



**Specification
E- Series
Fire Pump Controller With
Built-In Transfer Switch**

**SPECIFICATION FOR “E” SERIES COMBINATION
FIRE PUMP CONTROLLER AND POWER TRANSFER SWITCH**

The Fire Pump Controller shall meet the requirements of the latest edition of NFPA-20 and shall be listed by UL (Underwriters Laboratories), and approved by FM (Factory Mutual) for fire pump service. ULC listed, and CE compliant.

The Controller shall be of the combined manual and automatic, multi-microprocessor type designed for Full Voltage Across-The-Line E10630, or Reduced Voltage Soft Start E10620, Reduced Voltage Autotransformer E10640, Reduced Voltage Primary Resistor E10650, Reduced Voltage Wye-Delta Closed Transition E10680, or Reduced Voltage Wye-Delta Open Transition E10690, starting of the Fire Pump Motor and having horsepower, voltage, phase and frequency rating as shown on the plans and drawings.

The Controller shall be completely assembled, wired and tested by controller manufacturer and housed in a NEMA 2 Enclosure with Drip Hood. The entire Controller shall be withstand rated for 100,000 RMS Symmetrical amperes up to 480 volts. The Controller shall include a single handle operator mounted in the exterior of the controller to sequentially operate both the Isolating Switch and the Circuit Breaker. It shall be a microprocessor based design using distributed microprocessors.

An Operator Interface, Microprocessor based, LCD Display/Power Alarm Module, shall be accessible without opening the door. This Display/Alarm Module must be an independent unit capable of monitoring event history and real time events, and not be required for the normal operation of the controller. The System Pressure and Cut In / Cut Out Set Points must be capable of reading, simultaneously in stand by mode. Display all 3-phase voltages, line-line currents shall be displayed during run mode. Real time data values and historic data shall be viewable from display. Minimum storage of 30,000 historic date logging events with date and time stamp is required.

Real time data values to include, discharge pressure, Cut-In/Out set point, number of starts / trips, both volts & amperes, volts & average volts, amperes & average , voltage unbalance & %, ampere unbalance & %, frequency, min & max, min & max pressure, min & max current, min & max voltage, room temp, run hours, start delay time remaining, pump on time remaining & last pump ON time.

System pressure logged each hour or at pre-set psi change. Pressure data down load via external Ethernet port or may be accessible by remote computer

Events shall include Manual Start, Auto Start, Manual Stop, Auto Stop, Power Off, Power On, Locked Rotor Trip, Motor Overload (125% FLA), Fail To Start, Low Voltage (83% of Nominal) , High Voltage (115% of Nominal), Low & High Frequency (Default 5%), Auto Start & Stop Weekly Test, Communication Fail & Restore.

The following LED'S shall be provided on the Operator Interface as standard; Power Available, Comm. Status, Start Delay, RPT On, Pump Run, System Alarm, Phase Reversed & Low Pressure

Communication, Ethernet Modbus TCP Communications port shall be provided to download event history, status and alarm conditions, to a computer or may be accessible by remote computer.

Locked Rotor Protection circuit shall include a "Two Tier Protection Curve", Tier One for Normal 3-phase supply voltage and Tier Two for a single phase condition that occurs while the motor is running. Testing of the Locked Rotor Protector, and Reversed Phase condition shall be accomplished without opening the door.

A Solid State Pressure Transducer shall be provided, rated for 300 or 600 PSI with a +/-2% accuracy.

The Microprocessor based, IO Board shall be Standard for all Electric Controllers with LED Indicators for all Inputs & Outputs Consolidated on one Board The IO board shall have 2 Sets Of SPDT Contacts For Pump Run, Power Available & Phases Reversed It shall include Factory Program Options with Indicator and NO & NC Contacts for System Common Alarm , Fail to Start, Low Pump Room Temperature, Compelling Start, Low System Pressure , TS IS Switch Off, TS In Alternate, Low Reservoir , Load Shed Contacts, Series Pumping Controls For High Zone & Low, Zone Controllers, Low Suction Pressure Shut Down , Transducer for suction supply, Pump Lockout - Controller Interlock, Low Additive Level – Foam systems, Programmable Option #1 and Programmable Option #2.

Starting of the Fire Pump must be accomplished by the dropping out of a relay to give the controller a fail safe feature (ie. if the coil fails on the relay the Pump will start.) The pressure Cut-In and Cut-out differential shall never be allowed to be less than +1.0 psi. If the minimum differential is violated, the other setting will be adjusted automatically to maintain the +1.0 difference.

The Fire Pump Controller shall include Running Period Timer, Sequence Start Timer, and weekly Test Timer as standard. The Manual starting and stopping of the controller shall be accomplished via a start and stop pushbutton on the operator interface. Also included is a manual lift handle for emergency start.

Transfer Switch. The power transfer switch shall be installed in a barriered compartment of the fire pump controller and suitable for the available short-circuit currents at the normal and alternate input terminals. The power transfer switch shall be electrically operated and mechanically held, with the capabilities of being manually operated.

An Operator Interface, Microprocessor based, LCD Screen/Alarm Module, shall be accessible, without opening the Transfer Switch door. The Interface shall display the source conditions: line to line voltage and frequency values, visual indication of position of transfer switch, and power source. The Interface shall also provide a lamp test, number of transfers to emergency, as well as a running total of hours the unit has provided Alternate Power to the load.

The power transfer switch shall be provided with under voltage-sensing devices to monitor all ungrounded lines of the normal power source. Where the voltage on any phase at the load terminals of the circuit breaker within the fire pump controller falls below 85 percent of motor-rated voltage, the power transfer switch shall automatically initiate transfer to the alternate source. The fire pump controller will re-transfer to the normal source when the voltage on all phases of the normal source returns to within acceptable limits. Phase reversal of the normal source power shall cause a simulated normal source power failure upon sensing phase reversal. Transfer to the alternate source shall be inhibited until there is adequate voltage and frequency to serve the fire pump load.

Means shall be provided to delay the retransfer from the alternate power source to the normal source until the normal source is stabilized. Means shall be provided to prevent higher-than normal inrush currents when transferring the fire pump motor from one source to the other.

Controls shall be provided to start and run a locally mounted Generator for Generator type Alternate Supply. These contacts will be disabled when the Alternate Isolating Switch is in the Open Position. When Dual Utility is specified, Generator Start circuit will be provided for those applications which exceed the available fault current limits normally provided on the Generator Type Alternate Supply arrangement. Alarm contacts shall be provided to indicate the position of the Transfer Switch and status of the Alternate Power Isolating Switch.

The Controller shall be 10600 Type "E" with Option "T" or "TU" as manufactured by Joslyn Clark Controls, and made in the USA.