

Integral Mounting Option
RS-232C/485 Interface Card
Model No. CM086

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**.

DESCRIPTION

The RS-232C/485 Interface Card CM086 (Figure 1) is mounted on the Control Board of the GPD 505 to input/output various signals from external devices by means of RS-485 serial communication.

RECEIVING

All equipment is tested against defect at the factory. Report any damages or shortages evident when the equipment is received to the commercial carrier who transported the equipment.

INSTALLATION AND WIRING

WARNING

Hazardous voltage can cause severe injury or death. Lock all power sources feeding Drive in "OFF" position.

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).

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.

4. Refer to Figure 2. Position the option card on four mounting spacers on the Control Board of the Drive. Gently press the card into place until its four mounting holes click into place on the the spacers.
5. Plug the 2CN cable from the option card into connector 2CN of the Control Board.
6. Connect the grounding lead wire from the CM086 card to the grounding terminal on the Control Board.

| CHANGE RECORD | | | |
|---------------|--|--|--|
| | | | |
| | | | |
| | | | |

DWG. NO. 02Y00025-0409
SHEET NO. 1 OF 5
REL. 03/22/96 (m-df)

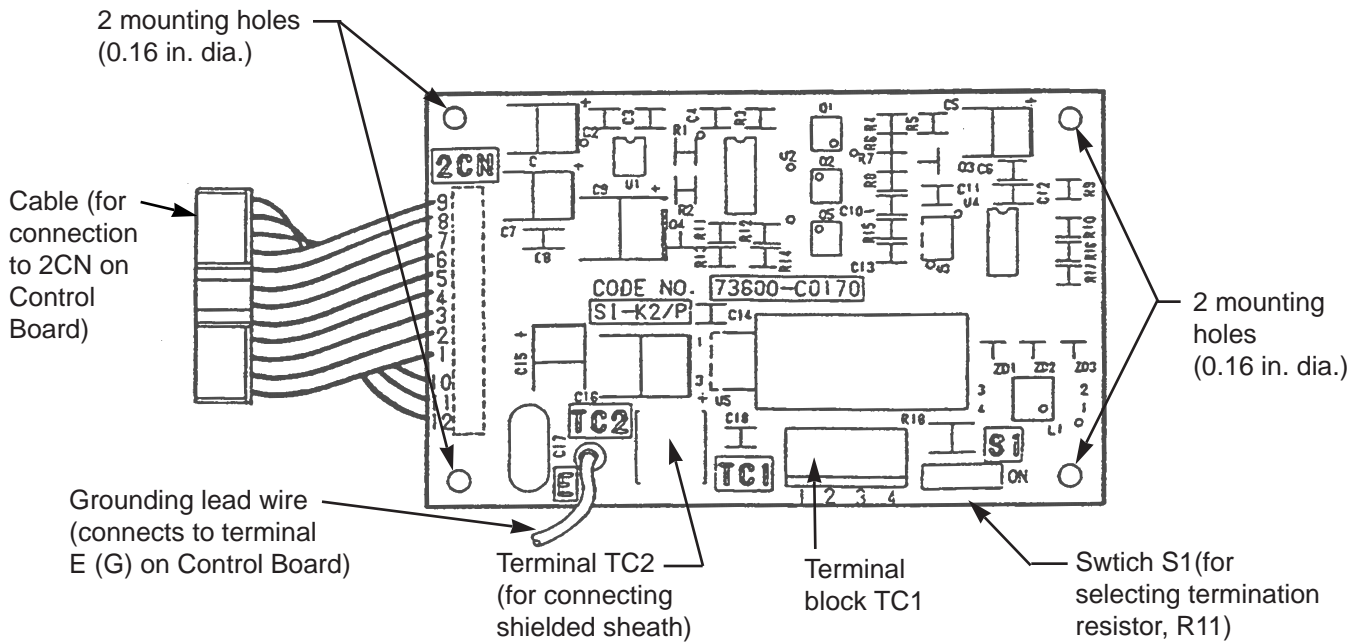


Figure 1. RS-232C/485 Interface Card CM086

Table 1. Terminal Functions of CM086

| Terminal Block Symbol | Pin No. | Functions | | |
|-----------------------|---------|-------------------------------------|-------------------------|--|
| TC1 | 1 | S/R (+) | RS-485 input/output (+) | Output to host device or to series-connected GPD 505 |
| | 2 | S/R (-) | RS-485 input/output (-) | |
| | 3 | S/R (+) | RS-485 input/output (+) | For input from series-connected GPD 505 |
| | 4 | S/R (-) | RS-485 input/output (-) | |
| TC2 | | Shielded sheath connection terminal | | |

Table 2. Applicable Wire Sizes For TC1

| Wire Type | mm ² | AWG | Current (Amps) | VAC |
|-------------------|-----------------|-------|----------------|-----|
| Thin twisted wire | 1 | 16 | 12 | 125 |
| Solid wire | 1.5 | 16 | 12 | 125 |
| UL | — | 22-16 | 10 | 300 |
| CSA | — | 28-16 | 10 | 300 |
| CSA | — | 28-16 | 10 | 150 |

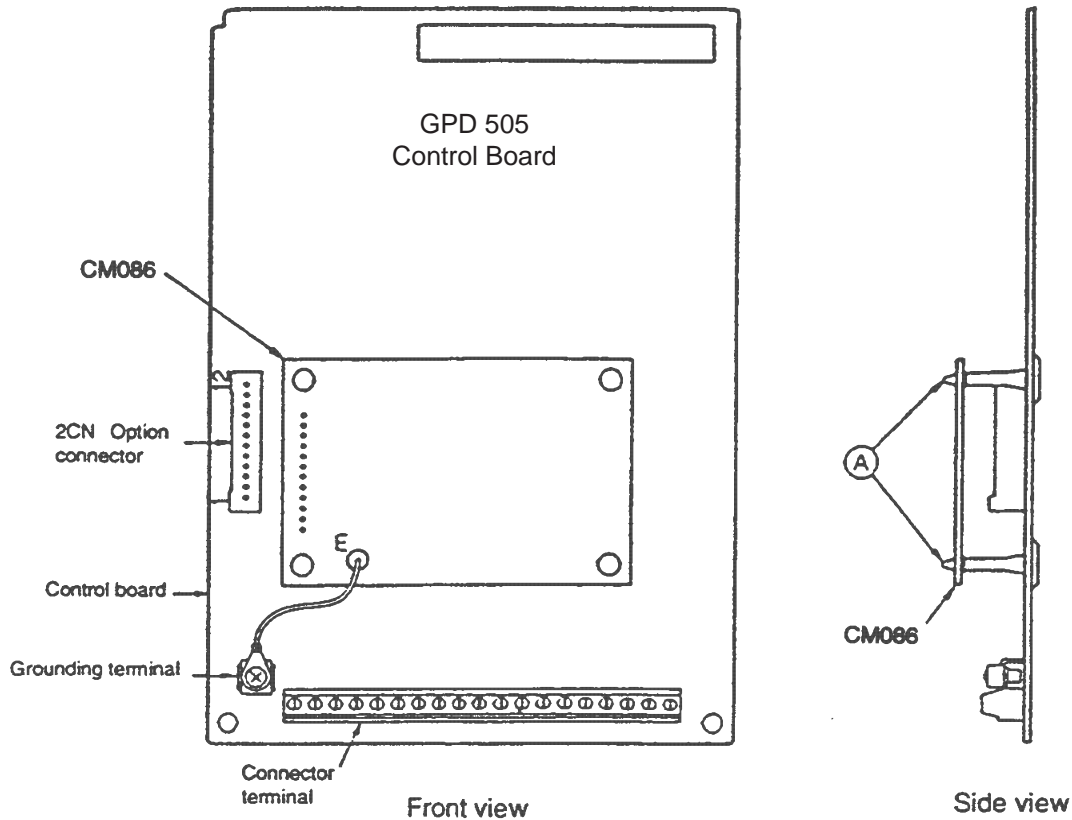


Figure 2. Installation of the RS-232C/RS-485 Interface Card CM086

7. **Wiring.** Refer to Figure 3 and Tables 1 & 2. Make wire connections between the CM086 card and the external (host) device with which the Drive will be communicating, using shielded twisted pair wire. If multiple Drives (with RS-485 Interface cards) are to be connected to the same external device, they must be connected in series – the second, third, etc. through the final Drive are all “daisy-chained” to the first Drive. Observe the following while wiring:

CAUTION

Keep CM086 (i.e. serial communication) wiring separate from main circuit input/output wiring.

- Refer to "Electrical Installation" in the GPD 505 technical manual for further information on use of shielded cable. The shielded sheath connection point on the CM086 card is terminal TC2.
- Strip back insulation for a distance of 0.22 in. on wire leads to connected to side-entry terminals of TC1.

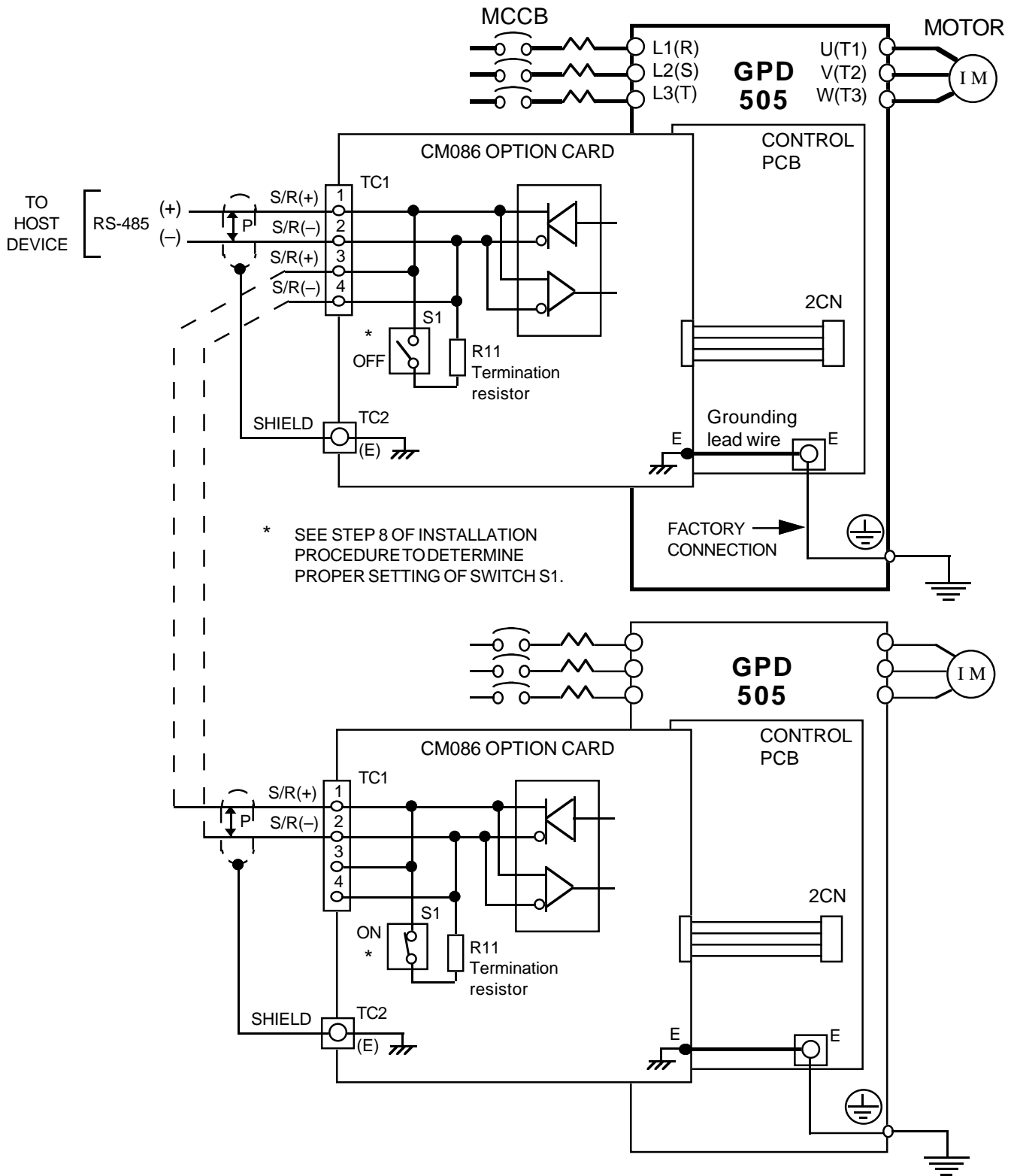


Figure 3. CM086 Interconnection Diagram

8. **Adjustments.** If only one Drive is connected to the external device, switch S1 on the CM086 card in the Drive should be set to the "ON" position to insert termination resistor R11 on the card between the RS-485 (+) and (-) lines. If multiple Drives are connected to the same external device, S1 must be set to the "OFF" position in all but the LAST Drive in the daisy-chain, in that drive only, S1 should be set to "ON".

IMPORTANT

If more than one Drive in a daisy-chain have S1 set to "ON", the overall impedance may be too low for the RS-485 port of the host device, and serial communication errors may occur.

9. Reinstall and secure Drive cover.

10. **Programming.** Ensure that the appropriate parameters are programmed to meet the requirements of your application:

| PARAMETER NUMBER | FUNCTION NAME | DESCRIPTION | INCREMENT | SETTING RANGE | FACTORY SETTING | | | | | | | | | | |
|------------------|--|---|----------------|-----------------------|-----------------|--------------------------------|---|-----------------------|---|--------------------------------|---|----------------------------|---|-------|---|
| n103 | Modbus Time Out Detection | 0 : Time out detection is disabled 1 : Time out detection is enabled | 1 | 0 or 1 | 1 | | | | | | | | | | |
| n104 | Stop Method on Modbus Communication Error (CE) | <table border="0"> <tr> <td><u>Setting</u></td> <td><u>Stop method</u></td> </tr> <tr> <td>0</td> <td>Ramp to stop – Decel 1 (fault)</td> </tr> <tr> <td>1</td> <td>Coast to stop (fault)</td> </tr> <tr> <td>2</td> <td>Ramp to stop – Decel 2 (fault)</td> </tr> <tr> <td>3</td> <td>Continue operation (alarm)</td> </tr> </table> | <u>Setting</u> | <u>Stop method</u> | 0 | Ramp to stop – Decel 1 (fault) | 1 | Coast to stop (fault) | 2 | Ramp to stop – Decel 2 (fault) | 3 | Continue operation (alarm) | 1 | 0 - 3 | 1 |
| <u>Setting</u> | <u>Stop method</u> | | | | | | | | | | | | | | |
| 0 | Ramp to stop – Decel 1 (fault) | | | | | | | | | | | | | | |
| 1 | Coast to stop (fault) | | | | | | | | | | | | | | |
| 2 | Ramp to stop – Decel 2 (fault) | | | | | | | | | | | | | | |
| 3 | Continue operation (alarm) | | | | | | | | | | | | | | |
| n105 | Modbus Frequency Reference Unit | <table border="0"> <tr> <td><u>Setting</u></td> <td><u>Frequency unit</u></td> </tr> <tr> <td>0</td> <td>0.1 Hz / 1</td> </tr> <tr> <td>1</td> <td>0.01 Hz / 1</td> </tr> <tr> <td>2</td> <td>100% / 30000</td> </tr> <tr> <td>3</td> <td>0.01 % / 1</td> </tr> </table> | <u>Setting</u> | <u>Frequency unit</u> | 0 | 0.1 Hz / 1 | 1 | 0.01 Hz / 1 | 2 | 100% / 30000 | 3 | 0.01 % / 1 | 1 | 0 - 3 | 0 |
| <u>Setting</u> | <u>Frequency unit</u> | | | | | | | | | | | | | | |
| 0 | 0.1 Hz / 1 | | | | | | | | | | | | | | |
| 1 | 0.01 Hz / 1 | | | | | | | | | | | | | | |
| 2 | 100% / 30000 | | | | | | | | | | | | | | |
| 3 | 0.01 % / 1 | | | | | | | | | | | | | | |
| n106 | Modbus Slave Address | | 1 | 0 to 31 | 0 | | | | | | | | | | |
| n107 | Modbus BPS Selection | <table border="0"> <tr> <td><u>Setting</u></td> <td><u>BPS rate</u></td> </tr> <tr> <td>0</td> <td>2400 BPS</td> </tr> <tr> <td>1</td> <td>4800 BPS</td> </tr> <tr> <td>2</td> <td>9600 BPS</td> </tr> </table> | <u>Setting</u> | <u>BPS rate</u> | 0 | 2400 BPS | 1 | 4800 BPS | 2 | 9600 BPS | 1 | 0 - 2 | 2 | | |
| <u>Setting</u> | <u>BPS rate</u> | | | | | | | | | | | | | | |
| 0 | 2400 BPS | | | | | | | | | | | | | | |
| 1 | 4800 BPS | | | | | | | | | | | | | | |
| 2 | 9600 BPS | | | | | | | | | | | | | | |
| n108 | Modbus Parity Selection | <table border="0"> <tr> <td><u>Setting</u></td> <td><u>Parity</u></td> </tr> <tr> <td>0</td> <td>No parity</td> </tr> <tr> <td>1</td> <td>Even parity</td> </tr> <tr> <td>2</td> <td>Odd parity</td> </tr> </table> | <u>Setting</u> | <u>Parity</u> | 0 | No parity | 1 | Even parity | 2 | Odd parity | 1 | 0 - 2 | 1 | | |
| <u>Setting</u> | <u>Parity</u> | | | | | | | | | | | | | | |
| 0 | No parity | | | | | | | | | | | | | | |
| 1 | Even parity | | | | | | | | | | | | | | |
| 2 | Odd parity | | | | | | | | | | | | | | |

NOTE: Parameter Selection/Initialization (parameter **n001**) needs to be set to "3" in order to view and change these parameters

See section 5.16 in the GPD 505 technical manual for a further explanation of serial communications

11. Place this instruction sheet with your drive technical manual.

THIS COMPLETES INSTALLATION OF THIS OPTION.

DWG. NO. 02Y00025-0409
SHEET NO. 5 OF 5
REL. 03/22/96 (m-df)