

Hubbell Industrial Controls, Inc.

Electric Fire Pump Controllers

Specifications for LXi 1200 Across-the-Line Fire Pump Controllers * July 2002

The fire pump controller shall be factory assembled, wired, tested as a unit assembly, shall conform to the requirements of the latest editions of NFPA-20 and NFPA-70, and shall be Listed by and bear the label of Underwriters' Laboratories and Factory Mutual. The controller shall be Hubbell-Lexington *Lxi1200* equipped with *LXi* logic.

The controller shall be of the combined manual/automatic type and be furnished in a floor mounted drip-proof steel Type 2 enclosure with lifting eyes. The enclosure shall be red with a non-glare surface. The controller shall be designed, tested, and marked for the rated horsepower, 3-phase voltage and frequency in a 40 degree C. ambient.

All electrical components shall be accessible from the front for maintenance and service. No components or component wiring shall be permitted on the door of the enclosure. The controller shall have a common operating handle for both the line isolating switch and the controller circuit breaker mounted in the enclosure flange. The minimum withstand rating for the fire pump controller shall be 150,000 amps RMS symmetrical at 200-600volts. The unit shall be Listed/Approved with UL/FM as "Suitable For Use as Service Equipment".

The controller shall have separate and independent pressure settings with a minimum run timer capable of being set for 10 minutes. Start and stop pressure settings shall be established at the time of the field acceptance test. Provisions shall be included to allow for manual or automatic shutdown in the field.

The controller shall have two sets of Form "C" contacts for Pump Running, Phase Reversal, Power/Phase Failure, and one set of Form "C" contacts for Trouble. The Trouble contacts shall be activated by the following conditions: Invalid Configuration Memory, Emergency Manual Start, Pump Running, Phase Failure, Phase Reversal, Overload, Locked Rotor, Fail-to-Start, and Lockout.

The controller shall be equipped with *LXi intelligent fire pump control system logic*. All firmware shall be non-volatile flash based CPLD (*complex-programmable logic device*). The boot-up time for the logic shall be 3 seconds or less. Controllers that do not boot-up and allow the pump to be started in 3 seconds or less are not acceptable. An RS232 serial port shall be supplied for downloading event history to a PC for analysis and printing.

The digital pressure readings and settings shall be displayed on the *LXi* LCD mounted on the enclosure flange. The LCD screen shall be 4 x 20 (4 lines of 20 characters) per screen, with screens that may be scrolled to give a total of 320 characters. The display shall provide simultaneous 3-phase digital amps and volts for the pump power and a digital reading for the system pressure. Controllers that do not simultaneously display digital 3-phase amps, line-to-line voltage readings, and system pressure are not acceptable.

The event alarm caches shall be compartmentalized and no compartment shall over-ride any other compartment. The compartments shall allow for analysis of four types of informational events without having to look through all events including those not related to a problem. Events shall be shown with Date and Time for each event occurrence as follows:

1. Events that have occurred during a pump idle period
2. Events that occurred during the last start period
3. Events that occurred during the last run period
4. Events that occurred during the last stop period.

The LED displays shall be mounted on the enclosure flange and have an LED for the following:

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|---------------------------|------------------------|------------------|
| 1. Power Available | 8. Phase Reversal | 15. Remote Start |
| 2. Low Suction | 9. Overload | |
| 3. Pump Start Delay On | 10. Local Manual Start | |
| 4. Locked Rotor | 11. Local Manual Stop | |
| 5. Pressure Switch Start | 12. Lockout On | |
| 6. Emergency Manual Start | 13. Run Timer On | |
| 7. Fail to Start | 14. Pump Running | |

LED's shall be multi-color; red for critical alarms, yellow for informational and green for status.

Programming of the *LXi* logic shall be from the touch pad mounted on the enclosure flange. Programming shall be password protected so that unauthorized personnel cannot change the logic functions. The fire pump controller shall be Model *LXi1200* equipped with *LXi* Logic as manufactured by Hubbell Industrial Controls, Inc.