AUTOMOTIVE SENSORS

TE sensors have become an integral part of many modern vehicle architectures, or nervous systems. Our sensor technologies for passenger cars provide data for control, adaptation, and response of vehicle functions and features that make vehicles safer, greener and more connected.

ENGINE/EXHAUST SENSORS

	 Multi-Coil Resolver (MCR) Sensor	 Single-Coil Resolver (MCR) Sensor	 Turbocharger Pneumatic Actuator Position Sensor	 Turbocharger Pneumatic Actuator Position Sensor	 MEAS LMM-H03 / LMM-H04	 MEAS U86B	 MEAS Radial Leaded Thermistors
Industry	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car
Application	E-motor for hybrid and electrical vehicles	E-motor for hybrid and electrical vehicles	Turbo charger	Turbo charger	Air intake of combustion engine	Urea pressure	Ambient air temperature
Functions	Measuring rotor position of E-motor	Measuring rotor position of E-motor	Measuring piston position of pneumatic actuator (Vacuum)	Measuring piston position of pneumatic actuator (Vacuum)	Mass air flow (MAF)	Vehicle engine control	Temperature monitoring
Technology	MCR (Multi-coil resolver)	SCR (Single-coil resolver)	PLCD	3D Hall (Moving magnet)	Flow sensor	Pressure sensor	Temperature sensor
Features	• Non-contact measurement of rotor position • Analog output • High accuracy • Temperature up to 150°C • Rotational speed up to 20,000 rpm • Adaptable to pole pairs of E-motor	• Non-contact measurement of rotor position • Analog output • High accuracy for high temperature applications • Slim design for IMG applications in combination with oil • Rotational speed up to 20,000 rpm • Adaptable to pole pairs of E-motor	• Non-contact travel measurement inside the actuator • Unguided magnet • Wear and tear free • High life time accuracy	• Non-contact travel measurement inside the actuator • Unguided magnet • Wear and tear free • High life time accuracy	• High sensitivity at low heater temperatures • Fast response time • True air temperature sensor • Hot film anemometer component • Hybrid package	• Amplified • Mountable with o-ring seal • Stainless Steel wetted surface • ASIC calibrated • Absolute, sealed gage • Analog output • Cable option	• Epoxy or glass coated • Radial, beads • Interchangeable • Moisture resistant • Stability

BRAKE SENSORS

	 Brake Cylinder Position Sensor	 Brake Light Sensor	 Brake Light Sensor (Self-Adjusting Features)	 Wheel Speed Sensor (Option 1)	 Wheel Speed Sensor (Option 2)
Industry	Passenger car	Passenger car	Passenger car	Truck / Passenger car	Truck / Passenger car
Application	Regenerative braking	Pedal box	Pedal box	Anti-lock brake system	Anti-lock brake system
Functions	Measuring piston position of brake master cylinder	Measuring brake pedal position	Measuring brake pedal position	Wheel speed detection	Wheel speed detection
Technology	Active PLCD (Moving magnet)	Hall switch (Magnet integrated in sensor)	Hall switch (Magnet integrated in sensor)	Hall (Magnet integrated in sensor)	Hall (Magnet integrated in sensor)
Features	• Non-contact travel measurement through cylinder wall • Optional redundancy	• Easy adjustment to brake pedal • High switching point accuracy • No wear and tear • Two and three wire interface available	• Easy adjustment to brake pedal (Self-adjusting features) • High switching point accuracy • Redundancy	• Long life time and high reliability • Compact size and comparative price • Flexible design depending on customer requirements • Non-contact hall sensor • Rapid response time • Tone wheel detection	• Long life time and high reliability • Compact size and comparative price • Flexible design depending on customer requirements • Non-contact hall sensor • Rapid response time • Tone wheel detection

CHASSIS SENSORS







	Hall Switch Cable Assemblies	Seat Track Position Sensor (Option 1)	FIS/Z-FIS Front Impact Sensor	P-SIS Side Impact Sensor	Weight Sensor	MEAS H2TG / H2TD Series	MEAS Ni1000ST
Industry	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car
Application	Convertible roof systems	Dual staged airbag	Front impact detection	Side impact detection	Passenger detection	Anti-fogging and HVACR	Engine oil and transmission oil temperature
Functions	Digital position detection	Measuring seat track position	Measuring acceleration data for front impact detection	Measuring the quick increase of pressure within cavities of passenger car door to determine the airbag deployment	Measuring seat weight to classify passenger for airbag deployment	Dewpoint and windshield temperature measurement	Thermal compensation, thermal management
Technology	Hall switch (Magnet integrated in sensor)	Hall switch (Magnet integrated in sensor)	MEMS	MEMS	Strain gage technology	Humidity sensor	Temperature sensor
Features	• Variety of cable assembly with integrated hall switches	• Triggered by seat track (= no moving magnet) • Current interface • Small geometry • Diagnostics ability due to two-wire interface	• Small package and robust design • PS15-A data transmission mode	• Small package and robust design • PAS4 data transmission mode	• High resolution of weight • Very small package (Integration to seat track) • Sensor array with ECU for in system calibration • Mechanical overload protection • Very robust design	• Electronics fully protected with potting material • Analog or digital (LIN) output • Cost effective solution	• Harsh environment compatible • Very small dimensions • Very short response time • Good linearity • High temperature coefficient • Low power consumption

CLUTCH SENSORS





	Dual Clutch Position Sensor	Clutch Position Sensor (Option 1)	Clutch Position Sensor (Option 3)	Clutch Position Sensor (Option 4)	Clutch Position Sensor (Option 5)
Industry	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car
Application	Dual clutch transmission	Cruise control, engine management, interlock, electrical park brake	Automated Manual Transmission (AMT)	Automated Manual Transmission (AMT)	Automated Manual Transmission (AMT)
Functions	Measuring piston position of clutch actuator	Measuring piston position of clutch master cylinder	Measuring piston position of concentric slave cylinder inside the gearbox	Measuring piston position of concentric slave cylinder	Measuring piston position of concentric slave cylinder inside the gearbox
Technology	Active PLCD (Moving magnet)	Hall (Moving magnet)	Passive PLCD (Moving magnet)	Passive PLCD (Moving magnet)	Passive PLCD (Moving magnet)
Features	• Two sensors in one housing • Small and robust design • Oil sealed design	• Non-contact measurement through cylinder wall • Up to three switching points or travel measurement up to 40 mm	• Non-contact travel measurement • Robust design (Temperatures up to 160°C) • Signal processing in transmission controller	• Non-contact travel measurement • Short term peak (Temperatures up to 150°C)	• Non-contact travel measurement • Robust design (Temperatures up to 160°C) • Signal processing in transmission controller

PLATFORM SENSORS

	Hall Switch SW01P	Hall Sensor T40MC2	PLCD-15M	PLCD-25M	PLCD-50M	Speed Sensor
						
Industry	Passenger car	Truck / Passenger car	Passenger car	Passenger car	Passenger car	Passenger car
Application	Body and chassis	Engine, transmission, clutch, chassis, brake	Transmission, chassis, engine	Transmission, brake, clutch, steering, engine	Transmission, brake, clutch, steering, engine	Transmission
Functions	Digital position detection	Measuring travel position	Measuring travel or angle position	Measuring travel or angle position	Measuring travel or angle position	Measuring gear speed
Technology	Hall switch (Magnet integrated in sensor)	Hall (Moving magnet)	Active PLCD (Moving magnet)	Active PLCD (Moving magnet)	Active PLCD (Moving magnet)	Hall (With integrated magnet)
Features	• Triggered by ferromagnetic part (= no moving magnet) • Current interface • Diagnostics ability due to two-wire interface • Temperature range -40°C up to 150°C	• Non-contact measurement up to 40 mm • Highly insensitive to vibration • Temperature up to 150°C • Analog or PWM interface • Small geometry • Optional redundancy • Supply 5 V (Optional 12 V) • 4-way MCON connector interface	• Angle up to 120° • Highly insensitive to vibration • Temperature up to 150°C • Redundancy possible • Analog or PWM interface • Supply 5 V (Optional 12 V) • 4-way MQS connector sealed • Wide range of magnet design	• Measuring range 15-28 mm • Highly insensitive to vibration • Temperature up to 150°C • Redundancy possible • Analog or PWM interface • Supply 5 V (Optional 12 V) • 4-way MQS sealed • Wide range of magnet design	• Angle up to 120° • Highly insensitive to vibration • Temperature up to 150°C • Redundancy possible • Analog or PWM interface • Supply 5 V (Optional 12 V) • 4-way MQS connector sealed • Wide range of magnet design	• Triggered by ferromagnetic gear wheel • Current interface with direction detection • Sealed connector interface • Diagnostics ability due to two-wire interface • IP6K9 • Temperature range -40°C up to 150°C

TRANSMISSION SENSORS

	All Gear Detection Sensor	Drive Mode Sensor	DCT Transmission Sensor Module (For shift fork position, gear speed and temperature)	Speed Sensor SP1M	Neutral Position Sensor
					
Industry	Passenger car	Passenger car	Passenger car	Passenger car	Passenger car
Application	Manual Transmission (MT)	Automated Transmission (AT)	Dual Clutch Transmission (DCT)	Transmission	Start-stop application
Functions	Measuring gear and shift position	Measuring drive mode position (PRND) inside the gearbox	Measuring shift fork position, gear speed and temperature inside transmission	Measuring gear speed	Measuring gear lever position inside manual transmission
Technology	3D hall solution	Active PLCD (Moving magnet) or hall	Active PLCD, hall and NTC	Hall (With integrated magnet)	Hall (Moving magnet)
Features	• Non-contact rotary and travel measurement integrated in one housing • Robust design	• Non-contact travel measurement • Robust and oil sealed design • High measurements accuracy • No wear and tear	• Sensor module with integrated speed (2X), position (4X) and temperature sensor • Oil sealed 12 pin pass through connector system • Highly insensitive against vibration, temperature and pollution inside the transmission	• Triggered by ferromagnetic gear wheel • Current interface with direction detection • Sealed connector interface • Diagnostics ability due to two-wire interface • IP6K9 • Temperature range -40°C up to 150°C	• Non-contact measurement • Oil tight connector interface • High life time accuracy • Small magnet design • Diagnostics ability due to three-wire interface