



SPECIFICATIONS FOR **MODEL VPU** AUTOMATIC POWER TRANSFER SWITCH CONNECTED TO A SECOND UTILITY POWER SOURCE IN COMBINATION WITH A SERIES VPx FULL SERVICE PRESSURE LIMITING ELECTRIC FIRE PUMP CONTROLLER

FIRE PUMP AUTOMATIC POWER TRANSFER SWITCH

The fire pump automatic power transfer switch assembly shall be a model VPU as manufactured by Tornatech and suitable for connecting to a second utility power source or a generator whose capacity exceeds 225 percent of the fire pump motor's full load amperage. The second utility alternate power short circuit withstand rating, voltage, frequency and HP rating shall be identical to and housed with the associated VPx Series full service fire pump controller.

SHORT CIRCUIT WITHSTAND RATING

The second utility alternate power supply circuit shall be protected by a short circuit protection device located within fire pump automatic power transfer switch assembly compartment. The short circuit withstand rating shall be:

- 100 kA. RMS at 200 - 480V. (standard) or
- 150 kA. RMS at 200 - 480V. (optional)
- 50 kA. RMS at 600V. (standard) or
- 100 kA. RMS at 600V (optional)

APPROVAL AND LISTING

The fire pump automatic power transfer switch assembly shall meet the latest NFPA 20 and NFPA 70 requirements, be listed with cULus (UL218) and approved by FM (Factory Mutual) and, if applicable, by the City of New York for fire pump service.

ENCLOSURE

The standard enclosure shall be NEMA/UL/CSA type 2 or optional

- NEMA/UL/CSA type 3
- NEMA/UL/CSA type 4
- NEMA/UL/CSA type 4X
- NEMA/UL/CSA type 12

POWER CIRCUIT COMPONENTS

The fire pump automatic power transfer switch assembly shall be supplied with the following power components:

- One molded case isolating switch rated at a minimum of not less than 115% of full load motor current. The isolating switch shall be of the same frame size as the motor circuit breaker
- One molded case motor circuit breaker rated at a minimum of not less than 115% of full load motor current. The motor circuit breaker shall be of the instantaneous magnetic trip type only and shall be adjusted to a minimum of 13 times the fire pump full load motor current. The motor circuit breaker shall be of the same frame size as the isolating switch.
- One automatic power transfer switch mechanically held and electrically operated. Manual operation of the transfer switch shall be provided by means of manual operating handle.

OPERATIONAL COMPONENTS

The fire pump automatic power transfer switch assembly shall be supplied with the following externally flange mounted components approved to match the NEMA rating of the enclosure:

- One common operating handle for both the isolating switch and the motor circuit breaker mechanically interlocked with the enclosure door to prohibit access to the interior in the "ON" position. The handle shall have a hidden interlock defeater and be lockable in the "OFF" position.
- One alarm buzzer energized when the isolating switch is left in the "OFF" position
- Transfer switch test pushbutton

DIGITAL ANNUNCIATOR INTERFACE

The fire pump automatic power transfer switch assembly shall be supplied with a digital annunciator interface completely accessible without having to open the controller door. The digital annunciator interface shall be comprised of a 4-line, 20-character continuously back lit digital display screen, a keypad type pushbutton, high luminosity LED's and have the same NEMA rated degree of protection as the enclosure of the associated electric fire pump controller. The digital annunciator interface shall numerically display;



MODEL GPU AUTOMATIC TRANSFER SWITCH CONNECTED TO A SECOND UTILITY POWER SOURCE IN COMBINATION WITH A GPx SERIES FULL SERVICE ELECTRIC FIRE PUMP CONTROLLER

- Normal power source individual phase to phase incoming voltage and frequency
- Alternate power source individual phase to phase incoming voltage and frequency
- Transfer switch status text indication

The voltage and frequency readings of all three phases of the normal power and alternate power, if available, shall be simultaneously and independently displayed with true RMS technology. Measurement of the voltage and frequency shall be accomplished with the latest technology to provide the most accurate readings. Fire pump automatic power transfer switch assemblies with analog meters and selector switches for the selection of the phase being displayed of either the voltage or current shall not be accepted.

The digital annunciator interface shall digitally indicate:

- Normal power available
- Normal position
- Transfer in progress
- Generator start signal
- Alternate power available
- Alternate position
- Retransfer in progress
- Cooling time

The digital annunciator interface shall have a keypad type pushbutton for:

- Transfer switch bypass time delay
- Silence
- Alarm reset

OPERATION

The fire pump automatic power transfer switch assembly shall provide:

- Voltage sensing on each phase of the normal power supply factory set at 85% to initiate actuation of the generator set start contact.
- Voltage and frequency sensing of the alternate power source factory set at 90% to initiate transfer to alternate power.
- Voltage sensing on all phase of normal power factory set at 90% to initiate retransfer to normal power.
- One timing function to override momentary normal outages before activating engine start contact, factory set at 3 seconds.
- One timing function to delay re-transfer to the normal power supply, factory set at 5 minutes. Transfer to normal power shall be instantaneous in case of alternate power failure.
- One timing function to allow engine generator cool down after retransfer to normal source, factory set at 5 minutes.

ALARM CONTACTS FOR REMOTE INDICATION

Dry alarm contacts rate at 8A – 250VAC for remote indication shall be provided for the following conditions

- Generator start (DPDT)
- Isolating switch in Off position (DPDT)
- Automatic transfer switch in normal power position (1 N/O)
- Automatic transfer switch in alternate power position (1 N/O)

For options see option section (VPO).