



Before operating the keg washer with chemicals do some water only runs to ensure proper operation and allow time to adjust CO2, Air and HLT water pressure. Once water has been put in the tank and hook up two kegs you will need to verify proper rotation of the pump. This is done by going to TIMMING then to TEST page select test and then Caustic Clean test. Observe water level in tank should go down 2-5 inches and then return to the same level as when you started. If level does not go down the pump rotation is reversed, go to CONFIG page and use the pump rotation switch. You should only have to do this once. As good practice always inspect hoses, clamps and fittings to be in good working condition before operating the keg washer.

Always use protective gear when operating the keg washer. You are dealing with hot chemicals that are under pressure.

Keg Viking

Operating Manual

- 1 Power Standard configuration 208-240 Single Phase 30 Amps L6-30 Male Twist Plug on a 10 Foot Cord. Customer installs

Optional Configuration 208-240 3 Phase 30 Amps L15-30 Male Twist Plug on a 10 Foot Cord. Customer installs
- 2 Compressed Air Recommended size Commercial grade 60-80 Gallon 3 HP compressor

Supplying 10+ CFPM. Use a short run of ½" line and ½" connectors. Or better yet a ¾" hard-piped manifold ¾ Inch high flow regulator. Connection on keg washer is a ½" female NPT. **Do not use smaller fittings it will not operate properly.**

Customer supplies adapter
- 3 CO2 Required Regulated 12-15 PSI. Connection is 1.5" Tri-Clamp. You cannot use a beverage grade regulator (does not supply enough volume).

Do not use anything smaller than ½" regulators or piping.

Customer Supplies adapter
- 4 Water HLT HLT Water to 1.5" Tri-clamp water (uses about 10-12 Gallons per cycle)

1.5" Tri-clamp
- 5 Cold Water Optional used only to lower temperature of kegs in case of using

- temperature sensitive sanitizer. 1.5" Tri-clamp
- 6 Steam Optional Steam supply 10-15 PSI Sanitary steam required.
1.5" Tri-clamp Customer Supplies adapter

Assembly: Your keg washer is shipped mostly assembled. You may also have to attach the back manifold if it was removed for shipping. You will also need to install the supplied power cord as pictured.

- Initial setup:
- 1 Connect the CO2 from the regulator set to 10-15 PSI.
 - 2 Hook up HLT Water
 - 3 Hook up Compressed air
 - 4 Hook up Cold water/Steam if Used
 - 5 Fill with water 10-12 gallons (Total vessel capacity 14.5 Gallons)
 - 6 Plug the unit in
 - 7 Make sure that pump rotates in the correct direction.

Order of operation

HLT Hot Water Rinse

- 1 Left keg dump blow out and HLT water rinse and Spear functional test to drain
- 2 Right keg dump blow out and HLT water rinse and Spear functional test to drain
- 3 Caustic Clean cycles length of cycle varies between keg size selected
- 4 Air to blow residual Caustic back to tank

- 5 Hot HLT water rinse to drain
- 6 Air blow out to drain
- 7 Multiple Sanitizer cycles depending on hold time selected
- 8 Air blow to return to sanitizer (Last cycle blow out CO2)
- 9 CO2 Flush and hold
- 10 CO2 Prime and Hold
- 11 Done

With 3 min sanitizer hold time cycle time is approximately 8 Min

Cold Water Rinse

- 1 Left keg dump blow out and HLT water rinse and Spear functional test to drain
- 2 Right keg dump blow out and HLT water rinse and Spear functional test to drain
- 3 Caustic Clean cycles length of cycle varies between keg size selected
- 4 Air to blow residual Caustic back to tank
- 5 Cold water rinse to drain (water must be cold enough to lower the temperature of the shell below the temperature that causes the sanitizer to
- 6 Air blow out to drain
- 7 Multiple Sanitizer cycles depending on hold time selected
- 8 Air blow to return to sanitizer (Last cycle blow out CO2)
- 9 CO2 Flush and hold
- 10 CO2 Prime and Hold
- 11 Done

With 3 min sanitizer hold time cycle time is approximately 8 Min

Steam Sanitize

- 1 Left keg dump blow out and HLT water rinse and Spear functional test to drain
- 2 Right keg dump blow out and HLT water rinse and Spear functional test to drain
- 3 Caustic Clean cycles length of cycle varies between keg size selected
- 4 Air to blow residual Caustic back to tank
- 5 HLT water rinse to drain

- 6 Air blow out to drain
- 7 Steam sanitize cycle open to drain
- 8 Air to blow to drain any residual liquid
- 9 CO2 Flush and hold
- 10 CO2 Prime and Hold
- 11 Done

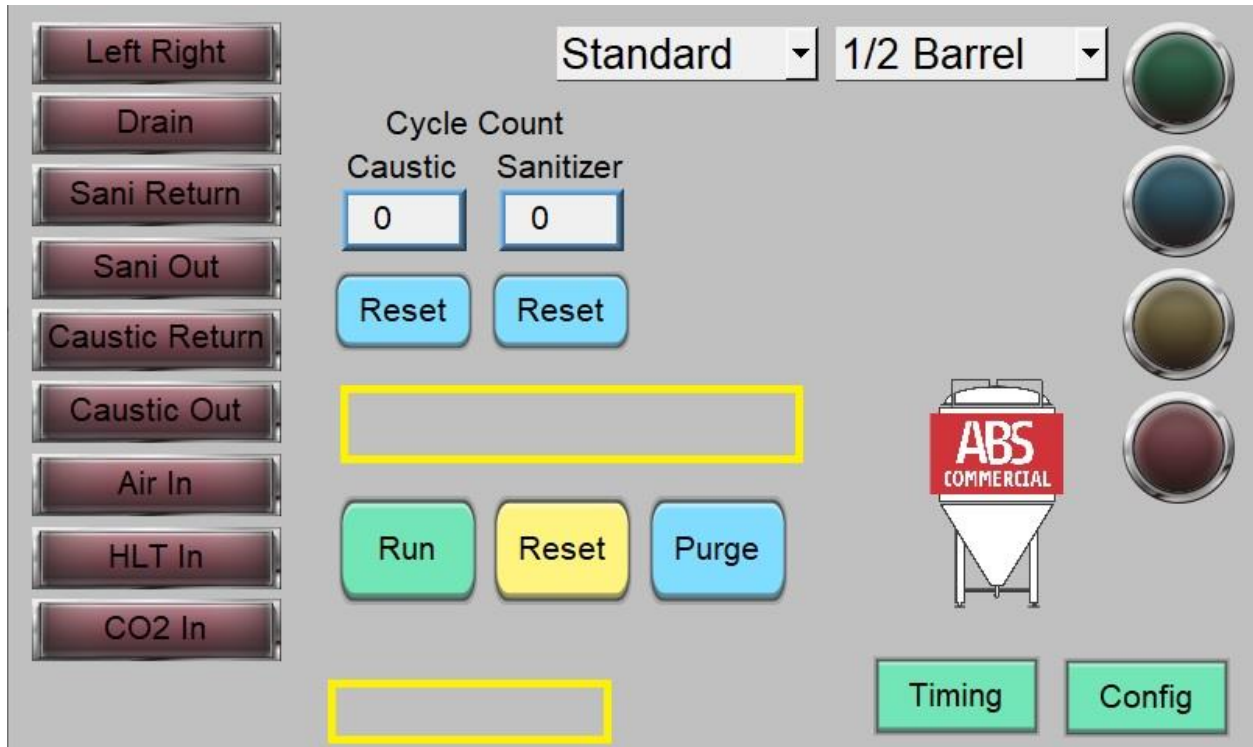
Cycle time is approximately 6 Min

When operating keg washer the levels of caustic and sanitizer will go down 1-4 inches during normal operation. It should return to filled level as the appropriate cycle is complete. Fluid loss during a run should be so small that it should not even be noticeable.

Chemicals

When mixing chemicals use proper technique and follow your chemical manufacturers recommended procedures. As always water first then chemical, make sure to wear protective eyewear when operating the keg washer. As you are washing kegs the effectiveness of the chemical will get to a point they are no longer useful. Use testing strips from your chemical company to determine how many cycles that can be safely done and then set as a parameter on Config Page.





Home Screen:

Indicator lights on left side shows valve that are activated.

Cycle count show remaining count on value set on CONFIG page, when changing out or adding chemicals use the reset button to change count. When count goes to 2 or less it will flash a yellow light 0 or less it will flash red but will not prevent operation.

Standard and heavy duty clean selector will allow for a double cycle of caustic cleaning

Use ½ ¼ 1/6 or Custom barrel settings for the appropriate size keg. Do not mix different size kegs for better results and always clean two kegs.

Upper Yellow Rectangle

This is your status and message area. This will show what mode of operation the keg washer is in

Lower Yellow Rectangle

H is for heating element operation. Heating Relay is activated

Pump indicator will show low rpm and high rpm when pump running

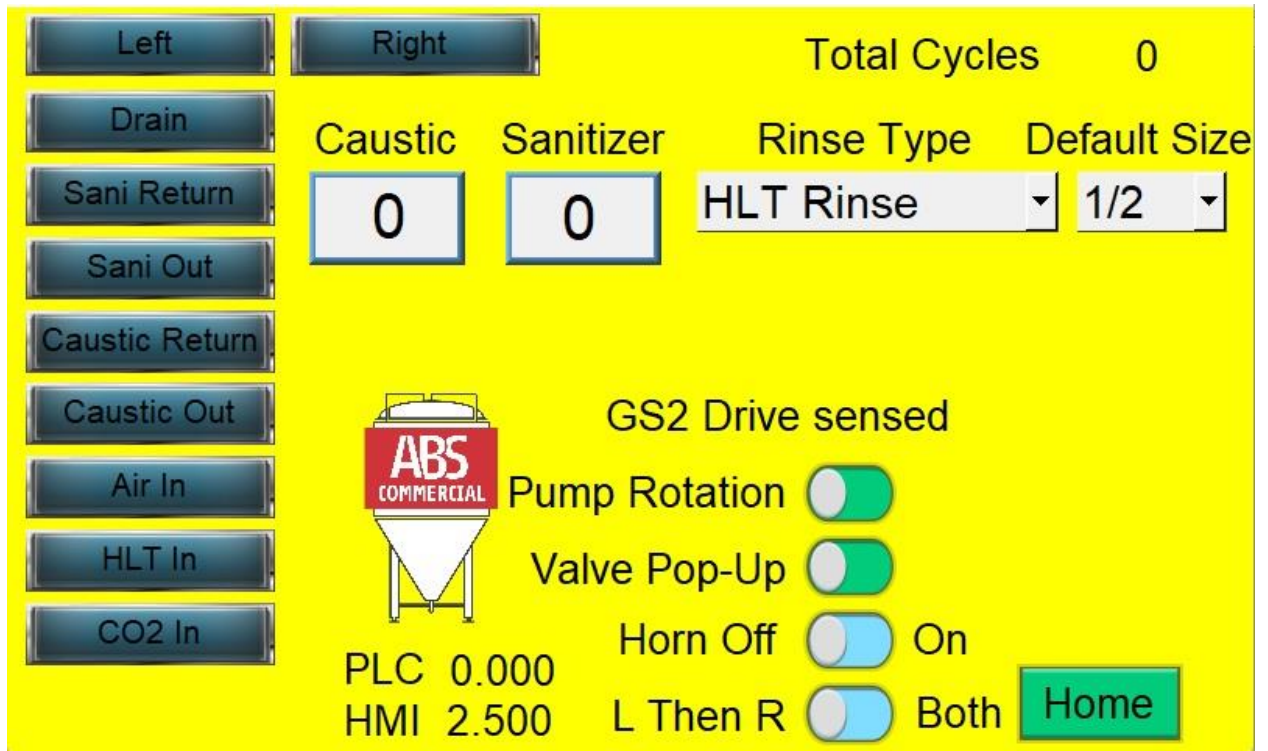
Yellow button is an additional indicator of the Pressure switch

Light stack duplication on screen.

Green	I am ready
Blue/Flashing Green	I am running and I am happy
Flashing Yellow	Something needs to be attendant to, but I am running
Flashing Red	Something need immediate attention, but I am running
Steady Red	E-stop Engaged or Caustic Level is To Low Not Running
Lights out	I am ready but been sitting for a while. Keg default size Reset.

Selectable buttons are RUN RESET PURGE, Sanitizer and Caustic RESET, TIMING and CONFIG Buttons. Standard and keg size selector.

If Steam or cold water rinse is selected additional buttons will appear on the lower left of screen



CONFIG screen

Indicator lights on left side turns green to show valve that are activated. You can on this screen touch the button to manually activate a valve. Do not override when the program is running. Since this is a manual override make sure all valve are close before exiting this screen.

Total Cycle count

Rinse selector available option HLT Rinse, Cold Water Rinse, Steam Sanitize

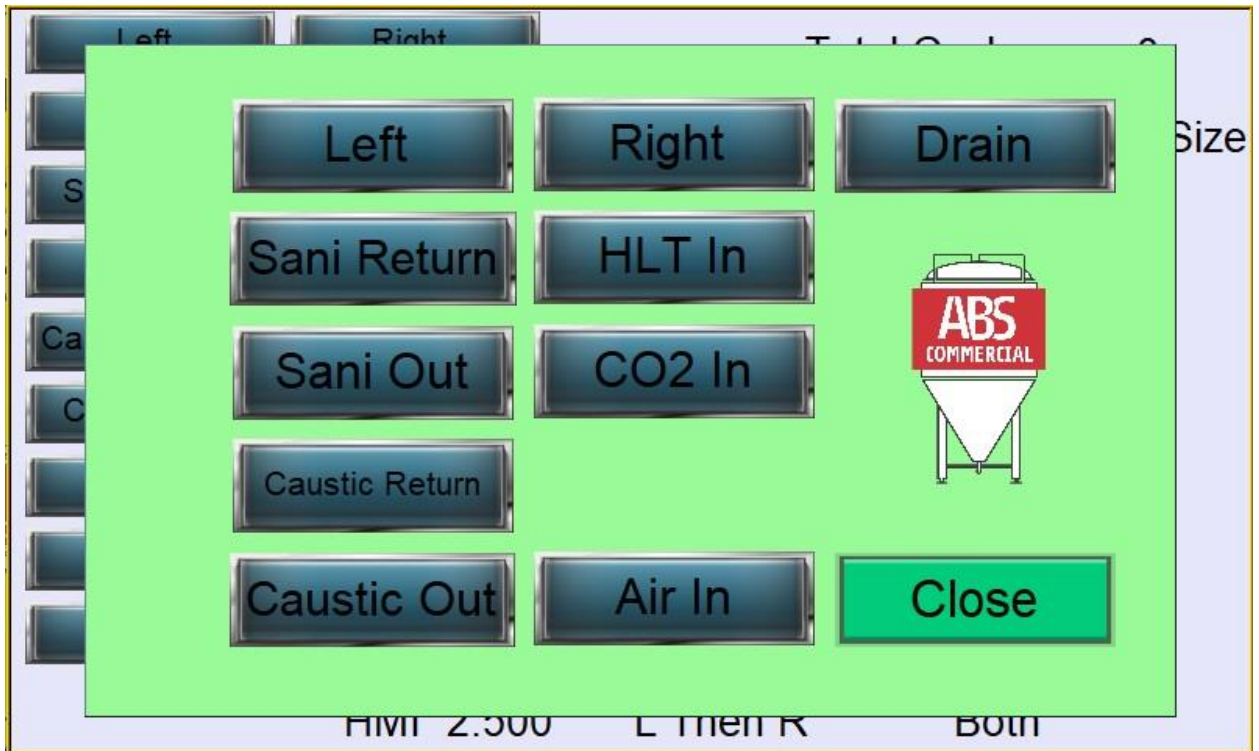
Caustic and Sanitizer cycle count selector. Input the value that the home screen goes to when you hit reset.

Default Size selector kegs if others have been selected it will go back to selected size on this page after 10 Min.

Drive Series that is sensed by the PLC

Pump rotation selector. Will reverse pump rotation in case of phase reversal from our test facility. You will either need this or not and this condition should never have to change again.

Valve pop-up selector. AKA fat finger mode



Horn Off allows you to select the horn when keg is finished. Does not affect the Horn select on the CO2 config page

PLC and HMI versions in use are shown

L Then R / Both selector. Allows for individual dump function on each keg. If one keg has a lot of liquid in it may temporarily show spear function fail when using L Then R (it will clear and cleaning will continue. If using Both the keg may not completely empty and you must use the purge function.




Home Button goes to page one

Set sanitizer time to your chemical manufacturers recommended hold time. 180 seconds or 3 min is the standard for all kegs. The total cycle time is all the times added together. There are times that are necessary for timing and evacuation times will affect this total. 2 Second push for resets.

General Values

Total Cycle Time

Sanitizer Time

Reset Values   

Keg Purge

Keg Air Blast

Pump Low Speed

Pump High Speed

Keg Clear Delay

Keg Clear Options

Keg Rinse Options

Keg CO2 Options

TIMING Page 1:

Total cycle time is the estimated total of all cycles as entered in TIMING page 1 thru 4.
 Sanitizer time is the Total time of contact of the sanitizer as entered on TIMING page 3.

Reset Value/General Values Blue button will reset to default values (requires a 2 second push to activate).

Keg clear option will add another water rinse cycle on the initial keg dump. A setup option key will be visible and can be selected.

Keg Rinse Option Will add up to 2 rinse cycles between caustic and sanitizer cycles

Keg CO2 Options will add additional CO2 purge with pause and horn options

Keg Dump	1/6	1/4	1/2	Cust	L Then R	Both
Keg Air Blast	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Air to push residuals out of keg	
Keg Drain	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Time to allow to drain	
Keg HLT In	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Clean out keg with high pump HLT	
Keg Air Blast 2	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Air to push water to drain. Cycle repeats for right keg. Select both to do both kegs at the same time may not give proper indication on spear failure but shortens cycle time about 40 seconds.	
Keg Caustic Clean (2 (3) Cycles)						
Caustic High Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	There are two caustic cycles on 1/4 and 1/2 barrels the 1/6 barrel gets three shorter cycles to prevent fluid buildup. Using heavy duty cycle doubles the caustic cycles to 4 and 6.	
Caustic Low Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>		
Caustic Pause	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>		
Air Blast	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="button" value="1"/>	<input type="button" value="3"/>
					<input type="button" value="4"/>	<input type="button" value="TEST"/>
						<input type="button" value="Home"/>

TIMING Page 2:

Initial keg dump will depressurize the keg blow out residue with air, HLT rinse and clear water with air. It will do left keg then the right keg to verify spear function. Selector switch on top right gives you the option to do both kegs at once saving approximately 40 seconds on the cycle time.

Water Rinse	1/6	1/4	1/2	Cust				
Water High Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>				
Water Low Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>				
Rinse Air Blast	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Water rinse pause is used for pump spool down time			
	1/6	1/4	1/2	Cust				
Keg Sanitize (4 Cycles)								
Sanitize Low Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>				
Sanitize High Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>				
Sanitize Pause	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	Sanitize pause is used for pump spool down time but still counts towards total sanitization time.			
Air Blast	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>				
				<input type="text" value="1"/>	<input type="text" value="2"/>	<input type="text" value="4"/>	<input type="text" value="TEST"/>	<input type="text" value="Home"/>

TIMING Page 3:

Water rinse will use HLT water unless cold water rinse has been selected. The function is the same. If cold water rinse is used and you need to lower the temperature of the keg shell for sanitizer you may need to adjust water high pump and rinse air blast times accordingly. You may have issues if your water piping does not allow for enough pressure and volume to feed the pipe.

Sanitize cycles are just too wet all surfaces in the keg. 4 cycles are used to not allow the keg to dry due to high temperature. Not all timing parameter are shown so refer to TIMING page 1 for total time.

CO2 Purge	1/6	1/4	1/2	Cust	<input checked="" type="checkbox"/> Pause <input checked="" type="checkbox"/> Horn
Co2 In	0	0	0	0	
CO2 Hold	0	0	0	0	
CO2 Purge	0	0	0	0	
Co2 In And Hold	0	0	0	0	Allow for desired level of CO2 pressure in keg
Steam Sanitize (1 Cycle)					
Sanitize	0	0	0	0	Pause will halt cycle to allow for you to invert keg. This will allow to purge from the on top of the keg. Horn will alert you when keg washer requiries action from operator. Push RUN to continue cycle. Selecting pause to off will just set the keg-washer to continue on.
HLT Rinse	0	0	0	0	
Air Blast	0	0	0	0	
<input type="button" value="1"/> <input type="button" value="2"/> <input type="button" value="3"/> <input type="button" value="TEST"/> <input type="button" value="Home"/>					

TIMING Page 4:

Adjust regulator to 12-15 PSI.

Pause when used (recommended), will pause cleaning before CO2 is put into the keg the unit will flash red. It will allow you to flip the keg to upright position for a more efficient CO2 purge and prime. Upside down is perfect for cleaning but not for priming the keg. The Horn can be used as an additional attention getter. The operation will stop until the run button is pressed

Adjust time on steam and HLT rinse for your condition. If HTL rinse is not desired set HLT rinse to 0

	1/6	1/4	1/2	Cust
Keg HLT In	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Keg Air Blast 2	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

The pump will go to high speed. It can take 8 seconds for it to spin up to speed. Using this option on the left/right keg option both kegs will still dumped at the same time on the extra cycle.

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Keg Dump Options page.

Water Rinse 2	1/6	1/4	1/2	Cust
Water High Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Water Low Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rinse Air Blast	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

Water Rinse 3	1/6	1/4	1/2	Cust
Water High Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Water Low Pump	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Rinse Air Blast	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

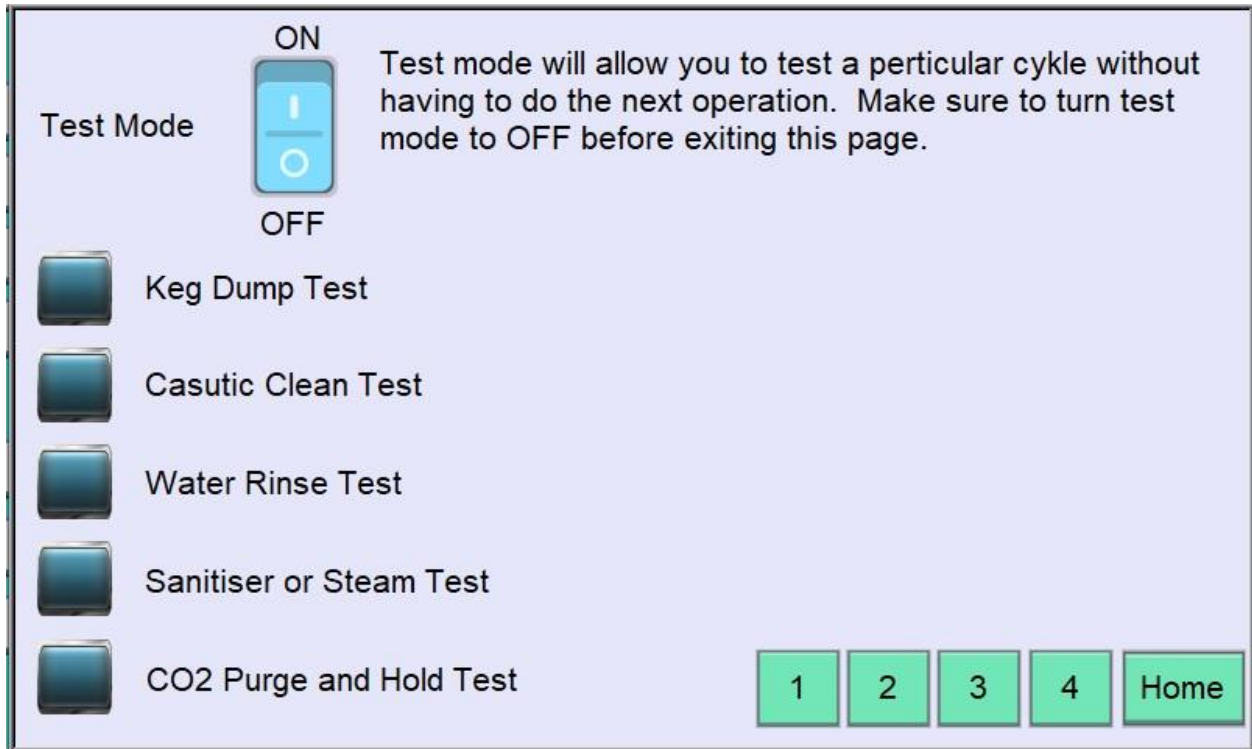
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Water Rinse Options page. If only one additional cycle is desired set values to 0

CO2 Purge 2	1/6	1/4	1/2	Cust
CO2 Purge	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Co2 In	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
CO2 Hold	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
CO2 Purge	0	0	0	0
Co2 In And Hold	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

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CO2 Options page. For a more efficient CO2 prime the kegs must be set upright. This page will allow you to add an extra step to purge and prime your kegs.



TIMING Page TEST:

Turn test mode to on to try out your timing on a particular cycle. If test is not on the cycle will continue on to the next cycle until all are complete. Test mode can be turned on any time. Don't forget to turn test mode back off when done.

PID Operation

Set PID controller to the temperature that the manufacturer of the Caustic is recommending. The tank will heat once enough liquid is in the tank to activate the float switch and the PID calls for heat. No other settings are needed on the PID.

Troubleshooting

All Keg-Washers that leave ABS-Commercial has received 5 cycles with ½ barrels and 5 cycles with 1/6 Barrel kegs. The unit left fully tested and operating. All items are fully programmed and have the proper settings on them. There is no need to ever touch the VFD and the pressure switch controller. The only thing you have to set is the caustic temp on the PID controller. Other than that all things that are adjustable are controlled thru the HMI. The wiring diagram on the inside of box is to aid in identifying components, wiring and to assist in trouble shooting.

1st time running:

Make sure that no damage has been done to the Keg-Washer during transportation. Make sure that you are showing numbers on the timing page. Set the Rinse type default is HLT Rinse and Keg size Default is 1/2BBL. Make sure the rotation on the pump is correct. And all supplies are hooked up.

Most issues come from not having enough air or CO2. The inlet for the regulator is ½" NPT; do not use a fitting that you got from Lowes/Home Depot they will not work. We must maintain 60-75 PSI on the first regulator to operate the valves even when we are pushing air thru the kegs. We are displacing up to 31 gallons of volume so too small of a compressor, too small of a tank on that compressor or too small of a line will result in problems. Also on the CO2 side we have seen a lot of beverage gas regulators. They are too small and might freeze up on you. In best case scenario you will have to increase the time to pressurize the kegs.

Nothing comes on: Loss of 220 Power in

- A: Reset breaker in your electrical box.
- B: Check for power coming in using a multi-meter

Screen is dead PID is on: Loss of 24VDC

- A: Open up box and check the reset breaker.

B: Check power supply light is on (replace power supply)

All valves are not actuating: Loss of signal

A: Check PLC Power light (steady green) and RUN light (flashing Green) is normal. (Reboot PLC)(Replace PLC)

B: Check PLC ERR on (Reboot PLC) (Replace PLC)

C: Make sure 24VDC- wire is attached (Replace valve assembly backplane)

D:

Single Pneumatic Valve are not actuating: Loss of signal or air

A: Secure cable to Valve assembly Check wires attached to the CO-08TR

B: Check for light on Electric Valve (if light is off go to C) if light is on unplug airline at the pneumatic valve, If you have air coming out (Replace Pneumatic Valve) if you do not have air, unplug air-line at bottom of valve assembly If you have air, check condition on air-line for damage kinks (replace as necessary) If no air replace (electric Valve)

C: Check for appropriate output on CO-08TR unit, Verify power light on both units (Replace CO-08TR Unit)

PID has no power:

A: If everything is working and PID is dark and the Caustic is not heating(Replace PID)

PID is working but caustic is not heating: Loss of power going to heating element

A: Check for OUT light on PID and on the 41F-1Z relay unit is lit. If both are on and the large contactor is actuating (loud clunk) (check wires / replace Heating Element) the large contactor is not actuating (Replace the 41F-1Z relay) If the 41F-1Z is not lit, check for continuity between 6 and 7 (relay) on PID. If no continuity, internal relay bad (Replace PID)

B: Caustic is low warning but caustic is not low (replace Float switch)

Caustic is not heating:

For the heating element to operate there is a multistep process that takes place.

- 1 Make sure there is enough liquid in the caustic tank (float switch on sends 24VDC+ to pin 6 of PID) Also trigger Caustic Low level warning if off.
- 2 We want to heat PID SV is lower than PV, PID closes the relay OUT illuminates on the PID and 24VDC gets sent to the 41F-1Z relay also triggers the heat H on bottom of screen.
- 3 The 41F-1Z relay will energize and send the second leg of the 220V power to the contactor that will then close and send power to the heating element.

So we have 3 relays and a switch in the circuit and all conditions must be met for things to heat.

PLC no response

- A: PPC to HMI communications is thru the phone cable. Make sure both ends are seated and the phone cable is seated into the adapter
- B: Make sure the PORT3 RX TX green light is flashing (Replace PLC)
- C: TX is flashing and RX is not (Replace HMI)

PID is not showing temperature

- A: UUU display is an indication that the PID is not sensing the thermocouple, could be a bad connection most likely at the thermocouple. Or it could be an indication of a bad Thermocouple (replace)

Keg is not emptying properly

- A: