
CASE STUDY

Utilizing an Upstream Disconnecting Device to Provide Power to Your Fire Pump



APRIL 30

ROSEMONT ENGINEERING, INC.

225 Stedman St. Ste. 34, Lowell, MA 01851

www.rosemonteng.com

Authored by: Rick Dumont

**ROSEMONT
ENGINEERING**
I N C O R P O R A T E D

Upstream Disconnecting Means

Issues to address when installing a disconnecting means providing power to your fire pump controller.

Request for Advice: A customer is replacing an obsolete fire pump controller. A common question we ask is whether there is a disconnecting device ahead of the old controller. This needs to be determined in the event the controller is fed “from the street,” or directly from a transformer pad. If it is, coordination with the utility provider must be made prior to the controller replacement.

Our Findings: If a disconnecting means is installed, care must be taken to ensure it meets code.

Consideration:

A fire pump is designed using “run-to-destruction” construction. There are no fuses for short-circuit protection, or overload devices for protection of a motor overload condition. What *IS* used, is specially designed circuitry in conjunction with a shunt trip circuit breaker, which allows the controller to operate in an overcurrent situation for a specific amount of time; based upon the amplitude of the fault current being delivered to the motor.

Running the Numbers:

A motor is allowed to draw 300% of full load current (AFL- amps full load) indefinitely. You read that right. Indefinitely. The current is monitored as it approaches 600%. The closer the current gets to 600%, the quicker the shut trip breaker is designed to trip.

What does this have to do with a disconnecting means?

Good question. Since the fire pump controller is allowed to provide current potentially reaching six times the motor’s normal current, any upstream devices rated for **LESS** than that value puts the system at risk. That device becomes the “weakest link.”

NFPA 20 CODE

(Standard for the Installation of Stationary Pumps for Fire Protection) 9.2.3.4

Excerpt from Firetrol, a leading supplier of fire pump controllers:

-OVERCURRENT PROTECTION CHARACTERISTICS-

- The protective device shall **NOT** open within 2 minutes at 600% of the full load current of the fire pump motor(s).
- The protective device shall **NOT** open with a re-start transient of 24 times the full load current of the fire pump motor(s).
- The protective device shall **NOT** open within 10 minutes at 300% of the full load current of the fire pump motor(s).
- The trip point for the circuit breaker shall **NOT** be field adjustable.

In Conclusion...

Even though NFPA 20 prefers the power **be** uninterrupted from the street or transformer pad, as a service provider we appreciate the ability to disconnect power to the fire pump controller.

In addition to the characteristics already mentioned, the following should also be taken into consideration:

- Only one device is allowed between the power source and the fire pump controller
- The protective device **MUST** be capable of being locked in the **CLOSED** position, or alarmed appropriately when opened.
- The protective device shall be properly marked **“Fire Pump Disconnecting Means.”**

The Sales Pitch...

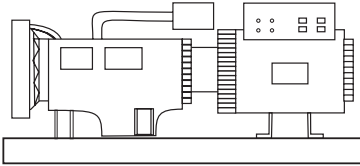
Firetrol is proud to announce the new **FTA990 Upstream Disconnecting Means**

To learn more, please visit:

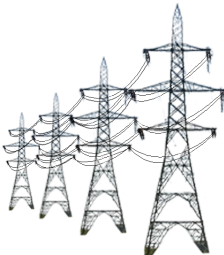
<https://firetrol.com/products/fta990/>

NORMAL POWER

EMERGENCY POWER



OR



FTA990



FTA990



Electric Fire Pump Controller

Fire Pump Transfer Switch