SA210S Bolt Loosening Sensor

THETA

The SA bolt loosening sensor is an industrial-grade sensor designed specifically for monitoring the fastening status of critical bolts in industrial equipment. The sensor features resistance to interference, high accuracy, and durability, making them suitable for long-term operation in harsh industrial environments.

Each sensor uses MEMS technology to accurately measure the relative rotation angle of the nut to the bolt, thereby monitoring the loosening status of the bolt. Additionally, the sensor is equipped with an attitude sensor to monitor changes in the bolt's movement and potential drops.

The sensor is equipped with an RS485 interface, capable of transmitting the data through the Modbus protocol. Users can remotely monitor the loosening rotation angle and receive timely alerts in case of bolt loosening, continuously track the entire process of bolt loosening, ensure the safe operation of equipment, prevent unplanned downtime, and reduce maintenance time and costs.
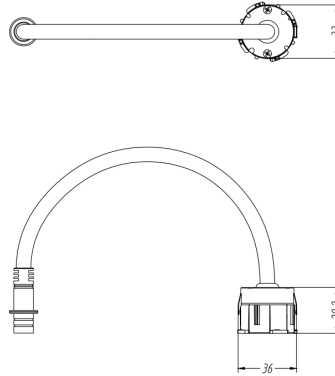
Features and Advantages

Non-intrusive	⇨	No impact on the structure or strength of the bolt.
Accurate	⇨	Interference resistant and highly accurate, with a precision within ±0.5°.
Easy-to-install	⇨	Compact, and lightweight design; mounted with adhesive and twist lock methods.
Ruggedized	⇨	Waterproof, dustproof, shockproof, and corrosion-resistant; suitable for harsh industrial environment.
Accessible	⇨	Remotely accessible anytime, anywhere; automatic alarm; maintenance free.
Convenient	⇨	Bluetooth compatible and connected via mobile APP.

The SA210S bolt loosening sensor is installed non-intrusively on the nut. It uses advanced signal processing technology and algorithms to rapidly and precisely measure the nut's loosening rotation angle relative to the bolt, providing an accurate assessment of the bolt's fastening status.

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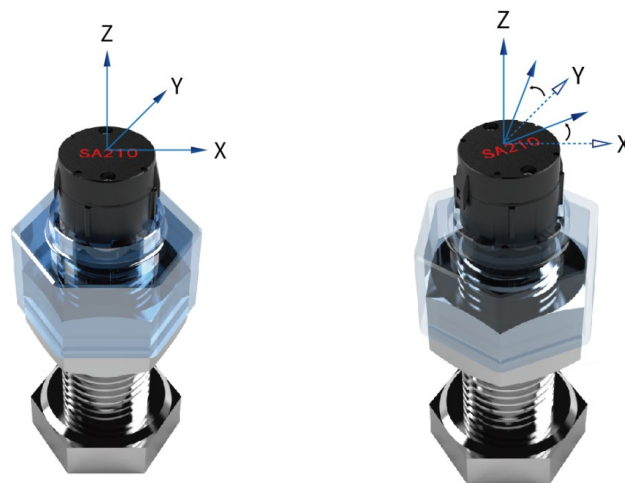
Specifications

Product Model	SA210S
Mechanical Design	Compact design
Loosening Angle Accuracy	±0.5°
Feature Data	Loosening angle, measurement index, motion index, attitude index, temperature
Data Acquisition Rate	Up to 1Hz, configurable
Protocol	Modbus
Interface	RS485
Power	12-24VDC
Dimensions	36mm x 28.2mm (D x H)
Weight	26g
Operating Temperature	-40~85°C
Operating Humidity	10%~90% RH
Enclosure	Polycarbonate
Explosion Protection	EX ia IIC T4 Ga
Ingress Protection	IP67
Mounting	Adhesive and twist lock / welding and twist lock

Mounting

SA210S

Adaptor

Anchor

Bolt and nut