



Compact™ Ultrasonic Gas Detector (MGD)

Weatherford's *Compact* ultrasonic gas detector (MGD) responds to high-frequency acoustic energy associated with the flow of gas into a well. A sophisticated signal-processing scheme amplifies the gas signal and diminishes noise associated with the movement of the tool and logging cable.

The tool uses two ultrasonic detectors separated by 30.5 in. (0.8 m). Processed acoustic logs are depth-aligned and displayed on opposing scales, causing curve convergence and/or crossover opposite the gas inflow. Residual deflections associated with road noise are typically time-synchronous and, therefore, appear to be separated by the transducer spacing on the depth-aligned log. High- and low-gain versions of each curve enable the display to be optimized without risking signal saturation.

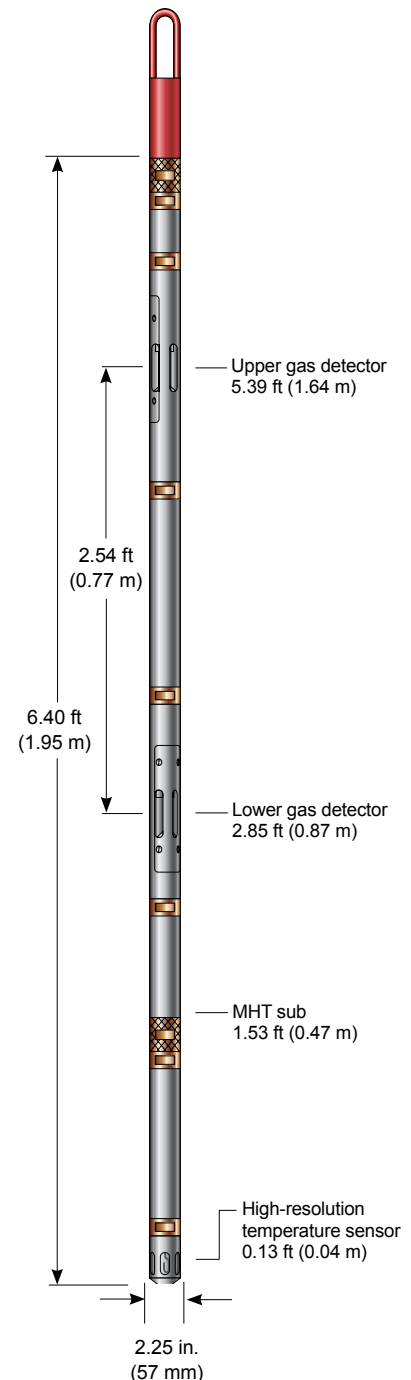
Gas flow is confirmed by an associated drop in borehole temperature, which is measured by the high-resolution borehole temperature (MHT) sub that can be run in combination with the MGD.

Applications

- Detecting the flow of gas
- Detecting casing leaks
- Detecting presence or absence of flow at perforations

Features, Advantages and Benefits

- The MGD provides high vertical resolution for a clear indication of gas interval.
- The MGD uses dual detectors to differentiate between gas and road noise to provide a dynamic measurement for increased operating efficiency.

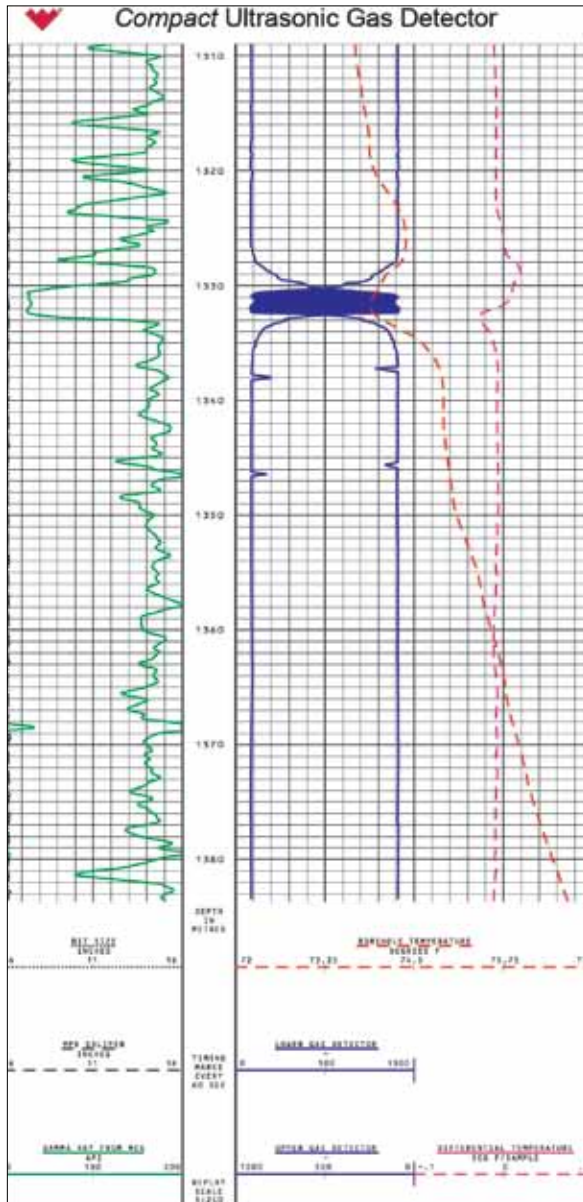


Open Hole

Acoustic

Compact™ Ultrasonic Gas Detector (MGD)

Log Presentation



Specifications

Measurement specifications	
Data	Ultrasonic noise, temperature
Logging speed	1,800 ft/hr (550 m/hr)
Measurement range	Noise: N/A Temperature: -40° to 185°F (-40° to 85°C)
Vertical resolution	Noise: N/A Temperature: 6.0 in. (152.4 mm)
Accuracy	Noise: N/A Temperature: ±1%
Depth of investigation	Borehole measurement
Borehole fluids	Air

Mechanical specifications		
Tool	MGD	MHT
Maximum outer diameter	2.25 in. (57 mm)	
Length	4.87 ft (1.49 m)	1.53 ft (0.47 m)
Weight (in air)	35 lb (16 kg)	13.2 lb (6 kg)
Maximum temperature	185°F (85°C)	257°F (125°C)
Maximum pressure	100 psi (0.7 MPa)	4.0 kpsi (27.5 MPa)
Maximum borehole diameter	15.7 in. (400 mm)	
Minimum borehole diameter	2.8 in. (70 mm)	