BTH™
Incremental Rotary Encoder

CE

BI-E6-B2 38mm dia Shaft Type

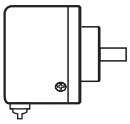
- Thin design with an external diameter of Ø38 mm
- Easy installation in narrow spaces
- Small diameter lineup with resolution up to 1024 P/R
- Low price contributes to cost reduction of system
- IP54 protective structure
- Wide range of power sources : 5~24VDC
- Push Pull & open collector

Ordering information

BI – E6 – B2 – P – 1024 –

Series	Shaft dia	Output waveform	Output configuration	Resolution (pulses/rotation)	Power supply
BI	**E6** 6mm	**B2** A & B	**P** Push Pull	**100, 200, 360, 400, 500, 600, 1000, 1024** (other PPR are available on request)	5~24VDC No mark normal type
			N Open Collector NPN		

A simple way of sensing rotary movements



Electrical Characteristics

Output circuit		Push Pull	NPN Open Collector
Supply voltage		5-24 VDC	
Current requirement		≤120mA	≤60mA
Output voltage V	V_H	>VCC-2.5	
	V_L	≤0.7	
Rise time		≤500 (ns)	
Fall time		≤100 (ns)	
Frequency tesponse		0~300kHz	

Mechanical Characteristics

Max. speed		6000RPM
Starting torque (25ºC)		$1*10^{-3}$ Nm
Max load	Radial	30N
	Axial	20N
Rotary inertia		$4*10^{-6}$ kgm^2
Cable		1.5 Mtr. Black shield cable, side entry
Weight		135g

Connection

Wire colour	Red	Black	Green	White	Shield
PNP (push pull)	Vcc	0V	A	B	Ground
NPN (open collector)					

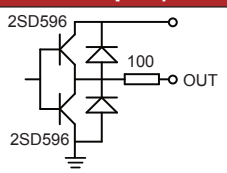
Environmental Characteristics

Operating temperature	–20ºC ~ 85ºC
Storage temperature	–30ºC ~ 90ºC
Relative humidity	35% ~ 85%RH no condensation
Impact resistance	50 m/s^2 (Three times each on x, y, z directions, each time last 6ms)
Vibration resistance	20 m/s^2 (10~200Hz, 2h on x, y, z directions)
Protection class	IP54

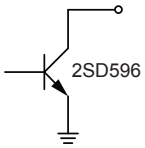
Output Circuit

F (Push-pull) & (Open Collector)

F (Push-pull)



(Open Collector)



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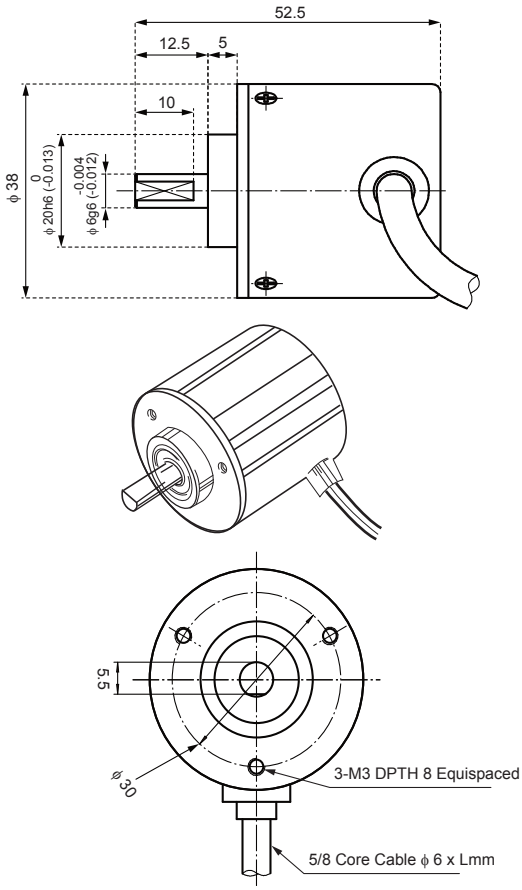
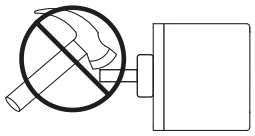
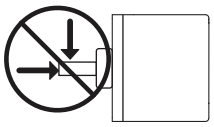
Dimension Drawing

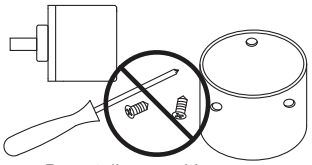


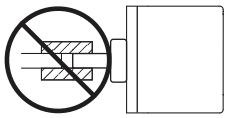
Body material : Aluminum alloy 2A12
Outer case material : Iron

Caution: Avoid damage to your **BTH** Encoder. The following actions may cause damage, and void product warranty.


Do not shock or strike


Do not subject shaft to excessive axial or radial shaft stresses

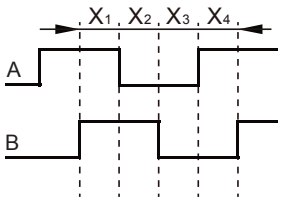

Do not disassemble

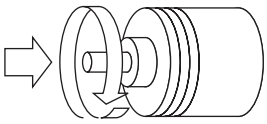

Do not use a rigid coupling

An incremental encoder operates based on the principle of photoelectric conversion. It generates incremental output signals in two phases, A and B, which have a 90º phase difference. The advantages of this design include a simple structure, a long average lifespan of tens of thousands of hours, strong anti-interference capability, and high reliability, making it suitable for long-distance transmission. Shaft encoders are particularly useful as they can be easily mounted using a flexible coupling to the shaft.

Output Waveform

- Waveform for P & N output





CW → Rotating Toward Clockwise
Viewed from an Arrow

Industries

- Machine Tools
- Transportation
- Medical Industry
- Wood Machinery
- Textile Machinery
- Drive Technology
- Graphical Machinery
- Electronic Production
- Automotive Assembly
- Water, Energy, Mining
- Handling and Robotics
- Semiconductor Industry
- Chemical, Petrochemical
- Warehouse and Logistics
- Injection Molding, Die Casting
- Pharmaceutical, Bio Technology
- Food, Beverage, Semi-luxury Goods

Applications

- Solar
- Gear test stands
- Handling Control
- Labelling machines
- Packaging machines
- Processing machines
- Foil-winding machines
- Profile milling machines
- Wood processing machines
- Chipboard production plants
- Drive and conveyor technology
- Blister and carton box packaging
- Conveying systems in day-mining
- Graphical machinery (printing machines)

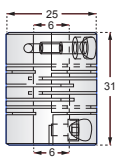
Coupling & Bracket (optional)

BCH-A-15D-22L-6x6

Glass fibre body, overall dia 15mm, length 22mm, bore 6mm both side

BCS-31-25-6-6-A

Length 31mm, ϕ25mm
Bore ϕD1-6mm ϕD2-6mm
Aluminium 6061 alloy, anodized



Bracket 38