

# Bearing Absolute Encoder Product Manual

## RZ Series

### FEATURES

- - Operating Temperature: -20°C to +105°C
- - Current Consumption: < 100mA (Main power supply)
- - Battery Voltage: 3.6V DC
- - Battery Fault Voltage: 2.5V
- - Battery Warning Voltage: 3.1V
- - Differential Output
- - Single 5V Power Supply
- - Rise/Fall Time: Around 100ns
- - Insulation Resistance: 50MΩ



### PRODUCT DESCRIPTION

The Bearing Absolute Encoder RZ Series is designed for high precision in servo-driven control systems, delivering accurate feedback for position and speed control. It operates effectively in temperatures from -20 ° C to +105 ° C and consumes less than 100mA of power. With resolutions ranging from 131,072 (17-bit) to 8,388,608 (23-bit) and a single 5V power supply, this encoder is ideal for robotics, CNC machinery, and automation applications, ensuring reliability and efficiency in demanding environments.

Models:

RSH4308

RSL4308

RSH4306

RSL4306

RSH3506

RSL3506

### Applications

The Bearing Absolute Encoder RZ Series is highly suitable for a variety of industrial applications. Its precision feedback is essential for servo-driven control systems in sectors such as robotics, CNC machining, and automation. The encoder is ideal for use in manufacturing processes, where accurate position and speed control are critical. Additionally, it is effective in aerospace and automotive industries, enhancing the performance and reliability of complex machinery. With its robust design and

wide operating temperature range, the RZ Series can meet the demands of various challenging environments, making it a vital component for modern automation solutions.

## SPECIFICATIONS

Parameter	Specification
Resolution	131,072 (17-bit) ~ 8,388,608 (23-bit)
Multi-turn Counter Resolution	16 bits (65,536 turns)
Shaft Diameter	Shaft $\varnothing 8$ or $\varnothing 6$
Moment of Inertia	$< \pm 50$ angular seconds (Accuracy depends on motor and mechanical assembly fit)
Repetition Positioning Accuracy	$< \pm 3$ angular seconds (Accuracy depends on motor and mechanical assembly fit)
Battery Voltage	Fault Warning
Interface	RS485
Communication Frequency	$\leq 16K$
Baud Rate	2.5MHz
Shaft Deviation	Tilt angle: $0.1^\circ$ Axial endplay: $< 0.1\text{mm}$ Radial runout: $< 0.01\text{mm}$
Operating Speed	$\leq 6000\text{rpm}$
Rotor Angular Acceleration	- $\leq 80,000 \text{ rad/s}^2$ (powered by main supply) - $\leq 4,000 \text{ rad/s}^2$ (battery powered)
Mechanical Shock	- Impact acceleration: $980 \text{ m/s}^2$ for 11ms - 3 impacts in each direction, totaling 18 impacts

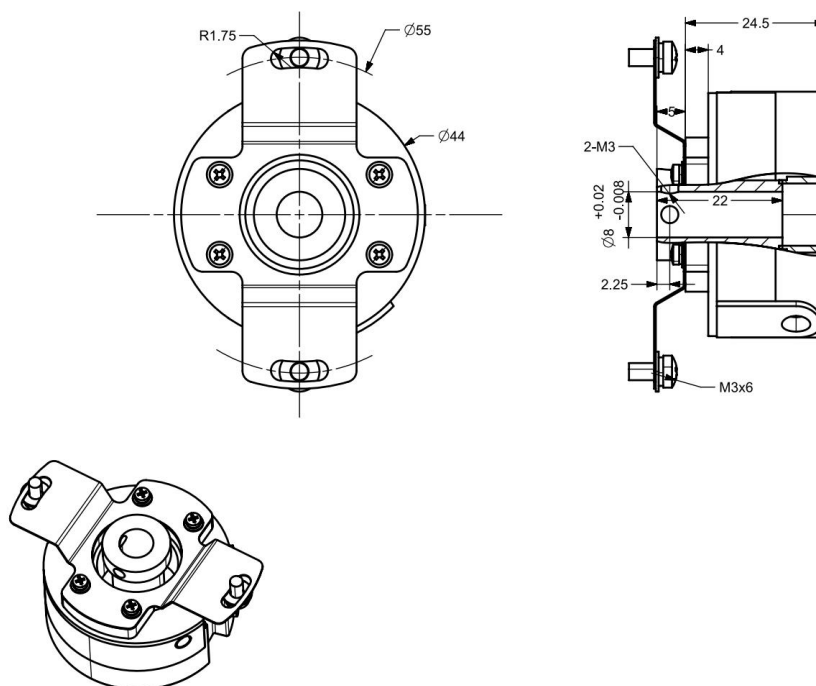
Vibration	- 10 to 55Hz with 1.5mm amplitude - 55 to 2000Hz with acceleration of 98 m/s <sup>2</sup> - 2 hours per axis, 6 hours total
Operating Temperature	-20°C to +105°C
Relative Humidity	≤90% (at 40°C for 21 days, based on EN 60068-2-78), no condensation
Protection Rating	IP40

### Cable Definitions

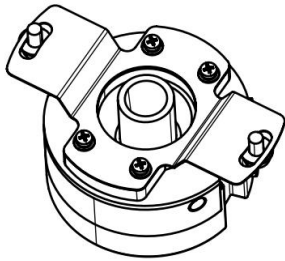
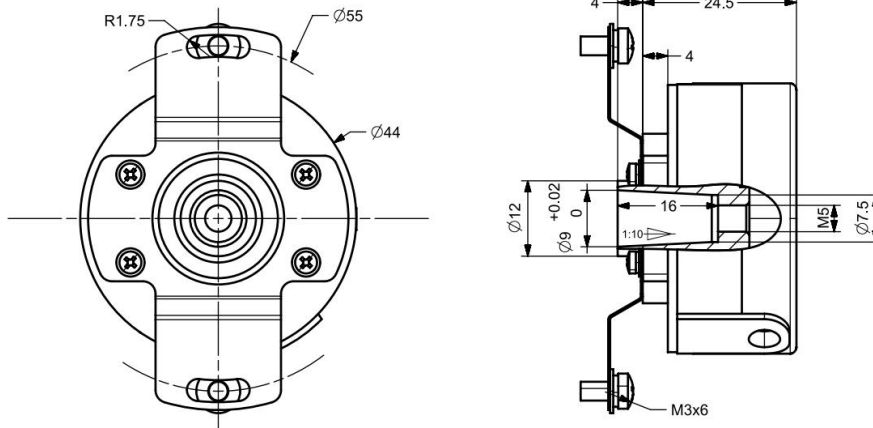
PIN number	1	2	3	4	5	6	7	8
Signal definition	5V	GND	485+	485-	Power+	Power GND	NC	PE
Cable color	Red	Black	Blue	Yellow	Brown	White	-	Shielding net

## MECHANICAL DRAWINGS

### 111 RZH4408 Bearing Absolute Encoder



**112 RZH4409 Bearing Absolute Encoder**



**113 RZL4409 Bearing Absolute Encoder**

