

8.11 Random Number Instruction

Generating random number

RND(P)

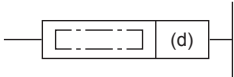
FX5S

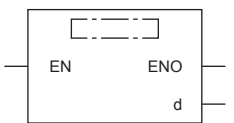
FX5UJ

FX5U

FX5UC

These instructions generate a pseudo-random number ranging from 0 to 32767, and store it as a random number to a device specified by (d).

Ladder diagram	Structured text
	ENO:=RND(EN,d); ENO:=RNDP(EN,d);

FBD/LD


Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(d)	Head device number storing a random number	—	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)	○	○	○	○	—	—	○	—	—	—	—

Processing details

- These instructions generate a pseudo-random number ranging from 0 to 32767, and store it as a random number to a device specified by (d).
- In the pseudo-random number sequence, the source value of a random number is calculated every time, and this instruction calculates a pseudo-random number using the source value.

Pseudo-random number calculation equation:

(SD8311, SD8310)=(SD8311, SD8310)^{*1}×1103515245+12345

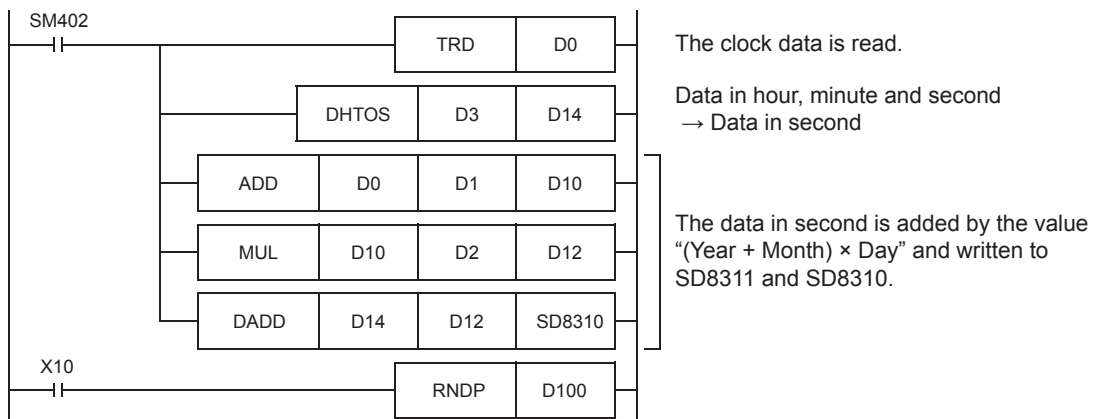
(d) = "([SD8311, SD8310]>>16)&<logical product>00007FFFh"

- *1 To (SD8311, SD8310), write a non-negative value (0 to 2147483647) only once when the CPU module mode switches from STOP to RUN. (K1 is written to (SD8311, SD8310) as the initial value when the power is restored.)

Program example

When the PLC mode switches from STOP to RUN, the time data converted into seconds and added by the value “(Year + Month) × Day” is written to SD8311 and SD8310.

In the program example shown below, a random number is stored to D100 every time X10 turns ON.



Operation error

There is no operation error.