PERMANENT MONITORING SYSTEMS
SPSRO™ Permanent Monitoring

Spartek Systems specializes in providing the oil and gas industry with high quality data to monitor well performance and diagnose potential problems. Spartek Systems can provide cost effective solutions for your Real Time Permanent Monitoring needs.

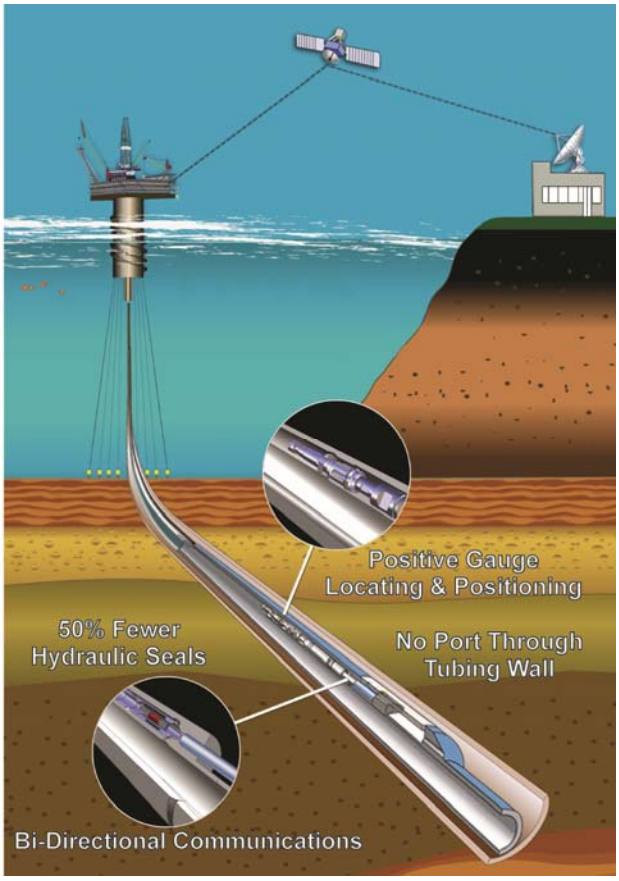
Product Overview

Permanent downhole measurement technology is a common component of conventional well completions. Our system consists of one or more downhole sensors used to measure, record, and transmit pressure and temperature data to determine reservoir performance. A conventional system includes a quartz pressure sensor mounted externally onto a port in the tubing wall, for measurement of tubing pressure and annulus temperature. A tubing encapsulated conductor (TEC), is attached to the gauge from the surface, and strapped to the tubing, which powers the gauge and transmits data back to the surface. A surface acquisition unit capable of receiving, storing and forwarding the acquired data completes the system.

The conventional technology gauge carrier has a hydraulic connection through the tubing wall to the externally mounted gauge, with an additional hydraulic connection, connecting the gauge to the TEC from the surface.

Spartek's patented Side Pocket Surface Readout (SPSRO™) system replaces the conventional system's carrier and offers several exclusive advantages.

- The downhole instrumentation is wireline retrievable. Minimizes cost associated with recalibration or replacement of the pressure gauge.
- The gauge is immersed in the produced fluid, measuring tubing pressure and tubing temperature from its position in an off-center side pocket.
- A Testable Dual Metal to Metal seal is used to connect the TEC to the Inductive Coupler.
- The Inductive Coupler removable U-block has a testable Metal to Metal though the tubing wall
- The inductive coupler is used to power the gauge and provide bi-direction digital communications. The inductive coupler has no exposed electrodes or elastomers and is insensitive to wellbore fluids.
- Surface Data Acquisition unit is capable of acquiring data from multiple gauges on a single TEC.
  - Sample rate controlled from the surface.
  - 2 Gbytes memory for data storage.
  - Optionally powered by solar or wind.



SPSRO™
Side Pocket Surface Read-Out
Permanent Downhole Monitoring

SPARTEK SYSTEMS

Providing Our Customers With "Best In Class" Technology

Email: sales@sparteksystems.com **http://www.sparteksystems.com**

SPARTEK SYSTEMS
GEOPHYSICAL INSTRUMENTATION

Rev: 06/05/2017

Specifications:

Downhole Gauge System

Gauge

Gauge Type	SPSRO Quartz
Diameter (OD)	1.27 inches
Length	19 inches
Material	Inconel 718 - NACE
Seal Configuration	No Seals, Fully Welded
Power Consumption	30 Vpp @ 5 mA
Retrievable	YES (wireline)
Sample Rate	1 sample / sec (max)

Cable

Size	0.25 inch OD
Wall Thickness	0.028 or 0.035" inch wall
Conductor	16 AWG Stranded Copper
Encapsulation	As required
Material	A825 Inconel or 316 SS

Pressure

Sensor Type	Quartz
Pressure Ranges	10k, 16k psi
Accuracy	0.02% Full-Scale
Resolution	0.00006% Full-Scale
Drift	< 0.02% FS / year

Temperature

Calibrated Range	25°C-177°C (77°F-350°F)
Accuracy	0.25°C (0.45°F)
Resolution	<0.005°C (<0.009°F)

Surface Acquisition Systems

Indoor/Outdoor All Weather

Channels	4
Sample Rate	4 sample/sec (max) Configurable
Operating	-40°C to 65°C
Memory	2 Giga Bytes Storage Non Volatile
Communication	USB, RS485, Modbus
Software	Windows 10/8/7/Vista/XP/NT/2000
Size (W x H X D)	8 x 10 x 6 inches
Weight	6.9 lbs
Mounting	Pole or Wall Mount
Power	24 VDC @ .5 A Wind or Solar (optional)
Desert Application	YES
Area	Class 1, Div 2 Group B, C, D
Ingress Protection	NEMA 4X Rating
Relative Humidity	0 to 95%

Rack Mount

Channels	4
Sample Rate	4 sample/sec (max) Configurable
Operating	-40°C to 65°C
Memory	2 Giga Bytes Storage Non Volatile
Communication	USB, RS485, Modbus
Software	Windows 10/8/7/Vista/XP/NT/2000
Size (W x H X D)	19 x 1.75 x 12 inches
Weight	13 lbs
Mounting	19 inch standard 1u rack mountable
Power	110/240 AC @ 100 mA

SPSRO Mandrel

Tubing Size (inches)	Mandel OD (inches)	Mandrel ID (inches)	Drift ID (inches)	Burst (psi)	Collapse (psi)	Material
2.375	4.550	1.938	1.901	9,705	9,070	Available: 13 Cr L80 (80k psi yield) Other Materials and a choice of Threads are available on a build to order basis.
2.875	5.000	2.391	2.347	9.983	8,963	
3.500	5.500	2.875	2.797	8.706	7,022	
4.500	7.000	3.891	3.850	9,100	8,200	
5.500	8.000	4.892	4.767	7,700	5,500	

Specifications subject to change without notice

For More Information, Pricing, and Technical Support Contact:

#1 Thevenaz Industrial Trail
Sylvan Lake, Alberta
Canada,T4S 2J6

Tel: (403) 887-2443
Fax: (403) 887-4050

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Email: sales@sparteksystems.com **http://www.sparteksystems.com**