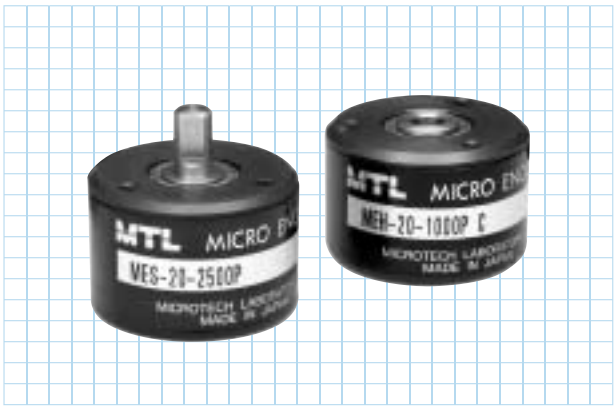
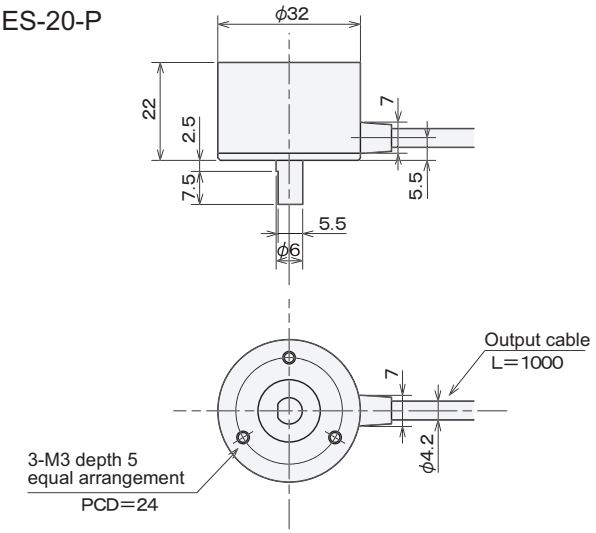
ME-20-P series

[Square Wave/Incremental]

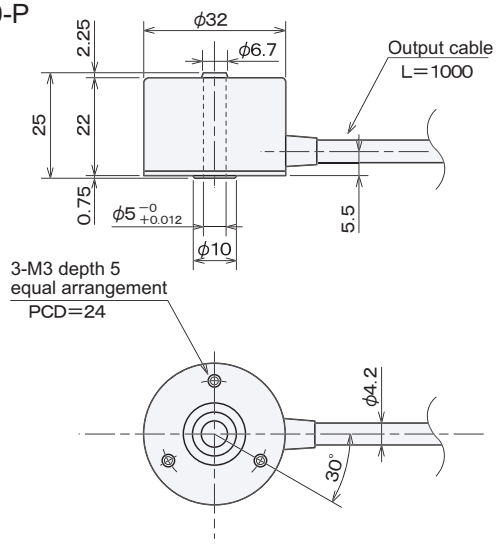


Outside dimensions

MES-20-P



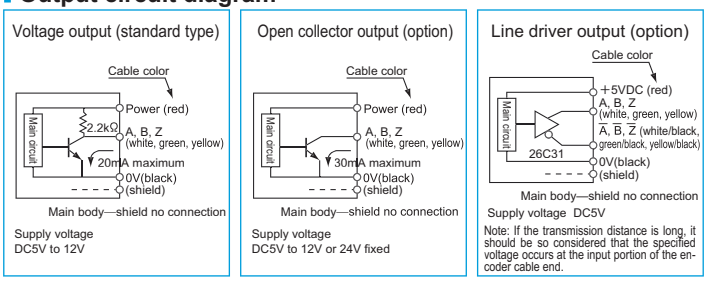
MEH-20-P



Specifications

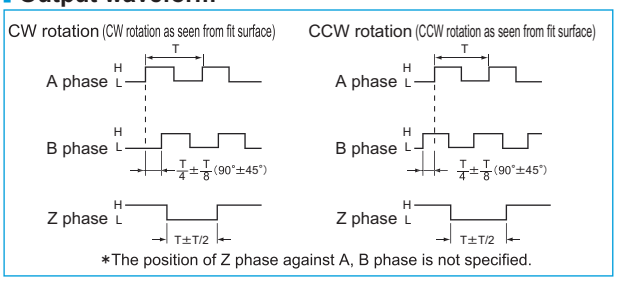
Item					
Type name	ME□-20-□P□ Shaft shape ●S=single shaft ●H=hollow shaft ●D=double shaft Pulse number Output circuit ●No entry=voltage output ●C=open collector output ●C4=open collector output DC24V ●E=line driver output ●S=sine wave output ●ST=built-in multiplication circuit				
Supply voltage	DC5～12V ±10% DC24V±10%(open collector output only)				
Current consumption	50mA or less (under no load)				
Detection system	Incremental				
Output	Output pulse number (Standard) [Pulse number/rotation]	40 50 60 100 200	250 256 300 360 400	450 500 512	600 800 1000 1024 1200 1800 2000 2048 2500 3600
Output	Output phase	A, B, Z phase			
Output	Output form	Square wave			
Output	Output capacity	Sink current: 20mA Residual voltage: 0.5V or less (at 10mA)			
Output	Maximum response frequency (response pulse number)	100kHz			
Output	Output phase difference	A, B phase difference 90°±45° (T/4±T/8) Z phase T±T/2 (see Output Waveform)			
Output	Waveform rise/fall time	2μs or less (output cable 1m or less)			
Starting torque		2×10^{-3}N·m (20gf·cm) or less			
Allowable load of shaft (electrical)	Radial	19.6N (2kgf)		14.7N (1.5kgf)	
Allowable load of shaft (electrical)	Thrust	9.8N (1kgf)		4.9N (0.5kgf)	
Maximum allowable revolutions (mechanical)	6000r/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/s² (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



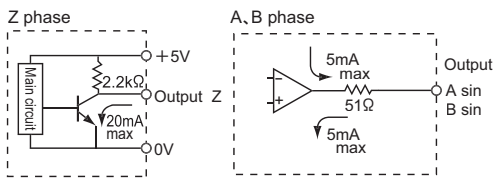
*The position of Z phase against A, B phase is not specified.

Specifications/Sine wave

Supply voltage		DC5V ±5%
Current consumption		40mA or less (under no load)
Detection system		Sine wave・Incremental
Output pulse number (Standard) [Pulse number/rotation]		1000 2000 2500
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^{-3}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)		6000r/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^2 (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)



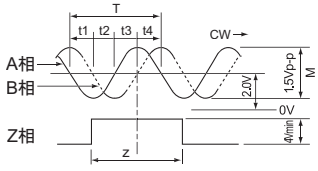
Signal name	Lead wire color
Vcc	Red
0V	Black
A phase	White
B phase	Green
Z phase	Yellow

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

Output waveform

Sine wave output (option)

CW rotation (CW rotation as seen from fit surface)



T=360°/divisions
t1, t2, t3, t4=T/4±T/8
z=T±T/2

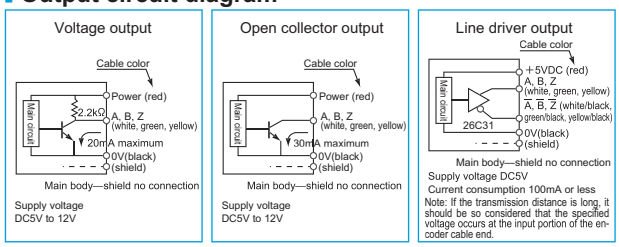
M=M×20% or less
Amplitude variation rate
Amplitude waviness
A/B phase amplitude ratio

*The position of Z phase against A, B phase is not specified.

Specifications Built-in multiplication circuit (×2・×4・×8・×16)

Supply voltage		DC5V ±5%
Current consumption		40mA or less (under no load)
Detection system		Incremental
Output	Output pulse number (Standard) [Pulse number/rotation]	2,500×2(5,000) 2,500×4(10,000) 2,500×8(20,000) 2,500×16(40,000) etc.
Output	Output phase	A, B, Z phase
Output	Output form	A, B phase SIN wave, Z phase square wave
Output	Maximum response frequency	Line driver output:50kHz× (by multiplication) Voltage output・Open collector output:100kHz
Output	Output phase difference	See the diagram below.
Starting torque		2×10^{-3}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)		6000r/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^2 (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

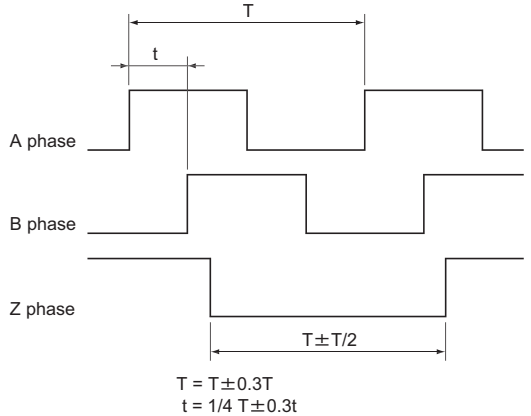
Output circuit diagram



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

Output waveform

CW rotation (CW rotation as seen from fit surface)



T = T±0.3T
t = 1/4 T±0.3t