

# Device/PLC Connection Manuals

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## 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.

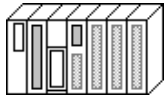
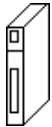


# Matsushita Electric Works

## 1 System Structure

The following describes the system structure for connecting the GP to Matsushita Electric Works PLCs.

**Reference** The Cable Diagrams mentioned in the following tables are listed in the section titled "2.7.2 Cable Diagrams".

### ■ MEWNET Series (using Link Unit)

CPU	Link I/F	Cable Diagram	Cables	Target Machine
	 Computer Communication Unit (C.C.U.)			
FP1 (C24, C40C)	Link I/F on CPU unit *1	RS-232C (Cable Diagram 1) *5	Matsushita AFB85813 *4 *6	GP/GLC Series ST401
FP10SH FP2	Link I/F on CPU unit *2	RS-232C (Cable Diagram 1)	Matsushita AFB85813 *4 *6	GP/GLC Series ST401
FP3	AFP3462	RS-232C (Cable Diagram 1)	Matsushita AFB85813 *4 *6	GP/GLC Series ST401
FP5	AFP5462	RS-232C (Cable Diagram 1)	Matsushita AFB85813 *4 *6	GP/GLC Series ST401
FP10(S)	AFP3462	RS-232C (Cable Diagram 1)	Matsushita AFB85813 *4 *6	GP/GLC Series ST401
	Link I/F on CPU unit *2	RS-232C (Cable Diagram 1)	Matsushita AFB85813 *4 *6	GP/GLC Series ST401
FP-M	Link I/F on CPU unit *3	RS232C (Cable Diagram 1) *5		GP/GLC Series ST401
FP0	Link I/F on CPU unit *1	RS232C (Cable Diagram 6)		GP/GLC Series ST401
FPG-C32T FPG-C32T2 FPG-C24R2	AFPG802	RS232C (Cable Diagram 7)		GP/GLC Series ST401
		RS232C (Cable Diagram 8)		GP/GLC Series ST401
	AFPG801	RS232C (Cable Diagram 9)		GP/GLC Series ST401
FP2-C2 FP2-C2P FP2-C3P	Link I/F on CPU unit *2	RS232C (Cable Diagram 10)		GP/GLC Series ST401

\*1 Connect to the RS-232C port.

\*2 Connect to COM port.




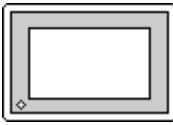
\*3 Connect to Serial port connector.

\*4 Due to the size of its connector case, this cable cannot be used for GP-270, GP-370, GP-377, GP-377R and GP-2300 series unit.

\*5 Use <Cable Diagram 2> if the PLC's version is 2.6 or older.

\*6 When connecting an ST unit, a 9 pin <-> 25 pin adaptor is required.

### ■ MEWNET Series (using CPUdirect connection)

CPU	Adapter	Cable Diagram	Cables	GP
				
FP1 <sup>*1</sup>		RS-422 (Cable Diagram 3)		GP/GLC Series ST400
	Matsushita Electric Works' RS-422/232C terminal changer AFP8550 adapter <sup>*2</sup>	RS-232C (Cable Diagram 4)		GP/GLC Series ST401
FP-M <sup>*3</sup>		RS-232C (Cable Diagram 5)		GP/GLC Series ST401
FP0 <sup>*4</sup> FP2 <sup>*1</sup> FPG-C32T FPG-C32T2 FPG-C24R2		RS-232C (For cable diagram, refer to Matsushita's FP pc M5 type (AFC8513) users manual)	Matsushita's FP personal computer M5 type (AFC8513)*5	GP/GLC Series ST401
FP2-C2 <sup>*4</sup> FP2-C2P FP2-C3P		RS-232C	Matsushita's cable (AFC8503) *6	GP/GLC Series ST401

\* 1 Connect to the Programming Tool connector.

\* 2 It is necessary to connect the RS-422/RS-232C adapter with the PLC using Matsushita's FP1peripheral AFP15205 connection programmable cable .

\* 3 Connect to the Program connector.

\*4 Connect to the Tool port.

\*5 When connecting an ST unit, a 9 pin <-> 25 pin adaptor is required.

\*6 When connecting a GP/GLC unit, a 9 pin <-> 25 pin adaptor is required.

## 2 Cable Diagrams

The cable diagrams illustrated below and the cable diagrams recommended by Matsushita Electric Works may differ, however, using these cables for your PLC operations will not cause any problems.



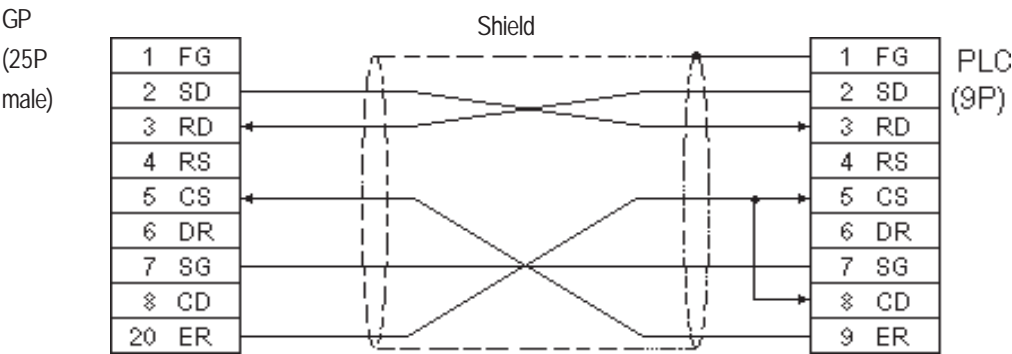
*Ground your PLC's FG terminal according to your country's applicable standard. For details, refer to the corresponding PLC manual.*



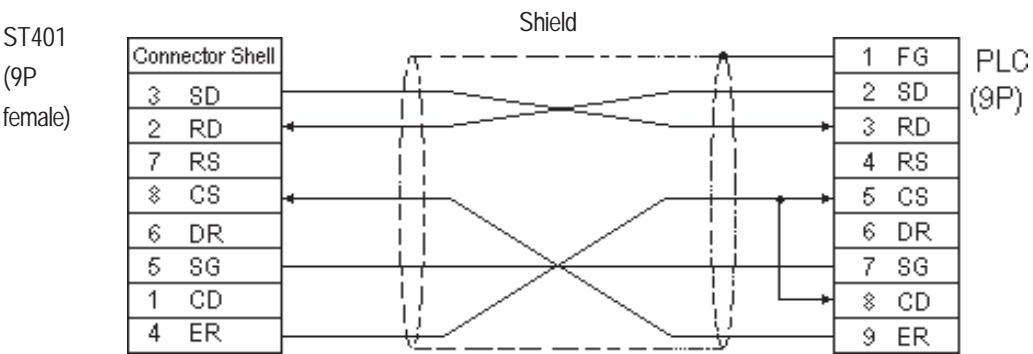
- **Connect the FG line of the Shield cable to either the GP or PLC, depending on your environment. When using a connector hood and grounding the FG line, be sure to use an electrical conductor.**
- **For the RS-232C connection, use a cable length less than 15m.**
- **If a communications cable is used, be sure to connect the SG (signal ground).**
- **For the RS-422 connection, refer to Matsushita's PLC manual for the cable length.**

Cable Diagram 1

GP/GLC Series Units

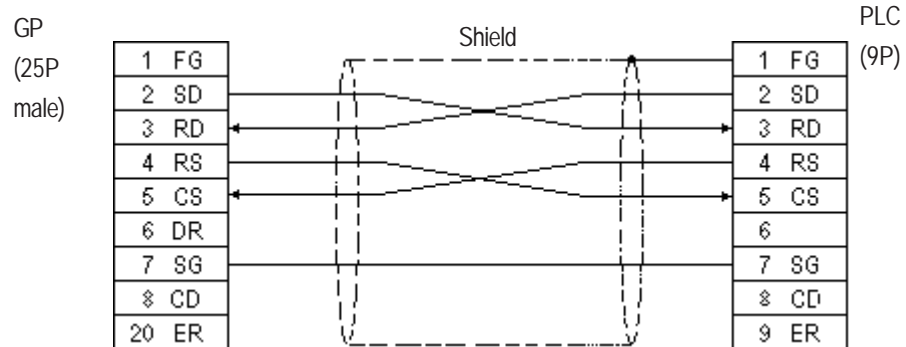


ST401 Unit

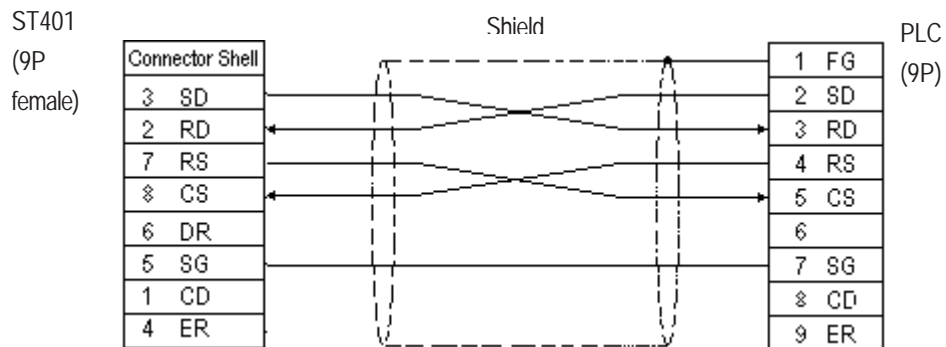


## Cable Diagram 2

### GP/GLC Series Units



### ST401 Unit



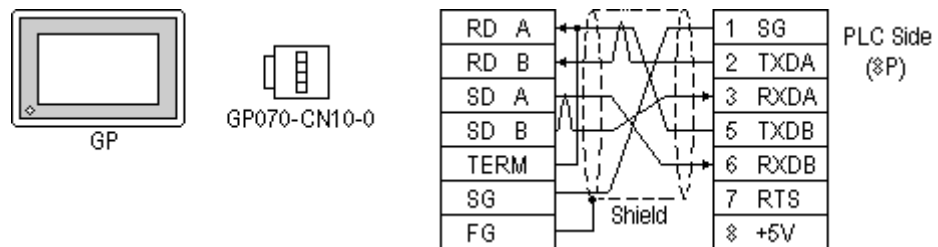
### Cable Diagram 3



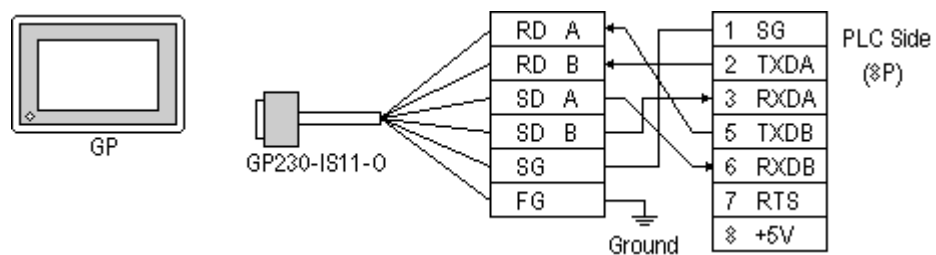
**Note:** You can use Hirose's circular HR212-10P-8P for the PLC connector.

#### GP/GLC Series Units

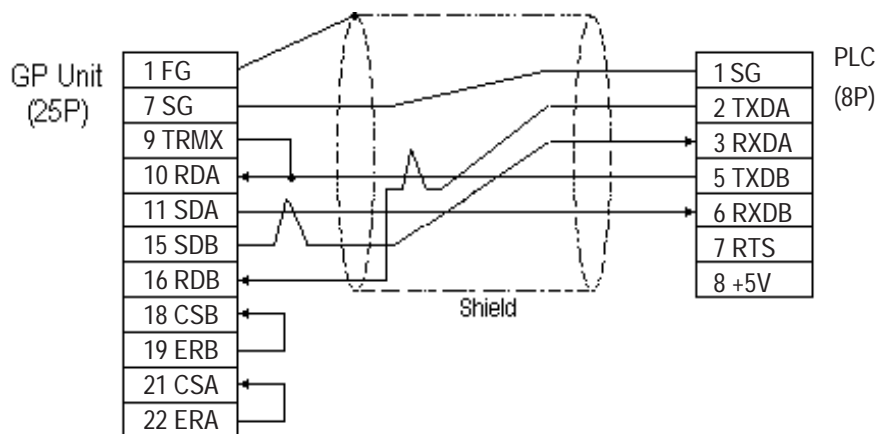
- When using Digital's RS-422 connector terminal adapter GP070-CN10-0



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



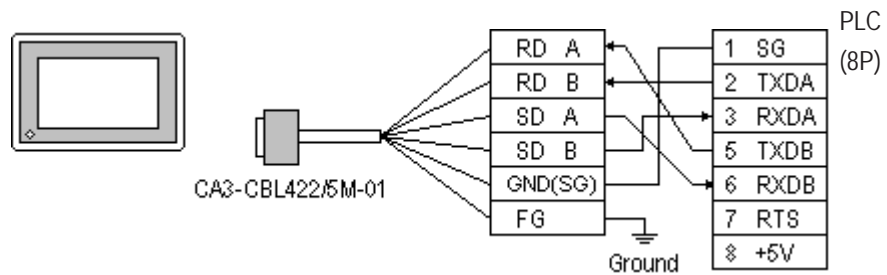
- When making your own cable connections



**Note:** Connecting #9 and #10 pins in the GP Serial I/F adds a termination resistance of 100Ω between RDA and RDB.

## ST400 Unit

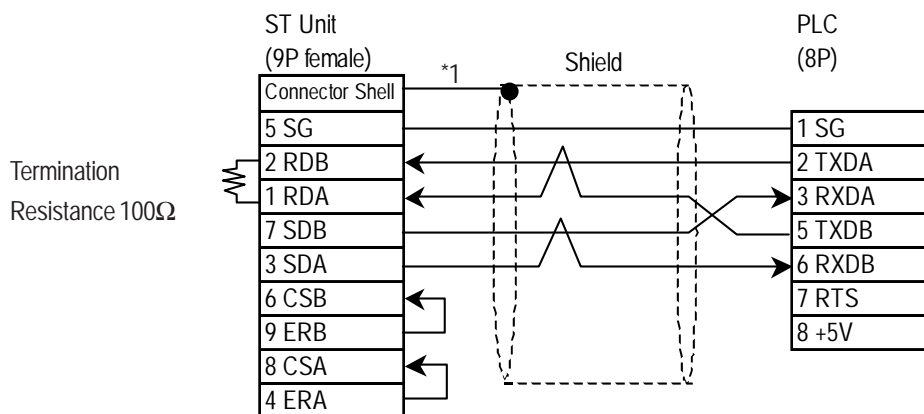
- When using Digital's RS-422 cable, CA3-CBL422/5M-01



**Note:**

Be sure to connect the FG line to the FG terminal. For information about FG connections, refer to page 1-5 note \*1, in the "Connecting a Device/PLC to the ST unit."

- When making your own cable connections

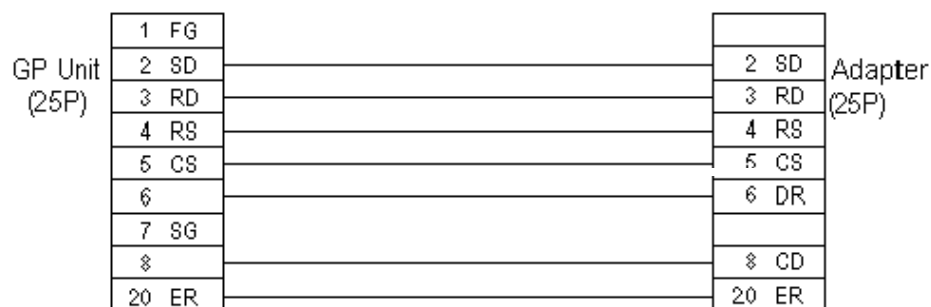


\*1 Be sure to connect the shield to the Connector Shell. For information about FG connections, refer to page 1-2 "RS422 I/F (ST400)" section's Note, in the "Connecting a Device/PLC to the ST unit."

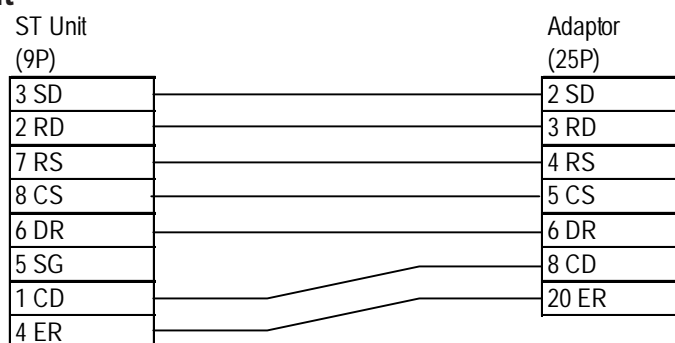


## Cable Diagram 4

### GP/GLC Series Units

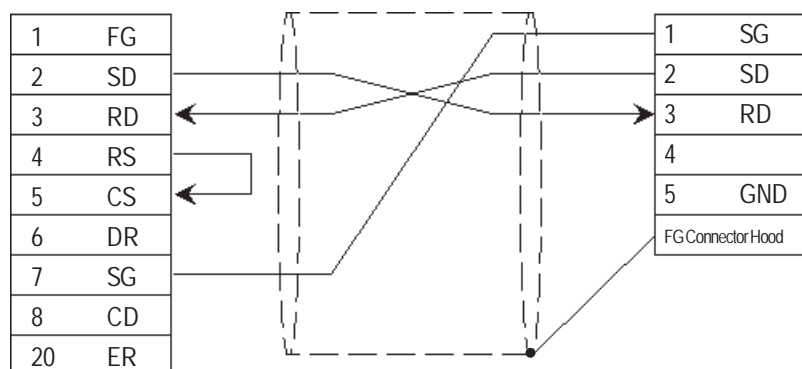


### ST401 Unit

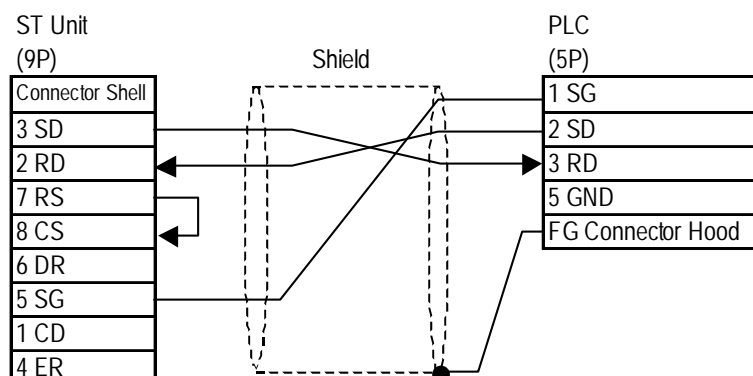


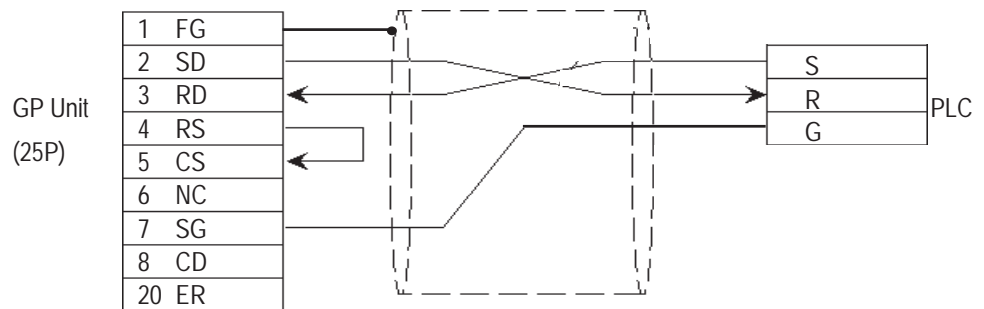
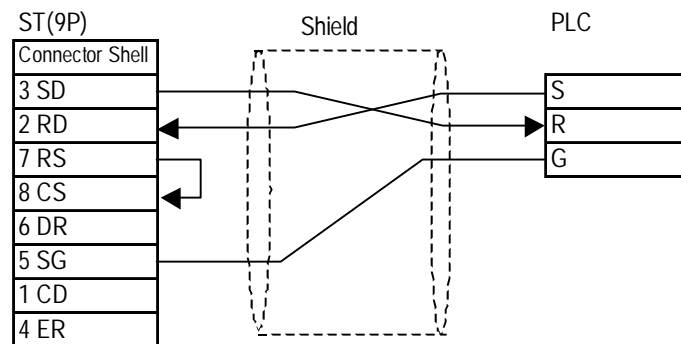
## Cable Diagram 5

### GP/GLC Series Units



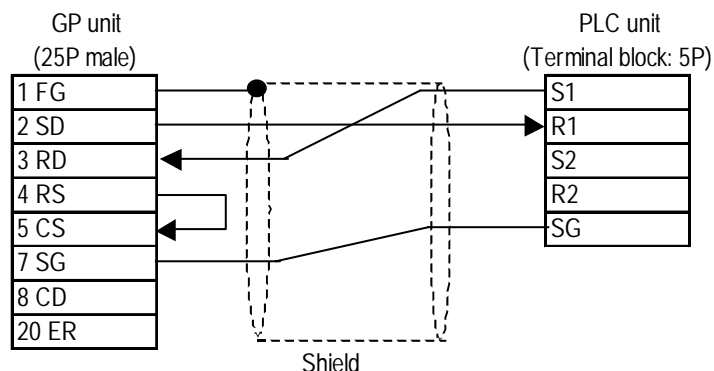
### ST401 Unit



**Cable Diagram 6 (RS-232C)****GP/GLC Series Units****ST401 Unit**

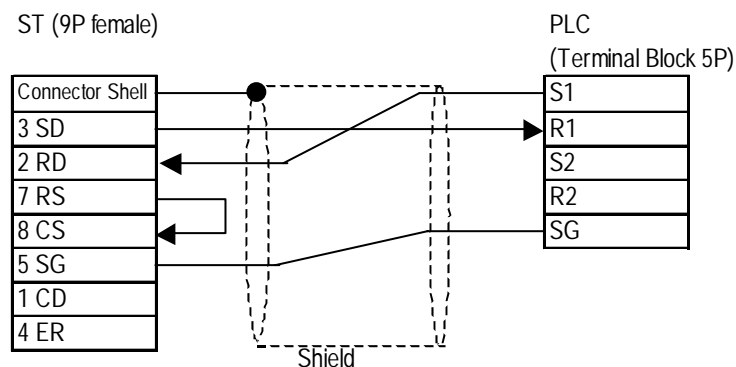
## Cable Diagram 7 (COM.1 port on AFPG802, RS-232C)

### GP/GLC Series Units

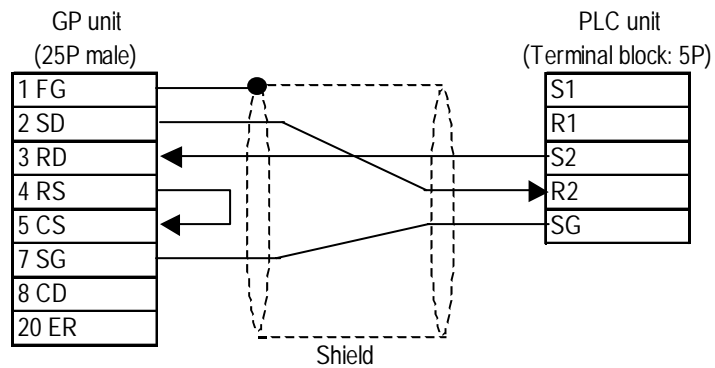


**Note:** • The SG is common to COM.1 port and COM.2 port.

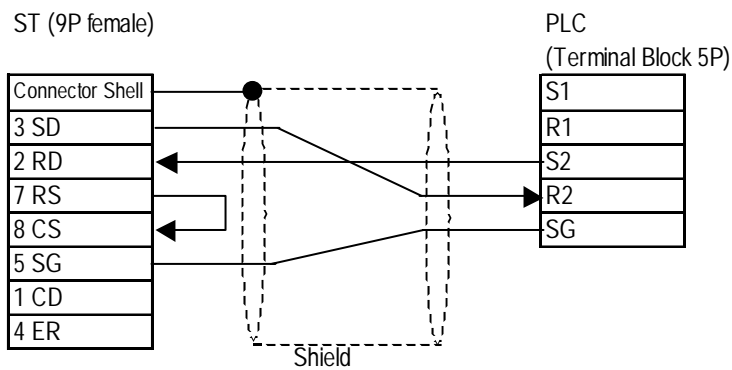
### ST401 Unit



**Note:** • The SG is common to COM.1 port and COM.2 port.

**Cable Diagram 8 (COM.2 port on AFP802, RS-232C)****GP/GLC Series Units**

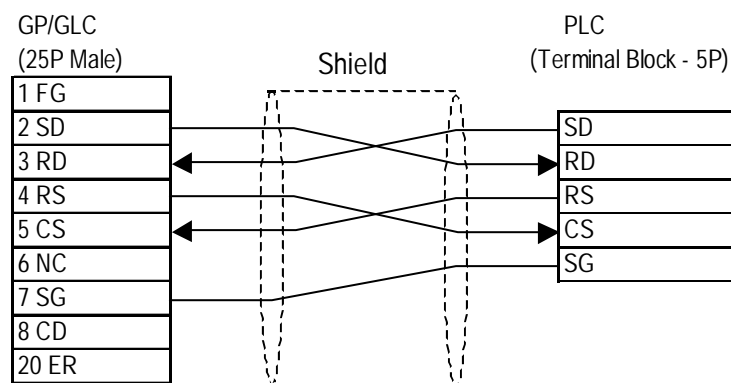
**Note:** • The SG is common to COM.1 port and COM.2 port.

**ST401 Unit**

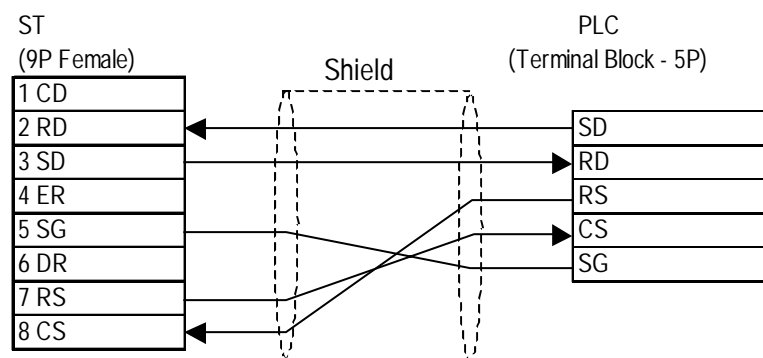
**Note:** • The SG is common to COM.1 port and COM.2 port.

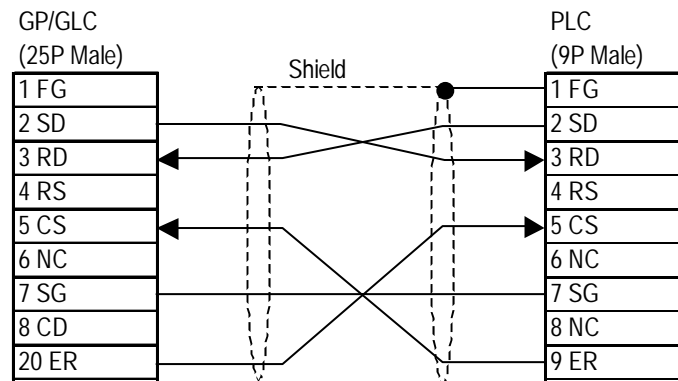
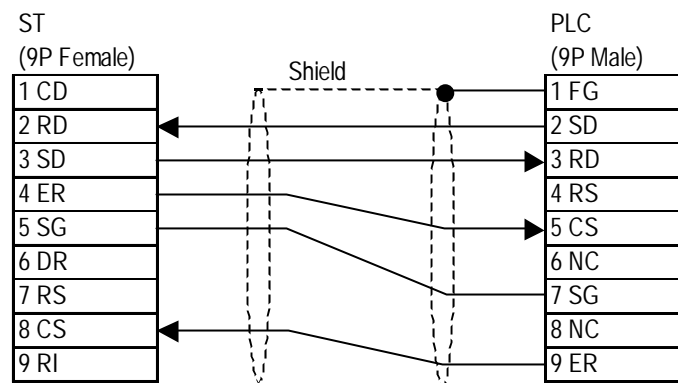
## Cable Diagram 9 (COM.1 port on AFPG801 , RS-232C)

### GP/GLC Series Units



### ST401 Unit



**Cable Diagram 10 (COM port, RS-232C)****GP/GLC Series Units****ST401 Unit**

The following describes the range of devices supported by the GP.

### ■ MEWNET Series

  Setup System Area here.

Device	Bit Address	Word Address	Remarks
Input Relay	X0000 ~ X511F	WX000 ~ WX511	*1
Output Relay	Y0000 ~ Y511F	WY000 ~ WY511	
Internal Relay	R0000 ~ R886F	WR000 ~ WR886	
Link Relay	L000 ~ L639F	WL000 ~ WL639	
Special Relay	R9000 ~ R910F	WR900 ~ WR910	*1
Timer (contact)	T0000 ~ T3071	---	*1
Counter (contact)	C0000 ~ C3071	---	*1
Timer/Counter (elapsed time)	---	EV0000 ~ EV3071	*1
Timer/Counter (setup value)	---	SV0000 ~ SV3071	*1
Data Register	---	DT0000 ~ DT10239	<span style="border: 1px solid black; padding: 2px;">Bit 15</span> *2
Link Register	---	Ld0000 ~ Ld8447	<span style="border: 1px solid black; padding: 2px;">Bit 15</span>
File Register	---	FL00000 ~ FL32764	<span style="border: 1px solid black; padding: 2px;">Bit 15</span> *4
Special Data Register	---	DT90000~DT90511	<span style="border: 1px solid black; padding: 2px;">Bit 15</span> *3

\*1 Cannot perform data write.

\*2 Some CPU types use this device's word address DT09000 and higher as the Special Data Register.

\*3 Only the FP10SH, FP10S, FP10 and FP2 can use this device.

\*4 With the FP2-C2, FP2-C2P, and FP2-C3P units, even though there are three (3) banks of file registers (0, 1, 2), only bank 0 can be accessed.



**Note:**

- When using the Timer and Counter with FP-M, setup each range in the System Register.




**Important**

- Some CPU devices also have extensions, but only the device ranges shown here can be used.
- For the system area, only the range between DT0000 and DT8999 can be specified.
- The types and ranges of available devices may differ depending upon your CPU unit. Before use, check with the manual for your CPU unit.

## ◆ Monitor Set-up

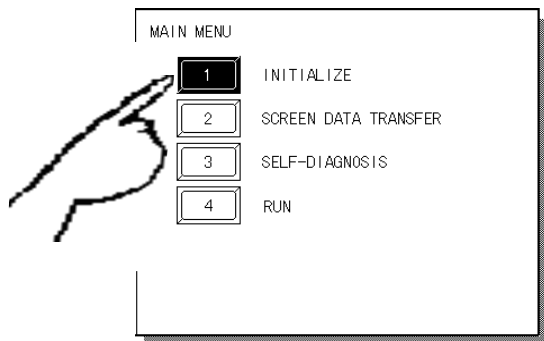
With the MEWNET-FP series, be sure to change the GP to offline mode before inputting the initial Monitor settings.

**Reference**  Offline mode -> refer to each Users' manual, Chapter 4 Offline Mode

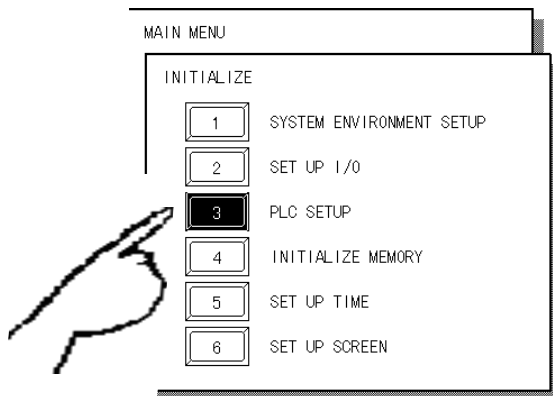


*[Monitor is Registered] is preinstalled as the initial value.*

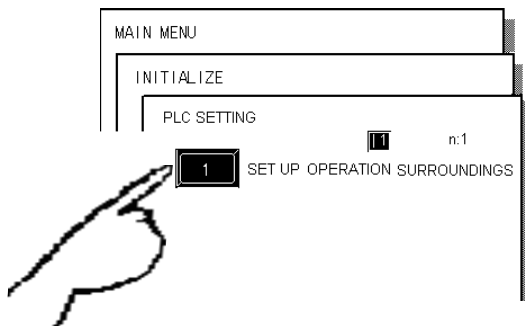
*When a PLC has 2 or more communication units (CCUs) installed with one CPU, and each of those CCUs is connected to a GP, be sure this setting is [OFF].*



- ① Touch item #1, INITIALIZE. The INITIALIZE menu will appear.

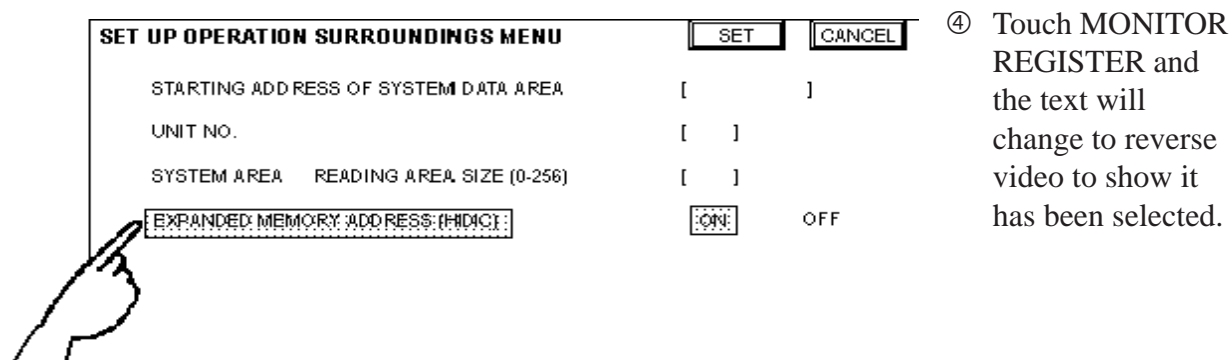


- ② Touch item #3, PLC SETUP. The PLC SETTING menu will appear.



- ③ Touch selection [1:1] and then item #1, SET UP OPERATION SURROUNDINGS. The selected option is then highlighted.





④ Touch MONITOR REGISTER and the text will change to reverse video to show it has been selected.

⑤ When the PLC has only a single (1) communication unit (CCU), which is attached to a single GP, select [ON]. When a PLC has 2 or more communication units (CCUs) installed with one CPU, and each of the CCUs is connected to a GP, select [OFF].



The following lists Digital's recommended PLC and GP communication settings.

### ■ FP1 (using Link I/F on CPU)

GP Setup		FP1 Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	8 bits	Data Bit	8 bits
Stop Bit	1 bit	Stop Bit	1 bit
Parity Bit	Odd	Parity Bit	Odd
Data Flow Control	ER Control	---	
Communication Format	RS-232C	---	
---		RS-232C port Operation Select	1 (Computer Link)
---		RS-422 port Unit No.	1
Unit No.	1	Unit No.	1

### ■ FP1 (CPU Direct Connection)

GP Setup		FP1 Setup	
Baud Rate	19200 bps	---	
Data Length	8 bits (fixed)	---	
Stop Bit	1 bit (fixed)	---	
Parity Bit	Odd (fixed)	---	
Data Flow Control	ER Control	---	
Communication Format	4-wire type <sup>*1</sup>	---	
---		RS-232C Port Operation Selection	1 (computer link)
---		RS-422 Port Unit No.	1
Unit No.	1 (fixed)	---	

<sup>\*1</sup> If an RS-422/232C conversion adapter is in use, set the communication format to "RS-232C".

### ■ FP3/FP5/ FP10(S) (When using Computer Communication Unit)

GP Setup		Computer Communication Unit Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	8 bits	Data Bit	8 bits
Stop Bit	1 bit	Stop Bit	1 bit
Parity Bit	Odd	Parity Bit	Odd
Data Flow Control	ER Control	Control Signal *1	Make CS/CP ineffective
Communication Format	RS-232C	---	
Unit No.	1	Station No.	1

\*1 The FP-10(S) does not have the Control Signal setting.

### ■ FP10(S) /FP10SH /FP2(When using COM Port)

GP Setup		COM Port Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps *1
Data Length	8 bits	Data Bit	8 bits
Stop Bit	1 bit	Stop Bit	1 bit
Parity Bit	Odd	Parity Bit	Odd
Data Flow Control	ER Control	---	
Communication Format	RS-232C	---	
Unit No.	1	Unit No.	1

\*1 The FP10SH can also send data at 115200bps.

### ■ FP2 (CPU Direct Connection)

GP Setup		Tool Port Setup	
Baud Rate	19200bps	Baud Rate	19200bps
Data Length	8bit	Run Mode Setting Switch	SW1:OFF
Stop Bit	1bit	Data Length	8bit
Parity Bit	Odd	_____	
Data Flow Control	ER Control	_____	
Communication Format	RS-232C	_____	
Unit No.	1	Unit No.	1
_____		Modem Connection	No Connection

### ■ FP-M (When using Serial Port Connector)

GP Setup		FP-M Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	8 bits	Data Bit	8 bits
Stop Bit	2 bits	Stop Bit	2 bits
Parity Bit	None	Parity Bit	None
Data Flow Control	ER Control	Start code	No STX
		End code	CR
Communication Format	RS-232C	Communication Format	RS-232C
---		Selection of serial port operation	1 (computer link)
Unit No.	1	Station number	1

### ■ FP-M (When using a Programmable Connector)

GP Setup		FP-M Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	8 bits	Data Bit	8 bits
Stop Bit	1 bit (fixed)	---	
Parity Bit	Odd (fixed)	---	
Data Flow Control	ER Control	---	
Communication Format	RS-232C	---	
Unit No.	1	Station number	1

### ■ FP0 (Using Link I/F on CPU)

GP Setup		FP0 Setup	
Baud Rate	9600bps	Baud Rate	9600bps
Data Length	8bit	Data Length	8bit
Stop Bit	1bit	Stop Bit	1bit
Parity Bit	Odd	Parity Bit	Odd
Data Flow Control	ER Control	Data Flow Control	ER Control
Unit No.	1	Unit No.	1

### ■ FP0 (CPU Direct connection)

GP Setup		FP0 Setup	
Baud Rate	9600bps	Baud Rate	9600bps
Data Length	8bit	Data Length	8bit
Stop Bit	1bit (fixed)	Stop Bit	-----
Parity Bit	Odd (fixed)	Parity Bit	-----
Data Flow Control	ER Control	Data Flow Control	ER Control
Unit No.	1	Unit No.	1

### ■ FPG (Using Link I/F)

GP Setup		FPG Setup	
Baud Rate	9600bps	Baud Rate	9600bps
Data Length	8bits	Data Length	8bits
Stop Bit	1bit	Stop Bit	1bit
Parity Bit	Odd	Parity Bit	Odd
Data Flow Control	ER Control	-----	-----
Unit No.	1	Unit No.	1
Communication Format	RS-232C	-----	-----
-----	-----	Communication Mode	Computer Link

### ■ FP2-C2/ FP2-C2P/FP2-C3P (When using CPU Link I/F)

GP Settings		COM Port Setup	
Baud Rate	9600 bps	Baud Rate	9600 bps
Data Length	8 bits	Data Bit	8 bits
Stop Bit	1 bit	Stop Bit	1 bit
Parity Bit	Odd	Parity Bit	Odd
Data Flow Control	ER Control	_____	_____
Communication Format	RS-232C	_____	_____
Unit No.	1	Unit number	1
_____		Selection of serial port operation	1 (computer link)
_____		Start code	No STX
_____		End code	CR
_____		Modem Connection	Not used

### ■ FP2-C2/ FP2-C2P/FP2-C3P (When using CPU direct connection)

GP Settings		Tool Port Setup	
Baud Rate	19200 bps	Baud Rate	19200 bps
Data Length	8 bits	Data Bit	8 bits
Stop Bit	1 bit	_____	_____
Parity Bit	Odd	_____	_____
Data Flow Control	ER Control	_____	_____
Communication Format	RS-232C	_____	_____
Unit No.	1	Unit number	1
_____		Modem Connection	Not used