

**GP-PRO/PBIII**  
**PLC CONNECTION MANUAL**

**ADDITIONAL MANUAL**  
**Keyence Corporation**  
**KV-700 Series**  
**CPU Direct Connection**

# Reading the GP-PRO/PBIII Device/PLC Connection Manual

This document is designed as an addition to the latest GP-PRO/PBIII Device/PLC Connection manual. It covers the Keyence Corporation's KV700 Series unit (CPU Direct Connection) information.

Please be aware that:

- Page numbers are not sequential
- Chapter numbers do not agree.
- No introduction is included.
- Titles have been omitted.

This document is intended to be used together with the latest version of your Device/PLC Connection manual.

Please read the KV-700 Series (CPU Direct Connection) items.

The information in this document will be included in the next version of the Device/PLC Connection manual. Therefore, please consider this a provisional document.

# Installation

This CD-ROM includes all the protocol files required by the GP/GLC to communicate with a KEYENCE Corporation PLC. Also, you will need to have the GP Screen Editor software (GP-PRO/PBIII for Windows95 version 2.1 or higher) installed on your personal computer's hard disk. For information about the installation of the GP Screen Editor software, refer to that software's Operation Manual.

- 1) Be sure to Confirm that the GP Screen Editor software is installed in your PC prior to starting this driver installation.
- 2) To install the Keyence protocol files, click on this CD-ROM's "kv700p.exe" file icon.
- 3) Once the setup program starts, follow the instructions given to install the protocol files.



**When using the KV-700 Series (CPU Direct Connection) unit, select [KEYENCE KV-700 SERIES (CPU)] for the "PLC Type".**


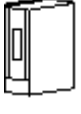


## 2.18 Keyence

### 2.18.1 System Structure

The following describes the system structure for connecting the GP to Keyence PLCs.

**Reference** The Cable Diagrams mentioned in the following tables are listed in the section titled "2.18.2 Cable Diagrams".

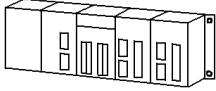



#### ■ KZ-300/KZ-350 Series (using Link I/F)

| CPU   | Link I/F  | Cable Diagram  | GP  |
|---|---|--|---|
|  | <br>PC Link Unit |    |  |
| KZ-300<br>KZ-350  | KZ-L2   | RS-232C<br>Port 1 Connection<br>(Cable Diagram 1)<br><br>RS-232C<br>Port 2 Connection<br>(Cable Diagram 2)<br><br>RS-422<br>Port 2 Connection<br>(Cable Diagram 3) | GP Series   |



**Port 1 and Port 2 can be connected at the same time on the GP. When connected at the same time, the Communication Setup for Port 1 and Port 2 must be the same.**

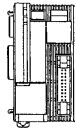
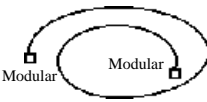
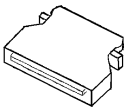

#### ■ KZ-A500 Series (using Link I/F)

| CPU   | Link I/F  | Cable Diagram   | GP  |
|---|---|---|---|
|  |  |   |  |
| KZ-A500   | KZ-L10  | RS-232C , connected to Port 1.<br>(Cable Diagram 4)<br><br>RS-232C , connected to Port 2.<br>(Cable Diagram 2)<br><br>RS-232C , connected to Port 2.<br>(Cable Diagram 3) | GP Series   |

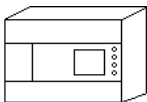
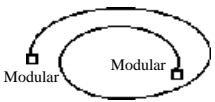
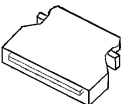



**Port 1 (RS232C), Port 2 (RS232-C or RS422) and the modular controller on CPU unit can be used at the same time.**





■ **KZ-A500 (CPU Direct Connection)**

| CPU   | Cables  | Connector  | GP  |
|---|---|--|---|
|  |  |  |  |
| KZ-A500   | Keyence Corp.'s<br>OP-26487   | Keyence Corp.'s<br>OP-26485  | GP Series   |


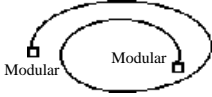
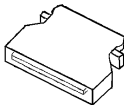

■ **KV Series (CPU Direct Connection)**

| CPU   | Cables  | Connector  | GP/GLC  |
|---|---|--|---|
|  |  |  |  |
| KV-10<br>KV-16<br>KV-24<br>KV-40  | Keyence Corp.'s<br>OP-26487   | Keyence Corp.'s<br>OP-26485  | GP Series<br>GLC Series   |

■ **KV-700 Series (using Link I/F)**

| CPU   | Link I/F  | Cable Diagram   | GP/GLC  |
|---|---|---|---|
|  | PC Link Unit<br> |   |  |
| KV-700  | KV-L20  | RS-232C<br>(Communication Port 1)<br><Cable Diagram 5><br>RS-232C<br>(Communication Port 2)<br><Cable Diagram 6><br>RS-422<br>(Communication Port 2)<br><Cable Diagram 7> | GP Series<br>GLC Series   |

■ **KV-700 Series (CPU Direct Connection)**

| CPU   | Cables  | Connector  | GP/GLC  |
|---|---|--|---|
|  |  |  |  |
| KV-700  | Keyence Corp.'s<br>OP-26487   | Keyence Corp.'s<br>OP-26485  | GP Series<br>GLC Series   |

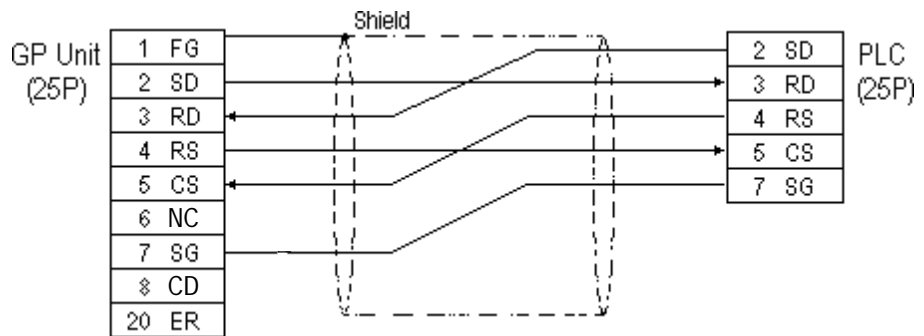
**2.18.2 Cable Diagrams**

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

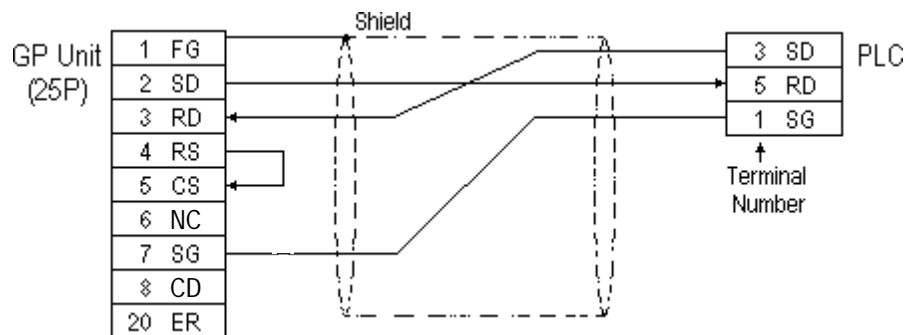


- Connect the FG line of the Shield cable to the GP.
- For the RS-232C connection, use a cable length less than 15m.
- If a communications cable is used, it must be connected to the SG (signal ground).
- For the RS-422 connection, refer to Keyence's PLC manual for the cable length.

**Cable Diagram 1 (RS-232C)**



**Cable Diagram 2 (RS-232C)**



**Cable Diagram 3 (RS-422)**

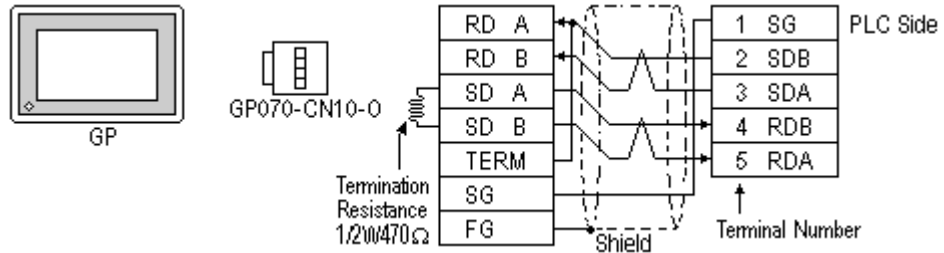


Turn the PLC's Termination Resistor switch ON.

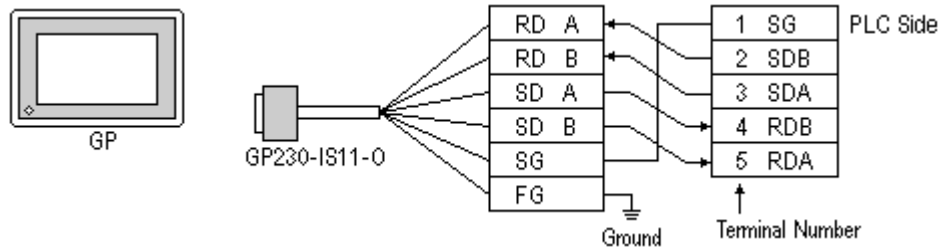


The reading of the A and B signals is reversed on the GP and PLC.

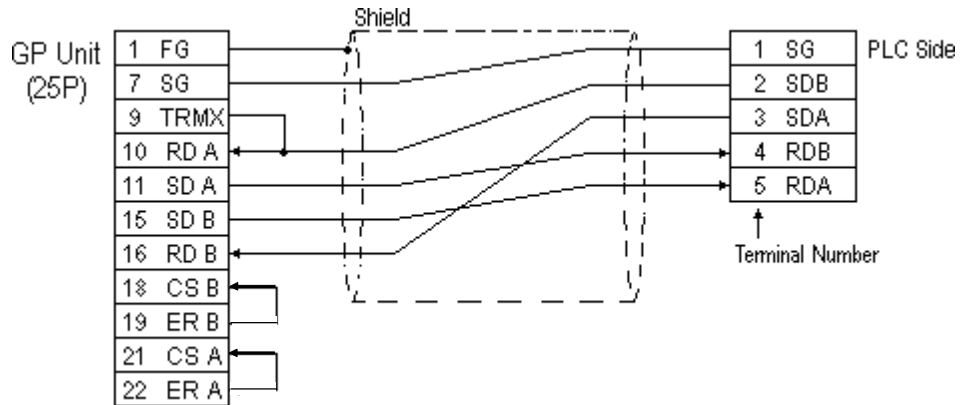
- When using Digital's RS-422 connector terminal adapter, GP070-CN10-0



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



- When making your own cable connections



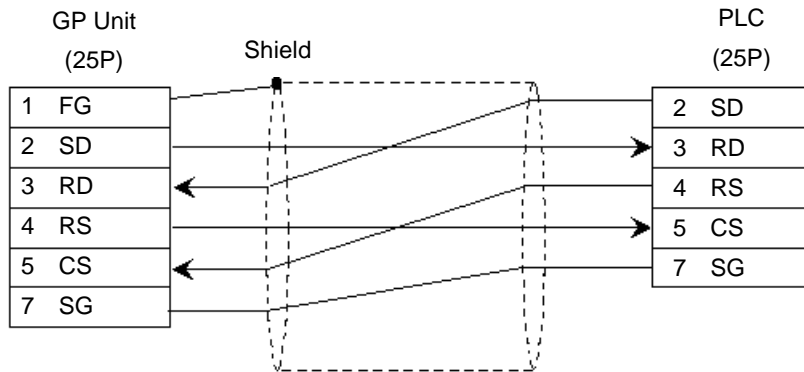
- HIRAKAWA DENSEN's H-9293A (C0-HC-ESV-3P\*7/0.2) is the recommended cable.
- When connecting the #9 and #10 pins in the GP Serial I/F, a termination resistance of 100Ω is added between RDA and RDB.
- When using RS-422 connection, please check the cable length with Keyence PLC users manual.

**Cable Diagram 4 (RS-232C) port1**

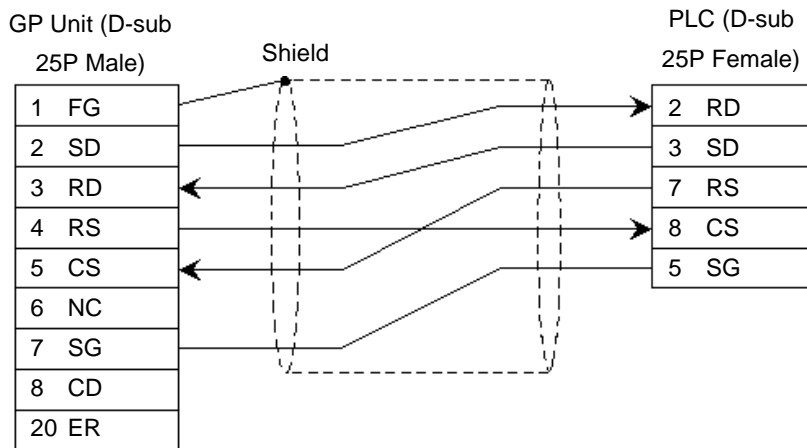


**Note:**

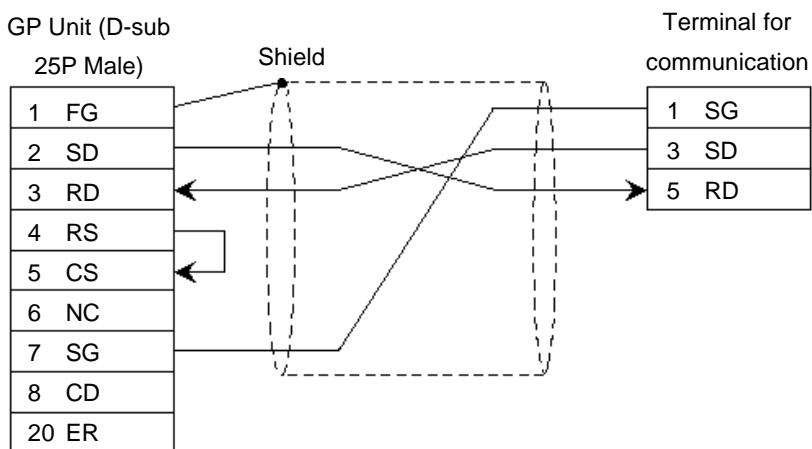
- When using an RS-232C cable, the cable must be no longer than 15meters.
- When using an RS-422 cable, the cable must be no longer than 500meters.



**Cable Diagram 5 (RS-232C) port 1**



**Cable Diagram 6 (RS-232C) port 2**

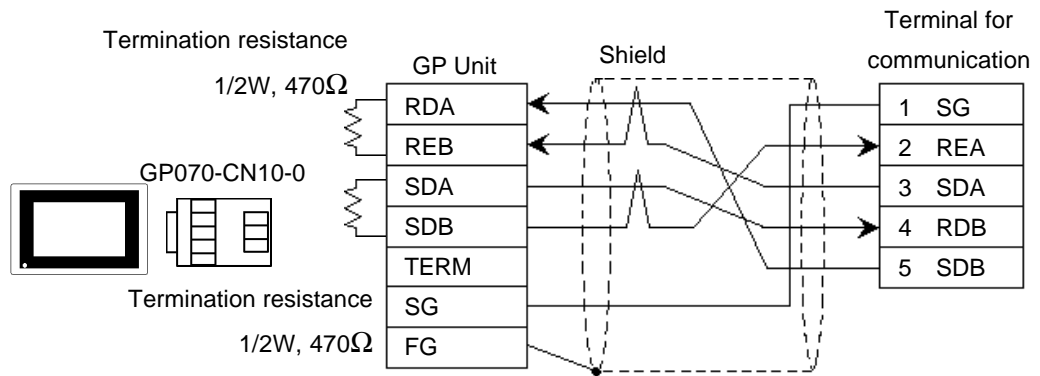




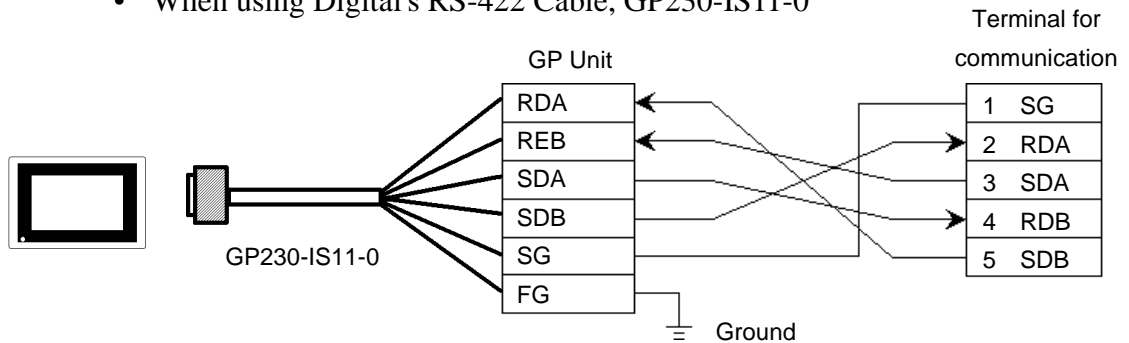
**Cable Diagram 7 (RS-422) 4-wire type**



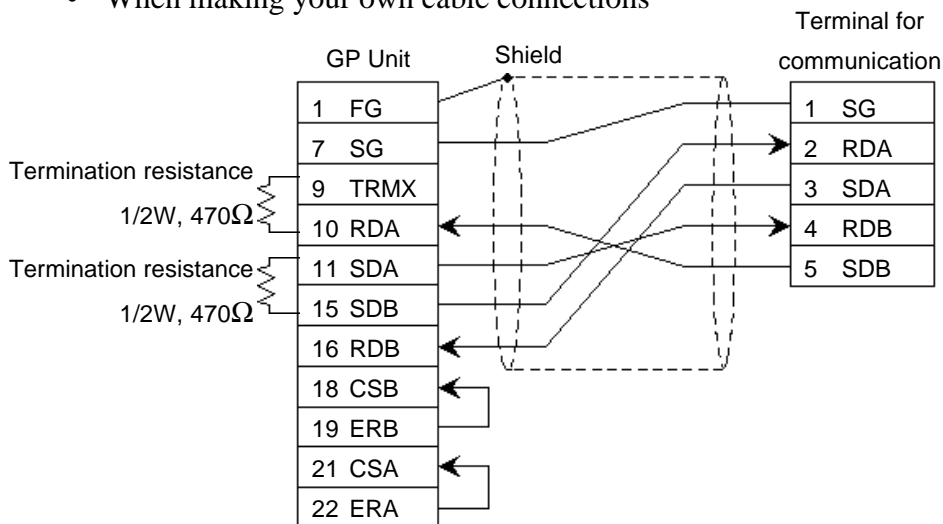
- The termination resistance on the PLC side becomes active when the Terminator Select switch on the unit is turned ON.
- The names of poles A and B are inverted between the GP and the PLC.
- The cable length should be within 500 meters.
- When using Digital's RS-422 connector terminal adapter, GP070-CN10-0



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



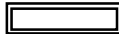
- When making your own cable connections



**2.18.3 Supported Devices**

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

**KZ-300/KZ-350 Series**

 Set up System Area here.

| Device                  | Bit Address  | Word Address    | Particulars |
|-------------------------|--------------|-----------------|-------------|
| Input Relay             | 0000 ~ 0009  | 00 ~ 00         | L/H         |
|                         | 7000 ~ 17415 | 70 ~ 174        |             |
| Output Relay            | 0500 ~ 0503  | 05 ~ 05         |             |
|                         | 7500 ~ 17915 | 75 ~ 179        |             |
| Help Relay              | 0504 ~ 0915  | ---             |             |
| Internal Help Relay     | 1000 ~ 6915  | 10 ~ 69         |             |
| Special Help Relay      | 2000 ~ 2915  | 20 ~ 29         |             |
| Timer (contact)         | T000 ~ T249  | ---             |             |
| Counter (contact)       | C000 ~ C249  | ---             |             |
| Timer (current value)   | ---          | T000 ~ T249     |             |
| Counter (current value) | ---          | C000 ~ C249     |             |
| Data Memory             | ---          | DM0000 ~ DM9999 | Bit 5       |
| Temporary Data Memory   | ---          | TM00 ~ TM31     | Bit 5       |

\* 1 Address numbers \*000~\*400 are available for the bit device addresses, and \*0~\*4 are available for the word addresses displayed.

| Bit Address              | Word Address |
|--------------------------|--------------|
| addr 7000                | 70           |
| addr 7001 to addr 7400   | 71 to 74     |
| addr 8000                | 80           |
| addr 8100 to addr 8400   | 81 to 84     |
| addr 17000 to addr 17400 | 170 to 174   |

\* 2 Address numbers \*500~\*900 are available for the bit device addresses, and \*5~\*9 are available for the word addresses displayed.

| Bit Address              | Word Address |
|--------------------------|--------------|
| addr 7500                | 75           |
| addr 7600 to addr 7900   | 76 to 79     |
| addr 8500                | 85           |
| addr 8600 to addr 8900   | 86 to 89     |
| addr 17500 to addr 17900 | 175 to 179   |

■ **KZ-A500** (CPU Direct Connection)

Set up System Area here.

| Device                  | Bit Address     | Word Address    | Particulars |     |
|-------------------------|-----------------|-----------------|-------------|-----|
| Input Relay             | X0000 ~ X07FF   | X0000 ~ X07F0   |             | L/H |
| Output Relay            | Y0000 ~ Y07FF   | Y0000 ~ Y07F0   |             |     |
| Internal Relay          | M0000 ~ M8191   | M000 ~ M8176    |             |     |
| Latch Relay             | L0000 ~ L8191   | ---             |             |     |
| Special Relay           | M9000 ~ M9255   | M9000 ~ M9240   |             |     |
| Annunciator             | F0000 ~ F2047   | F0000 ~ F2032   |             |     |
| Link Relay              | B0000 ~ B0FFF   | ---             |             |     |
| Timer (contact)         | TS0000 ~ TS2047 | ---             |             |     |
| Timer (coil)            | TC0000 ~ TC2047 | ---             |             |     |
| Counter (contact)       | CS0000 ~ CS1023 | ---             |             |     |
| Counter (coil)          | CC0000 ~ CC1023 | ---             |             |     |
| Timer (current value)   | ---             | TN0000 ~ TN2047 |             |     |
| Counter (current value) | ---             | CN0000 ~ CN1023 |             |     |
| Data Register           | ---             | D0000 ~ D6143   |             |     |
| Special Register        | ---             | D9000 ~ D9255   |             |     |
| Link Register           | ---             | W0000 ~ W0FFF   |             |     |
| File Register           | ---             | R0000 ~ R8191   |             |     |

■ **KZ-A500** (using Link I/F)

Set up System Area here.

| Device                  | Bit Address     | Word Address    | Particulars                        | L/H |
|-------------------------|-----------------|-----------------|------------------------------------|-----|
| Input Relay             | X0000 - X07FF   | X0000 - X07F0   | <input type="text" value="***0"/>  |     |
| Output Relay            | Y0000 - Y07FF   | Y0000 - Y07F0   | <input type="text" value="***0"/>  |     |
| Internal Relay          | M0000 - M8191   | M0000 - M8176   | <input type="text" value="÷16"/>   |     |
| Latch Relay             | L0000 - L8191   | L0000 - L8176   | <input type="text" value="÷16"/>   |     |
| Link Relay              | B0000 - B0FFF   | —————           |                                    |     |
| Annunciator Relay       | F0000 - F2047   | F0000 - F2032   | <input type="text" value="÷16"/>   |     |
| Special Relay           | M9000 - M9255   | M9000 - M9240   | <input type="text" value="÷16"/>   |     |
| Timer (connect)         | TS0000 - TS2047 | —————           |                                    |     |
| Timer (coil)            | TC0000 - TC2047 | —————           |                                    |     |
| Counter (connect)       | CS0000 - CS1023 | —————           |                                    |     |
| Counter (coil)          | CC0000 - CC1023 | —————           |                                    |     |
| Timer (current value)   | —————           | TN0000 - TN2047 |                                    |     |
| Counter (current value) | —————           | CN0000 - CN1023 |                                    |     |
| Data Register           | —————           | D0000 - D6143   | <input type="text" value="Bit15"/> |     |
| Link Register           | —————           | W0000 - W0FFF   | <input type="text" value="BitF"/>  |     |
| File Register           | —————           | R0000 - R8191   | <input type="text" value="Bit15"/> |     |
| Special Register        | —————           | D9000 - D9255   | <input type="text" value="Bit15"/> |     |

■ KV Series (KV-10/KV-16/KV-24/KV-40)

Set up System Area here.

| Device                                       | Bit Address   | Word Address    | Particulars |                                    |
|--|---------------|-----------------|-------------|------------------------------------|
| Input/Output Relay                           | 00000 ~ 00915 | 000 ~ 009       | L/H         |                                    |
|  | 07000 ~ 17915 | 070 ~ 179       |             |                                    |
| Internal AUX Relay                           | 01000 ~ 01915 | 010 ~ 019       |             |                                    |
|  | 03000 ~ 06915 | 030 ~ 069       |             |                                    |
| Special AUX Relay                            | 02000 ~ 02915 | 020 ~ 029       |             | *1                                 |
| Timer (contact)                              | T000 ~ T249   | —————           |             |                                    |
| Counter (contact)                            | C000 ~ C249   | —————           |             |                                    |
| High-Speed Counter<br>Comparator (contact)   | CTC0 ~ CTC3   | —————           |             | *2                                 |
| Timer (set value)                            | —————         | TS000 ~ TS249   |             |                                    |
| Counter (set value)                          | —————         | CS000 ~ CS249   |             |                                    |
| Timer (current value)                        | —————         | TC000 ~ TC249   |             |                                    |
| Counter (current value)                      | —————         | CC000 ~ CC249   |             |                                    |
| Data Memory                                  | —————         | DM0000 ~ DM1999 |             | <input type="text" value="Bit 5"/> |
| Temporary Data Memory                        | —————         | TM00 ~ TM31     |             | <input type="text" value="Bit 5"/> |
| Digital Trimmer                              | —————         | AT0 ~ AT1       |             | *2                                 |
| High-Speed Counter<br>(current value)        | —————         | CTH0 ~ CTH1     |             |                                    |
| High-Speed Counter<br>Comparator (set value) | —————         | CTC0 ~ CTC3     |             |                                    |

\*1 Some addresses are not available for writes.

\*2 Not available for writes

■ KV-700 Series (using the KZ-300 series protocol)


     Set up System Area here.







| Device  | Bit Address   | Word Address    | Particulars  |
|---|---------------|-----------------|--|
| Input Relay                                       | 00000 ~ 00009 | 000 ~ 000       | *1   |
| Output Relay                                      | 00500 ~ 00503 | 005 ~ 005       |  |
| Internal AUX Relay                                | 00504 ~ 00915 | 005 ~ 009       |  |
| Extended Input/Output Relay<br>Internal AUX Relay | 01000 ~ 59915 | 010 ~ 599       |  |
| Control Relay                                     | 60000 ~ 63915 | 600 ~ 639       | *2   |
| Timer (contact)                                   | T000 ~ T511   | _____           | *3   |
| Counter (contact)                                 | C000 ~ C511   | _____           | *3   |
| Timer (current value)                             | _____         | T000 ~ T511     | *3   |
| Counter (current value)                           | _____         | C000 ~ C511     | *3   |
| Data Memory                                       | _____         | DM0000 ~ DM9999 | <span style="border: 1px solid black; padding: 2px;">Bit 5</span> *4 |
| Temporary Data Memory                             | _____         | TM000 ~ TM511   | <span style="border: 1px solid black; padding: 2px;">Bit 5</span>    |
| Control Memory                                    | _____         | TM0520 ~ TM4519 | <span style="border: 1px solid black; padding: 2px;">Bit 5</span> *5 |

L/H

- \*1 PLC or GP data writing is not possible.
- \*2 GP cannot write data to any address.
- \*3 Only available when the timer command and the counter command exist in the ladder program.
- \*4 The device range for the PLC is between DM0000 and DM19999, but addresses up to DM9999 are only accessible to the GP.
- \*5 Some addresses are not available for writes.

■ KV-700 Series (using the KZ-A500 (link) protocol)

 Set up System Area here.

| Device                                  | Bit Address   | Word Address    | Particulars   |
|---|---------------|-----------------|---|
| Input Relay                             | X000 ~ X009   | X00 ~ X00       |  *1*2  |
| Output Relay                            | X050 ~ X053   | X05 ~ X05       |  *2    |
| Internal AUX Relay                      | X054 ~ X09F   | X05 ~ X09       |  *2    |
| Control Relay                           | M0000 ~ M3915 | M0000 ~ M3904   |  *3*4  |
| Timer (contact)                         | TS000 ~ TS511 | —————           | *5  |
| Counter (contact)                       | CS000 ~ CS511 | —————           | *5  |
| High-Speed Counter Comparator (contact) | CS512 ~ CS515 | —————           | *5*6  |
| Timer (current value)                   | —————         | TN000 ~ TN511   | *5  |
| Counter (current value)                 | —————         | CN000 ~ CN511   | *5  |
| High-Speed Counter (current value)      | —————         | CN512 ~ CN513   | *5  |
| Data Memory                             | —————         | D00000 ~ D19999 |  *7*8  |
| Control Memory                          | —————         | D50000 ~ D53999 |  *7*3 |

L/H

- \*1 PLC or GP data writing are not available for writes.
- \*2 Addresses must be specified using hexadecimal numbers.
- \*3 Some addresses are not available for writes.
- \*4 For addresses, only multiples of 16 may be specified.
- \*5 Only available when the timer command, the counter command, and the high-speed timer command exist in the ladder program.
- \*6 GP cannot write data to any address.
- \*7 Even if the file registers are registered as R50000 to R539999, similar device addresses can be used, e.g., R51111 = D51111.

■ KV-700 Series (CPU Direct Connection)

Set up System Area here.

| Device                                       | Bit Address   | Word Address    | Particulars   |
|--|---------------|-----------------|---|
| Input/Output Relay                           | 00000-59915   | 000-599         |   |
| Internal AUX Relay                           |               |                 |   |
| Control Relay                                | CR0000-CR3915 | CR00-CR39       |   |
| Timer (contact)                              | T000-T511     | —————           |   |
| Counter (contact)                            | C000-C511     | —————           |   |
| High-Speed Counter<br>Comparator (contact)   | CTC0-CTC3     | —————           | *1  |
| Timer (set value)                            | —————         | TS000-TS511     | *2  |
| Counter (set value)                          | —————         | CS000-CS511     | *2  |
| Timer (current value)                        | —————         | TC000-TC511     | *2  |
| Counter (current value)                      | —————         | CC000-CC511     | *2  |
| Data Memory                                  | —————         | DM00000-DM39999 | <span style="border: 1px solid black; padding: 2px;">Bit 5</span> |
| Temporary Data Memory                        | —————         | TM000-TM511     | <span style="border: 1px solid black; padding: 2px;">Bit 5</span> |
| Control Memory                               | —————         | CM0000-CM3999   | <span style="border: 1px solid black; padding: 2px;">Bit 5</span> |
| Digital Trimmer                              | —————         | TRM0-TRM7       | *2  |
| High-Speed Counter<br>(current value)        | —————         | CTH0-CTH1       | *2  |
| High-Speed Counter<br>Comparator (set value) | —————         | CTC0-CTC3       | *2  |

L/H

\*1 Not available for writes.

\*2 32-bit device



**2.18.4 Environment Setup**

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

**■ KZ-300/KZ-350 Series**

| GP Setup                       |             | PC Link Unit Setup                           |           |
|--------------------------------|-------------|--|-----------|
| Baud Rate                      | 19200 bps   | Baud Rate                                    | 19200 bps |
| Data Length                    | 7 bits      | Data Bit                                     | 7 bits    |
| Stop Bit                       | 2 bits      | Stop Bit                                     | 2 bits    |
| Parity Bit                     | Even        | Parity Bit                                   | Even      |
| Data Flow Control              | ER Control  | ---  |           |
| Communication Format (RS-232C) | RS-232C     | Port 2 Toggle Switch (RS-232C) <sup>*1</sup> | RS-232C   |
| Communication Format (RS-422)  | 4-wire type | Port 2 Toggle Switch (RS-422) <sup>*1</sup>  | RS-422A   |
| ---                            |             | RUN Mode                                     | Link Mode |
| Unit No.                       | 0           | Station Number                               | 0         |

*\*1 Setup not necessary when using Port1.*

**■ KZ-A500 (CPU Direct Connection)**

| GP Setup                       |                | PLC Setup |
|--------------------------------|----------------|-----------|
| Baud Rate                      | 9600 bps       | ---       |
| Data Length                    | 8 bits (fixed) | ---       |
| Stop Bit                       | 1 bit (fixed)  | ---       |
| Parity Bit                     | Odd (fixed)    | ---       |
| Data Flow Control              | ER Control     | ---       |
| Communication Format (RS-232C) | RS-232C        | ---       |
| Unit No.                       | 0 (fixed)      | ---       |

**Effect of PLC program on cycle time**



**If the KZ-A500 is connected directly to the CPU, the cycle time of the PLC program is delayed by about 8% after communication with the GP begins.**

■ **KZ-A500** (using Link I/F)

| GP Setup                       |                        | PLC Setup                       |                                |
|--------------------------------|------------------------|---------------------------------|--------------------------------|
| Baud Rate                      | 19200bps <sup>*1</sup> | Baud Rate                       | 19200bps                       |
| Data Length                    | 7                      | Data Length                     | 7                              |
| Stop Bit                       | 1                      | Stop Bit                        | 1                              |
| Parity Bit                     | None                   | Parity Bit                      | None                           |
| Data Flow Control              | ER                     | _____                           | _____                          |
| Communication Format (RS-232C) | RS-232C                | RS-232C Communication Port      | Port 1 or Port 2 <sup>*2</sup> |
| Communication Format (RS-422)  | 4-Wire Type            | RS-422 Communication Port       | Port 2 <sup>*3</sup>           |
| _____                          | _____                  | Communication Type              | Normal                         |
| _____                          | _____                  | Changing device data during RUN | Possible                       |
| _____                          | _____                  | Checksum                        | Yes                            |
| _____                          | _____                  | Operation Mode                  | Protocol Mode 4                |
| Unit No.                       | 0                      | STATION No.                     | 0                              |

\*1 The maximum baud rate is 38400bps.

\*2 When using an RS-232C cable on port 2, be sure to set the INTERFACE switch to “232C”(right side setting.) Also, set the TERMINATOR switch to OFF, since it will not be used.

\*3 When using an RS-422 cable, set the INTERFACE switch to “422”(left side setting,) and the TERMINATOR switch to ON.

■ **KV/KV-700 Series** (CPU Direct Connection)

| GP Setup             |                | PLC Setup |       |
|----------------------|----------------|-----------|-------|
| Baud Rate            | 19200bps       | _____     | _____ |
| Data Length          | 8 bits (fixed) | _____     | _____ |
| Stop Bit             | 1 bit (fixed)  | _____     | _____ |
| Parity Bit           | Even (fixed)   | _____     | _____ |
| Data Flow Control    | ER Control     | _____     | _____ |
| Communication Format | RS-232C        | _____     | _____ |
| Unit No.             | 0              | _____     | _____ |



- The baud rate can be from 9600 to 57600 bps.
- The PLC requires no setup due to its automatic recognition of settings.

■ **KZ-700 Series** (using the KZ-300 series protocol)

| GP Setup                       |                        | PLC Setup                            |               |
|--------------------------------|------------------------|--------------------------------------|---------------|
| Baud Rate                      | 19200bps <sup>*1</sup> | Baud Rate                            | 19200bps      |
| Data Length                    | 7 bits                 | Data Length                          | 7 bits        |
| Stop Bit                       | 2 bits                 | Stop Bit                             | 2 bits        |
| Parity Bit                     | Even                   | Parity Bit                           | Even          |
| Data Flow Control              | ER Control             | RS, CS Flow Control                  | No            |
| Communication Format (RS-232C) | RS-232C                | Communication Port 1                 | Fixed to 232C |
|                                |                        | Communication Port 2 Selector Switch | 232C          |
| Communication Format (RS-422)  | 4-Wire Type            | Communication Port 2 Selector Switch | 422A          |
| —————                          |                        | Operation Mode                       | Link Mode     |
| Unit No.                       | 0                      | Station No.                          | 0             |

*\*1 The maximum baud rate is 115,200 bps.*

■ **KZ-700 Series** (using the KZ-A500 series protocol)

| GP Setup                       |                        | PLC Setup                            |                 |
|--------------------------------|------------------------|--------------------------------------|-----------------|
| Baud Rate                      | 19200bps <sup>*1</sup> | Baud Rate                            | 19200bps        |
| Data Length                    | 7 bits                 | Data Length                          | 7 bits          |
| Stop Bit                       | 2 bits                 | Stop Bit                             | 2 bits          |
| Parity Bit                     | None                   | Parity Bit                           | None            |
| Data Flow Control              | ER Control             | —————                                |                 |
| Communication Format (RS-232C) | RS-232C                | Communication Port 1                 | Fixed to 232C   |
|                                |                        | Communication Port 2 Selector Switch | 232C            |
| Communication Format (RS-422)  | 4-Wire Type            | Communication Port 2 Selector Switch | 422A            |
| —————                          |                        | Operation Mode                       | Protocol Mode 4 |
| —————                          |                        | Checksum                             | Yes             |
| Unit No.                       | 0                      | Station No.                          | 0               |

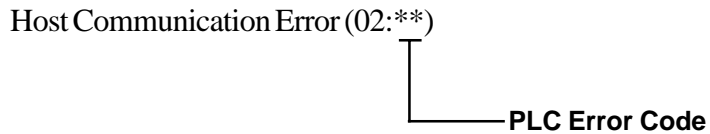
*\*1 The maximum baud rate is 115,200 bps.*

**2.18.5 Error Codes**

**■ PLC Error Codes**

**◆ KV/KV-700 Series (CPU Direct Connection)**

Controller error codes are represented by the "Host communication error (02:\*\*)", and indicated in the left lower corner of the GP screen. (\*\* stands for an error code.)



| Error Code | Description  |
|------------|--|
| 02         | Occurs when you write to a device that cannot be written to. (High Speed Counter Comparator (contact)) |
| 04         | Occurs when the PLC uses an unsupported baud rate to send data.  |
| 31         | Occurs when an undefined device is accessed. <sup>*1</sup>   |

**\*1 When writing to a Timer (contact/current value/set value), Counter (contact/current value/set value), High Speed Counter, High Speed Counter Comparator (set value), these values must be set in advance using a Ladder Program.**



## A1

### Maximum Number of Consecutive PLC Addresses

The following lists the maximum number of consecutive addresses that can be read by each PLC. Refer to these tables to utilize *Block Transfer*.

#### KV-700 Series (CPU Direct Connection)

| Device                                    | Max No. of Consecutive Address |
|---|--------------------------------|
| Input/Output Relay                        | 124 Words                      |
| Internal AUX Relay                        |                                |
| Control Relay                             | 40 Words                       |
| Timer (contact)                           | 28 Bits                        |
| Counter (contact)                         |                                |
| High-Speed Counter Comparator (contact)   | 4 Bits                         |
| Timer (set value)                         | 124 Words                      |
| Counter (set value)                       |                                |
| Timer (current value)                     |                                |
| Counter (current value)                   |                                |
| Data Memory                               |                                |
| Temporary Data Memory                     |                                |
| Control Memory                            | 40 Words                       |
| Digital Trimmer                           | 16 Words                       |
| High-Speed Counter (current value)        | 4 Words                        |
| High-Speed Counter Comparator (set value) | 8 Words                        |

## A2

## Device Codes and Address Codes

Device codes and address codes are used to specify indirect addresses for E-tags and K-tags.

## KV-700 Series (CPU Direct Connection)

|             | Device                                    | Word Address | Device Code | Address Code        |
|-------------|---|--------------|-------------|---------------------|
| Bit Device  | Input/Output Relay                        | 0000 ~       | 9000        | Word Address        |
|             | Internal AUX Relay                        |              |             |                     |
|             | Control Relay                             | CR000 ~      | 9200        |                     |
| Word Device | Timer (set value)                         | TS000 ~      | 6000        | Double Word Address |
|             | Counter (set value)                       | CS000 ~      | 7000        | Double Word Address |
|             | Timer (current value)                     | TC000 ~      | 6800        | Double Word Address |
|             | Counter (current value)                   | CC000 ~      | 7800        | Double Word Address |
|             | Data Memory                               | DM0000 ~     | 0000        | Word Address        |
|             | Temporary Data Memory                     | TM00 ~       | 4800        | Word Address        |
|             | Control Memory                            | CM0000 ~     | 3800        | Word Address        |
|             | Digital Trimmer                           | TRM0 ~       | 5800        | Double Word Address |
|             | High-Speed Counter (current value)        | CTH0 ~       | 2000        | Double Word Address |
|             | High-Speed Counter Comparator (set value) | CTC0 ~       | 1000        | Double Word Address |
|             | LS area                                   | LS0000 ~     | 4000        | Word Address        |