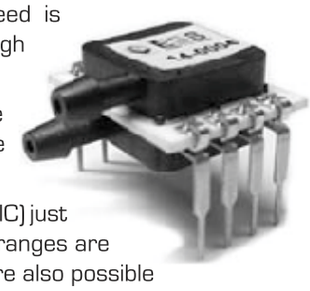
ESCP3-M1 Series

Ultra-Low Differential Pressure Sensor based on Silicon Capacitive MEMS Technology

European Sensor Systems (ESS) has developed a series of pressure sensors targeting a variety of markets requiring a high resolution and high stability low pressure differential pressure sensor. The **ESCP3-M1** is a MEMS based silicon capacitive pressure sensor with world class resolution. The pressure sensor is underpinned by ESS' innovative SOI-surface micromachining technology.

ESCP3-M1 is a digital differential pressure sensor of ultra high resolution with SPI and TWI interface. The sensor includes a high resolution ΣΔ ADC to digitize the signal. The digital output is fully calibrated and temperature compensated based on the internal temperature sensor and the factory calibration coefficients which are stored in the embedded memory. Thus the sensor is ready to be installed directly to the end user system without further processing. The total error including repeatability, hysteresis, non-linearity, thermal offset and calibration error between 0 ºC and 60 ºC is better than 0.5% FS.

A low phase noise oscillator is also integrated, eliminating the need for any external components. Different power modes are available enabling low power operation, while the output rate and thus the conversion speed is programmable allowing the end user to customize/optimize performance. The sensor provides high accuracy 32- bit pressure and temperature outputs.



ESCP3-M1 sensor is a Silicon Capacitive Pressure Sensor with excellent long term stability. The sensor is incorporated in a standard 8-pin DIP package with two pneumatic ports. The top port is the high side and the bottom port is the low side.

Different pressure ranges can be achieved with the same hardware (MEMS sensors and CMOS ASIC) just by reconfiguring the signal conditioning ASIC to the new pressure range. The standard available ranges are between ±10 mbar, ±25 mbar, ±100 mbar. Other ranges between the ones described above are also possible upon request.

Applications

- HVAC
- Medical instrumentation
- Airflow monitoring
- Process control
- Filtration systems

Features

- Total error <0.5%FS (Including repeatability, hysteresis, non-linearity, thermal offset, calibration error)
- Single supply 3.3V
- TWI or SPI interface on the same package, master selectable
- Differential pressure configuration
- Standard 2.54mm pitch DIP package
- Low pressure range down to ± 10mbar
- Configurable power modes for low power/portable devices

Performance Characteristics

Parameter	Min	Typ	Max	Units
Power Supply	3,25	3,3	3,6	V
Current Consumption (Based on the highest power mode)		2,75		mA
Operating Temperature		-20.....+80		ºC
Compensation Temperature (Others Available)		0.....+60		ºC
Digital Output	32-bit Calibrated Pressure and Temperature Output			
Response Time	Depends on filtering rate			
Proof Pressure		x 5		RATED PRESSURE
Media Compatibility	Inert non corrosive gases			

ESS
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Company Profile

European Sensor Systems S.A. (ESS), commenced its operations late 2012, by a group of experienced executives and professionals, who accumulate decades of experience in the design, development, fabrication and integration of sensor based systems.

ESS is a global developer and manufacturer of high quality sensors based on micro-electronics technologies. Our MEMS based sensors and sensor systems, which are produced via qualified industrial processes, measure pressure, fluid properties, acceleration and temperature.

Combining our multiple discipline capabilities, we can deliver technologically advanced sensor solutions in a fast and efficient way starting from the concept to prototyping and full production. Our flexibility along with the dedication to the client ensures a high end custom made product within a limited timeframe ready to be installed to the application without any additional modifications.

ESS products are employed in sophisticated control and monitoring applications in the industrial, medical, aerospace and consumer good markets either as stand alone components or being integrated within other equipment.

Capabilities

- Development of MEMS sensors based on ESS fabrication processes or other commercially available processes
- Development of mixed analog-digital ASICs for the signal conditioning of MEMS sensors based on commercially available CMOS processes
- Development of novel packaging solutions tailored to the customer needs
- Feasibility studies of MEMS based sensors
- Prototyping
- Test and characterization

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