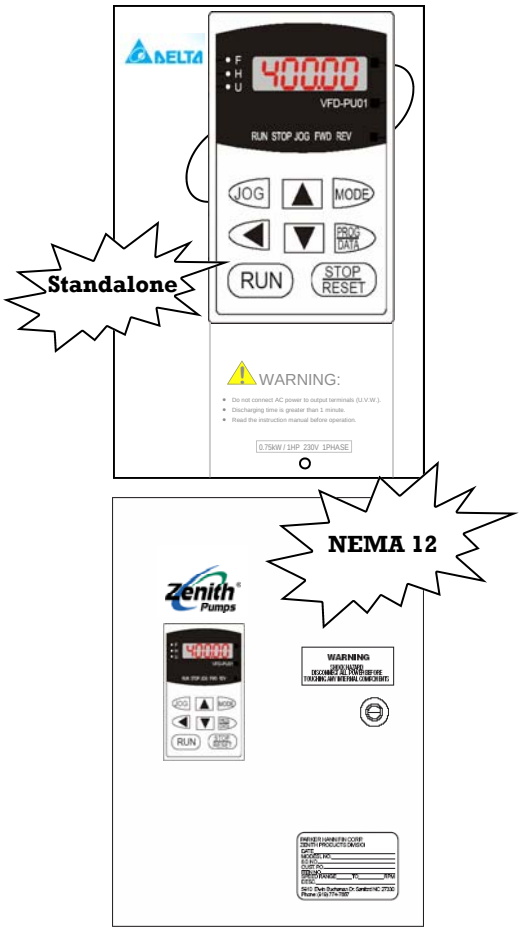
CIRCOR Precision Metering, LLC

Date: 10/2019

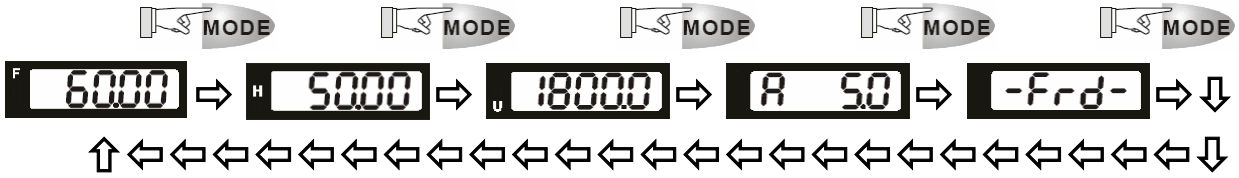
ZVD Quick Installation Guide

Setup System Quickly

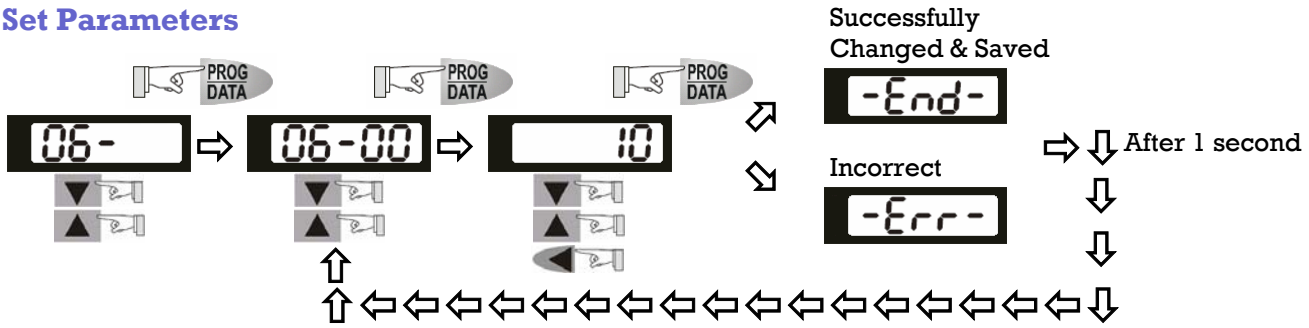


Get Familiar with System — Keypad Operations

Select Mode

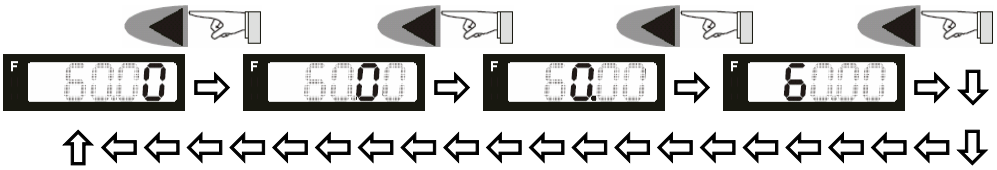


Set Parameters



MODE To move to previous display

Shift Digits



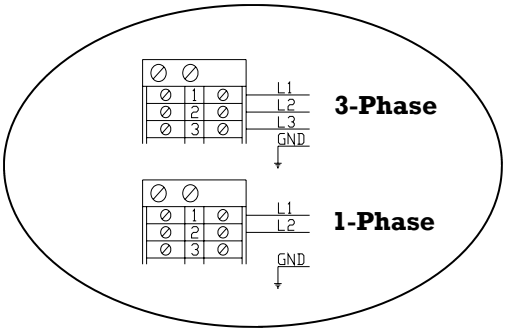
Modify Data

Set Direction

Installation & Quick-Start

1. Connect Input Power
(Do NOT turn on AC Power at this time)

WARNING:
DAMAGES WILL OCCUR IF INPUT AC POWER DOES NOT MATCH ZVD'S INPUT POWERRATING!
CHECK YOUR ZVD, MAKE SURE IF IT IS RATED AS 230VAC OR 460VAC!



Customer supplies input AC power

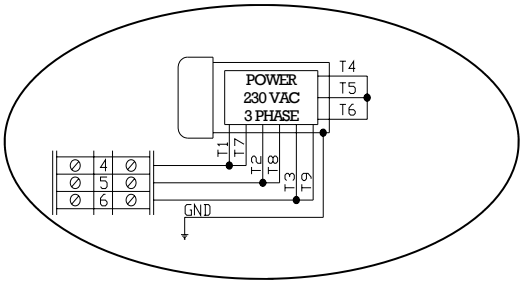
- **230VAC ZVD**
  - 180 ~ 264 VAC
  - 1-Phase/3-Phase (ONLY FOR ≤3 HP)
    3-Phase (ONLY FOR ≥ 5 HP)
  - 47~63 Hz
- **460VAC ZVD**
  - 342 ~ 528 VAC
  - 3-Phase ONLY
  - 47~63 Hz

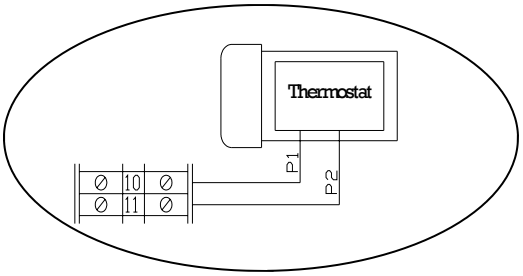
2. Connect AC Motor Cable

NOTE:

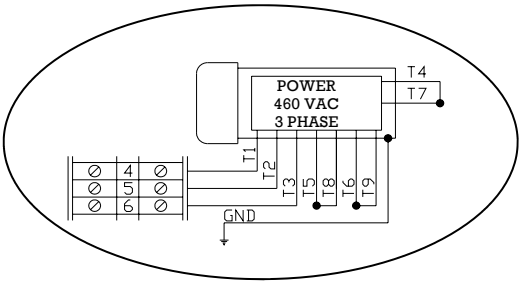
- **Do not connect motor thermostat wires P1 and P2 to ZVD terminals P1 and P2.**
- **Always refer to pump drawing for correct pump rotation. To change rotation, swap either two of three motor power input cables**

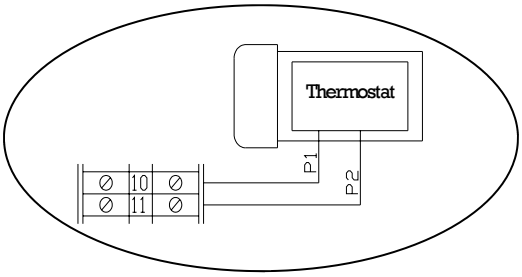
- **230 VAC 3-Phase AC Motors**





- **460 VAC 3-Phase AC Motors**

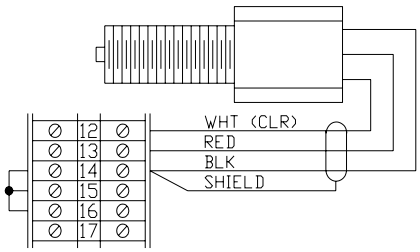




Installation & Quick-Start (cont'd)

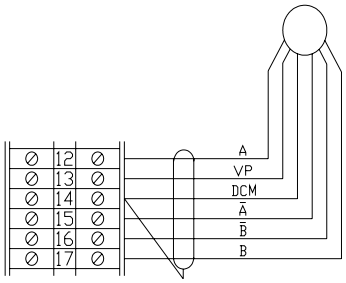
3. Connect Feedback Signal Cable

Hall Effect Sensor
(Non-Explosion Proof Area)



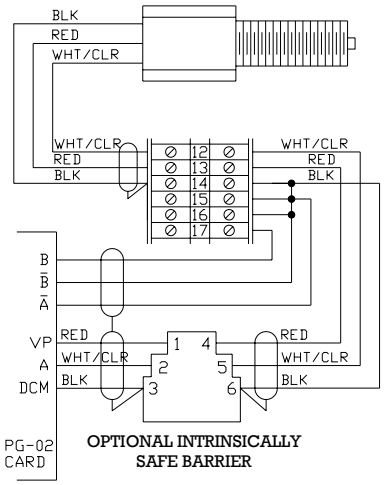
Wire Color	Function	Connect To
Red	+12VDC	13
White/Clear	Feedback Signal	12
Black	Common	14
Bare	Shielding	14

Encoder
(Non-Explosion Proof Area)



Wire Color	Function	Connect To
Depend on Sensor	VP — Input Power	13
	A+ — Signal A+	12
	DCM — Signal Common	14
	A- — Signal A-	15
	B+ — Signal B+	17
	B- — Signal B-	16
	Shielding	14

Hall Effect Sensor
(Explosion Proof Area)



NOTE:

WHEN USING A HALL EFFECT SENSOR OR ENCODER IN A HAZARDOUS ATMOSPHERE, THE OPTIONAL INTRINSICALLY SAFE BARRIER MUST BE USED.

4. Disconnect Coupling (Disconnect Pump from Motor)

5. Turn AC Power On for System

Installation & Quick-Start (cont'd)

6. Configure System

A 5.091:1 reducer and 120 teeth pickup gear is used for the following example.

Change values for the following codes:

Code 00-05 = 30/5.091 = 5.89	User Unit: Pump RPM
Code 00-09 = 3	Control Method: Vector + PG Control
Code 02-00 = 0	Frequency Source: Keypad
Code 02-01 = 0	Operation Source: Keypad
Code 10-08 = 5	Feedback Signal Detection Time: 5 sec.
Code 10-10 = 120	PG Pulse Range: 120 number of teeth per rev.
Code 10-11 = 1	PG Input: Enabled and single-phase signal

Click PROG DATA once, the display shows "XX-". Use ▲ to change the first 2 digits of the code
Click PROG DATA again, the display shows "XX-XX". Use ▲ to change the last 2 digits of the code
Click PROG DATA to show the value of this code
Use ▲ ▼ ◀ to change the value. When finish, click PROG DATA to store the new value.

7. Verify Feedback Signal Manually

- Click "Mode" button until U light lit up
- Use ▲ to input a small value, i.e., 5, on the display, and click "RUN" button
- If motor shaft rotates, use ▼ to decrease the value until the shaft stops. Meanwhile, make sure "RUN" LED light still lights up and "STOP" light is off
- Wait 5 seconds, "PG-Err" message should pops up for warning no feedback signal. If there is no "PG-Err" message, check the configuration in step 6
- Turn the shaft by a wrench. If the message goes away whenever the shaft turns, it indicates that the installation of feedback sensor is correct. Proceed to the next step (Step 8)
- If "PG-Err" message never goes away, for most of cases, it indicates the air gap between sensor and pickup gear is too large/small (the gap should be maintained to 0.005"). Loosen the sensor, and screw the sensor by hand inward until it hits the inside pickup gear. Back up about 1/8 of a turn (45 degrees). Hold and tighten the sensor. Repeat this step

8. Run System (Do NOT Connect Pump)

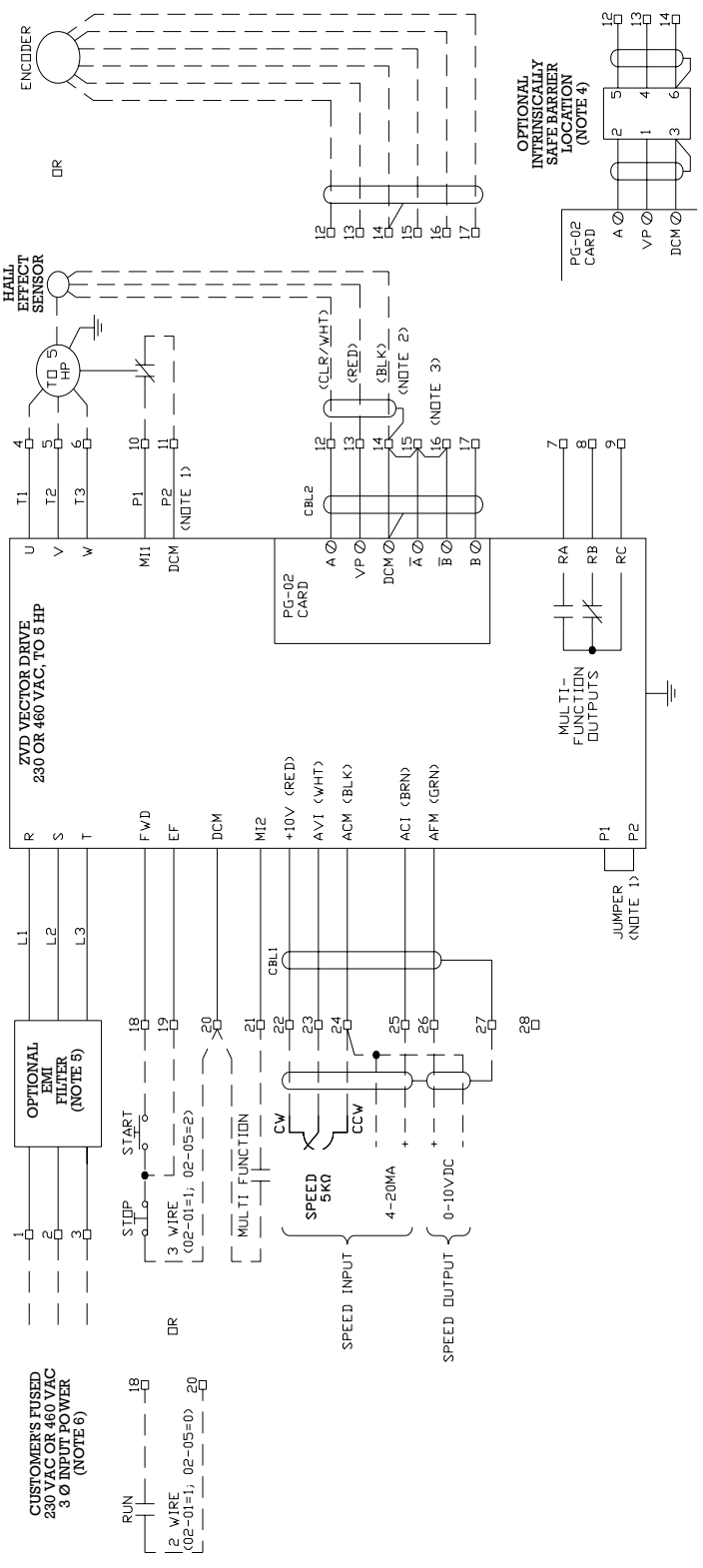
Let reducer's shaft run at 60 rpm (**Do not connect pump**)

- Click "Mode" button until U light lit up
- Use ▲ ▼ ◀ to input 60 on the display, and click "RUN" button

9. Refer to "ZVD User Manual" for Further Trouble-shooting

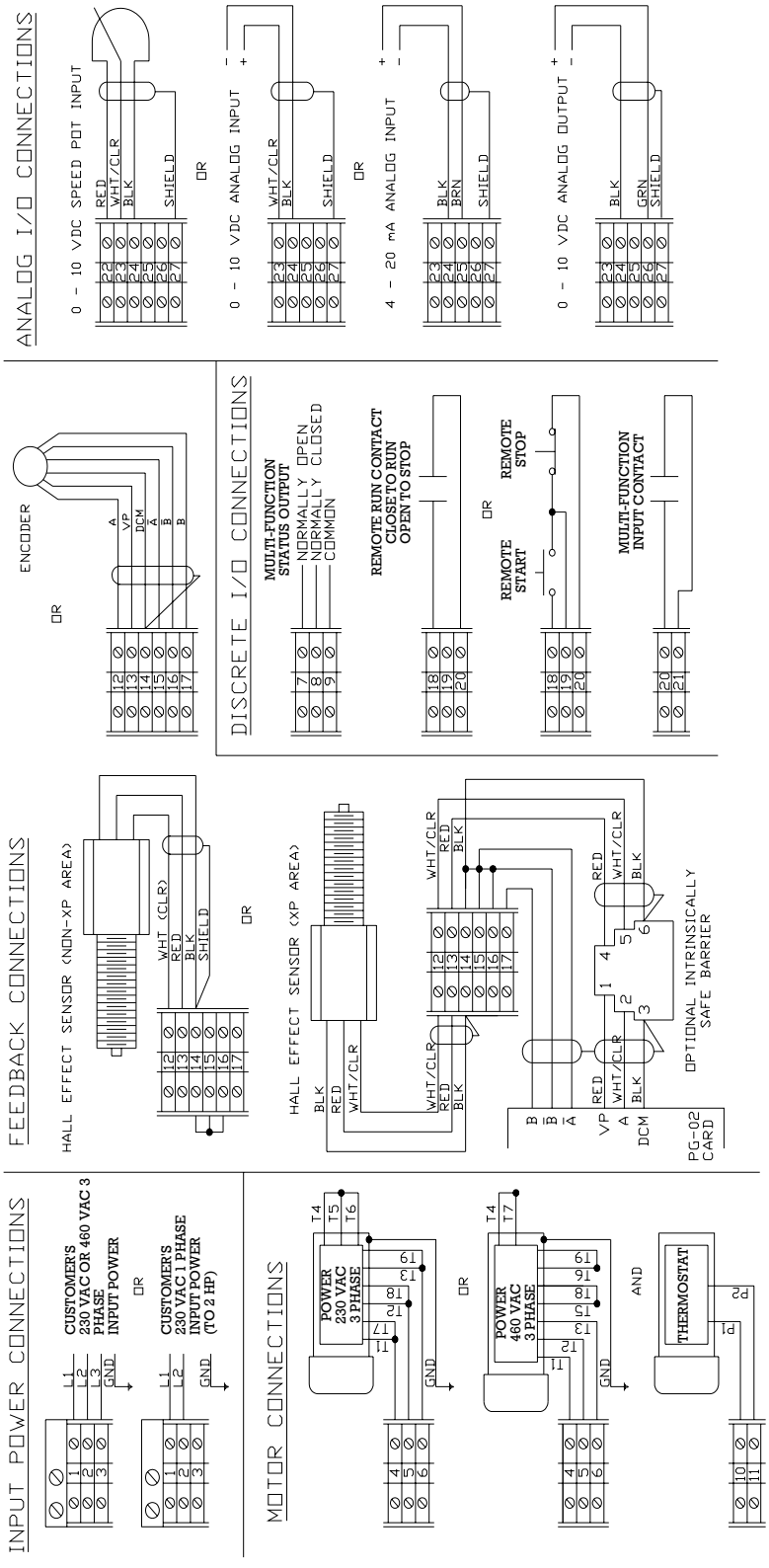
10. Perform/Verify System Configuration (Page 13 on "ZVD User Manual")

11. Read Thru "ZVD User Manual" & System Is Ready



NOTES:

1. MOTOR THERMOSTAT WIRES P1 AND P2 ARE CONNECTED TO TERMINAL STRIP TERMINALS 10 AND 11. DO NOT CONNECT THEM TO ZVD TERMINALS P1 AND P2.
2. WHEN CONNECTING THE FEEDBACK SENSOR, MAKE SURE THAT THE SHIELD AND COMMON ARE CONNECTED TOGETHER AT THE ZVD END.
3. WHEN USING A HALL EFFECT SENSOR, A JUMPER IS REQUIRED FROM A AND B TO DCM OR A "PG-Err" WILL OCCUR IF CODE 00-09 IS SET TO 01 OR 03. IF USING AN ENCODER, REMOVE THE JUMPERS.
4. THE OPTIONAL INTRINSICALLY SAFE BARRIER IS REQUIRED WHEN THE HALL EFFECT SENSOR IS LOCATED IN A HAZARDOUS AREA.
5. THE OPTIONAL EMI FILTER IS USED WHEN CE CERTIFICATION IS REQUIRED. A LARGER CONTROL CABINET MAY BE NECESSARY.
6. 230 VAC 1-PHASE MAY BE SUPPLIED TO A 230 VAC ZVD, 1~3 HP ONLY. CONNECT TO ANY TWO TERMINALS.



NOTE:

WHEN USING A HALL EFFECT SENSOR OR ENCODER IN A HAZARDOUS ATMOSPHERE, THE OPTIONAL INTRINSICALLY SAFE BARRIER MUST BE USED.

Zenith Pumps

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