

INTERNET OF THINGS (IOT)/ AUTOMATIC DRIVING INTELLIGENT EQUIPMENT



ABOUT BWESENSING

BWESENSING is a national-level “Little Giant” enterprise specializing in the R&D, manufacturing, and sales of inertial sensors. Recognized as a National High-Tech Enterprise, the company also operates a postdoctoral workstation, the Wuxi Inertial Sensing Engineering Technology Center, and has participated in the drafting of multiple national standards. With more than 100 related intellectual property rights, BWESENSING has built strong expertise across the entire value chain—from chips and modules to integrated systems—with fully independent R&D and supply chain control. Headquartered in Binhu District, Wuxi, Jiangsu Province, the company has established branches in Beijing, Chengdu, Hangzhou, Shenzhen, Muscat, and Abu Dhabi. By integrating industry, academia, and research, BWESENSING delivers reliable, high-performance, and fully controllable inertial sensing solutions for global customers, and is currently preparing for IPO listing.



SPECIALIZED, REFINED, UNIQUE, AND INNOVATIVE ENTERPRISE TOP 20 EMERGING SENSOR COMPANIES LOW-SPEED AUTONOMOUS DRIVING ALLIANCE IOT INNOVATION AND INTEGRATION DEMONSTRATION ENTERPRISE INDUSTRIAL METROLOGY WORKSTATION 2018 WORLD INTERNET OF THINGS EXPOSITION GOLD AWARD

PATENTS FOR INVENTIONS



6 NATIONAL-LEVEL TALENTS 973 CHIEF 1 PROFESSOR/DOCTORAL FELLOW 5 18 PHDS OVER 50% OF R&D STAFF

Manufacturing capacity



INTELLIGENT EQUIPMENT

高分辨率曲面液晶屏
动态人机交互，丰富情感交流

3D激光雷达*1
混合固态激光，
360度立体感知

深度双目相机*2
多层分布式立体感知，
实时导航、避障

灵巧手自由度12*2
搭配5指灵巧手，实现多种抓握
方式及精细操作

腿部自由度*6
实现行走、奔跑、坐卧和下蹲等
动作执行能力

高性能一体化关节
安全性、稳定性全面提升，
最大关节扭矩可达300N.m

足部
多自由度力控，
自适应不平整地形

Wuba Robot

PROJECT OVERVIEW

- Wuba Intelligence Dasheng D12 humanoid robot for factory & park human-machine collaboration, capable of stable 5km/h running and autonomous handling navigation
- Technical Requirement: Multi-joint dynamic motion requiring high-precision full-body attitude sensing, standardized mass matching on universal platform

SUPPORTING SOLUTION & IMPLEMENTATION VALUE

- Distributed DMC630 inertial units are deployed on torso, head and waist, linking main controller and SLAM algorithm for dynamic balance & autonomous mapping navigation.
- Miniature sensors adapt to narrow robot body, vibration suppression algorithm cuts attitude measurement error during high-speed movement.
- Standardized sensor modules shorten integration cycle, boost high-speed running balance; mass delivery verifies stable operation.



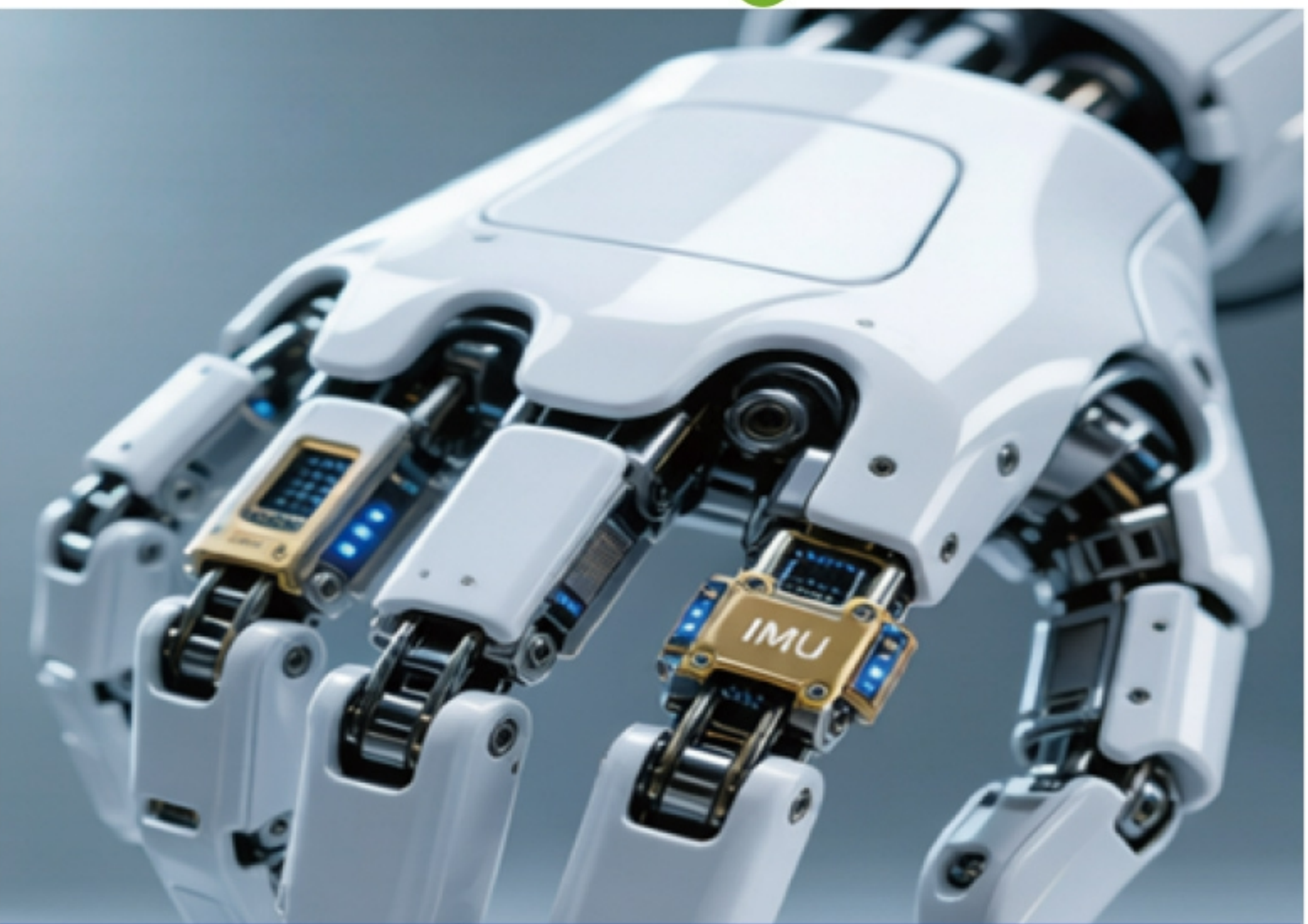
Climbing Robot for a Large Internet Logistics Enterprise

PROJECT OVERVIEW

- Climbing robot developed for a large internet enterprise, realizing autonomous driving and rack climbing in automated warehouse logistics scenarios
- Tech & Mass Production: High standard for attitude sensing & control; 500 sets BW Sensing VG55R deployed, 2000 more sets planned

SUPPORTING SOLUTION & IMPLEMENTATION VALUE

- Chassis-embedded VG55R tilt sensors connect to full machine via CAN bus; Kalman filtering supports driving navigation & climbing attitude control simultaneously.
- Compact embedded installation + standardized CAN communication simplifies integration and greatly improves machine debugging efficiency.
- Vibration interference eliminated to raise attitude control precision; mass on-site application proves long-term stable performance.



Beijing Enterprise Humanoid Dexterous Hand

PROJECT OVERVIEW

- Five-finger dexterous hand for humanoid robots in a Beijing university lab, for hand motion & human-machine interaction research
- Tech Requirement: Independently capture tiny bending & swing posture of each finger, equipped with micro high-performance IMU attitude sensors

SUPPORTING SOLUTION & IMPLEMENTATION VALUE

- Micro IMU sensors embedded in each finger joint, synchronously collect angular velocity, acceleration & attitude data; compact package never hinders joint movement.
- Distributed multi-point measurement fully restores delicate hand motion tracks; high-precision sensors improve micro-motion capture accuracy.
- Mini lightweight hardware fits compact dexterous hand; standardized sensor modules greatly cut research & debugging costs.



Hikrobot

PROJECT OVERVIEW

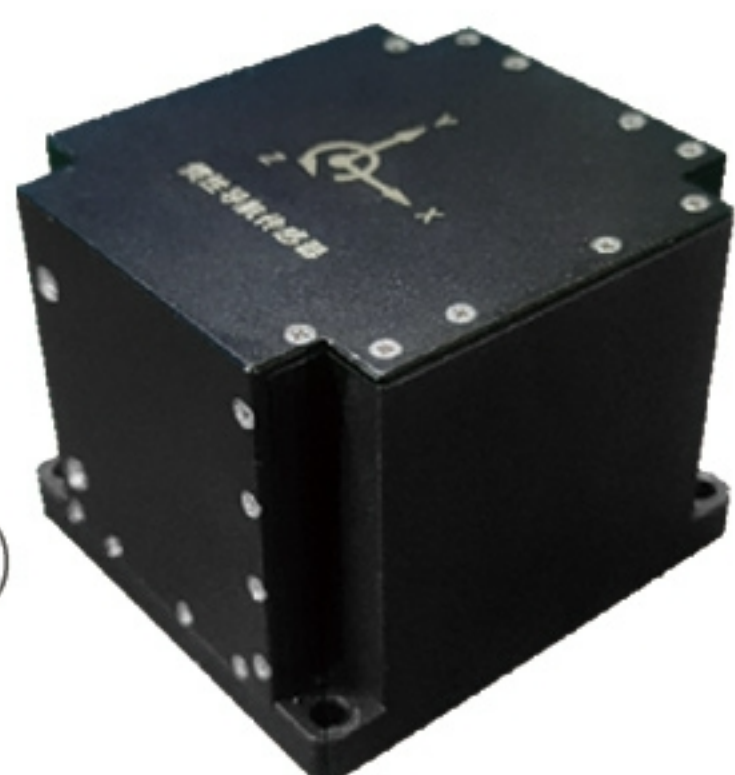
- Hikrobot industrial transfer AMR robots for production line transportation in smart manufacturing & logistics
- Tech & Product: Adopt digital dual-axis intelligent tilt sensor BWM426, deliver precise attitude output to guarantee reliable equipment docking

SUPPORTING SOLUTION & IMPLEMENTATION VALUE

- Equipped with VG55R for real-time multi-dimensional attitude data; fusion positioning & dynamic correction cut robot collision risks.
- Stable attitude output guarantees docking accuracy; automatic transport realizes integrated warehouse & production scheduling.
- Standardized solution unifies on-site equipment management, reduces manual operation errors and improves overall goods turnover efficiency.

AUTOMATIC DRIVING

Built-in self-developed calibration algorithms with online upgrade; high-precision calculation for complex motion. Low power consumption, diverse communication interfaces. Multi-redundancy & optical-inertial fusion models with automotive certification, applicable to humanoid, quadruped and AGV robots.

Small Size High Precision Attitude Heading Reference System DMC610 • Magnet-free heading accuracy: $\leq 0.05^{\circ}/\text{turn}$ • Static pitch/roll accuracy: $\leq 0.05^{\circ}(1\sigma)$ • High dynamic attitude accuracy: $\leq 0.5^{\circ}(1\sigma)$ • Max raw data output frequency: 1000Hz • Max attitude solution output frequency: 500Hz • Supply voltage: 5-24V DC • Application Scenarios: Humanoid robots, quadruped robots, UAVs, patrol unmanned vehicles 	Mini High-Precision AHRS DMC620 • Magnet-free heading accuracy: $\leq 0.05^{\circ}/\text{turn}$ • Static pitch/roll accuracy: $\leq 0.05^{\circ}(1\sigma)$ • High dynamic attitude accuracy: $\leq 0.5^{\circ}(1\sigma)$ • Max raw data output frequency: 1000Hz • Max attitude solution output frequency: 500Hz • Product dimension: L24.05×W22.4×H9.41 mm • Application Scenarios: Humanoid robots, quadruped 
Small Size High Precision Attitude Heading Reference System DMC630 • Magnet-free heading accuracy: $\leq 0.1^{\circ}/\text{turn}$ • Static pitch/roll accuracy: $\leq 0.05^{\circ}(1\sigma)$ • High dynamic attitude accuracy: $\leq 1^{\circ}(1\sigma)$ • Max raw data output frequency: 1000Hz • Max attitude solution output frequency: 500Hz • Product dimension: L24.05×W22.4×H9.41 mm • Application Scenarios: Humanoid robots, quadruped robots, UAVs, inspection equipment 	Small Size High Cost-Effective Attitude and Heading Reference System DMC640 • Dynamic heading accuracy: $\leq 2^{\circ}$ • Static pitch/roll accuracy: $\leq 0.5^{\circ}$ • Max raw data output frequency: 1000Hz • Max attitude solution output frequency: 500Hz • Supply voltage: 3.3V DC • Product dimension: L10×W10×H2.4 mm • Application Scenarios: Humanoid robots, quadruped robots, AGVs, UAVs, sighting devices 
Cost-effective GNSS/INS GI320 • RTK positioning accuracy: Horizontal 0.8cm+1ppm, Vertical 1.5cm+1ppm • Heading accuracy (2m baseline): 0.1° • Static accuracy: Roll/Pitch 0.03°, Heading 0.05° • Output frequency: 200Hz • Product dimension: L116.5×W80×H30 mm • Application Scenarios: Autonomous driving, unmanned vehicles, construction machinery 	Multiple redundant dynamic tilt sensors VG55R • Gyroscope range: $\pm 500^{\circ}/\text{s}$ • Accelerometer range: $\pm 4g$ • Gyroscope resolution: $0.018^{\circ}/\text{s}$ • Accelerometer resolution: 0.13mg • Static accuracy: $0.1^{\circ}(\text{RMS})$ • Dynamic accuracy (low dynamic scenario): $1^{\circ}(\text{RMS})$ • Product dimension: L70×W80×H27.9 mm • Application Scenarios: ROV underwater robot navigation, UAVs, agricultural machinery 
Large range small volume inertial measurement units BW-IMU100S • Gyroscope range: $\pm 500^{\circ}/\text{s}$ • X/Y/Z accelerometer range: $\pm 10 g$ • Full-temperature gyro bias: $\leq 150^{\circ}/\text{h}$ • Full-temperature accelerometer bias: $\leq 5\text{mg}$ • Wide temperature range: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ • Product dimension: L22.4×W22.4×H10 mm • Application Scenarios: AGV unmanned handling vehicles, unmanned surface vessels and underwater robots 	Fiber Optic Inertial Integrated Navigation System GI700 • Gyro bias stability: $\leq 0.2^{\circ}/\text{h}$ (1σ, 10s) • Angular velocity measurement range: $\pm 800^{\circ}/\text{s}$ • Bandwidth: $\geq 200\text{Hz}$ • Integrated navigation heading accuracy: $\leq 0.2^{\circ}$ • Pure inertial horizontal position error: $\leq 1\text{km}$ (10min) • Product dimension: L70mm×W65mm×H54mm • Application Scenarios: UAVs, track inspection equipment, shield machines 

Humanoid Robot

Torso IMU

- Detect full-body posture for balance, navigation & fall/collision detection



DMC620

Wrist & Finger IMU

- Track hand posture, cooperate with 6-axis force sensor for precise gripping



DMC640

6-axis Force Sensor

Head IMU

- Offset head shake motion blur for stable vision tracking



DMC630

Vision Sensor

Waist & Hip IMU

- Capture gait posture for anti-fall monitoring



DMC620

DMC610



Service Robot

Torso IMU

- Monitor tilt angles, auto slow down/stop to avoid tipping



DMC620

Wrist & Hand IMU

- Hand posture + tactile feedback for fragile object handling



DMC640

6-axis Force Sensor

Robotic Arm IMU

- Hand-eye coordination to boost grasping accuracy



DMC620

Chassis IMU

- Detect slopes, fuse wheel encoder to reduce heading drift



DMC610

Wheel Encoder



Industrial Robot

Robotic Arm IMU

- Vibration diagnosis for fault prediction & auto emergency stop



DMC610

DMC620

DMC640

End-effector IMU

- Collect vibration data, boost trajectory precision with encoder



DMC640

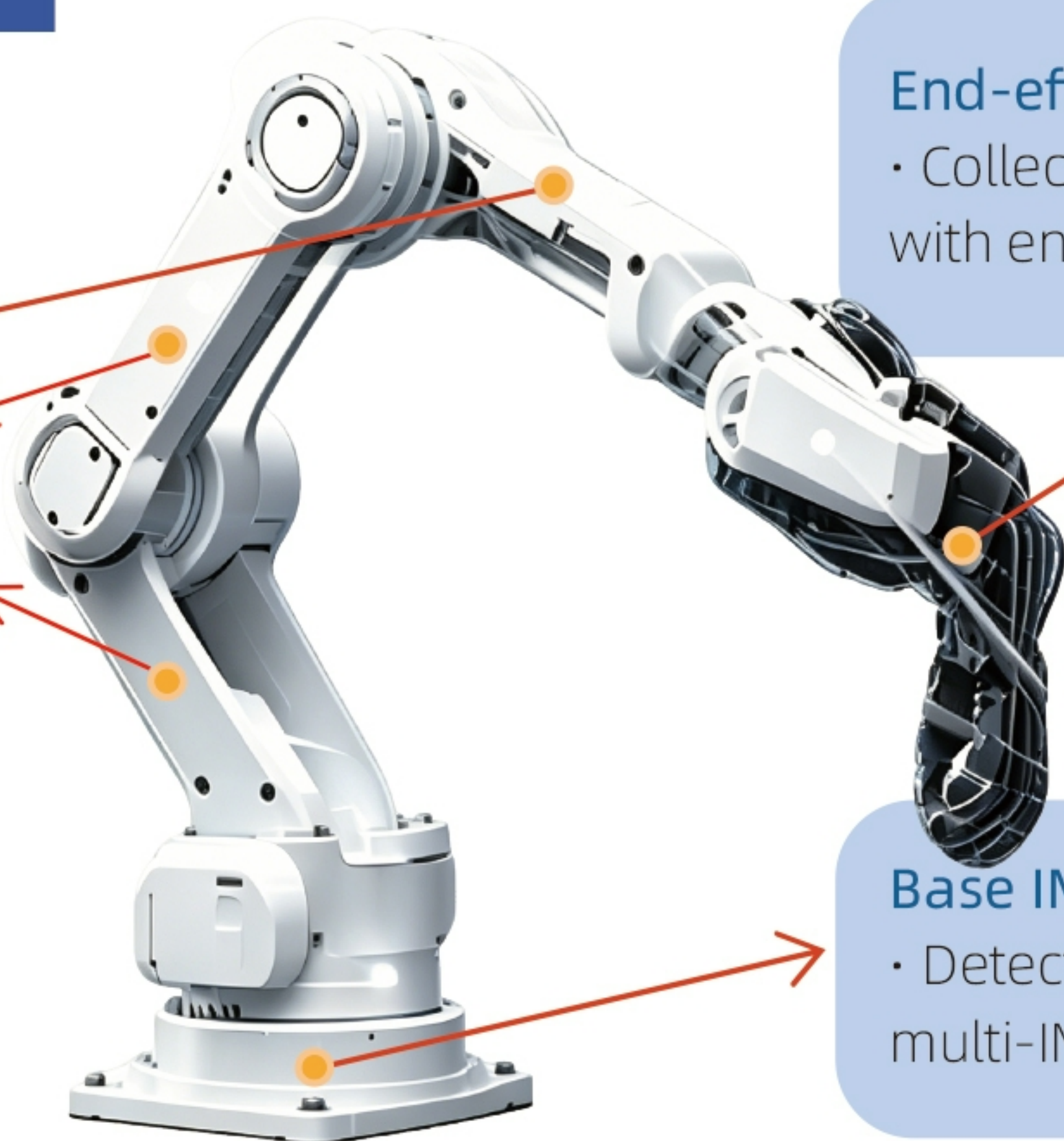
Encoder

Base IMU

- Detect base posture, self-adjust joint motion via multi-IMU fusion

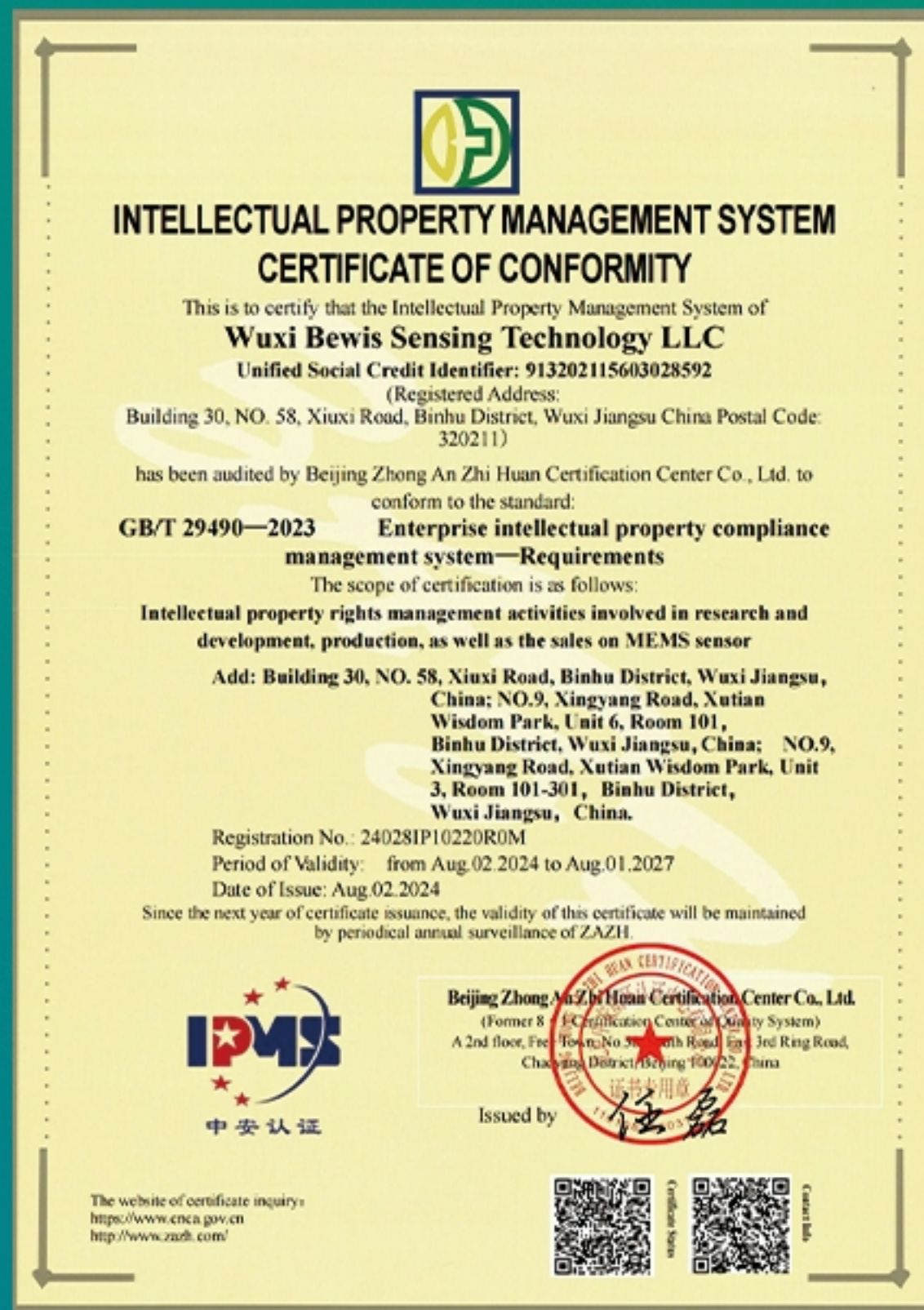


DMC610





COMPLIANCE MANAGEMENT SYSTEM



MANAGEMENT SYSTEM CERTIFICATION



ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION



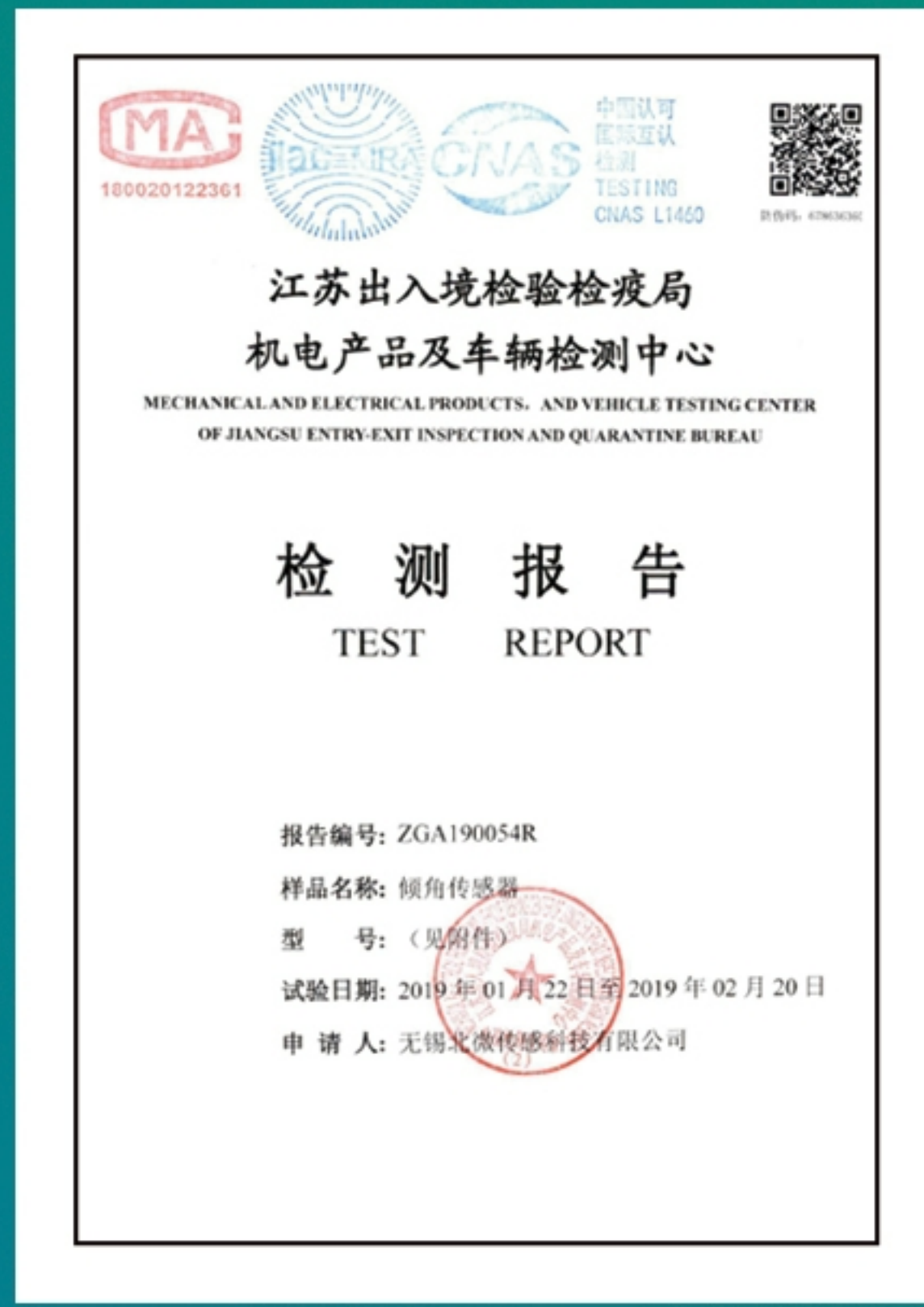
ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION



SOCIAL RESPONSIBILITY ASSESSMENT REPORT



TEMPERATURE TEST REPORT



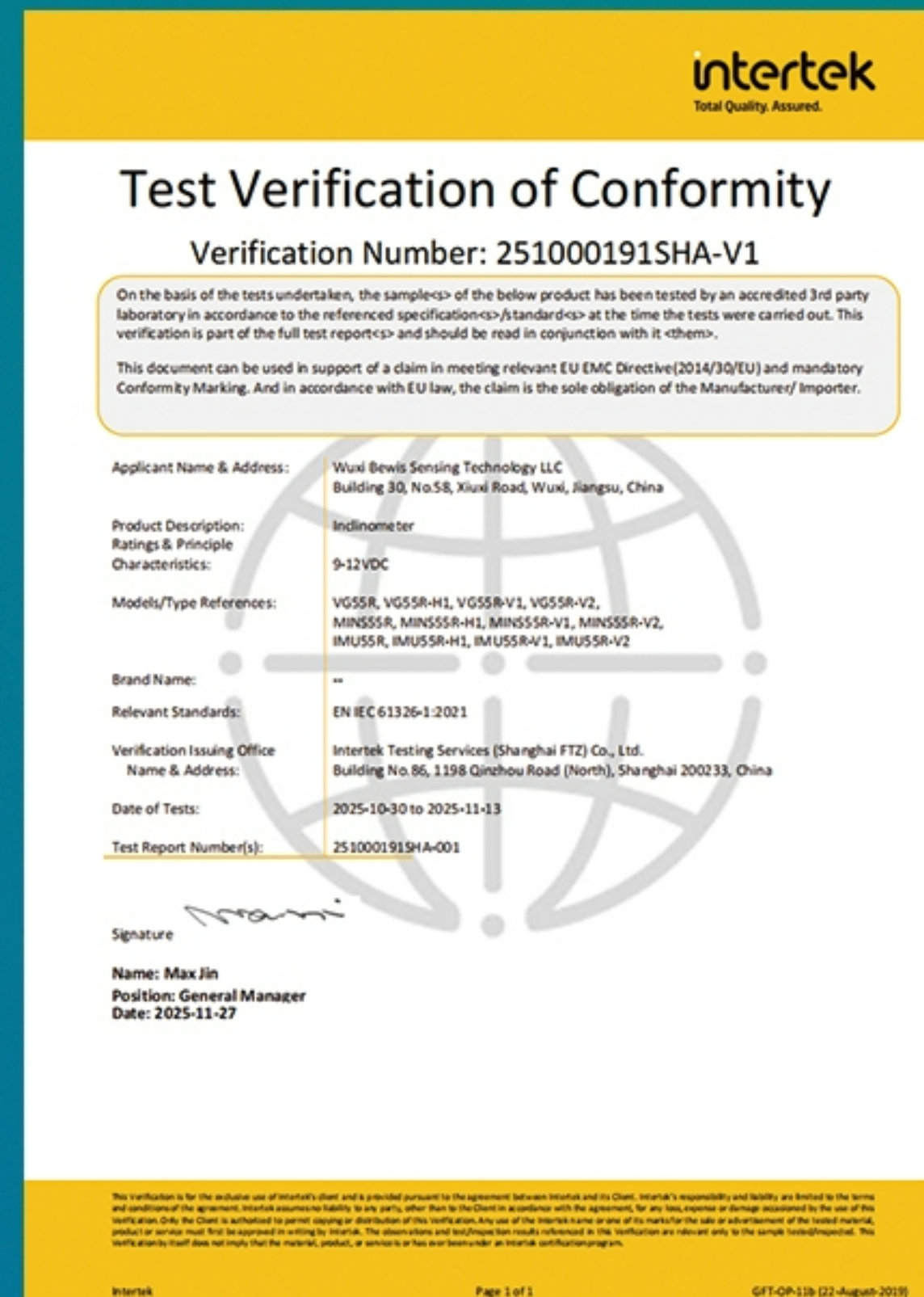
ISO26262



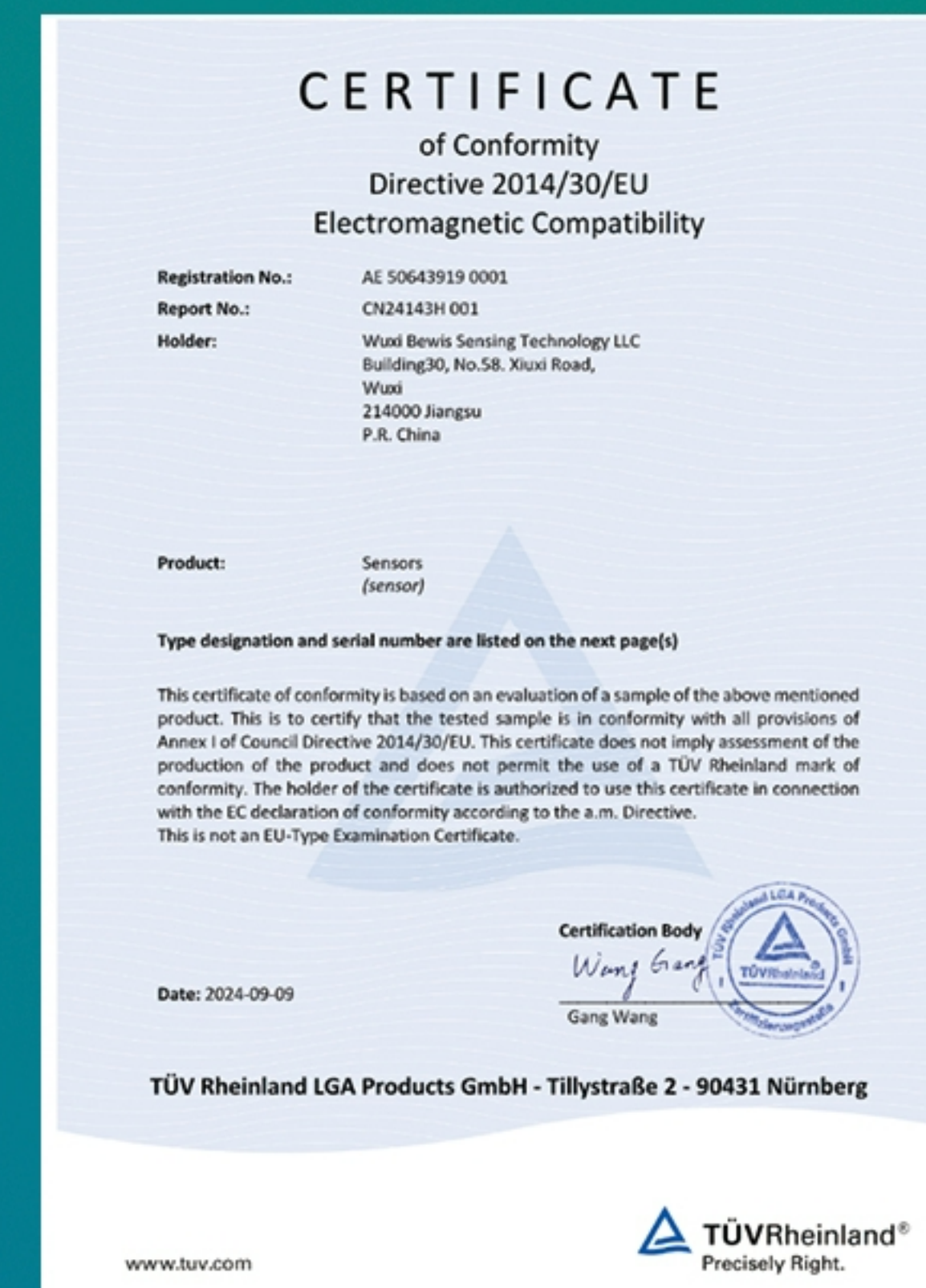
FD527E-CE CERTIFICATION



RoSH



MULTIPLE REDUNDANT CE CERTIFICATION



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