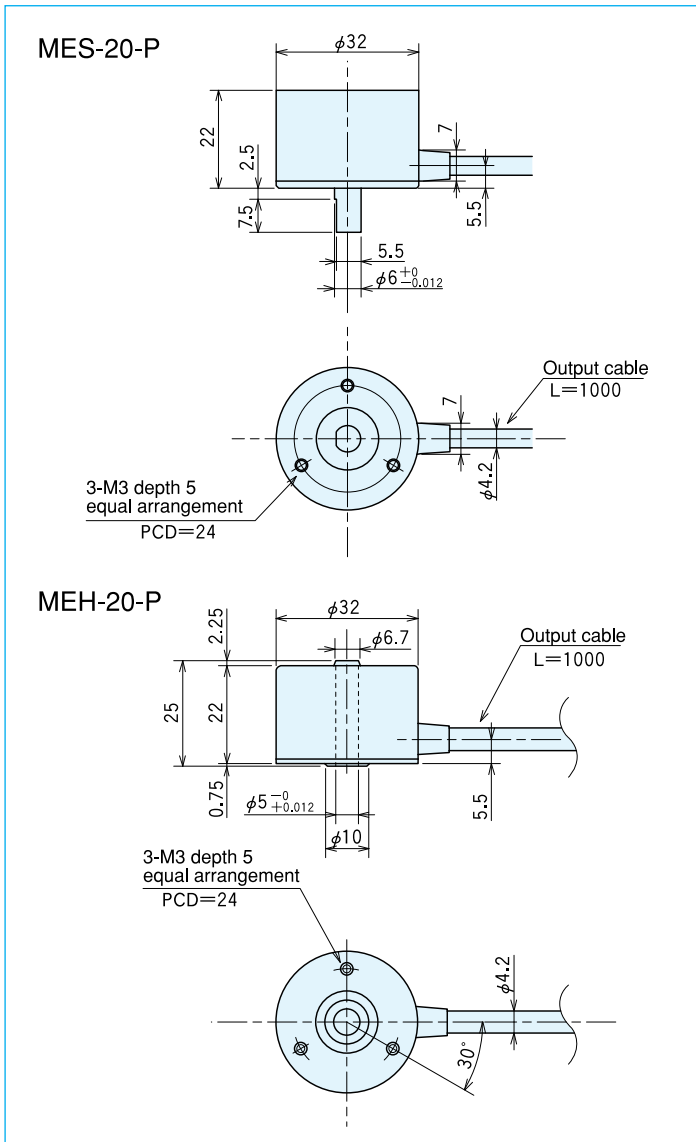


# ME-20-P series

[Square Wave/Incremental]



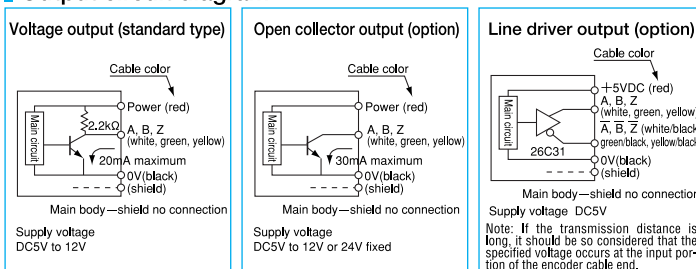
## Outside dimensions



## Specifications

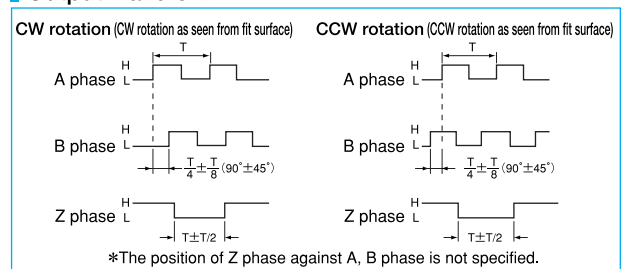
Type name		ME□-20-□P□				
Item	Shaft shape	●S=single shaft	●H=hollow shaft	●D=double shaft	Output circuit	
	Pulse number	●No entry=voltage output	●C=open collector output	●C4=open collector output DC24V	●E=line driver output	●S=sine wave output
Supply voltage	DC5~12V $\pm 10\%$ DC24V $\pm 10\%$ (open collector output only)					
Current consumption	50mA or less (under no load)					
Detection system	Incremental					
Output	Output pulse number (Standard)	40	256	600	1,800	7,200
	[Pulse number/rotation]	50	300	800	2,000	
		60	360	1,000	2,048	
		100	400	1,024	2,500	
		200	500	1,200	3,600	
250	512	1,500	5,400			
Output phase	A, B, Z phase					
Output form	Square wave					
Output capacity	Sink current: 20mA Residual voltage: 0.5V or less (at 10mA)					
Maximum response frequency (response pulse number)	100kHz					
Output phase difference	A, B phase difference $90^\circ \pm 45^\circ$ (T/4 $\pm$ T/8) Z phase T $\pm$ T/2 (see Output Waveform)					
Waveform rise/fall time	2 $\mu$ s or less (output cable 1m or less)					
Starting torque	$2 \times 10^{-3} \text{N} \cdot \text{m}$ (20gf·cm) or less					
Allowable load of shaft (electrical)	Radial	19.6N (2kgf)		14.7N (1.5kgf)		
	Thrust	9.8N (1kgf)		4.9N (0.5kgf)		
Maximum allowable revolutions (mechanical)	6,000r/min					
Working ambient temperature/humidity	$-10^\circ\text{C} \sim 70^\circ\text{C}$ RH35%~90% no dewing					
Storing ambient temperature	$-20^\circ\text{C} \sim 80^\circ\text{C}$					
Vibration resistance	Durability 55Hz, double amplitude 1.5mm 2 hours each in X, Y, and Z directions					
Impact resistance	Durability 500m/s <sup>2</sup> (about 50G) 3 times each in X, Y, and Z directions					
Cable	Outside diameter $\phi 4.2$ 5-core vinyl wire Insulated shield cable (length 1m)					
Mass	70g					

## Output circuit diagram



A capacitor (0.1  $\mu$ F) is connected between 0V and FG (frame ground).

## Output waveform

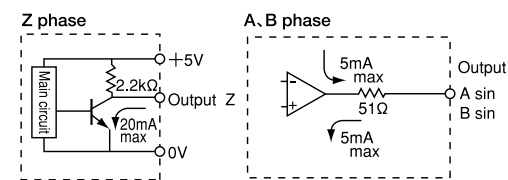


## Specifications/Sine wave

Supply voltage	DC5V ±5%	
Current consumption	40mA or less (under no load)	
Detection system	Sine wave·Incremental	
Output	Output pulse number (Standard)	1,000
	[Pulse number/rotation]	2,000
		2,500
	Output phase	A, B, Z phase
	Output form	A, B phase SIN wave, Z phase square wave
	A, B, Z phase output	SIN wave 1.5 Vp-p±0.3 V offset 2.0V±0.2V Opamp output current 5mA Max. Harmonic distortion factor to be within 10% (Measuring condition to be within 20 kHz, effective value mean distortion factor measuring instrument)
Maximum response frequency	50kHz	
Output phase difference	A, B phase difference 90°±45° (T/4±T/8) Z phase T±T/2 (see Output Waveform)	
Starting torque	2×10 <sup>-3</sup> N·m (20gf·cm) or less	
Allowable load of shaft (electrical)	Radial	14.7N (1.5kgf)
	Thrust	4.9N (0.5kgf)
Maximum allowable revolutions (mechanical)	6,000r/min	
Working ambient temperature/humidity	0°C~50°C RH35%~90% no dewing	
Storing ambient temperature	-20°C~80°C	
Vibration resistance	Durability 55Hz, double amplitude 1.5mm 2 hours each in X, Y, and Z directions	
Impact resistance	Durability 500m/s <sup>2</sup> (about 50G) 3 times each in X, Y, and Z directions	
Cable	Outside diameter φ4.2 5-core vinyl wire Insulated shield cable (length 1m)	
Mass	70g	

## Output circuit diagram

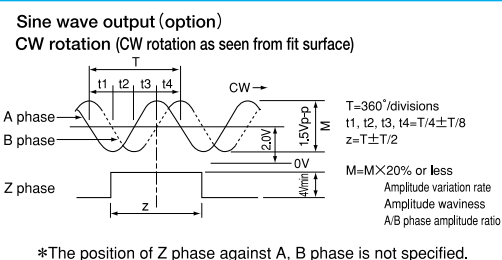
## Sine wave output (option)



Signal name	Lead wire color
Vcc	Red
0V	Black
A phase	White
B phase	Green
Z phase	Yellow

A capacitor (0.1μF) is connected between 0V and FG (frame ground).

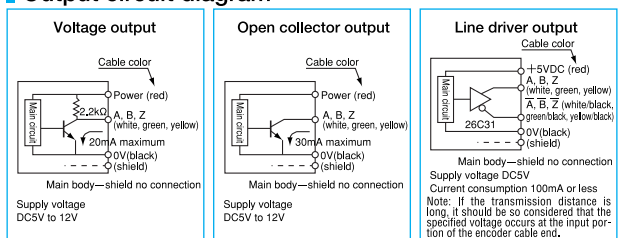
## Output waveform



## Specifications Built-in multiplication circuit (X2·X4·X8·X16)

Supply voltage	Voltage./Open collector:DC5V-5%~12V+10% Line driver:DC5V±5%	
Current consumption	60mA or less (under no load)	
Detection system	Incremental	
Output	Output pulse number (Standard)	EX 2,500×2 (5,000)
	[Pulse number/rotation]	2,500×4 (10,000)
		2,500×8 (20,000)
		2,500×16 (40,000)
	Output phase	A, B, Z phase
Output form	Square wave	
Output capacity	Open collector out:load voltage DC13.2V max	
Maximum response frequency	Line driver output:50kHz× (by multiplication) Voltage output·Open collector output:100kHz	
Output phase difference	See the diagram below.	
Starting torque	2×10 <sup>-3</sup> N·m (20gf·cm) or less	
Allowable load of shaft (electrical)	Radial	14.7N (1.5kgf)
	Thrust	4.9N (0.5kgf)
Maximum allowable revolutions (mechanical)	6,000r/min	
Working ambient temperature/humidity	-10°C~70°C RH35%~90% no dewing	
Storing ambient temperature	-20°C~80°C	
Vibration resistance	Durability 55Hz, double amplitude 1.5mm 2 hours each in X, Y, and Z directions	
Impact resistance	Durability 500m/s <sup>2</sup> (about 50G) 3 times each in X, Y, and Z directions	
Cable	Outside diameter φ4.2 5-core vinyl wire Insulated shield cable (length 1m)	
Mass	70g	

## Output circuit diagram



A capacitor (0.1μF) is connected between 0V and FG (frame ground).

## Output waveform

