Submittal Package

FTA1930/950

MARK III Electric Fire Pump Controller - Solid State Soft Starting With Power Transfer Switch

Project Information

| VOLTAGE/POWER TABLE | |
|---|---|
| LINE VOLTAGE | MOTOR HORSEPOWER |
| 208 | 5-30 |
| 220-240 | 5-30 |
| APPROX SHIPPING WT: 335 [152] | |

**DRAWINGS INCLUDED IN THIS PACKAGE ARE FOR STANDARD CONTROLLERS. ACTUAL "AS BUILT" DRAWINGS MAY DIFFER FROM THOSE SHOWN HERE.**

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**Publication SBP1930-80-240 Rev. D**

# Firetrol MARK III Electric Fire Pump Controller

## FTA1930/FTA950 - Solid State Reduced Current Starting with Power Transfer Switch

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 full voltage starting of the fire pump motor having the horsepower, voltage, phase and frequency rating shown on the plans and drawings.

### 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)
CE - Low Voltage Directive

The controller shall be approved by:
Factory Mutual (IEC 62091)
The City of New York for fire pump service

### 1.2 Enclosure

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

### 1.3 Withstand Ratings (Short Circuit Current Ratings)

All controller components shall be front mounted, wired and front accessible for maintenance. The available short circuit current ratings are shown below. The ratings shall apply to the normal and emergency power components.

| Code | 200-208V 5-150 HP | 220-240V 5-200 HP | 380-415V 5-350 HP | 440-480 5-400 HP | 550-600 5-500 HP |
|---|---|---|---|---|---|
| M - Standard | 100kA | 100kA | 100kA | 100kA | N/A |
| N - Intermediate | 150kA | 150kA | 150kA | 150kA | N/A |
| P - High | 200kA | 200kA | 200kA | 200kA | N/A |
| Q - Intermediate | N/A | N/A | N/A | N/A | 100kA |
| R - Standard | N/A | N/A | N/A | N/A | 50kA |

| Code | 200-208V 200 HP | 220-240V 250-400 HP | 380-415V 400-500 HP | 440-480 450-500 HP |
|---|---|---|---|---|
| M - Standard | 50A | 50kA | 50kA | 50kA |
| N - Intermediate | N/A | N/A | N/A | N/A |
| P - High | 100kA | 100kA | 100kA | 100kA |
| Q - Intermediate | N/A | N/A | N/A | N/A |
| R - Standard | N/A | N/A | N/A | N/A |

### 1.4 Power Components

The controller shall include a combination isolating disconnect switch/circuit breaker, rated for not less than 115% of the motor full load current, mechanically interlocked and operated with a single, externally mounted handle. The isolating disconnect switch/circuit breaker shall be mechanically interlocked so that the enclosure door cannot be opened with the handle in the ON position except by a hidden tool operated bypass mechanism. The isolating disconnect switch/circuit breaker shall be capable of being padlocked in the OFF position for installation and maintenance safety, and shall also be

capable of being locked in the ON position without affecting the tripping characteristics of the circuit breaker.
The controller will include a voltage surge arrestor and Solid State Reduced Current starting.
The controller shall be equipped with a single handle, manually operated, emergency start mechanism capable of being latched in the ON position.
The controller shall include an Automatic Transfer Switch, electrically or manually operated, mechanically held.

### 1.5 Operator Interface (HMI)

The operator interface shall be a 7.0" LCD color touch screen (HMI technology) powered by an embedded microcomputer with software PLC logic. Included shall be keypad type push-buttons for START, STOP, RUN TEST and TRANSFER SWITCH TEST.
The screen shall include menus for: *Home · Alarms · Configuration · History · Service · Manuals · Language*.

The HMI shall graphically display the following: *Voltage and Amperage of all 3 phases simultaneously using true RMS Technology for both the Normal and Alternate Power Sources · Transfer Switch Status · Motor Stopped/Running · Starting Cause · Actuation Mode · Controller Type · Shutdown Mode · Date & Time · Pump Room Temp. · System Pressure*
System pressure shall be capable of being displayed as: *PSI, kPa, Bar, Feet of Head or Meters of Water.*

The HMI shall allow programming and display of: *Cut In & Cut Out Pressure Settings · Minimum Run Timer · Sequential Start Timer · Periodic Test Timer*

The HMI allows the user to select the language of the system and download the manual or view the manual on screen.

### 1.6 State and Alarm Indication

Visual indication shall be provided for the following:
Power Available • Motor Run • Periodic Test • Manual Start • Deluge Valve Start • Remote Automatic Start • Remote Manual Start • Emergency Start • Pump On Demand/Automatic Start • Pump Room Temperature • Lockout

The digital display shall visually indicate the following alarms:
Alternate Power Lock Rotor Current • Alternate Power Phase Reversal • Automatic Power Transfer Switch Trouble • Locked Rotor Current • Fail To Start • Under/Over Current • Under/Over Voltage • Phase Unbalance • Check Test Solenoid Valve • Weekly Test Cut-In Not Reached • Transducer Fault • Control Voltage Not Healthy • Motor Trouble • Pump Room Alarm • Invalid Cut-In • Phase Reversal • Power Loss • Phase Loss L1 / L2 / L3 • Low Water Level • Pump On Demand • Low Ambient Temp. • Service Required

Audible and visible alarm shall be provided for:
Fail To Start • Alternate Circuit Breaker Off or Tripped • Alternate Isolating Switch Tripped/Open •

Remote Alarm contacts shall be provided for:
Power Available • Phase Reversal • Motor Run • Common Pump Room Alarm (Overvoltage, Undervoltage, Phase Unbalance, Low/High Pump Room Temperature) • Common Motor Trouble (Overcurrent, Fail To Start, Undercurrent, Ground Fault) • Transfer Switch in Normal Position • Transfer Switch in Alternate Position • Alternate Power Isolating Switch Off

### 1.7 Pressure and Event Recording

The system shall be capable of logging pressure data and operational events with time/date stamp. The system shall display operational events for the lifetime of the controller and display the pressure data in text or graphical form. The controller shall log the Date/Time of the first start-up and the controller total power on time from that date. The controller shall log first and last statistics for: *First Setup · On Time · Start Count · Last Start Time · Min/Max/Average System Pressure · Min/Max/Average Pump Room Temp. · Jockey Pump On Time/Start Count/Last Start Time · Phase to Phase Voltages with Date Stamp · Amps Per Phase with Date Stamp*

### 1.8 USB Host Controller

A USB port capable of accepting a USB Flash Memory Disk shall be provided for downloading pressure and event logs.

### 1.9 Serial Communications

The controller shall feature Modbus with TCP/IP frame format and shielded female RJ45 connector

### 2.0 Pressure Sensing / Wet Parts

The controller shall be supplied with a solid state pressure transducer with a range of 0-500 psi calibrated for 0-300 psi (0-20.7 bar) and a run test solenoid valve. The wet parts shall be externally mounted and include a protective cover. The pressure sensing line connection to the transducer shall be 1/2-inch FNPT. Provisions for a redundant pressure transducer shall be provided.

### 2.1 Seismic Certification

The controller shall be certified to meet or exceed the requirements of the 2015 International Building Code, the 2016 California Building Code and OSHPD Special Seismic Certification Preapproval - OSP. The controller test criteria shall be per ICC-ES AC156 and the Seismic Parameters per ASCE 7-10 Chapter 13.

### 2.2 Controller Operation

The controller shall be capable of automatic starting via pressure drop, remote start signal from an automatic device or a deluge valve. The controller can be manually started via the START push-button, the RUN TEST push-button, or a remote signal from a manual device. Stopping can be achieved manually with the STOP push-button or automatically after expiration of minimum run timer or test timer. The minimum run timer (off delay), sequential start timer (on delay) and periodic test timer shall be field adjustable and include a visual countdown on the display. Adjustable timers shall be supplied for Momentary Normal Power Outage Override, Alternate Power Available Delay, Transfer Trouble Delay, Retransfer To Normal, Generator Cooldown.

### 2.3 Manufacturer

The controller shall be a Firetrol brand.

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**Publication SP1930-61**

# Product Description

**FTA1930 with FTA950 (Opt. -TSA)**

## MARK III Electric Fire Pump Controllers - Solid State Reduced Current Starting with Power Transfer Switch

**Description**—Firetrol® FTA1930 Solid State Reduced Current Starting Fire Pump Controllers feature soft start, soft stop and system sensing capabilities that not only provide for reduced current starting, but also offer an improved level of hydro mechanical performance. The controller monitors, displays and records fire pump system information.

Power Transfer Switches are completely assembled with Firetrol Electric Fire Pump Controllers; full or reduced voltage types. The power transfer switches are built for use with generator set or 2nd utility use. The entire package of power transfer switch and controller is completely factory assembled, wired, tested and shipped as a complete unit for easy field connection to the power sources and the fire pump motor.

**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*, 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*.

The power transfer switches are listed by Underwriters' Laboratories, Inc., in accordance with UL218, *Standard for Fire Pump Controllers*; UL1008, *Automatic Transfer Switches*; UL508, *Industrial Control Equipment*, CSA, *Standard for Industrial Control Equipment*; 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*.

**Controller Standard Features** — The following are included as standard with each controller:

- Voltage surge protector
- Main Disconnect Switch sized for connected motor horsepower and voltage
- Fire pump Circuit Breaker
- Single Handle Isolating Disconnect Switch/Circuit Breaker mechanism
- Motor contactor
- Single Handle Emergency Manual Run Mechanism to mechanically close motor contactor contacts in an emergency condition
- Built-in Start and Stop push-buttons to bypass automatic start circuits
- Daylight Savings Time Option
- Elapsed Time Meter
- 7.0" LCD color touch screen (HMI technology) software upgradeable operator interface powered by an embedded microcomputer with software PLC logic.
- 500 PSI Pressure Transducer (calibrated for 300 PSI (20.7 Bar))and Test Solenoid for fresh water applications, externally mounted with protective cover
- Audible Alarm Bell
- Pump Room Ambient Temperature Switch, Display and Alarms

- Pressure and Event Recording with Date Stamp to System Memory Accessible VIA The User Interface and Downloadable to a USB Flash Drive
- Modbus Communications with TCP/IP frame format and a shielded female RJ45 connector
- NEMA Type 2 (IEC IP22) enclosure with bottom entry gland plate and lifting lugs
- Suitable for use as Service Equipment
- The controller supplies visual indication of the following: Power Available • Motor Run • Periodic Test • Manual Start • Deluge Valve Start • Remote Automatic Start • Remote Manual Start • Emergency Start • Pump On Demand (Automatic Start) • Pump Room Temp. • Lockout
- The controller displays visual indication for the following alarm conditions: Control Voltage Not Healthy • Invalid Cut-In • Lock Rotor Current • Loss of Power • Low Ambient Temp. • Low Water Level • Motor Trouble • Phase Reversal • Overcurrent • Overvoltage • Phase Loss L1 / L2 / L3 • Phase Unbalanced • Pressure Transducer Fault Detected • Pump On Demand • Pump Room Alarm • Service Required • Undercurrent • Undervoltage • Check Test Solenoid • Weekly Test Cut-In Reached
- Audible and Visible Indication for Fail To Start.
- DPDT 8A, 250VAC remote alarm contacts are provided for: Power Available • Phase Reversal • Motor Run • Common Pump Room Alarm (Overvoltage / Undervoltage / Phase Unbalance / Low Pump Room Temp. / High Pump Room Temp) • Common Motor Trouble (Overcurrent / Fail To Start / Undercurrent / Ground Fault)
- Field Adjustable Timers with Visual Countdown for Minimum Run (Off Delay), Sequential Start (On Delay) and Weekly Test
- Seismic Certification per IBC 2015, CBC 2016 (Consult Factory for Verification)

**Transfer Switch Standard Features** — The following are included as standard with each controller:

- Visual indication of the following: Alternate Power Lock Rotor Current • Alternate Power Phase Reversal • Automatic Transfer Switch Trouble
- Audible and Visible indication of: Alternate Power Circuit Breaker OFF or Tripped • Alternate Power Isolating Switch Tripped/Open
- Transfer Switch test push-button
- Bypass for re-transfer and generator shutdown
- The following adjustable time delays are provided: Momentary Normal Power Outage Override • Emergency Power Available Delay • Transfer Trouble Delay • Retransfer to Normal • Generator Cooldown
- Remote Alarm Contacts For: Emergency Isolating Switch Off • Transfer Switch in Normal Position • Transfer Switch in Emergency Position

FOR MODEL # INFORMATION SEE PUBLICATION SD1000-61
FOR OPTIONS AND MODIFICATIONS SEE PUBLICATION OP1000-72

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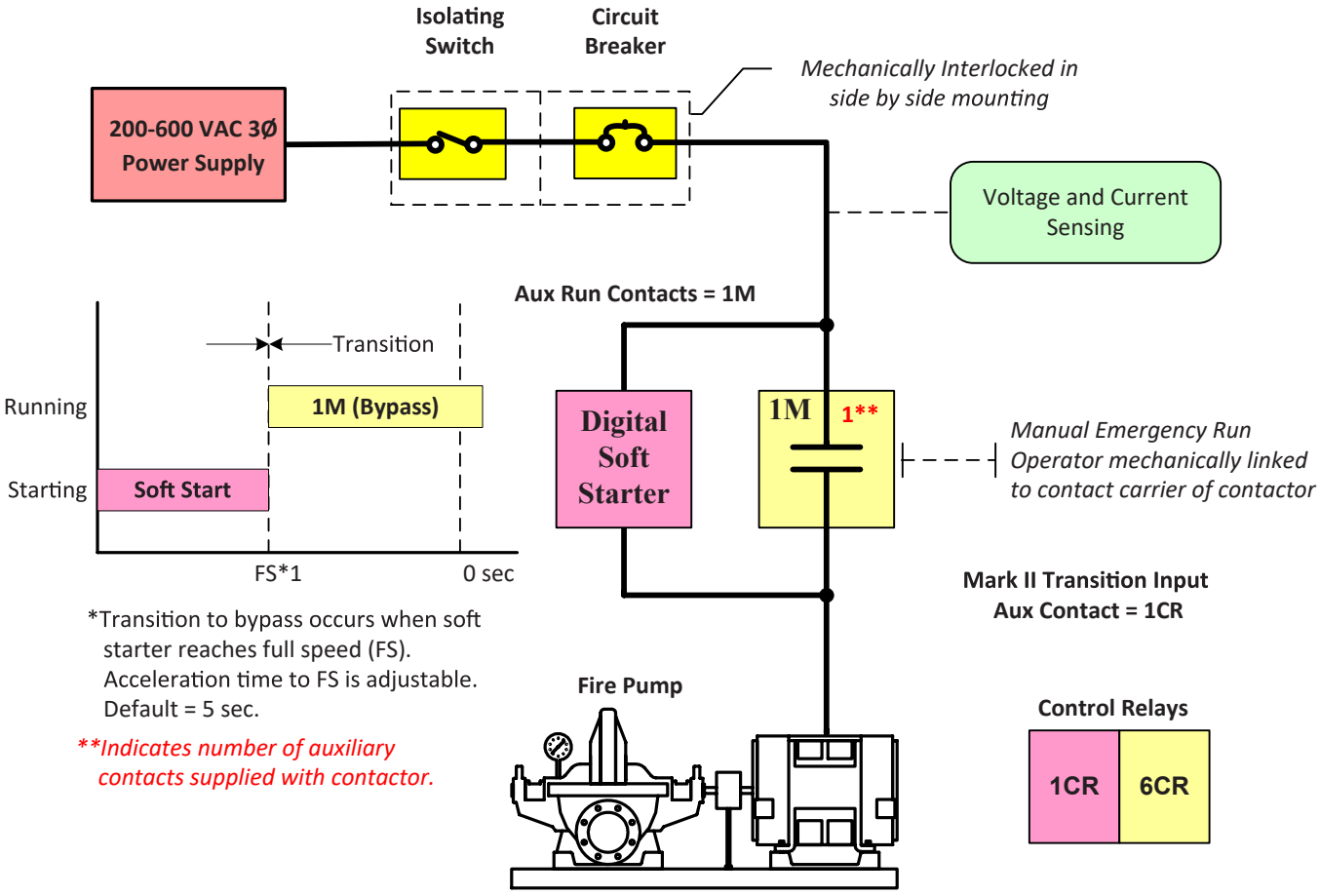
**Publication PD1930-61 Rev. B**

# General Starting Configuration

FTA1930

## MARK III Electric Fire Pump Controllers - Solid State Reduced Current Starting





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Publication GS1930-10(A)

# Model Number Selection Guide

# FTA1000 - FTA1930 with FTA950 (Opt. -TSA)

## MARK III Electric Fire Pump Controllers with Power Transfer Switch

## FTA1000, 1250, 1300, 1350, 1800, 1930 ELECTRIC FIRE PUMP CONTROLLERS

### Example: FTA1300-AM75HH-TSA-xx

**Starting Method**
- ☐ 1000 - Across-the-line (direct on line)
- ◯ 1250 - Part Winding (50%-50% windings)
- ◯ 1300 - Wye-delta (star-delta), open transition
- ◯ 1350 - Wye-delta (star-delta), closed transition
- ◯ 1800 - Autotransformer
- ◯ 1930 - Digital Solid-state soft start/stop

**Start/Stop Options**
- ■ A - Automatic/Manual start with manual stop only (default). Field configurable to automatic start with timed permissive stop after minimum run time and manual start with manual stop only.
- ◯ C - For Manual only operation of Foam Controllers (use option -LK3)

**Modifications**
See Publication OP1000-72

**Automatic Transfer Switch**

**Three Phase Voltage**
- ☐ A - 220-240 Volt, 60 Hertz (230 V)
- ◯ AZ - 220-230 Volt, 50 Hertz
- ◯ B - 440-480 Volt, 60 Hertz (460 V)
- ◯ BZ - 415 Volt, 50 Hertz
- ◯ C - 550-600 Volt, 60 Hertz (575 V)
- ◯ F - 380 Volt, 60 Hertz
- ◯ FZ - 380 Volt, 50 Hertz
- ◯ FF - 400 Volt, 60 Hertz
- ◯ FX - 400 Volt, 50 Hertz
- ◯ H - 208 Volt, 60 Hertz
- ◯ HH -200 Volt, 60 Hertz

| Code | 200-208V 5-150 HP | 220-240V 5-200 HP | 380-415V 5-350 HP | 440-480V 5-400 HP | 550-600V 5-500 HP |
|---|---|---|---|---|---|
| ■ M - Standard | 100kA | 100kA | 100kA | 100kA | N/A |
| ◯ N - Intermediate | 150kA | 150kA | 150kA | 150kA | N/A |
| ◯ P - High | 200kA | 200kA | 200kA | 200kA | N/A |
| ◯ Q - Intermediate | N/A | N/A | N/A | N/A | 100kA |
| ◯ R - Standard | N/A | N/A | N/A | N/A | 50kA |

| Code | 200-208V 200 HP | 220-240V 250-400 HP | 380-415V 400-500 HP | 440-480V 450-500 HP |
|---|---|---|---|---|
| ◯ M - Standard | 50A | 50kA | 50kA | 50kA |
| ◯ N - Intermediate | N/A | N/A | N/A | N/A |
| ◯ P - High | 100kA | 100kA | 100kA | 100kA |
| ◯ Q - Intermediate | N/A | N/A | N/A | N/A |
| ◯ R - Standard | N/A | N/A | N/A | N/A |

**Horsepower Rating**
- ☐ 03 - 3 HP
- ◯ 05 - 5 HP
- ◯ 07 - 7 1/2 HP
- ◯ 10 - 10 HP
- ◯ 15 - 15 HP
- ◯ 20 - 20 HP
- ◯ 25 - 25 HP
- ◯ 30 - 30 HP
- ◯ 40 - 40 HP
- ◯ 50 - 50 HP
- ◯ 60 - 60 HP
- ◯ 75 - 75 HP
- ◯ 100 - 100 HP
- ◯ 125 - 125 HP
- ◯ 150 - 150 HP
- ◯ 200 - 200 HP
- ◯ 250 - 250 HP
- ◯ 300 - 300 HP
- ◯ 350 - 350 HP
- ◯ 400 - 400 HP
- ◯ 450 - 450 HP
- ◯ 500 - 500 HP

For controller options and modifications see Publication OP10000-72.

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**Publication SD1000-61 Rev. B**

# MARK III Electric Fire Pump Controllers

## SPECIAL ENCLOSURES

| Option | Description |
|---|---|
| ■ --- | Enclosure, NEMA Type 2 (IEC IP22), Painted Steel (Standard) |
| ○ -E | Enclosure, NEMA Type 4 (IEC IP66), Painted Steel |
| ○ -F | Enclosure, NEMA Type 4X (IEC IP66), #304 Stainless Steel, Brushed Finish |
| ○ -FD | Enclosure, NEMA Type 4X (IEC IP66), #316 Stainless Steel, Brushed Finish |
| ○ -FDB | Enclosure, NEMA Type 4X (IEC IP66), #316 Stainless Steel, Seam Welded, Brushed Finish |
| ○ -FDP | Enclosure, NEMA Type 4X (IEC IP66), #316 Stainless Steel, Painted Finish |
| ○ -FXP | Enclosure, NEMA Type 4X (IEC IP66), #304 Stainless Steel, Painted Finish |
| ○ -G | Enclosure, NEMA Type 12 (IEC IP54), Painted Steel |
| ○ -T | Enclosure, NEMA Type 3R (IEC IP24), Painted Steel |
| ○ -U | Enclosure, NEMA Type 3 (IEC IP54), Painted Steel |

## CIRCUIT BREAKER OPTION

| Option | Description | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Standard Short Circuit Current Rating | | | | | | | | | |
| ■ -M<br>○ -R | 200-208V<br>5-150 HP<br>100kA (M) | 220-240V<br>5-200 HP<br>100kA (M) | 380-415V<br>5-350 HP<br>100kA (M) | 440-480V<br>5-400 HP<br>100kA (M) | 550-600V<br>5-500 HP<br>50kA (R) | 200-208V<br>200 HP<br>50kA (M) | 220-240V<br>250-400 HP<br>50kA (M) | 380-415V<br>400-500 HP<br>50kA (M) | 440-480V<br>450-500 HP<br>50kA (M) |
| Intermediate Short Circuit Current Rating | | | | | | | | | |
| ○ -N<br>○ -Q | 200-208V<br>5-150 HP<br>150kA (N) | 220-240V<br>5-200 HP<br>150kA (N) | 380-415V<br>5-350 HP<br>150kA (N) | 440-480V<br>5-400 HP<br>150kA (N) | 550-600V<br>5-500 HP<br>100kA (Q) | 200-208V<br>200 HP<br>N/A | 220-240V<br>250-400 HP<br>N/A | 380-415V<br>400-500 HP<br>N/A | 440-480V<br>450-500 HP<br>N/A |
| High Short Circuit Current Rating | | | | | | | | | |
| ○ -P | 200-208V<br>5-150 HP<br>200kA | 220-240V<br>5-200 HP<br>200kA | 380-415V<br>5-350 HP<br>200kA | 440-480V<br>5-400 HP<br>200kA | 550-600V<br>5-500 HP<br>NA | 200-208V<br>200 HP<br>100kA | 220-240V<br>250-400 HP<br>100kA | 380-415V<br>400-500 HP<br>100kA | 440-480V<br>450-500 HP<br>100kA |

## ANTI-CONDENSATION SPACE HEATERS

| Option | Description |
|---|---|
| ■ None | |
| ○ -J | Space Heater, 120V Externally Powered with Circuit Breaker & Thermostat |
| ○ -K | Space Heater, 120V Externally Powered with Circuit Breaker & Humidistat |
| ○ -M | Space Heater, 240V Externally Powered with Circuit Breaker & Thermostat |
| ○ -N | Space Heater, 240V Externally Powered with Circuit Breaker & Humidistat |
| ○ -JKP | Space Heater, 120V Externally Powered with Circuit Breaker, Thermostat and Humidistat in Parallel |
| ○ -MNP | Space Heater, 240V Externally Powered with Circuit Breaker, Thermostat and Humidistat in Parallel |

## PRESSURE TRANSDUCERS, SOLENOID VALVES, PLUMBING

| Option | Description |
|---|---|
| ■ --- | Wetted Parts including Pressure Sensor and Test Solenoid, 300 PSI (20.4 Bar) Fresh Water |
| ○ -B1 | Wetted Parts including Pressure Sensor and Test Solenoid, 500 PSI (34.5 Bar) Fresh Water (For Factory Calibration Purposes Only) |
| ○ -C1 | Wetted Parts including Pressure Sensor and Test Solenoid, 300 PSI (20.4 Bar), Sea Water |
| ○ -D1 | Wetted Parts including Pressure Sensor and Test Solenoid, 500 PSI (34.5 Bar), Sea Water |
| □ -SP1 | Low Suction Pressure Transducer, Fresh Water, 0-300 PSI (20.4 Bar) with Visible Indication and Output Contacts |
| ○ -SP2 | Low Suction Pressure Transducer, Sea Water, 0-300 PSI (20.4 Bar) with Visible Indication and Output Contact |

## FOAM PUMP APPLICATIONS

| Option | Description |
|---|---|
| Required For Foam | |
| ☐ -LR1 | Low Foam Level External Input, Visible Indications and Alarm Contacts, Additive with Provisions for Proof Pressure Switch Connection, With Lockout and Remote Alarm Indication For Interlock On (Locked Out) |
| Required For Foam | |
| ■ -LK1 | Foam Pump Application With Pressure Transducer and Run Test Solenoid Valve (Auto. Start) |
| ○ -LK2 | Foam Pump Application With Pressure Transducer and Run Test Solenoid Valve, Stainless Steel (Auto. Start) |
| ○ -LK3 | Foam Pump Application Without Pressure Transducer and Run Test Solenoid Valve (Manual Start) |
| Optional For Foam | |
| ☐ -DVC | Operation, Dump Valve Control |

## ALARMS

| Option | Description |
|---|---|
| ☐ -AC | Extra Alarm Output Contacts, Pump Operating (2 Form-C) |
| ☐ -AM | Alarm Output Contacts, Fail to Start |
| ☐ -AV | Alarm Output Contacts, Low Pump Room Temperature |
| ☐ -AW | Alarm Output Contacts, Reservoir Low |
| ☐ -AY1 | Configurable Low Suction Pressure, Visible/Output Contacts with External Digital Input |
| ☐ -BW1 | Extra Alarm Output Contacts, Phase Failure/Phase Reversal |
| ☐ -BY1 | Alarm Output Contacts, Overcurrent |
| ☐ -CTS1 | Configurable Low Suction Pressure, Visible/Output Contacts with Suction Pressure Transducer |
| ☐ -EH1 | Alarm Output Contacts, Main Relief Valve Open |
| ☐ -EK | Alarm Output Contacts, Flow Meter Open |
| ☐ -JR | Visible Indicator, Jockey Pump Operating |
| ☐ -JT | Alarm, Audible/Visible, Jockey Pump Trouble |
| ☐ -KH | Alarm Output Contacts, Common Alarm |
| ☐ -P1 | Alarm, Audible/Visible, Built-In 120V Supervisory System (Includes Visible Supervisory Voltage Normal Indication and Audible Pump Operating, Phase Failure and Phase Reversal Indication |
| ☐ -PE | Alarm Output Contacts, Low System Pressure (Pump on Demand) |
| ☐ -PT | Alarm, Audible/Visible, Built-In 240V Supervisory System (Includes Visible Supervisory Voltage Normal Indication and Audible Pump Operating, Phase Failure and Phase Reversal Indication |

## MISCELLANEOUS

| Option | Description |
|---|---|
| ☐ -ED2 | Normal Source Load Shedding with Adjustable Time Delay to Remove Non-Critical Loads Before Starting |
| ☐ -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) |
| ☐ -MZN | Neutral Lug, Service Entrance, Non-Insulated Bonded to Enclosure |
| ☐ -PK | Terminal Blocks, Extra Remote Start |
| ☐ -PY | Output Contacts, Motor Space Heater, Externally Powered |
| ☐ -S | Tropicalization |
| ☐ -USBX | Data Port, External USB |
| ☐ -ZPM1 | Data Port, RS-485 Modbus RTU |
| ☐ -Y55 | Controller Temperature Rating, 55°C (131°F) Ambient Temperature |
| ☐ -XCR | Export Packaging (Wooden Crating to Conform to IPPC Standards) |

## TRANSFER SWITCH ONLY OPTIONS

| Option | Description |
|---|---|
| ☐ -EC | Extra Contacts for Remote Indication, Transfer Switch Position |
| ☐ -ED1 | Alternate Source Load Shedding with Adjustable Time Delay to Remove Non-Critical Loads Before Starting |

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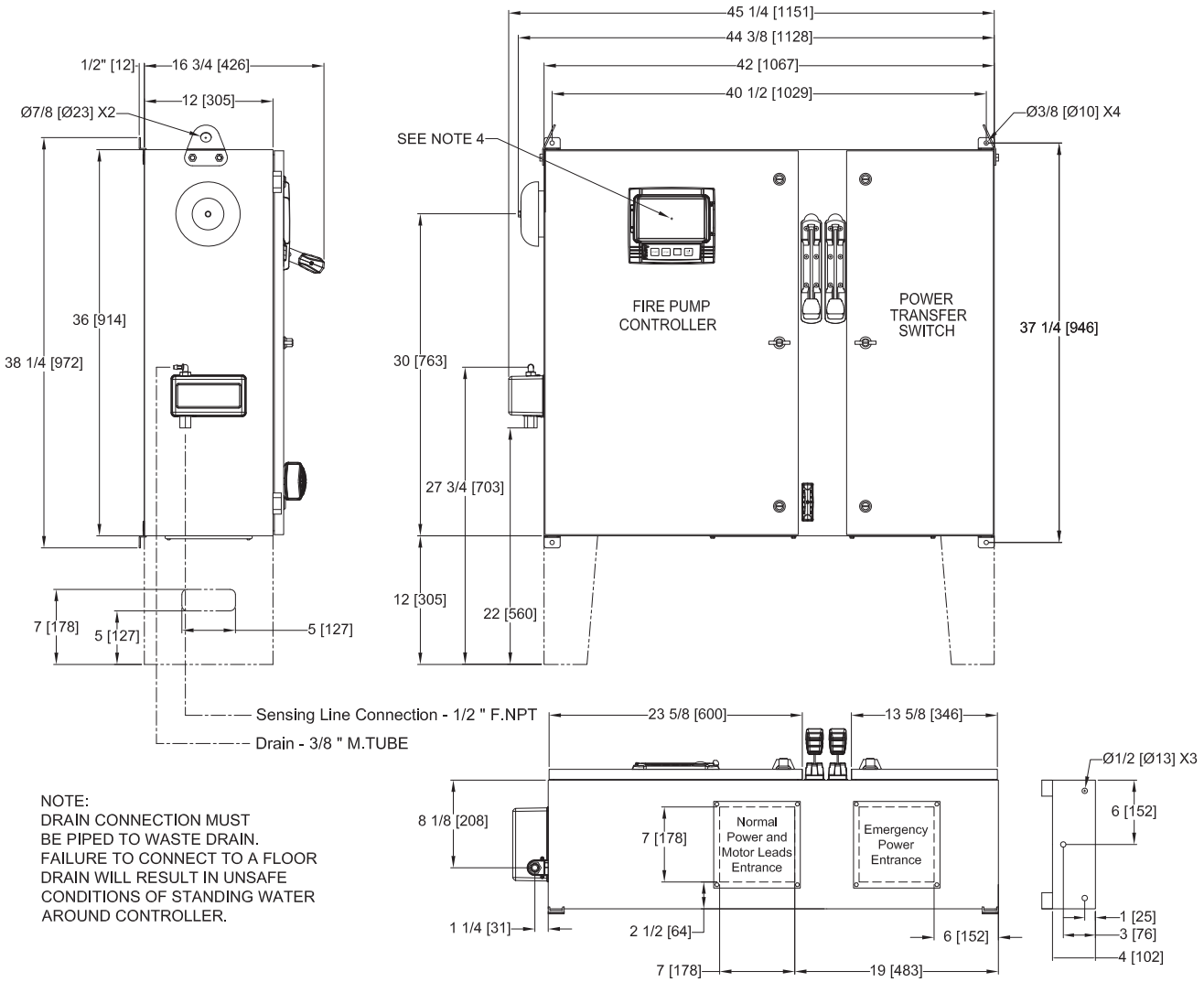
**Publication OP1000-72 Rev. F**

# Dimensions and Shipping Weight

FTA1930/950

## MARK III Electric Fire Pump Controllers - Solid State Reduced Current Starting With Power Transfer Switch




NOTE:
DRAIN CONNECTION MUST BE PIPED TO WASTE DRAIN. FAILURE TO CONNECT TO A FLOOR DRAIN WILL RESULT IN UNSAFE CONDITIONS OF STANDING WATER AROUND CONTROLLER.

| VOLTAGE/POWER TABLE | |
|---|---|
| LINE VOLTAGE | MOTOR HORSEPOWER |
| 208 | 5-30 |
| 220-240 | 5-30 |
| 380-400-415 | 5-60 |
| 440-480 | 5-60 |
| 600 | 5-75 |
| APPROX SHIPPING WT: 335 [152] | |

NOTES:
1. STANDARD: NEMA 2
2. STANDARD PAINT: TEXTURED RED RAL3002
3. ALL DIMENSIONS IN INCHES [MILLIMETERS] SHIPPING WEIGHT IN POUNDS [KG]
4. CENTER OF MARK III SCREEN: 29 5/8 [751] FROM BOTTOM OF ENCLOSURE (NO FEET)
5. BOTTOM CONDUIT ENTRANCE THROUGH REMOVABLE GLAND PLATE RECOMMENDED
6. USE WATERTIGHT CONDUIT AND CONNECTOR ONLY
7. PROTECT EQUIPMENT AGAINST DRILLING CHIPS
8. DOOR SWING EQUAL TO DOOR WIDTH
9. DRAWINGS FOR CONSTRUCTION PURPOSES MUST BE OBTAINED FROM FIRETROL OR THE LOCAL FIRETROL REPRESENTATIVE
10. SEISMIC MOUNTING TO BE RIGID WALL AND BASE ONLY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | RELEASED | | - | - | CIR | CIR | 11-5-19 |
| | SIZE A | BY | DATE | REVISION DESCRIPTION | | REV | ECN NO | BY | APP | DATE |
| THIRD ANGLE PROJECTION | DRAWN BY | CIR | 11-5-19 | DIMENSIONS AND SHIPPING WEIGT | FTA1930 WITH FTA950 | DRAWING NUMBER DD1930-80 | | | | CDL |
| | FINAL APPROVAL | CIR | 11-5-19 | DIGITAL SOLID STATE REDUCED CURRENT FIRE PUMP CONTROLLER AND POWER TRANSFER SWITCH | | DWG REV - | ECN NO - | | SHEET 1 OF 1 | |

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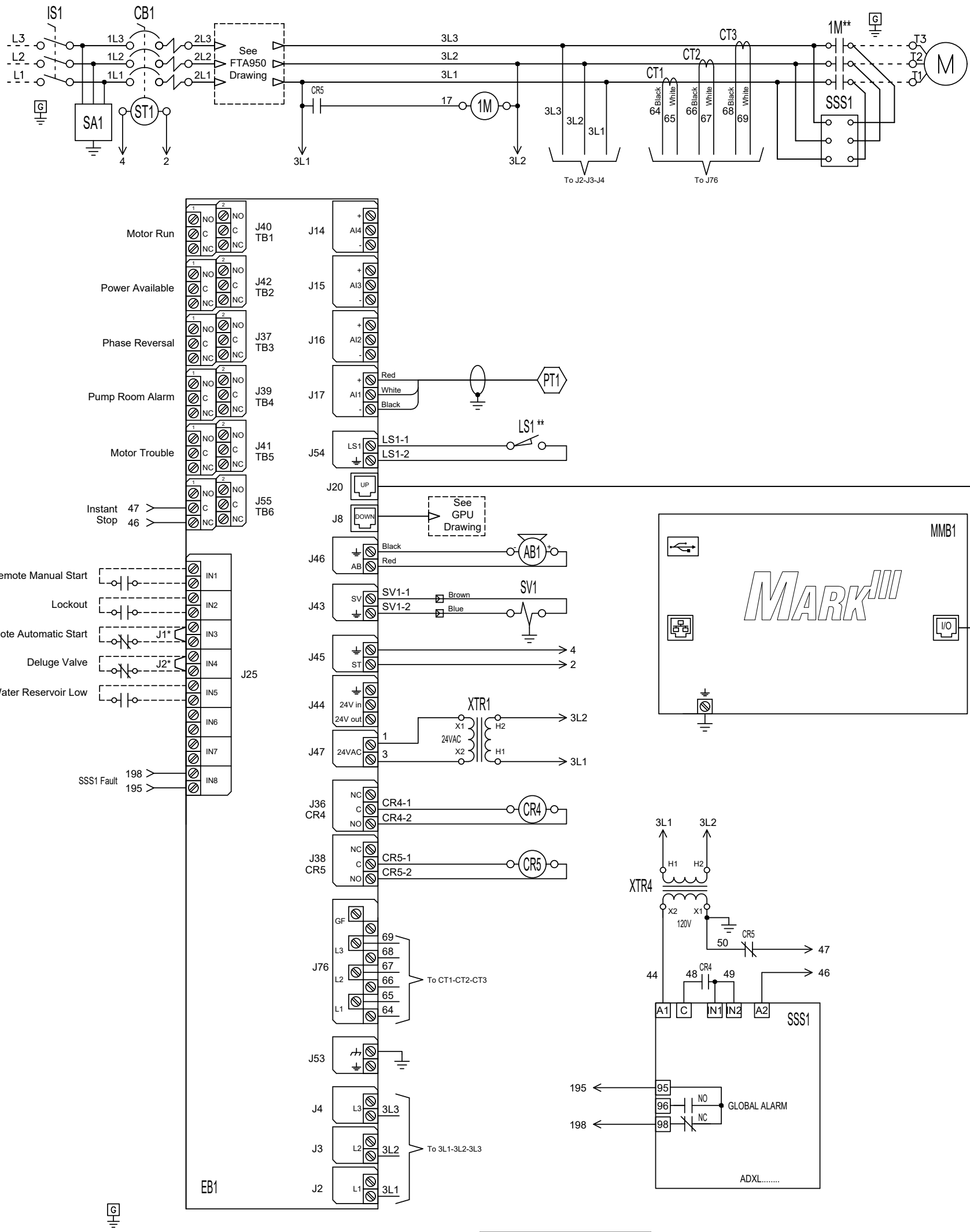
# MARK III Electric Fire Pump Controllers - Solid State Reduced Current Starting With Power Transfer Switch




* Remove jumper to use this feature
** Contact closes when emergency start is in "ON" position

| Legend | |
|---|---|
| 1M | Contactor |
| AB | Alarm Bell |
| CB | Circuit Breaker |
| CR | Control Relay |
| CT | Current Transformer |
| EB | Electric I/O Board |
| IS | Isolating Switch |
| J | Jumper |
| LS | Limit Switch |
| PT | Pressure Transducer |
| SA | Surge Arrester |
| SSS | Soft Starter |
| ST | Shunt Trip |
| SV | Solenoid Valve |
| MMB | Mark III Main Board |
| XTR | Transformer |

| VOLTAGE/POWER TABLE | |
|---|---|
| LINE VOLTAGE | MOTOR HORSEPOWER |
| 208 | 5-100 |
| 220-240 | 5-125 |
| 380-400-415 | 5-200 |
| 440-480 | 5-250 |
| 600 | 5-300 |

Drawing for information only.
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| REVISED TO AGREE W/CURRENT MFG | A | - | CIR | CIR | 2-10-21 |
|---|---|---|---|---|---|
| REVISION DESCRIPTION | REV | ECN NO | BY | APP | DATE |

THIRD ANGLE PROJECTION

| SIZE B | BY | DATE |
|---|---|---|
| DRAWN BY | JMW | 12-2-19 |
| FINAL APPROVAL | CIR | 12-2-19 |

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WIRING SCHEMATIC | FTA1930 W/FTA950

DIGITAL SOLID STATE REDUCED CURRENT FIRE PUMP CONTROLLER WITH POWER TRANSFER SWITCH

DRAWING NUMBER WS1930-80 CDL

DWG REV A | ECN NO - | SHEET 1 OF 1

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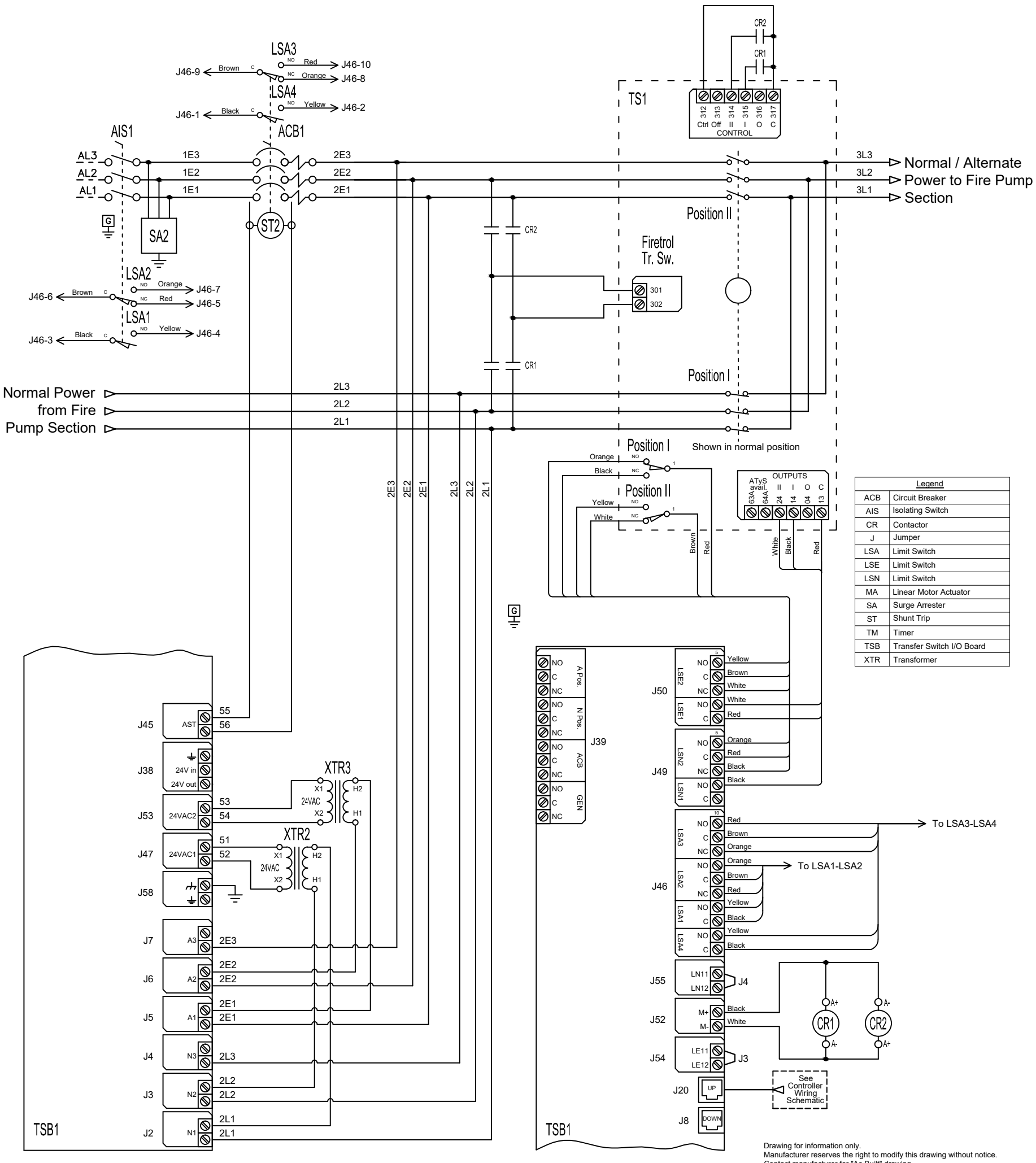
# Wiring Schematic
200-240V

Firetrol

FTA950

## Power Transfer Switch For Use With MARK III Electric Fire Pump Controllers




| Legend | |
|---|---|
| ACB | Circuit Breaker |
| AIS | Isolating Switch |
| CR | Contactor |
| J | Jumper |
| LSA | Limit Switch |
| LSE | Limit Switch |
| LSN | Limit Switch |
| MA | Linear Motor Actuator |
| SA | Surge Arrester |
| ST | Shunt Trip |
| TM | Timer |
| TSB | Transfer Switch I/O Board |
| XTR | Transformer |

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.

| VOLTAGE/POWER TABLE | |
|---|---|
| LINE VOLTAGE | MOTOR HORSEPOWER |
| 200-208 | 15-100 |
| 220-240 | 15-125 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| THIRD ANGLE PROJECTION | SIZE B | BY | DATE | Firetrol, Inc. | REVISION DESCRIPTION | | REV | ECN NO | BY / APP / DATE |
| | DRAWN BY | CIR | 12-9-19 | © Firetrol, Inc. Not for construction. Subject to change without notice. | WIRING SCHEMATIC | FTA950 | DRAWING NUMBER WS950-62 CDL | | |
| | FINAL APPROVAL | CIR | 12-9-19 | | FIRE PUMP TRANSFER SWITCH FOR GEN SET AND SECOND UTILITY POWER SOURCE FOR 200-240v | | DWG REV - | ECN NO - | SHEET 1 OF 1 |

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# Field Connections
## Alarm & Control Terminals

FTA1930

## MARK III Electric Fire Pump Controllers - Solid State Reduced Current Starting

### Control Terminals (EB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm

| | | | |
|---|---|---|---|
| Remote Manual Start | Close to start pump | IN1 | J25 |
| Lockout | Close to block start | IN2 | J25 |
| Remote Automatic Start | Open to start pump | J1* IN3 | J25 |
| Deluge Valve | Open to start pump | J2* IN4 | J25 |

### Alarm Inputs (EB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm

| | | | |
|---|---|---|---|
| Water Reservoir Low | Close to signal alarm | IN5 | J25 |

### Remote Alarm Terminals (EB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm

| | | |
|---|---|---|
| Motor Run | Normally open Closes to alarm / Normally closed Opens to alarm | J40 TB1 |
| Power Available | Normally open Closes to alarm / Normally closed Opens to alarm | J42 TB2 |
| Phase Reversal | Normally open Closes to alarm / Normally closed Opens to alarm | J37 TB3 |
| Pump Room Alarm ** | Normally open Closes to alarm / Normally closed Opens to alarm | J39 TB4 |
| Motor Trouble ** | Normally open Closes to alarm / Normally closed Opens to alarm | J41 TB5 |
| (Field Programmable ***) | Normally open Closes to alarm / Normally closed Opens to alarm | J55 TB6 |

### Network Connection (VMB1)

Shielded Female Connector RJ45

Modbus TCP/IP — I/O

* Remove jumper to use this feature
** Re-assignable
*** Not available on FTA1930 models

Drawing for information only.
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Contact manufacturer for "As Built" drawing.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | RELEASED | - | - | CIR | CIR | 11-11-19 |
| | SIZE A | BY | DATE | | REVISION DESCRIPTION | REV | ECN NO | BY | APP | DATE |
| THIRD ANGLE PROJECTION | DRAWN BY | CIR | 11-10-19 | Firetrol, Inc. | FIELD CONNECTIONS / FTA1930 | DRAWING NUMBER FC1930-60 CDL | | | | |
| | FINAL APPROVAL | CIR | 11-10-19 | © Firetrol, Inc. Not for construction. Subject to change without notice. | DIGITAL SOLID STATE REDUCED CURRENT FIRE PUMP CONTROLLER | DWG REV - | ECN NO - | | SHEET 1 OF 1 | |

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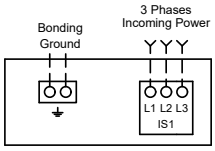
# Field Connections
## Line & Motor Wire Terminal Capacity

FTA1930

## MARK III Electric Fire Pump Controllers – Solid State Reduced Current Starting

### Line Terminals



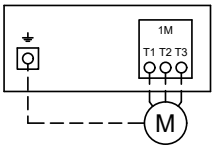

Notes:
1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
2 - Controller suitable for service entrance in USA.
3 - For more accurate motor connections refer to motor manufacturer or motor nameplate.
4 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.

**COPPER CONDUCTORS** for Isolating Switch (IS1).
Field Wiring According to Bending Space (AWG or MCM). Terminals L1 - L2 - L3

| Bending Space | 5 " (127 mm) | | | | | | | 8 " (203 mm) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HP / Voltage | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
| 208 | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) | 1x (2 to 1/0) | 1x (1/0 to 3/0) | 1x (3/0 to 250) | 1x (4/0 to 250) |
| 220 to 240 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) | 1x (1 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0 to 250) |
| 380 to 416 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) | 1x (3 to 1/0) |
| 440 to 480 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) |
| 600 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) |

| Bending Space | 12 " (305 mm) | | | | 16 " (406 mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HP / Voltage | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| 208 | 2x (1/0 to 500) | 2x (2/0 to 500) | 2x (4/0 to 500) | 2x (250 to 500) | 3x (4/0 to 500) | -------- | -------- | -------- | -------- | -------- | -------- |
| 220 to 240 | 1x (250) | 2x (2/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (350 to 500) | 3x (250 to 500) | -------- | -------- | -------- | -------- | -------- |
| 380 to 416 | 1x (1/0 to 3/0) | 1x (3/0 to 250) | 1x (250) | 2x (1/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (300 to 500) | 2x (400 to 500) | 3x (250 to 500) | 3x (300 to 500) | -------- |
| 440 to 480 | 1x (1 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0 to 250) | 1x (4/0 to 250) | 2x (1/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (300 to 500) | 2x (350 to 500) | 2x (400 to 500) | 3x (250 to 500) |
| 600 | 1x (3 to 1/0) | 1x (1 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0 to 250) | 1x (250) | 2x (2/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (250 to 500) | 2x (300 to 500) | 2x (350 to 500) |
| Bending Space | 5 " (127 mm) | 8 " (203 mm) | | | | 12 " (305 mm) | | | | | |

### Motor Terminals




**COPPER CONDUCTORS** for Motor Connection (1M).
Field Wiring According to Bending Space (AWG or MCM). Terminals T1 - T2 - T3

| HP / Voltage | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|
| 208 | 1x (10 to 2) | 1x (8 to 2) | 1x (8 to 2) | 1x (6 to 2) | 1x (4 to 2) | 1x (3 to 2/0) | 1x (2 to 2/0) | 1x (1/0 to 3/0) | 1x (3/0) | 1x (4/0 to 300) |
| 220 to 240 | 1x (10 to 2) | 1x (10 to 2) | 1x (8 to 2) | 1x (6 to 2) | 1x (4 to 2) | 1x (4 to 2/0) | 1x (3 to 2/0) | 1x (1/0 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0) |
| 380 to 416 | 1x (10 to 2) | 1x (10 to 2) | 1x (10 to 2) | 1x (8 to 2) | 1x (8 to 2) | 1x (6 to 2) | 1x (6 to 1/0) | 1x (4 to 2) | 1x (3 to 2/0) | 1x (1 to 2/0) |
| 440 to 480 | 1x (10 to 2) | 1x (10 to 2) | 1x (10 to 2) | 1x (10 to 2) | 1x (8 to 2) | 1x (8 to 2) | 1x (6 to 2) | 1x (6 to 2) | 1x (4 to 2/0) | 1x (3 to 2/0) |
| 600 | 1x (10 to 2) | 1x (10 to 2) | 1x (10 to 2) | 1x (10 to 2) | 1x (10 to 2) | 1x (8 to 2) | 1x (8 to 2) | 1x (6 to 2) | 1x (6 to 2) | 1x (4 to 2/0) |

| HP / Voltage | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 208 | 1x (300) | 2x (2/0 to 300) | 2x (4/0 to 300) | 2x (250 to 300) | 2x (400 to 600) | -------- | -------- | -------- | -------- | -------- | -------- |
| 220 to 240 | 1x (250 to 300) | 2x (2/0 to 300) | 2x (3/0 to 300) | 2x (4/0 to 300) | 2x (350 to 500) | 2x (500 to 600) | -------- | -------- | -------- | -------- | -------- |
| 380 to 416 | 1x (1/0 to 3/0) | 1x (3/0) | 1x (250 to 300) | 1x (300) | 2x (3/0 to 300) | 2x (4/0 to 300) | 2x (300) | 2x (400 to 500) | 2x (500 to 600) | 2x (600) | |
| 440 to 480 | 1x (1 to 1/0) | 1x (2/0 to 3/0) | 1x (3/0) | 1x (4/0 to 300) | 2x (1/0 to 300) | 2x (3/0 to 300) | 2x (4/0 to 300) | 2x (300) | 2x (350 to 500) | 2x (400 to 600) | 2x (500 to 600) |
| 600 | 1x (3 to 1/0) | 1x (1 to 1/0) | 1x (2/0 to 3/0) | 1x (3/0) | 1x (250 to 300) | 2x (2/0 to 300) | 2x (3/0 to 300) | 2x (4/0 to 300) | 2x (250 to 300) | 2x (300) | 2x (350 to 500) |

| REVISED TO AGREE W/CURRENT MFG | A | - | CIR | CIR | 2-10-21 |
|---|---|---|---|---|---|
| REVISION DESCRIPTION | REV | ECN NO | BY | APP | DATE |

| THIRD ANGLE PROJECTION | SIZE A | BY | DATE |
|---|---|---|---|
| | DRAWN BY | CIR | 11-10-19 |
| | FINAL APPROVAL | CIR | 11-10-19 |

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FIELD CONNECTIONS | FTA1930

DIGITAL SOLID STATE REDUCED CURRENT FIRE PUMP CONTROLLER
LINE AND MOTOR FIELD WIRE TERMINAL CAPACITY

DRAWING NUMBER FC1930-61 CDL

DWG REV A | ECN NO - | SHEET 1 OF 1

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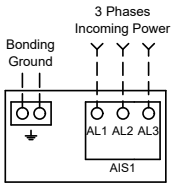
# Field Connections

FTA950

## Power Transfer Switch For Use With MARK III Electric Fire Pump Controllers

### Power Terminals




Notes:
1 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.

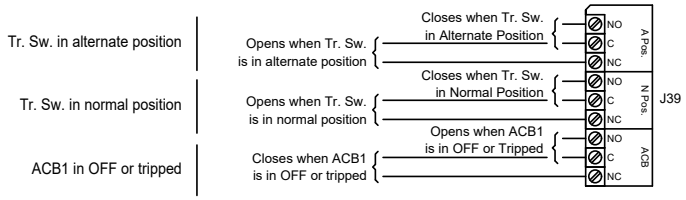
**COPPER CONDUCTORS** for Isolating Switch (AIS1).
Field Wiring According to Bending Space (AWG or MCM). Terminals AL1 - AL2 - AL3

| Bending Space | 5 " (127 mm) | | | | | | | 8 " (203 mm) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HP / Voltage | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
| 208 | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) | 1x (2 to 1/0) | 1x (1/0 to 3/0) | 1x (3/0 to 250) | 1x (4/0 to 250) |
| 220 to 240 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) | 1x (1 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0 to 250) |
| 380 to 416 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) | 1x (3 to 1/0) |
| 440 to 480 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) | 1x (3 to 1/0) |
| 600 | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (10 to 1/0) | 1x (8 to 1/0) | 1x (8 to 1/0) | 1x (6 to 1/0) | 1x (6 to 1/0) | 1x (4 to 1/0) |

| Bending Space | 12 " (305 mm) | | | | 16 " (406 mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HP / Voltage | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| 208 | 2x (1/0 to 500) | 2x (2/0 to 500) | 2x (4/0 to 500) | 2x (250 to 500) | 3x (4/0 to 500) | -------- | -------- | -------- | -------- | -------- | -------- |
| 220 to 240 | 1x (250) | 2x (2/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (350 to 500) | 3x (250 to 500) | -------- | -------- | -------- | -------- | -------- |
| 380 to 416 | 1x (1/0 to 3/0) | 1x (3/0 to 250) | 1x (250) | 2x (1/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (300 to 500) | 2x (400 to 500) | 3x (250 to 500) | 3x (300 to 500) | -------- |
| 440 to 480 | 1x (1 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0 to 250) | 1x (4/0 to 250) | 2x (1/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (300 to 500) | 2x (350 to 500) | 2x (400 to 500) | 3x (250 to 500) |
| 600 | 1x (3 to 1/0) | 1x (1 to 3/0) | 1x (2/0 to 3/0) | 1x (3/0 to 250) | 1x (250) | 2x (2/0 to 500) | 2x (3/0 to 500) | 2x (4/0 to 500) | 2x (250 to 500) | 2x (300 to 500) | 2x (350 to 500) |
| Bending Space | 5 " (127 mm) | 8 " (203 mm) | | | | 12 " (305 mm) | | | | | |

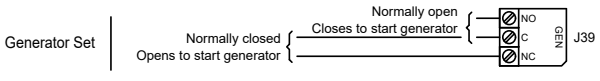
### Remote Alarm Terminals (TSB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm




### Control Terminals (TSB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm

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| REV | ECN NO | BY | APP | DATE |
|---|---|---|---|---|
| A | - | CIR | CIR | 1-14-21 |

REVISION DESCRIPTION: REVISED TO AGREE W/CURRENT MANUFACTURING

| | | | |
|---|---|---|---|
| THIRD ANGLE PROJECTION | SIZE A | BY | DATE |
| | DRAWN BY | CIR | 11-10-19 |
| | FINAL APPROVAL | CIR | 11-10-19 |

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FIELD CONNECTIONS | FTA950

POWER TRANSFER SWITCH FOR GENERATOR OR SECOND UTILITY POWER SOURCE

DRAWING NUMBER: FC950-65

DWG REV A | ECN NO - | SHEET 1 OF 1

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