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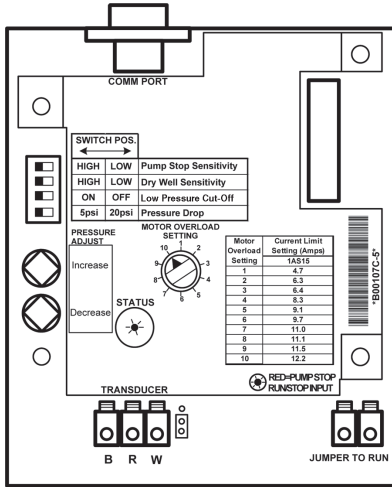
# Aquavar SOLO – Quick Installation Guide

1. **Mount Aquavar SOLO Drive** (in a vertical position);
  - Must have 6" minimum clearance on all sides for proper cooling.
2. **Wire Input Power to SOLO Drive** (Single Phase, 230V)
  - Review Circuit Breaker Sizing - see IMS-SOLOQ-2 or IM229
3. **Wire Motor Drop Cable to SOLO Drive** (75°C Copper Wire min.)
  - 3AS Models - Use with Three Phase, 230V, ¾ to 5 HP Motors
  - 1AS15 Model - Compatible w/Single Phase, 230V Motors
    - 3-Wire - .5 - 2 HP CP / Pentek XE; .5 - 1.5 HP FE & Grundfos
    - 2-Wire - .5 - 1.5 CentriPro, Pentek XE, Franklin Elec. & Grundfos 2-Wire - units with R05K or newer software only.
  - Review Wire Sizing (Table 4 of IM229)
4. **Mount Transducer and Confirm Transducer Cable Wiring**
  - Transducer cable maximum length = 200 feet
  - Connect Pressure Transducer to piping manifold and to ground
5. **User Interface Board Adjustments**
  - Select proper "Current Limit Setting" (equal to motor SFA)
  - 1AS15 Only - Set "Pump Stop Sensitivity" - High is Default
  - 3AS – Only - Select maximum frequency setting (60 Hz or 80 Hz);
    - 60 Hz = matching Liquid End HP and Motor HP
    - 80 Hz = "over-speed" application; motor HP > Liquid End HP
  - Dry Well Sensitivity - Set on "High" position;
    - If nuisance tripping occurs, switch to "Low" position
  - Low Pressure Cut-Off and Pressure Drop setting adjusted to application / system requirements.
  - Optional use of Secondary Switch Connection, refer to IM229
6. **Adjust Tank Pressure**
  - Set approximately 20 PSI below pressure set point
  - Adjust as needed to optimize - see IMS-SOLOQ-2 or IM229
7. **Turn Drive Power On - Adjust Pressure - Purge Air**
  - Purge air from system and check for leaks
  - Factory default is 50 psi - push and hold Increase Pressure button if higher pressure is desired and also adjust tank pre-charge.
8. **Check Motor Rotation and Confirm Performance**

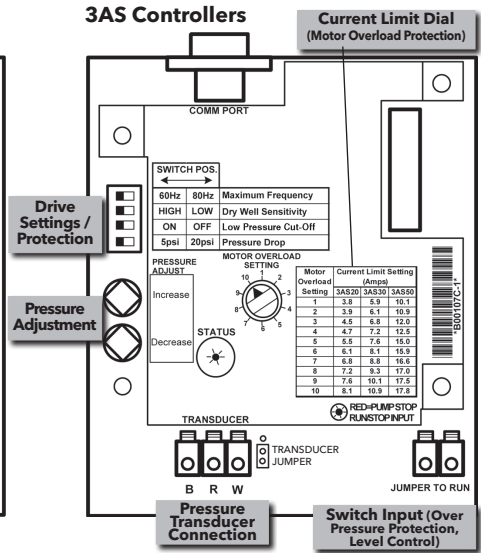
Refer to Aquavar SOLO Installation Manual, IM229, for complete details.  
Check Motor Insulation Resistance on retrofit jobs before replacing drive.

# Aquavar SOLO User Interface Board

## 1AS Controllers



## 3AS Controllers



## Service Factor Amps - All Motors

HP	230 Volt									200 Volt	
	1Ø 2-Wire			1Ø 3-Wire			3Ø			3Ø	
	CentriPro <sup>1</sup>	Franklin	Grundfos	CentriPro <sup>1</sup>	Franklin	Grundfos	CentriPro	Franklin	Grundfos	CentriPro	Franklin
½	4.7/4.7	6	6	6.3/6.1	6	6	N/A	N/A	N/A	N/A	N/A
¾	6.4/6.2	8	8.4	8.3/7.8	8	8.4	3.9	3.8	N/A	4.5	4.4
1	9.1/8.1	9.8	9.8	9.7/9.4	9.8	9.8	4.7	4.7	N/A	5.5	5.4
1½	11.0/10.4	13.1 <sup>2</sup>	13.1 <sup>2</sup>	11.1/10.9	11.5	11.6	6.1	5.9	7.3	7.2	6.8
2	N/A	N/A	N/A	12.2	13.2 <sup>2</sup>	13.2 <sup>2</sup>	7.6	8.1	8.7	8.8	9.3
3	N/A	N/A	N/A	N/A	N/A	N/A	10.1	10.9	12.2	12	12.5
5	N/A	N/A	N/A	N/A	N/A	N/A	17.5	17.8	19.8 <sup>2</sup>	20.2 <sup>2</sup>	20.5 <sup>2</sup>

- CentriPro 2-Wire motors have Generation 1 and Generation 2 amp ratings, see motor nameplate or motor data sticker that was supplied with motor.
- Amps are higher than controller overload range - use of these motors will current limit and provide reduced performance.

## Pressure Ranges for All Available Transducers

Transducer	1AS15 / 3AS20		3AS30		3AS50	
	(Min. PSI)	(Max. PSI)	(Min. PSI)	(Max. PSI)	(Min. PSI)	(Max. PSI)
100 PSI <sup>(1)</sup>	20	85	20	85	10	50
200 PSI <sup>(2)</sup>	40	170	40	170	20	100
300 PSI	60	255	60	255	30	150

(1) Standard on 1AS15, 3AS20 and 3AS30 (2) Standard on 3AS50

# Aquavar<sup>®</sup> SOLO Controller

## PRESSURE TANK SIZING and SET-UP

- Use Total Tank Volume to size tank. Total tank volume should be approximately 20% of the pump's maximum flow rate. Ex., pump maximum flow = 10 GPM = 2 gallon Total Vol. tank.
- If the User Interface Board (UIB) is set for a 5 PSI Pressure Drop adjust the tank pressure to 20 PSI below the desired system set-point. Ex., 50 PSI system set-point = 30 PSI tank pre-charge.
- If the UIB is set for a 20 PSI Pressure Drop adjust the tank pressure to 30 PSI below the desired system set-point. Ex., 50 PSI system set-point = 20 PSI tank pre-charge. Each system is different so this setting may require minor adjustment for optimum performance.
- *Large Tanks - installations with large volume tanks may require minor tank pre-charge pressure adjustments for optimum performance - please see more details in IM229, especially if the system turns On and Off too often or does not turn off.*

Maximum Pump GPM	Recommended Tanks		
	Total Volume	Order No.	or Order No.
10	2	V6P	TP6P
23	4.5	V15P	TP15P
41	8.2	V25P	TP25P
70	13.9	V45	TP45
100	19.9	V60	TP60

## CONTROLLER, BREAKER, GENERATOR SIZING

Motor		Controller Model <sup>②</sup>				Circuit Breaker <sup>③</sup>	Generator <sup>④</sup> (VA)	① Supply voltage must be 196 VAC - 265 VAC.
HP	Voltage <sup>①</sup>	1AS15	3AS20	3AS30	3AS50			
½	230					15	2200	② Shaded areas indicate which controller models can be used with which motors. Lighter shading indicates combinations where controller will limit peak performance to 85% of catalog value for pump/motor.
	200							
¾	230						2900	
	200							
1	230					3500		
	200							
1½	230					20	4400	
	200							
2	230					30	6100	
	200							
3	230					40	8100	
	200							
5	230					50	13300	③ Circuit Breaker or Dual Element Time Delay Fuse Size (Amps) protecting branch circuit supplying controller.
	200							

④ Minimum size of single phase 240 V generator required.

# FAULT CODES

**No Light:** Low Voltage or No Voltage to Controller

## **Green Light Codes:**

- **Constant Green - Unit in Standby:** system is Off or system detected low voltage, below 190 VAC and is waiting for voltage to increase to acceptable level.
- **Blinking Green - Pump is running:** all is normal

## **Red Light Codes:**

- **Constant Red - Controller Error:** internal controller issue, replace controller.
- **2 Blinks - Dry Well:** controller will restart automatically
- **3 Blinks - Transducer Fault:** controller will not run if the signal from the transducer is disconnected or out of tolerance.
- **4 Blinks - Over Current:** controller will attempt to restart three times before displaying this fault. To clear the fault, turn power off, wait 1 minute, turn power on. Fault may be caused by setting Overload Dial on too low a setting.
- **5 Blinks - Short Circuit:** controller will attempt to restart three times, to clear, turn power off, wait 1 minute, turn power on.
- **6 Blinks - Ground Fault:** controller will not restart - To clear the fault, turn power off, wait 1 minute, turn power on.
- **7 Blinks - Temperature:** controller will restart automatically when the temperature reaches an acceptable level.
- **8 Blinks - Open Lead:** controller will not restart. To clear the fault, turn power off, wait 1 minute, turn power on.
- **9 Blinks - Low Pressure Cut-off:** Controller will not restart. Pressure 20 PSI below set point for 30 seconds. May be a broken pipe or tripped pressure relief valve.

*Note - In many instances the controller is blamed for faults caused by bad motors, tanks with incorrect or no air charge, poor wiring and/or improper grounding. Since the SOLO may be used to retrofit an existing installation into a variable speed system, IM229 includes instructions on checking Motor Insulation Resistance and Winding Resistance. Before replacing a SOLO drive on a retrofit installation please perform these tests to verify the motor and wire are in good condition and the tank pressure is set properly.*

# Aquavar SOLO - Quick Installation Guide

## Recommended 1AS15 Overload Settings - All Motor Brands

Motor Type	HP	Brand	Motor SFA	No. Wires	Set Dial On <sup>2</sup>
2 wire Gen 1	.5	CentriPro, Pentek	4.7	2	4.7
	.75	CentriPro, Pentek	6.4	2	6.4
	1	CentriPro, Pentek	9.1	2	9.1
	1.5	CentriPro, Pentek	11.0	2	11.0
2 wire Gen 2 <sup>3</sup>	0.5	CentriPro, Pentek	4.7	2	4.7
	0.75	CentriPro, Pentek	6.2	2	6.3
	1	CentriPro, Pentek	8.1	2	8.3
	1.5	CentriPro, Pentek	10.4	2	11
2 wire	.5	Franklin / Grundfos	6	2	6.3
	.75	Franklin / Grundfos	8 / 8.4	2	8.3
	1	Franklin / Grundfos	9.8	2	9.7
	1.5	Franklin / Grundfos	13.1 <sup>1</sup>	2	12.2
3 wire Gen 1	.5	CentriPro, Pentek	6.3	3	6.3
	.75	CentriPro, Pentek	8.3	3	8.3
	1	CentriPro, Pentek	9.7	3	9.7
	1.5	CentriPro, Pentek	11.1	3	11.1
	2	CentriPro, Pentek	12.2	3	12.2
3 wire Gen 2 <sup>3</sup>	.5	CentriPro, Pentek	6.1	3	6.3
	.75	CentriPro, Pentek	7.8	3	8.3
	1	CentriPro, Pentek	9.4	3	9.7
	1.5	CentriPro, Pentek	10.9	3	11
	2	CentriPro, Pentek	12.2	3	12.2
3 wire	.5	Franklin / Grundfos	6	3	6.3
	.75	Franklin / Grundfos	8 / 8.4	3	8.3
	1	Franklin / Grundfos	9.8	3	9.7
	1.5	Franklin / Grundfos	11.5 / 11.6	3	11.5
	2	Franklin / Grundfos	13.2 <sup>1</sup>	3	12.2

## SOLO Dial Setting

Overload Setting	Current Setting
1	4.7
2	6.3
3	6.4
4	8.3
5	9.1
6	9.7
7	11.0
8	11.1
9	11.5
10	12.2

Overload Setting Dial is located on the UIB (User Interface Board) inside the controller.

<sup>1</sup> Amps are higher than controller overload range - use of 1AS15 on these motors will limit current and reduce performance.

<sup>2</sup> **Note:** It is acceptable to use a higher setting than the 2-wire motor maximum amperage because the 2-wire motor's on winding overloads will protect the motor while the higher SOLO setting will not inhibit performance.

<sup>3</sup> Gen 2 motors - 2-Wire were released for sale in Nov/Dec 2011, 3-Wire will be available Feb/March 2012.

# VFD Accessories



9K585 Moisture  
Sensor with Relay

## 9K585 Wiring Instructions:

White and Green Wires - Connect to  
Switch Input Terminals

Black Wire to Transducer "B" Connector

Red Wire to Transducer "R" Connector



6K210 Gauge Guard

Float Switches - tested for use  
with Aquavar SOLO Controllers



9K589 Over-Pressure Switch  
for use with Aquavar SOLO  
or "S-Drive" Controllers

Connect wires to Switch Input  
Terminals

## FLOAT SWITCH CATALOG NUMBERS

A2X13	10'	N.O.
A2X33	20'	N.O.
A2X53	30'	N.O.
A2X23U	15'	N.C.
A2X33U	20'	N.C.
A2X53U	30'	N.C.

See BCPVFDACC for  
more information.

Xylem Inc.  
[www.xyleminc.com](http://www.xyleminc.com)

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