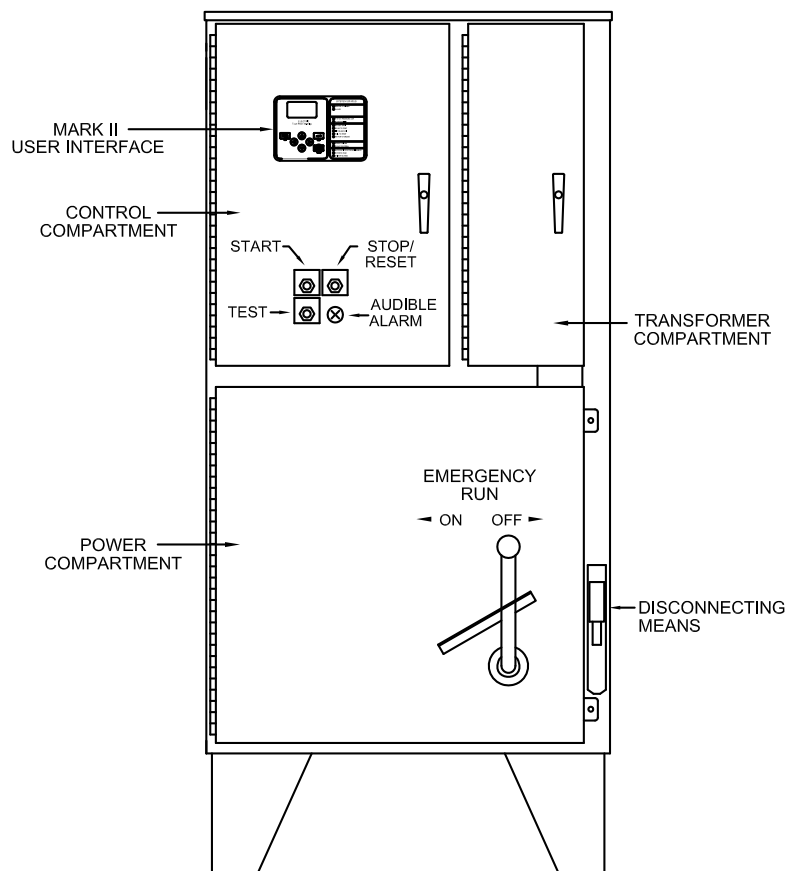


FTA2000-AL600R-AC-B-E-GZ-N-S



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

FTA2000

# Firetrol Mark IIxG Electric Fire Pump Controller

## FTA2000 - Medium Voltage 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 digital solid state (soft) 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 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.

## 1.6 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
- Last Locked Rotor Current
- Max Run Currents
- Pump Last Run Time
- Last Pump Start
- Last Phase Fail/Reversal
- Min/Max Frequency
- 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)  $\pm 1$  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 2006 International Building Code and the 2010 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.

**ASCO** Power  
Technologies®

111 Corning Road  
Suite 120  
Cary, North Carolina 27518  
P +1 919 460 5200  
F +1 919 460 5250  
[www.firetrol.com](http://www.firetrol.com)

While every precaution has been taken to ensure accuracy and completeness herein, ASCO Power Technologies assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications and drawings are subject to change without notice. The ASCO, ASCO Power Services, and ASCO Power Technologies marks are owned by Emerson Electric Co. or its affiliates and utilized herein under license. ©2017. Printed in USA.

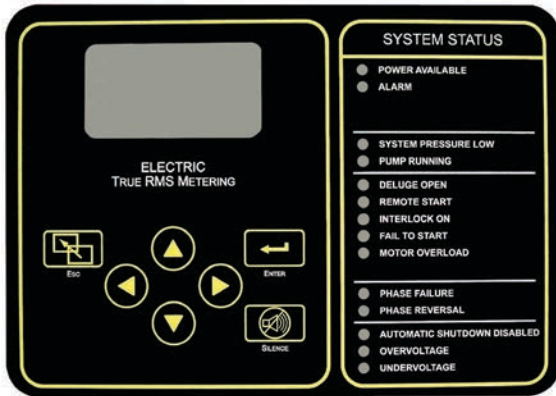
# Firetrol®

## Mark IIxG Electric Fire Pump Controller

# FTA2000

## Medium Voltage Starting

Product Description



**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

- T NEMA Type 3R (IEC IP22), Painted Steel
- E NEMA Type 4 (IEC IP66), Painted Steel
- F NEMA Type 4X (IEC IP66), #304 Stainless Steel, Unfinished\*\*
- FXP NEMA Type 4X (IEC IP66), #304 Stainless Steel, Painted Finish
- FD NEMA Type 4X (IEC IP66), #316 Stainless Steel, Unfinished\*\*
- FDB NEMA Type 4X (IEC IP66), 12 Gauge, Seam Welded, #316 Stainless Steel, Polished and Brushed Finish
- FDP NEMA Type 4X (IEC IP66), #316 Stainless Steel Painted Finish
- G NEMA Type 12 (IEC IP54), Painted Steel
- \*\* Unfinished (Not painted, polished or brushed).

### ANTI-CONDENSATION SPACE HEATERS

- H 120 Volt Space Heater
- J 120 Volt Space Heater With Thermostat
- K 120 Volt Space Heater With Humidistat
- L 240 Volt Space Heater
- M 240 Volt Space Heater With Thermostat
- N 240 Volt Space Heater With Humidistat

### PRESSURE TRANSDUCERS

- B 0-600 psi (0-42.25 bar) Pressure Transducer for Fresh Water Service
- C 0-300 psi (0-21.1 bar) Pressure Transducer for Copper Corrosive Service
- D 0-600 psi (0-42.25 bar) Pressure Transducer for Copper Corrosive Service

### 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)
- 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

**ASCO** Power Technologies®

111 Corning Road  
Suite 120  
Cary, North Carolina 27518  
P +1 919 460 5200  
F +1 919 460 5250  
www.firetrol.com

While every precaution has been taken to ensure accuracy and completeness herein, ASCO Power Technologies assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications and drawings are subject to change without notice. The ASCO, ASCO Power Services, and ASCO Power Technologies marks are owned by Emerson Electric Co. or its affiliates and utilized herein under license. ©2017. Printed in USA.

Publication PD2000-50 Rev. G

FTA2000- L (Example: FTA2000-AL500P-P)

**FTA NUMBER**

FTA2000

**TIMER OPTION**

-A With minimum run timer

-C Manual Start-Stop only

**HORSEPOWER**

Specify 600

**VOLTAGE (50/60 Hertz)**

-J 2300 Volts

-L 3300 Volts

-K 4160 Volts

-N 5500 Volts

-P 6000 Volts

-Q 6300 Volts

-R 6600 Volts

-M 6900 Volts

**MODIFICATIONS**

*SPECIAL ENCLOSURES*

- T NEMA Type 3R (IEC IP22), Painted Steel
  - E NEMA Type 4 (IEC IP66), Painted Steel
  - F NEMA Type 4X (IEC IP66), #304 Stainless Steel, Natural Finish\*\*
  - FXP NEMA Type 4X (IEC IP66), #304 Stainless Steel, Painted Finish
  - FD NEMA Type 4X (IEC IP66), #316 Stainless Steel, Natural Finish\*\*
  - FDB NEMA Type 4X (IEC IP66), 12 Gauge, Seam Welded, #316 Stainless Steel, Polished and Brushed Finish
  - FDP NEMA Type 4X (IEC IP66), #316 Stainless Steel Painted Finish
  - G NEMA Type 12 (IEC IP54), Painted Steel
- \*\* Natural Finish (Not painted, polished or brushed).

*ANTI-CONDENSATION SPACE HEATERS*

- H 120 Volt Space Heater
- J 120 Volt Space Heater With Thermostat
- K 120 Volt Space Heater With Humidistat
- L 240 Volt Space Heater
- M 240 Volt Space Heater With Thermostat
- N 240 Volt Space Heater With Humidistat

*SPECIAL CONDITIONS*

- B 0-600 psi (0-42 bar) pressure transducer for freshwater service
- C 0-300 psi (0-21 bar) pressure transducer for copper corrosive service
- D 0-600 psi (0-42 bar) pressure transducer for copper corrosive service

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)
- 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

**ASCO** Power  
Technologies®

111 Corning Road  
Suite 120  
Cary, North Carolina 27518  
P +1 919 460 5200  
F +1 919 460 5250  
www.firetrol.com

While every precaution has been taken to ensure accuracy and completeness herein, ASCO Power Technologies assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications and drawings are subject to change without notice. The ASCO, ASCO Power Services, and ASCO Power Technologies marks are owned by Emerson Electric Co. or its affiliates and utilized herein under license. ©2017. Printed in USA.

Publication SD2000-50 Rev. G

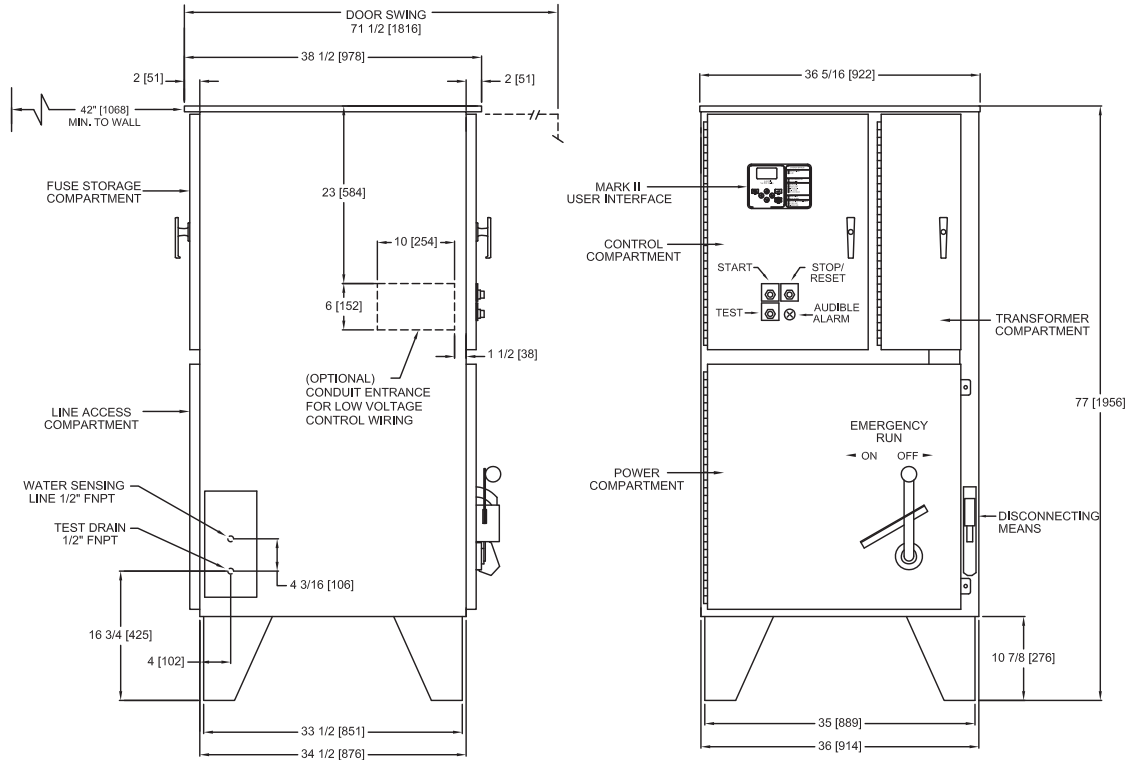
# Firetrol®

## Mark II<sub>XG</sub> Electric Fire Pump Controller

# FTA2000

## Medium Voltage Starting

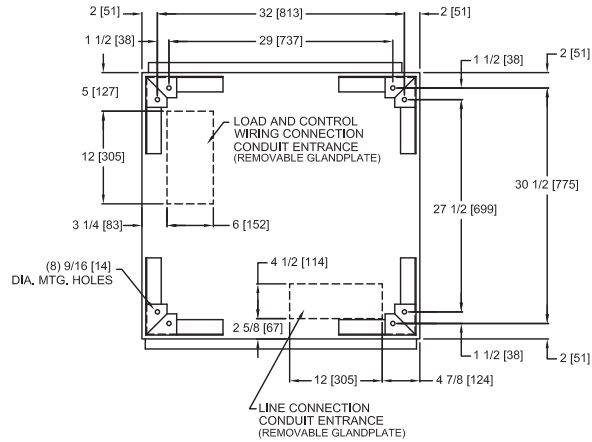
### Dimensional Drawing





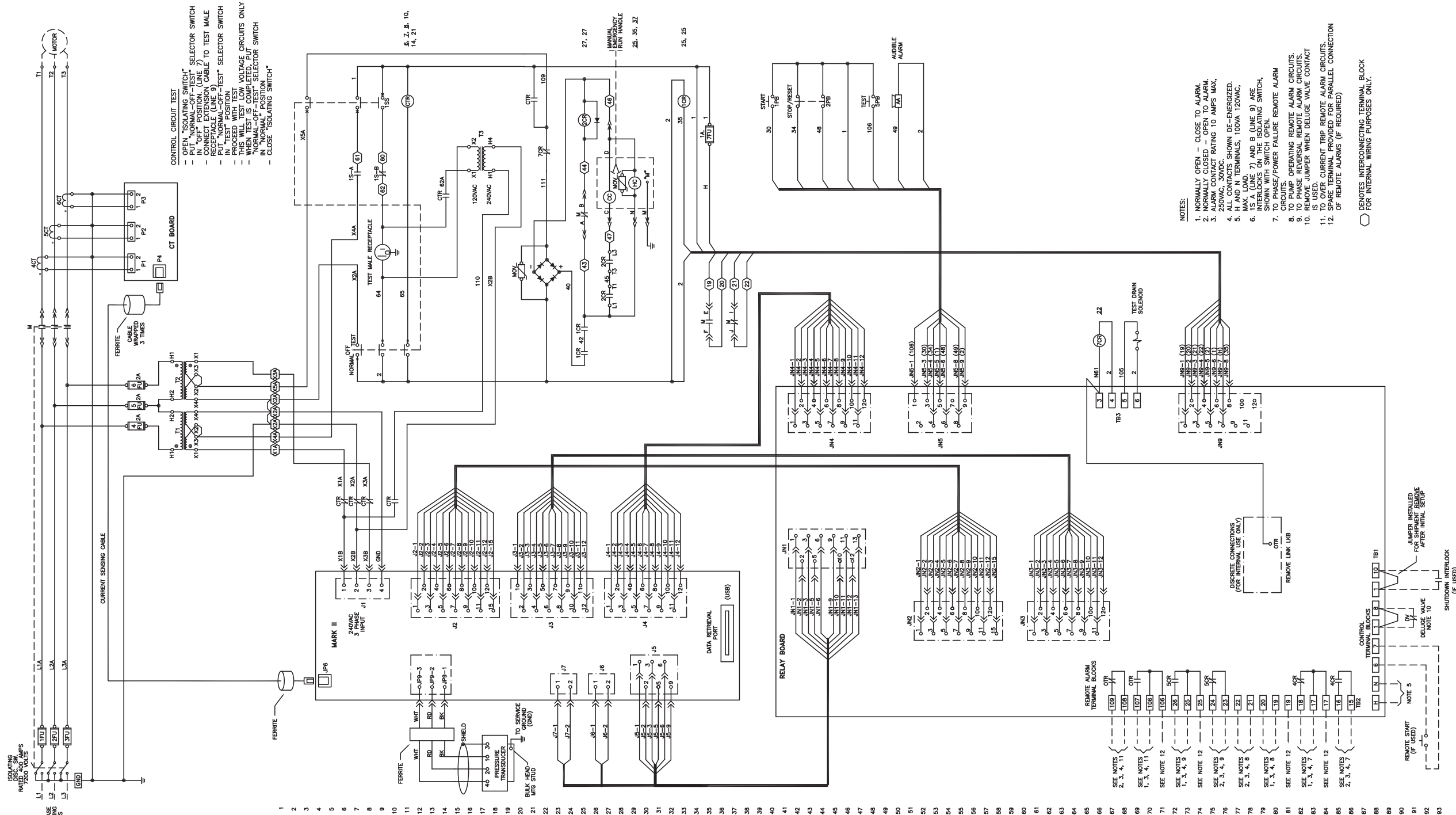
DO NOT INSTALL IN AMBIENT TEMPERATURES BELOW 41°F [5°C]  
 DIMENSIONS SHOWN ON THIS DRAWING ARE APPLICABLE FOR NEMA TYPES 2/3R/4/4X/12  
 ALL DIMENSIONS - INCHES [MM]  
 SHIPPING WEIGHT - POUNDS [KG]

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.



|   |    |      |          |  |         |   |        |                            |           |
|---|----|------|----------|--|---------|---|--------|----------------------------|-----------|
| REVISED WATER SENSING & TEST DRAIN NOTES    |    |      |          | C  | 249452  | JMW   | TF     | 07/10/14                   |           |
| ADDED TEST PUSHBUTTON AND TEST DRAIN        |    |      |          | B  | 229903  | GFD   | TF     | 12/03/10                   |           |
| ADDED MARKII XG AND AUDIBLE ALARM           |    |      |          | A  | 225812  | JW  | TF     | 01/13/10                   |           |
| PROJECT NAME:                               |    |      |          | REV. TO SHEET  | ECN NO. | BY  | APP.   | DATE                       |           |
| DIMENSIONS AND SHIPPING WEIGHT              |    |      |          | FTA2000  |         | <br>THIRD ANGLE PROJECTION |        |                            |           |
| 5/7.2KV CLASS ELECTRIC FIRE PUMP CONTROLLER |    |      |          |  |         |   |        |                            |           |
| DRAWN BY                                    | TF | DATE | 05/07/03 | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-055  |         | ASSEM. REF. NO.   |        | COMPUTER GENERATED DRAWING |           |
| CHECKED                                     |    |      |          | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.                                      |         |   |        | SCALE                      | 1:1       |
| PROJECT APPROVAL                            |    |      |          |  ASCO POWER TECHNOLOGIES, L.P.<br>FLORHAM PARK, NEW JERSEY 07932 U.S.A. |         |   |        | SIZE                       | A         |
| FINAL APPROVAL                              | TF | DATE | 05/07/03 |  |         |   |        | DWG. NO.                   | DD2000-20 |
|   |    |      |          | DRAWING REV.   | C       | ECN NO.   | 249452 | SHEET 1 OF 1               |           |



|   |               |                |   |                               |                           |
|---|---------------|----------------|---|-------------------------------|---------------------------|
| ADDED AUDIBLE ALARM, TEST PUSHBUTTON, AND TEST DRAIN SOLENOID | C             | 229903         | GFD   | TEF                           | 12/03/10                  |
| REMOVED PRINTER/CHANGED FLOPPY TO DATA RETRIEVAL PORT         | B             | -              | -   | -                             | 06-18-07                  |
| PROJECT NAME:   | REV. TO SHEET | ECN NO.        | BY  | APP.                          | DATE                      |
| <b>WIRING SCHEMATIC</b>                                       |               | <b>FTA2000</b> |   | <p>THIRD ANGLE PROJECTION</p> |                           |
| <b>5/7.2KV CLASS ELECTRIC FIRE PUMP CONTROLLER</b>            |               |                |   |                               |                           |
| DRAWN BY  | BY            | DATE           | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-055             |                               | ASSEM. REF. NO.           |
| CHECKED   |               |                | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. |                               | SCALE 1:1                 |
| PROJECT APPROVAL  |               |                | <p><b>ASCO</b> ASCO POWER TECHNOLOGIES, L.P.<br/>FLORHAM PARK, NEW JERSEY 07932 U.S.A.</p>                            |                               | SIZE <b>B</b>             |
| FINAL APPROVAL  | TEF           | 05-06-03       |   |                               | DWG. NO. <b>WS2000-20</b> |
|   |               |                | DRAWING REV. <b>C</b>   | ECN NO. <b>229903</b>         | SHEET 1 OF 1              |

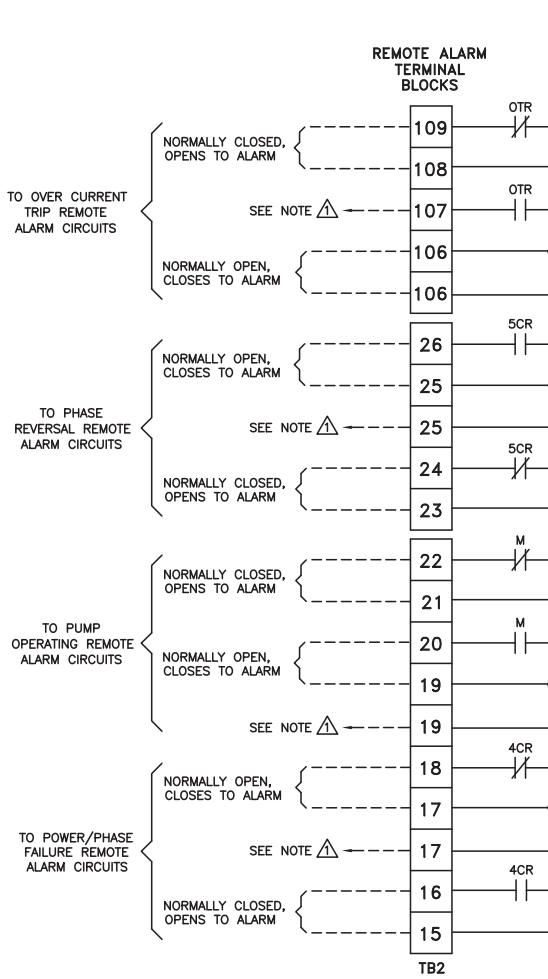
# Firetrol®

## Mark IIxG Electric Fire Pump Controller

# FTA2000

## Medium Voltage Starting

### Field Connections



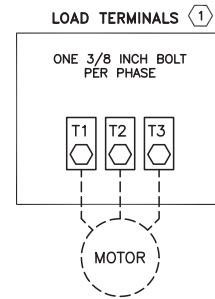
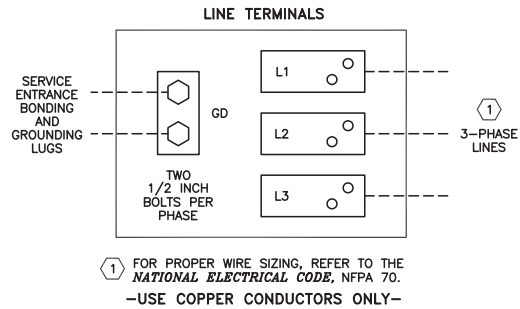
$\Delta$  SPARE TERMINALS PROVIDED FOR PARALLEL CONNECTION OF REMOTE ALARMS (IF REQUIRED)

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

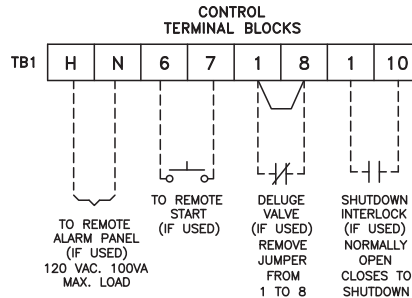
| TERMINAL TIGHTENING TORQUE  |                                     |                   |
|-----------------------------|-------------------------------------|-------------------|
| TERMINAL TYPE               | WIRE SIZE                           | TIGHTENING TORQUE |
| CONTROL AND ALARM TERMINALS |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

-USE COPPER CONDUCTORS ONLY-

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



- 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 ASC, 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

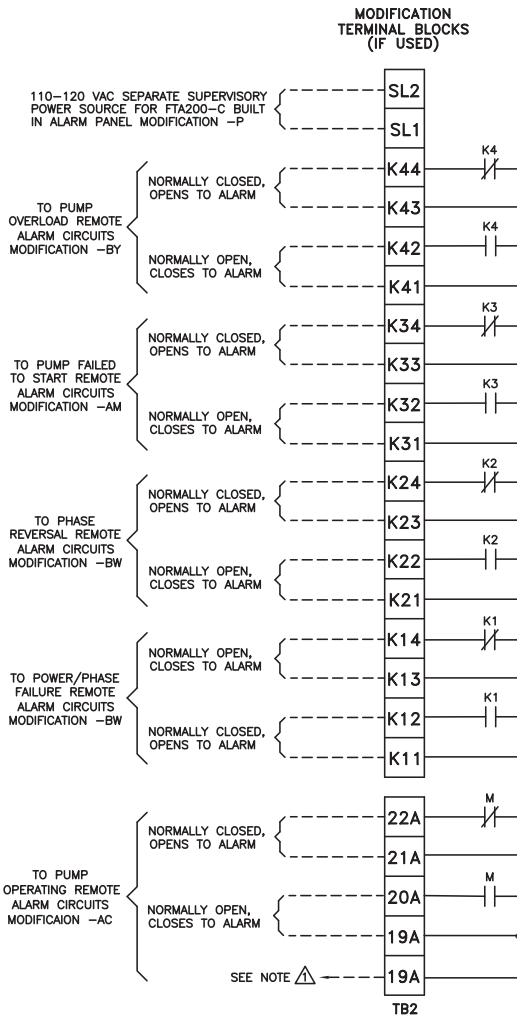
|   |      |   |   |                        |              |                            |         |          |
|---|------|---|---|------------------------|--------------|----------------------------|---------|----------|
| REVISED TITLE BLOCK, ADDED NOTE FOR COPPER CONDUCTORS ONLY  |      |   |   | A                      | 226169       | TEF                        | TEF     | 02/09/10 |
| PROJECT NAME:   |      |   |   | REV. TO SHEET          | ECN NO.      | BY                         | APP.    | DATE     |
| FIELD CONNECTIONS   |      |   |   | FTA2000                |              |                            |         |          |
| MEDIUM VOLTAGE ELECTRIC FIRE PUMP CONTROLLER 5/7.2KV CLASS. |      |   |   | THIRD ANGLE PROJECTION |              |                            |         |          |
| BY  | DATE | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-055             |   | ASSEM. REF. NO.        |              | COMPUTER GENERATED DRAWING |         |          |
| CHECKED   |      | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. |   |                        |              | SCALE                      | N/A     | SIZE     |
| PROJECT APPROVAL  |      |   |   |                        |              | DWG. NO.                   |         |          |
| FINAL APPROVAL  | TEF  | 05/07/03  | ASCO® ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY 07932 U.S.A. |                        | DRAWING REV. |                            | ECN NO. | 226169   |
|   |      |   |   |                        |              | FC2000-20                  |         |          |
|   |      |   |   |                        |              | SHEET 1 OF 2               |         |          |

# Firetrol®

## Mark IIxG Electric Fire Pump Controller

# FTA2000

## Medium Voltage Starting Field Connections



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

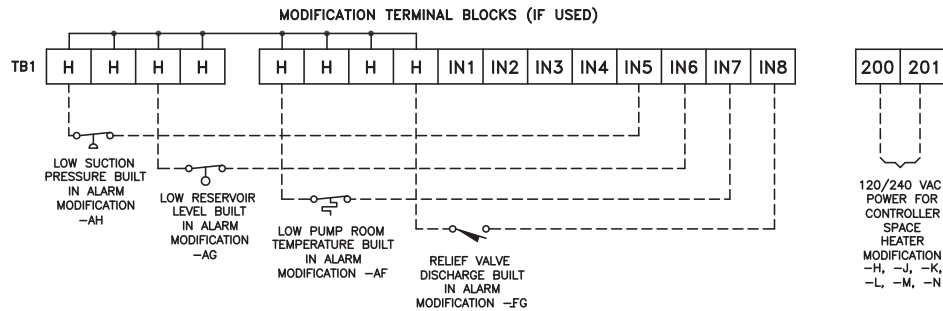
NOTE: TERMINALS FOR CUSTOMER CONNECTIONS REQUIRE 3.5MM SLOTTED SCREW DRIVER

| TERMINAL TIGHTENING TORQUE  |                                     |                   |
|-----------------------------|-------------------------------------|-------------------|
| TERMINAL TYPE               | WIRE SIZE                           | TIGHTENING TORQUE |
| CONTROL AND ALARM TERMINALS | #14-12 AWG [2.5-4 MM <sup>2</sup> ] | 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.



|   |              |   |  |                 |         |                               |        |              |
|---|--------------|---|--|-----------------|---------|-------------------------------|--------|--------------|
| REVISED TITLE BLOCK, ADDED NOTE FOR COPPER CONDUCTORS ONLY  |              |   |  | A               | 226169  | TEF                           | TEF    | 02/09/10     |
| PROJECT NAME:   |              |   |  | REV. TO SHEET   | ECN NO. | BY                            | APP.   | DATE         |
| FIELD CONNECTIONS   |              |   |  | FTA2000         |         | <p>THIRD ANGLE PROJECTION</p> |        |              |
| MEDIUM VOLTAGE ELECTRIC FIRE PUMP CONTROLLER 5/7.2KV CLASS. |              |   |  |                 |         |                               |        |              |
| BY  | DATE         | MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP-1-003. FOR PLASTIC PARTS SEE MP-1-055             |  | ASSEM. REF. NO. |         | COMPUTER GENERATED DRAWING    |        |              |
| CHECKED   |              | PROPERTY OF ASCO POWER TECHNOLOGIES. USE PERMITTED FOR OUR WORK ONLY. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED. |  | SCALE           | N/A     | SIZE                          | A      |              |
| PROJECT APPROVAL  |              |   |  | DWG. NO.        |         | FC2000-20                     |        |              |
| FINAL APPROVAL  | TEF 05/07/03 | <b>ASCO</b> ASCO POWER TECHNOLOGIES, L.P. FLORHAM PARK, NEW JERSEY 07932 U.S.A.                                       |  | DRAWING REV.    | A       | ECN NO.                       | 226169 | SHEET 2 OF 2 |