HOLLOW SHAFT ENCODER **ERB-50-S** Series

Product selection guide

EXCELLA®
ELECTRONICS
Mfg. of Motion Control & Elevator Automation Product

Applications & Features

ERB50S, 50mm External Diameter; Various kinds of termination;
Wide application range.
The grating divided into metal grating and glass grating,
the max resolution up to 6000ppr.
Optoelectronic devices with high reliability, long life, strong anti-interference ability, wide range of operating temperature.

Part Number

E	RB	50	S	8	-	G	□	1	C	-	□	B	M

Product Class
E: Common

External Diameter
Φ50mm

Shaft Diameter
Φ8mm

Cable Length
Standard 1M
0.3M-10M

Output Circuit
E: Voltage Output
F: Push-pull
C: Open Collector
L: Line Driver
A: Wide Voltage Line Driver

Output Signal
A: A phase signal
B: 90° phase different A、B singals output

Product Type
Incremental

Shaft Type
S: Solid Shaft

Connection
G: Dustproof radial cable
E: Dustproof axial cable
J: Waterproof radial cable
K: Waterproof axial cable

Supply Voltage
1: DC5V
2: DC8-26V
3: DC10-30V
4: DC12V

Resolution
100、120、127、128、150、200、250、256、300、360、400、500、512、600、640、720、800、900、960、1000、1200、1250、1440、1500、1600、1800、2000、2048、2500、2540、2560、3000、3600、4000、5000、6000

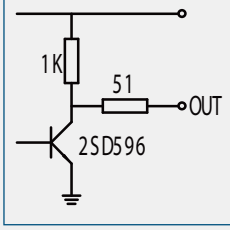
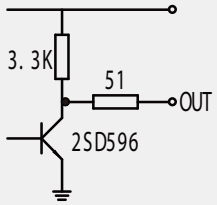
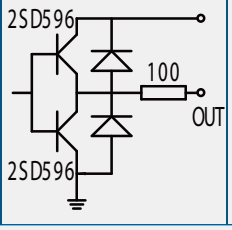
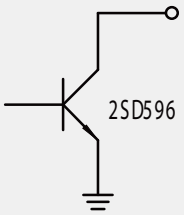
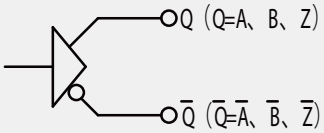
Index Signal
M: Z signal

Electrical Specifications

Output Circuit	Supply Voltate DC (V)	Current Requirement (mA)	(Output Voltage V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
	12						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
	12						

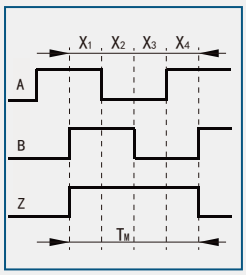
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
	12						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
	12						

Output Circuit

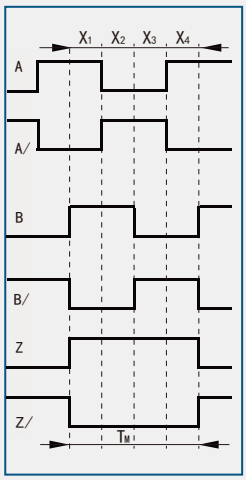
E (Voltage)		F (Push-pull)		C (Open Collector)	L、A (Line Driver)
5V	8-26V	5V	8-26V		
					 L：26C31 A：ET7272B

Note: C, F output is shorted to ground protection diode.

Output Waveform



Waveform for C, E, F output



Waveform for L,A output

Wave Ratio : X1+X2=0.5T±0.1T
X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1, 2, 3, 4)

Absolute Angle Error: ≤0.2T

Cycle Error : ≤0.05T

T=360° / N (N=lines count per revolution)

Width of Z signal

1、Tm=1T±0.5T

Tm=nT±0.1T (n≥2)

The phase relationship of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T

Tm=0.25T±0.125T

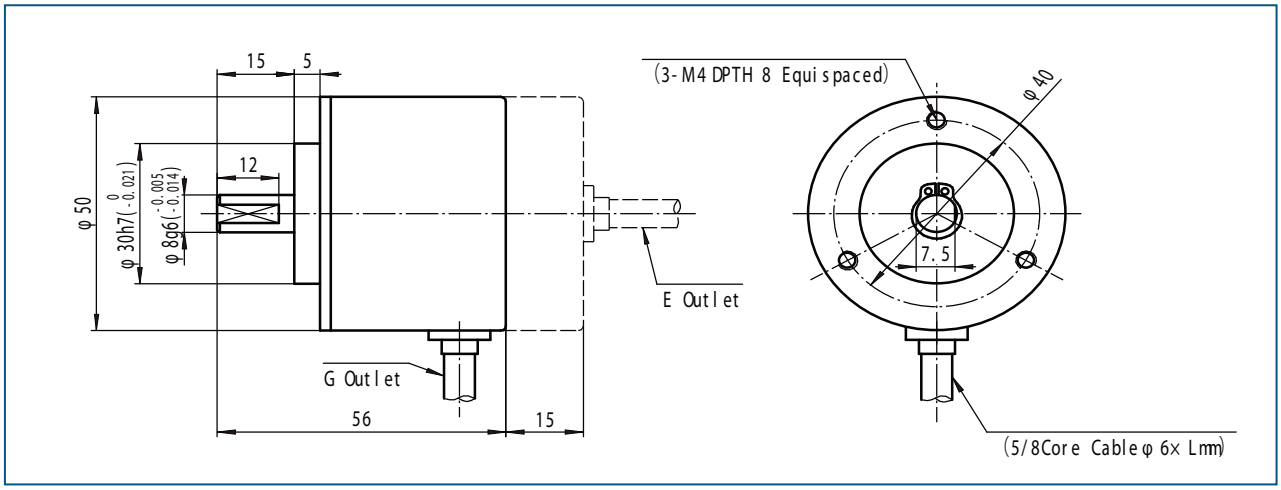
Tm=0.25T±0.125T

The picture shows the clockwise (CW) waveform from the shaft side.

Mechanical Specifications

Max Speed (r/min)	Starting Torque (N. M)	Max Load (N)		Rotary Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	30	20	$4*10^{-6}$	≈0.19

Dimension



Environmental Specifications

Operating Temperature (℃)	-20～+85	
Storage Temperature (℃)	-30～+95	
Relative Humidity	35～85%RH no condensation	
Impact Resistance (m/s^2)	50(Three times each on x, y, z directions, each time lasts 6ms)	
Vibration Resistance (m/s^2)	20 (10～200Hz, 2h on x, y, z directions)	
Protection Class	Common IP54	Reinforced IP65

Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage)	Vcc	0V	A		B		Z		G
F (Push Pull)	Vcc	0V	A		B		Z		G
C (Open Collector)	Vcc	0V	A		B		Z		G
L、A (Line Driver)	Vcc	0V	A	A/	B	B/	Z	Z/	G

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