

AHEST

Magnetic Sensor Solution Expert

Various magnetic sensors

Hall IC

Sensor Module

Wiegand Sensor

Motor encoder

www.ahest.net

Atinu[®] AH established in 2003

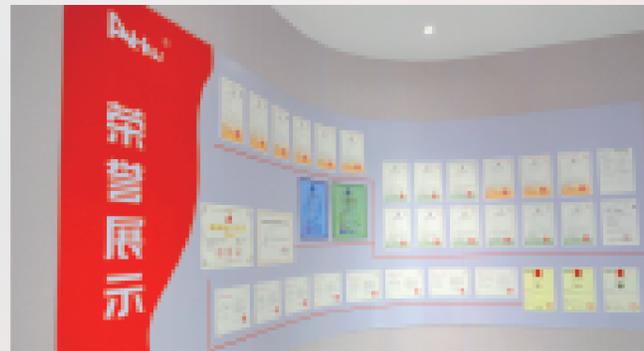
After nearly 20 years of development, the company has transformed into a high-tech enterprise with more than forty patents, and has undertaken several municipal, provincial and national projects.

The packing and testing workshop has dozens of automatic equipment, with a daily production capacity of up to 500k. The Hall ICs, which can be customized according to different users' needs, have been exported to Europe, America, the Middle East and Asia. In recent years, the annual foreign exchange revenue has been millions of dollars. In addition, the company has two other main products: sensor modules and zero power magnetic sensors. The sensor modules have been sold for tens of millions of RMB per year, and the Wiegand sensors obtained eight invention patents, two of which are U.S. patents.

As the company continues to grow, the development of its Engineering Technology Center is exceptionally striking.

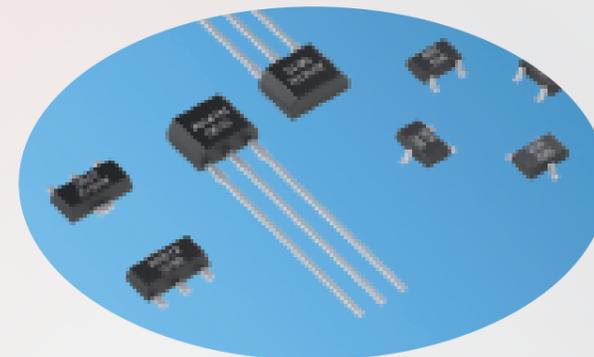
The team is composed of nearly 20 technical experts and engineers. The experiment center has professional equipments such as SMT test lines, wafer test systems, and high-resolution metallurgical microscopes, etc. There are also special self-developed equipment for precise testing during mass production.

AH Technology, taking customers as the starting point, constantly responds to the diversified challenges of the market and always provides excellent products with consistent quality.

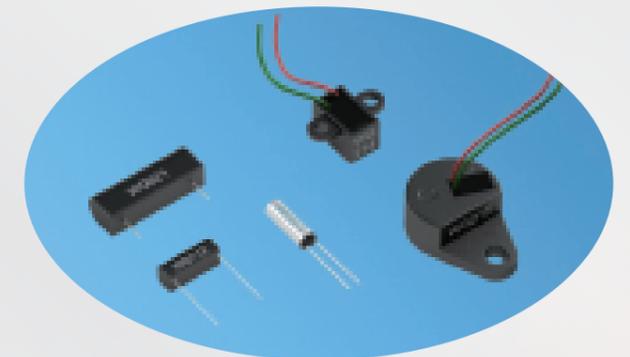


The company provides

Hall IC



Wiegand Sensor



Sensor Module



Sensor Solution



Quality Certification

The company has ISO9001 and ISO14001 certifications, and its products are developed according to RoHS and REACH requirement.



Testing Line

For Hall ICs, the company has formed a complete production process including design, testing and quality analysis.



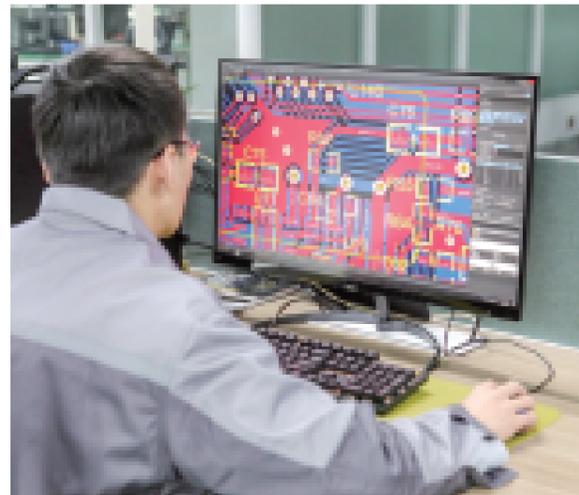
R&D Capability

The team is composed of three generations of technical experts and engineers. They are well-organized to cope with the increasing technical challenges, and provide customers with satisfied pre-sales and after-sales support.



Experiment Center

The experiment center has many professional equipments, such as SMT test lines, wafer test systems, and high-resolution metallurgical microscopes, etc.



Hall Integrated Circuit Points for Attention

Hall IC products are available in unipolar, bipolar, omnipolar, linear, and special function circuits in four different packages, TO92, TO94, SOT23-3L, and SOT89.

Type	Model	Manufacture Techniques	Output State	Package	Supply Current (mA)	Load (mA)	Operating Voltage (V)	B _{OP} (mT)	B _{RP} (mT)	B _H (mT)	Operating Temp. (°C)
Unipolar	AH3131	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	3	1.5	1.5	-40~150
	AH3132	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	4.5	2.5	2	-40~150
	AH3133	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	6	3	3	-40~150
	AH3134	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	9	5	4	-40~150
	AH3134R	Bipolar	10k pull-up	SOT23/SOT89/TO92	4	25	4.5~24	9	5	4	-40~150
	AH3144	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	15	10	5	-40~150
Bipolar	AH3145	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	22	17	5	-40~150
	AH3031	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	2.5	-2.5	5	-40~150
	AH3031R	Bipolar	10k pull-up	SOT23/SOT89/TO92	4	25	4.5~24	2.5	-2.5	5	-40~150
	AH3041	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	4.5	-4.5	9	-40~150
	AH3051	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	7.5	-7.5	15	-40~150
Omni-polar	AH3075	Bipolar	Open collector	SOT23/SOT89/TO92	4	25	4.5~24	10	-10	20	-40~150
	AH3661	CMOS	Open drain	SOT23/TO92	2.8uA	1	2.5~5.5	±4	±2.7	1.3	-40~85
	AH3662	CMOS	100k pull-up	SOT23/TO92	6.0uA	1	2.5~5.5	±2	±1	1	-40~85
	AH3663	CMOS	Open drain	SOT23/TO92	6.0uA	1	2.5~5.5	±2	±1	1	-40~85
	AH3664	COMS	Push pull	SOT23/TO92	1.0uA	1	1.65~5.5	±3	±2	1	-40~85
AH3931	CMOS	Open drain	SOT23/TO92	1.5	5	2.5~22V	±3	±1.5	1.5	-40~85	

Type	Model	Manufacture Techniques	Output State	Package	Supply Current (mA)	Load (mA)	Operating Voltage (V)	B _{OP} (mT)	B _{RP} (mT)	B _H (mT)	Operating Temp. (°C)
Complementary Output	AH4158	Bipolar	Open collector	TO94	6	500	4.5~24	10	5	5	-40~85
	AH4059	Bipolar	Open collector	TO94	6	500	4.5~24	4	-4	8	-40~85

Type	Model	Manufacture Techniques	Output State	Package	Supply Current (mA)	Load (mA)	Operating Voltage (V)	Back Bias Magnetic Flux Density (mT)	Hysteresis (mT)	Operating Temp. (°C)
Gear Sensor	AH3194	BCD	Open collector	TO92	6	10	4.5~24V	400	25	-40~125

Type	Model	Manufacturing Techniques	Output State	Package	Supply Current (mA)	Load (mA)	Operating Voltage (V)	Sensitivity (mV/mT)	Linear Area (mT)	Operating Temp. (°C)
Linear	AH3503	Bipolar	Analog output	SOT23/TO92	6	1	5	15.25	-80~+80	-40~85
	AH3513	BCD	Analog output	SOT23/TO92	6	1	5	15.25	-150~+150	-40~125
	AH3515	BCD	Analog output	SOT23/TO92	6	1	5	25.25	-76~+76	-40~125
	AH3517	BCD	Analog output	SOT23/TO92	6	1	5	31.25	-60~+60	-40~125
	AH3519	BCD	Analog output	SOT23/TO92	6	1	5	51.25	-37~+37	-40~125

Operating Condition

The supply voltage of Hall circuits should not exceed the specified VCC. Most digital Hall circuits are open collector outputs (OC outputs) and require an external pull-up resistor R_L so that the load current does not exceed the specified value. The Hall circuit and its assembled components should avoid reversing or misconnecting the operating power supply, otherwise there will be a serious risk of failure.

Operating Environment

The Hall circuit may operate in an environment where there are strong electromagnetic fields, and the presence of inductance in the load circuit leads may cause an overshoot voltage due to coupling current transients, damaging the Hall circuit. It is recommended to add a circuit module with protection around the Hall circuit, such as voltage regulation and high frequency absorption.

ESD Protection

Attention should be paid to good electrostatic protection measures during the assembly process to ensure the effectiveness of the grounding wire (grounding wire requires grounding resistance ≤ 4Ω). Production line and related tools should be well grounded. Operators should wear wired anti-static bracelets and avoid using wireless static bracelets.

Operation Detail

The mechanical stress on the chip pins can affect the performance of the Hall circuit and can damage the package in severe cases, so direct pin pulling and twisting should be avoided. The package body is made of epoxy resin, so direct pressing, prying and grinding should be avoided. If you need to pin the straight plug-in (TO92 or TO94 package), you should avoid any mechanical stress.

Assembly Process

During the assembly process, Hall circuit should be assembled by solder brazing. Resistance welding, high frequency welding and other non-brazing processes have the risk of circuit failure. SOT23-3L and SOT89 surface mount components should be assembled by SMD process, and the same risk of failure exists with wave soldering. Hall circuit will be subjected to excessive thermal stress due to the high ambient temperature thus increase the risk of failure. When soldering manually, the soldering temperature should be less than 350 degrees and the soldering time should be less than 3 seconds.

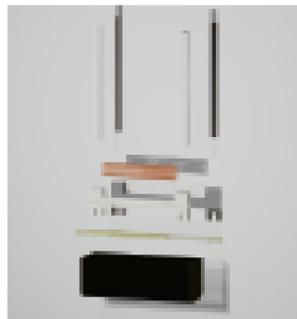
System Error

There are assembly errors in the system and dispersion in the magnet performance. Temperature variations may affect the Hall circuit, magnet and structural components. In the magnetic circuit design, the above factors should be taken into account. It is recommended that when the Hall circuit is on, the magnetic flux density should be more than 30Gs larger than the B_{OP} specified in the manual; when it is off, the magnetic flux density should be more than 30Gs smaller than the B_{RP} specified in the manual.

Wiegand Sensor

Zero power consumption sensor (also known as Wiegand sensor) is a new type of two-wire magnetic sensing device that can actively generate energy and emit sharp voltage pulse signals without an external power supply. The sensor consists of a specially processed alloy wire and an induction coil. When the sensor is in the proper alternating magnetic field, the alloy wire is periodically magnetized with the magnetic field and the induction coil synchronously outputs a group of positive and negative pulse signals.

There is no positive or negative distinction between the two leads of the sensor, and the desired pulse signal can be obtained by grounding one and connecting the other to the signal input terminal. The waveform can be clearly presented by the oscilloscope. The link pulse amplitude is related only to the excitation magnetic field strength, not the rate of magnetic field change, which can achieve "zero speed" counting detection.



Signal Type	Packing	Outer Lead	Magnetic Flux Density (mT)	Output Voltage (V)	Pulse Width (us)	Operating Frequency (Hz)	Internal Resistance (Ω)	Dimension (mm)	Operating Temp. (°C)
WG112	Epoxy potting, plastic shell	Tinned copper hard lead	5~10	≥1.5	12	10k	800	12.8×4.5×4.5	-40~125
WG113A	Epoxy potting, plastic shell	Tinned copper hard lead	5~10	≥1.5	15	10k	1000	12.8×4.5×4.5	-40~85
WG214	Epoxy potting, plastic shell	High temperature resistant soft lead	5~10	≥1.5	12	10k	850	12×7.2×8	-40~125
WG216	Epoxy potting, plastic shell	High temperature resistant soft lead	5~10	≥1.5	12	10k	1000	Refer to datasheet	-40~85
WG311	Epoxy potting, aluminum shell	Tinned copper hard lead	5~10	≥1.5	12	10k	1000	φ4×11.5	-40~125
WG314	Heat-shrink tube	Tinned copper hard lead	5~10	≥1.5	12	10k	650	φ3.3×22	-40~100
WG315	Heat-shrink tube	Tinned copper hard lead	5~10	≥1.5	12	10k	1300	φ3.3×22	-40~100
Power Type	Packing	Outer Lead	Magnetic Flux Density (mT)	Output Voltage (V)	Pulse Width (us)	Operating Frequency (Hz)	Internal Resistance (Ω)	Dimension (mm)	Operating Temp. (°C)
WG631	Epoxy potting, plastic shell	Tinned copper hard lead	8~12	≥5.0	14	1k	270	24×7×8.2	-40~125

Sensor Module

According to market intelligence and industry trend, the company has developed sensor modules for different applications, including gear sensors, gauss meters and proximity switches for the industrial field, flow sensors and magnetic switches for the home appliance, multi-series encoders for the new energy vehicle, etc.



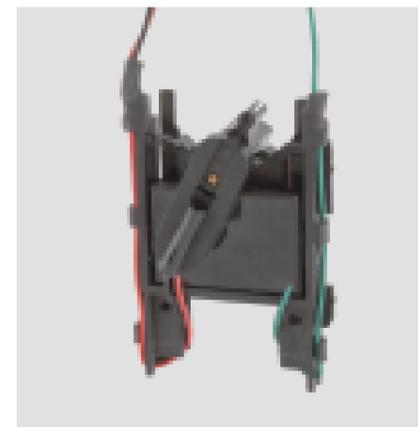
Gear Sensor



Water Flow Sensor



Gauss meter



Oil level meter



Incremental encoder



Proximity Switch



Incremental encoder

Complete Sensing Solutions Offering

With deepening cooperation with customers, the company has developed many sensor modules and complete sets of solutions, accumulated abundant design experience and experimental data in various fields, and expanded the scope of business and cooperation. These have become a new growth point for the company.



Mechatronic Control



New Energy Vehicles

Home Appliance and Smart Home



Intelligent Room



Industrial Instrument



Intelligent Warehousing



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