

# NexBot Robotics

## 311-001 6-Axis Force/ Torque Sensor 500N/ 20Nm

NexBot  
Robotics

SKU: NXB-SNS-311-001 | Category: Sensors & Vision > Force/Torque Sensors > 6-Axis Force/Torque Sensors

### Overview

The NexBot Robotics 311-001 is a compact, high-precision six-axis force and torque sensor designed to provide robotic systems with tactile sensing capabilities for advanced automation applications. This sensor measures forces and torques along all three spatial axes (Fx, Fy, Fz, Tx, Ty, Tz), enabling sophisticated force control strategies. Its primary use case is in applications requiring delicate interaction between the robot's end-of-arm-tooling and the workpiece, such as intricate assembly, surface finishing, and quality inspection. Key features include a robust, monolithic transducer design made from high-strength anodized aluminum, which provides excellent durability and resistance to industrial environments. The sensor is equipped with integrated electronics that handle signal conditioning and processing, outputting clean, high-speed data over a standard EtherCAT communication interface. This high data rate is critical for real-time force feedback loops, allowing the robot controller to make micro-adjustments to its path for smoother, more consistent results in tasks like deburring or polishing. The NXB-SNS-311-001 has a nominal capacity of  $\pm 500$  N in Fz and  $\pm 20$  Nm in Tz, making it suitable for a wide range of robot payloads. Engineered for reliability, the sensor features built-in overload protection, safeguarding the unit from damage in the event of unexpected collisions. Its IP67 environmental rating ensures it is fully protected against dust ingress and can withstand temporary immersion in water, making it ideal for deployment in challenging factory conditions where coolants or particulates are present. Installation is straightforward, with a standard ISO 9409-1 flange pattern for mounting between the robot arm wrist and the end effector. This sensor empowers robots to perform tasks that were previously difficult to automate, improving product quality, reducing cycle times, and increasing operational flexibility.

### Technical Specifications

Parameter	Value	Unit
Weight	0.8	kg

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Material	Anodized Aluminum 7075-T6	
Voltage	24VDC	
IP Rating	IP67	
Country of Origin	DE	
Protocol	EtherCAT	
Dimensions	95 x 95 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).