

Inductive Absolute Rotary Encoder

인덕티브 애플루트 로터리 엔코더 (IA Series)

IAS-E-01-003002

- ※ The Inductive encoder is very durable because it does not use optical components.
- ※ It is an encoder of reliable and excellent quality that is applicable to the automated control industry.
- ※ The above specifications are subject to change without notice.

Ordering Information

IA50S	8		1024	B	F	S	24
Series	Outside diameter	Body material	Resolution	Output code	Rotating direction	Control output	Power supply
IA40S: Ø40mm Shaft	6: Ø6mm 8: Ø8mm	No mark: Aluminum	Refer to Resolution	B: Binary Code G: Gray Code	The rotation seen from the shaft F: Clockwise count increment R: Counter-clockwise count increment	S: SSI Line driver	5 : 5VDC 24: 12~24VDC
IA50S: Ø50mm Shaft	8: Ø8mm	P: Plastic (PA66-GF30)					

※ The PA66-GF15 is a lightweight material with very high stiffness, excellent wear resistance, very high strength, and resistance to oil and fuel applied to the aviation, automobile and machine industries.

Connections

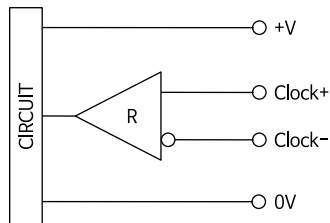
■ SSI Line driver output

Function	Color	Function	Color
CLOCK+	Green	CLOCK-	Yellow
DATA+	White	DATA-	Blue
+V	Red	GND (0V)	Black
Shield	F.G.	-	-

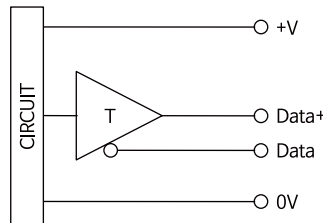
- ※ Unused wires must be insulated.
- ※ The encoder and shield cable must be grounded (F.G.).
- ※ F.G. (Frame Ground) must be grounded separately.

Control output diagram

■ SSI Line driver Clock input



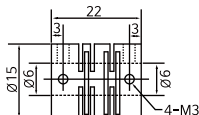
■ SSI Line driver Data output



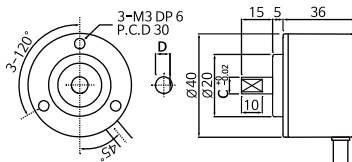
※ SSI Line driver input, output level: 3.3VDC ~ 5VDC

Dimensions

■ Coupling: IA40S6

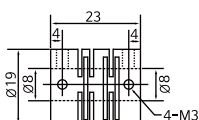


■ IA40S: Outside diameter Ø40mm ※Unit:mm

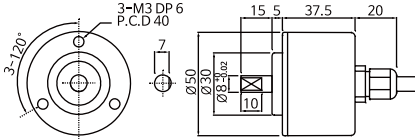


	C	D
IA40S6	Ø6	5
IA40S8	Ø8	7

■ Coupling: IA40S8, IA50S8



■ IA50S: Outside diameter Ø50mm



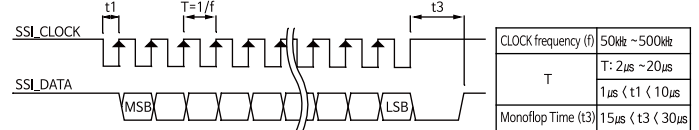
Specifications

Model	Outside diameter Ø40mm, Ø50mm Inductive absolute rotary encoder
Power supply	5VDC ± 5%, 5VDC ~ 24VDC ± 5% (Ripple P-P : Max. 5%)
Current consumption	Max. 100mA (no load)
Resolution (Single-Turn)	60, 64, 100, 128, 200, 256, 300, 360, 500, 512, 720, 1000, 1024, 2048, 4096
Multi-Turn	16384 revolution (14bit) ※ Multi-Turn is reset when the product is powered on/off.
Output code	Binary Code, Gray Code
Output signal	SSI (Synchronous Serial Interface) Line driver output
Line driver output	Load current : I_H Level I_o = Max. -20mA, I_L Level I_s = Max. 20mA Output voltage: Min. 2.5VDC, V_s = Max. 0.5VDC
Clock input level	3.3VDC ~ 5VDC
Clock input frequency	50kHz ~ 500kHz
Hysteresis	± 1LSB
Max. Response frequency	30kHz
Max. Allowable revolution	5,000rpm
Shaft loading	Radial: Max. 2kg · f, Thrust: Max. 1kg · f
Shock	Max. 50G
Vibration	Max. 5G
Protection	IP50 (IEC standard)
Ambient temperature	-10 ~ 70°C (no freezing or condensation)
Storage temperature	-20 ~ 85°C (no freezing or condensation)
Ambient humidity	35% ~ 85% RH
Storage humidity	35% ~ 90% RH
IA50S Series	Axial cable type
IA40S Series	Radial cable type
Cable	Shield cable, Length: 1.5m
Accessory	Product, Coupling, Bolt, Instruction manual
Approval	CE ※excluding some items

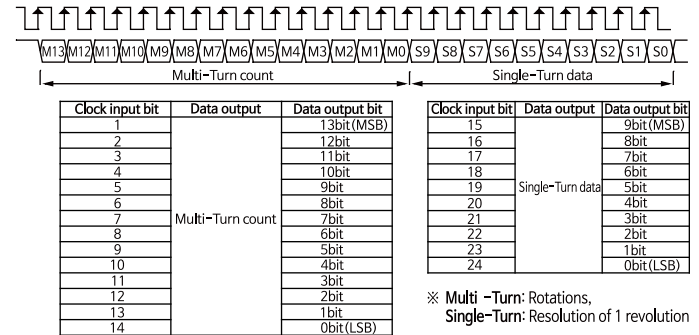
- ※ Select resolution to satisfy Max. allowable revolution $\geq$ Max. response revolution
- ※ Max. response revolution (rpm) = (Max. response frequency / resolution) X 60 sec

Output Waveform

■ SSI Line driver output timing chart



■ SSI Line driver output data output



Cautions during use

■ Environment

- Please do not use this unit with below environment, or it may cause malfunction.
- 1) Place where this unit or component may be damaged by strong vibration or impact.
- 2) Place where there is a lot of flammable or corrosive gases.
- 3) Place where strong magnet field or electric noise occurs.
- 4) Place where strong acids or alkali near and direct ray of the sun.

■ Cautions during installation

- 1) Do not load overweight on the shaft.
- 2) Do not put strong impact when insert a coupling into shaft.
- 3) If the coupling error (parallel misalignment, angular misalignment) between the shaft increases while installation, the life cycle of the coupling and the encoder can be shorten.
- 4) Do not connect, repair, or inspect the unit while connected to a power source.
- 5) If a big impact or strong vibration applies to the product it may cause pulse errors.

■ Wire Connection

- 1) Do not pull out the wire with over 20N strength after fixing the unit and wiring the cable.
- 2) If wire encoder cable with high voltage line or power cable in the same conduit, it may cause a malfunction or mechanical problem. Please wire it separately or use separated conduit.

■ Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.

- 1) medical equipment, ship, vehicle, railways, aircraft, safety equipment, etc
- 2) Failure to follow this instruction may result in personal injury, economic loss or fire