

IC SOLUTIONS FOR SENSOR SIGNAL PROCESSOR

- More than 25 years of experience in automotive and industrial sensor signal processing
- Benchmark IC solutions for sensor signal processing of pressure, temperature, inductance, capacitance and magnetic field
- Dedicated IC solutions to support a broad range of applications
- Lowest BOM cost at best performance
- ICs developed according to ISO 26262 with functional safety TSRs up to ASIL-C rating
- Availability of evaluation kits for better know-how and self configuration
- Compact size with minimised packaging

Application Overview

Automotive Pressure

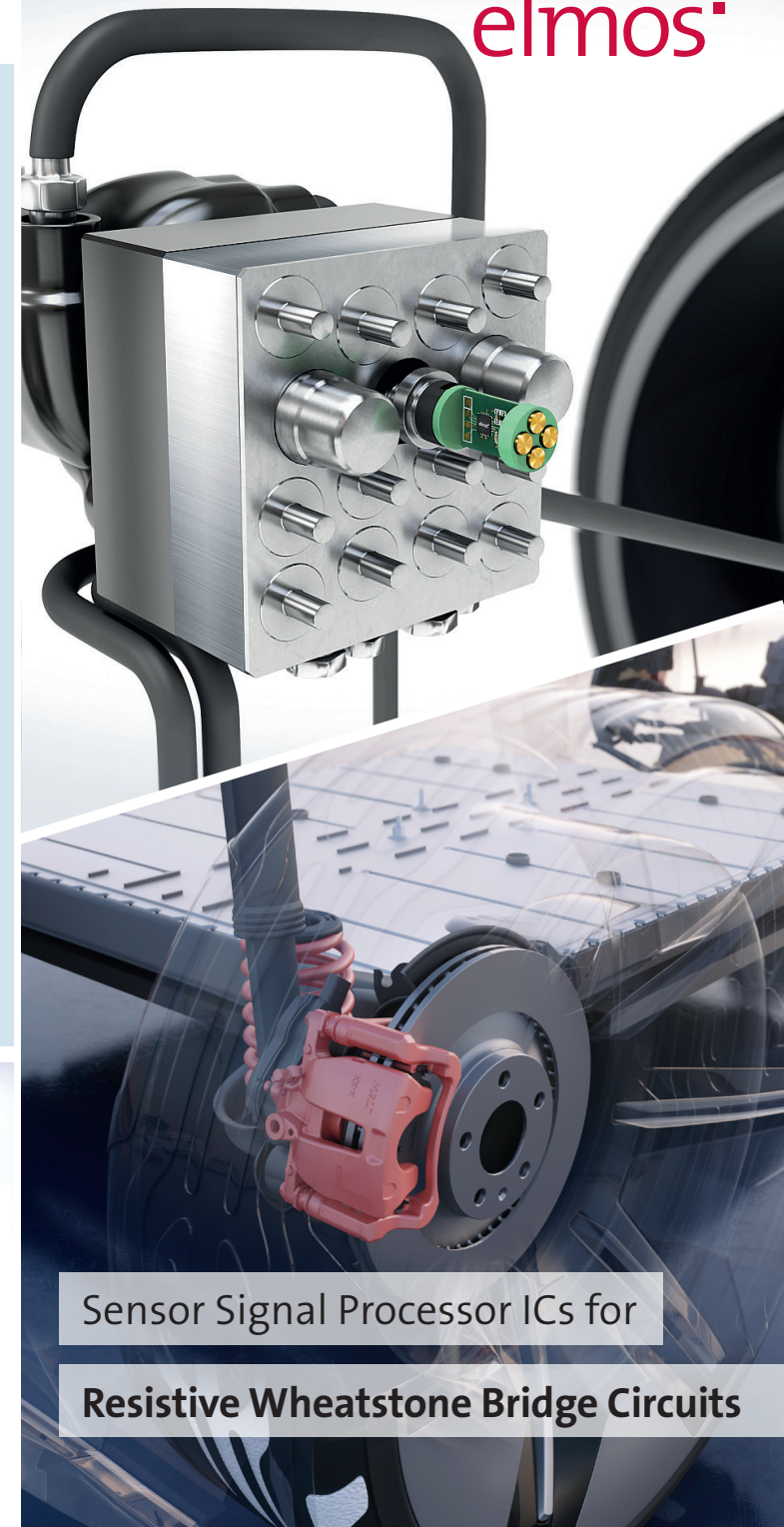
- Barometric (BAP)
- Manifold Absolute (MAP)
- Injection
- Hydraulic Brake
- Motor Oil
- Vacuum Brake Booster
- HVAC Compressor
- Heat Pump System
- Exhaust Gas Recirculation (EGR)
- Transmission Oil
- Seat Massage
- Battery Monitoring
- Diesel Particulate Sensor (DPF)
- Fuel Tank

Industrial Pressure

- Consumer Barometric
- Medical Respiratory
- Medical Blood
- Water Level Measurement
- HVAC Compressor
- Heat Pump System
- Hydraulics



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Sensor Signal Processor ICs for

Resistive Wheatstone Bridge Circuits



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Sensor Signal Processors and Integrated Pressure Sensors Portfolio

	Sensor Signal Processors				Integrated Absolute Pressure System (IAPS)
	E520.42	E520.47	E703.11	E703.21	E524.71/72/73/75
Application	Automotive	Automotive	Industrial / Consumer	Industrial / Consumer	Automotive (BAP / MAP Sensor)
Key features	<ul style="list-style-type: none"> Low noise AFE Suitable for single full resistive sensor bridge Correction against the 3rd order pressure non linearity and temperature dependency Individual pressure and temperature channel Calibration and configuration via bi-directional Serial I/P O/P mode Comprehensive self diagnostics AECQ-100 qualified 	<ul style="list-style-type: none"> FuSA ISO 26262 ASIL-C Suitable for two full resistive sensor bridges Correction against the 3rd order pressure non linearity and temperature dependency Two individual pressure and temperature channel Bi direction Serial I/P O/P and I²C interface for calibration and conf. Comprehensive self diagnostics AECQ-100 qualified 	<ul style="list-style-type: none"> Pre-calibrated analog output Suitable for single full resistive sensor bridge Correction against the 3rd order pressure non linearity and temperature dependency Ratiometric analog voltage or PWM or FM as an output interface Calibration and configuration via I²C or SPI interface Comprehensive self diagnostics 	<ul style="list-style-type: none"> Pre-calibrated analog output Suitable for single full resistive sensor bridge Correction against the 3rd order pressure non linearity and temperature dependency Output interface via current signal (4 to 20 mA), ratiometric analog voltage or absolute voltage Calibration and configuration via I²C or SPI interface or via current loop terminal Comprehensive self diagnostics 	<ul style="list-style-type: none"> Fully calibrated pressure sensing Integrated pressure sensor with piezo-resistive bridge & SSP IC Barometric air pressure ranges: <ul style="list-style-type: none"> E524.71 : 40 kPa to 115 kPa E542.72 : 60 kPa to 165 kPa E524.73 : 15 kPa to 115 kPa / 60 kPa to 165 kPa E524.75 : 10 kPa to 115 kPa Analog voltage or digital SPI as an output interface Comprehensive self diagnostics AECQ-100 qualified
Supply Voltage [V]	4.5 V to 5.5 V	4.75 V to 5.25 V	2.7 V to 5.5 V	4.75 V to 32 V (depending on interface)	3 V to 5.5 V
Voltage Protection [V]	-28 V to 40 V	-18 V to 35 V	-0.3 V to 6 V	-36 V to 36 V	-
Temp. range [°C]	-40 °C to 150 °C	-40 °C to 150 °C	-40 °C to 125 °C	-40 °C to 125 °C	-40 °C to 125 °C
Input span [mV/V]	± 0.8 mV/V to ± 50 mV/V	± 1.5 mV/V to ± 56 mV/V	± 2.7 mV/V to ± 63 mV/V	± 2.7 mV/V to ± 63 mV/V	-
Offset trim [span]	± 2.5 * to ± 50 * Input Span (depending on gain)	-4 * to +3.75 * Input Span	± 2.7 * Input Span	± 2.7 * Input Span	-
Front end ADC	14 Bit, 6.7 kS/s	15 Bit, 3.9 kS/s	16 Bit, 2 to 50 kS/s	16 Bit, 2 to 50 kS/s	16 Bit, 20 kS/s
Back end DAC	12 Bit, 6.7 kS/s	-	16 Bit, 400 kS/s	16 Bit, 400 kS/s	16 Bit, 400 kS/s
Temp. sensor	Internal or External diode	Internal and External diode or Bridge or NTC	Internal and External diode or Bridge	Internal and External diode or Bridge	Internal diode
Digital output	<ul style="list-style-type: none"> SENT 	<ul style="list-style-type: none"> SENT 	<ul style="list-style-type: none"> I²C/ SPI 	<ul style="list-style-type: none"> I²C/ SPI 	<ul style="list-style-type: none"> I²C/ SPI
Analog output	<ul style="list-style-type: none"> 0.5 V to 4.5 V ratiometric 	-	<ul style="list-style-type: none"> 0 V to 3.3 V 0 V to 5 V 0.5 V to 4.5 V ratiometric PWM, FM 	<ul style="list-style-type: none"> 4 mA to 20 mA 0.5 V to 4.5 V ratiometric 0 V to 5 V / 0 V to 10 V PWM, FM 	<ul style="list-style-type: none"> Ratiometric, different options
Communication	1-wire programming	1-wire programming	1-wire programming , I ² C/ SPI	1-wire or 0-wire programming over current loop, I ² C/ SPI	-
Response time (τ)	Configurable low pass: 0.16 to 2.5 ms	Configurable low pass: 1 to 27 ms	Configurable low pass: 0.139 to 50 ms	Configurable low pass: 0.139 to 50 ms	Low pass filter: 1 ms
Package	<ul style="list-style-type: none"> QFN20L4 (4 mm x 4 mm) Bare-Die 	<ul style="list-style-type: none"> QFN20L4 (4 mm x 4 mm) Wettable Flanks Bare-Die 	<ul style="list-style-type: none"> DFN14 (3 mm x 4 mm) Bare-Die 	<ul style="list-style-type: none"> DFN14 (3 mm x 4 mm) 	<ul style="list-style-type: none"> SOIC8 (6 mm x 5 mm) SOIC20 (12 mm x 7 mm)