

TOSHIBA
Leading Innovation >>>



vlp
technology

P9 ASD >>> Simple Start Guide

Document Number: 64056-002

Date: June, 2011

P9 ASD Simple Start Guide



P9 Programming

Using the EOI

The operating parameters displayed on the LCD screen may be selected, viewed, and/or changed using the Rotary Dial of the Electronic Operator Interface (EOI).

To change a setting, turn the Rotary Dial to highlight the desired Primary menu item and press the Rotary Dial to select the item — the dial acts as the Enter key when pressed (repeat for Sub menu items as required).

Press the Rotary Dial at the item to be changed to enter the Edit mode (dark background/light text). For 10x multiplier response while changing the setting, press and hold the Rotary Dial while turning.

You may exit the Edit mode without saving the changed parameter by pressing the ESC key while the displayed parameter is in the Edit mode, or press the Rotary Dial to accept the change.

Virtual Linear Pump (VLP) Setup Wizard

The VLP Setup Wizard allows the user to easily configure the electrical and VLP operating parameters of the P9 ASD. Once the VLP Setup Wizard has started, it must be completed for normal VLP operations to function.

VLP Setup Procedure

1. Press the Mode key until the Program menu is displayed.
2. Use the Rotary Dial to highlight Virtual Linear Pump and press Enter.
3. Use the Rotary Dial to highlight VLP Setup Wizard and press Enter.
4. Set the Electrical Specifications of the motor:

Motor Full Load Amps — Located on the nameplate of the motor.

Application Type — Pressure or Level.

Command Source — EOI (keypad), V/I, RR, or Communication.

Low Frequency Limit — 15 Hz (Default Setting).

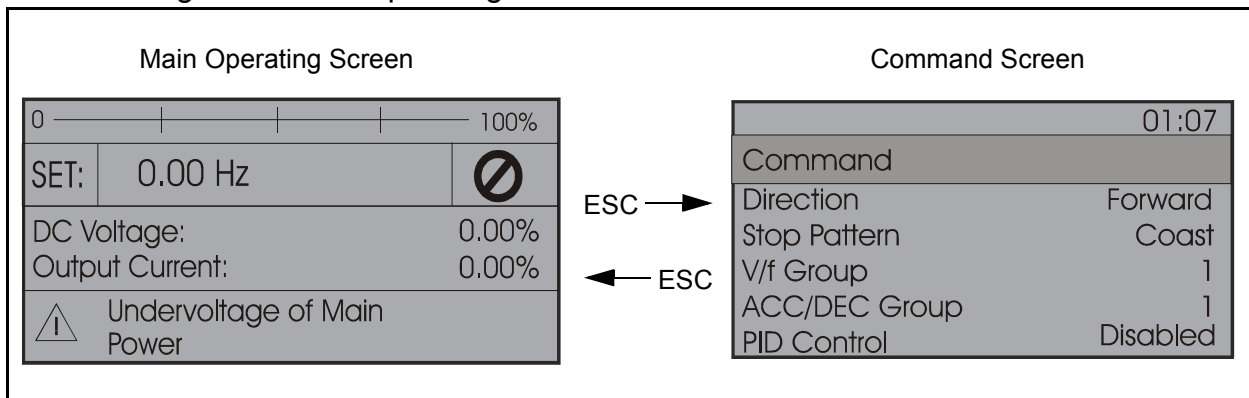
Click Next to continue.

5. Set the Transducer Specifications:
 - Units — PSI, GPM, Inches Water Column, Feet Water Column, or CFM.
 - Type — Current or voltage and the Range (i.e., 0–20 mA, 4–20 mA).
 - Full Scale — Full-scale reading of the transducer (located on the transducer label).
 - Click Next to continue.
6. Set the system for normal flow and ensure that all valves on the system are set for normal operation — the ASD must be in Hand mode for the motor to run properly (Hand LED is on).

DANGER! – THE FOLLOWING STEP WILL START AND RUN THE MOTOR AT FULL SPEED!

7. Press the Run key. Click Next to continue.
8. The maximum power for the Motor/Pump combination is calculated automatically and displayed by the P9 as the VLP Maximum. Normally, no further adjustment is required for setting the VLP Maximum. Click Next to continue.
9. Set the VLP Minimum by slowly turning the Rotary Dial to decrease the number displayed at the LED display. Continue until the motor begins to stall (DO NOT decrease to less than 30 at the LED display). When the motor begins to stall while decreasing the VLP number, increase the number until the motor is no longer in a stall condition to set the VLP Minimum. Click Next to continue.
10. Press the Stop|Reset key to complete the VLP setup. Click Exit.
11. Press the ESC key until reaching the Main Operating screen (see [Figure 1](#)).
12. Press the ESC key once to go to the Command screen (see [Figure 1](#)). Using the Rotary Dial, scroll to the VLP Control field and set it to Direct Mode (or set to Process Hold if using feedback).
13. Press the ESC key to return to the Main Operating screen.

Figure 1. Main Operating Screen and Command Screen.



Run the P9

The Hand mode allows the Command and set-point control functions to be carried out via the EOI.

To run the motor (pump), perform the following:

1. Press the Mode key until the Main Operating screen is displayed.
2. Press the Hand/Auto key to enter the Hand mode (green Hand/Auto LED illuminates).
3. Turn the Rotary Dial until the desired set-point value is displayed in the SET field on the LCD screen.
4. Press the Run key and the motor will run at the set-point value (while running, the Run LED will illuminate red).
5. Press the Stop|Reset key to stop the motor.

For additional information on the Command and set-point control functions, see the P9 ASD Installation and Operation Manual (P/N 64054).

System Features

Battery Backup

Settings that are stored within the EOI are retained in the event of power outage or if the EOI is removed from the ASD. The CR2023 battery of the EOI must be activated during installation and has an expected life of 4.5 years.

To activate the battery backup system, remove the Phillips screw from the front of the LED/LCD display unit. Remove the LED/LCD display unit from the ASD. From the circuit side of the display unit, remove the jumper at J1, pins 2 and 3. Place the jumper at J1, pins 1 and 2.

Accel/Decel Settings

Accel/Decel adjustments may be required to fine-tune VLP operation.

Set the desired Accel time at Program ⇒ Special ⇒ ACC/DEC #1-#4 Settings ⇒ Acceleration Time 2 (default setting is 10.0 seconds).

Set the desired Decel time at Program ⇒ Special ⇒ ACC/DEC #1-#4 Settings ⇒ Deceleration Time 2 (default setting is 10.0 seconds).

Factory Default

An improper P9 setup may cause some trips. Reset the ASD to the Factory Default settings before pursuing a systemic malfunction. Parameter settings may be returned to the factory default values via the Type Reset menu, Program ⇒ Utilities ⇒ Type Reset ⇒ Reset to Factory Settings.

Save User Settings

An existing setup may be saved and re-applied when required by using the Save User Settings feature. This function is carried out via Program ⇒ Utilities ⇒ Type Reset ⇒ Save User Settings.

With the initial setup saved, troubleshooting and diagnostics may be performed and the starting setup may be re-applied when finished via Program ⇒ Utilities ⇒ Type Reset ⇒ Restore User Settings.

Application Support

Sealing Water Control and Safety Interlock

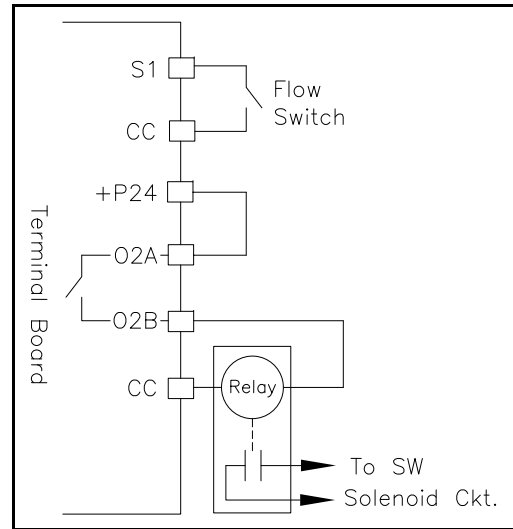
Wire the Sealing Water (SW) Flow Switch to the P9 S1 and CC terminals. Wire the coil of the 24 VDC relay to the P9 OUT2A and OUT2B terminals as shown. Connect the normally open contact from the 24 VDC relay to the control circuit for the Sealing Water solenoid valve.

Only minor programming is required to configure and enable the Sealing Water control and interlocking. Sealing Water parameters are located at VLP ⇒ VLP Sealing Water.

Set F485 to (Sealing Water) Enabled.

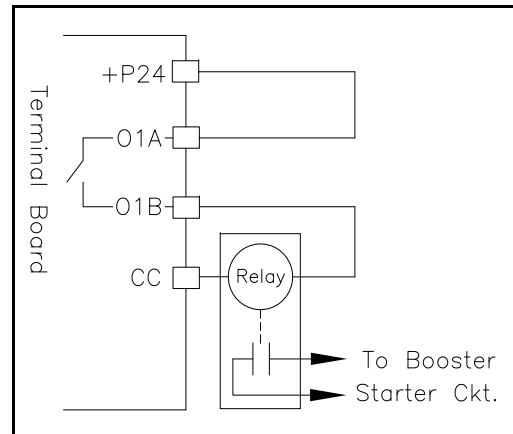
Set OUT2 to 148: Sealing Water.

Set S1 to 140: Sealing Water.



Booster Pump Operation

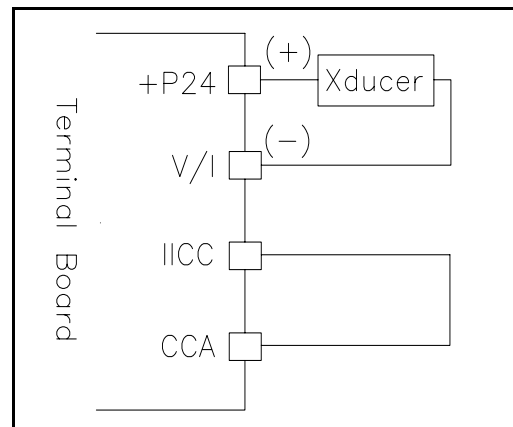
Toshiba's P9 is pre-configured for booster pump operation. No programming is necessary. To wire your P9 to a Line Start booster pump, connect terminals OUT1A and OUT1B to a 24 VDC relay as shown. Wire the contacts from the relay of the start circuit for the booster pump starter. When using a solid-state starter, the 24 VDC relay may be eliminated and the OUT1A and OUT1B terminals may be wired directly into the start circuit for the solid-state starter. A second booster pump may be connect to terminals OUT2A and OUT2B using the same method.



4 – 20 mA Feedback Transducer Wiring

Most feedback devices are 4-20 mA transducers. To use 2-wire (loop powered) transducers, connect the positive transducer lead to the P9 P24 terminal and the negative lead of the transducer to the P9 V/I terminal.

To ensure trouble free transducer operation, place a jumper from IICC to CCA.

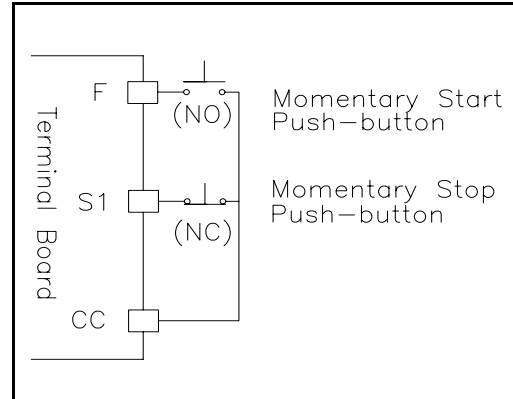


Three-Wire Start-Stop Wiring and Programming

Momentary start push-button
(Normally Open).

Momentary stop push-button
(Normally Closed).

Programming: F115= 50: Hold Direction
(3-wire stop) (Normally Open).



Sleep Setup

Many VLP applications may benefit in additional energy savings by configuring the simple sleep setup available on the Toshiba P9. Sleep will cause the ASD to go into a hibernation mode when system demands are such that ASD operation is not required. An active hibernation mode is indicated by SLP being displayed on the LED display.

To access the two parameters that control the sleep function, go to Programming ⇒ Virtual Linear Pump ⇒ VLP Sleep Timer. Set the Virtual Linear Pump Sleep Timer to Enabled. This will turn on the VLP Sleep Function.

The Virtual Linear Pump Sleep Delay Timer (F383) setting is required and is the amount of time that the P9 must sense that the ASD is no longer required before it goes into hibernation.

This is also the amount of time that the P9 must sense that the ASD is required before the ASD will awaken when operation is again required.

Note: A Sleep Delay Timer setting that is too short may cause the P9 to cycle on and off based on system anomalies. The Sleep Delay Timer setting is adjustable from 1 to 65,535 seconds, the factory default for this parameter is 300 seconds — this setting will fulfill the requirements of most applications.

Motor Information Outline

Motor Information Outline: _____

Voltage/Frequency: _____

RPM: _____

TOSHIBA

TOSHIBA INTERNATIONAL CORPORATION
INDUSTRIAL DIVISION

13131 West Little York Road, Houston, TX 77041-5807

US (800) 231-1412 CAN (800) 872-2192 MEX 01 (800) 527-1204

FAX: (713) 466-8773

<http://www.toshiba.com/ind/>

Printed in the U.S.A.