

# Subtracting 16-bit binary block data

## BK-(P)(\_U)

**FX5S    FX5UJ    FX5U    FX5UC**

These instructions subtract (n) point(s) of 16-bit binary data from the device specified by (s1) and the (n) point(s) of 16-bit binary data from the device specified by (s2), and store the results in the device specified by (d).

Ladder diagram	Structured text <sup>*1</sup>
	ENO:=BKMINUS(EN,s1,s2,n,d); ENO:=BKMINUSP(EN,s1,s2,n,d); ENO:=BKMINUS_U(EN,s1,s2,n,d); ENO:=BKMINUSP_U(EN,s1,s2,n,d);

FBD/LD

("BKMINUS", "BKMINUSP", "BKMINUS\_U", "BKMINUSP\_U" enters □.)

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\*1 Supported by engineering tool version "1.035M" and later.

## Setting data

### ■Descriptions, ranges, and data types

Operand	Description		Range		Data type	Data type (label)
(s1)	BK-(P)		Head device where the data from which another is to be subtracted is stored		-32768 to +32767	16-bit signed binary
	BK-(P)_U		0 to 65535		16-bit unsigned binary	ANY16_U
(s2)	BK-(P)		Subtrahend data or the head device where the data to be subtracted from another is stored		-32768 to +32767	16-bit signed binary
	BK-(P)_U		0 to 65535		16-bit unsigned binary	ANY16_U
(d)	BK-(P)		Head device for storing the operation result		—	16-bit signed binary
	BK-(P)_U		—		16-bit unsigned binary	ANY16_U
(n)	Number of subtraction data		0 to 65535		16-bit unsigned binary	ANY16
EN	Execution condition		—		Bit	BOOL
ENO	Execution result		—		Bit	BOOL

### ■Applicable devices

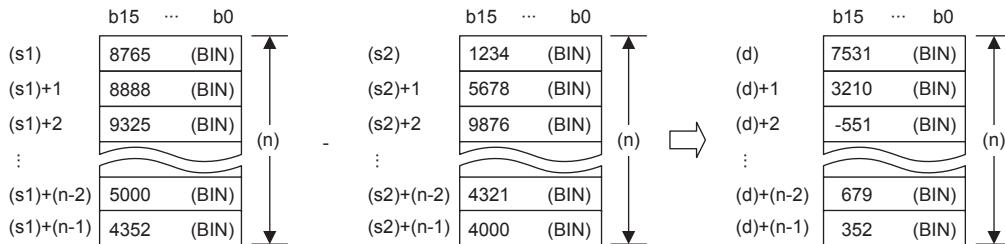
Operand	Bit	Word			Double word		Indirect specification	Constant			Others
		X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U□\G□	Z	LC		K, H	E	\$	
(s1)	—	○	—	—	—	—	○	—	—	—	—
(s2)	—	○	—	—	—	—	○	○	—	—	—
(d)	—	○	—	—	—	—	○	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

## Processing details

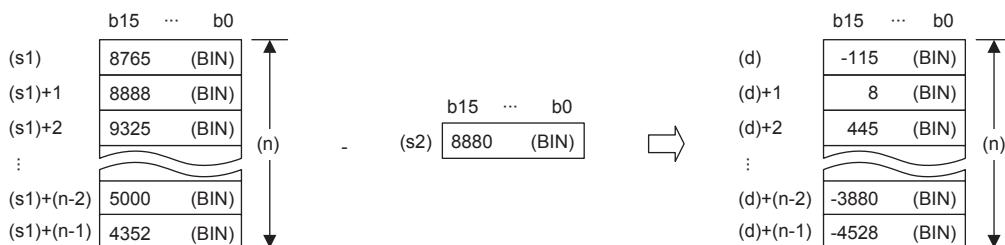
- These instructions subtract (n) point(s) of 16-bit binary data from the device specified by (s1) and the (n) point(s) of 16-bit binary data from the device specified by (s2), and store the subtraction results in the device specified by (d).
- Block subtraction is performed in 16-bit units.

**Ex.**

If device has been specified for (s2)



If constant is specified for (s2)

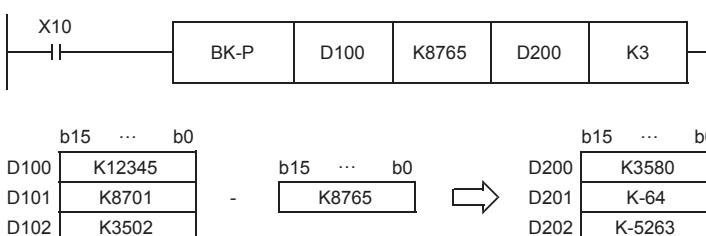


- If an underflow or overflow occurs for operation result, the result will be as follows. In this case, the carry flag (SM700) does not turn ON.

If signed is specified	If unsigned is specified
K-32767 - K2 (8001H) → K32766 (7FFEH)	K0 (0000H) - K1 (0001H) → K65535 (FFFFH)
K32767 - K-2 (7FFFH) → K-32767 (8001H)	

## Program example

In the program shown below, the constant "K8765" is subtracted from the data stored in D100 to D102 when X10 is set to ON, and the operation result is stored in D200 to D202.



## Operation error

Error code (SD0/SD8067)	Description
2820H	The range of (n) point(s) of data starting from the device specified by (s1), (s2), or (d) exceed the corresponding device range.
2821H	The device range for (n) point(s) beginning from (s1) overlaps with that of (n) point(s) starting from (d). (Does not apply when same device has been specified for (s1) and (d).) The device range for (n) point(s) beginning from (s2) overlaps with that of (n) point(s) starting from (d). (Does not apply when same device has been specified for (s2) and (d).)