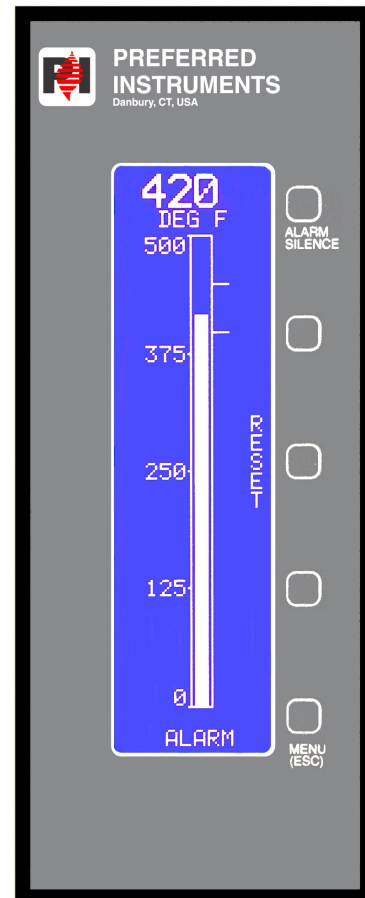


- Low Boiler Efficiency Alarm Message and Contact:
Elevated stack temperature will indicate reduced boiler efficiency
- Burner Safety Shutdown Message and Contact:
Dangerously high temperatures place the boiler in risk of serious damage
- High Visibility Bargraph and Numeric Display
- Field Adjustable using English-Language Menus:
 - Field Selectable Type J or K Thermocouple
 - Fahrenheit or Centigrade
 - Bargraph Scaling
 - Alarm Setpoints and Time Delays
- NEMA 4 Front Panel
- Flexible Communications for Data Logging:
 - 4-20 mA Temperature Re-transmission
 - RS-485 Modbus Interface

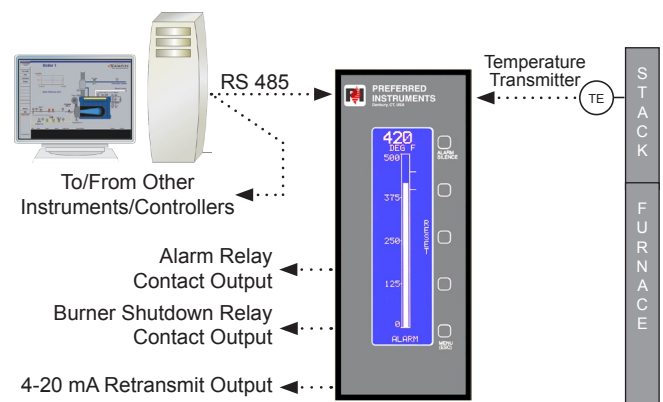


JC-15D shown in “ALARM” condition
(alarm message & reset pushbutton visible)

Description

The **JC-15D Flue Gas Temperature Monitor** is a microprocessor-based indicating instrument with a heavy duty thermocouple assembly. Flue gas temperature is continuously displayed using a highly visible backlit LCD display. An intuitive bargraph display and alarm messages provide clear stack temperature status. Bargraph Scaling, Alarm Setpoints, and Time Delays are all field selectable. All adjustments can be made directly from the faceplate of the instruments by scrolling through user friendly, English-language menus.

The **Thermocouple Assembly** is constructed of 8 gauge iron/constantan (ISA type J) thermocouple for installation in the boiler flue gas outlet. The unit includes a ½" steel open end protection tube, adjustable mounting flange (permitting up to 19" insertion), and 16 gauge thermocouple wire.



Typical Arrangement

Alarm Sequence

Bargraph and Numeric displays continuously indicate the flue gas temperature (FGT). If the FGT exceeds the Alarm Setpoint for more than 10 seconds (adjustable), the bargraph starts to blink and the Alarm Relay activates and the ALARM message appears. The Alarm Relay can activate an external bell or horn. Pressing the JC-15D ALARM SILENCE pushbutton deactivates the Alarm Relay (and bell). If the FGT continues to increase and exceeds the Shutdown setpoint for more than 30 seconds (adj.) the Shutdown relay activates and latches into "Manual Reset" mode and the SHUTDOWN message appears. If the Shutdown relay is wired into the burner interlocks, the burner shuts down. The Shutdown Relay and the SHUTDOWN message remain activated until the Operator presses the JC-15D RESET pushbutton. When the FGT decreases below setpoint the bargraph stops blinking.

SAFEGUARDS BOILER and SAVES FUEL

Whether boilers are old or new, big or small, iron or steel, Firing oil, gas, or coal, the facts do not change...

- A. Boiler accident insurance claims show: "Three out of every four of the accidents were caused by overheating, and 80% of the overheating losses resulted from continued firing with low water levels." despite the fact that boilers, "...are equipped with up-to-date controls."
- B. Boiler Thermal Efficiency: When flue gas temperature increases, boiler efficiency decreases. A mere 40° F causes an approximate 1% drop in boiler efficiency.
- C. While difficult to visualize, a mere 1/32" soot layer on boiler heating surface adds 2.4% to the fuel bill.
 - A. M.P. Bragg and S.R. Laskey, "Low water Accidents," THE LOCOMOTIVE, Vol. 60, No. 1, The Hartford Steam Boiler Inspection and Insurance Co.
 - B. U.S. E.P.A., "Guidelines for Industrial Boiler Performance Improvement," E.P.A. - 600/8-77-003a.
 - C. Bacharach Instrument Company, "Oil Burner Combustion Testing."

Suggested Specification

Provide a remote reading, microprocessor based Flue Gas Temperature Monitor, Control and Alarm System for each boiler. The instrument shall provide a continuous temperature and 4", 0.5% (minimum) bargraph displays. The instrument shall contain: dual adjustment temperature setpoints for "inefficient" and "overheat" operating conditions, (2) 10 amp. relays, "ALARM" and "SHUTDOWN" messages and manual reset pushbutton. The Instrument shall provide: cold junction, and external resistance compensation, upscale thermocouple break protection, 4-20mA and RS-485 Modbus remote output

signals. The housing shall be panel mountable, fully gasketed, NEMA 4 front face. All adjustments shall be made from the front panel display in engineering units. No external configurator or laptop shall be required.

Accompanying Flue Gas Temperature Sensor Assembly shall include: 8 gauge iron/constantan ISA Type J thermocouple, 1/2" schedule 40 steel protection tube for up to 19" insertion, and adjustable mounting flanges. Extension lead wire shall be one continuous length of 16 gauge ISA Type JX with PVC insulation.

The Flue Gas Temperature Monitoring, Control and Alarm System shall be Preferred Instruments Model JC-15D, Danbury, CT, with 104087C-__ * Thermocouple Assembly.

* Editor specify: length of extension wire in feet (50) (75) (100) (125) etc.

Specifications

- Power Supply:** 120Vac, +/- 15%, 50/60Hz, 15 VA
Ambient Temp.: +32 to 122° F
Displays: High Contrast LCD Display
 4" high, 0.5% Resolution
 Bargraph
Display Range: 0-2000 F adjustable
Alarm Setpoints: Two (2) adjustable with adjustable time delays
Relay Outputs: Two SPDT Relays 10 A resistive, 8 FLA, 1/2 Hp, 120 Vac
Output: 4-20 mA, 650 ohm load max and RS-485 MODBUS Interface
Enclosure: NEMA 4 faceplate
Thermocouple: Type J or Type K
Break Protection: Upscale

Ordering Information

1. **JC-15D** Instrument
2. **104087C-XX** Type J Thermocouple Assembly (XX - specify wire length in multiples of 25 feet)
3. Optional Accessories:
SDA-B6 Alarm Bell. 85 dB, weatherproof
SDA-VB Remote Audible/Visual Alarm

