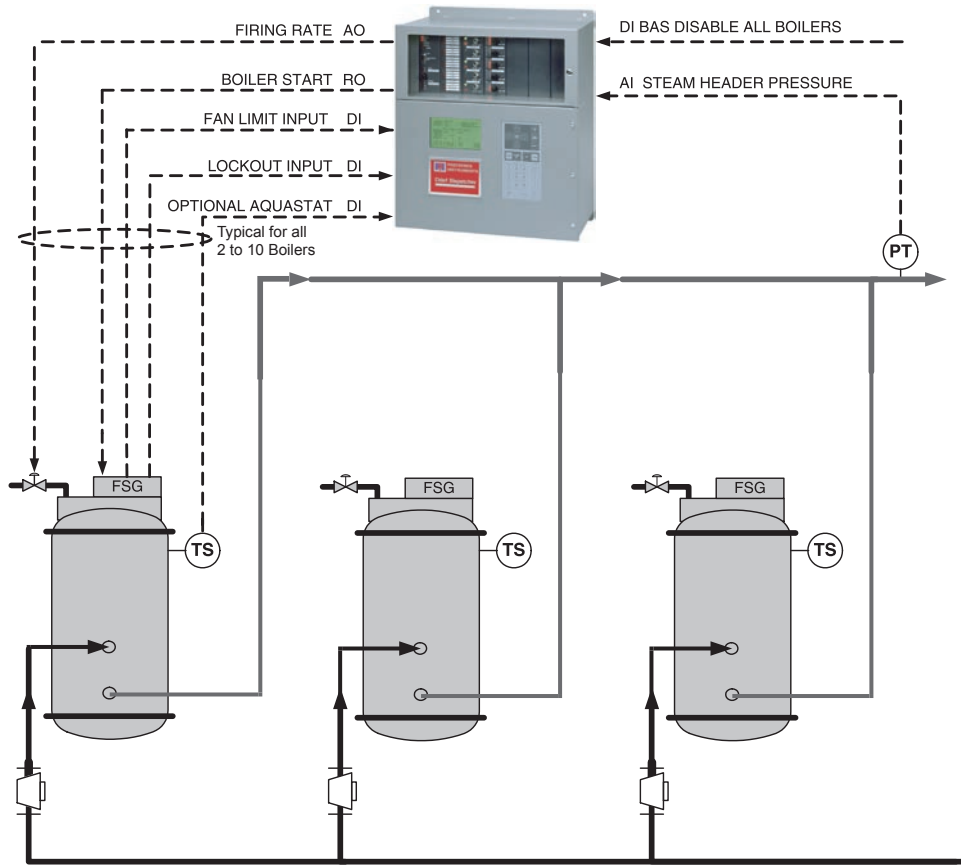


CHIEF DISPATCHER MODEL JC-CDST

Steam Boilers Modulating Lead/Lag Controller



JC-CDST
2 to 10 Steam Boilers

Application

The Chief Dispatcher **Model JC-CDST** optimizes steam system performance and helps extend Cast Iron Sectional, Finned-Tube, Firebox, Flexible Tube or Firetube boiler life.

2 to 10 Modulating Boilers

Boiler firing rates are automatically adjusted to satisfy the overall plant steam heating load using accurate PID control. When desired the operator may set the firing rate manually.

Warm Standby

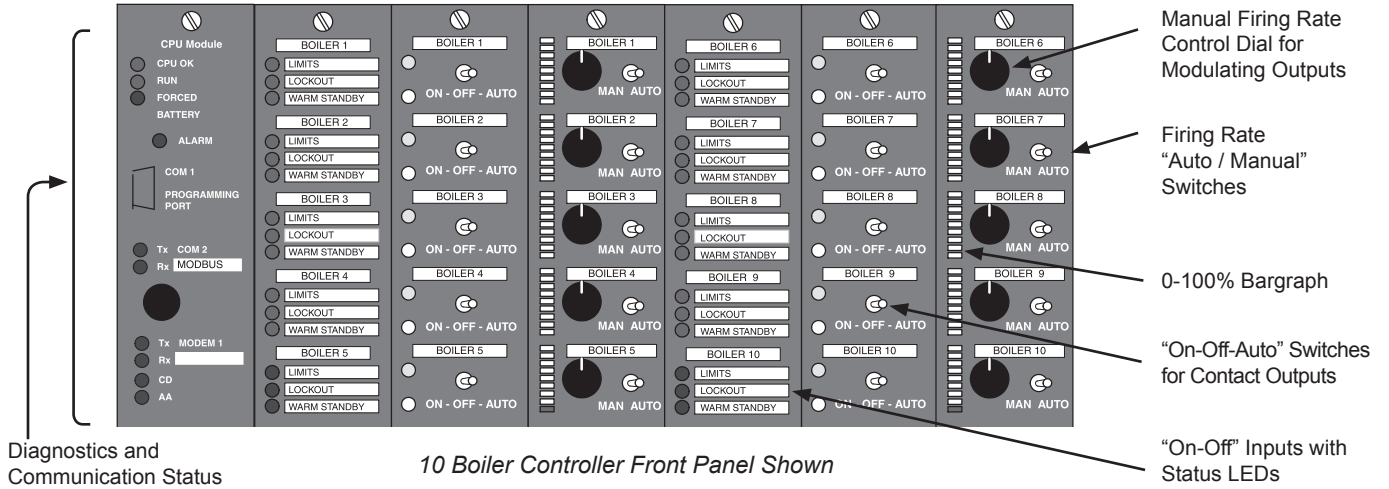
Each off-line boiler is periodically started and held at low fire until it returns to the Warm Standby temperature (Aquastat supplied by boiler manufacturer). This helps to minimize thermal shock when called on-line.

“Base Load Auto-Shift”

Normally, the Lag boilers remain base loaded for peak total plant efficiency. If the lead boiler firing rate approaches high fire, the lag boiler(s) will increase their firing rate to “help” the lead boiler. If the lead boiler approaches low fire, the lag boilers will decrease their firing rate to “help” the lead boiler. This method minimizes boiler on/off cycling due to short term load swings while maximizing total boiler plant efficiency. If desired, “unison” modulation can also be field selected (all boilers fire at the same rate).

CHIEF DISPATCHER MODEL JC-CDST

Steam Boilers Modulating Lead/Lag Controller



10 Boiler Controller Front Panel Shown

Specifications

Panel Details

Controller: PWC
 Case Size: 19¼" H X 18" W X 8½" D
 Enclosure Type: Wall mounted, Weight: 55 lbs.

Inputs

Steam Pressure: 0 to 25 PSI, 0 to 200 PSI, or 0 to 500 PSI, 4-20 mADC
 BAS, Boiler Disable: 120 VAC, optically isolated
 Limits: 120 VAC, optically isolated (each boiler)
 Boiler Lockout: 120 VAC, optically isolated (each boiler)
 Warm Standby: 120 VAC, optically isolated (each boiler)

Outputs

Modulation: Isolated 4-20 mADC or 0-135 ohm (each boiler)
 Boiler Start: Dry contact, 8 FLA, ½ HP, 120 VAC (each boiler)

Ordering Information

Specify Chief Dispatcher Catalog Number:

JC-CDST - 2 - 25 - P
 Boiler Quantity: 2 to 10 |
 Pressure Range: 0 to 25 PSI |
 0 to 200 PSI |
 0 to 500 PSI |
 Analog Output Type: 4-20 mADC - I |
 0-135 ohm - P |

Optional Features	Catalog Number
Historical Trending	190604
Telephone Modem	190603
Order Sensors Separately (Quantity as Required)	Catalog Number
Steam Pressure Sensor 0-25 PSI with syphon loop	70600
Steam Pressure Sensor 0-200 PSI with syphon loop	70601
Steam Pressure Sensor 0-500 PSI with syphon loop	70602

CHIEF DISPATCHER MODEL JC-CDST

Suggested Specifications

1. Application

Supply a fully integrated boiler control system to coordinate the operation of two (select up to ten) fully modulating steam boilers in order to maintain Steam Header Pressure at setpoint. The control system shall be microprocessor-based and suitable for wall mounting.

2. Boiler Modulation

The control system shall provide a PID based control scheme. Modulation shall be field selectable as either "Unison" (all at the same firing rate) or as "Series". Series modulation shall include "Base Load Auto-Shift" logic in order to minimize boiler on/off cycling. Normally the lag boilers shall be base loaded at an operator adjustable firing rate for peak efficiency. When the lead boiler's firing rate approaches high fire, the lag boiler(s) will automatically modulate up from the base load firing rate to "help" the lead boiler without starting another lag boiler. If the lead boiler approaches low fire, the lag boilers will modulate toward low fire to "help" the lead boiler and prevent a short cycle of a lag boiler. When the lead boiler leaves the high or low fire position the lag boiler(s) resume firing at the normal base load for peak efficiency. If the load increase or decrease is long term, a lag boiler shall be cycled on or off as required. Modulation signals shall be 4-20 mADC or 0-135 ohm (as required by the boiler) and shall be electrically isolated channel-channel and channel-ground.

3. Steam Header Pressure Setpoint

The operator may set the Steam Header Pressure Setpoint via a front panel display.

4. Boiler Sequence

The control system shall utilize both Steam Header Pressure and Boiler Firing Rate percent to start and stop the boilers and minimize the total number of boilers in operation. The controller shall start and stop boilers when the Steam Header Pressure is outside an adjustable pressure limit band for longer than an adjustable short time delay. To anticipate and minimize header pressure deviations, the control system shall start or stop the next boiler if the "lead" boiler has been near high or low fire for longer than the adjustable time delay. The control system shall monitor each boiler's lockout and limit circuits and shall rapidly and automatically skip over those boilers that are powered down for maintenance, tripped or otherwise will not start. The lead boiler shall either automatically rotate on a time of day / day of week (or month) schedule, or shall be manually selected by the operator. Provide a warm standby boiler shell aquastat input for each boiler. If recommended by the boiler manufacturer, each off-line boiler shall be started and held at low fire when the temperature drops. When called to run, the boiler shall hold at low fire until the temperature rises above the warm standby setting. Provide an aquastat release to modulate over-ride timer to prevent a protracted low fire hold. The Control System shall reduce the firing rate to a minimum before stopping a boiler to prevent accumulation of fuel in the furnace.

5. Operator Controls, Trends, Indications and Alarms

The control system shall include a 16 line x 40 character (or greater) LCD display for boiler sequence control and status, alarm and event summaries, and setup menus for easy operation, tuning and troubleshooting. Alarms, events and operator actions shall be logged with Time/Date stamp and English language description. The control system shall include a minimum of 200 point memory. The control system shall include a minimum 100 x 150 pixel historical trending display or a paperless chart recorder or other videographic hardware to permit logging of at least 32 data points for at least 45 days. Provide a minimum of 4 "pens" per chart with 8-minute through 24-hour chart "width" selections available.

6. Reliability

Include hardwired backup stations to permit manual operation of the plant should the control system require service. Manual operation must be possible when the microprocessor is not functioning. Hardwired "Hand-Off-Auto" control switches must be wired directly into every boiler Start/Stop circuit. Each 4-20 mADC or 0-135 ohm modulating control output must include a hardwired manual backup station with Auto/Manual switch, output control knob and output level indicator (bargraph, analog meter or digital display).

7. Communication

The Control System shall have the ability of simultaneously communicating to a Data Acquisition System (DAS), Building Automation System (BAS) or Building Management System (BMS) via RS485 Modbus protocol and to a Personal Computer and an alphanumeric pager via standard telephone lines. The individual boiler limits, lockout, start/stop, warm standby, and firing rate status shall be readable. Header setpoint, plant firing rate, boiler quantity called to start, boiler selected as lead and all setup parameters shall be readable and writable.

8. Quality Assurance

The control system shall be manufactured and labeled in accordance with UL508 requirements (CSA C22.2 #14 for use in Canada). Inspection and labeling shall be supervised by UL or other OSHA approved Nationally Recognized Test Lab (NRTL). The control system shall be a Preferred Instruments, Danbury, CT, **Model JC-CDST-x-P** ('x' = boiler quantity from 2 to 10; "-P" for 0-135 ohm; "-I" for 4-20 mA).