



### About Z-signal type-G

Z signal and origin mechanical position relation are table1.  
 For example, 400ppr is moved angle of  $-1.08^{\circ} \sim +1.08^{\circ}$ .  
 Other resolution, please refer to Table 1 below.

table1 Z-signal output timing and mechanical reration(Mechanical angle)

	100ppr	200ppr	300ppr	360ppr	400ppr	600ppr
Z position	4.32°	2.16°	1.4°	1.20°	1.08°	0.7°

\*Maximum

Relationship between the Z-signal and shaft are as follows.

CW direction: Fig1, Fig3

CCW direction: Fig2, Fig4

A,B,Z phase do not move. It's moved mechanical angle.

Note) Z-phase generation position does not change if do not power off .

When resolution of 400ppr maximum angle is 1.08.

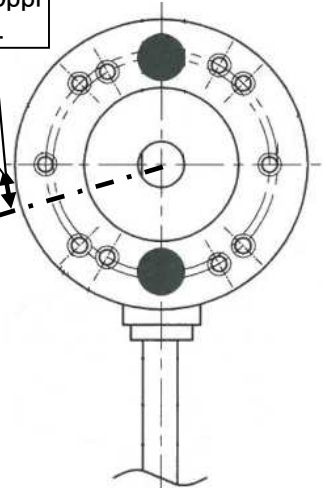
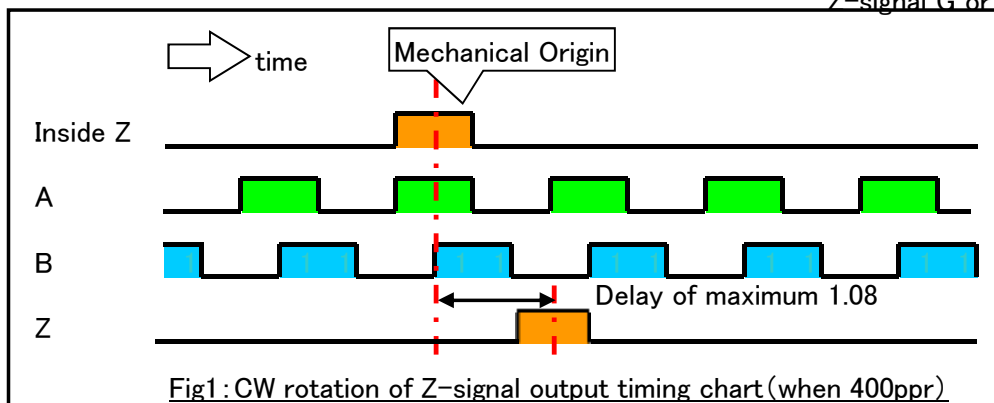


fig3: CW direction



Z-signal G or M-type

When resolution of 400ppr maximum angle is 1.08.

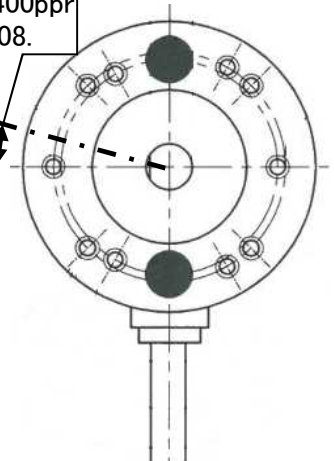
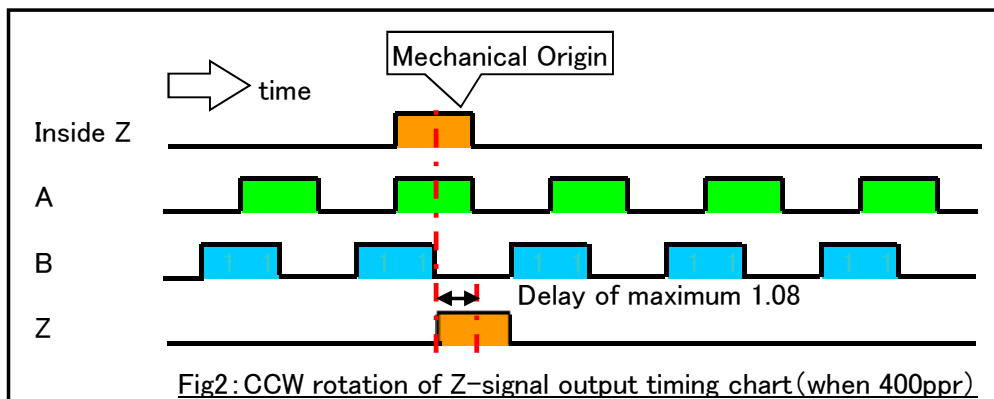


fig4: CCW direction



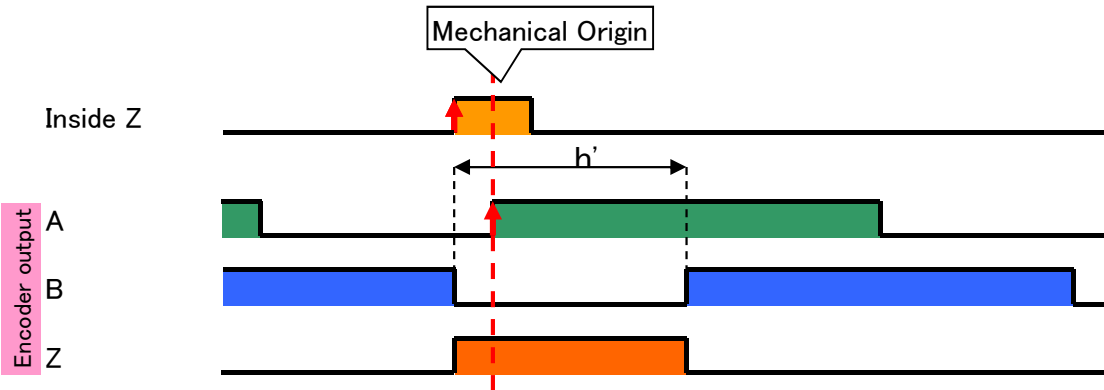
**About Z-signal type M**

**【Description of the CW direction】**

The encoder behaves as follows after 1st power on.

1. Initialize the A-phase and B-phase signal by a mechanical origin position.
2. Mechanical origin position is the rising edge of A-signal when the Z-signal is H.
3. Please be initialized in this rising edge for the system side.
4. Z-phase signal width  $h'$  at the first time will be  $(6/20) * P$ .

\*When each power on, the encoder output below signals.

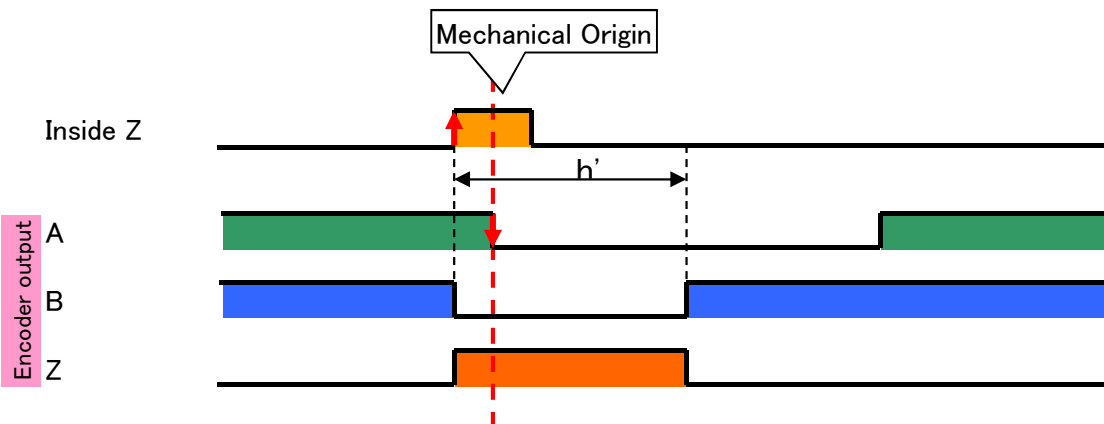


**【Description of the CCW direction】**

The encoder behaves as follows after 1st power on.

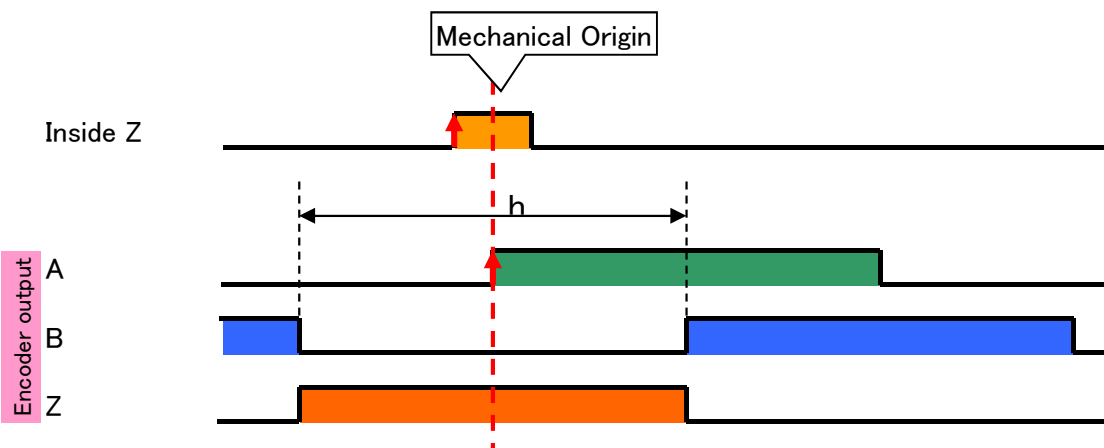
1. Initialize the A-phase and B-phase signal by a mechanical origin position.
2. Mechanical origin position is the falling edge of A-signal when the Z-signal is H.
3. Please be initialized in this falling edge for the system side.
4. Z-phase signal width  $h'$  at the first time will be  $(6/20) * P$ .

\*When each power on, the encoder output below signals.

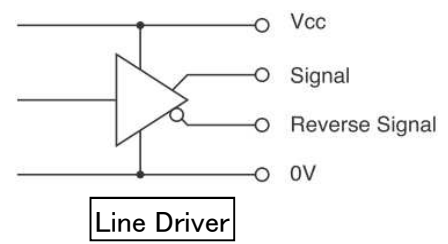
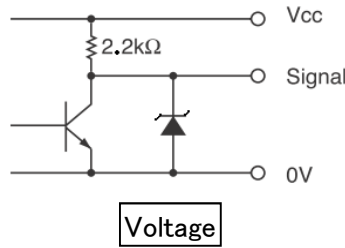
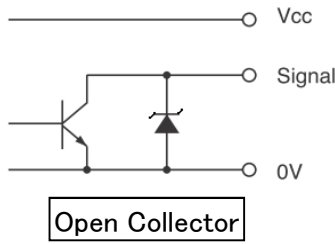


**【Mechanical origin occurrence position of after 2nd time】**

1. CW and CCW become the wave pattern according to specifications together.



■ Circuit of Output Signal



■ Cable Assign

Voltage/ Open collector

Color	Connection
Red	Vcc
Black	0V
Blue	Sig A
White	Sig B
Yellow	Sig Z
Black	Shield

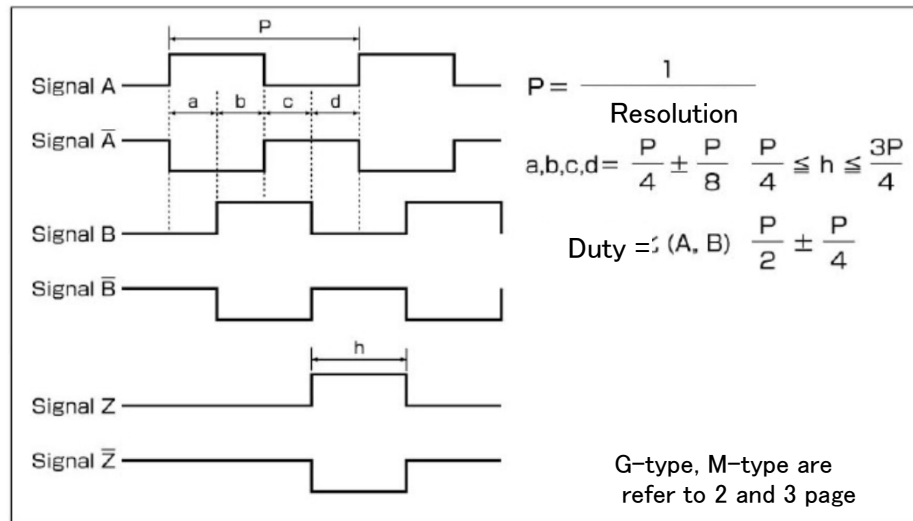
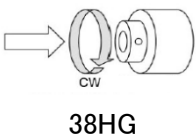
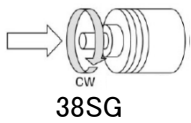
Line Driver

Color	Connection
Red	Vcc
Black	0V
Green	Sig A
Blue	Sig /A
White	Sig B
Gray	Sig /B
Yellow	Sig Z
Orange	Sig /Z
Black	Shield

■ Environmental spec

Operating temperature	-10°C~85°C
Storage Temperature	-30°C~85°C
Humidity	RH85% Max. Non Condensing
Vibration	10~55Hz X,Y,Z Direction each 2ch
Shock	490m/s <sup>2</sup> , 11 ms X,Y,Z Direction Direction each 3 times

■ Output Wave Form



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