Electronic Gear Set(1/2)

1. **Actual Pulse of Operating Motor = Command Pulse of Upper controller x (Electronic gear ratio numerator/Electronic gear ratio denominator)**

2. **When upper controller commands 1 pulse, The necessary Scale Factor to travel basic position For example, The scale factor to travel 1[um] Per 1 Pulse of command**

Electronic gear ratio numerator [P4-01]	Actual value set
Electronic gear ratio denominator [P4-05]	Actual value set

You need to know in order to set the Electronic Gear

No	List	Contents	Remark
1	Machine Spec	Ball screw type, Turn Table, Roller	Ball screw type : Pitch, Roller : Roller Diameter
2	Deceleration ratio	In the case of using of reducer	Pulley ratio in the case of Pulley
3	Encoder Pulse Number	Applied Encoder Pulse Number	19 bit Serial : 524288 (=2^19), Inc 3000 : 12,000 (= 3000 x 4)
4	Command unit	Travel per 1 Pulse	degree or mm

(Note) Set Pulse Logic Parameter in Servo-off

Electronic Gear Set (2/2)

Example for Electronic gear set

No	List	Machine Configuration		
		Ball Screw	Turn Table	Belt+Pulley
1	Machine Spec	Ball Screw Pitch : 5 [mm]	Degree per rotation : 360^0	Pulley Diameter : 100 [mm] (Pulley Circumference : 314 [mm])
2	deceleration ratio	1/1	1/100	1/50
3	Encoder Pulse	19bit (= 524,288)	19bit (= 524,288)	19bit (= 524,288)
4	Command Unit	0.001 [mm] (= 1 [um])	0.01^0	0.005 [mm] (= 5 [um])
5	Travel per rotation of load axis (= Machine spec / Command Unit)	5000 (= 5 / 0.001)	36000 (= 360 / 0.01)	62800 (= 314 / 0.005)
6	Electronic gear (= (Encoder Pulse number/Travel per rotation of load axis) * (1/deceleration ratio))	Electronic gear = (524288/5000)*(1/1)	Electronic gear = (524288/36000)*(100/1)	Electronic gear = (524288/62800)*(50/1)
7	Parameter Set	Electronic gear ratio numerator = 524,288 Electronic gear ratio denominator= 5,000	Electronic gear ratio numerator = 52,428,800 Electronic gear ratio denominator = 36,000	Electronic gear ratio numerator = 2,621,4400 Electronic gear ratio denominator = 62,800

(Tip) If Electronic gear ratio is 2, "2" = 100(numerator)/50(denominator) = 2(numerator)/1(denominator)