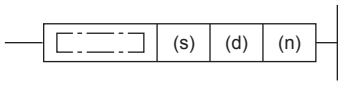
Seven Segment With Latch

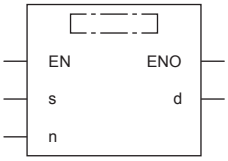
SEGL

FX5S FX5UJ FX5U FX5UC

This instruction controls one or two sets of 4-digit seven-segment display units having the latch function.

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

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s)	Head device converted into the BCD format	0 to 9999	16-bit signed binary	ANY16
(d)	Head Y number to be output	—	bit	ANY_BOOL
(n)	Parameter number	0 to 7	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)	○*1	—	—	—	—	—	—	—	—	—	—
(n)	—	—	—	—	—	—	—	○	—	—	—

*1 Only Y can be used.

Processing details

The 4-digit numeric value stored in (s) is converted into BCD data, and each digit is output to the seven-segment display unit with the BCD decoder by the time division method. For (s), binary data ranging from 0 to 9999 is valid.
Set the parameters (n) as follows according to the positive/negative logic of the PLC and the positive/negative logic of the seven-segment display module.

PLC output logic	Data input	Strobe signal	Parameter "n"	
			4 digits × 1 set	4 digits × 2 set
Negative logic	Negative logic (match)	Negative logic (match)	0	4
		Positive logic (mismatch)	1	5
	Positive logic (mismatch)	Negative logic (match)	2	6
		Positive logic (mismatch)	3	7
Positive logic	Positive logic (match)	Negative logic (mismatch)	0	4
		Positive logic (match)	1	5
	Negative logic (mismatch)	Negative logic (mismatch)	2	6
		Positive logic (match)	3	7

■When using one set of 4 digits (n = K0 to K3)

A 4-digit numeric value stored in (s) is converted from binary into BCD, and each digit is output in turn from (d) to (d)+3 by the time division method. The strobe signal is output in turn from (d)+4 to (d)+7 by the time division method also to latch one set of 4-digit seven-segment display unit.

■When using two sets of 4 digits (n = K4 to K7)

1st set of 4 digits

A 4-digit numeric value stored in (s) is converted from binary into BCD, and its each digit is output in turn from (d) to (d)+3 by the time division method. The strobe signal is output in turn from (d)+4 to (d)+7 by the time division method also to latch the first set of 4-digit seven-segment display unit.

2nd set of 4 digits

A 4-digit numeric value stored in (s)+1 is converted from binary into BCD, and its each digit is output in turn from (d)+10 to (d)+13 by the time division method. The strobe signal is output in turn from (d)+4 to (d)+7 by the time division method also to latch the second set of 4-digit seven-segment display unit.

For the connection example of two seven-segment display units, refer to the following manual.

MELSEC iQ-F FX5S/FX5UJ/FX5U/FX5UC User's Manual (Hardware)

Precautions

- The scan time (operation cycle) multiplied by 12 is required to update (one or two sets of) the 4-digit display.
- While the command input is ON, the operation is repeated. When the command contact is set to OFF in the middle of an operation, the operation is paused. When the command contact is set to ON again, the operation is started from the beginning.
- When one set of 4 digits is used, one device is occupied from the device specified in (s) and eight devices are occupied from the device specified in (d).
- When two sets of 4 digits are used, two devices are occupied from the device specified in (s) and twelve devices are occupied from the device specified in (d).
- SEGL instruction is executed in synchronization with the scan time (operation cycle) of the CPU module. For achieving a series of display, the scan time of the CPU module should be 10 ms or more. If the scan time is less than 10 ms, use the constant scan mode so that the scan time exceeds 10 ms.
- Use a transistor output type CPU module.
- The SEGL instruction can only be executed four times in a program.
- When a constant (K or H) is specified as (s), operate as shown below.
  When one set of 4 digits is used: It operates considering the constant specified by (s) as the 1st set.
  When two sets of 4 digits are used: It operates considering the constant specified by (s) as the 1st set, and the 2nd set fixed to 0.

Operation error

Error code (SD0/SD8067)	Description
2820H	The device specified by (s) or (d) exceeds the corresponding device range.
3405H	(n) is other than 0 to 7.
	The value specified by (s), (s)+1 is other than 0 to 9999.
1811H	The number of the SEGL instructions which are used simultaneously exceeds four.