

# QL40.DLL3 dual spaced focused resistivity

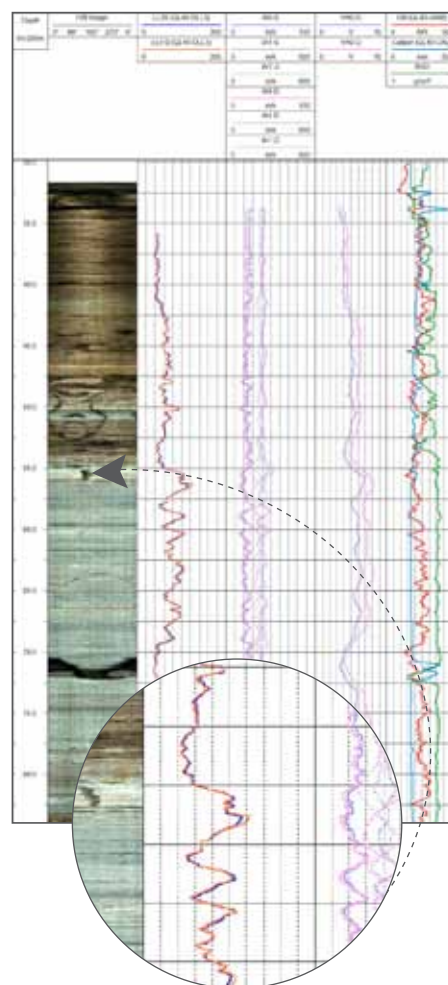
The QL40 DLL3 tool provides a time multiplex dual spacing focused resistivity measurement with two different depths of investigation, Shallow LL3-S and Deep LL3-D resistivity in Ohm.m.

It is characterised by an excellent vertical resolution in comparison with the traditional Normal Resistivity tool that makes it ideal for bed-boundary and thickness analysis.

The QL40 DLL3 can be operated as a stand-alone probe with an isolation bridle and bottom plug or can be stacked with other tool subs. The QL40 DLL3 is compatible with Matrix, Altlogger and BBOX acquisition systems.

## Application

- Bed boundary analysis
- Facies changes
- Quantitative geological formation properties
- Identification of hydrostratigraphic units
- Aquifer thickness
- Water quality
- Identification of hydrocarbon intervals
- Detection of ore body zones
- Identification of fractures and permeable zones



# QL40.DLL3 dual spaced focused resistivity

## Principle of measurement

A measure current  $I_0$  is injected into the formation from a central source electrode  $A_0$  mounted between two pairs of guard electrodes  $A_1$ - $A_2$ - $A_1'$ - $A_2'$  and returns to the cable armor beyond the insulated section of the cable.

The internal electronics keeps the potential of the guard electrodes equal to the potential of the measure electrode  $A_0$ . An equipotential surface is thus created constraining the current to flow perpendicularly as a thin disk having the same thickness as the central electrode  $A_0$ . Potential  $V_0$  due to this current flow is measured on the central electrode with respect to a voltage reference that may be either the bridge electrode, (also called "the fish"), or the surface mud stake. The ratio of the potential  $V_0$  to current  $I_0$  allows derivation of the formation resistivity in Ohm.m for both the shallow and deep depths of investigation.

## Measurements / Features

- Time Multiplex dual spacing focused resistivity LL3-S & LL3-D in [Ohm.m]
- Potential value on measuring and guard electrodes in [V]
- Current value on measuring and guard electrodes in [mA]

## Operating Conditions

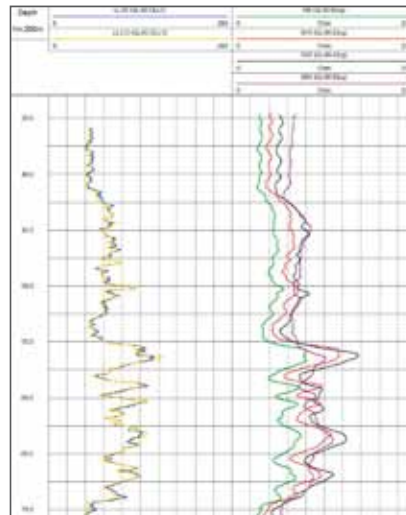
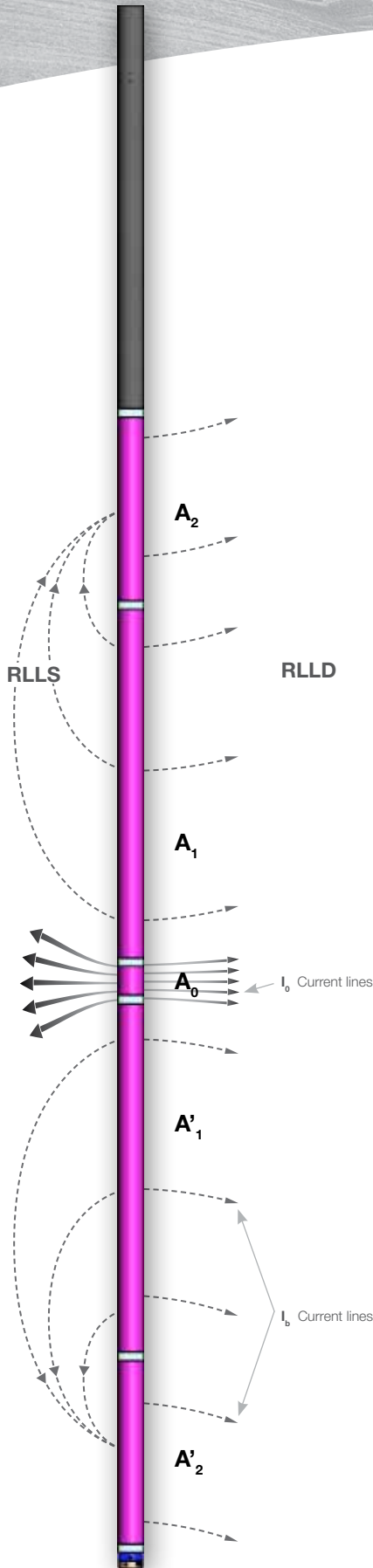
- Open borehole
- Borehole fluid required
- Centralization not necessary
- Isolating bridge required

## Technical Specifications

- Diameter: 43 mm (1.7") w/ neoprene insulator
- Length: 2.75 m (108,2")
- Weight: 14 kg (30.9 lbs)
- Max. temp: 70°C (158°F)
- Max. pressure: 200 bar (2900 psi)

### Resistivity measurement

- Measuring electrode ( $A_0$ ): 5cm
- Max. Injection Power: 5.5 W
- Two pairs of guard electrodes:  $A_1$  (61cm) –  $A_2$  (32cm),  $A_1'$  (61cm) –  $A_2'$  (32cm)
- Voltage reference: fish electrode at the top of the isolating bridge
- Resistivity range: 1 to 50,000 ohm.
- Accuracy: 1% between 10 and 1,000 ohm.m
- Accuracy: < 5% between 1,000 and 10,000 ohm.m
- Accuracy: below 15% between 10,000 and 50,000 ohm.m



The specifications are not contractual and are subject to modification without notice.



Mount Sopris Instrument Co. Inc. | 4975 E. 41 st Ave. Denver | CO 80216 | USA | Ph. 303 279 3211 | [www.mountsopris.com](http://www.mountsopris.com)



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