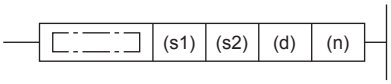
Adding 16-bit binary block data

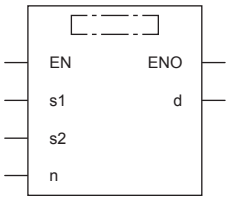
BK+(P)(_U)

FX5S FX5UJ FX5U FX5UC

These instructions add (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*1	
	ENO:=BKPLUS(EN,s1,s2,n,d); ENO:=BKPLUSP(EN,s1,s2,n,d);	ENO:=BKPLUS_U(EN,s1,s2,n,d); ENO:=BKPLUSP_U(EN,s1,s2,n,d);

FBD/LD



("BKPLUS", "BKPLUSP", "BKPLUS_U", "BKPLUSP_U" enters ☐.)

*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 to which another data is added is stored	-32768 to +32767	16-bit signed binary	ANY16_S
	BK+(P)_U		0 to 65535	16-bit unsigned binary	ANY16_U
(s2)	BK+(P)	Addend data or the head device where the data that is added to another is stored	-32768 to +32767	16-bit signed binary	ANY16_S
	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	ANY16_S
	BK+(P)_U		—	16-bit unsigned binary	ANY16_U
(n)		Number of addition data	0 to 65535	16-bit unsigned binary	ANY16
EN		Execution condition	—	Bit	BOOL
ENO		Execution result	—	Bit	BOOL

■Applicable devices

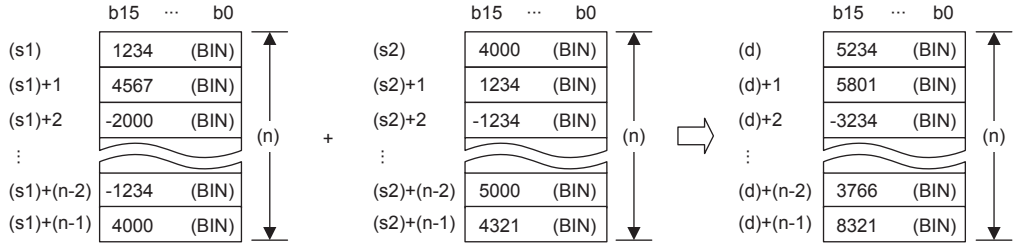
Operand	Bit	Word			Double word		Indirect specification	Constant			Others
	X, Y, M, L, SM, F, B, SB, S	T, ST, C, D, W, SD, SW, R	U☐\G☐	Z	LC	LZ		K, H	E	$	
(s1)	—	○	—	—	—	—	○	—	—	—	—
(s2)	—	○	—	—	—	—	○	○	—	—	—
(d)	—	○	—	—	—	—	○	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

Processing details

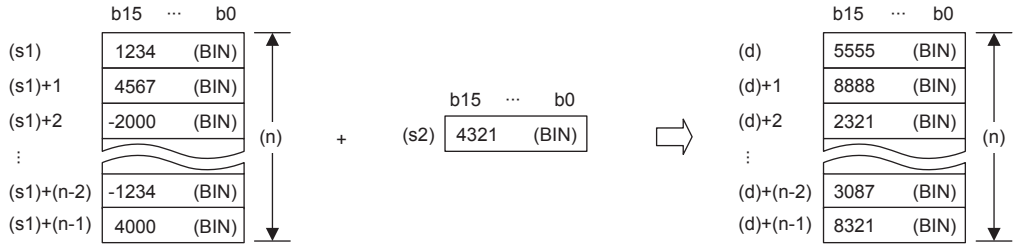
- These instructions add (n) point(s) of 16-bit binary data from the device specified by (s1) and the (n) point(s) of 16-bit binary data from the device specified by (s2), and store the results of addition in the device specified by (d).
- Block addition is performed in units of 16-bits.

Ex.

If device is specified for (s2) (signed)



If constant is specified for (s2) (signed)

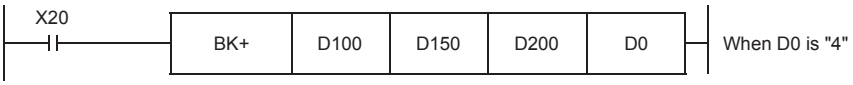


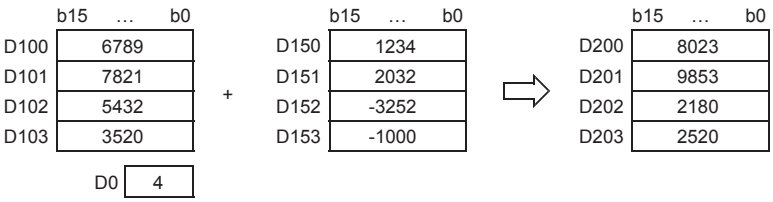
- If an underflow or overflow occurs for operation result, the result will be as follows. In this case, the carry flag (SM700) does not turn ON.

If signed is specified	If unsigned is specified
K32767 (7FFFH) + K2 (0002H) → K-32767 (8001H) K-32767 (8001H) + K-2 (FFFEH) → K32767 (7FFFH)	K65535 (FFFFH) + K1 (0001H) → K0 (0000H)

Program example

In the program shown below, the specified number of data stored in D150 to D0 are added to the specified number of data stored in D100 to D0 when X20 is set to ON, and the operation result is stored in D200 and later.





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).)