



Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

**PUMP COMPANY**

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**ELECTRICAL ALTERNATOR CONTROL PANEL - FOR DUPLEX INSTALLATIONS**

An Electrical Alternator is used on a Duplex pump application where automatic alternation of the pumps is desired for added protection in residential or commercial applications. With one pump operating to handle normal flow, a second pump becomes operational in the event the water level continues to rise. The built-in alarm system, a standard feature, can be connected to sound when the second pump becomes operational (3-float switch system) or independently (4-float switch system). All electrical systems must be installed by a qualified electrician and according to the National Electrical Code. (See Section 430-71 through 430-113, plus any others that apply.)

**Control Panel Features:**

- Hand-Off-Auto Toggle Switch for each pump
- Green pump run pilot light for each pump
- Alarm test and silence switches
- Red pilot light (Nema 1 Only) and audible alarm with 83 to 85 decibel rating for a high water condition
- Red Alarm Beacon included with Nema 4X enclosure
- Auxiliary Dry Contact
- High Water Alarm
- On Single Phase - Circuit breaker for each pump
- On Three Phase - Motor protective switch with overload protection
- Magnetic starter for each pump
- Alternating mechanism
- Numbered terminal strip for connecting pumps and variable level float switches
- Nema 1 - general purpose or Nema 4X - Watertight enclosures available
- Integral auxiliary terminal board connections (dry contact) for remote alarm devices
- 3 or 4 variable level float switch control operation
- Three 20' float switches included with single phase panels
- 2 Year Warranty
- The use of off-the-shelf components provide for relatively easy field maintenance and repair
- Float switches not included with three phase panels (See FM0526)

**CONTROL PANEL USED WITH SINGLE PHASE PUMPS**

NEMA 1 ENCLOSURE WITH 20' FLOAT SWITCH			
Order No.	Dimensions H x W x D	Volts	Amp Range
10-1039	12" x 10" x 6"	115	7-15
10-1040	12" x 10" x 6"	115	15-20
10-0092	12" x 10" x 6"	115/200/230	0-20

NEMA 4X ENCLOSURE WITH 20' FLOAT SWITCH			
Order No.	Dimensions H x W x D	Volts	Amp Range
10-1041	12" x 10" x 6"	115	7-15
10-1042	12" x 10" x 6"	115	15-20
10-1043	12" x 10" x 6"	115/200/230	0-7
10-1044	12" x 10" x 6"	115/200/230	7-15
10-1045	12" x 10" x 6"	115/200/230	15-20
10-1046	12" x 10" x 6"	115/200/230	20-30
10-0093	12" x 10" x 6"	115/200/230	0-20

\* Branch circuit protection provided by installing electrician.



Products may not be exactly as illustrated

NOTE: 600 and X600 Series single phase pumps require special panels that include start components. See Selection Guide FM0712 for correct panel selection.

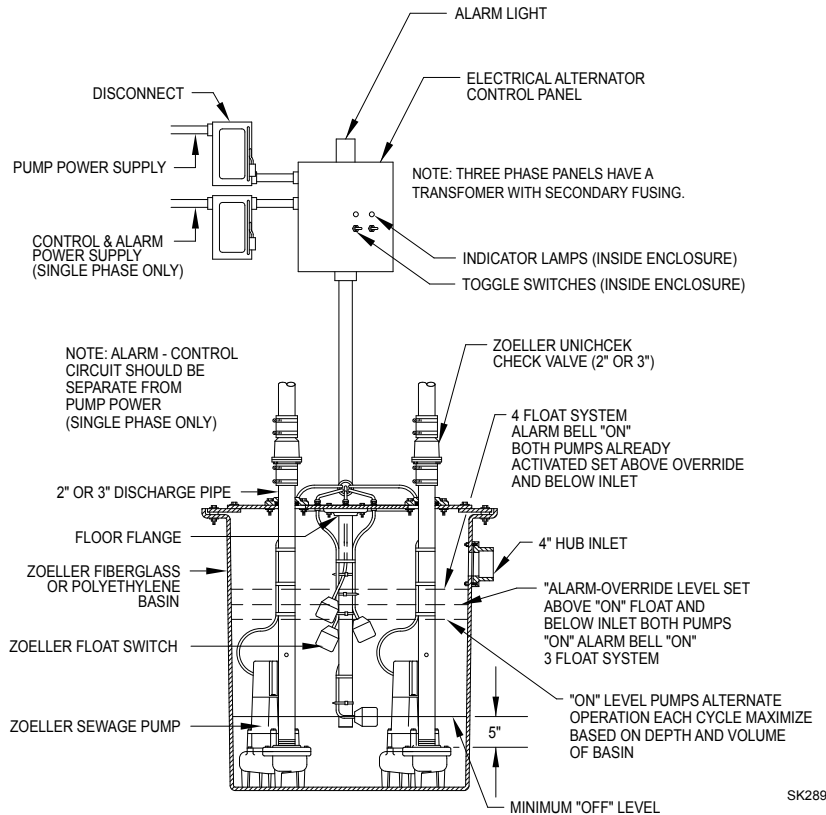
NOTE: All variable level float switches in this section are mechanically activated and do not contain mercury.

# CONTROL PANEL USED WITH THREE PHASE PUMPS

NEMA 4X ENCLOSURE (Float Switches not included)			
Order No.	Dimensions H x W x D	Volts*	Amp Range
10-1102	14" x 12" x 6"	200/230/460	1.0 - 1.6
10-1104	14" x 12" x 6"	200/230/460	1.6 - 2.5
10-1106	14" x 12" x 6"	200/230/460	2.5 - 4.0
10-1108	14" x 12" x 6"	200/230/460	4.0 - 6.3
10-1110	14" x 12" x 6"	200/230/460	6.0 - 10.0
10-1111	14" x 12" x 6"	200/230/460	9.0 - 14.0
10-1112	14" x 12" x 6"	200/230/460	13.0 - 18.0
10-1114	14" x 12" x 6"	200/230/460	17.0 - 23.0
10-1115	14" x 12" x 6"	200/230/460	20.0 - 25.0
10-1183	14" x 12" x 6"	200-208	23.0 - 32.0
10-1154	14" x 12" x 6"	575	1.6 - 2.5
10-1156	14" x 12" x 6"	575	2.5 - 4.0
10-1158	14" x 12" x 6"	575	4.0 - 6.3

\*Three phase panel has multi-tap transformer with secondary fusing.

## DUPLIX ELECTRICAL ALTERNATING SYSTEM




### Sequence of Operation for Duplex Panel

- Operation can begin after the following:
  - Correct voltage is supplied to Panel
  - Panel is properly grounded
  - Pumps are connected correctly to Panel
  - Panel Circuit Breakers are closed
  - Floats are installed properly
  - Overload Protection is adjusted to Pump nameplate amps
  - Pump HOA Switches are set to "Auto"
  - Control On/Off Switch is set to "On"
- When the "Stop" and "Lead" floats are closed Pump 1 will energize and the Pump 1 Pump Run Light will illuminate. Pump 1 will remain operational until the "Stop" float opens.
- The next time the "Stop" and "Lead" floats are closed the Alternating Circuit will energize Pump 2 and the Pump 2 Pump Run Light will illuminate. Pump 2 will remain operational until the "Stop" float opens. This cycle will repeat each time the fluid level rises and falls.
- If the fluid level continues to rise after the first pump has been energized the "Lag" float will close. When the "Lag" float has closed the second Pump will Energize. Both Pumps will remain operational until the "Stop" float opens.
- In a three float system when the "Lag" float is closed the following will also occur:
  - The External High Water Light will illuminate
  - The Audible High Water Horn will sound
  - The Auxiliary Dry Contacts will close
- In a four float system, the alarm float should be the third float causing an alarm to sound when the lead pump fails to operate or the rate of in flow into the basin exceeds the capacity of one pump. When the alarm float is closed the following will occur.
  - The External High Water Light will illuminate
  - The Audible High Water Alarm will sound
  - The Auxiliary Dry Contacts will close

As the liquid level continues to rise the fourth float will close, energizing the lag pump. The lag pump and the lead pump will remain energized until the "Stop" float opens.

NOTE: In Duplex systems where it is considered normal for two pumps to operate in tandem during peak flow conditions, the third and fourth float may be reversed.
- The Audible High Water Horn can be silenced by pressing the Alarm Silence Button. When the "Alarm" float opens the External High Water Light, Audible High Water Horn and Dry Auxiliary Contacts will be reset.

 **WARNING** All electrical systems must be installed by a qualified licensed electrician and according to the National Electrical Code. (See section 430-71 through 430-113 plus any others that apply)

Refer to FM0712 for correct selection of Electrical Alternator.