

ABM-30

Minaturised Gyrometric System for DN 40 Pipe Mapping

by  REDUCT



- For Tubes **DN40 / 1.25 Inch**
- Quickly map all types of pipe in 3D
- No excavation
- No measurements from the surface
- Up to **300 meters** length - any depth
- Good accuracy in three dimensions
- Measures under Buildings, Rivers, etc.
- Maps available in CAD or GIS format

The **ABM-30** by **REDUCT**, having a **diameter of only 25 mm.**, is a practical and cost effective solution to the problem of three dimensional mapping of **DN40 / 1.25 inch** pipes, used for optical fibres and telecommunication cables, with internal diameters from **29 to 34 mm.** and **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 to 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-30** is unaffected by magnetic and electric fields, and it is completely waterproof 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 independently with precision, normally by GPS, and the resulting map is based on these points.

The **ABM-30** has three cylindrical sections which are flexibly coupled together. The measurement module is guided along the pipe by soft foam spacers which allow the probe to pass duct malformations up to 20% . It has two spring loaded odometer wheels.

The data acquired during measurement at a sample rate of 100/ sec. are stored on-board and transferred to a computer once the device is removed from the pipe. The two software packages provided are used to transfer, correct, analyse and display the data. They help the operator to 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 a good result, four passages along the duct are made. In normal circumstances, the precision of the pipe position measurement will be within the French Classe "A" limits of +/- 40 cm. for lengths up to the 300m. limit of the ABM-30. The accuracy of the depth measurement is not affected by the depth.

Technical Specification

Length	420 mm.
Diameter	25 mm.
Weight	0.6 kg
Max tension	40 kg
Recommended Speed	1 m:sec.
Inclination	+45 to -45deg.
Battery life	4 hr

