Catalog No.: 5100.92A
Effective Date: 8-15-08
Replaces: 3-15-05

Y200-Series Electronic Boiler Controls
Sample Specifications

Section I: General Requirements

1. Provide a Raypak Y200-Series Electronic Boiler Control system capable of controlling _____ (___) Raypak Model _____ copper finned tube boiler(s).The electronic boiler control system shall consist of a boiler control module, a water temperature sensor and an outdoor air temperature sensor. An internal power transformer shall be integral to the boiler control module.
2. The system water temperature and outdoor air sensors shall be redundant element thermistors capable of maintaining ±1°F sense accuracy when installed with a maximum of 300 feet of shielded cable as recommended by the manufacturer.
3. The boiler control shall be listed by UL as an Energy Management System.
4. The boiler control shall carry a one-year limited warranty against failure caused by defective workmanship or material.
5. The boiler(s) and control system shall be manufactured by the same company and shall carry single-source responsibility.

Section II: Equipment Enclosure

1. The boiler control module shall be boiler or remote mountable in a NEMA 3R rated rain-proof enclosure. The lockable control enclosure shall be constructed of 18 gauge steel and shall be vandal and tamper resistant. The access door of the enclosure, once unlocked, shall be easily removable without the use of tools.
2. The outdoor air temperature sensor shall be mounted in a protective steel housing.
3. All exterior enclosure surfaces shall be protected with a baked-on UV-inhibited PolyTuf powder coat finish.

Section III: Control Functions

1. The boiler control system shall be microprocessor-based and shall control the firing sequencing of the boiler(s) to meet the system demand within the selectable limits of the Control Band, the Setpoint, the outdoor temperature, and the Reset Ratio.
2. The boiler control's operational algorithm shall have an advanced Proportional plus Integral plus Derivative (PID) logic structure. The control algorithm shall automatically optimize boiler response based on a history file of the last 48 firings.
3. The microprocessor shall be self-checking and shall incorporate a system test feature for manual testing.
4. Boiler lead/lag selection will be performed automatically using a First-on First-off protocol or manually by control settings.
5. The boiler control shall have a primary pump control output. An energy-saving Pump-off Delay function shall be an integral part of the primary pump control.
6. The system shall incorporate an outdoor cutoff function that shuts down the boiler(s) and the primary system pump when the outdoor air temperature exceeds a user adjustable setpoint.
7. The boiler control shall have a manual override function that allows independent operation of the boiler(s) or specific stages for maintenance or in case of catastrophic boiler control failure.
8. The standard control shall incorporate software for alternate setpoint periods or morning boosts. Each 24-hour period may be programmed for up to six alternate setpoint periods.
9. The control shall be capable of interconnecting additional controls in a master-slave system providing up to 40 stages of control.
10. The control shall be designed to accept an optional field-installed module to provide full two-way communication over a LonWorks system. The module shall be certified as LonWorks compatible by LonMark.
11. The control shall be designed to accept an optional module which will accept incoming 4-20 mA or 2-10 VDC control signals as an override to normal setpoint.
12. The control shall be designed to accept an optional external modem.
13. The standard control shall incorporate password protection on maintenance settings.
14. The control shall be designed to accept an optional alarm bell to operate when a system fault occurs. The bell shall be available in 3” or 4” sizes.

Section IV: Adjustable Parameters

1. The boiler control shall have front-mounted keypad adjustments for the following parameters:
   a) Reset Ratio shall be adjustable from 0.01: to 8:1;
   b) Control Band shall be adjustable from 1° to 10°F;
   c) Outdoor Cutoff Temperature shall be adjustable from 32° to 200°F;
   d) Outdoor Cutoff Deadband shall be adjustable from -1° to -10°F;
   e) Boiler On Delay shall be adjustable from 0 to 600 seconds;
   f) Stage On Delay shall be adjustable from 0 to 600 seconds;
   g) Maximum Water Temperature shall be adjustable from 40° to 235°F;
   h) Setpoint shall be adjustable from 40° to 220°F;
   i) Fahrenheit or Celsius display; and
   j) Holiday setpoint, selectable throughout a full year.

Section V: Display Functions

1. All interface, error messages and status display functions shall be handled through an LCD readout display panel.