



KONGSBERG
AUTOMOTIVE

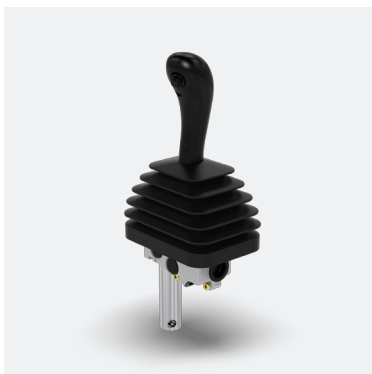
Enhancing the driving experience

Product Catalog

Driver Interface Off-Highway



Global R&D
& test capabilities



Global manufacturing
& supply base



A lifetime of service and support

Kongsberg Automotive provides world-class products to the global vehicle industry. Our products enhance the driving experience, making it safer, more comfortable and sustainable.

Kongsberg Automotive's business has a global presence. With revenues of around EUR 1 billion and over 10,000 employees in 18 countries, Kongsberg Automotive is truly a global supplier to the passenger car and commercial vehicle industries. The company is headquartered in Kongsberg, Norway, and has 30 production

facilities worldwide.

The product portfolio includes seat comfort systems, driveline related systems, fluid assemblies, and industrial driver-interface products developed for global vehicle manufacturers.

Kongsberg Automotive is organized into four business areas, Interior & Driveline with a focus on the automotive industry and Fluid Transfer & Driver Control focusing on the industrial / commercial vehicle markets.



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CHINA
Shanghai (Lonestar)
Shanghai (SKADFM)
Wuxi

JAPAN
Tokyo

KOREA
Yangsan

PEDAL SYSTEM

MT SERIES MECHATRONIC PEDAL SYSTEM WITH vSENSE™ TECHNOLOGY

PEDAL TECHNOLOGY

The Kongsberg Automotive Mechatronic Throttle Pedal system provides unsurpassed reliability at virtually any load and seamless installation in nearly any configuration. This unique Kongsberg Automotive design features perfect hysteresis with a very effective self dampening design that is always exerting the same return pressure. The innovative, self-adjusting dampening mechanism and a composite, corrosion resistant pivot shaft are the key ingredients for the pedal's consistent performance in any environment or at any stage of its cycle life. The MT Series pedals feature the vSENSE™ Hall effect sensor which offers significant advances over traditional sensor design. It has no rotary seal to allow ingress of moisture and there is no direct contact among components to create wear. The combination of the innovative mechanical design and sensor provides a pedal system that meets or exceeds the harshest operating environments.

ADJUSTABLE PEDAL SYSTEMS

Designed specifically for the heavy vehicle market, the patented Kongsberg Automotive adjustable pedal systems have set a new standard for operator comfort, convenience and control. Precision engineered and rigorously tested for performance and durability, these adjustable pedal systems have demonstrated proven reliability as OEM standard or optional equipment on school buses, RVs and Class A truck applications. Once the seat and steering wheel are positioned, just the touch of a button allows operators to easily adjust throttle and brake pedals to the optimal position for comfort and safety. The suspended and floor mounted adjustable pedal systems provide up to 3 inches of travel, for maximum flexibility. The adjustment is power operated at the touch of a button and is fully adjusted in just seconds. Its linear motion keeps pedal height constant through the adjustment range.

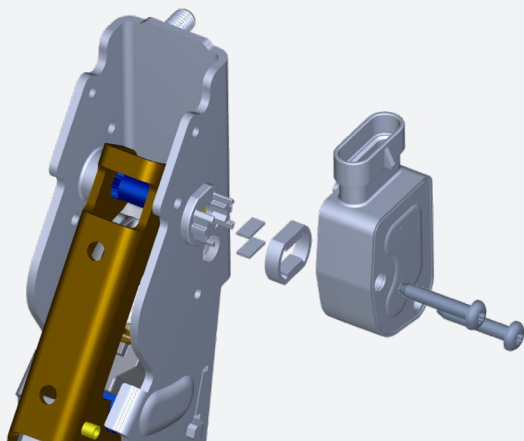
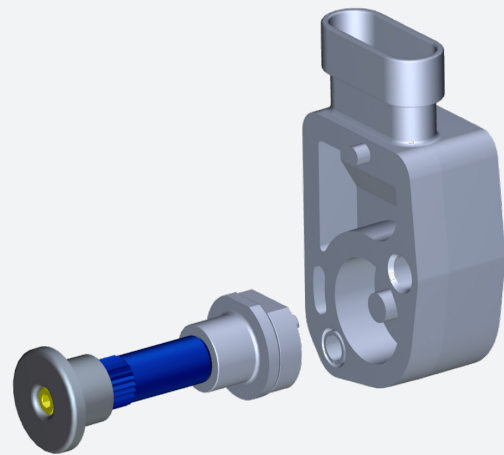


PRODUCT SPECIFICATIONS

The Kongsberg Automotive solution is to separate the input shaft from the sensor.

The pedal pivot shaft takes on the role of the sensor input shaft.

The sensor has direct drive from the pedal shaft.



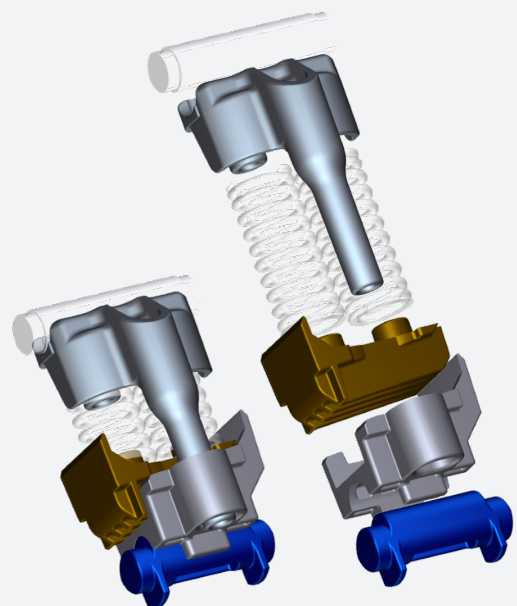
Separating the sensor completely from the shaft offers the following advantages:

- No sealing of the sensor is required
- No bearing surface of the sensor is required
- No difficult phasing to the movement is required
- Sensor is completely independent & hermetically sealed
- Sensor has no moving parts at all

Mechanical pedal hysteresis is provided by a sliding wedge acting under the compression spring pressure.

The characteristic is maintained over time since the design compensates for any mechanical wear over lifetime when operated in extreme environmental conditions.

Patented design.



XT3000 SERIES MECHATRONIC THROTTLE PEDAL SYSTEM WITH vSENSE™ TECHNOLOGY

The Kongsberg Automotive XT3000 series pedal systems offer easy installation for agricultural pedal applications requiring long reach and offset arm geometry and provide unsurpassed reliability regardless of the treadle location.

The mechatronic pedal features the vSENSE™ non-contact sensor with patent-pending technology, configurable for analog output or electronic switches. Built to exceed all applicable industry standards and requirements, this rugged pedal and sensor system can withstand extreme off-road environments while ensuring precise control and superior performance.

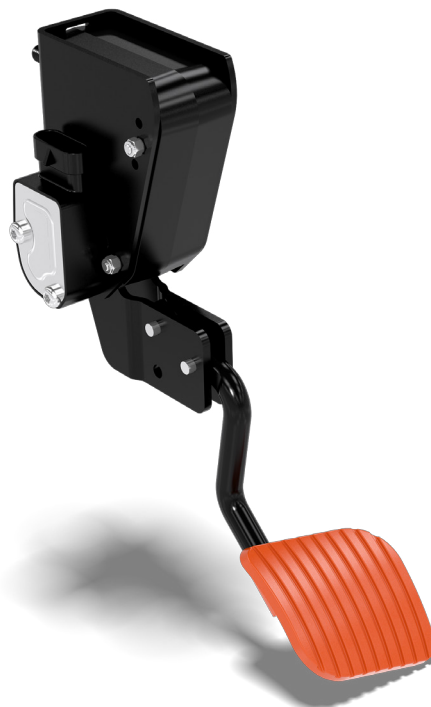
The XT3000 pedal benefits from Kongsberg Automotive's unique 'direct-drive' of the sensor, providing enhanced reliability in all environments. With no moving parts to wear over time, the vSENSE™ sensor sets a new standard for accuracy and durability, exceeding IP67 seal rating by performing under dynamic rather than static conditions.

FEATURES & BENEFITS

- Allows for "clean floor" access to the vehicle cab
- Up to 250mm treadle offset
- Up to 350mm treadle reach
- Integrated M8 mounting studs
- Unique hysteresis element design provides smooth, predictable and comfortable operator control

OPTIONS

- Customised arm geometry, tooling charge apply
- Kickdown
- Sensor output
- Sensor connection
 - Integrated Metripack 150
 - Customized connectors on flying leads



MT SERIES

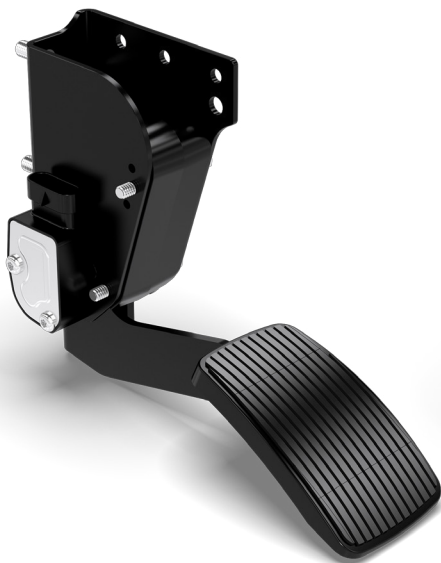
FEATURES & BENEFITS

- Innovative modular design allows for ease of installation regardless of application or configuration
- vSENSE™ Hall effect non-contact sensor provides position sensing and switching accuracy and reliability
- Fully user customizable to fit a wide range of applications
- MT5000 Integrated standard M6 side mounting nuts
- MT5000/6000 Allows for “clean floor” access
- MT5000/6000 Exceeds 350lb download
- MT6000 Integrated mounting studs for through-wall mounting
- MT7000 Easy access mounting
- MT7000 Pinch free heel design prevents intrusion of debris that could interfere with pedal movement
- MT7000 Equipped with solid composite treadle with patterned surface to minimize foot slippage

OPTIONS

- Connector Type
- Kick Down
- Wide or narrow treadle
- Sensor Output
 - Standard Integrated Metri Pack Connector
 - Customized Connectors and Leads
- MT5000 Integrated mounting studs for through-wall mounting
- MT7000 Rubber Pedal Cover

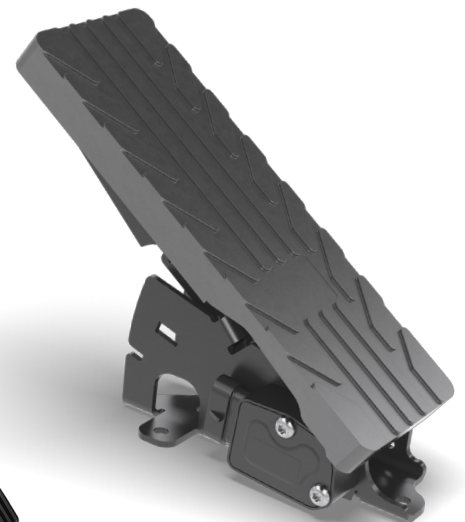
MT 5000 SUSPENDED LOW PIVOT



MT6000 SUSEPENDED PIVOT



MT7000 FLOOR



ER8000 ELECTRONIC ROCKER PEDAL WITH vSENSE™ TECHNOLOGY

The Kongsberg Automotive ER8000 series pedal systems offer easy installation for any off-highway vehicle application requiring an electronic pedal with a bi-directional, 'rocker' type of action.

The mechatronic pedal features the vSENSE™ non-contact sensor with patent-pending technology, configurable for analog output or electronic switches. Built to exceed all applicable industry standards and requirements, this rugged pedal and sensor system can withstand extreme off-road environments while ensuring precise control and superior performance.

The ER8000 pedal benefits from Kongsberg Automotive's unique 'direct-drive' of the sensor, providing enhanced reliability in all environments. With no moving parts to wear over time, the vSENSE™ sensor sets a new standard for accuracy and durability, exceeding IP67 seal rating by performing under dynamic rather than static conditions.

FEATURES & BENEFITS

- A robust design ideally suitable for demanding off-highway pedal applications requiring a rockertype action
- Quadruple compression spring design ensures complete reliability and constant pedal forces over the vehicle lifetime
- Unique hysteresis element design provides smooth, predictable and comfortable operator control
- vSENSE™ Hall effect non-contact sensor provides position sensing and switching accuracy and reliability
- Fully user customizable to fit a widerange of applications
- Up to $\pm 12^\circ$ pedal travel from the central rest position
- Easy mounting to the cabin floor
- Composite end caps prevent intrusion of debris
- Unique design ensures smooth operation over lifetime, without reeplay or noise

OPTIONS

- Allows easy fitment of custom treadle geometry, if required
- Sensor output
- Sensor connection
 - Integrated Metripack 150
 - Customized connectors on flying leads





Enhancing
the driving
experience

STEERING COLUMNS

PRODUCT DESCRIPTION

Kongsberg Automotive offers a full range of fixed, tilt and telescopic steering columns, designed to withstand the most challenging environments for off-road vehicles. With our unique modular design, all columns provide best-in-class ergonomic working conditions for the driver.

BENEFITS

- Fully developed, tooled up and validated concepts
- High component commonality, enables short lead time on launches and modification
- Minimal capital and design investment
- Unique modular design
- Our steering column range enables best-in-class ergonomic working conditions for the driver
- Highly experienced engineering and manufacturing team with over 20 years of market & product knowledge

Kongsberg Automotive offers completely tailored steering columns from our modular system according to customer specifications with full in-house design, development and validation services.

FEATURES

- KA's unique modular, self-supported designs
- Modular building blocks for tilt and telescope functions
- Variable steering column length
- Variable position of tilt and telescope
- Variable angles for tilt function and step in and step out positions
- Tilt locking system, incremental or infinity locking
- Telescope function with infinite positioning, low or high telescope positions
- Compatible with all types of steering wheel connections
- Single hand lever, foot pedal or cable operated release
- Compatible with all types of hydraulic pump interfaces
- Vibration damping systems
- Optional driver control modules, switches, horn module, covers and displays



STEERING COLUMN RANGE SUMMARY



F 100



T200



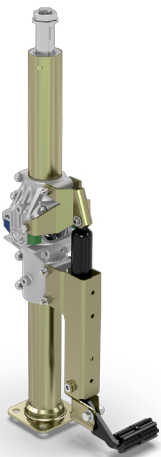
T350



T400



T425



T450



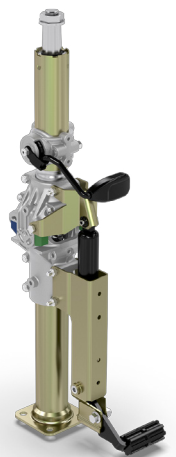
TT550



TT600



TT700



TT750



XT850



XT950



XT1050



TT600



XT1050M

MECHANICAL HAND CONTROLS

DA4000 - DUAL AXIS CONTROL

The DA4000 is used to remotely operate two hydraulic valves, such as front loader systems on tractors. It is easily incorporated into the driver's cab, and linked to the hydraulic valves using our industry leading mechanical control cables. The DA4000 control is robustly manufactured to provide reliable operation within the harshest industrial environments.

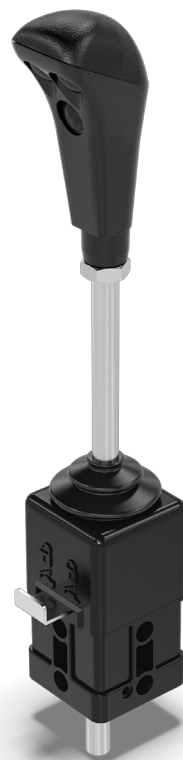
FEATURES & BENEFITS

- Used by major OEMs across Europe and North America
- Allows two hydraulic valves to be operated from a single control.
- Very robust design, fully proven to meet industry requirements.
- Can be configured with different electrical switches mounted in the handle.
- Supplied with cables ready fitted for ease of customer assembly.

- Neutral locking function for safety
- Multiple locking positions to best fit application
- Ideal for Front Loader applications
- Easily integrated within driver's cab.
- Cable travel +/- 14mm in both directions
- Handle movement 175mm in both directions (with std lever)
- Max. Cable load 150N
- Electrical switches rated at 12V 6A

OPTIONS

Reference to pedals page 8



Scan QR code to download technical details from our homepage: www.kongsbergautomotive.com



SILVER LINE™ CABLE CONTROL

Kongsberg Automotive SILVER LINE™ cables are the industry standard for the world's most successful manufacturers of agricultural, construction and material handling equipment and on-highway vehicles.

The unique SILVER LINE™ design incorporates a splined core. Ridges of the core allow a close fit with the cable's inner liner, but with minimal contact, so the core glides back and forth smoothly. The result - easy movement and minimum lost motion.

The SILVER LINE™ breakthrough design assures unparalleled smoothness and efficiency - with hardly any lost motion - even in the longest and most complex cable routings. This gives superior feel at the control in any vehicle and unparalleled performance.

FEATURES & BENEFITS

- Market leading durability
- Withstands the harsh demands of industrial vehicle applications
- Uniquely configured for low operating effort
- Precise actuation over long distances and in complex installations

APPLICATIONS

- Suitable for a wide range of applications including:
 - Remote Valve Control
 - Gear Shift Cables
 - Throttle Control
 - Transmission
 - Brake Actuation
 - Push-Pull Controls

OPTIONS

- Custom engineered cable designs available for ease of assembly
- Sleeve and hub liners for reduced friction
- Self adjusting seals are available for extremely harsh environments
- High temperature cables available up to +130°C



B10 HAND CONTROL

The B10 Hand Control is designed to provide a robust solution to a wide range of control requirements, including power take-off applications, throttle controls, mechanical shifting, or basic on-off functions.

The B10 Control can operate independently, or as an integrated system connected to a Kongsberg Automotive heavy duty pedal (HDP). When combined with our cables, these control systems are designed to perform smoothly in the harshest environments, while providing excellent operator feedback.

The B10 Hand Control combines flexibility, durability and reliability to meet the highest performance requirements of construction equipment and specialty vehicle manufacturers.

FEATURES & BENEFITS

The flexible B10 Control can serve a wide range of applications, including:

- Proven Reliability
- Power Take-Off
- Throttle Control

- Mechanical Shifting Control
- Basic On-Off Function
- Rugged construction for smooth operation in harsh environments

OPTIONS

- The B10 Control can operate independently, or as an integrated system connected to a Kongsberg Automotive heavy duty pedal (HDP).
- Push-pull and pull only versions available.
- Black or silver finish
- Can be supplied with cables ready fitted for ease of assembly.
- Adjustable stops for lever and cable travel.
- Wide range of lever options available



LIGHT LOAD VALVE CONTROL (LLCV)

The LLCV is designed to provide remote control of high pressure hydraulic valves, such as directional control spool valves. The valves and controls can be positioned for convenient installation and operation, eliminating the challenges of hydraulic lines.

The LLCV is extremely compact, so offers simple installation and can be used as a single control, or stacked to operate multiple valves. The controls are connected to the valve by our high efficiency push pull cable and a valve connection kit.

The LLCV combines flexibility, durability and reliability to meet the highest performance requirements of construction equipment and specialty vehicle manufacturers.

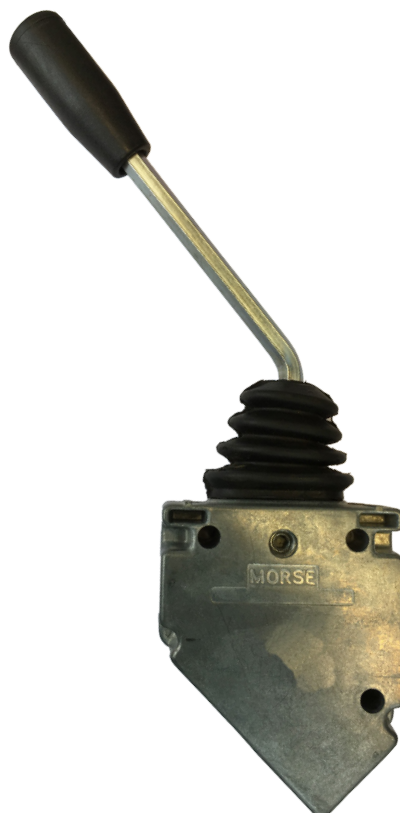
FEATURES & BENEFITS

- Designed to remotely control hydraulic valves
- Compact design
- Robust construction for use in harsh environments
- Simple installation – the control can be flush mounted, side mounted or banked together and through bolted.
- Proven reliability

- Many standard configurations available

OPTIONS

- Choice of velocity ratio. Selected when fitting cable.
 - 6.96:1 - 32mm cable travel
 - 9.60:1 - 23mm cable travel
- Max Cable Load: 333N
- Optional Lever locking mechanism
- Huge range of accessories available:
 - Valve connection kits
 - Knobs
 - Cable clamps
- Integrated electrical switches available to detect lever position
- Available with or without self-centering springs
- Optional lock in central lever position.
- Available with lift tube locking system and customizable gate positions



CS1400 SERIES MANUAL CABLE SHIFTERS

The breakthrough design of the new Kongsberg Automotive CS1400 Series features an innovative central spindle bearing that offers best-in-class shift feeling. When combined with Kongsberg Automotive Silver Line™ transmission cables, it provides minimized backlash for superb efficiency.

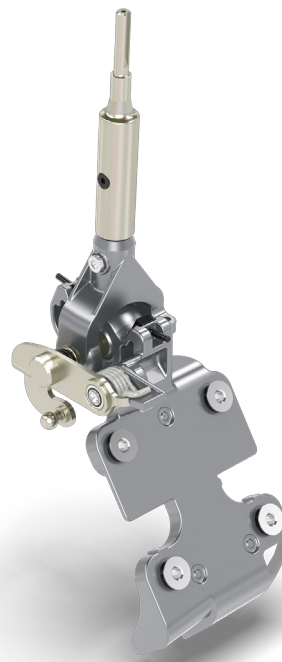
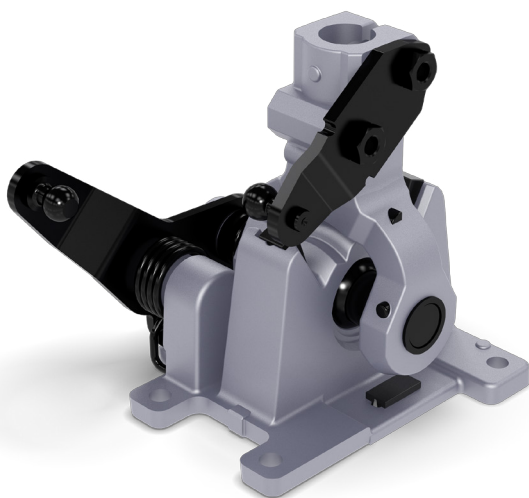
The CS1400 Series reduces the need for OEM engineering, testing and tooling by utilizing a set of common validated core components, increasing production efficiency and accelerating time to market.

FEATURES & BENEFITS

- Innovative central spindle bearing in shift head mechanism provides a uniquely smooth, durable and cost effective system solution:
 - Best-in-class shift feeling
 - Consistent shift performance throughout product life even under the highest loads
- In combination with Silver Line™ transmission cables, CS1400 shifters provide:
 - Maximum efficiency
 - Minimum backlash
- Modular series easily installed in to cabin and adaptable to a range of packaging and positional requirements, with under floor, on-floor or dashboard options
- Fully developed, tooled and tested components meet all current industry legislative and durability requirements.
- Enhanced shift feeling and quality
- Modular fully developed designs
- Tooled and tested for secure product launches with optimized tooling and manufacturing efficiency
- Minimized packaging space with the flexibility of a range of different mounting and positioning options
- Damped end stops
- Neutral spring select- Push-Pull Controls

OPTIONS

- Shift Detent
- Two part damped gear lever





Our values

Passionate
Accountable
Prepared



ELECTRONIC HAND CONTROLS

VS1000

The VS-1000 Shifter is designed for the rigors of construction, specifically the vibratory roller segment, agricultural and industrial vehicle control; the VS-1000 is intended for use in mechanical or electronic shifting systems where a Forward-Neutral-Reverse (F-N-R) shifter control unit with high friction capability is required.

Along with ease of installation, the VS-1000 provides flexible switch options, shift patterns, logos, and cable mounting options. The compact, fully validated unit offers extended service life in the harshest environments. With multiple sensor output options, the vSense non-contact sensor may be calibrated to meet the customer's exact requirements.

This device can be used as a stand alone product or it can be used in conjunction with other Kongsberg Automotive products to create a complete shifter system for virtually any type of heavy duty vehicle.

FEATURES & BENEFITS

- Innovative design allows for ease of installation regardless of application or configuration
- Adjustable locking collar friction mechanism holds position resistant to vibration
- Patented vSENSE™ Hall effect non-contact sensor provides finite accuracy and reliability for low and high RPM settings
- Industry leading cycle life
- Fully sealed and resistant to environmental and chemical intrusion
- Clockwise and Counter-clockwise available
- "Quick" return to idle feature



MH-2000 MULTI-TURN HAND THROTTLE CONTROL

The MH-2000 Multi-Turn Hand Throttle Control is the technically enhanced next generation of a recognized industry standard control. The MH-2000 is intended for use with electronic engines as a remote, hand operated control for engine RPM. Designed for ease of installation and flexibility for ergonomic positioning and mounting per a customer's specifications, this product is adaptable for a wide range of electronic throttle applications requiring a robust, durable design, with finite adjustment capabilities. Product applications include buses, fire trucks, generator sets, trucks, agricultural tractors, and construction equipment.

The compact, fully sealed single component system provides extended service life in the harshest environments. With multiple sensor output options, the industry leading Kongsberg Automotive vSense non-contact sensor can be calibrated to meet the customer's exact requirements.

This device can be used as a stand alone product or it can be used in conjunction with other Kongsberg

Automotive Power Products Systems products to create a complete control system for virtually any type of heavy duty vehicle.

FEATURES & BENEFITS

- Innovative design allows for ease of installation regardless of application or configuration
- Adjustable locking collar friction mechanism holds position resisant to vibration
- Patented vSENSE™ Hall effect non-contact sensor provides finite accuracy and reliability for low and high RPM settings
- Industry leading cycle life
- Fully sealed and resistant to environmental and chemical intrusion
- Clockwise and Counter-clockwise available
- "Quick" return to idle feature



EH-3000 ELECTRONIC HAND ENGINE IDLE SPEED AND POSITION CONTROL

The EH-3000 Electronic Hand Engine Idle Speed and Position Control is the latest control to utilize Kongsberg Automotive's leading vSense sensor technology. Designed for the rigors of construction, agricultural and industrial vehicle control, the EH-3000 is intended for use with electronic engines as a hand engine idle speed and position control. Designed to provide ease of installation and mounting, flexibility of input mechanisms, and variability of angular movement, this product is adaptable for a wide range of electronic control applications requiring a robust, durable design. The compact, fully sealed unit offers extended service life in the harshest environments. With multiple sensor output options, the vSense non-contact sensor may be calibrated to meet the customer's exact requirements.

This device can be used as a stand alone product or it can be used in conjunction with other Kongsberg Automotive products to create a complete control system for virtually any type of heavy duty vehicle.

FEATURES & BENEFITS

- Industry leading and patented vSense™ Hall effect non-contact sensor provides accuracy and reability
- Analog and PWM sensors available
- Robust, durable design
- Factory set friction mechanism holds position resistant to vibration
- Adjustable actuating force
- Customizable mounting options available
- Various travel angels available
- Avaliable with or without standars knob, or lever.
- Industry leading cycle life
- Modular Design permits customization to fit packaging and user interface needs
- Can be considered for extreme environmental conditions
- Cycle life provides minmal maintenace costs



ES3000 SERIES ELECTRONIC SHIFTER

The ES3000 is an innovative, high specification electronic shifter offering best-in-class performance and functionality, utilizing our revolutionary non-contact sensor.

The patented design of the vSENSE™ non-contact, programmable Hall effect sensor seals out contaminants to provide enhanced reliability in all environments. With no moving parts to wear over time, the vSENSE™ sensor sets a new standard for accuracy and durability, exceeding IP67 seal rating by performing under dynamic rather than static conditions.

FEATURES & BENEFITS

- Innovative high specification electronic shifter, designed for robust, durable and consistent performance in even the most hostile working environments.
- Exchangeable detent plates provide variable shift angles and gates to suit customer requirements, with option to incorporate side movement of lever

to follow Z-gate shift pattern.

- Optional illumination
- vSense™ Hall effect non-contact sensor provides position sensing and switching accuracy and reliability
 - Fully programmable
 - Fully tested (functionality, performance and EMC)
 - Fully sealed (IP67 dynamic)

SENSOR FEATURES

- High reliability and repeatability
- Excellent robustness and durability
- Integrated MetriPak connector or flying lead or flying lead + connector
- Total compensation of system tolerances
- No dynamic noise



ELECTRONIC SYSTEMS

KAntrak™ 1700 DISPLAY

KAntrak™ displays have established a new standard for intelligent, multi-function displays and are the perfect platform to empower your electronic systems with flexibility and control. The new KAntrak™ 1700 perfectly complements the existing KAntrak™ product range and is designed to provide market leading functionality in a compact display.

As off-road emissions regulations become ever more stringent, lower powered engines are requiring electronically controlled fueling to comply with the legislation. The ECU (Engine Control Unit) which controls the fueling and other engine functions receives and processes data on many aspects of the engine. This requires a Human Machine Interface (HMI) to provide the necessary data to the user to ensure safe and reliable operation.

The KAntrak™ 1700 display allows the user to easily monitor critical engine parameters such as oil pressure and water temperature as well as providing an alarm system to alert the user when the ECU detects an engine fault. Its compact size is ideally suited for use on low power vehicles and equipment such as small construction machines, generators and agricultural equipment.

With its J1939 data bus, the KAntrak™ offers easy integration into most

third party CAN-based systems. It can also be combined with many other Kongsberg Automotive electronic products, such as the MCM, DCSM, SKIM, and keypads, to create a full scale monitoring and control system for virtually any type of vehicle or industrial equipment.

FEATURES & BENEFITS

- 2.3" Graphical high resolution Dot Matrix LCD Display
- Rugged ABS Case
- IP67 Protection Rating
- Adjustable backlighting
- 3 buttons provide easy navigation through software screens
- LED warning light to notify operator of vehicle/engine fault
- Alarm Output and Fuel Sensor Input standard
- Basic Icon, Bar-Graphs and Alphanumeric Display
- CE Approved design
- Now available with Tier 4 compliant messaging within GEM (Generic Engine Monitoring) software
- Excellent sunlight readability
- Integral Deutsch DT04-6P style connector
- Mating connector Deutsch DT06-6S



KAntrak™ 2700 & 2710 DISPLAY

The new KAntrak™ 2700 and 2710 utilizes updated electronic hardware to provide optimum LCD performance while ensuring the design anticipates future technical developments. The ideal man-machine interface monitors numerous CAN-based messages and displays the current status of user defined parameters. With its J1939 data bus, the KAntrak™ offers easy integration into most third party CAN-based systems. It can also be combined with many other Kongsberg Automotive electronic products, such as the MCM, DCSM, SKIM, and keypads, to create a full scale monitoring and control system for virtually any type of on-road or off-road vehicle.

The KAntrak™ display is easily configured with user-friendly software options to suit virtually any application:

- Generic Engine Monitoring (GEM): Plug-and-go monitoring of the most popular J1939 engine parameters
- Configurable Display Module (KCDM): PC tool to configure the display to monitor any J1939 parameters
- Software Development Kit (SDK): Allows full programming of the display using 'C' language
- Custom software: Kongsberg Automotive can

also provide a custom soft ware service to suit your exact application requirements.

FEATURES & BENEFITS

- 3.8" Graphical high resolution FSTN LCD Display
- Rugged ABS Case
- IP67 Protection Rating
- Low operating temperature (2700 -25°C, 2710 -40°)
- Data logging/diagnostics and control capabilities
- Contrast control/variable backlighting
- Internal sounder
- Soft keys provide easy navigation through software screens
- RS232, J1708/J1587 and CANbus datalink compatible
- Front and rear mountable (fitting kits required)
- CE Approved design
- Excellent sunlight readability
- Integral Deutsch 12 way connector
- Internal 500mA open collector output driver (possible for external output alarm) – Model 2710 only



6 SWITCH KEYPAD

The 6 switch keypad is a highly versatile design which is compatible with the full range of Megalink™ multiplex control modules. This allows a complete system or subsystem in wide range CAN based vehicles and applications to be quickly and easily created.

Alternatively the keypad can simply be incorporated into an existing CANbus network. It's generic slave configuration, which is common to many CAN based applications, allows the vehicle application to take full control of the keypad and give each switch its own characteristics.

Up to 16 LED's can be used for displaying the switch status or vehicle diagnostics. The LED's can easily be configured for various diagnostics determined by the application or the user's needs. Additional backlight LED's can be controlled individually and are dimmable to suit day/night operation.

Laser etching of the icons on the silicone membrane provides customisation to suit a specific application quickly and cost effectively. In sleep mode, this unit draws less than 1mA and has a bi-directional wake-up pin used to wake up the system or be woken up by the system. This compact, fully sealed and ruggedised unit will provide extended service life in the harshest environments.

FEATURES & BENEFITS

- Easy to connect to any CAN based system
- Compatible with J1939, RVC or other CAN protocols
- Switch icons are easily customised to suit specific applications
- Real-time activation/status
- 16 status LED's
- Dimmable backlight LED's for day/night time operation
- Low power sleep mode current drain < 1mA
- Fully sealed to IP67
- Excellent resistance to chemicals
- Full 8 bits 8 MHz micro-controller enables the use of most protocols
- Field flashable memory
- CAN network compatible
- Panel mount or flush mount installation
- Horizontal or vertical orientation
- Tested to over 1 million cycles
- Digital Keypad Development Kit (DKDK) available



11 SWITCH KEYPAD

The 11 switch keypad is a highly versatile design which is compatible with the full range of Megalink™ multiplex control modules. This allows a complete system or sub-system in wide range CAN based vehicles and applications to be quickly and easily created.

Alternatively the keypad can simply be incorporated into a vehicle's existing CANbus. It's generic slave configuration, which is common to many CAN based applications, allows the vehicle application to take full control of the keypad and give each switch its own characteristics.

Up to 33 LED's can be used for displaying the switch status or vehicle diagnostics. The LED's can easily be configured for various diagnostics determined by the application or the user's needs. An additional 13 backlight LED's can be controlled individually (not controlled individually) and are dimmable to suit day/night operation.

Laser etching of the icons on the silicone membrane provides customization to suit a specific application quickly and cost effectively. In sleep mode, this unit draws less than 1mA and has a bi-directional wake-up pin used to wake up the system or be woken up by the system.

This compact, fully sealed and ruggedized unit will provide extended service life in the harshest environments.

FEATURES & BENEFITS

- Now Available for 12/24V applications
- Easy to connect to any CAN based system
- Compatible with J1939, RVC or other CAN protocols
- Switch icons are easily customized to suit a specific applications
- Real-time activation/status
- 33 status LED's
- Dimmable backlight LED's for day/night time operation
- Low power sleep mode current drain < 1mA
- Fully sealed to IP67
- Excellent resistance to chemicals
- 16 status LED's
- Full 8 bits 8 MHz micro-controller enables the use of most protocols
- Field flashable memory
- CAN network compatible
- Panel mount or flush mount installation
- Horizontal or vertical orientation
- Tested to over 1 million cycles
- Digital Keypad Development Kit (DKDK) available



KEYLESS IGNITION MODULE

The Keyless Ignition System is designed to replace traditional mechanical key switches on industrial vehicles and equipment. This compact, fully sealed single component system uses solid-state switching devices to provide extended service life in the harshest environments.

A Four to Eight digit Security code offers theft protection while eliminating the chance of misplacing the vehicle's keys. Convenient push to start and push to stop operation, with status LED's to indicate the operating mode.

Ignition/Accessory outputs are also controlled with the pushbuttons. A Secondary security code provides access to devices connected to Ignition/Accessory outputs without the ability to start the engine, ideal during vehicle maintenance.

This device can be used as a stand alone product or it can be used in conjunction with other Megalink™ products to create a full scale multiplex control system for virtually any type of on-road or off-road vehicle.

FEATURES & BENEFITS

- Completely replaces conventional mechanical key switches
- Suitable for use with mechanically and electronically controlled engines
- Adjustable backlighting for day/night time operation
- Status LED's indicate operating mode
- Fully sealed to IP67
- Excellent resistance to chemicals
- Compact & easy to install
- Compatible with most engine types
- Models available for both 12V and 24V electrical systems
- Power management feature to shut off accessory output when battery voltage falls below 11.9V on 12V systems and 23.8V on 24V systems when engine is not running. This prevent battery drain and provides a reserve for starting the engine
- Primary security code provides full authority
- Secondary code provides limited functions
- Starter protection feature - starter output is disabled when engine is running - maximum continuous cranking time



SMART KAn INTERFACE MODULE - SKIM

The SKIM (Smart KAn Interface Module) is the perfect platform to empower your electronics with flexibility and control. The SKIM module provides engineers with the flexibility and freedom to design electronic control systems for vehicular applications and stand alone applications.

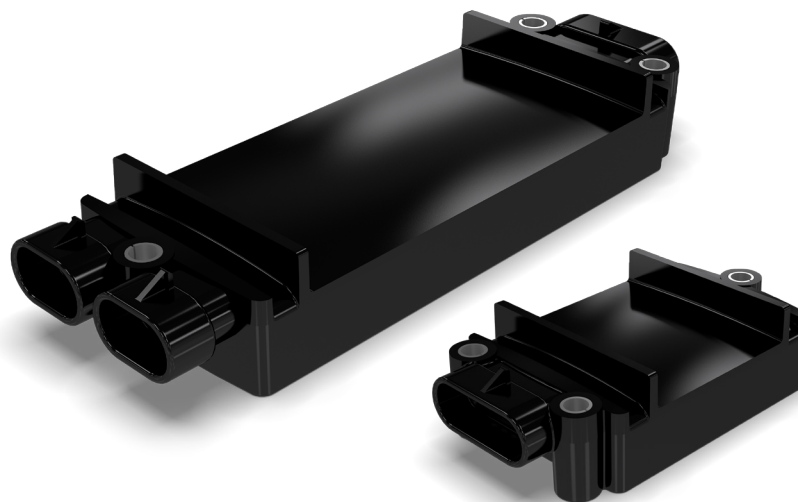
This unique product is a flexible module that interfaces between external devices and a CAN (J1939) network. The SKIM is a family of modules with configurable I/O's (Input/Output) that accept either analog, digital or frequency input signals or can generate frequency or PWM output signals, and can communicate with other CAN-based modules. Each I/O can be individual configured as either an Input or an Output with KA's user friendly PC Configuration Tool. The SKIM is also designed for universal (12/24VDC) applications.

These compact, fully sealed units are IP67 rated to provide extended service life in the harshest environments. The SKIM is available in either 2 or 8 I/O's (depending on model), and have integrated mounting holes and wire tie locations for easy mounting in any application. There are several accessories available for the SKIM including a PC Configuration Tool, mating connector kits and wiring harnesses.

FEATURES & SPECIFICATIONS

Family of configurable and expandable input/output (I/O) Modules

- 2 or 8 I/O as standard
- CAN bus Communications
- I/O's can be any combination of analog or digital inputs, frequency generator or pulse width modulated (PWM) outputs
- User-Friendly Windows based PC Configuration Tool
- 12/24 V Compatibility
- J1939 or NMEA 2000 CAN protocols are supported
- Integrated Metri-Pack connectors
- PowerSupply: 9-32VDC
- Power Consumption: 50 mA
- Reverse Polarity Protected
- Jump Start - ISO 15003-Section 5.14.2
- ISO 11452-2: 80MHz - 1000MHz, 100v/m cat. C
- Load Dump - ISO 7637-2:2004 AMD1: 2008 24V System Level 4



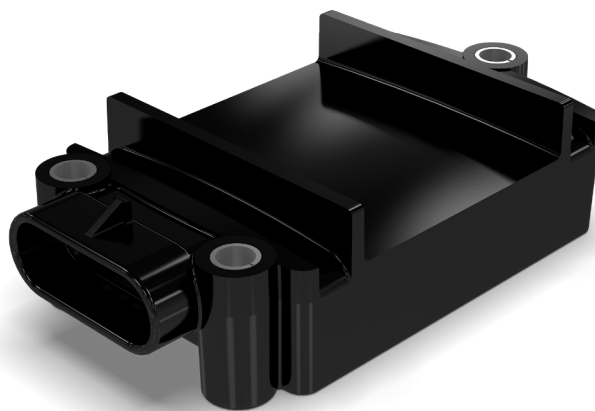
MINI-KAN GATEWAY

The Mini-KAn Gateway module provides engineers with the flexibility and freedom to design electronic control systems for transportation and vehicular applications. This module purpose is to act as a bridge between two different CAN Networks. The module has enough power to be also used as a smart node and control various function over the CAN Bus. The Mini-KAn Gateway can easily be combined with keypads, serial switches and other Megalink™ modules to create a complete electronic control system or subsystem in various vehicles and applications. Its rugged design can withstand extreme off-road environments.

The Mini-KAn Gateway has 2 CAN ports that can be configured to communicate in J1939, GMLAN, etc., and at different speeds. It offers easy integration into most third-party CAN-based systems and allows for different protocol usage within the same application. So, if you engine and transmission do not speak the same language, do not hesitate to use the Mini-Kan Gateway module.

FEATURES & SPECIFICATIONS

- Rugged CAN Gateway module for 12 VDC applications
- (2) Configurable CAN buses that can be used to translate between different protocols at up to 500kbps
- Each Bus could be Set-up at a different speed
- Integrated Metri-Pack connector
- Fully sealed to IP67
- Excellent resistance to chemicals
- (1) SAE J1939 CAN bus or other protocol
- (1) GM LAN bus or other protocol



BCM - KAn GATEWAY

Megalink™ is the perfect platform to empower your electronics with flexibility and control.

The BCM Gateway module provides engineers with the flexibility and freedom to design electronic control systems for transportation and vehicular applications. This unique module is a multi-purpose controller that combines up to 21 configurable inputs and 2 CAN ports for multiple applications. The BCM-Gateway can easily be combined with keypads, serial switches and other Megalink™ modules to create a complete electronic control system or subsystem in various vehicles and applications. Its rugged design can withstand extreme off-road environments.

This compact fully sealed unit uses solid state switching devices to provide extended service life in the harshest environments. The Gateway has 2 CAN ports that can be configured to communicate in J1939, GM-LAN, etc. It offers easy integration into most third party ABS, Engine Controllers, Transmission Controllers, Clusters and Displays. With its digital and analog inputs, the Gateway Module is also ideal for integration of multiple parts into an already multiplexed application.

FEATURES & BENEFITS

- Rugged multiplex control module for 12 VDC applications
- (2) Configurable CAN buses that can be used to translate between different protocols at up to 500kbps
- Low side and high side digital inputs
- Analog inputs
- Frequency inputs
- Fully sealed to IP67
- Excellent resistance to chemicals
- 25 Total inputs
- Up to 20 switch to battery digital inputs
- Up to 17 switch to ground digital inputs
- Up to 4 analog inputs
- (1) SAE J1939 CAN bus or other protocol
- (1) RVC CAN bus or other protocol



DC SWITCHING MODULE - DCSM BASE MODEL

Megalink™ is the perfect platform to empower your electronics with flexibility and control.

The DC Switching module (DCSM) provides engineers with the flexibility and freedom to design electronic control systems for vehicular applications. This extremely versatile controller can easily be used with keypads, serial switches and other Megalink™ modules to create a complete electronic control system or subsystem in various vehicles and applications. With its extended memory, processing capabilities, CAN/LIN networks the DCSM can be used to control real-time applications and remote subsystems at the same time.

This compact fully sealed unit uses solid state switching devices to provide extended service life in the harshest environments. The DCSM's eight power outputs also have soft-start capabilities to provide gradual ramp-up of voltage to inductive loads to avoid the common "light flickering" seen in traditional switching methods. Eight configurable inputs are available for monitoring and reporting over the CAN bus network for additional control logic.

Typical applications for the DCSM include: Vehicle lighting system, HVAC system control and Battery power distribution and management.

FEATURES & BENEFITS

- Rugged multiplex control module for 12 VDC applications
- CAN bus (J1939 or RVC) to communicate with other Megalink™ modules
- LIN data bus
- Multiple units can be combined in a Master/Slave configuration
- Full 16 bits 40MHz micro-controller easily controls any system
- PC tool to reprogram and configure module is available Fully sealed to IP67
- Excellent resistance to chemicals
- DCSM's can be combined in a master/slave configuration based on I/O requirements
- Power Mosfets with thermal shutdown protection
- PWM outputs up to 500 Hz for speed control or soft-start of inductive loads on 8 outputs
- Integrated overload fuse
- Field flashable Flash and
- EEPROM memory





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