MA7200 PLUS INVERTER SERIES
FAN Quick Start Manual
3 to 75 HP
Models- MA7200-2003-N1 Thru MA7200-2040-N1 (230V)
&
MA7200-4003-N1 Thru MA7200-4075-N1 (460V)
Quick Start Guide for Fan Applications
This guide is to simplify the start up of the MA7200 PLUS Inverter series, 3 to 75 HP, for fan applications. It is not intended to replace the MA7200 PLUS Installation and Operation Manual, and the user is urged review this manual. There are three methods of control or combinations thereof that may be selected; Keypad, Analog Signal (external terminal), or Serial Communication. Only Keypad and analog signal control 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 MA7200 PLUS Installation and Operating Manual.

SAFETY FIRST!

Step 1 - Before Starting the Inverter
• Referring to the MA7200 PLUS Instruction Manual, please review and verify that the correct inverter size for the associated 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 000.00Hz”. 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 Fan Motor Operation

- Enter 10.00Hz for the frequency reference and set parameter Sn-08 = 1 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)*

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**To set the output frequency to 10.00Hz:**

**Keypad Steps**

1. Press the key twice

2. Press the key

3. Press the key to save.

**Resulting Display**

- Freq. Cmd 00:00:00Hz
- TECO
- Flasing

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**To set the parameter Sn-08 = 1;**

*(Inhibit reverse operation)*

**Keypad Steps**

1. Press the key

2. Press the key twice

3. Press the key until display shows

4. Press the key

5. Press the key

6. Press the key to save

7. Press the key to return to the main display.

**Resulting Display**

- An – 01 - Freq. Cmd. 1

- Sn – 01 - Inverter Capacity

- Sn – 08 - Reverse Operate

- Sn – 08 = 0 - Allow Reverse

- Sn – 08 = 1 - Inhibit Reverse

- Entry Accepted

- Sn – 08 = 1 - Inhibit Reverse

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• Press the **RUN** key, and check the fan direction of rotation. If the direction is not correct, press the **STOP** key and wait until the fan 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 fan 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, verify that 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 **RUN/STOP** method of control is set by parameter **Sn – 04** and the **Speed Reference** is set by parameter **Sn – 05**. The following table shows the values to be set when selecting.

<table>
<thead>
<tr>
<th>Value</th>
<th>Start / Stop <strong>Sn – 04</strong></th>
<th>Speed Reference <strong>Sn – 05</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>*0</td>
<td>Keypad</td>
<td>Keypad</td>
</tr>
<tr>
<td>1</td>
<td>External Contact</td>
<td>External Analog</td>
</tr>
</tbody>
</table>

* **NOTE**

   The factory default for both **Sn – 04** and **Sn – 05** are set to =0; Digital Operator (Keypad). No further parameter changes are necessary if this is the desired method of control. If either **External Contact** set by **Sn – 04** or **External Analog** set by **Sn – 05** are desired (or both) then proceed as follows.
**To set the parameter Sn-04 = 1**  
(Run Source Select)

<table>
<thead>
<tr>
<th>Keypad Steps</th>
<th>Resulting Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Press the <strong>PRGM</strong> key</td>
<td>An – 01 - Freq. Cmd. 1</td>
</tr>
<tr>
<td>2 - Press the <strong>DSPL</strong> key twice</td>
<td>Sn – 01 - Inverter Capacity</td>
</tr>
<tr>
<td>3 - Press the ▲ key until display shows</td>
<td>Sn – 04 Run Source Select</td>
</tr>
<tr>
<td>4 - Press the <strong>EDIT ENTER</strong> key</td>
<td>Sn – 04 = 0 - Run Source Select Flashing</td>
</tr>
<tr>
<td>5 - Press the ▲ key</td>
<td>Sn – 04 = 1 - Run Source Select Flashing</td>
</tr>
<tr>
<td>6 - Press the <strong>EDIT ENTER</strong> key to save</td>
<td>Entry Accepted 2 Seconds</td>
</tr>
<tr>
<td>7 - Press the <strong>PRGM</strong> key to return to the main display.</td>
<td>Sn – 04 = 1 - Run Source Select Flashing</td>
</tr>
</tbody>
</table>
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 (3 – 75 HP)

Fig's 2a, 2b, and 2c below show the control terminal connections for input control functions. The connections shown are typical and the user is referred to the **MA7200 PLUS 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**

- **Note:** This external Start/Stop switch is required when "External Contact" is selected in parameter Sr. 04. (See Step 3)

**Fig. 2b External Fault Contact Connection**

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

**Fig. 2c Fault Reset Switch Connection**

- **Note:** This external Fault Reset input is optional. The Fault may be also reset from the keypad.

**Fig. 2d Fault Output Contacts**

- **Note:** Relay contacts are rated for 250 VAC, 30 VDC, 2A or less.
ANALOG INPUT terminal connections (3 – 75 HP)

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 fan motor when External Analog is selected by Sn-05 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. 3c** 4–20 mA Analog Input

4–20 mA INPUT CURRENT SOURCE
MA7200 PLUS BLOCK DIAGRAM

Fig. 4 is an overall basic electrical connection diagram for MA7200 PLUS inverters rated 3 to 75 HP. It is used in conjunction with the other sections of this guide to give the user the ability to successfully start up a Fan application. More detailed information is available in the MA7200 PLUS Manual to which the user is referred if further information is required.

NOTE: For inverters rated at 3–75 HP, the digital inputs can be configured to operate in the SINK or SOURCE mode. The inverter is configured at the factory for SINK mode (i.e., jumper TP2 is installed in the SINK position).

Fig. 4 MA7200 PLUS 3 to 75 HP FAN 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-28** must be changed from (00000) to (00001) as follows:

<table>
<thead>
<tr>
<th>Keypad Steps</th>
<th>Resulting Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Press the <strong>PRGM</strong> key</td>
<td>An – 01 - Freq. Cmd. 1</td>
</tr>
<tr>
<td>2 - Press the <strong>DSPL</strong> key 3 times</td>
<td>Cn – 01 - Input Voltage</td>
</tr>
<tr>
<td>3 - Press the <strong>EDIT</strong> key until display shows</td>
<td>Cn-28- Operator DSPL Unit</td>
</tr>
<tr>
<td>4 - Press the <strong>EDIT</strong> key</td>
<td>Cn-28 = 00000&quot; Operator DSPL Unit</td>
</tr>
<tr>
<td>5 - Press the <strong>EDIT</strong> key</td>
<td>Cn-28 = 00001&quot; Operator DSPL Unit</td>
</tr>
<tr>
<td>6 - Press the <strong>EDIT</strong> key to save</td>
<td>Entry Accepted 2 Seconds</td>
</tr>
<tr>
<td>7 - Press the <strong>PRGM</strong> key to return to the main display.</td>
<td>Cn-28 = 00001&quot; Operator DSPL Unit</td>
</tr>
</tbody>
</table>
Appendix B - Removing the LCD Digital Operator and Inverter Cover(s)

STEP 1 - Remove the (2) screws

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

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.