

STANDARD

The electric fire pump controller shall be built in complete compliance to the latest NFPA 20 standard.

STARTING METHOD

The electric fire pump controller shall be manufactured by Tornatech and shall be combined manual and automatic type suitable for:

- Across the line full voltage starting model GFA
- Autotransformer reduced voltage starting model GFR
- Wye delta closed transition reduced voltage starting model GFW
- Wye delta open transition reduced voltage starting model GFY

SHORT CIRCUIT WITHSTAND RATING

The short circuit withstand rating of the electric fire pump controller shall be:

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

ENCLOSURE

The standard enclosure shall be NEMA/UL/CSA type 2 (IP42) or optional

- NEMA/UL/CSA type 3 – IP55
- NEMA/UL/CSA type 4X – IP66
- NEMA/UL/CSA type 4 – IP66
- NEMA/UL/CSA type 12 – IP54

The enclosure shall incorporate a bottom mounted gland plate for power and or motor lead entrance.

POWER CIRCUIT COMPONENTS

The electric fire pump controller shall be supplied with the following power components:

- Voltage surge arrestor
- One molded case isolating switch.
- One molded case motor circuit breaker.
- One locked rotor protector.

OPERATIONAL COMPONENTS

The electric fire pump controller shall be supplied with the following externally flange mounted components:

- 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.
- One pump "START" pushbutton
- One pump "STOP" pushbutton
- One "Emergency" start and run handle mechanism latchable in the "ON" position

DIGITAL ANNUNCIATOR INTERFACE

The electric fire pump controller shall be supplied with a digital annunciator interface completely accessible without having to open the controller door. The digital annunciator interface shall numerically display:

- Individual phase to phase incoming voltage and frequency
- Individual phase motor current
- True pump elapsed run time
- Pump start counts
- Time and date
- Cut-In and Cut-Out pressure settings
- System pressure
- Minimum run period timer
- Sequential start timer
- Weekly test timer

The cut-in, cut-out and system pressure indication shall be continuously displayed. Electric fire pump controllers without the capability of digitally displaying the cut-in, cut-out and system pressure shall not be accepted.

The digital annunciator interface shall digitally indicate:

- Phase loss
- Phase unbalance
- Incoming over voltage
- Incoming under voltage
- Motor over current
- Motor under current
- Motor run
- Fail to start

The digital annunciator interface shall high luminosity LED's for:

- Power available
- Phase reversal
- Pump on demand
- Weekly test

The digital annunciator interface shall have keypad type pushbuttons for:

- Alarm reset
- Cut-in pressure setting
- Cut-out pressure setting
- Run test
- Print

The cut-in and cut-out adjustments shall have independent pushbuttons accessible without having to open the controller door. The adjustment of the cut-out and cut-in shall be tamper proof through the setting of a dipswitch installed inside the controller.

PRESSURE AND EVENT RECORDING

The electric fire pump controller shall be equipped with a pressure and event recorder. The recorder will register and keep in memory general system information, pressure fluctuations over time that have occurred over the previous seven (7) days and events and alarms that have occurred over the previous fifteen (15) days. General system information, events and alarms include the following:

- Time and date of retrieval of data
- Cut-in and Cut-out setting
- Date of the last change of the cut-in and cut-out setting
- Date, time and pressure readings of the minimum and maximum pressure registered over the previous 7 days
- Weekly test information
- Minimum run period timer information
- Pump start time and date
- Pump stop time and date
- Pump on demand time and date
- Pump room alarm time and date
- Motor trouble time and date
- Power On date and time
- Power Off date and time

The information shall be retrievable through a USB slave communication port accessible without having to open the controller door.

PRESSURE SENSING DEVICE

The electric fire pump controller shall be supplied with a 304 stainless steel pressure transducer rated for fresh water operation between 0 and 300psi with $\pm 2\%$ accuracy and a minimum burst pressure of 420psi. The pressure transducer shall be used to display the pressure in the sprinkler system and also control the automatic start circuit. Controllers supplied with mechanical pressure sensing devices with or without mercury shall not be accepted.

FIELD ADJUSTMENTS AND OPERATION

The manual START and STOP control circuit of the electric fire pump controller shall not be electrically linked to the micro-processor.

The electric fire pump controller shall ship from the factory set for manual stop and shall be field adjustable for automatic stop if required by adjusting a minimum run period timer.

A sequential start on delay timer shall be supplied and shall be field adjustable.

A weekly test timer shall be supplied as standard equipment.

A RUN TEST pushbutton shall be provided to electrically start the electric fire pump motor and hold it running automatically for 10 minutes.

Separate remote start and deluge valve start contacts shall be provided.

ALARM CONTACTS FOR REMOTE INDICATION

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

- Power or phase failure and/or circuit breaker in open position (DPDT)
- Phase reversal (DPDT)
- Pump run (1N/0 - 1N/C)

For options see section GFO.