Master advanced technology to improve automotive components

BAOLONG

智能传感器
INTELLIGENT SENSOR

上海保隆汽车科技股份有限公司
Shanghai Baolong Automotive Corporation

上海市松江区沈砖公路5500号 201619
5500, Shenzhuan Road, Songjiang, Shanghai 201619, China
TEL: +86-21-31273333 / FAX: +86-21-31190319
E-mail: sbic@baolong.biz / WEB: www.baolong.biz

汽车传感器
Automotive Sensor

具身智能感知系统
Embodied AI Perception System

让更多人受益于汽车科技的发展
DEVELOP AUTOMOTIVE TECHNOLOGY FOR THE BENEFIT OF MORE PEOPLE

About Baolong Automotive

关于保隆科技

保隆科技于1997年5月在松江创立，2017年在上交所上市；截至2025年底，在上海松江、浦东、安徽宁国、安徽合肥、湖北武汉、江苏高邮和美国、德国、波兰、匈牙利、奥地利、泰国等地有12个生产园区、23家工厂和15个研发中心，以及20余个销售分支机构，全球员工超过8100人。

公司产品包括TPMS、车用传感器、智能辅助驾驶产品、智能悬架、汽车金属管件、气门嘴以及平衡块、BUSBAR、液冷板和铝外饰件等。

保隆科技已成为气门嘴、平衡块、排气管、胎压监测系统、智能悬架等细分领域的全球领先供应商之一，是中国汽车供应链百强、上海市制造业五十强企业，为全球50多个国家2500余个客户服务，主要客户包括全球主要的整车企业、一级供应商以及独立售后市场流通商。

Shanghai Baolong Automotive Corporation was founded in May, 1997 in Songjiang District, Shanghai, and has been listed on Shanghai Stock Exchange since 2017. By the end of 2025, the company has 12 manufacturing campuses, 23 factories, 15 R&D centers, and over 20 sales branches in China (Songjiang District and Pudong District, Shanghai; Ningguo and Hefei, Anhui Province; Wuhan, Hubei Province; Gaoyou, Jiangsu Province), the United States, Germany, Poland, Hungary, Austria, Thailand, etc., and more than 8,100 staff around the world.

Baolong offers extensive product portfolio including TPMS, automotive sensors, intelligent assisted driving solutions, ECAS, automotive metal tubing, tire valves, wheel weights, BUSBAR, liquid cold plates, aluminum exteriors, and more.

Baolong has become one of the leading global supplier of tire valves, wheel weights, exhaust pipes, TPMS, and ECAS. It is ranked among China Top 100 Automotive Suppliers and Shanghai Top 50 Manufacturing Enterprises. We've proudly supplied to over 2,500 customers in more than 50 countries. Our main customers include major carmakers, tier-1 suppliers, and independent aftermarket distributors in the world.

Customer Base
主要客户

自主品牌
Chinese Brands

造车新势力
NEV Start-ups

外资品牌
Foreign Brands

保隆科技与许多世界知名的整车厂和一级供应商合作，他们相信保隆科技致力于汽车产品和解决方案的创新和改变，使得驾乘人员能够获得更安全、更有效率和更舒适的体验。

Baolong cooperates with many world-renowned OEMs and Tier 1 suppliers that trust us to implement the most innovative and game-changing products and solutions to improve safety, efficiency and comfort.

一级供应商
Tier 1 Suppliers

售后客户
Aftermarket

注：以客户英文名称首字母的先后顺序排列（In alphabetical order of English name）

Global Footprint
全球布局

29 年历史

1997年5月20日，创立于上海松江

Founded in Songjiang,
Shanghai on May 20, 1997

8100+ 名员工

截至2025年底，全球员工总数超过8100人

More than 8,100 employees globally
as of the end of 2025

12 个生产园区

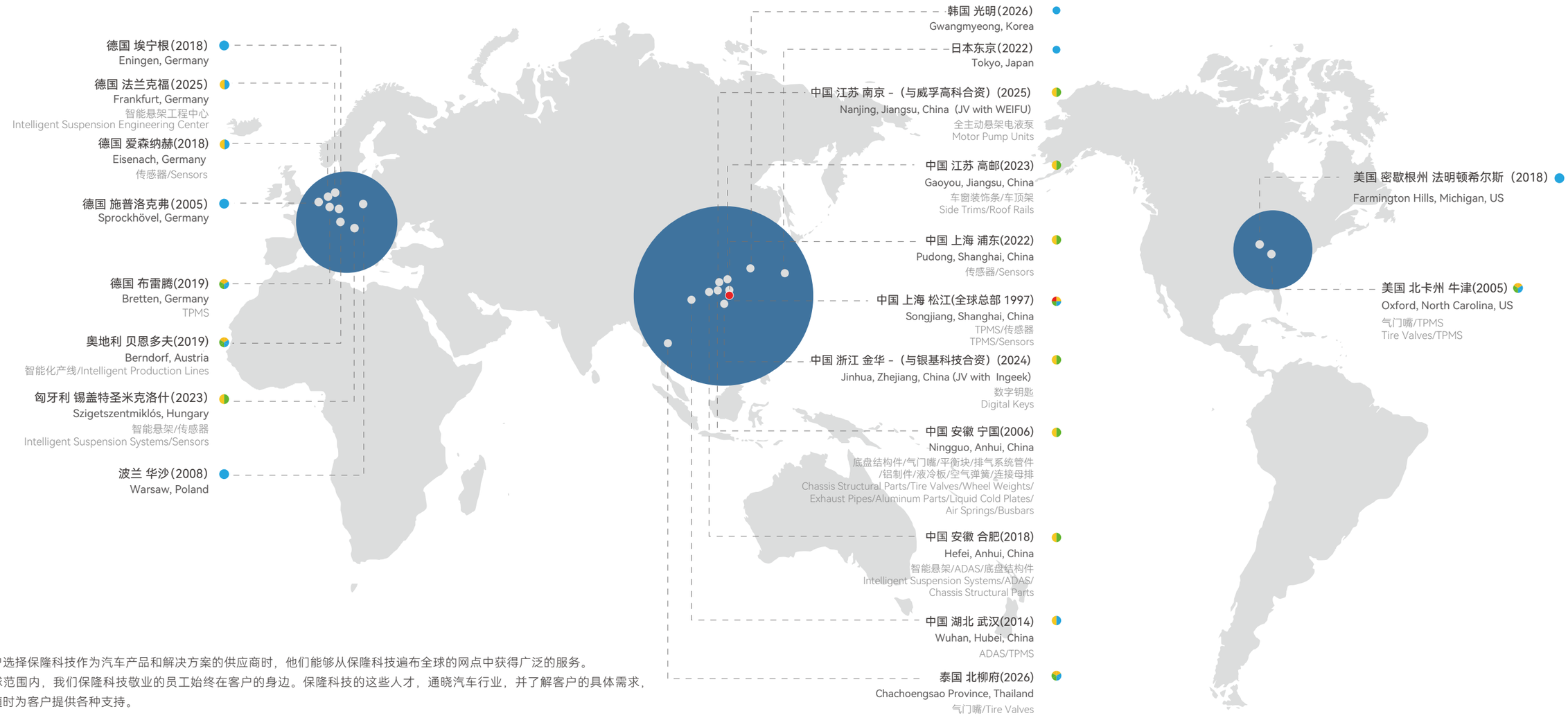
在中国、东南亚、北美、欧洲，设有12个生产园区

Twelve manufacturing parks in China, Southeast Asia,
North America and Europe

2500+ 个客户

向全球50多个国家和地区的2500多个客户提供产品和服务

Supplies to more than 2,500 customers
in over 50 countries and regions



当客户选择保隆科技作为汽车产品和解决方案的供应商时，他们能够从保隆科技遍布全球的网点中获得广泛的服务。
在全球范围内，我们保隆科技敬业的员工始终在客户的身边。保隆科技的这些人才，通晓汽车行业，并了解客户的具体需求，能够随时为客户提供各种支持。

When customers choose Baolong as a supplier of automotive products and solutions, they can be assured of abroad spectrum of services from Baolong's global network.
Globally present, the access to Baolong's dedicated employees is never far away. Baolong's talents who all know the automotive industry and understand customers' specific demands and needs are always ready to support customers.

Milestones
发展历程

目前已跻身全球前三
At present, among the top 3 globally

目前已跻身国内前三
At present, among the top 3 in China

1997
公司成立
Baolong founded

1998
自研轮胎气门嘴
Developed tire valves

1999
总部园区成立
Songjiang campus opened

2000
自研车轮平衡块
Developed wheel weights

2001
自研排气系统管件
Developed exhaust pipes

2002
自研TPMS
Developed TPMS

2006
宁国园区成立
Ningguo campus opened

2009
自研汽车压力传感器
Developed pressure sensors

2012
自研汽车结构件
光雨量传感器
空气弹簧
Developed structural parts, rain & light sensors and air springs

2013
自研视觉系统、
毫米波雷达
Developed cameras and millimeter-wave radars

2014
武汉园区成立
Wuhan campus opened

2016
自研电控减振器
Developed air spring dampers

2017
上海证券交易所上市
IPO on Shanghai Stock Exchange

2017
自研轮速传感器
电流传感器
Developed Wheel speed sensors;
Current sensors

2018
合肥园区成立
Hefei campus opened

2018
自研ECAS，包括：
全铝悬架储气罐
悬架控制单元
空气供给单元
车身加速度传感器
车身高度传感器
收购德国PEX和TESONA
Developed ECAS, including:
All-aluminum air reservoirs for intelligent suspension;
Suspension controllers;
Air supply units;
Body accelerator sensors;
Body height sensors.
Acquired PEX and TESONA, Germany

2020
合资成立领目科技
Jointly establish Leadmove

领目科技 LEADMOVE

2022
收购龙感科技，
合资成立优达斯
Acquired LONGAN;
Jointly establish UDAS

LONGAN 龙感
UDAS

2023
欧洲研发制造中心正式开园；
European R&D and manufacturing center opened

2024
合资成立银基科技
Jointly establish Ingeek

INGEEK 银基科技

2025
合资成立威孚高科
Jointly establish WEIFU

WEIFU威孚

2026
泰国生产园区开园
Thailand manufacturing campuses opened

Global Operation

国际化运营

1997

开展汽车零部件国际贸易

Started international sales of auto parts

2005

设立海外公司VALOR;
收购成立于1909年的美国DILL

Founded Valor in Germany, an overseas subsidiary
Acquired DILL, an American company founded in 1909

2018

收购德国传感器公司PEX和TESONA

Acquired PEX and TESONA sensor companies in Germany

2019

与德国第二大钢铁公司沙士基达签订协议设立合资公司-BSHF
与德国霍富集团（HUF）成立合资公司-保富电子
收购奥地利MMS，在中国上海设立运营中心

Founded BSHF, a Chinese joint venture with Salzgitter, the 2nd biggest steel company in Germany
Founded BH SENS, a global joint venture with Huf, a German company
Acquired MMS, an Austrian company and founded an operation center in Shanghai, China

2020

保隆（欧洲）控股有限公司（BHE）在匈牙利购置土地，投资建设新园区

Baolong Holdings Europe Kft. bought land in Hungary for construction of the new production base

2022

匈牙利园区开建

Started construction of a new factory in Hungary

2023

保隆欧洲研发制造中心正式开园

Baolong European R&D and manufacturing center officially opened

2026

泰国园区开园

The campus in Thailand opened

Enterprise Honors
企业荣誉

资质证书 / Certifications

保隆科技
ISO 26262功能安全管理体系认证证书
ISO 26262 Baolong Automotive

保隆汽车电子实验室
CNAS认证
CNAS L12065 Baolong Automotive

保隆安徽拓扑思汽车零部件有限公司
IATF 16949 质量体系认证
IATF 16949 Ningguo Branch

保隆安徽汽车配件有限公司
ISO 14001环境管理体系认证
ISO 14001 Ningguo Branch

保隆科技
ISO 14001环境管理体系认证
ISO 14001 Baolong Automotive

保隆安徽拓扑思汽车零部件有限公司
ISO 14001环境管理体系认证
ISO 14001 Ningguo Branch

保隆科技
IATF 16949质量体系认证
IATF 16949 Baolong Automotive

安徽拓扑思汽车零部件有限公司
职业健康安全管理体系认证证书
ISO 45001 Ningguo Branch

保隆科技
汽车能源管理证书
Energy Management System Certificate

客户认可 / Customer Awards

通用汽车全球供应商质量表现优秀奖
GM Supplier Quality Excellence Award

沃尔沃汽车可持续长期伙伴奖
Volvo Sustainability Long-term Partnership Award

上汽通用五菱伙伴同行奖
SGMW Partnership Award

理想汽车理想价值奖
Li Auto Value Award

奇瑞汽车优秀供应商奖
Chery Auto Excellent Supplier Award

江淮集团优秀供应商奖
JAC Group Excellent Supplier Award

东风日产最佳供应链合作伙伴奖
Dongfeng-Nissan Best Supply Chain Partner Award

中国一汽攻坚克难旗志奖
FAW QIZHI Award

吉利汽车优秀协作奖
Geely Excellent Collaboration Award

政府荣誉 / Government Awards

国家认定企业技术中心
National-recognized Enterprise Technology Center

院士专家工作站
Academician Expert Workstation

国家级知识产权优势企业
National Intellectual Property Advantage Enterprise

Test Capability
实验能力

电气类试验主要能力
Electrical Test Capability

电压复位试验	Voltage Reset Test
瞬时过电压试验	Transient Overpressure Test
电压瞬断实验	Voltage Dips and Interruptions
电压下降与上升	Voltage Drop and Increase Test
负载跌落	Load Drop Test
脉冲电压测试	Impulse Voltage Test
反向电压试验	Reversed Voltage Test
叠加交流电试验	AC Superimposed Test
绝缘电阻试验	Insulation Resistance Test
短路测试	Short Circuit Test
开路测试	Open Circuit Test

环境性能试验主要能力
Environment Test Capability

高温耐久性试验	High Temperature Durability Test
高低温湿热试验	Climate and Humidity Test
温度冲击试验	Thermal Shock
高低温湿复合旋转装置试验台	Climate, Humidity and Rotation Combined Test
低温存储试验	Low Temperature Storage Test
温度循环试验	Temperature Cycle
阶梯温度试验	Stepped Temperature Test
稳态湿热试验	Constant Climate and Humidity Test

光雨量测试主要能力
RLS Special Test Capability

光谱范围为730-1100nm，430-610nm	Spectrum: 730-1100nm, 430-610nm
雨量：可模拟小雨、中雨、大雨	Rain Simulation: Thin Rain, Moderate Rain, Heavy Rain.

光雨量测试台架
RLS Test Bench

高低温复合旋转台
Climate Combined Rotation Test Bench

传感器液压疲劳测控系统
Sensor Liquid Pressure Fatigue Test System

旋转式高低温湿箱
Rotatory Climate and Humidity Chamber

高低温湿箱
Climate and Humidity Chamber

干燥箱
Drying Oven

防护及腐蚀性能试验主要能力
Chemical and Corrosion Test Capability

防水试验	Water Proof Test
外壳尘防护试验	Dust Proof Test
循环盐雾试验	Salt Fog Cycle
介质兼容试验	Medium Compatibility Test
化学腐蚀试验	Chemical Corrosion Resistance
冰水冲击试验	Ice Water Shock Test
碎石冲击试验	Stone Chip

压力传感器专项测试能力
Pressure Sensor Special Test Capability

气压（加高低温）脉冲试验	Pulse Pressure Test (combined with climate change)
液压（加高低温）脉冲试验	Hydraulic Impulse Test (combined with climate change)
压力循环测试	Press Cycle Endurance
爆压测试	Burst Pressure

机械环境性能试验主要能力
Mechanical Test Capability

高低温-湿度-振动综合试验	Climate, Humidity and Vibration Combined Test
机械冲击试验	Mechanical Shock
拉压力机械破坏性试验	Tensile Destructive Test
共振扫频试验	Resonant Sweep Test
自由跌落试验	Free Drop Test
线束耐久试验	Wire Harness Durability Test

EMC类试验主要能力
EMC Capability

BCI
RE
CE
ESD

EMS 测试室
EMS Lab

BCI测试系统
BCI Test System

拉压力计
Tension Pressure Gauge

防水试验台
Water Proof Test Rig

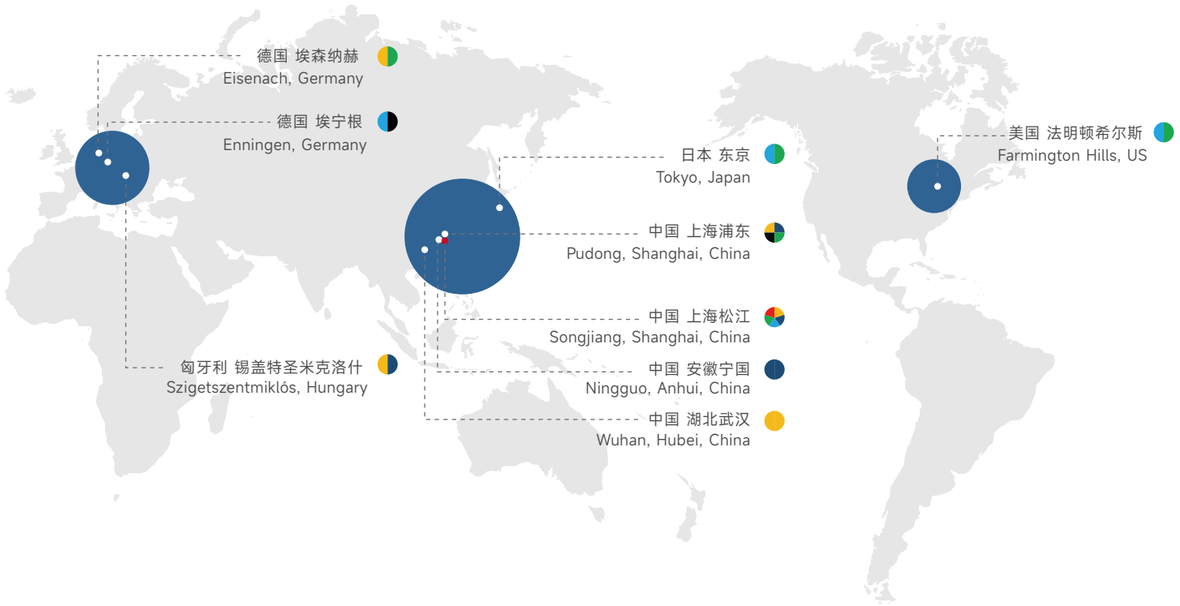
灰尘试验箱
Dust Chamber

高低温复合振动台
Climate Combined Vibration Test Bench

GLOBAL FOOTPRINT OF AUTOMOTIVE SENSORS

汽车传感器全球布局

● 总 部 ● 研 发 ● 生 产 ● 销 售 ● 客户服务 ● 项目管理



·专注于汽车传感器的研发、生产和销售。
·上海松江工厂负责压力温度类、光雨量类、电流传类、加速度类传感器。
·上海浦东工厂负责速度类、位置类传感器。
·安徽宁国工厂负责轮速传感器的生产。
·匈牙利工厂负责刹车磨损传感器、新能源母排、线束。

Baolong is at the forefront of R&D, manufacturing, and sales of automotive sensors. The factory in Songjiang, Shanghai is dedicated to pressure temperature sensors, The factory in Pudong, Shanghai is dedicated to speed and position sensors.rain & light sensors, current sensors, and accelerator sensors. The factory in Ningguo, Anhui is dedicated to wheel speed sensor. The factory in Hungary is dedicated to brake wear indicators, busbars (for new energy vehicles) and wiring harnesses.

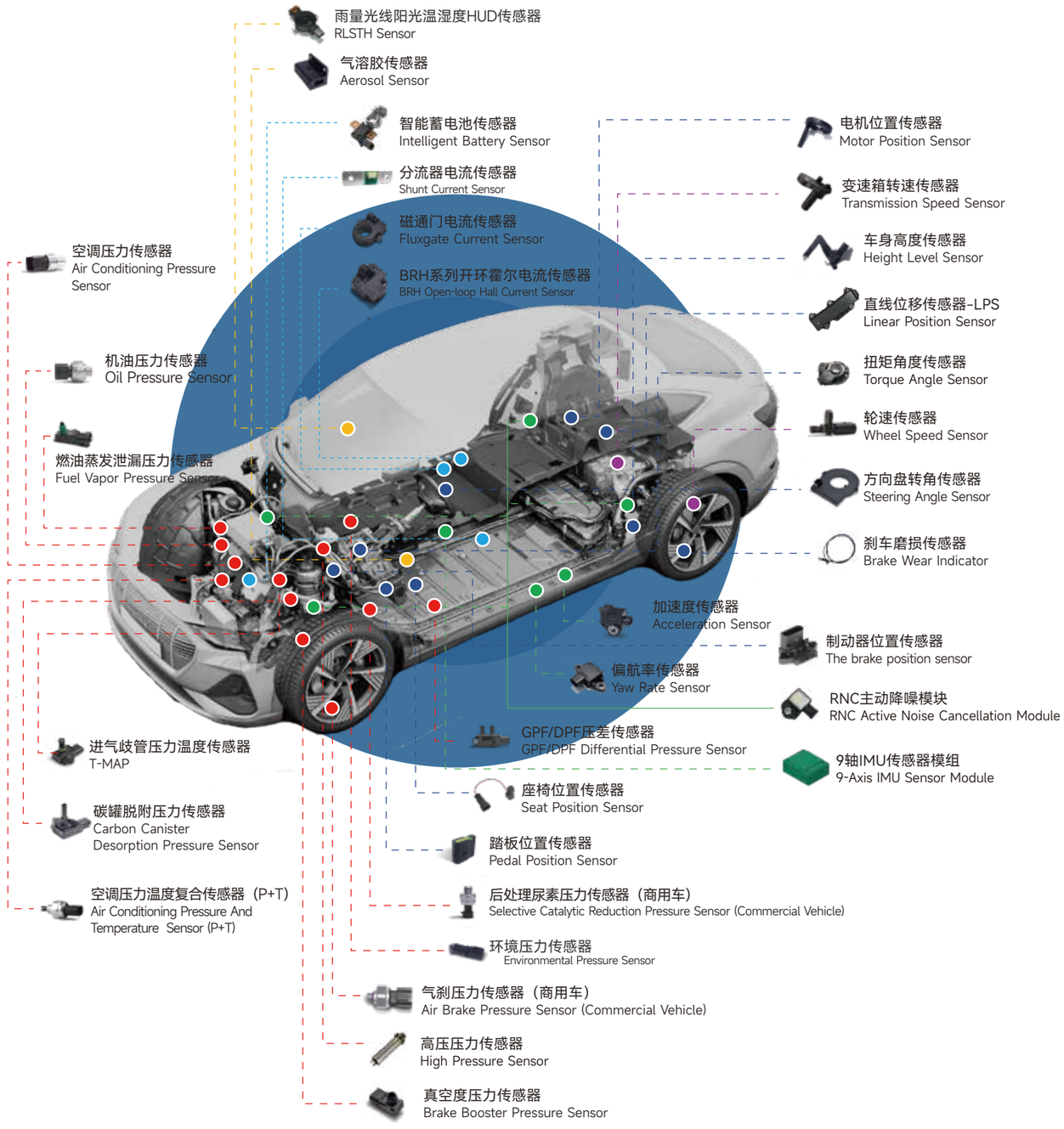
国六标准
CHINA VI EMISSION STANDARD

节能环保
Energy Conservation & Environmental Protection

多重验证
Multiple Inspection

精度高、响应快
High Precision & Fast Response

● 光学传感器 Optical Sensors
● 压力传感器 Pressure Sensors
● 速度传感器 Speed Sensors
● 位置类传感器 Position Sensors
● 加速度/偏航率传感器 Accelerator / Yaw Rate Sensors
● 电流传感器 Current Sensors



AUTOMOTIVE SENSOR

EMBODIED AI PERCEPTION SYSTEM
具身智能感知系统

机器人六维力传感器应用 / Application of Robot Six-Axis Force Sensor

六维力传感器广泛应用于人形机器人手腕和脚腕，实现末端接触力的精准感知；在协作臂/机械臂领域，应用于精密装配、柔性插接、恒力打磨、抛光等高要求作业的设备末端，提升自动化系统的柔顺性与安全性。

已掌握电容式六维力传感器的全栈自研能力，包括高灵敏度微结构设计、多维解耦算法、温度与交叉干扰补偿等核心技术。具备从芯片选型、结构仿真到嵌入式信号处理的完整开发链。支持快速定制化开发，适配协作臂、人形机器人等多种平台需求。

Six-axis force sensors are widely applied to the wrists and ankles of humanoid robots to realize precise perception of end-effector contact forces. In the field of collaborative/manipulator arms, they are mounted at the end of equipment for high-precision tasks such as precision assembly, flexible plugging, constant-force grinding and polishing, improving the compliance and safety of automated systems.

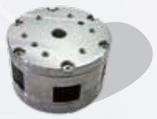
We have achieved full-stack independent R&D capabilities for capacitive six-axis force sensors, covering core technologies including high-sensitivity microstructure design, multi-dimensional decoupling algorithms, temperature and crosstalk compensation, with a complete development chain ranging from chip selection and structural simulation to embedded signal processing, and we support rapid customized development to meet the requirements of various platforms such as collaborative arms and humanoid robots.

协作臂/手腕六维力传感器

Manipulator Arm/Robotic Wrist Six-Axis Force/Torque Sensor

机械臂六维力传感器

Robotic Arm Six-Axis Force/Torque Sensor



关节扭矩传感器

Joint Torque Sensor

机器人关节模组应用 / Application of Robot Joint Module

关节模组广泛应用于人形机器人，外骨骼机器人，协作机器人等多种应用场景，主要作用是为机器人提供可控、精确、有力的旋转运动，并同时感知自身的位置与力状态，实现智能的柔性控制。关节模组具有高集成化、高性能、轻量化、大中空、易安装等优点。

关节模组集成了伺服驱动器、电机端绝对值编码器、输出端绝对值编码器、无框力矩电机、制动器、力传感器（可选）、精密减速器等主要零部件。多种尺寸、减速比及通讯协议的关节模组可选，同时支持快速定制化开发。

Joint modules are widely applied in humanoid robots, exoskeleton robots, collaborative robots and other scenarios. Their core function is to provide controllable, precise and powerful rotary motion for robots, while sensing their own position and force status to realize intelligent compliant control.Joint modules feature high integration, high performance, lightweight design, large hollow bore and easy installation. They integrate key components including servo drives, motor-side absolute encoders, output-side absolute encoders, frameless torque motors, brakes, force sensors (optional), and precision reducers. Joint modules with various sizes, reduction ratios and communication protocols are available, and rapid customized development is supported.

电感式绝对值双编码器广泛应用于机器人关节，万向节，工艺自动化设备等多种应用场景，主要作用是精确测量机器人关节（或旋转轴）的角度位置、旋转方向以及转速，同时为控制系统提供闭环反馈。

电感式绝对值双编码器采用电感式方案，具有100% 磁免疫、全环境鲁棒性，超薄集成等优点。多种尺寸及通讯协议的电感式绝对值双编码器可选，同时支持快速定制化开发。

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关节模组

Manipulator Arm Six-Axis Force/Torque Sensor

关节模组电感式绝对值双编码器

Joint Encoder

Contents
目录

进气歧管压力温度传感器

应用

进气歧管压力温度传感器用于发动机电控系统。此传感器根据发动机的负荷状态时时测量进气歧管内的绝对压力和温度，并转换成电信号输送到电控单元（ECU），作为确定喷油器喷油量的依据。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围，输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	10~115kPaA/20~300kPaA/50~400kPaA等
输出电压（可定制）	0.4~4.65V 0.5~4.5V等
精度 (可调整)	±1.0%FS: 10°C~85°C ±1.5%FS: -40°C~130°C
工作温度	-40°C~130°C
存储温度	-40°C~150°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	100nF ~ 470nF	过电压	18VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-14VDC
短路保护	有	循环实验	200万次
供电电流	≤10mA	外壳材料	PBT+30%GF
过压 (压力)	2*P max	防护等级	IP69

T-MAP

APPLICATION

The intake manifold Pressure Sensor is used in the engine electronic control system. It measures the change of the absolute pressure (vacuum degree) in the intake manifold and the temperature change according to the load state of the engine, and converts it into a voltage signal and a resistance signal, and transmit it to the electronic control unit together with the speed signal (ECU), as the basis for determining the basic fuel injection amount of the injector.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-Cost OEM application design

PARAMETER

Pressure Range (Customizable)	10~115kPaA/20~300kPaA/50~400kPaA		
Output Voltage (Customizable)	0.4~4.65V 0.5~4.5V		
Accuracy (Adjustable)	±1.0%FS: 10℃~85℃	±1.5%FS: -40℃~130℃	
Operating Temperature	-40℃~130℃		
Storage Temperature	-40℃~150℃		
Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	100nF~470nF	**Overvoltage**	18VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-14VDC
Short-circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤10mA	**Housing Material**	PBT+30%GF
Proof (Pressure)	2*P max	**Protection Level**	IP69

机油压力传感器

应用

产品安装在发动机上，检测发动机机油的压力，压力传感器把检测到的压力转化为电信号输入到车辆的控制系统。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	0~1000kPaA等
输出电压（可定制）	0.4~4.65V or 0.5~4.5V等
精度 (可调整)	±2.0%FS: 10℃~100℃　　±3%FS: -40℃~150℃
工作温度	-40℃~150℃
存储温度	-40°C~150°C

供电电压	4.75~5.25VDC
输出负载（容性）	100nF ~ 470nF
输出负载（阻性）	Min 4.7KΩ
短路保护	有
供电电流	≤10mA
过压 (压力)	2*P max

爆压 (压力)	3*P max
过电压	18VDC
反向电压	-14VDC
循环实验	200万次
外壳材料	铝合金/钢等
防护等级	IP69

OIL PRESSURE SENSOR

APPLICATION

The product is mounted on the engine to detect the pressure of the engine oil, and the pressure sensor converts the detected pressure into electrical signal then input to the vehicle's control system.
Engine oil has cooling, lubrication, cleaning and sealing functions, which play a vital role in ensuring the normal operation of the engine. As engine operating time increases, engine oil is contaminated by high temperature oxidation, mechanical parts wear, fuel vapor corrosion and other factors.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	0~1000kPaA		
Output Voltage (Customizable)	0.4~4.65V or 0.5~4.5V		
Accuracy (Adjustable)	±2.0%FS: 10°C~100°C	±3%FS: -40°C~150°C	
Operating Temperature	-40°C~150°C		
Storage Temperature	-40°C~150°C		
Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	100nF~470nF	**Overvoltage**	18VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-14VDC
Short-Circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤10mA	**Housing Material**	aluminum/steel
Proof (Pressure)	2*P max	**Protection Level**	IP69

空调压力传感器

应用

产品安装在空调系统的管路上或冷凝器上，检测空调系统制冷剂的压力，压力传感器把检测到的压力转化为电信号输入到车辆的控制系统。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	0~3400KPaG/0~3200kPaG等
输出电压（可定制）	0.4~4.65V or 0.5~4.5V等
精度 (可调整)	±2.0%FS: 10°C~85°C　　±3%FS: -40°C~125°C
工作温度	-40°C~125°C
存储温度	-40°C~130°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	100nF ~ 470nF	过电压	18VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-14VDC
短路保护	有	循环实验	200万次
供电电流	≤10mA	外壳材料	铝合金/铜/钢等
过压 (压力)	2*P max	防护等级	IP67

AIR CONDITIONING PRESSURE SENSOR

APPLICATION

The product is installed on the pipeline of the air conditioning system or on the condenser to detect the pressure of the refrigerant in the air conditioning system, and the pressure sensor converts the detected pressure into an electrical signal and output it to the control system of the vehicle.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	0~3400kPaG/0~3200kPaG		
Output Voltage (Customizable)	0.4~4.65V or 0.5~4.5V		
Accuracy (Adjustable)	±2.0%FS: 10°C~85°C	±3%FS: -40°C~125°C	
Operating Temperature	-40°C~125°C		
Storage Temperature	-40°C~130°C		
Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	100nF~470nF	**Overvoltage**	18VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-14VDC
Short-circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤10mA	**Housing Material**	aluminum/copper/steel
Proof (Pressure)	2*P max	**Protection Level**	IP67

碳罐脱附压力传感器（国六排放要求）

应用

碳罐脱附压力传感器安装在燃油蒸汽吸附脱附装置（俗称“碳罐”）上，检测碳罐系统上的绝对压力。碳罐脱附压力传感器把检测到的压力转化为电信号输入到车辆的控制系统，作为燃油蒸发控制系统中对泄漏量进行检测和车载诊断OBD要求的依据。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单。小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	10~115kPaA等
输出电压（可定制）	0.4~4.65V or 0.5~4.5V等
精度 (可调整)	±1.0%FS: 10°C~85°C；±1.5%FS: -40°C~125°C
工作温度	-40°C~130°C
存储温度	-40°C~130°C
供电电压	4.75~5.25VDC
输出负载（容性）	Max 470nF
输出负载（阻性）	Min 4.7KΩ
短路保护	有
供电电流	≤10mA
过压 (压力)	2*P max

爆压 (压力)	3*P max
过电压	18VDC
反向电压	-14VDC
循环实验	200万次
外壳材料	PBT+30%GF
防护等级	IP69

CARBON CANISTER DESORPTION PRESSURE SENSOR (NATIONAL VI EMISSION REQUIREMENTS)

APPLICATION

The canister desorption pressure sensor is mounted on a fuel vapor adsorption and desorption device (commonly known as a “canister”) to detect the absolute pressure on the canister system. The canister desorption pressure sensor converts the detected pressure into an electrical signal and output it to the vehicle’s control system as a basis for the detection of the leakage amount and the on-board diagnostic OBD requirement in the fuel evaporation control system.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	10~115kPaA
Output Voltage (Customizable)	0.4~4.65V or 0.5~4.5V
Accuracy (Adjustable)	±1.0%FS: 10°C~85°C; ±1.5%FS: -40°C~125°C
Operating Temperature	-40°C~130°C
Storage Temperature	-40°C~130°C

Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	Max 470nF	**Overvoltage**	18VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-14VDC
Short-circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤10mA	**Housing Material**	PBT+30%GF
Proof (Pressure)	2*P max	**Protection Level**	IP69

燃油蒸发泄漏压力传感器（国六排放要求）

应用

产品安装在油箱的油泵上或油路的管路上，检测燃油管路系统上的相对压力。燃油蒸发泄漏压力传感器把检测到的压力转化为电信号输入到车辆的控制系统，作为燃油蒸发控制系统中对泄漏量进行检测和车载诊断的依据。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	-3.75~+1.25kPaD/-3.75~+3.5kPaD/-20~+40kPaD等
输出电压（可定制）	0.4~4.65V or 0.5~4.5V等
精度 (可调整)	±2.0%FS: 10°C~85°C；±3%FS: -40°C~115°C
工作温度	-40°C~115°C
存储温度	-40°C~115°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	100nF ~ 470nF	过电压	18VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-14VDC
短路保护	有	循环实验	200万次
供电电流	≤10mA	外壳材料	PA6/6T-GF35
过压 (压力)	2*P max	防护等级	IP69

FUEL VAPOR PRESSURE SENSOR (NATIONAL VI EMISSION REQUIREMENTS)

APPLICATION

The product is installed on the oil pump of the fuel tank or on the pipeline of the oil circuit to detect the relative pressure on the fuel pipeline system, The fuel evaporative leakage pressure sensor converts the detected pressure into an electric signal and input it to the vehicle's control system, and this electrical signal is served as a basis for detecting the leakage amount and on-board diagnosis in the fuel evaporation control.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	-3.75~+1.25kPaD/-3.75~+3.5kPaD/-20~+40kPaD
Output Voltage (Customizable)	0.4~4.65V or 0.5~4.5V
Accuracy (Adjustable)	±2.0%FS: 10°C~85°C; ±3%FS: -40°C~115°C
Operating Temperature	-40°C~115°C
Storage Temperature	-40°C~115°C

Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	100nF~470nF	**Overvoltage**	18VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-14VDC
Short-Circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤10mA	**Housing Material**	PA6/6T-GF35
Proof (Pressure)	2*P max	**Protection Level**	IP69

GPF/DPF压差传感器（国六排放要求）

应用

GPF差压传感器安装在颗粒过滤器的两端。车辆电控系统通过传感器采集GPF上游和下游的相关压力值（差压，相对压力，绝对压力或几种组合信号）来判断GPF是否堵塞或者出现管路脱落等异常，以此来进行GPF再生的操作和故障诊断。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的耐尾气腐蚀性能
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	-20~80kPaD/50~220kPaA/-14.5-+50kPaD等
输出电压（可定制）	0.4~4.65V or 0.5~4.5V或SNET输出等
精度 (其中一种)	±0.8kPa（-14.3~50kPaD/±1.2kPa（-14.3~25kPaG）温度系数：1.5（-40~-10°C & 100~140°C）
工作温度	-40°C~140°C
存储温度	-40°C~150°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	100nF ~ 470nF	过电压	18VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-14VDC
短路保护	有	循环实验	200万次
供电电流	≤15mA/≤30mA(根据不同类型而定)	外壳材料	PPS+30%GF
过压 (压力)	2*P max	防护等级	IP69

GPF/DPF DIFFERENTIAL PRESSURE SENSOR (NATIONAL VI EMISSION REQUIREMENTS)

APPLICATION

The GPF differential pressure sensor is installed at both ends of the particulate filter to detect the differential pressure at both ends of the particulate filter or to detect the absolute pressure at both ends of the particulate filter. The GPF differential pressure sensor converts the detected pressure into an electrical signal and input it to the vehicle's control system as a basis for the system to detect leakage and on-board diagnostics.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	-20~80kPaD/50~220kPaA/-14.5-+50kPaD
Output Voltage (Customizable)	0.4~4.65V/0.5~4.5V/SNET Output
Accuracy (Adjustable)	±0.8KPa (-14.3~50KPaD) /±1.2KPa (-14.3~25KPaG) / TC: 1.5 (-40~-10 °C & 100~140 °C)
Operating Temperature	-40°C~140°C
Storage Temperature	-40°C~C150°C

Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	100nF~470nF	**Overvoltage**	18VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-14VDC
Short-Circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤15mA/≤30mA	**Housing Material**	PPS+30%GF
Proof (Pressure)	2*P max	**Protection Level**	IP69

空调压力温度复合传感器（P+T）

应用

产品安装在空调管路上，用于测量管路中的介质压力和温度情况，传感器把检测到的压力和温度数据转化为电信号输入到车辆的控制系统。

特性

- 陶瓷电容传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐机械性能设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计
- 高精度的温度输出功能

参数

压力范围（可定制）	0~11BarG/0~36BarG等
输出电压（可定制）	0.4~4.65V or 0.5~4.5V等
精度 (可调整)	±1.8%Vcc: -5°C~115°C； ±2.8%Vcc : -40°C or 135°C
工作温度	-40°C~135°C
存储温度	-40°C~135°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	Max 470nF	过电压	28VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-24VDC
短路保护	有	循环实验	200万次
供电电流	≤5mA	外壳材料	铝合金/不锈钢
过压 (压力)	2*P max	防护等级	IP69

AIR CONDITIONING PRESSURE AND TEMPERATURE SENSOR (P+T)

APPLICATION

The product is installed in the air conditioning pipeline, used to measure the medium pressure and temperature in the pipeline, the sensor detects the pressure and temperature data into an electrical signal input to the vehicle control system.

FEATURE

- Ceramic capacitive sensing technology
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design
- High precision temperature output function

PARAMETER

Pressure Range (Customizable)	0~11BarG/0~36BarG
Output Voltage (Customizable)	0.4~4.65V or 0.5~4.5V
Accuracy (Adjustable)	±1.8%Vcc: -5°C~115°C; ±2.8%Vcc: -40°C or 135°C
Operating Temperature	-40°C~135°C
Storage Temperature	-40°C~135°C

Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	Max 470nF	**Overvoltage**	28VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-24VDC
Short-Circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤5mA	**Housing Material**	aluminum/stainless steel
Proof (Pressure)	2*P max	**Protection Level**	IP69

真空度压力传感器

应用

真空度压力传感器安装在制动真空管路系统上，用于监测当前制动真空管路上的真空度，反馈当前制动助力大小。压力传感器把检测到的压力转化为电信号输入到车辆的控制系统。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	-100~0kPa等
输出电压（可定制）	0.4~4.65V/0.5~4.5V等
精度	±1.6%FS: 0°C~100°C ±2.4%FS: -40°C~130°C;
工作温度	-40°C~130°C
存储温度	-40°C~130°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	2.2nF ~ 470nF	过电压	18VDC
输出负载（阻性）	≥4.7KΩ	反向电压	-14VDC
短路保护	有	循环寿命	200万次
供电电流	≤10mA	外壳材料	PBT+30%GF
过压 (压力)	2*P max	防护等级	IP69

BRAKE BOOSTER PRESSURE SENSOR

APPLICATION

The Brake booster pressure sensor is installed on the brake vacuum line to monitor the air pressure on the current brake vacuum line, reflect the degree of vacuum, and indirectly feedback the current brake boost.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	-100~0kPa
Output Voltage (Customizable)	0.4~4.65V/0.5~4.5V
Accuracy (Adjustable)	±1.6%FS: 0°C~100°C; ±2.4%FS: -40°C~130°C
Operating Temperature	-40°C~130°C
Storage Temperature	-40°C~130°C
Supply Voltage	4.75~5.25VDC
Output Load (Capatitive)	2.2nF~470nF
Output Load (Resistive)	≥4.7KΩ
Short-Circuit Protection	Yes
Supply Current	≤10mA
Proof (Pressure)	2*P max

Burst Pressure	3*P max
Overvoltage	18VDC
Reverse Voltage	-14VDC
Cyclic Test	2,000,000 times
Housing Material	PBT+30%GF
Protection Level	IP69

气刹压力传感器（商用车）

应用

产品安装在商用车刹车系统的储气罐上，检测储气罐的压力，压力传感器把检测到的压力转化为电信号输入到车辆的控制系统。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐振性设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	0~1.143MPa/0~1.4MPa等
输出电压（可定制）	0.4~4.65V/0.5~4.5V等
精度 (可调整)	±2.5%FS: -40°C~85°C
工作温度	-40°C~85°C
存储温度	-40°C~125°C

供电电压	4.75~5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	Max 470nF	过电压	32VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-28VDC
短路保护	有	循环寿命	50万次
供电电流	≤10mA	外壳材料	不锈钢，钢，铝合金
过压 (压力)	2*P max	防护等级	IP69

AIR BRAKE PRESSURE SENSOR (COMMERCIAL VEHICLE)

APPLICATION

The product is installed on the air tank of brake system for commercial vehicle. The pressure sensor converts the detected pressure into electrical signal then input to the vehicle's control system.

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	0~1.143MPa/0~1.4MPa
Output Voltage (Customizable)	0.4~4.65V/0.5~4.5V
Accuracy (Adjustable)	±2.5%FS: -40°C~85°C
Operating Temperature	-40°C~85°C
Storage Temperature	-40°C~125°C

Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	Max 470nF	**Overvoltage**	32VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-28VDC
Short-Circuit Protection	Yes	**Cyclic Test**	500,000 times
Supply Current	≤10mA	**Housing Material**	Stainless Steel/Steel/Aluminium Alloy
Proof (Pressure)	2*P max	**Protection Level**	IP69

后处理尿素压力传感器（商用车）

应用

产品安装在SCR后处理系统上，检测后处理系统尿素罐的压力，压力传感器把检测到的压力转化为电信号输入到车辆的控制系统。

特性

- 陶瓷电容传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐机械性能设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	0.101~1.301MPaA等
输出电压（可定制）	0.4~4.65V/0.5~4.5V等
精度	±3%Vcc: -11°C~85°C
工作温度	-40°C~85°C
存储温度	-40°C~125°C

供电电压	4.75~5.25VDC	爆压（压力）	3*P max
输出负载（容性）	Max 470nF	过电压	28VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-24VDC
短路保护	有	循环实验	200万次
供电电流	≤5mA	外壳材料	不锈钢
过压（压力）	2*P max	防护等级	IP69

SELECTIVE CATALYTIC REDUCTION (SCR) PRESSURE SENSOR (COMMERCIAL VEHICLE)

APPLICATION

The product is installed on SCR after-treatment system to detect the pressure of urea tank. The pressure sensor converts the detected pressure into electrical signal then input to the vehicle's control system.

FEATURE

- Ceramic capacitive sensing technology
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	0.101~1.301MPaA
Output Voltage (Customizable)	0.4~4.65V or 0.5~4.5V
Accuracy (Adjustable)	±3%Vcc: -11°C~85°C
Operating Temperature	-40°C~85°C
Storage Temperature	-40°C~125°C

Supply Voltage	4.75~5.25VDC	**Burst Pressure**	3*P max
Output Load (Capatitive)	Max 470nF	**Overvoltage**	28VDC
Output Load (Resistive)	Min 4.7KΩ	**Reverse Voltage**	-24VDC
Short-Circuit Protection	Yes	**Cyclic Test**	2,000,000 times
Supply Current	≤5mA	**Housing Material**	stainless steel
Proof (Pressure)	2*P max	**Protection Level**	IP69

环境压力传感器

应用

产品通常安装于汽车底盘上，实时检测环境中的压力变化情况，压力传感器把检测到的压力转化为电信号输入到车辆的控制系统。

特性

- MEMS传感技术
- 高性能，优异的长期稳定性和性能
- 智能化零位补偿和温度补偿
- 优良的EMC/ESD性能
- 过压和反向极性保护以及短路保护
- 在广泛的操作范围内提高准确度，行业领先的温度范围精度
- 广泛的工作温度范围
- 压力范围、输出曲线以及外形尺寸定制化设计
- 卓越的耐机械性能设计
- 高度模块化产品配置
- 出色的密封设计和防护设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

压力范围（可定制）	44.8-110.3kPaA/10-115kPaA
输出电压（可定制）	0.5~4.5V/0.4-4.65V
精度	10-85°C：±1.5%FS; -40°C or 130°C：2.4%FS
工作温度	-40°C~130°C
存储温度	-40°C~130°C

供电电压	4.75-5.25VDC	爆压 (压力)	3*P max
输出负载（容性）	Max 470nF	过电压	20VDC
输出负载（阻性）	Min 4.7KΩ	反向电压	-20VDC
短路保护	有	循环实验	200万次
供电电流	5mA	外壳材料	PBT-GF30%
过压 (压力)	2*P max	防护等级	IP69

ENVIRONMENTAL PRESSURE SENSOR

APPLICATION

The product is usually installed on the chassis of the car, and the pressure changes in the environment are detected in real time. The pressure sensor converts the detected pressure into electrical signals and inputs them to the control system of the vehicle .

FEATURE

- MEMS sensing technique
- Excellent long-term stability
- Intelligent zero compensation and temperature compensation
- Excellent EMC/ESD performance
- Proof pressure and reverse polarity protection and short-circuit protection
- Improve accuracy in a wide range of operations, industry leading temperature range accuracy
- Wide range of operating temperature
- Pressure range, output curve, and dimension customization design
- Distinguished Vibration proof
- Highly modular product configurations
- Well sealing design and protective design
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Pressure Range (Customizable)	44.8-110.3kPaA/10-115kPaA
Output Voltage (Customizable)	0.5~4.5V/0.4-4.65V
Accuracy (Adjustable)	10-85°C: ±1.5%FS; -40°C or 130°C: 2.4%FS
Operating Temperature	-40°C~130°C
Storage Temperature	-40°C~130°C
Supply Voltage	4.75~5.25VDC
Output Load (Capatitive)	Max 470nF
Output Load (Resistive)	Min 4.7KΩ
Short-Circuit Protection	Yes
Supply Current	5mA
Proof (Pressure)	2*P max

Burst Pressure	3*P max
Overvoltage	20VDC
Reverse Voltage	-20VDC
Cyclic Test	2,000,000 times
Housing Material	PBT-GF30%
Protection Level	IP69

高压压力传感器

应用

用于制动系统压力检测，实时监测介质压力并转化为电信号反馈至 ECU，为 ABS/ESC 主动建压与精准调压提供闭环控制依据。

特性

- 玻璃微熔工艺
- MEMS传感技术
- 过压和反向极性保护以及短路保护
- 出色的密封设计
- 体积小，安装简单
- 满足-40℃~125℃宽温区工作环境
- 集成温度信号输出功能
- 压力钳位功能

参数

工作电压	5.0±0.25 VDC
工作电流	20mA MAX
工作压力（可定制）	0~250bar
压力精度	±1.5%@0~50bar，±1.8%@50~150bar，±2.2%@150~250bar
压力输出曲线（可定制）	193@0bar，3896@250bar
安全压力	300bar
爆破压力	400bar
温度精度	±10℃
温度输出曲线（可定制）	265@-40℃，1585@125℃

HIGH PRESSURE SENSORS

APPLICATION

High pressure sensors detect pressure in brake systems. Real-time medium pressure monitoring, electrical signal feedback to ECU, providing closed-loop control reference for ABS/ESC active pressure build-up and precise regulation.

FEATURE

- Glass micro-fusion technology
- MEMS sensing technology
- Over/Reversevoltage and short-circuit protection
- Excellent sealing design
- Small size,easy installation
- Operating temperature range: -40℃ to 125℃
- Integrated temperature signal output function
- Pressure clamping function

PARAMETER

Operating Voltage	5.0±0.25 VDC
Operating Current	20mA MAX
Operating Pressure Range(Customizable)	0~250bar
Pressure Accuracy	±1.5%@0~50bar，±1.8%@50~150bar，±2.2%@150~250bar
Pressure Output Curve(Customizable)	193@0bar，3896@250bar
Proof Pressure	300bar
Burst Pressure	400bar
Temperature Accuracy	±10℃
Temperature Curve(Customizable)	265@-40℃，1585@125℃

雨量光线阳光温湿度HUD传感器

应用

用于自动灯光、自动雨刮、自动空调、自动除雾、HUD亮度调节、自动雨天关窗、隧道识别等。

特性

- 功能丰富，最多支持五合一
- 雨量功能可自学习
- 符合汽车级
- 功能安全
- LIN通讯
- 12V电源供电
- 尺寸小巧，弹簧圈安装方式可选
- 平台化，同结构可支持不同功能
- 支持OTA升级

参数

通讯	LIN2.0/2.1
工作电压	9~16V
工作温度	-40~100°C
工作电流	＜50mA
雨量感应面积	200mm²
温湿度功能	温度量程-40~100°C 典型精度±0.15°C；湿度量程0~100%RH 典型精度±2%RH
适应玻璃范围	厚度4~6mm； 曲率≥1400mm；红外透光率20%~80%；可见光透光率>70%
光线功能	量程0~130000lux，典型精度±10%
阳光功能	量程0~1200w/m2，典型精度±10%
HUD功能	量程0~130000lux，典型精度±10%

休眠电流	≤50uA
防护等级	IP5K0

RAIN LIGHT SOLAR TEMPERATURE AND HUMIDITY HUD SENSOR

APPLICATION

Used for automatic lighting, automatic wiper, automatic air conditioning, automatic fog removal, HUD brightness adjustment, automatic rainy day window closing, tunnel recognition, etc.

FEATURE

- Feature-rich, supporting up to 5-in-1
- Rainfall function is self-learning
- Conforming to automobile class
- Functional safety
- LIN communication
- 12V power supply
- Compact size, Spring coil mounting options are available
- Platformized, the same structure can support different functions
- Support OTA

PARAMETER

Communicationa	LIN2.0/2.1
Working Voltage	9~16V
Operating Temperature	-40~100°C
Working Current	<50mA
Rainfall Sensing Area	200mm²
Temperature And Humidity Function	temperature range -40~100°C; typical Accuracy ±0.15°C humidity range 0~100%; RH typical accuracy ±2%RH
Adapt To Glass Range	thickness 4~6mm, curvature ≥1400mm; infrared transmittance 20%~80% visible light transmittance>70%
Light Function	range 0~130000lux, typical accuracy ±10%
Solar Function	range 0~1200w/m², typical accuracy ±10%
Hud Function	range 0~130000lux, typical accuracy ±10%

Sleep Current	≤50uA
Protection Level	IP5K0

光线阳光二合一传感器

应用

用于自动灯光、自动空调。

特性

- 支持自动灯光、自动空调控制功能
- 双区温度检测
- 符合汽车级
- LIN通讯
- 12V电源供电
- 尺寸小巧，弹簧圈安装方式可选
- 平台化，同结构可支持不同功能

参数

通讯	LIN2.0/2.1
工作电压	9~16V
工作温度	-40~100℃
工作电流	＜30mA
适应玻璃范围	厚度4~6mm； 曲率≥1400mm；可见光透光率>70%
休眠电流	≤50uA
防护等级	IP5K2
光线功能	量程0~10000lux 典型精度±10%
阳光功能	量程0~1200w/m² 典型精度±10%

LIGHT SOLAR SENSOR

APPLICATION

Used for automatic lighting, automatic air conditioning.

FEATURE

- Support automatic lighting, automatic air conditioning control functions
- Left and right double zone temperature detection
- Conforming to automobile class
- LIN communication
- 12V power supply
- Compact size, Spring coil mounting options are available
- Platformized, the same structure can support different functions

PARAMETER

Communicationa	LIN2.0/2.1
Working Voltage	9~16V
Operating Temperature	-40~100°C
Working Current	<30mA
Adapt To Glass Range	thickness 4~6mm, curvature ≥1400mm; visible light transmittance>70%
Sleep Current	≤50uA
Protection Level	IP5K2
Light Function	range 0~10000lux, typical accuracy ±10%
Solar Function	range 0~1200w/m², typical accuracy ±10%

雨量光线二合一传感器

应用

用于自动灯光、自动雨刮、隧道识别等。

特性

- 支持自动雨量、自动灯光控制功能
- 雨量功能可自学习
- 符合汽车级
- 功能安全
- LIN通讯
- 12V电源供电
- 尺寸小巧，弹簧圈安装方式可选
- 平台化，同结构可支持不同功能
- 支持OTA升级

参数

通讯	LIN2.0/2.1
工作电压	9~16V
工作温度	-40~100℃
工作电流	＜40mA
雨量感应面积	200mm²
适应玻璃范围	厚度4~6mm； 曲率≥1400mm；红外透光率20%~80%；可见光透光率>70%
休眠电流	≤50uA
防护等级	IP5K2
光线功能	量程0~130000lux 典型精度±10%

RL SENSOR

APPLICATION

Used for automatic lighting, automatic wiper, tunnel recognition, etc.

FEATURE

- Support automatic rainfall, automatic lighting control functions
- Rainfall function is self-learning
- Conforming to automobile class
- Functional safety
- LIN communication
- 12V power supply
- Compact size, Spring coil mounting options are available
- Platformized, the same structure can support different functions
- Support OTA

PARAMETER

Communicationa	LIN2.0/2.1
Working Voltage	9~16V
Operating Temperature	-40~100°C
Working Current	<40mA
Rainfall Sensing Area	200mm²
Adapt To Glass Range	thickness 4~6mm, curvature ≥1400mm; infrared transmittance 20%~80% visible light transmittance>70%
Sleep Current	≤50uA
Protection Level	IP5K2
Light Function	range 0~130000lux, typical accuracy ±10%

气溶胶传感器

应用

气溶胶传感器应用于新能源车辆BMS系统（电池管理系统），监测电池包系统的异常失控状态，电池包在热失控状态下，内部会造成气溶胶释放，气溶胶传感器检测到异常信号后会报警并通过CAN信号传输，以感知当前车辆的电池包状态，提升车辆的安全性。

特性

- 光学迷宫设计原理
- CAN、PWM通讯
- 工作温度：-40~85℃
- 工作电压：8~16V
- 电源保护功能
- 支持连续模式、监控模式及休眠模式
- 支持传感器自诊断功能
- 参数在线配置，UDS升级
- 零位补偿及温度补偿
- 优良的EMC性能
- 满足车规级使用要求

参数

量程	0~10000μg/m³
低功耗唤醒阈值	5000μg/m³
过电压能力	24V
反向耐电压	14V
工作电流	<40mA
低功耗电流	＜0.5mA
检测精度	常温下浓度为5000μg/m³时，一致性误差≤±15%
故障检测	支持欠压、过压、光电器件故障等

AEROSOL SENSOR

APPLICATION

Aerosol sensor is applied to the BMS system of new energy vehicles (battery management system) to monitor the abnormal out-of-control state of the battery pack system. When the battery pack is in the thermal out-of-control state, the internal aerosol release will be caused. After detecting the abnormal signal, the aerosol sensor will alarm and transmit it through the CAN signal to sense the current state of the battery pack of the vehicle and improve the safety of the vehicle.

FEATURE

- Principle of optical labyrinth design
- CAN, PWM communication
- Operating temperature: -40~85℃
- Operating voltage: 8~16V
- Power supply protection function
- Supports continuous mode, monitoring mode, and sleep mode
- Supports sensor self-diagnosis
- Parameters are set online to upgrade the UDS
- Zero compensation and temperature compensation
- Excellent EMC performance
- Meet the requirements of vehicle specification level

PARAMETER

Range	0~10000μg/m³
Low Power Wake-Up Threshold	5000μg/m³
Overvoltage Capacity	24V
Reverse Withstand Voltage	14V
Working Current	< 40mA
Low Power Current	< 0.5mA
Detection Accuracy	When the concentration is 5000μg/m³ at normal temperature, the consistency error is less than ±15%
Fault Detection	undervoltage, overvoltage, photoelectric device fault, etc

车身单轴加速度传感器

应用

车身单轴加速度传感器安装在四轮悬架系统上或车身底盘上，用于监测悬架系统状态或车辆运行状态。车身单轴加速度传感器将检测到的加速度转换为电信号通过PSI5通讯协议传输给车辆的控制系统，以判断当前车辆的运行状态。

特性

- MEMS传感技术
- 宽测量范围
- 双线制通讯接口
- PSI5标准协议
- 高数据传输速度
- 优良的EMC性能
- 片上数字低通滤波器
- OTP编程
- 过压保护
- 汽车级应用

参数

测量量程（可定制）	±1.6g、±16g等
灵敏度误差	±5%
供电电压	4.5~11V
工作温度	-40~125°C
存储温度	-55~150°C
分辨率	16Bit
工作电流	22~30mA
静态电流	4~6mA
灵敏度	480 ~ 19200LSB/g
通讯速率	125kbps/189kbps
工作寿命	10年
防护等级	IP6K9

BODY UNIAXIAL ACCELERATION SENSOR

APPLICATION

The acceleration sensor is installed on the four-wheel suspension system or the chassis of the body to monitor the state of the suspension system or the running state of the vehicle. The acceleration sensor converts the detected acceleration into electrical signals and transmits them to the control system of the vehicle through the PSI5 communication protocol to judge the current running state of the vehicle.

FEATURE

- MEMS sensing technology
- Wide measuring range
- Dual wire communication interface
- PSI5 standard protocol
- High data transmission speed
- Excellent EMC performance
- On chip digital low pass filter
- OTP programming
- Power protection function
- Automotive Applications

PARAMETER

Measuring Range (Customizable)	±1.6g、±16g等
Accuracy	±5%
Supply Voltage	4.5~11V
Operating Temperature	-40~125°C
StorageTemperature	-55~150°C
Resolution	16Bit
Working Current	22~30mA
Static Current	4~6mA
Sensitivity	480 ~ 19200LSB/g
Communication Speed	125kbps/189kbps
Working Life	10years
Protection Level	IP6K9

车身偏航率传感器

应用

车身偏航率传感器是用于对车辆动态变化的感知。用于测量车辆的纵向加速度Ax，横向加速度Ay，绕Z轴转速度Wz，安装于尽量靠近车辆质心位置。偏航率传感器信号对于集成式制动控制系统而言是很重要的输入变量，通过Ax可以判断坡度和制动平顺性，通过Wz,Ay可以判断车辆姿态。

特性

- MEMS传感技术
- 宽测量范围
- 长生命周期
- 高灵敏度
- 低输出噪音
- 优良的EMC性能
- 宽数字低通滤波器
- 支持在线OBD升级
- 过压保护
- 高速CAN2.0B接口

参数

测量量程（可定制）	加速度±1.8g，角速度±100 °/s (Ωz)
精度	±3%
加速度过量程范围	±10g
角速度过量程范围	±1000°/s
供电电压	9~16V
工作温度	-40~125°C
存储温度	-55~150°C
工作电流	＜80mA@13.5V
检测时间	≤5ms
灵敏度	加速度3924LSB/g ，角速度80LSB/°/s
过电压	24V
防护等级	IP6K7

BODY YAW RATE SENSOR

APPLICATION

The body yaw rate sensor is used to sense the dynamic changes of the vehicle. It is used to measure the vehicle's longitudinal acceleration Ax, lateral acceleration Ay, and rotation speed Wz around the Z-axis. It is installed as close to the vehicle's center of mass as possible. The yaw rate sensor signal is a very important input variable for the integrated braking control system. Ax can be used to judge the slope and braking comfort, and Wz and Ay can be used to judge the vehicle attitude.

FEATURE

- MEMS sensing technology
- Wide measuring range
- Long life cycle
- High sensitivity
- Low output noise
- Excellent EMC performance
- Wide digital low pass filter
- Support online OBD upgrade
- Power protection function
- High speed CAN2.0B interface

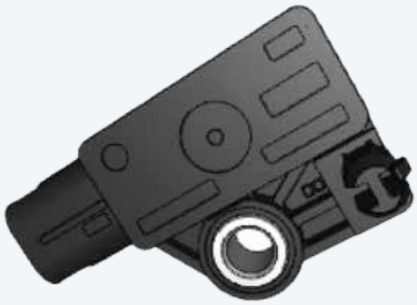
PARAMETER

Measuring Range (Customizable)	acceleration: ±1.8g angular velocity: ±100 °/s (Ωz)
Accuracy	±3%
Acceleration Range Of Quanta	±10g
Angular Velocity Range Of Quanta	±1000°/s
Supply Voltage	9~16V
Operating Temperature	-40~125°C
Storage Temperature	-55~150°C
Working Current	<80mA@13.5V
Detection Time	≤5ms
Sensitivity	acceleration: 3924LSB/g angular velocity: 80LSB/°/s
Overvoltage	24V
Protection Level	IP6K7

RNC主动降噪模块

应用

低噪声、宽频带、低延迟、车规级的 RNC 传感器模组，三轴加速度传感器用于采集车轮 / 悬挂 / 底盘振动噪声，通过 A2B 音频差分传输协议，以菊花链实时传输至车载 DSP，在车内构建一个次级声场实现道路噪声主动消除（RNC）与车内主动降噪（ANC）。



特性

- 加速度传感器采集 X/Y/Z 三轴振动加速度（路噪 / 底盘振动）
- 内部 16-bit ADC 采样 → 数字滤波（可编程 LPF/HPF）
- 通过 I^2S/TDM 接口输出至 A2B接口，将音频流打包为A2B帧，通过双绞线菊花链传输
- 主节点（DSP/MCU）解包，进行 RNC 算法处理，驱动扬声器抵消路噪
- POC总线供电模式，I2C寻址配置，复用双绞线

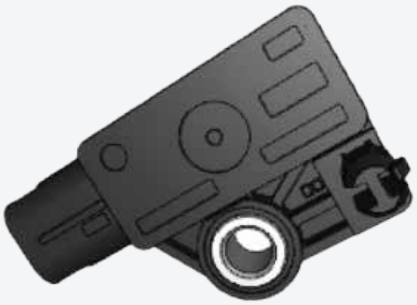
参数

加速度检测量程	±4g, ±8g, and ±16g
供电电压	4.5–9V
工作温度	−40℃ ~ +125℃
工作电流	<17mA
非线性度	≤±1%(全量程)
零偏	全温度范围内，典型值≤±1g；最大值≤±1.5g
精度@lpm	X/Y 轴 ±1.6%；Z 轴 ±1.8%
防护等级	IP6K9K

RNC ACTIVE NOISE CANCELLATION MODULE

APPLICATION

Automotive-grade RNC sensor module with low noise, wide bandwidth and low latency. 3-axis accelerometer collects vibration noise from wheels, suspension and chassis. Transmits real-time data via A2B audio differential protocol in daisy-chain to vehicle DSP, creating a secondary sound field to realize Road Noise Cancellation (RNC) and in-cabin Active Noise Cancellation (ANC).



FEATURE

- Adopts accelerator to collect 3-axis vibration acceleration (road noise / chassis vibration)
- Built-in 16-bit ADC sampling + digital filtering (programmable LPF/HPF)
- Outputs to A2B interface via I^2S/TDM, packs audio stream into A2B frames, transmits over twisted-pair in daisy-chain
- Master node (DSP/MCU) unpacks data and runs RNC algorithm to drive speakers for road noise cancellation
- Power-over-Coil (POC) power supply, I^2C addressing configuration, twisted-pair multiplexing

PARAMETER

Acceleration Measurement Range	±4g, ±8g, and ±16g ranges
Supply Voltage	4.5–9V
Operating Temperature	−40℃ ~ +125℃
Operating Current	<17mA
Nonlinearity	≤±1% across the full range
Zero Offset	≤±1 g (typical) over full temperature range; ≤±1.5 g (max) over full temperature range
Accuracy @ Ipm	x/y axis ±1.6%; z axis ±1.8%
Ingress Protection	IP6K9K

FDC磁通门电流传感器

应用

FDC磁通门电流传感器为一高精度直流电流测量装置，主要安装于电池组母排，用于监测充放电电流。
FDC采用磁通门技术，具有高精度，低磁滞等优点。

特性

- 磁通门原理
- 隔离电流测量，范围±500A，±700A，±1500A
- 最大工作温度：85℃
- 线性误差<0.1%
- 全温区误差<0.5%
- +8V~+16V供电
- 电源保护功能
- 高速CAN2.0B接口

参数

电流量程Lpm（可定制）	±500A；±700A；±1500A
供电电压	500A/700A量程：12±4V，标准值 13.5V;1500A量程：+9V~+32V ，标准值12V/24V
工作温度	-40~85°C
工作电流	500A/700A量程：typ35mA；max45mA @IP=0A typ130mA @Ipm 1500A量程：typ130 @IP=0A typ850 @Ipm
线性度误差	±0.1% @±3σ全温区
零偏@IP= 0A	500A量程Io=±10mA @±3σ全温区 1500A量程Io=±100mA @±3σ全温区
精度@Ipm	±0.3% @±3σ +25℃; ±0.5%@±3σ全温区
防护等级	IP41

FDC FLUXGATE CURRENT SENSOR

APPLICATION

The FDC fluxgate current sensor is a high-precision DC current measurement device, mainly installed in the battery bus, used to monitor charge and discharge current.
FDC uses fluxgate technology, with high precision, low hysteresis and other advantages.

FEATURE

- Fluxgate principle
- Isolation current measurement, range ±500A
- Max operating temperature: 85℃
- The linear error is less than 0.1%
- The error of whole temperature zone is less than 0.5%
- + 8 v ~ + 16 v power supply
- Power protection function
- High speed CAN2.0B interface

PARAMETER

Current Range Lpm（Customizable）	±500A; ±700A; ±1500A
Working Voltage	500A/700A range: 12±4V, typ 13.5V; 1500A range: +9V~+32V , typ 12V/24V
Operating Temperature	-40~85℃
Working Current	500A/700A range: typ35; max45 @IP=0A; typ130 @Ipm 1500A range: typ130 @IP=0A typ800 @Ipm
Linear Error	±0.1% @±3σ whole temperature
Zero Offset@0A	500A/700A range: Io=±10mA @±3σ whole temperature 1500A range: Io=±100mA @±3σ whole temperature
Accuracy @Ipm	±0.3% @±3σ +25℃ ±0.5% @±3σ whole temperature
Protection Level	IP41

HDC闭环霍尔电流传感器

应用

HDC电流传感器为一高精度直流电流测量装置，主要安装于电池组母排，用于监测充放电电流。
HDC采用闭环霍尔技术，具有高精度，低磁滞等优点。

特性

- 闭环霍尔原理
- 隔离电流测量，范围±1000A
- 最大工作温度：85℃
- 线性误差<0.05%
- 全温区误差<0.2%
- +9V~+32V供电
- 电源保护功能
- 高速CAN2.0B接口

参数

电流量程Lpm（可定制）	±1000A
供电电压	+9V~+32V，标准值 12V/24V
工作温度	-40~85℃
工作电流	60mA @IP=0A　300mA @Ipm
线性度误差	±0.05%　@±3σ全温区
零偏@IP= 0A	Io=±30mA @±3σ全温区；
精度@Lpm	0.1%@±3σ +25℃；　0.2% @±3σ全温区
防护等级	IP41

HDC CLOSED-LOOP CURRENT SENSOR

APPLICATION

Fluxgate current sensor is a high-precision DC current measurement device, mainly installed in the battery bus, used to monitor charge and discharge current.
Fluxgate current sensor uses fluxgate technology, with high precision, low hysteresis and other advantages.

FEATURE

- Fluxgate principle
- Isolation current measurement, range ±500A
- Max operating temperature: 85°C
- The linear error is less than 0.1%
- The error of whole temperature zone is less than 0.5%
- +8 v~+16 v power supply
- Power protection function
- High speed CAN2.0B interface

PARAMETER

Current Range Lpm (Customizable)	±1000A
Working Voltage	+9V~+32V; typical 12V/24V
Operating Temperature	-40~85°C
Working Current	60mA @IP=0A 300mA @Ipm
Linear Error	±0.05% @±3σ whole temperature
Zero Offset @IP=0A	Io=±30mA
Accuracy @Lpm	0.1% @±3σ +25℃; 0.2%@±3σ whole temperature
Protection Level	IP41

BRH系列开环霍尔电流传感器

应用

BRH霍尔电流传感器可以测量DC、AC电流，带宽为DC~250KHz，主要用于新能源汽车，充电桩、电驱动、电池管理系统等。

特性

- 可编程国际大厂或国产的Hall芯片
- 编程调节以适配不同量程
- 符合汽车级
- 全温度范围误差控制在3%以内，线性度好
- 5V电源供电，电压输出
- 尺寸小巧，安装方式可选
- 产品结构简单，全隔离，性能稳定可靠
- 多种量程供客户选择，产品种类丰富

参数

电流量程（可定制）	±300A,±500A,±800A,±1200A,±1500A
工作电压	5±0.25V
工作温度	-40~125℃
工作电流	typ20；max25
零位输出	2.500V
输出曲线	Vout=(Uc/5)×(V0+G×Ip)
总误差	零位：±13mV@常温，±18mV其他温度　带负载：±45mV@常温，±65mV其他温度
防护等级	IPx2

BRH OPEN-LOOP HALL CURRENT SENSOR

APPLICATION

The sensor can measure DC and AC current with a bandwidth of DC~250KHz. It is mainly used for new energy vehicles, charging piles, electric drives, battery management systems, etc.

FEATURE

- Programmable Hall chip of international or domestic IC factory
- Programmatic adjustment to fit different ranges
- Conforming to automobile class
- The whole temperature range error is controlled within 3%, good linearity
- 5V power supply, voltage output
- Compact size, optional installation
- Product structure is simple, fully isolated, stable and reliable performance
- A variety of ranges for customers to choose, product variety is abundant

PARAMETER

Current Range (Customizable)	±300A, ±500A, ±800A, ±1200A, ±1500A
Working Voltage	5±0.25V
Working Temperature	-40~125°C
Working Current	typ20mA; max25mA
Zero Offset	2.500V
Output Curve	Vout=(Uc/5)×(V0+G×Ip)
Total Error	zero: ±13mV@ normal temperature, ±18mV other temperatures with load: ±45mV@ normal temperature, ±65mV other temperatures
Protection Level	IPx2

▶智能蓄电池传感器

应用

智能蓄电池传感器作为测量电流的装置，量程可达几百安培至上千安培（峰值），主要用于燃油车启动电池、EV/HEV的二级电池管理。产品给用户提供12V铅酸电池的实时SOC/SOH/SOF状态。其主要采用shunt采样技术，具有高精度，抗磁干扰能力强等优点。

特性

- 高精度、低温漂特殊合金材料电阻
- 结构简单尺寸小巧，通过螺栓直接与端子安装
- 通过配置可适应不同的电池型号
- 智能电池管理芯片，实现监测铅酸电池的各种状态
- 良好的防水防尘性能
- 兼容LIN 2.2/ 2.1/ 2.0通讯

参数

电流量程	0~1500A
工作电压	6~19V
工作温度	-40~115℃
工作电流	50mA
测量功能	SOC\SOH\SOF
通讯方式	LIN 2.2/ 2.1/ 2.0
防护等级	IP6K9K
接插件	2PIN TE

IBS

APPLICATION

IBS is a device for measuring current with a range of several hundred amperes to several thousand amperes (peak) and is mainly used for the secondary battery management of fuel powered vehicle batteries and EV/HEV. The product provides users with real-time SOC/SOH/SOF status of 12V lead-acid batteries. It mainly adopts shunt sampling technology, which has advantages such as high accuracy and strong anti magnetic interference ability.

FEATURE

- High precision, special material resistance with low temperature drift
- Simple structure and small size, through the bolt directly with the breakpoint installation
- Adapt to different battery models through configuration
- Intelligent battery management chip, achieving monitoring of various states of lead-acid batteries;Alloy material, excellent long-term stability
- Good waterproof and dustproof performance
- LIN 2.2/ 2.1/ 2.0

PARAMETER

Current Range	0~1500A
Working Voltage	6~19V
Operating Temperature	-40~115°C
Working Current	50mA
Main Function	SOC\SOH\SOF
Communication	LIN 2.2/ 2.1/ 2.0
Protection Class	IP6K9K
Connector	2PIN TE

轮速传感器

应用

产品安装在车轮附近，检测车轮转动速度，车轮速度信息对于电子稳定程序（ESP）或防抱死制动系统（ABS）至关重要。因此，轮速传感器是现代汽车中最重要的传感器之一。

特性

- Hall/AMR/GMR传感技术
- 标准两线电流接口
- 集成电容，抗电磁干扰能力强
- 磁铁可集成，统一出厂标定，气隙稳定性高
- 更高的工作气隙
- 灵活性设计，标准/PWM/AK 信号输出
- 可识别方向
- 广泛的工作温度范围
- 多种芯片选择，匹配不同控制器需求
- 符合间接式胎压监测低跳动(Jetter)要求
- 有双芯片ASIL-D产品方案
- 采用PA612材料，防水性能优

参数

工作频率	2500/3000Hz
输出电流	标准与PWM　7mA/14mA　　AK　7mA/14mA/28mA
工作温度	-40°C~150°C
供电电压	标准与PWM　4.4~20VDC　　AK　6~20VDC
负载电阻	标准与PWM　15~75Ω　　AK　15~50Ω
磁性环节距	3~8mm
启动时间	≤1ms
延迟时间	≤120us
上升沿	8~24mA/us
下降沿	8~24mA/us
防护等级	IP69

WHEEL SPEED SENSOR

APPLICATION

Wheel Speed Sensor (WSS) is installed near the wheel to detect the wheel rotation speed. The wheel speed information is very important for Electronic Stability Program (ESP) or Anti lock Braking System (ABS). Therefore, WSS is one of the most important sensors in modern vehicles.

FEATURE

- Hall/AMR/GMR sensing technology
- Standard two wire current interface
- Integrated capacitor, strong EMC performance
- Magnet integrated, and the air gap stability is high
- Higher working air gap
- Flexible design, Standard/PWM/AK signal output
- Recognizable direction
- Wide operating temperature range
- Multiple IC to match controller requirements
- Meet the requirements of indirect tire pressure monitoring about Jetter
- Dual IC meet ASIL-D
- PA612 material with excellent waterproof performance

PARAMETER

Operating Frequency	2500/3000Hz
Output Current	standard and PWM 7ma/14mA AK 7mA/14mA/28mA
Operating Temperature	- 40 °C~150 °C
Supply Voltage	standard and PWM 4.4~20Vdc AK 6~20VDC
Load Resistance	standard and PWM 15~75Ω AK 15~50Ω
Encoder Pitch	3~8mm
Starting Time	≤1ms
Delay Time	≤120us
Rising Edge	8~24Ma/us
Falling Edge	8~24Ma/us
Protection Grade	IP69

变速箱转速传感器

应用

变速箱转速传感器是一种高精度速度检测装置，主要安装于变速箱输入轴和输出轴附近，用于输入轴和输出轴的转速，变速器TCU根据转速传感器的信号，从而更精确的控制换挡过程，以改善换挡感觉，提高汽车的行驶性能。
变速箱转速传感器采用霍尔和巨磁阻技术，具有高精度，低抖动等优点。

特性

- HALL、GMR传感技术
- 标准两线电流信号接口
- 最大工作温度：150℃
- 集成电容，电磁抗干扰能力强
- 更高的工作气隙
- 更高的工作频率
- 低电流消耗，更大的电压工作范围
- 满足ISO26262功能安全ASIL B等级
- 可识别方向，可灵活配置PWM脉宽
- 更好的振动抑制
- 更高的防护等级

参数

工作频率	0~12KHz
工作电压	+4V~+24V，典型值 9V/12V
工作温度	-40°C~150°C
工作电流	5.9~8mA/12~16mA，典型值7/14mA
脉宽宽度-正转	45/60/90μs
脉宽宽度-反转	90/120/180μs
脉宽宽度-无方向	180/30/360μs
上升沿时间tr	最大4μs
下降沿时间tf	最大4μs
启动时间	1ms
负载电阻	典型值100Ω
防护等级	IP6K9K

TRANSMISSION SPEED SENSOR

APPLICATION

Transmission speed sensor is a high-precision speed detection device, mainly installed in the transmission input shaft and output shaft near the speed of the input shaft and output shaft, transmission TCU according to the signal of the speed sensor, so as to more accurately control the shift process, to improve the shift feeling, improve the driving performance of the car.
The transmission speed sensor adopts Hall and giant reluctance technology, which has the advantages of high precision and low jitter.

FEATURE

- HALL、GMR sensing technology
- Standard two-wire current signal interface
- Max operating temperature：150℃
- Integrated capacitance, strong electromagnetic anti-interference ability
- Higher working air gap
- Higher working Frequency
- Low current consumption, greater voltage operating range
- Meet ISO26262 Functional safety ASIL B
- The direction can be identified, and the PWM pulse width can be configured flexibly
- Better vibration suppression
- Higher level of protection

PARAMETER

Operating Frequency	0~12KHz
Working Voltage	+4V~+24V，typical 9V/12V
Operating Temperature	-40~150℃
Working Current	5.9~8mA/12~16mA，typical 7/14mA
Plus Width-Forward	45/60/90μs
Plus Width-Reverse	90/120/180μs
Plus Width-Non Direction	180/30/360μs
Output Rise Time	Max4μs
Output Fall Time	Max4μs
Start Time	1ms
Load Resistance	typical 100 Ω
Protection Grade	IP6K9K

集成EPB线束-轮速传感器

应用

集成EPB（电子驻车制动系统）线束-轮速传感器在现代汽车中具有重要作用，主要用于监测车轮转速和EPB卡钳电机供电，以实现多种功能集成。
集成EPB线束-轮速传感器通过简化设计、提高安全性和响应速度，广泛应用于ABS、ESP、TCS、EPB等系统，提升了车辆的集成度，降低整车线束布置难度和经济性。

特性

- HALL/AMR/GMR/TMR
- WSS标准电流接口， EPB线束两线接口
- 集成电容，抗电磁干扰能力强
- 采用高品质的电缆线，满足整车耐久使用的需求
- 更高的工作气隙
- 灵活性设计，标准/PWM/AK 信号输出
- 单芯片ASIL B/双芯片ASIL D
- 广泛的工作温度范围
- 多种芯片选择，匹配不同控制器及装车环境的需求
- 符合间接式胎压监测低跳动(Jetter)要求
- 传感器头部采用PA612材料，防水性能优

参数

工作频率	0~4250Hz
工作电压	标准与PWM 4.4~20VDC AK 6~20VDC
工作温度	-40°C~150°C
负载电阻	标准与PWM 15~75Ω AK 15~50Ω
输出电流	标准与PWM 7mA/14mA AK 7mA/14mA/28mA
上升沿和下降沿时间	Max 1.5us
占空比	40%~60%
防护等级	IP69K

INTEGRATED EPB HARNESS WHEEL SPEED SENSOR

APPLICATION

The wheel speed sensor integrated with EPB (Electronic Parking Brake System) wiring harness plays an important role in modern automobiles, mainly used to monitor wheel speed and transmit data to the vehicle control system to achieve various functions.
The wheel speed sensor integrated with EPB wiring harness is widely used in ABS, ESP, TCS, EPB and other systems by simplifying design, improving safety and response speed, and enhancing the overall performance and safety of vehicles.

FEATURE

- HALL/AMR/GMR/TMR
- WSS current interface, standard two-wire EPB interface
- Integrated capacitors with strong electromagnetic interference resistance
- Using high-quality cables to meet the durability requirements of the entire vehicle
- Higher working air gap
- Flexible design, standard/PWM/AK signal output
- Single chip ASIL B/Dual chip ASIL D
- Wide operating temperature range
- Multiple chip options to match the needs of different controllers and installation environments
- Meets the requirements of indirect tire pressure monitoring low bounce (Jetter)
- Using PA612 material, with excellent waterproof performance

PARAMETER

Working Frequency	0~4250Hz
Working Voltage	Standard and PWM 4.4~20VDC AK 6~20VDC
Operating Temperature	-40°C~150°C
Load Resistance	Standard and PWM 15~75 Ω AK 15~50 Ω
Output Current	Standard and PWM 7mA/14mA AK 7mA/14mA/28mA
Rising Edge And Falling Edge Time	Max 1.5us
Duty Cycle	40%~60%
Protection Level	IP69K

集成EPB和CDC线束-轮速传感器

应用

集成EPB（电子驻车制动系统）和CDC（连续阻尼控制系统）线束的轮速传感器在现代汽车中具有重要作用，主要用于监测车轮转速、EPB卡钳电机供电和CDC供电，以实现多种功能集成。
集成EPB和CDC线束的轮速传感器通过简化设计、提高安全性和响应速度，广泛应用于ABS、ESP、TCS、EPB、CDC等系统，提升了车辆的集成度，降低整车线束布置难度和经济性。

特性

- HALL/AMR/GMR/TMR
- 标准电流接口， EPB标准两线接口，CDC标准两线接口
- 集成电容，抗电磁干扰能力强
- 采用高品质的集成电缆线，满足整车耐久使用的需求
- 更高的工作气隙
- 灵活性设计，标准/PWM/AK 信号输出
- 单芯片ASIL B/双芯片ASIL D
- 广泛的工作温度范围
- 多种芯片选择，匹配不同控制器及装车环境的需求
- 符合间接式胎压监测低跳动(Jetter)要求
- 采用PA612材料，防水性能优

参数

工作频率	0~4250Hz
工作电压	标准与PWM 4.4~20VDC AK 6~20VDC
工作温度	-40°C~150°C
负载电阻	标准与PWM 15~75Ω AK 15~50Ω
输出电流	标准与PWM 7mA/14mA AK 7mA/14mA/28mA
上升沿和下降沿时间	Max 1.5us
占空比	40%~60%
防护等级	IP69K

INTEGRATED EPB AND CDC HARNESS WHEEL SPEED SENSOR

APPLICATION

The wheel speed sensor integrated with EPB (Electronic Parking Brake System) and CDC (Continuous Damping Control System) wiring harness plays an important role in modern automobiles, mainly used to monitor wheel speed and transmit data to the vehicle control system to achieve various functions.
The wheel speed sensor integrated with EPB and CDC wiring harnesses is widely used in ABS, ESP, TCS, EPB, CDC and other systems by simplifying design, improving safety and response speed, and enhancing the overall performance and safety of vehicles.

FEATURE

- HALL/AMR/GMR/TMR
- Standard six wire current interface, standard two-wire EPB interface, standard two-wire CDC
- InterfaceIntegrated capacitors with strong electromagnetic interference resistance
- Using high-quality integrated cables to meet the durability requirements of the entire vehicle
- Higher working air gap
- Flexible design, standard/PWM/AK signal output
- Single chip ASIL B/Dual chip ASIL D
- Wide operating temperature range
- Multiple chip options to match the needs of different controllers and installation environments
- Meets the requirements of indirect tire pressure monitoring low bounce (Jetter)
- Using PA612 material, with excellent waterproof performance

PARAMETER

Working Frequency	0~4250Hz
Working Voltage	Standard and PWM 4.4~20VDC AK 6~20VDC
Operating Temperature	-40~150℃
Load Resistance	Standard and PWM 15~75 Ω AK 15~50 Ω
Output Current	Standard and PWM 7mA/14mA AK 7mA/14mA/28mA
Rising Edge And Falling Edge Time	Max 1.5us
Duty Cycle	40%~60%
Protection Level	IP69K

车身高度传感器

应用

车身高度传感器用于悬架、主动底盘控制或前照灯调平应用程序，目的是将车轮相对于底盘的位置转换成一个电气输出信号，供控制器使用。

特性

- Hall传感技术
- 模拟/PWM/PSI5通信
- 绝对角度测量
- 角度精度高
- 模块化设计，支架与连杆系列化
- 自润滑万向球窝，满足底盘防尘要求
- EOL在线标定
- 信号支持故障诊断
- 结构设计可靠，寿命高
- 适用于主动悬架系统

参数

角度范围	360 °
分辨率	0.03°
总精度	±1.3%
工作电流	<49mA
工作温度	-40℃~125℃
供电电压	5±0.5VDC
信号输出	模拟/PWM/PSI5
防护等级	IP69

HEIGHT LEVEL SENSOR

APPLICATION

The sensor is used in suspension, active chassis control or headlamp leveling applications to convert the angle of the wheels relative to the chassis into an electrical output signal for use by the controller.

FEATURE

- Hall sensing technology
- PWM/PSI5 communication
- Absolute angle measurement
- High angle accuracy
- Modular design, support and connecting rod serialization
- Self lubricating universal ball socket meets the dust-proof requirements of chassis
- EOL online calibration
- Signal support fault diagnosis
- Reliable structural design and high service life
- For active suspension system

PARAMETER

Angle Range	360 °
Resolution	0.03 °
Total Accuracy	±1.3%
Working Current	<49mA
Operating Temperature	- 40 °C~125 °C
Power Supply Voltage	5±0.5vdc
Signal Output	analog/PWM/PSI5
Protection Grade	IP69

电机位置传感器

应用

电机位置传感器用于检测电机转子转动角度等物理量，转换为电信号传递给系统控制器。

特性

- 电感式感应电机角度，可端部或贯穿式安装
- PCB板实现线圈设计，成本低，EMC性能优越
- 精度高达0.2°
- 电感工作原理抗电磁干扰能力强
- 多对极设计，精度高
- 冗余设计，双路输出，安全级别ASIL-D
- EOL在线标定
- 信号支持故障诊断
- 适用于线控制动系统

参数

工作温度	-40°C~+150°C
角度精度	±0.2°
信号输出	差分SIN COS 或 SPI
消耗电流	<80mA
转速支持	10000rpm
工作次数	>50000

MOTOR POSITION SENSOR

APPLICATION

Motor position sensors, which are used to detect physical quantities such as motor rotor rotation angle, which are converted into electrical signals and transmitted to the system controller.

FEATURE

- Inductive induction, installed end through
- PCB board coil design, low cost, Higher EMC
- Accuracy up to 0.2 °
- The working principle of inductance has strong anti electromagnetic interference ability
- Multi pole design, high precision
- Redundant design, dual output, safety level ASIL-D
- EOL online calibration
- Signal support fault diagnosis
- Applicable to brake by wire system

PARAMETER

Operating Temperature	- 40 °C~ +150 °C
Angle Accuracy	±0.2 °
Signal Output	differential SIN, COS or SPI
Consumption Current	<80mA
Speed Support	10000rpm
Number Of Work	>50000

变速箱位置传感器

应用

变速箱位置传感器是一种高精度位置检测装置，主要用于变速箱各轴精确位置的检测，变速器TCU根据位置传感器的信号，从而更精确的控制换挡过程，以改善换挡感觉，提高汽车的行驶性能。

特性

- 3D HALL技术
- 支持模拟量、PWM、SENT协议输出
- 最大工作温度：150℃
- 抗外界杂散磁场能力强
- 更大的工作行程
- 更高的精度
- 低电流消耗
- 满足ISO26262功能安全ASIL B等级
- 支持单路、双路输出
- 可集成多个位置传感器为簇
- 更高的防护等级

参数

工作行程	0~42mm°
工作电压	5±0.5V
工作温度	-40~150℃
工作电流	最大15mA
工作协议	Analog、PWM、SENT
分辨率	12 bit
精度	≤±0.5mm
防护等级	IP6K9K

TRANSMISSION POSITION SENSOR

APPLICATION

Transmission position sensor is a high-precision position detection device, mainly used for the detection of the precise position of each shaft of the transmission, transmission TCU according to the signal of the position sensor, so as to more accurately control the shifting process to improve the shifting feeling and improve the driving performance of the car.

FEATURE

- 3D HALL technology
- Supports analog, PWM, and SENT protocol output
- Max operating temperature: 150℃
- Strong resistance to external stray magnetic field
- Greater working distance
- higher accuracy
- Low current consumption
- Meet ISO26262 Functional safety ASIL B level
- Supports single or dual output
- Multiple position sensors can be integrated into clusters
- Higher level of protection

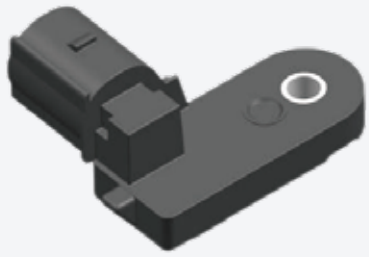
PARAMETER

Operating Stroke	0~42mm
Working Voltage	5±0.5V
Operating Temperature	-40~150℃
Working Current	Max 15mA
Work Protocol	Analog、PWM、SENT
Resolution	12 bit
Accuracy	≤±0.5mm
Protection Grade	IP6K9K

刹车灯位置传感器

应用

刹车灯传感器为一霍尔开关装置，主要安装在发动机舱内的制动总泵上。踩下制动踏板时，制动总泵的活塞随踏板移动，安装在活塞上的磁铁也随之移动，传感器感应磁铁磁场的变化并输出信号。
刹车灯传感器采用非接触式霍尔开关技术，具有高可靠性，长寿命和高抗干扰能力等优点。



特性

- 霍尔开关原理
- 宽磁开关范围：±1.5mT to ±66mT
- 可编程开关信号
- 温度范围：-40~150℃
- 电压范围：+2.7V~+24V
- 反向电源电压保护
- 欠压闭锁保护

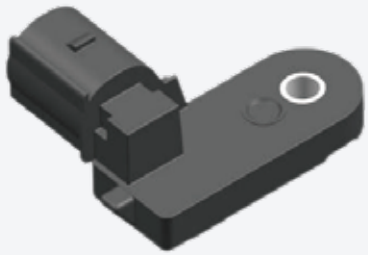
参数

磁开关范围	±1.5mT to ±66mT
供电电压Uc	+2.7V~+24V 典型值 12V
工作温度T	-40~150℃
工作电流I	3 ~ 9mA
输出信号	高、低电平
防护等级	IP67

BRAKE LIGHT POSITION SENSOR

APPLICATION

The break light sensor is a Hall switch device, mainly installed on the brake master cylinder in the engine compartment. When the brake pedal is pressed, the piston of the brake master cylinder moves with the pedal, and the magnet installed on the piston also moves accordingly. The sensor senses the change in the magnetic field of the magnet and outputs a signal.
The brake light sensor adopts non-contact Hall switch technology, which has the advantages of high reliability, long life and high anti-interference ability.



FEATURE

- Hall switch principle
- Wide magnetic switch range: ±1.5mT to ±66mT
- Programmable switching signal
- Temperature range: -40~ 150 ℃
- Voltage range: +2.7V~+24V
- Reverse Supply Voltage Protection
- Under-Voltage Lockout Protection

PARAMETER

Magnetic Switch Range	±1.5mT to ±66mT
Power Supply Voltage Uc	+ 3V~ + 24V ， typical value 12V Temperature range: -40~ 150 ℃
Temperature Range	3 ~ 9mA
Operating Current I	high and low voltage levels
Output Signal	12~17mA
Protection Level	IP67

制动器位置传感器

应用

制动器位置传感器是一款高精度直线位移检测器件，主要应用于制动主缸的精准位置检测。制动系统ECU可依据传感器反馈的位置信号，实现制动力的精准分配与精细化制动控制，有效提升整车制动性能及驾乘舒适感。

特性

- 3D HALL技术
- 支持模拟量、PWM、SENT协议输出
- 最大工作温度：150℃
- 抗外界杂散磁场能力强
- 更大的工作行程
- 更高的精度
- 低电流消耗
- 满足ISO26262功能安全ASIL B等级
- 支持单路、双路输出
- 可集成多个位置传感器为簇
- 更高的防护等级

参数

工作行程	0~42mm°
工作电压	5±0.5V
工作温度	-40~150℃
工作电流	最大15mA
工作协议	Analog、PWM、SENT
分辨率	12 bit
精度	≤±0.5mm
防护等级	IP6K9K

THE BRAKE POSITION SENSOR

APPLICATION

The brake position sensor is a high-precision linear displacement detection device, mainly used for precise position detection of the brake master cylinder. The brake system ECU can achieve precise distribution of braking force and refined braking control based on the position signal feedback from the sensor, effectively improving the vehicle's braking performance and ride comfort.

FEATURE

- 3D HALL technology
- Supports analog, PWM, and SENT protocol output
- Max operating temperature: 150℃
- Strong resistance to external stray magnetic field
- Greater working distance
- higher accuracy
- Low current consumption
- Meet ISO26262 Functional safety ASIL B level
- Supports single or dual output
- Multiple position sensors can be integrated into clusters
- Higher level of protection

PARAMETER

Operating Stroke	0~42mm
Working Voltage	5±0.5V
Operating Temperature	-40~150℃
Working Current	Max 15mA
Work Protocol	Analog、PWM、SENT
Resolution	12 bit
Accuracy	≤±0.5mm
Protection Grade	IP6K9K

▶ 踏板位置传感器

应用

踏板位置传感器用于检测踏板位移等物理量，转换为电信号传递给系统控制器。

特性

- Hall传感技术
- 冗余设计，双路输出，安全级别ASIL-D
- EOL在线标定
- 信号支持故障诊断
- 差分模拟量、PWM与SENT输出可选
- 适用于线控制动系统

参数

工作温度	-40°C~+150°C
测量行程	0-42mm
信号输出	PWM 或 SENT
信号精度	±0.2mm
功能安全级别	ASIL-D
数字分辨率	12bit（0.015mm/bit）
刷新率	<1ms

PEDAL POSITION SENSOR

APPLICATION

Pedal position sensors, which are used to detect physical quantities such as pedal displacement, which are converted into electrical signals and transmitted to the system controller.

FEATURE

- Hall sensing technology
- Redundant design, dual output, safety level ASIL-D
- EOL online calibration
- Signal support fault diagnosis
- Differential analog, PWM and sent outputs are optional
- Applicable to brake by wire system

PARAMETER

Operating Temperature	- 40 °C~+150 °C
Measuring Stroke	0-42mm
Signal Output	PWM or SENT
Signal Accuracy	±0.2mm
Functional Security Level	ASIL-D
Digital Resolution	12bit (0.015mm/bit)
Refresh Rate	<1ms

踏板转角传感器

应用

踏板转角传感器是一种高精度测量角度检测装置，主要用于油门、制动踏板角度的检测。

特性

- 3D HALL技术
- 支持模拟量、PWM、SENT协议输出
- 最大工作温度：150℃
- 抗外界杂散磁场能力强
- 更大的工作行程
- 更高的精度
- 低电流消耗
- 满足ISO26262功能安全ASIL B等级
- 支持单路、双路输出
- 更高的防护等级

参数

工作角度范围	0~360 °
工作电压	5±0.5V
工作温度	-40~150℃
工作电流	最大15mA
工作协议	Analog、PWM、SENT
分辨率	12 bit
精度	≤±1.5°
防护等级	IP6K9K

PEDAL ANGLE SENSOR

APPLICATION

The pedal Angle sensor is a kind of high precision Angle measuring device, which is mainly used to detect the Angle of the accelerator and brake pedal.

FEATURE

- 3D HALL technology
- Supports analog, PWM, and SENT protocol output
- Max operating temperature: 150℃
- Strong resistance to external stray magnetic field
- Greater working distance
- higher accuracy
- Low current consumption
- Meet ISO26262 Functional safety ASIL B level
- Supports single or dual output
- Higher level of protection

PARAMETER

Operating Stroke	0~12KHz
Working Voltage	5±0.5V
Operating Temperature	-40~150℃
Working Current	Max 15mA
Work Protocol	Analog、PWM、SENT
Resolution	12 bit
Accuracy	≤±1.5°
Protection Grade	IP6K9K

方向盘转角传感器

应用

产品安装在组合开关或转向管柱末端，检测方向盘转动角度，通过CAN通信提供方向盘转动角度与速度等信号，此信号应用于电子稳定程序、倒车影像、自动泊车、自动驾驶等系统。

特性

- Hall传感技术
- CAN通信
- 绝对角度测量
- 断电后无需连接电池，上电立即有角度输出
- 抗翘曲设计降低扭矩噪音
- 无需螺丝固定，安装便捷
- 多种角度范围可选，适用于乘用车与商用车
- 支持在线标定
- 支持BootLoader
- 支持故障诊断
- 角度精度高

参数

角度范围	±780 ° 、±1560°		
角度精度	v±2.5°		
非线性	±0.2°		
迟滞	<2°		
速度范围	0-1060°/s		
分辨率	角度 0.1°，速度 4°/s	扭矩范围	8Ncm
工作电流	<100mA	CAN速率	500k
工作温度	-40°C~85°C	刷新时间	10ms
供电电压	6~20VDC	标定时间	≤500ms

STEERING ANGLE SENSOR

APPLICATION

The steering angle sensor (SAS) is installed with combination switch or at the end of the steering column, it detects the steering wheel rotation angle and provide signals such as steering wheel rotation angle and speed through CAN. This signal is applied to Electronic Stability Program,, automatic parking, automatic driving and other systems.

FEATURE

- Hall sensing technology
- CAN communication
- Absolute angle measurement
- No need to connect the battery after power off, True power on
- Anti warping design reduces torque noise
- No screw fixing, easy installation
- A variety of angle ranges available, suitable for passenger cars and commercial vehicles
- Support online calibration
- Support bootloader
- Support fault diagnosis
- High angle accuracy

PARAMETER

Angle Range	±780 °, ±1560 °		
Angle Accuracy	±2.5 °		
Nonlinearity	±2 °		
Vhysteresis	<2 °		
Speed Range	0-1060 ° / S		
Resolution	angle 0.1 °, speed 4 ° / s	**Torque Range**	8Ncm
Working Current	<100mA	**Can Speed**	500K
Operating Temperature	- 40 °C~85 °C	**Refresh Time**	10ms
Supply Voltage	6~20VDC	**Calibration Time**	≤500ms

刹车磨损传感器

应用

产品测量刹车盘磨损程度。传感头安装于刹车盘固定厚度处，当盘磨损到阈值时，传感头内部被接通，向后续控制单元输出信号。

特性

- 电阻+机械结构方案
- 高性能，优异的长期稳定性和性能
- 优良的EMC/ESD性能
- 产品提供多种信号模式可选
- 广泛的工作温度范围
- 卓越的耐机械性能设计
- 体积小，安装简单，小型紧凑型
- 低成本的OEM应用设计

参数

触发点（可定制）	2~7.5mm
输入电压	乘用车16V，商用车24V
工作温度	-40°C ~130°C
存储温度	-40°C ~130°C
产品寿命	1.2万公里
线束材料	基于SAE/USCAR-12
防护等级	IP69

BRAKE WEAR INDICATOR

APPLICATION

The brake wear Indicator measures the wear of the brake pads. These pads include a wire, which comes in contact with the brake disc after wear. This will transmit a signal to the control unit after reach the threshold.

FEATURE

- Resistor + mechanical structure solution
- Excellent long-term stability and robustness
- Excellent EMC/ESD performance
- Customizable single- or multiple sensing signals solution
- Wide range of operating temperature
- Excellent mechanical resistance design (Vibration proof, etc.)
- Small volume, easy for installation, small and compact
- Low-cost OEM application design

PARAMETER

Threshold Point (Customizable)	2~7.5mm
Supply Voltage	passager car with 16V, commercial cars with 24V
Operating Temperature	-40°C ~130°C
Storage Temperature	-40°C ~130°C
Lifetime	12k km
Harness Material	based on SAE/USCAR-12
Protection Level	IP69

9轴IMU传感器模组

应用

9轴IMU（三轴加速度计+三轴陀螺仪+三轴磁力计）是汽车运动感知与姿态测量的核心 MEMS 模组，具备不依赖外部信号、高频高精度输出、车规级可靠性等特点，广泛用于车辆安全、动态控制、自动驾驶导航及车身智能交互等场景，为整车提供全时六自由度（3线 + 3 角）运动数据与三维姿态信息。

特性

- 三轴加速度计：测量车辆纵向 / 横向 / 垂直线加速度，用于速度推算、振动监测与碰撞冲击检测。
- 三轴陀螺仪：测量横摆 / 俯仰 / 滚转三轴角速度，输出姿态角（航向角、俯仰角、横滚角），支撑车身稳定与姿态解算。
- 三轴磁力计：测量三维磁场强度，提供绝对航向基准，补偿陀螺仪漂移，适配车载电子罗盘与导航定向。
- 融合算法：内置 EKF 等滤波算法，融合 9 轴数据，输出高精度姿态、速度与位置信息，抑制传感器漂移与噪声。

参数

供电电压	9–16V
工作温度	−40℃ ~ +85℃
工作电流	<12mA
加速度检测量程	±2g / ±4g / ±8g / ±16g 可配置
加速度灵敏度误差	±0.5% 典型
陀螺仪测量量程	±125 / ±250 / ±500 / ±1000 dps
陀螺仪灵敏度误差	±0.3% 典型
磁场测量量程	±4800 μT
磁场测量精度	±0.5 μT
防护等级	IP67

RNC ACTIVE NOISE CANCELLATION MODULE

APPLICATION

9-axis IMU (3-axis accelerometer + 3-axis gyroscope + 3-axis magnetometer) is a core MEMS module for automotive motion sensing and attitude measurement. It features independence from external signals, high-frequency & high-precision output, and automotive-grade reliability. Widely used in vehicle safety, dynamic control, autonomous driving navigation, and intelligent body interaction, providing full 6-DOF (3 linear + 3 angular) motion data and 3D attitude information for the vehicle.

FEATURE

- 3-axis accelerometer: measures longitudinal/lateral/vertical linear acceleration for speed estimation, vibration monitoring, and crash impact detection
- 3-axis gyroscope: measures yaw/pitch/roll angular rates, outputs attitude angles (heading, pitch, roll) for vehicle stability and attitude calculation
- 3-axis magnetometer: measures 3D magnetic field strength, provides absolute heading reference, compensates gyro drift, for electronic compass and navigation orientation
- Fusion algorithm: built-in EKF filtering, fuses 9-axis data to output high-precision attitude, velocity, and position, suppresses sensor drift and noise

PARAMETER

Supply Voltage	9–16V
Operating Temperature	−40℃ ~ +85℃
Operating Current	<12mA
Accelerometer Range	±2g / ±4g / ±8g / ±16g configurable
Accelerometer Sensitivity Error	±0.5% typical
Gyroscope Range	±125 / ±250 / ±500 / ±1000 dps
Gyroscope Sensitivity Error	±0.3% typical
Magnetometer Range	±4800 μT
Magnetometer Accuracy	±0.5 μT
Ingress Protection	IP67

KK 敲击传感器模组

应用

KK 敲击传感器（压电振动传感器）用于后备箱“敲击开启”，在尾门/ 保险杠内侧装1-2个振动传感器，识别2次短敲（频率、能量、间隔），配合钥匙认证，自动开启尾门。

特性

- KK 敲击传感器（压电式弹性波传感器）：贴尾门内板 / 保险杠内侧
- 信号输出模拟差分 / 数字（可选）
- 控制单元（ECU）：处理振动波形，识别“双敲”，联动 BCM / 电动撑杆
- 车辆解锁 / 驻车，PEPS 检测合法钥匙在车尾感应区。
- 在尾门 / 保险杠快速敲 2 下，传感器输出振动电压波

参数

供电电压	9-16V
工作温度	-40℃ ~ +85℃
工作电流	<5mA
灵敏度	10-50mV/g
频率响应	100Hz-15kHz
固有谐振频率	3 ~ 6kHz
防护等级	IP68
ESD 防护	±8kV 接触、±15kV 空气

KK KNOCK SENSOR MODULE

APPLICATION

KK knock sensor (piezoelectric vibration sensor) for trunk “knock-to-open” function. Install 1–2 vibration sensors inside the tailgate or bumper to detect 2 short knocks (frequency, energy, interval). With key authentication, it automatically opens the electric tailgate.

FEATURE

- KK knock sensor (piezoelastic wave sensor): mounted on inner tailgate panel / inner bumper
- Analog differential or digital output (optional)
- Control unit (ECU): processes vibration waveforms, recognizes “double knock”, links with BCM / electric strut
- Vehicle unlocked / parked; PEPS detects valid key in rear sensing zone
- Outputs vibration voltage wave when tailgate/bumper is tapped twice quickly

PARAMETER

Supply Voltage	9–16V
Operating Temperature	−40℃ ~ +85℃
Operating Current	<5mA
Sensitivity	10–50mV/g
Frequency Response	100Hz–15kHz
Natural Resonant Frequency	3 ~ 6kHz
Ingress Protection	IP68
ESD Protection	±8kV contact, ±15kV air discharge

扭力角度传感器

应用

该电感式扭力角度传感器采用非接触感应检测原理，无机械磨损、使用寿命长。可同步采集扭力与转角数据.同时其抗震动、抗干扰性能优异，多用于汽车转向、机器人关节等精密控制场景。

特性

- 测量原理：电感式非接触差分感应、电气隔离测量
- 工作温度范围：-40℃-125℃
- 存储温度范围：-10℃-55℃
- 湿度范围：20-80% RH
- 生命周期： 15年 240，000Km
- 防护等级： IP40
- 连接器型号：C-114-18063-040
- 噪声：≤45dB (100mm,360°)
- 阻燃： 燃烧速度：≤100MM/Min
- 角度测量范围：0 ~ 360° 连续角度输出

参数

工作电压	5V±0.25V
消耗电流	Max. 80mA
输出信号	Sent
输出通道	2ch扭矩
低频波纹（LFR）	≤0.13°
高频波纹（HFR）	≤0.06°
增益误差	±0.035°
不对称误差	CMR：±0.05° / NMR： ±0.09°
对称误差	±0.1 °
绝对误差	±0.2°
同步性	±0.425°

TORQUE ANGLE SENSOR

APPLICATION

This inductive torque and angle sensor utilizes a non-contact sensing principle, resulting in no mechanical wear and a long service life. It can simultaneously capture torque and angular position data. Additionally, it offers excellent resistance to vibration and interference, making it widely used in precision control applications such as automotive steering systems and robotic joints.

FEATURE

- Measurement Principle: Inductive non-contact differential sensing, electrically isolated measurement
- Operating temperature range: -40℃ - 125℃
- Storage temperature range: -10℃ - 55℃
- Humidity range: 20–80% RH
- Service life: 15 years 240,000 km
- Protection rating: IP40
- Connector Model: C-114-18063-040
- Noise: ≤45 dB (100 mm, 360°)
- Burning rate: ≤100 mm/min
- Angle measurement range: 0 ~ 360°, continuous angle output

PARAMETER

Operating Voltage	5V±0.25V
Current Consumption	Max. 80mA
Output Signal	Sent
Output Channels	2ch torque
Low-Frequency Ripple (LFR)	≤0.13°
High-Frequency Ripple (HFR)	≤0.06°
Gain Error	±0.035°
Asymmetry Error	CMR: ±0.05° / NMR: ±0.09°
Symmetry Error	±0.1 °
Absolute Error	±0.2°
Synchronization	±0.425°

直线位移传感器

应用

该传感器主要用于检测后轮转向齿条的位移，并以此计算转向角，为车辆提供精准的后轮转向控制。
直线位移传感器采用电感式方案，具有抗干扰、高精度等优点。

特性

- 采用非接触式电磁感应原理
- 双路冗余设计
- 4.5~5.5V供电
- 最大工作温度125℃
- 大量程测量范围
- 温漂≤0.1mm
- 具备自诊断功能

参数

供电电压	5±0.5V
工作电流	≥150mA
工作温度	-40℃~125 ℃
存储温度	-40℃~125 ℃
信号类型	SENT
测量范围	0±60mm
测量误差	≤0.1mm
分辨率	< 0.04mm
输出频率	> 1kHz
防护等级	IP6K9K
功能安全等级	ISO 26262 ASIL D

LINEAR POSITION SENSOR

APPLICATION

This sensor is primarily used to detect the displacement of the rear steering rack. It calculates the steering angle based on this displacement, providing precise control for the vehicle's rear-wheel steering system.
The LPS utilizes an inductive sensing solution, offering advantages such as excellent EMI immunity and high precision.

FEATURE

- Adopting the principle of non-contact electromagnetic induction
- Dual-path redundancy design
- 4.5~5.5V power supply
- Maximum operating temperature 125 ℃
- Large measurement range
- Temperature drift ≤ 0.1mm
- Equipped with self-diagnostic function

PARAMETER

Working voltage	5±0.5V
Working current	≥150mA
Operating temperature	-40℃~125 ℃
Storage temperature	-40℃~125 ℃
Signal type	SENT
Measurement range	0±60mm
Measurement error	≤0.1mm
Resolution	< 0.04mm
Output frequency	> 1kHz
Protection level	IP6K9K
Functional safety level	ISO 26262 ASIL D

协作臂/手腕六维力传感器

应用

应用于人形手腕或者协作臂末端，同步测量三维空间内的三向力（Fx、Fy、Fz）与三向力矩（Mx、My、Mz），为力控场景提供实时数据。在工业机器人中，助力协作臂打磨、装配、抛光时感知接触力，规避过载与精度问题；在协作机器人中，通过力反馈保障人机交互安全。

特性

- 电容原理
- 三轴力最大负载：Fx/Fy: 150N；Fz: 200N；
- 三轴扭矩最大负载：Mx/My: 4Nm；Mz: 6Nm
- 单轴精度：0.5%FS；综合精度：1.0%FS
- 重复精度：0.1%FS
- 过载能力：400%
- 材料：合金铝 7075-T6

参数

通讯接口	CanFD，RS485/232（可定制）
工作电压	12 – 24V（可定制）
采样频率	1000Hz
功率	＜2W
机械尺寸	D45mm，H27.5mm
重量	80g
防护等级	IP65

MANIPULATOR ARM/ROBOTIC WRIST SIX-AXIS FORCE/TORQUE SENSOR

APPLICATION

Measures 3D forces and torques at robotic arm ends for real-time control. Enables precise grinding, assembly, and polishing in industrial robots, and ensures safe human-machine interaction in collaborative robots via force feedback.

FEATURE

- Capacitive sensing principle
- Max 3-axis force load: Fx/Fy: 150N; Fz: 200N
- Max 3-axis torque load: Mx/My: 4Nm; Mz: 6Nm
- Single-axis accuracy: 0.5%FS; Comprehensive accuracy: 1.0%FS
- Repeatability: 0.1%FS
- Overload capacity: 400%
- Material: Aluminum Alloy 7075-T6

PARAMETER

Communication Interface	CanFD, RS485/232 (Customizable)
Operating Voltage	12 – 24V (Customizable)
Sampling Frequency	1000Hz
Power Consumption	< 2W
Mechanical Dimensions	D45mm, H27.5mm
Weight	80g
Protection Rating	IP65

机械臂六维力传感器

应用

应用于机械臂或者作业机构末端，同步测量三维空间内的三向力（Fx、Fy、Fz）与三向力矩（Mx、My、Mz），为力控场景提供实时数据。在工业机器人中，助力重载搬运、大型工件精密装配与焊接，有效规避过载风险，提升作业精度。

特性

- 电容原理
- 三轴力最大负载：Fx/Fy: 150N；Fz: 200N；
- 三轴扭矩最大负载：Mx/My: 4Nm；Mz: 6Nm
- 单轴精度：0.5%FS；综合精度：1.0%FS
- 重复精度：0.1%FS
- 过载能力：400%
- 材料：合金铝 7075-T6

参数

通讯接口	CanFD，RS485/232（可定制）
工作电压	12 – 24V（可定制）
采样频率	1000Hz
功率	＜2W
机械尺寸	D45mm，H27.5mm
重量	500g
防护等级	IP65

ROBOTIC ARM SIX-AXIS FORCE/TORQUE SENSOR

APPLICATION

This sensor is primarily used to detect the displacement of the rear steering rack. It calculates the steering angle based on this displacement, providing precise control for the vehicle's rear-wheel steering system.
The LPS utilizes an inductive sensing solution, offering advantages such as excellent EMI immunity and high precision.

FEATURE

- Adopting the principle of non-contact electromagnetic induction
- Dual-path redundancy design
- 4.5~5.5V power supply
- Maximum operating temperature 125 ℃
- Large measurement range
- Temperature drift ≤ 0.1mm
- Equipped with self-diagnostic function

PARAMETER

Communication Interface	CanFD, RS485/232 (Customizable)
Operating Voltage	12 – 24V (Customizable)
Sampling Frequency	1000Hz
Power Consumption	< 2W
Mechanical Dimensions	D45mm, H27.5mm
Weight	500g
Protection Rating	IP65

关节扭矩传感器

应用

一维关节扭矩传感器主要安装在机器人的旋转关节内部，用于实时、精准地测量单轴扭矩。在协作机器人中，它不仅能通过毫秒级力反馈实现碰撞检测，保障人机协作安全，还能提供柔顺控制能力，助力机器人完成精细操作等复杂任务。

特性

- 电容原理
- 扭矩最大负载：Mz: 20Nm
- 单轴精度：0.5%FS；综合精度：1.0%FS
- 重复精度：0.1%FS
- 过载能力：500%
- 材料：合金铝 7075-T6

参数

通讯接口	CanFD，RS485/232（可定制）
工作电压	12 – 24V（可定制）
采样频率	1000Hz
功率	< 2W
机械尺寸	D50mm，H10mm
重量	28g

JOINT TORQUE SENSOR

APPLICATION

This sensor is primarily used to detect the displacement of the rear steering rack. It calculates the steering angle based on this displacement, providing precise control for the vehicle's rear-wheel steering system.
The LPS utilizes an inductive sensing solution, offering advantages such as excellent EMI immunity and high precision.

FEATURE

- Adopting the principle of non-contact electromagnetic induction
- Dual-path redundancy design
- 4.5~5.5V power supply
- Maximum operating temperature 125 ℃
- Large measurement range
- Temperature drift ≤ 0.1mm
- Equipped with self-diagnostic function

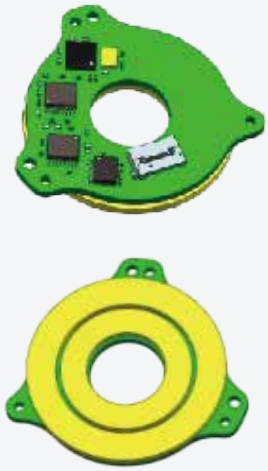
PARAMETER

Communication Interface	CanFD, RS485/232 (Customizable)
Operating Voltage	12 – 24V (Customizable)
Sampling Frequency	1000Hz
Power Consumption	< 2W
Mechanical Dimensions	D50mm，H10mm
Weight	28g

关节编码器

应用

关节编码器的主要作用是精确测量机器人关节（或旋转轴）的角度位置、旋转方向以及转速，同时为控制系统提供闭环反馈。
关节编码器采用电感式方案，具有抗干扰、耐高温，高精度等优点。



特性

- 采用非接触式电磁感应原理
- 支持同侧双编和异侧双编
- 4.5~5.5V供电
- 最大工作温度125℃
- 采用绝对值定位方案
- 具备诊断功能
- 编码器尺寸可定制

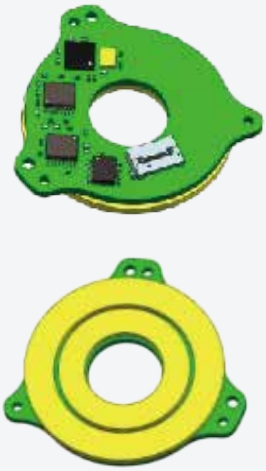
参数

编码器类型	单圈绝对值（可设计多圈绝对值）
供电电压	5±0.5V
工作电流	≤200mA
工作温度	-40℃~125 ℃
存储温度	-50℃~125 ℃
测量范围	0~360°
测量误差	±0.033°机械角度
重复定位精度	±0.005°机械角度
最高分辨率	19bit
最高转速	600000rpm （电气）
信号类型	SSi/BiSS-C/RS-422/RS-485
EMC	IEC61800-3

JOINT ENCODER

APPLICATION

The main function of the joint encoder is to accurately measure the angular position, rotation direction, and speed of the robot joint (or rotation axis), while providing closed-loop feedback for the control system.
The joint encoder adopts an inductive scheme, which has the advantages of anti-interference, high temperature resistance, and high precision.



FEATURE

- Adopting the principle of non-contact electromagnetic induction
- Support dual encoders on the same side and dual encoders on opposite sides
- 4.5~5.5V power supply
- Maximum operating temperature 125 ℃
- Adopting absolute value positioning scheme
- Capable of diagnostic function
- Encoder size can be customized

PARAMETER

Encoder type	单圈绝对值（可设计多圈绝对值）
Working voltage	5±0.5V
Working current	≤200mA
Operating temperature	-40℃~125 ℃
Storage temperature	-50℃~125 ℃
Measurement range	0~360°
Measurement error	±0.033°机械角度
Repetitive Positioning Accuracy	±0.005°机械角度
Max. resolution	19bit
Maximum speed	600000rpm （电气）
Signal type	SSi/BiSS-C/RS-422/RS-485
EMC	IEC61800-3