

AMERICAN AUTOMATED CONTROLS

DESIGN AND SPECIFICATION INFORMATION WATER SYSTEM

Water Systems control panels are easily specified and ordered by completing the simple panel guide below. Panel pricing can be obtained by starting with a base panel list price found in the pricing section and adding the list prices of the desired options.

CONTROL SERIES¹ _____

A-ALARM OPTION² _____

B-BREAKER OPTION _____

ENCLOSURE TYPE _____

CONTROL PANEL OPTIONS _____

Control Series:

- ____ HAC(#) Hydro-Pneumatic control
- ____ PAC(#) Pre-Charged control
- ____ LAC#)(E,T) Level control for Storage Tank (E=electrode, T=transducer)

designates number of pumps (1=simplex, 2=duplex, 3=triplex)

Alarm Option: Place "A" in the designated space followed by desired alarms from the list below. Indoor panels include alarm horn, Test-Off-Normal switch/indicator light (ea. alarm), powered remote alarm contacts, and dry alarm contacts as standard equipment. Outdoor panels also include top mounted alarm light w/ red Lexan lens.

- | | | |
|------------------------|------------------------------|--------------------------------|
| 1. Low Hydro-level | 2. High Hydro-level (E) | 3. Low Hydro-pressure |
| 4. High Hydro-pressure | 5. Low Suction cut-out | 6. Low Well cut-out |
| 7. Low Level cut-out | P(C) . Pump Fail (CT) | P(F) . Pump Fail (Flow) |

Breaker Option:

No.	VOLTAGE ²	PHASE	HP	No.	VOLTAGE ²	PHASE	HP	No.	VOLTAGE ²	PHASE	HP
1	230V	1	2	6	460V	3	5	11	208v	3	3
2	230V	1	3	7	460V	3	10	12	208v	3	7.5
3	230V	1	5	8	460V	3	25	13	208v	3	10
4	230V	1	7.5	9	460V	3	50	14	208v	3	30
5	230V	1	10	10	460V	3	>50				

Enclosure Type: Place desired enclosure code in designated space.

- 1 - NEMA 1 2 - NEMA 12 3 - NEMA 3R 4 - NEMA 4X(fiberglass)

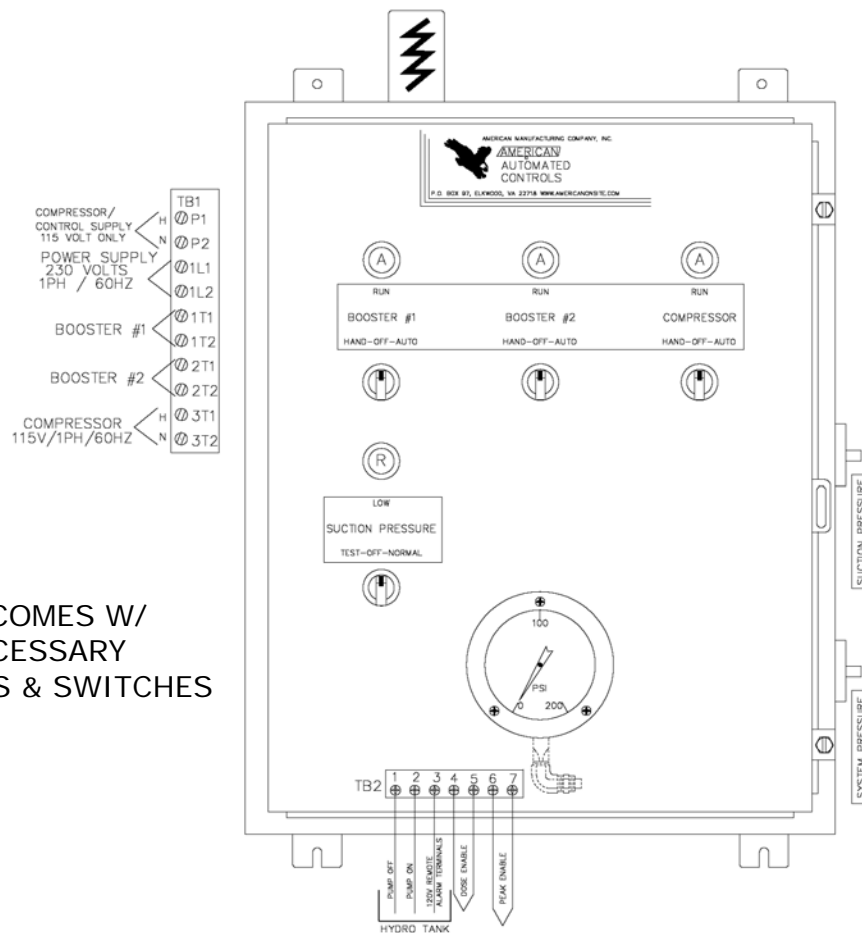
Control Panel Options: See options list in the design section and place selected options in designated space in alphabetical order.

¹ For combination controls, repeat control series and breaker option for second control type before going on to alarm option. (Ex: HAC2B12-LAC1B12)

² Phase and voltage code must be specified on all panels, even if no breakers are desired. See factory for availability of desired voltages not shown.

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"HAC" Series – Hydro-Pneumatic Automatic Control



* PANEL COMES W/
ALL NECESSARY
GUAGES & SWITCHES

Typical Control Model Number: HAC2-A5-B1-2-J1

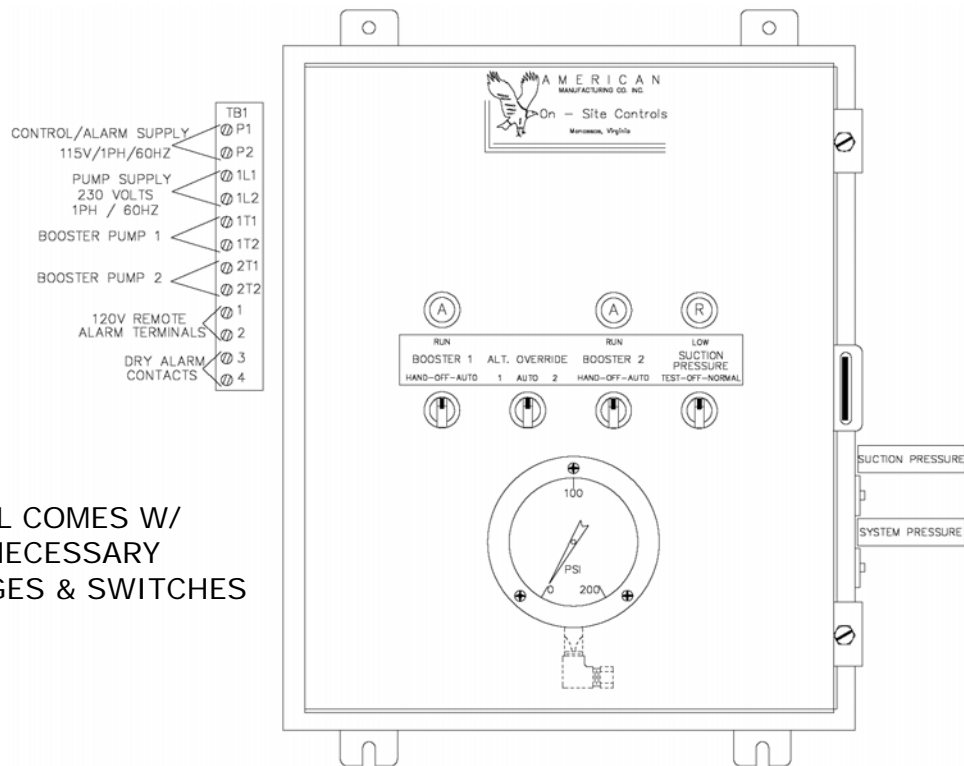
Hydro-pneumatic (**H**) automatic control (**AC**), two pump (**2**) - low suction cut-out alarm (**A5**) - breakers (**B**) for 1ph, 230 volt, 2 HP pump (**1**) - NEMA 12 enclosure (**2**) - upgraded 18 FLA contactor (**J1**).

The pump control panel is equipped with pressure switches and liquid level relays to automatically control the air-water ratio contained within the hydro-pneumatic tank. The water level in the hydro tank will normally range between the "Pump Off" high-level electrode and the "Pump On" low-level electrode attached to the hydro tank. In the event the pressure drops below the "Pump On" water pressure and the "Pump Off" high-level electrode is indicating a full water tank, the air compressor will activate to restore the proper air-water ratio in the tank. The compressor will remain on until the "Pump Off" pressure is reached or the "Pump Off" electrode is uncovered at which time the air compressor will stop and the lead pump will start and fill the tank while continuing to restore the proper air-water ratio.

The control panel is typically equipped with a "Low Suction Pressure" alarm. If the "Low Suction Pressure" set-point is reached, the pressure booster pump(s) will cut out and an audio/visual alarm will activate. The control may be specified with a high pressure alarm or other safety factor protocols.

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"PAC" Series – Pre-Charged Automatic Control



* PANEL COMES W/
ALL NECESSARY
GUAGES & SWITCHES

Typical Control Model Number: PAC2-A5-B1-2-J1X(21)

Pre-Charged (**P**) automatic control (**AC**), two pump (**2**) - low suction cut-out alarm (**A5**) - breakers (**B**) for 1ph, 230 volt, 2 HP pump (**1**) - NEMA 12 enclosure (**2**) - upgraded 18 FLA contactor (**J1**), extra option dry alarm contacts for remote indicator (**X21**).

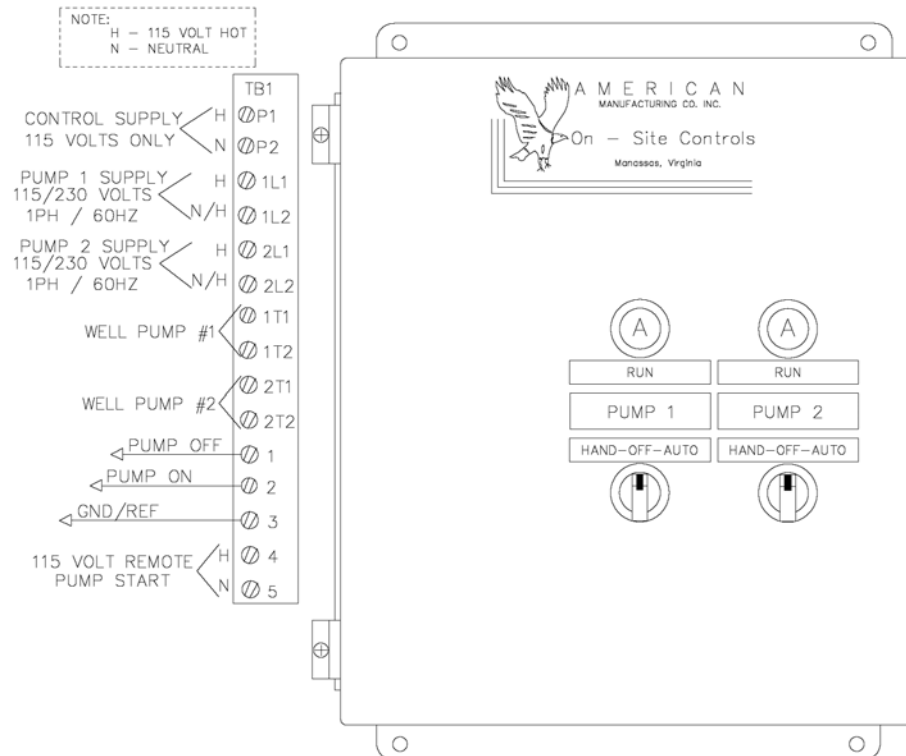
Water shall be pumped from two booster pumps to pressurize the distribution network and to be controlled by a PAC series control panel. The pressure switch tube is connected to the distribution network piping at the pre charged pressure tank location and senses the water pressure. When the water pressure drops below the Pump On water pressure, the lead booster pump will be activated. When the High Pressure is achieved the pump will turn off and the lead pump will alternate.

In the event a low suction pressure is sensed (and indication that the system may be running out of water) the alarm shall sound. The alarm may be silenced by turning the Test-Off-Normal switch to the off position.

In the event the operator desires to select one of the pumps to always be the lead pump, the operator shall place the Alternator Override switch in the position pointing to the selected pump.

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"LAC" Series – Level Automatic Control



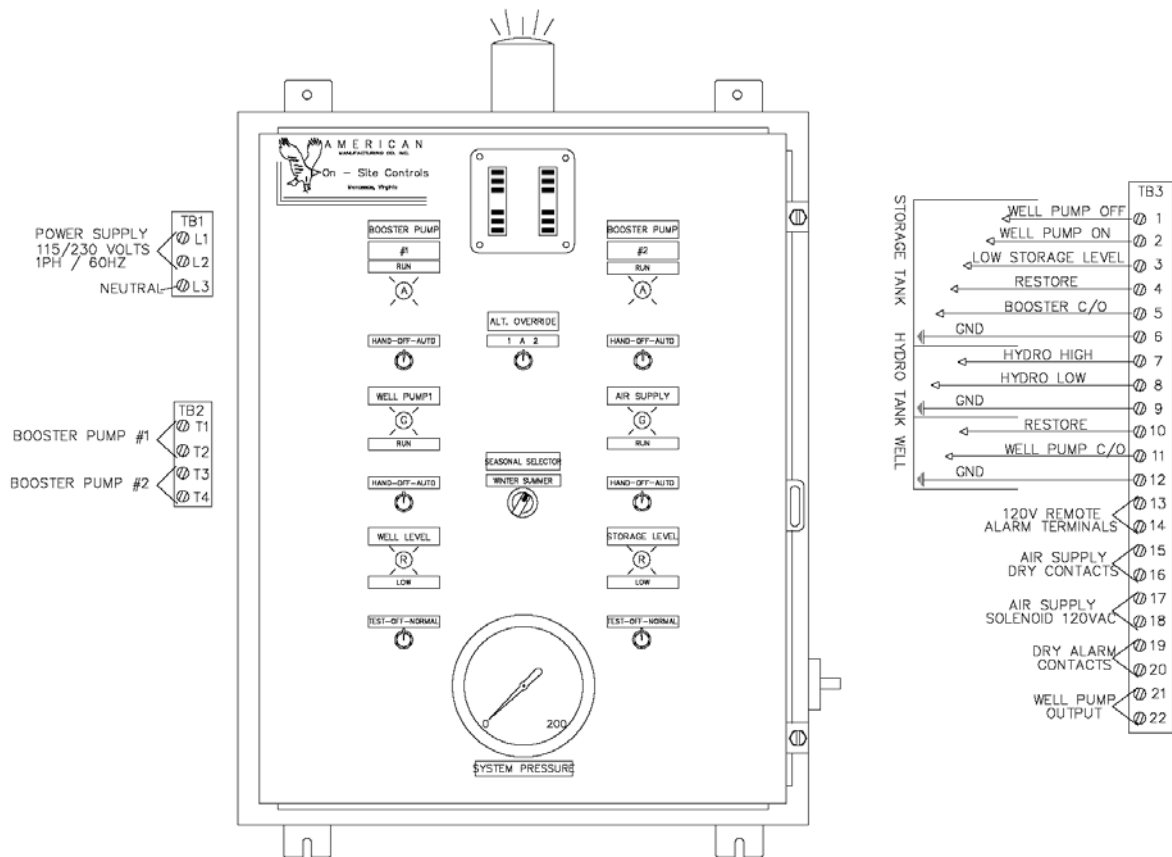
Typical Control Model Number: LAC2(E)-B1-2-J1XZ

Level (L) automatic control (AC), two pump (2), electrode sensor (E) - no alarm () - breakers (B) for 1ph, 230 volt, 2 HP pump (1) - NEMA 12 enclosure (2) - upgraded 18 FLA contactor (J1), extra option remote start (X), oil-tight switches (Z).

Water shall be pumped from two well locations to fill the storage tank and to be controlled by a LAC series control panel. The ground reference electrode must be in the water. Under normal operating conditions with a full tank, all three electrodes will be in the water. As the water drops below the Pump Off elevation nothing will happen. When the water level drops below the Pump On elevation, the lead pump will activate and continue to operate until the Pump Off electrode is again in the water. The lead pump will then deactivate and lead pump will alternate.

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Combination Water System Controls



Typical Control Model Number: HAC2/LAC1(E)-A6,7-B1-2-BFJ5OX(11,21)

Combination Hydro-pneumatic (**H**) automatic control (**AC**), two booster pumps (**2**) and Level (**L**) automatic control (**AC**), one pump (**1**) electrode sensor (**E**) - low well cut-out alarm (**A6**) & low level cut-out alarm (**7**) - breakers (**B**) for 1ph, 230 volt, 2 HP pump (**1**), NEMA 12 enclosure (**2**) - bell/horn (**B**), flashing light (**F**), upgraded 50 FLA contactor (**J5**), override switch (**O**), 120v solenoid circuit (**X11**), dry alarm contacts (**X21**).

Water shall be pumped from the well location(s) to fill the storage tank and to be controlled by a LAC series control panel. The ground reference electrode must be in the water. Under normal operating conditions with a full tank, all three electrodes will be in the water. As the water drops below the Pump Off (Storage) elevation nothing will happen. When the water level drops below the Pump On (Storage) elevation, the lead pump will activate and continue to operate until the Pump Off electrode is again in the water. The lead pump will then deactivate and lead pump (if present) will alternate.

The pump control panel is equipped with pressure switches and a liquid level relay to automatically control the air/water ratio contained within the hydro-tank. The panel is typically equipped with "Low Hydro Pressure" and "Low Suction Pressure" alarms. If the pressure drops and reaches the "Low Pressure" set-point on Pressure Switch, audio/visual alarms will activate. If the "Low Suction Pressure" set-point is reached on the Pressure booster pump(s), cut out and audio/visual alarms will activate.

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WATER SYSTEM CONTROL ACCESSORIES

Part#

BEH#

Suspended electrode holder for mounting in threaded holes in storage tanks or other types of applications. Substitute number of electrodes desired in place of (#) in part number.

O3176

Ice-free 5-probe electrode holder with heater.

ESKIT

Electrode adapter kit for attaching suspended electrode wire to standard electrode holders.

ESWIRE

Water resistant suspension cable for use with suspended electrodes, can be cut to desired lengths or shipped in bulk rolls.

SSROD14

1/4" stainless steel rod for use in storage tanks or other liquid level monitoring applications, can be cut to any length and threaded on 1 or both ends.

SSELECTRODE

Stainless steel suspended electrode for monitoring liquid level in storage tanks or wells, includes plastic sheath.

BRELECTRODE

Brass suspended electrode for monitoring liquid level in storage tanks or wells, includes plastic sheath.

HT2X18

Hydro sensor assembly for monitoring liquid level in Hydro-Tanks includes three stainless steel rods suspended within a 2" clear pvc pipe, and two 3/4" female npt openings for mounting on side of tank.

HT2X18HP

Same as above for high-pressure applications, uses 2" galvanized pipe instead of pvc pipe.

COMPRESSORS/VALVES

A wide variety of air supply components are available including solenoid valves, filters, regulators, gauges, and air compressors. Any of the above are available for mounting inside control panels, or can be shipped separately for external mounting. Call factory for details and/or ordering information.

Other water system control accessories such as pressure switches, gauges, transducers, pressure snubbers, valves, brass fittings and more are available upon request. Check factory for pricing and availability.

