

Profound IS – Geotechnical Monitoring System

IS-Liquid Levelling System

real-time precision monitoring of settlements



IS-liquid levelling system

The digital IS-liquid levelling system is an effective tool for precision monitoring of settlements. Typical application areas include monitoring of tunnelling and excavation activities, as well as compensation grouting near structures.

For each project sensors need to be selected with the appropriate measuring range to ensure accurate settlement measurements: the elevation differences need to be within range, even after the expected settlements. During installation the sensors are interconnected by means of a pressure line, an air compensation line and a digital IS-data cable.

The elevation changes of the individual sensors in the system are then derived from the liquid pressure. This is done by comparing the liquid pressure at each sensor with the pressure at the reference sensor.

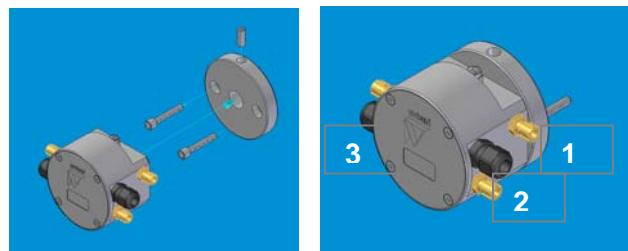
The system responds immediately to settlements, as there is no liquid flow between the sensors. The sensor also directly digitises the measurement data and performs an automatic temperature compensation.

As the fully digital system is equipped with a GSM-link, you can retrieve the data from your office PC at any time. You can quickly process, export and graphically display the measurement results on a Windows PC.

Technical specifications

Measuring ranges	60 mbar, 160 mbar, 400mbar
Typical max. error over full temperature and pressure range*	2‰
Sensor accuracy	± 0.5 mm (range 60 mbar) ± 1.2 mm (range 160 mbar)
Supply voltage	7 up to 15 Volt
Temperature range	-10°C to +50°C (liquid dependent)
Material mounting plate	Stainless steel
Material housing	Thermoplastic material (POM)
Material pressure lines	LDPE or PVC
Digital data cable	4-wire cable (4 x 1 mm ²)
Liquid tubing	6 mm (inner); 8 mm (outer)
Air tubing	4 mm (inner); 6 mm (outer)
Network hardware	CAN (digital)
Sensor size (w x h x d)	120 x 90 x 77 mm
Sensor weight	464 grammes
Mounting plate size	Ø 90 mm, 15 mm
Mounting plate weight	690 grammes
Long term stability	≤ ± 0.1 % FSO/year

* Every sensor has been calibrated over the full temperature and pressure range during a 24 hour test cycle. Specific results are supplied on the calibration sheet



[1] = Pressure line (filled with liquid)

[2] = Barometric pressure compensation

[3] = Digital IS-data cable



P.O. Box 469
2740 AL Waddinxveen
The Netherlands

Tel. + 31 182 - 640 964
info@profound.nl
www.profound.nl