

Dongguan ZhengYang Electronic Mechanical Ltd.

No. 1, Donghuan 3rd Street, Jitigang, Huangjiang, Dongguan, Guangdong, China.
Post code: 523750
Tel: +86-769-8353 3290
Fax: +86-769-8366 9597
E-mail: info@kusauto.com
www.kusauto.com

KUS USA, Inc.

3350 Davie Road, Suite 203
Davie, FL 33314, USA
Tel: +1.954.463.1075
Fax: +1.954-463-1270
E-mail: sales@kus-usa.com
www.kus-usa.com

KUSAUTO Europe B.V.

Fijenhof 1, 5652 AE Eindhoven, The Netherlands.
Tel: +44-7785 782887
E-mail: europe@kusauto.com

KUSAUTO India Private Limited

RMZ Millenia Business Park, Level 6, Phase II, Campus 4B, Unit 602A,
No 143, Dr. M.G.R Road, Kandanchavady, Perungudi, Chennai
Tel: +91 865 692 5679
E-mail: india@kusauto.com

KUSAUTO India Pvt Ltd

Office No.808, 8th Floor, Amar Business Park
Sadanand Estates, Baner, Veerbhadra Nagar, Pune, Maharashtra 411045

KUS Autopartes de México S de RL de CV

Nexus MTY019, Escobedo, N.L., Mexico



TüV PED+2000, IATF 16949 and ISO 14001 International Certificate



Issue : E0AW020-01

KUS

Sensing Quality, Gauging Success.



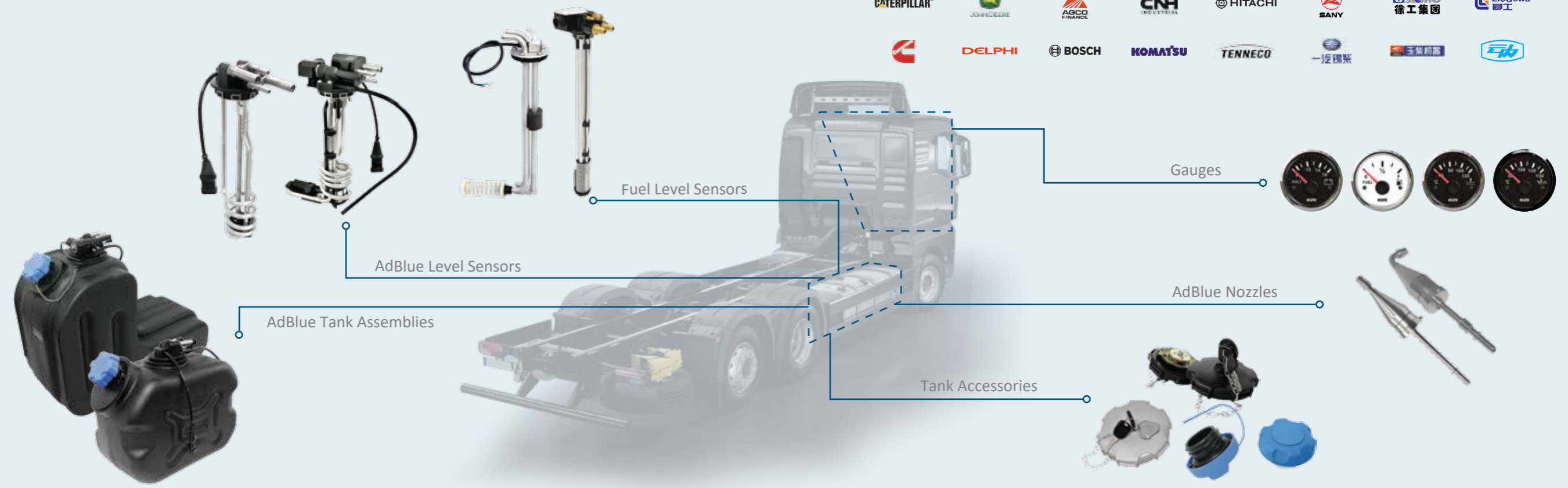
www.kus-usa.com
www.kusauto.com



Company Profile

KUS Group, founded in 1984, is recognized as the world leading designer and manufacturer of OEM parts with more than 30+ years of experience concentrated in level sensing technology. KUS Group has nearly 5,000+ employees across 12 branches/ subsidiaries companies as well as a strong R&D team, advanced laboratories, and smart factories. KUS Group has advanced production equipment and product testing methods which provide reliability for the quality and performance of our products. KUS Group has developed a variety of highly integrated DEF quality/level senders, DEF tank assemblies, fuel senders, gauges, and other related products widely used in marine, vehicle, and construction fields.

Our Customers



Content

- Environment Solutions** ----- 4
- AdBlue Sensors** ----- 5 - 8
 - U-Shaped AdBlue Sensors
 - L-Shaped AdBlue Sensors
 - Spiral Shaped AdBlue Sensors
 - AdBlue Sensors with Coolant Control Valve
 - AdBlue Sensors Without Heating Function
 - AdBlue Sensors with Rubber Head
 - Single-tube AdBlue Sensors
 - AdBlue Quality Sensors
- AdBlue Tanks** ----- 9 - 10
- Accessories** ----- 11
 - AdBlue Tank Caps
 - AdBlue Nozzles
 - AdBlue Filler Neck Accessories
 - Fuel Tank Caps
- Fuel Solutions** ----- 12
- Fuel Level Sensors** ----- 13 - 15
 - Sensors of Aluminum Type
 - Other Truck Type Multifunction Fuel Sensors
 - Heating Fuel Sensors
 - High Resolution Integrated Level Sensors
 - Sensors of Stainless Steel Type
 - Single-tube Sensor Types
 - High Resolution Capacitance Level Sensors
- Engine Sensors** ----- 16
 - Pressure Sensors
 - Mechanical Gauges
 - Temperature Sensors
 - Tacho Sensors
- Gauge Series** ----- 17 - 18
 - Integrated Gauges for Truck
 - Engineering Mechanical Gauges
 - Sea V Series
 - Sea K Series
 - Sea Q Series
- Laboratory Validation** ----- 19 - 20
- Manufacturing** ----- 21

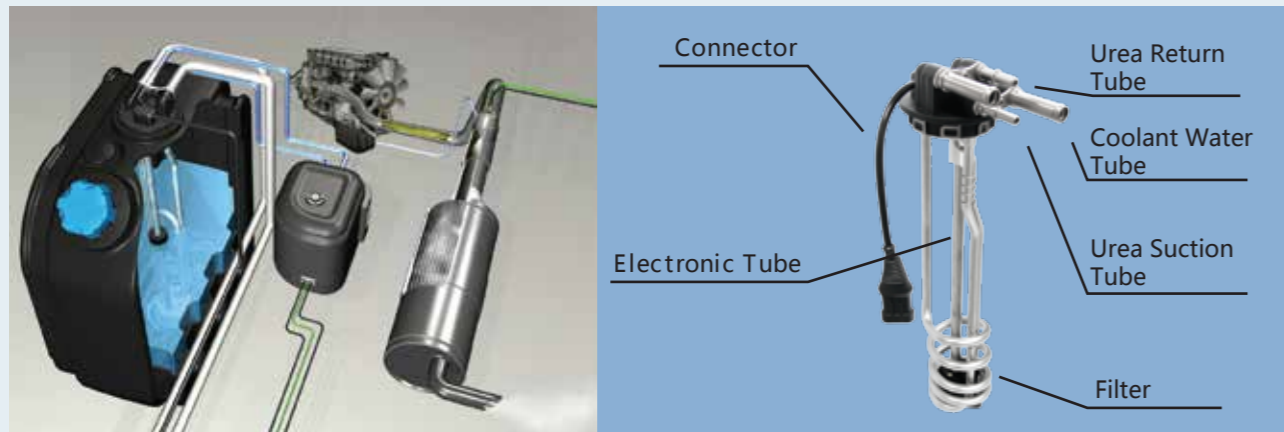
Environment Solutions

Selective Catalytic Reduction (SCR) exhaust treatment systems have been adopted worldwide to reduce air pollution and emissions from vehicles. Through the reaction of the AdBlue solution and NOx, the SCR exhaust treatment system produces harmless N2 and H2O.

To meet emission laws and regulations, KUS has developed various advanced integrated level detecting and AdBlue pickup solutions for SCR exhaust treatment systems. KUS products are used all over the world by well-known commercial vehicles and agricultural engineering manufacturers to monitor the level, quality, and storage of AdBlue with high accuracy. KUS offers professional technical support, reliable products, and services to customers all over the world.



AdBlue Level Sensors



As the world's leading manufacturer of AdBlue Level Sensors, KUS' products conform with international emission regulations of EURO IV, V, VI, EPA 2017, and Tier4 Final. KUS' products are used worldwide in SCR exhaust treatment systems for on-road and off-road machinery.

KUS' AdBlue Level Sensors have advanced integrated solutions such as high-and low-level detection and urea thawing, customization according to different requirements from OEM's and tank manufacturers, and customization that supports customer's systems to will work adequately in different climates and environments.

Advantages:

- High precision signal output
- Stable and continuous output signal
- Resistant to environmental variations
- Extended operational life
- Customizable lengths
- Multiple electrical connector options
- Custom sending unit designs based on tank design

U-Shaped AdBlue Sensors



CC8B CC8C DTK4

U-Shaped AdBlue Sensors are used in different tank sizes for customers who require more heating surface area towards the bottom of the tank.

U-Shaped AdBlue Sensors have a variety of mounting methods including bayonet with air vent or non-vented respectively.



L-Shaped AdBlue Sensors

L-Shaped AdBlue Sensors are developed for customers with large or L-shaped tanks. The L-shaped tubes extend the heating area of the AdBlue sensor which thaws the frozen liquid to ensure the SCR exhaust treatment system receives the AdBlue solution.

L-Shaped AdBlue Sensors have a variety of mounting methods including bayonet and SAE screw pattern with air vent or non-vented respectively.



EL3A TD2DR TL2A

Spiral Shaped AdBlue Sensors

AdBlue solution freezes at temperatures below 11°C which affects the normal operation of the SCR exhaust treatment system. The Spiral Shaped AdBlue Sensor is recommended for a larger heating surface area. The spiral design provides a high heating efficiency to thaw frozen AdBlue solution and allow the SCR exhaust treatment system to work normally after a cold engine start.

Spiral Shaped AdBlue Sensors have a variety of mounting methods including bayonet and SAE screw pattern with air vent or non-vented respectively.



CS9C CS8B CS9B

AdBlue Sensors with Coolant Control Valve

An integrated coolant control valve reduces the risk of leakage occurring, installation and assembly time, costs, and installation space. AdBlue Sensors with Coolant Control Valve (CCV) serve as an efficient and conveniently serviceable part.



CS8L CC8L CS8M

AdBlue Sensors Without Heating Function



AdBlue Sensors Without Heating Function are designed without coolant tubes and only have the features of high-and low-level indication with integrated suction and return tubes. The SCR exhaust treatment system does not require a heating function in warmer geographical areas.

AdBlue Quality Sensors

AdBlue Quality Sensors can accurately monitor the concentration and quality of the AdBlue solution. The quality sensor will alert the user if the AdBlue solution deviates from the acceptable concentration range and if the AdBlue solution contains any contaminated fluids in the tank.

AdBlue Quality Sensors comply with all emission laws and regulations.



AdBlue Sensors with Rubber Head



AdBlue Sensors with Rubber Head are used on narrow tanks with small sensor mounting ports and are fixed with a tightening clamp to provide easy installation and service capabilities. Suction and return coolant tubes come straight out from the head making it easier to provide a seal to the tank.

Single-tube AdBlue Sensors



Single-tube Adblue Sensors are for customers who only need basic AdBlue sensor functions. KPDA and KPDC are highly recommended for AdBlue level detection and can be used for other liquids as well.

Mounting Types:

- SAE Flange, SAE 5/6 hole, Clamps, and small and large bayonet

Quality Sensor Types:

- Ultrasonic, Thermal Conductivity, and Optical

Emission Regulation Compliance:

- Euro VI, Euro V, Tier 4 Final, and EPA 2017

Parameters:

- IP: IP6K9K
- Operating Temperatures: -40°C to +85°C
- Output Signal: CAN bus (SAE J1939) or customizable



SAE Flange



SAE Bolts



Clamping hoop



Bayonet twist lock



AdBlue Tanks



AdBlue Tanks are produced through a blow molding process using high-density polyethylene (HDPE) plastic material.

AdBlue Tanks are engineered with high impact strength and alkali-resisting performances.

According to various vehicle mounting requirements, we offer different shaped tanks and all tanks comply with ISO22241 requirements.

AdBlue Tank functions include AdBlue storage, pressure balance, and manual and automatic refilling control.

Specific types of AdBlue sensors are used in different tank shapes to be used in various applications and environments.



- KUS supplies 10L - 120L AdBlue tanks. Tank size and shape can be customized.



80L AdBlue Tank
(21 Gallons)



55L AdBlue Tank
(14.5 Gallons)



45L AdBlue Tank
(12 Gallons)



25L AdBlue Tank
(6.6 Gallons)



20L AdBlue Tank
(5.3 Gallons)



16L AdBlue Tank
(4.2 Gallons)



12L AdBlue Tank
(3.1 Gallons)



10L AdBlue Tank
(2.6 Gallons)



38L AdBlue Tank
(10 Gallons)



35L AdBlue Tank
(9.3 Gallons)



35L AdBlue Tank
(9.3 Gallons)

Tanks with extended filler neck

- Tanks designs for integrating AdBlue supply modules are available upon request
- We can integrate AdBlue pump to meet customers requirements
- Tanks are widely used on light duty vehicles

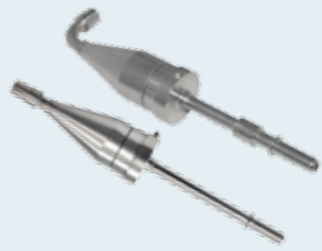


AdBlue Tank Caps



AdBlue Tank Caps are manufactured according to ISO standards and match different variations of AdBlue tanks. AdBlue Tank Caps are made from high grade engineering plastic and have excellent sealing performance and features for easy installation. AdBlue Tank Caps can be equipped with a lock and key based on customer preference.

AdBlue Nozzles



KUS is equipped with a professional R&D team and manufacturing capabilities to assist customers in developing AdBlue Nozzles.

AdBlue Filler Neck Accessories



AdBlue Filler Neck Accessories are manufactured with standard installation dimensions allowing users to match with an extensive tube in the tank. The neck body is made of high-quality stainless steel while the magnetic adapter is made of high-quality plastic. The filler neck provides high sealing performance while being resistant to weather and easy to install.

Fuel Tank Caps

Fuel Tank Caps balance air pressure between the interior and exterior of the tank and are made from engineering plastic or metal and can be equipped with a lock and key mechanism based on customer preference.



Fuel Solutions

KUS has a wide variety of solutions available for liquid level detection. We develop reliable and customized products per customers requirements by implementing our R&D capabilities. KUS sensors and gauges are recognized by world-wide OEM's for there quality and performance.



Fuel Level Sensors



KUS is recognized as the world's leading supplier of multipurpose level sensors. Every year millions of KUS sensors are installed in trucks, boats, and off-road equipment's all over the world.

Measurements are done by a series of reed switches positioned inside the level tube. The float is the only moving part of the sensor thereby minimizing potential mechanical failures. The result is a precise and reliable fuel level measurement.

Sensors of Aluminum Type



SAP

Sensors of Aluminum Type such as the SAP series are mainly used on buses or trucks. SAP sensors have suction/return pipes for engine and vehicle heating systems as well as the function of balancing the pressure of the tank with the surrounding atmosphere.

- Material: High quality aluminum alloy
- Installation: Bayonet twisted for easy assembly
- Signal Output: Resistance, voltage, current or CAN-BUS signal

Other Truck Type Multifunction Fuel Sensors



SAF



SAG



SAD

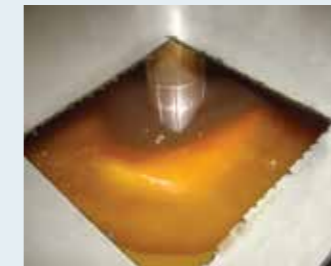


SADH

Heating Fuel Sensors

Heating Fuel Sensors such as the SPEH and SAH apply PTC heating or water heating with the option to control the temperature automatically. Combustion efficiency can be increased by 5% with a reduction to exhaust pollution. A lower fuel type can be used in the same environment thus saving costs.

PTC heating parameters:
Working Voltage Range: 18V - 32V
The Maximum Power: 200 + 20W



SPEH

SAH

High Resolution Integrated Level Sensors

High Resolution Integrated Level Sensors such as the KAB and SADR series combine multifunction's such as, measurement of liquid level, suction/return pipes for engine, vehicle heating system, balancing pressure of the tank and atmosphere, and temperature alarm.

- Main Material: High quality aluminum alloy
- Resolution: 0.1mm
- Accuracy: 2mm
- Measuring Principle: AMR, Capacitance
- Signal Output: Resistance, Voltage, CAN, SENT, RS-232, RS-485



KAB

SADR

Sensors of Stainless Steel Type

Sensors of Stainless Steel Type such as the TN series are mainly used for light trucks, construction machines, and boats. An additional suction/return pipe or air ventilation for engines can be customized. The units features easily changeable structures with short developing cycle.

Main Material: Stainless steel
Installation: SAE standard 5 holes flange or 6 holes flange, bayonet twisted is also available
Signal Output: Resistance, voltage, current or CAN-BUS signal



TN

Single-tube Sensor Types



S5 S3

S5 & S3 series are widely used in various fuel, water, and chemical tanks. With a simple yet reliable structure, starting from 4 inches, every half inch is a standard length.

- Main Material: SS 316
- Installation: SAE standard 5 holes, BSP or NPT thread.



PS5D PS5

PS5D & PS5 sensors are widely used in fuel, water, and other liquid tanks. This sensor has the advantages of being light-weight and cost competitive.



PSD SD

SD & PSD series sensors are mainly used on trucks and construction machines to measure fuel levels when they are under intense vibrations.



High Resolution Capacitance Level Sensors



CLS4 CLS2

The Capacitance Level Sensor (CLS) is used to continuously detect the fuel level by measuring the capacitance variations as the level changes.

- Sensor Length Range: 300mm~1500mm and can be customized
- Installation: SAE standard 5 holes flange, other installation methods are available
- Accessories: 5xM5 screws and 2mm thick NBR gasket. If installing on a gas tank, we recommend the optional 2mm thick FPM gasket

Engine Sensors

Engine Sensors such as pressure, temperature, and tacho along with mechanical gauges can effectively detect the pressure signal, temperature signal, speed signal, and liquid level signal of a generator.

Pressure Sensors

Pressure Sensors are controlled and manufactured under strict processes to ensure excellent quality and performance. The fitting thread and output resistance can be customized.



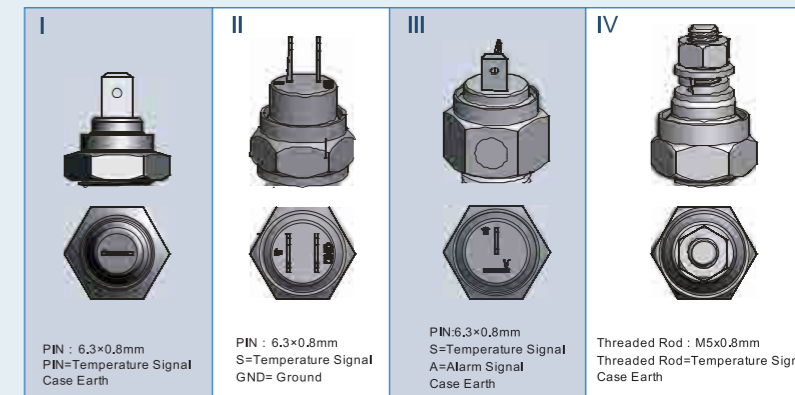
Mechanical Gauges

Mechanical Gauges integrate the features of level measuring and display without the need of electronic signal input. High and low level alarms can be added to the gauge according to customer needs. This gauge is widely used in fuel tank generators and engines but It can be used in water tanks.



Temperature Sensors

Temperature Sensors are compatible with other major gauge brands enabling customers to easily exchange sub-parts. A temperature alarm for preventing overheating can be added based on customer preference.



Tacho Sensor



Tacho Sensors are used for measuring gear rotation speed. The shell appearance, material, and thread fitting can be customized as requested. Measuring Principle: Holzer, Magnetolectric

Gauge Series



KUS has more than 20 years of experience in manufacturing gauges. Our gauges are mainly exported to Europe and the United States. KUS has received numerous acclaims in the instrumentation market for its quality and design. All of our gauges have passed strict environmental, vibration tests, and received relevant CE certificates.

Integrated Gauges For Truck

KUS has developed an integrated LCD display truck gauge panel with CAN-BUS communication function for mid-range and high-end markets. Display platform includes speedometer, tachometer, fuel gauge, temperature gauge, air pressure gauge, and warning signals. The panel is not only built beautifully, but also designed with multi-functions.



Engineering Mechanical Gauges

Mechanical gauges are widely used on loaders, rollers, graders, excavators, engineering machinery, forklift, rail cars, oil field machinery, and port machinery. CAN-BUS gauges, RS 485 BUS gauges, or analog signal gauges can be customized. Gauges have waterproof, anti-fog, and dust-proof functions. Gauges can have integrated controllers, such as vehicle lock, close gauge plate, and display various parameter and failure information.



Sea V Series

- Applicable to truck, bus, engineering machinery, and generator set
- Passed various strict tests, such as environment and vibration
- Achieved related CE certifications
- Anti-fog and reverse polarity connection protection
- Bezel Material: Stainless steel bezel, plastic bezel
- Connecting Way: Socket type connecting
- Light: Red and yellow for your option
- Display Accuracy: <math><3^\circ</math>
- Protection Grade: IP67



Sea K Series

- Applicable to truck, bus, engineering machinery, and generator set
- Passed various strict tests, such as environment and vibration
- Achieved related CE certifications
- Durability and anti-vibration performance
- Bezel Material: Stainless steel bezel, flat lens
- Connecting Way: 6.3*0.8mm terminal strip, can be assembled flexibly
- Light: Red or customized
- Display Accuracy: <math><3^\circ</math>
- Protection Grade: Surface IP67



Sea Q Series

- Applicable to truck, bus, engineering machinery, and generator set
- Passed various strict tests, such as environment and vibration
- Achieved related CE certifications
- Reverse polarity connection protection and double layer anti-fog lens
- Bezel Material: Stainless steel bezel
- Connecting Way: 6.3*0.8mm terminal strip, can be connected quickly
- Light: Red and yellow for your option
- Display Accuracy: <math><3^\circ</math>
- Protection Grade: Surface IP67





Environmental Test Laboratory



Vibration Test Laboratory



Aging Laboratory

KUS technology center was established in 2007 and accredited by CNAS in 2016. The technology center is over 1600m2 in size and is equipped with an environmental lab, vibration lab, electronics lab, aging lab, physics lab, chemical lab, and measurement center. Professional lab technicians are present and are specialized in machinery, automaton, electronics, materials, validations, and verification tests for products.

Testing capabilities include: structure validation, electric performance test, mechanical performance test, low/high temp simulation test, salt-spray test, sine/random vibration test, metal material elemental analysis, metallurgical analysis, and intergranular corrosion analysis.

Our policy on quality is “strengthening the brand, expanding the market share, guaranteeing the product quality, and improving working efficiency.” KUS products are well-known in both domestic and global markets and include but are not limited to AdBlue sensors, Fuel sensors, AdBlue tanks, and gauges.

- Each batch of raw materials is tested in our laboratory to ensure the materials meet the quality standards of KUS products
- Technical support during the entire manufacturing process guarantees the reliability and stability of KUS products
- Comprehensive technical support in new product development phase is used to ensure KUS products are able to perform adequately in a variety of environments.



X-ray Laboratory



Measurement Center



Lifetime Test Laboratory



Chemical Laboratory



Physics Laboratory



Stamping



Pipe Forming



SMT



Wave Soldering



CNC Machining

KUS is vertically integrated with various production processes and equipment's: German TÜV certified tube manufacturing line, more than 40 sets of injection machines, over 100 sets of CNC machines, advanced blow molding machine, high quality brazing line, automatic SMT, and high-performance automatic soldering. KUS has more than 95% of the key parts made in-house and achieves the manufacturing capabilities of a coordinated process from raw material processing to final assembly.

Our state of the art process and flexible manufacturing capabilities ensure reliable product quality and on time delivery to meet customers' expectations.

Quality Assurance

Imported aluminum, plastic, and stainless steel material.

Price Assurance

Product accessories such as tubes and machining parts are manufactured in-house.

Delivery Assurance

Systematized management, machining, and serial assembly lines.

KUS has built several high end electronic manufacturing workshops to assemble products. A combination of advanced processes and strict quality systems ensure the optimal quality and performance of our sensors and gauges. All of our products are tested for functionality under extreme environment conditions.

KUS provides customers with many process parts including but not limited to various rubber, metal, and plastic parts. KUS uses advanced production equipment and processes to create its high quality raw materials thus ensuring KUS components are manufactured with excellent quality.

KUS has more than 100 people specialized in tooling design and manufacturing. The majority of our production tooling's are designed and manufactured in-house, including but not limited to plastic, stamping, die-casting, and rubber tooling. In addition, KUS can produce rapid-prototypes for new projects to accelerate the development of a new product.



Electronics Plug-in



Brazing



Rubber Mixer



Blow Molding



Injection Molding



Tooling Manufacturing