

PRODUCT LINE FEATURES

Developed to conquer technical challenges and fill an important Exploration & Production market gap, OpenField™ sensors are uniquely capable of deploying microchip technology in the harshest of environments. Pairing the benefits of mono-crystal micro sensing elements with a corrosion- and HPHT-resistant protective casing small enough to fit in the palm of your hand, OpenField™ sensors will enable your operators to collect vastly superior data readings on the pressure and temperature of all your downhole operations.

OEM INTEGRATION IN DOWNHOLE TOOLS WHERE SIZE CONSTRAINTS ARE CRITICAL

OpenField™ proprietary MEMS technology dramatically improves dynamic data acquisition and interpretation capacities during Well Test operations, thanks to its extremely fast settling time. With its **tiny size**, this gauge can be integrated in any room-constrained application to allow measurement where it would be impossible with conventional sensors.

Protected by a corrosion resistant diaphragm, the sensor boasts **miniaturised electronics** performing in-situ digital conversion and computation to store engineering values in its memory while communicating in real time. **Single wire** communication and low power requirements simplifies connectivity to tool boards.

All of this with data quality superior even to Quartz technology.

SPECIFICATIONS

Outside Diameter	8mm (5/16")
Length	38mm (1.5") with memory 25.4mm (1") without memory
Material	Inconel 718 - Sour Service
Power	3.6V 2mA
Memory	2.8 million data sets (Time, Pressure, Temperature)
Pressure Range	5, 10, or 15 kPsi (350, 700, or 1000 bar)
Temperature Range	125, 150 or 170 °C (257, 302 or 338 °F)
Pressure Accuracy	±0.01% FS
Pressure Resolution	0.00005% FS at 1Hz
Temperature Resolution	0.001 °C at 1Hz
Sampling Rate	8 milliseconds to 24 hours
Deployment	OEM integration in Downhole Tools
Interface	- One wire UART - I ² C - SPI

APPLICATIONS

– OEM integration in downhole tools

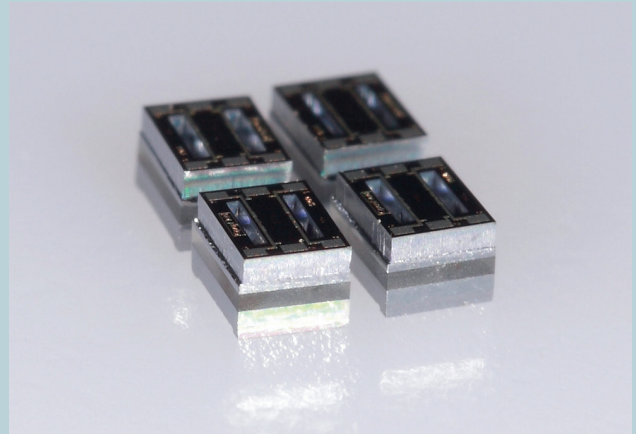
HIGH ACCURACY - HIGH RESOLUTION

MEMS MICRO-SENSOR FOR PRESSURE AND TEMPERATURE

MEMS SENSING ELEMENT

MEMS stands for "Micro Electro Mechanical Systems". MEMS devices combine mechanical, electromagnetic, thermal and chemical functions on a millimetre-size chip. The technology is an extension of microelectronics processes to create micro-machined structures integrating sensing and actuating capabilities to computing power.

It often yields better performance and better reliability through the use of high quality clean room processes. Moreover, miniature sensing element stabilise quicker than their macroscopic counterparts, leading to better acquisition rates and more accurate measurements during transients.

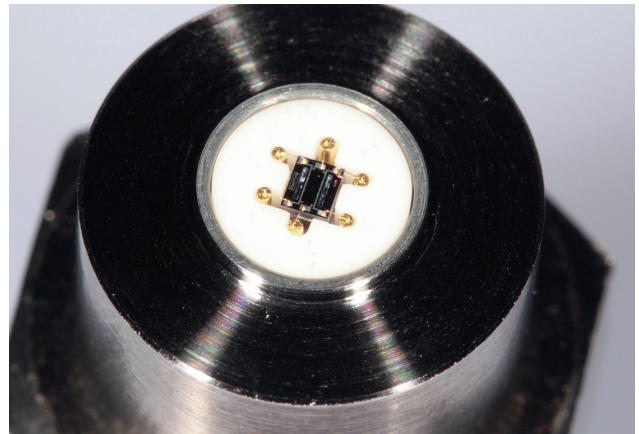


Proprietary MEMS sensing elements

PACKAGING

To interact with downhole fluids, MEMS elements must be protected against corrosive compounds. Additionally, although the sensing element is exposed to pressure, the acquisition system must be isolated from high pressure conditions.

This is achieved by placing the sensing element in a pressure feedthrough, behind a protective diaphragm. Combined in a miniaturised system, all these elements contribute to produce an outstanding sensor.



Sensing element in pressure feedthrough

SMART ELECTRONICS

The micro-recorder electronics makes use of the latest analog to digital conversion and MCU technologies coupled with state-of-the-art memory devices. All these are fitted in a compact package and tested through thermal cycles. Tailored, embedded firmware processes data on the fly to adapt recording behaviour and optimise battery power consumption.



Rugged packaging parts

Rev A: information furnished by OpenField is believed to be accurate and reliable. However, no responsibility is assumed by OpenField for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of OpenField. Trademarks and registered trademarks are the property of their respective owners.



www.openfield-technology.com

13 rue de Limoges - 78000 Versailles - France

Tel: +33 (9) 8242 8309 info@openfield-technology.com

©2011-2015 OpenField. All rights reserved.