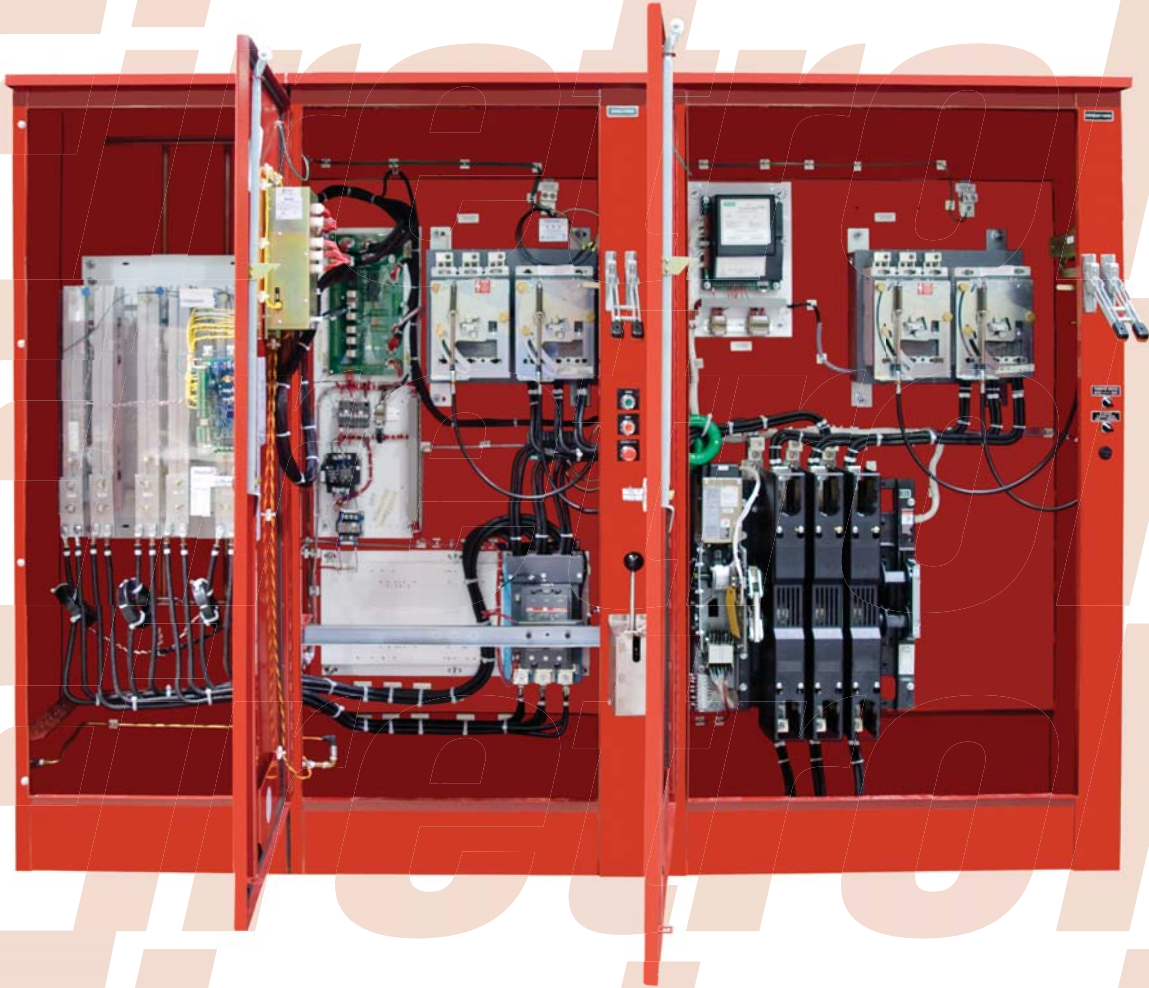


Electric Fire Pump Controllers and Power Transfer Switches

Full Voltage • Reduced Voltage
600 Volts Maximum



*Listed and Approved Automatic
Controllers and Transfer Switches
for Electric Motor Driven Fire Pumps*



Firetrol®



Electric Fire Pump Controllers General Information

Firetrol® combined automatic and manual fire pump controllers are intended for starting electric motor driven fire pumps and are available in the following configurations:

- FTA1000 – Full Voltage Starting
- FTA1250 – Part Winding Reduced Current Starting (Closed Circuit Transition)
- FTA1300 – Wye-Delta Reduced Voltage Starting (Open Circuit Transition)
- FTA1350 – Wye-Delta Reduced Voltage Starting (Closed Circuit Transition)
- FTA1500 – Primary Resistance Reduced Voltage Starting (Closed Circuit Transition)
- FTA1800 – Autotransformer Reduced Voltage Starting (Closed Circuit Transition)
- FTA1930 – Digital Solid State Reduced Voltage Starting (Closed Circuit Transition)
- FTA3100 - Variable Frequency Drive

These Controllers are available assembled with power transfer switches for use with an emergency generator set or second power source.

Approvals

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

Enclosures

The standard enclosures are NEMA Type 2 (IEC IP11), drip-proof, for installation in areas protected from direct sunlight with an ambient temperature above 41° F (5° C). Optional enclosure types include:

- NEMA Type 3R (IEC IP14), Painted Steel
- NEMA Type 4 (IEC IP56), Painted Steel
- NEMA Type 4X (IEC IP56), #304 Stainless Steel, Unfinished**



Mark II with USB Port and Flash Disk

- NEMA Type 4X (IEC IP56), #304 Stainless Steel, Painted Finish
 - NEMA Type 4X (IEC IP56), #316 Stainless Steel, Unfinished**
 - NEMA Type 4X (IEC IP56), 12 Gauge, Seam Welded, #316 Stainless Steel, Polished and Brushed Finish
 - NEMA Type 4X (IEC IP56), #316 Stainless Steel Painted Finish
 - NEMA Type 12 (IEC IP52), Painted Steel
- ** Unfinished (Not painted, polished or brushed)

Features

The Firetrol® Mark II fire pump controller monitors, displays and records fire pump system information. The system is standard on all Firetrol full service electric fire pump controllers (600 VAC Max.). A USB host controller and port for flash disk utilization is also included as standard.

The door mounted display/interface panel is rated for NEMA Type 4 applications and features a 40 Character Vacuum Fluorescent Display, Membrane Type User Control Push-buttons and easy to read LED indication of the following conditions:

- Power Available
- Phase Failure
- Phase Reversal
- Alarm
- Low Pressure
- Pump Running
- Deluge Open
- Interlock On

Additional LED's provided if the unit is ordered with an automatic transfer switch are as follows:

- Transfer Switch Normal
- Transfer Switch Emergency
- Emergency Isolating Switch Off

Operation

At the heart of the Mark II is a custom designed CPU Board featuring an Intel® Processor, Real-time Clock with Battery Back-up and 256K Total System Memory. The built-in USB Host Controller and Port allows software updates by simply plugging in a Flash Memory Disk with the updated software program. No laptop computers or external devices are required.

Metering

- The controller provides True RMS metering of Amps and Volts. The two line display allows for simultaneous 3 phase display of both voltage and current.
- Pressure is displayed in PSI or Bars in 1 psi increments (0.1 bar). The controller is supplied as standard 0-300 psi (0-20.7 bars) and optionally, 0-600 psi (0-41.4 bars).

Motor Control

The controller provides the following programmable motor control functions:

- Sequential Start Timer (On delay) - 0-60 seconds
- Run Period Timer - 0-60 minutes
- Off Delay - 0-60 minutes
- Motor Acceleration Timer - 1-10 seconds (Reduced Voltage Starting)
- Manual Stop Only - Yes or No

Data Recording Events/Alarms

Events and Alarm conditions are logged with a time/date stamp. The Mark II may be programmed to automatically adjust for daylight savings time. The data is recorded in several ways. The CPU Board contains a Non-Volatile Flash Memory which can record a history of the last 3000 events/alarms. These can be played back via the digital display on the front panel. The standard USB host controller and port allows recording of events/alarms to a Flash Memory Disk. Depending on the capacity of the flash disk utilized, the amount of data saved could easily cover the lifetime of the controller. The data is recorded in text (.txt file) format and can easily be reviewed using popular software such as Microsoft® Word® or Excel®. The following events/alarms are recorded as standard:

- Self-Test Pass
- Motor On
- Battery (Back-up) Low
- Fail to Start
- Call to Start
- Drive Not Installed
- Shunt Trip
- Over Voltage
- Under Voltage
- Over Frequency
- Over Current
- Voltage Imbalance
- Phase Failure
- Phase Reversal
- Motor Over 320%
- Motor Overload
- Pressure Error
- Disk Error
- Disk Near Full
- Interlock On
- Deluge Open
- Low Pressure
- Manual Stop
- Transfer Switch Normal
- Transfer Switch Emergency
- Flow Meter On
- Low Suction Pressure
- Reservoir Low
- Local Start On
- Remote Start On
- Emergency Run
- System Resetting
- Power On Reset

Historical Data

The controller keeps track of and records historical data in a separate area of the memory from that of alarm/event recording. This information can be reviewed on the display, or manually printed and/or saved to disk.

This data includes the following history:

- Elapsed Motor Run Time
- Total Motor Starts
- Last Motor Run Time
- Total Power On Time
- Last Motor Start Current
- Total Motor Calls to Start
- Last Motor Start Date and Time
- Max/Min Motor Running Currents
- Trip Currents
- Last Locked Rotor Trip Date and Time
- Last Phase Reversal Date and Time
- Last Phase Failure Date and Time
- Max/Min Voltages
- Max/Min Frequency
- Max/Min Pressure

Pressure Recording

The system pressure may be recorded in three ways:

- User programmable pressure differential - User selects a pressure differential between 5 and 50 psi (.3 - 3.4 bars), every time the system pressure exceeds the differential, the pressure is recorded.
- Hourly - Pressure is recorded on the hour.
- If motor is operating, the system pressure is automatically recorded every 15 seconds.

Serial Communications

The Mark II is equipped with a RS485 serial communications port. This port can be used with 2 wire or 4 wire Modbus RTU communications or with Modbus/TCP Ethernet LAN (using our optional 5150 module). A variety of commercially available converters are available to connect to other communications protocols.

Service Entrance Rating

The controllers are supplied as standard with a grounding lug, bonding and spacing required for use as UL listed service entrance equipment.

Isolating Disconnect Switch/Circuit Breaker

A single handle mechanism operates the isolating disconnect switch/circuit breaker.

The operating handle mechanism closes and opens both the isolating disconnect switch and the circuit breaker in the proper sequence. When the handle is moved to the closed (ON) position, the isolating disconnect switch is closed first and then the

Electric Fire Pump Controllers

General Information

circuit breaker. When moved to the open (OFF) position, the circuit breaker opens first and then the isolating disconnect switch. The circuit breaker always “makes” and “breaks” the load.

The operating handle has a mechanical interlock so that the enclosure can not be opened when the isolating disconnect switch/circuit breaker is in the ON position, except by a hidden defeater. The handle can also be padlocked in the OFF position with up to three padlocks.



Side-by-side disconnect/circuit breaker provides single handle sequencing and reduced space requirements.

Controller Short Circuit Current Rating*

Firetrol fire pump controllers are available with many UL listed short circuit current rating choices. The charts below show what choices are available for the different types of controllers. The standard configuration is shown in bold type.

| Controller Type FTA1000, FTA1500, FTA1800 Short Circuit Current Rating RMS Sym. | | | | | |
|---|-------------------|-------------------|-----------------|----------|----------|
| | 42 kA | 65 kA | 100 kA | 150 kA | 200 kA |
| 200V, 60hz | | | 3-250 HP | 3-250 HP | 3-250 HP |
| 208V, 60hz | | | 3-250 HP | 3-250 HP | 3-250 HP |
| 220V, 50hz | | 300 HP | 3-250 HP | 3-250 HP | 3-250 HP |
| 220-240V, 60hz | | 300 HP | 3-250 HP | 3-250 HP | 3-250 HP |
| 380V, 50hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 380V, 60hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 415V, 50hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 415V, 60hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 440-480V, 60hz | | 600 HP | 3-500 HP | 3-500 HP | 3-500 HP |
| 550-600V, 60hz | 450-700 HP | | 3-400 HP | 3-300 HP | 3-300 HP |

| Controller Type FTA1250 Short Circuit Current Rating RMS Sym. | | | | | |
|---|---------------|-------------------|-----------------|----------|----------|
| | 42 kA | 65 kA | 100 kA | 150 kA | 200 kA |
| 200V, 60hz | | | 3-250 HP | 3-250 HP | 3-250 HP |
| 208V, 60hz | | | 3-250 HP | 3-250 HP | 3-250 HP |
| 220V, 50hz | | 300 HP | 3-250 HP | 3-250 HP | 3-250 HP |
| 220-240V, 60hz | | 300 HP | 3-250 HP | 3-250 HP | 3-250 HP |
| 380V, 50hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 380V, 60hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 415V, 50hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 415V, 60hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 440-480V, 60hz | | 600 HP | 3-500 HP | 3-500 HP | 3-500 HP |
| 550-600V, 60hz | 700 HP | | 3-600 HP | 3-600 HP | 3-600 HP |

| Controller Type FTA1300, FTA1350 Short Circuit Current Rating RMS Sym. | | | | | |
|--|-------------------|-------------------|-----------------|----------|----------|
| | 42 kA | 65 kA | 100 kA | 150 kA | 200 kA |
| 200V, 60hz | | | 3-250 HP | 3-250 HP | 3-250 HP |
| 208V, 60hz | | | 3-250 HP | 3-250 HP | 3-250 HP |
| 220V, 50hz | | 300 HP | 3-250 HP | 3-250 HP | 3-250 HP |
| 220-240V, 60hz | | 300 HP | 3-250 HP | 3-250 HP | 3-250 HP |
| 380V, 50hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 380V, 60hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 415V, 50hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 415V, 60hz | | 450-500 HP | 3-400 HP | 3-400 HP | 3-400 HP |
| 440-480V, 60hz | | 600 HP | 3-500 HP | 3-500 HP | 3-500 HP |
| 550-600V, 60hz | 600-700 HP | | 3-500 HP | 3-500 HP | 3-500 HP |

| Controller Type FTA1930 Short Circuit Current Rating RMS Sym. | | | | | |
|---|-------|-------|-----------------|----------|----------|
| | 42 kA | 65 kA | 100 kA | 150 kA | 200 kA |
| 200V, 60hz | | | 3-200 HP | 3-200 HP | 3-200 HP |
| 208V, 60hz | | | 3-200 HP | 3-200 HP | 3-200 HP |
| 220V, 50hz | | | 3-200 HP | 3-200 HP | 3-200 HP |
| 220-240V, 60hz | | | 3-200 HP | 3-200 HP | 3-200 HP |
| 380V, 50hz | | | 3-300 HP | 3-300 HP | 3-300 HP |
| 380V, 60hz | | | 3-300 HP | 3-300 HP | 3-300 HP |
| 415V, 50hz | | | 3-300 HP | 3-300 HP | 3-300 HP |
| 415V, 60hz | | | 3-300 HP | 3-300 HP | 3-300 HP |
| 440-480V, 60hz | | | 3-450 HP | 3-450 HP | 3-450 HP |
| 550-600V, 60hz | | | 3-300 HP | 3-300 HP | 3-300 HP |

*For short circuit ratings for FTA3100, see publication CB3100-20

The short circuit current ratings are applicable whether or not the fire pump controller is utilized with a FTA900 or FTA950 power transfer switch. The normal power side of the transfer switch carries the same rating as the controller.

Field Connections

Inside the controller are conveniently located terminals providing output contacts for pump operating, phase reversal and phase failure signals. Terminals are also provided for field connection of a remote alarm panel, remote START push-button, deluge valve and remote interlock. A field connection diagram is permanently secured to the inside of the enclosure door.

An operating and instruction manual is included with each controller.

Alarm Panels

Terminals are provided in the controllers for field connection of an FTA200-A or FTA200-B remote alarm panel, or an FTA200-D or FTA200-E shutdown panel.

The controllers are also available with a factory installed FTA200-C built-in alarm panel.

The built-in alarm panel will give an audible signal if the pump controller power fails or for a pump operating condition, as well as a visible signal for supervisory or pump power failure. The built-in alarm system does not affect the remote alarm signals – a completely isolated remote alarm system can still be used.

| Starting Method | % Motor Full Load Starting Current | Starting Torque | Stopping Method |
|--------------------|------------------------------------|-----------------|-----------------|
| Full Voltage | 600% | 100% | Instant |
| Part Winding | 390% | 42% | Instant |
| Wye-Delta | 200% | 33% | Instant |
| Primary Resistance | 300% | 25% | Instant |
| Autotransformer | 150% | 25% | Instant |
| | 252%* | 42%* | |
| | 384% | 64% | |
| Solid State | 1* | 15% | Soft Stop |

1* Initial Starting Current 100 - 300% Adjustable
Maximum Starting Current 300 - 600% Adjustable

FTA1000 Full Voltage Controllers

Full voltage is applied to the motor as soon as the controller is actuated and the motor supplies its rated torque. When using full voltage starting, the power source must have sufficient KVA capacity to handle motor locked rotor current and prevent the line voltage from dropping below acceptable limits.

FTA1250 Part Winding Controllers

Part winding controllers are used with induction motors specifically designed for part winding starting. These motors have two parallel stator windings with their leads brought out to the motor terminal box. The motor is started with one winding connected to the line; after a time delay, the second winding is connected to the line in parallel and the motor runs normally and develops full torque.

When starting on one winding, the motor draws approximately 65% of its normal inrush current and develops approximately 42% of its normal starting torque. When the second winding is connected in parallel, the motor draws normal running current and develops rated torque.

FTA1300 – 1350 Wye-Delta Controllers

Wye-delta controllers are used with delta-wound induction motors which have all leads brought out to the motor terminal box.

When the controller is actuated, the motor starts on the wye connection which applies approximately 58% of full line voltage to the motor windings. At the reduced voltage, the motor develops approximately 33% of normal starting torque and will draw approximately 33% of its normal starting current. After a time delay, the motor is automatically reconnected in delta, applying full voltage to the motor windings.

Wye-delta controllers are available for open circuit transition (FTA1300) in which the motor circuit is opened during the transition from wye to delta connections. In closed circuit transition (FTA1350), the motor circuit remains closed during transition from wye to delta connections.

The operation of the closed circuit controller (FTA1350) is the same as the operation of the open circuit (FTA1300) except that a resistor is connected in each line during transition from wye to delta. Closed circuit transition reduces current surges associated with open circuit transition.

The wye-delta controllers are useful in applications where the power source is inadequate to supply the full starting current without objectionable voltage drop.

FTA1500 Primary Resistance Controllers

Primary resistance controllers reduce the starting current by connecting resistance into each line. The resistors are designed to reduce the starting current to approximately 50% of normal starting current. Starting torque is approximately 25% of full voltage torque. This method of starting is closed transition and does not produce line disturbances since the motor circuit is not opened when the motor is connected to full line voltage.

In accordance with NFPA 20, the resistors are designed to permit one 5 second start every 80 seconds.

FTA1800 Autotransformer Controllers

Autotransformer controllers use an autotransformer to supply the reduced voltage to the motor when starting. Taps are provided to reduce the line voltage to 50, 65 or 80% of full line voltage.

The 50% tap produces 25% of full voltage torque, the 65% tap produces 42% of full voltage torque and the 80% tap produces 64% of full voltage torque. The autotransformer is factory set on the 65% tap. When the controller is actuated, the motor is connected to the 65% tap on the autotransformer. After a time delay, a portion of the transformer winding is first connected in series with the motor (as an inductor) and then a contactor closes and connects the motor to full line voltage.

Firetrol FTA1800 controllers use closed circuit transition when switching from start to run to minimize line disturbance and voltage drop and to provide continuous torque during this transition.

FTA1930 Digital Solid State Controllers

FTA1930 digital soft start electric fire pump controllers feature soft start, soft stop and system sensing capabilities for reduced current starting and improved hydromechanical performance:

- reduction of motor inrush current on starting
- reduction of mechanical stresses
- reduction of water hammer

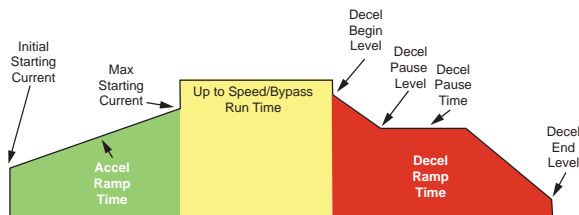
Actuating the controller by the pressure switch, START push-button, or the deluge valve remote start,

Electric Fire Pump Controllers General Information

initiates the controller's digital logic circuit. The controller is programmable for initial starting current, maximum starting current and acceleration time amongst other settings. The controller will allow the motor to accelerate along an acceleration ramp. As the motor approaches its full speed, the controller will increase to full current. When the motor reaches the up-to-speed parameters, the motor contactor will close, bypassing the digital soft starter.

After a minimum run time and when all starting causes have returned to normal, the controller's digital logic circuit will initiate a stop sequence. The soft starter will return to on-line status. At the same time, the motor contactor will open and the digital soft starter will ramp down to and hold at a preset current level (pause level), thus reducing motor RPM, pump output pressure, and flow. This unique "sincerity test" allows sufficient time for the logic circuit to sense another starting cause while maintaining a positive, but reduced pressure in the fire protection system.

If there are no additional starting causes, the soft starter will allow the motor to continue to ramp down to a full stop. The additional ramp down time will allow a gradual reduction in system pressure to greatly reduce or eliminate water hammer.



Should the controller sense another starting cause during the sincerity check (pause level), the soft start logic will ramp the motor back up to full run. Since the sincerity check maintains pressure in the system, the effects of water hammer are reduced and in the event that a standpipe hose is in use, the operators are less likely to be affected by the radical changes in system pressure.

The digital logic circuit is programmable, allowing the controller to be tailored for any fire protection system. Software settings are provided to adjust:

- Initial Starting Current (% FLA)
- Maximum Starting Current (% FLA)
- Acceleration Ramp Time (Seconds)
- Up to speed/Stall Bypass Timer (Seconds)
- Deceleration Begin Level (% FLA)
- Deceleration Pause Level (% FLA)
- Deceleration Pause Time (Seconds)
- Deceleration End Level (% FLA)
- Deceleration Ramp Time (Seconds)
- Phase Order (ABC / CBA)

The controller is equipped with a running period timer to prevent short cycling of the system. As standard, the timer is set for ten (10) minutes. A drop in system pressure will actuate the controller and start the running period timer. The pump will run until pressure is restored or the timer completes its timing cycle, whichever occurs last.

A SOFT STOP push-button is provided to initiate the soft stop sequence along with an EMERGENCY STOP push-button which bypasses the soft stop feature. In either case, the controller will restart the motor once the push-button is released should there be a starting cause present in the system.

In an emergency, the pump can be started via the START push-button or the EMERGENCY RUN mechanism located on the front of the enclosure. The EMERGENCY RUN mechanism closes the main contactor mechanically, independent of any control circuits. A quarter turn of the EMERGENCY RUN handle latches the contactor closed. (Note: On large horsepower controllers, the EMERGENCY RUN mechanism consists of a handle that will automatically latch when used). The digital logic circuit is not operated when the controller is activated by the EMERGENCY RUN mechanism. An OVERTEMP BYPASS ON message will indicate soft starter overheating. In this mode, the controller will start, run, and stop utilizing the bypass contactor.

FTA3100 Variable Speed Controllers

The FTA3100 provides a variable frequency drive (VFD) to control the speed of the pump. This method is to limit the system pressure in the sprinkler system. The controller will maintain the desired pressure regardless of variations in the system environment such as suction pressure. This controller has many of the same characteristics as the FTA1930 Digital Solid State Controller such as soft start/stop and sincerity tests. The FTA3100 includes built-in bypass of the VFD should it become inoperable. When in bypass, the characteristics of the controller are equivalent to those of a FTA1000 across the line controller. For more information on the FTA3100, see publication CB3100-20.

Options and Modifications

Refer to the controller Product Description sheet for a list of available Options and Modifications.

Firetrol® power transfer switches are available completely assembled with Firetrol electric fire pump controllers – full voltage or reduced voltage types. The power transfer switches are built in the following versions:

FTA900 – for use when the normal power source is a utility and the emergency power source is a generator set.

FTA950 – For use when both the normal and emergency power sources are utilities.

FTA901, 951–Automatic Transfer & Bypass Isolation Switches - See Publication CB901-20

FTA902, 903, 952, 953–Separately Mounted Fire Pump Automatic Transfer Switches - See Publication CB902-01

The power transfer switches are listed by Underwriters Laboratories, Inc. for transfer switch service and also meet the requirements of NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection* and NFPA 70, *National Electrical Code*. The automatic/manual power transfer switches are listed by Underwriters Laboratories, Inc. under UL-1008, *Automatic Transfer Switches*, as well as UL-508, *Industrial Control Equipment*. They are approved by the City of New York for fire pump service.

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.

Sensing Control Module

The sensing control module includes the following functions:

- Accurate differential voltage sensing on all phases of the normal power source.
Pick-up voltage – Adjustable from 90% to 95% of nominal voltage. Factory set at 90% of nominal voltage.
Drop-out voltage – Adjustable from 70% to 90% of the pick-up voltage. Factory set at 85% of nominal voltage.
- Accurate voltage sensing of the emergency power source.
Pick-up voltage – Adjustable from 85% to 100% of nominal voltage. Factory set at 90% of nominal voltage.
Drop-out voltage – Set at 90% of nominal.
- Accurate frequency sensing of the emergency power source.
Pick-up frequency – Factory set at 95% of nominal frequency.
Drop-out frequency – Factory set at 85% of nominal frequency.
- Time delay to override power transfer switch signals and generator set start signals in event

of momentary outage of normal power source.
Time delay – Adjustable from 1 to 3 seconds. Factory set at 1 second.

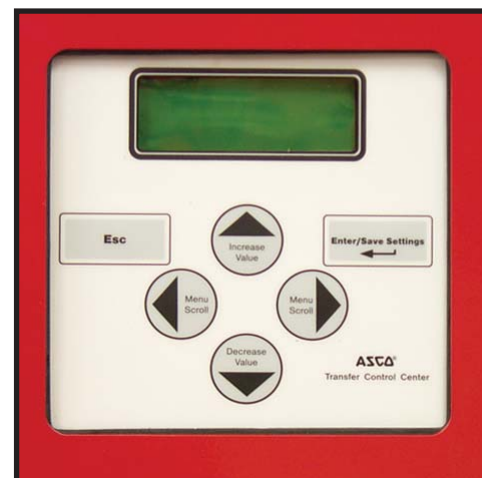
- Retransfer from emergency to normal power source is automatically delayed unless the emergency power source fails.
Time delay – Adjustable from 1 second to 30 minutes. Factory set at 30 minutes.
- The transfer switch will instantaneously retransfer from emergency power source to normal power source if emergency power source fails and normal power source is available.
- A time delay is provided for unloaded running of the generator set to allow for a cool down period.
Time delay – Factory set at 5 minutes.
- The sensing module also provides a 3 second delay to reduce current surges when transferring to or from the emergency source.
- Engine control contacts, both NO and NC, are provided to start the generator set when the normal power source fails. These contacts are designed for low voltage start signals.

FTA900 Construction

The power transfer switch and the electric fire pump controller are assembled in separate but connected enclosure compartments. All wiring between the two enclosures is completed by Firetrol

The enclosure containing the power transfer switch has an externally mounted handle for operating the emergency power source isolating disconnect switch. The operating handle has a mechanical interlock so that the enclosure door can not be opened with the isolating disconnect switch in the ON position.

Included on the Mark II user interface panel are LED's for TRANSFER SWITCH NORMAL, TRANSFER SWITCH EMERGENCY and EMERGENCY ISOLATING SWITCH OFF. Mounted on the enclosure flange are TEST and TRANSFER BYPASS selector switches and the audible alarm.



User Interface
ASCO 7000 Series Transfer Switch (Optional on FTA900 - Standard on FTA950)

Power Transfer Switches General Information

Inside the power transfer switch enclosure are the emergency power source isolating disconnect switch, control relays, solid state sensing and timing module and the power transfer switch.

The power transfer switch is electrically operated and mechanically held. A handle is provided to manually transfer the switch under emergency conditions, or for testing the power transfer switch operation.

Additional auxiliary NO and NC contacts are wired to terminals for customer use to indicate the position of the power transfer switch and emergency source isolating disconnect switch.

FTA900 Short Circuit Current Rating

The short circuit current ratings for the emergency power source side of the power transfer switch are:

| | |
|---------------------|--|
| 104-150 Amp Switch, | 200-480 Volts - 22 kA RMS Sym. 550-600 Volts - 10 kA RMS Sym. |
| 260-400 Amp Switch, | 200-480 Volts - 35 kA RMS Sym. 550-600 Volts - 10 kA RMS Sym. |
| 600-800 Amp Switch, | 200-480 Volts - 50 kA RMS Sym. 550-600 Volts - 10 kA RMS Sym. |

These short circuit current ratings apply when the generator set is protected by a molded case circuit breaker (supplied in the generator control panel by the generator manufacturer).

The rating of the normal power source side of the transfer switch will be the same as the rating of the fire pump controller assembled with the power transfer switch.

FTA950 Construction

The construction of the FTA950 power transfer switch is the same as the construction of the FTA900 except that in addition to the isolating disconnect switch, a circuit breaker, designed for fire pump service, is added to provide short circuit, locked rotor and running current protection for the fire pump controller and the motor when the emergency power source is also a utility. Also, the FTA950 is supplied as standard with the ASCO 7000 series transfer switch and group 5 Control Panel

The operating handle mechanism closes and opens both the isolating disconnect switch and the circuit breaker in the proper sequence. When the handle is moved to the ON position, the isolating disconnect switch is closed first and then the circuit breaker. When moved to the OFF position, the circuit

breaker opens first and then the isolating disconnect switch. The circuit breaker always “makes” and “breaks” the load.

FTA950 Short Circuit Current Rating

The short circuit current rating for the normal power source and the emergency power source side of the power transfer switch will be the same as the rating of the fire pump controller assembled with the power transfer switch.



**ASCO 7000 Series Transfer Switch
and Group 5 Control Panel (Optional on FTA900 - Standard
on FTA950)**

Options & Modifications

Refer to the Product Description Sheet for a complete listing of Options and Modifications.

Other Firetrol Products & Services

Information on the following is available from a Firetrol representative or from the factory:

- Jockey Pump Controllers
- Fire Pump Remote Alarm Panels
- High Voltage Fire Pump Controllers – 100-4000 HP (74-2984 kW), 7200 Volts Maximum
- Diesel Engine Fire Pump Controllers
- Engineering assistance for special fire pump control applications, including high zone/low zone systems and controllers for hazardous locations
- Simplex, Duplex & Triplex Motor Controls
- Variable Frequency Drive Control Systems
- Sump & Sewage Motor Controls
- Computer and PLC Based Systems

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