

ENP Series

Shaft Type Ø60mm Absolute Rotary Encoder

■ Features

- Allows to measure absolute variable angle with BCD code
- Strong against external impact
- Memorizing the absolute position when power is cut off

■ Applications

Precision numerical control machine for industrial plant

⚠ Please read "Safety Considerations" in operation manual before using.



■ Ordering Information

ENP	-	1	1	1	-	R	-	360	-	P
Series	Output code	Output	Power supply	Revolution direction	Steps/revolution	Control output				
Ø60mm shaft type (external shaft diameter: Ø10mm)	1: BCD code	0: Negative logic 1: Positive logic	0: 5VDC ±5% 1: 12-24VDC ±5%	F: Output value increase at CW direction R: Output value increase at CCW direction	006: 6-divison 016:16-divison 008: 8-divison 024: 24-divison 012: 12-divison 360: 360-divison	P: PNP open collector output N: NPN open collector output				

■ Specifications

Item			Shaft Type Ø60mm Absolute Rotary Encoder					
Model	PNP open collector output		ENP-111□-006-P	ENP-111□-008-P	ENP-111□-012-P	ENP-111□-016-P	ENP-111□-024-P	ENP-111□-360-P
	NPN open collector output		ENP-101□-006-N	ENP-101□-008-N	ENP-101□-012-N	ENP-101□-016-N	ENP-101□-024-N	ENP-101□-360-N
Resolution			6-division	8-division	12-division	16-division	24-division	360-division
Electrical specification	Output phase		TP (timing pulse) : 2-bit TS (signal pulse) : 4-bit (BCD, EP)	TP (timing pulse) : 2-bit TS (signal pulse) : 5-bit (BCD, EP)	TP (timing pulse) : 2-bit TS (signal pulse) : 6-bit (BCD, EP)	TP (timing pulse) : 2-bit TS (signal pulse) : 6-bit (BCD, EP)	TP (timing pulse) : 2-bit TS (signal pulse) : 7-bit (BCD, EP)	TS (signal pulse) : 10-bit (BCD)
	Output of phase differences		TP1: 53° ±30' TP2: 15° ±30' P: 60° ±30' TS: 56° ±30'	TP1: 39° ±30' TP2: 15° ±30' P: 45° ±30' TS: 42° ±30'	TP1: 3° ±30' TP2: 15° ±30' P: 30° ±30' TS: 26° ±30'	TP1: 2° ±30' TP2: 11.25° ±30' P: 22.5° ±30' TS: 19.5° ±30'	TP1: 8° ±30' TP2: 3° ±30' P: 15° ±30' TS: 11° ±30'	TS: 1° ±30'
	Control output	PNP open collector output	Output voltage: min. (power supply-1.5V)VDC, Load current: max. 32mA					
		NPN open collector output	Load current: max. 32mA, Residual voltage: max. 1VDC≒					
	Response time (rise/fall)	PNP open collector output	Ton=800ns, Toff=Max. 800ns (cable length: 1m, I sink=32mA)					
		NPN open collector output	Ton=800ns, Toff=Max. 800ns (cable length: 1m, I sink=32mA)					
	Max. response frequency		20kHz					
	Power supply		• 5VDC≒±5% (ripple P-P: max. 5%) • 12-24VDC≒±5% (ripple P-P: max. 5%)					
	Current consumption		Max. 100mA (disconnection of the load)					
	Insulation resistance		Over 100MΩ (at 500VDC megger between all terminals and case)					
Dielectric strength		750VAC 50/60Hz for 1 minute (between all terminals and case)						
Connection		Axial cable type						
Mechanical specification	Starting toque		Max. 500gf·cm (0.05N·m)					
	Moment of inertia		Max. 300g·cm ² (3×10 ⁻⁶ kg·m ²)					
	Shaft loading		Radial: 10kgf, Thrust: 2.5kgf					
	Mechanical revolution ^{※1}		3,600rpm					
Vibration			1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours					
Shock			Approx. max. 75G					
Environ-ment	Ambient temperature		-10 to 70°C, storage: -25 to 85°C					
	Ambient humidity		35 to 85%RH, storage: 35 to 90%RH					
Protection structure			IP50 (IEC standard)					
Cable			Ø8mm, 12-wire, 1m, Double shield cable (AWG24, core diameter: 0.08mm, number of cores: 40, insulator diameter: Ø1mm)					
Accessory			Mounting bracket, coupling					
Weight ^{※2}			Approx. 478g (approx. 400g)					

※1: Make sure that max. response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

$$[\text{Max. response revolution (rpm)}] = \frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$$

※2: The weight includes packaging. The weight in parenthesis is for unit only.

※Environment resistance is rated at no freezing or condensation.