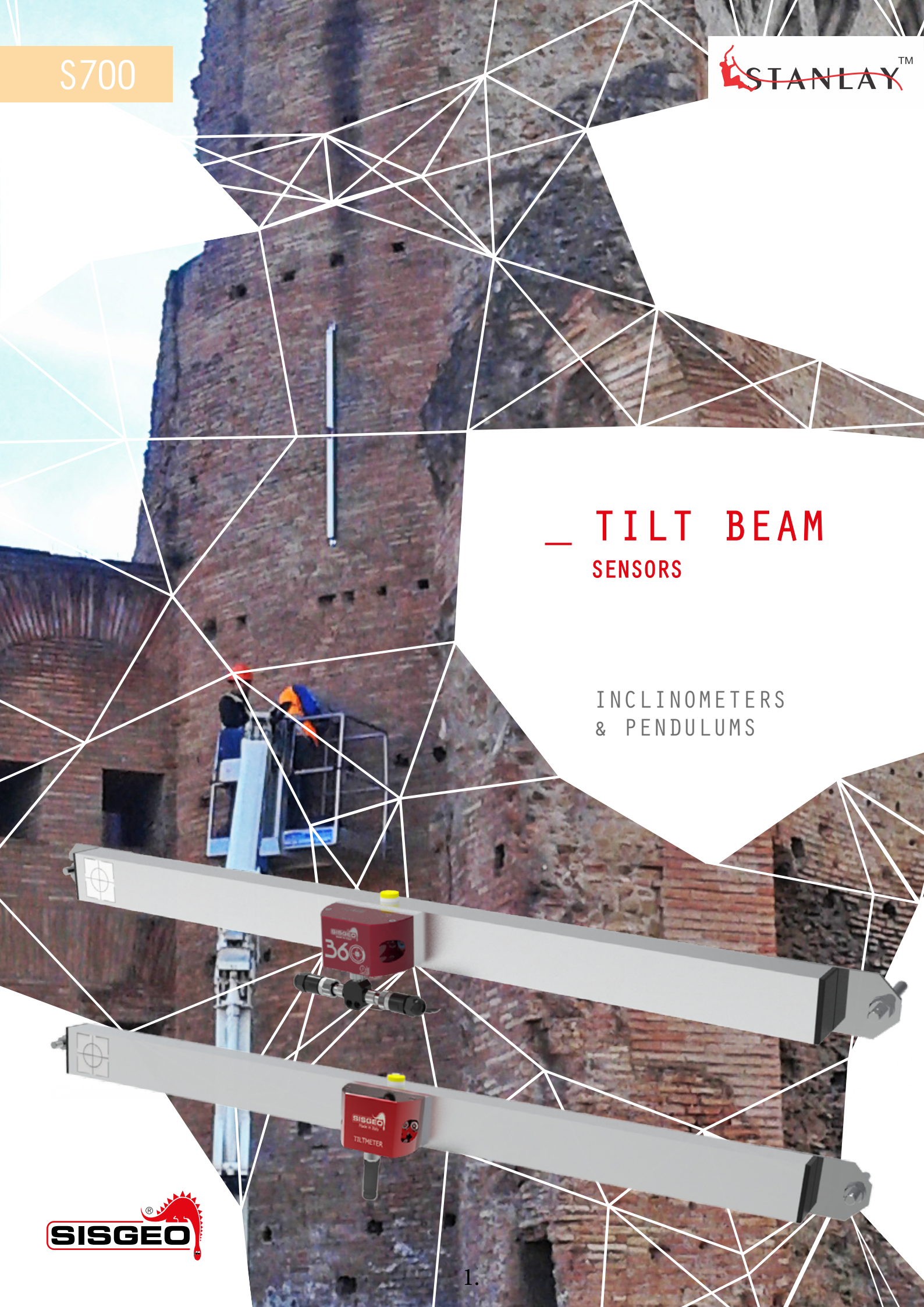
S700

STANLAY™

_ TILT BEAM

SENSORS

INCLINOMETERS
& PENDULUMS



SISGEO®

TILT BEAM

SENSORS

Tilt Beam (TB) sensor consists of a MEMS tiltmeter mounted on a rigid aluminium beam with a defined gauge length, tipically 1, 2 or 3 meters. Tilt meters shall be mounted on the beams at site and are available in 360° digital version and analogue with 4-20mA output.

TB most common application is horizontal chain on structures in order to monitor differential settlements or heaves. TB can be also installed horizontally, vertically or inclined, in chains or in stand alone installations.

Thanks to the sensor fixing and adjustement plate, they could be utilized to monitor every tilting or displacement in a large number of applications.

APPLICATIONS

- Structures
- Diaphragm walls
- Dams
- Tunneling
- Deep excavations
- Unstable slopes

FEATURES

- Removable and modular system for multiple installation
- Simple and fast installation through connectors (digital version)
- Inclined installation allowed
- Nearly real-time monitoring with OMNIAlog and miniOMNIAlog

Meet the essential requirements of the EMC Directive 2014/30/UE

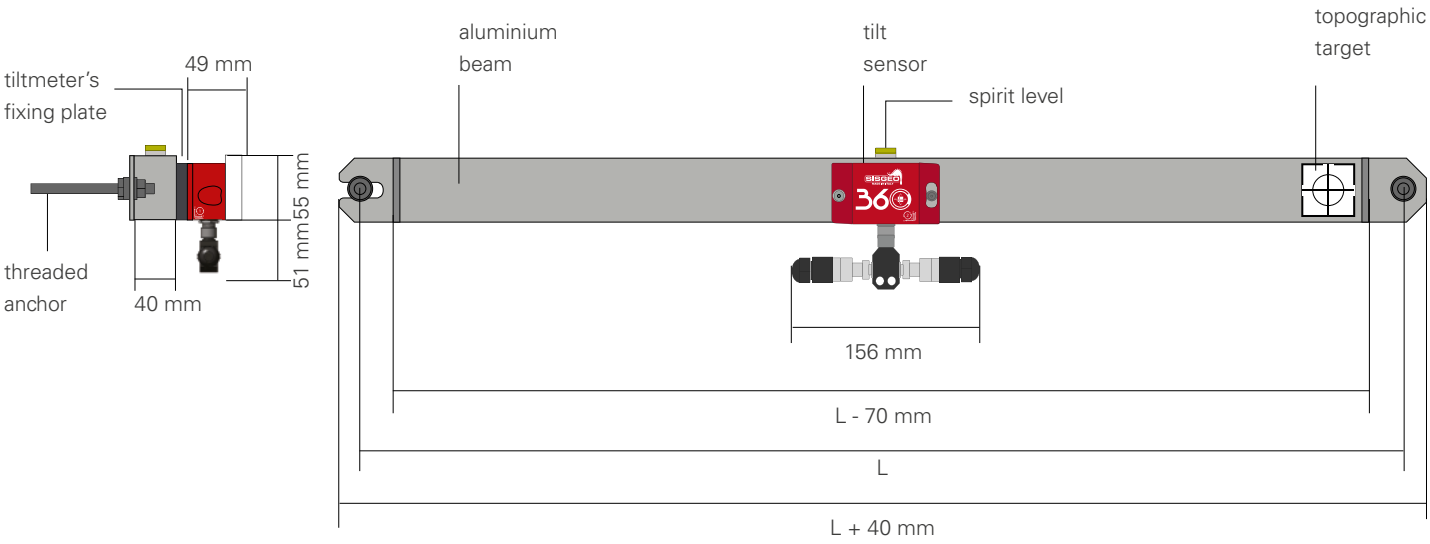
TILT METERS SPECIFICATIONS

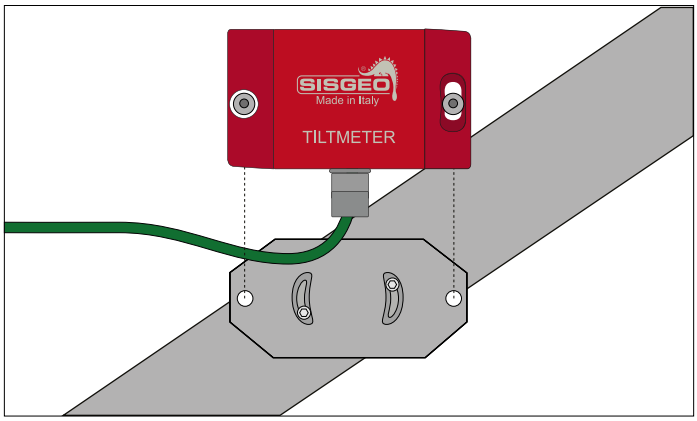
PRODUCT CODES	0S541MA0000 Uniaxial	0S542MA0000 Biaxial	0S543HD3600 (1) Triaxial
Measurement principle	self-compensated MEMS inclinometer		MEMS accelerometer
Measuring range (2)	±2.5°, ±5°, ±10°		**360° (±180°) on all three axes with respect to g**
Sensor resolution (reading frequency 2 Hz)	0.001°		0.0001°
Sensor mechanical bandwidth	18 Hz		1 Hz
Sensitivity (3)	see Calibration Report		see Calibration Report
Accuracy: MPE(4)	±0.004° @ ±2.5° range ±0.006° @ ±5° range ±0.010° @ ±10° range		<±0.02° @360° range
Offset temperature dependency (from -20°C to +70°C)	±0.003° / °C		±0.002° / °C
Power supply	from 18 to 30 Vdc		from 8 to 28 Vdc
Signal output and protocol	4-20 mA current loop (inclination), Ohm (temperature)		RS485, Modbus RTU (5)
Average consumption	max 20 mA per Axis		3.7 mA @ 24 Vdc, 7.0 mA @ 12 Vdc
Temperature operating range	from -30°C to +70°C		from -30°C to +70°C
Internal temperature sensor: - measuring range - accuracy (resolution)	NTC 3 kΩ Thermistor from -50°C to +150°C ±0.5 °C (0 to +50°C)		Embedded on electronic board - 40°C to +125°C ±1°C with temperature range -10°C to +85°C (res. 0.01 °C)
Internal humidity sensor:(6) - measuring range - accuracy (resolution)	-		Embedded on electronic board 0 to 100% RH ±5% RH with humidity range 0 to 95% RH (res. 0.025% RH)
On-board supply voltage monitor:(6) - measuring range - accuracy (resolution)	-		Embedded on electronic board 0 to 36 V ±5% FS (res. 0.01 V)
Signal cable	0WE106IP0ZH		0WE106IP0ZH
Cabling	M12 male 8-pin connector on sensor body		M12 male connector on sensor body, 3 port T shaped splitter with 2 female and 1 male connectors
Max. cable length to logger	1000 m (for more information see FAQ #073) (7)		1000 m (for more information see FAQ #073) (7)

(1) Complete technical specifications of the digital tiltmeter and more details regarding the 360° technology can be found in the 360° digital tiltmeter data sheet, which can be downloaded from this page.
(2) For analogue tiltmeters, other ranges available on request
(3) Sensitivity is a specific paramenter different for every gauge. The sensitivity is calculated during gauge calibration test and inserted into the Calibration Report.
(4) MPE is the Maximum Permitted Error on the measuring range (FSR). In the Calibration Report, the accuracies of the gauge are calculated using the linear regression; the error reported is the maximum residual error on the FSR.
(5) RS485 not-optoisolated Modbus communication with RTU Protocol Default output is degree. Sisgeo Modbus protocol manual is available for download on Sisgeo web site.
(6) These sensors are installed on the internal electronic board to give information in the event of probe malfunction.
(7) Refer to FAQ section on Sisgeo website: www.sisgeo.com/faq

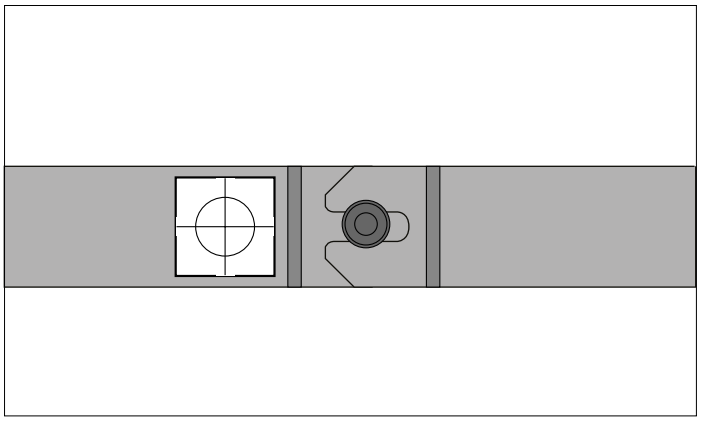
PHYSICAL FEATURES

	BEAM	TILT SENSOR
Length	1000, 2000 or 3000 mm (L)	99 mm
Width	44 mm	49 mm
Height	60 mm	55 mm (connector not included)
Material	aluminium	anodized aluminum





Connection detail of analogue tilt sensor on beam trough the fixing and adjustement plate.



Detail of beam mechanical connection

ACCESSORIES AND SPARE PARTS

ALUMINIUM BEAM
OS7BM000002

Aluminium beam for both analogue or digital sensors, available in different length: 1000, 2000 or 3000 mm. Supplied with topographic target, wall mounting supports at the ends and anchor bolts.

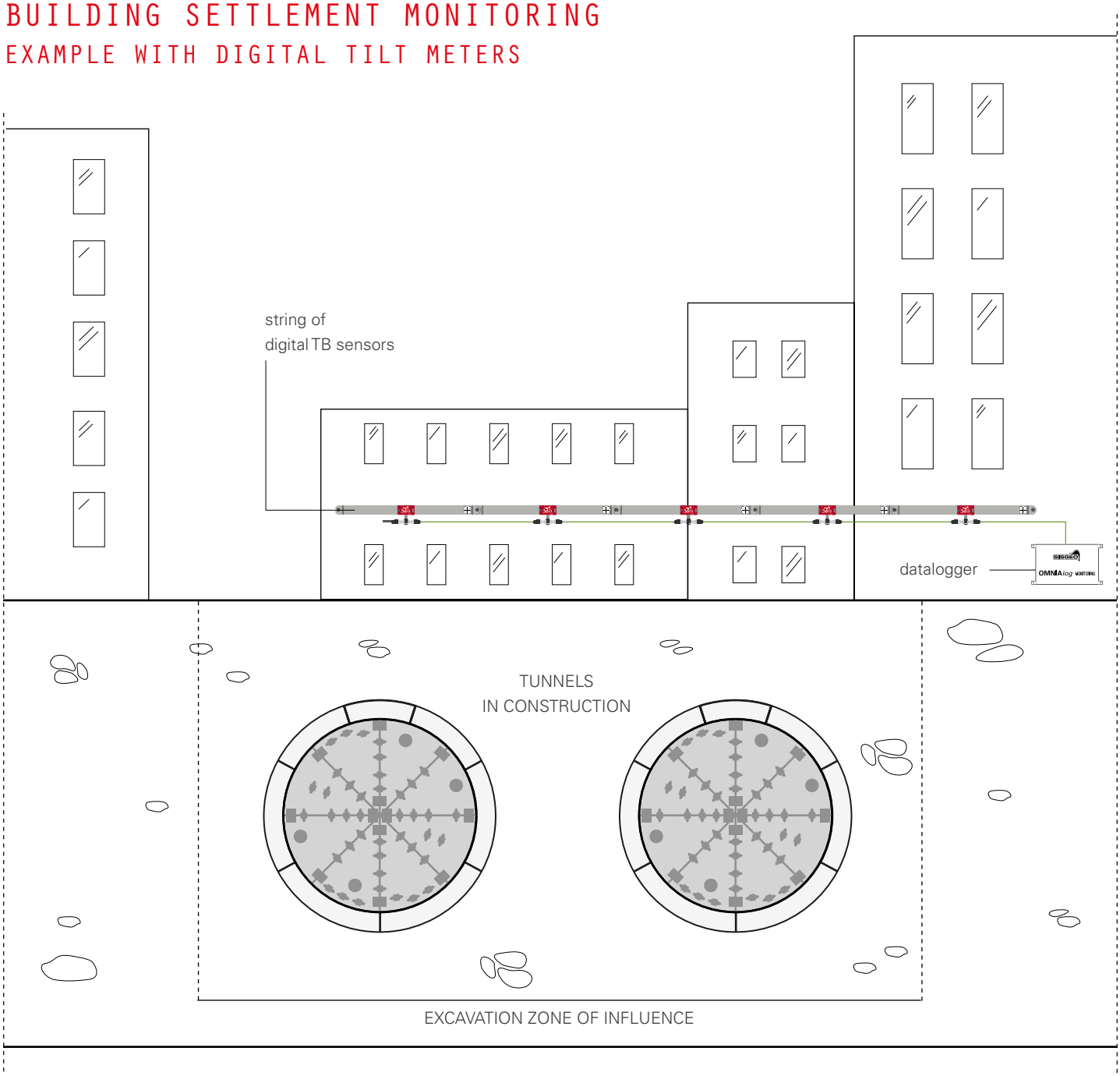
TERMINATION RESISTANCE
OETERMRESIO

Resistance ending device with connector, needed to close every digital tilt meter chain. The value of resistor depends on the layout of each monitoring system.
For more detail see FAQ#076.

CONNECTORS KIT (SPARE)
OECONO5T3KO

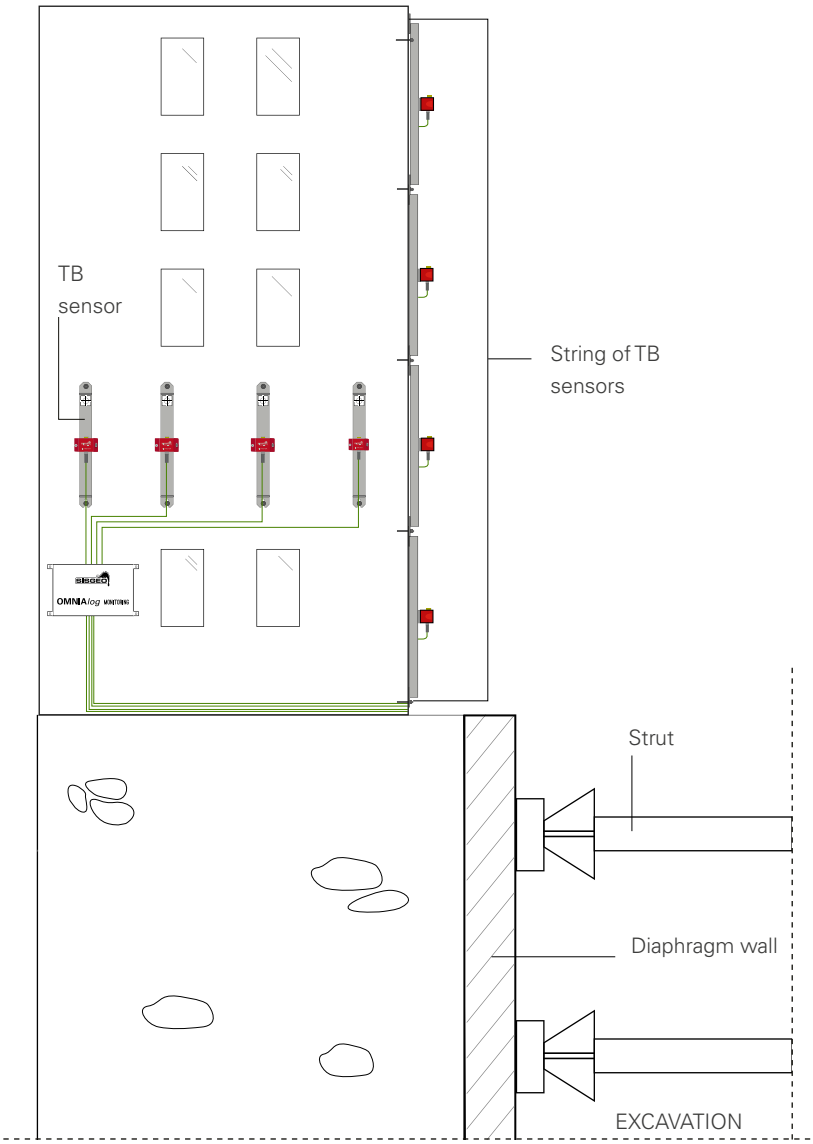
Spare connector kit for digitla tiltmeters. The kit consists of three 3-port T-shaped splitter, three female connectors and three male connectors.

BUILDING SETTLEMENT MONITORING
EXAMPLE WITH DIGITAL TILT METERS



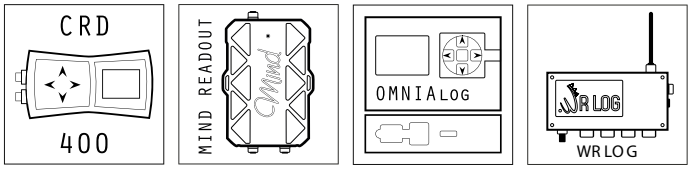
STRUCTURAL TILT/CANT MONITORING

EXAMPLE WITH ANALOGUE TILT METERS



READABLE BY

(1)



(1) Only for analogue version (mod. S541MA & S542MA)

For further information refer to their own datasheets

SISGEO HEADQUARTER
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STANLAY™

CRD 400
READOUT

READOUT UNITS
AND DATALOGGERS

SISGEO®

CRD-400
READOUT

CRD-400 is a new generation multipurpose readout designed to take readings of all instruments including vibrating wire.

CRD-400 permits readings in both electrical and engineering units. Battery level, readout temperature and date are always displayed.

CRD-400 comes with shoulder/belt bag, battery charger, sensor cable with 6 alligator clips and USB flash drive with user manual.

FEATURES

- Compatible with all SISGEO analog sensors
- Large coloured display
- Accurate and precise measurements
- Splash-proof hand-held case
- Powered by Ni-MH rechargeable batteries

BENEFITS

- Easy to use
- Lightweight and portable
- Right and left hand users
- Auto shutdown
- Sunlight reliable display
- Reads both electrical and engineering units

CE *Meet the essential requirements of EMC directive 2014/30/UE and Safety Low Voltage Directive 2014/35/UE*

TECHNICAL SPECIFICATIONS

Type of measurements	mA - mV - V - mV/V - °C - Hz (µsec - digit - µε)
A/D converter	24-bit Sigma-Delta ADC (22 true bit)
Range and power supply	Current loop (2 wires): range 0÷21 mA - Power supply: 24V DC Transmitter (3 wires): range 0÷21mA - Power supply: 24V DC Voltage (4 wires): range ±10V - Power supply: 24V DC Wheatstone bridge (6 wires): range ±10 mV/V - Power supply: 5 V DC Servo-inclinometer: range ±10000 mV - Power supply: ±12V DC Platinum RTD (Pt100): range -150°C to +150°C - Power supply: 1 mA Thermistor (NTC): range -30°C to +150°C - Power supply: 0.04mA, 0.1mA, 1mA Vibrating Wire: range 400Hz to 6000Hz - Excitation sine wave signal (adaptive): ±10 V
Reading resolution	1µA at FS 20mA - 1µV at FS ±20mV - 10µV at FS ±1V - 100µV at FS ±10V 0.001mV/V at FS 10mV/V - 0.1°C for PT100 - 0.1°C for NTC 0.1 Hz at FS from 400 to 6000Hz
Accuracy	0.01% FS (0.1% for Voltage and Servo-inclinometer, 0.2% FS for PT100 and NTC)
Temperature drift	0.001 % FS / °C
Rechargeable battery	4 x AA, NiMH, 2400 mAh
Operating time	min. 4h (constant use, 24 Vdc @ 20 mA @ 25 °C, maximum backlight, 2400 mAh batteries) min. 6h (constant use, 24 Vdc @ 20 mA @ 25 °C, 50% backlight, 2400 mAh batteries)
Battery charger	Programmable charger, IP41, input voltage: 100-240 V AC, 50-60 Hz, 1.3A
Display	Amorphous silicon TFT LCD panel with LED backlight unit, 320 x 240, 3.5", sunlight reliability

ENVIROMENTAL CONDITIONS

Operating temperature	from -20°C to +60°C
Storage temperature	from -30°C to +70°C

PHYSICAL CHARACTERISTICS

Weight	0.5 Kg
Dimensions (L x W x H)	100 x 230 x 45 mm
Protection Degree	IP67
Material	ABS
Connectors	1 x instrument, 1 x battery charger

CERTIFICATIONS

Eletromagnetic compatibility	EN 61326-1 (2006)
Safety requirements	EN 61010-1 (2001)

ITEMS INCLUDED

TRAVEL BAG

Splashproof shoulder/belt carrying bag.

BATTERY CHARGER OECABCRD400

100-240 Vac / 12 Vdc battery charger

SENSOR CABLE OECAV8P6A00

Jumper cable with 6 alligator clips

USB FLASH DRIVE

User manual

ACCESSORIES

JUMPER CABLE OECAV08V2J0

Jumper cable with 2 connectors

SWITCH BOX CABLE OECAV08V2S0

Jumper cable for switch measuring box

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MI ND

STANLAY™

MIND
READOUT

READOUT UNITS
AND DATALOGGERS

SISGEO®

MIND READOUT

Mind is a portable and compact multichannel readout unit able to read all Sisgeo instruments, both analogue and digital. It is compact, rugged, with IP65 protection class and it is supplied with a specially designed carrying bag. The BLE (Bluetooth Low Energy) wireless technology permits a fast and safe communication with Mind App, with a very low batteries' consumption.
Mind is fully managed by Mind App which is compatible with Android operating system and with iOS. Thanks to its App, Mind is a fast and light system for a quick and handy interface with the instruments, furthermore the data storage and sharing is made simpler and immediate.
Mind App is also useful to read and utilize the QRcode placed on every analog Sisgeo instrument, having the identification, calibration and reading information always available.
When configuring sensors on the MIND app, calibration parameters of analog gauges (e.g. vibrating wire) can be downloaded from the Internet by entering the serial number.

MAIN ADVANTAGES

- Long battery life: minimum 8 hours continuously
- Supplied with Calibration Report issued following high level metrologic procedures
- High accuracy and resolution
- Simultaneous display of electrical and engineering measures
- Real time charts
- Quick read for immediate readings without configuration
- Multiplexers reading
- One-touch reading of digital gauge arrays
- Geolocation and search engine for sites and sensors
- Display the plot of vibrating wire sensor signal's spectrum with peak value
- Embedded Digital Sensor Configuration (DSC) tool

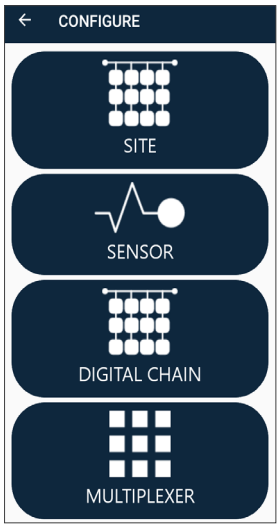
CE *Meet the essential requirements of RED Directive 2014/53/EU,*
Certified for extended environmental conditions: altitude up to 3000m

MIND APP

Thanks to its app, Mind is light system for a quick and handy interface with the instruments.
The data storage and sharing is made simpler and immediate.
Mind APP is also useful to read the QRcode placed on every analog Sisgeo instrument, having the identification, calibration and reading information always available.

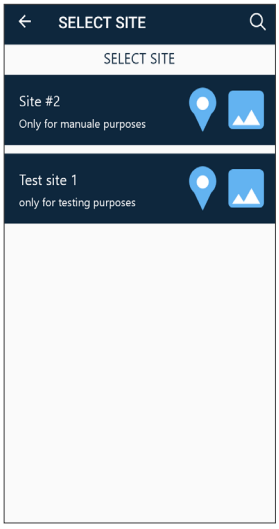
Minimum Device Specifications (device not supplied by SISGEO)	Bluetooth Low Energy BLE 4.2
	APPLE iOS 16 or higher
	Android OS 10 or higher

APP OVERVIEW

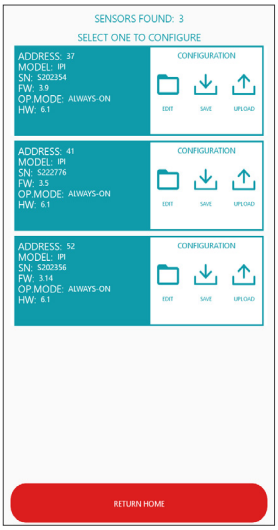


Instruments configuration main page.

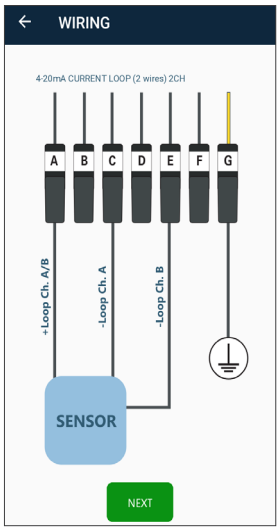
QR code scanner for automatic configuration of analog sensors.



List of site with selectable icons to have info of geographical positioning and related picture.

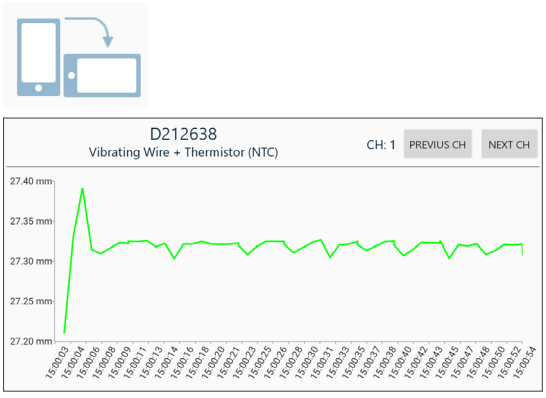


DSC (Digital Sensors Configuration) tool main page.



Guided clips wiring connection.

Instrument reading page with both biaxial 4-20mA current loop channels reading. The temperature measure is displayed scrolling down.



Graph of connected sensor's readings.
It is generated just turning the mobile device in horizontal position.

MIND READOUT PHYSICAL FEATURES

Material / Weight	Aluminum / 1 Kg
IP class[1]	IP65
Overall dimensions	205x128x45 mm
Operating temperature	-20 to +55°C (charging +5°C to +40°C)
Storage temperature [2]	-10 to +45°C for max 6 months, -20 to -10°C for max 1 month
Relative humidity	Operating: 60 ±25% RH Storage: 60 ±25% RH

(1) IP65 protection class is granted with closed connectors (i.e. with their own cap or with the cable connected) and with the on/off button not pressed.
(2) The periods indicated (6 months and 1 month) are the maximum time frames within which MIND must be recharged to not lose capacity and performance of its battery.

SISGEO COMPATIBLE INSTRUMENTS

Uniaxial 4-20mA current loop 2-wire gauges	Ratiometric 6-wire gauges	Vibrating wire gauges
Biaxial 4-20 mA current loop 2-wire gauges	RTD PT-100 temperature gauges	Vibrating wire + NTC Thermistor gauges
Biaxial 4-20 mA current loop 2-wire gauges + Thermistor	NTC Thermistor temperature gauges	Digital gauges or arrays with RS-485 Modbus RTU

OTHER COMPATIBLE SENSORS

Uniaxial and biaxial 4-20mA transmitters, 3-wire and 4-wire gauges	Carlson instruments 4-wire gauges	Uniaxial and biaxial servo-inclinometer gauges
Uniaxial and biaxial 4-20mA transmitters, 3-wire gauges + Thermistor	Carlson thermometers 3-wire gauges	RTD PT-100 temperature gauges 3-wire gauges
Ratiometric 4-wire gauge	Uniaxial and biaxial voltage gauges	Vibrating wire double coils gauges
Resistive strain gauge 1/2 bridge and 1/4 bridge	Uniaxial and biaxial potentiometers	

TECHNICAL SPECIFICATIONS(1)

A - ANALOG INPUTS

Number of channels	3
Analog-to-Digital Conversion (ADC)	Resolution: 24bit, sampling rate: 2.5 Hz per channel with 50/60 Hz mains frequency rejection, Modulation method sigma-delta
Input impedance	>10 kΩ

A.1 - MEASUREMENT TYPES

A.1.1 - 4-20mA current loop (2 wires)	
Range | Resolution | Accuracy	0-24 mA | 1 µA at range 20 mA | 6.0 µA
Internal shunt resistor	100 Ω
Power supply (up to 100 mA)	24V DC, 12V DC, external (selectable by the software)
Temperature drift	< 10 ppm / °C, range -30°C to +70°
A.1.2 - Wheatstone full bridge (6 wires, with sensing)	
Range | resolution | accuracy	±15mV/V | 0.001 mV/V | 0.005mV/V
Power supply (up to 80 mA)	5 Vdc, external
Max and min bridge resistance	Max 10 kΩ - min 200 Ω
Temperature drift	< 10 ppm / °C, range -30°C to +70°C
A.1.3 - Platinum RTD (Pt100) 4-wire	
Range | resolution | accuracy	-150°C to +150°C | 0.1°C | 0.3 °C
Power supply	1 mA
Temperature drift	< 10 ppm / °C, range -30°C to +70°C
A.1.4 - Thermistor (NTC 3 kΩ @ 25 °C)	
Range | resolution | accurcy	-50°C to +150°C | 0.1°C | 0.2°C
Power supply	2-100 uA
Temperature drift	< 10 ppm / °C from 0 to 150 °C | < 20 ppm / °C from 0 to -30 °C | < 100 ppm/°C from -30°C to -50 °C;
A.1.5 - Vibrating Wire sensors	
Range | accuracy	300 to 6000 Hz | 0.0033% FS
Excitation sine wave signal	Up to 12 Vpp (selectable by the software)
Resolution	0.01Hz at range 300÷1000Hz 0.02Hz at range 1000÷3000Hz 0.1Hz at range 3000÷6000Hz
Temperature drift	<10ppm/°C (-30°C to +70°C)

(1) The information and data in the "Technical specifications" table refer to tests performed with a calibrated control unit in an environment with controlled temperature and humidity, and using signal generators with cables shorter than 5 m.

B - DIGITAL RS485 INPUTS

Max number of gauge per array	according to the consumption of each type of sensor and if configured in Always-on mode or in Timed mode
Interface and Protocol	RS485, MODBUS RTU
Power supply (up to 500 mA)	up to 24 V DC

C - COMMUNICATION WITH DEVICE

BLE (Bluetooth Low Energy) 5.2	band: 2.4 GHz ISM Band (2402-2480 MHz) - power: 4dBm Max
Led	Different colors for local notifications

D - ON-BOARD DIAGNOSTIC SENSORS

D.1 - INTERNAL TEMPERATURE	Range: -40°C to +125°C | Resolution: 0.1°C | Accuracy:±1°C (-10°C to +85°C)
D.2 - INTERNAL HUMIDITY	Range: 0 to 100%RH | Resolution: 0.1% RH | Accuracy:±5% (0 to 95%RH)
D.3 - BATTERY VOLTAGE MONITOR	Range: 0 to 18 V | Resolution: 0.1 V | Accuracy:±5% FS

E - BATTERIES

Battery type - Voltage and capacity	Li-Ion rechargeable batteries - 7.4V - 2.6Ah
Operating time with Li-Ion batteries	min. 8h (constant use, 24 Vdc @ 20 mA x 2 @ 25 °C)
Charging temperature range	0°C to +45°C

F - BATTERY CHARGER

Input voltage	50-60 Hz 90-264 Vac
IP Class and temperature range	IP41 (for internal use only), Operating: -25°C to +40 °C
Max output power	10 W

G - OTHER COMPATIBLE SENSORS[2]

G.1 - 4-20mA transmitters (3-4 wires)	
Range | Resolution | Accuracy	0-24 mA | 1 µA | 6.0 µA
G.2 - Voltage 4 wires, differential	
Range | Resolution | Accuracy	±12V | 1 mV | 4 mV
G.3 - Servo inclinometers	
Range | resolution | accuracy	±10V | 1 mV | 2 mV
G.4 - 1/2 Wheats. bridge (5 wires, with sensing)	
Range | resolution | accuracy	±15 mV/V | 0.005 mV\V | 0.05 mV/V
G.5 - 1/4 Wheats. bridge (3 wires, w/o sensing)	
Range | resolution | accuracy	±15 mV/V | 0.005 mV/V | 0.05 mV/V

G.6 - Potentiometers	
Range | resolution | accuracy	5V | 1 mV at range ±5 V | 1 mV at range ±5 V
G.7 - Wheatstone full bridge (4 wires, without sensing)	
Range | resolution | accuracy	±15 mV/V | 0.001 mV\V | 0.005 mV/V
G.8 - Carlson instruments (4 wires)	
Range | resolution | accuracy	±10% (ratio) | 0.01% (ratio) | 0.1% (ratio)
G.9 - Carlson thermometer (3 wires)	
Range | resolution | accuracy	±150 °C | 0.1°C | ±1 °C
G.10 - PT-100 (Platinum RTD) (3 wires)	
Range | resolution | accuracy	±150 °C | 0.1°C | ±1 °C
G.11 - Vibrating wire double coils (4 wires)	
Range | accuracy	300 to 6000 Hz | 0.0033% FS
Excitation sine wave signal	Up to 12 Vpp (selectable by the software)
Resolution	0.01Hz at range 300÷1000Hz 0.02Hz at range 1000÷3000Hz 0.1Hz at range 3000÷6000Hz
Temperature drift	<10ppm/°C (-30°C to +70°C)

ACCESSORIES AND SPARE PARTS

JUMPER CABLE OECAV08V2J0

Jumper cable for MIND connection to an instrument supplied with military connector.

SWITCH BOX JUMPER CABLE OECAV08V2S0

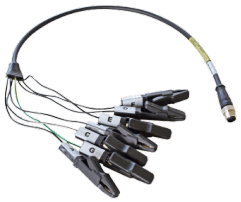
Jumper cable for MIND connection to a switch terminal box.

MUX BOX-MIND JUMPER CABLE OECAVMINDMU

Jumper cable for direct connection from MIND to multiplexer boxes. NOTE: only new MUX BOX with M12 connector can be read with MIND. Old MUX-BOX with MIL connector which could be read with New Leonardo cannot be read with MIND.

7-CLIPS SENSOR CABLE (SPARE) OECAV8P6A00

Jumper cable with 7 alligator clips for instrument reading on signal cable wires.



DIGITAL GAUGE JUMPER CABLE (SPARE) OECAV8PDIG0

Jumper cable for MIND connection to digital gauges.

MIND CARRYING BAG (SPARE) OMIND1BAG00

Specially designed carrying bag for MIND readout. It includes shoulder belt.

BATTERY CHARGER (SPARE) OECABMIND00

Charger for Li-Ion batteries.
Input voltage 90-264 Vac, 50-60 Hz IP rate IP41
Max output power 10 W

SISGEO HEADQUARTER
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STANLAY™

OMNIALOG
DATALOGGERS

READOUT UNITS
AND DATALOGGERS

SISGEO

OMNIALOG DATALOGGER

The OMNIAlog has been designed "in house" by Sisgeo and is the result of over 25 years experience using different dataloggers in geotechnical field.

OMNIAlog is a versatile, cost effective and low powered datalogger supporting vibrating wire and all major geotechnical sensors.

OMNIAlog has a mini web server on board, 24 local analog channels, expandable to 408 channels through multiplexers and 2 digital opto-isolated input ports. It can be managed by any Internet browser and also includes a USB flash drive support.

APPLICATIONS

- Tunnelling
- Dam surveillance
- Structural monitoring
- Mining exploration
- Deep excavation
- Landslide safety implementation
- Retaining walls
- Geotechnical investigation campaign

FEATURES

- No software required
- LAN Ethernet, USB and RS232 Comm ports
- High performances
  (resolution, accuracy, environment -30°C +70°C)
- 32GB internal memory
- Stand alone or part of network
- Vibrating wire built-in interface
- Digital sensors support
- Compatible with all major geotechnical sensors

CE *Meet the essential requirements of the EMC Directive 2004/108/EC and low voltage Directive 2006/95/EC*

TECHNICAL SPECIFICATIONS

	OMNIALOG GT-2400	OMNIALOG GT-100D
CPU AND MEMORY		
Processor	ARM Cortex-M3 MCU with 1 MB Flash, 120 MHz CPU, ART Accelerator, Ethernet	
RAM Memory	1 Mbyte RAM with backup	
Mass storage	SD CARD 32 GB (*) and WEB pages	
Clock accuracy	High precision RTC (real time clock with battery back-up) self compensated in temperature (3ppm @ 25°C, 10ppm @ -30 +70°C)	
On-board sensors	Temperature measured on the electronic board (accuracy ±1%)	
INPUT		
Analog differential inputs	24 differentials individually configured. Channel expansion provided by SISGEO multiplexers	-
Digital inputs	Two opto-isolated digital inputs individually selectable for switch closure, high frequency pulse and trigger. Independent 32-bit counters for each input. Max Input Voltage: 24V (Max Current: 10mA) Min Input Voltage: 5V (Max Current: 2mA)	
INTERFACES		
Display & Keyboard	Small backlight graphic LCD 128x64 dpi with membrane keyboard for the minimal local management without the PC. Keyboard for start a uniscan, sequential display of the last memorized readings for each channel (sensor ID, converted unit reading, UM), device status, data download and FW/web pages update by USB pen drive, safe mode (back-up/format/restore internal SD card)	
LAN ethernet isolated	10/100 Mbps, RJ45	
RS232	9-pin, DE9: DCE port for GSM/GPRS modem connection Baud Rates: selectable from 9600 bps to 115.2 kbps (default setting) Default Format: 8 data bits; 1 stop bits; no parity	
USB	USB 2.0 flash drive only (FAT 32), 5 V 200 mA	
RS485#1 opto-isolated	5 screw clamp: DCE port for max. No.250 SISGEO digital sensors Communication interface: RS485 Communication protocol: MODBUS RTU (SISGEO Protocol) The voltage 'V OUT' is switched on and off under program control. V OUT is the unregulated input power supply 'V IN' (1 A) Power supply management (always on or energy safe)	
RS485#2 opto-isolated	5 screw clamp: DCE port for max. 16 SISGEO multiplexer boards connection. Communication interface: RS485 Communication protocol: MODBUS RTU (SISGEO Protocol) The voltage 'V OUT' is switched on and off under program control. V OUT is the unregulated input power supply 'V IN' (1 A) Every channel of each multiplexer board is completely independent.	
SWITCHED OUTPUT POWER SUPPLY	The voltage 'V OUT' is switched on and off under program control. V OUT is the unregulated input power supply 'V IN' (2 A)	

(*) Including system files

ANALOG MEASUREMENTS	OMNIALOG GT-2400	OMNIALOG GT-100D
Measurement rate (MR)	**High precision measurement (low speed, 5 sps):** Init. analog (with auto-calibration): 27.80 sec Instrument warm-up: depending on sensor configuration Measurement: 5.41 sec **Standard measurement (20 sps):** Init. analog (with auto-calibration): 7.1 sec Instrument warm-up: depending on sensor configuration Measurement: 1.57 sec **Fast measurement (High speed 40 sps):** Init. analog (no auto-calibration): 2.65 sec Instrument warm-up: depending on sensor configuration Measurement: 0.45 sec **Note1: times indicated not valid for vibrating wire measures** **Note2: init. analog phase is made only one time before the measurement cycle**	-
Type of measurements	mA, mV, V, mV/V, °C, Hz (µsec, digit)	-
ADC	24-bit (22 true bit) differential Analog-to-Digital Converters, 5SPS, 0-24 Average Function, auto-calibration and auto-range	-
Range and power supply	**Current loop (2 wires)**: range 0÷25 mA Power supply (selectable by the software, up to 100 mA): 24V DC, 10V DC, external **Transmitter (3-4 wires)**: range 0÷25mA Power supply (selectable by the software, up to 100 mA): 24V DC, 10V DC, external **Voltage (4 wires):** range ±100mV, ±1V, ±10V Power supply (selectable by the software, up to 100 mA): 24V DC, 20V DC, 10V DC, 5 V DC ,external **Servo inclinometer:** range ±5V Power supply (selectable by the software): ±12V DC (dual), external **Wheatstone bridge (6 wires, with sensing)**: range ±10mV/V Power supply (selectable by the software, up to 80 mA): 10 V DC , 5 V DC, external (max 10 Vdc) Maximum bridge resistance: 10 kΩ Minimum bridge resistance: 200 Ω **Platinum RTD (Pt100)**: range -150°C to +150°C Power supply: 1.2 mA **Potentiometer:** range ±2.5V Power supply (selectable by the software): 10V DC, 5V DC **Thermistor (NTC)**: range -50°C to +150°C Power supply: 0.05mA / 0.1mA / 1.2mA **Vibrating Wire**: range 400Hz to 6000Hz Excitation sine wave signal (adaptive): ±10 V	-
Reading resolution	1 µA at range 20 mA 10 µV at range ±100 mV - 100 µV at range ±1 V 1 mV at range ±10 V - 0.1 °C for Pt100 - 0.1 °C for NTC 0.1 Hz at range 6000 Hz - 0.001 mV/V at range ±10 mV/V	-
Measurement accuracy	0.01 % F.S. (0.1 % F.S. for Pt100 and NTC) with Standard Measurement Calibration in Sisgeo laboratories recommended every 2 years.	-

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Temperature drift	< 10 ppm / °C, range -30°C to +70°C	-
Input noise voltage	5,42 µVpp	-
Input limits	±12V	-
Sustained input voltage w/o damage	±50V DC max	-
DC common mode rejection	>105dB	-
Normal mode rejection	>90dB	-
Input impedance	20 MΩ typical	-

OUTPUT	
Digital output	One relay output (for alarm, etc.): volt-free closure (low voltage 30V, 2A)

DIGITAL INPUTS	
Measurement rate (MR)	Max frequency 1kHz
Accuracy	0.1 Hz

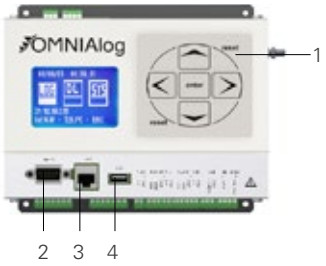
PROTECTIONS	**Electro-mechanical relays for each measuring channel:** Electrical endurance: min. $2x10^5$ operations, Mechanical endurance: $10x10^8$ operations. **Circuit protection: Gas Discharge Tubes (GDT):** DC Breakdown Voltage 75V (± 20%@100V/µs) Impulse Breakdown Voltage 250V (@100V/µs) typical Overvoltage and reverse polarity protection on power supply input. Short circuit protection on every outputs of sensor power supply.

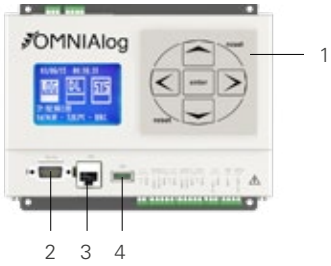
SYSTEM POWER REQUIREMENTS	
Voltage (external power supply)	10 to 30 V DC (reverse polarity protected), max 5 A
External rechargeable batteries	12V DC nominal
Typical current drain (@12Vdc, external power supply)	Sleep mode: 100 µA ON: 62 mA - ON with ethernet connected: 87 mA - ON with display ON: 115 mA ON with display ON and ethernet connected: 142 mA Analog initialisation: 115 mA Measurement: 123 mA (with 12 mA @ 24 V sensor consumption)

ENVIROMENTAL CONDITIONS	
Operating temperature	-30 to +70°C (display -20 to +70°C)
Storage temperature	-40 to +85°C (display -30 to +80°C)
Humidity	80%
Overvoltage category	II
Pollution degree	2
Sound levels	< 74dBA
Maximum height of use	3000m

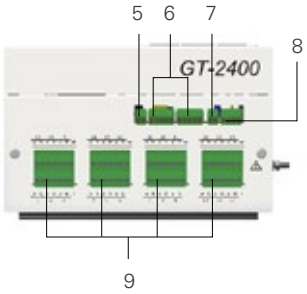
	OMNIALOG GT-2400	OMNIALOG GT-100D
SOFTWARE & FIRMWARE	Web server on board (independent OS platform). Live update (firmware and web pages). FTP client to send data/alarms on a FTP server (SFTP not supported) MAIL to sent data/alarms to max 5 email address (SMTPS / SSL not supported) SMS to sent alarms to max 5 telephone numbers Data download (readings, logs) in .csv file (compatible with Microsoft Excel) Virtual channels management (max No.80 channels) Languages: Italian, English and French	
PHYSICAL CHARACTERISTICS		
Dimensions (L x W x H)	183 x 144 x 118 mm	183 x 144 x 76 mm
Weight	1500 grams	1000 grams
Material	Plastic and metal	Plastic and metal
Wiring	Removable connector	Removable connector

TOP VIEW

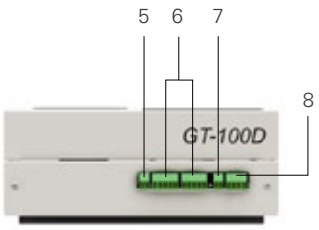




FRONT VIEW



OMNIALOG GT-2400



OMNIALOG GT-100D

1	Membrane keyboard	4	USB	7	"V" IN
2	RS-232	5	"V" OUT	8	PWR input
3	LAN	6	RS-485	9	Analogical inputs

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