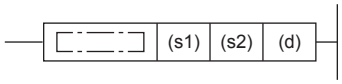
Subtracting single-precision real numbers

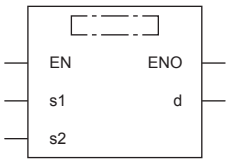
DESUB(P)

FX5S FX5UJ FX5U FX5UC

These instructions subtract the single-precision real number in the device specified by (s2) from the single-precision real number in the device specified by (s1), and store the result in the device specified by (d).

Ladder diagram	Structured text
	ENO:=DESUB(EN,s1,s2,d); ENO:=DESUBP(EN,s1,s2,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

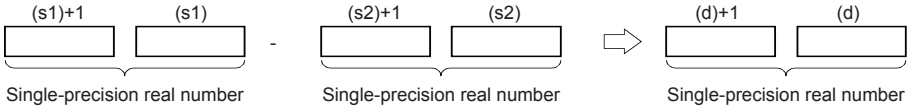
Operand	Description	Range	Data type	Data type (label)
(s1)	Minuend data or head device number where the data from which another is subtracted is stored	0, $2^{-126} \leq \lvert(s1)\rvert \leq 2^{128}$	Single-precision real number	ANYREAL_32
(s2)	Minuend data or head device number where the data that is subtracted another is stored	0, $2^{-126} \leq \lvert(s2)\rvert \leq 2^{128}$	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

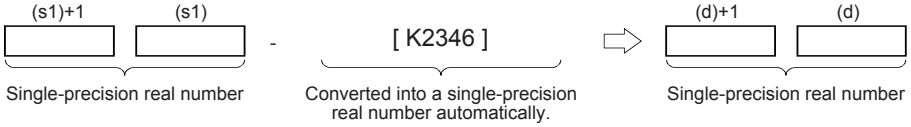
Operand	Bit	Word			Double word		Indirect specification	Constant			Others
	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC	LZ		K, H	E	$	
(s1)	—	○	○	—	○	—	○	○	○	—	—
(s2)	—	○	○	—	○	—	○	○	○	—	—
(d)	—	○	○	—	○	—	○	—	—	—	—

Processing details

- These instructions subtract the single-precision real number in the device specified by (s2) from the single-precision real number in the device specified by (s1), and store the result in the device specified by (d).



- When the constant (K or H) is specified in (s1) and (s2), these instructions convert values into single-precision real number automatically.



- The table below shows the related devices.

Device	Name	Description	
		Condition	Operation
SM700	Carry	The absolute value of the operation result ≥ 2^{128}	The value of (d) is the maximum value (2^{128}) of 32-bit real numbers and the carry flag SM700 turns on.
SM8020	Zero	The operation result is true "0". (The mantissa part is "0").	The zero flag SM8020 turns on.
SM8021	Borrow	The absolute value of the operation result < 2^{-126}	The value of (d) is the minimum value (2^{-126}) of 32-bit real numbers and the borrow flag SM8021 turns on.
SM8022	Carry	The absolute value of the operation result ≥ 2^{128}	The value of (d) is the maximum value (2^{128}) of 32-bit real numbers and the carry flag SM8022 turns on.

Precautions

The same device number can be specified for (s1), (s2), and (d). In this case, note that the subtraction result changes in every operation cycle when the continuous operation type instruction (DESUB) is used.

Operation error

Error code (SD0/SD8067)	Description
3402H	The specified device value is denormalized number, NaN (not a number), or ±∞.