Geomotion
AUSTRALIA

Instrument Data Sheet

D-Tiltmeter
Digital Tiltmeter

DESCRIPTION

The measurement of inclinations is essential for the control and security of structures in elevation, both during the construction phase than in operation.

Thanks to the new digital MEMS self-compensated sensor, D-Tiltmeters ensure high accuracy and negligible dependence on thermal factors. They monitor tilt changes in either one or two axial planes and can be installed on vertical or horizontal planes.

D-Tiltmeters can be read locally using a portable readout or centralised with a data logger for remote monitoring and alerting.

APPLICATIONS

- ✓ Civil structures
- ✓ Building safety along adjacent excavations
- ✓ Diaphragms and retaining walls
- ✓ Historical buildings
- ✓ Decks and bridge piers
- ✓ Building's tilting control

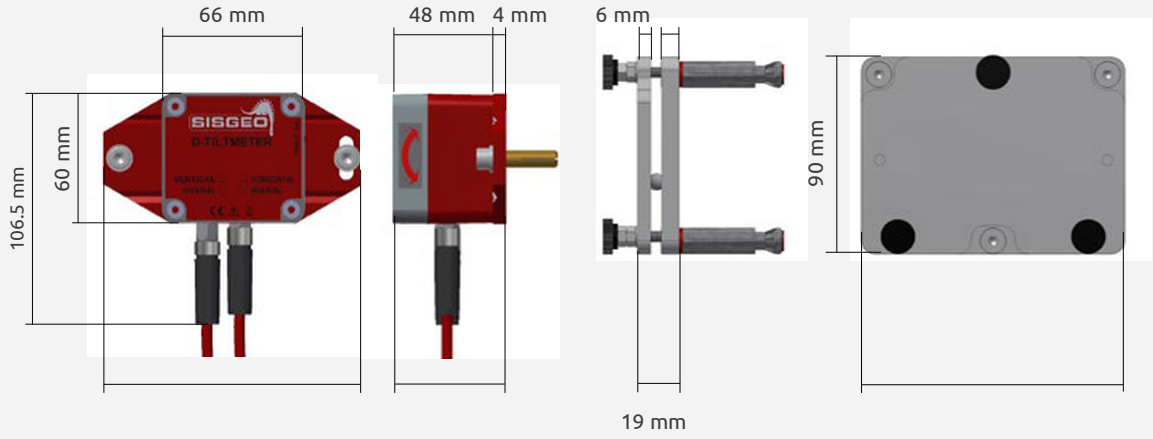
FEATURES

- ✓ Vertical or horizontal application
- ✓ Uniaxial and biaxial versions
- ✓ Easy to install
- ✓ High performances
- ✓ Negligible dependence from thermal factors
- ✓ Customised colour on request for low visual impact

TECHNICAL SPECIFICATIONS

D-TILTMETER	S541HD	S542HD
Sensor type	Uniaxial self-compensated MEMS inclinometer	Biaxial self-compensated MEMS inclinometer
Measuring range	±2.5°, ±5°, ±10° (±15°, ±30° on request)	±2.5°, ±5°, ±10° (±15°, ±30° on request)
Sensor sensitivity	0.0013° (4.68 arc-sec)	0.0013° (4.68 arc-sec)
Gauge linearity	±0.070% FS for±2.5° ±0.020% FS for±5°, ±10°	±0.070% FS for±2.5° ±0.020% FS for±5°, ±10°
Gauge total accuracy (linearity + hysteresis + repeatability with 3rd degree polynomial)	±0.050% FS for±2.5° ±0.015% FS for±5° ±0.010% FS for±10°	±0.050% FS for±2.5° ±0.015% FS for±5° ±0.010% FS for±10°
Temperature dependency	± 0.005 %FS /°C	± 0.005 %FS /°C
Excitation voltage	from 12 to 24 Vdc	from 12 to 24 Vdc
Signal output	RS485, Modbus RTU protocoll (sin α)	RS-485, Modbus RTU protocol (sin α)
Temperature operating range	from -30°C to +70°C	from -30°C to +70°C
Temperature sensor	built-in thermistor	built-in thermistor
Signal cable	0WE104SG0ZH	0WE104SG0ZH
Max. cable length to logger	1000 m	1000 m

PHYSICAL FEATURES



DIMENSIONS AND MATERIALS	TILTMETER	ADJUSTMENT PLATE 0S540AP3D00
Box dimensions (LxWxH)	66 x 60 x 48 mm	-
Fixing support	N.2 fischer anchor bolts model PO M6	N.3 fischer anchor bolts model SL M6
Overall dimensions (LxWxH)	95 x106.5 x 52 mm (including connectors)	90 x120 x 61 mm
Material	aluminium	stainless steel
Protection	IP67	-

ACCESSORIES AND SPARE PARTS

ADJUSTMENT PLATE 0S540AP3D00

Fine adjustment plate for S540MA tilt meters, especially recommended for the small ranges (±2.5° and ±5°). Working on three knobs, you can set the tilt meter at mid scale or other desired position.
The adjustment plate may be used both vertically and horizontally.

D-TILTMETER READING CABLE 0ECAV04V200

Cable for direct connection between D-Tiltmeter and New Leonardo portable readout.
Useful for instrument testing and during installation procedures.

TERMINATION RESISTOR 0ETERMRESI0

Spare termination resistor needed in case of dismounting and new installation of digital instrument chains.
For more information see FAQ #076

SIGNAL CABLE 0WE104SG0ZH

2-twisted pairs signal cable, 22 AWG with aluminium/polyester tape screen, LSZH red external jacket.
Diameter 4.7 mm.

MEASURING BOX 0EPM010IPIO

Measuring box for manual reading of digital gauges, composed by IP67 plastic box with electric board for cable wiring, cable gland and female pannel connector.

DIGITAL JUNCTION BOX 0EPD023IPID

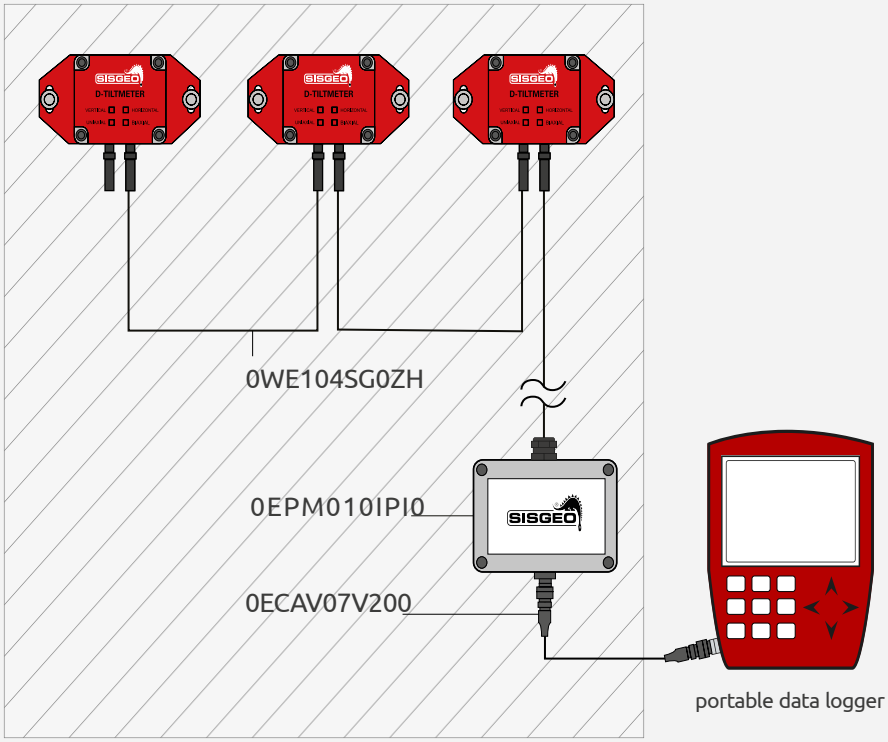
Junction box for chains of digital instruments, composed by IP67 plastic box, internal electronic board for wiring and three cable glands.

MANUAL READINGS

D-Tiltmeters could be read in manual mode with New Leonardo portable readout.

Each chain of digital instruments, if installed in a place that doesn't permit direct connection with portable readout, need to be connected to the 0EPM010IPI0 measuring box with standard 0WE104SG0ZH signal cable.

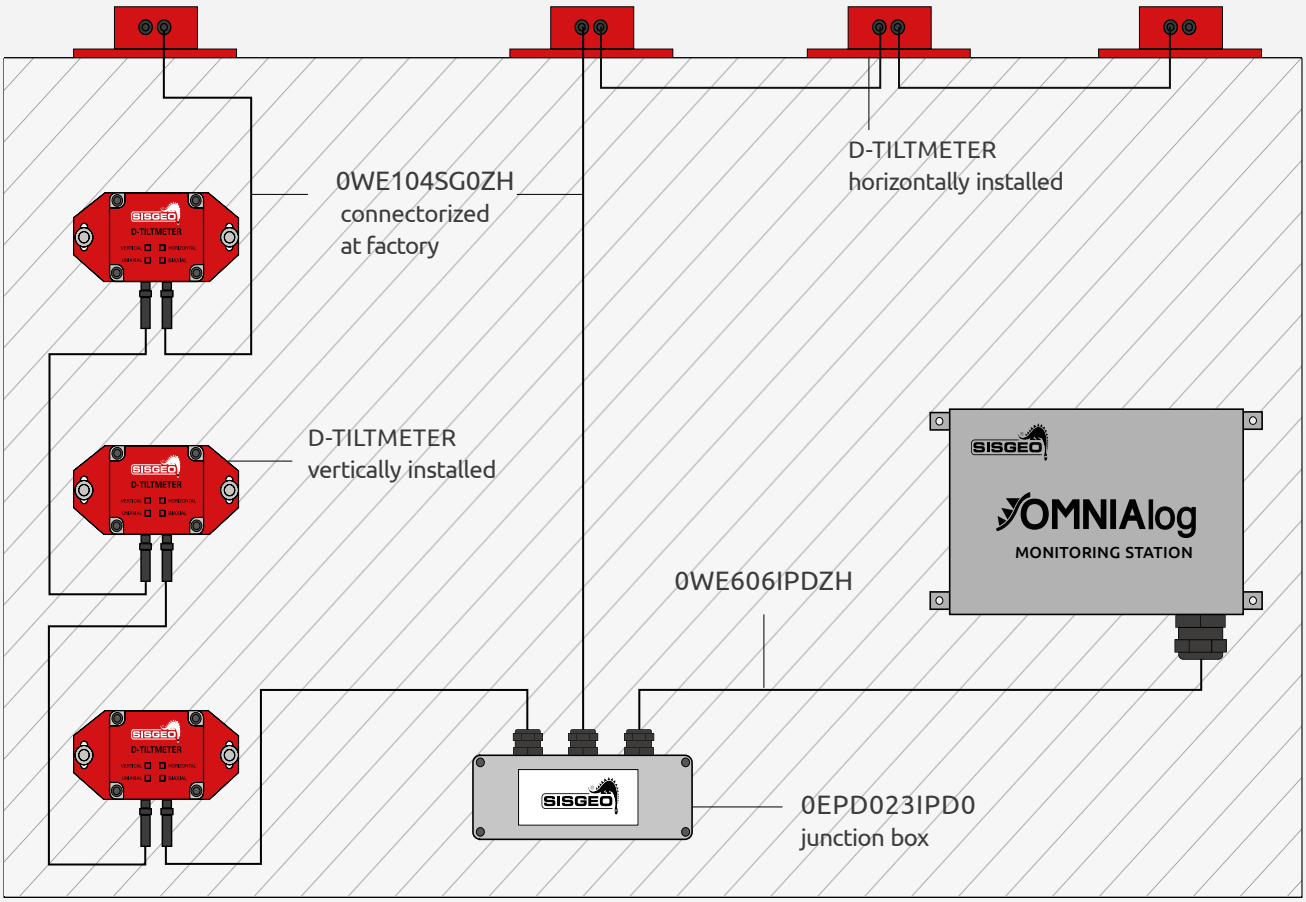
To take readings, the technician have only to connect New Leonardo to the measuring box and push a button: the readout will store the data of all instrument of the chain.



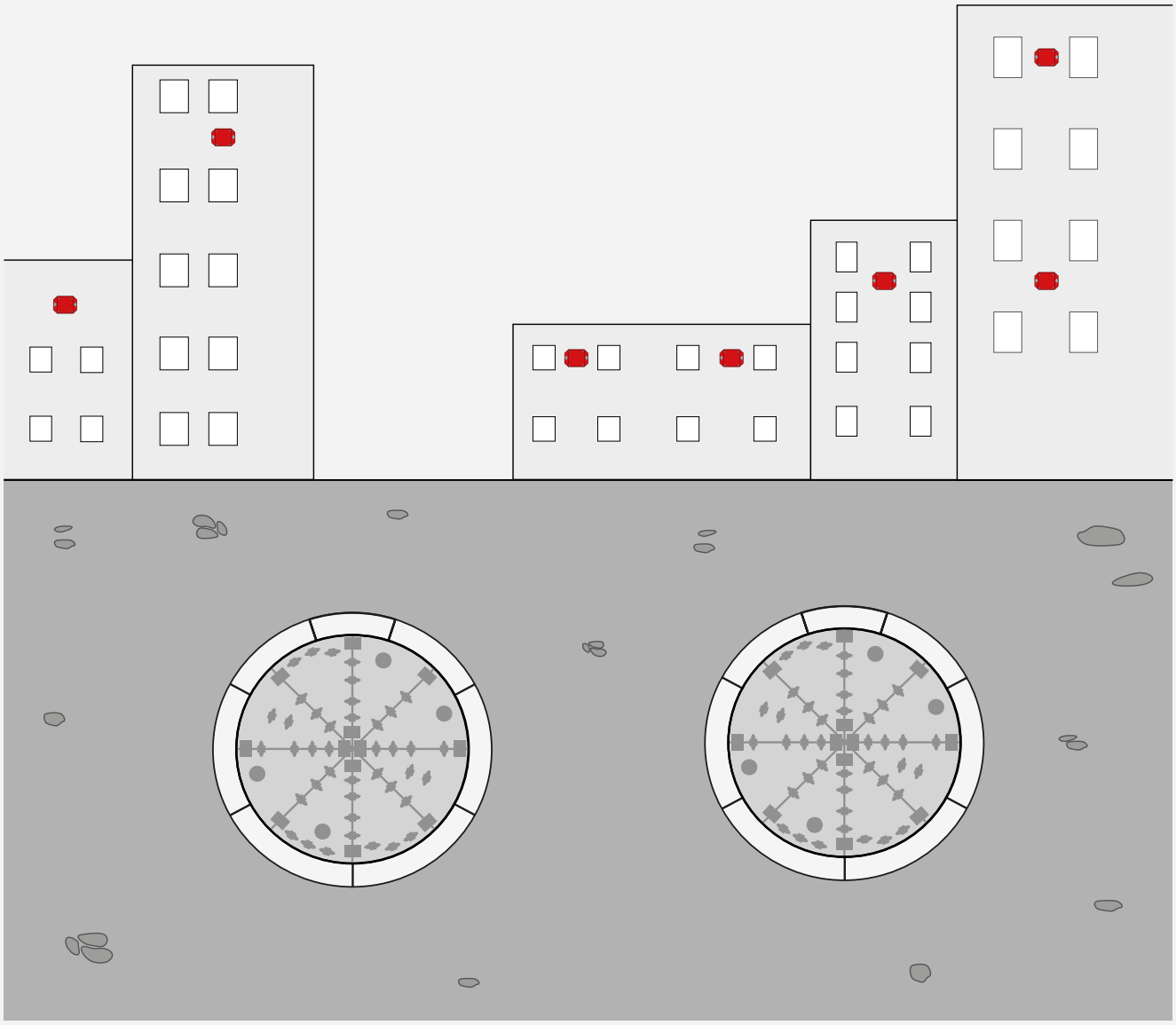
AUTOMATIC READINGS

D-Tiltmeters can be connected in different chains following the project needs; digital instrument chains can be jointed in only one cable using the 0EPD023IPD0 junction box. One chain of digital instruments can be composed by vertical D-Tiltmeters, horizontal D-Tiltmeters or any other kind of Sisgeo digital instruments (tiltmeters, beam clinometers, in-place inclinometers, H-Levels, etc...).

Instrument chains are connected to OMNIAlog data logger that will be able to manage until 250 digital instruments.



EXAMPLE OF INSTALLATION ON BUILDING DURING TUNNEL EXCAVATION



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