



For GPD 515 or GPD 503
Adjustable Frequency Drives

DIGITAL SPEED REFERENCE (DI-08) MODEL DS388

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 an 8-bit digital speed reference to the drive. This reference can be binary, BCD(Hz) or BCD(%), with +/- and push-to-load inputs.

CAUTION

THIS OPTION CONTAINS ELECTROSTATIC SENSITIVE DEVICES. PERSONNEL SHOULD BE GROUNDED BEFORE REMOVING CONTENTS FROM THE CARTON AND INSTALLING INTO THE EQUIPMENT.

WARNING

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

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).

NOTE: If this option is being installed in a GPD 515 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-TC11 on the DI-08 option card.

| CHANGE RECORD | | | | |
|---------------|----------|---------|--|--|
| 1 | STD-6574 | 5-29-96 | | |
| | | | | |
| | | | | |

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4. See Figure 1 (GPD 515) 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.

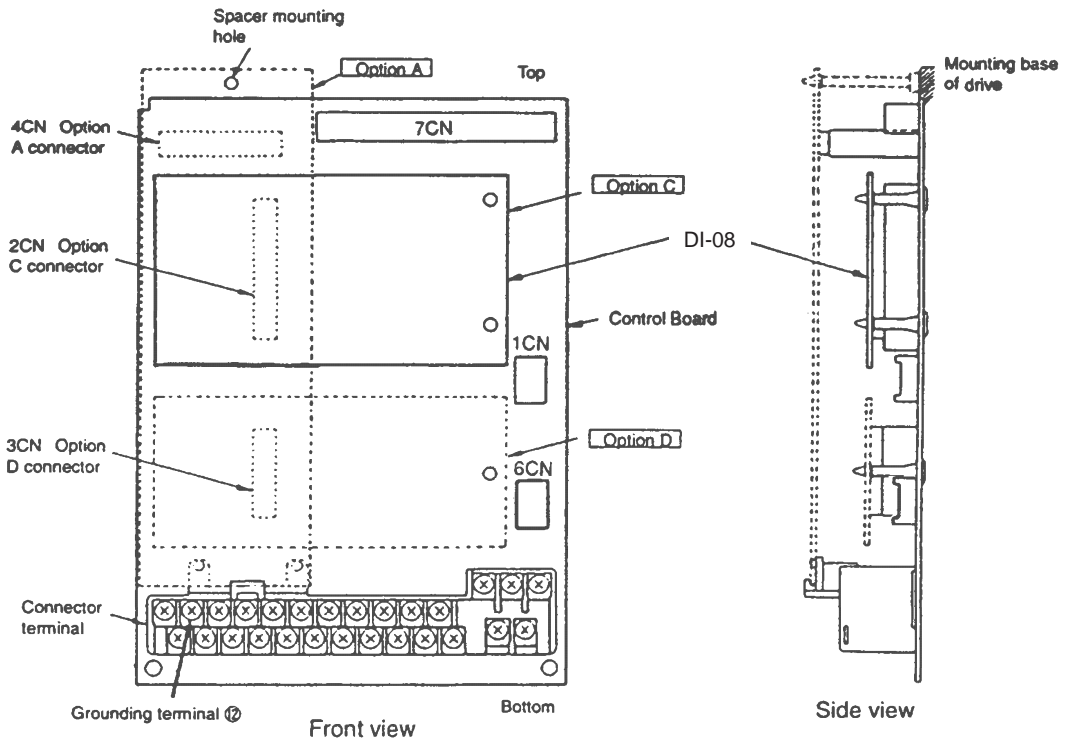


Figure 1. Installation of Digital Speed Reference (DI-08) in GPD 515

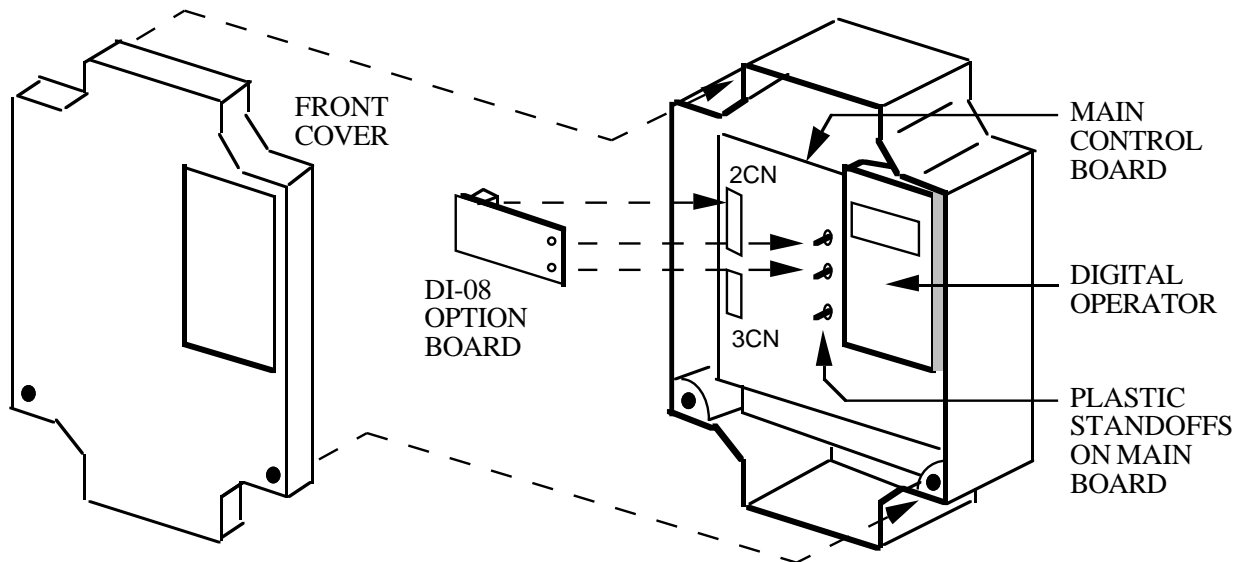


Figure 2. Installation of Digital Speed Reference (DI-08) in GPD 503

Refer to Sheet 1 for latest change.

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Table 1. Specifications

| Parameter | Symbol | Min. | Typ. | Max. | Units | Test Conditions |
|--------------------------|----------|------|------|------|-------|----------------------------|
| High Level Voltage Input | V_{IH} | 12.5 | | 24.0 | V | $R_L > 8.9\text{ K}\Omega$ |
| Low Level Voltage Input | V_{IL} | 0 | | 12.0 | V | $R_L < 8.8\text{ K}\Omega$ |
| Logic Low Current | | | 6.4 | 10 | mA | |

Control voltage input (from drive): 24V (isolated)

5. Wiring. See Figure 3 for Digital Speed Reference (DI-08) connections. Connect digital input signals to terminals TC1-TC10 (+) and TC11 (-). See Table 2 for terminal functions.

Table 2. Terminal Functions of DI-08

| Terminal | Function | | | Notes |
|----------|------------------------|-----------|---------------|--|
| | Binary Input | BCD Input | | |
| TC1 | 2^0 | 1 | $\times 10^0$ | — "On" when closed (shorted to 0V at TC11); "Off" when open. |
| TC2 | 2^1 | 2 | | |
| TC3 | 2^2 | 4 | | |
| TC4 | 2^3 | 8 | | |
| TC5 | 2^4 | 1 | $\times 10^1$ | — Binary / BCD selection and input unit is set by GPD 515 parameter F3-01 (see Table 3) or GPD 503 constant Sn-26 (see Table 4). |
| TC6 | 2^5 | 2 | | |
| TC7 | 2^6 | 4 | | |
| TC8 | 2^7 | 8 | | |
| TC9 | Sign (polarity) signal | | | — Terminal screws are metric size M3. |
| TC10 | Push-to-load | | | |
| TC11 | Signal common (0V) | | | |

CAUTION

KEEP DIGITAL SIGNAL (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 DIGITAL SIGNAL WIRING, AND LIMIT DISTANCE TO 10M (33 FEET) OR LESS.

IMPORTANT

The DI-08 input circuits can receive output of relay contacts or transistor (open collector).

- Use relays with highly reliable contacts (for very small current) with a capacity of 30VDC or more and rated current of 100mA or higher.
- Use transistor (open collector) with rated voltage of 35VDC or more and rated current of 30mA or higher.

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

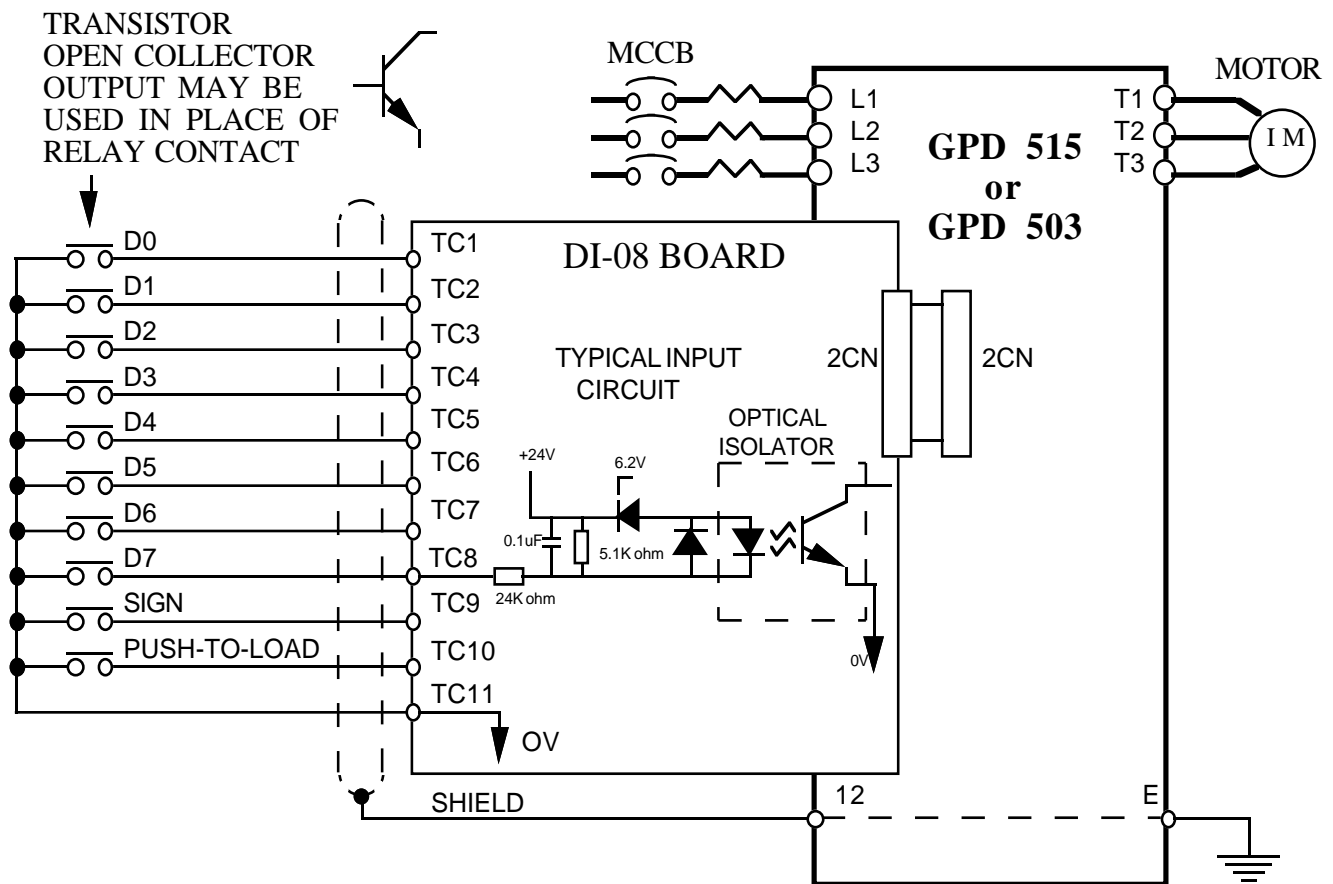


Figure 3. Interconnection for Digital Speed Reference (DI-08) Circuit

6. Adjustments. There are no adjustments to be made on the Digital Speed Reference option; however, the drive will have to be reprogrammed for the input requirement of the digital reference. If this option is being installed in a GPD 515, see Table 3. If this option is being installed in a GPD 503, see Table 4.

Table 3. GPD 515 Digital Reference Selection

| F3-01 Set Value | Setting Unit | | Setting Range |
|----------------------------|---------------------|----------|----------------------|
| 0 | BCD | 1% | 0 — 159 % |
| 1 | BCD | 0.1% | 0 — 15.9 % |
| 2 | BCD | 0.01% | 0 — 1.59 % |
| 3 | BCD | 1Hz | 0 — 159 Hz |
| 4 | BCD | 0.1Hz | 0 — 15.9 Hz |
| 5 & 6 | BCD | 0.01Hz | 0 — 1.59 Hz |
| 7 | Binary | 255/100% | 0 — Max. Output Freq |

Table 4. GPD 503 Digital Reference Selection

| Sn-26 Set Value | Setting Unit | | Setting Range |
|----------------------------|---------------------|----------|--------------------------|
| 0000 | BCD | 1% | 0 — 159 % |
| 0001 | BCD | 0.1% | 0 — 15.9 % |
| 0010 | BCD | 0.01% | 0 — 1.59 % |
| 0011 | BCD | 1Hz | 0 — 159 Hz |
| 0100 | BCD | 0.1Hz | 0 — 15.9 Hz |
| 0101 | BCD | 0.01Hz | 0 — 1.59 Hz |
| 0111 | Binary | 255/100% | 0 — Max. Output Freq (1) |
| 1000 | Binary | 255/100% | 0 — Max. Output Freq (2) |

- (1) Display is in % of maximum frequency (Sn-02).
 (2) Display is the decimal equivalent of the binary number.

IMPORTANT

The drive needs to be programmed to use the digital speed reference. This can be done in one of two ways:

Drive Always Uses Digital Speed Reference:

- GPD 515:** Program **b1-01** = " 3 " (Option PCB)
GPD 503: Program **Sn-04** = XXX0 and **Sn-08** = XXX0

Select Digital Speed Reference or Keypad/Terminal with a Multi-function Input:

- GPD 515:** Program **b1-01** = " 0 ", " 1 ", or " 2 " (depending on required reference source)
 Program **H1-03** (or other input) = " 2 " (Option / Inv Sel)
 Close Terminals 5 to 11 on the main PCB to select digital reference
- GPD 503:** Program **Sn-04** = XXX0 and **Sn-08** = XXX0
 Program **Sn-15** (or other input) = " 2 " (Option / 503)
 Open Terminal 5 to 11 on the main PCB to select digital reference

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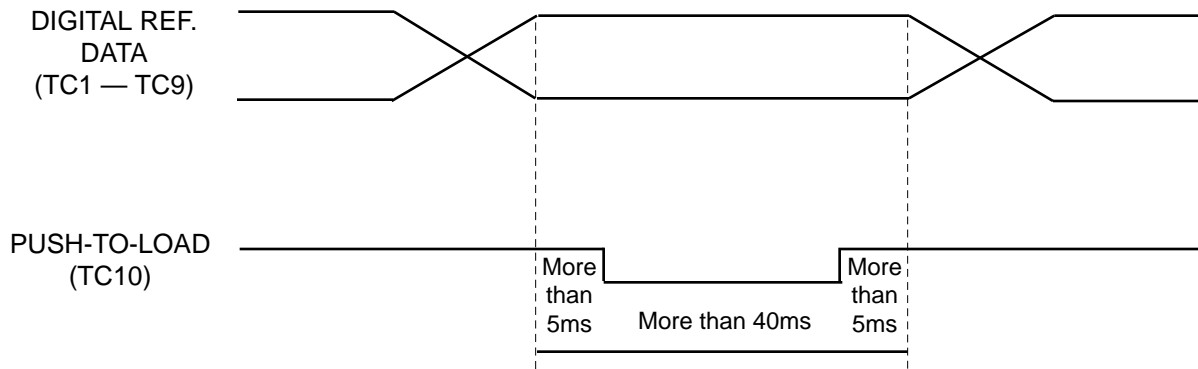


Figure 4. Timing of Reference Input

7. Reinstall and secure drive cover.
8. Place this instruction sheet with the drive's technical manual.

THIS COMPLETES INSTALLATION OF THIS OPTION.