

# Calculating the square root of single-precision real number

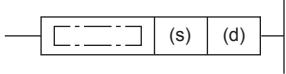
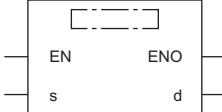
## DESQR(P)/ESQRT(P)

FX5S FX5UJ FX5U FX5UC

These instructions calculate the square root of a value specified by (s), and store the operation result in the device specified by (d).

The DESQR(P) instructions can also be used as ESQRT(P).

Refer to  Page 1452 Added and Changed Functions for details on the ESQRT(P) instruction.

Ladder diagram	Structured text
	ENO:=DESQR(EN,s,d); ENO:=DESQRP(EN,s,d);
FBD/LD	
	

### Setting data

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

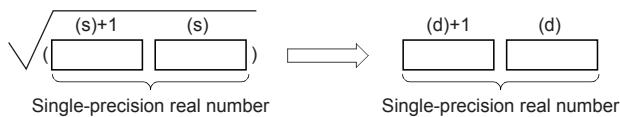
Operand	Description	Range	Data type	Data type (label)
(s)	Data whose square root is calculated or head device number where the data is stored	—	Single-precision real number	ANYREAL_32
(d)	Head device number for storing the operation result	—	Single-precision real number	ANYREAL_32
EN	Execution condition	—	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		K, H	E	\$	
(s)	—	○	○	—	○	—	○	○	○	—	—
(d)	—	○	○	—	○	—	○	—	—	—	—

## Processing details

- These instructions calculate the square root of a value specified by (s), and store the operation result in the device specified by (d).



- Only a positive value can be set in (s). (The square root operation cannot be executed for a negative value).
- The table below shows the related devices.

Device	Name	Description	
		Condition	Operation
SM8020	Zero	The operation result is true "0". (The mantissa part is "0").	The zero flag SM8020 turns on.

## Operation error

Error code (SD0/SD8067)	Description
2822H	Device that cannot be specified is specified.
3402H	The specified device value is denormalized number, NaN (not a number), or $\pm\infty$ .
3405H	The value stored in a device specified in (s) is negative.