Assistance Document
Type H200
Fuse sizing

version 1.0

Technical Assistance

Fuse sizing on an electric motor Controller, according to EN12845 & LPC TB210

From the standard EN12845, section 10.8.2 it states that

"The fuses in the pump controller shall be of high rupturing capacity (HRC type), capable of carrying the start current of the sprinkler pump for a period of no less than 20 s."

From the standard Technical Bulletin TB210: 2015:1, section TB210.8.2 (e) states

"fuses shall be capable of carrying the stalled rotor current (locked rotor current) for a period of not less that 75% of the period for the motor windings to fail."

Example:

In order to correctly size the motor control panel fuse, you need the motor locked rotor current (LRA) and the hot burn out time of the motor.

On a star delta controller, the starting current is typically 2 to 3 times the full load current and so the EN12845 standard is usually easier to comply with than the LPC TB210 requirement.

The intent of these standards is to trip the fuse just before the motor fails in the event of a locked rotor condition. The locked rotor condition could be caused by a foreign object in the pump impeller that is preventing it from rotating. The controller and fuse should provide the power for the maximum amount of time to give the system the best opportunity to clear the locked rotor condition.

On a typical 15kW motor, the locked rotor current is 180A, with a burn out time around 5s.

A suitable fuse therefore needs to be chosen to trip in around 5S at 180A.

A 32M50 would suit this application.

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