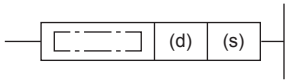
8.14 Special Timer Instruction

Teaching timer

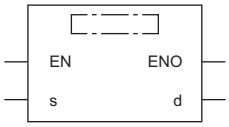
TTMR

FX5S FX5UJ FX5U FX5UC

This instruction measures the period of time in which TTMR instruction is ON.
Use this instruction to adjust the set value of a timer by a pushbutton switch.

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

FBD/LD



Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(d)	Device storing the teaching data	—	16-bit signed binary	ANY16_ARRAY (Number of elements: 2)
(s)	Magnification applied to the teaching data	0 to 2	16-bit signed 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	$	
(d)	—	○	—	—	—	—	○	—	—	—	—
(s)	○	○	○	○	—	—	○	○	—	—	—

■Control data

Operand: (d)			
Device	Description	Setting range	Set by
+0	Teaching time	—	System
+1	Current value of the pressing and holding time	—	System

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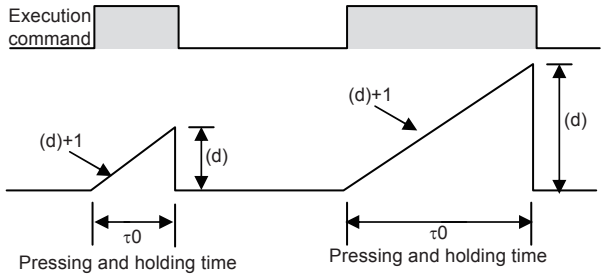
Processing details

- This instruction measures the period of time to press and hold the command input (pushbutton switch) in 1-second units, multiplies the measured value by the magnification (10^{s}) which is specified by (s), and stores it in the device specified by (d).



- The table below shows the actual value indicated by (d) depending on the magnification specified by (s) and the pressing and holding time τ0.

(s)	Magnification	(d)
K0	τ0	(d)×1
K1	10τ0	(d)×10
K2	100τ0	(d)×100

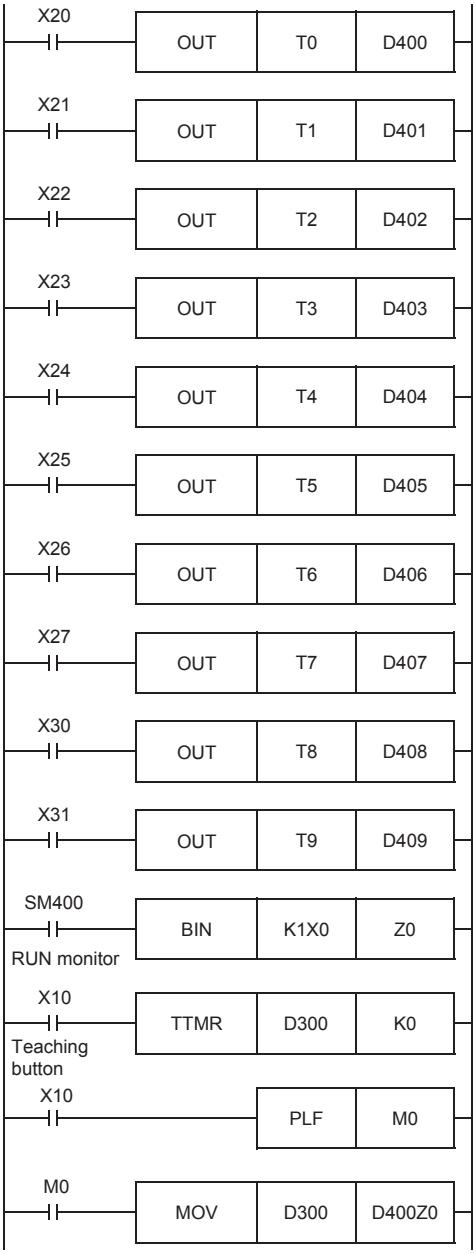
Precautions

- When the command contact turns from on to off, the current value (d)+1 of the pressing and holding time is cleared, and the teaching time (d) will not change any more.
- Two devices are occupied from a device specified as the teaching time (d). Make sure that such devices are not used in other controls for the machine.

Program example

• Writing the teaching time to 10 types of data registers

Suppose that the set value is written to D400 to D409 in advance.



10 timers to be set
Because the timers T0 to T9 are set to 100 ms, the actual operating time (sec) is 1/10 of the teaching data.

Selecting a timer by a digital switch
An input to the 1-digit digital switch connected to X0 to X3 is converted into binary format, and transferred to Z0.

Measuring the teaching time
The time (sec) in which X10 is pressed and held is stored to D300.

Recovery of the teaching time is detected.

Writing the set value of a timer
The teaching time (D300) is transferred to the device (D400Z0) for setting a timer selected by the digital switch.

Operation error

Error code (SD0/SD8067)	Description
2820H	The device range specified by (d) exceeds the corresponding device range.
3405H	The value specified by (s) is outside the following range. 0 to 2