

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



Firetrol[®]


EMERSON[™]
Network Power

Class 1, Division 2 hazardous locations, T3 temperature rating.

Firetrol® FTA1100H combined automatic and manual Mark II based diesel engine fire pump controllers are intended for starting and monitoring fire pump diesel engines in Class 1, Division 2 hazardous locations. The controllers have a temperature rating of T3. They are available for use with 12 or 24 volt negative ground systems using lead acid or Nickel-Cadmium batteries, and available with 10 or 20 amp charging circuits. The controller monitors, displays and records fire pump system information.

Metering

- The controller provides display of incoming AC power line voltages.
- Total engine run time may be displayed.
- Pressure is displayed in PSI or Bars in 1 psi increments (0.1 bar). The controller is supplied as standard with a 0-300 psi (0-20.7 bars) stainless steel pressure transducer for fresh water applications and optionally with a 0-600 psi (0-41.4 bars) pressure transducer. Controllers can be ordered for copper corrosive applications.
- Battery voltages and charging currents are displayed on the main screen

Engine Control

The controller provides the following programmable engine control functions:

- Sequential Start Time (On Delay) - 0-60 Seconds
- Minimum Run Time - 0-60 Minutes
- Off Delay Time - 0-60 Minutes
- Weekly Test Time/Duration/Frequency
- AC Power Loss Start Delay Time - 5-300 Seconds
- Manual Stop Only - Yes/No

Operator Interface

The fire pump controllers feature an operator interface with user keypad. The interface monitors and displays motor operating conditions, including all alarms, events, and pressure conditions. All alarms, events, and pressure conditions are displayed with a



time and date stamp. The display is a 128x64 Backlit LCD capable of customized graphics. The display and interface are NEMA rated for Type 2, 3R, 4, 4X, and 12 protection and is fully accessible without opening the controller door. The user interface utilizes multiple levels of password protection for system security. A minimum of 3 password levels are provided.

Enclosures

The standard enclosures are NEMA Type 4X (IEC IP66), 12 Gauge, Seam Welded, #316 Stainless Steel, Polished and Brushed finish. The controller should be installed in an area with protection from direct sunlight and with an ambient temperature above 41°F (5°C). Optional enclosure types include:
– NEMA Type 4X (IEC IP66), 12 Gauge, Seam Welded, #316 Stainless Steel, Painted Finish

NEMA enclosures listed meet or exceed referenced IEC designations.

Approvals

Firetrol fire pump controllers are listed by Underwriters' Laboratories, Inc., in accordance with UL1604, *Electrical Equipment for Use in Class 1 and II, Division 2, and Class III Hazardous (Classified) Locations* and UL698, *Industrial Control Equipment for Use*

in Hazardous (Classified) Locations. They are built to meet or exceed the requirements of NFPA 20, *Installation of Centrifugal Fire Pumps*, and NFPA 70, *National Electrical Code*.



Definitions*

A Class I, Division II location is a location:

- in which volatile flammable liquids or flammable gases are handled, processed, or used, but in which the liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems or in case of abnormal operation of equipment; or
- in which ignitable concentrations of gases or vapors are normally prevented by positive mechanical ventilation, and which might become hazardous through failure or abnormal operation of the ventilating equipment; or
- that is adjacent to a Class I, Division I location, and to which ignitable concentrations of gases or vapors might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided.

T3 temperature rating:

Indicates the maximum surface temperature of any component at 40°C (104°F) ambient.

T3 = less than or equal to 200°C (392°F)

* Source - *Underwriters Laboratories*

Battery Chargers

The controllers are supplied with two fully automatic, 200 amp hour, 4 step battery chargers. The chargers feature Switching Technology and 10A dc Pulse-Width Modulated Output Current. The 4 step charging cycle is as follows:

Step 1 - Qualification Stage

During this stage, the battery charger checks

Standard features include:

The Firetrol Mark IIXG fire pump controller monitors, displays and records fire pump system information. The system is standard on all diesel engine fire pump controllers. A USB Host controller and port are also included as standard.

Door mounted display/interface panel featuring a 128 x 64 pixel backlit LCD Graphical Display, Membrane Type User Control Push-buttons and easy to read LED Indicators for:

- 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

Additionally, the controller is constructed with the following features specifically for the C1, D2 application:

- Top Mounted Enclosure Lifting Brackets
- Hermetically Sealed Pilot Devices and Relays
- SIS Type Wiring and Sleeve Type Wire Markers
- Stainless Steel Back Pan
- Door Stop Bracket (Holds door in open position)
- Enclosure Gland Plate
- ECD Drains (To drain accumulated condensate)
- External White Nameplates with Black Nomenclature
- 6" Base Mounting Legs
- Door Clamps and Padlock Hasp

the batteries to insure they can accept a fast charge. It also checks for missing or defective batteries. If a missing or defective battery is detected, a fault will be given.

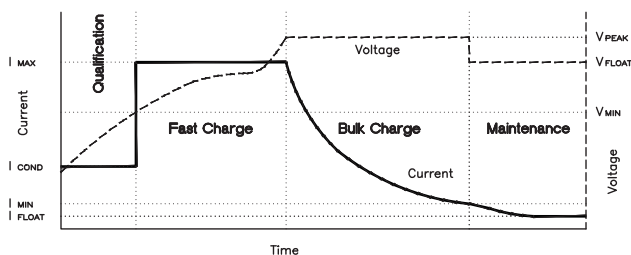
Step 2 - Fast Charge Stage
Charges the batteries until they reach peak voltage.

Step 3 - Bulk Charge Stage
Charges the batteries at a constant potential of peak voltage until current reaches 500mA.

Step 4 - Float Charge Stage
Trickle charges the batteries to maintain peak potential.

The battery chargers also feature the following:

- Selectable AC power voltage
- Selectable battery voltage
- Selectable battery type
- AC power fuse
- DC power fuse
- Charge cycle reset push-button



20 Amp Charging Circuit

When required, the controller can optionally be supplied with a 20 Amp charging circuit. This is accomplished by supplying 4 battery chargers in parallel sets. The synchronization of the chargers is accomplished by utilizing our unique Charger Link module.



Optional 4-Charger, 20 Amp configuration

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