

# 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.

## A

## Rockwell (Allen-Bradley)

## A.1

## Maximum Number of Consecutive Device Address

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



**Note:** When the device is setup using the methods below, the Data Communication Speed declines by the number of times the device is read.

- When consecutive addresses exceed the maximum data number range
- When an address is designated for *division*
- When device types are different

To speed up data communication, plan the tag layout in screen units, as consecutive devices. (Includes the Alarm and Trend screens.)

## ■ PLCs

## &lt;SLC 500 Series&gt;

| Device                       | Max. No. of Consecutive Address |
|------------------------------|---------------------------------|
| Output                       | 118 words                       |
| Input                        |                                 |
| Bit                          |                                 |
| Timer(TT : Timing Bit)       | 1 word                          |
| Timer(DN : Complete Bit)     |                                 |
| Timer(PRE : Setup Value)     |                                 |
| Timer(ACC : Current Value)   |                                 |
| Counter(CU : Up Count)       |                                 |
| Counter(CD : Down Count)     |                                 |
| Counter(DN : Complete Bit)   |                                 |
| Counter(PRE : Setup Value)   |                                 |
| Counter(ACC : Current Value) |                                 |
| Control (EN : Enable)        |                                 |
| Control (EU : Enable Unload) |                                 |
| Control (DN : Done)          |                                 |
| Control (EM : Empty)         |                                 |
| Control (ER : Error)         |                                 |
| Control (UL : Unload)        |                                 |
| Control (IN : Inhibit Comp.) |                                 |
| Control (FD : Found)         |                                 |
| Status                       | 118 words                       |
| Integer                      |                                 |
| Floating Point               |                                 |
| ASCII                        |                                 |
| Long Word                    | 41 words                        |
| String                       |                                 |

## &lt;PLC-5 Series&gt;

| Device              | Max. No. of Consecutive Address |
|---------------------|---------------------------------|
| Input Relay I       | 64 Words                        |
| Output Relay O      |                                 |
| Internal Relay B    |                                 |
| Data Register N/D/A |                                 |
| Timer TP/TA         | 40 Words                        |
| Counter CP/CA       |                                 |
| Timer TT/TN         |                                 |
| Counter CU/CD       |                                 |

## &lt;SLC 500 DH485&gt;

| Device  | Max. No. of Consecutive Address |
|---------|---------------------------------|
| Status  | 40 Words                        |
| Bit     |                                 |
| Timer   |                                 |
| Counter |                                 |
| Control |                                 |
| Integer |                                 |

## &lt;DH Plus&gt;

| Device  | Max. No. of<br>Consecutive Address |
|---------|------------------------------------|
| Output  | 50 Words                           |
| Input   |                                    |
| Status  |                                    |
| Bit     |                                    |
| Timer   |                                    |
| Counter |                                    |
| Control |                                    |
| Integer |                                    |
| Float   |                                    |
| Ascii   |                                    |

## &lt;Control Logix5000 Series&gt;

| Device                | Max No. of<br>Consecutive Address |
|-----------------------|-----------------------------------|
| Bit (BOOL)            | 122 Words                         |
| 8 bit integer (SINT)  |                                   |
| 16 bit integer (INT)  |                                   |
| 32 bit integer (DINT) |                                   |
| 32 bit float (REAL)   |                                   |

# ◆ Ethernet Communication

<SLC500 Series>

| Device                      | Max. No. of<br>Consecutive Address |
|-----------------------------|------------------------------------|
| Bit                         | 126 words                          |
| Timer(TT : Timing Bit)      | 42 words                           |
| Timer(DN : Complete Bit)    |                                    |
| Timer(EN : Enable)          |                                    |
| Timer(PRE : Setup Value)    |                                    |
| Timer(ACC : Current Value)  |                                    |
| Counter(CU : Up Count)      |                                    |
| Counter(CD : Down Count)    |                                    |
| Counter(DN : Complete Bit)  |                                    |
| Counter(OV : Overflow)      |                                    |
| Counter(UN : Underflow)     |                                    |
| Counter(UA : Update)        |                                    |
| Counter(PRE : Setup Value)  |                                    |
| Counter(ACC : Current Valu) |                                    |
| Control (DN : Complete Bit) |                                    |
| Control (EN : Enable)       |                                    |
| Control (ER : Error)        |                                    |
| Control (UL : Unload)       |                                    |
| Control (IN : In Hight Bit) |                                    |
| Control (FD : Found)        |                                    |
| Control (LEN : Length)      |                                    |
| Control (EU:Unload Enabled) |                                    |
| Control (EM:Empty Stack)    |                                    |
| Control (POS : Position)    |                                    |
| Integer                     | 126 words                          |
| Floating Decimal Point      | 63 words                           |

**A.2****Device Codes and Address Codes**

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

The word addresses of data to be displayed are coded and stored in the word address specified by the E-tags and K-tags. (Code storage is done either by the PLC, or with T-tag and K-tags)

**■ PLCs**

<SLC500 Series>

|             | Device                       | Word Address | Device code (HEX) | Address code                                                                                                                               |
|-------------|------------------------------|--------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Bit Device  | Output                       | O:0.0~       | 8A00              | Upper two digits: 00<br>Lower two digits:<br>Value that "Element" is indicated in HEX.                                                     |
|             | Input                        | I:0.0~       | 8200              | Upper two digits: 00<br>Lower two digits:<br>Value that "Element" is indicated in HEX.                                                     |
|             | Bit                          | B3:0~        | 9000              | Upper two digits:<br>Value of "File number minus 3" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Status                       | S2:0~        | 9800              | Upper two digits:<br>Value of "File number minus 2" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
| Word Device | Timer (PRE: set value)       | T4:0.PRE~    | 6800              | Upper two digits:<br>Value of "File number minus 4" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Timer (ACC: current value)   | T4:0.ACC~    | 6000              | Upper two digits:<br>Value of "File number minus 4" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Counter (PRE: set value)     | C5:0.PRE~    | 7800              | Upper two digits:<br>Value of "File number minus 5" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Counter (ACC: current value) | C5:0.ACC~    | 7000              | Upper two digits:<br>Value of "File number minus 5" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Integer                      | N7:0~        | 0000              | Upper two digits:<br>Value of "File number minus 7" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Floating point               | F8:0~        | 2000              | Upper two digits:<br>Value of "File number minus 8" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |

|             | Device    | Word Address | Device code (HEX) | Address code                                                                                                                               |
|-------------|-----------|--------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Word Device | String    | ST9:0~       | 1000              | Upper two digits:<br>Value of "File number minus 9" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | Long Word | L9:0~        | 2E00              | Upper two digits:<br>Value of "File number minus 9" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | ASCII     | A9:0~        | 3000              | Upper two digits:<br>Value of "File number minus 9" is indicated in HEX.<br>Lower two digits:<br>Value that "Element" is indicated in HEX. |
|             | LS area   | LS0000~      | 4000              | Word Address                                                                                                                               |

\* The address codes are as follows:

Ex. N 23 : 255



Element  
File Number

Address code

Upper two digits: 23-7=16 (DEC) -> 10 (HEX)

Lower two digits: 255 (DEC) -> FF (HEX)

Address code is 10FF.

## &lt;PLC-5 Series&gt;

|             | Device                       | Word Address | Device code (HEX) | Address code                           |
|-------------|------------------------------|--------------|-------------------|----------------------------------------|
| Bit Device  | Input Relay                  | I000~        | 8040              | Word Address                           |
|             | Output Relay                 | O000~        | 8840              | Word Address                           |
|             | Internal Relay               | B3000~       | 9040              | Save as word address value minus 3000. |
| Word Device | Timer (ACC: current value)   | TA3000~      | 6000              | Save as word address value minus 3000. |
|             | Timer (PRE: set value)       | TP3000~      | 6800              | Save as word address value minus 3000. |
|             | Counter (ACC: current value) | CA3000~      | 7000              | Save as word address value minus 3000. |
|             | Counter (PRE: set value)     | CP3000~      | 7800              | Save as word address value minus 3000. |
|             | Data Register Integer        | N3000~       | 0040              | Save as word address value minus 3000. |
|             | Data Register BCD            | D3000~       | 0240              | Save as word address value minus 3000. |
|             | Data Register ASCII          | A3000~       | 0440              | Save as word address value minus 3000. |
|             | LS area                      | LS0000~      | 4040              | Word Address                           |

## &lt;Control Logix5000 Series&gt;

|             | Device               | Word Address | Device Code | Address Code        |
|-------------|----------------------|--------------|-------------|---------------------|
| Bit Device  | Bit (BOOL)           | BOOL000000~  | 8000        | Double Word Address |
|             |                      | BOOL065000~  | 8200        |                     |
|             |                      | BOOL130000~  | 8400        |                     |
|             |                      | BOOL195000~  | 8600        |                     |
|             |                      | BOOL260000~  | 8800        |                     |
|             |                      | BOOL325000~  | 8A00        |                     |
|             |                      | BOOL390000~  | 8C00        |                     |
|             |                      | BOOL455000~  | 8E00        |                     |
|             |                      | BOOL520000~  | 9000        |                     |
|             |                      | BOOL585000~  | 9200        |                     |
|             |                      | BOOL650000~  | 9400        |                     |
|             |                      | BOOL715000~  | 9600        |                     |
|             |                      | BOOL780000~  | 9800        |                     |
|             |                      | BOOL845000~  | 9A00        |                     |
|             |                      | BOOL910000~  | 9C00        |                     |
|             |                      | BOOL975000~  | 9E00        |                     |
| Word Device | 8 bit integer (SINT) | SINT000000~  | 4C00        | Word Address        |
|             |                      | SINT100000~  | 4E00        |                     |
|             |                      | SINT200000~  | 5000        |                     |
|             |                      | SINT300000~  | 5200        |                     |
|             |                      | SINT400000~  | 5400        |                     |
|             |                      | SINT500000~  | 5600        |                     |
|             |                      | SINT600000~  | 5800        |                     |
|             |                      | SINT700000~  | 5A00        |                     |
|             |                      | SINT800000~  | 5C00        |                     |
|             |                      | SINT900000~  | 5E00        |                     |

|             | Device                | Word Address | Device Code | Address Code        |
|-------------|-----------------------|--------------|-------------|---------------------|
| Word Device | 16 bit integer (INT)  | INT000000~   | 0000        | Word Address        |
|             |                       | INT065000~   | 0200        |                     |
|             |                       | INT130000~   | 0400        |                     |
|             |                       | INT195000~   | 0600        |                     |
|             |                       | INT260000~   | 0800        |                     |
|             |                       | INT325000~   | 0A00        |                     |
|             |                       | INT390000~   | 0C00        |                     |
|             |                       | INT455000~   | 0E00        |                     |
|             |                       | INT520000~   | 1000        |                     |
|             |                       | INT585000~   | 1200        |                     |
|             |                       | INT650000~   | 1400        |                     |
|             |                       | INT715000~   | 1600        |                     |
|             |                       | INT780000~   | 1800        |                     |
|             |                       | INT845000~   | 1A00        |                     |
|             |                       | INT910000~   | 1C00        |                     |
|             |                       | INT975000~   | 1E00        |                     |
|             | 32 bit integer (DINT) | DINT000000~  | 2000        | Double Word Address |
|             |                       | DINT065000~  | 2200        |                     |
|             |                       | DINT130000~  | 2400        |                     |
|             |                       | DINT195000~  | 2600        |                     |
|             |                       | DINT260000~  | 2800        |                     |
|             |                       | DINT325000~  | 2A00        |                     |
|             |                       | DINT390000~  | 2C00        |                     |
|             |                       | DINT455000~  | 2E00        |                     |
|             |                       | DINT520000~  | 3000        |                     |
|             |                       | DINT585000~  | 3200        |                     |
|             |                       | DINT650000~  | 3400        |                     |
|             |                       | DINT715000~  | 3600        |                     |
|             |                       | DINT780000~  | 3800        |                     |
|             |                       | DINT845000~  | 3A00        |                     |
|             |                       | DINT910000~  | 3C00        |                     |
|             |                       | DINT975000~  | 3E00        |                     |
|             | 32 bit float (REAL)   | REAL000000~  | 6000        | Double Word Address |
|             |                       | REAL065000~  | 6200        |                     |
|             |                       | REAL130000~  | 6400        |                     |
|             |                       | REAL195000~  | 6600        |                     |
|             |                       | REAL260000~  | 6800        |                     |
|             |                       | REAL325000~  | 6A00        |                     |
|             |                       | REAL390000~  | 6C00        |                     |
|             |                       | REAL455000~  | 6E00        |                     |
|             |                       | REAL520000~  | 7000        |                     |
|             |                       | REAL585000~  | 7200        |                     |
|             |                       | REAL650000~  | 7400        |                     |
|             |                       | REAL715000~  | 7600        |                     |
|             |                       | REAL780000~  | 7800        |                     |
|             |                       | REAL845000~  | 7A00        |                     |
|             |                       | REAL910000~  | 7C00        |                     |
|             |                       | REAL975000~  | 7E00        |                     |
|             | LS area (LS)          | LS0000~      | 4000        | Word Address        |

◆ Ethernet Communication

<SLC500 Series/Control Logix 5000 Series>

E-tag or K-tag indirect addresses cannot be designated by a PLC unit on an Ethernet network.

◆ DeviceNet Communication

|             | Device  | Word Address | Device code<br>(HEX) | Address code |
|-------------|---------|--------------|----------------------|--------------|
| Word Device | LS area | LS0000 ~     | 4000                 | Word Address |