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Device/PLC Connection Manuals



About the Device/PLC Connection Manuals

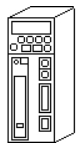

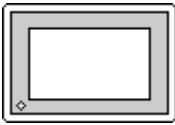
Prior to reading these manuals and setting up your device, be sure to read the "Important: Prior to reading the Device/PLC Connection manual" information. Also, be sure to download the "Preface for Trademark Rights, List of Units Supported, How to Read Manuals and Documentation Conventions" PDF file.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

14.2 Matsushita Electric Industrial Servo

14.2.1 System Structure

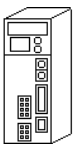

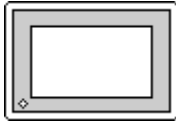
This subsection describes system configurations where the GP unit is connected to Matsushita Electric Industrial Co.'s servo.

■ MINAS-A Series

Servo	Cable Diagram	Applicable Cable	GP/GLC/LT
			
M□DA□□□□□□ ^{*1}	RS-232C (1:1)	DV0P1160 made by Matsushita Electric Industrial Co.	GP/GLC series LT Type C
	RS-232C (1:n)	DV0P1160 made by Matsushita Electric Industrial Co.	

*1 □□□□□□ varies depending upon the servo types. For detailed information, refer to the manual or catalog of the servo used.

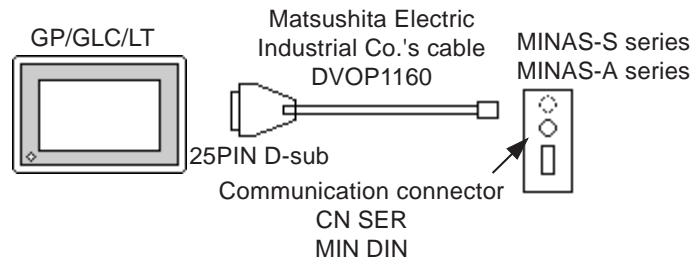
■ MINAS-S Series

Servo	Cable Diagram	Applicable Cable	GP/GLC/LT
			
MUDS□□□□□□ ^{*1}	RS-232C (1:1)	DV0P1160 made by Matsushita Electric Industrial Co.	GP/GLC series LT Type C

*1 □□□□□□ varies depending upon the servo types. For detailed information, refer to the manual or catalog of the servo used.

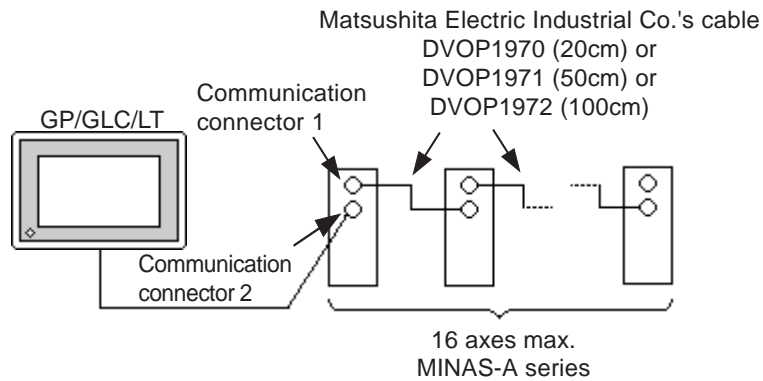
◆ Connections

- 1:1 connection



- Connect a MINAS-S series servo to the communication connector CN SER.
- Connect a MINAS-A series servo to the communication connector 2 CN SER.

- 1:n connection (MINAS-A series only)



- **In the case of 1:n connection, if the tag setup specifies that the parameter information on multiple servos is read or written on the same screen, it may take several seconds for display updating or other operations. If the parameter information from more than one servo is read out on the same screen, it will take, normally, approximately 0.5 seconds before the parameter information on each servo has been read out. It is recommended that the parameters for multiple servos be set on their respective screens. This will allow more efficient data checking and be useful for other purposes.**










14.2.2 Supported Devices

The following table shows the range of devices that are supported by the GP:

■ **MINAS-S/A Series**

 may be specified at the first address of the system area.

Device	Bit Addresses	Word Addresses	Remarks
Driver model readout	————	05_00 ~ 05_05	*1
Status readout (control mode)	————	20_00	Bit 15 *1 *4
Status readout (status)	————	20_21	Bit 15 *1 *4
Command pulse counter readout	————	21_00	Bit 31 *1 *3 L/H
FB pulse counter readout	————	22_00	Bit 31 *1 *3 L/H
Current speed readout	————	24_00	Bit 15 *1
Current torque output readout	————	25_00	Bit 15 *1
Current deviation counter readout	————	26_00	Bit 31 *1 *3 L/H
Input signal readout	————	27_00	Bit 31 *1 *3 L/H
Output signal readout (data)	————	28_00	Bit 31 *1 *3 L/H
Output signal readout (warning data)	————	28_01	Bit 15 *1
Current speed readout	————	29_00	Bit 15 *1
Current torque readout	————	29_01	Bit 15 *1
Current deviation counter readout	————	29_02	Bit 31 *1 *3 L/H
Status, input signal, and output signal readout (control mode)	————	2A_00	Bit 15 *1 *4
Status, input signal, and output signal readout (status)	————	2A_-01	Bit 15 *1 *4
Status, input signal, and output signal readout (input signal)	————	2A_02	Bit 31 *1 *3 L/H
Status, input signal, and output signal readout (output signal)	————	2A_03	Bit 31 *1 *3 L/H
Status, input signal, and output signal readout (warning data)	————	2A_04	Bit 15 *1
Absolute encoder readout (encoder ID)	————	2D_00	Bit 15 *1 *6
Absolute encoder readout (status)	————	2D_01	Bit 15 *1 *6
Absolute encoder readout (1-rotation data)	————	2D_02	Bit 31 *1 *5 *6 L/H
Absolute encoder readout (multi-rotation data)	————	2D_03	Bit 15 *1 *6
Individual readout/write of parameter	————	80_00 ~ 80_7F	Bit F *1
Write of parameter to EEPROM	————	84_00	*2 *7
Current alarm data readout	————	90_00	Bit 15 *1 *4
Individual readout of user alarm history (history No.)	————	91_00 ~ 91_0F	Bit F *1 *4
Individual readout of user alarm history (alarm No.)	————	91_11 ~ 91_1F	Bit F *1 *4
Batch readout of user alarm history	————	92_01 ~ 92_14	Bit 15 *1 *4

Device	Bit Addresses	Word Addresses	Remarks
Clearing of user alarm history (also in EEPROM)	—————	93_00	*2 *7
Clearing of alarm	—————	94_00	*2 *7
Clearing of absolute encoder	—————	9B_00	*2 *6 *7
Individual readout of user parameter (parameter value)	—————	B0_00 ~ B0_07F	 *1
Individual readout of user parameter (MIN value)	—————	B0_100 ~ B0_17F	 *1
Individual readout of user parameter (MAX value)	—————	B0_200 ~ B0_27F	 *1
Individual readout of user parameter (attribute)	—————	B0_300 ~ B0_37F	 *1
Individual readout of user parameter page (parameter value)	—————	B1_000 ~ B1_07F	 *1
User parameter page readout (MIN value)	—————	B1_010 ~ B1_17F	 *1
User parameter page readout (MAX value)	—————	B1_020 ~ B1_27F	 *1
User parameter page readout (attribute)	—————	B1_030 ~ B1_37F	 *1
User parameter page write	—————	B2_000 ~ B2_07F	 *2

*1 Exclusively for readout

*2 Exclusively for write

*3 32-bit device

*4 Handled as byte data by the AC servo, but as word data by the GP.

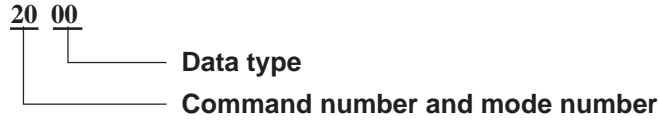
*5 Used as 24-bit data by the AC servo, but as a double-word device by the GP.

*6 Only the MINAS-A series is supported.

*7 Writing arbitrary data executes the command.



- Assign the parameters and other similar AC servo data to device codes and addresses as follows. For the command numbers and mode numbers, refer to “Lists of MINAS-A and MINAS-S series command numbers and mode numbers.”



- When creating part or tag on the screen creation software, specify the controller unit number when entering an address. If not, the last entered unit number is assumed. (The default value at startup is 00.)

00 / 20_ 00

Data type

Command number and mode number

Servo ID number

Enter the servo ID number you want to specify.

■ Lists of MINAS-A and MINAS-S series command numbers and mode numbers

AC Servo Motor Driver		GP/GLC/LT	Description	Item	R/W	Particulars	
Command	Mode	Device					
0	5	05_00 ~ 05_05	Driver model readout	———	R	*1	
2	0	20_00	Status readout	Control mode	R	*2 *5	
		20_21		Status	R	*2 *5	
	1	21_00	Command pulse counter readout	———	R	*3	
	2	22_00	FB pulse counter readout	———	R	*3	
	4	24_00	Current speed readout	———	R	*1	
	5	25_00	Current torque output readout	———	R	*1	
	6	26_00	Current deviation counter readout	———	R	*3	
	7	27_00	Input signal readout	———	R	*3	
	8	8	28_00 28_01	Output signal readout	Data	R	*3 *5
					Warning data	R	*1 *5
	9	9	29_00 29_01 29_02	Current speed/torque/deviation counter readout	Data (speed)	R	*1 *5
					Data (torque)	R	*1 *5
					Data (deviation)	R	*3 *5
	A	A	2A_00 2A_01 2A_02 2A_03 2A_04	Status/input signal/output signal readout	Control mode	R	*2 *5
					Status	R	*2 *5
					Input signal	R	*3 *5
					Output signal	R	*3 *5
					Warning data	R	*1 *5
	D	D	2D_00 2D_01 2D_02 2D_03	Absolute encoder readout	Encoder ID	R	*1 *5
					Status	R	*1 *5
1-rotation data					R	*4 *5	
Multi-rotation data					R	*1 *5	
8	0 and 1	80_00 ~ 80_7F	Individual readout/write of parameter	———	R/W	*1 *8	
	4	84_00	Write of parameter to EEPROM	———	W	*1	
9	0	90_00	Current alarm data readout	———	R	*2	
	1	91_00 ~ 91_0F 91_11 ~ 91_1F	Individual readout of user alarm history	History No.	R	*2 *5	
				Alarm No.	R	*2 *5	
	2	92_01 ~ 92_14	Batch readout of user alarm history	———	R	*2	
	3	93_00	Clearing of user alarm history	———	W	*1	
	4	94_00	Clearing of alarm	———	W	*1	
B	9B_00	Clearing of absolute encoder	———	W	*1 *11		

AC Servo Motor Driver		GP/GLC/LT	Description	Item	R/W	Particulars
Command	Mode	Device				
B	0	B0_00 ~ B0_07F	Individual readout of user parameter	Parameter value	R	*1 *7 *9
		B0_100 ~ B0_17F		MIN value	R	*1 *7 *9
		B0_200 ~ B0_27F		MAX value	R	*1 *7 *9
		B0_300 ~ B0_37F		Attribute	R	*1 *7 *9
	1	B1_000 ~ B1_07F	User parameter page readout	Parameter value	R	*1 *7 *10
		B1_010 ~ B1_17F		MIN value	R	*1 *7 *10
		B1_020 ~ B1_27F		MAX value	R	*1 *7 *10
		B1_030 ~ B1_37F		Attribute	R	*1 *7 *10
	2	B2_000 ~ B2_07F	User parameter page write	—	W	*1 *8

*1 Word device

*2 Used as byte data by the AC servo motor driver, but as a double-word device by the GP.

*3 Double-word device

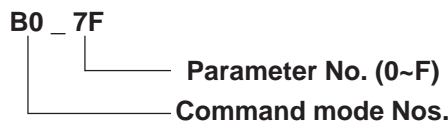
*4 Used as 24-bit data by the AC servo motor driver, but as a double-word device by the GP.

*5 The device names are same, but the device codes are different for each address.

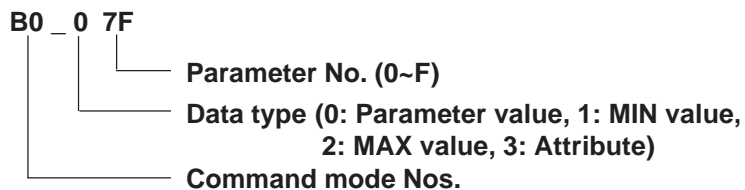
*6 Use the same command when reading out the driver model. Therefore, the data that can be read out from this device is the same as the driver model readout.

*7 For the parameter numbers and other detailed information, refer to the organization and list of parameters in the instruction manual for the AC servo driver.

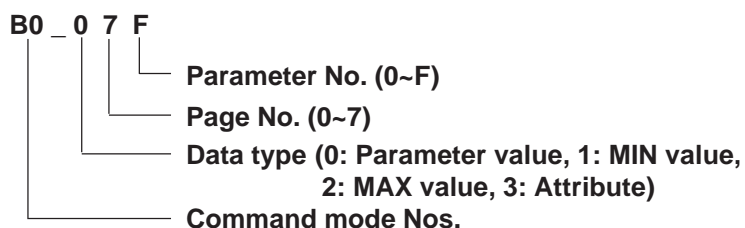
*8 Specify a device as follows:



*9 Specify a device as follows:



*10 Specify a device as follows:



*11 Only the MINAS-A series is supported.

14.2.3 Environment Setup

The following tables show the communication settings for the servo and the corresponding settings for the GP/GLC/LT, which are recommended by Digital:

■ MINAS-A Series

GP/GLC/LT Setup		Servo Setup	
Baud Rate	19200bps	Baud Rate	9600bps
Data Length	8 bits (fixed)	_____	_____
Stop Bit	1 bit (fixed)	_____	_____
Parity Bit	None (fixed)	_____	_____
Data Flow Control	ER Control	_____	_____
Communication Format (RS-232C)	RS-232C	_____	_____
Unit No.	0	ID Rotary Switch ^{*1}	0

**1. Set the ID No. to 0.*

■ MINAS-S Series

GP/GLC/LT Setup		Servo Setup	
Baud Rate	19200bps	Baud Rate	9600bps
Data Length	8 bits (fixed)	_____	_____
Stop Bit	1 bit (fixed)	_____	_____
Parity Bit	None (fixed)	_____	_____
Data Flow Control	ER Control	_____	_____
Communication Format (RS-232C)	RS-232C	_____	_____
Unit No.	0	_____	_____

14.2.4 Error Codes**■ Servo Error Codes**

An error code specific to the servo is displayed as "Host communication error (02:**:##)" in the lower left part of the GP screen. "**" stands for the error code specific to the servo, and "##" stands for the servo unit number where the error has occurred.

Error No.	Description	Causes
0x90	RS485 error	The unit that has been specified in the 1:n connection cannot be found.
0xA0	Command error	A command that is not supported has been transmitted.
0xC0	Data error	The written data exceeds the specified range.

