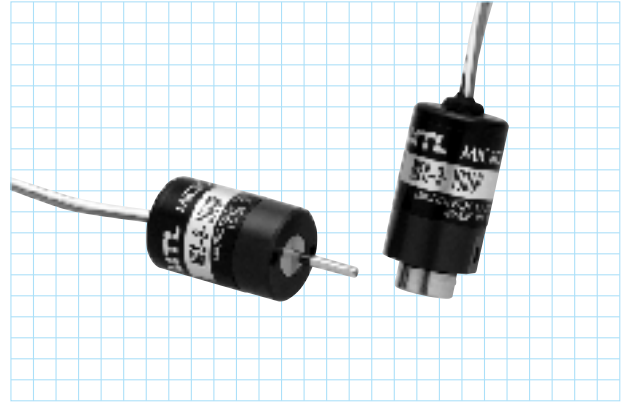
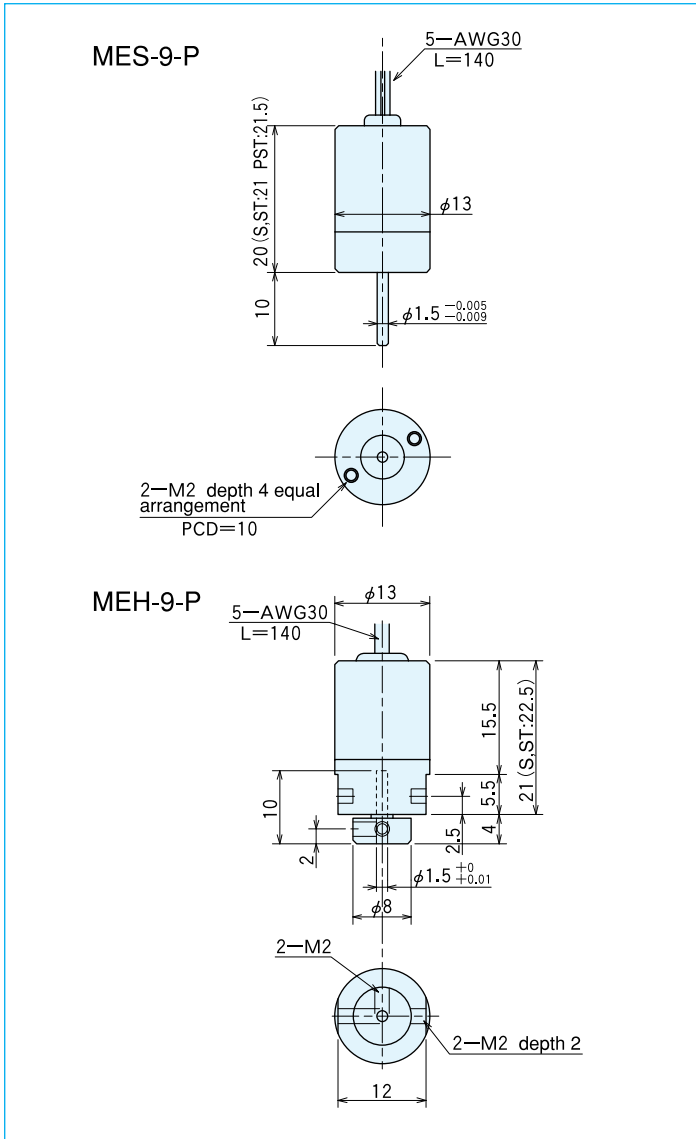


ME-9-P series

[Square Wave/Incremental]



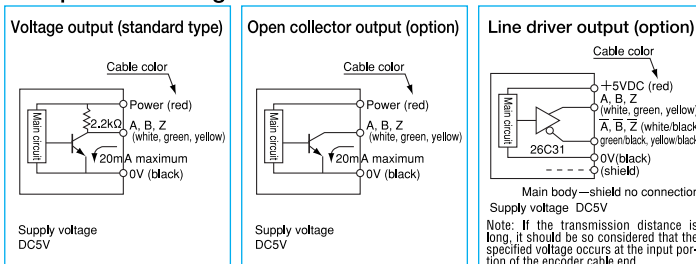
Outside dimensions



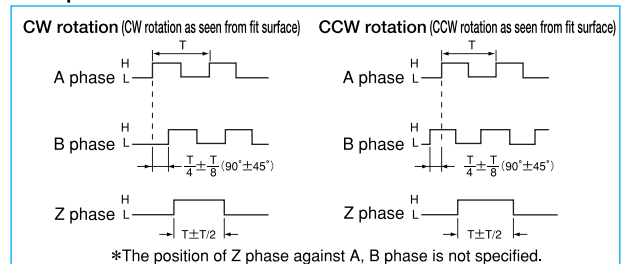
Specifications

Type name		ME <input type="text"/> -9- <input type="text"/> P <input type="text"/>	
Item	Shaft shape	<ul style="list-style-type: none"> ● S=single shaft ● H=hollow shaft 	
	Pulse number	<ul style="list-style-type: none"> ● No entry=voltage output ● C=open collector output ● E=line driver output ● S=sine wave output ● ST=built-in multiplication circuit 	
Supply voltage	DC5V $\pm 10\%$		
Current consumption	40mA or less (under no load)		
Detection system	Incremental		
Output	Output pulse number (Standard)	100 200 256	300 360 500
	Output phase	A, B, Z phase (Z="H")	
	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	$2\mu\text{s}$ or less (output cable 140mm or less)		
Starting torque	$1 \times 10^{-3} \text{N} \cdot \text{m}$ (10gf \cdot cm) or less		
Allowable load of shaft (electrical)	Radial	1.9N (200gf)	0.98N (100gf)
	Thrust	1.9N (200gf)	0.98N (100gf)
Maximum allowable revolutions (mechanical)	6,000/min		
Working ambient temperature/humidity	$0^\circ\text{C} \sim 60^\circ\text{C}$ RH35% \sim 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^2 (about 50G) 3 times each in X, Y, and Z directions		
Cable	Vinyl wire (AWG30) Cable length 140mm		
Mass	10g		

Output circuit diagram



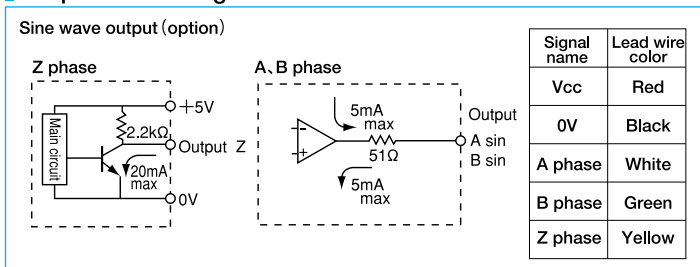
Output waveform



Specifications/Sine wave

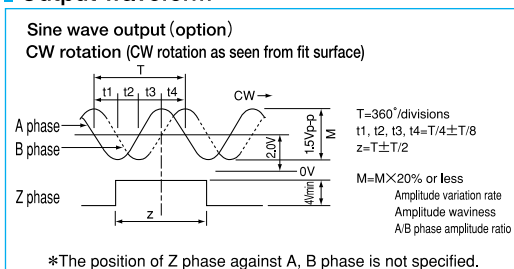
Supply voltage	DC5V $\pm 10\%$	
Current consumption	40mA or less (under no load)	
Detection system	Sine wave·Incremental	
Output pulse number (Standard) [Pulse number/rotation]	1,000	
Output phase	A, B, Z phase	
Output form	Square wave	
A, B, Z phase output	SIN wave 1.5 Vp-p ± 0.3 V offset 2.0V ± 0.2 V	
	OP amp output current 5 mA 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	100kHz	
Output phase difference	A, B phase difference 90° $\pm 45^\circ$ (T/4 \pm T/8) Z phase T \pm T/2 (see Output Waveform)	
Waveform rise/fall time	2 μ s or less (output cable 140mm or less)	
Starting torque	1 $\times 10^{-3}$ N·m (10gf·cm) or less	
Allowable load of shaft (electrical)	Radial	0.98N (100gf)
	Thrust	0.98N (100gf)
Maximum allowable revolutions (mechanical)	6,000r/min	
Working ambient temperature/humidity	0°C~60°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	Vinyl wire (AWG30) Cable length 140mm	
Mass	10g	

Output circuit diagram



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

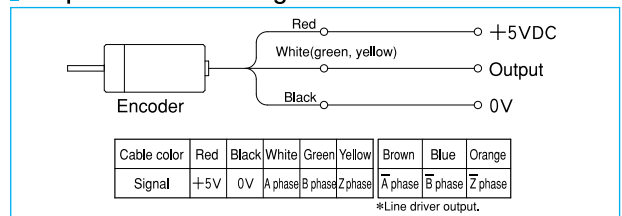
Output waveform



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

Supply voltage	DC5V $\pm 5\%$	
Current consumption	40mA or less (under no load)	
Detection system	Incremental	
Output	Output pulse number (Standard) [Pulse number/rotation]	EX 1,000 $\times 2$ (2,000) 1,000 $\times 4$ (4,000) 1,000 $\times 8$ (8,000) 1,000 $\times 16$ (16,000)
	Output phase	A, B, Z phase
	Output form	Square wave, Open collector output *Line driver output
	Maximum response frequency	Open collector output: 100kHz
	Output phase difference	See the diagram below.
Waveform rise/fall time	1 μ s or less (output cable 140mm or less)	
Starting torque	1 $\times 10^{-3}$ N·m (10gf·cm) or less	
Allowable load of shaft (electrical)	Radial	0.98N (100gf)
	Thrust	0.98N (100gf)
Maximum allowable revolutions (mechanical)	6,000r/min	
Working ambient temperature/humidity	0°C~60°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	Vinyl wire (AWG30) Cable length 140mm	
Mass	10g	

Output connection diagram



Output waveform

