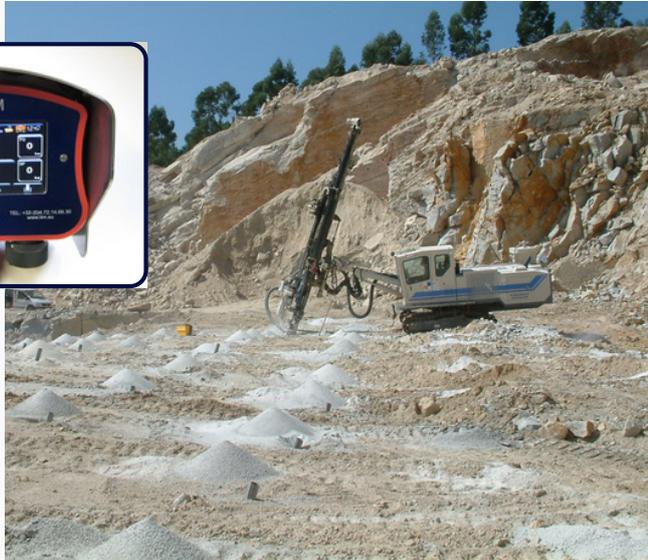
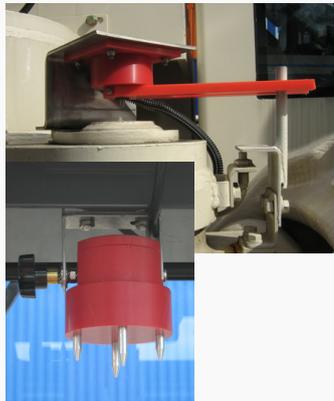
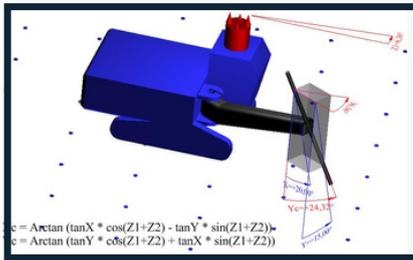


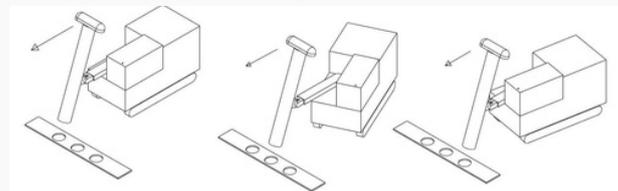
DRILL MAST POSITIONING DRILLING PARAMETERS DISPLAY AND ACQUISITION



Drill mast positioning: Optical sight method



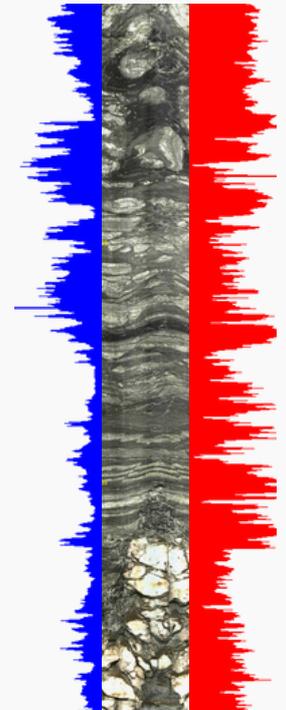
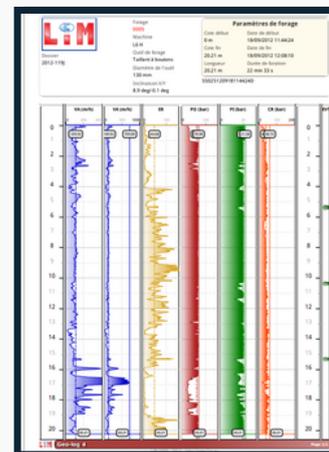
GPS Compass method



Drilling parameters acquisition



Depth encoder



DRILL MAST POSITIONING DRILLING PARAMETERS DISPLAY AND ACQUISITION

PocketLIM and MiniLIM-DRILL & BLAST are LIM drilling data recorders. These drilling data recorders have been specially designed to fit any type drill & blast production drill rigs, with or without an articulated boom. Their main functions are:

Before drilling :

- ✓ 2D drill mast positioning assistance displaying X and Y angles.
- ✓ 3D (2D with Azimuth compensation) drill mast positioning assistance of drills with a cabin and articulated boom displaying X and Y angles. The reference azimuth is determined either from the optical sight of the operator or from a GPS Compass system which uses a GPS receiver attached to the top of the drill mast. The GPS Compass method ensures the maximum accuracy of the positioning because it eliminates the human error.

While drilling :

- ✓ Depth control (in m or ft) with display and acquisition of the following drilling parameters: Current borehole depth, current bit depth in relation to the bottom of the hole, instantaneous penetration rate of the bit, Pressure on the bit, Injection Pressure of the drilling fluid (Air), Torque as a pressure, Rotation Speed (Bit RPM) and any other drilling parameter vs depth. The stop on target hole depth function allows the driller to preset the target hole depth in order to be notified when it is reached. This alarm can be complemented by an automatic function that stops drilling.

After drilling :

- ✓ Copy with synchronization of data files to an USB device. Once uploaded, the data are processed with the online **GEO-LOG 4** software (cloud solution).
- ✓ Wireless data transmission via 3G or Wifi mobile internet (Lim@mail service). The data are then processed with the online **GEO-LOG 4** software (cloud solution).
- ✓ At the end of each hole and shift, the **MiniLIM** and **PocketLIM** will display and store statistics in relation to the production such as total number of holes, accumulated depth, average speed (instantaneous and commercial), drilling time per hole, average hole drill time, total drilling time, number of rods, etc.

TECHNICAL SPECIFICATIONS

- ✓ 32 bits ARM microprocessor;
- ✓ Embedded LINUX kernel OS (2.6);
- ✓ Wifi module & GSM/GPRS/EDGE internal modem;
- ✓ 1 x external USB host connector (storage, printer port, ...);
- ✓ 1 x external USB device connector (firmware upgrade, mass storage, connection ...);
- ✓ Internal memory: 2Gb (X millions of meters and feet);
- ✓ 480 x 272 (16/9) touch screen, color 16 bits, TFT technology;
- ✓ 2 x LIM CANBUS compatible connectors;
- ✓ Vandal resistant push buttons;
- ✓ Weight: 1 Kg (MiniLIM) 2 Kg (PocketLIM);
- ✓ Dimensions: 157x170x70 mm.



GPS COMPASS KEY BENEFITS

- ✓ Receiver + antenna within a single compact housing;
- ✓ IMO WHEELMARK certification for marine applications;
- ✓ Single-frequency GPS compass, GPS & SBAS compatible;
- ✓ Integrated Gyro Tilt sensor, data output at 20Hz;
- ✓ Real time accuracy:
 - position : < 0,6m to 95% in EGNOS
 - course : < 0,30° RMS
 - roll / pitch : < 1° RMS
 - heave : < 30cm RMS

Options :

- ✓ Metric GPS (X,Y,Z);
- ✓ Remote thermal printer for on site printing.