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Shenzhen Ampron Technology was founded in 1999, as a corporation specializing in production and development of temperature sensor, pressure sensor, oxygen sensor, PTC and NTC thermistor. With powerful research and development capability, and supported by a group of domestic and international talents, it serves customers products with professional design, high precision and good features.
Overview

Products

- Having been devoted in basic research and development, and production of intelligent sensor.
- Main products are:
  - Oxygen sensor,
  - Pressure sensor
  - Temperature sensor,
  - PTC thermistor
  - NTC thermistor
  - Ceramic substrate series

Data

- Founded in 1999, registered with 55.263138 million RMB
- 3 manufacturing bases, located in Shenzhen, Dongguang and Hunan.
- Covers an area of 45000 square meters.
- Staff: 1500, with over 80 of them are R&Ds and 110 of them are QMs

Reputation

- ISO9001;ISO14001, IATF16949 management system certification
- Core products passed UL, CUL, TUV, CQC
- Double High-Tech Enterprise Certification, country level and province level.
- Guangdong Province Technology Private Enterprise, Industry-University-Research Cooperation with Guangdong University of Technology and HUST
- Multiple patents for invention, more than 20 of patents for utility model.
Sites

Headquarter: Shenzhen, China
Factories: Shenzhen, Dongguang, Chenzhou
Branches: Shunde Foshan, Wuxi, Qingdao and Chongqiong
1999
Founded
Shenzhen Ampron Sensitive Technology Co. Ltd

2003
Became qualified supplier of Huawei and GE

2004
Shenzhen Ampeisheng Technology Co. Ltd. (Former name of Ampron)

Series production for NTC thermistor and temperature sensor kicked off

2005
Became qualified supplier of Midea

Supplied thermistor for the ODM of GE

Undertook the 863 Program of Planar Thermistor

2009
Became qualified supplier of Toshiba and FLUKE

2010
Established R&D Center for planar oxygen sensor

And R&D Center for planar oxygen sensor

Introduce investment organization from: Xinjiang Changyin Yuefu Equity Investment Co. Ltd.

2011
Founded Dongguang Ampron Electronic Technology Co. Ltd

Became qualified supplier of Midea

Introduce investment organization from: Xinjiang Changyin Yuefu Equity Investment Co. Ltd.
History

Working with Guangdong University of Technology on establishing Industry-University-Research Cooperation on advance functional materials. Acquired country-level High-tech Enterprise Certification.

2012
- Introduced global talents, organizing ceramic capacitor automated production line, became the first enterprise of stable series production of ceramic capacitor.
- Worked with famous chip manufacturer on the development of the processing IC.

2013
- Acquired the 1st prize of the Science and Technology Progress issued by Chinese Electronics Institute.
- Became qualified supplier of Midea refrigeration appliances.
- Established the pressure sensor automated production line, with an annual capacity of 5 millions.

2014
- Completed the joint-stock system reform and change the company name to Shenzhen Ampron Technology Co. Ltd.

2015
- Series production of Oxygen sensor kicked off.
- Established pressure sensor laboratory, where over 80% tests required by national standards and industrial standards, can be carried on.

2016
- Series production of Oxygen sensor kicked off.
- Established pressure sensor laboratory, where over 80% tests required by national standards and industrial standards, can be carried on.

2017
- Founded Chenzhou Ampron Sensor Technology Co. Ltd.
- Passed IATF16949 Certification.
- Series production of pressure sensor kicked off. The hydraulic sensor for passenger vehicle was a breakthrough on the situation of foreign monopoly.
- Became qualified supplier of SGMW and started series production.

2018
- Introduced investment of Cowin Capital.
- Became qualified supplier of Sinomach, supplying oxygen sensor.
- Became qualified supplier of Keurig, the biggest coffee-maker supplier globally, supplying oxygen sensor.
- Acquired 2018 Science and Technology Creative and progressive Award.
- Passed the second audit required for the country level High-Tech Enterprise Certification.
- The oxygen sensor, temperature sensor, PTC and NTC were awarded the Guangdong High-Tech Products.
PRESSURE AUTOMOBILE SENSOR
Products

For automobile A/C
For back pressure
For engine oil
Oil pressure output Sensors for oil pump
For intake manifold

Urea injection for SCR system
For power steering system
For automobile brake
For engine pressurization
For gearbox
AUTOMOTIVE PLANAR OXYGEN SENSOR
Products

- Automotive Planar 4 Wires Oxygen Sensor
- Automotive Planar 5 Wires Oxygen Sensor
- Nitrogen Oxygen Sensor
- Oxygen Sensor Chip
- Motorcycle Oxygen Sensor
- Air Fuel Ratio Sensor
- New Generation Of Switch Type Oxygen Sensor
Products

NTC THERMISTOR
Products

- MF58 series
  For temperature measurement and control. Glass encapsulated, precise NTC

- MF58D series
  For temperature measurement and control. Radial lead and glass encapsulated, precise NTC

- MF52E series
  For temperature measurement and control. Bead precise type

- MF52B series
  For high precision or medical equipment

- MF55 series
  For temperature compensation and control

- SMD series
  For temperature compensation and control. SMD type

- MF72 series
  For limiting inrush current
NTC TEMPERATURE SENSOR
Large Appliance Series (Air Conditioning, Refrigerator, Washing Machine)
- For washing machine
- For refrigerator, freezer
- For air-conditioning
- For air-conditioning

Small Appliance Series (Coffee-maker, Electric Kettles, Kitchen & Bathroom Appliances)
- For rice cooker
- For water heater
- For Coffee-maker, Electric Kettles and water heater
- For coffee-maker
Temperature Sensor Series for Automotive and New Energy Automotive

- For automobile (oil, fuel, water temperature)
- For rearview mirror
- For new energy vehicles battery pack
- For vehicle air conditioner

Product Line for Power, Security, Industrial Control and Others

- For battery and surface
- For big industrial oven
- Sensor for fire/smoke alarm
- For electric iron
Products

For skin thermometry
For esophagus & rectum thermometry
For esophageal thermometry or auscultation
For drumhead thermometry
For catheter thermometry
Products

PTC THERMISTOR
Products

- **MZ1 Series**: For overload protection of general circuit
- **MZ2 Series**: For overload protection in telecom
- **MZ3 Series**: For motor starting
- **MZ6 Series**: For thermal protection
- **MZ1 Compound Type Series**: For overload protection of general circuit
- **MZ6T Series**: According to DIN international Standards for the production of motor and other parts of Over-temperature protection
- **LPTC Series**: For temperature
Technology-leading and innovation are core competitiveness of Ampron. The following are gifted specialists globally.

**Ruojun Wu**
(President, senior engineer and the dean of the Ampron Engineering Institute)
Graduated from HUST, majored in electronics materials, Mr. Wu has been working on researching and developing electronics functional materials, and has directed multiple types of thermistors. In domestic market, he was the first to develop energy-saving lamp preheating start PTC thermistor, and directed the development of air conditioning overcurrent protection thermistor and ceramic capacitive pressure sensor. He has a special understanding on aqueous tape casting and thick-film technology.

**舟桥宪昭**
NTC Thermistor Chief Engineer
Originally an experienced senior technical specialist from SEMITEC, working on NTC thermistor development and production. Joined Ampron in 2009 as NTC Thermistor Chief Engineer, Mr. 舟桥 has directed the development of tens of NTC thermistors with high stability, high precision and high reliability.

**Junjie Chen**
(Chief expert of pressure sensor)
Originally the experienced senior R&D manager from Honeywell, specializing in pressure sensor, flow sensor and acceleration sensor. Items he directed include Automobile MEMS Pressure Sensor, Oil Pressure Sensor and Air Brake Pressure Sensor (Used in Dongfeng's commercial vehicle), Automobile MEMS Pressure Sensor, Oil Pressure Sensor and Air Brake Pressure Sensor (Used in Dongfeng's commercial vehicle), MEMS accelerometer chip, ceramics encapsulation and aviation vibration and attitude sensor.
Technology-leading and innovation are core competitiveness of Ampron. The following are gifted specialists globally.

**Shumei Li**
(Senior engineer, Chief expert fo PTC Thermistor)

Ms. Li is graduated from HUST and is one of the first students who studied abroad on thermistor in Japan TDK. As a senior engineer, she has been devoted in PTC thermistor for more than 30 years, full experienced. Now she is the chief PTC expert of Ampron.

**Zongbo Huang**
(Chief expert of oxygen sensor)

Mr. Huang was originally the senior engineer in Ningbo Institute of Materials and Engineering, CAS. He has been studying in inorganic nonmetallic materials. Products he developed include, high temperature solid oxide fuel cell and oxygen sensor. From 2014, he has led Ampron's oxygen sensor project and has completed all that relates to R&D, quality and production of the product, to the degree that all materials used are domestic, a breakthrough on the foreign monopoly.

**Shenglin Jiang**
(Professor, Doctoral Supervisor)

HUST's Professor of electronic science and technology and Doctoral Supervisor of HUST. He is also a candidate of Program for New Century Excellent Talents, member of the Youth Committee of Chinese Materials Institute, project counselor and reviewer of the New Material Special Program of NDRC, reviewer of the 863 Program - New Material Field, member of Chinese Society of Astronautics Photoelectric Technology committee, senior member of Chinese Materials Institute and Chinese Institute of Electronics, and Ampron's chief technical consultant.
Technology-leading and innovation are core competitiveness of Ampron. The following are gifted specialists globally.

Mr. Leng is one of the first students who studied abroad on thermistor in Japan TDK. He is mainly responsible for PTC technology and production line. Now Ampron's technology consultant.

Mr. Wu is Material Engineering Doctor from Alabama University, who has been working for Oak Ridge National Laboratory. In addition, he is a distinguished expert of the national “Thousands of Talents Project”, a Leading Talent in Guangdong Province, a professor and Doctoral Supervisor of Guangdong University of Technology. Now Ampron’s technology consultant.

Ampron has five RD teams for different product types. Tens of Technology Specialist and 2 Shenzhen High-level Talents have been working in the industry for more than 10 years. They are full experienced.
For more than ten years, Ampron has undertaken a number of science and technology projects funded by ministries, provinces, municipalities and districts, including one national 863 major project and two national innovation funds. New projects that have been researched and developed with new implementation results have been transformed include:

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Government Ministry</th>
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<tbody>
<tr>
<td>Planar heat sensitive and thermistor component preparation technology</td>
<td>863 Program</td>
<td>National ministry of science and technology</td>
</tr>
<tr>
<td>Multi-layer PTC thermistor development and industrialization</td>
<td>Technology-based SME Technology Innovation Fund</td>
<td>National ministry of science and technology</td>
</tr>
<tr>
<td>Planar PTC heat sensitive ceramic material and component key technology research</td>
<td>Guangdong Province Industry-University-Research Project</td>
<td>Shenzhen Science and Technology Industry, Trade and Information Technology Committee</td>
</tr>
<tr>
<td>Research and development for high precision NTC temperature sensor used on OA</td>
<td>Shenzhen Technology Research and Development Program</td>
<td>Shenzhen Science and Technology Industry, Trade and Information Technology Committee</td>
</tr>
<tr>
<td>Independent innovative enterprise cultivation</td>
<td>Longgang District Independent Innovation Enterprise Cultivation Program</td>
<td>Shenzhen Longgang District Science and Technology Bureau</td>
</tr>
<tr>
<td>Aqueous tape casting based planar PTC heat sensitive component preparation</td>
<td>Technology-based SME Technology Innovation Fund</td>
<td>National ministry of science and technology</td>
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## Technology advantage and results

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<tr>
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<tbody>
<tr>
<td>Research and development for high precision NTC temperature sensor used on OA</td>
<td>Longgang District Science and Technology Research and Development Program</td>
<td>Shenzhen Longgang District Science and Technology Bureau</td>
</tr>
<tr>
<td>Research and development for high bending strength low-temperature co-fired ceramic substrate used for encapsulating high-power LED</td>
<td>Technology development</td>
<td>Shenzhen Science and Technology Innovation Committee</td>
</tr>
<tr>
<td>Ceramic Capacitive Pressure Sensor Development</td>
<td>Technology Innovation</td>
<td>Shenzhen Science and Technology Innovation Committee</td>
</tr>
<tr>
<td>New planar oxygen sensor development</td>
<td>Technology Innovation</td>
<td>Shenzhen Science and Technology Innovation Committee</td>
</tr>
<tr>
<td>Industrialization of ALN thick film substrate materials for high thermal conductivity LED encapsulation</td>
<td>Industry-University-Research Cooperation</td>
<td>Shenzhen Longgang District Science and Technology Bureau</td>
</tr>
<tr>
<td>Advanced Functional Ceramic Materials Engineering Technology Research Center</td>
<td>District Engineering Technology R&amp;D Center</td>
<td>Shenzhen Longgang District Science and Technology Bureau</td>
</tr>
<tr>
<td>Second Prize of Longgang District Science and Technology Progress Award</td>
<td>Science and technology award</td>
<td>Shenzhen Longgang District Science and Technology Bureau</td>
</tr>
<tr>
<td>Research and development for high bending strength low-temperature co-fired ceramic substrate used for encapsulating high-power LED</td>
<td>Science and technology development funds</td>
<td>Shenzhen Longgang District Science and Technology Bureau</td>
</tr>
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</table>
Ampron’s customers include Midea, Haier, GE, Samsung, TOSHIBA, Panasonic, BOSCH, LIFAN, SINOMACH and many other famous corporations at home and abroad. The sales net has stretched to the US, Germany, France, Italy, Japan, all together 30 countries and regions, serving more than 500 enterprises.
Sales Network
Sales performance

- 2014年: 16500 RMB/Y
- 2015年: 19600 RMB/Y
- 2016年: 23500 RMB/Y
- 2017年: 29800 RMB/Y
- 2018年: 35000 RMB/Y
Factories
Production Facilities

Facilities in Dongguang factory
Ampron has two domestic leading standard laboratories, located in Shenzhen and Dongguang. The one in Shenzhen covers an area of 400 square meters and the one in Dongguang is 200 square meters. Each of them has near 10 specialized test engineers. One laboratory is divided into office area and test area. The test area includes a sample turnover area, a product characteristic test area, an environmental test area, a mechanical test area, and a fixture test area, where near a hundred test devices are deployed.

The environmental test area is designed to test products under the simulated extreme environments. Facilities including Programmable Temperature/Humidity Chamber, Bursting Test Machine, Programmable Temperature Chamber, Glow-wire tester, Programmable Rain Chamber, Salt Spraying Tester, Ozone Test Chamber are deployed.

The aim of mechanical test area is for testing the mechanical characteristics of a product, by ways of vibration test, smash test and drop test.

The laboratories are applicable for more than 80% test items required by the national standards and industrial standards for oxygen sensor and pressure sensor, while for temperatures sensors, the laboratories are applicable for 100% test items.
Test Devices

- SEM imported from Japan
- Metallurgic microscope
- Two dimensional image measuring instrument
- Laser Particle Size Analyzer
- ROHS measuring instrument
- Fluorescence Spectrometer
- X-RAY detector
Test Facilities

Programmable Temperature/Humidity Chamber

Bursting Test Machine

Programmable Temperature Chamber

Glow-wire tester

Programmable Rain Chamber

High Temperature and Low Pressure Test Chamber

Ozone Test Chamber

Pluggable force Test machine

High Acceleration Impact tester

Sand and Dust Test Chamber

Automotive interior burners

Salt Spraying Tester

Vibration Test Machine

Horizontal Torque Tester
Quality assurance system

QC Center

Quality Test

- IQC
- FQC
- IPQC
- OQC

Quality Assurance

- DCC
- System Dept.
- Labs
- SQE
- QE
Honor

Industry-University-Research Base for Advanced Functional Materials

National High-Tech Enterprise Certification

Industry-University-Research Base for Sensitive Ceramics Materials

Guangdong private Technological Enterprise

Technology Progress First Prize issued by Chinese Electronics Institute

National Science and Technology Innovational Contribution Award

Guangdong Top Brand
Patents

7 Patents for Inventory

18 Patents for Utility Models

1 Software Copyright

3 Trademark registered
High-Tech Product Certificates

Guangdong High-Tech Product
Temperature Sensor

Guangdong High-Tech Product
Pressure Sensor

Guangdong High-Tech Product
Oxygen Sensor

Guangdong High-Tech Product
NTC Thermistor

Guangdong High-Tech Product
PTC Thermistor
Product safety certification

TUV

CQC

UL/CUL
Advantages

Brand and Scale

Thorough and complete product range that covers major product types and specifications all over the world and the leading position ensure scaled and brand advantages.

Industrial chain starting from chemical raw materials to end product, with 3 large factories located in Shenzhen, Hunan and Dongguang, makes possible the annual capacity of 0.8 billion.

Under the brand of Ampron, serving multiple Top 500s

Technological Advantages

National High-Tech Enterprise, gathering talents at home and abroad, maintaining core technology. Independent R&D for key material and equipment.

The only domestic company that master both technology of ceramic capacitance pressure sensor (Automated production of ceramic capacitance and high performance IC), break foreign monopoly in China. A breakthrough in the localization of passenger car pressure sensors.

Completed industry chain starting from chip to sensor, core technology to development and series production from raw material to product, import substitution advantage is obvious.

Quality and Service

The key performance indicators of the company's main products have been in an absolute leading position in China. Compared with the world's advanced similar products, it is not inferior at all. There are many scientific and technological achievements transformed into products that replace imported products to fill the domestic gap.

Core products have passed UL, CUL, TUV, CQC, ensuring safe use.

The professional technical team can provide customers with professional design application solutions and quick response.

Professional QM team strictly implements IATF16949 automotive standard management system.
Perspective

In Three Years
- Maintaining an average growth rate of more than 30%, become a benchmark for domestic sensors and get listed on A-share.

In Five Years
- Based on the automobile and home appliance market, through continuous industrial integration and new product development to enrich the product range and become a leading manufacturer of smart sensor.

In Ten Years
- Extend to upstream, further master the core technology of materials, build multiple technology research and development platforms and diversify into smart sensors, to become one of the most competitive smart sensor suppliers in the world.
Thank You!