



DIGITALIZED IN-PLACE INCLINOMETERS

Digitalized In-place inclinometer (IPI) probes are designed for automatic monitoring of critical locations.

They use the RS-485 serial communication protocol: this technology allow to use only one cable to connect all the probes in one chain.

The performances of this system are amazing, thanks to the self-compensated MEMS technology and to the completely new engineered electrical components.

Jointed together and installed inside the inclinometer casing where deformation may occur, a string of digitalised IPI allows to monitor the continuous profile of the inclinometer casing and of the related soil mass.

Monitoring landslide areas, stability of natural slopes and movement at shear zone

Monitoring ground movements induced by excavation and tunnel construction

Monitoring of deformations of embankments, earthfill dams and retaining walls

Monitoring settlement and heave in embankments, tanks, landfills and foundations



ACCESSORIES AND SPARE PARTS

OS4TS101000	The support head assembly is installed at the top of inclinometer casings for supporting the in-place inclinometers.
OWRAC250000	Support steel wire (2.5 mm diameter) is used to suspend in-place inclinometers at the correct position within the inclinometer casing.
OEPM010IPI0	Measuring box for manual IPI chain reading with new Leonardo portable datalogger.
OS400HD00IC	Interprobe cable assembly, available in different lengths: 2m, 5m, 10m, 15m
OECON04MV00	Digital connector for IPI chain. Mounted at factory on OWE606IPDZH cable.
OWE606IPDZH	Cable for connection between digital IPI chain and ADK-100 or Omnia datalogger



Support head assembly with measuring box

TECHNICAL SPECIFICATIONS

Model	S410HD15	S410HD30	S420HD15	S420HD30
Sensor type	Self-compensated MEMS inclinometer		Self-compensated MEMS inclinometer	
Axis	uniaxial or biaxial	uniaxial or biaxial	uniaxial	uniaxial
Application	vertical	vertical	sub-horizontal	sub-horizontal
Sensor range	±15°	±30°	±15°	±30°
Calibration range (to be specified at order)	±5°, ±10°, ±15°	±20°, ±30°	±5°, ±10°, ±15°	±20°, ±30°
Sensor resolution	0.0013°	0.0013°	0.0013°	0.0013°
Accuracy				
- with linear sensitivity	<0.05% FS	<0.10% FS	<0.05% FS	<0.10% FS
- with polynomial factor	<0.03% FS	<0.05% FS	<0.03% FS	<0.05% FS
Repeatability	< ±0.006°	< ±0.006°	< ±0.006°	< ±0.006°
Temperature drift	< ±0.005% / °C	< ±0.005% / °C	< ±0.005% / °C	< ±0.005% / °C
Sensor long term stability	< 0.004°	< 0.004°	< 0.004°	< 0.004°
Signal output	RS-485 with Modbus RTU protocol		RS-485 with Modbus RTU protocol	
Connectors	No.2 for each probe, IP68 until 1.0 MPa		No.2 for each probe, IP68 until 1.0 MPa	
Temperature operating range	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C	-30°C to +60°C

electromagnetic compatibility according to EN 61326-1 and EN 61326-A1 directives for EMC emission and immunity

PROBE FEATURES

Distance between wheels	500 mm	1000 mm	2000 mm
Outer diameter (without wheels)	28 mm	28 mm	28 mm
Total length	730 mm	1230 mm	2230 mm
Total length @ joint	700 mm	1200 mm	2200 mm
Wheel diameter	28 mm	28 mm	28 mm
Material	stainless steel and thermoplastic resin		
Max load supported by the system	360 kg	360 kg	360 kg
Maximum No. of probe per string	225 IPI	156 IPI	97 IPI



Detail of joint and connectors

