

ABM-40
Minaturised Gyrometric System for 3D Pipeline Mapping
by 

- Quickly map all types of pipe in 3 D
- No excavation
- No measurements from the surface
- No traffic disruption
- All pipe sizes from **36 to 77 mm. I. D**
- Up to **300 meters** length - any depth
- Good accuracy in three dimensions
- Measures under Buildings, Rivers, etc.
- Maps available in CAD or GIS format



UPDATED

USB port for faster data transfer

Improved Software for faster processing

Three elements for better alignment

The **ABM-40** by **REDUCT** is a practical and cost effective solution to the problem of three dimensional mapping of all types of small-diameter pipes such as the HDPE pipes for optical fibres and telecommunication cables **up to 300 meters in length**. It uses a patented technique employing an application-specific Inertial Measurement Module with accelerometers and **MEMS** rate-gyros, together with two odometers. The device is inserted in the pipe at a manhole or any access point, and pulled or pushed along the pipe to be mapped at about 1/1.5 meters per second. Pulling is by hand or with a winch. The result obtained is not only the horizontal track of the pipe, but also the depth and alignment. The **ABM-40** is unaffected by magnetic and electric fields, and it is completely water-proof so that it can be immersed and is not affected by variations of flow. Very simple to use, the device has no need for communication during measurement, and thus there is no electric cable. The positions of the access points are established independantly with precision, normally by GPS, and the resulting map is based on these points.

The **ABM-40** has three cylindrical sections which are flexibly coupled together. The measurement module is guided along the pipe by rubber washers which are changed to adapt the tool to different pipe IDs **from 36 mm. to 75mm.** It has two spring loaded odometer wheels.

The data acquired are stored on-board and transferred to a computer once the device is removed from the pipe. The two software packages provided are used for managing the recording, transfer, correction, analysis and display of the data. They help the operator optimise the result obtained, and present it in an easily interpreted form. Two output formats are possible: either Comma Separated Value .csv, which can be loaded directly into Excel, ArcView etc., or Script Format .scr, the default format for AutoCAD. The software can be loaded into any computer(s) running Windows. We offer an optional ruggedised Panasonic **Toughbook** portable computer for dedicated use.

The incertitude of the position obtained is somewhat dependant on the operating conditions, particularly the presence of sharp bends or roughness in the pipe. For best results, four passes along the pipe are made, and in normal conditions of operation, the accuracy will be within the French « Classe A » norm of +/- 40cm. for pipes up to the maximum length of 300 meters possible with this instrument. The pipe trace produced is normally that of the top of the pipe, but the results can be determined for the centre or the bottom (invert) of the pipe, as required.

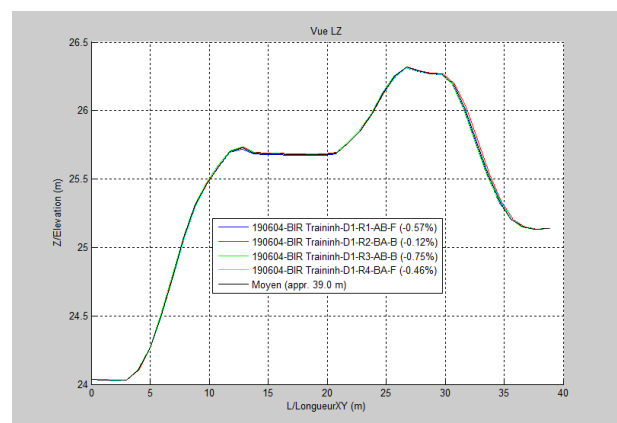
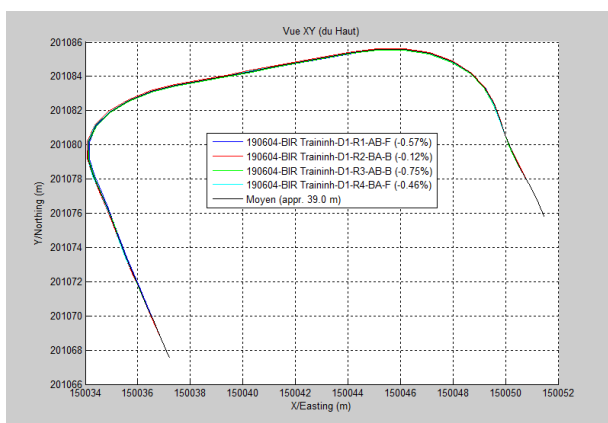
Technical Specification

Length	510 mm.
Max tension	80 kg
Weight	1 kg
Max speed	2 m/sec
Inclination	+45 to -45deg.
Battery life	4 hr

Internal pipe Diameter	Minimum Bend Radius
36 mm.	- 240 cm.
38 mm.	- 130 cm.
41 mm.	- 80 cm.
51 mm.	- 30 cm.
74 mm.	- 20 cm.



Typical Configurations



Plan View (Left) and Graph of Depth versus Length (Right) as displayed in the X-View software.