

Huayuan Jinbo Technology Co., Ltd



Introduction to Huayuan Group



Huayuan Group is a national-level enterprise group, currently owning over 60 wholly-owned and holding subsidiaries. In 2024, the group was listed among the Top 500 Chinese Enterprises, Top 500 Private Chinese Enterprises, Top 500 National Zhejiang Businessmen Enterprises, Top 500 Chinese Manufacturing Enterprises, Top 100 Enterprises in Zhejiang Province, and Top 100 Manufacturing Enterprises in Zhejiang Province.

Company Profile



The company focuses on the R&D, production, and sales of smart chips, smart sensors, and elastic components. Its products are widely used in fields such as rail transportation, nuclear power, security inspection equipment, automotive manufacturing, and medical devices. As a recognized National "Little Giant" of Specialization and Innovation and a National High-Tech Enterprise, the company has established a Provincial R&D Center. It is a governing unit of China Electronics Industry Association, a recipient of the National Torch Program Key Project designation, and a member unit of the Instrumentation Committee of China Machinery Industry Federation.

Corporate Honors



Awarded the "Joint Endeavor Award" by
Aviation Industry Corporation of China (AVIC)

Corporate Honors

The wholly-owned subsidiary of Huayuan Jinbo Technology Co., Ltd. — Shanghai Jinbo Company — received a letter of appreciation from the Long March 5 Launch Vehicle Model Office, expressing sincere gratitude and high respect for its strong support during the development of the Long March 5B maiden flight rocket.



Current Status of Sensors

Huayuan Jinbo possesses advanced sensor chip packaging capabilities and reliability testing capabilities

The company currently owns a 5,000m² cleanroom facility for sensor chip packaging, testing, and reliability experiments. It is equipped with advanced production and testing equipment including fully automatic die bonders, fully automatic wire bonders, automated gold wire bonders, eutectic bonding equipment, 3D AOI, high-speed chip testers, plasma cleaners, high-precision optical microscopes, X-ray inspection systems, ultra-depth 3D display systems, vibration calibration systems, fully automatic pressure calibration systems, and comprehensive environment test chambers (temperature, humidity, vibration).



Sensor

The company plans to complete its planned project to expand production capacity by 25 million sets of sensors by 2028. A total of 273.18 mu (approximately 18.2 hectares) of industrial land has been reserved for this project, and the company undertakes the R&D of customized sensors.



东阳市自然资源和规划局

关于年产 2500 万只智能传感器建设项目 用地预审意见

东自预[2023]04 号

花园金波科技股份有限公司：

贵单位申请的年产 2500 万只智能传感器建设项目用地预审材料收悉，经审查，对该建设项目用地提出如下预审意见：

1. 该项目总投资 13.26 亿元，项目代码：2303-330783-04-01-202806，符合国家供地有关政策和要求，拟以挂牌方式供地，用途为工业用地。
2. 项目拟用地 18.2118 公顷，农用地 16.8688 公顷（其中耕地 6.9607 公顷），建设用地 1.3430 公顷。该项目符合过渡期编制的《东阳市南马镇国土空间总体规划》。
3. 项目应按国家和省、市有关规定从严控制建设项目用地规模，主要技术经济指标应符合国家相关规定，按节约、集约利用土地的原则，进一步优化设计方案，尽量少占耕地，尤其是水田。
4. 经审核，项目用地地区没有甲类矿产压覆，但为工业类项目，需做好地质灾害评估工作。

Sensor Factory Area

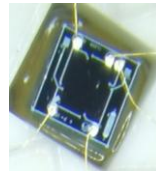


Product Introduction

- **Perception chip**



Acceleration Core



Pressure Chip

- **Sensor components**



Piezoelectric Accelerometer



Level Sensor



Pressure Transmitter



IMU



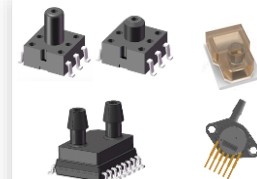
Temperature Sensor



Gas Flow Meter



Force Sensor



Other customized sensors

Introduction to encapsulation capability

金属封装



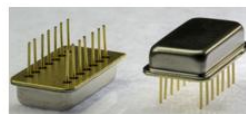
金属菱形封装
TO-XX



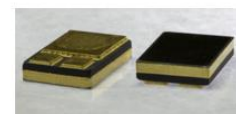
金属圆柱封装
TO-XX



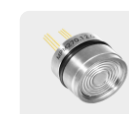
金属法兰封装
TO-XX



金属腔体封装

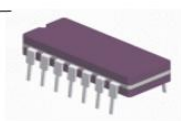


SMD



Oil-Filled
Core

陶瓷封装



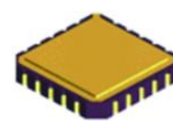
Cer 系列



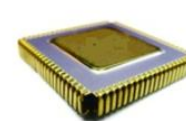
CDIP



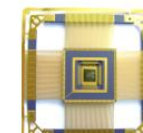
CSOP



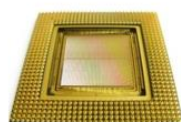
CLCC



CQFJ



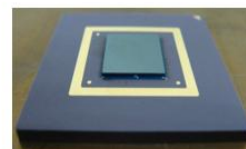
CQFP



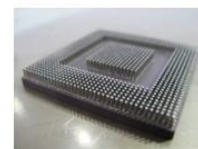
CPGA



CBGA



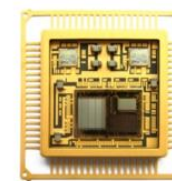
FC-CBGA



CCGA



MCM



SiP

塑料封装



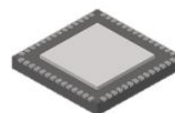
DIP



TO



SOP



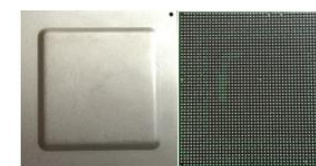
QFN



QFP



WBBGA

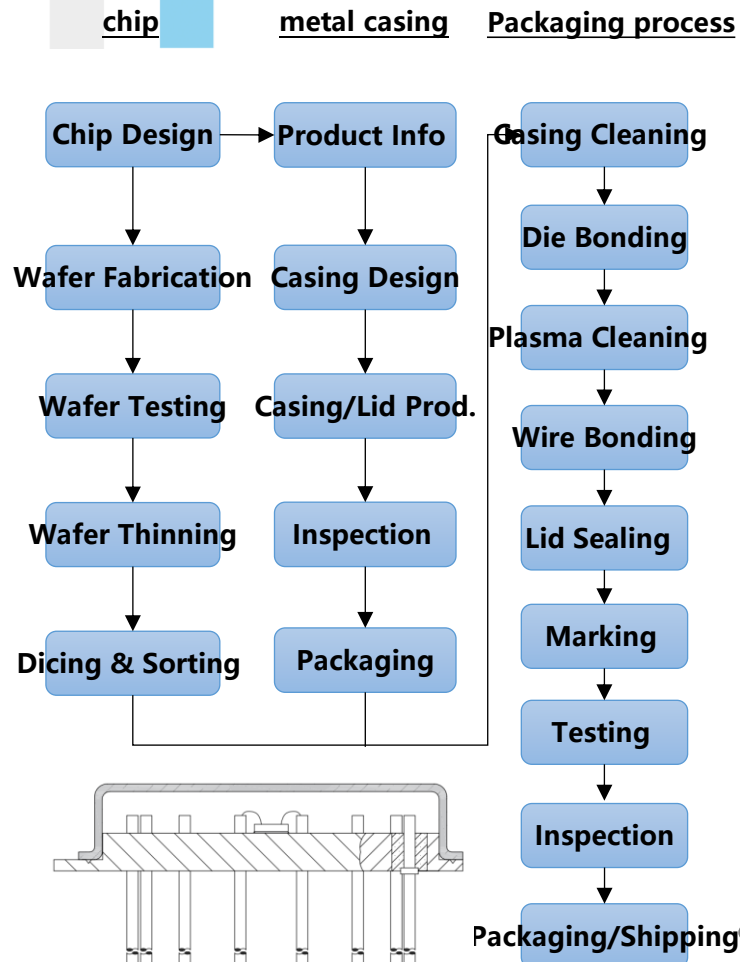


FCBGA

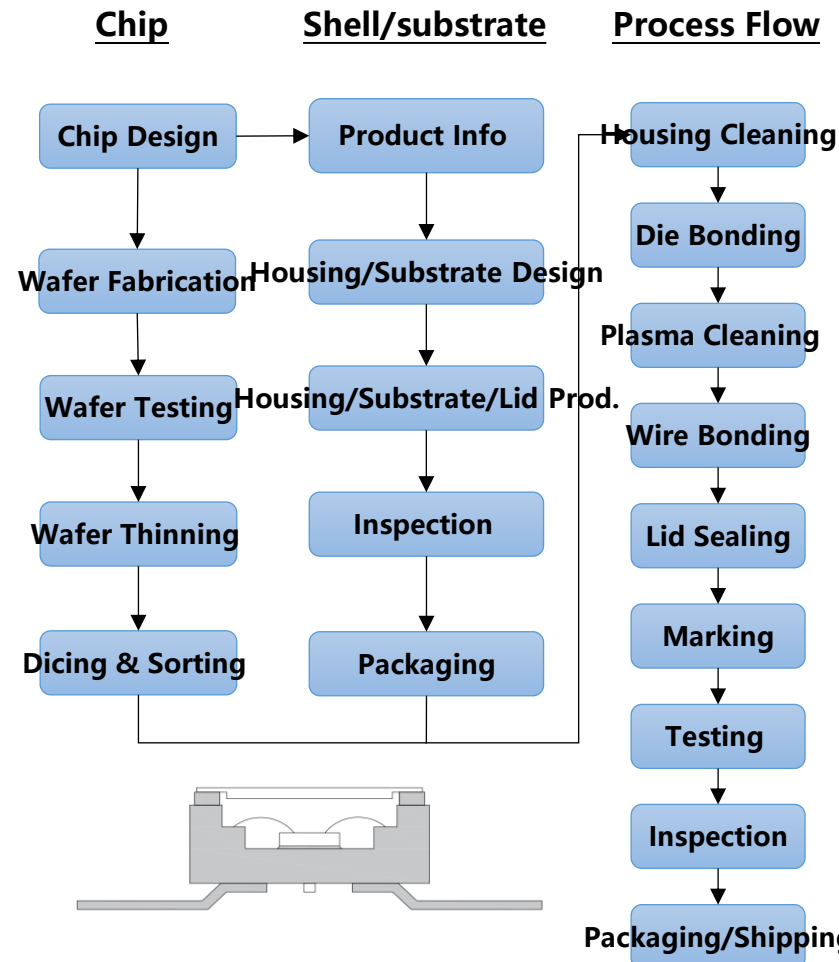
Introduction to encapsulation capability



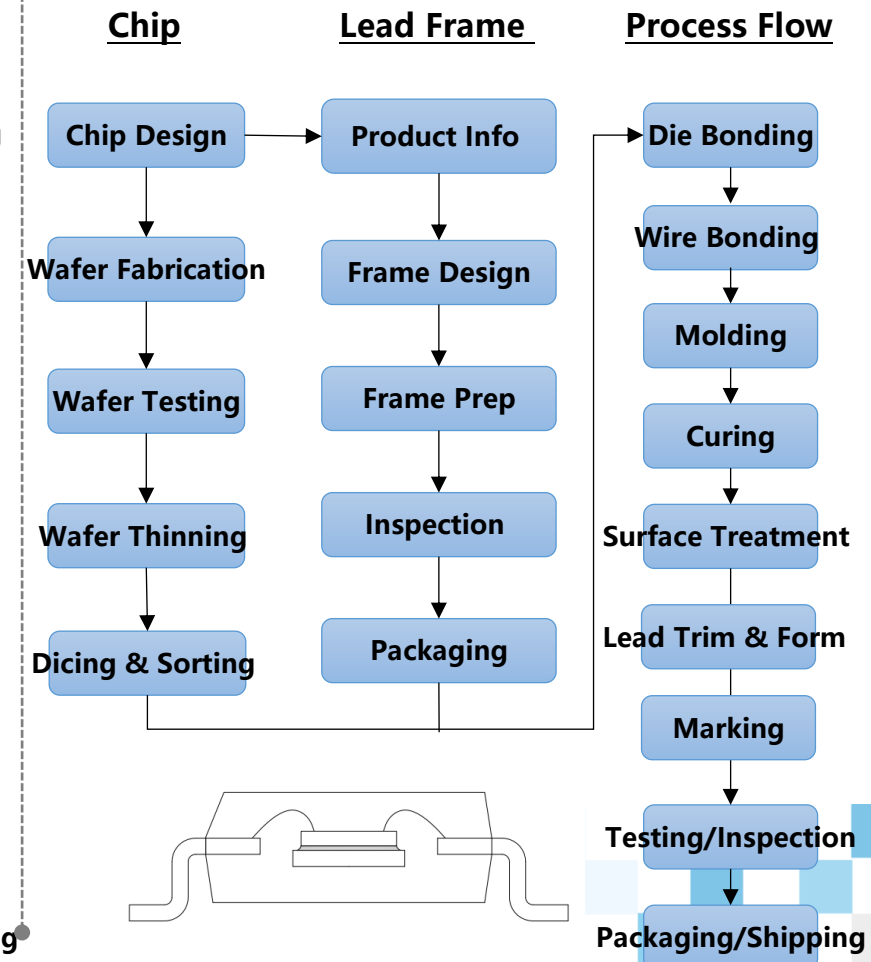
Main process flow of metal packaging



Main process flow of ceramic packaging



Main process flow of plastic frame packaging



Introduction to encapsulation capability

Metal packaging process capability

封装项	封装能力
封装种类	金属圆柱、金属菱形、金属法兰、金属腔体、金属焊盘
来料形式	分离芯/Wafer (6寸, 8寸, 12寸)
可封装的基板尺寸	5.00*5.00 mm~37.00*20.00 mm (厚度≤1.00 mm)
MCM封装	支持
被动元器件最小尺寸	0402
可封装的芯片尺寸	0.1*0.1 mm~25.4*25.4 mm (厚度≥150 um)
基板装片方式	焊料片焊接/锡膏焊接/导电胶粘结/绝缘胶粘结
芯片装片方式	焊料片焊接/锡膏焊接/导电胶粘结/绝缘胶粘结
被动元器件贴装方式	回流焊接/胶粘
被动元器件之间最小距离	0.20 mm
被动元器件距离腔体边缘	≥0.25 mm
键合	金丝 (20~50 um) /硅铝丝 (25~500 um)
键合丝弧高控制	≥0.10 mm
金丝/硅铝丝引线长度	0.50~3.00 mm/0.70~6.00 mm
封帽	储能焊/平行缝焊/金锡熔封

Introduction to encapsulation capability

Ceramic packaging process capability

封装项	封装能力
封装种类	CDIP、CSOP、CQFP、CLCC、CPGA和CBGA等
最小的引脚节距	0.50 mm
可封装的芯片尺寸	0.45*0.45~25.4*25.4 mm (厚度≥0.15 mm)
芯片最小pad尺寸	60 um
芯片最小pad节距	70 um
芯片距离腔体边缘最小	0.25 mm (衬底不打线)
芯片装片方式	焊料片焊接/导电胶粘结/绝缘胶粘结/银浆烧结
键合	金丝 (20~50 um) /硅铝丝 (25~500 um)
是否支持多层键合指键合	支持
金丝/硅铝丝引线长度	0.50~3.00 mm/0.70~3.50 mm
键合丝弧高控制	≥0.10 mm
封帽	玻璃熔封/平行缝焊/金锡熔封
成型剪脚	引脚外边缘距离陶瓷壁最小距离0.50 mm
成型剪脚	引脚外跨距公差控制≤0.20 mm
是否支持陶瓷基板封装	支持
MCM封装	支持

Introduction to encapsulation capability

Plastic sealing frame process capability

封装项	封装能力
封装形式	SOP、QFP、QFN和SOT等
来料形式	分离芯/Wafer (6寸, 8寸, 12寸)
划片槽宽度	≥ 60 μm
可封装的芯片尺寸	0.45*0.45~10.00*10.00 mm (厚度≥0.15 mm)
芯片最小pad尺寸	50 μm
芯片最小pad节距	55 μm
芯片最小Pad厚度要求	0.80 μm
芯片装片方式	导电胶粘结/绝缘胶粘结/DAF粘结
单边溢胶最小距离	0.25 mm
键合	金丝 (20~50 μm)
键合丝弧高控制	≥ 0.10 mm
成型剪脚	Lp可控公差范围: 0.10~0.15 mm
电镀成分	纯锡 (镀层厚度5~12μm)
激光打标深度	≤ 80 μm
是否支持芯片堆叠封装	支持
是否支持多芯片封装	支持 (平铺)

Advanced equipment and complete technology

- Design Capabilities
- Possesses chip and sensor design capabilities
- Sensor Packaging & Testing Capabilities
- Equipped with fully automatic die bonders, fully automatic wire bonders, automated gold wire bonders, eutectic bonding equipment, temperature chambers, comprehensive environment test chambers (temperature, humidity, vibration), laser welding equipment, piezoresistive welding equipment, and automatic frequency response monitors
- Sensor Calibration & Testing Capabilities
- Possesses sensor calibration, reliability testing, and environmental testing capabilities



Ten thousand level clean workshop



die bonding



Wire bonding

Strong quality assurance capability

Self-Built Quality Measurement and Control Center

Equipped with various imported sensor testing instruments

Acceleration sensor calibration system

Automatic pressure sensor calibration system

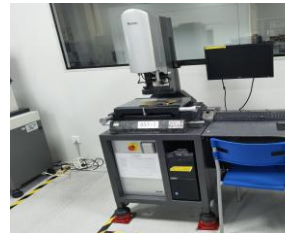
Push-pull force testing system

Surge testing system

- X-RAY
- Three comprehensive boxes
- spectrum analyzer
-



Vibration low-frequency testing system



profilometer



Vibration high-frequency testing system



spectrum analyzer



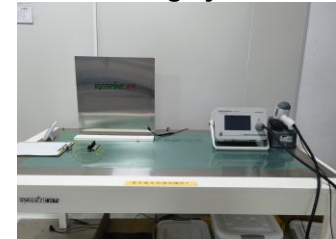
Impact testing system



7-and-a-half digit multimeter



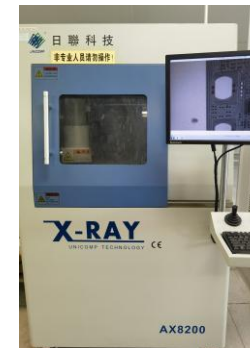
Pressure automatic testing system



Static discharge test



Pressure pulse cycle



X-RAY



step profiler



Push-pull tester

Quality Control and Certification

Huayuan Jinbo Quality Control pursues zero defects in quality and is committed to creating a green and environmentally friendly manufacturing environment while improving customer satisfaction.

The company operates four major systems, including IATF 16949 quality management system, ISO 14001 environmental management system, ISO 9001 quality management system, and ISO 45001 occupational health management system.

Design & Development Quality Control	Manufacturing & Production Quality Control
Quality Design Verification	Management Review
Product Development Verification	Internal Audit
Design Process Verification	Corrective and Preventive Actions (CAPA)
Compatibility Testing	Production Quality Control
Reliability Testing	Supply Chain Quality Management

Quality Control & EHS (Environment, Health and Safety) Management System

Policy and Objective Management

ISO 14000 - Environmental Management System

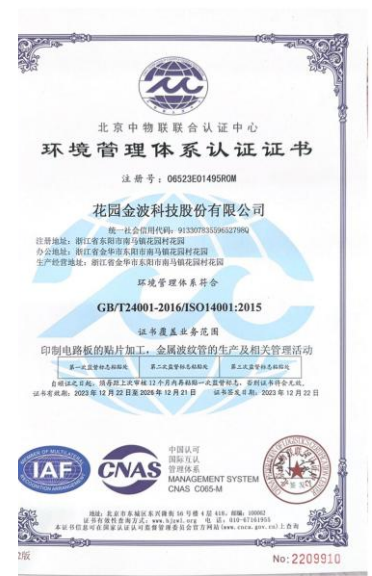
ISO 45000 - Occupational Health and Safety Management System

Support Process Quality Control

Management Process Quality Control

Green Partner System Management

Safety and Supervision Approval



Intellectual Property Right

Huayuan Jinbo Technology Co., Ltd. has 51 innovative invention patents and 5 software copyrights! Rated as a 'Patent Demonstration Enterprise'.



The industry sectors we target

Aerospace and Rail Transit

- Aircraft engine, rail transit measurement and control
- Sensor Technology Crown, the company's scarce domestic provider of aviation and rail transit sensor technology
- Other suppliers:



Medical Electronics

- Ear temperature gun, forehead temperature gun, blood pressure monitor, surgical use, pacemaker type
- The company can provide sensors
- Other suppliers:



Industry

- Industrial AIOT field
- The company can provide sensors
- Other suppliers:



New Energy

- Wind power, photovoltaic, and energy storage fields
- The company can provide sensors
- Other suppliers:



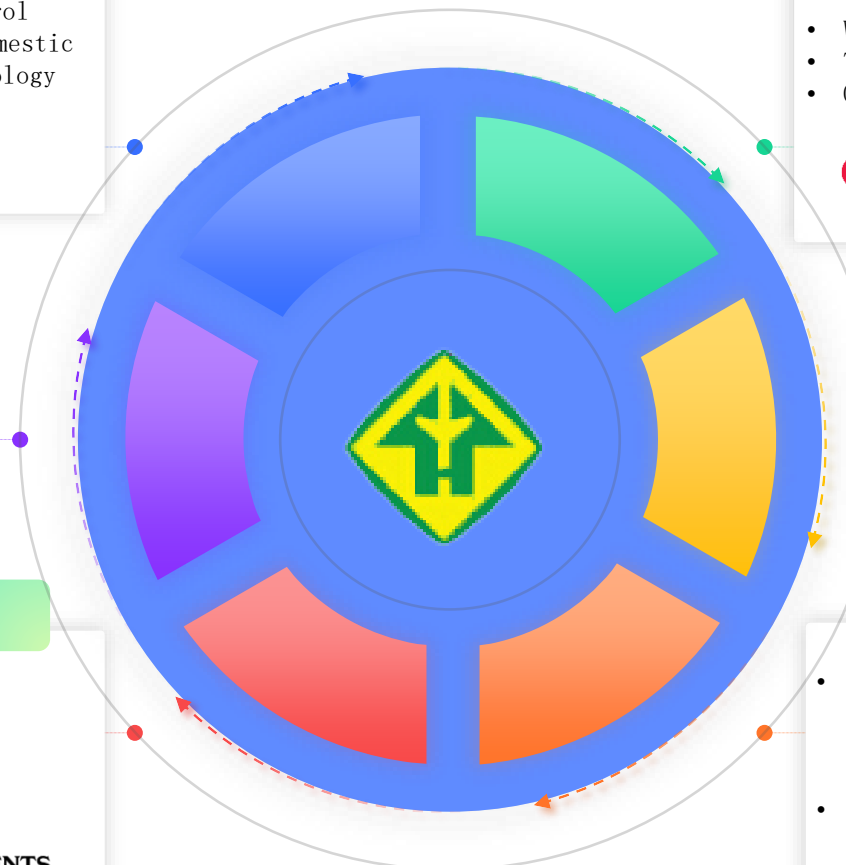
Automotive Electronics

- Generally, high-end cars are equipped with 60-100 sensors
- The company can provide sensors
- Other suppliers:



Ecological Partners

- With the goal of building a systematic and intelligent ecosystem, we will conduct innovative research and cooperation with strategic partners in multiple fields such as consumption, industry, and transportation
- Other suppliers:



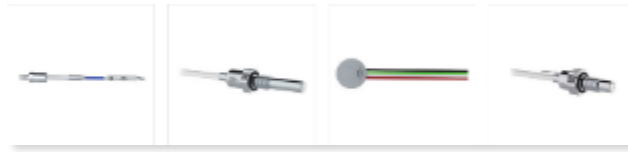
Aerospace Applications

1. Applications in the aviation field: mainly include sensors for vibration, pressure, displacement, speed, etc., which can be used for engine control (ECU or FADEC), aircraft health and usage monitoring (HUMS), engine health management (EMU), flight control (FCS), aircraft overall fault prediction and health management (PHMS), and various types of aircraft engine and whole machine testing. 2. Applications in the field of ships: high-temperature piezoelectric acceleration sensors for vibration testing of ship gas turbine casings, high-temperature magneto electric velocity sensors, microwave sensors and testing systems for measuring blade tip clearance, blade vibration, and rotor bending of ship gas turbines, magneto electric speed sensors and piezoresistive pressure sensors for measuring engine gas path variables. 3. Application in the field of general testing and measurement (impact, modal, NVH): A series of single axis and three-axis vibration sensors with small volume, light weight, small relative error, good frequency response characteristics, can be used for structural analysis, modal testing, and vibration testing of equipment such as vehicles, ships, and aircraft.

Accelerometer



pressure sensor



Oil sensor



Other sensors



Aerospace and Aircraft Sensor Applications



Low altitude economic opportunities:
National policy vigorously develops direction
Low altitude intelligent networking requires a wide range
of sensor categories and a large quantity
High demand for localization of mid to high end sensors



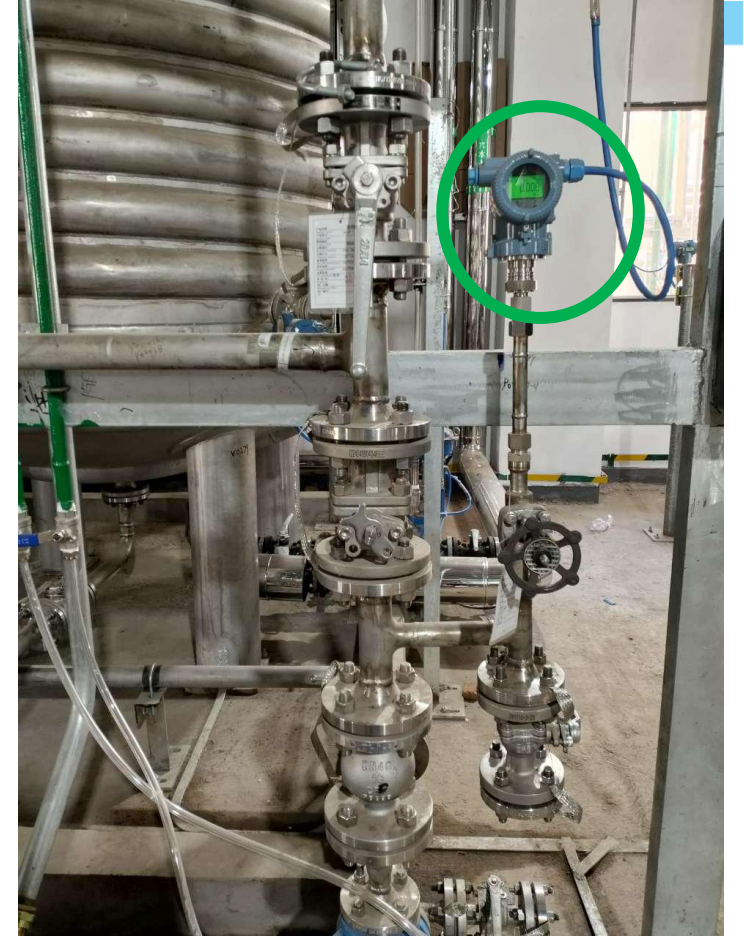
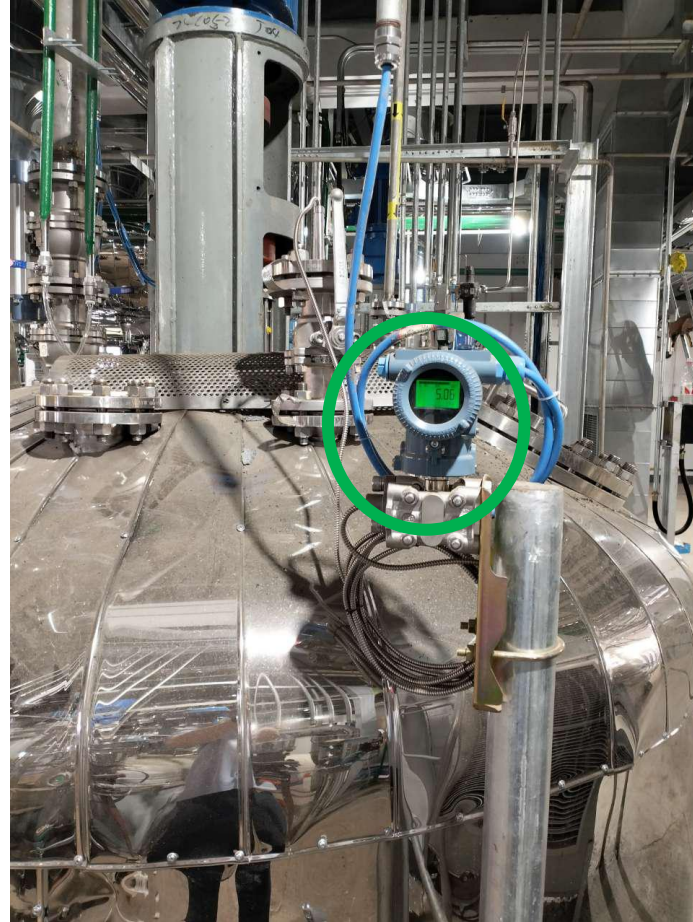
Aerospace sensor products

model	appearance	performance	Electrical connection specifications
HYJB-A-005-010		Sensitivity: 10/20/50 pC/g Frequency response: 10-2500 Hz ($\pm 5\%$) 0.1~5000Hz ($\pm 1\text{dB}$) Operating temperature: -55 °C to +482 °C High temperature insulation resistance: $\geq 100 \text{ M } \Omega$	7/16-27 UNS-2A side exit
HYJB-A-010		X/Y/Z three-axis detection Sensitivity: 1/5/10 mV/g Frequency response: 1-8kHz ($\pm 5\%$) 0.5~12kHz ($\pm 10\%$)	4-core connector, 1/4-28 UNF-2A interface
HYJB-A-012-025		Sensitivity: 25mV/g Frequency response: 1-8kHz ($\pm 5\%$)	Top out positioning pin
HYJB-A-011-100		X/Y/Z three-axis detection Sensitivity: 100mV/g Frequency response: X, Y: 3~1200Hz ($\pm 5\%$) Z: 1~2000Hz ($\pm 5\%$)	4-core connector, 1/4-28UNF-2A interface
HYJB-A-008		Sensitivity: 100mV/g Frequency response: 1-12000Hz ($\pm 5\%$)	One core connector, 10-32 interface

Aerospace sensor products



model	appearance	performance	Electrical connection specifications
HYJB-P-001		Sensitivity: $0.85 \pm 0.1 \text{ pC/kPa}$ Range: 5Pa~500kPa Operating temperature: $-55 \sim +520 \text{ }^{\circ}\text{C}$ High temperature insulation resistance: $\geq 100 \text{ M } \Omega$ Resonant frequency: $\geq 55 \text{ KHz}$	10-32 UNF-2A coaxial connector
HYJB-P-010		Comprehensive accuracy: 0.5% FS Zero position temperature drift: $1/40\% \text{ FS}/^{\circ}\text{C}$ Full range drift: $1/40\% \text{ FS}/^{\circ}\text{C}$ 0~10psi absolute pressure	fishing line
HYJB-P-012		Comprehensive accuracy: Typical value 0.1% FS Maximum value 0.5% FS Zero position temperature drift: $0.02\% \text{ FS}/^{\circ}\text{C}$ Full range drift: $0.02\% \text{ FS}/^{\circ}\text{C}$ 0-200KPa absolute pressure 0-350KPa absolute pressure	fishing line
HYJB-P-011		Comprehensive accuracy: $0.1\% \text{ FS}@25 \text{ }^{\circ}\text{C}$ $0.1\% \text{ FS}@270 \text{ }^{\circ}\text{C}$ $0.1\% \text{ FS}@-55 \text{ }^{\circ}\text{C}$ Zero position temperature drift: $0.03\% \text{ FS}/^{\circ}\text{C}$ Full range drift: $0.03\% \text{ FS}/^{\circ}\text{C}$	



Industrial & Chemical Sensor Products



model	appearance	performance	Electrical connection specifications
HYJB-Y025		Diameter: 15.8mm Measurement range: -100... 0KPa~20Mpa Power supply: 1.5mA Nonlinear: $\pm 0.25\%$ Zero point output: $\pm 2\text{mv}$ Full output: greater than 60mv Working temperature: -40 °C to+125 °C Compensation temperature: -10 °C to+70 °C Input impedance: 2-6k Ω	
HYJB-Y029		Diameter: 19mm Measurement range: -100... 0KPa~10Mpa Power supply: 1.5mA Nonlinear: $\pm 0.25\%$ Zero point output: $\pm 2\text{mv}$ Full output: greater than 60mv Working temperature: -40 °C to+125 °C Compensation temperature: -10 °C to+70 °C Input impedance: 2-6k Ω	

Industrial & Chemical Sensor Products



model	appearance	performance	Electrical connection specifications
HYJB-P-020		Measurement range: 0kPa~20kPa~100MPa optional 4-20mA output, accuracy 0.3% Laser zero adjustment and wide temperature compensation Standard thread pressure measurement method Constant current source power supply	
HYJB-P-021		Range: -0.1MPa, 0-0.01, 250MPa optional, all stainless steel design, optional digital display Comprehensive accuracy 0.3% Anti icing effect, anti pressure impact, anti water hammer effect PCB buffering and vibration resistance Anti electromagnetic interference, anti power voltage fluctuation, anti reverse connection	
HYJB-P-022		Range: -0.1MPa ~ 0MPa ~ 0.01MPa ~ 100MPa LCD display, compliant with HART protocol/RS485 Modbus protocol Zero point and full-scale debugging are convenient Reverse polarity protection and current limiting protection Lightning and impact resistance High precision, high stability, high reliability	

Industrial and chemical sensor products



model	appearance	performance	Electrical connection specifications
HYJB-Y022P		Measurement range: -100... 0KPa~40Mpa Output: 4-20mA+HART protocol Accuracy: 0.075% Working temperature: -40 °C~+85 °C without LCD; -30 °C~+70 °C with LCD Protection level: IP67 Explosion proof grade: Ex ia IIC T6 Ga Long term stability: $\pm 0.1\%$ FS/10 years Can customize different membrane materials and installation forms	
HYJB-Y022D		Measurement range: 0~3Mpa Output: 4-20mA+HART protocol Accuracy: 0.075% Working temperature: -40 °C~+85 °C without LCD; -30 °C~+70 °C with LCD Protection level: IP67 Explosion proof grade: Ex ia IIC T6 Ga Long term stability: $\pm 0.1\%$ FS/10 years Can customize different membrane materials and installation forms	

Industrial and chemical sensor products



model	appearance	performance	Electrical connection specifications
HYJB-WD001		Measurement range: Pt100: -200~500 °C; Pt100: -50~200°C; K-type thermocouple: -40 °C~1200 °C; T-type thermocouple: 196 °C~350 °C Output: 4-20mA+HART protocol Accuracy: 0.2% Working temperature: -40 °C~+85 °C without LCD; -30 °C~+70 °C with LCD Protection level: IP67 Explosion proof grade: Ex ia IIC T6 Ga Long term stability: $\pm 0.1\%$ FS/10 years	
HYJB-LL001		Accuracy level: $\pm 0.2\%$ FS/ $\pm 0.5\%$ FS Caliber: DN2.5~DN2400 Lining materials: PTFE, PFA, F46, etc Electrode materials: 316L, Hastelloy, Titanium, Tantalum, Platinum Iridium Alloy, Tungsten Carbide Power supply: 10V~32V, recommended 24V Output signal: 4-20mA+HART Medium temperature: -25 °C~+185 °C Explosion proof grade: Ex ia II CT4	

New Energy Applications

The Jinbo wind power sensor system uses advanced sensor technology to monitor the real-time operation status of key components of wind turbines, monitor potential faults in the operation of the turbines, and track the trend of fault development. It achieves preventive maintenance, pre maintenance, pre detection and early resolution of hidden faults, providing data support for scientific decision-making of wind farm operation and maintenance personnel

Industry pain points and solutions

Fan failure

Fan blade fracture, fan tower collapse, fan fire, gearbox jamming, generator bearing jamming, tower bolt loosening, wheel hub bolt fracture, etc

dynamic perception

Continuously monitor the operational status of key components and achieve preventive maintenance through signal analysis

Difficulty in equipment maintenance

Wind farms are widely distributed and located in remote areas. Relying solely on manual on-site maintenance incurs extremely high operation and maintenance costs, and is also prone to power generation losses and even operational safety issues due to varying levels of personnel

Remote monitoring

A system that simultaneously monitors the operation status of all wind turbines remotely, effectively reducing the number of project follow-up personnel

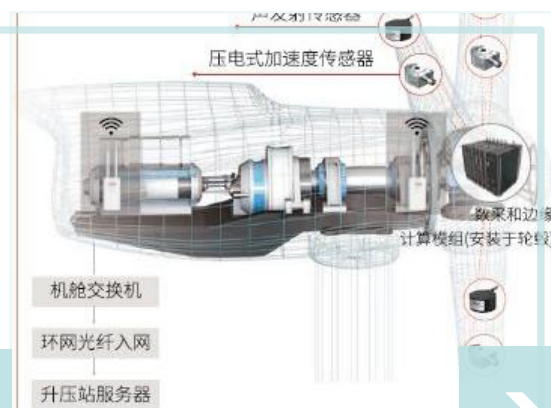
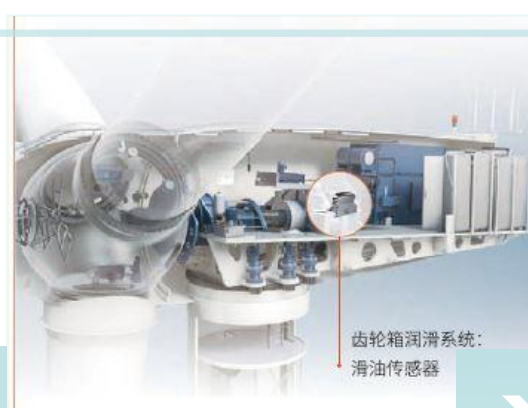
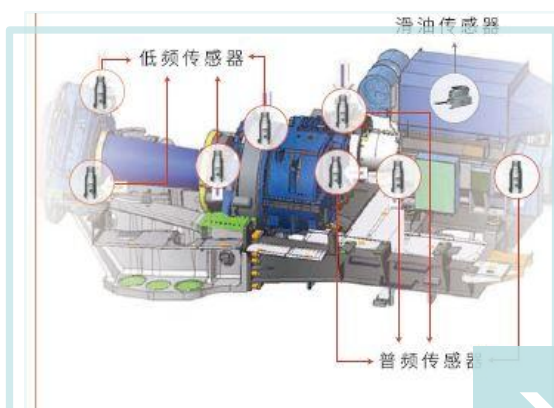
High maintenance costs

If a wind turbine unit fails to receive timely maintenance due to minor faults, it may develop into a major fault or even cause the unit to be scrapped, requiring the use of professional repair machinery, which incurs high maintenance costs

Fault Warning

Through big data analysis, timely detection of equipment abnormalities and timely push of alarm information to avoid losses

Deployment of wind power sensor system



New energy large-scale industrial equipment sensor products

model	appearance	performance	Electrical connection specifications
HYJB-A-013-100		Sensitivity: 100/500mV/g Frequency response: 2-5000Hz ($\pm 5\%$) 1-10000Hz ($\pm 10\%$)	2-pin MIL-C-5015 top out
HYJB-A-003		X/Y/Z three-axis detection Sensitivity: 2000mV/g Frequency response: 0-1000Hz $\pm 5\%$	4-core connector, 1/4-28 interface
HYJB-TA-002		Sensitivity: 1000mV/g Frequency response: 0.3-4000Hz $\pm 5\%$ Temperature measurement accuracy: $\pm 0.5\text{ }^{\circ}\text{C}$	5-PIN M12-0.1THD
HYJB-A-001 (wireless)		Wireless intelligent vibration sensor, meeting the long-term status monitoring of users' wireless long-distance communication (5km), low power consumption (with a range of more than 2 years), and multi-sensor types.	Wireless LORA, Zigbee, 4/5G and other wireless methods

Medical Device Application

Application case of smart healthcare system



sphygmomanometer



ventilator



in vitro diagnostics



anesthesia machine



dialysis machine

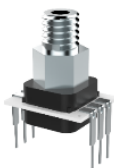
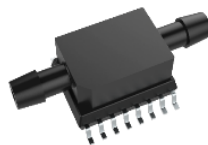


blood cell
analyzer

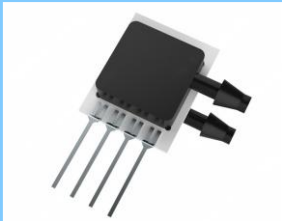


Extracorporeal
implantation

Pressure sensors, infrared sensors, gas concentration sensors, gas flow sensors, etc



Medical Device Application Sensor Products

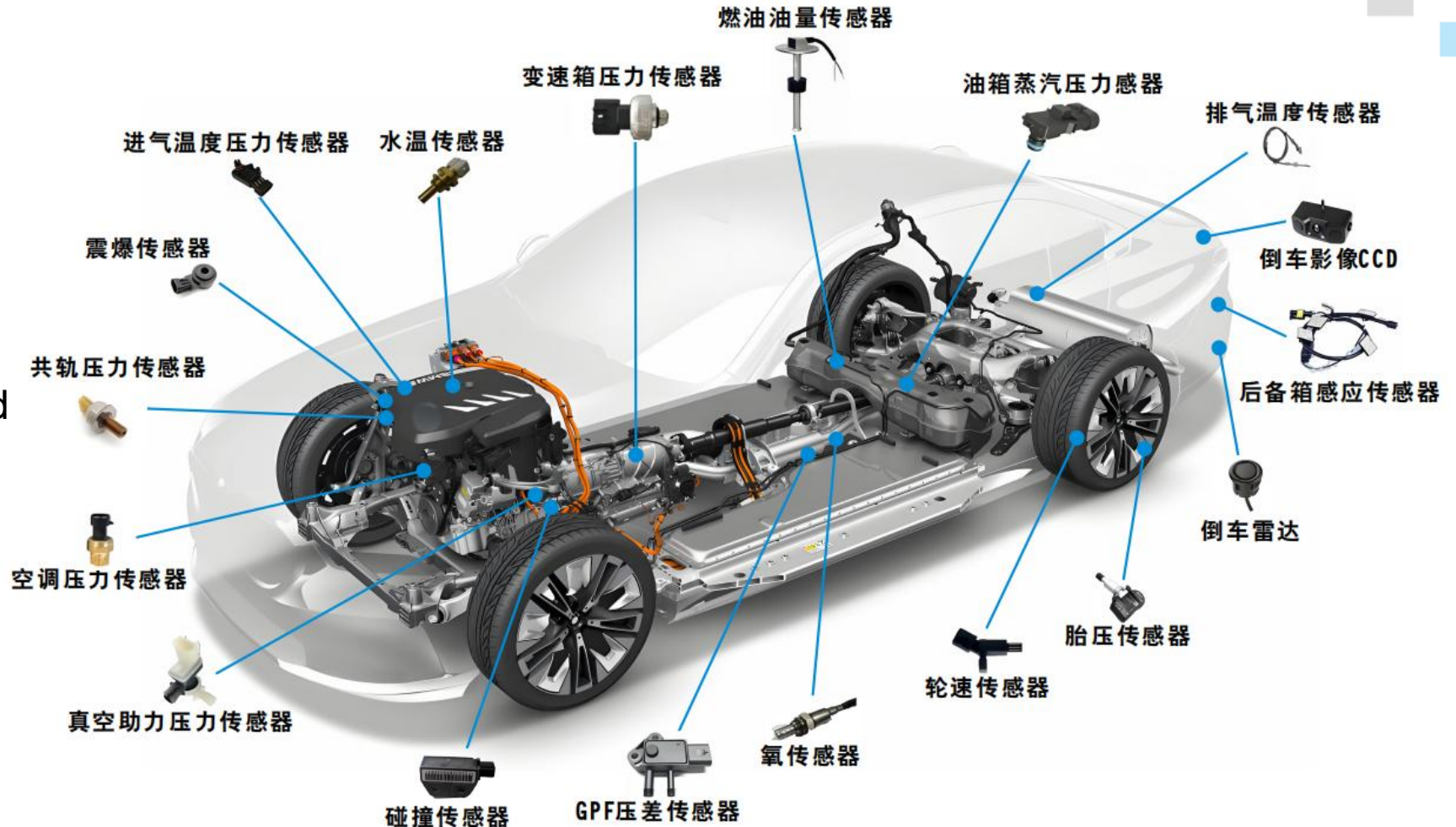
model	appearance	performance	Electrical connection specifications
HYJB-Y005		Measurement range: 0-500... 7500Pa Zero position output: $\pm 0.5\text{mV}$ Full range output: $20 \pm 1\text{mV}$ (>10hPa) Comprehensive accuracy: $\pm 0.25\%$ FSO Working temperature: -20~85 °C	
HYJB-Y009		Measurement range: 0-40KPa Zero position output: $\pm 15\text{mV}$ Full range output: 60~90mV (>10hPa) Comprehensive accuracy: $\pm 0.3\%$ FSO Working temperature: -40~85 °C	
HYJB-Y010		Measurement range: -50~300mmHg Zero position output: $\pm 20\text{mmHg}$ Sensitivity: $5 \pm 0.05\text{uV/V/mmHg}$ Nonlinear: $\pm 1\text{mmHg}$ Working temperature: 10-40 °C	

opportunity:

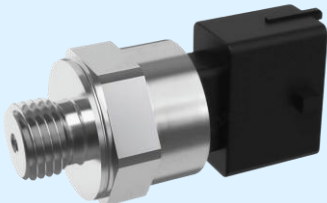
The localization rate of Chinese automotive sensors is less than 5%

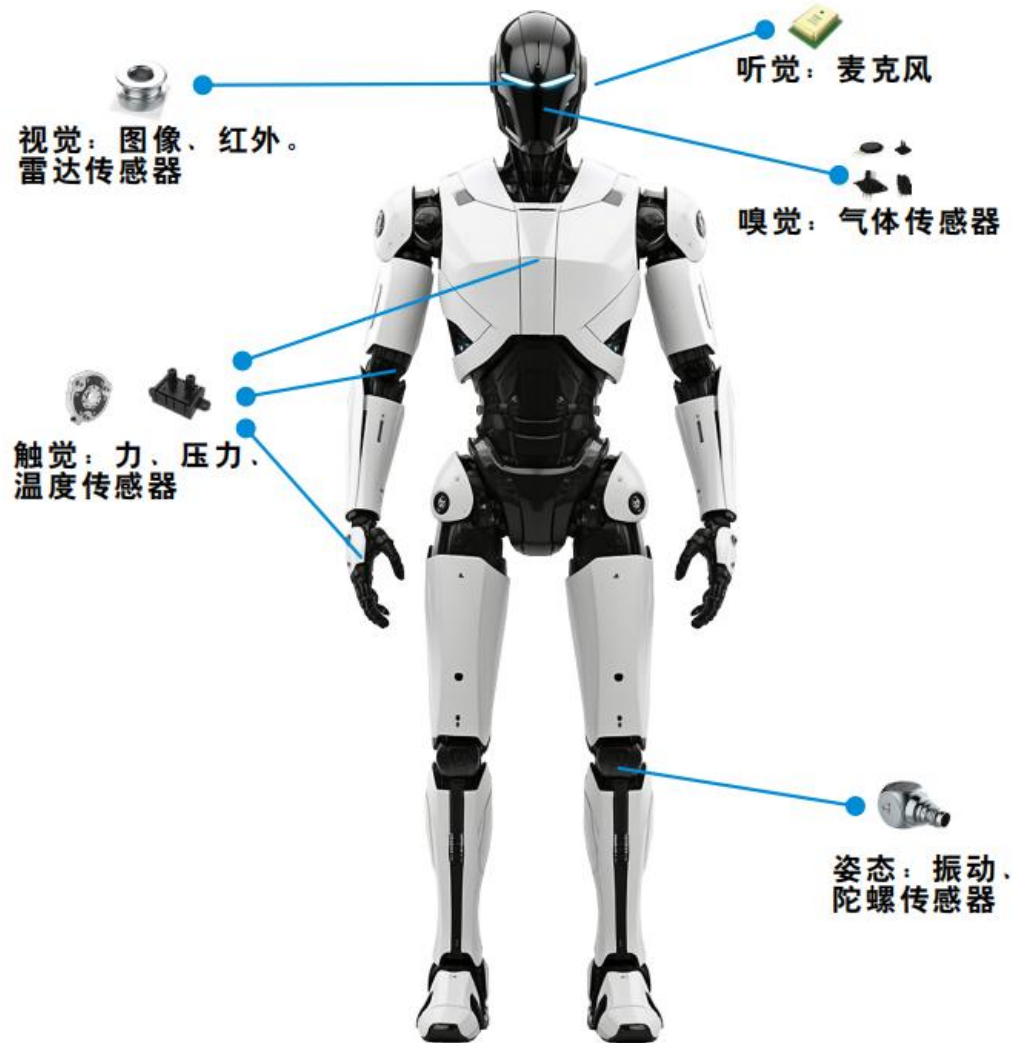
New energy vehicles are accelerating towards intelligence

High demand for localization of mid to high end sensors



Medical Device Application Sensor Products

model	appearance	performance	Electrical connection specifications
HYJB-Y016		Measurement range: 0~3Mpa Power supply: 5V Output: 0.5-4.5V Accuracy: 1% Working temperature: -40 °C to+125 °C Protection level: IP67 Long term stability: $\pm 0.5\%$ FS/10 years	
HYJB-Y017		Measurement range: 0~5Mpa Power supply: 5V Output: 0.5-4.5V Accuracy: 1% Working temperature: -40 °C to+140 °C Protection level: IP67 Long term stability: $\pm 0.5\%$ FS/10 years	



Application of Robots and Industrial Automation Sensors

model	appearance	performance	Electrical connection specifications
HYJB-F-002		Thickness: 9.2mm, ultra-thin commercial six axis force sensor Maximum allowable overload of 3 times Nonlinear, hysteresis less than 1% F.S, crosstalk less than 3% F.S	
HYJB-F-001		Diameter: 15 to 135mm Range: 50 to 6400N, 0.5 to 320Nm Nonlinear, hysteresis less than 0.5% F.S, crosstalk less than 2% F.S 3 times overload capacity	4-core connector, 1/4-28 UNF-2A interface
HYJB-F-003		Low range 10-300N Precision control, wind tunnel testing Nonlinear, hysteresis less than 0.5% F.S, crosstalk less than 2% F.S 10 times overload capacity	Top out positioning pin

Areas of Cooperation



中国航天科技集团公司



中国航空工业集团



中国工程物理研究院



中国船舶重工集团公司



中国科学院空天信息



中国电子科技集团



中国兵器装备集团



中国兵器工业集团

Areas of cooperation



浙江三花集团



郑州机械研究所



Areas of Cooperation



日本富士精工



日本大和衡器



美国罗克韦尔



法国马肯依玛士



韩国LS产电



英国斯派莎克



Thank You!

