



Aquavar® IPC

APPLICATION GUIDE

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Aquavar IPC Start-Up Genie

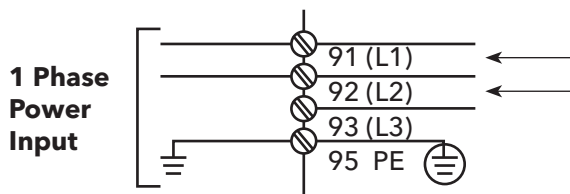
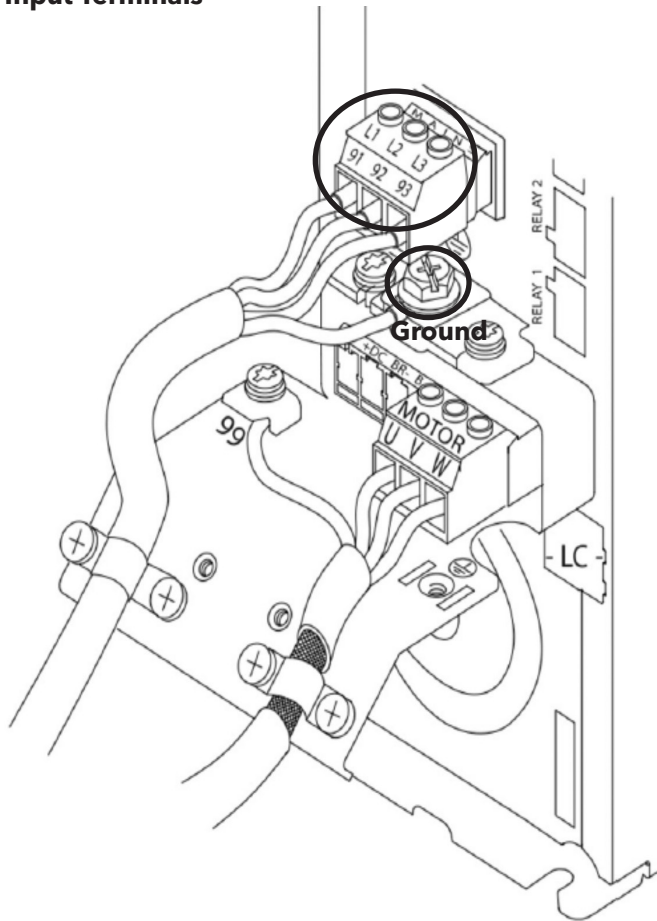
WIRING

INPUT (MAINS) WIRING:

Connect 3-phase AC input power wiring to terminals L1, L2, and L3.

For dedicated single phase input drives:
Connect single phase power wiring to L1 & L2.

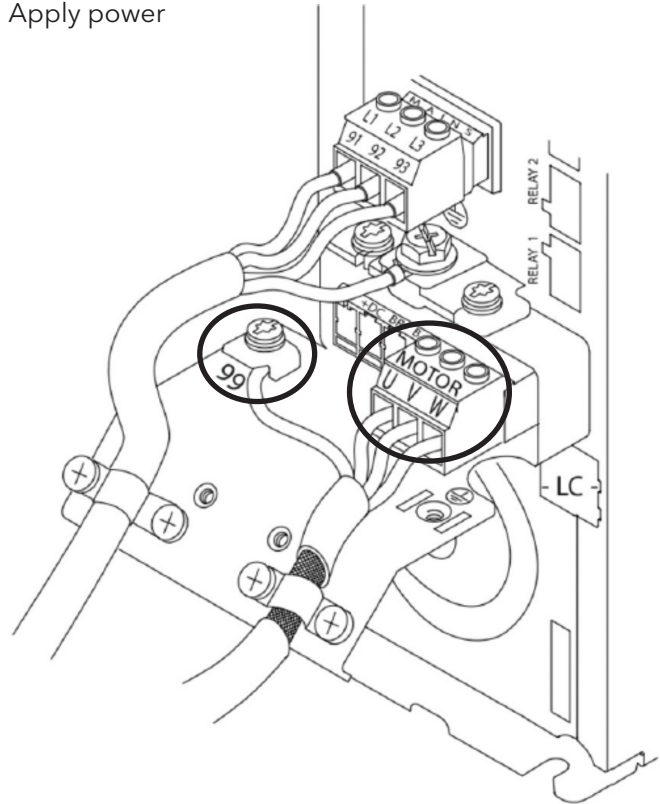
Input Terminals



OUTPUT WIRING TO MOTORS:

Connect output motor wires to terminal block labeled U, V, W.

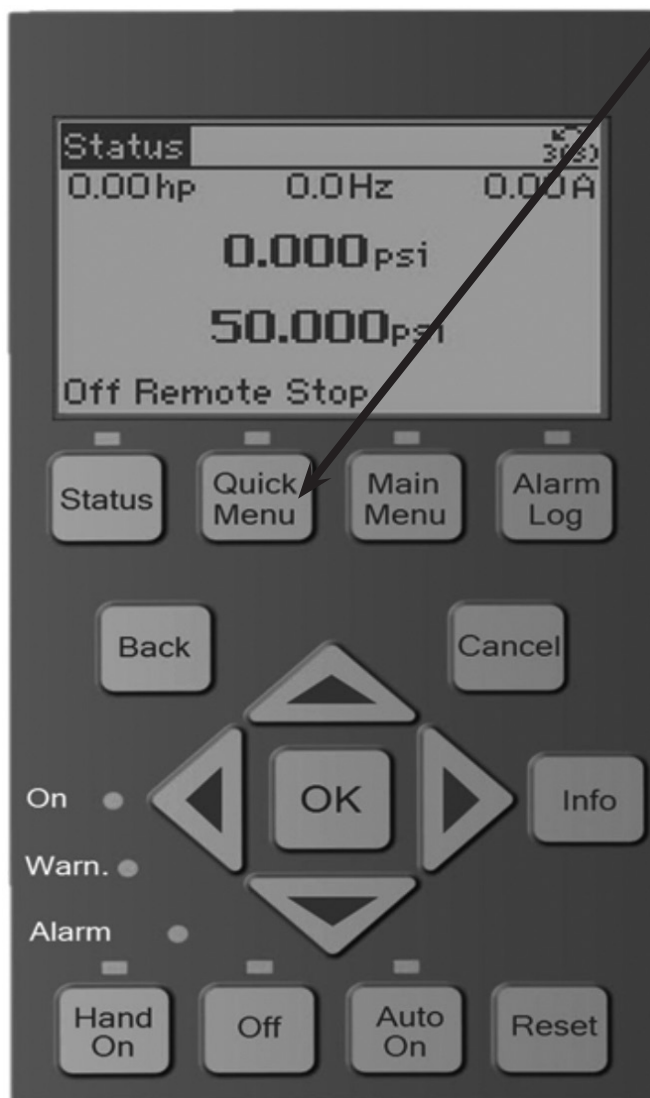
Apply power



COMMISSIONING STEPS

PLEASE NOTE: Programming is required BEFORE any control wiring is performed.

1. Power on drives
2. Complete Programming. (Transducer fault will be present as your control wiring is not installed.) It is OK to continue to program.
3. Power down both drives and then install control wiring. Follow wiring illustration later in this guide.



Select Quick Menu

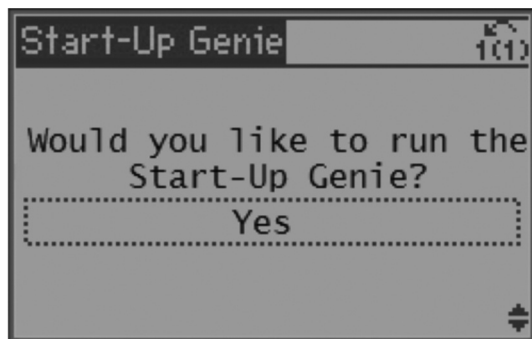
Select Parameter 04
"Start-Up Genie"

You are now able to start the Start-Up
Genie

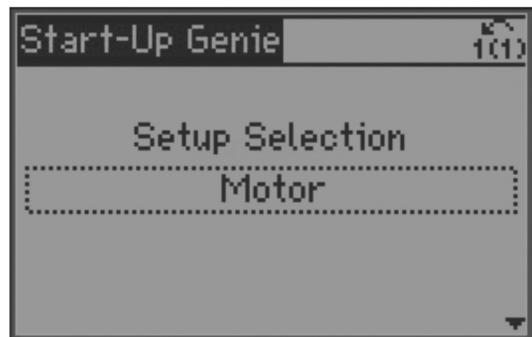




Select English as Language and proceed with the down arrow



Select YES to run the Start-Up Genie and proceed with the down arrow

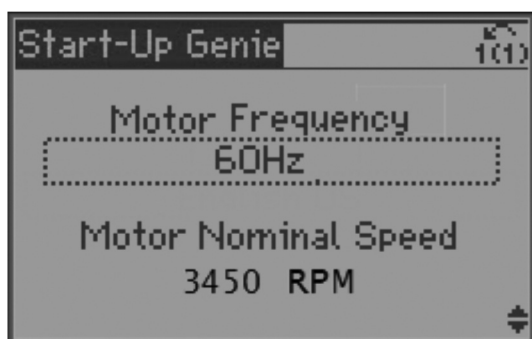


Select Motor from Setup Selection. Reference motor nameplate.



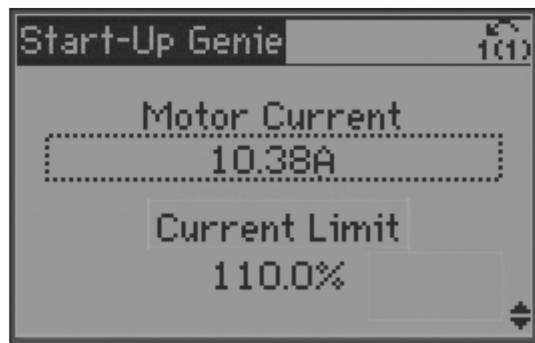
Select Motor Horsepower

Select Motor Voltage



Select Motor Frequency

Select Motor Nominal Speed



- ✓ Input Motor Current
- ✓ Input Current Limit - SFA/FLA

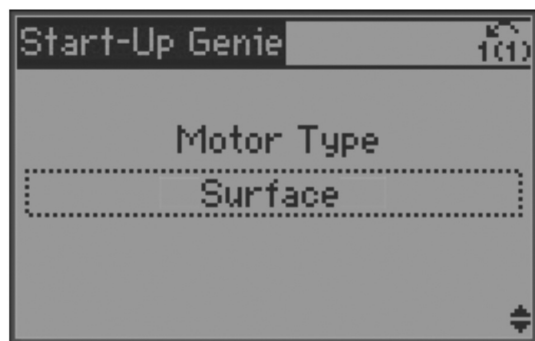
Example:

SFA is 11.42, FLA is 10.38

Current Limit: $11.42/10.38 = 1.100 \%$

Carry over the decimal 2 places to the right to ensure your Current Limit percentage

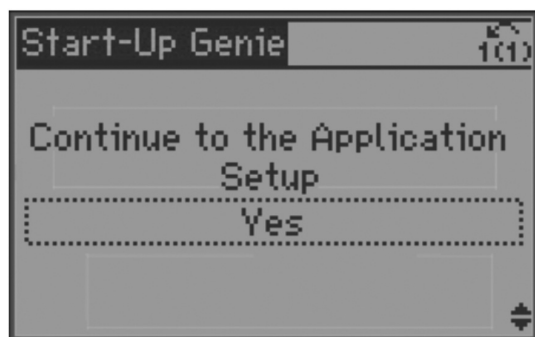
For Submersible motors we input SFA and use current limit at 100%



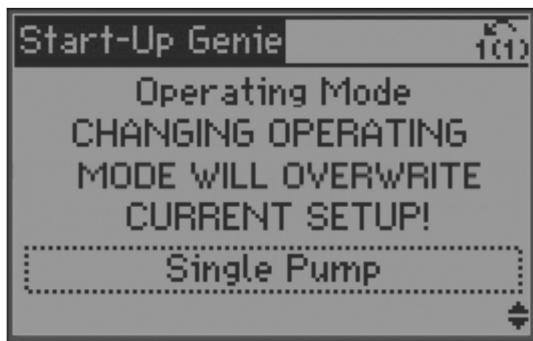
Select Motor Type



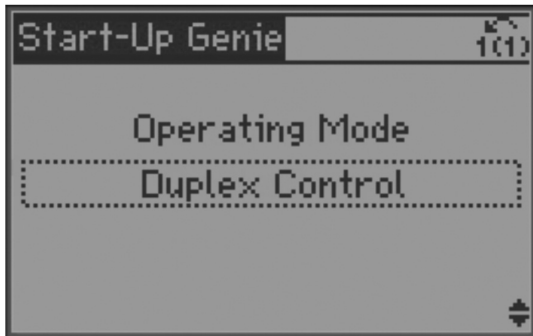
Select Sleep Frequency Low Limit



Select Yes to Continue to the Application Setup



Select either Single Pump or Duplex Control. Follow the programming for single pump application below.

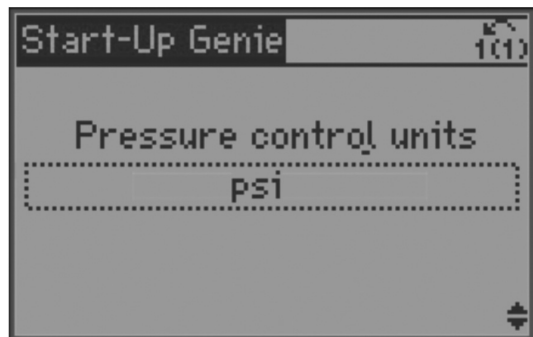


Duplex Programming continues on page 13.

FOR SINGLE PUMP COMMISSIONING



Select Constant Pressure for Application type



✓ Select PSI for pressure control units

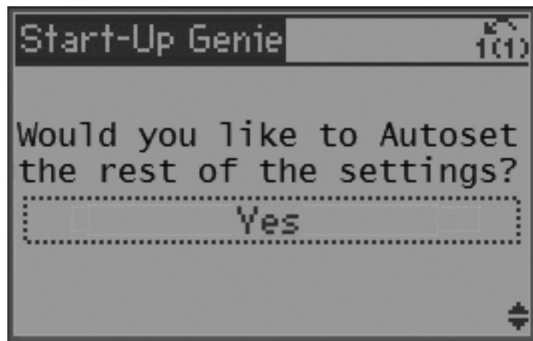


✓ Select Ramp Time

Fast: 5 sec accelerate, 3 sec decelerate.

Medium: 10 sec accelerate, 5 sec decelerate.

Slow: 20 sec accelerate, 10 sec decelerate.



Select Yes to Autoset the rest of the settings.

For Simplex configuration, here are the parameters that will get autoset:

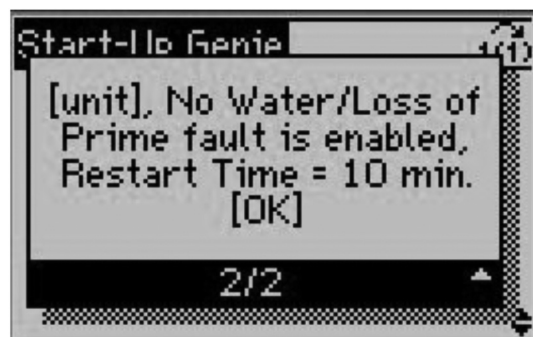
Autoset Configuration	Constant Pressure
Transducer Max Feedback	300 [unit]
Transducer Type	4-20mA
Feedback 1 Source	AI 53
PID Performance	Normal
Sleep Mode	Enabled
Sleep Frequency	30 Hz
Restart Difference	5 [unit]
No Water/Loss of Prime Fault	Enabled
No Water/Loss of Prime Restart Time	10 min.



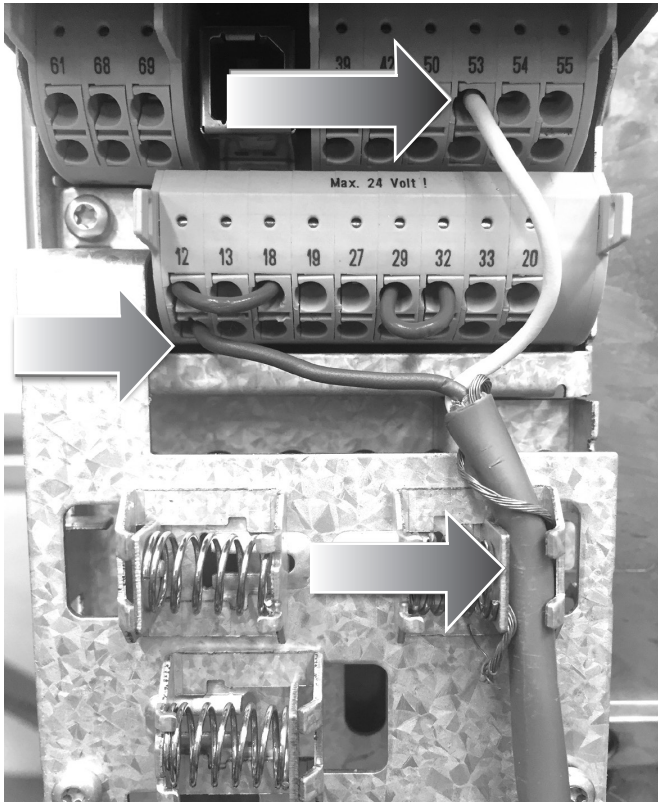
Select Setpoint 1



Proceed with the down arrow on the next two screens as you are verifying that your Pressure Transducer is a 300 PSI, you are wired in on Analog Input 53, that your sleep frequency is 30 Hz, and your restart difference is 5%, the No Water loss of prime fault is enabled, and your restart time is 10 Minutes.



Cycle Power Off and prepare control wiring

SINGLE PUMP CONTROL WIRING

Install Transducer cable on:

- ✓ Brown on terminal 12 (24V)
- ✓ White on terminal 53 (4-20MA)
- ✓ Place ground shield between spring clip and shielded cable.



Install Jumper wires on:

- ✓ Terminal 12 and 18

The IPC has been configured to require a start command on terminal 18. To apply a start signal connect a jumper wire between terminals 18 (DI 18, parameter 5-10) and 12 (24V dc). A start command is given to the controller when terminal 18 is connected to 24V.

- ✓ Terminal 29 and 32

This jumper allows the drive to automatically restart in the event of a no water loss of prime.



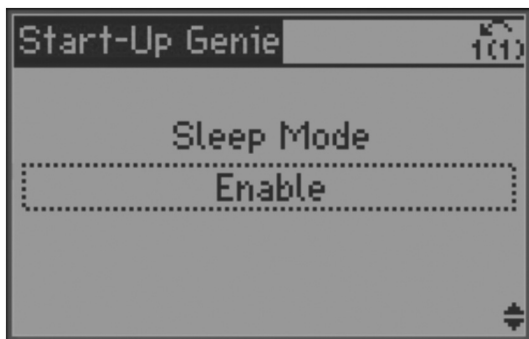
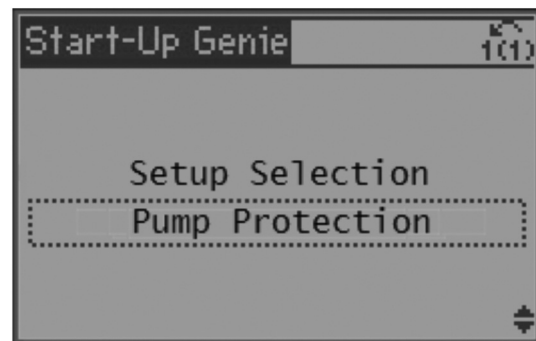
- ✓ Check Pump and Motor Rotation by selecting Hand On. If motor is running backwards, power down drive, wait five minutes, and rotate motor wires from the drive. Once rotation is verified, select Off.

- ✓ Select Auto On. Verify Unit cycles into sleep mode at desired PSI.

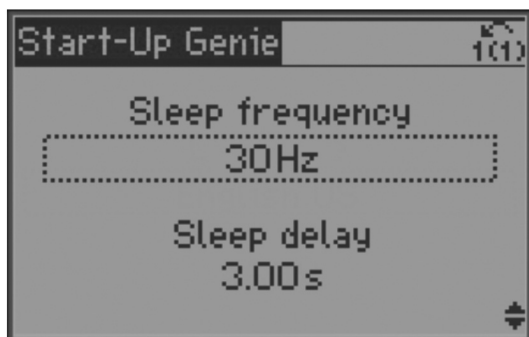
PERFORMING THE NO FLOW POWER CALIBRATION:



- ✓ Perform No Flow Power Calibration
- ✓ Select Quick Menu
- ✓ Select 04 Startup Genie
- ✓ Change Setup Selection to Pump Protection.



- ✓ Select Enable for sleep mode.



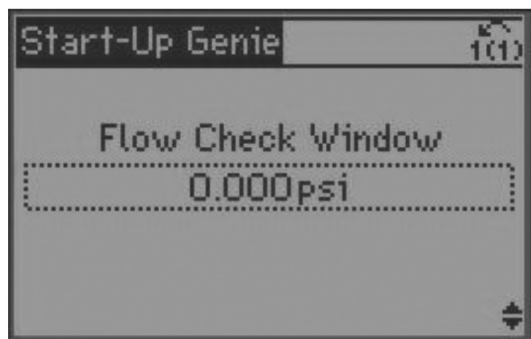
- ✓ Select 30 Hz for Sleep Frequency, 3 Seconds for Sleep Delay.



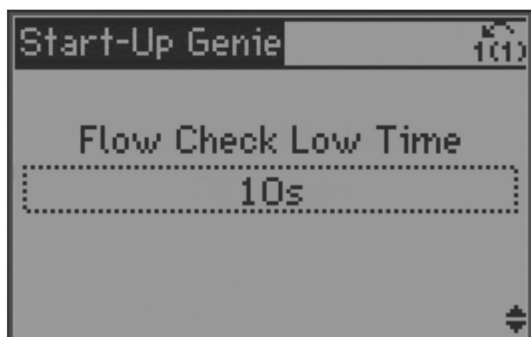
- ✓ Select 10% for Restart difference 1.



- ✓ Select 3 Seconds for Minimum Run Time.
10 Seconds for Minimum Sleep Time.



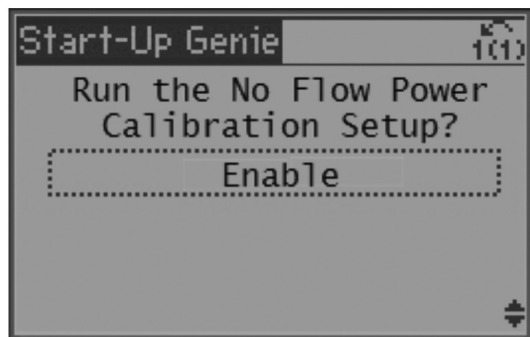
- ✓ Select 0 PSI for Flow Check Window.



- ✓ Select 10 Seconds for Flow Check Low Time.

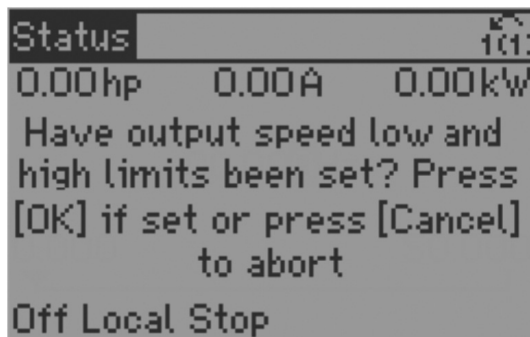


- ✓ Select 10 Seconds for Flow Check High Time.

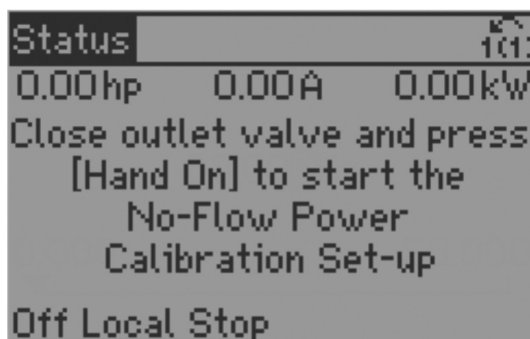


- ✓ Select Enable for No Flow Power Calibration.

WARNING: The No Flow Power Calibration Process requires the pump to be operated at no flow. This can produce high pressure within the system. Ensure the system piping and components are designed to withstand the suction pressure plus shutoff head pressure produced by the pump prior to starting the calibration process.



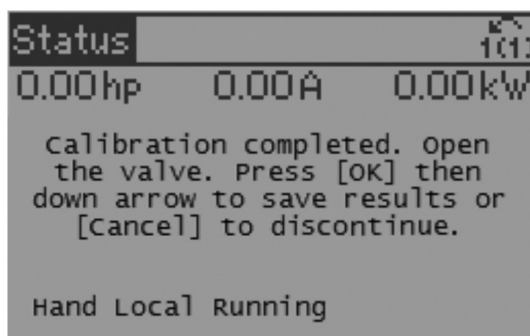
- ✓ Follow all onscreen instructions carefully.



- ✓ Close outlet valve before starting

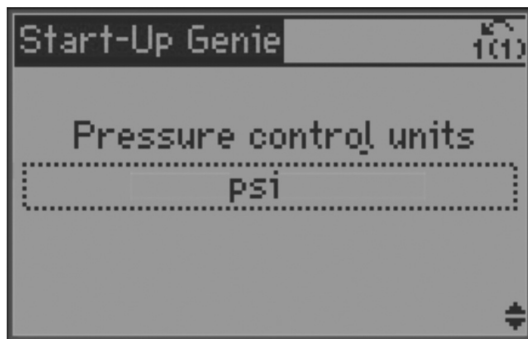
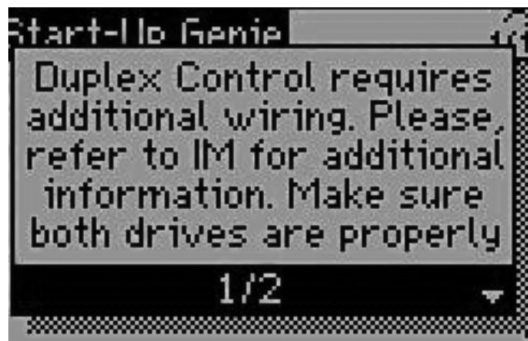
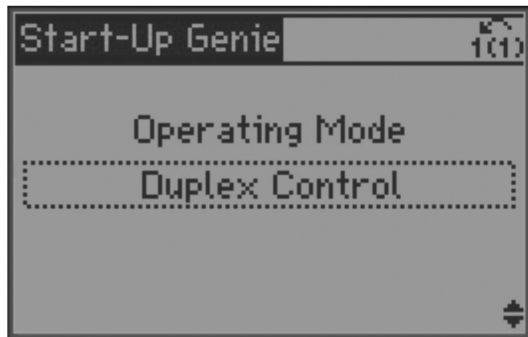
- ✓ The drive will now run through steps 1-4.

- ✓ Once the calibration is completed, select OK and the down arrow to proceed.



Run Some Production and verify that the drive is starting and cycling into sleep or standby mode.

If you are having difficulty, please refer to the AQIPCQA IPC Troubleshooting guide at the end of this guide.

DUPLEX PROGRAMMING

Remember we will not install wiring until programming is completed.

Press Ok to continue your programming

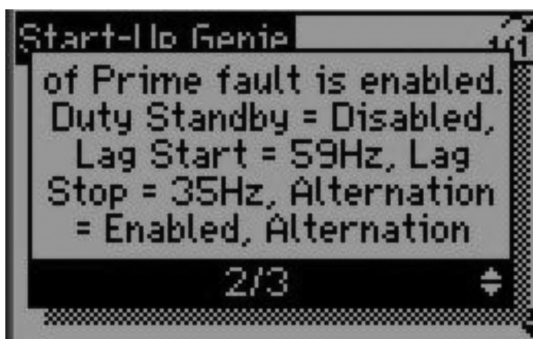
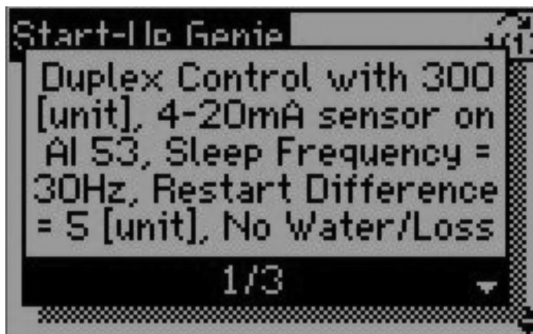
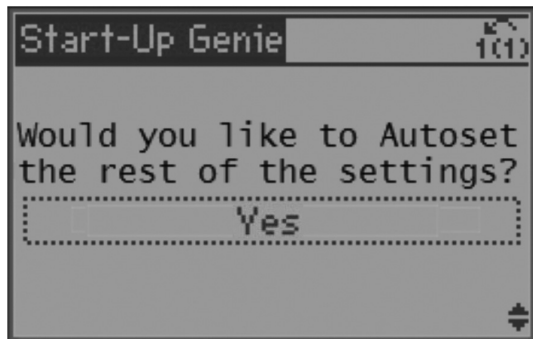
✓ Select psi for Pressure control units

✓ Select Ramp Time

Fast: 5 sec accelerate, 3 sec decelerate.

Medium: 10 sec accelerate, 5 sec decelerate.

Slow: 20 sec accelerate, 10 sec decelerate.

DUPLEX PROGRAMMING

Select Yes to Autoset the rest of the settings.

For Duplex configuration here are the parameters that will get autoset:

Duplex Autoset Configuration	Constant Pressure
Transducer Max Feedback	300 [unit]
Transducer Type	4-20mA
Feedback 1 Source	AI 53
Sleep Frequency	30 Hz
Restart Difference	5 [unit]
No Water/Loss of Prime Fault	Enabled
Duty Standby	Disabled
Lag Start Frequency	59 Hz
Lag Stop Frequency	35 Hz
Alternation	Enabled
Alternation Time	24 Hrs
Pump Exercise Time	0 s (Disabled)

✓ Select Set point PSI

Cycle through these three screens and then press OK.

You can now power off both drives and prepare control wiring between the two drives.

Aquavar IPC Start-Up Genie

DIP SWITCH SELECTION

- Simplex: Requires no action. Dipswitch is correct position for 4-20MA Transducer Feedback.
- Duplex: Requires Analog 54 dipswitch to be moved over on BOTH drives. To move dip switch follow these instructions:

1. Remove Keypad

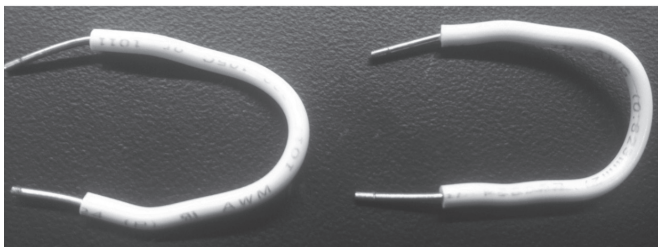


2. Carefully move Dipswitch A54 to the right to the "I" position on BOTH drives. Please use care and do not break the switch. Move it until you hear it click into position.

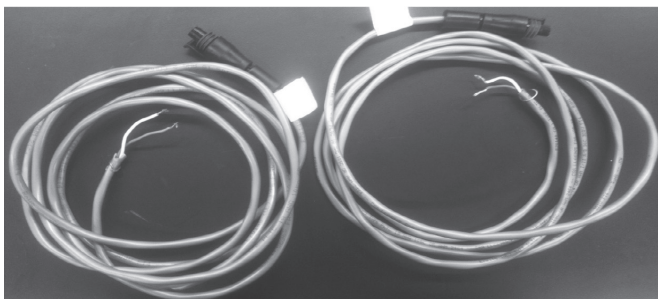


WIRING PREPARATION

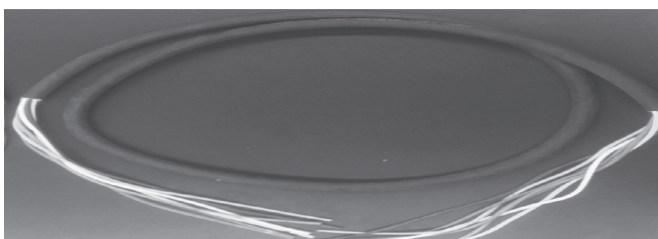
Ensure that Start-Up Genie is complete. You can now prepare wiring for:



Jumpers on BOTH drives



Transducers on BOTH drives

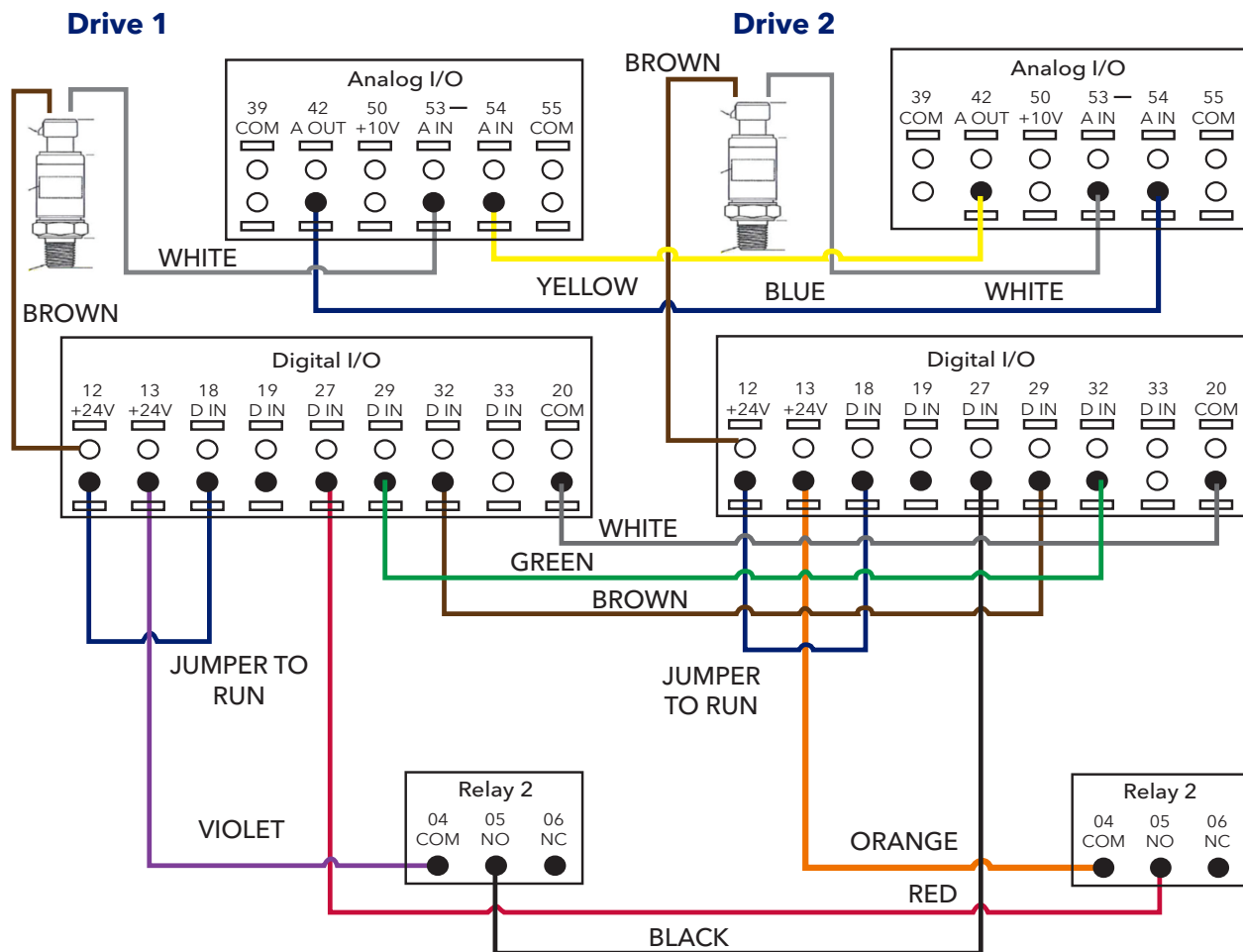


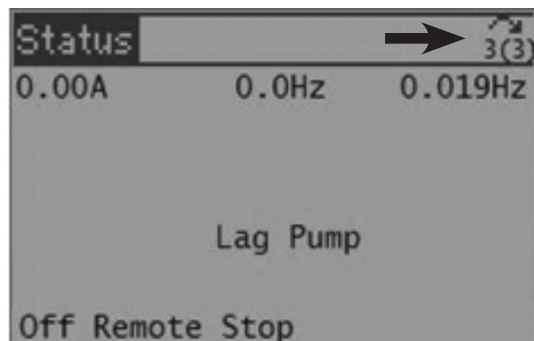
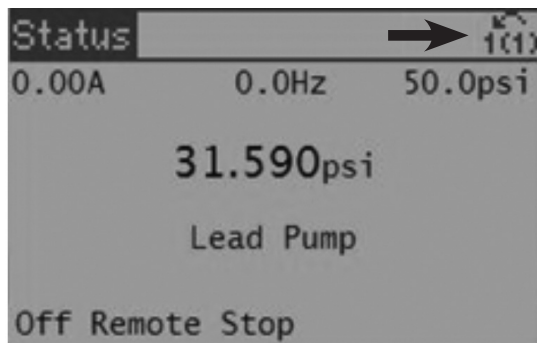
Wiring Harness to connect BOTH drives

Duplex cable part # 9K706 (3 ft) or #9K707 (6 ft)

Aquavar IPC Start-Up Genie

- Install Jumper to run wire on Terminal #12 and #18 on both drives
- Install Transducer Cable: White on #53, Brown on #12
- **Blue:** Drive 1 Analog I/O #42 to Drive 2 Analog I/O #54
- **Yellow:** Drive 1 Analog I/O #54 to Drive 2 Analog I/O #42
- **Violet:** Drive 1 Digital I/O #13 to Drive 1 Relay 2 #04 (Internal Jumper)
- **Red:** Drive 1 Digital I/O #27 to Drive 2 Relay 2 #05
- **Black:** Drive 1 Relay #2 05 to Drive Digital #27
- **White:** Drive 1 Digital I/O #20 to Drive 2 Digital I/O #20
- **Green:** Drive 1 Digital I/O #29 to Drive 2 Digital I/O #32
- **Brown:** Drive 1 Digital I/O #32 to Drive 2 Digital I/O #29
- **Orange:** Drive 2 Digital I/O #13 to Drive 2 Relay 04 (Internal Jumper)





Apply power to BOTH drives. Press "Auto On" on both drives.

- Ensure that the Lead Pump is in 1(1) and the Lag Pump is in 3(3) in upper right corner

1. Check both Pumps and Motors Rotation by selecting Hand On.

- **CAUTION:** If motor is running backwards, power down drive, wait five minutes, and rotate motor wires from drive.
- Switch any two of the motor wires labeled U,V, or W.

2. Once rotation is verified, select Off.

3. Select Auto On.

- Verify Unit cycles into sleep mode at desired PSI.

NO FLOW POWER CALIBRATION



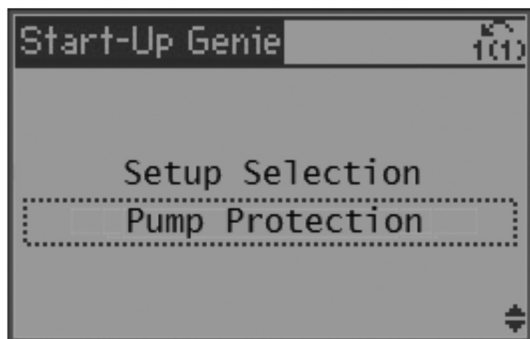
The No Flow Power Calibration Setup provides the method to program the no flow power curve in to the controller

- In order to detect a no flow condition for the various pump(s), the no flow power curve needs to be programmed in to the drive

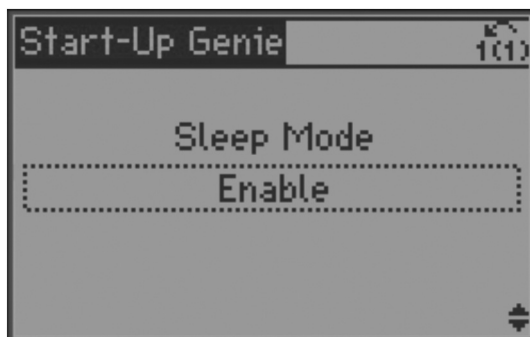


Select Quick Menu

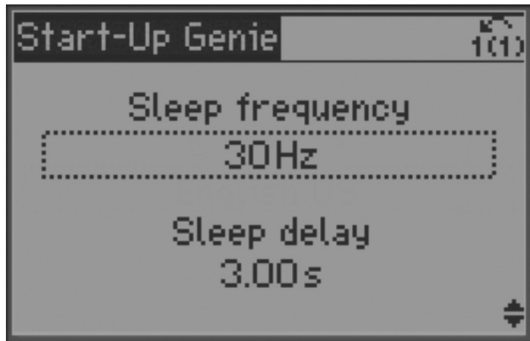
Select 04* Startup Genie



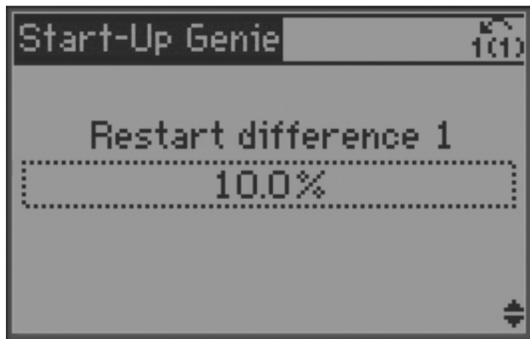
Change Setup Selection to Pump Protection.



Select Enable for sleep mode.

NO FLOW POWER CALIBRATION

Select 30 Hz for Sleep Frequency, 3 Seconds for Sleep Delay.

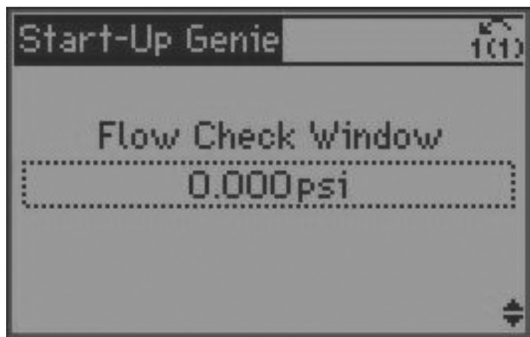


Select 10% for Restart difference 1.

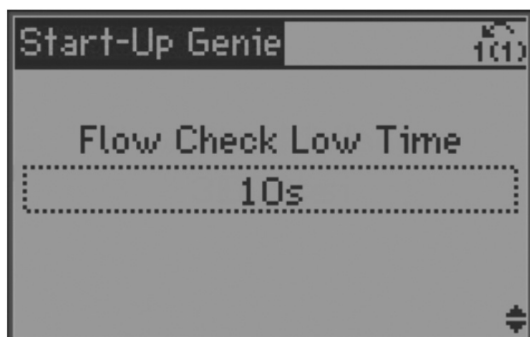


Select 3 Seconds for Minimum Run Time

Select 10 Seconds for Minimum Sleep Time.



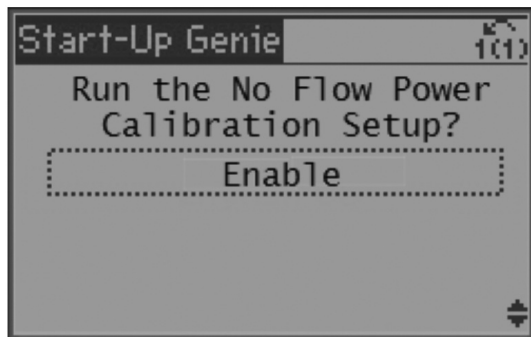
Select 0 PSI for Flow Check Window.



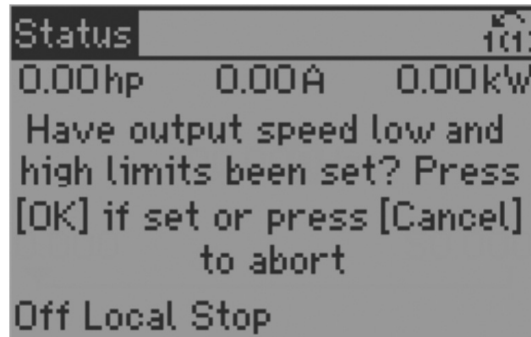
Select 10 Seconds for Flow Check Low Time.

NO FLOW POWER CALIBRATION

Select 10 Seconds for Flow Check High Time.

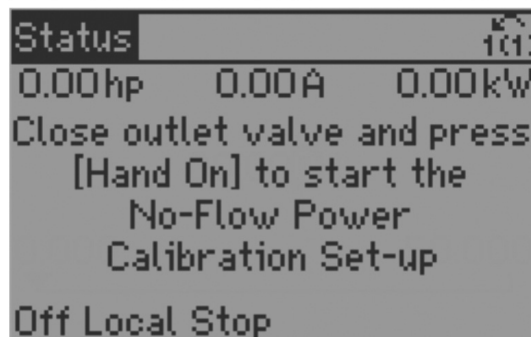


Select Enable for No Flow Power Calibration.



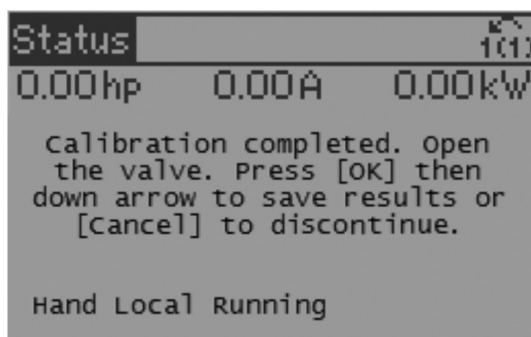
Follow all on-screen instructions carefully.

WARNING: The No Flow Power Calibration Process requires the pump to be operated at no flow. This can produce high pressure within the system. Ensure the system piping and components are designed to withstand the suction pressure plus shutoff head pressure produced by the pump prior to starting the calibration process.



Close outlet valve before starting.

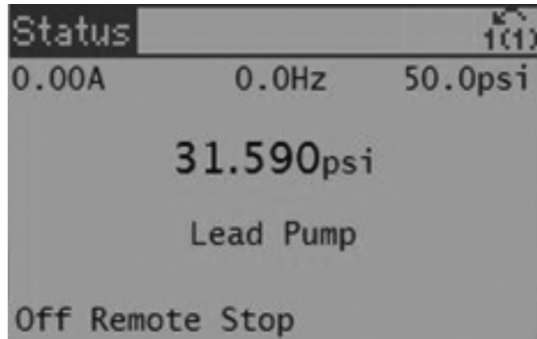
The drive will now run through steps 1-4.



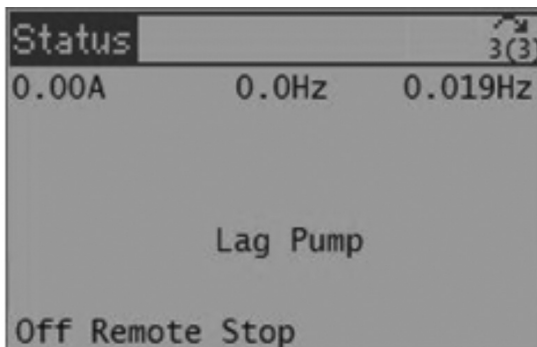
Once the calibration is completed select OK and the down arrow to proceed.

NO FLOW POWER CALIBRATION

You will now need to run the no flow power calibration on the lag pump drive as well.



You will need to change the Lead pump position over to the lag pump.



Select "Auto ON" for both drives

NO FLOW POWER CALIBRATION

On the Lead drive, select the OK and right arrow together on the keypad.

Your Lag drive now becomes your Lead.

Select off on both keypads

Follow the same procedure for the no flow power calibration once again for this drive (page 19).

Once you have the no flow power calibration completed, run some tests to verify they are cycling on and off, and changing positions by selecting the "OK" and "right arrow" key together.

For troubleshooting, please refer to IM290R00 Duplex Troubleshooting guide. (page 28)

Refer to IM287 to access and change specific Genie parameters. (page 24)

AQUAVAR® INTELLIGENT PUMP CONTROLLER START-UP GENIE PARAMETERS (IM287)

The Start-Up Genie is the fastest way to accurately program an IPC. However, when fine tuning is required, users may use the parameters in the main menu of the IPC. The table below is a cross reference between the Genie settings and their corresponding parameters in the main menu.

IPC GENIE MENU SCREEN:**• Motor:**

- Motor Power (HP): 1-21
- Motor Voltage: 1-22
- Motor Frequency: 1-23
- Motor Nominal Speed: 1-25
- Motor Current: 1-24
- Current Limit: 4-18
- Motor Type:
 - Surface:
 - Sleep Frequency/Low Limit: 4-12
 - Submersible:
 - Sleep Frequency/Low Limit: 4-12

• Operating Mode:

- Single Pump: (continue on Application Type)
- Constant Slave:
 - (Note: Pump 1 is the one for variable speed)
 - Number of Pumps: 25-06 (2 or 3)
 - Two Pumps: 05-4 R1 (for fixed-speed Pump 1)
 - Three Pumps: 05-4 R2 (for fixed-speed Pump 2) and 540.1 (for fixed-speed P3)
 - Run Time Equalization: 25-04
 - Staging Bandwidth: 25-20
 - SBW Staging Delay: 25-23
 - SBW Destaging Delay: 25-24
- Duplex Control:
 - Duty Standby: 5-13, 5-31
 - Lag pump start frequency: 5-4* (5-40.0, 5-40.1) (5-41.0, 5-41.1)
 - Alternation: 25-50, Smart Logic (13-44.0)
 - Alternation Time: 25-52, Smart Logic (13-20.0)
 - Pump Exercise Time: 22-40
 - Start Delay: 1-71

• Speed Control:

- Speed Reference Source: 6-** (Select the AI (53 or 54) you want to use and (Volts or Amps))
 - Terminal 53 Low Ref./Feedback: 6-14
 - Terminal 53 High Ref./Feedback: 6-15
 - Min Speed Reference: 3-02
 - Max Speed Reference: 3-03

• Test Run Mode: 5-10 [14] Jog

- Test Run Speed: 3-11
- Test Run Ramp Time: 3-80

• Application Type:**• Level Control:**

- Level control units: 20-12, 20-05, 20-08
- Tank Fill or Tank Empty Application:
 - Fill: 20-81 (PID Normal)
 - Empty: 20-81 (PID Inverse)
 - Ramp Time: 3-41, 3-42, 3-52

• Flow Control:

- Level control units: 20-12
- Ramp Time: 3-41 and 3-42

• Constant Pressure:

- Pressure Control Units: 20-12
- Ramp Time: 3-41, 3-42, 3-51, 3-52

• *Autoset: *Would you Like to Autoset the rest of the setting? (Calculation Values):

- Setpoint 1: 20-21 (50 psi)
- Wake-up Ref./FB Difference: $22-44 = (5/20-21)*100$ (for Constant Pressure, Level Control and Duplex Control)
- Low Speed [Hz]: $22-33 = 4-14*0.5$
- High Speed [Hz]: $22-37 = 4-14*0.85$
- Low Speed Power [HP]: $22-35 = 22-39* (22-33 / 4-14)^3$
- High Speed Power [HP]: $22-39 = 1-21*4-18*0.46$

AQUAVAR® INTELLIGENT PUMP CONTROLLER START-UP GENIE PARAMETERS (IM287) (cont.)

• Feedback:

- Control Feedback Sources: 20-00, 20-03, 20-06
- Feedback 1,2,3
 - Feedback Function: 20-20
- Low Feedback Value: 20-13
- High Feedback Value: 20-14
- Feedback Sensor Fault: 6-17

• Setpoint:

- Number of Setpoints: 5-15, 20-21, 20-22

• Flow Compensation: 22-80:

- Is the speed at the design point known?: 22-82
- Square-linear Curve Approximation: 22-81
- Speed at Design Point (Hz): 22-86
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• Copy from LCP: 0-50 set to "All from LCP"

SETTING UP THE INTELLIGENT PUMP CONTROLLER TO RUN IN SPEED CONTROL (IM295)

The Intelligent Pump Controller can be configured for speed control through an analog input. The controlling source can be either an external control device such as a PLC, BMS, (Building Management System) or potentiometer. The output from the external control device can be either a voltage or current output signal. Set the analog input configuration switches based on the type of output signal. For speed control using PLC or BMS with an independently powered signal you will use 53 or 54 as the input signal, and 55 for the common.

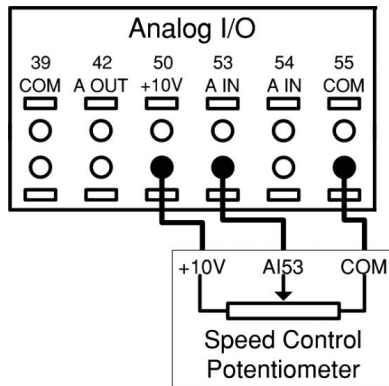


FIGURE 1
Connections for external speed signal

U: 0-10 VDC I: 4-20MA

Switches are located behind the keypad

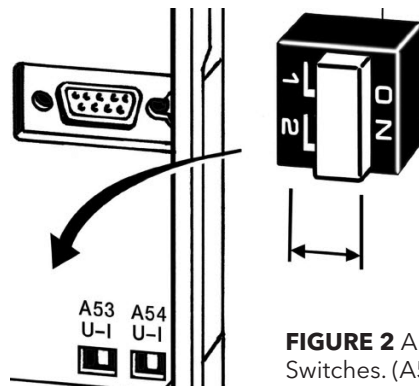
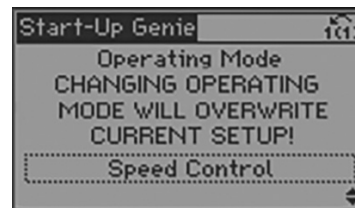


FIGURE 2 Analog Input Dip Switches. (A54 is only selectable)

1. Sending a 4-20 MA input signal to the drive using analog input #53. You will wire your 4-20MA signal into Terminal #53 and common on Terminal #55. Dipswitch is defaulted for 4-20MA on analog input #53
2. Sending a 0-10VDC input signal to the drive using analog input #54. You will wire your 0-10VDC signal into Terminal #54 and common on Terminal #55. Dipswitch is defaulted to 0-10VDC on analog input #54.
3. Running your pump and motor at one fixed speed without sending a signal to the analog inputs. No wiring is required other than the Start/Stop on terminals #12 and #18.

When running your startup Genie for the first time, please enter all of your motor information correctly.



- When you come to the Operation Mode selection, please select Speed Control.

Please determine how you are going to setup and program from one of three different configurations below:

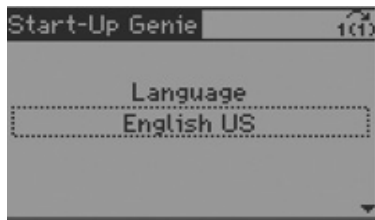
Signal Type	Location	Dip Switch
4-20 mA	Analog Input 53	Dip Switch is in correct position
0-10 VDC	Analog Input 54	Dip Switch is in correct position
Fixed Speed	No AI input used	Digital Input 18 used for start/stop

You can also get to this section from the main screen by selecting:



- Quick Menu and Selecting #4 Startup Genie

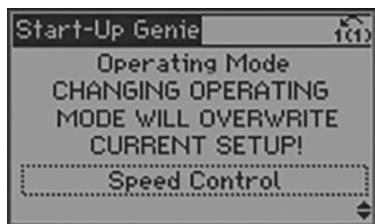
Aquavar IPC Start-Up Genie



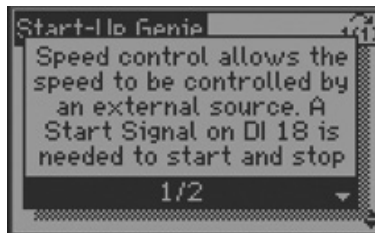
- Selecting English US



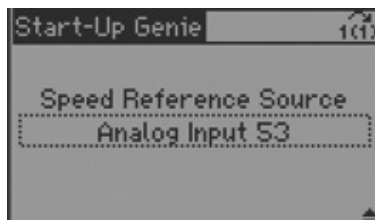
- Change your Setup Selection to **Application**



- Change to Speed Control

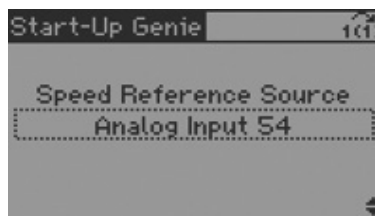


Please acknowledge that the drive will require an external source and that have your jumper wire on DI18 on the next two screens.



Now select your Speed Reference Source:

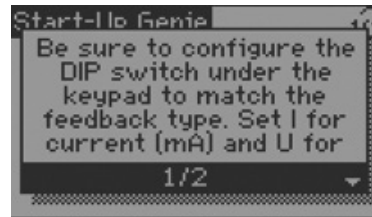
- Analog Input 53 for 0-20 MA Input Application.



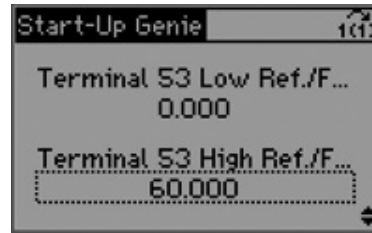
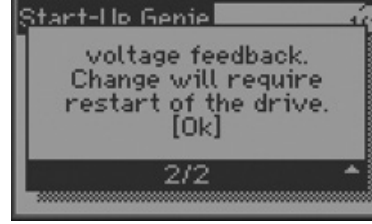
- Analog Input 54 for 0-10V DC Input Application.



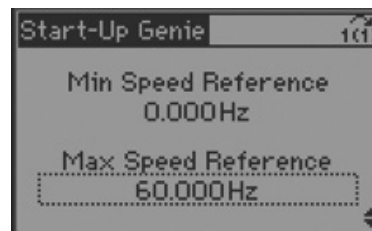
- No function for on Fixed Speed Application.



- The next two screens will verify that you have your dip switches setup correctly.



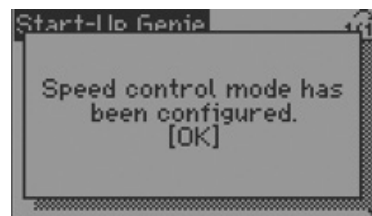
- Input your Motor low reference value (0) and High reference Value (60.0). This is the scaling from your input signal, either a 4-20MA or 0-10VDC.



- For either a 4-20MA or 0-10VDC application please select Minimum speed at 0 Hz and Maximum speed to 60 Hz.



- For fixed speed application with no input please select the same minimum and maximum speed to have your motor run.



- Press Ok to confirm your Speed configuration is setup correctly.

AQUAVAR IPC DUPLEX TROUBLESHOOTING GUIDE (IM290)

This is a step by step troubleshooting guide to have the end user follow in the event that we have a duplex setup that with repeated attempts to resolve have not remedied. It is then recommended to eliminate these three potential issues following this troubleshooting guide moving forward.

1. Dip switch settings.
2. Programming with the wiring in place. Cannot program with wiring present or the Duplex logic will not function properly.
3. Incorrect wiring between the two drives.

This step by step guide will guide you through:

- Performing a dip switch verification check.
- Performing a factory restore and reprogramming of both drives.
- And also rechecking your wiring.

This whole process should take the end user no more than 20 minutes.

1. Dip switches in incorrect position: Power down both drives and remove both keypads. Locate both A53 and A54 dip switches and verify that **BOTH A53 and A54 are moved to the right in the "I" position for 4-20 MA, on BOTH drives.** Please note: power must be off for the change to take effect. Also, please take care in moving the switches over as they can break if force is applied.

U: 0-10 VDC I: 4-20MA

Switches are located behind the keypad

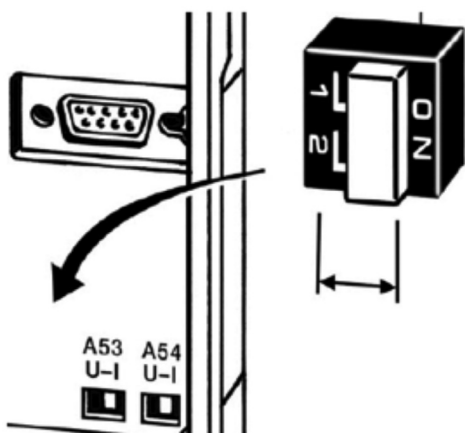
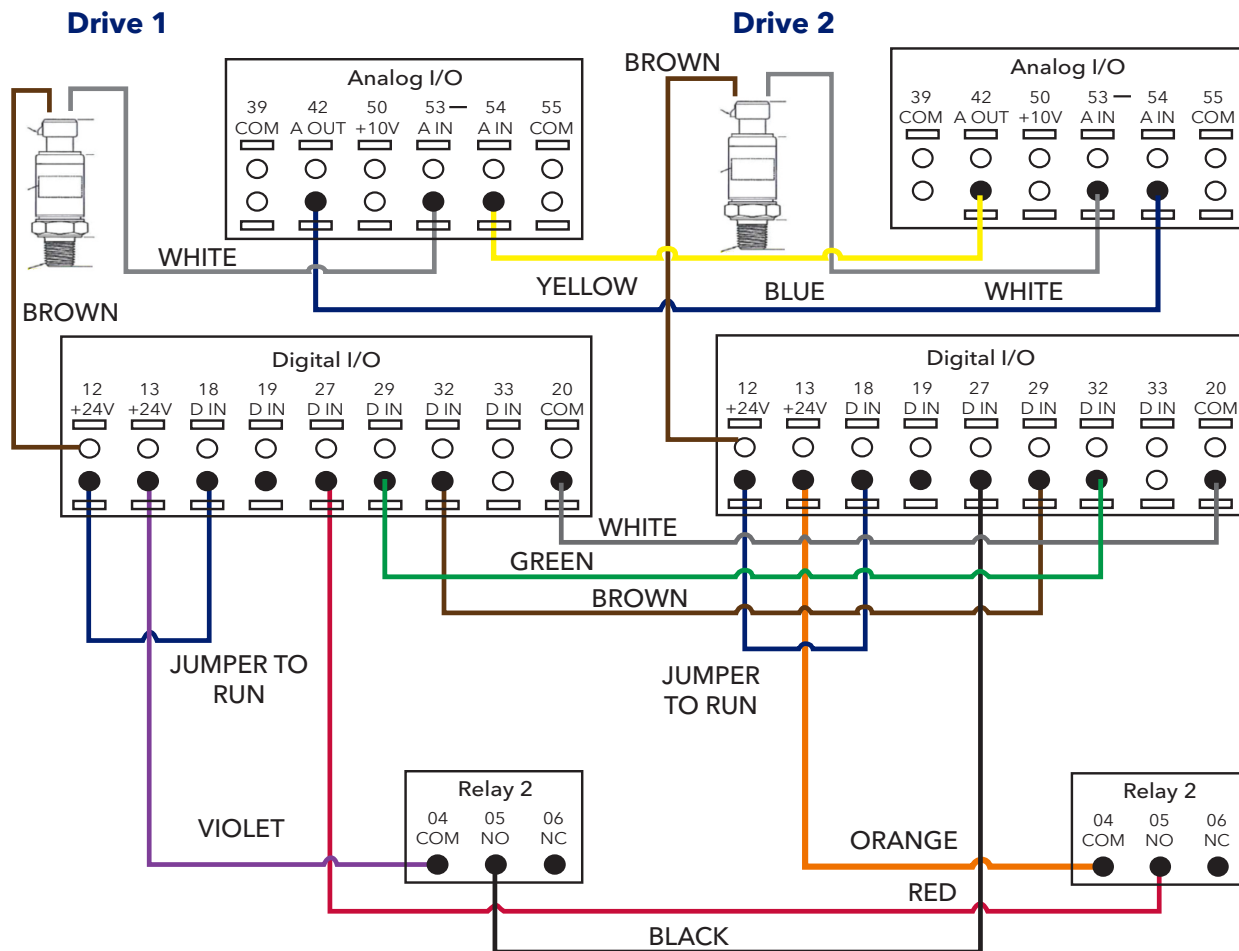


FIGURE 1 Analog Input Dip Switches

2. If you had the wiring in place when first programming then the drives should be re-initialized and reprogrammed. This is a painless and easy step to perform.
 - a. Power down the drives. Remove the wiring terminal blocks from the drives.
 - b. Perform a factory reset by holding the **Status, Main Menu, and OK**, buttons down together while you are applying power. When you see the "Initializing" come up on the display you can let go and let the re-initialization finish. At this point, reprogram both drives together side by side so all parameter values that are entered in are the same for both drives.
 - c. Once you are completed with programming, power down both drives and reapply wiring harness and terminal blocks. Power both drives back on and test. This important test eliminates both any programmed parameters being incorrect and also if the logic for synchronizing was compromised if the wiring was present during initial programming.
3. If after checking your dip switch settings and performing a reprogramming (without the wiring present) does not remedy, then the only remaining step is to recheck all your wires. At this point you are actually going to require and recheck every connection to eliminate wiring being an issue. Please refer and recheck every wire that is in IM267.

FINAL DUPLEX WIRING DIAGRAM



- Install Jumper to run wire on Terminal #12 and #18 on both drives
- Install Transducer Cable: White on #53, Brown on #12
- **BLUE:** Drive 1 Analog I/O #42 to Drive 2 Analog I/O #54
- **YELLOW:** Drive 1 Analog I/O #54 to Drive 2 Analog I/O #42
- **VIOLET:** Drive 1 Digital I/O #13 to Drive 1 Relay 2 #04 (Internal Jumper)
- **RED:** Drive 1 Digital I/O #27 to Drive 2 Relay 2 #05
- **BLACK:** Drive 1 Relay 2 #05 to Drive 2 Digital I/O #27
- **WHITE:** Drive 1 Digital I/O #20 to Drive 2 Digital I/O #20
- **GREEN:** Drive 1 Digital I/O #29 to Drive 2 Digital I/O #32
- **BROWN:** Drive 1 Digital I/O #32 to Drive 2 Digital I/O #29
- **ORANGE:** Drive 2 Digital I/O #13 to Drive 2 Relay 2 #04 (Internal Jumper)

AQUAVAR IPC Q&A (AQIPCQA)**QUESTION INDEX:**

1. Where is the drive information, such as model number and serial numbers located? (page 31)
2. I would like to know if there is a simpler way to setup and configure this controller. I have no experience with this, and the manual is over 136 pages. (page 31)
3. I do not see the startup genie. I only see Smart Start. (page 31)
4. Can the IPC run more than one pump? (page 31)
5. What is different with the IPC duplex operation vs. a CPC duplex operation? (page 31)
6. What is the maximum that I can oversize my drive? (page 32)
7. Can the IPC be used on constant torque pumps? (page 32)
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11. Is current/amperage setup in the Genie the primary monitor for pump protection? (page 32)
12. How does No Flow Power Calibration work - is this based on Horsepower? (page 32)
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15. My display is showing 320 PSI. I have no pressure in the line? (page 33)
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28. I am getting a A60-interlock fault. (page 35)

Aquavar IPC Start-Up Genie

AQUAVAR IPC Q&A (AQIPCQA)

1. QUESTION

Where is the drive information, such as model number and serial numbers located?

1. ANSWER

The Aquavar® Intelligent Pump Controller identification label is located directly on top of the drive. It is a good practice to locate this label and record it, either by hand or with storing a digital image. In the event that there are any issues with initial delivery and startup, this information is going to be required. It is also required in the event of a warranty. There are also specific labels on the outside of the carton it was delivered in.



2. QUESTION

Is there a simpler way to setup and configure this controller?

2. ANSWER

There is a startup guide (AQUAVAR IPC Single Pump Installation and Start-Up Instructions - IM283) with wiring, programming, and illustrations to help you get it up and running effortlessly. It is located on our website:

http://documentlibrary.xylemappliedwater.com/wp-content/blogs.dir/22/files/2015/07/AquavarIPC-CentriPro_SinglePump_IM283_3-2017.pdf

3. QUESTION

In my Quick menu in #4, I do not see the startup Genie. I only see the Smart Start.

3. ANSWER

You may have changed this accidentally during intimal programming. Go into the Main Menu, Select 0 Operation/Display, and Select 0-0 basic Settings, and 0-01 Language. If you see (0) English, **change this to (122 ENGLISH US)**. Go back into the Quick Menu and #4 should list the Start Up Genie.

4. QUESTION

Can the IPC run more than one pump?

4. ANSWER

The IPC can operate in duplex mode (two pumps maximum) providing lead/lag functionality as well as alternation, just like the CPC product. If the lead pump fails, the lag pump automatically comes on. It does not have to be manually turned on. Both IPC's have to have their own PSI Transducer. Use the Duplex Startup Guide: Aquavar® IPC Quick Start-Up Instructions for Duplex Commissioning

<http://documentlibrary.xylemappliedwater.com/wp-content/blogs.dir/22/files/2016/09/IMAQIPC-QuickStartUpInstr.pdf>

5. QUESTION

What is different with the IPC duplex operation vs. a CPC duplex operation?

5. ANSWER

Duplex operation in the IPC is done by the analog signals between the two drives. This requires additional wiring between the IPC. You can buy a 3 foot (9K706) or 6 foot (9K707) connection cable to simplify your wiring. The included harness also included a color coded wiring manual (9K267). Also remember that the IPC can do a maximum of two drives and the CPC up to four.

AQUAVAR IPC Q&A (AQIPCQA)**6. QUESTION**

What is the motor range that I can use with my drive?

6. ANSWER

All of our drives have a database in them that will allow you to enter the motor size in a range of up to four sizes down. Here is an example for 7.5 HP drives:

Motor Horsepower: 2 HP, 3 HP, 4 HP, 5 HP, 7.5 HP

Note: Make certain that you input the correct amperage rating of your motor during commissioning.

7. QUESTION

Can the IPC be used on constant torque pumps?

7. ANSWER

Yes, the IPC can be configured for the constant torque nature of the positive displacement pumps. Set parameter 1-03 to Compressor torque. Positive displacement pumps sometimes require oversizing to accommodate the high starting torque requirements. Oversize by one size.

NOTE: Progressive cavity pumps may require even greater starting torques. In these cases the pump manufacturer should be consulted.

8. QUESTION

How do I Check the rotation of my motor?

8. ANSWER

Use the Hand Mode to check rotation. In Hand Mode you can select the frequency and speed you would like the motor to run manually and to also check your rotation.

9. QUESTION

Can I change between Two Set Points remotely?

9. ANSWER

Wire your external switch on DI33 terminal to change the set points. When you program 2 set points in Startup Genie, the logic will auto configure DI33 for the 2 set point functionality.

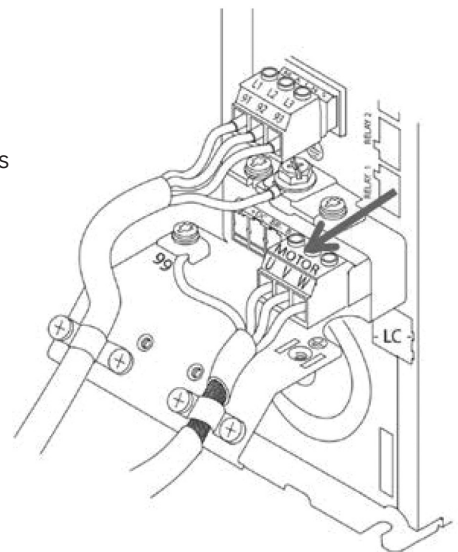
(DI33 Closed: Set point 1. DI33 Open: Set point 2).

10. QUESTION

Where are my motor terminals located?

10. ANSWER

Locate the terminal block with **U (96), V (97), W (98)** label.

**11. QUESTION**

Is current/amperage setup in the Genie the primary monitor for pump protection?

11. ANSWER

Yes

12. QUESTION

How does No Flow Power Calibration work - is this based on Horsepower?

12. ANSWER

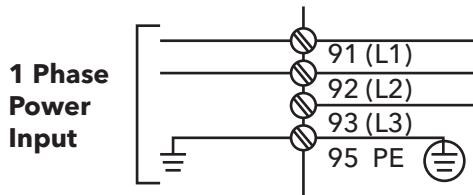
Yes. NFPC only needs to be done if you are enabling the No Water/Loss of Prime Function. Follow the procedure in the Quick Start Guide in the IOM. When the NFPC is completed it will automatically put the HP based on this calculation in the No Water/Loss of Prime Limit (HP) parameter. Based on this calculated HP, the IPC will shut down on No Water/Loss of Prime at this HP limit. Also please make certain that the lines are full and pressurized before performing.

AQUAVAR IPC Q&A (AQIPCQA)**13. QUESTION**

Can I use single phase input power?

13. ANSWER

Yes. We have dedicated single phase input drives for single phase power applications. (Currently for 230 Volt applications and maximum 30 HP.)



For single phase supply wiring, please use L1 and L2 as shown.

NOTE: If you need to power single phase above 30 HP, contact factory for guidance.

14. QUESTION

Can you program the IPC without having the IPC connected to a motor?

14. ANSWER

Yes, you can program the IPC by providing supply power to the drive but without having the motor connections to the IPC. However, in order to configure correctly, you will need the specifications from your motor. You can also use the free MCT10 Software from your windows based PC. Danfoss MCT-10 Software is a free download at DanfossDrives.com under the Software Downloads.

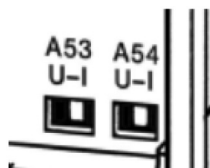
15. QUESTION

My display is showing 324 PSI. I have no pressure in the line?

15. ANSWER

Shut the controller off, remove the keypad, and make sure your dipswitch for the analog input 53 is set to 4-20MA position. **U: 0-10 VDV I: 4-20MA**

Switches are located behind the keypad:

**16. QUESTION**

Why does the drive get to the set point and not shut down?

16. ANSWER

There are a number of things to check if the controller is not turning off the pump and the motor:

- Verify you have installed a spring check valve before the transducer on the discharge side of the system.
- Please make certain that you have properly sized and pre-charged your bladder tank. Use the 20/20 rule: 20% of Max Flow GPM for sizing, and pre-charged 20 PSI below your set point.
- Leaks in the piping, fittings, bladder tank etc.
- Verify that you have properly performed your No Flow Power Calibration.

17. QUESTION

Why am I getting a W59 error when my pump is running?

17. ANSWER

First verify pump rotation is correct. If it is correct, then the motor current and current limit is not setup correctly. Go back into the Genie, select Motor in the setup selection, and input the following:

Motor current is: FULL LOAD AMPS (FLA)

Current Limit is: Service Factor AMPS / Full Load Amps

Verify Motor nameplate RPM.

18. QUESTION

When I push Auto ON, it displays Auto Remote Standby, and the pump does not run?

18. ANSWER

Your jumper wire is not installed or making a good connection. To apply a start signal, connect a jumper wire between terminals 18 (DI 18, parameter 5-10) and 12 (24V dc). A start command is given to the controller when terminal 18 is connected to 24V.

AQUAVAR IPC Q&A (AQIPCQA)**19. QUESTION**

Why am I getting an A-2 fault?

19. ANSWER

Verify that your pressure transducer is wired correctly. Brown is on terminal #12 (24V), White is on terminal #53 (4-20MA). Place ground shield between spring clip and shielded cable.

20. QUESTION

My display is dark and not illuminated

20. ANSWER

Verify incoming power, and also check that the panel is set into its connector all the way. You can adjust the contrast on the LCP by pressing "Status" + up/down arrow.

21. QUESTION

My display is not showing PSI set point and actual PSI.

21. ANSWER

Cycle through the display options simply by using the up and down arrows until your desired data is displayed on the LCD.

22. QUESTION

How do I change my set point?

22. ANSWER

Simply by selecting quick menu, my personal menu, and then inputting your desired PSI here.

23. QUESTION

The drive is constantly restarting once it cycles off.

23. ANSWER

Please check your system for leaks, a faulty check valve (required), bladder tank setting (20 PSI below your shutoff), or a constant demand. You can also adjust the restart difference in the startup Genie for longer cycle times.

24. QUESTION

Is there a way I can reset the drive back to factory defaults?

24. ANSWER

Yes. Simply power off the drive, hold down the status, Main menu, and OK, buttons while re-applying power. Do not let go until you see initializing come on to the display. You can then let go and wait until it re-sets. Go back and reprogram in your startup Genie.

You can also go to Main Menu, Go to Menu 14-22, operation mode, and select Initialization. Then cycle your power off.

25. QUESTION

My drive is going into sleep mode as soon as it reaches the set point.

25. ANSWER

Please verify that you have run your No Flow Power calibration. If you have not, go into the Genie and Select Pump Protection and follow the on screen prompts. Once you have completed this please try run some cycles to see if this remedies.

AQUAVAR IPC Q&A (AQIPCQA)**26. QUESTION**

I am missing my terminal blocks and other connectors.

26. ANSWER

The connectors and terminal blocks are shipped in a separate accessory bag in the envelope. These terminal blocks are left off during production for final validation testing in the factory. They do not ship without the terminal connectors. If you cannot locate your accessory bag, you can order your terminal blocks using the part numbers below. Please order from your frame size.

9K686	Accessory Bag Frame Size A2
9K687	Accessory Bag Frame Size A5
9K688	Accessory Bag Frame Size B1
9K689	Accessory Bag Frame Size B2
9K690	Accessory Bag Frame Size B3
9K691	Accessory Bag Frame Size B4
9K692	Accessory Bag Frame Size B4 Large
9K693	Accessory Bag Frame Size C1
9K694	Accessory Bag Frame Size C2
9K695	Accessory Bag Frame Size C3
9K696	Accessory Bag Frame Size C4 Small
9K697	Accessory Bag Frame Size C4 Large

27. QUESTION

I have a Duplex setup and my lag pump runs at Full Speed constantly.

27. ANSWER

Please verify that your dip switches are set correctly on both drives. A54 controls the Lag pump. Please refer to the IPC Duplex Troubleshooting Guide - IM290R00.

28. QUESTION

I am getting the A60-interlock fault.

28. ANSWER

You incorrectly setup your digital input #27 for pump protection during the startup. Go into menu 5-12 and change to (0) no operation.

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