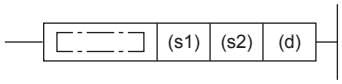
Converting 16-bit binary data to character string

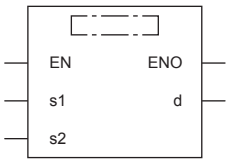
STR(P)(_U)

FX5S FX5UJ FX5U FX5UC

These instructions add a decimal point to the 16-bit binary data in the device specified by (s2) at the location specified by (s1), convert the data to character string data, and store the converted data in the device areas specified by (d) and later.

Ladder diagram	Structured text	
	ENO:=STR(EN,s1,s2,d); ENO:=STRP(EN,s1,s2,d);	ENO:=STR_U(EN,s1,s2,d); ENO:=STRP_U(EN,s1,s2,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand		Description	Range	Data type	Data type (label)
(s1)	STR(P)	Head device number where the number of digits of the conversion target data is stored	—	16-bit signed binary	ANY16_S_ARRAY (Number of elements: 2)
	STR(P)_U			16-bit unsigned binary	ANY16_U_ARRAY (Number of elements: 2)
(s2)	STR(P)	Conversion target data	-32768 to +32767	16-bit signed binary	ANY16_S
	STR(P)_U		0 to 65535	16-bit unsigned binary	ANY16_U
(d)		Head device number for storing the converted data	—	Character string	ANYSTRING_SINGLE
EN		Execution condition	—	Bit	BOOL
ENO		Execution result	—	Bit	BOOL

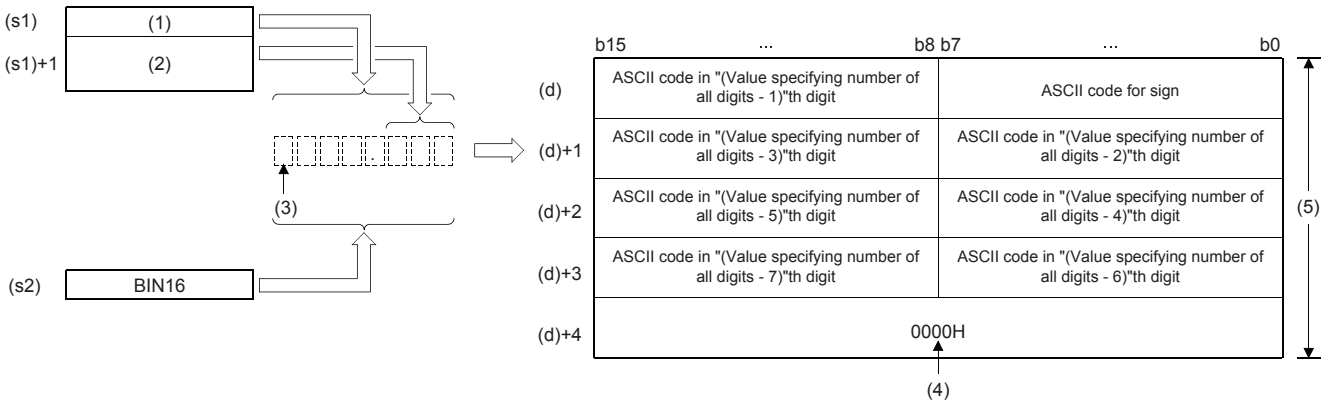
■Applicable devices

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	$	
(s1)	○	○	○	○	—	—	○	—	—	—	—
(s2)	○	○	○	○	—	—	○	○	—	—	—
(d)	—	○*1	—	—	—	—	○	—	—	—	—

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

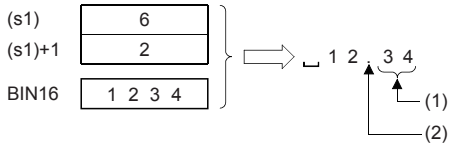
Processing details

- These instructions add a decimal point to the 16-bit binary data in the device specified by (s2) at the location specified by (s1), convert the data to character string data, and store the converted data in the device areas specified by (d) and later.



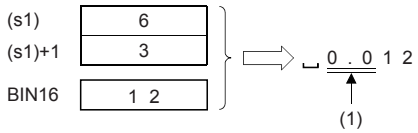
(1): Total number of digits
(2): Number of digits of decimal part
(3): Sign
(4): "0000H" is automatically stored at the end of the character string.
(5): For specifying number of all digits

- The total number of digits that can be specified by (s1) is 2 to 8.
- The number of digits in the decimal part that can be specified by (s1)+1 is 0 to 5. Note that the number of digits in the decimal part must be smaller than or equal to the total number of digits minus 3.
- The converted character string data are stored in the device areas specified by (d) and later as shown below.
  - As sign data, "20H" (space) is stored if the 16-bit binary data is positive, and "2DH" (-) is stored if the data is negative.
  - If the number of digits in the decimal part is set to other than 0, "2EH" (.) is automatically stored at the position before the specified number of digits. If the number of digits in the decimal part is 0, "2EH" (.) is not stored.



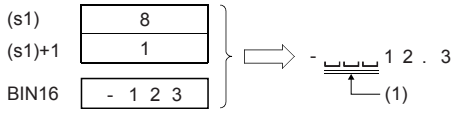
(1): Number of digits of decimal part
(2): Added automatically

  - If the specified number of digits in the decimal part is greater than the number of digits of the 16-bit binary data, 0(s) is automatically added and the data is regarded as "0.□□□□".



(1): Added automatically

  - If the total number of digits excluding the sign and the decimal point is greater than the number of digits of the 16-bit binary data, "20H" (space) is stored between the sign and the numeric value. If the number of digits of the 16-bit binary data is greater, an error occurs.

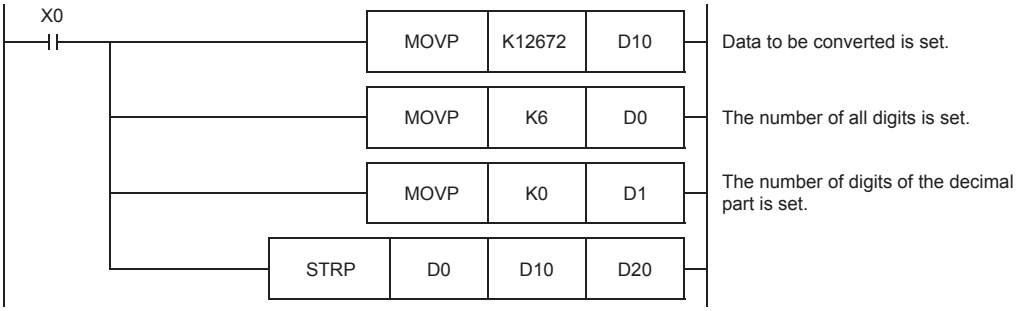


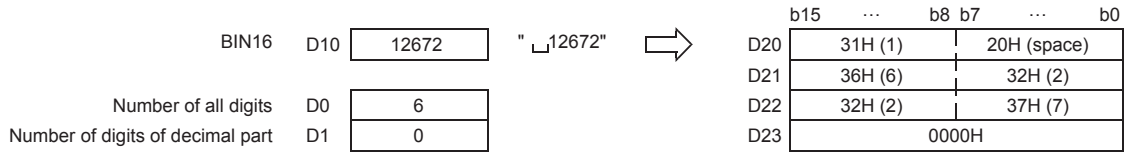
(1): "20H (SP)" is stored.

  - The value "00H" is automatically stored at the end of the converted character string.
  - When the number of all digits is even, "0000H" is stored in the device after the last character. When the number of all digits is odd, "00H" is stored in the upper byte (8 bits) of the device storing the final character.

Program example

In the program below, the 16-bit binary data stored in D10 is converted into a character string in accordance with the digit specification by D0 and D1 when X0 is set to ON, and then stored in D20 to D23.





Operation error

Error code (SD0/SD8067)	Description
3401H	The number of digits specified by (s1) is smaller than the number of digits plus 2 of the 16-bit binary data in the device specified by (s2). (The additional 2 digits indicate the sign (+/-) and the decimal point.)
	The total number of digits specified by (s1) is out of the valid range (2 to 8).
	The number of digits in the decimal part specified by (s1)+1 is out of the valid range (0 to 5).
	The relationship between the total number of digits specified by (s1) and the number of digits in the decimal part specified by (s1)+1 does not satisfy the following. (Total number of digits)-3 ≥ Number of digits in the decimal part
3406H	The device areas storing the character string specified by (d) exceed the corresponding device range.
2820H	The device range specified by (s1) exceeds the corresponding device range.