



Kreation



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Zhejiang Kreation Electronic Technology Co., Ltd.

Nox Sensor ★

Exhaust Gas Temperature Sensor ★

Urea Quality Sensor ★



COMPANY PROFILE

Zhejiang Kreation Electronic Technology Co., Ltd.(hereinafter referred to as Kreation) is a smart sensor invested and founded by Equality Intelligent Technology Co., Ltd.. (hereinafter referred to as Equality)The company, located in Wuxing District, Huzhou City, Zhejiang Province, is dedicated to the research and development, production and sales of smart sensors and other smart components.

The R&D core team has more than 10 years of experience in engine ECU and smart sensor software and hardware development, respects rules and processes, and has successively obtained CMMI III certification, IATF16949 certification, E-mark certification, CE certification, rich experience in project management and product mass production, and has formed more than 10 invention patents in NOx sensors.

Industry Experience

- 1.Deep understanding of commercial vehicles, rich experience in mass production of engine ECU
- 2.Vehicle CAN communication protocol
- 3.ECU system integration capability
- 4.Exhaust gas aftertreatment system control
- 5.Emission regulations, OBD

Industrialization process system

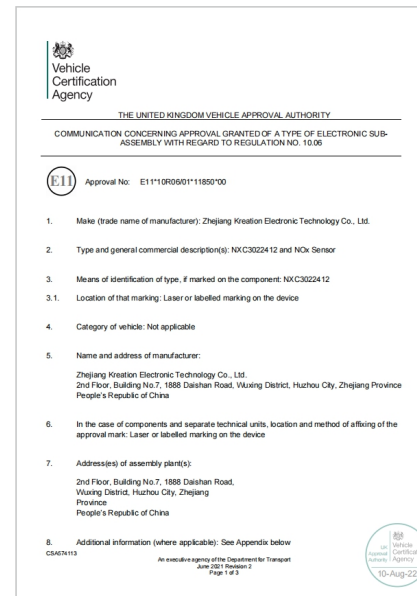
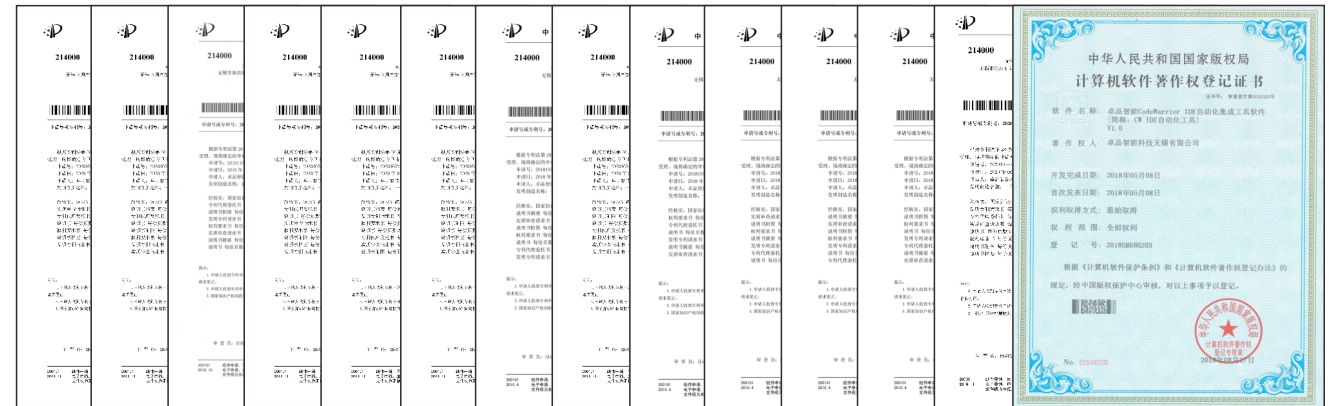
- 1.CMMI development process system-global authoritative software development process
- 2.Advanced V process development system
- 3.Global authoritative quality system certification-TUV Rheinland IATF16949

Three core technologies

- 1.Intelligent-core control algorithm
- 2.Integration-independent development of ASIC chips
- 3.Quick customization model-based embedded software development

Kreation is equipped with 2 automatic production lines for NOx sensors, 1 production line for exhaust gas temperature sensors, 1 urea quality production line, and 1 automatic production line for intelligent oxygen sensors.(Specially customized for Nittera in Japan), with an annual production capacity of one million, meeting the needs of OEM host manufacturers and aftermarket customers from all over the world.

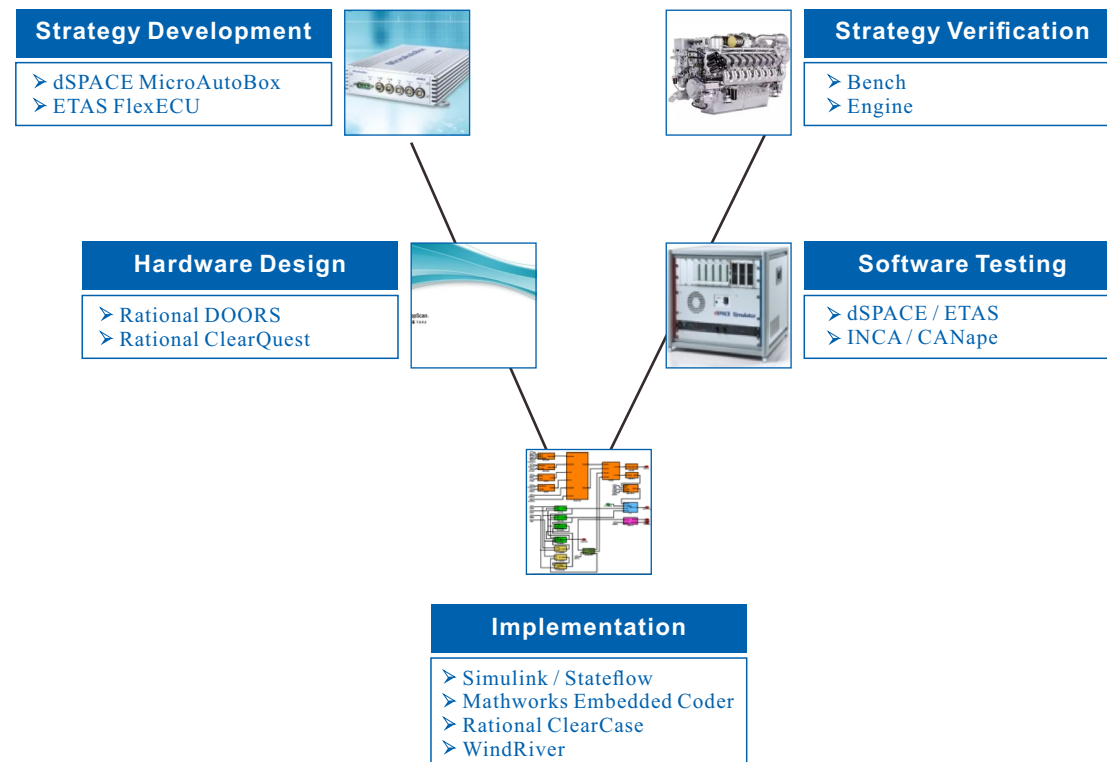
QUALIFICATION HONOR





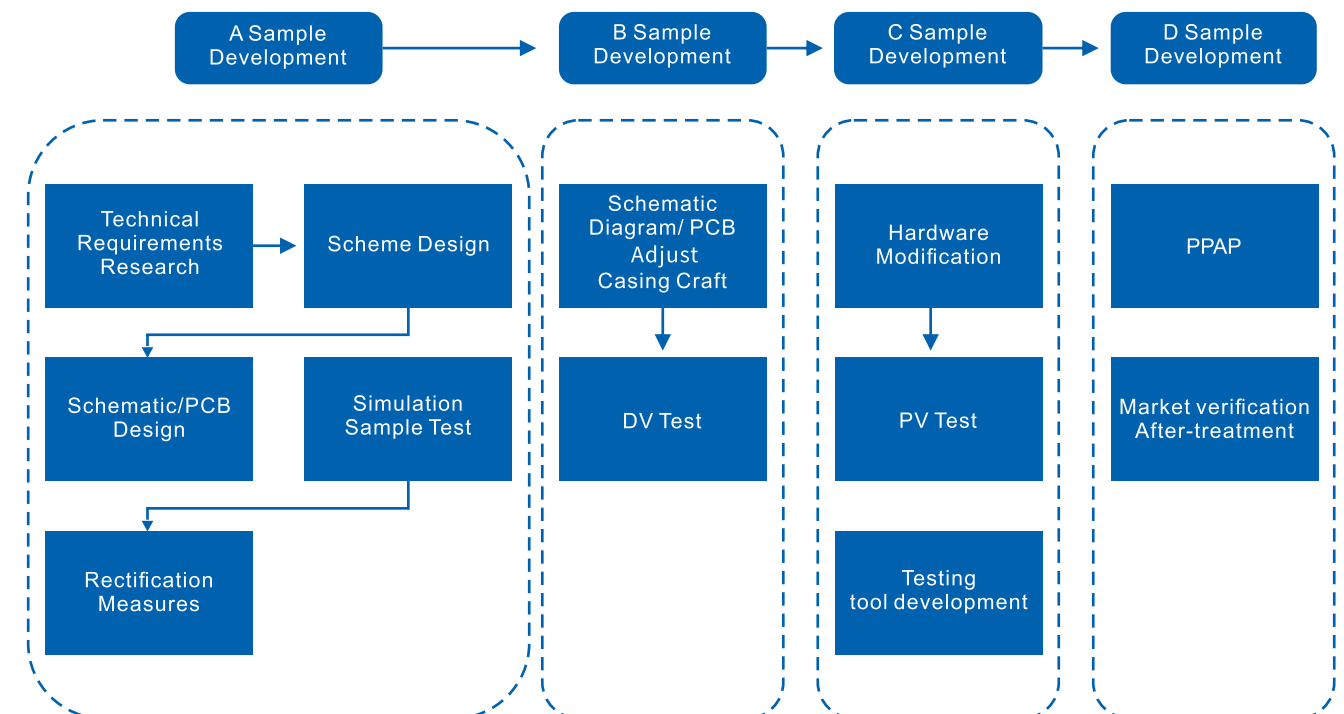
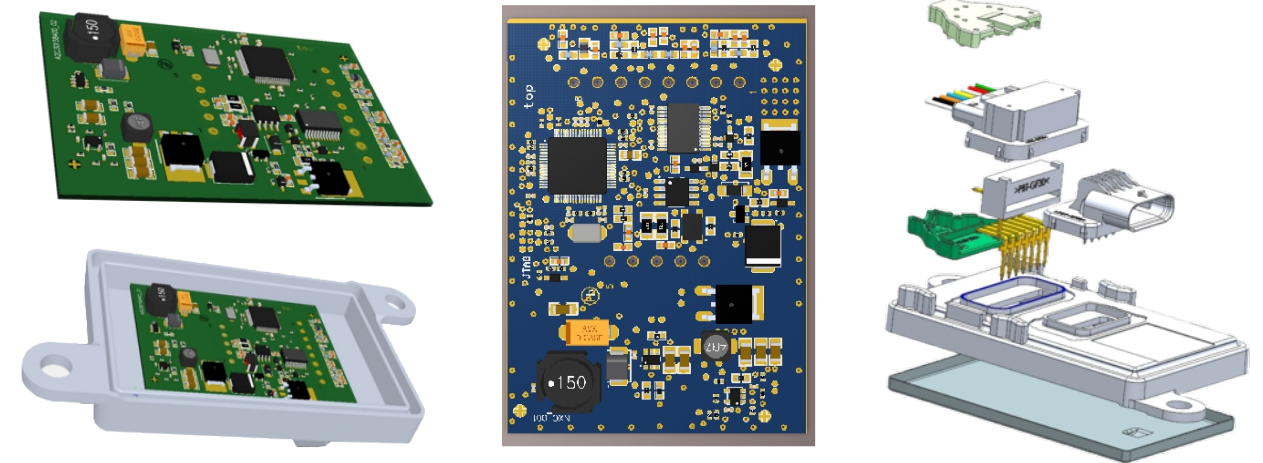
PROCESS SYSTEM

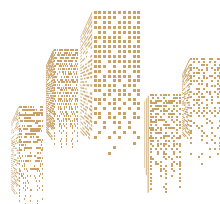
R&D, production and development process of electronically controlled smart sensors.
Follow the industry's advanced process system, V system.



PRODUCT DEVELOPMENT

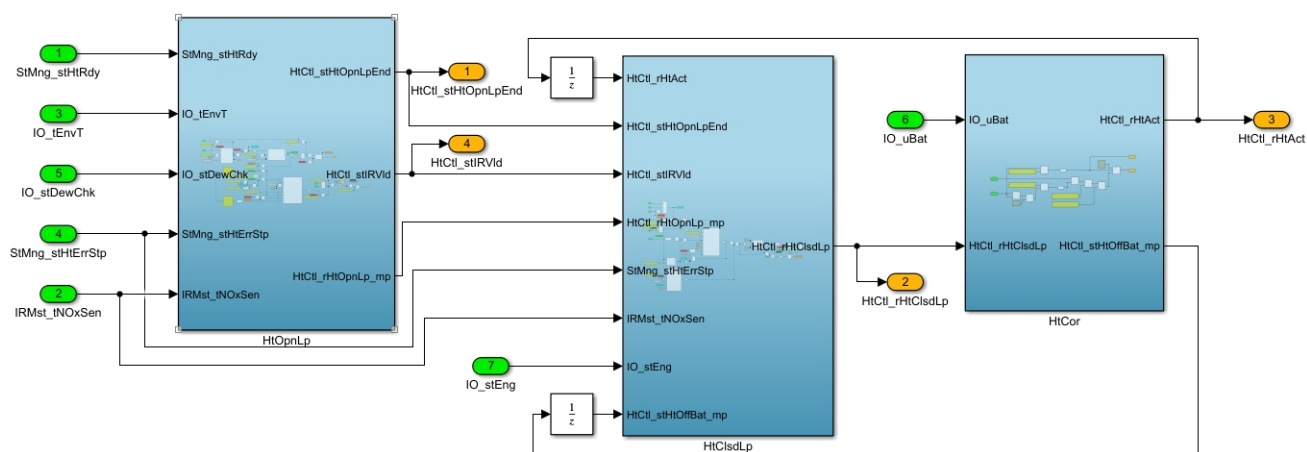
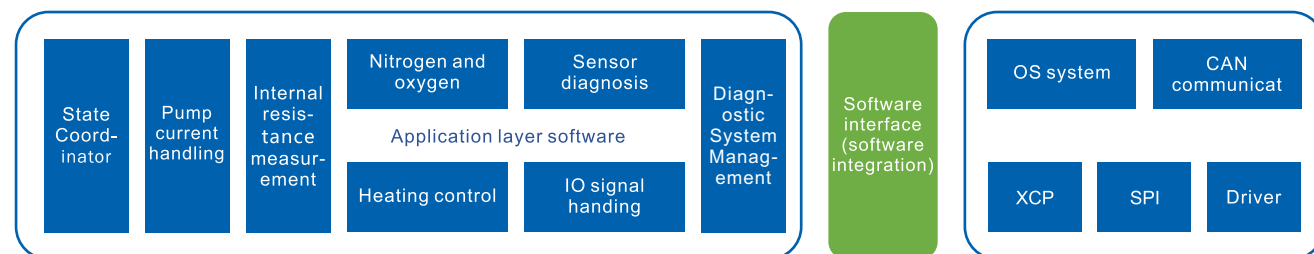
Hardware Development





Software development

With the ability of E-quality and Kreation, Kreation matches domestic high -quality ceramic materials to create high -quality products!



KET 科瑞信



Vision

Based on sensor control technology, trying to become the leader of global intelligent sensors and components.

Mission

Sharp R&D Lean Manufacturing



Zhejiang Kreation Electronic Technology Co., Ltd.

SMART SENSOR

Nox Sensor

The NOx sensor is one of the core components of the diesel exhaust aftertreatment system - SCR (Selective Catalytic Reduction, SCR, selective catalytic reduction), which provides the most basic exhaust NOx concentration to the SCR control system.

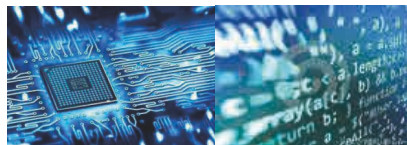
The SCR controller calculates the appropriate amount of urea based on the NOx concentration, drives the doser to spray to the SCR inlet, and obtains gas with very low NOx concentration at the SCR outlet. The Euro VI/China VI standard is generally 20-30ppm. The latest generation of products developed by Kreation can meet the high-standard emission regulations in Europe, China, the United States, Japan and South Korea, and reach the quality level of OEM main engine manufacturers.

The products can be customized according to customer needs in terms of software, hardware and structure.

Product Specification

Nox Detection Range	0~2500ppm O2:-12%~21%
Nox Accuracy	0~100ppm:±10ppm; 100~500ppm:±10%; 500~1500ppm:±15%; 1500~2500ppm:±30%
O2 Accuracy	0%~5%:±0.25%; 5%~21%:±5%;
Light-off Time	Can reach detection state in 160s
Response Time	T(10-90%):NOx<5300ms T(10-90%):O2<4900ms
Supply Voltage	12V,24V in universal version
Design Life	6000h or 350000km

Core Competence



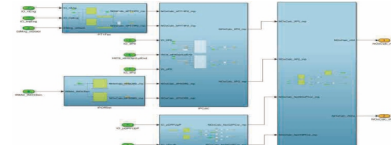
Intelligence

Independently developed signal processing algorithms
Addressing consistency issues.



Integration

The hardware design is based on the self-developed ASIC chip, with high integration, reliable quality and low cost.

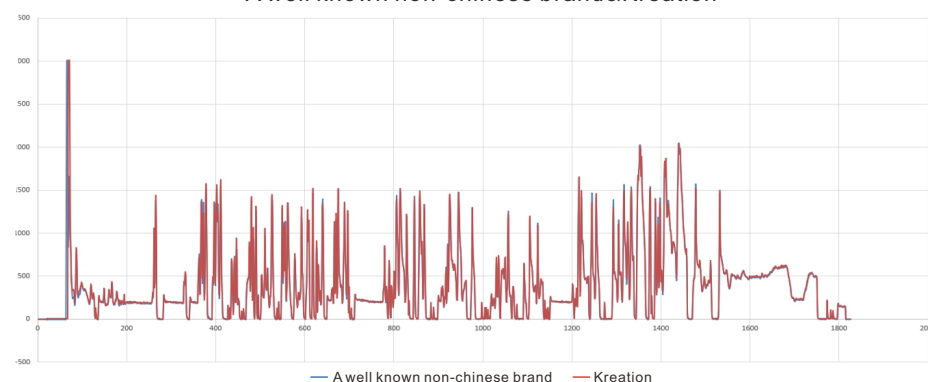


Customization

Model-based software development, the development speed is 5 times that of handwritten code, quickly meeting customer customization needs.

Engine Bench Test

A well known non-chinese brand&Kreation



Exhaust gas temperature sensor

The exhaust temperature sensor can meet the technical requirements of aftertreatment in regions with high emission standards such as China, Europe, America, and South Korea.

The exhaust temperature sensor is used to measure the temperature (DOC, DPF, SCR) at different positions in the aftertreatment system and transmit it through the CAN bus Send to ECU (or DCU) to control urea injection rate and DPF regeneration. Products can be customized according to customer needs

Customize the number of probes and CAN reports to meet the customized development needs of software, hardware, and structure.



Product Specifications

Microcontroller	NXP 32-bit Automotive MCU	Connector	Tyco 4-1418390-1 (key D)
Real-time Conversion	N-type thermocouple standard algorithm	Diagnosis Time	<3s
Upload Output	CAN communication sends temperature data to ECU	Detection Accuracy	-40~649.99℃, ±3℃; 650~950℃, ±1%
Probe type	N-type thermocouple	Number of Channels	1-4 customizable channels
Control Box	Two-part Injection molding, fill with glue	Design Life	20000h
Waterproof Rating	IP6K9K	Operating Environment Temperature	-40 ~ 125℃
Mount Type	Engine or frame	Responsiveness	T63: < 13S



Sensor Assembly

Urea Quality Sensor

It meets China VI regulations and other regional and OBD requirements, and completes the accurate collection of urea level and temperature concentration signals and transmits them to the ECU through the CAN bus.

Product Features

- ★ Urea quality, urea level and temperature three-in-one sensor/liquid level and temperature two-in-one sensor
- ★ Capable of guiding and reflux urea liquid
- ★ The high-temperature coolant of the engine inside the metal pipe heats urea to prevent crystallization
- ★ Intelligent software and hardware can be used under complex working conditions (vehicle vibration, large amounts of gas when filling urea solution Bubbles, etc.) to prevent false alarms
- ★ Meet SAE J1939 technical specifications
- ★ Customized development of software, hardware and structure

Product Parameters

Technical temperature	-40-85℃
Operating Voltage	7-36V
Protection class	IP6K9K
Output signal	CAN-J1939
Quantity transfer cycle	1S
Corresponding time	<3S
Concentration detection range	0~50%
Concentration detection accuracy	25%≤Urea%≤36%and -7℃≤T≤60℃condition ±1%deviation; other conditions, ±2% deviation
Temperature detection range	-40-80℃
Temperature detection accuracy	±1℃
Liquid level detection range	It can be calibrated to adapt to users of different sizes of urea tanks
Liquid level detection accuracy	Dry spring type, single point accuracy ±5mm



Controller Assembly

PRODUCT VERIFICATION

China VI vehicle installation verification test

Nearly 20 China VI light trucks continue to undergo durability tests

Test time:

End of 2022 - present, planned to be completed by the end of 2024 (200,000 kilometers)

Test cycle:

After every 100,000 kilometers of operation, remove the sample and measure the accuracy



Engine bench test

Completed 2000h endurance test of NOx Sensor, and the accuracy before and after the test met the technical specifications



European truck loading verification test

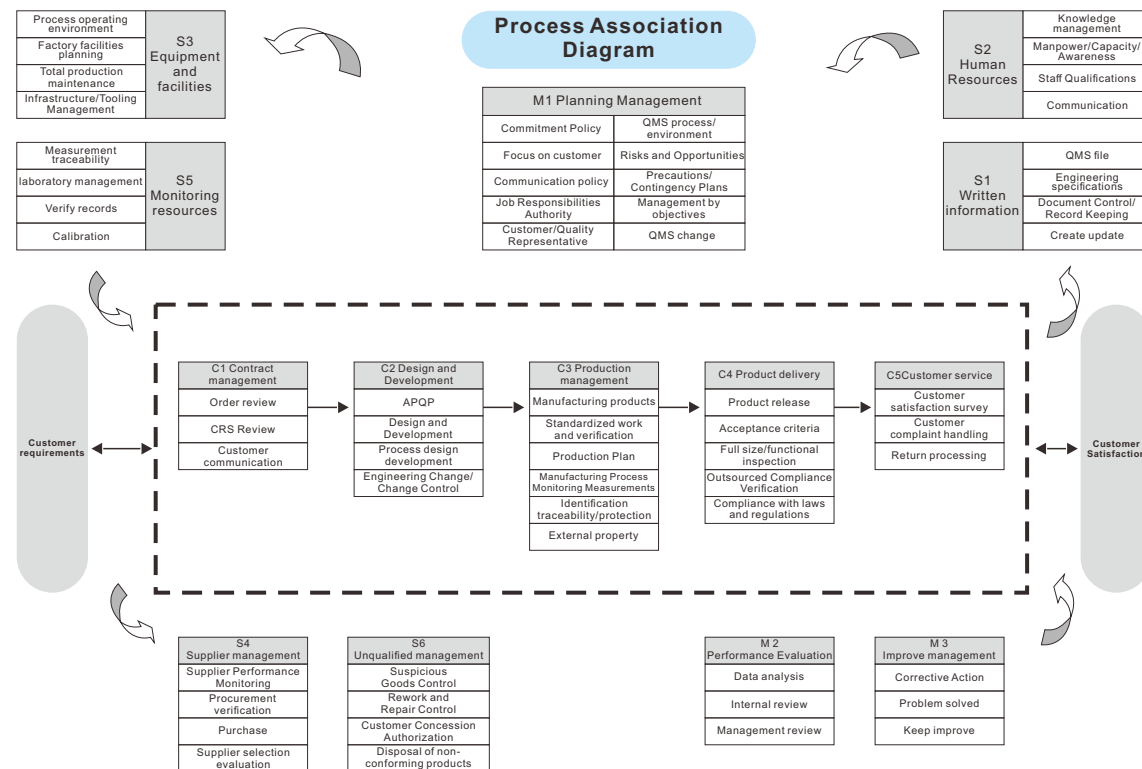
Confirm whether the accuracy meets the specification requirements after the durability test





QUALITY CONTROL

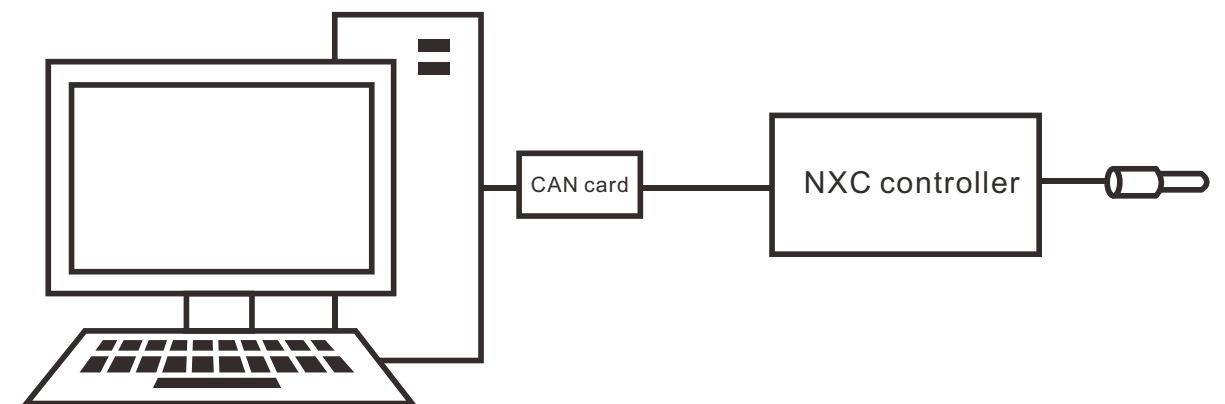
Based on IATF16949, 15 management modules are formulated.



SUPPORTING R&D AND PRODUCTION TOOLS

Nox Sensor

- ★ It can perform online calibration and data curing of some variables of the controller
- ★ View the running curve of variables in real time
- ★ Log operating variable data



Quality online real-time traceability system

Traceability function:

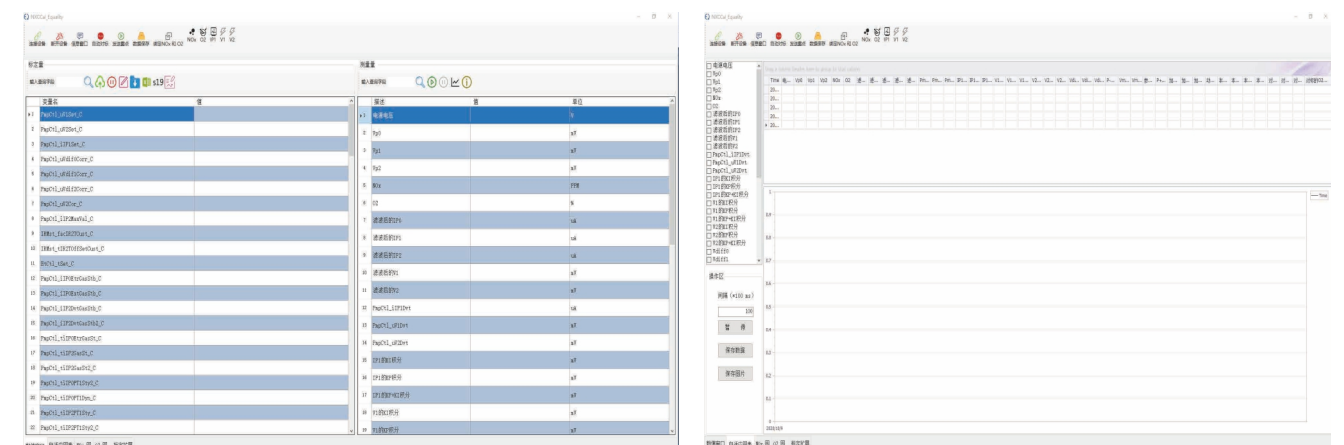
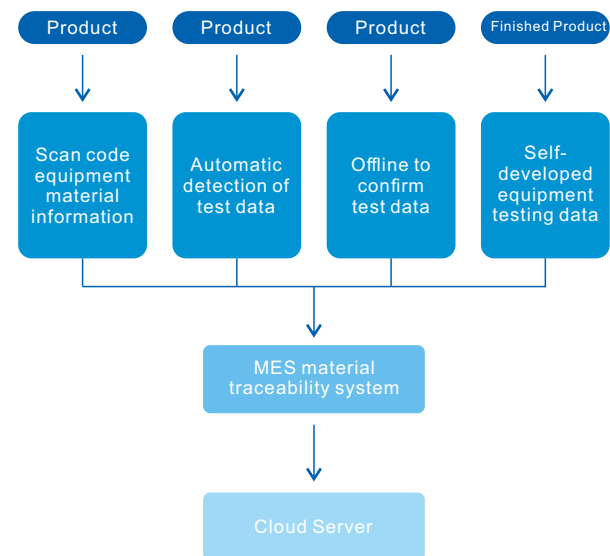
When the product is produced, the product unique code will be automatically created as the product identification mark, and the MES will bind the data with the product to realize the double traceability of the product's material and process.

Material traceability:

MES binds the material information in use with the product unique code by scanning the code with the scanning gun, and can query the material information of each part of the product according to the product unique code.

Process traceability:

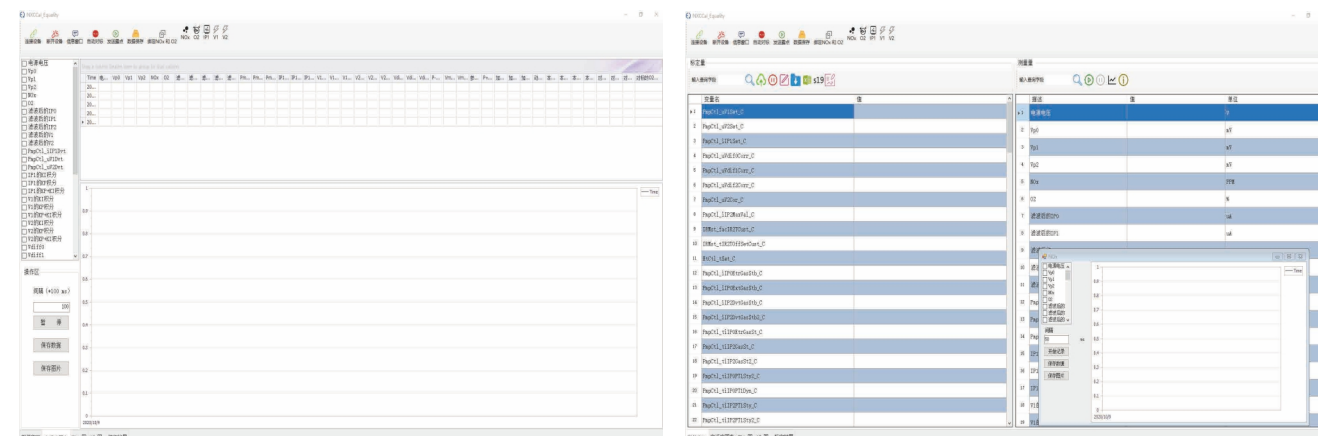
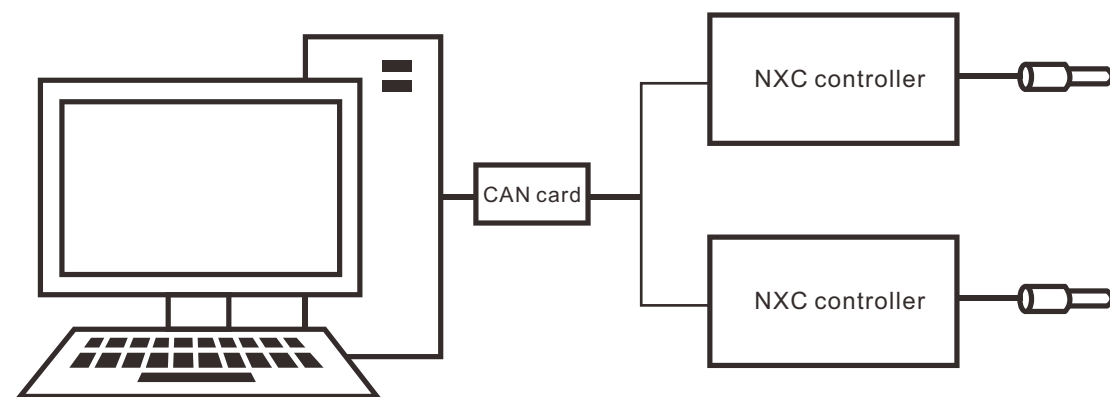
All the test data of the production line test equipment will be uploaded to the MES and automatically bound with the product unique code. The test data of this product at each station can be queried according to the product unique code.





Nox sensor calibration and benchmarking software

- ★ Able to connect 2-way controllers. Realize the manual benchmarking of the controller
- ★ Can be adapted to a variety of adapters for work
- ★ On-line calibration of variables and calibration data curing of the controller
- ★ Real-time selective view of variable running curve
- ★ Can import and export calibration data and generate 519 files that can be written in batches to record running variable data



Probe offline and activation system



Test content

- ★ Can detect the status of 50 probes at the same time
- ★ Automatic calibration according to the difference of probe resistance
- ★ To judge the working state of the probe
- ★ Record the data of the probe work results, which is convenient for traceability
- ★ Scan the QR code to input the probe number to reduce errors





Nox sensor intelligent offline calibration system



Function

- ★ Can detect the status of 7-way probes at any time
- ★ Automatic parameter calibration according to probe differences
- ★ Manual calibration according to the measurement data
- ★ Record the result data of probe automatic calibration and manual calibration, which is convenient for chasing tide
- ★ Scan the QR code and enter the probe number to reduce mistakes



SMART
MANUFACTURING

The high degree of automation of the production line is the guarantee of product quality.



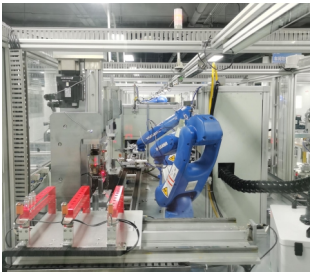
Automatic feeding



Automatic detection



Probe automatic production line



Automatic press fitting



Automatically off-line



Dispenser



Automatic calibration



Semi-automatic assembly line

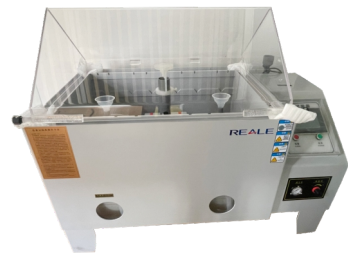


Nox sensor aging test bench



RELIABILITY TEST

The following are the experimental equipment of Kreation, and the rest of the reliability experiments are entrusted to a third-party CNAS qualified laboratory.



Salt spray test machine



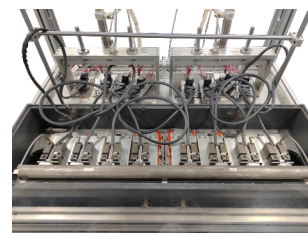
Image measuring
instrument (two-dimensional)



Transport shaker



Hot and cold shock box



Automatic marking table



High temperature machine



Nitrogen oxide chip
detection test bench



Tensile testing machine



Drop test machine

KREATION ELECTRONIC TECHNOLOGY

THANK YOU