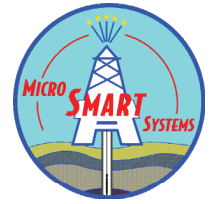


TSRO SYSTEM



Tandem Downhole Pressure Gauge (SRO)

The TSRO downhole pressure gauge system is utilized when your job application requires dual real-time, SRO (surface read out) data acquisition and the flexibility of a multiplexed, tandem gauge system. The system is composed of :

- (a) compatible computer
- (b) wireline receiver (requires AC power)
- (c) master pressure gauge (top)
- (d) slave pressure gauge (bottom)

The TSRO system is tough, dependable, simple and intelligent. It is flexible enough to operate on a wide variety of mono-conductor electric lines; including cobalt.

The sophisticated multiplexing control circuits are in the top instrument or master gauge. The bottom slave unit is a standard MSRO gauge design. Each gauge alternates sending data up the line to the surface data acquisition system. Data is received every 0.9375 seconds, first from the master unit and then the slave unit. This method provides an overall sampling rate of 1.875 seconds. One TSRO system can be connected to the surface wireline receiver.

Micro-Smart System's flexible, menu driven, multi-tasking, data acquisition software allows the operator to:

- (a) retrieve and store data to the computer's hard disk in ASCII format (both gauges)
- (b) monitor real-time data on the PC
- (c) print and plot data

Advanced report generation features are available such as data printouts, Gradient reports, gradient plots, and most of the standard time vs. pressure/temperature plot formats.

Micro-Smart Systems is the **SMART** choice for cutting-edge technology and superior customer support. We can save you time, money and help you keep your customers satisfied.

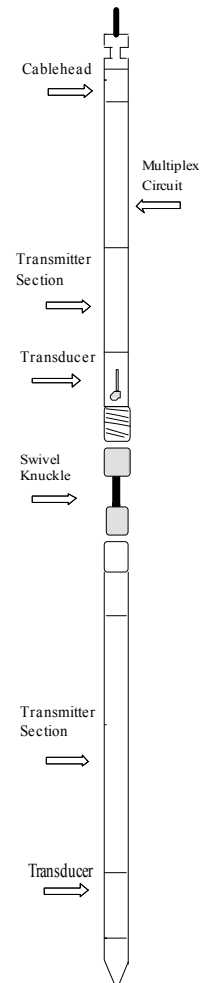
Advantages:

- Tandem downhole SRO gauges allows immediate verification of pressure anomalies
- Top gauge can be ported via tubing to another zone (i.e. bottom of packer, etc.) while bottom gauge measures a separate zone
- Bottom gauge can be hung below top gauge using any length of E-line cable to measure at a different depth

SMART Features:

The technological features of the TSRO System are:

- User-friendly, multi-tasking data acquisition Software
- Application flexibility due to system design
- Reliable data transmission insures full scale accuracy
- Standard ASCII data storage format
- Gauge system connects to a standard 1-3/16" G-O pin cablehead



"SOPHISTICATED MULTI-MULTI-PLEXING CONTROL"

SPECIFICATIONS:

Temperature: 0° F to 300° F
Accuracy: ± .05% Full Scale
 ± 3° F

Pressure Ranges: 5,000 (34,000 kPa)
 10,000 (68,000 kPa)
 15,000 (102,000 kPa)

Sampling Rate: 1.875 (system)

Weight: 29 lbs

Wireline Receiver Power: 120/220/240 VAC

Resolution: .03 psi
 .04 ° F

Outside Diameter: 1.45" max

Length: 91" (both instruments)