ASY Electronics (Jiaxing) Co., Ltd

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KL-WZ35LQ Three-Axis wireless temperature and vibration sensor manual

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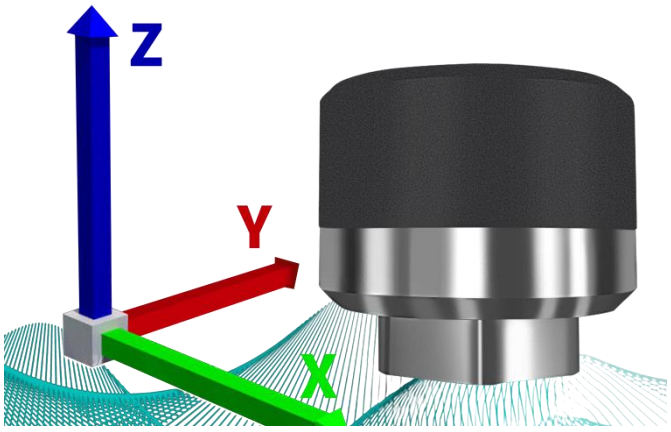
I. Product overview

The KL-WZ35LQ triaxial wireless temperature and vibration sensor is a small, high-performance sensor that integrates wireless transmission, temperature detection, and triaxial vibration detection. The sensor incorporates an intelligent FFT spectrum analysis algorithm, enabling it to acquire raw acceleration data and calculate parameters such as velocity and displacement. Powered by a high-energy lithium-ion battery, it features an ultra-low power consumption design, extending the sensor's lifespan.

The temperature and vibration sensor housing is made of high-strength alloy and engineering plastic, enabling it to withstand harsh industrial environments with high temperatures and strong vibrations. It is mainly used in numerous fields such as coal mining, chemical industry, metallurgy, power generation, building materials, automotive, machinery manufacturing, military industry, and scientific research and education, and can perform online measurement of vibration and temperature in rotating equipment such as motors, reducers, fans, generators, air compressors, centrifuges, and water pumps.



Three-axis direction

1.1 System architecture

Vibration data from the equipment is collected by sensors and transmitted

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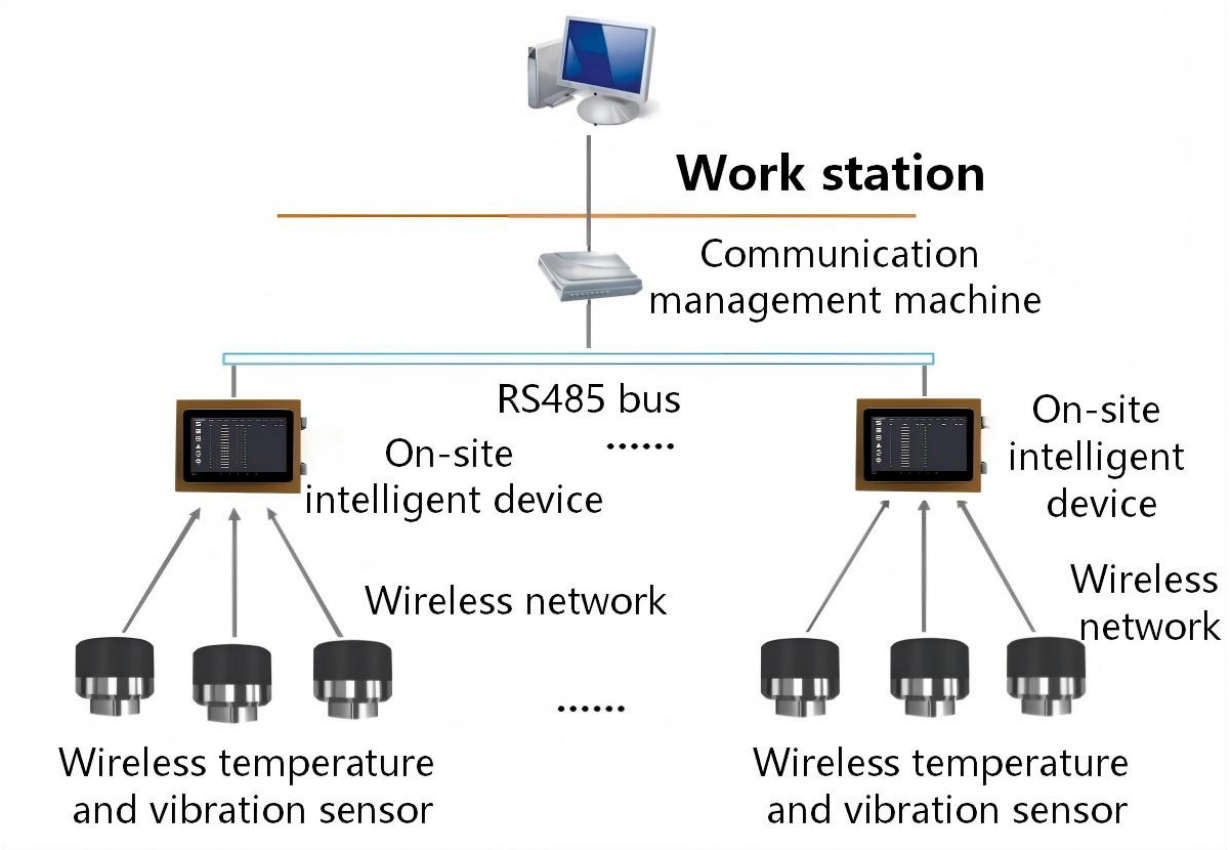
wirelessly to the host computer. The host computer then transmits the data to the server via an RS485 bus. This architecture enables both local data monitoring and remote data monitoring and diagnostics.

1.2 Typical networking methods for wireless temperature and vibration systems



Note: This diagram shows a typical network topology, which may vary depending on the specific project requirements.

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II. Main Technical Parameters

Vibration characteristics	Sensor processing chip	ADXL357 Brand: ADI, Made in the USA
	Measuring vibration parameters	3 axes (each axis includes peak acceleration, RMS velocity , and peak-to-peak displacement)
	Speed measurement range	0.1-199.9mm/s
	Acceleration measurement range	0.0 0 1~ 156.800 m/s ^{2} (±1 6 g)
	Displacement measurement range	0.01 -1.99 mm /s
	Accuracy	± 10 % @ 100Hz
	Frequency response range	< 1000Hz
Temperature characteristics	Measurement range	-40～125℃ (temperature sensing element)
	Resolution	0.1℃
	Accuracy	±1℃ (under stable temperature conditions)
Wireless features	Communication Standards	LORA
	Frequency band	470MHz - 510MHz
	Outdoor/line-of-sight communication range	300m (open and unobstructed)
	Transmit power	17dBm
	Transmission frequency	1 time/1min
Power parameters	Power supply method	3.6V (Lithium-ion battery)
	Battery capacity	Battery capacity 8500mAh, 3.6V
	Standby current	<10uA
	Operating current	< 80mA
Enclosure Requirements	Shell	Engineering plastics plus alloys
	Dimensions (Length * Width * Height)	66 * 66 * 55.6 (mm)
	Installation method	Bolts , magnets, base, adhesive
	Protection level	IP6 5
Work environment	Pushing the limits	100g
	Ambient temperature range	- 40~85℃

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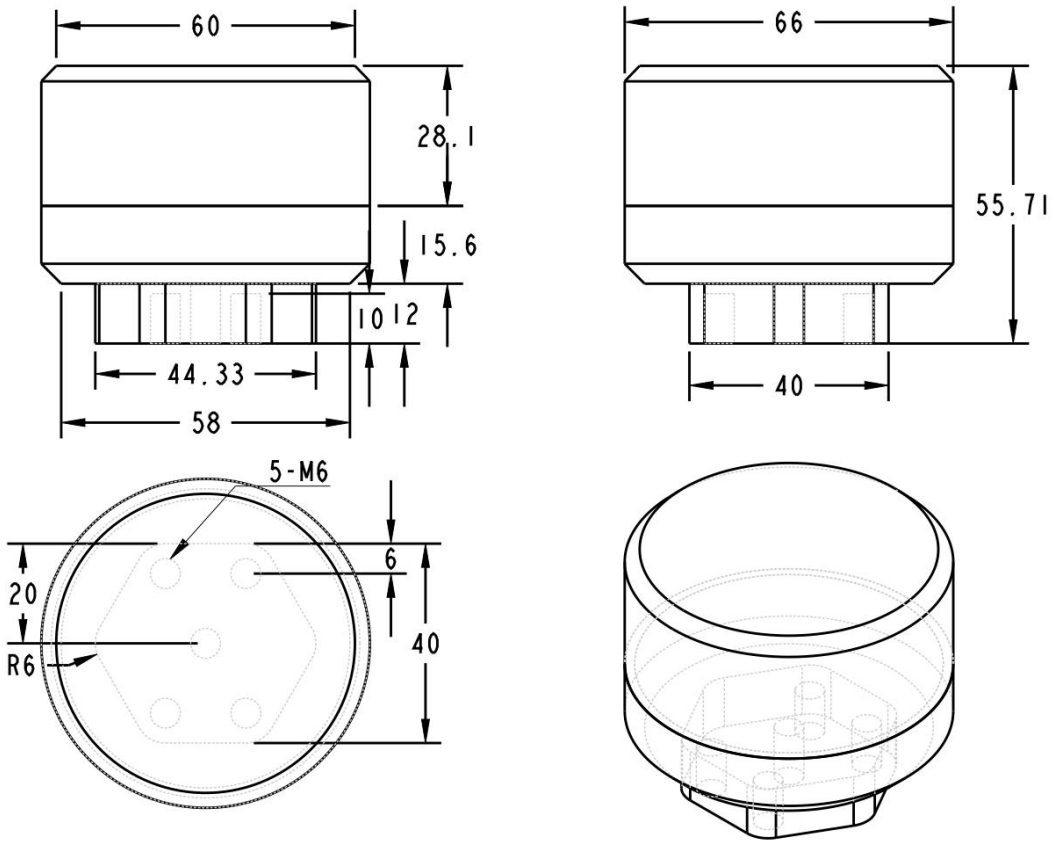
III、External dimensions

External dimensions (unit: mm)



Appearance: The top cover is made of high-strength engineering plastic material;

The base is made of metal alloy and its surface has undergone special treatment to prevent aging and corrosion .

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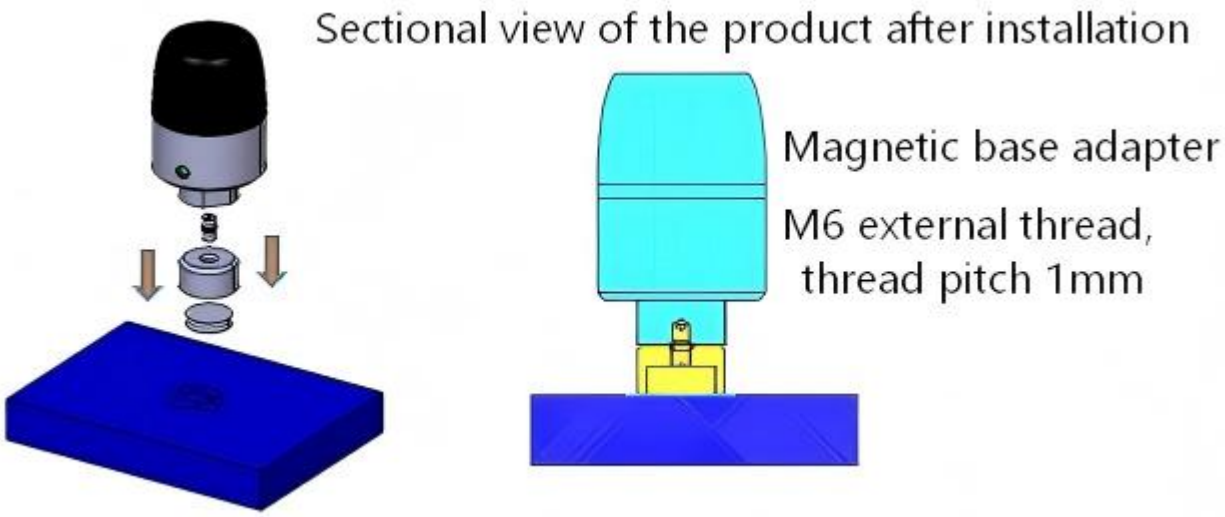
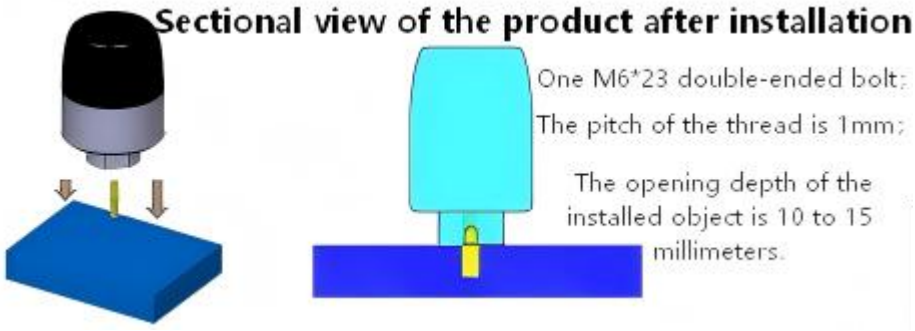
IV、Installation method

4.1 Magnetic Installation Method



4.2 Bolt Installation Method



Apply screw glue to the bolts and mounting holes as needed. Loctite 271 is a suitable thread-locking agent. Bolt dimensions are shown below: 1mm pitch, M6 diameter.

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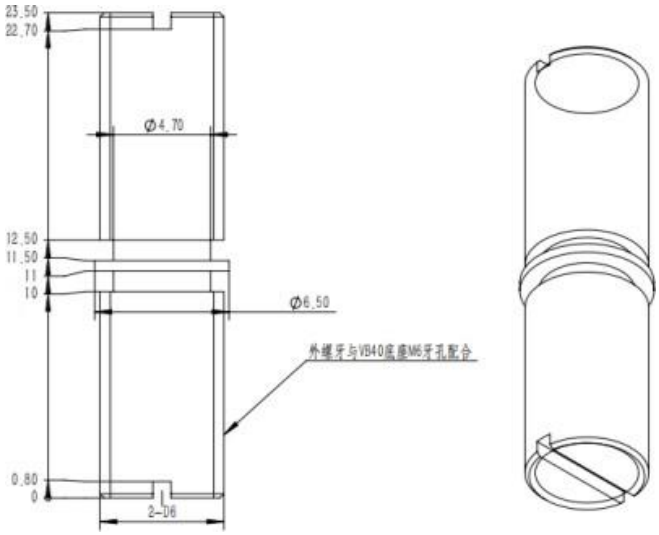
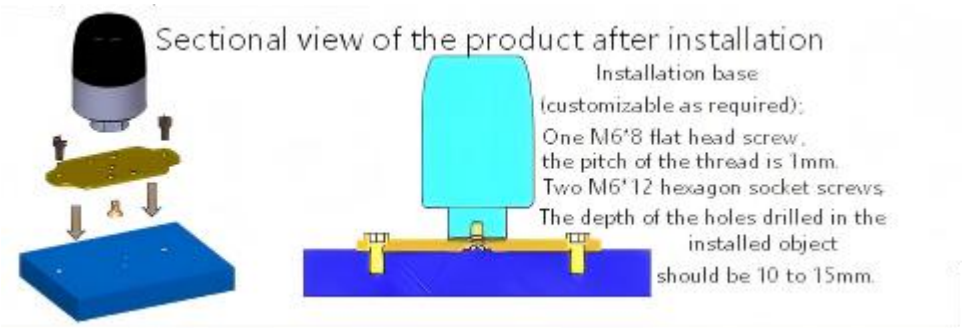


Bolt dimension diagram

4.3 Base bracket installation method

The default shipment does not include a stand; the stand type can be customized according to customer needs.

Planar bracket installation method



Curved surface bracket installation method

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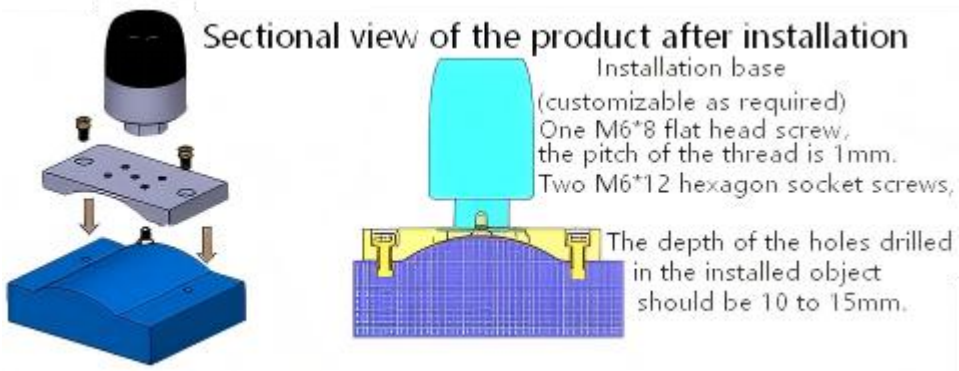
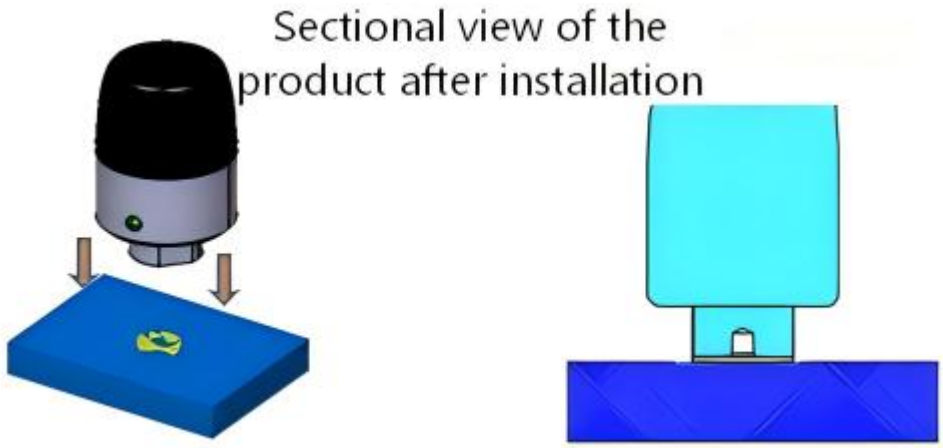


4.4 Adhesive Installation Method



Note: The above installation methods can be reused depending on the on-site application. The diameter of the bottom bolt for the sensor is M6. The adhesive is not included with the sensor shipment; customers can choose to purchase structural adhesive: Loctite AA326, accelerator: Loctite SF7649, or other similar brands and models of adhesive.

Apply structural adhesive to the bottom of the sensor and the mounting area of the device. A suitable structural adhesive model is Loctite AA326. After installation, spray an accelerator between the device and the sensor to accelerate curing. A suitable accelerator model is Loctite SF7649. This installation method generally does not recommend customer removal. If removal is necessary, the mounting area can be appropriately heated (not exceeding 85℃), and a structural adhesive release agent can be used to assist in removal.

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V、On-site case studies

VI、Common Fault Diagnosis and Troubleshooting

6.1 Sensor not working

6.1.1 The equipment is not powered on or the battery is low.

Step 1: Check if the battery connector is loose and if the switch is in the ON position;

Step 2: Check the battery voltage. If the battery voltage is below 3V, the sensor will not work properly.

6.2 The sensor and the host cannot communicate.

The serial number entered on the host device does not match the sensor number;

The main unit is not connected to an antenna.

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6.3 Communication distance is not ideal

The host antenna is not installed correctly; the LORA antenna installation location may be using a different type of antenna, such as a 4G antenna; the sensor antenna is damaged, affecting the communication distance.

The on-site environment is complex, with many obstructions between the sensor and the host, or the sensor installation location has metal shielding.

VII、Contact us

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