

# QL40-FWS Full Waveform Sonic

The ALT QL40-FWS tool is specifically designed for the water, mining and geo-technical industries. Its specification makes it ideal for cased-hole and openhole applications, and for the identification of fractures.

Sonic logs are widely used, often in combination with other logs, to provide porosity, permeability and geomechanical properties of rocks. Under suitable borehole conditions and formations, Compressional (P), Shear (S), Stoneley and Tube waves arrivals can be detected.

The new QL40-FWS tool is optimized for such purpose. It implements a high energy source generated by a ceramic-piezoelectric transducer that excites the formations in such a way that waves of different frequencies are developed and propagated. Real time analysis and processing of the full waveform are performed by the tool to enhance the picking of the different wave propagation modes.

The tool can only be operated in a fluid-filled hole.

Logging speed depends on tool configuration and acquisition parameters.

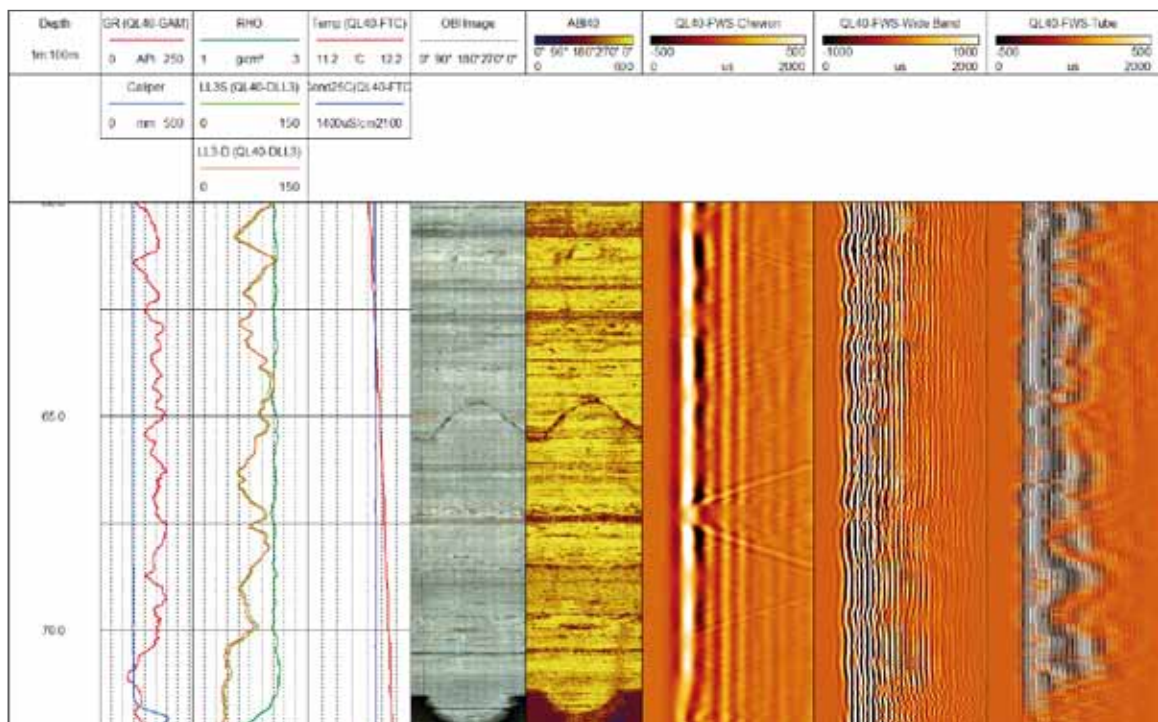
## Application

### Cased-hole

- Cement bond logging (CBL)

### Open-hole

- Porosity evaluation
- Permeability
- Lithology identification
- Variation of rock strength
- Calculation of rock mechanical properties (Elastic moduli, Poisson's ratio, Shear modulus, Young modulus, Bulk modulus and compressibility)
- Identification and hydraulic characterization of fractures



# QL40.FWS Full Waveform Sonic

## QL40-FWS New features

- Broad Band full wave sonic tool
- Real time display and processing of full waveforms in LoggerSuite and WellCad Browser
- Real time filtering to enhance the detection of the main wave propagation modes
- Higher energy acoustic source
- Resolution: 4µs sampling rate up to 4ms time scale extended range: 20µs up to 16ms
- Stackability concept
- Tool length is shorter in comparison with Standalone FWS tool
- Higher speed telemetry performance

## Technical Specifications

- Diameter : 50mm
- Length : 2,14m  
Standard configuration 1Tx-4Rx  
Tx-Rx1 spacing : 60cm  
Rx-Rx spacing : 20cm
- Weight : 18 kgs
- Max temp : 70°C (158°F)
- Max pressure : 200 bar

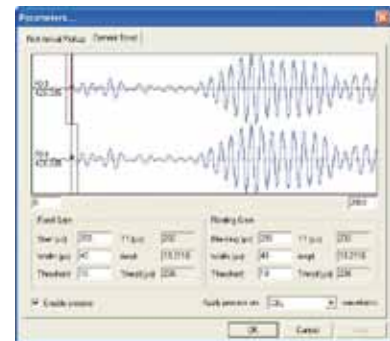
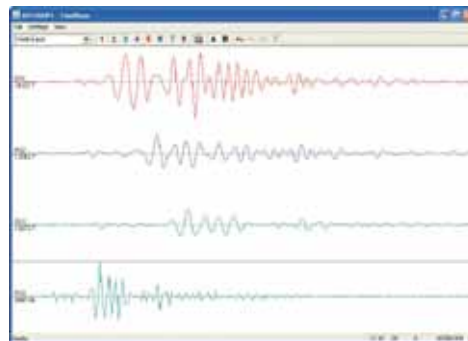
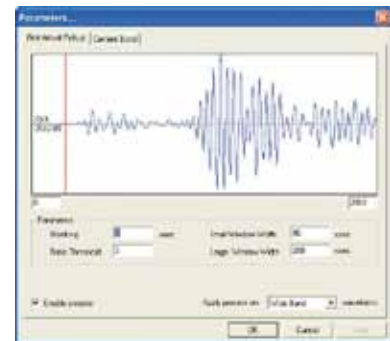
## Recommended accessories

- Two QL40-FWS slip over centralizers
- Dummy bottom sub for fixing the bottom centralizer



## Acoustic sensor

- Transducer : Ceramic piezoelectric
- Sonic wave sampling rate : Normal mode 4 µsec Extended mode 20 µsec
- Sonic wave recording time : Normal mode 4ms Extended mode 16 ms
- Sonic wave dynamic range : 16 bits



Mount Sopris Instrument Co. Inc. | 4975 E. 41 st Ave. Denver | CO 80216 | USA | Ph. 303 279 3211 | www.mountsopris.com



Zoning de Solupla Bât A | route de Niederpallen | L-8506 Redange | Luxembourg | Tel. +352 23 649 289 | www.alt.lu  
36th Floor, Menara Maxis | Kuala Lumpur City Centre | 50088 Kuala Lumpur | Malaysia | Tel. +60 3 2615 7261 | www.alt.lu