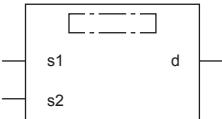
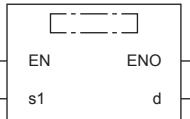


22.6 Exponentiation

EXPT(_E)

FX5S FX5UJ FX5U FX5UC

These functions output the exponentiation of an input value.

Ladder diagram, FBD/LD	Structured text
[Without EN/ENO]  [With EN/ENO] 	[Without EN/ENO] d:=EXPT(s1,s2); [With EN/ENO] d:=EXPT_E(EN,ENO,s1,s2);

Setting data

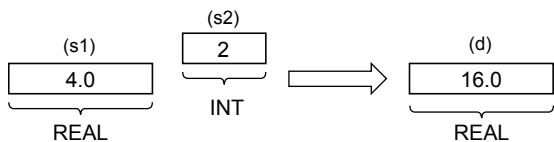
■ Descriptions, types, and data types

Argument	Description	Type	Data type
EN	Execution condition (TRUE: Execution, FALSE: Stop)	Input variable	BOOL
s1(IN1)	Cardinal number	Input variable	REAL
s2(IN2)	Exponent	Input variable	ANY_NUM
ENO	Output status (TRUE: Normal, FALSE: Abnormal)	Output variable	BOOL
d(EXPT(_E))	Output	Output variable	REAL

Processing details

■ Operation processing

- These functions raise the REAL type data input to (s1) by INT, DINT, or REAL specified by (s2), and output the operation result from (d).



■ Operation result

1. Function without EN/ENO

The following table lists the operation results.

Operation result	(d)
No operation error occurred	Operation output value
An operation error occurred	Indefinite value

2. Function with EN/ENO

The following table lists the execution conditions and operation results.

Execution condition	Operation result	(d)
EN	ENO	(d)
	TRUE (Operation error did not occur) FALSE (Operation error occurred) ^{*1}	Operation output value Indefinite value
TRUE (Executes operation) FALSE (Stops operation)	ENO	Operation output value Indefinite value

*1 When FALSE is output from ENO, data output from (d) is undefined. In that case, modify a program so that the data output from (d) is not used.

Operation error

- (s1) is the REAL type and (s2) is the INT type

Error code (SD0/SD8067)	Description
3402H	The value of (s1) is outside the following range. $0, 2^{-126} \leq (s1) < 2^{128}$ The data specified by (s1) is -0, denormalized number, NaN (not a number), or $\pm\infty$.
3403H	The operation result is within the following range. $2^{128} \leq \text{operation result} $

- (s1) is the REAL type and (s2) is the DINT type

Error code (SD0/SD8067)	Description
3402H	The value of (s1) is outside the following range. $0, 2^{-126} \leq (s1) < 2^{128}$ The data specified by (s1) is -0, denormalized number, NaN (not a number), or $\pm\infty$.
3403H	The operation result is within the following range. $2^{128} \leq \text{operation result} $

- (s1) and (s2) are REAL

Error code (SD0/SD8067)	Description
3402H	The value of (s1) is outside the following range. $0, 2^{-126} \leq (s1) < 2^{128}$ The data specified by (s1) is -0, denormalized number, NaN (not a number), or $\pm\infty$. The value of (s2) is outside the following range. $0, 2^{-126} \leq (s2) < 2^{128}$ The data specified by (s2) is -0, denormalized number, NaN (not a number), or $\pm\infty$.
3403H	The operation result is within the following range. $2^{128} \leq \text{operation result} $