**Point**

Be careful when a large numerical value is used such as for the number of transfers. It delays the scan time.



# 1.2 Data Specification Method

The following table lists the types of data that can be used for instructions in CPU modules.

| Data | Classification |
|---|---|
| Bit data | Bit data |
| 16-bit data (word data) | 16-bit signed binary data |
| | 16-bit unsigned binary data |
| 32-bit data (double-word data) | 32-bit signed binary data |
| | 32-bit unsigned binary data |
| Real number data (floating-point data) | Single-precision real number data |
| BCD data | BCD 4-digit data |
| | BCD 8-digit data |
| String data | String |
| | Unicode character string |

## Device data

| Data type | Description | Specifiable device/constant*1 |
|---|---|---|
| Bit | Bit data can be handled.<br>☞ Page 26 Bit data | • Bit device<br>• Bit specification of word device |
| Word | Word data can be handled.<br>☞ Page 27 16-bit data (word data) | • Word device<br>• Digit specification of bit devices (K1 to K4)*2<br>• Decimal constant<br>• Hexadecimal constant |
| 16-bit signed binary | 16-bit data can be handled.<br>The value range varies depending on whether the value is signed or unsigned.<br>☞ Page 27 16-bit data (word data) | |
| 16-bit unsigned binary | | |
| Double word | Double-word data can be handled.<br>☞ Page 29 32-bit data (double word data) | • Word device<br>• Double-word device<br>• Digit specification of bit devices (K1 to K8)*2<br>• Decimal constant<br>• Hexadecimal constant |
| 32-bit signed binary | Two consecutive sets of 32-bit data or 16-bit data can be handled.<br>The value range varies depending on whether the value is signed or unsigned.<br>☞ Page 29 32-bit data (double word data) | |
| 32-bit unsigned binary | | |
| BCD 4-digit | BCD 4-digit data can be handled.<br>16-bit data is divided by 4 digits and each digit is specified in 0 to 9. | • Word device<br>• Digit specification of bit devices (K1 to K4)*2<br>• Decimal constant<br>• Hexadecimal constant |
| BCD 8-digit | BCD 8-digit data can be handled.<br>32-bit data is divided by 8 digits and each digit is specified in 0 to 9. | • Word device<br>• Double-word device<br>• Digit specification of bit devices (K1 to K8)*2<br>• Decimal constant<br>• Hexadecimal constant |
| Single-precision real number | Single-precision real number data (single-precision floating-point data) can be handled.<br>☞ Page 32 Configuration of single-precision real number data | • Word device<br>• Double-word device<br>• Real constant |
| Character string | ASCII code and Shift JIS code character string data can be handled.<br>☞ Page 33 Character string data | • Word device<br>• Character string constant |
| Unicode character string | Unicode character string data can be handled.<br>☞ Page 33 Character string data | • Word device<br>• Character string constant |
| Device name | A device can be directly specified. | Name of the relevant applicable device |

*1 A constant can be used in the data specified for the source (s) or numerical data (n) by an instruction.

*2 For the specification method, refer to the detail page of each data type.

## Label data

### ■Primitive data type

| Data type (label) | Specifiable label |
|---|---|
| Bit<br>(BOOL) | • Bit type label<br>• Bit-specified word [unsigned]/bit string [16 bits] type label<br>• Bit-specified word [signed] type label<br>• Timer/retentive timer type label contact/coil<br>• Counter/ long counter type label contact/coil |
| Word [unsigned]/bit string [16 bits]<br>(WORD) | • Word [unsigned]/bit string [16 bits] type label<br>• Digit specified bit type label (K1 to K4)<br>• Current value of timer/retentive timer type label<br>• Current value of counter type label |
| Double word [unsigned]/bit string [32 bits]<br>(DWORD) | • Double word [unsigned]/bit string [32 bits] type label<br>• Digit specified bit type label (K1 to K8)<br>• Current value of long counter type label |
| Word [signed]<br>(INT) | • Word [signed] type label<br>• Digit specified bit type label (K1 to K4)<br>• Current value of timer/retentive timer type label<br>• Current value of counter type label |
| Double word [signed]<br>(DINT) | • Double word [signed] type label<br>• Digit specified bit type label (K1 to K8)<br>• Current value of long counter type label |
| Single-precision real number<br>(REAL) | • Single-precision real data type label<br>• Digit specified bit type label (K1 to K8) |
| Time<br>(TIME) | • Time type label |
| Character string<br>(STRING) | • Character string type label<br>• Digit specified bit type label (K1 to K4) |
| Character string [Unicode]<br>(WSTRING) | • Character string [Unicode] type label |
| Timer<br>(TIMER) | • Timer type label |
| Retentive timer<br>(RETENTIVETIMER) | • Retentive timer type label |
| Counter<br>(COUNTER) | • Counter type label |
| Long counter<br>(LCOUNTER) | • Long counter type label |
| Pointer<br>(POINTER) | • Pointer type label |

## ■Generic data type

| Data type (label) | Specifiable label |
|---|---|
| ANY[*1] | Bit, word [signed], double word [signed], word [unsigned]/bit string [16 bits], double word [unsigned]/bit string[32 bits], single-precision real number, hour, character string, structure |
| ANY_BITADDR[*1] | Bit |
| ANY_BOOL | Bit |
| ANY_ELEMENTARY | Bit, word [signed], double word [signed], word [unsigned]/bit string [16 bits], double word [unsigned]/bit string[32 bits], single-precision real number, hour, character string |
| ANY_WORDADDR | Word [signed], double word [signed], word [unsigned]/bit string [16 bits], double word [unsigned]/bit string[32 bits], single-precision real number, hour, character string |
| Any 16-bit data (ANY16) | Word [signed], word [unsigned]/bit string [16 bits] |
| ANY16_S | Word [signed] |
| ANY16_U | Word [unsigned]/bit string [16 bits] |
| Any 32-bit data (ANY32) | Double word [signed], double word [unsigned]/bit string [32 bits], hour |
| ANY32_S | Double word [signed], hour |
| ANY32_U | Double word [unsigned]/bit string [32 bits] |
| ANY_REAL | Single-precision real number |
| ANYREAL_32 | Single-precision real number |
| ANY_STRING | Character string |
| ANYSTRING_SINGLE | Character string |
| ANYSTRING_DOUBLE | Character string [Unicode] |
| ANY_STRUCT[*1] | Structures |
| ANY_DT | Word [signed], word [unsigned]/bit string [16 bits] |
| ANY_TM | Word [signed], word [unsigned]/bit string [16 bits] |
| STRUCT | Structures |
| ANY16_OR_STRING_SINGLE | Word [signed], word [unsigned]/bit string [16 bits], character string |

*1 Can also be used as an array.

## ■Generic data type (array)

For the following generic data type, define the number of array elements.

| Data type (label) | Specifiable label |
|---|---|
| ANYBIT_ARRAY | Bit |
| ANYWORD_ARRAY | Word [signed], double word [signed], word [unsigned]/bit string [16 bits], double word [unsigned]/bit string[32 bits], single-precision real number, hour, character string |
| ANY16_ARRAY | Word [signed], word [unsigned]/bit string [16 bits] |
| ANY16_S_ARRAY | Word [signed] |
| ANY16_U_ARRAY | Word [unsigned]/bit string [16 bits] |
| ANY32_ARRAY | Double word [signed], double word [unsigned]/bit string [32 bits] |
| ANY32_S_ARRAY | Double word [signed] |
| ANY32_U_ARRAY | Double word [unsigned]/bit string [32 bits] |
| ANY_REAL_ARRAY | Single-precision real number |
| ANY_REAL_32_ARRAY | Single-precision real number |
| ANY_STRING_ARRAY | Character string |
| ANY_STRING_SINGLE_ARRAY | Character string |
| ANY_STRING_DOUBLE_ARRAY | Character string [Unicode] |
| STRUCT_ARRAY | Structures |