# Sensata
## Technologies

# | SENSATA'S SOLUTIONS FOR LIFT TRUCKS

## WE HELP ENGINEERS TAKE THEIR DESIGNS TO THE NEXT LEVEL

Our experts work closely with engineers on four continents to make material handling equipment safer and easier to use - with both electric and IC-driven models. Those collaborations have resulted in a host of advanced sensing technologies, including heavy-duty designed joysticks with proven Hall effect sensing technology, SIL3/PLe encoders for functional safety controls and sealed contactors to withstand inrush currents and demanding environments.

**CABIN CONTROL**

**STABILITY CONTROL**

**ELECTRICAL PROTECTION AND BATTERY MANAGEMENT**

**IC ENGINES**

**TELEMATICS AND SAFETY**

Sensata manufactures and supplies a wide variety of sensors and controllers for heavily loaded fork-lift trucks and fast narrow aisle vehicles, manned, driverless or partially autonomous.  Our products provide accurate and reliable control over movement, stability, telematics, collision avoidance and positioning in order to achieve maximum performance and safety levels.

www.sensata.com

## CABIN CONTROL

**Joystick Bases and Multifunction Grips**
- Configurable and fully custom grip options
- Varied rocker placements
- Soft-touch over molding for premium feel and comfort

**Rockers (AR3, SR3, AR5)**
- Hall effect (contactless) sensing
- Optional second sensor for redundancy
- Short circuit protection
- Discrete or proportional control

**Armrest (Custom)**
- Highly customizable
- Combination of switches, grips, joysticks and rockers
- Improve vehicle performance, efficiency and safety

**Steering Encoder (DH05)**
- High accuracy and resolution
- Withstanding high shock and vibration level
- Longer life expectancy

**Pedal Position (9810)**
- Mechanical rotation 120°
- 5M cycles mechanical life
- Working temperature -40°C +135°C

## INTERNAL COMBUSTION ENGINE

**Oil Pressure (6xCP)**
- Enhanced accuracy over wide operating range
- Exceptional shake and vibration tolerance
- Overvoltage and reverse polarity protection

**Fuel Tank Pressure Switch (20PS)**
- Automatic reset
- Hermetically sealed sensor
- Up to 55 Bar

**Filter Pressure (DPF)**
- Differential Pressure Sensor 0-100kPa
- Increased robustness in harsh exhaust gas envir.
- Working temperature -40°C +125°C

**Exhaust Gas Temperature (HTS)**
- High temperature sensor 850°C
- Helps reduce emissions
- Protection against overheating

## ABOUT SENSATA TECHNOLOGIES

Sensata Technologies is one of the world's leading suppliers of sensing, electrical protection, control and power management solutions with operations and business centers in twelve countries. Sensata's products improve safety, efficiency and comfort for millions of people every day in automotive, appliance, aircraft, industrial, military, heavy vehicle, heating, air-conditioning and ventilation, data, telecommunications, recreational vehicle and marine applications.

## ELECTRIFICATION AND BATTERIES

**Traction, Charging and Battery Protection (Gigavac Contactors)**
- High degree of configurability eases system integration
- Hermetically sealed contactors allow higher fault interrupt capability and better thermal performance than "open air" contactors
- Voltage ratings from 12Vdc to 1500Vdc for current carry up to 1000Amps

**Battery Management Systems (i-BMS, c-BMS)**
- i-BMS: cost effective all-in-one BMS with integrated switches and current sensor up to 140A, 17 – 60 V
- c-BMS: centalized BMS with compact design and flexible current capability up to 1000A, 12 – 100 V
- Parallel pack & battery hot swap support
- Advanced SOC, SOH, SOP, and SOE algorithms for unmatched precision

## STABILITY CONTROL

**Load Weight PTE7100**
- Up to 8700 PSI (600 Bar)
- Compact Size
- Stainless steel and hermetically sealed

**Tire Angle Position (9960)**
- Single or dual output
- 360° capability
- IP69K sealing

**Steer Axle, Reach & Tilt Position (9810)**
- Mechanical rotation 120°
- 5M cycles mechanical life
- Working temperature -40°C +135°C

## TELEMATICS AND SAFETY

**Speed and Direction Control- SIL3 Encoder (DSM5H)**
- Usable up to SIL3 and Cat.4 / PLe according to IEC 61508 / EN ISO 13849a
- Suitable for safe motor feedback according to IEC 61800-5-2
- Digital TTL/RS422 or HTL or sine/cosine 1Vpp output

**KP2 Video Telematics Device**
- 2-in-1 video/telematics device with Automatic Driver Assist System (ADAS) features and innovative modular design
- Plug-and-play design enables lightning-fast self-installation
- ADAS provides real-time natural language safety alerts to operators

**XC3700 Fleet Telematics Device**
- Full range of CANbus data, SDK features, and variety of interfaces
- Available with 2G/3G, LTE-M, and Cat1 (Global)
- Remote tachograph data download

**PreView® Blind Spot Monitoring Systems**
- Rugged, reliable object detection technology designed for industrial environments
- Ability to customize detection zone (range and width) onsite
- Available in-cab LED displays for operator alerts