

## Wye-Delta, Open Transition Starting Type G & E



### General

Joslyn Clark Fire Pump Controllers are designed and listed specifically for fire pump service. These controllers meet or exceed all requirements of the National Fire Protection Association Standard NFPA 20, are listed by Underwriters Laboratories Inc., and approved by the Factory Mutual System.

Wye-Delta Open Transition Controllers have two Contactors that connect the motor in a Wye Connection. Starting current is 33.3% of across-the-line starting inrush (approximately 200% rated motor full load amperes) and starting torque is approximately 33.3% of normal starting torque. After a 3 second time delay, the Start Contactor drops out and the Run Contactor reconnects the motor in the Delta connection. The motor now runs at full torque and horsepower. Wye-Delta Controllers are Combined Manual and Automatic starting.

### Standard Equipment

- Enclosure Type 3R for G10670, Enclosure Type 2 for E10690
- Microprocessor based design using distributed microprocessors
- Short circuit withstand rating amps 100,000 (standard)
- Automatic Start responsive to a change in water pressure.
- Stainless Steel Pressure Transducer, 0-600 PSI, side mounted internally
- Automatic Stop via Programmable Running Period Timer.
- Sequence Delay Start via Programmable setpoint.
- Standard Units programmed for Manual Stop and No Delay on Start
- Deluge start or Remote Automatic Start from other fire protection equipment having a normally closed contact which opens to start.
- Manual Start and Stop pushbuttons on Operator Interface Module.
- Manual Remote Start utilizing remote mounted, normally open contacts that close to start. Controller must be Manually Stopped at the controller.
- Emergency Start by simply lifting the mechanical start handle.
- Operator Interface Module includes 2 Line, 20 Character LCD display of Line Pressure and Cut In / Cut Out Setpoints, viewing of Events with Date and Time stamp, Real Time Data with all 3-phase voltages, line-line currents.
- PMR, microprocessor based relay which provides locked rotor protection, voltage pickup, and current pickup for display on Operator Interface Module. PMR is factory set for horsepower and voltage, no field adjustment required.
- Programmable Weekly or Monthly Timer to automatically start and run the pump for Preset time utilizing a Test Drain Solenoid. Manual Testing also.

### Visual Indicators and Alarms

- Visual indicators are provided to indicate the following:
 

Power Available	Phases Reversed	Pump Run	System Alarm
Comm Status	Start Delay	Low Pressure	RPT On
- 3 phase Currents, and 3 Phase-to-Phase Voltages on two-line Display.
- 2 line Pressure Display with Cut IN / Cut OUT Pressure Settings.
- 2 Sets OF SPDT contacts for remote alarm of Pump Run, Power Available, Phase Reversal.
- Built-in Pressure Recorder provides a review of Max, Min Pressures.
- Ethernet Modbus TCP Communications for Event History Information
- (With Optional Automatic Transfer Switch), Alternate Isolating Switch Open and Transfer Switch Position Indicators and Contacts
- System Fault Messages: Reverse Phase, Locked Rotor, Motor Overload, Low Voltage, High Voltage, Fail to Start, Low Frequency, High Frequency, Voltage Unbalance, Power Not Available, No Comm with LRD, Low Temperature, Low Suction, No Comm with I/O Board.



## ELECTRIC FIRE PUMP CONTROLLER WITH AUTOMATIC TRANSFER SWITCH

### General



Joslyn Clark Controls Fire Pump Controllers with Automatic Transfer Switch modification "TU" complies with the National Fire Protection Association standard NFPA-20 and are listed by Underwriters' Laboratories. All full service Fire Pump Controllers and Limited Service Controllers may be ordered with an Automatic Transfer Switch.

The Automatic Transfer Switch is housed in a barred compartment of the Fire Pump Controller. This complete assembly, consisting of Fire Pump Controller and Automatic Transfer Switch is factory assembled, wired, tested and shipped as a single unit.

Fire Pump Controllers with Automatic Transfer Switches provide for power connections to the fire pump motor from the primary power source or an alternate emergency generator. If the primary power supply fails, an automatic transfer is made to the emergency supply. Automatic retransfer to normal power supply will occur after restoration of normal power.



Transfer Switch Controller



### Standard Features

Doors open out away from each other for convenience during installation, checkout and service.

Enclosure Type 3R for G Style controllers, Enclosure Type 2 for E Style controllers

Enclosure steel is phosphate cleaned, electrostatic-spray enameled and oven baked to withstand effect of dampness.

LED's are provided to indicate the transfer switch position, green for normal power source and red for emergency.

All control push buttons are centrally located on center trim for convenience.

Time delay for:

- Preventing transfer on momentary power loss.
- Fire Pump Motor Load Transfer.
- Retransfer to Normal Power Source.
- Unloaded cool-down running time for engine.



# Fire Pump Controller

With Transfer Switch  
Type G&E10600

## ELECTRIC FIRE PUMP CONTROLLER WITH AUTOMATIC TRANSFER SWITCH

### Automatic Transfer Switch

The Automatic Transfer Switch is electrically operated and mechanically held. Manual transfer of the switch may be accomplished with a handle which is provided on the switch.

### Pilot Light Monitoring

Standard features include a red pilot and audible alarm with silence push button to monitor the opening of the emergency supply isolation switch. Also, N.O. and N.C. contacts are provided for remote signal of this switch position.

LED's are provided to indicate the transfer switch position, green for normal power source and red for emergency. LED's also indicate source availability, green for normal and red for emergency.

### Voltage Sensor

The Automatic Transfer Switch System includes a close differential voltage sensor to monitor all ungrounded lines of the normal power source. When the voltage on any phase falls below the values listed on Table 1 below, a signal is initiated to automatically start the transfer sequence to the alternate power source.

### Momentary Power Loss

A 3 second time delay in starting the emergency generator is provided to prevent nuisance starting in the event of momentary dips and interruptions of the normal source. Following the 3 second time delay a signal from a contact in the transfer switch panel will initiate the transfer sequence. The emergency supply isolation switch includes an auxiliary contact which will prevent the engine start and disable the transfer sequence when the switch is open.

### Emergency Supply Monitoring

Emergency supply voltage and frequency monitoring is provided thru sensors in the controller. Transfer to the alternate source will be made after the pickup voltage and frequency, as listed in Table 1 below, are attained.

### Load Transfer Delay

To prevent higher than normal inrush currents when transferring the fire pump motor from one source to the other, an adjustable time delay relay is provided. It is factory set at 5 seconds.

### Retransfer To Normal

Retransfer to normal will automatically occur 30 minutes after restoration of normal power. This time delay may be by-passed for convenience during checkout by placing test selector switch momentarily in normal position. The time delay is automatically by-passed if the alternate source fails and normal source is available.

For emergency engine generator cool-down, a 5 minute unloaded running time is provided by the controller.

### Test Switch

A momentary test switch, located on enclosure door, is provided as standard to simulate a normal power source failure and initiate the transfer sequence for check out.

### Short-Circuit Current Withstand Rating Standard 100,000 AIC

Controllers ordered with Transfer Switch modification "TU" are designed for two utility power supplies. The short-circuit current ratings are the same as the fire pump controller when connected to either the Normal or Emergency Supply.

### Generator Start Circuit

A Generator Start Circuit is provided on all Transfer Switch controllers. This can be used when connected to a Generator type Alternate Source. If Connected to Dual Utility Source, then disregard connections.

**Table 1. Voltage and Frequency Sensing and Time Delays**

Motor Volts & Frequency	Voltage and Frequency Sensing				Time Delays			
	Normal Source		Emergency Source		Momentary Override Seconds	Retransfer To Normal	Unloaded Running Minutes	Transfer To Emergency Seconds
	Pick-Up Volts	Drop-Out Volts	Pick-Up Volts	Hz				
200V 60 Hz	190 95%	180 90%	190 95%	57 95%	3	30	5	3
230V 60 Hz	218 95%	207 90%	218 95%	57 95%	3	30	5	3
460 V 60 Hz	437 95%	414 90%	437 95%	57 95%	3	30	5	3
575 V 60 Hz	546 95%	517 90%	546 95%	57 95%	3	30	5	3
380 V 50 Hz	361 95%	342 90%	361 95%	47.5 95%	3	30	5	3
415V 50 Hz	394 95%	373 90%	394 95%	47.5 95%	3	30	5	3

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