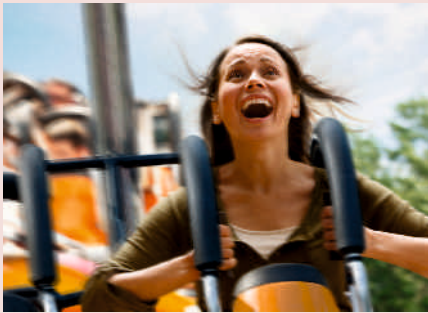


FracSENS LB 6770

Rugged Densitometer for Hydraulic Fracturing and Cementing Applications

Made to Survive!



This woman is affected by forces of 4g, a well-trained human body can stand a maximum of 12g. The Berthold FracSENS detector survived a shock test up to 500g and was fully operational afterwards!

Small - Compact - Rugged

The FracSENS LB 6770 densitometer is specifically developed for the harsh environments that are typical for hydraulic fracturing and cementing. The count rate measured can be used to calculate PPA, PPG or SGU either in low pressure or in high pressure applications. With outer dimensions of 2.2 x 11.2 inches the detector is much smaller than any other fracturing densitometer and due to this compact design and its internal structure the detector is extremely resistant to vibration and mechanical shock, which has been proven successfully in excessive tests and in real applications.

Rugged design to withstand high vibrations and mechanical shock, approved up to 500g

Scintillation technology ensures high sensitivity for gamma radiation and allows reduction of source activity by a factor 10 compared to conventional Ion Chamber detectors

Stainless steel housing

Detector is supplied completely preconfigured. Calibration with empty pipe and water is all you need to do to set-up the device.

Easy plug & play amphenol cable connection for quick mount / dismount

Interfaces with most control systems, using one of the following output options:

- 0...10 VDC
- 4...20 mA
- pulses

High responsiveness - cycle time goes down to 100ms for high-speed measurements

Typical source size is 20mCi or less



18
Months
Warranty

Extended Warranty

Based on our excellent field proven experience with this detector we guarantee that it will survive in the most demanding of fracturing conditions and we give 18 months warranty from time of shipment as a standard for this product.

Ready to use in minimal time

The FracSENS LB 6770 directly connects to the customer control system. A transmitter unit is not needed at all. Customers will receive a signal proportional to count rate/density, which could be either a voltage output, a current output or a pulse output - whatever fits your control system. Even Modbus RTU communication is available.

The densitometer is pre-configured in our factory according to your needs, so anything you need to do on site is a quick calibration with empty pipe and water to set the system up. That's it!

Easily Retrofit Existing Systems

The FracSENS densitometer can be used in combination with existing sources and clamps. We have different adapters and clamps available to adapt to your current system. Just contact us!

FracSENS LB 6770 Technical Data

Detector operating data

Power supply	24 (15...28) VDC, ≤ 2 W
Cable connection	Amphenol PT02 E10-6P, 6-wire cable 1.5mm ² cross-section, shielded
Housing material	Stainless steel ISO 1.4301 / AISI 304 (others upon request)
Outer Dimensions	∅ 57 mm x 285 mm (∅ 2.24 inches x 11.2 inches)
Weight	Approx. 3 kg
Scintillator	Nal-crystal; ∅ 40 mm, H: 50 mm
Operating temperature	-40 ... +60°C (-40 ... +140°F) ambient temperature
Storage temperature	-40 ... +70°C (-40 ... +158°F)

Performance

Temperature stability	≤ 0.002 %/°C (over 100°C temperature regime)
Internal cycle time	100 ms

Signals & Process Interfaces

Output Signals	proportional to count rate or logarithmic count rate (density) 0...10 VDC or 4...20 mA (max. 400 Ohm loop resistance) or pulses, max. 10 V
Communication	RS 485 - Modbus RTU (for detector temperature, actual high voltage and setting, time constant, detector errors and warnings etc.)

Detector certificates & tests

IP protection	IP 66
Environmental tests	IEC 60068-2-6 Vibration 5 ... 1000Hz, stay at resonance frequency IEC 60068-2-27 Mechanical shock (500g) IEC 60068-2-31 Drop test from 2m height IEC 60068-2-14 Temperature shock test (-40°C ... +70°C) IEC 16750-4 Intense water jet

