

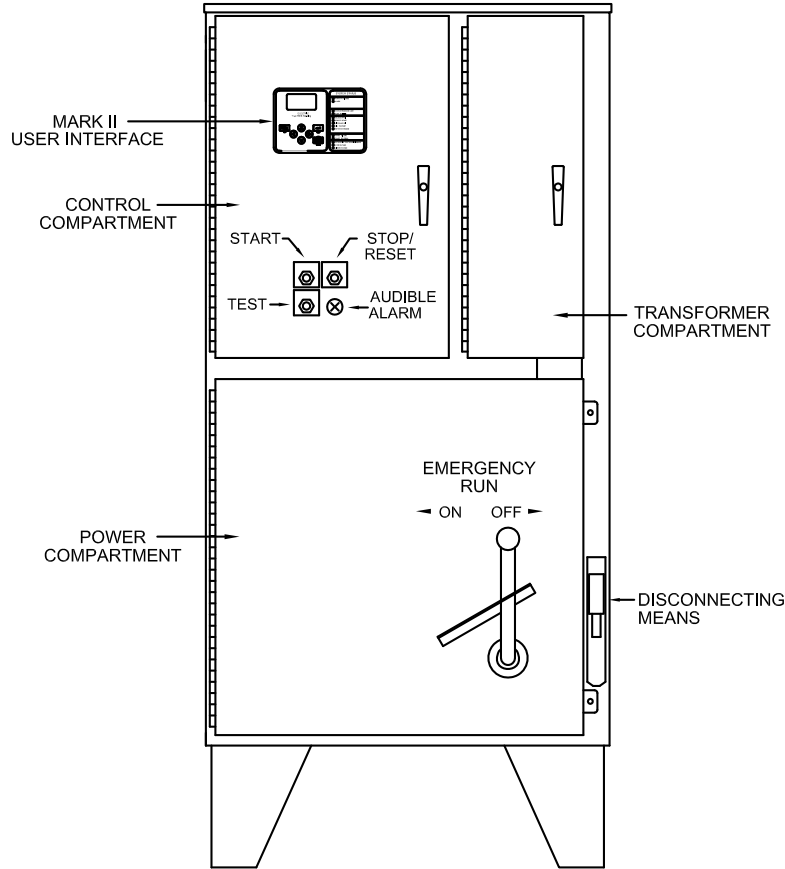


Mark II₆ Electric Fire Pump Controllers

Submittal Package

FTA2000

Medium Voltage Across The Line Starting



(DRAWINGS INCLUDED IN THIS PACKAGE ARE FOR STANDARD CONTROLLERS. ACTUAL "AS BUILT" DRAWINGS MAY DIFFER FROM THOSE SEEN HERE).

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Publication SBP2000 Rev. F

Firetrol Mark IIxG Electric Fire Pump Controller

FTA2000 – Medium Voltage Across The Line Starting 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)

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)

Short circuit protection shall be supplied by built-in current limiting fuses. The interrupting rating shall be no less than 200 MVA @ 2300 Volts, 350 MVA @ 4160 Volts and 570 MVA @ 7200 Volts. A compartment shall be available in the enclosure to house a spare set (3) of fuses per NFPA 20.

1.4 Isolation Switch

The controller shall be equipped with an isolating switch rated at 400 amps, 7200 volts and shall be operated by an external handle. The operator shall be mechanically interlocked with the medium voltage compartment door and with the contactor so that with the handle in the ON position, the mechanism shall inhibit opening or closing the isolating switch if the contactor is in the CLOSED position. This feature shall apply when the contactor is either electrically or mechanically operated. The mechanism shall also inhibit closing of the isolating switch with the medium voltage compartment door open. The position of the isolating/disconnect switch (open or closed) shall be easily determined by the position of the operating handle. The line terminals shall be shuttered to meet the requirements of NFPA 70.

1.5 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 128x64 Backlit LCD capa-

ble 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.

1.6 Ammeter/Voltmeter

The fire pump controller operator interface shall be capable of displaying true RMS digital motor voltage and current measurements for all three phases simultaneously. Displays requiring push-button and selector switches to toggle between phases or current and voltage shall not be accepted.

Voltage and current shall be measured by True RMS technology to provide the most accurate measurement for all sine waves, including non-sinusoidal waveforms. Average responding meters will not be accepted.

1.7 Digital Status/Alarm Messages

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

- Motor On
- Local Start / Off Delay Time
- Fail to Start
- Over Voltage
- Emergency Start
- Motor Overload
- Disk Near Full
- Sequential Start Time
- System Battery Low
- Locked Rotor Trip
- Motor Over 320%
- Disk Error
- Pressure Error
- Minimum Run Time
- Remote Start
- Under Voltage
- Over Frequency
- Drive Not Installed
- Printer 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.

1.8 LED Visual Indicators

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

- Power Available
- Remote Start
- Transfer Switch Emergency
- Phase Reversal
- Motor Overload
- Overvoltage
- Alarm
- Pump Running
- Transfer Switch Normal
- Interlock On
- Emerg. Iso. Switch Off
- Undervoltage
- System Pressure Low
- Deluge Open
- Phase Failure
- Fail To Start
- Automatic Shutdown Disabled

1.9 Data Logging

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

- Motor Calls/Starts
- Total Controller Pwr On Time
- Min/Max System Pressure
- Last Locked Rotor Trip
- Max Starting Currents
- Min/Max Voltage per Phase while idle (not running)
- Min/Max Voltage per Phase during Run
- Pump Total Run Time
- Pump Last Run Time
- Last Pump Start
- Last Phase Fail/Reversal
- Min/Max Frequency
- Max Run Currents
- Min Voltage per Phase during Start

2.0 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.

2.1 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.

2.2 Serial Communications

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

2.3 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.

2.4 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 unacceptable. Controller shall be clearly labeled as rated for installation in seismic areas and a Certificate of Conformance shall be provided with the controller.

NOTE: Not available on Model FTA1500 Controllers

2.5 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.

A nonadjustable restart delay timer shall be provided to allow the residual voltage of the motor to decay prior to restarting the motor. At least 2 seconds, but no more than 3 seconds, shall elapse between stopping and restarting the pump motor.

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.

The controller shall not start the fire pump motor under a single-phase condition. If the motor is already running when a phase loss occurs, the controller shall continue to run the motor, but still display a Phase Failure alarm.

The fire pump controller software shall be automatically upgraded through the USB port by simply inserting a flash disk with the new software. Fire pump controllers that require laptop computers, handheld equipment or specialized devices for software upgrades shall be prohibited.

2.6 Manufacturer

The controller shall be a Firetrol brand.

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Publication SP2000-50 Rev. F

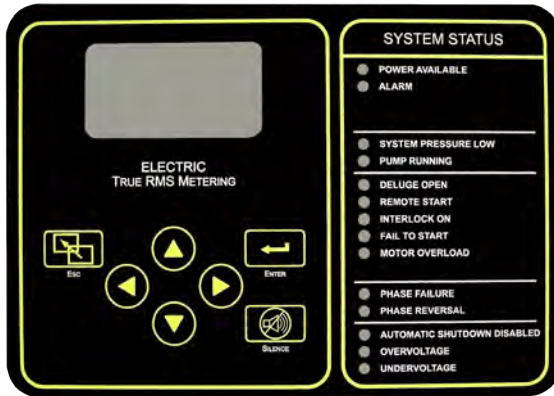


Product Description

FTA2000

Mark IIx6 Electric Fire Pump Controllers

Medium Voltage Across The Line Starting



Description—Firetrol® FTA2000 combined automatic and manual class E2 medium voltage controllers are intended for starting of squirrel cage motors driving listed fire pumps. Maximum ratings are as follows:

Max. HP	3-Phase Voltage
1500	2200 - 2500
2000	3200 - 3500
2500	4000 - 5000
3500	5000 - 7200

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*.

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

- Isolating Switch - NEMA Rating, 7200 Volts, 400 Amps with external operating handle with electrical and mechanical interlocks to prevent opening of the medium voltage compartment door with the isolating switch or the main contactor closed. Interlocks prevent opening the isolating switch with the main contactor closed.
- Vacuum Contactor - NEMA Rating, 7200 Volts, 400 Amps

- 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
- Normal-Off-Test Selector Switch - Internally mounted for functional test of control system only, requires that isolating switch be open and a separate 120 volt AC power source be supplied.
- 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:
 - POWER AVAILABLE
 - ALARM
 - SYSTEM PRESSURE LOW
 - PUMP RUNNING
 - DELUGE OPEN
 - REMOTE START
 - INTERLOCK ON
 - FAIL TO START
 - MOTOR OVERLOAD
 - PHASE FAILURE
 - PHASE REVERSAL
 - AUTOMATIC SHUTDOWN DISABLED
 - OVERVOLTAGE
 - UNDERVOLTAGE
- Minimum Run Timer / Off Delay Timer
- Daylight Savings Time Option
- Weekly Test Timer
- Elapsed Time Meter
- Digital Pressure Display
- USB Host Controller and Port
- Solid State Pressure Transducer
- Data Log
- Event Log (3000 Events)
- True RMS Metering with simultaneous 3 phase display of amps and volts
- Disk Error message
- Disk Near Full message
- Pressure Error message
- Motor Over 320% message
- Local Start message
- Remote Start message
- Emergency Start message
- Fail To Start message
- Undervoltage message
- Overvoltage message
- NEMA Type 2 enclosure (IEC IP22)
- Suitable for use as Service Equipment

Product Description – Options & Modifications

SPECIAL ENCLOSURES

- E Enclosure, NEMA Type 4 (IP66), 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 (IP66), #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

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

- 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) Fresh Water

ALARMS

- AC Alarm Output Contacts Extra, Pump Operating (1 Form A, 1 Form B)
- AF Alarm, Audible/Visible, Low Pump Room Temperature
- AG Alarm, Audible/Visible, Reservoir Low
- AH Alarm, Audible/Visible, Low Suction Pressure
- AM Alarm Output Contacts, Fail to Start
- AV Alarm Output Contacts, Low Pump Room Temperature (Requires option -AF)
- AW Alarm Output Contacts, Reservoir Low (Requires option -AG)
- AY Alarm Output Contacts, Low Suction Pressure (Requires option -AH)
- BW Alarm Output Contacts, Phase Failure/Phase Reversal

- BY Alarm Output Contacts, Pump Overload
- COM Alarm, Audible/Visible/Output Contacts, Low Suction Pressure with Manual Reset Option, Pressure Switch Not Included (Do Not Use Options AH or AY)
- CTS Alarm, Audible/Visible/Output Contacts, Low Suction Pressure Shutdown with Manual Reset Option and Pressure Switch (Do Not Use Options AH or AY)
- EG Alarm, Audible/Visible, Relief Valve Discharge
- EH Alarm Output Contacts, Relief Valve Discharge (Requires option -EG)
- EJ Alarm, Audible/Visible, Flow Meter On
- EK Alarm Output Contacts, Flow Meter On (Requires option -EJ)
- KH Alarm Output Contacts, Common Alarm
- JR Visible Indicator, Jockey Pump Operating
- JT Audible and Visible jockey pump trouble indication
- MZ Ground Bus (Earthing Bar)
- P 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)
- PK Terminal Blocks, Extra Remote Start
- 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

- AZ Thermostat, Low Pump Room Temperature, Mounted and Wired
- BAT Test Circuit, AC Input 240V Single Phase
- GZ Rating, 50 Hz
- IECI Marking, CE with Internal Wet Parts (Requires NEMA Type 12 (IP54) Enclosure as minimum)
- PY Output Contacts, Motor Space Heater Circuit, Externally Powered
- S Tropicalization
- SEI Marking, Seismic Certified (in accordance with IBC)
- USBX Data Port, External USB
- ZPA Scheduled Service Message (when factory programmed or programmed by Firetrol representative during start-up)
- ZPM Data Port, Serial Modbus RTU Over 2-Wire or 4-Wire RS485
- ZPN Data Port, Serial Modbus RTU Over Ethernet TCP/IP

*Weekly Test Timer – Standard

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Publication PD2000-50 Rev. K

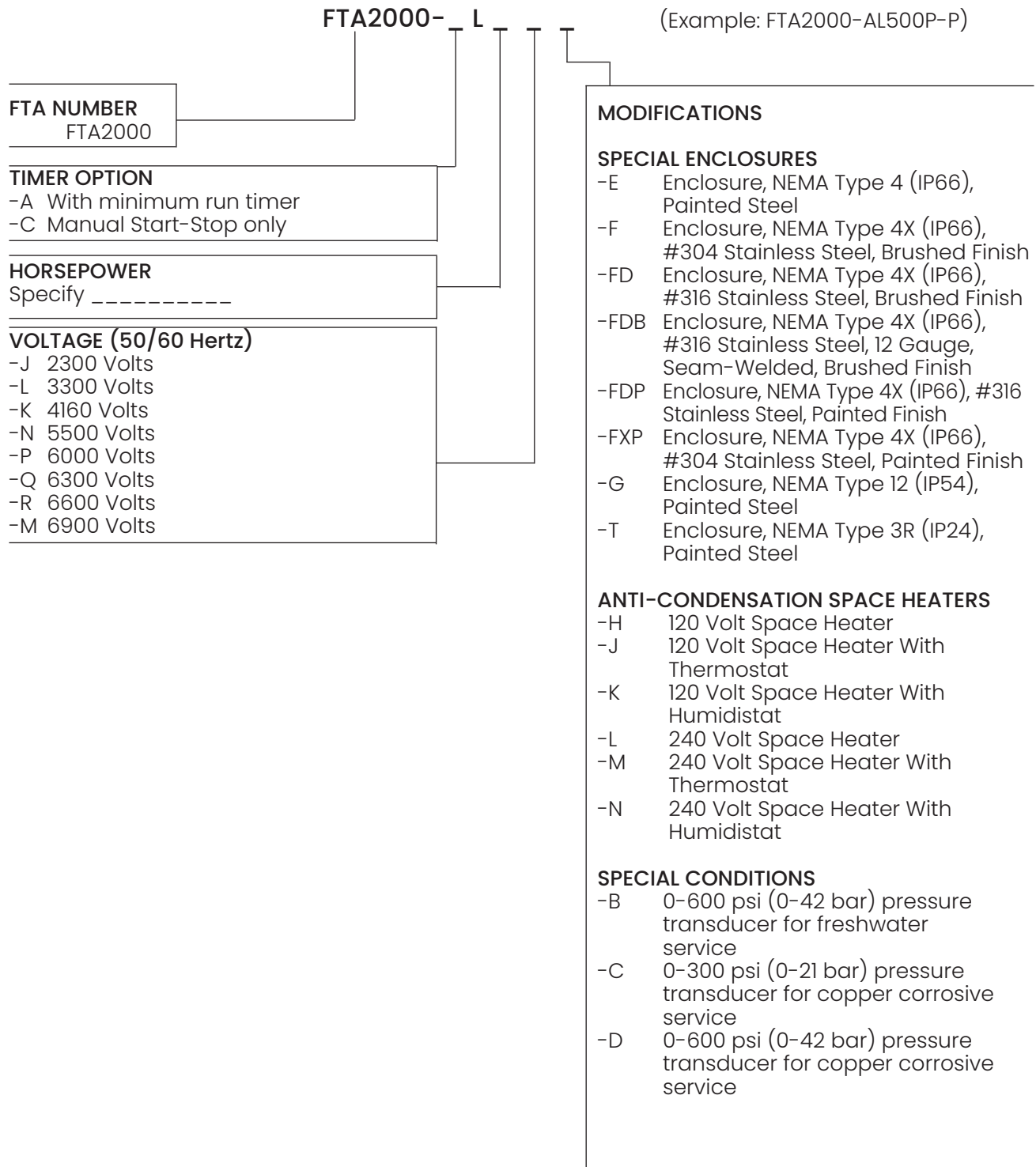


Model Number Selection Guide

FTA2000

Mark IIx6 Electric Fire Pump Controllers

Medium Voltage Across The Line Starting



Continued on other side

Model Number Selection Guide – Options & Modifications

ALARMS

- AC Extra contacts (normally open & normally closed) for remote indication, pump operating
- AF Audible and Visible low pump room temperature alarm
- AG Audible and Visible reservoir low alarm
- AH Audible and Visible low suction pressure alarm
- AM Contacts for remote indication, pump fail to start
- AV Contacts for remote indication, low pump room temperature (Requires option -AF)
- AW Contacts for remote indication, reservoir low (Requires option -AG)
- AY Contacts for remote indication, low suction pressure (Requires option -AH)
- AZ Low pump room temperature switch, mounted and wired
- BW Extra contacts for remote indication, phase failure/phase reversal
- BY Contacts for remote indication, pump overload
- COM Low suction pressure alarm, (Includes selectable auto/manual reset, audible, visible and remote alarms, initiating pressure switch not included)
- CTS Built in Low Suction Pressure Alarm Panel (Includes selectable auto/manual reset, audible, visible and remote alarms and mounted and wired pressure switch)
- EG Audible and Visible relief valve discharge alarm
- EH Contacts for remote indication, relief valve discharge (Requires option -EG)
- EJ Audible and Visible flow meter on alarm
- EK Contacts for remote indication, flow meter on (Requires option -EJ)
- KH Contacts for remote indication, common output for any alarm
- JR Visible jockey pump running indication
- JT Audible and Visible jockey pump trouble indication
- P Built-in alarm system (Includes visible supervisory voltage normal indication and audible pump operating, phase failure and phase reversal indication)
- PE Contacts for remote indication, low system pressure
- PT Built-in alarm system, 220 VAC supervisory power (Includes visible supervisory voltage normal indication and audible pump operating, phase failure and phase reversal indication)

MISCELLANEOUS

- BAT 220-240 Volt Test Circuit
- GZ 50 Hz Operation
- IECI CE Marking (Internal (enclosed) wet parts) (Requires NEMA Type 12 (IP54) Enclosure as a minimum)
- PY Motor space heater output contacts
- 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

*Weekly Test Timer – Standard

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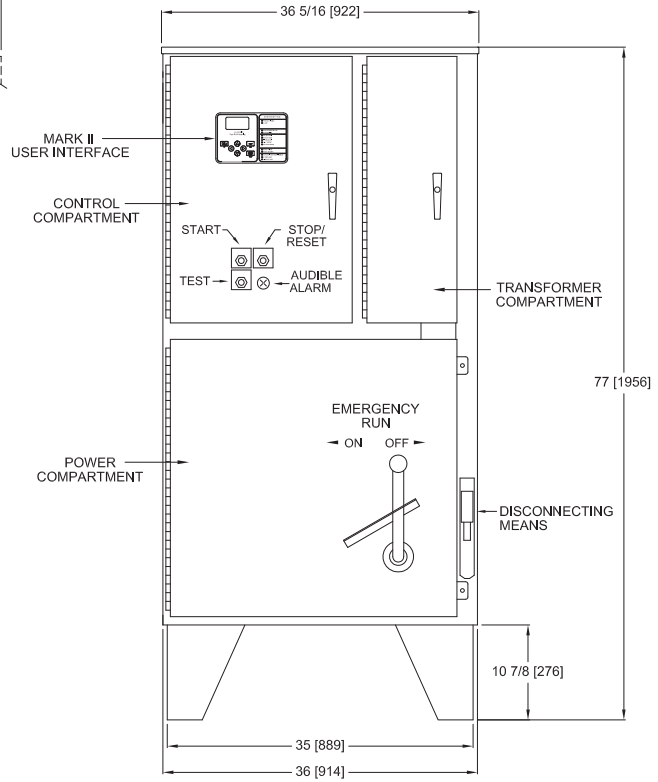
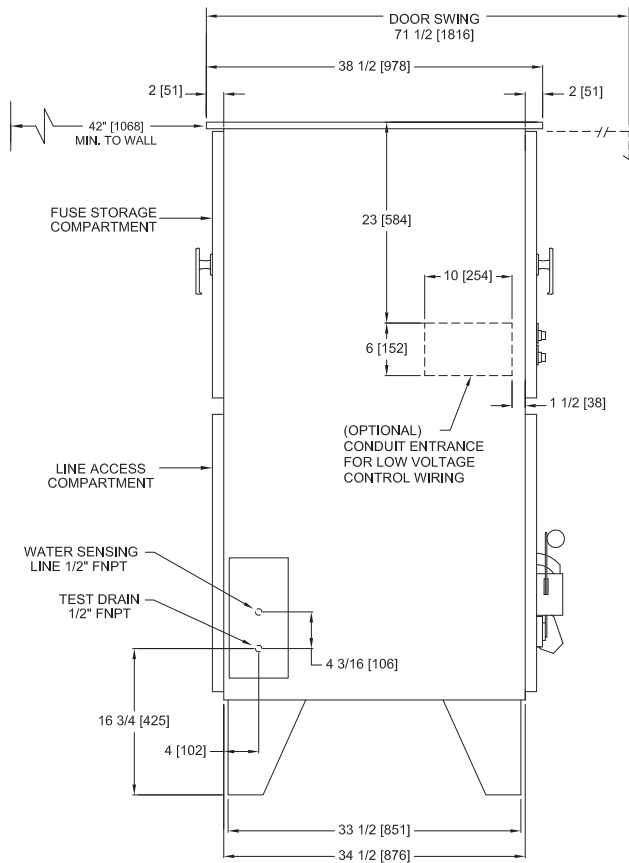
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Publication SD2000-50 Rev. K



Mark IIx6 Electric Fire Pump Controllers

Dimensions and Shipping Weight FTA2000 Medium Voltage Across The Line Starting



DO NOT INSTALL IN AMBIENT TEMPERATURES BELOW 41°F [5°C]

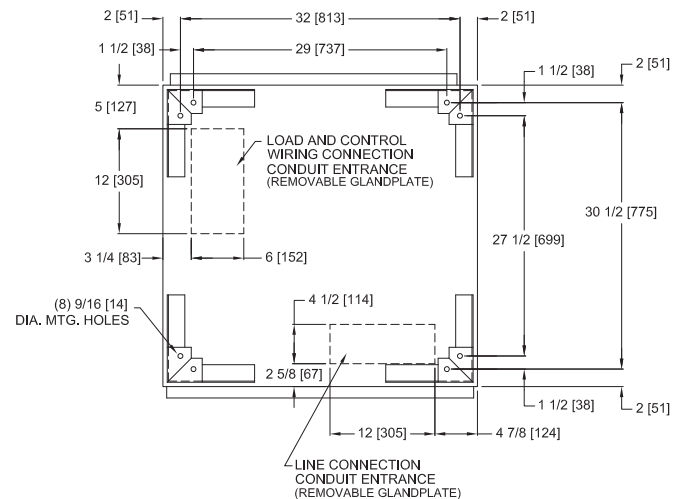
DIMENSIONS SHOWN ON THIS DRAWING ARE APPLICABLE FOR NEMA TYPES 2/3R/4/4X/12

ALL DIMENSIONS - INCHES [MM]
SHIPPING WEIGHT - POUNDS [KG]

APPROXIMATE SHIPPING WEIGHT
1000 [453]

CAUTION

CONTROLLER TEST DRAIN MUST BE PIPED TO A WASTE DRAIN. FAILURE TO CONNECT THE TEST DRAIN TO A FLOOR DRAIN WILL RESULT IN UNSAFE CONDITIONS OF WATER UNDER AND AROUND THE CONTROLLER.



THIRD ANGLE PROJECTION	SIZE	A	BY	DATE
	DRAWN BY	TEF	05-07-03	
	FINAL APPROVAL	TEF	05-07-03	



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UPDATED TITLE BLOCK		D	281356	JMW	TEF	10-14-19
REVISED WATER SENSING AND TEST DRAIN NOTES		C	249452	JMW	TEF	07-10-14
REVISION DESCRIPTION		REV	ECN NO	BY	APP	DATE
DIMENSIONS AND SHIPPING WEIGHT		FTA2000		DRAWING NUMBER		
5/7.2KV CLASS ELECTRIC FIRE PUMP CONTROLLER				DD2000-20		
DWG REV	D	ECN NO	281356	SHEET 1 OF 1		

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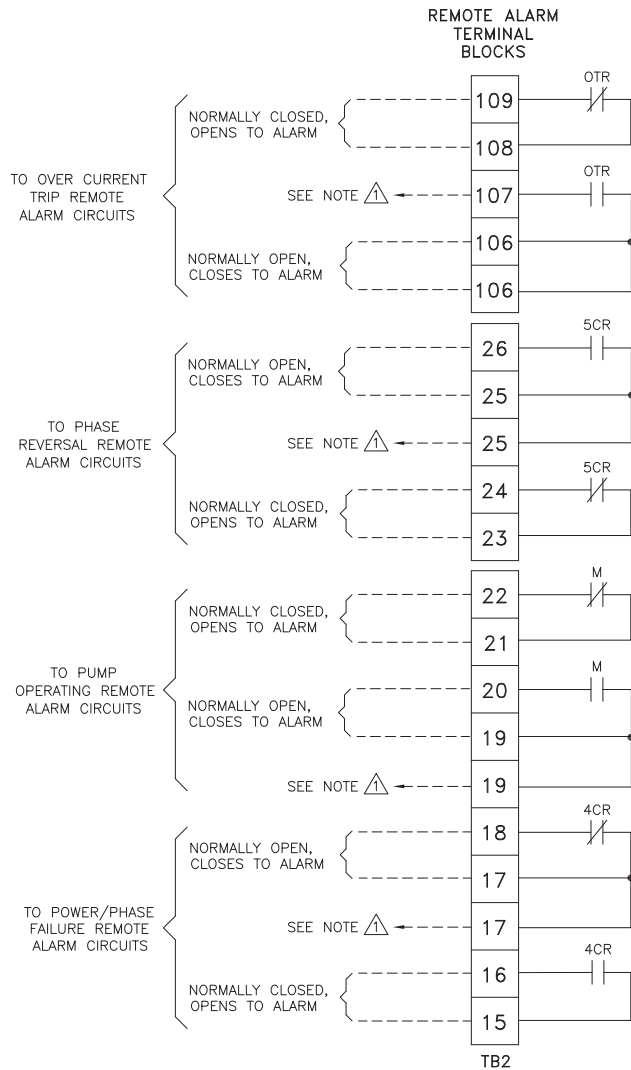


Mark IIx6 Electric Fire Pump Controllers

Field Connections

FTA2000

Medium Voltage Across The Line Starting



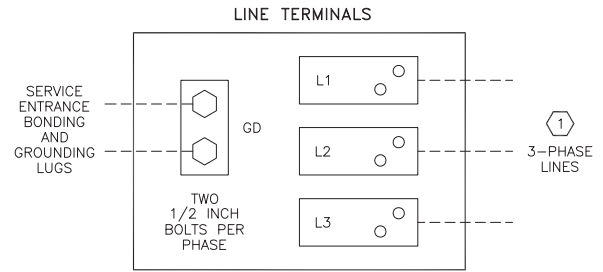
△ SPARE TERMINALS PROVIDED FOR PARALLEL CONNECTION OF REMOTE ALARMS (IF REQUIRED)

NOTE: TERMINALS FOR CUSTOMER CONNECTIONS REQUIRE 3.5MM SLOTTED SCREW DRIVER

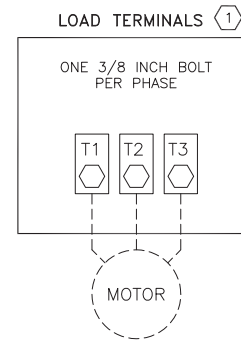
TERMINAL TIGHTENING TORQUE		
TERMINAL TYPE	WIRE SIZE	TIGHTENING TORQUE
CONTROL AND ALARM TERMINALS	#14-12 AWG [2.5-4 MM ²]	5.6 lb-in [0.6 Nm]

-USE COPPER CONDUCTORS ONLY-

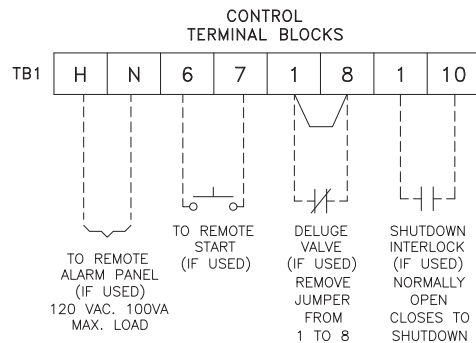
-NOTE-
ALARM CONTACT RATING PILOT DUTY
250 VAC, 30 VDC
10 A. MAX. LOAD



① FOR PROPER WIRE SIZING, REFER TO THE NATIONAL ELECTRICAL CODE, NFPA 70.
-USE COPPER CONDUCTORS ONLY-



- NOTES**
- Incoming line terminals are provided to accommodate wire sizes at 125% of motor full load current per NFPA 70-2008, National Electrical Code, Table 430-250, Section 695.6(c), and Table 310-73, 75° rated Copper conductors.
 - Controller is phase rotation sensitive. Incoming lines L1, L2 and L3 must be in ABC, left hand rotation sequence for proper operation of the phase monitor.
 - Motor connections shown are typical. Since motor connections vary widely, refer to the motor connection diagram for specific wiring arrangement.



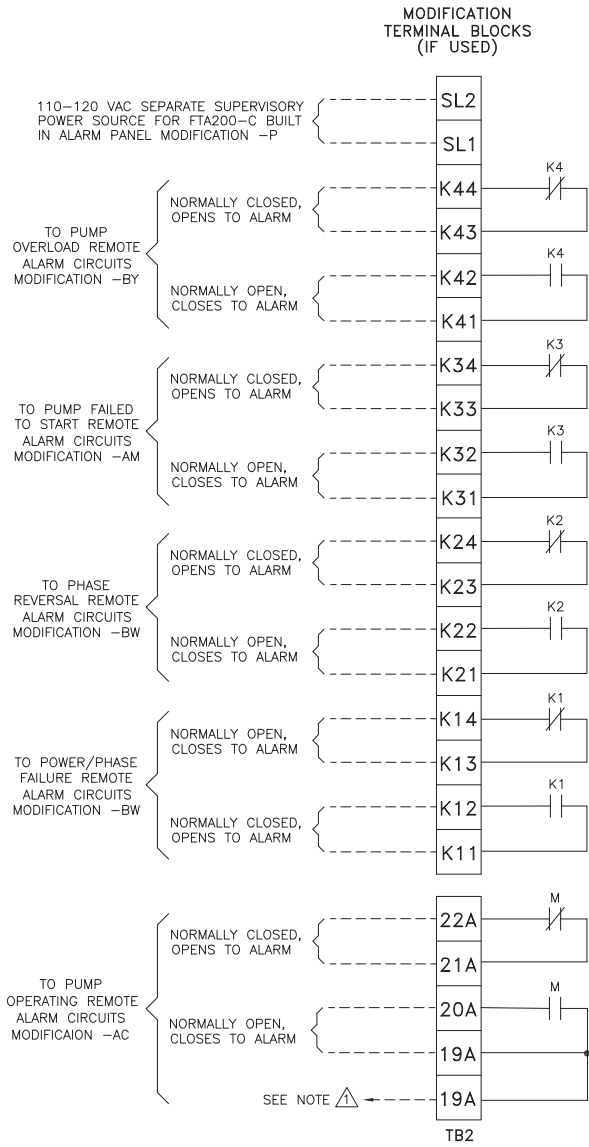
PRESSURE SYSTEM CONNECTION
1/2" FNPT

THIRD ANGLE PROJECTION	SIZE	A	BY	DATE
	DRAWN BY	TEF	05-07-03	
	FINAL APPROVAL	TEF	05-07-03	

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REVISED TITLE BLOCK, ADDED NOTE FOR COPPER CONDUCTORE ONLY		A	226169	TEF	TEF	02-09-10
REVISION DESCRIPTION		REV	ECN NO	BY	APP	DATE
FIELD CONNECTIONS		FTA2000		DRAWING NUMBER		
MEDIUM VOLTAGE ELECTRIC FIRE PUMP CONTROLLER 5/7.2KV CLASS		FC2000-20				
DWG REV	B	ECN NO	281356	SHEET 1 OF 2		

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SPARE TERMINALS PROVIDED FOR PARALLEL CONNECTION OF REMOTE ALARMS (IF REQUIRED)

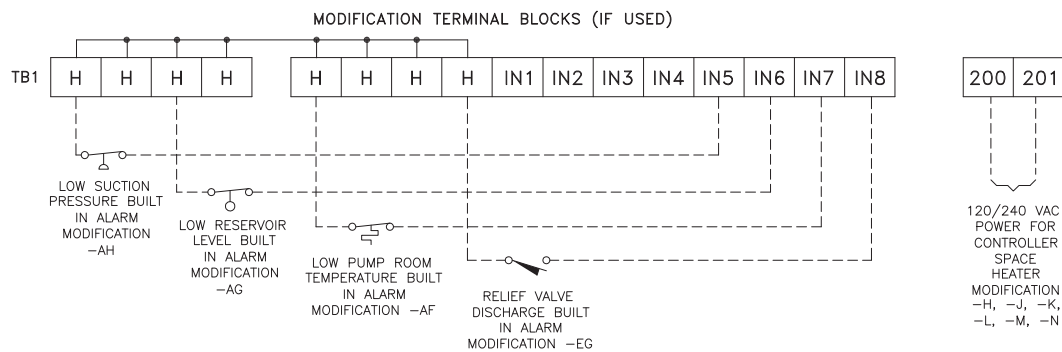
NOTE: TERMINALS FOR CUSTOMER CONNECTIONS REQUIRE 3.5MM SLOTTED SCREW DRIVER

TERMINAL TIGHTENING TORQUE		
TERMINAL TYPE	WIRE SIZE	TIGHTENING TORQUE
CONTROL AND ALARM TERMINALS	#14-12 AWG [2.5-4 MM ²]	5.6 lb-in [.6 Nm]

-USE COPPER CONDUCTORS ONLY-

-NOTE-
ALARM CONTACT RATING PILOT DUTY
250 VAC, 30 VDC
10 A. MAX. LOAD

NOTE:
TERMINAL NUMBERS SUBJECT TO CHANGE WITHOUT NOTICE FOR REFERENCE ONLY. REQUEST CONSTRUCTION DRAWINGS FROM FIRETROL OR YOUR LOCAL FIRETROL REPRESENTATIVE.



	SIZE A	BY	DATE
	DRAWN BY	TEF	05-07-03
	FINAL APPROVAL		

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UPDATED TITLE BLOCK		B	281356	JMW	TEF	10-14-19
REVISED TITLE BLOCK, ADDED NOTE FOR COPPER CONDUCTORS ONLY		A	226169	TEF	TEF	02-09-10
REVISION DESCRIPTION		REV	ECN NO	BY	APP	DATE
FIELD CONNECTIONS		FTA2000		DRAWING NUMBER		
MEDIUM VOLTAGE ELECTRIC FIRE PUMP CONTROLLER 5/7.2KV CLASS		FC2000-20				
DWG REV	B	ECN NO	281356	SHEET 2 OF 2		

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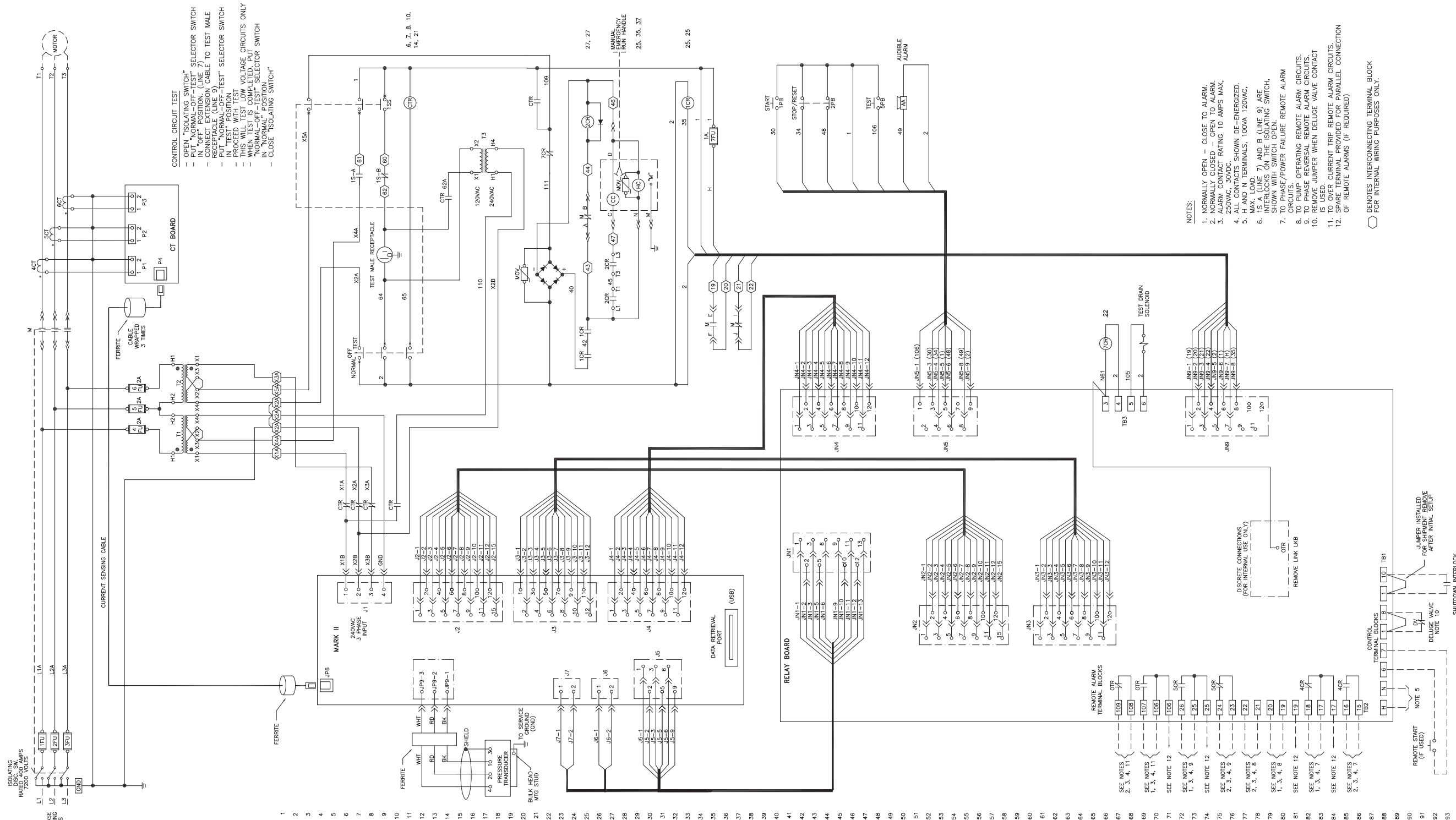


Mark IIx6 Electric Fire Pump Controllers

Wiring Schematic

FTA2000

Medium Voltage Across The Line Starting



- CONTROL CIRCUIT TEST**
- OPEN "ISOLATING SWITCH" SELECTOR SWITCH
 - PUT "NORMAL-OFF-TEST" SELECTOR SWITCH TO TEST MALE RECEPTACLE (LINE 9)
 - CONNECT EXTENSION CABLE TO TEST MALE RECEPTACLE (LINE 9)
 - PUT "NORMAL-OFF-TEST" SELECTOR SWITCH TO TEST MALE RECEPTACLE
 - PROCEED WITH TEST
 - THIS WILL TEST LOW VOLTAGE CIRCUITS ONLY
 - WHEN TEST IS COMPLETED, PUT "NORMAL-OFF-TEST" SELECTOR SWITCH IN "NORMAL" POSITION
 - CLOSE "ISOLATING SWITCH"

- NOTES:**
1. NORMALLY OPEN - CLOSE TO ALARM.
 2. NORMALLY CLOSED - OPEN TO ALARM.
 3. ALARM CONTACT RATING TO AMPS MAX.
 4. ALARM CONTACT RATING TO VOLTS MAX.
 5. H AND N TERMINALS, 100VA 120VAC, MAX. LOAD.
 6. 15 A (LINE 7) AND B (LINE 9) ARE INTERLOCKS ON THE ISOLATING SWITCH.
 7. TO PHASE/POWER FAILURE REMOTE ALARM CIRCUITS.
 8. TO PUMP OPERATING REMOTE ALARM CIRCUITS.
 9. TO PHASE REVERSAL REMOTE ALARM CIRCUITS.
 10. REMOVE JUMPER WHEN DELUGE VALVE CONTACT IS USED.
 11. CURRENT TRIP REMOTE ALARM CIRCUITS.
 12. SPARE TERMINAL PROVIDED FOR PARALLEL CONNECTION OF REMOTE ALARMS (IF REQUIRED)

○ DENOTES INTERCONNECTING TERMINAL BLOCK FOR INTERNAL WIRING PURPOSES ONLY.

THIRD ANGLE PROJECTION	SIZE	B	BY	DATE
	DRAWN BY	TEF	05-06-03	
	FINAL APPROVAL	TEF	05-06-03	

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UPDATED TITLE BLOCK		D	281356	JMW	TEF	10-14-19
ADDED AUDIBLE ALARM, TEST PUSHBUTTON, AND TEST DRAIN SOLENOID		C	229903	GFD	TEF	12-03-10
REVISION DESCRIPTION		REV	ECN NO	BY	APP	DATE
WIRING SCHEMATIC		FTA2000		DRAWING NUMBER		
5/7.2KV CLASS ELECTRIC FIRE PUMP CONTROLLER				WS2000-20		
DWG REV	D	ECN NO	281356	SHEET 1 OF 1		

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