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Wye-Delta Controllers and Motors for use in Fire Pump Applications

Wye-delta Controllers are used with delta-wound induction motors which have all leads brought out to the motor terminal box.

When the controller is actuated, the motor starts on the wye connection which applies approximately 58% of full line voltage to the motor windings. At the reduced voltage, the motor develops approximately 33% of normal starting torque and will draw approximately 33% of its normal starting current. After a time delay, the motor is automatically reconnected in delta, applying full voltage to the motor windings.

Wye-delta controllers are available for open circuit transition (FTA1300) in which the motor circuit is opened during the transition from wye to delta connections. In closed circuit transition (FTA1350), the motor circuit remains closed during transition from wye to delta connections.

The operation of the closed circuit controller (FTA1350) is the same as the operation of the open circuit (FTA1300) except that a resistor is connected in each line during transition from wye to delta. Closed circuit transition reduces current surges associated with open circuit transition.

The wye-delta controllers are useful in applications where the power source is inadequate to supply the full starting current without objectionable voltage drop.

Generator Use – The industry standard is to utilize a closed transition controller (FTA1350) when a generator is providing emergency power.



Wiring a *Wye-Delta* motor for use with a fire pump controller can at times be confusing. Some motors have nameplates depicting various wiring schemes.

Information required prior to wiring the motor:

- Voltage of incoming AC Line
- Full load amperage of motor
- Is the motor single or dual voltage?

Number of Conductors Required between the controller and the motor is **six (6)**. Ampacity of these conductors is determined by multiplying the rated full load amps of the motor by **.58**

Connections at the controller are made at the load side of the two motor contactors. See sheet two for motor connection guidelines.

Firetrol FTA-1350



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