

IPC™ Panels Installation Manual



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AQUAWORX IPC PANEL INSTALLATION INSTRUCTIONS

The Aquaworx IPC (Intelligent Pump Control) Panel provides an innovative approach to pump control. Designed specifically for the onsite industry, the IPC Panel leverages simple pressure transducer technology for the enhancement of pump system performance, and ease of installation. Relying on an embedded microprocessor in the pump controller and a floatless pressure transducer in the pump chamber, the IPC Panel monitors liquid levels, controls pumping time intervals, and logs events in real time. Using the Mountable and Removable Controller (MARC) as the user interface, the IPC Panel offers a cost-effective solution with expanded capability.

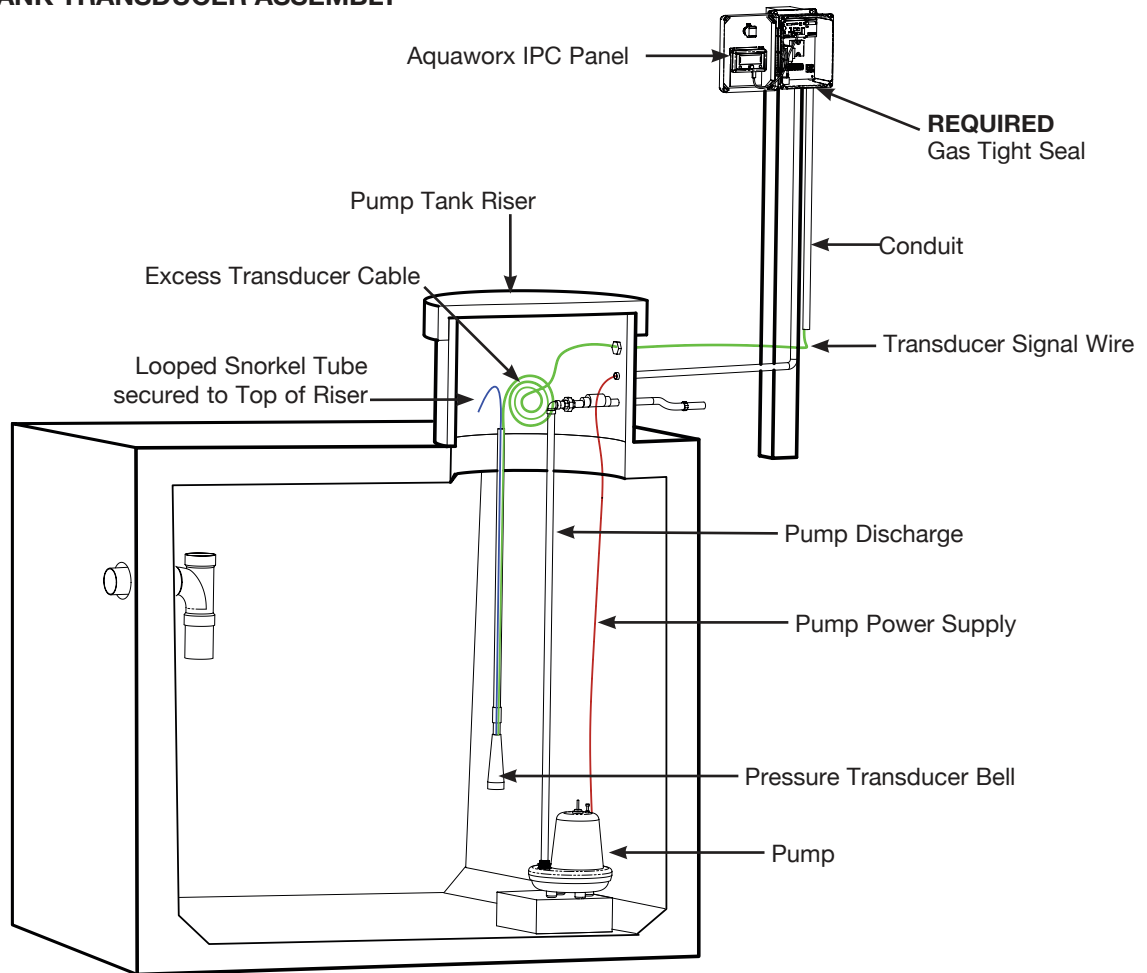
Aquaworx offers three models of the IPC Panel; Simplex, Duplex and Sand Filter, to meet a variety of system design requirements. The Simplex Panel has the ability to time control a single pump, while the Duplex Panel can control two pumps in an alternating design with independent timing. The Sand Filter Panel has the ability to time control two individual pumps having independent level sensors, allowing for a design which can time-dose a treatment system and drainfield.

I. General

Unpack the Aquaworx IPC Panel and check for any visible damage both external and internal. Also verify that there are no cracks or damage to the pressure transducer bell. Note: You will need to identify the number on the pressure transducer bell as it is needed during the MARC setup. Notify Aquaworx immediately at 1-877-278-2979 if any damage has occurred.

ALL INSTALLATIONS MUST BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE.

FIGURE 1: PUMP TANK TRANSDUCER ASSEMBLY



AQUAWORX IPC PANEL INSTALLATION INSTRUCTIONS

II. Installing the IPC Panel

NOTE: A qualified electrician must perform all wiring.
Complete wiring diagram available at www.aquaworx.com

The following components and tools may be required for installation:

- Screwdriver (sm and med size flat head)
- Pipe cutter and tape measure
- Fish tape
- Wire strippers/cutters
- Electrical tester
- Drill
- 3/4" to 1" screws
- 1" PVC coupler
- Step bit
- Hole saw
- Electrical conduit
- Electrical tape
- Splice box for pump connection
- Waterproof wire connectors
- 1" PVC (for transducer handle, amount determined by tank depth (6' length typical))

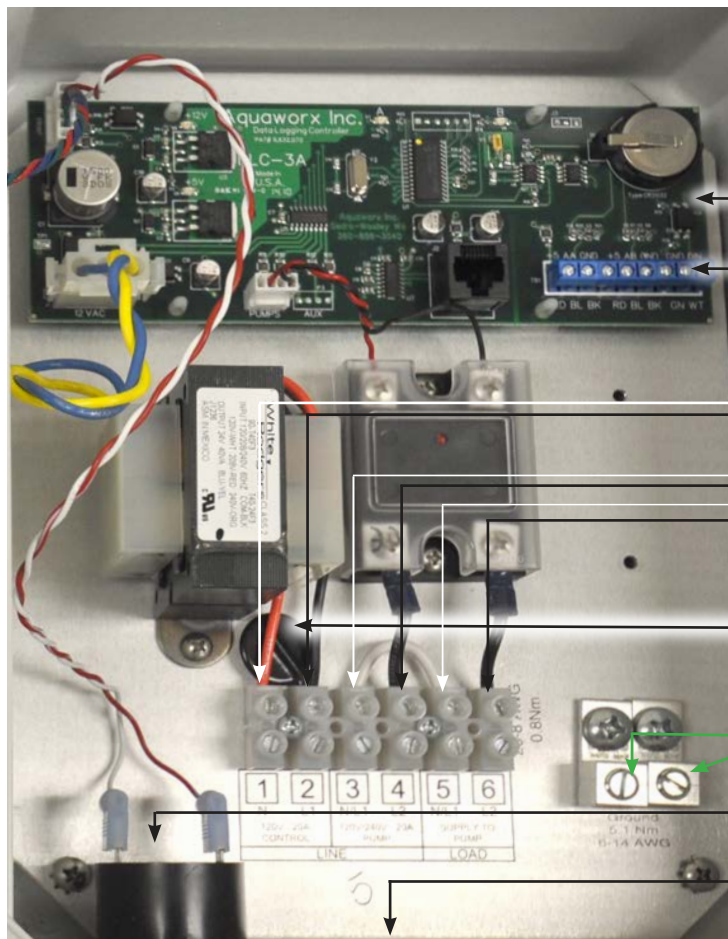


FIGURE 2: IPC PANEL WIRING SETUP AND TRANSDUCER 3-WIRE CONNECTION

1. Mount the IPC Panel to the wall or post. Position the IPC Panel so that the power supply enters the IPC Panel through the bottom approximately 1" to the right of the audible alarm unit.

2. On Simplex Panels drill two holes (3 holes for duplex) in the bottom of the enclosure spaced approximately 2" apart and in line with the audible alarm unit. When facing the panel, the order of conduit connections from left to right is shown below, as well as illustrated in Figure 2:

Power in: 2 dedicated 20 amp circuits from house to power the panel, 120V (1) and pump, 120V or 220V(2)

Power out: Power supply from panel to pump

Transducer signal wire: Signal transmission from panel to pump

NEMA 4X fittings must be installed in each field-drilled hole to retain the integrity of the enclosure's 4X rating.

AQUAWORX IPC PANEL INSTALLATION INSTRUCTIONS

3. Power to pumps: run the panel (s) power wires from the IPC Panel to the septic tank riser. Connect the wiring in the splice box using water-tight connectors. Connect pump wires to the IPC Panel by carefully following the wiring diagram enclosed with the panel. A gas-tight seal (see Figure 1) is required to prevent corrosive septic gases from migrating into the IPC Panel.

4. Power to controller: wire the supply circuit to the panel. Aquaworx recommends that the panel be wired to two designated circuits. An external disconnect should be incorporated into the supply circuit and mounted within easy reach of the IPC Panel. Note: Site specific codes have final authority on external wiring requirements.

III. Installing the Pressure Transducer and Bell Assembly

The pressure transducer bell assembly replaces the traditional float tree assembly. The 1" PVC stand pipe may be mounted by applying the same methods used to install a float tree assembly.

1. Determine the position of the pressure transducer bell assembly. The pressure transducer bell assembly must be mounted so that it allows the liquid level to pump below the bottom of the pressure transducer bell. This allows the pressure transducer bell to get a fresh air bubble.

2. Feed the transducer signal wire and snorkel tube through the 1" PVC stand pipe and glue to the pressure transducer bell using a 1" tee. The length of the stand pipe when secured should position the bottom of the pressure transducer bell above the top of the pump.

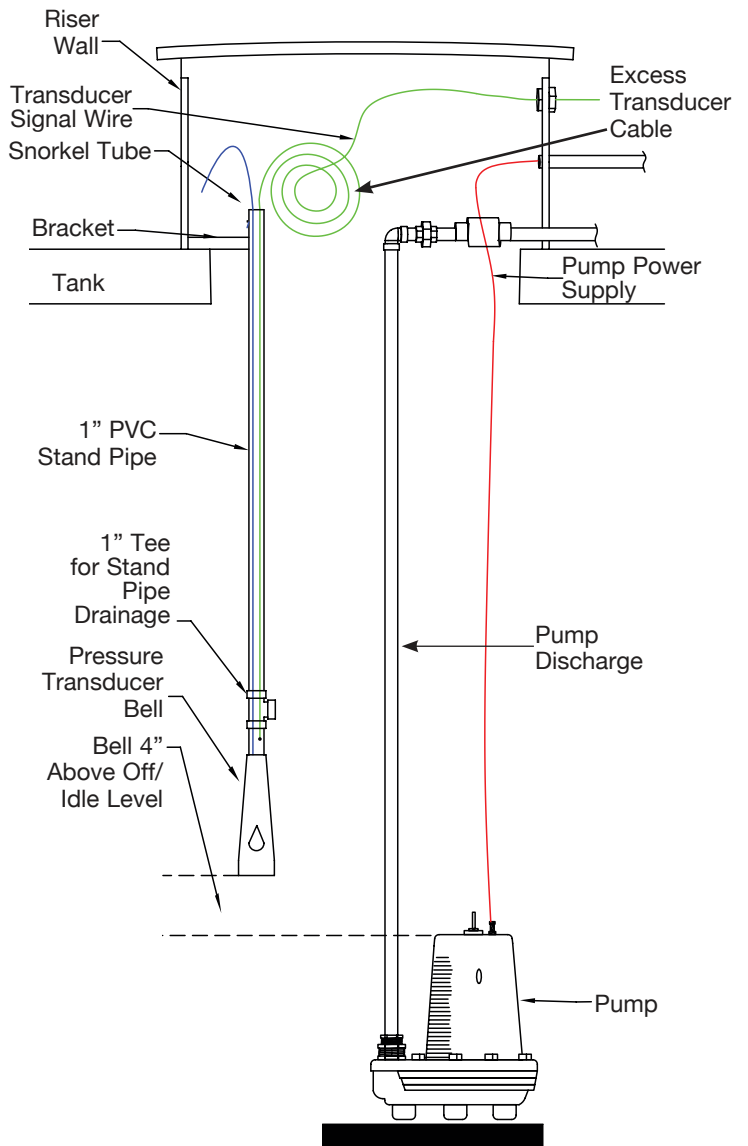
3. Cut off the snorkel tube approximately 9" lower than the top of the stand pipe and secure it to the transducer signal wire. The snorkel tube should be positioned in the form of an upside-down U as high as possible in the riser. This allows the snorkel tube to create an air lock in the event of a flooded tank.

4) NOTE: The Z-bias value labeled on the side of the pressure transducer bell. Later in the set-up, you will be instructed to program the Z-bias into the IPC Panel.

5. Run the transducer signal wire back to the IPC Panel and connect to the transducer signal wire terminal strip. Connect Red to RD, blue to BL and black to BK (first three positions). Make sure to leave enough cable in the riser to allow for removal of the pressure transducer bell assembly during maintenance. The transducer signal wire is rated for direct burial. However, it can be run in a conduit. Site specific codes have final authority on installation requirements.

NOTE: Do not attach the pressure transducer bell assembly to the pump discharge pipe. Do not pinch or crimp the snorkel tube tubing.

FIGURE 3: TRANSDUCER



AQUAWORX IPC PANEL INSTALLATION INSTRUCTIONS

IV. Panel Alarm Codes

A) Visual Status Indicator

The indicator light on the front of the panel displays current system status by flashing in unique 8 second patterns. If the light does not flash for 8 seconds there is a problem with the pump controller.

Patterns:

| | |
|------------------------|---|
| On solid | The system is experiencing a high-level alarm condition |
| 1 short flash | The system is idle |
| 1 long flash | The system is pumping |
| 2 short flashes | The system is waiting for the off time to expire |

B) Audible Status Indicator

The sounds convey event conditions that require attention. To silence the panel press the push to silence button on the front of the IPC Panel. The following Morse Code characters communicate specific system conditions:

| | |
|-----------------------------|---|
| Morse Code P . _ . | Controller was just powered up |
| On Continuous | The water level is above the high-level set point |
| Morse Code "S" . . . | The level sensor is not communicating with the controller |

C) Manual Pump/HOA Feature

Push to silence button may be used to manually operate the pump in case a MARC is not available.

Steps:

- 1) Hold the alarm button down (continuously)
- 2) Turn off the power to the panel by throwing the breaker or disconnecting the wires from the transformer (Blue and Yellow).
- 3) Turn the power back on and release the alarm button. The alarm should now only have a single flash.
- 4) The pump will power on by holding the alarm button down, and will turn off when released.
- 5) To return to automatic operation, the panel should go through another power cycle without holding down the alarm button.

FIGURE 4: IPC PANEL WITH VISUAL ALARM



NOTE: SCB02 Panel uses a toggle switch on the side for the same function.

AQUAWORX MARC OPERATING INSTRUCTIONS

I. General

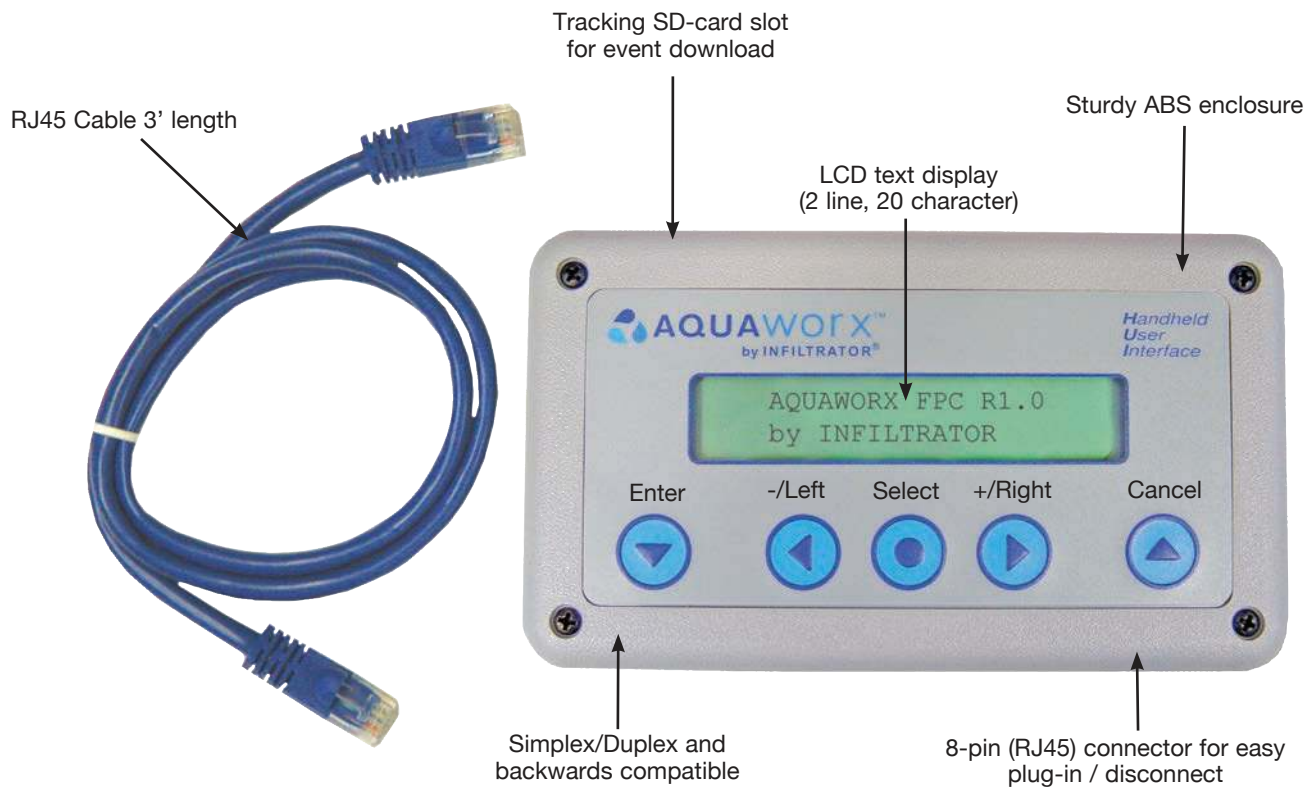
The MARC is a handheld device that is specifically designed to program the Aquaworx IPC Panel product line. The MARC has the ability to mount inside the IPC Panel making it readily available for that individual panel. Alternatively, it can be removed for use with multiple panels. Removing the MARC has an additional benefit of minimizing the ability of unauthorized persons to inadvertently adjust the system settings. The MARC connects to and communicates with the panel using a standard RJ45 cable (included). The MARC includes a SD memory card slot, allowing the user to capture and download system events and settings onto a removable card. This provides the operator with a history of system function, which is critical to troubleshooting and maintaining a pump-driven system.

II. MARC Plug-in and Start-up

1. Plug RJ45 cable into bottom of MARC unit.
2. Plug other end of RJ45 cable into panel connector.
3. LCD screen will display.

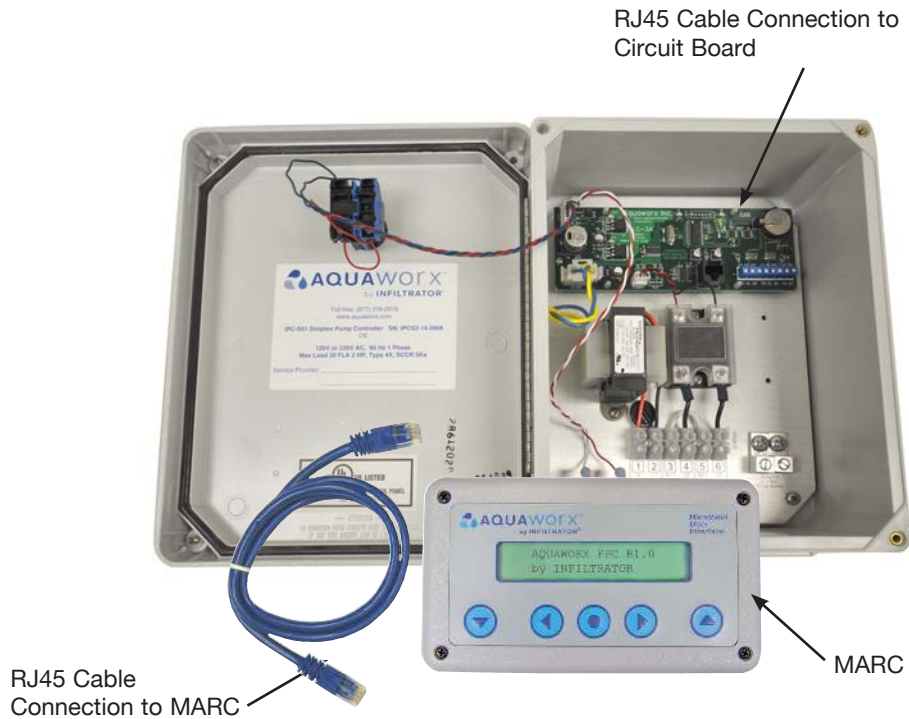
NOTE: The MARC receives its power from the IPC Panel and does not have a power source of its own.

FIGURE 5: THE MARC



AQUAWORX MARC OPERATING INSTRUCTIONS

FIGURE 6: IPC PANEL WITH THE MARC



IV. Controller Menu Functions

Below is a list of menu functions available to the user. See Figure 7 for complete MARC menu mapping.

SIMPLEX = The “SIMPLEX” panel user may access the above menus in addition to the following menus:

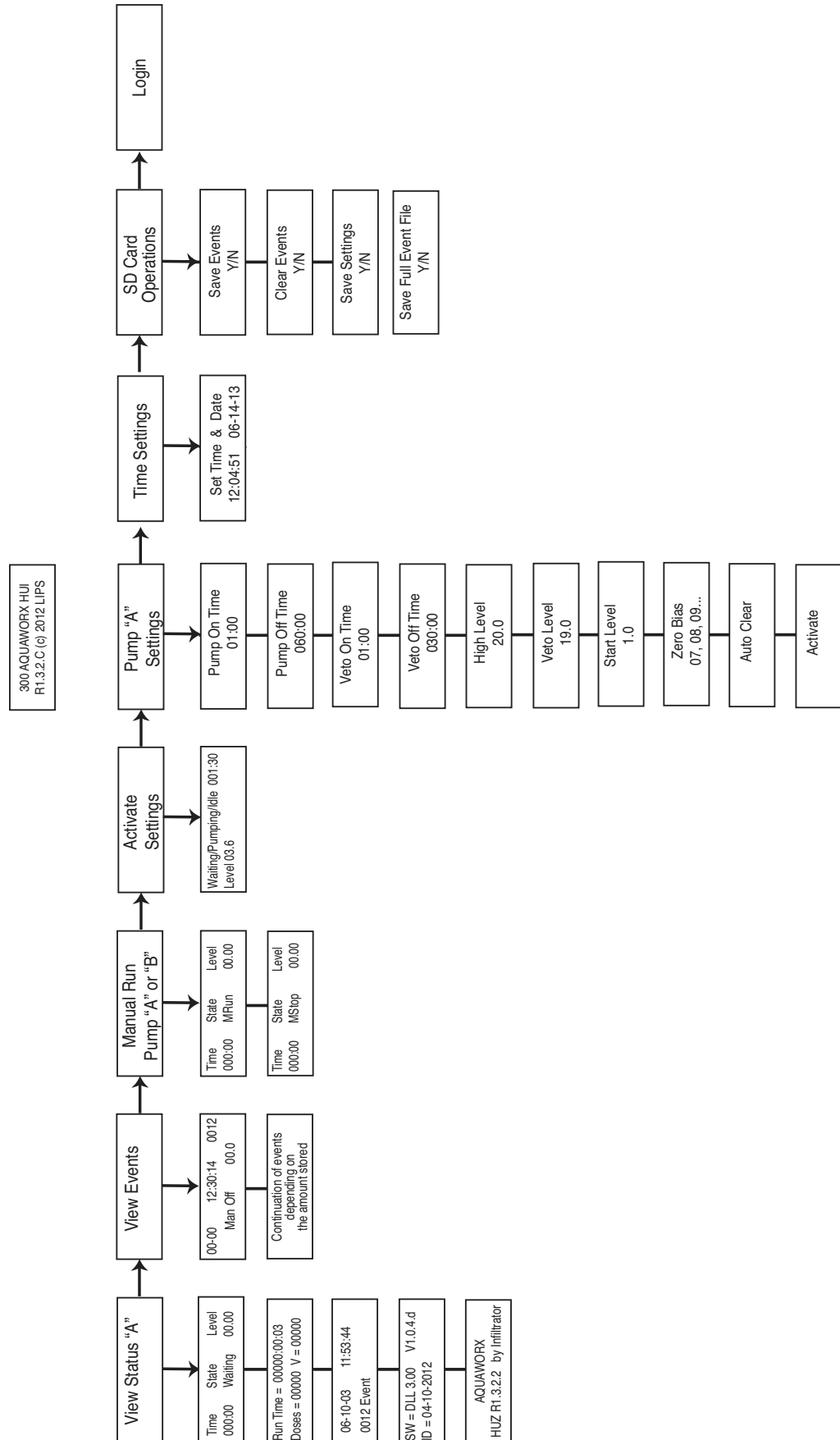
- A) VIEW STATUS “A”
- B) VIEW EVENTS
- C) MANUAL RUN “A” OR “B”
- D) ACTIVATE SETTINGS
- E) PUMP “A” SETTINGS
- F) TIME SETTINGS
- G) SD CARD SETTINGS
- H) LOGIN

DUPLEX = The “DUPLEX” panel user may access the above menus in addition to the following menus:

- STATUS “B”
- MANUAL “B”
- PUMP “B” SETTINGS

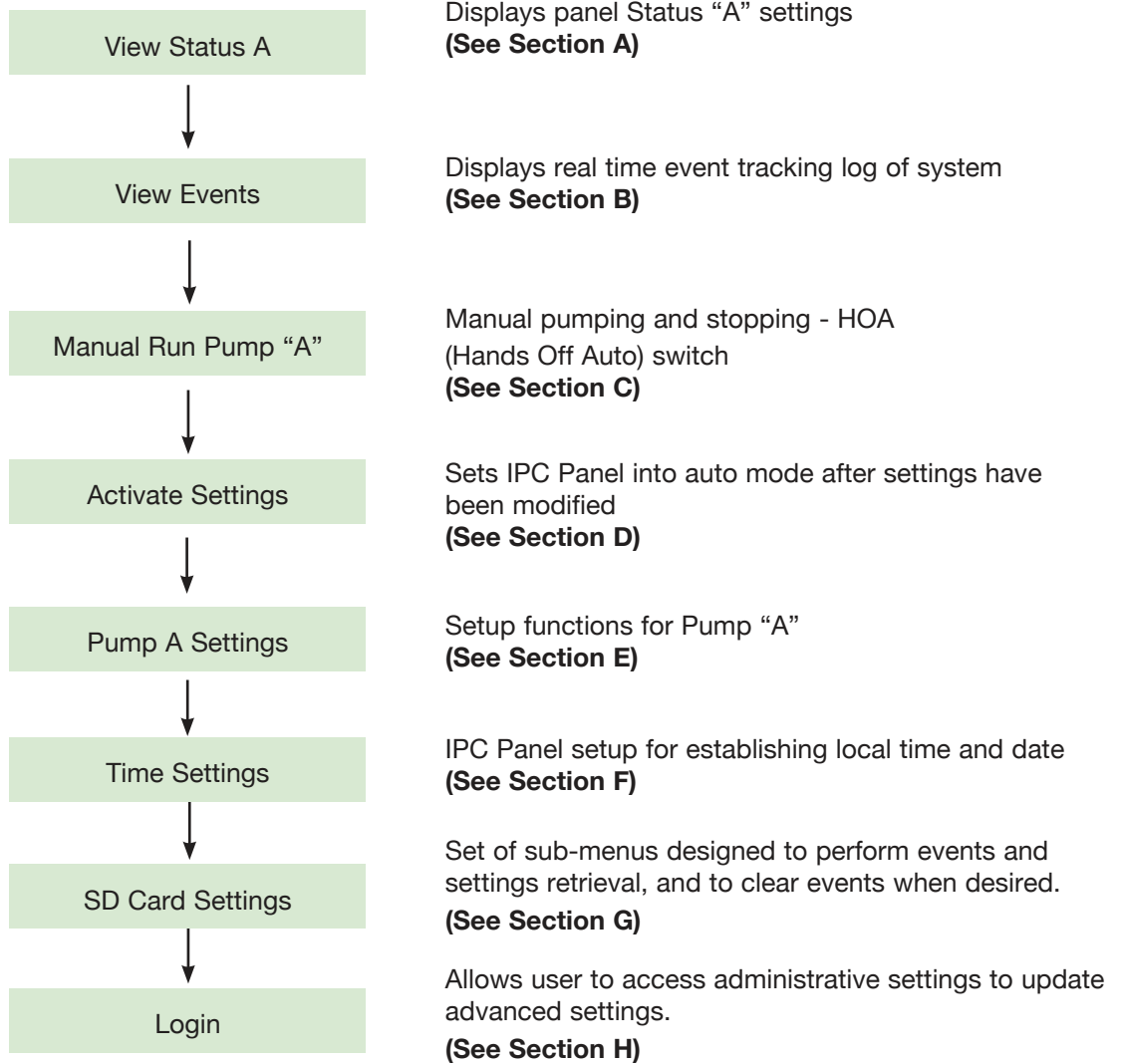
AQUAWORX MARC OPERATING INSTRUCTIONS

**FIGURE 7:
MARC SIMPLEX
MENU OPTIONS MAPPING**



AQUAWORX MARC OPERATING INSTRUCTIONS

V. Controller Menu Options



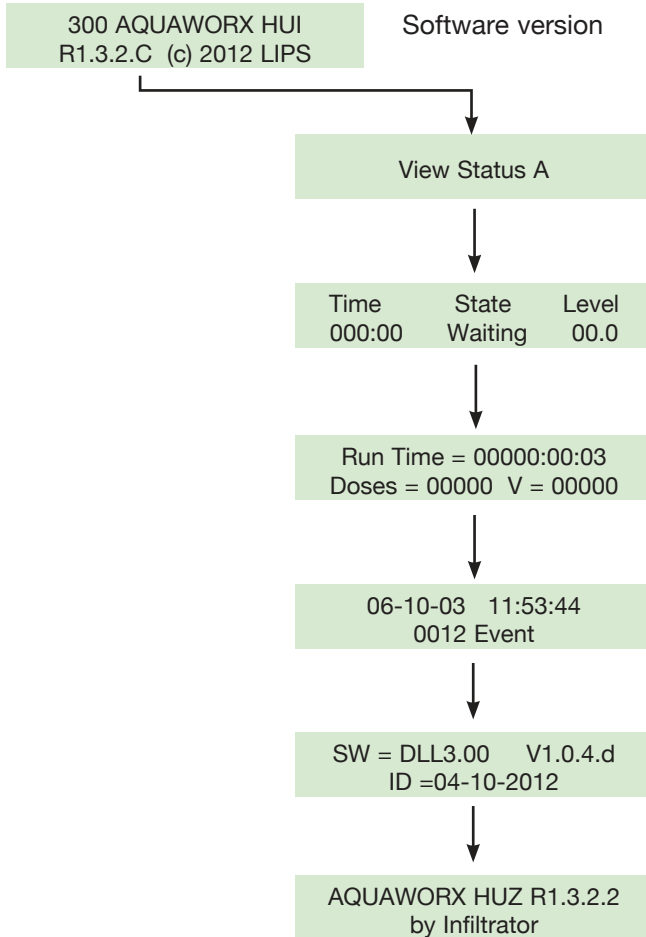
AQUAWORX MARC OPERATING INSTRUCTIONS

Section A.

STATUS: This is a read-only set of sub-menus that allow the user to view the IPC Panel status in real-time and program functions as it runs through the programmed

parameters. The IPC Panel identification number and software version can be found in this menu.

NOTE: Status “B” is an available menu option on Duplex panels.



Time - min / sec
State - Pumping, Waiting, Idle
Level - Inches above bottom of bell

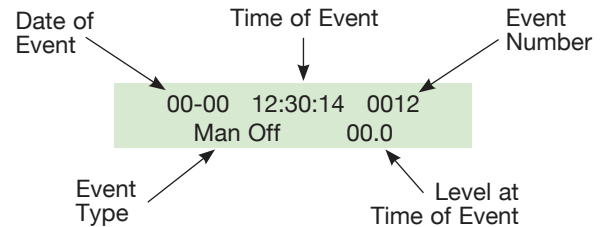
Run Time (hr / min / sec)
Doses - Cycle counter - normal dose
V - Cycle counter - veto dose

Date and time
Number of events

Software identification version and revision
IPC Panel identification number

Section B.

EVENTS: A read-only set of sub-menus that allows the user to view the events logged into the system (up to 4,000 events). The LCD screen details the date, time, liquid level, event code and event count number.

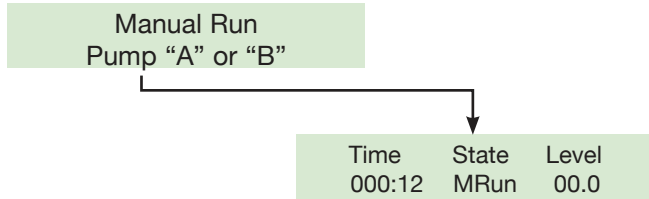


AQUAWORX MARC OPERATING INSTRUCTIONS

Section C.

MANUAL RUN PUMP “A”: Allows the user to manually operate the pump. The LCD screen details how long the pump runs and the real-time liquid level in the tank. User may toggle between pumping and stopped by pressing the Enter button.

MANUAL RUN PUMP “B” (Duplex only): Allows the user to manually operate a second pump. For duplex, the pumping function will alternate between Pump A and Pump B with each cycle of the Enter button. The screen display for Manual “A” and Manual “B” are similar, as follows:

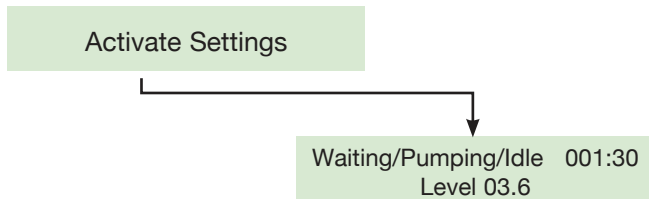


Time - Counter in that event (state)
State - MRun or MStop

Section D.

ACTIVATE SETTINGS: Allows the user to actuate or upload the controller settings to the IPC Panel.

Activates setting and starts cycle



Goes to view status screen

NOTE: Once panel is set to Activate mode, formally named Auto, it will return to the Status menu.

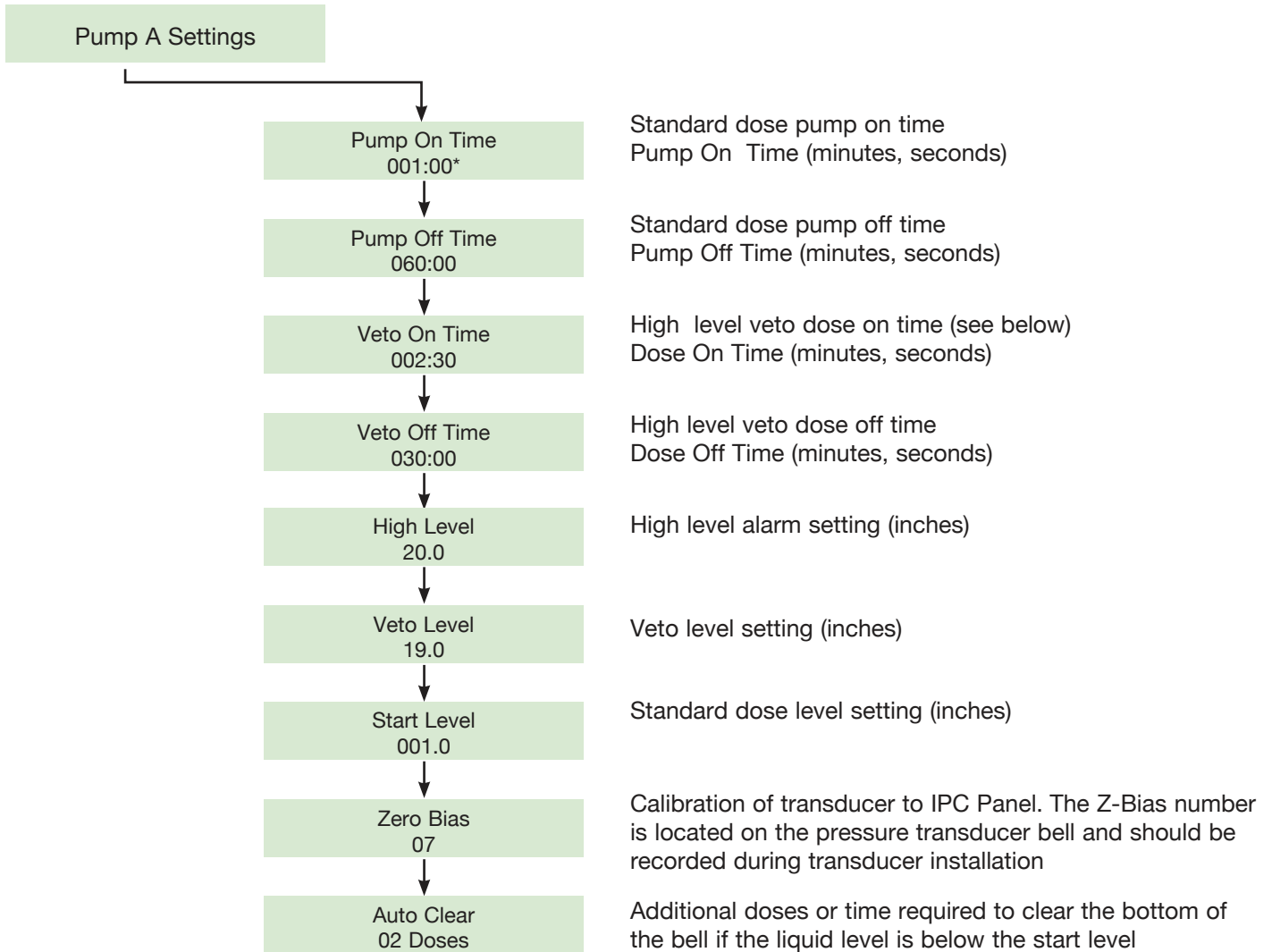
IMPORTANT:
ACTIVATE must be selected after all **SETTINGS** changes for the new settings to be saved to the processor.

AQUAWORX MARC OPERATING INSTRUCTIONS

Section E.

PUMP “A” SETTINGS: Allows the user to set all pump run parameters. Note: Pump “B” settings allow the user to set parameters for a second pump (only for use on a Duplex panel or sand filter).

* All values shown are the factory setting.



Veto Dose: The Veto function is simply a separate level that instructs the pump to run a different timing sequence and is intended to prevent pump tank overflows. The veto level is typically set above the high level alarm. When liquid reaches the veto level, the veto pump cycle times are initiated. The veto pump cycle times will remain in effect until the liquid level falls below the veto level. If the veto level is set above the alarm level, the alarm remains on. The alarm will not de-activate until it is manually silenced or the liquid level drops below the alarm level.

NOTE: If local regulation will not permit the use of an override function, then set the veto level to the same level as the high level alarm, and set the veto on and off times to establish the veto doses as a counter of the number of doses completed above the alarm level.

AQUAWORX MARC OPERATING INSTRUCTIONS

Section F.

TIME SETTINGS:

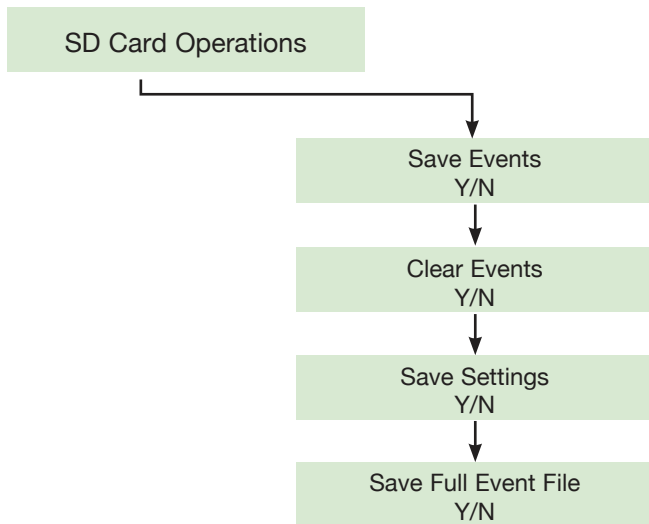
A set of sub-menus to program local date and time for logged date and time-stamped events.



Current time / current date

Section G.

SD CARD OPERATIONS: A set of sub-menus designed to perform events and settings retrieval, and to clear events when desired.



Saves events to SD card
(write events = Y, don't write events = N)

Clears current events from control board
(clear events = Y, don't clear events = N)

Saves settings to SD card
(write settings = Y, don't write settings = No)

Save all 4000 previous events to SD card.
May contain non-events if the panel never
got to 4000 events.
(write settings = Y, don't write settings = No)

AQUAWORX MARC OPERATING INSTRUCTIONS

VI. Using the SD Card

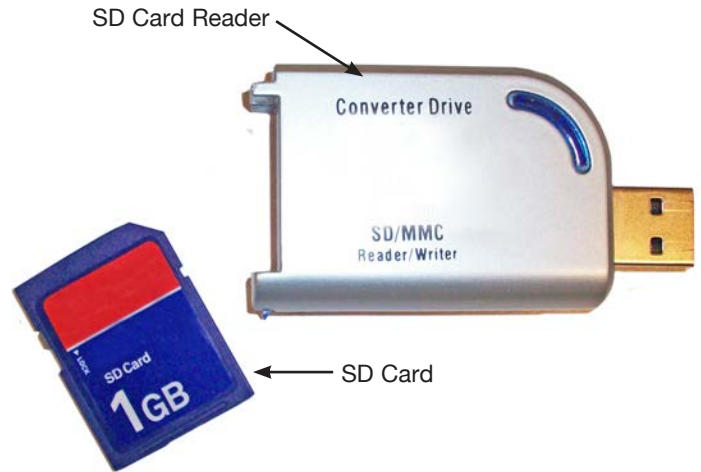
NOTE: It is recommended that a SD card with SD card adapter be used with the the MARC 2. The SD card must not exceed 1 GB of storage in order to operate properly.

1. Insert the SD card into the designated slot on the MARC.
2. Scroll through the MARC menus to the SD Card Settings menu, until the screen says "Write Events."
3. ENTER = "Y" to capture events to SD card, ENTER = "N" to skip.

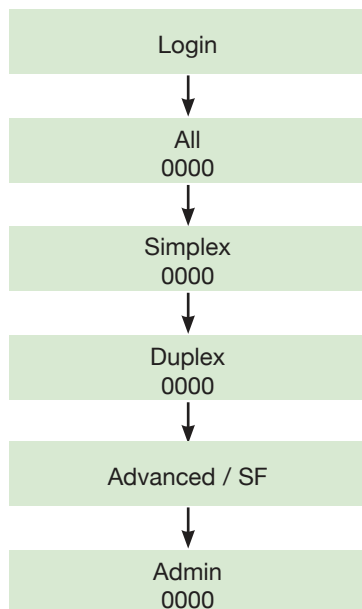
NOTE: The MARC will show the events being transferred to the SD card.

4. Once the data transfer is complete, the SD card can be removed and placed in a card reader connected to a PC.
5. On the user's PC, locate the designated drive for the card reader.
6. Click on the file to identify the SD card events file (.evt) and settings file (.set).
7. The file can be opened using a spreadsheet or text editing program.

NOTE: Each event and settings file is saved by IPC Panel serial number, allowing the user to save the data from multiple IPC Panels on a single SD card.



Section H. Login Menu



NOTE: It is no longer necessary to login to access the operating menus on the MARC.

The login menus are not necessary for normal set-up or operation conditions.

When changing the set-up on a panel to operate more advanced settings, it may be necessary to login under the Admin Menu.

Contact Infiltrator Systems at 1-800-221-4436 for more information.

SAND FILTER PANEL SET-UP

The IPC-DSF is designed for two pumps, two chambers and two transducer systems such as Sand Filters or Advanced Treatment Units. We named our system Sand Filter; however, it may be used with other advanced systems that require two pumps in different pump chambers with separate liquid levels.

In a traditional Sand Filter design, Pump A operates the pump in the Surge Tank that discharges to the sand filter, and Pump B operates the Pump Basin that discharges to the drainfield. Pump A is slaved to Pump B, so that if Pump B has an alarm, then Pump A will not run. This is important in order to protect the filter from an overload condition.

The Control Panel & Transducer set-up will follow the instructions for the Duplex panel found in Sections II & III of this manual and the Wiring Diagram found in the panel box. In addition, the IPC-DSF will require an additional step to properly connect the low voltage Pressure Transducer wires from both tanks.

See Figure 5. The small 6-pin wire terminal strip may be wired using the following instructions (numbered 1-6, from left to right).

Figure 5. Terminal Strip



Terminal #: 1 2 3 4 5 6

1. Combine both (Sensor A & B) Red wires with a wire nut, and run a single wire to terminal #1.
 2. Connect the Blue wire from Sensor A to terminal #2.
 3. Combine both (Sensor A & B) Black wires with a wire nut, and run a single wire to terminal #3.
 4. Connect the Blue wire from Sensor B to terminal #4.
- Terminals 5 & 6 remain open.

The Sand Filter features may be accessed and set-up using the MARC interface and by using the following steps:

1. Plug-in the MARC using the RJ45 (Cat5e) cord. Screen should indicate Aquaworx, with version #.
2. Scroll to LOGIN and press ENTER, then scroll to the ADMIN screen and press ENTER. SELECT login code -4000, then press ENTER. The screen should read "Admin logged in".
3. To enable the Sand Filter feature, Scroll to MODE SETTINGS and press ENTER. Scroll to CONTROLLER MODE and press ENTER. Scroll through the Controller Mode options until you find SAND FILTER. Press ENTER. Press CANCEL to return to pump control options.
4. To save this setting to the processor, Scroll to ACTIVATE SETTINGS, then press ENTER. Screen should default to Status screen and your system should be in Sand Filter Mode.
5. Scroll to PUMP A SETTINGS and press ENTER. Enter the appropriate pump settings from designer by following Section V of the manual. Important Note: remember to calibrate both Pressure Transducers under the ZERO BIAS setting. The zero bias may be found on both the label, and bell of the transducer (Example ZB-07).
6. Complete the same step for PUMP B SETTINGS.
7. To save your new settings to the processor, Scroll to ACTIVATE SETTINGS, then press ENTER. Screen should default to Status screen.

Your IPC-DSF panel will now be ready for operation.

Figure 8: Sand Filter Panel



TIMED DOSING SETUP FORMULATION

IPC Panel Setup using the following Aquaworx IPC Panels: IPC-S01, IPC-SM, IPC-D01, IPC-DM, IPC-DSF and IPC-GD

SEVEN STEPS REQUIRED FOR THE IPC PANEL SETUP

- Determine volume per inch in the pump tank =
- Verify pump's gal per minute volume (gpm) =
- Dose "ON" time or Pump "ON" time =
- Required dose volume (gpd) =
- Number of doses per day or 24 hours (dpd) =
- Calculation for Pump "OFF" Time =
- Establish Daily Flow Rate =

TIMED DOSING SETUP FORMULATION

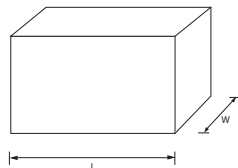
"A" Calculate the Volume per inch for the Pump Tank (gal/in)

Square tank:

$$((L" \times W")/144) \times 7.48 \text{ (gal/cu ft)/12} = \text{gal/in}$$

Example #1:

$$\begin{aligned} &\text{Assuming the tank is 96" long x 48" wide x 1000/gals} \\ &= ((96" \times 48") \times 7.48) / 12 \\ &= (4608/144) \times 7.48/12 \\ &= 32 \times 7.48/12 \\ &= 239.36/12 \\ &= \mathbf{19.9 \text{ gal/in (rounded up to 20 gal/in)}} \end{aligned}$$



Cylindrical tank:

$$((3.14 \times (R2) \text{ tank radius is half tank diameter}) \times 7.48)/12 = \text{gal/in}$$

Example #2:

$$\begin{aligned} &\text{Assuming the tank is 2' radius, 4' inside diameter (ID)} \\ &= ((3.14 \times 22 \text{ ft}) \times 7.48)/12 \\ &= (12.57 \text{ ft}^3 \times 7.48 \text{ gal/ft}^3)/12 \text{ in/ft} \\ &= 93.996/12 \text{ in/ft} \\ &= \mathbf{7.8 \text{ gal/in (rounded up to 8 gal/in)}} \end{aligned}$$

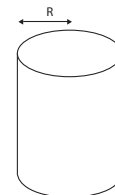


Table 1: Rectangular / Square Tanks

| Width Feet (inches) | Length Feet (inches) | Gallons of liquid per inch |
|---------------------|----------------------|----------------------------|
| 3' 4" (40 in) | 6' 8" (80 in) | 13.9 |
| 4' (48 in) | 4' (48 in) | 10.0 |
| 4' (48 in) | 8' (96 in) | 19.9 |
| 4' 5" (53 in) | 8' 6" (102 in) | 23.4 |
| 4' 10" (58 in) | 8' 6" (102 in) | 25.6 |
| 5' 2" (62 in) | 8' (96 in) | 25.8 |
| 5' (60 in) | 9' (108 in) | 28.1 |
| 5' (60 in) | 10' (120 in) | 31.2 |
| 5' 8" (68 in) | 10' 8" (128 in) | 37.7 |
| 4' (48 in) | 11' (132 in) | 41.1 |
| 6' 6" (78 in) | 12' (144 in) | 48.6 |

Table 2: Cylindrical Tanks

| Tank Diameter Feet (inches) | Gallons of liquid per inch |
|-----------------------------|----------------------------|
| 2' (24 in) | 2.0 |
| 2' 6" (30 in) | 3.1 |
| 3' (36 in) | 4.4 |
| 3' 6" (42 in) | 6.0 |
| 4' (48 in) | 7.8 |
| 5' (60 in) | 12.2 |
| 6' (72 in) | 17.6 |
| 7' (84 in) | 24.0 |
| 8' (96 in) | 31.3 |

“B” Calculate the System Pump Volume in Gallons per Minute

This is required to calculate Dose Volume

$$\text{Gallons per minute (gpm)} = (\text{Draw Down} \times \text{gal/in})$$

1. Measure the pump discharge based on a 1 minute draw down of the tank.
2. Using the MARC, on MANUAL settings (Hands Off Auto) write down or record the liquid level.
3. Manually pump the tank for one minute. (Time will be recorded on the MARC as you manually pump down.)
4. Write down or record the difference in liquid level between the start and stop.
5. This will measure the liquid level draw down in inches for a one minute manual (HOA) pumping.

Example:

Draw Down = 2" (per the one minute draw down procedure listed above)

$$\text{Gallons per minute (gpm)} = (\text{Draw Down} \times \text{gal/in})$$

$$\text{Gallons per minute (gpm)} = (2" \times 20 \text{ gal/in})$$

$$\text{(gpm)} = 40$$

“C” Minimum Dose Size Equation: Dose “ON” Time or PUMP “ON Time (D)

This is required to calculate Dose Volume (C)

$$\text{Dose “ON” Time (D)} = (A + 3B)$$

A = Time the pump is turned on until first squirt @ the first orifice (this will compensate for time when no water is being discharge to the system).

B = The time from when the first squirt shows @ the first orifice until the laterals are equally pressurized.

By multiplying by 3, we are ensuring that 67% of the water is being equally distributed.

Example:

Pump is turned on and the first squirt shows in 5 seconds

$$A = 5 \text{ (seconds)}$$

The time from the first squirt until the system is pressurized is 10 seconds

$$B = 10 \text{ (seconds)}$$

$$\text{Dose “ON” Time (D)} = (A + 3B)$$

$$\text{Dose “ON” Time (D)} = 5 + (3 \times 10)$$

$$\text{Dose “ON” Time (D)} = 5 + 30$$

$$\text{Dose “ON” Time (D)} = 35 \text{ seconds}$$

“D” Calculation for Dose Volume

$$\text{Gallons per dose (gpd)} =$$

$$(\text{Dose “ON” Time}/60 \times \text{gallons per minute (gpm)})$$

Example:

$$\text{Gallons per dose (gpd)} =$$

$$(\text{Dose “ON” Time} \times \text{gallons per minute (gpm)})$$

$$\text{Gallons per dose (gpd)} =$$

$$(35 \text{ (seconds)}/60(\text{seconds}/\text{minute})) \times 40 \text{ (gpm)}$$

$$\text{(gpd)} = (.58 \times 40)$$

$$\text{(gpd)} = 23.3 \text{ gallons}$$

“E” Calculation for Number of Doses per Day

$$\text{Number of doses per day} =$$

$$\text{gallons per day (estimated daily flow rate)}/$$

$$\text{gallons per dose}$$

Example:

Assume 360 gallons per day system

(Typically set by designer)

$$\text{Doses per day (dpd)} =$$

$$360 \text{ gallons per day} / 23.3 \text{ gallons per dose}$$

$$\text{Doses per day (dpd)} = 360/23.3$$

$$\text{(dpd)} = 15.4 \text{ doses per day}$$

$$\text{(dpd)} = 15 \text{ doses per day}$$

“F” Calculation for Pump “OFF” Time

$$\text{Take the number of hours in a day} =$$

$$24 \text{ hours and divide this by the}$$

$$\text{number of doses per day}$$

Example:

$$\text{Pump “OFF” Time} = 24 \text{ (hrs.)}/15 \text{ (dpd)}$$

$$\text{Pimp “OFF” Time} - 1.6 \text{ hrs or } 1 \text{ hour}/36$$

TIMED DOSING SETUP FORMULATION

REVIEW SIX STEPS REQUIRED FOR THE IPC PANEL SETUP

7. Determine volume per inch in the pump tank =
8. Verify pump's gal per minute volume (gpm) =
9. Required dose volume (gpd) =
10. Number of doses per day or 24 hr's (dpd) =
11. Calculation for Pump "OFF" Time =
12. Establish Daily Flow Rate =

FREQUENTLY ASKED QUESTIONS

What does Z-BIAS mean?

Each transducer manufactured has a slightly different resistance called zero bias. Every transducer is calibrated at the factory prior to shipment. The calibration rating is labeled on the bell, and recorded on the outside of the transducer package. The Z-BIAS value needs to be programmed into the panel at start up.

What is Auto-clear?

Timed System: The air trapped in the transducer bell needs to be replaced on occasion. During periods of low or no flow the level will start to drop in the tank. Once the level drops down to the start level the computer tracks the next dose or doses as auto-clear doses. Since the start level is typically set to one dose volume, the auto clear is typically set to one. (Example: A 40 gallon dose would translate to a 2" dose in most 1,000 gallon tanks) During one of the doses the level will drop below the start level. The next 2" dose will then end below the bottom of the bell and the system will be idle until the liquid level rises above the start level again. In the case of small doses multiple auto-clear doses may be needed. (Example: If the dose volume is 10 gallons, then 1/2" enough doses are required to draw the level to one inch below the bell, so in this case an auto clear of 4 would be used).

Demand System: In a demand dose system the start level becomes the pump ON and the bottom of the bell becomes the OFF level. The auto clear is set in seconds - typically 10 seconds. (Example: Pump will turn on at the start level, pump down to the bottom of the bell then wait through the OFF time then run the additional time to clear the bell).

Can I cut or splice the transducer signal wire?

It is OK to cut the transducer wire to length from the tank to the panel. However, the cable should NOT be spliced. The high potential of corrosion when splicing the signal wire will affect the signal and could reduce the accuracy of the unit. The transducers come in 4 lengths eliminating the need for field splicing. The lengths are 40', 80', 120', and 240'.

What does VETO mean?

The VETO feature is a second timer setting (also known as an override in some markets). If the flow increases above the Veto level, the VETO timing replaces the normal time settings. If the level in the tank is at or above the VETO level, the panel will operate in the VETO schedule in addition to its normal time settings.

I have input the new settings but it still runs the default program.

If the timer schedule and/or the level functions are changed, the AUTO feature MUST be selected. This will upload the new changes to the board and is found on the MARC unit between Manual A and Pump A settings.

How should I supply power to the panel?

The control power must be 120V. The pump circuit for the panel can be wired either 120 volts or 240 volts depending on the pump requirements. It is important to provide two designated circuits to the panel, one circuit to the pump and one to the controls. The

primary load draw is the pump and the most likely component to trip the supply circuit breaker. With two circuits, if the pump circuit tripped, power would be available to the controls and will notify the homeowner of the problem.

Why does my control panel read the EVENTS once a minute?

If the Log Status in the panel is set to Y (yes), then it will record every event once per minute. This will cause the 4000 event to fill-up quickly in the panel. The Log Status may be set to N (no). To change this using the MARC, go to Mode settings and press enter. In the first screen named Log Status, if you press enter the Log Status can be changed to N (no).

Why does my Transducer always read a 00.0" level?

In some cases the Transducer or circuit board may need to be replaced. Check all connections. Test any component before installing it. Checking a transducer with a bucket of water is an easy way to see if the new transducer solved the problem.

Why does the Transducer read a constant level, (ex: 1.5- 6.5") even though the pump is running?

The Transducer wiring to the circuit board is not in the proper sequence. Make sure the input wires are RED (RD), BLUE (BL), and BLACK (BK) from left to right on the wire terminal strip attached to the circuit board.

How do you setup for a Redundant off Float?

The best way to use a redundant off is to wire a load rated float switch in line with the power in the pump vault. Secondly, many pump companies supply a "piggy back float" option.

How do I wire a panel for 230/240 Volt installations?

The control side of the panel must only be wired for 120 volt installation. For the pump(s) power supply (Line side), using 3-wire, connect the Red wire to the Neutral or Pump L1 terminal block and the Black wire to the Pump L2 terminal block. The White neutral wire can be cut back.

What should I use to plug the conduit to prevent sewer gases from entering the enclosure?

There is a variety of conduit sealing compounds available, but we recommend, Chico SpeedSeal Compound, as it will quickly harden to a dense, strong mass and is UL Listed and cUL Listed.

Can you run the same Transducer wire in the conduit for the pump supply?

The Transducer wire can be run thru the same conduit as the pump power supply without interference. However, the Transducer is a low voltage wire and in some jurisdictions it is not allowed to run both High/Low voltages in the same conduit. Check with both regional and State Regulations first.

Can I setup the IPC panel with a Remote Alarm?

Yes, a remote alarm can be purchased as an option with all Aquaworx IPC panels. The remote alarm will provide the same alarm sequence as the alarms on the main enclosure. The remote alarm can be located up to 2000' away from the main control box. Contact customer service to purchase.

What is the difference between DOSE, ADOSE & BDOSE in the Event log?

Dose = A recorded standard Dose from pump A.

ADose = A recorded Autoclear Dose.

BDose = A recorded Dose from pump B.

Can the panel be setup using two transducers?

Yes, using a IPC Sand filter panel specifically for installations that require two separate pump systems each needing a separate transducer for each pump. (Product ID number: IPC-DSF)

When I set the panel up to run both pumps what will happen?

This setting is designed to run both pump A and pump B during a Veto level. This setting is used in conjunction with a Duplex panel to pump the tank down faster. This should only be used if the pumps are small and both pumps can run on one circuit or if it is a specialty panel setup for individual circuits for each pump.

Can I put a heater unit inside the control panel?

Yes, Aquaworx offers a heater unit that can be easily setup in an existing or new IPC panel. Contact customer service for more information.

What is the battery on the circuit board, and/or will I lose my events if the power goes out?

Its purpose is to keep the clock running, which will allow the data logging to record when the power goes out and for how long the power was off. The battery can last up to five years without a replacement but, it is recommend that it be change every year. If the battery is lost and the power goes out all data and all settings are retained and will function once power is restored, however, the date and time will re-set to 00.

What is a Varistor?

A varistor is a variable resistor used to protect excessive current in a circuit. Our varistor is connected between the incoming line and neutral. This 130V varistor serves as over voltage/surge protection for the controller.

How do I setup the panel to handle a Sand filter application?

Using the MARC controller, under the Mode settings, the Run Both / SFI (Sand Filter Interface) menu will need to be set to Y (yes). This will not allow Pump A to initiate if pump B has a high level alarm.

The MARC unit is not recording events from my SD card?

If the MARC screen is going blank during the download, then it is probably receiving too much current from the SD card. This may be caused by too much data on the card, or too much memory on the card. We recommend a 1 Gigabit maximum SD card with dedicated use for the MARC.

How do I wire a Transducer to the panel for a Sand filter application?

Follow the instructions provided with the panel. If the instructions are lost we can email you, or download from our website, www.aquaworx.com



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