

## Operating Instructions & Parts Manual

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

# Artesian Drive®

# Pump Station

Models ADW2W31, ADW2W51,  
ADW2W53E, ADW2W71,  
ADW2W73

### KEY FEATURES OF THE ARTESIAN DRIVE PUMP STATION INCLUDE:

- Constant water pressure with a wide range of settings (15-95 psi) (Note: The maximum obtainable system pressure is limited by the performance of the pump installed)
- Smaller pressure tank can be used
- No in-rush (power-on transient) current
- Low motor start-up current (soft-starting)
- Active Power Factor Correction minimizes input RMS current
- Protection features
  - Dry run conditions – using intelligent load monitoring (see Page 6)
  - High voltage / lightning surge
  - Low line voltage
  - Short circuit

### General Safety Information

Carefully read and follow all safety instructions in this manual and on pump. Keep safety labels in good condition. Replace missing or damaged safety labels.



*This is a SAFETY ALERT SYMBOL. When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.*

**▲ DANGER** Warns of hazards that WILL cause serious personal injury, death or major property damage if ignored.

**▲ WARNING** Warns of hazards that CAN cause serious personal injury or death, if ignored.

**▲ CAUTION** Warns of hazards that MAY cause minor personal injury, product or property damage if ignored.

**IMPORTANT:** Indicates factors concerned with operation, installation, assembly or maintenance which could result in damage to the machine or equipment if ignored.

**NOTE:** Indicates special instructions which are important but are not related to hazards.

**▲ WARNING** Read these warnings and instructions carefully. Failure to follow could result in serious bodily injury and/or property damage.

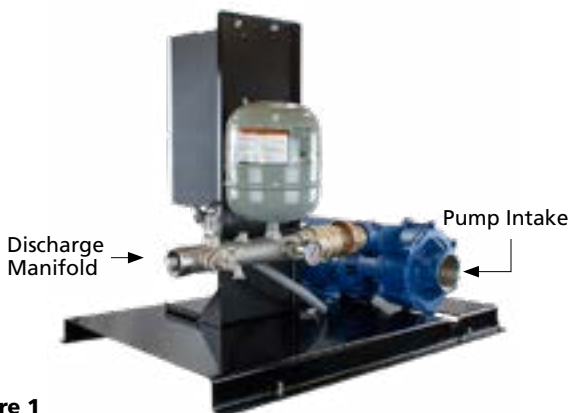


Figure 1

**▲ WARNING** Capacitors inside the Artesian Drive controller can still hold a lethal voltage even after power has been removed. Allow 10 minutes for dangerous internal voltage to discharge before opening the unit.

**▲ CAUTION** Do not use power factor correction capacitors with the Artesian Drive. Damage will result to both motor and drive.



**▲ WARNING** Electrical installations shall be in accordance with National Electric Code (NEC) and all applicable local codes and ordinances. A licensed electrician should perform installation.



**▲ WARNING** Be sure system is connected to a circuit equipped with a fuse or circuit breaker of the correct rating.



**▲ DANGER** Always disconnect power source before performing any work on or near the controller, motor or its connected load. If the power disconnect point is out-of-sight, lock it in the open position and/or tag it to prevent unexpected application of power. Failure to do so could result in fatal electrical shock or bodily injury.



**▲ DANGER** DO NOT handle pump with wet hands or when standing in water as fatal electrical shock could occur. Disconnect main power supply before handling system for any reason.



**▲ WARNING** Protect the power cable from coming in contact with sharp objects, oil, grease, hot surfaces or chemicals. DO NOT kink the power cable. If damaged replace immediately.



**▲ WARNING** NEVER leave the control box, fused disconnect switch, or covers open (either partially or completely) when not being worked on by a competent electrician or repairman.



**▲ DANGER** Always use caution when operating electrical controls in damp areas. If possible, avoid all contact with electrical equipment during thunderstorms or extreme damp conditions.



**▲ WARNING** Install all electrical equipment in protected area to prevent mechanical damage which could produce serious electrical shock and/or equipment failure.



**▲ DANGER** DO NOT use this system to pump flammable liquids such as gasoline, fuel oil, kerosene, etc. Failure to follow the above warning could result in property damage and/or personal injury.

**▲ WARNING**

This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

**▲ CAUTION**

Do not pump water above 140 degrees Fahrenheit.



**▲ WARNING**

This unit not tested for use in swimming pool areas.

**How it Works**

**SYSTEM DIAGNOSTICS**

In addition to regulating system pressure and accurately controlling motor operation, the Artesian Drive continuously scans the system and can detect a variety of abnormal conditions. If there is elevated risk of damage to a part of the system, the drive will protect the system and display a code for the fault. If possible, the drive will try to restart itself when the fault condition passes.

**PUMP SIZING – ARTESIAN DRIVE (CENTRIFUGAL)**

The Artesian Drive is configured at the factory for use with standard 3-phase motors and pumps.

**NOTE:** The Artesian Drives are factory programmed to F&W pumps to provide optimum performance and motor protection. The Artesian Drive can be used with other pumps, but the maximum motor amperage needs to be compared to the factory programmed current value (refer to the Specifications section under the appropriate model). If the maximum motor current varies more than 5% from the programmed value, the motor current value in the drive needs to be changed for motor protection and optimum performance. For details on how to change this value in the drive, please contact Technical Support at 1-800-345-9422.

**▲ WARNING**

The motor rated current must be set correctly to avoid a risk of fire in the event of a motor overload.

**DRIVE CONFIGURATION**

When sized correctly, the Artesian Drive systems are ready to go right out of the box and need no configuration. Under certain circumstances there are several programming parameters that can be changed to accommodate non standard systems. For further information to change these parameters, please call Technical Support at 1-800-345-9422

**▲ WARNING**

Serious or fatal electrical shock may result from contact with internal electrical components. DO NOT, under any circumstances, attempt to modify connections to

the drive until power has been removed and 10 minutes have passed for internal voltages to discharge!

**UNDERLOAD SENSITIVITY**

The Artesian Drive controller is configured at the factory to ensure detection of Underload faults in a wide variety of pumping applications including dead head and run dry conditions. In very rare cases (as with certain pumps in shallow wells) this trip level may result in nuisance faults. If the pump is installed in a shallow well, activate the controller and observe system behavior. Once the controller begins to regulate pressure, check operation at several flow rates to make sure the default sensitivity does not induce nuisance Underload trips. If it becomes necessary to desensitize the Underload trip level, please call of Technical Support at 1-800-345-9422 for further details.

**▲ WARNING**

Serious or fatal electrical shock may result from contact with internal electrical components. DO NOT, under any circumstances, attempt to modify connections to the drive until power has been removed and 10 minutes have passed for internal voltages to discharge!

**Before Getting Started**

**▲ WARNING**

Serious or fatal electrical shock may result from failure to connect the ground terminal to the motor, Artesian Drive controller, metal plumbing, or other metal near the motor or cable, using wire no smaller than motor cable wires. To minimize risk of electrical shock, disconnect power before working on or around the Artesian Drive system. **CAPACITORS INSIDE THE ARTESIAN DRIVE CONTROLLER CAN STILL HOLD LETHAL VOLTAGE EVEN AFTER POWER HAS BEEN DISCONNECTED. ALLOW 10 MINUTES FOR DANGEROUS INTERNAL VOLTAGE TO DISCHARGE BEFORE REMOVING ARTESIAN DRIVE COVER.**

**▲ WARNING**

Do not use motor or system in swimming areas.

**IMPORTANT:** This equipment should be installed by technically qualified personnel. Failure to install it in compliance with national and local electrical codes and within F&W recommendations may result in electrical shock hazard, fire hazard, unsatisfactory performance, or equipment failure. Installation information is available directly from F&W at our toll-free number 1-800-345-9422.

**▲ CAUTION**

Use Artesian Drive only with properly sized three phase motors. Use of this unit with improperly sized motors may result in damage to both motor and electronics.

**Controller Location Selection**

**▲ WARNING**

The drive's enclosure is NEMA 1 rated and is intended for indoor use only. It should be mounted in a location that provides protection from water spray/drips and only be accessed by trained and authorized personnel.

The Artesian Drive controller is intended for operation in ambient temperatures up to 104°F (40°C) at 230 VAC input.

**Installation Guidance and Instructions**

**INITIAL CONDITIONS AND PRECAUTIONS**

1. The Pump Station should be installed on flat surface rated for the weight of the pump station. A properly sized concrete slab is recommended.
2. Installation should be performed by licensed or qualified personnel.

3. The Pump Station shall be lifted with proper lifting equipment (i.e. fork lift). Be sure all necessary lifting equipment is used properly.
4. DO NOT ATTEMPT TO USE DRIVE SUPPORT BRACKET FOR LIFTING THE PUMP STATION. The bracket will not support the overall weight of the pump station.
5. The pump station must be installed according NEC and local electrical codes. Proper electrical disconnect MUST be installed in view of the pump station.
6. Ensure compliance with all applicable local, state, and OSHA regulations when installing, operating, repairing, or maintaining the pump station.
7. The pump station is manufactured to best ensure operator safety under normal operating conditions. The manufacturer will not take any responsibility for personal or equipment damage if the equipment has been modified or if the safeguards have been modified. Any proposed modifications must be carefully documented (to include a risk analysis) by the party proposing the modification; and coordinated with and approved by the manufacturer. Otherwise, the customer assumes all responsibility for its actions and subsequent consequences.

### INSTALLATION PROCEDURE

1. Position the skid in final location and attach to pad as necessary. NOTE: For serviceability of the pump and protection of discharge plumbing fixtures down line of the pump station, it is recommended to incorporate unions and isolation valves on the intake and discharge plumbing. If deemed applicable, a bypass loop with properly placed valves should also be incorporated into the installation.
2. Install plumbing to the intake of the pump. Note: For proper functionality of the system it is not recommended that a pipe size smaller than 2-1/2" is use on the intake of the pump. Note: For suction lift applications, intake pipe plumbing needs to allow for suction pipe to be filled by external water source to prime the pump. Note: If the water source for the pump station is susceptible to containing debris, an appropriately sized filter should be installed prior to the pump intake which should be checked & cleaned regularly to avoid clogging the pump and/or degrade system performance.
3. Install plumbing to discharge manifold. Note: For proper functionality of the system it is not recommended that a pipe size smaller than 2" is use on the discharge manifold. Note: To avoid causing damage to the system, when tightening onto the threads of the discharge manifold, a pipe wrench should be used on the manifold to keep the manifold from turning.
4. With supply power OFF, connect power supply cables to L1 & L2 terminals for single phase power supplied drives or L1, L2 & L3 terminals for three phase supplied drives. Attach ground wire to grounding lug on drive. See Figures 4 - 6 on page 7 & 8 for depictions of each HP power supply wiring connections.

## Wiring Connections

### CIRCUIT BREAKER AND WIRE SIZING

The minimum circuit breaker size and maximum allowable wire lengths for connection of motor to the Artesian Drive are given in the following table:

**TABLE 1: MINIMUM BREAKER SIZE AND MAXIMUM CABLE LENGTH (IN FEET)**

Drive Model	Minimum Recommended Input Cable	Input Current	Recommended Breaker	Maximum Continuous Current Output
ADW2W31	10	19.5	30	11.0
ADW2W51	8	36.4	50	15.0
ADW2W53E	10	18.8	30	18.0
ADW2W73	8	29.1	40	24.0
ADW2W71	4	55.8	80	23.0

#### NOTE:

- Aluminum wires should not be used with the Artesian Drive.
- Wire sizing between the service entrance and the controller must be sufficient to provide the required maximum input amps to the controller while conforming to local standards and codes.

The pressure tank pre-charge setting should be 70% of the system pressure sensor setting as indicated in the following table.

**TABLE 2: PRESSURE TANK AIR PRECHARGE (PSI)**

System Pressure (at Pressure Sensor)	Pressure Tank Precharge Setting (± 2 PSI)
30	21
35	25
40	28
45	32
50	35
55	39
60	42
65	46
70	49
75	53
80*	56

#### **▲ WARNING**

***Do not use motor or system in swimming areas.***

**NOTE:** Ensure that the system is properly grounded all the way to the service entrance panel. Improper grounding may result in the loss of voltage surge protection and interference filtering.

#### **▲ WARNING**

***Serious or fatal electrical shock may result from failure to connect the motor, the Artesian Drive, metal plumbing and all other metal near the motor, or cable to the power supply ground terminal, using wire no smaller than motor cable wires. To reduce risk of electrical shock, disconnect power before working on or around the water system.***

### START-UP PROCEDURES

Proper operation of the pump station requires that operators do not deviate from these procedures. Deviation from these procedures can result in serious/fatal injury to personnel and/or damage to the Pump Station.

## ▲ CAUTION

**Caution: Never hang or store items on pump station piping or components.**

1. Open any user installed valve on the intake side of the pump and verify that the isolation valve is closed if installed on the discharge side of the system
2. Verify that the pump is primed. For gravity fed systems, this can be accomplished by opening hose bib valve installed on the system manifold to allow the water pressure to push out the air from the pump. For suction lift systems, fill the pump and intake piping with external water source until water begins coming out the open hose bib valve.
3. Close hose bib valve.
4. Supply electrical power to Pump Station by turning on the user installed disconnect to the ON position and allow system to pressurize and check for leaks on plumbing installed.

While running the drive display shows the output frequency in Hz as well as motor amp draw and power use in kW. (Pressing and releasing the OK button toggles the large display area between the three measurements). When the drive is in standby the screen displays STOP.

**NOTE:** Artesian Drive maintains a constant pressure at the transducer. Although the pressure is constant at the transducer, pressure drops may be noticeable in other areas of the system when additional taps are opened. This is due to restrictions in the plumbing and will be more pronounced the farther the taps are from the transducer. This would be true of any system, and if observed, should not be interpreted as a failure in the performance of the Artesian Drive.

Although the pressure sensor can be adjusted up to 90 PSI, the maximum obtainable pressure in the system is dependent upon the full load capability of the pump at a given flow. For example, a pump is only capable of producing a pressure of 60 PSI at the flow demand. Increasing the pressure setting of the pressure sensor to 75PSI would only result in the pump running at full speed and producing a pressure of 60 PSI.

### SYSTEM TARGET PRESSURE SETPOINT

The default target pressure is set at the factory to 50 PSI. To change the target system pressure, parameter P1-19 should be changed. See Drive configuration access on page 5 for details on how to access parameter changes.

## UNDERLOAD INTELLIGENT RESET

(Display showing Eternal trip E-trip)

If an External Trip fault condition (underloaded motor) occurs, the most likely cause is a loss of prime, an over-pumped well (dry well), or loss of incoming feed water to the pump. In a dry well situation to allow the well to recover, the Artesian Drive controller will wait 30 seconds to 5 minutes, determined by the amount of time the motor had been running before sensing the underload, before restarting the motor. For example, the first time the fault occurs and the pump has been running 6 minutes, the controller stops the motor and will wait 30 seconds before attempting to restart the pump. If the system would then run for 2 minutes and an underload fault recurs, the controller will wait 3 minutes before attempting to restart the pump. This schedule allows for the minimum off-time possible based on the recovery time of the well or water feed supply.

If there is an obstruction (such as a closed valve) between the pump and the transducer, the controller may also sense an underload condition at this "dead head" condition stopping the motor to avoid damaging the pump.

### UNDERLOAD (EXTERNAL TRIP) WHILE PRIMING

The controller will run the pump for one minute at full speed before tripping out on an underload fault, which can occur if the pump is not fully primed. If the pump needs more than one minute before priming completely, the under-load protection can be turned off by changing parameter P1-15 to 0 while the pump is priming. Remember to turn back on the underload protection by changing parameter P1-15 to 1 once the pump has been primed. See Drive configuration access on page 8 for details on how to access parameter changes.

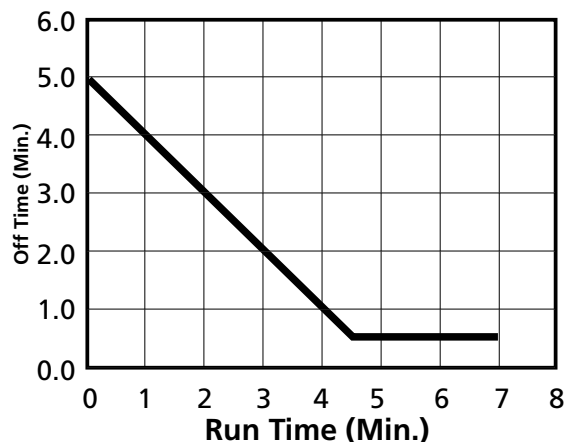


Figure 2

## DRIVE CONFIGURATION

Pressing and holding the OK button on the drive for approximately 3 seconds, will open the parameter menu access to the drive. Using the ^ & v buttons, you can scroll through the parameter. To make a change to a parameter press the OK button followed by the ^ & v buttons to set the new parameter value. Once the new value is set, press the OK

button to accept the new value. Pressing and holding the OK button on the drive for approximately 3 seconds to return to the standard run screen. Note: Parameters P1-03 thru P1-20 are always visible. To access the extended parameter list, Parameter P1-14 should be set to 201.

**TABLE 3: PARAMETER DETAIL CHART**

PARAMETER	SCREEN LABEL	NOTES
P0-09	User PID feedback	Pressure reading of transducer
P0-12	Output torque	Calculated output torque
P0-13	Trip Log	Trip Log
P0-33	Run time since last trip	Amount of time elapsed since the last trip code.
P1-03	Acceleration ramp time	Decrease value to increase acceleration speed of motor / Increase value to decrease acceleration speed of motor
P1-04	Deceleration ramp time	Decrease value to increase deceleration speed of motor / Increase value to decrease deceleration speed of motor
P1-08	Motor rated current	Set to maximum service factor amps of the pump motor. Note: Can only be changed when the motor is not running.
P1-14	Extended menu access	Password number must be set to 201 to change parameters other than P1-03 to P1-19
P1-15	Underload Protection	Should be set to 1 to provide protection from underload conditions such as loss of prime. Set to 0 to allow pump to prime without tripping out on underload upon initial instillation or after service.
P1-16	Underload %	Percent of full load at maximum speed to activate underload trip
P1-17	Standby %	When the drive is running below this % torque level and the pressure is holding steady, the drive will begin to go through the programmed logic to see if it will hold pressure when it turns off the pump. If the drive is not shutting off while pumping against a closed locked valve, this value should be changed to 5-10% above parameter P0-12 (Output torque) at the deadhead condition.
P1-19	Target Pressure	Target pressure for system in PSI. (Based on provided 100 PSI transducer) Note: If target pressure is raised, double check parameter P1-17 (Standby %) setting to verify drive will shut down with no flow.
P1-20	Drawdown PSI	Sets the amount that the system pressure has to drop below the set point while the drive is in standby before the drive will restart the motor. (Based on provided 100 PSI transducer)
P2-15	Relay 1 output function	"NC relay between terminals 14 & 16 that will Open under the conditions set: 0: Drive Running - If the drive is running the motor 1: Drive Healthy - If the drive is not tripped out 11: Ready to Run - If the drive is ready to run with jumper wire between terminals 7-13 in place 12: Drive tripped - If the drive has tripped out on a fault."
P2-18	Relay 2 output function	"NO relay between terminals 17 & 18 that will Close under the conditions set: 0: Drive Running - If the drive is running the motor 1: Drive Healthy - If the drive is not tripped out 11: Ready to Run - If the drive is ready to run with jumper wire between terminals 7-13 in place 12: Drive tripped - If the drive has tripped out on a fault."
P2-36	Start mode select	Sets the number of times the drive will try to re-start when it trips out on a fault.
P3-01	PID Proportional gain	PID Proportional gain feedback setting. Higher values will result in larger changes of the output frequencies in response to small changes in the feedback. Too high of a value can cause instability.
P3-02	PID Integral time	PID Integral time constant of feedback setting. Higher values will result in a more damped response.
P4-13	Output phase sequence	Used to reverse direction of the motor without having to re-wire at motor terminals. Note: Can only be changed when the motor is not running.
P6-03	Auto-reset delay	Sets the delay for time of the drive in seconds before it will auto-restart.
P6-10	PLC function enable	Should be set to 1: Enable to run the constant pressure program in the drive.

**TABLE 4: FACTORY DEFAULT SETTINGS**

	<b>PARAMETER</b>	<b>RANGE</b>	<b>ADW2W31</b>	<b>ADW2W51</b>	<b>ADW2W71</b>	<b>ADW2W53E</b>	<b>ADW2W73</b>	
P0-09	PID1 Feedback 1	0-100 %	(Read Only)					
P0-12	Output torque	0-100 %	(Read Only)					
P0-13	Trip Log		(Read Only)					
P0-33	t-Run since Trip	d:hh:mm	(Read Only)					
P1-03	Acceleration ramp time	3.0-100.0 s	10.0 s					
P1-04	Deceleration ramp time	3.0-100.0 s	20.0 s					
P1-08	Motor rated rurrent	Drive Dependent	9.8 A	14.5 A	21.0 A	14.5 A	21.0 A	
P1-14	Extended menu access	n/a	195					
P1-15	Underload Protection	0-1	1					
P1-16	Underload %	0.0-100.0 %	55	55	50	55	50	
P1-17	Standby %	0.0-100.0 %	35	35	30	35	30	
P1-19	Target Pressure	50.0 psi	50.0 psi					
P1-20	Drawdown PSI	5.0 psi	5.0 psi					
P2-15	Relay 1 output function	0, 1, 11, 12	12: Drive Tripped					
P2-18	Relay 2 output function	0, 1, 11, 12	12: Drive Tripped					
P2-36	Start mode select	1, 2, 3, 4, 5, 6	60.0 Hz					
P3-01	PID Proportional gain	3.0	5: Auto-4					
P3-02	PID Integral time	1.0 s	10					
P3-18	PID reset control	0: Continuous run	5					
P4-13	Output phase sequence	0: U,V,W (1: U,W,V)	0: U,V,W					
P6-03	Auto-reset delay	1-60 s	5 s					
P6-10	PLC function enable	1: Enable (0: Disable)	1: Enable					

**TABLE 5: ARTESIAN DRIVE EATON TROUBLESHOOTING GUIDE**

<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
Water flow rate is not as high as expected	Motor/Pump is running backwards.	Reverse rotation of motor with parameter P4-13
	Pump capacity cannot supply the demand.	Use pump with higher flow rating (if head requirement is still satisfied).
Excessive pressure fluctuations	Waterlogged tank	Check tank for bladder damage. Replace if necessary.
	Incorrect tank pre-charge pressure	Reset the tank pre-charge pressure (should be 70% of target pressure setting).
	Pressure tank is too small for flow rating of the pump	Use larger tank (refer to Table X on Page X for minimum Pressure Tank size).
	Drive Control feedback settings need adjusting	Adjust parameters P3-01 & P3-02
Motor runs continuously with no flow demand	Leak in the household or outdoor plumbing	Check for leaky faucets, valves and/or pipe fittings and repair
	Standby % not set correctly	Check parameter P1-17 for correct setting compared to P0-12
Drive will not come out of standby mode	Target pressure is not set correctly	Check parameter P1-19 for correct psi setting
	Drive PLC function not enabled	Verify parameter P6-10 is set to 1
	Defective transducer	Replace defective transducer

## DIAGNOSTIC FAULT CODES

Should an application or system problem occur, built-in diagnostics will protect the system. The display will change to indicate the nature of the fault. In some cases, the system will shut itself off until corrective action has been taken. Fault

codes and the recommended corrective action for each are listed in the following chart.

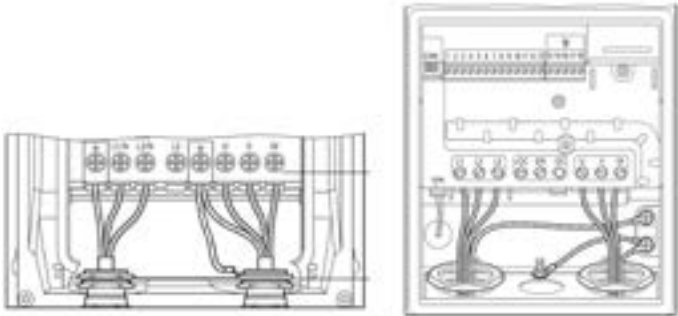
**▲ WARNING** *Do not attempt to carry out internal repairs. Return a faulty drive to the supplier for repair.*

**TABLE 6: ARTESIAN DRIVE EATON SYSTEM TRIP CODE TROUBLESHOOTING**

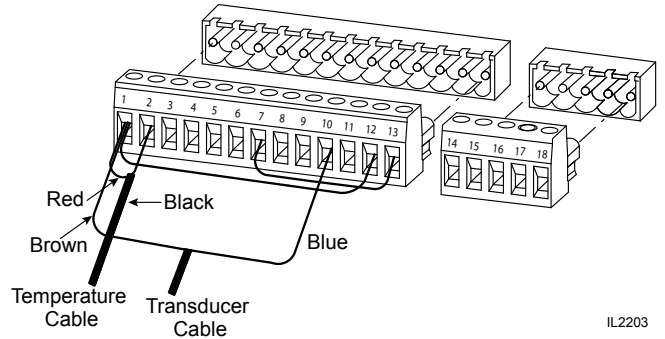
DISPLAY FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
External Trip E-Trip	Over pumped/dry well	Wait for well to recover and automatic restart timer to time out.
	Loss of Prime	Check for suction line air leaks
	Blocked Pump Suction inlet	Clear blockage
	Broken pump shaft	Replace pump shaft (or pump)
	Broken pump shaft	Replace pump shaft (or pump)
	Damaged or inoperative transducer	Replace transducer
Under voltage U-Volt	Low line voltage	Check line voltage Report low voltage to the power company
	Power was removed from Drive	Check voltage is present on all input lines & connections secure
Motor thermal overload I.t-trP	Motor/pump mechanical failure	Examine motor and pump for mechanical failure. Replace pump or motor.
	Bound pump	Check for debris in pump
Hardware over current hO-I (or) O-I	Shorted motor cables	Check motor wires and cable for shorts or bad connections
	Shorted motor	Replace motor
	Damaged wire insulation	Check motor cable for insulation damage
	Internal hardware short	If motor is disconnected and the fault is present, replace drive.
Motor output phase loss Out-Ph	Loose connection	Check connections on drive motor terminals
	Defective splice	Check all splice connections on motor cable
	Defective cable	Check continuity of motor cable
	Open motor winding	Replace motor
4-20mA signal out of range 40-20F	Transducer lead cur or not connected properly to transducer	Check transducer lead connection and/or replace transducer lead wire.
	Loose connection on terminals 1 & 10	Check transducer lead connection at drive terminals 1 & 10
	Transducer lead wire reversed	Verify Brown & Blue transducer wires are connected to terminal 1 & 10 respectively
	Transducer failed as an open circuit	Replace transducer
Overheated O-HEAt (or) O-t	Excessive heating of the drive	Check that the ambient temperature is not above 50°C (125°F)
		Check for obstructed or inoperable fan
		Check for blocked vents
		Check mounting clearances
Low temperature U-t	Very low temperature (frost)	Verify ambient temperature is above -10°C (15°F)
Internal fan fault Fan-F	Internal cooling fan failure	Replace fan
Output fault Out-F	Drive output hardware failure	Replace drive
Warning (flashing on display)	Motor is pulling high current while running	Verify correct service factor amps are set in parameter P1-08 or reduce excessive flow demand of the pump. Note: the output frequency is reduce to prevent permanent damage to the motor.

**TABLE 7: DRIVE SPECIFICATIONS AND DIMENSIONS**

		<b>ADW2W31</b>	<b>ADW2W51</b>	<b>ADW2W71</b>	<b>ADW2W53E</b>	<b>ADW2W73</b>
Input from power source	Voltage	180-264 VAC Single Phase			180-264 VAC Three Phase	
	Frequency	50/60 Hz				
	Current (Max)	19.5 A	36.4 A	55.8 A	18.8 A	29.1 A
"Output to Motor (Three Phase)"	Voltage	Voltage Automatically Adjusts with Frequency (0 thru 230 VAC)				
	Frequency Range	30-60 Hz				
	Current Programed	9.8 A	14.5 A	21.0 A	14.5 A	20.0 A
	Current Max	11.0 A	15.0 A	23.0 A	18.0 A	23.0 A
For Use With	Motor	Standard 60Hz Pump & 230 V 3-Phase Motor Combination				
	Reference HP Rating*	3	5	7.5	5	7.5
Pressure Setting	Factory preset	50 PSI				
	Range	15-95 PSI				
Operating Conditions	"Operating Temperature (at 230V Input)"	"-10°C to 40°C (-15°F to 104°F)"	"-10°C to 50°C (-15°F to 122°F)"		"-10°C to 40°C (-15°F to 104°F)"	"-10°C to 50°C (-15°F to 122°F)"
	Relative Humidity	Max 95% non-condensing				
	Enclosure Rating	IP66	IP55	IP55	IP66	IP55
Physical Characteristics	Controller Size (inches)	7.4 x 10.2 x 9.5	6.8 x 17.8 x 9.5		8.3 x 12.2 x 10.5	6.8 x 17.8 x 9.5
	Weight	10.6 lbs.	25.4 lbs.	25.4 lbs.	16.1 lbs.	25.4 lbs.



**Figure 3**



**Figure 4**

IL2203