

Custom Sensors & Technologies (CST) (Worldwide Headquarters):

14401 Princeton Avenue, Moorpark, CA 93021, United States - Tel: (805) 552 3599 - Fax: (805) 552 3577 - www.cstsensors.com

China

Custom Sensors & Technologies (CST)

11th floor, Chang Feng
International Tower,
89 Yunling Road (East),
Putuo District,
Shanghai 200062
CHINA
Tel: +86 (21) 6065 6888
Fax: +86 (21) 6065 7749
Email: china@cstsensors.com

East Asia Pacific

Custom Sensors & Technologies (CST)

Tel: +86 (21) 6065 6333
Fax: +86 (21) 6065 7749
Email: taiwan@cstsensors.com
eap@cstsensors.com

Korea

Custom Sensors & Technologies (CST)

14F, Kbiz DMC Tower,
189, Seongam-ro, Mapo-gu,
Seoul 121-904,
SOUTH KOREA
Tel: +82 (2) 2629 8312
Fax: +82 (2) 2630 9800
Email: korea@cstsensors.com

India

Custom Sensors & Technologies (CST)

4th Floor, Trident Tower
#23, 100 Feet Ashoka Pillar Road
2nd Block, Jayanagar
Bangalore - 560011
INDIA
Tel: +91 (80) 41132204/05
Fax: +91 (80) 41132206
Email: india@cstsensors.com

Brazil

Custom Sensors & Technologies (CST)

Alameda Rio Negro
1030 cj. 1803
Barueri
SP - 06454-000
BRAZIL
Tel: +55 (11) 2505 7500
Fax: +55 (11) 2505 7507
Email: brasil@cstsensors.com



Sensing and Control Products for Off Highway Vehicles



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BEI SENSORS

CROUZET
SWITCHES

crydom

KAVIEM
Pressure Sensors



Custom Sensors & Technologies

Custom Sensors & Technologies (CST) is a specialist in designing and manufacturing sensing, control and motion products.

Through its brands, BEI Kimco, BEI Sensors, BEI PSSC, Crouzet, Crydom, Kavlico, Newall and Systron Donner Inertial, CST offers customizable, reliable and efficient components for mission-critical systems in Aerospace & Defence, Transportation, Energy & Infrastructure, Medical, Food and Beverage and Building Equipment markets.

Focused on premium value offers and committed to excellence, CST, with 4,500 employees worldwide and sales of \$600 M US in 2013, is the dependable and adaptable partner for the most demanding customers.

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CST for Off Highway Vehicles

The need for high reliability and safety in extreme operating conditions characterises the Off Highway Equipment Industry. Dust, heat, humidity, shock and vibration make this a highly demanding environment.

At the same time, just-in-time deliveries, diversity of vehicles productivity, and cost optimization are permanent challenges for manufacturers.

Custom Sensors & Technologies (CST), specialist in designing and manufacturing sensing, control and motion products, offers an extensive range of robust and proven design products that meet dedicated design requirements for a wide range of Off Highway related applications.

Earth Moving and Construction Equipment

- Wheel Loaders
- Paving Machines
- Auger Drills
- Soil/Asphalt Compactors
- Excavators
- Wheeled Skid Loaders
- Backhoes

Materials Handling

- Cranes
- Forklifts
- Automotive Hydraulic Lifts
- Tower Cranes
- Gantry Cranes

Specialist Vehicle

- Fire Engines
- Garbage Trucks
- Snowgroomers
- Transporters

Agricultural and Forestry Equipment

- Telehandlers
- Harvesters
- Forestry Machines
- Tractors

Our brands for OHV



BEI SENSORS

Specialist in speed and position sensing technology: Hall effect Angular Sensors, Angular and Linear Potentiometers, Magnetic and Optical Rotary Encoders

www.beisensors.com



CROUZET SWITCHES

Specialist in snap-action and non-contact switching technology: Microswitches, Limit Switches, Trim Switches and Proximity Sensors

www.crouzet.com



crydom

Specialist in solid state switching technology: Solid State Relays, Solid State Contactors, I/O Modules, Power Modules and Accessories

www.crydom.com



KAVLICO Pressure Sensors

Specialist in pressure technology: Pressure Sensors, Fluid Level Sensors, Specialty Sensors

www.kavlico.com



Robust designs
based on application experience

Safety
designed and built to meet the most demanding standards

Adapted solutions
for easy integration



A Arms, Outside mechanisms: Position detection
Miniature Limit Switches with metal housing (IP66/IP67/IP69K)

- Resistant to extreme conditions of corrosion, dust and mud
- Very high resistance to vibration: up to 50g's
- Operating temperature -50/+250°C

CROUZET SWITCHES

B Reverse gear signal, Door switch: Position detection
Precision Limit Switch with metal housing (IP66/IP69K)

- Low profile housing
- Precise setting by threaded barrel (1mm pitch)
- Cable output with optional connector

CROUZET SWITCHES

C Seat: Driver presence detection
Miniature Limit Switch (IP67/IP69K)

- Ratings from 1mA to 8A: allow direct control of the equipment
- Long overtravel for reliable operation
- Lead or cable output

CROUZET SWITCHES

D Dashboard: Implement motion control
Panel Potentiometer

- Long service life
- High level of sealing
- Consistent rotational torque

BEI SENSORS

E Load: Scoop/bucket position
Linear Potentiometer

- In-cylinder installation
- Excellent level of resistance to high operation temperature and high pressure
- Long service life

BEI SENSORS

F Steering: Wheel angle measurement
Magnetic Encoder

- Compact and robust design
- Wide operating temperature
- Redundant output options
- Functional safety certifications (SIL3/PLe)
- Absolute mechanical multi-turn

BEI SENSORS

G Diesel engine: Pressure measurement
Pressure Sensor for engine and hydraulic applications

- Field proven design
- Reliable technology
- Highly customizable

KAVIOP Pressure Sensors

H Oil tank: Level measurement
Oil level Sensor

- High precision level measurement
- Broad fluid types compatibility
- Multiple mounting and electrical connection option
- Fully submersible in fluid

KAVIOP Pressure Sensors

I Hydraulic system: Pressure measurement
Oil Pressure Sensor

- High pressure ranges available
- Media isolated
- Stainless steel sensing diaphragm
- Hermetically sealed

KAVIOP Pressure Sensors



Safety
designed and built to meet the most demanding standards

Tailor made
designs for easy integration

Robust designs
based on application experience

Complete range
for all design needs



A **Tiller head: Control buttons**
Subminiature Microswitch (IP67)

- Ratings from 1mA to 10A
- Long life: up to 5 million cycles
- Extensive range of terminals and levers
- High resistance to shocks and vibration

CROUZET SWITCHES

B **Fork: Position detection**
Compact Limit Switch with metal housing (IP66/IP67/IP69K)

- Wide range of operating devices
- Custom options: special cables, connectors,
- Integrated diagnosis function for increased safety

CROUZET SWITCHES

B **Fork: Position detection**
Hall effect non contact Angular Sensor

- Resistant to high shock and vibration
- High level of sealing
- Single or dual outputs
- Numerous active electrical angles and termination options

BEI SENSORS

C **Seat: Driver presence detection**
Miniature Microswitch with positive opening action

- Large choice of terminals
- Extensive range of standard and custom levers
- Optional wiring with cable and connector

CROUZET SWITCHES

D **Steering: Wheel angle measurement**
Hall effect hollow shaft Angular Sensor

- Low profile, through hole package
- High tolerance to shock and vibration
- Dual output

BEI SENSORS

E **Port gantry crane: Position detection**
Optical Rotary Encoder

- Compact and robust design
- Wide operating temperature
- Redundant output options

BEI SENSORS

F **Fan, Buzzer: On/Off switching**
Solid State Relay

- Frequent switching with long life cycle
- Minimum control current
- High resistance to shock and vibration
- Compact size

crydom

G **Hydraulic system: Pressure measurement**
Oil Pressure Sensor

- High pressure ranges available
- Media isolated
- Stainless steel sensing diaphragm
- Hermetically sealed

KAYLIS Pressure Sensors

H **Tilt measurement: Oil Dielectric Sensor**

- Variety of angular ranges
- Excellent shock & vibration tolerance
- Superior repeatability / hysteresis

KAYLIS Pressure Sensors



Reliable

proven designs based on experience

Tested to extremes

humidity, mud, vibration, shock, temperature

Tailor made

to meet highly specific needs



A **Rear steering: Wheel angle measurement**
Single turn Absolute Encoder

- High accuracy
- Shock and vibration resistance
- Highly sealed

BEI SENSORS

B **Cabin doors: Detection of closed position**
Self adjusting door Switch

- Patented auto-tuning function
- Extra-long overtravel to absorb large play up to 20mm
- Panel snap mounting
- Ratings from 1mA to 12A

CROUZET SWITCHES

B **Flaps, Shutters: Position detection**
Precision Limit Switch with metal housing (IP66/IP69K)

- Low profile housing
- Plunger with protection boot
- Precise setting by threaded barrel (1mm pitch)
- Roller plunger variants

CROUZET SWITCHES

C **Arms, Outside mechanisms: Position detection**
Limit Switch for harsh environment (IP66/IP67/IP69K)

- Easy adjustment by threaded barrel
- Custom options: thread-locker pre-coated barrel, plunger with ball

CROUZET SWITCHES

D **Ladder: Extension & rotation**
Single turn absolute Encoder

- High accuracy
- Shock and vibration resistance
- Highly sealed

BEI SENSORS

E **Remote panel: Throttle adjustment**
Panel Potentiometer

- Long life
- High level of sealing
- Consistent rotational torque

BEI SENSORS

F **Exhaust gas: Aftertreatment**
Differential exhaust gas Pressure Sensor

- Resistant to harsh environments
- Excellent long term stability
- Customizable connection hoses and tubes

KAVIJO Pressure Sensors

G **Loading tail-lifts, Hydraulic platforms: On/Off Motor Switching**
Solid State Contactor

- Lower control current
- Long life cycle
- High resistance to shock and vibration
- Soft-start & soft-stop functions

crydom

H **Hydraulic system: Pressure measurement**
Oil Pressure Sensor

- High pressure ranges available
- Media isolated
- Stainless steel sensing diaphragm
- Hermetically sealed

KAVIJO Pressure Sensors



Robust designs
based on application experience

Precision
technologies adapted for use in harsh environments

Tested to extremes
humidity, mud, vibration, shock, temperature

Tailor made
to meet highly specific needs



A **Brake & clutch pedal: Position detection**
Limit Switch for harsh environment (IP66/IP67/IP69K)

- Easy adjustment by threaded barrel
- Custom options: special cables, connectors, thread-locker pre-coated barrel, plunger with ball

CROUZET SWITCHES

B **Instrument panel, Grips: Controls**
Trim Switch

- 2, 4 or 5 way
- 1 or 2 poles. Single or separate common
- Ratings from 1mA to 2A
- Extensive range of buttons
- Waterproof option

CROUZET SWITCHES

C **Hopper: Detection of arm opening**
Compact Limit Switches with metal housing (IP66/IP67/IP69K)

- Wide range of operating devices
- Special stainless steel range for extreme conditions: chemicals, corrosion, vibration...

CROUZET SWITCHES

A **Brake & clutch pedal assembly: Pedal position detection**
Hall effect Angular Sensor

- High level of sealing
- High accuracy
- Single or dual outputs
- Numerous active electrical angles and termination options

BEI SENSORS

D **Hydraulic system: Pressure measurement**
Oil Pressure Sensor

- High pressure ranges available
- Media isolated
- Stainless steel sensing diaphragm
- Hermetically sealed

KAVIJO Pressure Sensors

E **Exhaust gas: Aftertreatment**
Differential exhaust gas Pressure Sensor

- Resistant to harsh environments
- Excellent long term stability
- Customizable connection hoses and tubes

KAVIJO Pressure Sensors

F **Seat: Driver presence detection**
Cushion depression Sensor (IP67)

- Adapted sensitivity
- Under padding mounting
- Custom option: integrated diagnosis function for increased safety

CROUZET SWITCHES

G **Implement: Header Height Control**
Hall effect Angular Sensor and Angular Potentiometer

- Low profile
- High level of sealing
- Long service life

BEI SENSORS

H **Steering wheel: Angle measurement**
Hall effect Angular Sensor and through shaft Optical Encoder

- Low profile
- High level of sealing
- Robust package

BEI SENSORS

Commitment

Quality

Integrity

Premium

Reliable partner

Advanced technologies

Certification

Quality and Reliability

Custom Sensors & Technologies (CST) is a specialist in designing and manufacturing sensing, control and motion products. It is the most reliable partner to offer efficient solutions in demanding segments such as Off Highway Vehicles, Nuclear, Oil & Gas, Mining...

CST offers reliable products for mission-critical systems:

CST products are robust and designed to withstand extreme conditions and harsh environments

- We offer highly sealed products (from IP 65 to IP69K: humidity, dust, mud, salt...), capable to resist high level vibrations and impacts (IK07)
- Most of our products are characterized by a long mechanical service life (up to 10 million cycles), resistance to shock and extreme operating temperatures (from -55 to +250 °C)
- Our products have an excellent accuracy and repeatability levels
- Our products are manufactured under the most demanding quality standards (ISO 9001, AS9100C ATEX)

A proactive and interactive organization:

CST provides highly qualified and experienced engineering teams able to propose advanced technologies and solutions. The commercial and after sales support teams are involved in all the stages of the project lifecycle from specification, feasibility, development, prototyping, qualification, and optimized logistics.

Quality, fundamental to CST's premium ambition:

The CST Quality System is designed to meet the most demanding certifications and to respond efficiently to customers' requirements.

Strong certification policy:

All CST manufacturing facilities are ISO 9001 certified. In addition to this basic certification, each brand complies with the highest industry specific certification requirements for each of its targeted segments (Off Highway, Aerospace, Nuclear, Oil and Gas...).

Continuous improvement:

CST is committed to designing, developing and providing products and / or services that meet customers' requirements.

The CST Quality System relies on a strong investment in continuous improvement using well known supporting tools, Design of Experiments and methods like Six Sigma, Shainin, Lean Manufacturing.

Trade compliance system:

CST is a true international partner, not just due to its worldwide presence, but through its commitment to a world class trade compliance system. Well versed in international import and export regulations and applicable laws for both commercial and military contracts, CST strives to ensure that shipments both to and from our international trade partners move quickly and efficiently across borders.

Our commitment to supply chain integrity and logistics means products are in trusted hands for all customers that do business with CST.