

A) Diesel Engine Driven Fire Pump Controller Specification

- 1) The fire pump controller shall be a factory assembled, wired and tested unit and shall conform to all the requirements of the latest edition of NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection* and NFPA 70, *National Electrical Code*. The controller shall be listed by Underwriters Laboratories, Inc., in accordance with UL218, *Standard for Fire Pump Controllers* and approved by Factory Mutual.
- 2) The controller shall be designed for use with a (12) (24) Volt Negative Ground Listed Fire Pump Engine.
- 3) The diesel engine driven fire pump controller shall be a Firetrol Model FTA1100-JL suitable for wall mounting.
- 4) The controller components shall be housed in a NEMA Type 2 (IEC IP11) drip-proof, wall mounted enclosure.
- 5) Operator Interface - The fire pump controller shall feature an operator interface with user keypad. The interface shall monitor and display motor operating conditions, including all alarms, events, and pressure conditions. All alarms, events, and pressure conditions shall be displayed with a time and date stamp. The display shall be a 4-line, 20-character, vacuum fluorescent, dot matrix type designed to allow easy viewing from all angles and in all light conditions. The display and interface shall be NEMA rated for Type 2, 3R, 4, 4X, and 12 protection and shall be fully accessible without opening the controller door. The display and user interface shall utilize multiple levels of password protection for system security. A minimum of 3 password levels shall be provided. The display shall be capable of being programmed for any language.
- 6) Digital Status/Alarm Messages - The digital display shall indicate text messages for the status and alarm conditions of:
 - a) Engine Run • Sequential Start Time
 - b) Minimum Run Time • Crank/Rest Time - Cycle/ Off Delay Time • Remote Start
 - c) Engine Fail to Start • System Battery Low
 - d) Low Suction Pressure • Printer Error
 - e) Drive Not Installed • Manual Engine Crank
 - f) Pressure Error
 - g) The Sequential Start Timer, Minimum Run Timer/Off Delay Timer and Crank/Rest time shall be displayed as numeric values reflecting the value of the remaining time.
- 7) LED indicators, Visible with the door closed, shall indicate:
 - a) Main Switch in Auto
 - b) Alarm
 - c) Engine Fail to Start
 - d) Charger Malfunction
 - e) Battery #1 Trouble
 - f) Battery #2 Trouble
 - g) System Pressure Low

- h) Engine Running
 - i) Engine Coolant Temperature High
 - j) Engine Oil Pressure Low
 - k) Engine Overspeed
- 8) Data Logging - The digital display shall monitor the system and log the following data:
- a) Motor Calls/Starts
 - b) Total Engine Run Time
 - c) Last Engine Run Time
 - d) Last Engine Start
 - e) Last High Water Temperature
 - f) Last Low Oil Pressure
 - g) Last Low Fuel Level
 - h) Last Battery Charger Failure
 - i) Last Battery Trouble
 - j) Last Engine Overspeed
 - k) Minimum Battery Voltages
 - l) Maximum Battery Voltages
 - m) Total Unit Run Time
 - n) Minimum/Maximum System Pressure
 - o) Jockey Pump Running
- 9) Event Recording - The controller shall record all operational and alarm events to system memory. All events shall be time and date stamped, including an index number. The system memory shall have the capability of storing 3000 events and allow the user access to the event log via the user interface. The user shall have the ability to scroll through the stored messages in groups of 1, 10, or 100.
- 10) USB HOST DRIVE – The controller shall include a USB Host Controller and Port. The port shall be capable of accepting a standard portable thumb or flash drive for uploading new software or downloading event and data logs. A laptop will not be required for this function.
- 11) The controller shall be supplied with a solid state pressure transducer with a range of 0-300 psi (0-20.7 bar) ± 1 psi. The solid state pressure switch shall be used for both display of the system pressure and control of the fire pump controller. Systems using analog pressure devices or mercury switches for operational control will not be accepted.
- 12) The START, STOP and SYSTEM PRESSURE shall be digitally displayed and adjustable through the user interface. The pressure transducer shall be mounted inside the controller to prevent accidental damage. The pressure transducer shall be directly pipe mounted to a bulkhead pipe coupling without any other supporting members. Field connections shall be made externally at the controller coupling to prevent distortion of the pressure switch element and mechanism.
- 13) Operation - A digitally set On Delay (Sequential Start) timer shall be provided as standard. Upon a call to start, the user interface shall display a message indicating

the remaining time value of the On Delay timer. The controller shall be field programmable for manual stop or automatic stop. If set for automatic stopping, the controller shall allow the user to select either a Minimum Run Timer or an Off Delay Timer. Both timers shall be programmable through the user interface.

- 14) The controller shall include an AC Power Loss start timer to start the engine in the event of AC Power failure. The controller shall be fully programmable to allow up to 8 custom alarm messages to be displayed on the user interface.
- 15) A weekly test timer shall be provided as standard. The controller shall have the ability to program the time, date, and frequency of the weekly test. In addition, the controller shall have the capability to display a preventative maintenance message for a service inspection. The message text and frequency of occurrence shall be programmable through the user interface. A Lamp Test feature shall be included. The user interface shall also have the ability to display the status of the system inputs and outputs.
- 16) Battery Chargers - The controller shall include two fully automatic, 200 amp hour-4 step battery chargers. The chargers shall feature a qualification stage, in which the charger examines the batteries. This insures that they are not defective and are capable of accepting a charge. The battery charger shall feature:
 - a) Selectable AC Power Voltage
 - b) Selectable Battery Voltage
 - c) Selectable Battery Type
 - d) Charge Cycle Reset Push-button
- 17) The controller shall be a Firetrol brand as manufactured by ASCO Power Technologies LLC. (An Emerson Company)