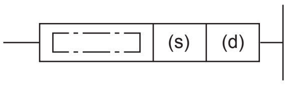
# Converting decimal ASCII to 32-bit binary data

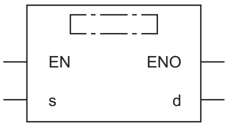
## DDABIN(P)(_U)

**FX5S** **FX5UJ** **FX5U** **FX5UC**

These instructions convert the decimal ASCII data in the device numbers specified by (s) and later to 32-bit binary data, and store the converted data in the device specified by (d).

| Ladder diagram | Structured text | |
|---|---|---|
|  | ENO:=DDABIN(EN,s,d);<br>ENO:=DDABINP(EN,s,d); | ENO:=DDABIN_U(EN,s,d);<br>ENO:=DDABINP_U(EN,s,d); |

**FBD/LD**



### Setting data

#### ■Descriptions, ranges, and data types

| Operand | | Description | Range | Data type | Data type (label) |
|---|---|---|---|---|---|
| (s) | | ASCII data or the head device where the ASCII data is stored | — | Character string | ANYSTRING_SINGLE |
| (d) | DDABIN(P) | Head device for storing the converted data | — | 32-bit signed binary | ANY32_S |
| | DDABIN(P)_U | | | 32-bit unsigned binary | ANY32_U |
| EN | | Execution condition | — | Bit | BOOL |
| ENO | | Execution result | — | Bit | BOOL |

#### ■Applicable devices

| Operand | Bit | Word | | | Double word | | Indirect specification | Constant | | | Others |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | X, Y, M, L, SM, F, B, SB, S | T, ST, C, D, W, SD, SW, R | U□\G□ | Z | LC | LZ | | K, H | E | $ | |
| (s) | — | ○[1] | — | — | — | — | ○ | — | — | ○ | — |
| (d) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | — | — | — |

[1] T, ST, and C cannot be used.

## Processing details

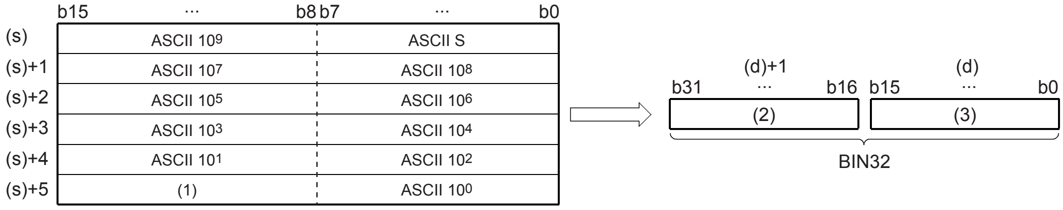
- These instructions convert the decimal ASCII data in the device numbers specified by (s) and later to 32-bit binary data, and store the converted data in the device specified by (d).
- The setting method of the decimal ASCII data to be set in (s) depends on the status of SM705 (Number of conversion digits selection).

| Status of SM705[*1] | Setting method of (s) | Reference |
|---|---|---|
| OFF | Set (s) with a fixed number of digits (a sign + 10 digits in the numeric part). | Page 357 Setting method of (s) for when SM705 (Number of conversion digits selection) is off |
| ON | Set (s) with a desired number of digits (maximum: a sign + 10 digits in the numeric part). | Page 358 Setting method of (s) for when SM705 (Number of conversion digits selection) is on |

[*1] For the firmware version of the CPU module supporting SM705, refer to the following.
📖 MELSEC iQ-F FX5 User's Manual (Application)
A CPU module which does not support SM705 operates in the same way as SM705 is off even if it is turned on.

### ■Setting method of (s) for when SM705 (Number of conversion digits selection) is off

Set decimal ASCII data with the fixed number of digits in (s) to (s)+5.



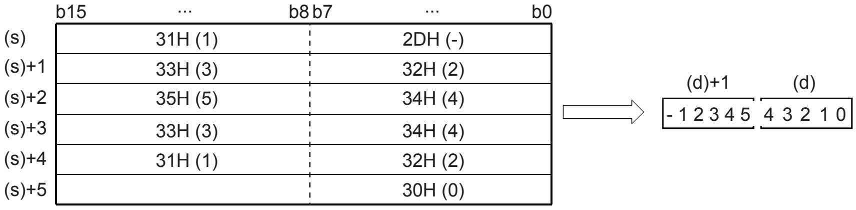
|  | b15 ··· b8 | b7 ··· b0 |
|---|---|---|
| (s) | ASCII $10^9$ | ASCII S |
| (s)+1 | ASCII $10^7$ | ASCII $10^8$ |
| (s)+2 | ASCII $10^5$ | ASCII $10^6$ |
| (s)+3 | ASCII $10^3$ | ASCII $10^4$ |
| (s)+4 | ASCII $10^1$ | ASCII $10^2$ |
| (s)+5 | (1) | ASCII $10^0$ |

ASCII S: ASCII code for sign
ASCII $10^0$: ASCII code for ones place
ASCII $10^1$: ASCII code for the tens place
ASCII $10^2$: ASCII code for the hundreds place
ASCII $10^3$: ASCII code for the thousands place
ASCII $10^4$: ASCII code for the ten-thousands place
ASCII $10^5$: ASCII code for the hundred-thousands place
ASCII $10^6$: ASCII code for the millions place
ASCII $10^7$: ASCII code for the ten-millions place
ASCII $10^8$: ASCII code for the hundred-millions place
ASCII $10^9$: ASCII code for the billions place
(1): Ignore
(2): Upper 16 bits
(3): Lower 16 bits

- The ASCII data in the device specified by (s) to (s)+5 is within the range from -2147483648 to +2147483647 when signed data is specified, and it is within the range from 0 to 4294967295 when unsigned data is specified. Any data stored in the upper byte of the device specified by (s)+5 is ignored.
- As signed data, set 20H if the ASCII data is positive, and set 2DH if the data is negative. (If a value other than 20H and 2DH is set, the data will be processed as positive data.)
- A value from 30H to 39H can be set in each place of ASCII code.
- If a value 20H or 00H is set in each place of ASCII code, the value will be processed as 30H.

Ex.

When the ASCII data, -1234543210 (signed), is specified by (s)



|  | b15 ··· b8 | b7 ··· b0 |
|---|---|---|
| (s) | 31H (1) | 2DH (-) |
| (s)+1 | 33H (3) | 32H (2) |
| (s)+2 | 35H (5) | 34H (4) |
| (s)+3 | 33H (3) | 34H (4) |
| (s)+4 | 31H (1) | 32H (2) |
| (s)+5 |  | 30H (0) |

### ■Setting method of (s) for when SM705 (Number of conversion digits selection) is on

Set decimal ASCII data with a desired number of digits (including 00H (NULL code)) in (s). Note that 00H (NULL code) is not required to be set if the integral part has the maximum number of digits (10 digits).

The following table lists the setting method of (s).

| Value to be set in (s) | Data of (s) to (s)+5 | Value to be set in (s) | Data of (s) to (s)+5 |
|---|---|---|---|
| • 0<br>• Positive value (1 digit in numeric part) | • Set 00H in the upper byte of (s).<br>• The data of (s)+1 or later is ignored.<br>b15 ··· b8 b7 ··· b0<br>(s): 00H ┆ ASCII $10^0$<br>(s)+1: ▨<br>(s)+2: ▨<br>(s)+3: ▨<br>(s)+4: ▨<br>(s)+5: ▨ | • Positive value (2 digits in numeric part)<br>• Negative value (1 digit in numeric part) | • Set 00H in the lower byte of (s)+1.<br>• The data of the upper byte of (s)+1 or later is ignored.<br>b15 ··· b8 b7 ··· b0<br>(s): ASCII $10^0$ ┆ ASCII $10^1$ / 2DH (-)<br>(s)+1: ▨ ┆ 00H<br>(s)+2: ▨<br>(s)+3: ▨<br>(s)+4: ▨<br>(s)+5: ▨ |
| ⋮ | | | |
| • Positive value (9 digits in numeric part)<br>• Negative value (8 digits in numeric part) | • Set 00H in the upper byte of (s)+4.<br>• (s)+5 is ignored.<br>b15 ··· b8 b7 ··· b0<br>(s): ASCII $10^7$ ┆ ASCII $10^8$ / 2DH (-)<br>(s)+1: ASCII $10^5$ ┆ ASCII $10^6$<br>(s)+2: ASCII $10^3$ ┆ ASCII $10^4$<br>(s)+3: ASCII $10^1$ ┆ ASCII $10^2$<br>(s)+4: 00H ┆ ASCII $10^0$<br>(s)+5: ▨ | • Negative value (9 digits in numeric part) | • Set 00H in the lower byte of (s)+5.<br>• The data of the upper byte of (s)+5 is ignored.<br>b15 ··· b8 b7 ··· b0<br>(s): ASCII $10^8$ ┆ 2DH (-)<br>(s)+1: ASCII $10^6$ ┆ ASCII $10^7$<br>(s)+2: ASCII $10^4$ ┆ ASCII $10^5$<br>(s)+3: ASCII $10^2$ ┆ ASCII $10^3$<br>(s)+4: ASCII $10^0$ ┆ ASCII $10^1$<br>(s)+5: ▨ ┆ 00H |
| • Positive value (10 digits in numeric part) | • (s)+5 is ignored. Since the number of digits is the maximum, 00H is not required to be set.<br>b15 ··· b8 b7 ··· b0<br>(s): ASCII $10^8$ ┆ ASCII $10^9$<br>(s)+1: ASCII $10^6$ ┆ ASCII $10^7$<br>(s)+2: ASCII $10^4$ ┆ ASCII $10^5$<br>(s)+3: ASCII $10^2$ ┆ ASCII $10^3$<br>(s)+4: ASCII $10^0$ ┆ ASCII $10^1$<br>(s)+5: ▨ ┆ ▨ | • Negative value (10 digits in numeric part) | • The data of the upper byte of (s)+5 is ignored. Since the number of digits is the maximum, 00H is not required to be set.<br>b15 ··· b8 b7 ··· b0<br>(s): ASCII $10^9$ ┆ 2DH (-)<br>(s)+1: ASCII $10^7$ ┆ ASCII $10^8$<br>(s)+2: ASCII $10^5$ ┆ ASCII $10^6$<br>(s)+3: ASCII $10^3$ ┆ ASCII $10^4$<br>(s)+4: ASCII $10^1$ ┆ ASCII $10^2$<br>(s)+5: ▨ ┆ ASCII $10^0$ |

ASCII $10^0$: ASCII code for the ones place

ASCII $10^1$: ASCII code for the tens place

⋮

ASCII $10^9$: ASCII code for the billions place

- The ASCII data in the device specified by (s) to (s)+5 is within the range from -2147483648 to 2147483647 when signed data is specified, and it is within the range from 0 to 4294967295 when unsigned data is specified.
- Set 2DH (-) to lower byte of (s)+0 as sign data when the ASCII data is negative. Set an ASCII code of the uppermost digit instead of setting sign data when the ASCII data is 0 or positive.
- A value from 30H to 39H can be set in each place of ASCII code.
- If the value is positive and the numeric part has 10 digits, the data stored in (s)+5 or later is ignored. If the value is negative and the numeric part has 10 digits, the data stored in the upper byte of (s)+5 or later is ignored.
- If a value 20H is set in each place of ASCII code, the value is processed as 30H. If a value 00H is set, the value is processed as the end of the decimal ASCII data.
- In the following cases, "0" is stored in (d).
  - The first character is 00H (NULL).
  - The first character is 2DH (-) and the second character is 00H (NULL).

## Operation error

| Error code (SD0/SD8067) | Description |
|---|---|
| 2820H | The device specified by (s) exceeds the corresponding device range. |
| 3401H | The sign data is other than 20H, 2DH.[1] |
| | A value specified by (s) to (s)+2 for each place of the ASCII code is other than "30H" to "39H", "20H", and "00H". |
| | The ASCII data in the device specified by (s) to (s)+5 is out of the valid range (-2147483648 to +2147483647) (when a signed data is specified). |
| | The ASCII data in the device specified by (s) to (s)+5 is out of the valid range (0 to 4294967295) (when unsigned data is specified). |

[1] This error occurs when SM705 is on. When SM705 is off, sign data other than "2DH (-)" is ignored.