

Firetrol Mark IIxG Diesel Engine Fire Pump Controller for Class 1, Division 2 Hazardous Locations

FTA1100H - 12 or 24 Volt

Specifications

1.0 Main Fire Pump Controller

The main fire pump controller shall be a factory assembled, wired and tested unit. The controller shall be of the combined manual and automatic type designed for diesel engine operation of the fire pump.

1.1 Standards, Listings & Approvals

The controller shall conform to all the requirements of the latest editions of:
NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*
NFPA 70, *National Electrical Code*.

The controller shall be listed by:

Underwriters Laboratories, Inc., in accordance with UL1604, Electrical Equipment for Use in Class 1 and 2, Division 2, and Class 3 Hazardous (Classified) Locations
UL 698, Industrial Equipment for Use in Hazardous (Classified) Locations.

The controller shall meet the above requirements without the use of a purge system.

1.2 Construction

The controller components shall be housed in a NEMA Type 4X (IEC IP66), 12 Gauge, Seam Welded, #316 Stainless Steel Enclosure with a Polished and Brushed Finish. The enclosure shall be furnished with (2) top mounted lifting brackets, a gland plate, door clamps, a door stop bracket, and a padlock hasp.

The controller shall have a stainless steel back pan (mounting plate). Pilot devices and relays shall be hermetically sealed and wiring shall be SIS type with sleeved wire markers.

The controller shall have a temperature rating of T3C (maximum surface temperature of any component at 40°C (104°F) ambient shall be less than or equal to 160°C (320°F)).

Where required, a space heater and thermostat shall be internally mounted and wired without affecting the controller listing. When supplied with a space heater and thermostat, the controller shall have a temperature rating of T3 (maximum surface temperature of any component at 40°C (104°F) ambient shall be less than or equal to 200°C (392°F)).

1.3 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 128x64 Backlit LCD capable of customized graphics. 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.

1.4 Digital Status/Alarm Messages

The digital display shall indicate text messages for the status and alarm conditions of:

- Engine Run
- Remote Start
- Min. Run Time / Off Delay Time
- Manual Engine Crank
- Engine Fail To Start
- Drive Not Installed

- Disk Error
- Low Suction Pressure
- Sequential Start Time
- Crank/Rest Time Cycle
- Disk Near Full
- Pressure Error

The Sequential Start Timer and Minimum Run Timer/Off Delay Timer shall be displayed as numeric values reflecting the value of the remaining time.

1.5 LED Visual Indicators

LED indicators, visible with the door closed, shall indicate:

- AC Power Available
- Alarm
- Main Switch in Auto
- Main Switch In Manual
- System Pressure Low
- Engine Running
- Engine Fail To Start
- Engine Temperature High
- Engine Oil Pressure Low
- Engine Overspeed
- Engine Alternate ECM
- Engine Fuel Injector Malfunction
- Fuel Level Low
- Automatic Shutdown Disabled
- Charger Malfunction
- Battery #1 Trouble
- Battery #2 Trouble

1.6 Data Logging

The digital display shall monitor the system and log the following data:

- Motor Calls/Starts
- Total Engine Run Time
- Last Engine Run Time
- Total Unit Run Time
- Last Engine Start
- Min/Max System Pressure
- Last High Temperature
- Last Low Oil Pressure
- Last Engine Overspeed
- Last Low Fuel Level
- Last Charger Fail
- Last Battery Trouble
- Battery #1 Volts (Min./Now/Max.)
- Battery #2 Volts (Min./Now/Max.)
- Battery #1 Amps (Min./Now/Max.)
- Battery #2 Amps (Min./Now/Max.)

1.7 Event Recording

Memory - The controller shall record all operational and alarm events to system memory. All events shall be time and date stamped and include 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 or 10.

1.8 USB Host Controller

The controller shall have a built-in USB Host Controller. A USB port capable of accepting a USB Flash Memory Disk shall be provided. The controller shall save all operational and alarm events to the flash memory on a daily basis. Each saved event shall be time and date stamped. The total amount of historical data saved shall solely depend on the size of the flash disk utilized. The controller shall have the capability to save settings and values to the flash disk on demand via the user interface.

1.9 Serial Communications

The controller shall feature a RS485 serial communications port for use with 2 or 4 wire Modbus RTU communications.

2.0 Solid State Pressure Transducer

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.

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.

2.1 Controller 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.

The controller shall include an AC Power Loss start timer to start the engine in the event of AC Power failure.

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.

An Audible Test feature shall be included to test the operation of the audible alarm device.

2.2 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 batteries are examined by the charger to insure that they are not defective and are capable of accepting a charge. The battery charger shall feature:

- Selectable AC Power Voltage
- Selectable Battery Voltage
- Selectable Battery Type
- Charge Cycle Reset Push-button

In applications where heavier cranking is required, the controller shall be capable of being supplied with a 400 amp hour (20 amp) charging circuit. This shall be accomplished by utilizing 4 battery chargers in parallel sets. The heavier charging circuit shall not affect the controller listings or temperature ratings.

2.3 Manufacturer

The controller shall be a Firetrol brand.

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