

ETG GRUPPE
MOTION TECHNOLOGIES



THE HEART OF MOTION

Product Overview
Commercial Vehicles

About ETO GRUPPE

Motion is at the heart of every machine. With the power of innovation and passion we develop and produce electromagnetic actuation components, sensors, electronics and software for the regulation and control of highly dynamic processes in vehicles, medical technology equipment or machinery for food production.

Around the world, 2,500 employees are dedicated to the success of our customers and play a vital part in our fast-growing company group. Founded by Lake Constance/Germany in 1948, ETO GRUPPE has been part of the foundation „Christa und Hermann Laur-Stiftung“ since 1968 which has ensured ETO GRUPPE’s continuance to date.

Our Vision

As a company, we have specialized in making mobility, vehicles, equipment, devices, medical technology and food production more secure, efficient and environmentally friendly, in connecting the above and in processing data in an intelligent way.

Groundbreaking Projects

Connected, intelligent and secure sensors and actuators are trailblazers for autonomous driving, smart factories and intelligent services. For instance, ETO GRUPPE is part of a groundbreaking project called ALFRIED funded by the German Federal Ministry of Transport and Digital Infrastructure, which is focused on making connected and automated driving a reality. We are aiming to make road traffic more secure by developing sensors for intelligent road marker posts so that non-connected vehicles may also be provided with traffic information.

Product Overview



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Cartridge Valves



APPLICATION

- Automated commercial vehicle transmission
- Group and gear change
- Clutch control

CUSTOMER BENEFITS

- Fuel and emission reduction
- More shift comfort

TECHNICAL FACTS

- Switching time: < 10 ms
- Nominal size: Up to 3.6 mm
- Pressure range: 0 - 13 bar
- Nominal voltage: 12/24 V DC
- Resistance: 4.4 - 13.0 Ohms
- Ambient temperature range: -40 °C - 130 °C
- Protection class: IP22

FEATURES

- Valve features: 3/2 NC (normally closed), 3/2 NO (normally open), 2/2 NO and 2/2 NC
- Gear synchronisation
- Customized electrical contact
- Very high number of cycles (up to 400 million valve switches)

Active Speed Sensors



APPLICATION

- Brake and transmission sensor for automated clutch

CUSTOMER BENEFITS

- Speed recognition
- Direction recognition

TECHNICAL FACTS

- Nominal diameter of housing: 11 mm
- Thermal application area of sensor head: -40 °C - 150 °C
- Sensor field spider gap: 0.45 - 2.65 mm according target
- Protection class of sensor head: IP68 according to DIN 60529
- Electrical contact: Flying leads, HDSCS connector
- Supply voltage: 4.3 - 24 V DC
- Current state: low current state 4 - 9 mA, high current state 12 - 18 mA
- Maximum rotation frequency: 12 kHz clockwise, 6 kHz anticlockwise

FEATURES

- Active sensors with integrated Hall sensor or GMR Sensor
- High media resistance
- Signals for forward and reverse operation
- Customized interface

Stand Alone Valves



APPLICATION

- Control of auxiliary applications in trucks
- Use for truck frame with pneumatic pressure connections

CUSTOMER BENEFITS

- Compact design and weight reduced
- Wide electrical power field

TECHNICAL FACTS

- Nominal power: 13 W (100 % ED, RT)
- Inlet orifice: 2.2 mm
- Outlet orifice: 3.0 mm
- Working pressure: 5.5 - 10.2 bar
- Nominal voltage: 12/24 V DC
- Ambient temperature range: -40 °C - 80 °C
- Protection class: IP67 and IP6K9K

FEATURES

- Valve features: 2/2 NC (normally closed), 3/2 NC and 3/2 NO (normally open)
- Electric interface: 2 Pins / 3 Pins HDSCS
- Pneumatic interfaces: V16 x 1.5

2/2- and 3/2-Valves Single- up to Triple-Block



APPLICATION

- Pilot valves for electronic level control

CUSTOMER BENEFITS

- IP-Protection 6k9k
- Single- up to Triple-Block
- Even without over molding

TECHNICAL FACTS

- Relative duty cycle: 100 %
- Nominal width: 0.8 - 1.6 mm
- Pressure range: 0 - 13 bar
- Nominal voltage: 12, 24 V DC
- Resistance: Approx. 70 Ohm
- Ambient temperature range: -40 °C to 80 °C
- Protection class: Customer-specific

FEATURES

- Valve functions: 2/2 NC (Normally closed), 3/2 NC
Electrical contacting: customised

PCB Pressure Sensors



APPLICATION

- Pressure sensor for gaseous media for integration on circuit boards in industrial and automotive applications

CUSTOMER BENEFITS

- Highest quality pressure sensors
- Customer-specific
- Implementation in small and large quantities

TECHNICAL FACTS

- Nominal pressure: 0 - 12 bar
- Pressure reference: Relative
- Burst pressure: 30 bar
- Supply voltage: 5 V or 8 to 32 V
- Output signal: Analogue
- Precision (-20 °C to +60 °C): $\leq \pm 1.0 \% \text{ FS}$
(-20 °C to +100 °C) $\leq \pm 1.5 \% \text{ FS}$
- Operating temperature: -40 °C - 125 °C
- Protection class: IP00
- Electrical connection: Solder or pressfit contacts

FEATURES

- For relative applications
- Miniaturized footprint for highest PCB-space efficiency
- Developed to support highest EMC requirements
- Customer specific interfaces

Stand Alone Pressure Sensors



APPLICATION

- Pressure sensor for pneumatic and hydraulic applications (e.g. automotive, industry ...)

CUSTOMER BENEFITS

- Compact design (SW24-27)
- Reduced weight
- For various gaseous media or liquids

TECHNICAL FACTS

- Nominal pressure ranges: Up to 50 bar (Up to 60 bar upon request)
- Pressure application: Absolute (Relative on request)
- Overpressure: Up to 75 bar (100 bar upon request)
- Burst pressure: Up to 110 bar (150 bar upon request)
- Supply voltage: 5 V
- Output signal: Analogue; ratiometric 0.5 ... 4.5 V (Digital upon request)
- Accuracy (-20 °C to 90 °C): $\leq \pm 1.5 \%$ (depending on pressure range)
- Max. operating temperature: -40 °C to 125 °C (150 °C upon request)

FEATURES

- Absolute and gauge pressure
- Analog or digital output signal
- Designed for the highest EMC requirements
- Optional: temperature readout possible (upon request for digital outputs)
- Electrical plug connection (e.g. Hirschmann 3way 1.2 SealStar)
- Customer specific interfaces

Modular Systems



APPLICATION

- Gearbox control
- Brake systems
- Retarder/Intarder control

CUSTOMER BENEFITS

- Reliable control of pneumatic system
- Fast reaction time
- Small packaging

TECHNICAL FACTS

- Integrated, compact solution
- Temperature range: -40 °C - 130 °C
- IP6K9K

FEATURES

- Platform valves combined with pressure sensors
- Optional integrated electronics with customized interface

Motors



APPLICATION

- Actuation of valves for gaseous phase and hydraulic fluids
- Various applications for stepping motors

CUSTOMER BENEFITS

- Integrated power electronics
- Sealed rotor space
- Fluid in rotor space possible

TECHNICAL FACTS

- Temperature range: -40 °C - 130 °C
- Torque range: up to 0.05 Nm
- Rotational speed: up to 250 rpm
- Step angle: 2.8 °
- Current range: $I_{max} < 0.5 A$
- Voltage: 9.8 - 16 V

FEATURES

- LIN BUS interface
- Stall detection
- Zero point stroke referencing

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ETO GRUPPE

Hardtring 8, 78333 Stockach, Germany

Phone: +49 7771 809-0

Email: info@etogruppe.com

www.etogruppe.com

