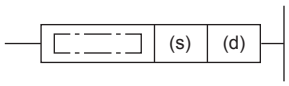
Converting character string to single-precision real number

EVAL(P)/DEVAL(P)

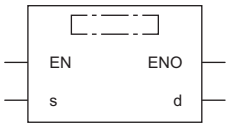
FX5S FX5UJ FX5U FX5UC

These instructions convert the character strings in the device areas specified by (s) and later to single-precision real number, and store the converted data in the device specified by (d).

The EVAL(P) instructions can also be used as DEVAL(P).

Ladder diagram	Structured text
	ENO:=EVAL(EN,s,d); ENO:=EVALP(EN,s,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s)	Character string data to be converted to single-precision real number or head device number where the character string data is stored	—	Character string	ANYSTRING_SINGLE
(d)	Head device number storing converted single-precision real number	—	Single-precision real number	ANYREAL_32
EN	Execution condition	—	Bit	BOOL
ENO	Execution result	—	Bit	BOOL

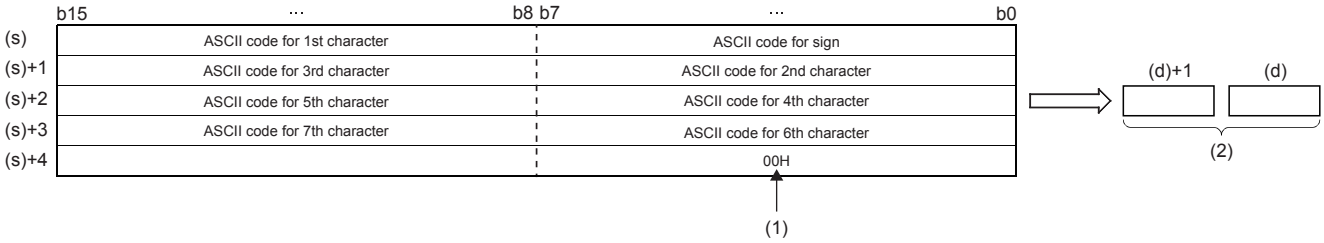
■Applicable devices

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 character strings in the device areas specified by (s) and later to single-precision real number, and store the converted data in the device specified by (d).
- A specified character string may be in the decimal point format or exponent format. A character string in either format can be converted into single-precision real number.

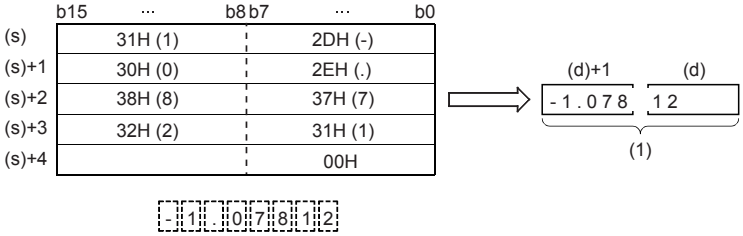


(1): Indicates the end of the character string.
(2): Single-precision real number

- A character string can consist of up to 24 characters. 20H (space) and 30H (0) in a character string are counted as one character each.

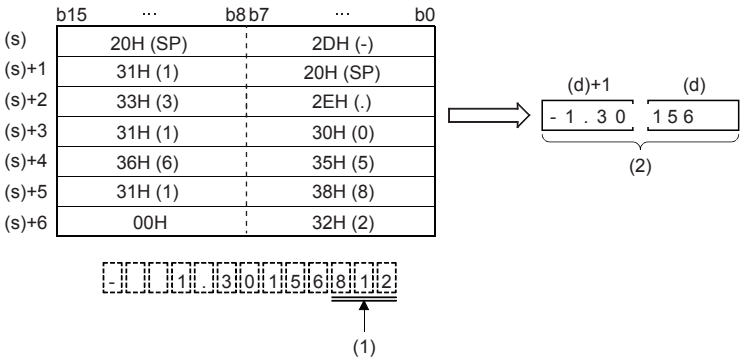
■Decimal point format

• When the character string specified by (s) is decimal point format, the operation is executed as follows.



(1): Single-precision real number

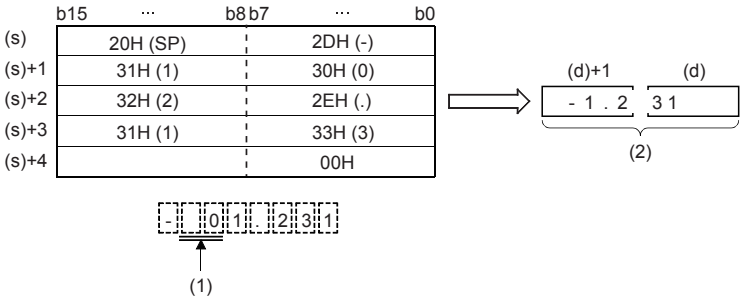
• With regard to character string, six digits excluding the sign, decimal point and exponent part are valid, and the 7th and later digits are discarded during conversion.



(1): These values are discarded.
(2): Single-precision real number

• When 2BH (+) is specified as the sign in the floating point format or when the sign is omitted, a character string is converted into a positive value. It is handled as negative value during conversion when the sign is set to 2DH (-).

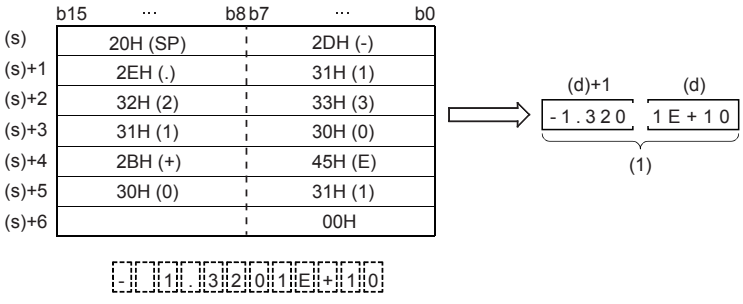
• When 20H (space) or 30H (0) exists between numbers except the first 0 in a character string specified by (s), 20H or 30H is ignored during conversion.



(1): Ignored
(2): Single-precision real number

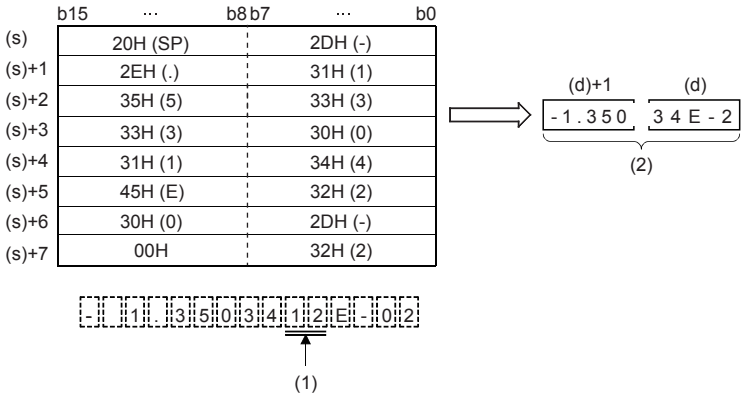
■Exponent format

• When the character string specified by (s) is in exponent format, the operation is executed as follows.



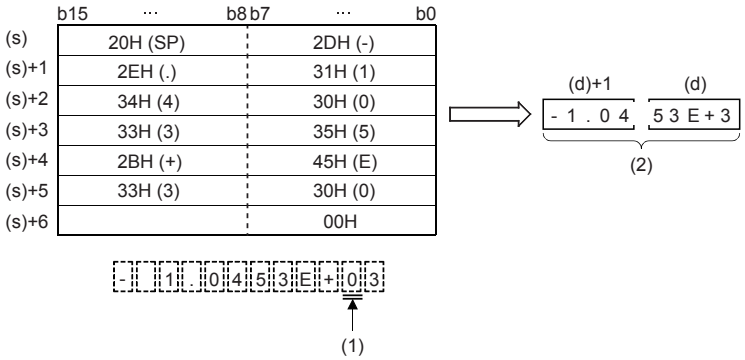
(1): Single-precision real number

- With regard to character string, six digits excluding the sign, decimal point and exponent part are valid, and the 7th and later digits are discarded during conversion.



(1): These values are discarded.
(2): Single-precision real number

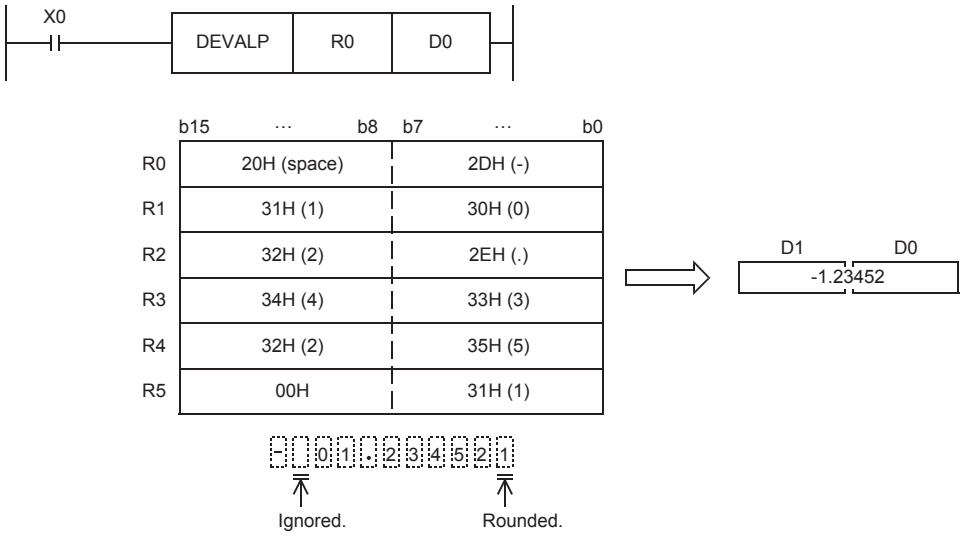
- String data in the exponent format is handled as positive value during conversion when the sign of the exponent part is set to 2BH (+) or when the sign is omitted. When 2DH (-) is specified as the sign, a character string is converted into a negative value.
- When 20H (space) or 30H (0) exists between numbers except the first 0 in a character string specified by (s), 20H or 30H is ignored during conversion.
- When 30H (0) exists between a number and "E" in a character string in the exponent format, 30H is ignored during conversion.



(1): Ignored
(2): Single-precision real number

Program example

In the program example shown below, a character string stored in R0 and later is converted into single-precision real number, and stored to D0 and D1 when X0 turns ON.



Operation error

Error code (SD0/SD8067)	Description
2820H	00H does not exist in the corresponding device range starting from (s)
3401H	Characters other than 30 (0) to 39 (9) exist in a character string specified by (s)
	2EH (.) exists in two or more positions in a character string specified by (s)
	Any character other than 45H (E), 2BH (+), or 2DH (-) exists in the exponent part specified by (s), or two or more exponent parts exist
3405H	The number of characters after (s) is 0 or more than 24