Quick Start Guide for Pump Applications
This guide is to simplify the start up of the PA7300 Inverter series for pump applications. It is not intended to replace the PA7300 Installation and Operation Manual 4H358D0250007, and the user is urged review this manual. There are three methods of control or combinations thereof that that may be selected; Keypad, Analog Signal (external terminal) or Serial Communication. Only Keypad and Analog Signal will be covered as Serial Communication is beyond the scope of this manual. For Serial Communication control or special external control, the user is referred to the PA7300 Installation and Operating Manual.

SAFETY FIRST!

Step 1 - Before Starting the Inverter
• Referring to the PA7300 Instruction Manual, please review and verify that the correct inverter size for the motor was received free of damage. To ensure personnel safety and to avoid equipment damage, follow the precautions and the installation procedures for mounting, wiring, and operating environment.

⚠️ CAUTION - To avoid damage to the inverter when removing the inverter cover and/or LCD Operator, refer to Appendix B for the proper procedure.

• In accordance applicable codes make electrical connections to the motor and input power terminals. (Refer to the block diagram, Fig. 4). No other external connections should be made at this time, as the initial control will be from the Keypad.

Step 2 - Apply Power to the Drive
• Apply AC power to the Inverter and observe the LCD Display Line 1; it should read “Freq. Cmd 00.00Hz”. Line 2 should read “TECO”. The red LED on the STOP key should be ON. The DRIVE and FWD LED’s should be ON. (See Fig. 1 below)

Step 3 - Set Drive to Run Mode
• If the red DRIVE LED is not ON with AC power up, press the PGRM / DRIVE key until the red Drive LED is ON. The Inverter is now in the RUN mode.
Step 4 - Check Pump Motor Operation

- Enter 10.00Hz for the frequency reference and set parameter Sn-05 = 0010 to disable Reverse Direction operation. **Note:** The output from the inverter is displayed in Hz as factory default. If desired, the output may be displayed in per cent (%) of full speed. (see appendix)

**To set the output frequency** to 10.00Hz press the UP arrow key Once;

The display should read **Freq. Cmd 10.00Hz TECO** Press the **EDIT** Key to save.

**To set the parameter Sn-05 = 0010**, press the **PRGM** Key and then the **DISPL** Key twice;

The display should read **Sn-01 - Inverter Capacity** Press the **EDIT** Key until display shows **Sn-05 - IO Term Fct**

Press the **ENTER** Key the display should read **Sn-05 = 0000 IO Term Fct** Press the **EDIT** Key to scroll to the third digit

Press the **UP** Key once. The display should read **Sn-05 = 0010 IO Term Fct** Press the **EDIT** Key to save.

Press the **PRGM** Key to return to the output frequency display as in Fig. 1.

- Press the **RUN** key, and check the pump direction of rotation. If the direction is not correct, press the **STOP** key and wait until the pump has come to a complete STOP. Next, **Power Down the inverter.**

**Danger**

*After the power has been turned OFF, wait at least 5 minutes until the charge indicator extinguishes completely before touching any wiring, circuit boards or components.*

- Reverse any two of the pump motor connections at the inverter (U(T1),V(T2), or W(T3)). Next, following **STEP 2**, Power-up the inverter; the motor direction should now be correct.

Step 5 – Select Method of Control

- Before selecting the method of control, ensure the inverter is in the **STOP** mode.
- There are two methods of control or combinations thereof that may be selected; **Keypad** and **Analog Signal**.

**RUN / STOP Command** - Can be provided from the keypad or from an external contact (see Fig. 2a).

**Speed Reference** – Can be from the keypad or from an external analog signal (0 – 10 VDC or 4 – 20 mA). see Fig’s 3a,3b, and 3c.

- The method of control is set by parameter Sn – 04. The table on the next page shows the value that Sn – 04 needs to be set for the various combinations of control.
Parameter Sn – 04 =

<table>
<thead>
<tr>
<th>Function</th>
<th>Start / Stop</th>
<th>Speed Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0011 Keypad</td>
<td>Keypad</td>
<td></td>
</tr>
<tr>
<td>0001 External Contact</td>
<td>Keypad</td>
<td></td>
</tr>
<tr>
<td>0010 Keypad</td>
<td>External Analog</td>
<td></td>
</tr>
<tr>
<td>0000 External Contact</td>
<td>External Analog</td>
<td></td>
</tr>
</tbody>
</table>

To set parameter Sn-04 press the **[PRGM DRIVE]** Key, and then the **[DISPL]** Key twice;

The display should read **Sn-01 - Inverter Capacity**.

Press the **[EDIT ENTER]** Key; the display should read **Sn - 04 = 0000 Stopping Method**.

To select the desired combination in accordance with the table value, press the **[NEXT]** Key to scroll to the digit position and the **[EDIT ENTER]** Key to select, the digit value (0 or 1). After the selection press the **[EDIT ENTER]** Key to save.

Press the **[PRGM DRIVE]** to return to the output frequency display as in Fig. 1.

- After the method of control has been selected, if external control wiring is required, (e.g. external analog), **Power Down the inverter before removing any covers or making any connections**. In the following pages are wiring examples for Start / Stop, E-Stop, Restart, and Analog Connections.

**Danger**

*After the power has been turned OFF, wait at least 5 minutes until the charge indicator extinguishes completely before touching any wiring, circuit boards, or components.*
DIGITAL INPUT / OUTPUT terminal connections

Fig's 2a, 2b, and 2c below show the terminal connections for input control functions. The connections shown are typical and the user is referred to the PA7300 Manual if additional information is required. Fig. 2d shows an example for the use of the Fault Output Relay.

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**Fig. 2a Start / Stop switch connection**

![Start/Stop Switch Connection Diagram]

**Fig. 2b External Fault contact connection**

![External Fault Contact Connection Diagram]

**Fig. 2c Fault Reset switch connection**

![Fault Reset Switch Connection Diagram]

**Fig. 2d Fault output contacts**

![Fault Output Contacts Diagram]

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**Note:**
This external Fault Reset input is optional. It may be provided from any external isolated dry contact source that is required to shut the inverter down.

**Note:**
This external Start / Stop switch is required when "External Contact" is selected in parameter Sn-04. (See Step 5)

**Note:**
Relay contacts are rated @ 250 VAC, 30 VDC, 2A or less.

**NOTE:**
External warning device such as a flashing lamp or buzzer

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**Connecting to terminal E:**

Connect shield to terminal E.
ANALOG INPUT terminal connections

Fig’s 3a, 3b, and 3c show the various analog input schemes that can be used to control the output frequency and thus the speed of the pump motor when External Analog is selected by Sn-04 in STEP 5. Only one method may be used as the input source with Fig. 3a Potentiometer Input being most common.

**Fig. 3a Speed Control Potentiometer Input**

**Fig. 3b 0 - +10 VDC Analog Input**

**Fig. 3b 4 – 20 mA Analog Input**
**PA7300 BLOCK DIAGRAM**

Fig. 4 is an overall basic electrical connection diagram for the PA7300. It is used in conjunction with the other sections of this guide to give the user the ability to successfully start up a Pump application. More detailed information is available in the PA7300 Manual to which the user is referred, if further information is required.

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**Fig. 4 PA7300 Pump APPLICATION DIAGRAM**
Appendix A-

Changing display to read output speed in percent (%) of full speed.

The display is factory defaulted to show the inverter output frequency in Hz. If desired, the display can be changed to show the output frequency as a percentage of full speed. To do this parameter Cn-20 must be changed from (00000) to (00001) as follows:

To set parameter Cn-20 press the PRGM Key, and then the DSPL Key 4 times;
The display should read Cn-01 - Input Voltage
Press the Key until display shows Cn-20 - Operator DSPL Unit
Press the Key; the display should read Cn-20 = 00000
DSPL Unit .1 Hz
Press the Key and scroll to the last digit position and then press the Key; The display should read Cn-20 = 00001
DSPL Unit .1 %
Press the Key to save. Press the PRGM Key to return to the main display.

Appendix B -

Removing the LCD Digital Operator and Inverter Cover(s)

STEP 1 - Remove the (2) screws

LCD Operator

STEP 2 - Gently Lift UP the LCD Operator and remove the connecting cable (RJ11) by unplugging it from the back of the LCD Operator.

RJ11 connector

Connecting cable

STEP 3 - Gently remove the cover(s). NOTE: The cover assemblies are different depending upon the HP rating and the user is referred to the manual received with the inverter.