

QL40OBI.2G OBI40GR.2G

Optical Borehole Imager

The QL40OBI-2G and the OBI40GR-2G are the new generation of slim hole Optical Borehole Imagers. The new system comprises a completely redesigned optical assembly with new electronics. It implements a high resolution CMOS digital image sensor combined with a fisheye lens. The tool produces an extraordinarily clear, sharp, 360° continuous - unwrapped digital picture of the borehole wall, either in air or clear water. Resolutions up to 1800 pixels over the borehole circumference can be achieved which makes it ideal for lithological, mineralogical and structural analyses.

A built in high precision orientation package incorporating a 3-axis fluxgate magnetometer and 3 accelerometers allows orientation of the images to a global reference and determination of the borehole's azimuth and inclination.

The new QL40OBI-2G is fully digital and can operate on standard wirelines. It can be either combined with other logging tools of the QL (Quick Link) product line to build tool strings or operated as a standalone tool.

The OBI40GR-2G is a standalone tool version integrating a natural gamma sensor thereby enabling the measurement of gamma radiation emitted naturally from within the formations crossed by a borehole.



Application

- Detailed and oriented structural information
- Reference for core orientation
- Fracture detection and evaluation
- Breakout analysis
- Detection of thin beds
- Determination of bedding dip
- Lithology and mineralogical characterizations
- Casing inspection





Principle of measurement

The tool incorporates a 1/3-inch CMOS digital image sensor and matching fisheye optics. The digital image sensor captures the reflection of the borehole wall through the fisheye lens. The light source is provided by 10 high efficiency LEDs.

The displayed log image is derived from a single annulus extracted from the active pixel array. Azimuthal resolutions available are 120, 180, 360, 600, 900 and 1800 points per recorded circle. By using processed digital images in combination with deviation sensor data, the tool can generate an unwrapped 360° oriented image.

Measurements / Features

- 360°RGB true colour orientated image
- Borehole azimuth and tilt
- Relative bearing
- 3 accelerometer calibrated components
- 3 magnetometer calibrated components
- Temperature of CMOS image sensor
- Natural gamma in cps or API units (optional – OBI40GR-2G)

Operating Conditions / Compatibility

- Dry or clear water filled borehole
- Centralizers required
- Borehole diameter range : 2 1/2" to 21"
- Logging speed: Function of image resolution and wireline electrical properties i.e: 6 m/min with 900 pixels azimuthal resolution, 2 mm vertical sampling rate @ 100 Kbps.
- Wirelines:
 - Multi conductor, mono or coaxial cables
- Acquisition systems:
 - ALTLogger, BBOX and Matrix
- Min. software configuration :
 - LoggerSuite 11.2 – Wellcad 5.0 build 1103

Technical Specifications

- Diameter : 40 mm (1.6").
- Length : 1.47 m (57.9").
- Weight : 5.3 kg (11.7 lbs).
- Max. Temperature : 70°C (158°F).
- Max. pressure : 200 bar (2900 PSI)

Optical system

- Sensor : 1/3" high sensitivity CMOS digital image sensor
- Color resolution : 24 bits RGB true colors. Responsivity : 5.48V/lux-sec.
- Azimuthal resolutions: 120, 180, 360, 600, 900, 1800 points.
- Vertical resolution: User defined. Function of depth encoder vertical resolution

Light source

- Light source: High efficiency LEDs .
- Color temperature: 5600 K.
- Light intensity: 750 lm.
- Color rendering index: 80 %.
- Power max.: 5.60 W

Orientation sensor

- Sensor: APS544 – 3 axis magnetometer and 3 axis accelerometers.
- Azimuth accuracy: +/- 1.2 deg.
- Tilt accuracy : +/- 0.5 deg

