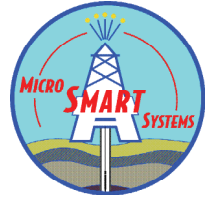


SFM-200



Downhole Memory Flowmeter

The SFM-200 memory flowmeter provides downhole measurement of flow, borehole temperature and CCL.

The SFM-200 is utilized for various production logging (PL) and downhole evaluation applications such as locating leaks, flow/injection profiles, detecting non-performing perforations, locating fluid entry zones, detecting channels, etc. If more precise depth correlation and fluid identification are required, additional Micro-Smart PLT modules such as the SGM-200 Downhole Memory Gamma Logger (gamma ray, borehole temperature, CCL and fluid capacitance) and SP-2000 Downhole Memory Gauge (pressure) are run in combination. A slickline depth recorder can be used to monitor and store time/depth data.

Have the confidence that "You Know The Flow" with the SFM-200. The rugged flowmeter design enables the operator to reliably record quality spinner data in the worst well conditions. Low flow rate wells, in many cases, can be logged successfully, due to the low fluid velocity threshold and high count rate.

A sensitive, high resolution, platinum RTD temperature sensor detects temperature anomalies. Large memory capacity is adequate for long duration logging projects.

The SFM-200 is easy to program with or without the use of a compatible computer. With the use of our simple, menu driven software, you can retrieve and report the log data (using a compatible computer and printer).

If the customer requires standard API log prints, Micro-Smart Systems can generate the logs in our Houston office or provide the user with the required software programs and training. Complete PL analysis can also be provided upon request.

Advantages:

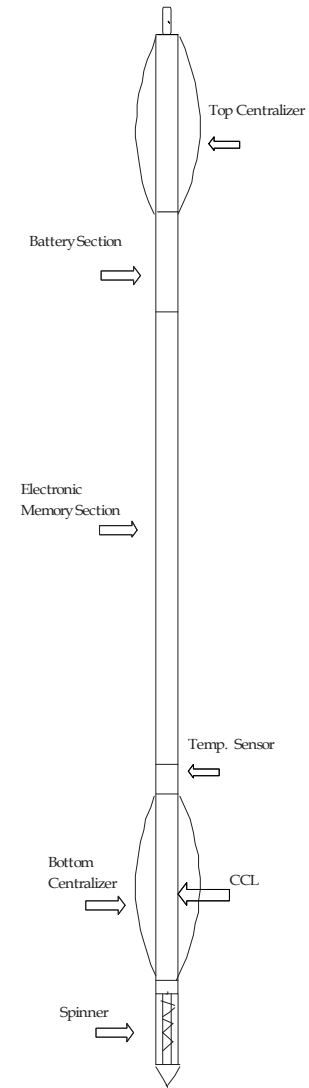
Some advantages:

- cost savings
 - less equipment and personnel required
 - less time required for transport and rigging
- can monitor low flow rates
- improved data quality
 - memory tool eliminates noise problems associated with electric-line
- more reliable data acquisition
 - reliable battery power and dual EEPROM tool memory eliminates potential problems with data transmission to surface unit via electric-line and power failures (surface equipment and electric-line shorts)

SMART Features:

Technological features of the SFM-200 are:

- Tool stores time, bi-directional flow, borehole Temperature and CCL information
- Dual EEPROM memory
- Large memory capacity
- Tool performs internal tests and delivers audible signal to confirm operation
- Switch selectable programming
- Custom computer programming
 - up to 15 time periods
 - specify time interval and sampling rate



"YOU KNOW THE FLOW"

SPECIFICATIONS:

Memory Capacity: 48,000 data sets (main)
2,000 data sets (backup)

Sampling Intervals: 1.875 seconds to 64 minutes
(in binary multiples)

Operating Temperature: 32° to 325°F
(0°C to 160°C)

Max. External Pressure: 15,000 psi (102,000 kPa)

Power: 13.5v (9 'C' cell Alkaline) 14.4v (4 'C' cell Lithium)

Collar Sensor Velocity: 2-7/8 inch tubing 25 ft./min. minimum
3-1/2 inch tubing 50 ft./min. minimum

Collar Samples accurate to 3 1/2 inch tubing; Maximum wireline speed 200 ft/min

Temperature: Resolution .04°F
Accuracy ± 2°F

Spinner: Resolution 12 counts/revolution
Minimum Fluid Velocity 7.8 ft./min.
Impeller diameter 1 inch

Length: 11.2 feet (3.4m) max.
(including battery pack and centralizer)

Diameter: 1.6" (40.6 mm) maximum

Weight: 32 lbs. (14.5 Kg)