PENTEK INTELLIDRIVE FAQ

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Do I have to ground the motor and the incoming power?

Yes. There are 2 green ground lugs on the drive, one at the input connections and one at the motor connections. Both the incoming power and the motor have to be grounded. The drive will not work correctly without proper grounds.

The display shows a much lower pressure when the pump is running than when it is stopped.

This is most likely a grounding issue. Remove the cover of the drive. Using an AC voltmeter, place one lead on the metal where the ground lugs are connected and the other lead on the building ground. Press the Auto Start button. The voltage should read less than 1 volt, anything over that means there is not proper ground.

I want to use Brand X 250PSI transducer. How do I?

We recommend using the transducer provided, but others will operate with the drive if they meet these requirements: rated 0-100 PSI, 4-20mA, 24V supply voltage, same cable or equivalent as cable provided. However, the scaling factor can be adjusted to accommodate other ratings up to 300 PSI.

I want to increase the pressure setpoint to above 100 psi. How do I do this?

This is only available on software version 1.02.000 or higher. A 4 – 20mA pressure transducer with a higher pressure range is needed instead of the one provided. Connect it in the same way at the drive. Then change the scaling to match that of the new transducer found in Main Menu/Sensor/Max Pressure (Change Min Pressure also if other than 0).

I'm pressing the buttons, but only about four seem to do anything. Do I need a replacement keypad? / I'm pressing the buttons but display keeps showing "Error Press Password Key". What do I do?

Several of the buttons are locked out with a password to prevent unintended changes to the system. They can be unlocked by pressing the PASSWORD button and entering the proper numeric code. The locked buttons should only be unlocked by a person trained on the drive. The default password is 7777. If 7777 does not work than a master password can be used. Call Customer Service for master password. It can only be used with software version 1.02.000 or higher. This can be found under Main Menu/Reset.

Also, in the upper left corner of the screen there is a key displayed if the keypad is locked.

To enter the password you must:

1. Press the Password button
2. Enter the password
3. Press Enter.

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I want to change the setpoint before I start the drive in constant pressure mode.

This only on software version 1.02.000 or higher. Go to Main Menu/Settings/Setpoints/Internal Setpoint and change it.

I'm mounting the drive in an unheated shed. Is this OK?

In many parts of the country this ok. The drive is rated for -10 to 40°C (14 to 104°F) and 0 to 95% non-condensing humidity. The drives will work above 40°C (104°F); they will derate and reduce the speed to keep the internal temperature at an operational range.

Can I operate two pumps with this drive?

No. Only one pump can be operated with the drive. This product is designed for residential submersible pump applications.

Does the IntelliDrive support Lead/Lag and Lead/Lag/Alternate applications?

Yes. There is no additional wiring for the Lead/Lag operation, but Lead/Lag/Alternate requires wiring of an alternator. Both are easily done. Contact your sales rep or customer service for details.

Can I get this drive to talk to others?

No. This drive does not support external communications besides the HMI.

Who do I call to get help?

1.1. Who does end user call?

Installer.

1.2. Who does installer call?

Dealer/Distributor where purchased.

1.3. Who does distributor call?

Pentair customer service or Pentair sales representative.

The drive runs for several minutes after water is turned off. What's wrong?

Answer: Nothing. The drive is designed to continue operating at low power for approximately one minute after flow stops to prevent the possibility of rapid cycling. This period of time is appropriate for most residential installations but can be adjusted through the Main Menu. (Parameter is "Sleep Boost Delay") – Only in software version 1.02.000 or higher.

The drive boosts the pressure 3 psi when using water. Why? Is that normal?

This is normal operation for the INTELLIDRIVE. This operation is part of the sleep function. It is how the drive senses to see if pressure stays at the boosted pressure or drops below the setpoint. It also helps to flush the tank with stagnant water.

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The pressure rises to 80 psi (or other pressure) and goes to sleep but does not wake up after it drops below 55psi. What is wrong?

The drive is running into the Sleep 2 function, it is a safety feature used to stop an over pressure situation from bursting any pipes. At 80 psi it senses an overpressure and goes to sleep for 1 minute and then checks to see if the pressure has dropped down before it wakes up. This is different than the normal sleep operation. In software version 1.02.000 and up the 80 psi setting is adjustable found in Main Menu/Settings/Sleep/Sleep 2 PSI (only change if no damage will occur at the new setting).

Troubleshooting:

1. When does it go to sleep?
    - 1.1. During water usage?
        - 1.1.1. If software version 1.02.000 or higher check the Main Menu/Settings/Sleep/Sleep 2 PSI is set to 80 psi.
        - 1.1.2. Check to see Internal Setpoint is set to 60 psi or something lower than 80. This may cause the sleep 2 if high.
    - 1.2. During no water usage?
        - 1.2.1. Watch the frequency to see what it is at when all faucets/valves are closed.
        - 1.2.2. Should drop to ~30 Hz (mid 40s at the highest)
            - 1.2.2.1. If something other than that then check Main Menu/Motor/Min Freq……should be 30 Hz.
            - 1.2.2.2. If low speed is causing over pressure; the pump is oversized.

The frequency never drops below xx Hz. What is wrong?

Check that the minimum frequency is set to 30 Hz at Main Menu/Motor/Min Freq.

How long should the drive last?

The drive has been designed for an average operating life of 20,000 hours of operation. The field life of the drive is dependent upon many application factors including ambient temperature, drive loading, cleanliness of environment, exposure to moisture, etc.

Warranty: 18 months from date of manufacture, 12 months from date of install; whichever is first.

What are the serviceable components?

Fan, terminal block connectors (2 pole input & 3 pole output), transducer, transducer cable, HMI (keypad display). See manual for part numbers.

Why do I need to install a pressure relief valve if the drive holds constant pressure?

Submersible pumps are capable of producing very high pressures. A pressure relief valve is required to prevent damage or injury due to these high pressures.

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This is an added safety item that assures the pressure will not rise to a damaging pressure if the drive fails.

Do I need a tank? If so, what size is allowed and/or best?

The recommended tank size is 20% of flow rate or 2 gallons, whichever is greater. (This is total tank size not drawdown.) Larger tanks can also be used, although the drive may sleep more frequently during periods of moderate water usage.

Will the drive work with other brands of pumps/motors?

Yes, other 4" submersible pumps are able to be used. It is recommended to use the Pentek brand.

How much current does the drive require? What size leads do I use?

The current draw is dependant on the motor and pump the drive is operating. The input wire sizes need to be sized to the breaker size. The motor wires should be sized to the length of the cable and the current draw of the motor.

The Service Factor Amps are needed and have to be entered during the start up procedure or in the Main Menu under the Motor menu. The SFA can be found on the motor nameplate for 3 phase. 3-wire SFA entered has to be the Cap Start Cap Run values, they can be found on the control box (if a CSCR); the SFA values on the nameplate may not be CSCR. Refer to the Quick Start Guide or the Owner's Manual for the IntelliDrive for a table listing Pentek SFA values.

The performance of the pump seems low. How can I check? What do I do?

1.1. Look at the bottom of the display; If TPM is showing then the drive is limiting the current output and there may be a reduction in performance due to this.

1.1.1. There are 2 TPM operations

1.1.1.1. Service Amps: Reduces the frequency to keep the current from exceeding Service Factor Amps entered.

a) If this occurs the first thing to check is that the proper SFA was entered. Look at Main Menu/Motor/Service Factor Amps

1.1.1.2. Reduced Speed: Limits current and frequency to bring down the internal temperature in the drive.

a) Check to see the fan is operating; this will operate to cool the drive.
b) Check the ambient temperature is not above 104°F. If it is then the drive will reduce the speed until the internal temperature is within normal operating temp.

1.1.1.3. Also check the following:

a) Check output wires for proper orientation.
b) Check the setpoint pressure.

c) Check the PSI value on the screen.

Can I add lightning protection?

To drive
Yes. Wire a separate lighting protector before the drive in a separate enclosure. Lightning arrestors or other surge suppressing devices can be used with this product. MOV (Metal Oxide Varistor), SOV (Silicon Oxide Varistor), or a flashover type can be used when wired between the drive and the circuit breaker.
To motor:
Yes.. Some motor are equipped with lighting protection in them. If a lightning arrestor is to be used between the drive and the motor, a flashover type arrestor is recommended.
To transducer: No

Can I use the IntelliDrive on a booster pump?

No**,** the drive is optimized for use with submersible well pump applications. Use on above ground pumps may result in unsatisfactory performance or damage.

Line Fill for vertical pipes?

Yes, there is an Auto Line Fill operation that will fill horizontal or vertical pipes. It is implemented every time the Auto Start Button is pressed. If the line is filled then it will quickly change to a constant pressure mode. It is set to operate the motor at 45 Hz and slowly increase to 55 Hz. If the speed is not fast enough for filling the pipe the user may change the speed to the desired frequency by pressing Enter, using the arrows to change the frequency value, and Enter again. This has to be done while the drive is in the Auto Line Fill mode; once the user makes this change the drive is now in Manual Line Fill mode and will stay there for 15 minutes or until there is 10 PSI in the system, which ever comes first.

Does the drive have fuses?

No, the drive is to be protected by the circuit breaker installed before the drive. See the owners manual for breaker sizing.

Does drive have motor protection?

Yes. It has ground fault, over current, over voltage, locked rotor, and open lead protection

How long are the transducer cables?

10 ft standard. Other lengths are available: 25, 50, 100, 150, and 200 ft

Can I field scrap the drive?

No, all PIDs must be returned on a QFF.

What if I do not know the SFA of the motor?

It is necessary and must be identified. Entry of the SFA is required and needed to protect the motor.

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The Service Factor Amps are needed and have to be entered during the start up procedure or in the Main Menu under the Motor menu. The SFA can be found on the motor nameplate for 3 phase. 3-wire SFA entered has to be the Cap Start Cap Run values, they can be found on the control box (if a CSCR); the SFA values on the nameplate may not be CSCR. Refer to the Quick Start Guide or the Owner's Manual for the IntelliDrive for

a table listing Pentek SFA values. If unable to find by these methods, refer to the manufacture's literature

I have heard that constant pressure systems result in stagnant water within the pressure tank. Is there anything I can do to prevent this?

The IntelliDrive includes a pressure boost feature which prevents stagnation of water in the pressure tank. You do not need to do anything to enable this feature.

Do I need to ground the transducer?

No, this transducer is a new design, different from the one used on the PPC20 and it is not necessary to ground the transducer. The transducer cable shield must be grounded. It is the green wire. The shield must be connected to the ground lug to the right on the "AI-" terminal.

Why is there not a snubber on the transducer?

This PENTEK transducer is made of special piezo resistive material that acts as a buffer from any pressure bursts. It is specially designed for water applications. Burst pressure is 6 times the max pressure (600 psi). Overload pressure is 3 times the max pressure (300 psi).

Can I use long motor leads?

Yes, the drive is designed to operate a submersible motor with lead lengths up to 1000 ft.

Can I use 115 to power the drive?

No, the drive can only be powered with 230V single phase voltage. The range is 190 – 265 Vac

Can I power the drive with 208V?

Yes, the drive accepts input voltage in the range of 190 to 230Vac, but **ONLY** use 230Vac motors with this drive.

If I have 208 input voltage do I still use a 200V motor?

No, the drive always outputs 230V to the motor. 230V motors should always be used.

The display is showing Internal Fault or Hardware Fault what do I do?

Press Fault Reset, then auto start. If it appears after pressing the auto start button again then turn the power off to the drive, wait for the fan to stop running and the display to go blank, then turn power back on and press auto start. If it appears after pressing the auto start button again then the drive needs to be returned on a QFF.

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What does Hard Fault mean?

It means the drive has sensed an auto resetting fault for 30 minutes and was unable to reset the fault or there have been 10 auto resetting faults that occurred within 30 minutes. The user must look at the fault log and see the fault previous to the Hard Fault. Then look at the troubleshooting section of the manual to determine what might have caused it.

Also can press Fault Reset and then Auto Start. If the fault occurs again, follow the above statement.

I keep seeing "TPM: Service Factor Amps" warning, what does this mean? What should I do?

In some applications it is common to see this, such as in 80Hz operation. If using 80 Hz operating on the correctly sized pump and motor (i.e. 1 ½ motor and ¾ pump) then it is normal to see this in many applications. The drive cannot allow the motor to exceed the SFA entered to protect the motor. This is how ALL 80Hz operations are controlled; the PID just displays what is actually happening in the system. The drive will reduce the speed to whatever is need to keep from exceeding the SFA. Not all 80Hz application cause this: some will allow the full 80Hz speed, it all depends on the loading of the pump.

Can this drive be used to operate a geo-thermal pump (with a submersible)?

Yes, If 2 setpoints are required then a flow switch can be wired to the I1 terminals to tell the drive when to operate lower or higher pressure when water is need for the house or just need for circulating. Program I/O External Input to "Setpoint". Set External Setpoint to desired pressure: Main Menu/Setpoints/External Setpoint, it is defaulted at 40 PSI.

Can the drive operate at 2 different setpoints?

Yes. Wire a switch or timer switch to the I1 terminals. Program I/O External Input to "Setpoint". Set External Setpoint to desired pressure: Main Menu/Setpoints/External Setpoint, it is defaulted at 40 PSI.

Why is there a Dry Run Fault when the well is not dry?

The Pentek IntelliDrive senses a "Dry Run" condition when it is unable to make at least 10 PSI of pressure. This mainly is a result of a well running dry, but also can occur if the pump cannot keep up with the water demand. This could be a result of an undersized pump or worn pump that need to replaced.