



# Gemini Pulse-Pack™ Fractional HP PWM DC Drive Instructions

## Models 12M8-11001-01 and 12M8-12001-01

### INTRODUCTION

The 115VAC input 12M8-11000 and 230VAC 12M8-12000 are designed for operation with 1/100 to 1/4 HP DC brush-type permanent magnet motors. Both models are available in an economic chassis mount

### Specifications:

Speed Range: 100:1

Overload Capacity: 150% of rated current for 60 seconds

Maximum Speed Adjustment: 50-110% of rated speed

<u>Model</u>	<u>Input Voltage</u>	<u>Output V. Range</u>	<u>HP</u>	<u>Cont.Output Amps</u>
12M8-11000	115VAC	0-90VDC	1/100-1/4	3
12M8-12000	230	0-180	1/100-1/4	1.5

### GENERAL

These instructions provide basic information for installation and adjustment. Please contact Gemini Corp. if further information is necessary. It is possible to damage the drive through misuse or misapplication. Do not use this control with motors larger than 1/4 HP. Please read this material thoroughly before proceeding with installation.

Unpack the equipment noting any shortages or damaged equipment. Immediately notify the carrier of any damage. Store in clean, dry location if the product is not used immediately. The relative humidity should not exceed 95%, non-condensing.

### INSTALLATION

Carefully mount the chassis allowing clearances for access, air flow and conduit entry. The environment should be free of vibration and contaminants. The operating temperature range for the Gemini drive is 32 to 104 degrees Fahrenheit (0-40C). Since the drive produces heat, utilize a source of cooling, such as a fan, when the ambient temperature approaches 104 degrees.

**WARNING: This motor control contains a high voltage DC bus with considerable capacitance and a large amount of stored energy. Direct contact with this bus can be very dangerous. Do not touch any conductors or connections to the control while power is on, for at least five minutes after removal of power. Use insulated tools for any adjustments.**

### WIRING

1. Input Wiring - Connect the AC line to terminals "L1" and "L2" (note wiring diagram). The 115 VAC hot is wired to the fused terminal "L1". If required, the chassis may be grounded at one of the unused holes. Input wire size must be in compliance with the National Electrical Code and all local codes and restrictions.

**WARNING:** Do not connect line power to the motor terminal connections.

2. Output Wiring - Connect the negative and positive of the motor to the "A-" and "A+" terminals of the drive. A fuse provides motor protection. Do not operate the drive without connection to the motor.

3. Control Wiring - Connect a 10K, 1/4 watt speed potentiometer to the "L", "W", and "H" terminals, with the wiper connected to the "W" terminal, and the CCW end to the "L" terminal.

If an external 0-10VDC speed reference signal is used, first set-up and adjust the system with a 10K potentiometer as a speed reference. Connect the **isolated**, external source only after satisfactory operation with a potentiometer, as any problem may then be directed toward interfacing. The frequency of a pulse width modulated, **isolated**, input signal must exceed 50Hz,

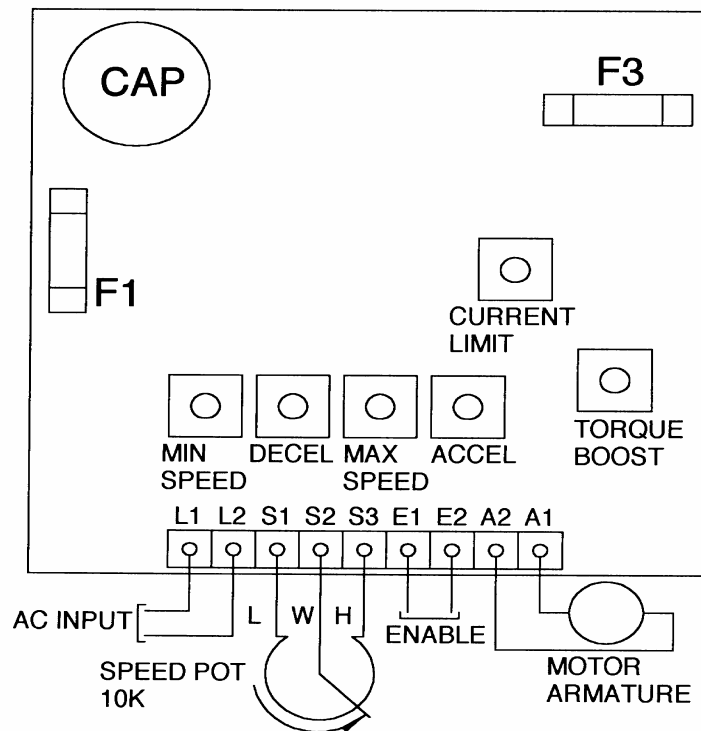
otherwise damage may result. Wire the common to the “L” terminal and the positive voltage to the “W” terminal.

If shielded wire is used, ground the shield at the potentiometer. Never connect the shield at both ends. Do not run control wiring in conduit with high voltage (115V or greater) wiring.

## ADJUSTMENTS AND START-UP

1. Turn the “TORQUE BOOST” and “MAX SPEED” potentiometers, located on the board, and speed adjustment potentiometer to their full counterclockwise position.
2. Apply power and rotate the speed potentiometer slightly clockwise. Observe the direction of rotation. If incorrect, turn off the power and reverse the motor armature connections.
3. Rotate the speed potentiometer to the extreme clockwise position, and adjust the “MAX SPEED” potentiometer for the desired maximum speed, or for rated motor voltage as measured with a DC meter at the armature connection.
4. Run the motor at approximately 10% speed and adjust the “TORQUE BOOST” potentiometer clockwise very slowly until the motor surges. Back off on the adjustment until the motor just stops surging.

The system is now ready for operation.



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