

QL40-SFM

Bi-directional spinner flowmeter

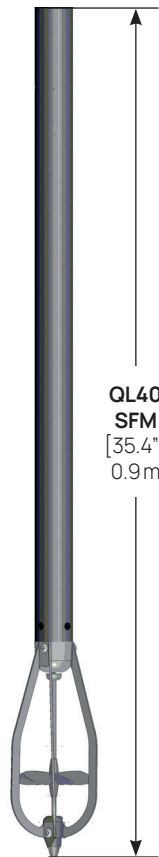
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This QL40-SFM measures impeller rotation caused by fluid flow in the borehole. It uses a magnetically coupled pick-up which drives a low friction, high resolution encoder located inside the lower pressure housing. The encoder produces 256 pulses per shaft rotation. It has quadrature sensing electronics that instantaneously detect flow rate direction and changes.

The QL40-SFM is a bottom sub, and can be combined with other logging tools in the QL (Quick Link) product line or operated as a stand alone tool. Weight bars with centralizers are recommended to improve log response and repeatability in large boreholes or low flow environments.

Application

- Pumping flow profiles in screened or perforated cased holes
- Identification of hydrostratigraphic units
- Confirmation of predicted transmissive zones in open hole



Tool

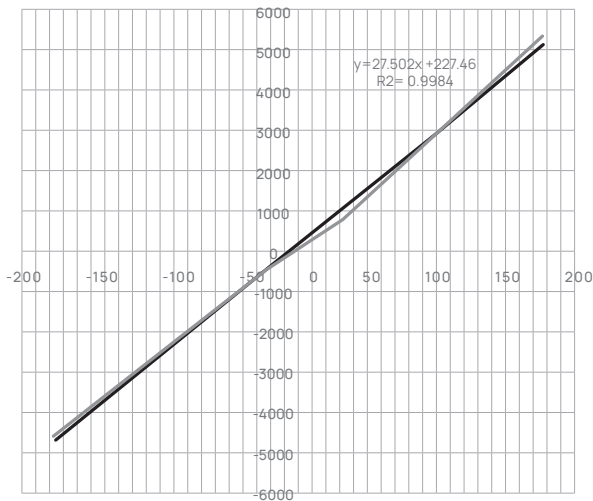
Diameter : 40mm (1.6")
Length : 0.9m (35.4")
Weight : 3.2kg (7.05 lbs)
Temp : 0 - 70°C (32 - 158°F)
Max. Pressure : 200bar (2900psi)

Sensor

Pickup sensor : 3000 RPM max.
Accuracy : > 1%
Resolution : 256 pulses/revolution
Output : Counts/second
Standard cage/impeller assembly : 50.8, 76.2, or 101.6 mm (2, 3, or 4")

Operating conditions

Cable type : Mono, multi-conductor, coax
Compatibility : Scout Pro / Opal (Scout / Bbox / Matrix)
Digital data transmission Telemetry : Variable baudrate telemetry according to cable length/type & surface system
Logging : Static/dynamic or dynamic while pumping
Centralisation : Recommended
Borehole conditions : Fluid-filled borehole
 Open borehole or perforated screen casing



Typical flow response curve for up and down runs in 6" casing
 (Flow rate in gpm vs. spinner speed in cps)

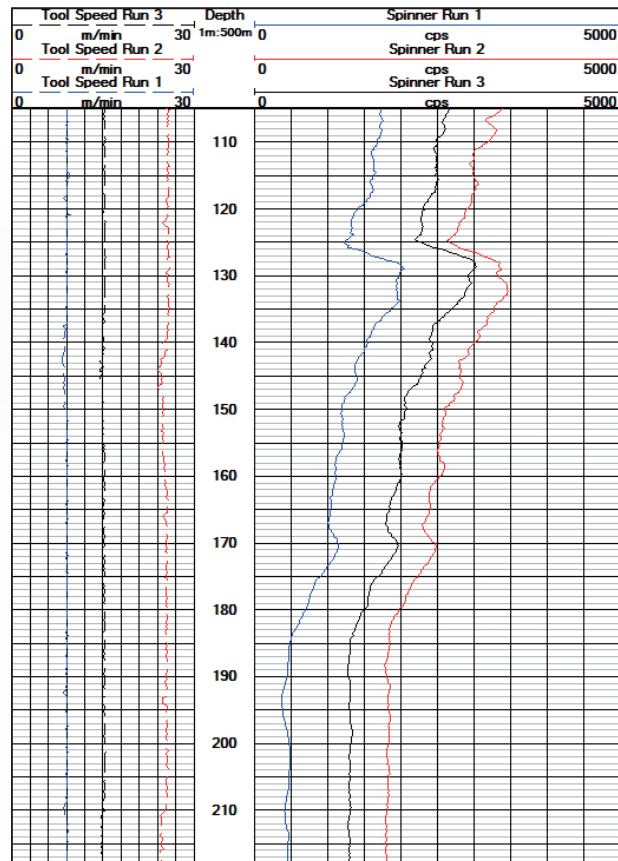


Principle of measurement

A bouyant impeller mounted on a hollow stainless steel shaft is suspended between two precision ground ceramic bearings. A balanced transfer bulkhead fitted with magnets couples motion and direction from the impeller through a sealed sensor body inside the probe. A low friction high resolution encoder detects this information and transfers it digitally to a counter circuit that sends the information by wireline modem to the surface.

Measurements features

- Spinner up in CPS
- Spinner down in CPS
- Tool speed in m/min

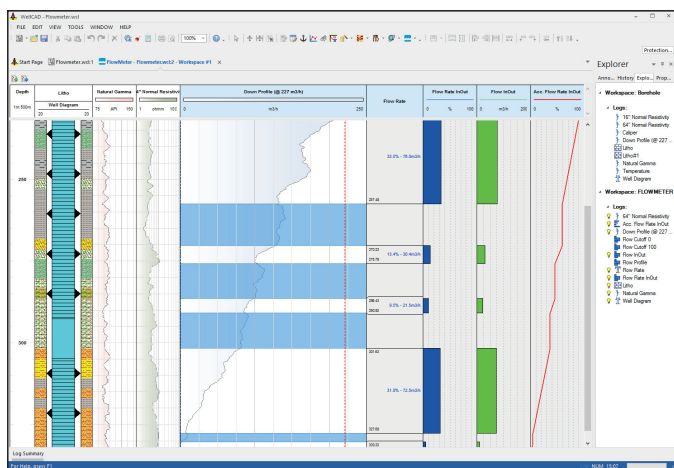


Flowmeter data processing available in WellCAD® 5.3

After initializing the workspace the user can interactively pick identified No Flow zones. The contribution of the flow zones will automatically be computed and displayed as percentage, absolute and cumulated values in text as well as in graphic form.

Additional data such as geophysical logs, lithology columns or well sketches can be added as reference logs to the workspace aiding the interpretation.

Templates can be saved and applied when initializing a new workspace to save valuable time.



Flowmeter Workspace with reference logs (left), flowmeter curve (center) and interval flow answer products (right)