

# NexBot Robotics

## ABS141-001 Absolute Encoder 24-Bit Single-Turn

NexBot Robotics

SKU: NXB-SNS-ABS141-001 | Category: Drive Systems > Encoders > Absolute Encoders

### Overview

The NexBot Robotics ABS141-001 is a high-resolution absolute encoder designed to provide precise, real-time position feedback for industrial robot joints. This component is essential for applications demanding high accuracy and repeatability, ensuring that robot movements are executed flawlessly cycle after cycle. Its primary function is to report the exact angular position of a robot joint to the main controller, eliminating the need for homing sequences upon startup and enabling immediate operation. Key to its performance is the 24-bit single-turn resolution, which provides over 16 million distinct positions per revolution. This level of detail allows for exceptionally smooth motion control and precise tool-tip placement, critical for tasks such as intricate welding paths, high-speed assembly of small components, and precise material handling. The encoder communicates via the BiSS-C open-source digital interface, offering high-speed, reliable data transmission that is robust against electrical noise commonly found in industrial settings. Built for demanding factory environments, the ABS141-001 features a rugged, anodized aluminum housing and is sealed to an IP67 rating. This ensures complete protection against dust ingress and resistance to temporary water immersion, safeguarding the internal optics and electronics from contamination. Its wide operating temperature range of -40°C to +105°C makes it suitable for use in a variety of challenging thermal conditions. The compact, standardized form factor allows for direct integration into the joints of compatible NexBot Robotics systems, simplifying installation and maintenance procedures. This encoder is an ideal replacement or upgrade part for maintaining the peak performance and positional accuracy of your robotic assets.

### Technical Specifications

Parameter	Value	Unit
Weight	0.35	kg
Material	Anodized Aluminum	
Voltage	10-30VDC	

Parameter	Value	Unit
IP Rating	IP67	
Country of Origin	US	
Protocol	BiSS-C	
Dimensions	Ø58 x 45 mm	

**Safety Notice:** This product must be installed and operated by qualified personnel in accordance with applicable safety standards (ISO 10218, IEC 61508).