

FTA951 Automatic Power Transfer & Bypass-Isolation Switches Specifications

Automatic Transfer & Bypass-Isolation Switches

The Automatic Transfer & Bypass-Isolation Switch shall be listed specifically for fire pump applications. The switch shall be supplied with a listed and approved electric Fire Pump Controller. The Fire Pump Controller and Automatic Transfer & Bypass-Isolation Switch shall be completely factory assembled, wired, tested and shipped as a single complete unit for easy field connection to the power sources and the fire pump motor.

The Automatic Transfer & Bypass-Isolation Switches shall be 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 switches shall be listed by Underwriters Laboratories, Inc. under UL-1008, *Automatic Transfer Switches*, as well as UL-508, *Industrial Control Equipment*.

Mechanically Held Transfer Switch

The transfer switch shall be electrically operated and mechanically held. The electrical operator shall be a momentarily energized, single solenoid mechanism. The switch shall be mechanically interlocked to ensure only two possible positions, normal or emergency. Switches having a neutral position shall not be permitted.

All transfer sizes shall use only one type of main operator for ease of maintenance and commonality of parts.

Inspection of all contacts shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. All stationary and moveable contacts shall be replaceable without removing power conductors and/or bus bars.

Designs utilizing components of molded-case circuit breakers, contactors, or parts thereof, which are not intended for continuous duty, repetitive switching or transfer between two active power sources are not acceptable.

Bypass-Isolation Switch

A two-way bypass-isolation switch shall provide manual bypass of the load to either power source and permit isolation of the automatic transfer switch from all source and load power conductors. All main contacts shall be manually driven.

Separate bypass and isolation handles shall be utilized to provide clear distinction between the functions. Handles shall be permanently affixed. Designs requiring insertion of loose operating handles to operate are not acceptable.

Bypass to the load carrying source shall be accomplished with no interruption of power to the load (make

before break contacts). Designs which disconnect the load when bypassing are not acceptable. The bypass handle shall have three operating modes; "Bypass to Normal", "Open" and "Bypass to Emergency". The operating speed of the bypass contacts shall be the same as the associated transfer switch and shall be independent of the speed at which the manual handle is operated. In the "Open" mode, the bypass contacts shall be out of the power circuit so that they will not be subjected to any fault currents to which the system may be subjected.

Designs requiring operation of key interlocks for bypass isolation or automatic transfer switches which cannot be completely withdrawn when isolated are not acceptable.

Transfer Switch Control Panel

The control panel's sensing and logic shall be provided by a single, built-in microprocessor for maximum reliability and minimum maintenance. It shall have the ability to communicate serially through an optional communication module. Voltage sensing shall be true RMS type and shall be accurate to $\pm 1\%$ of nominal voltage. Frequency sensing shall be accurate to $\pm 0.2\%$.

The control panel shall be connected to the transfer switch by an interconnecting wiring harness. The harness shall include a keyed disconnect plug to enable the controller to be easily disconnected from the transfer switch for routing maintenance. Sensing and control logic shall be provided on multi layer printed circuit boards. Interfacing relays shall be industrial grade, plug-in type with dust covers. The control panel shall be enclosed with a protective cover and mounted separately from the transfer switch unit for safety and ease of maintenance.

A four line, 20 character LCD display and keypad shall be an integral part of the control panel for viewing all available data and setting desired operational parameters. Operational parameters shall also be available for viewing and limited control through the serial communications input port.

Voltage, Frequency and Phase Rotation Sensing

Voltage and frequency on both the normal and emergency sources shall be continuously monitored. The control panel shall be capable of sensing the phase rotation of both the normal and emergency sources. The source shall be considered unacceptable if the phase rotation is not the preferred rotation selected (ABC, CBA).

Source status screens shall be provided for both nor-

mal and emergency to provide digital readout of voltage on all 3 phases, frequency and phase rotation.

Time Delays

An adjustable time delay of 0 to 6 seconds shall be provided to override momentary normal source outages and delay all transfer and engine starting signals.

Two Time delay modes (which are independently adjustable) shall be provided for re-transfer to normal. One time delay shall be for actual normal power failures and the other for the test mode function. The time delays shall be adjustable from 0 - 60 minutes. Time delay shall be automatically bypassed if the emergency source fails and the normal source is acceptable.

A time delay shall be provided on shut down of engine generator for cool down, adjustable from 0 - 60 minutes.

A time delay activated output signal shall be provided to drive an external relay(s) for load disconnect control.

All time delays shall be adjustable by using the LCD display and keypad or with a remote device connected to the serial communications port.

Additional Features

A spring return "TRANSFER TEST" selector switch shall be supplied to facilitate manual testing of the automatic transfer switch. The selector shall also have a "RETRANSFER DELAY BYPASS" position for manually bypassing time delay functions and returning to normal power (if normal power is available). Visual indication shall be provided for "Transfer Switch Connected to Normal", "Transfer Switch Connected to Emergency", "Normal Source Accepted" and "Emergency Source Accepted".

A Transfer/Bypass panel providing a single line diagram with LED indication for switch positions and power source information shall be included. The panel shall also include a lamp test push-button, a "Auto-Run" engine selector switch and a "Not in Auto" LED.

The transfer switch control panel shall have the ability to log data and to maintain the last 99 events, even in the event of total power loss. The events shall be time and date stamped and maintained in a non-volatile memory. The events shall include:

- Date, time and reason for transfer from normal to emergency.
- Date, time and reason for transfer from emergency to normal.
- Date, time and reason for engine start.
- Date and time engine stopped.
- Date and time emergency source available.
- Date and time emergency source not available.
- Total number of transfers.
- Total number of transfers due to source failure.
- Total number of days control panel is energized.
- Total number of hours both normal and emergency sources are available.

Isolation/Disconnect Switch & Circuit Breaker

The Automatic Transfer & Bypass-Isolation Switch shall include a motor rated source disconnect/isolating switch & circuit breaker. The switch shall be mechanically interlocked so that the enclosure door cannot be opened with the handle in the ON position except by a hidden tool operated bypass mechanism. The switch operating handle shall be capable of being padlocked in the OFF position with up to three padlocks for installation and maintenance safety, and shall also be capable of being locked in the ON position. The enclosure door shall have a locking type handle and three point cam and roller type vault hardware.

The Automatic Transfer & Bypass-Isolation Switch shall be a Firetrol Model FTA951.

Emerson Network Power - Global Headquarters

1050 Dearborn Drive
Columbus, OH 43085
Tel +1 614 888 0246

EmersonNetworkPower.com

ASCO Power Technologies - Firetrol Brand Products

111 Corning Road, Suite 120
Cary, NC 27518
Tel +1 919 460 5200 • Fax +1 919 460 5250

Firetrol.com

While every precaution has been taken to ensure accuracy and completeness herein, ASCO assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Information and specifications are subject to change without notice. Emerson, Consider It Solved., Emerson Network Power, the Emerson Network Power Logo, ASCO, Firetrol and the Firetrol Logo are trademarks or registered trademarks of Emerson Electric Co. All other names and logos referred to are trade names, trademarks, or registered trademarks of their respective owners. ©2013 Emerson Electric Co. SP951-50 (B)

EMERSON. CONSIDER IT SOLVED.™