

LIM stands for “Logging Instrumentation & Measurement”

LIM was created in 1985.

LIM is considered as a world leader in Drilling Measurement

Staff of 30 employees, including 9 R&D engineers

More than 2 500 devices have been sold all over the world

LIM business volume (2017) : EUR(€)4,550,000

50% France, 50% Export (Europe, Africa, Americas, Asia, Australia,..).

Geotechnical Drilling, Foundation Drilling, Drill & Blast, Exploration Drilling.



MiniLIM 5G :

- Internal memory 1 Gb (around 3 million feet);
- Embedded Linux kernel OS;
- Color touch screen (16 bit);
- Weight : 1Kg (2lb) Housing size: 16 x 12.2 x 5 cm;
- USB data Synchronization;
- Power supplied by drill rig battery;
- Protection box and mounted bracket;
- The recorded data is stored and transmitted either over the internet (3G/4G or Wifi) or downloaded to a USB. The file format used by **LIM** is « **.BOR** ». It is an open format to make possible data exchange. <https://bor-form.at/en/>

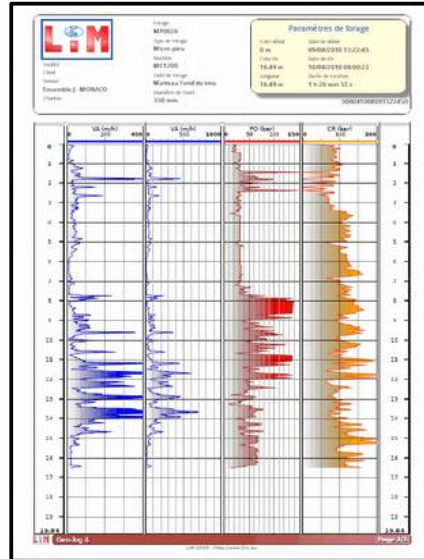
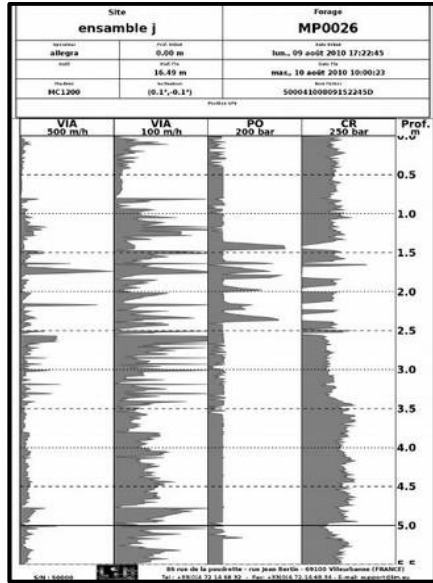


PocketLIM 5G :

- Internal memory 2 Gb (around 6 million feet);
- Embedded Linux kernel OS;
- Weight : 2Kg (4.4lb) - Housing size: 15.7 x 17 x 7 cm ;
- Color touch screen (16 bit) doubled by 4 buttons; Virtual PDF printer;
- GSM/GPRS Modem and Wi-Fi for data transmission using internet;
- USB data Synchronization. Site conditioned USB is provided ;
- Power supplied by drill rig battery;
- Protection box, mounted bracket and transportation case.
- The recorded data is stored and transmitted either over the internet (3G/4G or Wifi) or downloaded to a USB. The file format used by **LIM** is « **.BOR** ». It is an open format to make possible data exchange. <https://bor-form.at/en/>



Drilling Parameters Acquisition in real time



The main drilling parameters that are recorded in real time vs depth are :

Instantaneous Advance Speed (IAS) or Penetration rate (m/h, ft/h or m/min, ft/min).

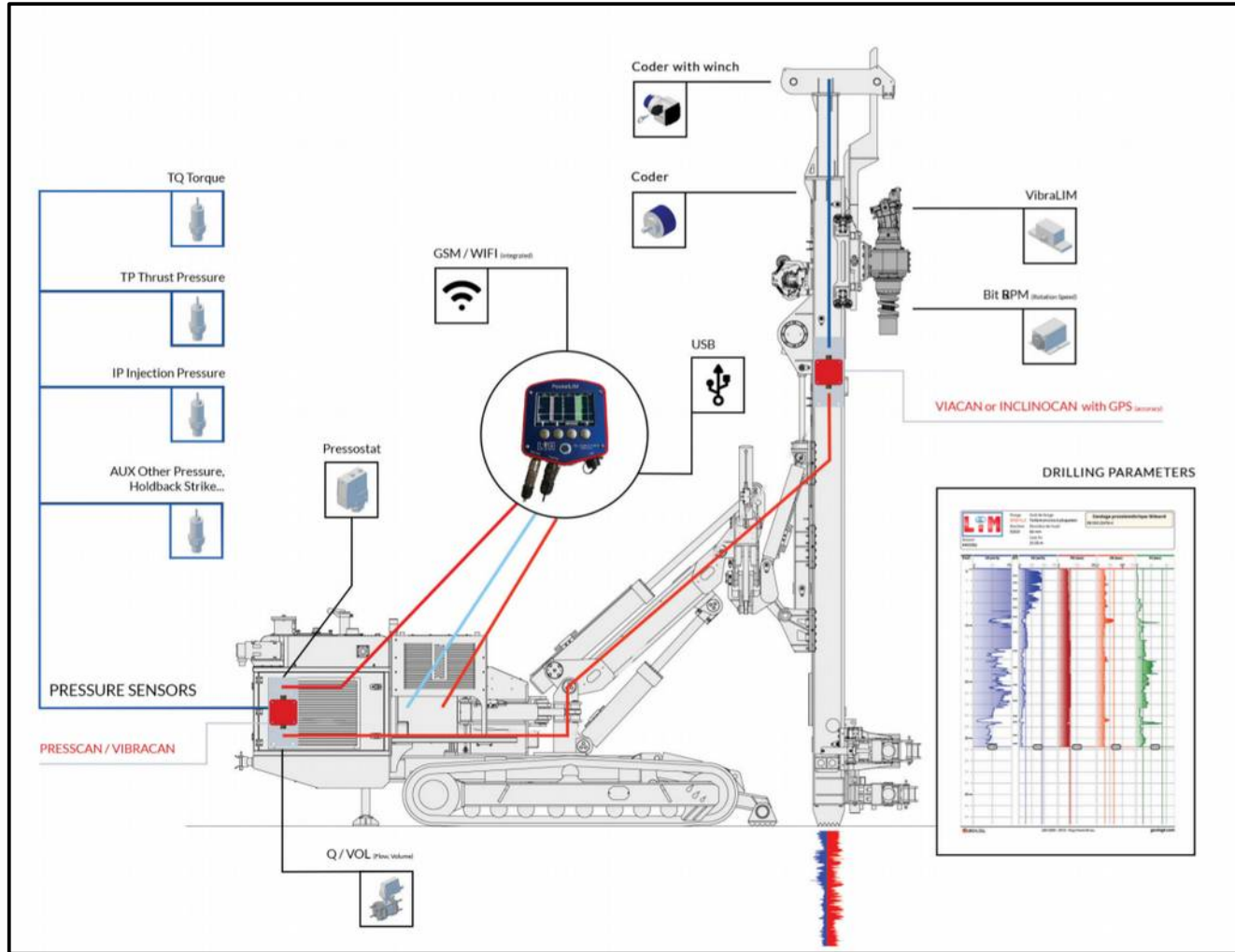
1 to 4 hydraulic pressures in bar or psi to choose from the **Tool or Bit Pressurer (TP)**, **Injection Pressure of the drilling fluid (IP)**, **Torque Pressure (TQ)**, **Holdback Pressure (HP)**, **Striking Pressure (SP)**, ...

Rotation Speed or Bit RPM (Round/min).

Reflected Vibration (RV) (*Vibratlim*) of the drill string, it is a non dimensioned parameter whose the amplitude is varying according to the drilling method and depth.

Drilling fluid flowrate (Q) in l or gal/min.

X and Y inclination of the drill mast.



By using the **CAN BUS** network technology for the data transmission from the various sensors, The installation and maintenance are simplified.



For the L.Menard pressuremeter tests acquisition, the **PressioLIM** Pressure, Volume regulator is directly compatible with the **MiniLIM 5G** and **PocketLIM 5G** data recorders.

L. Menard Pressuremeter (EN ISO 22476-4) Digital Pressure, Volume Regulator

The **PressioLIM** regulator is included in a shock-proof polypropylene copolymer case adapted for transportation. It is a light, durable and chemically resistant material.

Weight : 23 Kg - 51 lb ;
Dimensions: 62x49x22cm - 24.4x19.3x8,7'' ;

Output electronic signals type: CANBUS LIM ;

Front panel in silk-screen printed aluminium ;

Volume sensor : displacement
(magnetostrictive) ;
Pressure sensors : 0-100 bar high accuracy ;

128 x 64 OLED monochrome digital display ;

Verticality adaptable tripod for all the field conditions.



PressioLIM AUTO performs in automatic or semi-automatic mode the L.Menard pressuremeter test according to the **EN ISO 22476-4** European standard. It displays and records data in real time.

PressioLIM AUTO completes the **LIM Menard Pressuremeter regulator** range in offering a stand-alone and smart regulation management of the different Pressure & Volume variables.

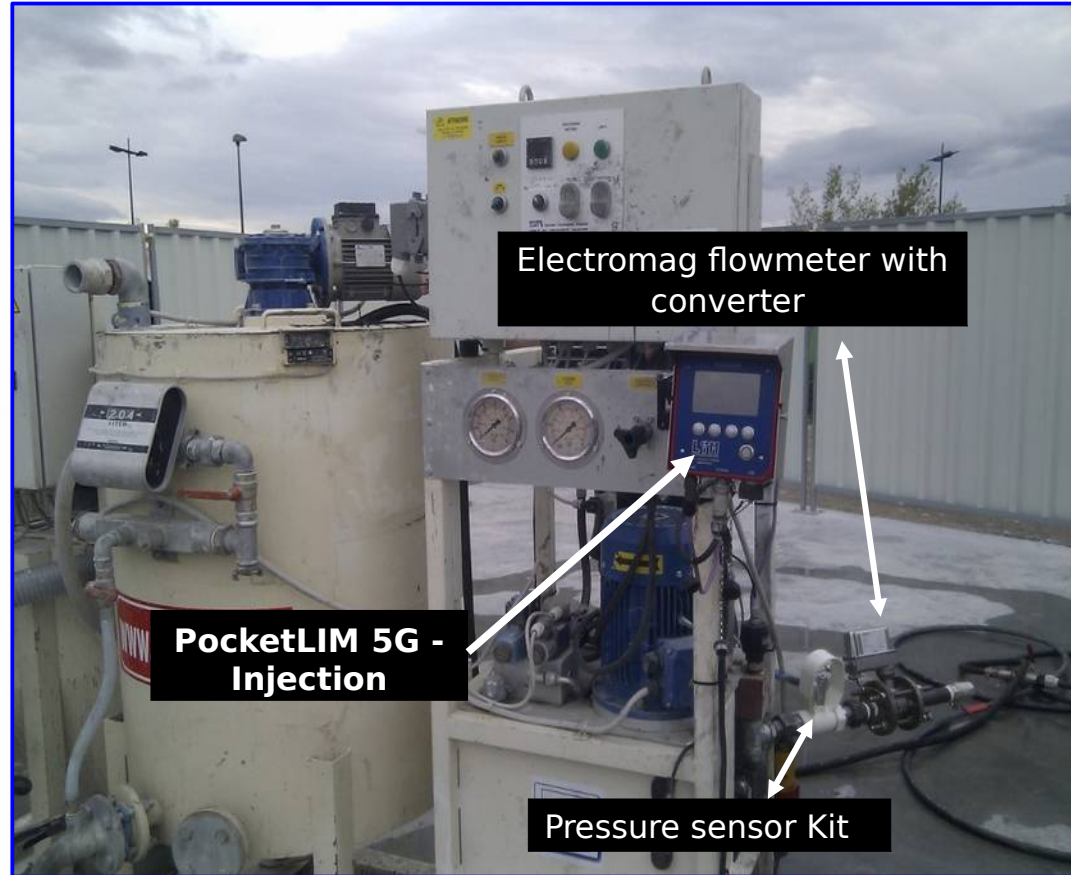
- *Pressuremeter tests can be performed till 100 bar;*
- *Pressure regulations via a driven electrovalves system;*
- *Constant control of variables to keep the device security in case of overpressure or/and too high volume;*
- *Initial conditions control to assume the good execution of pressuremeter tests*
- *Choice of the pressuremeter tests execution type: Automatic or semi-automatic;*
- *Files transfer to a USB stick, via 3G/4G modem and Wifi*
- *12-24 VDC Power supply;*
- *Automatic data transfer and processing according to the **EN ISO 22476-4** European standard with the Lim@mail and GEO-LOG 4 Options.*

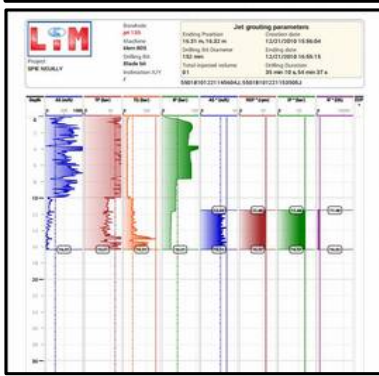
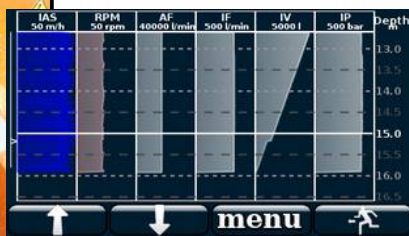
Weight : 26 kg - 57.3 lb;

Dimensions : 62x49x22cm - 24.4x19.3x8,7'';

Usable with **PocketLIM** ou **MiniLIM** data recorders.

Slurry injection: Installation of sensors





During the drilling stage : measure, display and record versus depth of drilling parameters (Penetration rate, Tool Pressure, Torque, Rotation Speed,...).

During the jetting stage (Lifting) : measure, display and record of jetting parameters : Lifting Speed, Flow, Volume and Pressure of the grout (simple jet), Air (double jet) and Water (triple jet).

The grout flowrate is either extrapolated from the pressure (95% of cases) or measured with a flowmeter at the level of the pump, data is transmitted to the data logger through radio.

During the jetting stage : possibility to control the lifting rate. The operator has the possibility to enter values of the depth stop and time.

The lifting rate can also be controlled by the Rotation Speed.

GEO LOG 4 (www.geolog4.com) is a cloud based software :

- it processes drilling data recorded by the **PocketLIM 5G & MiniLIM 5G** data logging systems.
- it sets up the geotechnical borehole logs with all In-situ and laboratory data.

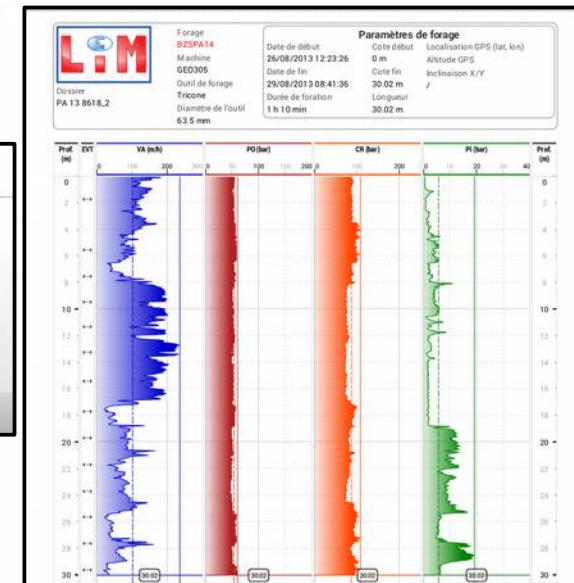
The main benefits of the **GEO-LOG 4** cloud solution are :

- Online version is meaning of the last upgrade version at all time;
- Access from any computers or electronic devices connected to internet with any operating system (Windows, Apple, Android, ...);
- Online version can be subscribed either monthly or annually.

GEO LOG 4 is compatible with **BOR files** for data recording devices importation and is **AGS files** compatible for data exchange.

<https://www.ags.org.uk/data-format/>

<https://bor-form.at/en/>



Since 2000, ELECTROMIND has offered for sale a range of borehole logging equipment: Emindlogger with acquisition software, motorised winches and slim hole logging tools.

