Incremental Optical Encoder **ENI58K** series



Feature

- ◆ Encoder diameter of 58mm, thickness of 24& 29mm, maximum shaft aperture of 22mm;
- ◆ Adopting non-contact photoelectric principle;
- ◆ Polarity reverse protection;
- ◆ Short circuit protection;
- ◆ Multiple electrical interfaces available;
- ◆ Resolution can reach up to 57600PPR.

Naming rules

EN	I	58	KB18	—	3	N	1024	H		—	T	XXXX

Product category
EN: Encoder

Encoder type
I: Incremental

Size of outside diameter
58: Outside diameter 58mm

Axis diameter type
KB12 shaft rear clamping, shaft diameter 12mm
KB18 shaft rear clamping, shaft diameter 18mm
KB20 shaft rear clamping, shaft diameter 20mm
KBQ12 shaft front clamping, shaft diameter 12mm
KBQ18 shaft front clamping, shaft diameter 18mm
KBQ20 shaft front clamping, shaft diameter 20mm

Output phase number
3: A+B+Z
6: A+ $\bar{A}$+ B + $\bar{B}$ + Z+ $\bar{Z}$ ①

Electrical interface
N: OC(NPN) ②
NH: OC(NPN) ③
C: TTL(DC5V,26LS31) ④
E: HTL (DC8-30V) ⑤

Resolution
1024
2048
4096
57600

Power supply voltage
J: 5V DC
H: DC 8-30V

Protection level
None: IP50

Connection method
T: Radial 1m cable
T2: Radial 2m cable
T5: Radial 5m cable

XXXX
Four digit special number

① When the output phase number is 6: A+ $\bar{A}$+ B + $\bar{B}$ + Z+ $\bar{Z}$, the electrical interface can only choose C: TTL(DC5V, 26LS31) or E: HTL (DC8-30V).

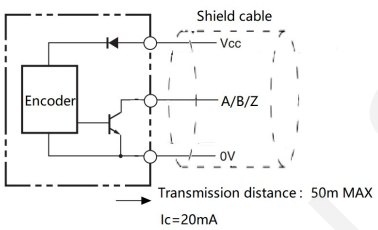
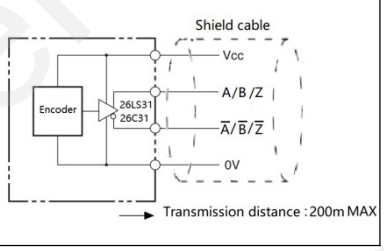
② Z signal is low level active (The recommended resolution is less than 5000PPR).

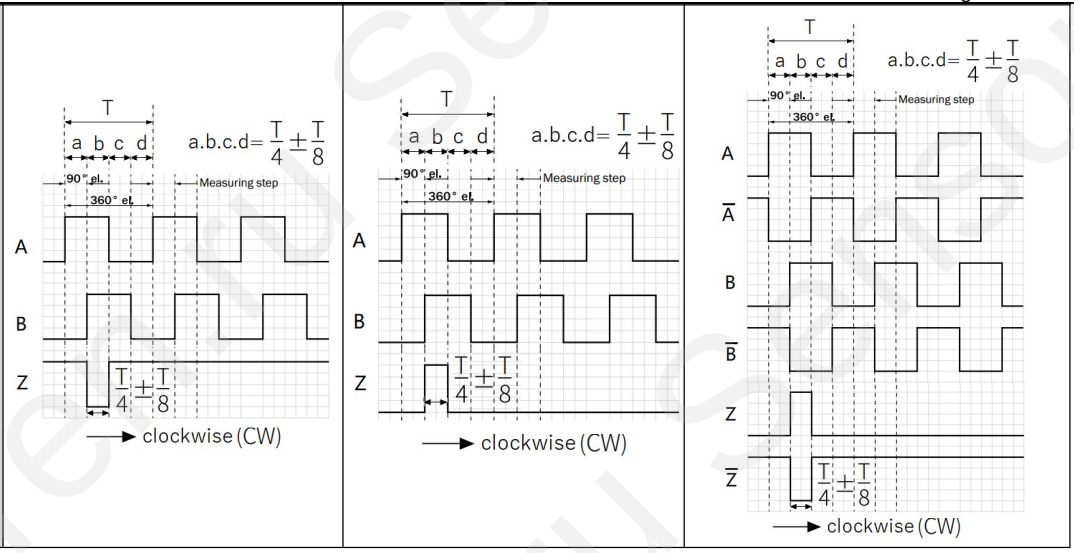
③ Z signal is high level active (The recommended resolution is less than 5000PPR).

④If the electrical interface is TTL(DC5V, 26LS31), the corresponding power supply voltage type can only be 5V DC.

⑤If the electrical interface is HTL(DC8-30V), the corresponding power supply voltage type can only be 8-30V DC.

Specification parameters

Parameter			OC(N)	OC(NH)	TTL	HTL
Supply voltage			DC+5V±5%； DC8V-30V±5%		DC+5V±5%	DC8-30V±5%
Consumption current			100mA Max		120mA Max	
Allowable ripple			≤3%rms			
Top response frequency			100kHz		300kHz	500kHz
Output capacity	Output current	Input	≤30mA		≤±20mA	≤±50mA
		Output	—			
	Output voltage	"H"	—		≥2.5V	≥Vcc-3 VDC
		"L"	≤0.4V		≤0.5V	≤1V VDC
	Load voltage		≤DC30V		—	
Rise & Fall time			Less than 2us (cable length: 2m)		Less than 1us (Cable length:2m)	≤100ns
Insulation strength			AC500V 60s			
Insulation resistance			10MΩ			
Mark to space ratio			45% to 55%			
Reverse polarity protection			√			
Short-circuit protection			—		√①	
Phase shift between A & B			90º ±10° (frequency in low speed)			
			90°±20° (frequency in high speed)			
GND			Not connect to encoder			
Diameter of shaft			φ18mm; φ20mm (optional)			
Starting torque			Less than 9.8×10^{-3} N·m			
Inertia moment			Less than 6.5×10^{-6} kg·m²			
Shaft load			Radial 50N; Axial 30N			
Slew speed			≤3000 rpm			
Bearing Life			$1.5X10^{9}$ hrs revs at rated load (100000hrs at 2500RPM)			
Shell			Aluminium alloy			
Weight			about 150g			
Environmental temperature			Operating:-20～+85°C (repeatable winding cable: -10°℃); Storage: -20~+90℃			
Environmental humidity			Operating and storage: 35~85%RH (non-condensing)			
Vibration (Endurance)			Amplitude 1.52mm, 5~55Hz, 2h for X, Y, Z direction individually			
Shock (Endurance)			980m/s² 11ms three times for X, Y, Z direction individually			
Protection			IP50			
Output circuit						

Output wave form	

① Short-circuit to another channel or GND permitted for max 30s.

② Phase A.B.Z are back of phase U.V.W when power on.

Wiring table

OC(Wiring table for socket and cable connection)

	Supply voltage		Incremental signal		
Wire color	Red	Black	White	Green	Yellow
Function	Up	0V	A	B	Z

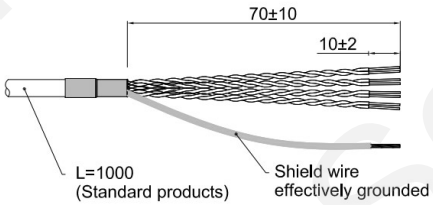
TTL/HTL(Wiring table for socket and cable connection)

	Supply voltage		Incremental signal					
Wire color	Red	Black	White	White/ BK	Green	Green/ BK	Yellow	Yellow/ BK
Function	Up	0V	A+	A-	B+	B-	Z+	Z-
Twisted-paired cable								

Up=Supply voltage.

Shield wire is not connected to the internal circuit of encoder.

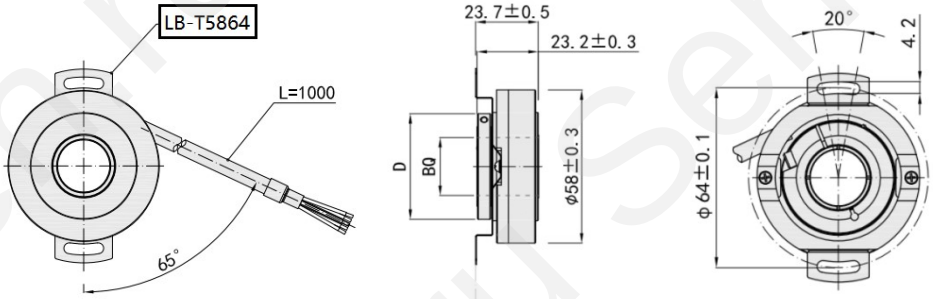
Cable connection



Dimensional drawing

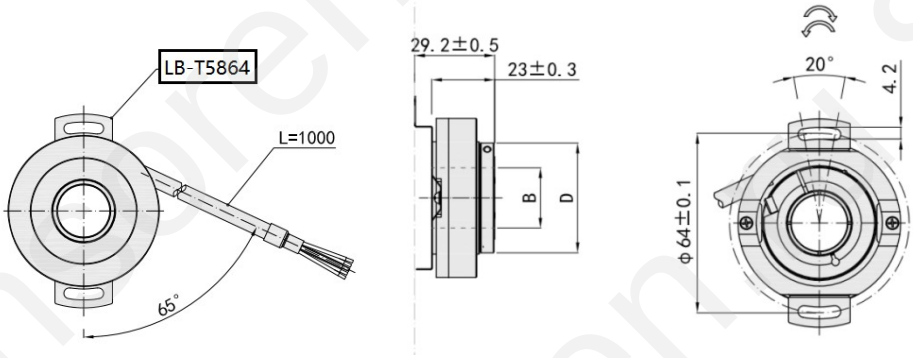
KBQ (clamping ring at prior):

BQ (Shaft)	D
Φ12	Φ35
Φ18	Φ37
Φ20	Φ41

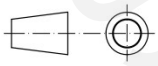


KB (clamping ring at prior):

BQ (Shaft)	D
Φ12	Φ35
Φ18	Φ37
Φ20	Φ41



Unit：mm



= Direction of shaft rotation for incremental signal output

= Direction of shaft rotation for servo motor-specific signal output