Joslyn Clark Electric Fire Pump Controller E10680

Wye-Delta, Closed Transition Starting Type

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 Closed 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. During the transition, a contactor connects a resistor bank to keep the motor partially energized. The motor now runs at full torque and horsepower. Wye-Delta Controllers are Combined Manual and Automatic starting.

Standard Equipment

- Microprocessor based design using distributed microprocessors
- Single handle operator for easy operation of isolating switch and breaker.
- 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 Timer to automatically start and run the pump for Preset time once a week.

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.

Fire Pump Controller

With Transfer Switch
Type E10600

ELECTRIC FIRE PUMP CONTROLLER WITH AUTOMATIC TRANSFER SWITCH

General

Joslyn Clark Controls Fire Pump Controllers with Automatic Transfer Switch modification “T” 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 barriered 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.

NEMA 2 enclosure constructed from heavy gauge formed steel, with top drip hood to protect front devices from overhead dripping water.

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 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 Rating
The complete assembly, consisting of the Fire Pump Controller and Automatic transfer switch carries the same short-circuit current rating as the fire pump controller when the transfer switch is connected to the **Normal Power Supply.**

For controllers ordered with Transfer Switch modification "T", where the emergency supply is not protected by the circuit breaker within the controller, the **Emergency Side** will have the ratings listed below provided the external circuit breaker interrupting ratings are at least equal to those shown below.

Emergency Side Short Circuit Current Rating, AMPS RMS Sym.	Maximum HP at Rated Voltage			
	208	240	480	600
30,000	60	75	150	200
35,000	75	---	---	250
50,000	150	200	400	500
65,000	250	250	500	---

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.

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	Pick-Up 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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Rev. Jan 1, 2009

Modifications *E10600*
E-Series Controller

Modification Numbering System for Main Pump Controllers

Type E10620, E10630, E10640, E10650, E10670, E10680, E10690, E10663

	ID	Option Name
☐	5	Pressure Transducer 0-600 PSI for fresh water (standard)
☐	7	PS 0-600 PSI for salt water
☐	3R	Nema Type 3R - Outdoor, raintight
☐	3R w/T	3R with Option T or TU (see pg 12)
☐	4P	Nema Type 4 - Raintight (painted steel)
☐	4P w/T	4P with Option T or TU (see pg 12)
☐	4X	Nema Type 4X Watertight, corrosion, resistant (#304 Stainless Steel)
☐	4X w/T	4X with Option T or TU (see pg 12)
☐	12	Nema Type 12 Dust-Tight
☐	12 w/T	12 with Option T or TU (see pg 12)
☐	G	Built In Audible Alarm
☐	H2	Extra Light - Specify Functions
☐	J, J21, J22	Lockout Relay - Controller Interlock (J = External input J21 & J22 to interlock 2 electric controllers)
☐	K	Control Fuse
☐		Sequence Start (Standard)
☐	L	Series Pumping Controls For -L1 High Zone & L2 Low Zone Controllers
☐	M	Anti-Condensation Space Heaters with Transformer
☐	M	M w/transfer switch
☐	N	Space heater only 100 watt, 120 V
☐	N	N w/transfer switch
☐	N1	Space heater only 100 watt, 240 V.
☐	N1	N w/transfer switch
☐	P1	Thermostat only, use w/Mod M & N
☐	P1	P1 with Transfer Switch
☐	P2	Humidistat only, use w/Mod M & N
☐	P2	P2 with Transfer Switch
☐	P3	Humidistat & Thermostat w/Mod. M & N
☐	P3	P3 with Transfer Switch
☐	M & P2	Tropicalization

	ID	Option Name
☐	R5	Load Shed Includes NO & NC inst. contacts & time delay start
☐	R7	Loadshed w/time delay for cont. w/ATS
☐	S1	Pump Failure to Start Indicator & NO &NC
☐	S2	Pump Over Current Indicator & NO&NC
☐	S3	Extra Phase Reversal Alarm Contacts
☐	S4	Remote Low Pressure Alarm Contacts
☐	S5	Extra Pump Run NO & NC
☐	S6	Extra Power Failure NO & NC
☐	S7	Extra Power Available NO & NC
☐	S8	Low Voltage Alarm 83% NO & NC
☐	S81	Low Reservoir Indicator & NO & NC
☐	S82	High Reservoir Indicator & NO & NC
☐	S83	Specify Function- Indicator & NO & NC
☐	S84	Specify Function- Indicator & NO & NC
☐	V	Pump Room Temperature Sensor
☐	S85	Low Room Temp Indicator & NO & NC,
☐	W	Extra SPDT Contact for remote indications of transfer switch position
☐	J31	Suction Pressure Transducer
☐	J32	Low Suction Pressure Shut Down Indicator & NO & NC Contacts
☐	Y	CE Marking (Consult Factory)
☐	D1	Italian Nameplate
☐	D2	Dutch Nameplate
☐	D3	German Nameplate
☐	D4	French Nameplate
☐	D5	Spanish Nameplate
☐	D6	Portugese Nameplates

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