

ANALOG SPEED REFERENCE (UNIPOLAR) (AI-14U)

MODEL DS386

Before installing this option, a **TECHNICALLY QUALIFIED INDIVIDUAL**, who is familiar with this type of equipment and hazards involved, should **READ** this **ENTIRE INSTRUCTION SHEET**.

IMPORTANT

This option may have been installed by the factory. However, certain steps can only be completed at the installation site. Therefore, review and then perform those steps which complete the installation process.

INTRODUCTION

When installed, this option allows the user to interface a high resolution (14-bit) analog speed reference to the GPD 515/G5 or GPD 503. This reference can be either voltage (0-10V) or current (4-20mA). Frequency command gain and bias are adjusted by programming settings in the drive.

CAUTION

The option card uses CMOS IC chips. If proper electrostatic discharge (ESD) protective procedure is not used when handling the card, the ICs may be damaged, resulting in erratic performance of the drive.

INSTALLATION

1. Disconnect all electrical power to drive.
2. Remove drive front cover. Check that CHARGE indicator lamp inside drive is off.
3. Verify voltage has been disconnected by using a voltmeter to check for voltage at incoming power terminals (L1, L2, L3).

WARNING

HAZARDOUS VOLTAGE CAN CAUSE SEVERE INJURY OR DEATH. LOCK ALL POWER SOURCES FEEDING DRIVE IN "OFF" POSITION.

NOTE: If this option is being installed on a GPD 515/G5 with speed feedback, the speed feedback card needs to be temporarily un-installed to allow access to the connector 2CN on the Drive's Control Board and TC1, TC2 & TC3 on the AI-14U option card.

4. See Figure 1 (GPD 515/G5) or Figure 2 (GPD 503). Install the option on the Main Control Board, 1PCB, and ensure 2CN is properly connected. Make sure Electrostatic procedure is followed.

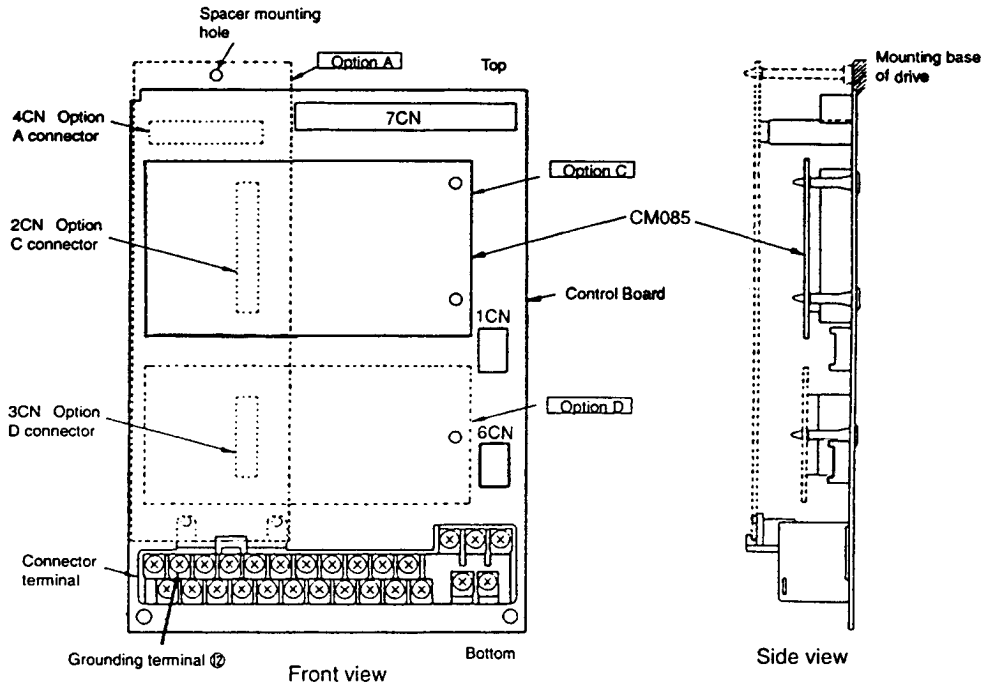


Figure 1. Installation of Analog Speed Reference (AI-14U) in GPD 515/G5

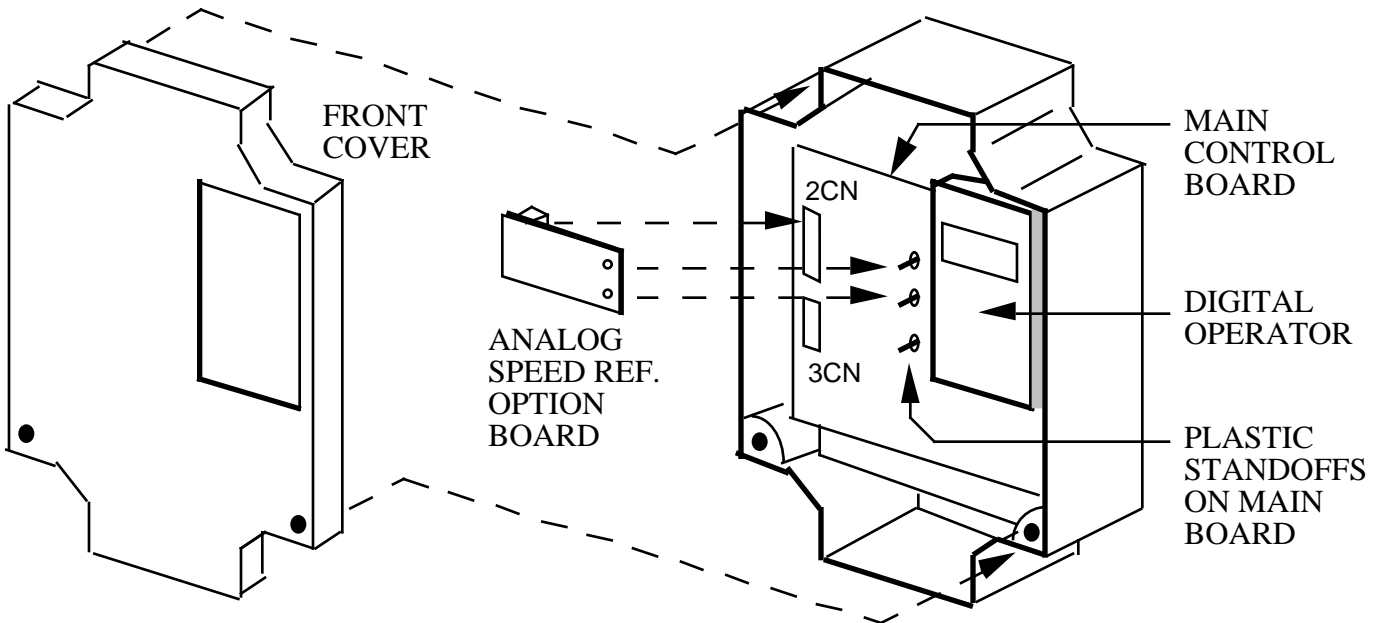


Figure 2. Installation of Analog Speed Reference (AI-14U) in GPD 503



Table 1. Specifications of AI-14U Card

Parameter	Value
Input Signal Level	0 to 10V DC (Input Impedance: 20k) 4 to 20mA (Input Impedance: 250)
Input Resolution	14 bits (1/16384)

Control voltage input (from GPD 515/G5 or GPD 503): 24V (isolated)

5. Wiring. See Figure 3 for Analog Speed Reference connections. See Table 2 for terminal functions.

Table 2. Terminal Functions of AI-14U

Terminal	Function	Signal Level	Notes
TC1	Analog voltage input	Input voltage: 0 to 10V Input Impedance: 20k	— Input Resolution: 1/16384 (14 bits)
TC2	Analog current input	Input current: 4 to 20mA Input Impedance: 250	— Signal Linearity: $\pm 0.1\%$
TC3	Signal common	0V	— Terminal screws are metric size M3.

CAUTION

KEEP ANALOG SPEED REF. (I.E. CONTROL CIRCUIT) WIRING SEPARATE FROM MAIN CIRCUIT INPUT/OUTPUT WIRING.

CAUTION

TO PREVENT ERRONEOUS OPERATION CAUSED BY NOISE INTERFERENCE, USE SHEILDDED CABLE FOR CONTROL WIRING, AND LIMIT DISTANCE TO 10M (33 FEET) OR LESS.

IMPORTANT

Because the analog speed reference is converted by 1/16384 resolution, the voltage source accuracy of the analog speed reference source must be considered. To ensure speed control accuracy, use a high precision power supply for the voltage source.

Route wires from the drive and connect to the peripheral device. Refer to "Electrical Installation" in the drive's technical manual for further information on use of shielded cable.

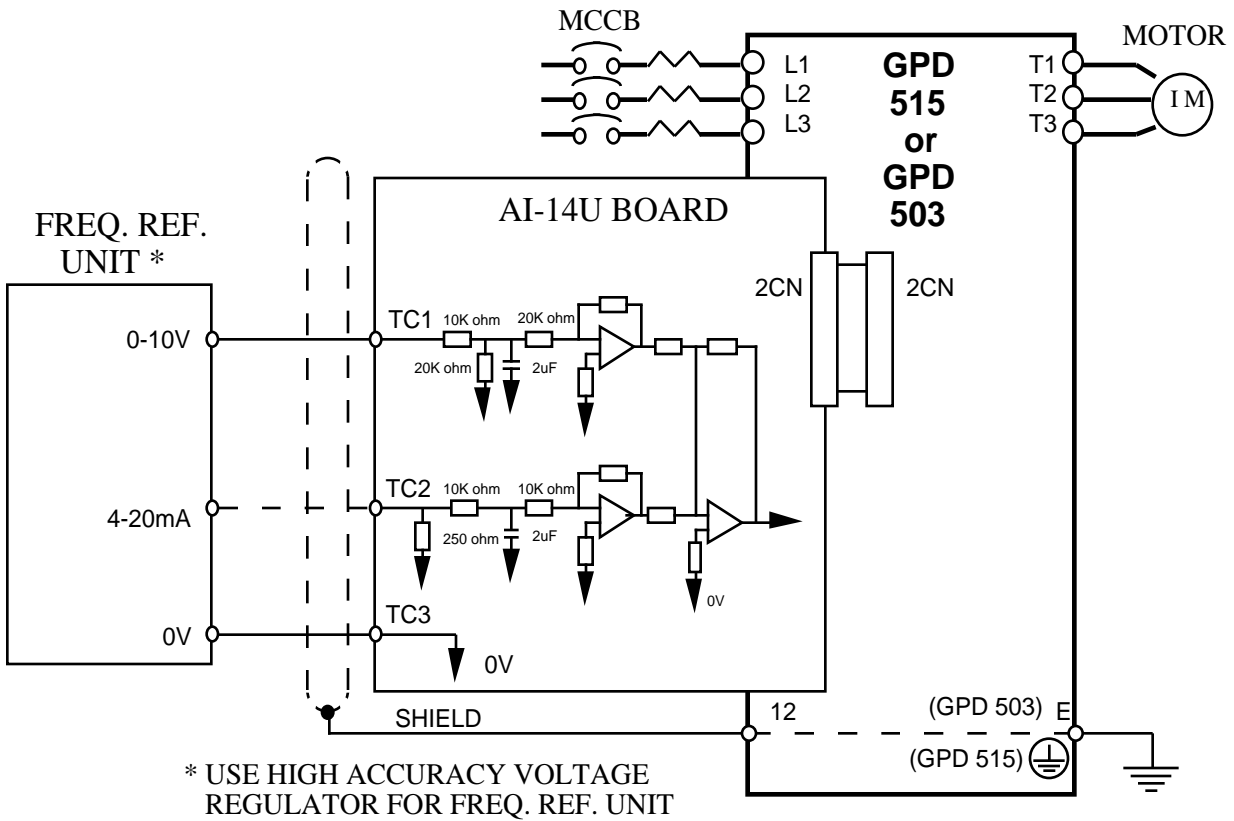


Figure 3. Interconnection for Analog Speed Reference (AI-14U) Circuit

7. Adjustments. There are no adjustments to be made on the Analog Speed Reference option; however, the drive will have to be reprogrammed for the input requirement of the remote device.

A. GPD 515/G5: See Table 3 and Figure 4.

IMPORTANT

For the Analog Speed Reference circuit to function properly, parameter **b1-01** must be set to " 3 " (input to AI-14U replaces auto speed reference signal).

Table 3. Adjustments of Input Signal Gain and Bias for GPD 515/G5

GPD 515/G5 Parameter	Function	Setting Range	Increment	Factory Setting
H3-02	Frequency command gain (10V/xx%)	0.0 to 1000.0%	0.1 %	10V/100.0%
H3-03	Frequency command bias	-100 to 100%	1 %	0%

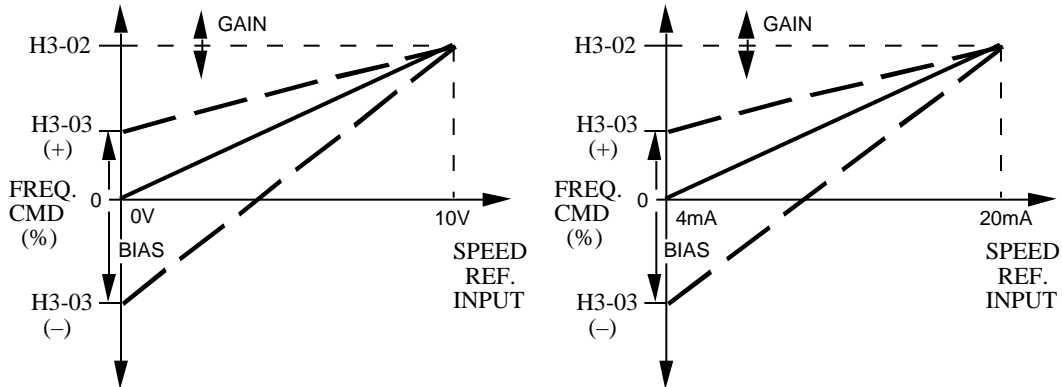


Figure 4. Frequency Command Gain and Bias Adjustments for GPD 515/G5

B. GPD 503: See Table 4 and Figure 5.

IMPORTANT

For the Analog Speed Reference circuit to function properly, system constant **Sn-04** must be set to XXX0 and **Sn-08** must be set to XXX0. The input to AI-14U replaces the auto speed reference signal (Terminal 13).

7. Reinstall and secure drive cover.

Table 4. Adjustments of Input Signal Gain and Bias for GPD 503

GPD 503 Constant	Function	Setting Range	Increment	Factory Setting
bn-05	Frequency command gain (10V/xx%)	0.0 to 1000.0%	0.1 %	10V/100.0%
bn-06	Frequency command bias	-100 to 100%	1 %	0%

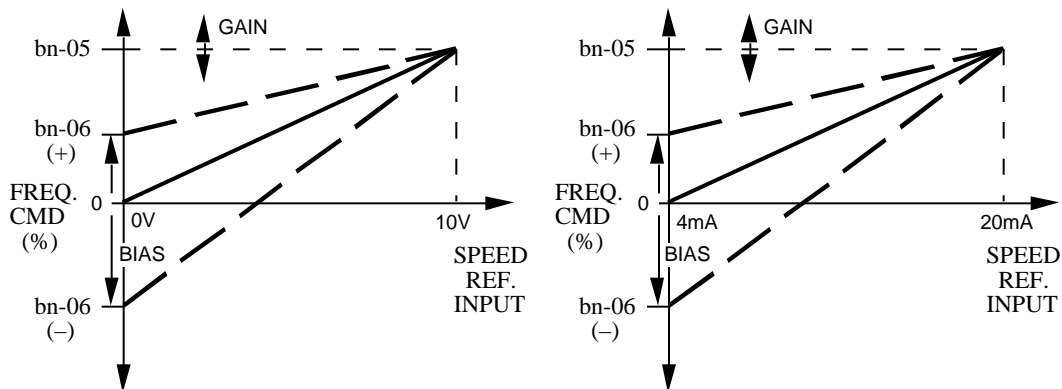


Figure 5. Frequency Command Gain and Bias Adjustments for GPD 503

8. Place this instruction sheet with the drive technical manual.

THIS COMPLETES INSTALLATION OF THIS OPTION.