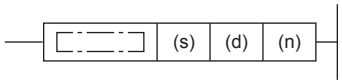
High-speed current value transfer of 32-bit data

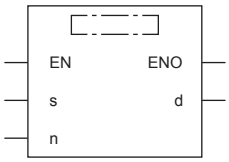
DHCMOV(P)

FX5S FX5UJ FX5U FX5UC

These instructions read and write (updates) special register for high-speed counter, pulse width measurement, PWM, and positioning.

Ladder diagram	Structured text
	ENO:=DHCMOV(EN,s,n,d); ENO:=DHCMOVP(EN,s,n,d);

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s)	Transfer source device number	—	Bit/32-bit signed binary	ANY_ELEMENTARY
(d)	Transfer destination device number	—	Bit/32-bit signed binary	ANY_ELEMENTARY
(n)	Specification to clear the device value of the transfer source after the transfer	K0, K1	16-bit unsigned binary	ANY16_U
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	$	
(s)	○	○	○	○	○	○	○	○	—	—	—
(d)	○	○	○	○	○	○	○	—	—	—	—
(n)	○	○	○	○	—	—	○	○	—	—	—

Processing details

These instructions transfer the data in the device specified by (s) to the device specified by (d). At this time, if the value of (n) is K0, the value of (s) is not cleared. If the value of (n) is K1, the value of (s) is cleared to "0" after the transfer. The value is cleared only for SD devices for the current value of high-speed counters or LC devices used as a high-speed counter when using the FX3 compatible high-speed counter.

Point

When (s) is a device supporting high-speed transfer

- When the DHCMOV instruction is executed, the latest value is acquired such as the current value of a high-speed counter and transferred to (d).

When (d) is a device supporting high-speed transfer

- When the DHCMOV instruction is executed, value such as the current value of a high-speed counter is changed.

■Effect of DHCMOV instruction

- By using both input interrupt and DHCMOV instruction, the current value of a high-speed counter can be received at the rising edge or falling edge of an external input.
- When DHCMOV instruction is used just before a comparison instruction (DCMP, DZCP or comparison contact instruction), the latest value of the high-speed counter is used in comparison.

Precautions

- When it is necessary to execute comparison and outputting as soon as the current value of a high-speed counter changes, use the high-speed comparison table, multi-output high-speed comparison table, or one of the DHSCS, DHSCR, and DHSZ instructions.
- Do not overwrite the current value of a high-speed counter using the DHCMOV instruction while executing the pulse density (rotation speed measurement) or the DSPD instruction.
- Transfer is not possible between an SM supporting high-speed transfer and an SD supporting high-speed transfer.
- When the device supporting high-speed transfer is set as the transfer source (s) by the DHCMOV instruction while the high-speed I/O function is stopped, the previous value before stop is read out. However, if the function is not executed even once, the initial value is read out.

Ex.

When SD5303, SD5302 (PWM pulse width) is set as the transfer source (s), the operation is executed as follows.

Condition	Result
When the PWM function is not executed	"0" is read out. (This is not the value of the parameter that is set by GX Works3.)
When the PWM function was executed but it is currently stopped	The value when the PWM function was stopped is read out.
When the PWM function is executed	The latest value that is currently operating is read out.

- When a high-speed counter SD device (current value, maximum value, minimum value) is read out individually, only the read SD device will be updated. Thus, there may be cases when the high-speed counter's SD device does not satisfy the relation of minimum value ≤ current value ≤ maximum value temporarily. Refer to the MELSEC iQ-F FX5 User's Manual (Application) for details on the timing that the high-speed counter's SD device is updated.

Point

The DHCMOV instruction is mainly used to read the current value of the high-speed counter/pulse width measurement and change the current address (in the user units) or the current address (in the pulse unit) of positioning.

Operation error

Error code (SD0/SD8067)	Description
2801H	The channel number of a module that does not exist is specified.
2821H	Operands that execute transmission between an SM supporting high-speed transfer and an SD supporting high-speed transfer is designated.
3056H	Timeout occurred while communicating with the target modules during execution of the instruction.
3060H	Signal error was detected while accessing the target modules during execution of the instruction.
3405H	A value outside the data range is set in (n).
3580H	An instruction that cannot be used in an interrupt program is used.