ARMSTRONG

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BOOSTER SYSTEM
CONTROL PANEL OPTIONS

OPTION NO	DESCRIPTION
AA	Nema 3R Enclosure: Weather Resistant. Protects against weather hazards such as rain, sleet and ice formation; used outdoors on ship docks, in construction works and in tunnels and subways.
AB	Nema 4 Enclosure: Watertight (Weatherproof). Rated to resist 65 GPM of water from a distance of 10 ft. for 5 Min. Used outdoors or indoors in dairies and in breweries.
A	Nema 12 Enclosure: General Purpose. Intended for indoor use, provides some protection against dust, falling dirt and dripping non corrosive liquids.
J	Programmable Night Time Shutdown: A digital 7 day programmable time clock controls system operation. System is designed to operate continuously during daytime periods and to change to non-continuous (no flow) operation in the evenings.
I	24hr/ 7 day Time Clock Alternation: Automatic alternation of equal size motors via a digital 7 Day programmable time clock. Used for duplex and Triplex units with equal lead or lag pumps.
P	Automatic Alternation: Automatic alternation via electric alternator. Allows exercising of equal size motors on successive starts. Used on duplex and equal lead or lag pumps on triplex units.
AC	7 day Clock Alternation with Manual Override Selector Switch: Same function as option I with additional override selector switch if automatic alternation is not desired.
S	Duplex 3-Step Sequencing: Allows one additional step compared to the standard sequencing. As demand exceeds the capacity of lead pump the lag pump is turned on and the lead pump turned off until full capacity is required or demand has decreased to within capacity of lead pump only. Sequence: P1 - P2 - P1 & P2 Recommended Use: 33% - 67% Capacity Split
T	Triplex 4 - Step Sequencing: Allows one additional step compared to standard sequencing. As demand exceeds capacity of lead pump the lag pumps are turned on sequentially if required and then the lead pump if required for full capacity. Sequence: P1 - P2 - P2&P3 - P1 &P2&P3. Pumps are sequenced off in reverse order. Recommended Use: 20%-40%-40% Capacity Split
U	Triplex 5 - Step Sequencing: Allows two additional steps compared to standard sequencing. As demand increases the lead and lag pumps are turned on in sequence as required. Sequence: P1 - P2 - P1&P2 - P2&P3 - P1&P2&P3. Pumps are sequenced off in reverse order. Recommended Use: 20%-40%-40%
K	High System Pressure, Pump Shutdown with Manual Reset and Pilot Light; High system pressure switch monitors booster system outlet pressure and stops pumps if outlet pressure exceeds preset value. Recommended Use: When outlet pressures are high and threaten the safety of the piping or the fixtures. Note: This alarm will override pump operation in the manual mode.

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D	Motor Overload Lights: Pilot lights on control panel door will signal an individual motor stoppage in case of overload. Note: Motor can be re-started by resetting motor protector in panel. If overloading persists motor should be verified.
AD	Low System Pressure, Pump Shutdown, Manual Reset with Pilot Light; Low system pressure switch monitors booster system outlet pressure and stops pumps if outlet pressure drops below preset value. Recommended Use: When risk of a pipe or fixture failure causing damage is critical. Note: Due to this alarm feature systems with this option must be pressurized in manual mode before being switched to automatic operation.
G	High Suction Pressure, Pump Shutdown, Automatic Reset with Pilot light; High Suction pressure switch monitors booster system inlet pressure and stops pumps if inlet pressure is high enough to supply building without the pumps running. Recommended Use: When low pump boosts are required or when a large fluctuation in city pressure is experienced. Note: This option is an energy saving option when operating in automatic mode and will not work in manual mode. Piping systems should be designed with a full size bypass complete with check valve around booster system to supply building when booster pumps are off.
H	Alarm Buzzer with Silencing Relay; Alarm Buzzer with a silencing relay when ordered on standard unit will ring only on low suction pressure protection. The buzzer can be wired to ring on other alarms ordered, an extra contact for every additional alarm ordered will have to be added.
Q	Low System Pressure, Next Pump Starts, Manual Reset with Pilot Light; Low system pressure switch monitors booster system outlet pressure and starts one lag pump if outlet pressure drops below preset value. Unit will require a manual reset to return pumps to normal operation. Recommended Use: When risk of a pump mechanical failure or a current sensor failure is critical.
AE	Low Suction tank Level Shutdown; A set of contacts replaces standard Low Suction pressure switch in cases where the supply is coming from a tank. A SPDT 3-wire switch (supplied by others) has to be wired back to the panel to protect the pumps from loss of supply water.
E,AF,AG AH,AI, AJ	Remote Indication Contacts: One set of Normally Open and Normally Closed (NO/NC) dry contacts (No Voltage) are provided for remote signaling of individual alarms or operating conditions of the booster. The contacts available are; E-Pump Running, AF- Low Suction Pressure, AG- Low System Pressure, AH- High System Pressure, AI- High Suction Pressure, AJ- Motor Overload. Recommended Use: When booster status is required by building management system, or pump room is very far and not supervised locally.
C	Circuit Breakers: Through the door, molded case circuit breakers are supplied in place of the standard indoor circuit breaker/motor protector.

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AR	Locking Handle: Locking door handle with 2 keys is supplied to prevent unauthorized tampering with panel component settings.
AW	Ammeter 3 Phase c/w selector switch: Panel door mounted analogue gauge indicating individual motor amperage draw per phase. A selector switch is provided to select the individual phases for reading. This allows one to monitor motor amperage draw and determine the condition of pump and motor wear. Recommended use: Larger motors or critical installation.
AY	Voltmeter 3 Phase with selector switch; Panel door mounted analogue gauge indicating individual motor voltages per phase. A selector switch is provided to select the individual phases for reading. This allows capability to monitor motor inlet voltages in case of poor supply voltage may damage motor. Recommended use: Larger motors or critical installation.
M	Elapsed Running Time Meter: Used to motor hours of operation of each pump & motor. This enables end user to monitor pump operation and perform regular scheduled maintenance.
AL	Door Mounted Motor Overload Reset Push buttons; Allow resetting of motor overload protectors without opening of door. This is a safety feature that will eliminate having to open panel door to reset overloads.
X	No-Flow Shutdown via Aquastat with Pilot Light and Pump Re-Start Pressure Switch; Standard units have continuously running lead pump, this feature will stop pumps in a “no flow” condition. Aquastat mounted on suction header monitors pump water temperature and will stop pumps when pump seal water temperature exceeds 80°F. A pressure switch mounted in the control panel and piped to the discharge header will re-start pumps when system pressure drops to the minimum allowed pressure (cut-in). This option must be accompanied by a Drawdown tank for water storage. Recommended Use: Buildings long periods of no demand i.e.: office buildings, condominiums, apartments, shopping centers etc. Note: This option will not work in the manual mode.
AM	Remote Starting in Auto Connections; Set of contacts to allow connection to remote starting switch. This will allow starting of booster system in case of Emergency from a remote location. Recommended Use: For systems installed in remote location.

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