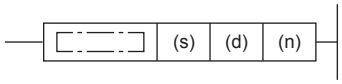
# Converting ASCII to HEX

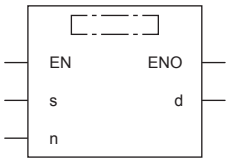
## HEXA(P)

FX5S FX5UJ FX5U FX5UC

These instructions convert the ASCII data stored in the number of characters specified by (n) in the device numbers specified by (s) and later to HEX code data, and store the converted data in the device numbers specified by (d) and later.

| Ladder diagram | Structured text |
|---|---|
|  | ENO:=HEXA(EN,s,n,d);<br>ENO:=HEXAP(EN,s,n,d); |

**FBD/LD**




### Setting data

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

| Operand | Description | Range | Data type | Data type (label) |
|---|---|---|---|---|
| (s) | Head device for storing the ASCII data to be converted to hexadecimal code | — | Character string | ANYSTRING_SINGLE |
| (d) | Head device for storing the hexadecimal code after conversion | — | 16-bit signed binary | ANY16 |
| (n) | Number of characters (number of bytes) of ASCII data to be converted | 1 to 16383 | 16-bit unsigned binary | ANY16_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) | ○ | ○ | ○ | ○ | — | — | ○ | — | — | — | — |
| (n) | ○ | ○ | ○ | ○ | — | — | ○ | ○ | — | — | — |

*1 T, ST, and C cannot be used.

## Processing details

These instructions convert the ASCII data stored in the number of characters specified by (n) in the device numbers specified by (s) and later to HEX code data, and store the converted data in the device numbers specified by (d) and later. 16-bit conversion mode and 8-bit conversion mode options are available for these instructions. For operation in each mode, refer to the succeeding pages.

• 16-bit conversion mode (while SM8161 is OFF)

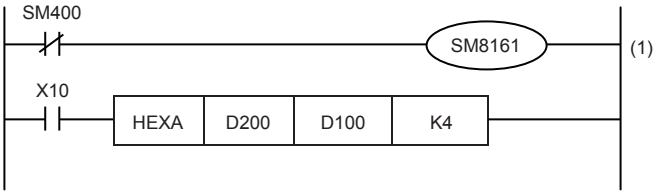
The ASCII data stored in high-order 8 bits and low-order 8 bits (byte) of the device specified by (s) is converted to hexadecimal code, and transferred to the device specified by (d) in units of 4 digits. The number of characters to be converted is specified by (n).

SM8161 is also used for the ASCI(P), CRC(P), and CCD(P) instructions. When using the 16-bit conversion mode, set SM8161 to normally OFF.

SM8161 is cleared when the CPU module mode is changed from RUN to STOP.

Moreover, when using the 16-bit conversion mode, the ASCII data must also be stored in high-order 8 bits of the device specified by (s).

In the following program, conversion is executed as follows:




(1): 16-bit conversion mode

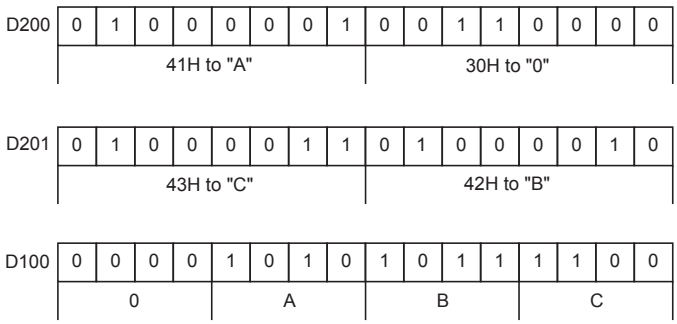
Conversion source data

| (s) | ASCII data | Hexadecimal code |
|---|---|---|
| D200 low-order | 30H | 0 |
| D200 high-order | 41H | A |
| D201 low-order | 42H | B |
| D201 high-order | 43H | C |
| D202 low-order | 31H | 1 |
| D202 high-order | 32H | 2 |
| D203 low-order | 33H | 3 |
| D203 high-order | 34H | 4 |
| D204 low-order | 35H | 5 |

Number of specified characters and conversion result "·" indicates "0".

When (n)=K4

| (n) | (d) | | |
|---|---|---|---|
| | D102 | D101 | D100 |
| 1 | (1) | | ··· 0H |
| 2 | | | ·· 0AH |
| 3 | | | · 0ABH |
| 4 | | | 0ABCH |
| 5 | | ··· 0H | ABC1H |
| 6 | | ·· 0AH | BC12H |
| 7 | | · 0ABH | C123H |
| 8 | | 0ABCH | 1234H |
| 9 | ··· 0H | ABC1H | 2345H |




(1): The data remain the same.

• 8-bit conversion mode (while SM8161 is on)

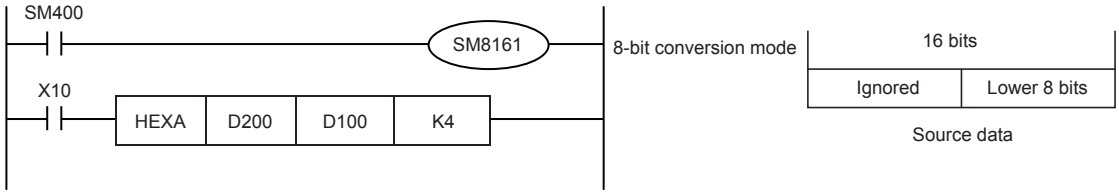
The ASCII data stored in low-order 8 bits of the device specified by (s) is converted to hexadecimal code, and transferred to the device specified by (d) in units of 4 digits.

The number of characters to be converted is specified by (n).

SM8161 is also used for the ASCI(P), CRC(P), and CCD(P) instructions. When using the 8-bit conversion mode, set SM8161 to normally on.

SM8161 is cleared when the CPU module mode is changed from RUN to STOP.

In the following program, conversion is executed as follows:



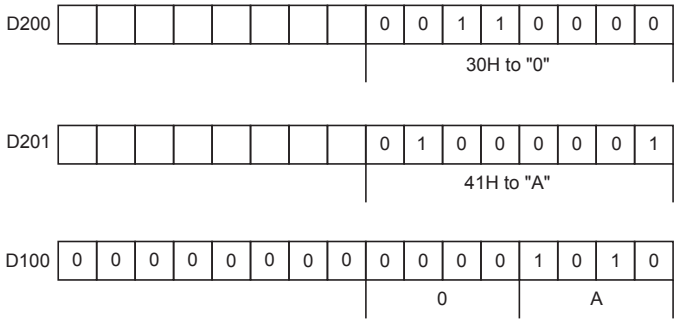

Conversion source data

| (s) | ASCII data | Hexadecimal code |
|---|---|---|
| D200 | 30H | 0 |
| D201 | 41H | A |
| D202 | 42H | B |
| D203 | 43H | C |
| D204 | 31H | 1 |
| D205 | 32H | 2 |
| D206 | 33H | 3 |
| D207 | 34H | 4 |
| D208 | 35H | 5 |

Number of specified characters and conversion result "." indicates "0".

When (n)=K2

| (n) | (d) | | |
|---|---|---|---|
| | D102 | D101 | D100 |
| 1 | (1) | | ··· 0H |
| 2 | | | ·· 0AH |
| 3 | | | · 0ABH |
| 4 | | | 0ABCH |
| 5 | | ··· 0H | ABC1H |
| 6 | | ·· 0AH | BC12H |
| 7 | | · 0ABH | C123H |
| 8 | | 0ABCH | 1234H |
| 9 | ···0H | ABC1H | 2345H |




(1): The data remain the same.

## Precautions

- Make sure that only ASCII codes "0" to "9" and "A" to "F" are stored in the device specified by (s).
- If ASCII data is not stored in the device specified for (s) by the HEXA(P) instructions, an operation error occurs and conversion into hexadecimal code is disabled. Especially, note that when SM8161 is OFF (16-bit conversion mode), ASCII code should be stored in high-order 8 bits of the device specified by (s).
- The number of points occupied by the device specified by (d) varies depending on the ON/OFF status of SM8161. When SM8161 is on (8-bit conversion mode), as many points as the number of characters are occupied, and when SM8161 is OFF (16-bit conversion mode) as many points as the (number of characters ÷2) are occupied.
- The SM8161 flag is also used for the ASCI(P), CRC(P), and CCD(P) instructions. When using these instructions and the HEXA(P) instructions in the same program, make sure to set SM8161 to ON or OFF just before each instruction so that SM8161 does not affect another instruction.

## Operation error

| Error code (SD0/SD8067) | Description |
|---|---|
| 2820H | The (n) number of devices specified by (s) and (d) exceeds the corresponding device range. |
| 2821H | The range specified by (s) and (d) overlaps. |
| 3401H | An ASCII code other than 30H to 39H, and 41H to 46H is set in the device specified by (s). |
| 3405H | The value specified in (n) is outside the range specified below.<br>1 to 16383 |