7 main-part in automation system

- Operation panel
- Control
- Driver
- Actuator
- Sensor
- Power supply
- Network communication

main power distribution

Ⓐ Generator
↓
Ⓑ Transmission
↓
Ⓒ commercial & Industrial Business Consumers
↓
Ⓓ Distribution
↓
Ⓔ Distribution Automation Device
↓
Ⓕ Residential Consumers

PLC signal interface

- HMI
- Digital Input
- Digital output
- Digital High speed pulse Input
- Digital High speed pulse output
- Analog Input
- Analog output
- communication Bus

Sensors

- Limit switch
- Reed switch
- Proximity switch
- photo Electric sensor
- Retro-Reflective optical sensor
- Diffuse-Reflective optical Sensor

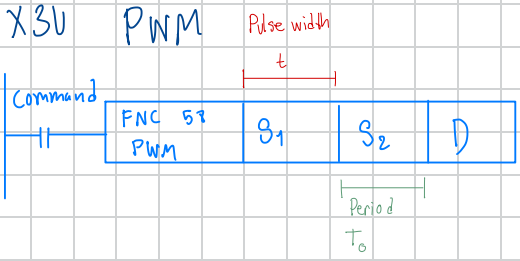
Inductive sensing – electromagnetic to sense for metal

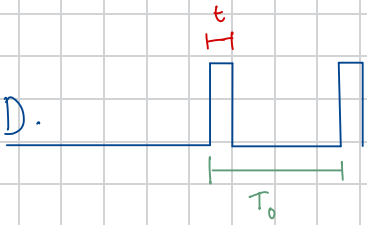
Capacitive sensing – eletronic to detect solid or liquid

Photoelectric – detect presence of object using light beam

American wire Gauge (AWG)

FX3U PWM





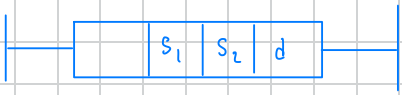
S_1 = output pulse width (ms) → 16-bit binary | Range number 0 → 32767 ms

S_2 = Period (ms) → 16 bit binary | Range number 1 → 32767 ms

D. = Device number (Y) from which pulse to be output → Bit → allowable Y000 → Y003

✱ $S_1 \leq S_2$

FX5U PWM



S_1 = ON Time or device number storing ON Time | Range 1 → 65535 | 16-bit unsigned binary – ANY16

S_2 = Period or device num storing period | Range 1 → 65535 | 16-bit unsigned binary – ANY16

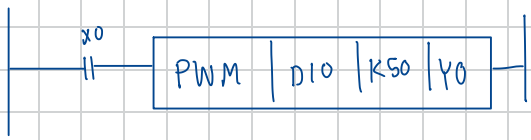
d = Channel number which pulse are to be output | Bit/16-bit unsigned binary – ANY_ELEMENTARY

EN = Execution condition | Bit – Bool

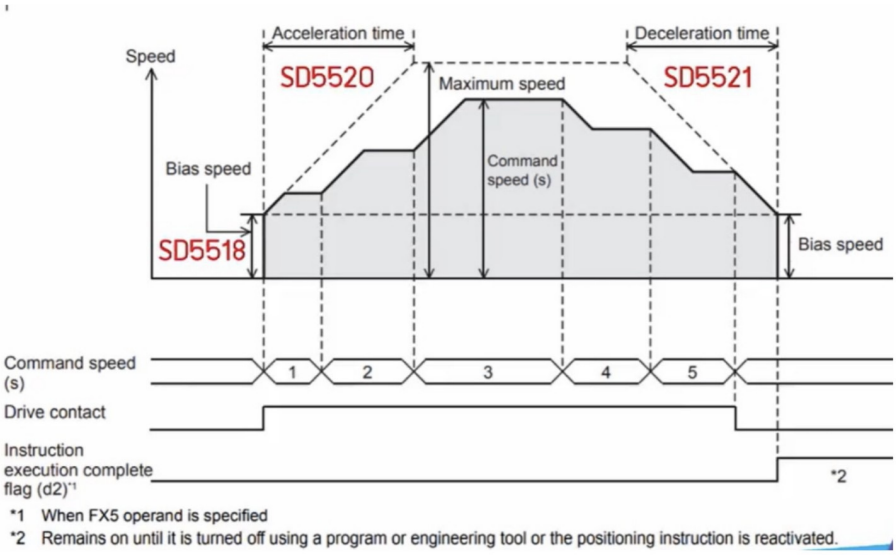
ENO = Execution Result | Bit – Bool

[FX5U/FX5UC CPU module and high-speed pulse input/output module]

Output number		(s1) ON time	(s2) Period
CPU module	High-speed pulse input/ output module		
Y0 to Y3	Y0 to Y2	2 µs more	5 µs more
Y4 to Y7	—	200 µs more	400 µs more

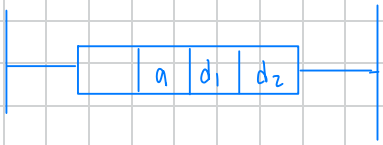


FX5U Speed Pulse control overview



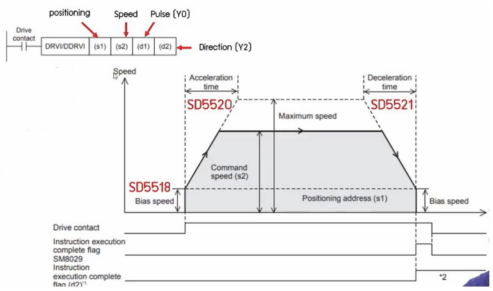
*1 When FX5 operand is specified
*2 Remains on until it is turned off using a program or engineering tool or the positioning instruction is reactivated.

FX5U Create a Jogging module using variable speed pulse control method (PLSV)



a = Command Speed | Range -32768 → 32767 | 16-bit signed binary - ANY16
d1 = Axis number from which pulse are to be output | K1 to 4 | 16-bit signed binary - ANY_ELEMENTARY
d2 = Bit device number of the positioning complete flag | Bit | ANY BOOL

FX5U DRVI Time response



FX5U Move to destination by absolute drive using DRVA function

DRVA [For the FX3 Series-compatible operand specification]

This instruction executes one-speed positioning by absolute drive.

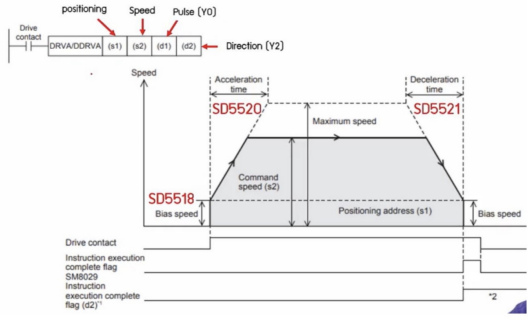
Ladder diagram	Structured text
(s1) (s2) (d1) (d2)	ENO:=DRVA(EN,s1,s2,d1,d2);

Setting data

■Descriptions, ranges, and data types

Operand	Description	Range	Data type	Data type (label)
(s1)	Positioning address	-32768 to +32767	16-bit signed binary	ANY16
(s2)	Command speed	1 to 65535	16-bit unsigned binary	ANY16
(d1)	Output bit device number (Y) from which pulses are output	0 to 3	Bit	ANY_ELEMENTARY
(d2)	Bit device number from which the rotation direction is output	—	Bit	ANY_BOOL

FX5U DRVA Time response



DSZR

S_1 : zero return speed | 1 → 65535 | 16 bit unsigned binary - ANY_Elementary

S_2 = Creep speed | 1 → 65535 | 16 bit unsigned binary — ANY_Elementary

d_1 = Axis number which pulse to be output | K1 to 4 | 16-bit unsigned - ANY_Elementary

d_2 = Bit device number of zero return complete flag | Bit - ANY_BOOL