9/16 [1.4] DIA. MOUNTING HOLES

MARK II USER INTERFACE

(DRAWINGS INCLUDED IN THIS PACKAGE ARE FOR STANDARD CONTROLLERS. ACTUAL “AS BUILT” DRAWINGS MAY DIFFER FROM THOSE SEEN HERE).
Firetrol Mark II $xG$ Diesel Engine Fire Pump Controller
FTA1100J - 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 UL218, Standard for Fire Pump Controllers
Canadian Standards Association CSA–C22.2, Standard for Industrial Control Equipment (cUL)

The controller shall be approved by:
Factory Mutual (IEC 62091)

1.2 Enclosure
The controller components shall be housed in a NEMA Type 2 (IEC IP22) drip-proof, wall mounted enclosure.

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 • Electric Control Module (ECM) Warning • Drive Not Installed • ECM Failure • Disk Error • Low Suction Pressure PLD (Pressure Limiting Driver) • Sequential Start Time • High Raw Water Temp. • Crank/Rest Time Cycle • Clogged Raw Water Strainer • Low Engine Temp. • Interstitial/Fuel Spill • 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
- Pump Total Run Time
- Pump Last Run Time
- Total Controller Pwr On Time
- Last Pump 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 **Seismic Certification**
The controller shall be certified to meet or exceed the requirements of the 2012 International Building Code and the 2013 California Building Code for Importance Factor 1.5 Electrical Equipment for Sds equal to 1.88 or less severe seismic regions. Qualifications shall be based upon successful tri-axial shake-table testing in accordance with ICC-ES AC-156. Certification without testing shall be unaccept-
2.2 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.

2.3 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

2.4 Manufacturer
The controller shall be a Firetrol brand.
Description – Firetrol® combined automatic and manual Mark IIXG based diesel engine fire pump controllers are intended for starting and monitoring fire pump diesel engines. They are suitable for use with both mechanical and electronic type engines. The controller is available for 12 or 24 volt negative ground systems, using lead acid or Nickel-Cadmium batteries. The controller monitors, displays and records fire pump system information.

Approvals – Firetrol fire pump controllers are listed by Underwriters’ Laboratories, Inc., in accordance with UL218, Standard for Fire Pump Controllers, CSA, Standard for Industrial Control Equipment (cUL), and approved by Factory Mutual. They are built to meet or exceed the requirements of the approving authorities as well as NEMA and the latest editions of NFPA 20, Installation of Centrifugal Fire Pumps, and NFPA 70, National Electrical Code.

Standard Features – The following are included as standard with each controller:
- AC Line & Battery circuit breakers
- Manual-Off-Auto selector switch
- Manual test push-button
- Two manual crank push-buttons
- Two 10 Amp battery chargers with 4 stage charging cycle, selectable AC voltage (110 / 220), selectable DC voltage (12 / 24), and selectable battery type (Lead Acid, Ni-Cad 9/18 Cell, Ni-Cad 10/20 Cell)
- 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
- Minimum Run Timer / Off Delay Timer
- Programmable Daylight Saving Time Option
- Weekly Test Timer
- Engine Run Time Meter
- Digital Pressure Display
- USB Host Controller and Port
- Solid State Pressure Transducer
- Data Log
- Event Log (3000 events)
- Simultaneous Display of Battery Voltages, Charging Rates, AC Volts, Pressure and Alarm Messages
- Disk Error Message
- Disk Near Full Message
- Pressure Error Message
- Fail to Start Message
- Low Suction Pressure Message
- Crank Cycle Status Indication (Displays Cranking Battery, Number of Starting Attempts and Crank/Rest Time Remaining)
- 300 psi (20.7 bar) wet parts (solid state pressure transducer, solenoid valve, plumbing) for fresh water applications
- NEMA Type 2 enclosure (IEC IP22)
- Each standard controller comes with user set options for:
  - AC Power Loss Start
  - Interlock Alarm
  - Low Pressure Aud.
  - Low Suction
  - Main Sw. Mis-Set
  - Manual Test
  - Pump Run Alarm
  - Remote Start
  - User Defined Input
  - Weekly Test Setup
  - Low Pump Rm Temp
  - Low Reservoir
  - Relief Valve Open
  - High Fuel Level
  - High Reservoir
- Also included (as required) are Audible/Visible alarm notifications for:
  - Electronic Engine Control Module (ECM) Warning
  - Electronic Engine Control Module (ECM) Failure
  - Low Engine Temperature
  - High Raw Cooling Water Temperature
  - Low Raw Water Flow (Clogged Stainer)
  - Fuel Spill (Interstitial Space Liquid Intrusion)
  - Low Suction Pressure (At Variable Speed Suction Limiting Engine Controls)
Special Enclosures
- E Enclosure, NEMA Type 4 (IEC IP 66), Painted Steel
- F Enclosure, NEMA Type 4X (IP66), #304 Stainless Steel, Brushed Finish
- FD Enclosure, NEMA Type 4X (IP66), #316 Stainless Steel, Brushed Finish
- FDB Enclosure, NEMA Type 4X (IP66), #316 Stainless Steel, 12 Gauge, Seam Welded, Brushed Finish
- FDP Enclosure, NEMA Type 4X, #316 Stainless Steel, Painted Finish
- FXP Enclosure, NEMA Type 4X (IP66), #304 Stainless Steel Painted Finish
- G Enclosure, NEMA Type 12 (IP54), Painted Steel
- T Enclosure, NEMA Type 3R (IP24), Painted Steel

Mounting Legs
- N3I Mounting Legs, Standard 12 Inch, Painted Steel
- N3IS Mounting Legs, Standard 12 Inch, Stainless Steel

Anti-Condensation Space Heaters
- H Space Heater, 120V Externally Powered with Circuit Breaker
- J Space Heater, 120V Externally Powered with Circuit Breaker and Thermostat
- K Space Heater, 120V Externally Powered with Circuit Breaker and Humidistat
- L Space Heater, 240V Externally Powered with Circuit Breaker
- M Space Heater, 240V Externally Powered with Circuit Breaker and Thermostat
- N Space Heater, 240V Externally Powered with Circuit Breaker and Humidistat

Pressure Transducers, Solenoid Valves, Plumbing
- B Wetted Parts Including Pressure Sensor, 600 PSI (42 Bar), Fresh Water
- C Wetted Parts Including Pressure Sensor, 300 PSI (21 Bar), Sea Water
- D Wetted Parts Including Pressure Sensor, 600 PSI (42 Bar), Sea Water

Alarms
- AC Alarm Output Contacts, Extra, Engine Running (3 Sets)
- AJ Alarm Output Contacts, Engine Overspeed
- AK Alarm Output Contacts, Low Oil Pressure
- AL Alarm Output Contacts, High Water Temperature
- AM Alarm Output Contacts, Fail To Start
- AN Alarm Output Contacts, Battery / Charger Failure
- AP Alarm Output Contacts, Main Switch In Manual
- AR Alarm Output Contacts, Main Switch In Off
- AS Alarm Output Contacts, Main Switch In Auto
- AT Alarm Output Contacts, Pump Room Trouble
- AV Alarm Output Contacts, Low Pump Room Temperature
- AW Alarm Output Contacts, Reservoir Low
- AY Alarm Output Contacts, Low Suction Pressure
- COM Alarm, Audible/Visible/Output Contacts, Low Suction Pressure with Manual Reset Option. Pressure Switch Not Included
- CPL Alarm Output Contacts, Overpressure (for use with PLD engines only)
- CTS Alarm, Audible/Visible/Output Contacts, Low Suction Pressure with Manual Reset Option and Pressure Switch
- ECMFR Alarm Output Contacts, Electronic Engine ECM Failure
- ECMWR Alarm Output Contacts, Electronic Engine ECM Warning
- EE Alarm Output Contacts, Extra, Engine Trouble (1 Set)
- EF Alarm Output Contacts, Extra, Main Switch Not In Auto (1 Set)
- EH Alarm Output Contacts, Relief Valve Discharge
- EJ Alarm, Audible/Visible, Flow Meter On
- HRTR Alarm Output Contacts, High Raw Water Temperature
- HK Alarm Output Contacts, Flow Meter On (Requires option – EJ)
- LETR Alarm Output Contacts, Low Engine Temperature
- LRF Alarm Output Contacts, Low Raw Water Flow (Clogged Strainer)
- JR Visible Indicator, Jockey Pump Operating (Requires Jockey Pump To Be Ordered With Option – AC)
- LSPR Alarm Output Contacts, Low Suction Pressure (at Variable Speed Suction Limiting Engine Controls)
- JT Alarm, Audible/Visible, Jockey Pump Trouble (Requires Jockey Pump To Be Ordered With Option – KH)
- LC Alarm Output Contacts, High Fuel Level
- LE Alarm Output Contacts, Fuel Spill
- LG Alarm Output Contacts, Reservoir High
- PE Alarm Output Contacts, Low System Pressure (Pump On Demand)

Miscellaneous
- AZ Thermostat, Low Pump Room Temperature, Mounted and Wired
- BA AC Input, 220-240V
- EL Series Pumping Operation, High Zone Controller
- EM Series Pumping Operation, Mid Zone Controller
- EN Series Pumping Operation, Low Zone Controller
- IEC Marking, CE With External Wet Parts (Requires NEMA Type 12/IP54 enclosure as minimum)
- IEI Marking, CE With Internal Wet Parts (Requires NEMA Type 12/IP54 enclosure as minimum)
- OSP Marking, OSHPD Seismic Certification, State of California (Requires Option – SEI)
- S Tropicalization
- SEI Marking, Seismic Certified (in accordance with IBC)
- USBX Data Port, External USB
- ZPL Scheduled Service Message
- ZPM Data Port, Serial Modbus RTU Over 2-Wire or 4-Wire RS485
- ZPN Data Port, Serial Modbus RTU Over Ethernet TCP/IP

FTAI100-K1 Low fuel level switch, 16” max insertion length
FTAI100-K1-X High/Low fuel level switch – specify levels/tank dimensions
FTAI100-K2 Low fuel level switch, 25” max. insertion length
FTAK 380-480 volt operation (transformer)
Export packaging (Wooden crating to conform to IPPC Standards)

1 – Initiating switches by others
2 – Shipped loose for installation by the customer
Controller Type
J - Mark llxg

Battery Type
L - Lead Acid
N - Ni-Cad

Battery Voltage
12 - 12 Volt DC
24 - 24 Volt DC

System Ground
N - Negative Ground

Options and Modifications

Special Enclosures
-T  NEMA Type 3R (IEC IP22), Painted Steel
-E  NEMA Type 4 (IEC IP 66), Painted Steel
-F  NEMA Type 4X (IEC IP66) #304 Stainless Steel, Brushed Finish
-FXP NEMA Type 4X (IEC IP66) #304 Stainless Steel, Painted Finish
-FD  NEMA Type 4X (IEC IP66) #316 Stainless Steel, Brushed Finish
-FDB NEMA Type 4X (IEC IP66) #316 Stainless Steel, 12 Gauge, Seam Welded, Brushed Finish
-FDP NEMA Type 4X (IEC IP66) #316 Stainless Steel, Painted Finish
-G  NEMA Type 12 (IEC IP54)

Mounting Legs
-N31 Standard 12” Mounting Legs
-N31S 12” Mounting Legs, Stainless Steel

Anti-Condensation Space Heaters
-H 120 Volt Space Heater
-J 120 Volt Space Heater with Thermo-stat
-K 120 Volt Space Heater with Humidistat
-L 240 Volt Space Heater
-M 240 Volt Space Heater with Thermo-stat
-N 240 Volt Space Heater with Humidistat

Pressure Transducers, Solenoid Valves, Plumbing
-B 0–600 psi (0–41.4 bars) wet parts for fresh water applications
-C 0–300 psi (0–20.7 bars) wet parts for copper corrosive applications
-D 0–600 psi (0–41.4 bars) wet parts for copper corrosive applications

Continued on other side
Alarms

-AC Additional contacts for remote indication, engine running - 2 sets provided as standard

-AJ Contacts for remote indication, engine overspeed

-AK Contacts for remote indication, low oil pressure

-AL Contacts for remote indication, high water temperature

-AM Contacts for remote indication, engine failed to start

-AN Contacts for remote indication, battery / charger failure

-AP Contacts for remote indication, main switch in manual

-AR Contacts for remote indication, main switch in off

-AS Contacts for remote indication, main switch in auto

-AT Contacts for remote indication, pump room trouble

-AV Contacts for remote indication, low pump room temperature

-AW Contacts for remote indication, reservoir low

-AY Contacts for remote indication, low suction pressure

-COM Visible low suction pressure alarm, Manual reset only (Includes reset push-button, initiating pressure switch not included)

-CPL Contacts for remote indication, system 115% over pressure (for use with PLD engines only)

-CTS Built-in low suction pressure alarm panel (Includes selectable auto/manual reset, audible, visible and remote alarms and mounted and wired pressure switch)

-EE Additional contacts for remote indication, engine trouble - 1 set provided as standard

-EF Additional contacts for remote indication, main switch mis-set - 1 set provided as standard

-EH Contacts for remote indication, relief valve discharge

-EJ Audible & Visible flow meter on alarm

-EK Contacts for remote indication, flow meter on (Requires option -EJ)

-JR Visible jockey pump running indication

-JT Audible and visible jockey pump trouble indication

-LC Contacts for remote indication, high fuel level

-LD Audible & Visible fuel spill alarm

-LE Contacts for remote indication, fuel spill (Requires option -LD)

-LG Contacts for remote indication, reservoir high

-PE Contacts for remote indication, low system pressure (Pump On Demand)

Miscellaneous

-AZ Low pump room temperature switch, mounted and wired

-BA 220~240 Volt operation

-EL Series pumping, high zone controller

-EM Series pumping, mid zone controller

-EN Series pumping, low zone controller

-IEC CE Marking with Externally Mounted Wet Parts (Requires NEMA Type 12/IP54 enclosure as a minimum)

-IECI CE Marking (Internal Wet Parts) (Requires NEMA Type 12/IP54 enclosure as a minimum)

-OSP OSHPD Seismic Certification (State of California) (Requires Option -SEI)

-S Tropicalization

-SEI Seismic Certification (in accordance with IBC)

-USBX External USB Port

-ZPA Customized, annual service display message (factory programmed)

-ZPN Serial Modbus RTU over Ethernet TCP/IP using 5150 Connectivity Module

-ZPM Serial Modbus RTU over 2-wire or 4-wire RS485

FTA1100-K1 Low fuel level switch, 16" max insertion length

FTA1100-K1-X High/Low fuel level switch - specify levels/tank dimensions

FTA1100-K2 Low fuel level switch, 25" max. insertion length

FTAK21 380~480 volt operation (transformer)

Export packaging (Wooden crating to conform to IPPC Standards)

1 - Initiating switches by others

2 - Shipped loose for installation by the customer
Mark IIXG Diesel Engine Fire Pump Controllers

Dimensions & Shipping Weight
FTA1100J
Wall Mount

Dimensions:
- 2 5/8 [6.62]
- 21 [53.34]
- 9/16 [1.43] Dia. Mounting Holes
- 1 [2.54]
- 34 3/4 [88.27] Door Swing
- 38 [96.52]
- 36 [91.44]
- 12 [30.48]
- 26 [66.01]

Approximate Shipping Weight:
- 200 [90.7]

Notes:
- Use only locations shown for conduit entrance. Controller warranty is void if any other location is used. Do not enter from top.
- Not to be used as a junction box. Do not route engine heater wiring through controller.
- Do not install in ambient temperatures below 41°F (5°C).

Dimensions shown on this drawing are applicable for NEMA types 2/3R/4X/4X/12.

Conduit Entrance:
- Bottom Only
- Gland Plate Provided

For controllers with 12" [30.5] floor mounting legs modification - N31 RE D01100-21
For controllers with 6" [15.24] base mounting legs modification - N32 RE D01100-22

All dimensions - inches [cm]
Shipping weight - pounds [kg]

Updated Title Block:
- ID 280454
- Jurv TEF 05-21-19
- Changed Pressure Fitting and Conduit Entrance Dimensions:
  - Rev C 220698 JC TEF 06-20-10

Diesel Engine Fire Pump Controller
WALL MOUNT

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Dimensions & Shipping Weight
FTA1100J

Mark IIxG Diesel Engine Fire Pump Controllers With Modification N31 (12" Mounting Legs)

**NOTES:**
- Use only locations shown for conduit entrance. Controller warranty is void if any other location is used. Do not enter from top.
- Do not route engine heater wiring through controller.
- Do not install in ambient temperatures below 41°F (5°C).
- Dimensions shown on this drawing are applicable for NEMA types 2/3R/4/4X/12.

**APPROXIMATE SHIPPING WEIGHT**

200 [90.7]
Field Connections
FTA1100J

Mark IIxG Diesel Engine Fire Pump Controllers

--- Wired Size ---
Copper Conductors Only

Use #14 and wire #16 (3/kink) minimum for all electrical connections except for battery charger connections. Battery charger connections to terminals 6, 8, and 11 use the following information to determine wire sizes:

<table>
<thead>
<tr>
<th>Minimum Wire Size (AWG)</th>
<th>Terminal Block on Engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 25 (7/32)</td>
<td>G1.05 and G1.15</td>
</tr>
<tr>
<td>25 - 50 (7/32 - 1/8)</td>
<td>G1.05 and G1.15</td>
</tr>
</tbody>
</table>

--- Terminals and Tightening Torque ---

<table>
<thead>
<tr>
<th>Terminal Type</th>
<th>Wire Size</th>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Terminals (10, 11)</td>
<td>#14-6 AWG</td>
<td>259 ft-lb</td>
</tr>
<tr>
<td>Control and Alarm Terminals</td>
<td>#14-6 AWG</td>
<td>259 ft-lb</td>
</tr>
<tr>
<td>Circuit Breakers</td>
<td>#14-6 AWG</td>
<td>259 ft-lb</td>
</tr>
</tbody>
</table>

--- NOTES ---

1. Controller is arranged for connection on 220-240 VAC 50/60 Hz supply. Refer to Article 230 Automatic Electrical Code, NFPA 70.
2. Control and alarm terminals 1-10, 19-20, 21-23, and 24-31 connect to the terminal block on the engine.
3. Terminals 7, 8, and 9 (or terminals 22, 23, and 24) connect to the controller.
4. Engine trouble alarm circuits operate if any one of the following trouble circuits is energized: low oil pressure, high oil temperature, low coolant temperature, high coolant temperature, low battery voltage, high battery voltage, low engine speed, high engine speed, and high engine temperature.
5. Common trouble alarm circuits operate when any alarm occurs.

--- GENERAL NOTES ---

All alarm contacts are wired for fault circuit duty, 250 VAC, 30 VDC maximum. All contacts non-polarizable.

--- Remote Control ---

1. Remote control circuit is available for remote control of the fire pump controller.

--- Field Connections Diagram ---

The field connection diagram is for diesel engines listed for continuous operation, fire pumps supplied by the following manufacturers:

- Caterpillar, Inc., Engine Division, Peoria, IL
- Cummins Engine Co., Inc., Columbus, OH
- Detroit Corp., Norcross, GA
- Kohler Co., Kohler, WI

For engines or manufacturers not listed above, consult the factory.

--- Updation Title Block ---

Rev. 280454, Date 08/26/19

--- Revised P&R & NFPA-20 Add'l Alarm Requirements ---

Rev. 206410, Date 08/19/15

--- Field Connections ---

FC1100-20

--- Mark II Diesel Engine Fire Pump Controller Standard Field Connections ---

Updated Title Block

Rev. 280454

Field Connections

FTA1100-J

Mark II Diesel Engine Fire Pump Controller

--- Standard Field Connections ---

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--- Firetrol, Inc. ---

Drawing Number

FC1100-20

Sheet 1 of 1