

Device/PLC Connection Manuals



About the Device/PLC Connection Manuals

Prior to reading these manuals and setting up your device, be sure to read the "Important: Prior to reading the Device/PLC Connection manual" information. Also, be sure to download the "Preface for Trademark Rights, List of Units Supported, How to Read Manuals and Documentation Conventions" PDF file. Furthermore, be sure to keep all manual-related data in a safe, easy-to-find location.

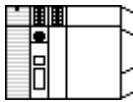

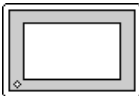
6.3 Modicon



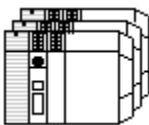

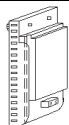
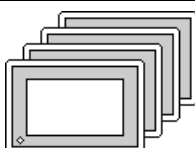
With Modicon Modbus Plus protocol units, when the same project file is used on multiple GP/GLC units, the system may malfunction. When using multiple GP/GLC units, create and maintain only one unique project file for each GP/GLC unit.

6.3.1 System Structure

■ Modicon Modbus (GP Slave)

| Host | Cable Diagram | GP |
|---|---|--|
|  |  |  |
| Modbus Master | RS-232C (Cable Diagram 1) RS-422 (Cable Diagram 2) | GP Series (Slave) |

■ Modicon Modbus Plus (CPU Direct Connection)

| CPU | Cable Diagram | Unit | GP |
|---|---|---|---|
|  |  |  Modbus Plus Module |  |
| 884, 984A, 984B | Modbus Plus cable | QPI-MBP-201 (TCP's) ^{*1} | Large Size GPs ^{*2} |
| | | QPJ-MBP-201 (TCP's) ^{*1} | Medium Size GPs ^{*3} |

**1 Product manufactured by Total Control Products, Inc.*

(Continued on next page.)

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*2 Connectable large-size GP Series units are listed below.

| Series Name | | Unit |
|-----------------|----------------|----------|
| GP70 Series | GP-470 Series | GP-470E |
| | GP-570 Series | GP-570S |
| | | GP-570T |
| | | GP-57JS |
| | | GP-570VM |
| | GP-571 Series | GP-571T |
| | GP-675 Series | GP-675S |
| GP-675T | | |
| GP-870 Series | GP-870VM | |
| GP77 Series | GP-477R Series | GP477RE |
| | GP-577R Series | GP-577RS |
| | | GP-577RT |
| GP2000 Series * | GP-2500 Series | GP-2500T |
| | GP-2501 Series | GP-2501S |
| | | GP-2501T |
| | GP-2600 Series | GP-2600T |
| | GP-2601 Series | GP-2601T |
| GLC2000 Series* | GLC2500 Series | GLC2500T |
| | GLC2600 Series | GLC2600T |

* When using a large-size GP2000/GLC2000 Series unit, a bus conversion unit (PSL-CONV00) is required.

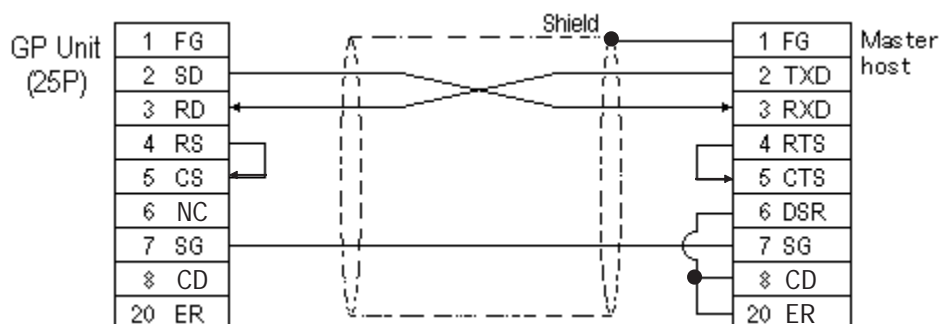
*3 Connectable medium-size GP/GLC Series units are listed below.

| Series Name | | Unit |
|-----------------|----------------|----------|
| GP70 Series | GP-270 Series | GP-270L |
| | | GP-270S |
| | GP-370 Series | GP-370S |
| | | GP-370T |
| GP77 Series | GP-377R Series | GP-377RT |
| GP2000 Series* | GP-2300 Series | GP-2300L |
| | | GP-2300T |
| | GP-2301 Series | GP-2301L |
| | | GP-2301S |
| | | GP-2301T |
| GLC2000 Series* | GLC2300 Series | GLC2300L |
| | | GLC2300T |

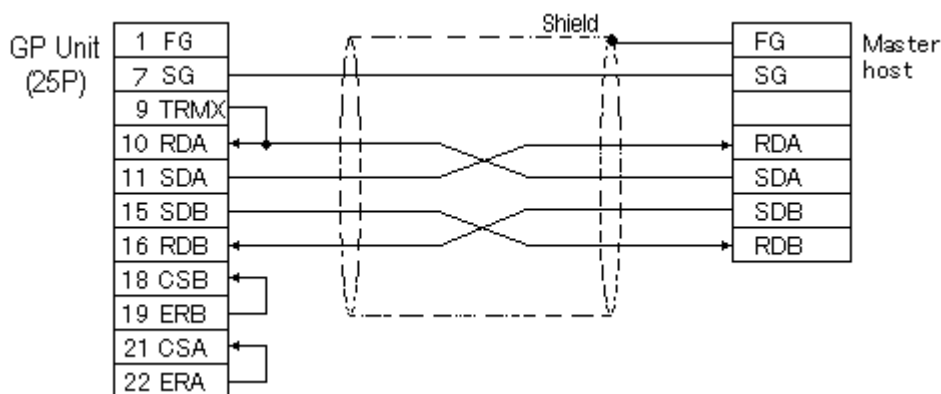
* When using a medium-size GP2000/GLC2000 Series unit, a bus conversion unit (PSM-CONV00) is required.

6.3.2 Cable Diagrams

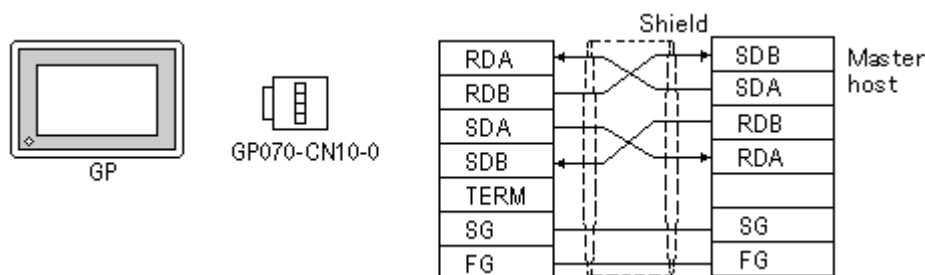
Cable Diagram 1 (RS-232C)



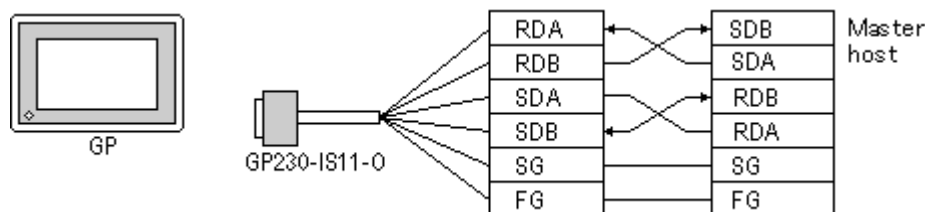
Cable Diagram 2 (RS-422)



- When using Digital's RS-422 connector terminal adapter GP070-CN10-0



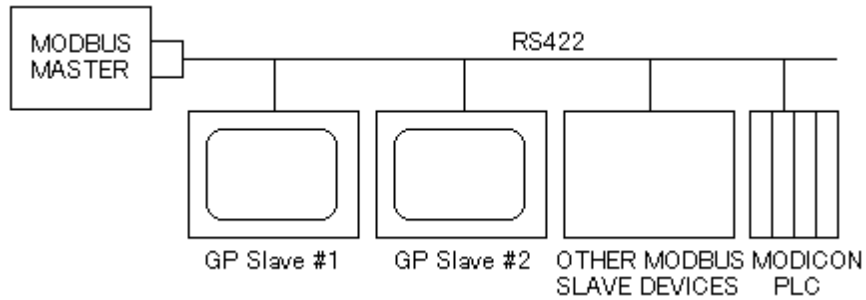
- When using Digital's RS-422 Cable, GP230-IS11-0



Note: Wiring varies depending on types of master host.

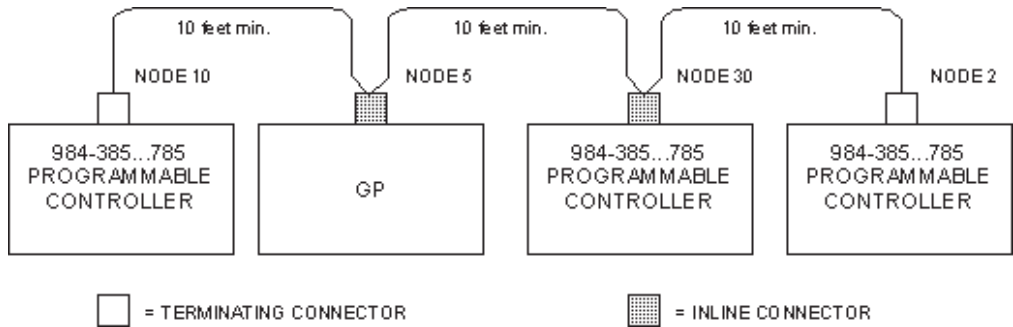
Modbus Slave Diagram

The drawing shows how a GP might be connected as a slave device.



Sample Network (Modbus Plus)

Each node has an LED indicator that flashes patterns to show its status on the network. A simple network consists of two or more nodes connected to a single section.



6.3.3 Supported Devices

■ Modicon Modbus (GP Slave) Setup System Area here.

| Device | Bit Address | Word Address | Particulars |
|-----------------|-------------|---------------|-------------|
| Output Register | --- | 40001 ~ 49999 | L/H |

■ Modicon Modbus Plus Setup System Area here.

| Device | Bit Address | Word Address | Particulars |
|----------------|---------------|---------------|-------------|
| Output Bit | 00001 ~ 08192 | --- | *1 |
| Input Bit | 10001 ~ 18192 | --- | *1*2 |
| Output Relay | --- | 40001 ~ 49999 | L/H |
| Input Register | --- | 30001 ~ 39999 | *2 |

*1 Can also specify a word (16 bit data).

*2 Cannot perform data write.

6.3.4 Environment Setup

■ Modicon Modbus (GP Slave)

| GP Setup | | COM Port | |
|--------------------------------|-----------|--------------------------------|--------------|
| Baud Rate | 19200 bps | Baud Rate | 19200 bps |
| Data Length | 8 bits | Data Length | RTU (8 bits) |
| Stop Bit | 1 bit | Stop Bit | 1 bit |
| Parity Bit | Even | Parity Bit | EVEN |
| Data Flow Control | ER | Data Flow Control | ER |
| Communication Format (RS-232C) | RS-232C | Communication Format (RS-232C) | RS-232C |
| Communication Format (RS-422) | RS422 | Communication Format (RS-422) | RS422 |
| Unit No. | 1 | Unit No. ^{*1} | 1 |

**1 Unit No. shows the number of the GP itself.*

■ Modicon Modbus Plus

| GP Setup | | COM Port | |
|--------------------------------|-----|-----------------|-----|
| Baud Rate | --- | --- | --- |
| Data Length | --- | --- | --- |
| Stop Bit | --- | --- | --- |
| Parity Bit | --- | --- | --- |
| Data Flow Control | --- | --- | --- |
| Communication Format (RS-232C) | --- | --- | --- |
| Communication Format (RS-422) | --- | --- | --- |
| Unit No. | --- | --- | --- |
| Station Address ^{*1} | 1 | --- | --- |
| Route Selection ^{*2} | 1 | Station Address | 2 |

** 1 Set the station address with the Dip Switch for Modbus Plus module (QPI-MBP-201/QPJ-MBP-201).*

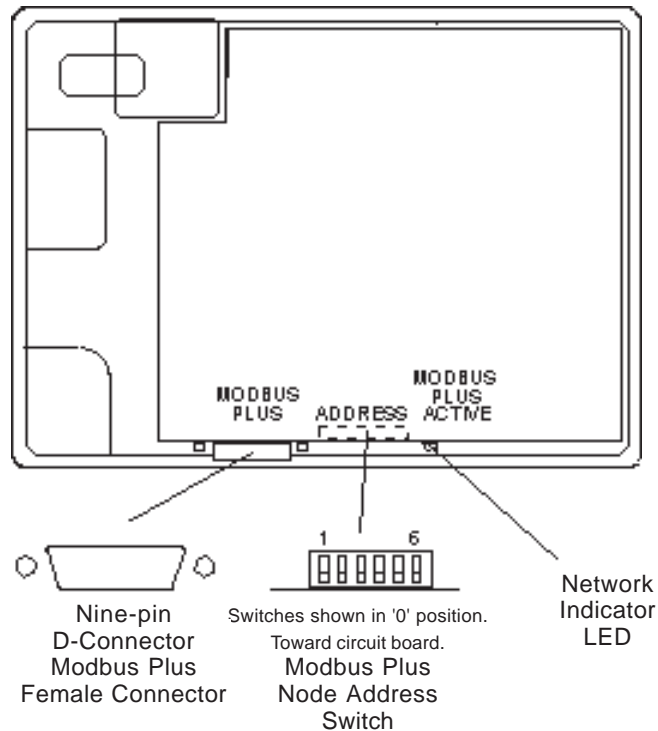
** 2 Route Selection can be made via the GP-PRO/PBIII System Settings area's "Option" menu.*



- **Operation Environment settings cannot be set using the GP's OFFLINE mode. Be sure to use the GP-PRO/PBIII [System Setup] area to do this.**
- **E and K-tags cannot use the "Indirect" Setting.**
- **After the H-tag starts (is triggered), data cannot be read (out).**
- **After the S-tag starts (is triggered), data cannot be read (out).**
- **The Trend graph's group data display's PLC device designation cannot be made.**
- **For GP70 Series, the data backup feature cannot be used, (only with Modbus PLUS).**
- **D-Script 's Memory Copy and Offset Address features cannot be used.**
- **The Logging and Filing Data features cannot be used.**
- **2-Way Driver can access to only LS Area.**
- **LS Area (Read Area) Restrictions**
Unable to write records in the Read Area that exceed the boundary of 1024 and 41 words.

Modbus Plus Adapter Module

The following drawing illustrates the Modbus Plus Adapter I/O module on a GP270 display.



Station Address Switches

| Station Address | Switch Positions | | | | | |
|-----------------|------------------|-----|-----|-----|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| | (1) | (2) | (4) | (8) | (16) | (32) |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 26 | 1 | 0 | 0 | 1 | 1 | 0 |
| 32 | 1 | 1 | 1 | 1 | 1 | 0 |
| 64 | 1 | 1 | 1 | 1 | 1 | 1 |



Add one to switch a desired address setting. Switch down=ON=0.

Route Strings

Route strings are added to a variable name to locate the PLC address, which may be at the end of a chain. Each point on the link must be defined in order to arrive at the selected processor. For example, a route might be 60, 20, and 1, which would appear at the end of the variable name as 4100_60.20.1. If you define Route A as 60.20.1, then the variable name can be 4100_A. There are 26 route menus, designated A through Z.

The above setting can be made via the GP-PRO/PBIII System Settings area's "Option" menu.