

**Catalogue**  
**2019**

# Gessteq

**INSTRUMENTS FOR GEOTECHNICAL AND STRUCTURAL MONITORING**

# Our story

**The Gestecno is a company that has been working from 1992.** In these running years it has been confirmed as a reference company in an international panorama, for the “100% made in Italy” production of a wide range of equipment in the geotechnical, hydrological, civil engineering, geomechanic monitoring fields.

**Our Headquarter is in Castelraimondo, in the heart of Marche,** located in a new facility 800 sm wide. At the inside, wide spaces are dedicated to the projection, production activity and storage and in which a young staff composed by high skilled and strongly motivated people work.

**Every instrument is designed, projected and assembled in our company laboratories** with high professional accuracy and customisation ability, according to the specific demands of our clients. We are constantly investing in R&D so to improve the quality of our products and their competitiveness. We are ISO9001:2015 certified as proof of an accurate attention to the quality and the respect of defined protocols.

**With time we managed to confirm us in the trade market complementing us also to the market** abroad thanks to our high price quality rate and to our capacity to wisely combine competences, experience, with slenderness in the operative processes, flexibility and ability to create tailor-made solutions. These are the strengths that have allowed us to collaborate in these years with big and prestigious clients, not to mention many Public Bodies and other professional companies of the field.

**However our aim,** is not to propose ourselves directly to the end customer, but to cooperate with dealers, manufacturers, sales agents, systems and service providers in Italy and abroad. Our intent is to become a privileged interlocutor for our partners, a reference point for one or more products. We would like to become a company you can count on for your special needs. Each project is an opportunity for us to demonstrate our skills and to make the most of our resources, we always face it as a challenge and an unmissable opportunity for growth.

**Using and laying our systems is very simple and intuitive** since we provide our products already set up according our specific client needs. We guarantee, in any case, a customer service and support even post sale, remaining always available and glad to follow our Partners even in the post-sale providing instructions and any sort of clarification.

**This catalogue represents the results of our hard working and experience gained in these years.** By leafing it you will have a general view on the instrumentation that we produce, which is generally available in stock.

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# Settlement

# Gauges

Multipoint settlement gauges  
Settlement platform  
Magnet Extensometer  
Hydrostatic profile gauge

## MULTIPOINT SETTLEMENT GAUGES

### Description

The settlements represent one of the most significant quantities to keep under control for the knowledge of the soil-structure interaction during the various phases of construction and operation. The most suitable system able to provide useful information during the construction of a work is represented by the multipoint settlement gauges realized with high precision and stability pressure transducers. The operating principle of the system is based on the concept that a column of liquid exerts a certain pressure according to its height. Any variation in time of the height of the liquid represents the measure of the vertical displacement that one wants to control.

The instrument consists essentially of:

- a reference point for the settlement gauges
- one or more measurement points of settlement
- a hydraulic circuit consisting of a polyethylene pipe and hydraulic fittings
- the electric cable that allows the connection of the instrument to the reading unit

### Applications

- Settlement monitoring in earthfill dams and road embankment
- Vertical displacement in tunnels and
- Settlement monitoring of residential and historical buildings



### Features

- Reliability for long term monitoring
- High resolution and accuracy
- Protection class IP67
- Robust construction and suitable for harsh environments

## Technical specifications

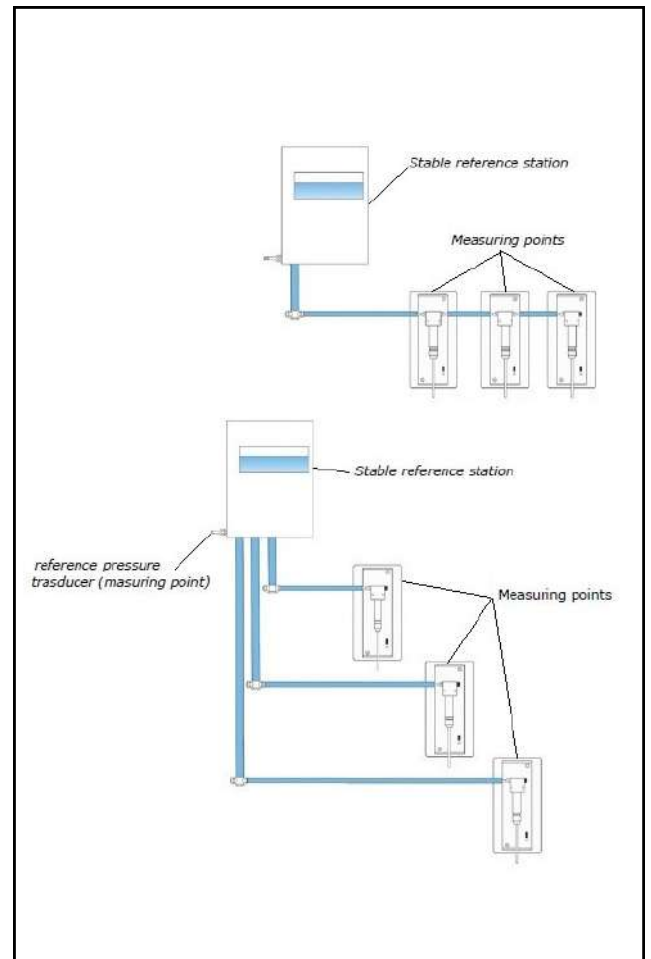
	Reference station	Measurement points
<b>Type of sensor</b>	piezoresistive	piezoresistive
<b>Power supply</b>	8...32 Vdc	8...32 Vdc
<b>Output signal</b>	4-20 mA	4-20 mA
<b>Range</b>	1-2 m	1-2-5-10-20 m
<b>Resolution</b>	0,002% F.S.	0,002% F.S.
<b>Total accuracy</b>	< 0,04% F.S.	< 0,04% F.S.
<b>Total error (10...40 °C)</b>	< 0,1% F.S.	< 0,1% F.S.
<b>Thermal variations</b>	mathematically compensated	mathematically compensated
<b>Operating temperature</b>	-20.....+80 °C	-20.....+80 °C
<b>Dimensions (L x H x W)</b>	400x300x200 mm	250x150x60 mm
<b>Material</b>	plastic and aluminum	stainless steel and aluminum

## Accessories and spare parts

- Hydraulic piping and fittings
- Hydraulic mixture for circuit filling
- Signal cable

## Please specify

CODE	PRODUCT DESCRIPTION
ASI-100	Reference station
ASI-200	Measurement point for embankment
ASI-300	Measurement point for vertical walls
ASI-500	Hydraulic pipe and fittings with liquid
CAV-040	Signal cable 4x24AWG

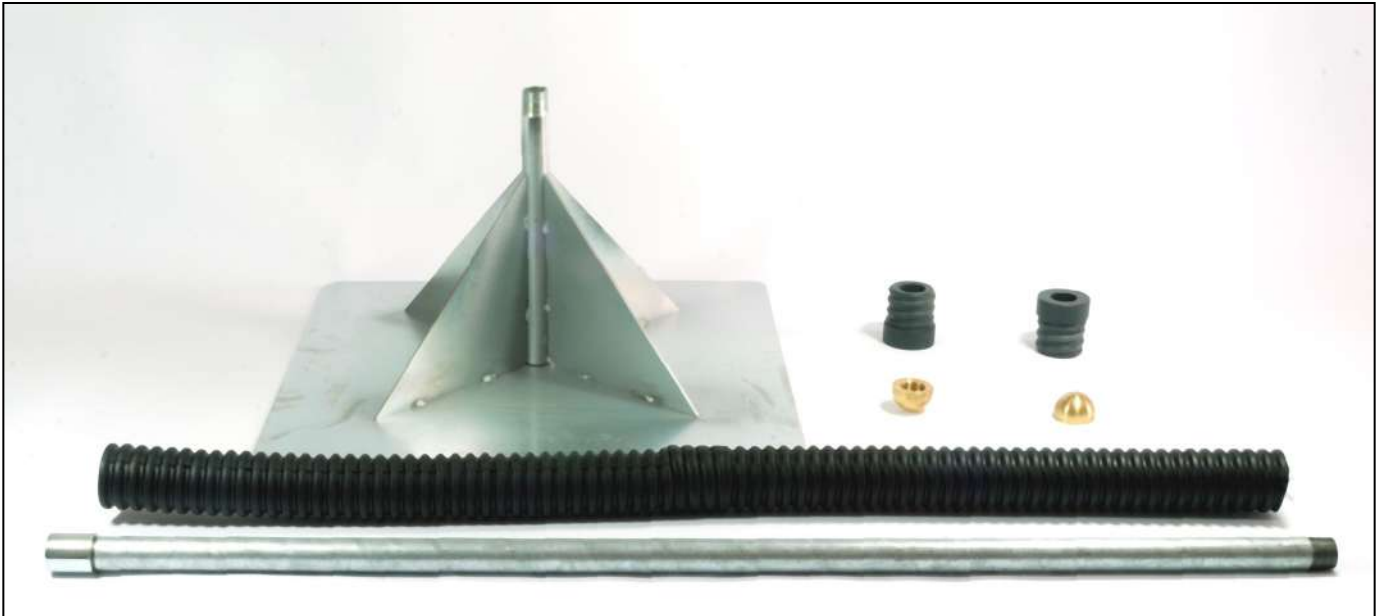


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## SETTLEMENT PLATFORM



### **Description**

Settlement Platforms are usually installed inside the embankments in order to measure the changes in height between the surface and the deep anchoring. This type of settlement is based on a very simple system: a steel rod is inserted inside a corrugated plastic sheath to protect it from the friction of the soil. The end of the rod is connected to the embankment through a plate. On the surface, the head of the rod is subject to subsidence of the same magnitude as that of the deep layer in which the rod is anchored. With this type of settlement platform it is only possible to perform manual measurements, measuring the distance of the cap placed on the top of the rod.

### **Applications**

- Settlement monitoring of road embankment
- Settlement monitoring in earthfill dams
- Monitoring and control of subsidence
- Subsidence of foundations
- Settlement monitoring of railway embankment

### **Features**

- Suitable for long term monitoring
- Sturdy construction and also suitable for harsh environments
- Economic and effective instrumentation
- Easy to install



## Technical specifications

<b>Material settlement plate</b>	galvanized steel
<b>Size settlement plate</b>	500x500x3 mm
<b>Material measuring rod</b>	galvanized steel
<b>Diameter measuring rod</b>	thread M/M of 3/4"
<b>Length measuring rod</b>	1-2-3 meters
<b>Sliding cap</b>	galvanized steel sleeve 3/4"
<b>Anti-friction corrugated sheath</b>	High density polyethylene, outer diameter 55 mm
<b>Bottom anchor</b>	PVC
<b>Topographic survey point</b>	brass stud

## Accessories and spare parts

- Steel threaded sleeve
- Spiral pipe connection
- Topographic benchmarks



## Please specify

CODE	PRODUCT DESCRIPTION
ASP-150	Settlement plate, sliding caps and survey point
ASP-210	Measuring rod lenght 1 m
ASP-220	Measuring rod lenght 2 m
ASP-230	Measuring rod lenght 3 m



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## MAGNET EXTENSOMETER



### Description

Magnetic extensometers are used to monitor failures and settlements, often associated with the construction of embankments, embankments and barriers. An extensometer is normally equipped with a series of measuring points (magnet rings). Checking their position by means of a probe, it is possible to know the lowering of every section between two rings and the lowering in comparison to the reference point. The magnetic rings are connected to the soil by steel springs, and they move as a result of compaction or thrusts of the soil. Readings are made lowering the probe through the access tube; this way it is possible to measure the position of the magnet rings after the beddings. When the probe enters the magnetic field area of a ring, it closes a circuit and activates a visual and acoustic signal. The operator can then register the depth to which the probe is located by measuring the value on the centimeter cable.

### Applications

- Settlement monitoring of road embankment
- Settlement monitoring in earthfill dams
- Monitoring and control of subsidence
- Subsidence of foundations
- Settlement monitoring of railway

### Features

- Suitable for long term monitoring
- Sturdy construction and also suitable for harsh environments
- Economic and effective instrumentation

## Technical specifications extensometer

<b>Bottom end</b>	PVC, 63 mm diameter, 1000 mm length
<b>Suspension head</b>	stainless steel and lockable opening
<b>Access tube</b>	PVC, M-M da 3/4" threaded pipe with PVC sleeve
<b>Lenght access tube</b>	1500 mm, 3000 mm
<b>Corrugated sheath</b>	HDPE, 55 mm external diameter
<b>Material magnet ring</b>	PVC ring with 3 steel springs

## Technical specifications magnetic detector probe

<b>Probe</b>	stainless steel, 20 mm diameter, 120 mm length
<b>Cable</b>	2 conductors millimeter flat cable
<b>Lenght cable</b>	30, 50, 100, 150, 200, 250, 300 m
<b>Measurement Accuracy</b>	+/- 1 mm
<b>Indicator</b>	acustic and visual
<b>Cable reel</b>	drum in plastic (o steel) and frame in steel with brake and support for tips

## Please specify

CODE	PRODUCT DESCRIPTION
ASM-100	Bottom end
ASM-215	Access tube lenght 1,5 m
ASM-230	Access tube lenght 3 m
ASM-300	Corrugated sheath
ASM-400	Suspension head
ASM-500	Spring settlement ring
ASM-600	Simple magnet ring
ASM-700	Settlement plate
ASM-905	Magnetic detector probe, millimeter flat cable, lenght 50 m
ASM-910	Magnetic detector probe, millimeter flat cable, lenght 100 m



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## HYDROSTATIC PROFILE GAUGE

### Description

A hydrostatic profile gauge allows for manual measurements of failures that occur in foundations, embankments, landfills, etc. A profile tube is installed horizontally (lengthwise) at the monitoring surface. The profile is pulled through the tube and measures the hydrostatic pressure of the measuring point (inside which there is a high-accuracy pressure transducer) compared to the level of the fluid contained in the reference tank placed outside. A comparison of data measurements taken at different time intervals provides the variation on the position of the tube, and consequently the level of failures.



### Technical features

<b>Sensor type</b>	piezoresistive
<b>Power</b>	8...32 Vdc
<b>Output</b>	4-20 mA
<b>Measurement range</b>	1-2-5-10-20 m
<b>Resolution</b>	0,01% F.S.
<b>Total Accuracy</b>	< 0,2% F.S.
<b>Operating temperature</b>	-20...+60 °C
<b>Probe dimension</b>	30 mm diameter - L=250 mm
<b>Probe and reel material</b>	stainless steel
<b>Class of protection</b>	IP68

### Please specify

CODE	PRODUCT DESCRIPTION
PID-100	Hydrostatic profile gauge with sensor & reel
PID-200	Electro-hydraulic cable

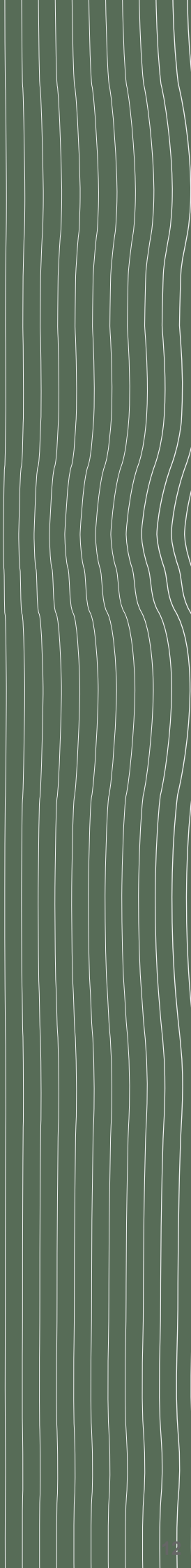
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# Strain in Gauges

Vibrating wire strain gauges  
Resistive strain gauge



## VIBRATING WIRE STRAIN GAUGES

### Description

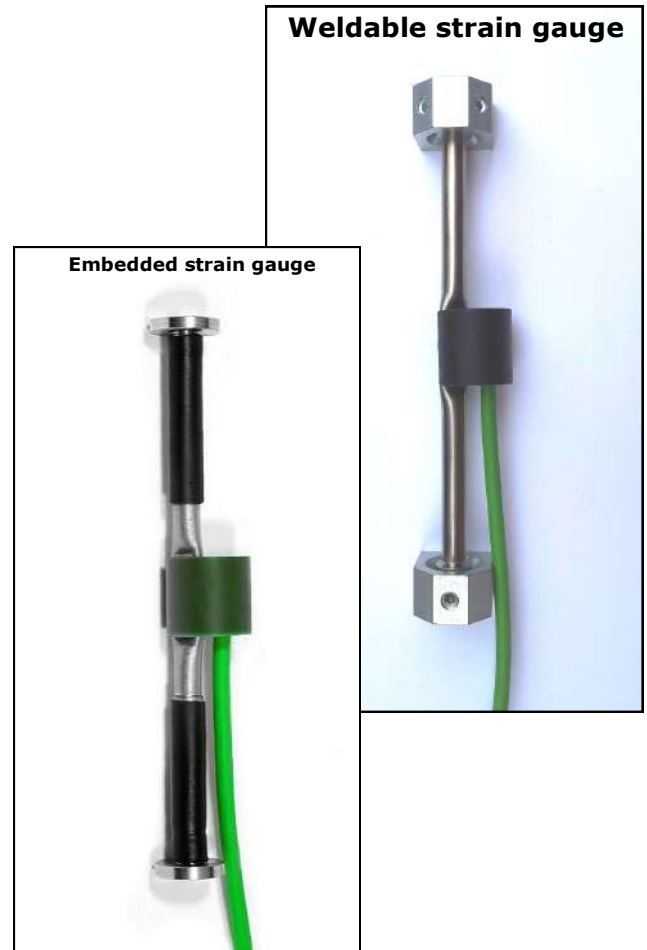
The vibrating wire strain gauges are used to measure the stress in load-bearing structures or to monitor the tensions in tunnel linings, during tunnel excavation phases. Such control is necessary for the verification of the tensions and deformations of both temporary and permanent retaining structures.

The vibrating wire strain gauges consist of a stainless steel tube inside which a thin rope, secured at the two ends, is made to vibrate by an excitation coil. An internal thermistor detects the temperature. The gauge can work both in tension and compression, and is also watertight and can be installed externally in stressed structures or embedded in concrete castings for stress measurements.

Data can be read through the portable control unit or by using an automatic data acquisition system, designed to provide continuous monitoring.

### Applications

- Posts and tests on posts
- Concrete structures, beams and columns
- Foundations, slurry walls
- Tunnels
- Steel structures, pipes and centrings
- Dams (gravity dams, arch dam, RCC)
- Bridges and viaducts
- Ports



### Features

- Reliability on long time monitoring
- High resolution and accuracy
- Degree of protection IP68
- Sturdy construction, also suitable for harsh environments
- Internal temperature sensor
- Overvoltage resistant
- Possibility of transmitting the signal over long distances

## Technical Specifications

	Weldable strain gauge	Embedded strain gauge
<b>Type</b>	welding to metal	Embedded in concrete
<b>Rope length</b>	153 mm	145 mm
<b>Range</b>	3000 $\mu\epsilon$	3000 $\mu\epsilon$
<b>Sensitivity</b>	1 $\mu\epsilon$	1 $\mu\epsilon$
<b>Total accuracy</b>	< 0,5% F.S.	< 0,5% F.S.
<b>Standard frequency</b>	800 Hz	800 Hz
<b>Termistor</b>	NTC 3 K $\Omega$	NTC 3 K $\Omega$
<b>Coil resistance</b>	150 $\Omega$	150 $\Omega$
<b>Operating temperature</b>	-20.....+80 °C	-20.....+80 °C
<b>Dimensions</b>	165X25X25 mm	157X25X25 mm
<b>Material</b>	Stainless steel	Stainless steel

## Accessories and spare parts

- Pair of blocks for weldable strain gouge
- Jig for the blocks
- Cut to size signal cable

## Please specify

CODE	PRODUCT DESCRIPTION
BCV-100	Arc-weldable VW strain-gauge
BCV-200	Embedment VW strain-gauge
BCV-600	Arc-weldable VW strain-gauge, only vibrating wire
BCV-620	Embedment VW strain-gauge, only vibrating wire
BCV-640	VW strain gauge, only coil
BCV-700	Spare weldable blocks
BCV-800	Spacing jig
BCV-900	Signal cable 4x0.22 (specify lenght)



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## RESISTIVE STRAIN GAUGE

### Description

The resistive strain gauges are used to measure the stress in load-bearing structures or to monitor the tensions in tunnel linings, during tunnel excavation phases. Such control is necessary for the verification of the tensions and deformations of both temporary and permanent retaining structures.

The strain gauge sensors are installed in the center of the bar according to a particular disposition that allows compensation of the electrical signal from thermal and bending effects.

The gauge can work both in tension and compression and the part is potted in order to allow the instrument to work in case of embedding or stress.

Data can be read through the portable control unit or by using an automatic data acquisition system, designed to provide continuous monitoring.

The gauge can work both in tension and compression, and is also watertight and can be installed externally in stressed structures or embedded in concrete castings.

### Please specify

CODE	PRODUCT DESCRIPTION
BCR-100	Resistive strain gauge



### Technical specification

<b>Sensor type</b>	full bridge
<b>Material</b>	aluminium
<b>Range</b>	+/- 1500 $\mu\epsilon$
<b>Accuracy</b>	+/- 0.2% FS
<b>Sensibility</b>	2 mV/V
<b>Power</b>	2-15 Vdc
<b>Signal output</b>	mV/V
<b>Dimensions</b>	d. 25 mm - L. 150 mm
<b>Temp. Compensation</b>	-10...+50 °C
<b>Class of protection</b>	IP68

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NATM stress cells

## NATM STRESS CELL

### Description

NATM stress cells are used to control the pressure acting between a support (for example, a bending in a tunnel) and a prompting soil.

The cell consists of a rectangular steel cavity filled with a special oil and connected to an electric transducer, which transforms every change in pressure acting on the cavity in a variation of the electric signal with standard output 4÷20 mA.

The stress cells have been planned in different versions, which make them versatile and suitable for every mounting need. They are supplied in different shapes:

- without hydraulic tube and with the transducer directly mounted horizontally or vertically on the cell;
- with hydraulic tube for recharge and with transducer directly mounted on the cells or on the tube.

The second type of cell described above has the main feature to be pressurizable through a charging valve installed on the end of the hydraulic Rilsan Tube, whose standard length is 1.5 meters. The repressurization of a stress cell is required, for example, when the cavity is embedded in the concrete of a tunnel covering.

During the consolidation phase, the covering undergoes a contraction, which can determine a contact defect between the surface of the cavity and the concrete. By means of repressurization, it is possible to ensure the normal operation of the instrument, restoring the adhesion of the cavity to the concrete over the entire surface.

The transducer data can be read through the portable control unit or by using an automatic data acquisition system designed to provide continuous monitoring.

### Application

- Pressure measurement in masonry, basements, etc.
- Monitoring of ground thrust on retaining walls, tunnel cladding, etc.
- Pressure Measurement in rocks and soils
- Slurry walls, dams
- Testing during building and working



### Features

- Reliability also for long term monitoring
- Degree of protection IP68
- Sturdy construction and suitable for harsh environments
- Possibility to transmit the signal over long distances

## Technical Specifications

	Stress cells radial	Stress cells tangential
<b>Type</b>	piezoresistive	piezoresistive
<b>Sensor Material</b>	stainless steel	stainless steel
<b>Range</b>	60 bar (on demand)	200 bar (on demand)
<b>Output Signal</b>	4-20 mA	4-20 mA
<b>Total Accuracy</b>	< 0.5% F.S.	< 0.5% F.S.
<b>Supply Voltage</b>	8-30 Vdc	8-30 Vdc
<b>Degree of Protection</b>	IP68	IP68
<b>Operative Temperature</b>	-20.....+60 °C	-20.....+60 °C
<b>Dimensions</b>	rectangular 110X220 mm	squared 200X200 mm
<b>Material</b>	steel	steel

## Accessories and spare parts

- Repressuring pump
- Cut to size hydraulic pipe
- Cut to size signal cable
- Deaired oil

## Please Specify

CODE	PRODUCT DESCRIPTION
CPN-110	NATM stress cell 100x200 mm, FS 60 bar
CPN-210	NATM stress cell 200x200 mm, FS 200 bar
CPN-700	Hydraulic line
CPN-800	Repressuring device
CPN-900	Deaired oil



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# Lo ad Cel ls

Electric anchor load cell  
Hydraulic anchor load cell  
Load cells for steel linings  
Tension load cell for steel ropes  
Compression load cell

## ELECTRIC ANCHOR LOAD CELL

### *Description*

The electric toroidal load cell is a special pressure sensor, that measures the variations of work load tie rods and anchorings are subjected to. This way it allows to evaluate the possible losses for release during the exercise or the pressure increase caused by the thrust of the ground on the containment structures. An adequate protection of the sensors allows to use them also in bad environmental conditions. The load cells are available in a wide range of sizes and dimensions; furthermore, it is possible to provide on request load distribution plates to be placed between the tool and the surface. In order to increase the performance avoiding the errors caused by the difficult alignment with the tie rod.

### *Applications*

- Retaining walls
- Diaphragm walls, deep excavations
- Tunneling, dams, bridges
- Rock bolts
- Landslides



### *Features*

- Stainless steel body assure cell long life
- Protection class IP68
- High performances for accurate anchors monitoring
- Strain gauges technology
- Wide range of measurement and dimensions

## Technical specifications

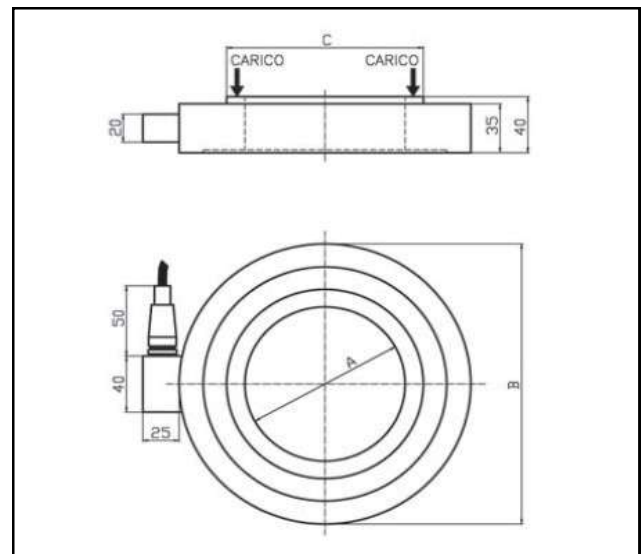
<b>Full scale capacity</b>	from 200 to 2000 KN (others on request )
<b>Output</b>	2 mV/V
<b>Output tollerance</b>	+/- 0,1% F.S.
<b>Accuracy</b>	+/- 0,25% F.S.
<b>Thermal zero shift</b>	+/- 0,005% F.S./°C
<b>Input and output resistance</b>	1400-1500 Ohm
<b>Power supply</b>	2-15 Vcc
<b>Compensated temperature range</b>	-10.....+40 °C
<b>Operating temperature</b>	-20.....+70 °C
<b>Safe overload</b>	max 150% F.S.
<b>Breaking overload</b>	> 300% F.S.
<b>Protection class</b>	IP68
<b>Material</b>	stainless steel

## Accessories and spare parts

- Distribution plates
- Signal converter from mV/V to 4-20 mA
- Signal cable

## Please specify

CODE	PRODUCT DESCRIPTION
CTE-036	Load cell, ID 36 mm, FS 300 KN
CTE-060	Load cell, ID 60mm, FS 750 KN
CTE-120	Load cell, ID 120 mm, FS 1000 KN
CTE-165	Load cell, ID 165 mm, FS 1500 KN
CTE-190	Load cell, ID 190 mm, FS 1900 KN
CTE-506	Signal cable 6X24 AWG
CDS-200	Signal converter from mV/V to 4-20 mA



A (ID) (mm)	B (OD) (mm)	C (mm)	F.S. (KN)
36	70	50	300
60	160	92	750
120	200	150	1000
165	250	190	1500
190	300	210	1900

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## HYDRAULIC TOROIDAL LOAD CELL

### *Description*

The hydraulic toroidal load cell measures the variations of load to which tension rods and anchors are subjected, this way it allows to evaluate the possible losses for release during the exercise or the pressure increase caused by the thrust of the ground on the containment structures.

The cell consists of two circular steel plates, with a central hole to allow the passage of the strands, lathed and welded together in such a way as to create an interspace, filled by a special oil and connected to a precision pressure gauge, that displays the measurement. A calibration certificate is supplied with each cell and can transform the pressure measurement into a load.

### *Applications*

- Monitoring of retaining walls and excavations
- Force measurement applied to anchors, tie rods, bolts, etc.
- Measurement of compression loads between structural elements (e.g. between a beam and the top of a foundation pile)



### *Features*

- Reliability on long time monitoring
- Direct measurement by pressure gauge
- Centralized measurement using pressure transducers
- Reliability of the measurements also for eccentric loads
- Sturdy construction, also suitable for harsh environments
- Low sensitivity to thermal variations

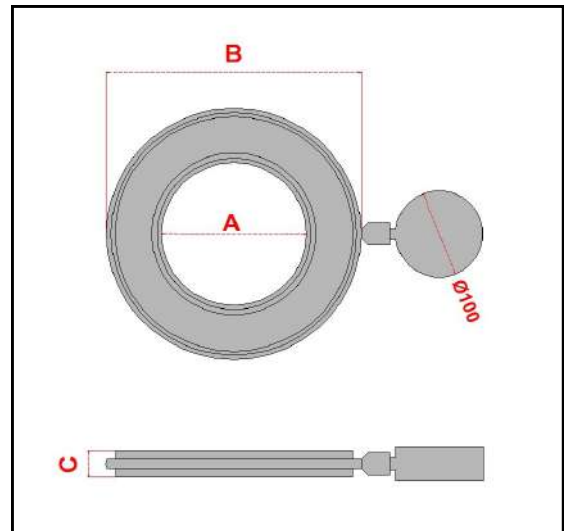


## Technical specifications

	Model with pressure gauge	Model with transducer
<b>Range</b>	From 250 KN to 2200 KN	From 250 KN to 2200 KN
<b>Total accuracy</b>	< 1% F.S.	< 1% F.S.
<b>Output signal</b>	Bourdon spring pressure gauge (in bar)	4-20 mA
<b>Resolution</b>	0.5% F.S.	0.1% F.S.
<b>Working temperature</b>	-20.....+60 °C	-20.....+60 °C
<b>Temperature drift</b>	+/- 0.4% F.S./°C	+/- 0.05% F.S./°C
<b>Material</b>	AISI 304 Stainless steel	AISI 304 Stainless steel
<b>Degree of protection</b>	IP67	IP67
<b>Dimensions</b>	see table	see table

## Accessories and spare parts

- Load distribution plate
- Possibility to produce cells with dimensions and F.S. upon request
- Cut to size signal cable for model with trasducer



## Please specify

F.S. in KN (nominal)	MODEL WITH PRESSURE GAUGE	MODEL WITH TRANSDUCER	DISTRIBUTION PLATE
250	CTM-040	CTM-604	CTM-340
500	CTM-071	CTM-607	CTM-370
750	CTM-092	CTM-609	CTM-392
1000	CTM-110	CTM-610	CTM-410
1500	CTM-150	CTM-650	CTM-450
2200	CTM-210	CTM-670	CTM-510

**DIMENSION TABLE**

MODEL	A (mm)	B (mm)	C (mm)	WEIGHT (Kg)
CTM-040	40	134	30	3
CTM-071	71	170	30	3,5
CTM-092	92	206	30	5,2
CTM-110	110	236	30	6,2
CTM-150	150	320	30	11
CTM-210	210	405	30	18

## For further information:

### Gestecno s.a.s.

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 e-mail: info@gestecno.it - WEB: www.gestecno.it

## LOAD CELL FOR STEEL LININGS

### Description

The hydraulic load cell has been designed to be located at the base of reinforcement structures to measure the load that they transmit to the basement. This control is essential to ensure the safety of temporary or permanent reinforcement structures. They are generally installed on the impost of tunnels, under the support of the rib, their shape simplifies the installation.

The cell consists of two round steel plates, turned and welded together in order to create a cavity, filled with a special oil and connected to an electric transducer, which transforms every change of pressure acting on the cavity in a variation of the electric signal with standard output 4÷20 mA.

All the sensor part, including cables, is isolated and protected, to prevent the concrete inside the cell; circuits and sensors are resin-coated and protected in order to preserve the functionality of the instrument in case of impact or immersion.

The reading of the electric pressure transducer data can be done through the use of a portable control unit or by means of an automatic data acquisition system designed to achieve the continuous monitoring

### Applications

- Steel cladding and tunnel linings under construction
- Struts in big open excavation
- Pile testing



### Features

- Specially designed for steel linings and struts
- Degree of protection: IP68
- Sturdy construction, also suitable for harsh environments

## Technical Specifications

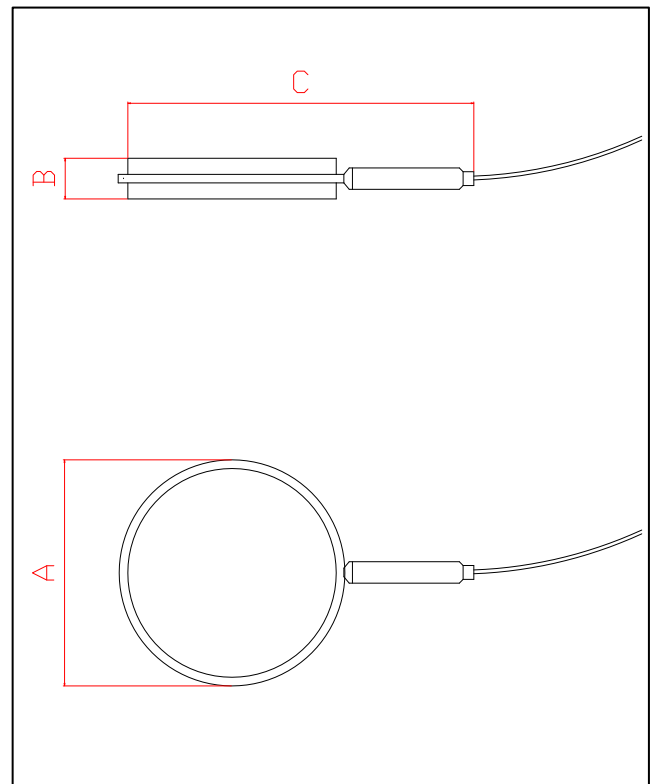
	Cella di carico da 1900 KN	Cella di carico da 3000 KN
<b>Material</b>	AISI 304 stainless steel	AISI 304 stainless steel
<b>Range</b>	1900 KN	3000 KN
<b>Diameter (A)</b>	220 mm	270 mm
<b>Thickness (B)</b>	40 mm	40 mm
<b>Total length (C)</b>	360 mm	410 mm
<b>Total accuracy</b>	< 1% F.S.	< 1% F.S.
<b>Output sensor</b>	4-20 mA, 2 wires	4-20 mA, 2 wires
<b>Power supply</b>	8-32 Vdc	8-32 Vdc
<b>Degree of protection</b>	IP 68	IP 68
<b>Operative temperature</b>	-20.....+80 °C	-20.....+80 °C

## Accessories and spare parts

- Distribution plates
- Cut to size signal cable

## Please Specify

CODE	PRODUCT DESCRIPTION
CCI-190	Load cells for steel linings, FS 1900 KN
CCI-300	Load cells for steel linings, FS 3000 KN



## For further information:

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## TENSION LOAD CELL FOR STEEL ROPES

### Description

During the execution of reinforcement works and safety operations on rocky walls. Walls are usually covered with rockfall metal meshes. Tension load cells are used to control the tension of the metal ropes, in order to keep under control the effectiveness of the work.



### Technical features

<b>Nominal sensitivity</b>	2 mV/V
<b>Material</b>	stainless steel
<b>Range</b>	65 KN
<b>Accuracy</b>	+/- 0.1% FS
<b>Comp. temperature range</b>	-10...+50 °C
<b>Power</b>	2-15 Vcc
<b>Output signal</b>	mV/V not amplified
<b>Excess load</b>	150% FS
<b>Class of protection</b>	IP67

### Please specify

CODE	PRODUCT DESCRIPTION
CCC-508	Tension load cell for steel ropes, FS 65 KN
CCC-558	Galvanized steel shackle

### For further information:

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## COMPRESSION LOAD CELL

### Description

This type of load cells detect changes in workload to which they are subjected in different applications. The cell undergoes a deformation when it is subject to external load, the variation is detected by the strain gauge bridge located inside it, converting it into an electrical signal. The strain-gauges, electrically connected in a Wheatstone bridge configuration, detect the deformations in compression, automatically compensating the bending effect. The instruments are also compensated in temperature. In case of harsh environments, the high sensor protection allows these instruments to be used without any risk of fault or malfunction. Furthermore, Gestecno supplies the load distribution plates to be interposed between the instrument and the reference surface, in order to improve performance and reduce errors due to difficult placement.



### Technical features

<b>Range</b>	at request
<b>Nominal sensitivity</b>	2 mV/V
<b>Sensitivity tolerance</b>	+/- 0,1% F.S.
<b>Total accuracy</b>	+/- 0,2% F.S.
<b>Temperature drift (zero)</b>	+/- 0,005% F.S./°C
<b>Power</b>	2-15 Vcc
<b>Compensated temperature range</b>	-10.....+40 °C
<b>Operating temperature</b>	-20.....+70 °C
<b>Material</b>	stainless steel
<b>Class of protection</b>	IP67

### Please specify

CODE	PRODUCT DESCRIPTION
CCC-100	Compression load cell d.82 mm, FS 250 Kg
CCC-205	Compression load cell d.165 mm, H=85 mm
CCC-305	Compression load cell d.132mm, H=200mm
CCC-402	Compression/tension load cell 80x80x25 mm

### For further information:

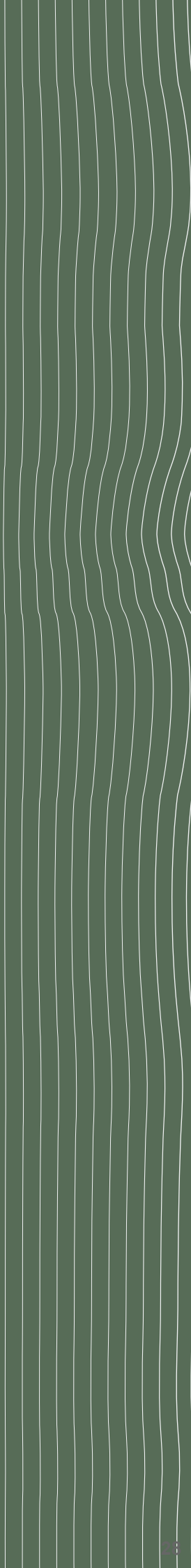
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# Ex ten so me ters

Borehole rod extensometers  
Displacement transducers  
Digital depth caliper



## BOREHOLE ROD EXTENSOMETERS

### Description

The extensometers with fiberglass rods are used to control the displacement between one or more points located along the shaft of a hole and the reference head installed at the extremity of the hole.

The tool is formed by an anchor cemented in the bottom hole, placed in direct contact with a pole in fiberglass enclosed in a nylon cover, so that it is free to slide forward and transmit the movement between the anchor and the surface head. In case of multiple strain gauge, the anchoring points are distributed at different depths along the hole.

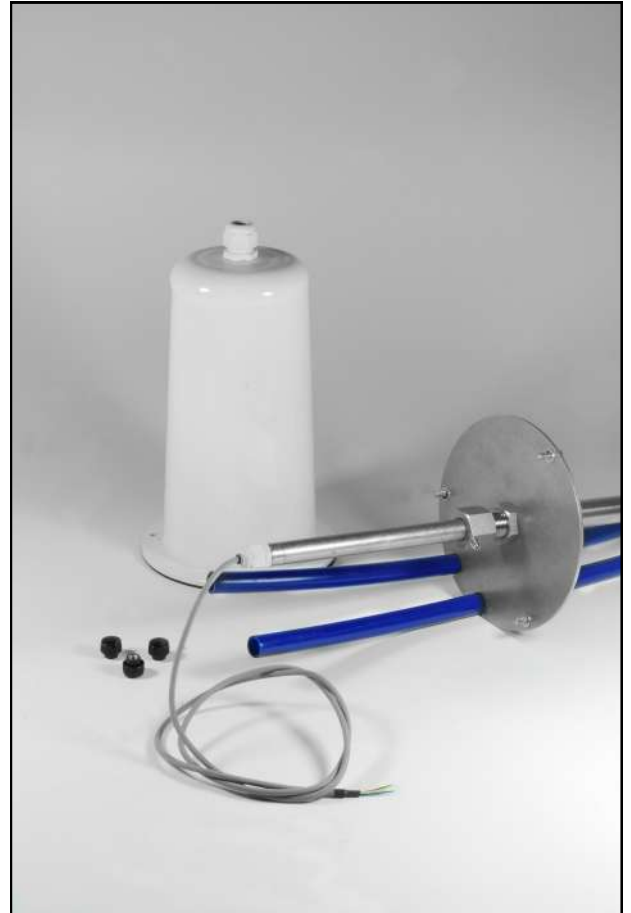
High reliability for measurement is granted by the use of a fiberglass rod (a material that has a very low coefficient of thermal expansion) and the minimization of the friction between the rod and the ground thanks to the protective nylon sheath.

The measurements are usually made manually with a depth gauge or automatically by installing a displacement transducer connected to a data acquisition system.

They are used for subsidence problems, foundation failures, convergence measurements during the digging, landslides, wall deformations, bulkheads and pilings, control on deep movements of clusters and rocky walls. Furtherly they are used everytime high precision surveying is needed, even at great distances.

### Applications

- Settlement monitoring of foundations
- Deep excavations
- Deformations of bulkheads, palified
- Rock displacements
- Monitoring of tunnels and dams



### Features

- Reliable and robust
- Easy to install
- Supplied pre-assembled and rolled in reel
- Prepared for both manual and electric transducer readings
- Extremely accurate measurements (even in the order of 1/100 mm)



## Technical specifications

	Fiberglass rods	Stainless steel rods
<b>Version</b>	with fiberglass rods	with stainless steel rods
<b>Diameter</b>	7 mm	8 mm
<b>Rod junctions</b>	continuous	threaded couplings (M/F)
<b>Protective antifriction sleeve</b>	nylon Ø 12 mm	PVC pipe 1/2" (length 3 m)
<b>Head</b>	stainless steel from 1 to 6 points	stainless steel from 1 to 6 points
<b>Diameter of head</b>	160 mm	160 mm
<b>Superior anchors</b>	stainless steel	stainless steel
<b>Inferior anchors</b>	galvanized rebars L=500 mm	galvanized rebars L=500 mm

## Accessories and spare parts

- Protective caps
- Displacement transducer for automatic readings
- Digital depth gauge for manual readings

## Please specify

CODE	PRODUCT DESCRIPTION
EST-101	Head 1 point
EST-102	Head 2 points
EST-103	Head 3 points
EST-104	Head 4 points
EST-105	Head 5 points
EST-106	Head 6 points
EST-207	Fiberglass rod
EST-615	Stainless steel rods (length 1,5 m)
EST-715	Invar steel rods (length 1,5 m)
EST-401	Protective cap (for manual readings)
EST-405	Protective cap (for sensors FS 50 mm)
EST-415	Protective cap (for sensors FS 150 mm)



### For further information:

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## DISPLACEMENT TRANSDUCERS

### Description

The displacement transducers are commonly used to run on automatically and continuously the measurements of borehole rod extensometers.

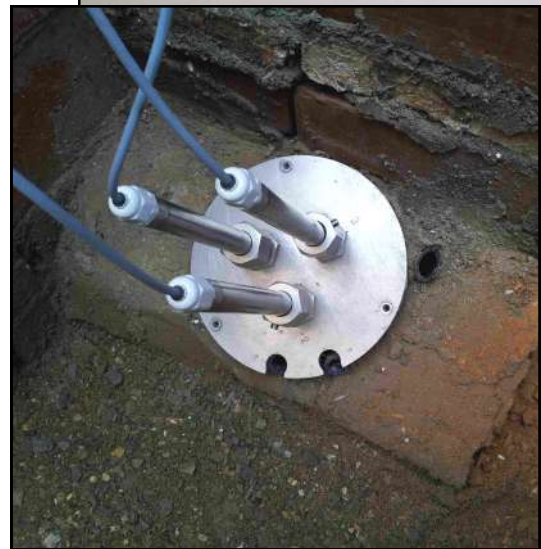
It is necessary to install one displacement transducer for each point of measure in order to transform the mechanical movement of the rod into an electrical signal.

They are entirely made of stainless steel and are equipped with suitable fittings for a proper installation on the head of strain gauges. They are also available in a variety of ranges.

Generally, the electric cables of the single transducers are wired in a single multipolar cable that comes out of the protective cover and reaches the centralization panel or the automatic acquisition system.

### Applications

- For the automatic measure of borehole rod extensometers
- For the measurement of vertical deformations during load tests on poles
- Joint measurements



### Features

- Reliability also for extended monitoring over time
- Good resolution and accuracy
- Protection class IP65
- Compact and robust stainless steel construction

## Technical specifications

	TSP-050	TSP-150
<b>Type of sensor</b>	linear potentiometer	linear potentiometer
<b>Range</b>	50 mm	150 mm
<b>Linearity</b>	+/- 0,1% F.S.	+/- 0,1% F.S.
<b>Resolution</b>	dependent on the reading system	dependent on the reading system
<b>Repeatability</b>	0,01 mm	0,01 mm
<b>Output signal</b>	voltage, 4-20 mA	voltage, 4-20 mA
<b>Protection class</b>	IP65	IP65
<b>Power supply</b>	< 40 Volt	< 40 Volt
<b>Operating temperature</b>	-20.....+80 °C	-20.....+80 °C
<b>Maximum applicable current</b>	< 10 mA	< 10 mA
<b>Diameter</b>	16 mm	16 mm
<b>Material</b>	Stainless steel	Stainless steel

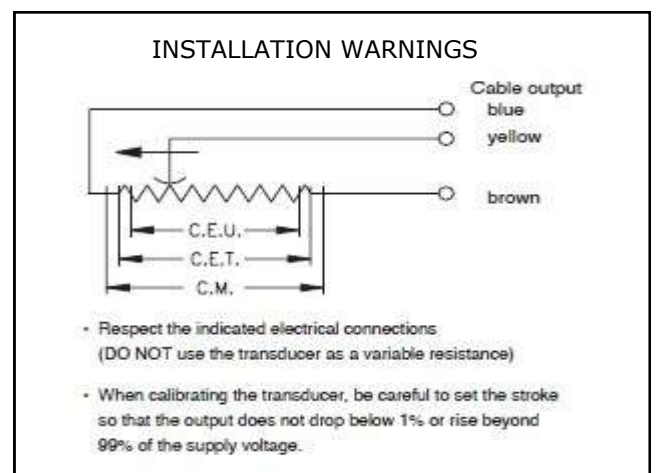
## Accessories and spare parts

- Connection for fixing to the head of borehole rod extensometers
- Signal cable



## Please specify

CODE	PRODUCT DESCRIPTION
TSP-050	Displacement transducer, output voltage, FS 50 mm
TSP-150	Displacement transducer, output voltage, FS 150 mm
TSP-205	Displacement transducer, output 4-20 mA, FS 50 m
TSP-215	Displacement transducer, output 4-20 mA, FS 150 m
TSP-616	Fitting for the head of borehole rod extensometer



## For further information:

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## DIGITAL DEPTH CALIPER

### Description

The relative movements between deep anchors and the head of the extensometer can be detected using some electrical transducers of movement (in case of monitoring with remote capture), or more simply with a depth gauge (in the mechanical or digital version).



### Technical Features

<b>Measurement</b>	digital
<b>Range</b>	0-150 mm, 0-200 mm
<b>Accuracy</b>	+/- 0.02 mm
<b>Resolution</b>	0.01 mm
<b>Ripeteability</b>	+/- 0.01 mm
<b>Operating temperature</b>	-10...+40 °C
<b>power</b>	battery 1.5 V SR44
<b>case</b>	plastic
<b>Class of Protection</b>	IP55

### Please specify

CODE	PRODUCT DESCRIPTION
CAL-515	Digital depth caliper, FS 150 mm
CAL-520	Digital depth caliper, FS 200 mm

### For further information:

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# Crack meters

Electrical crackmeters  
Wire crackmeters  
Manual crackmeters



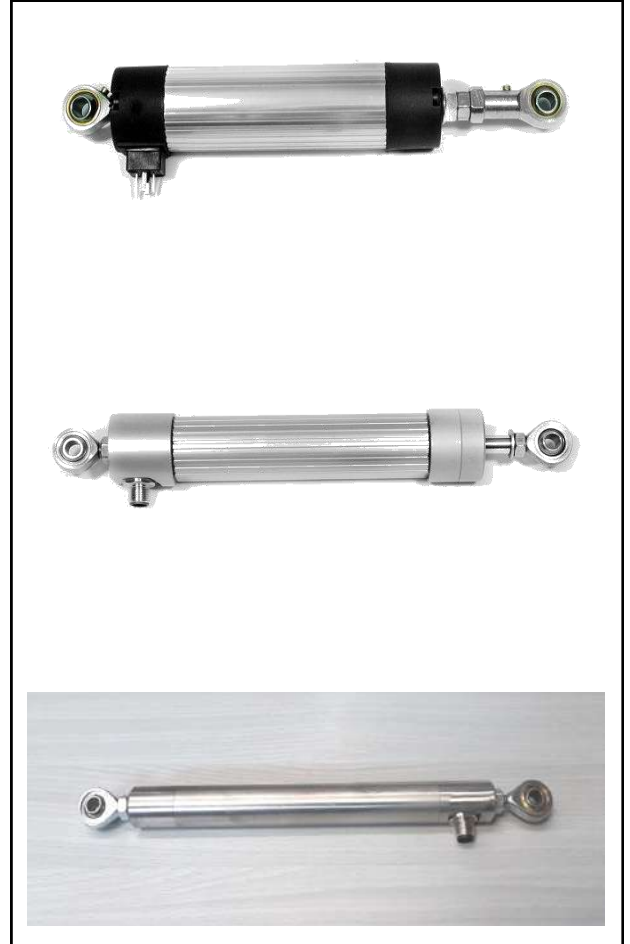
## ELECTRIC CRACKMETER

### *Description*

The Electric Crackmeter consists of a potentiometric type of displacement transducer, that detects the variations of position between two points set between an injury or a joint. It is entirely made of aluminium, nylon and stainless steel and it is equipped with self-aligned ball-joints and a wide range of optional accessories for a correct installation, even through the most difficult crackings (injuries at the corners, edges, ect.). The electric Crackmeter is a valuable tool for continuous monitoring and the automation of small movement measurements. The main areas of application include injuries in buildings of historical interest, civil and industrial buildings, retaining structures, fractures in rock formations, dam joints, bridges, viaducts, ect.

### *Applications*

- Injuries in buildings of historical and artistic interest
- Civil and industrial buildings monitoring
- Fractures in rocks formations
- Joints on dams, bridges and viaducts
- Alarm activation and security on work sites
- Consolidation check



### *Features*

- Easy to install
- Long term reliability monitoring
- Degree of protection until IP67
- Manual or automatic reading
- Measurement range until 150 mm
- Various accessories available

## Technical Specifications

	MGE-165-xxx	MGE-167-xxx	MGE-368-xxx
<b>Installation type</b>	indoor environments and protected outdoor environments	external environments not particularly harsh	every type of situation
<b>Sensor type</b>	potentiometric	potentiometric	potentiometric
<b>Range</b>	50-100-150 mm	50-100-150 mm	50-100-150 mm
<b>Material</b>	aluminium, stainless,	aluminium, stainless	stainless
<b>Linearity</b>	< 0,1% F.S.	< 0,1% F.S.	< 0,1% F.S.
<b>Resolution</b>	related to the reading system	related to the reading system	related to the reading system
<b>Repeatability</b>	0,01 mm	0,01 mm	0,01 mm
<b>Protection</b>	IP65	IP67	IP68
<b>Output signal</b>	voltage	voltage	voltage
<b>Operation temp.</b>	-20.....+80 °C	-20.....+80 °C	-20.....+80 °C

## Accessories and Spare Parts

- Self-aligning joint
- Stainless steel extension rods
- Anchor for soil or rock

## Please Specify

CODE	PRODUCT DESCRIPTION
MGE-165	Electrical crackmeter IP65, FS 50 mm
MGE-167	Electrical crackmeter IP67, FS 50 mm
MGE-368	Electrical crackmeter IP68, FS 50 mm
MGE-468	Electrical crackmeter IP68, FS 100 mm
MGE-601	Stainless steel extension rod
MGE-700	Anchors on rock
CDS-100	Signal converter (from voltage to 4-20 mA)



## For further information

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## WIRE DISPLACEMENT SENSOR

### *Description*

Wire displacement sensors are used to detect and control any movements that occur in landslides or in unstable rock masses. The tool essentially consists of a box containing a rotatory potentiometer and tensionator for the steel cable, and an anchor that has to be fixed at the second reference point. A steel cable is stretched with constant voltage between the two reference points of the instrument. The maximum length of the steel cable may be up to 10 metres.

### *Applications*

- Monitoring large displacements
- Testing of floors and coverings
- Monitoring topple landslides
- Convergence measurements



### *Features*

- Reliability on long time monitoring
- High resolution and accuracy
- Class of protection IP67
- Sturdy construction, also suitable for harsh environments
- Easy to install

## Technical specifications

<b>Sensor Type</b>	potentiometric
<b>Measurement range</b>	from 50 mm to 1250 mm
<b>Resolution</b>	infinity
<b>Linearity</b>	<0.25% F.S.
<b>Total Accuracy</b>	<0.5% F.S.
<b>Operating temperature</b>	-20.....+80 °C
<b>Output signal</b>	potetiometric, 4-20 mA
<b>Power</b>	5-30 Vdc
<b>Class of protection</b>	IP65
<b>Dimensions</b>	150x60x60 mm
<b>Material</b>	aluminium

## Accessories and spare parts

- Installation accessories
- invar steel extension cable
- IP66 connector

## Please specify

CODE	PRODUCT DESCRIPTION
TSF-100	Wire crackmeter, output voltage, FS 100 mm
TSF-200	Wire crackmeter, output 4-20 mA, FS 100 mm
TSF-300	Invar steel wire
CAV-040	Electrical cable 4x24 AWG green



## For further information:

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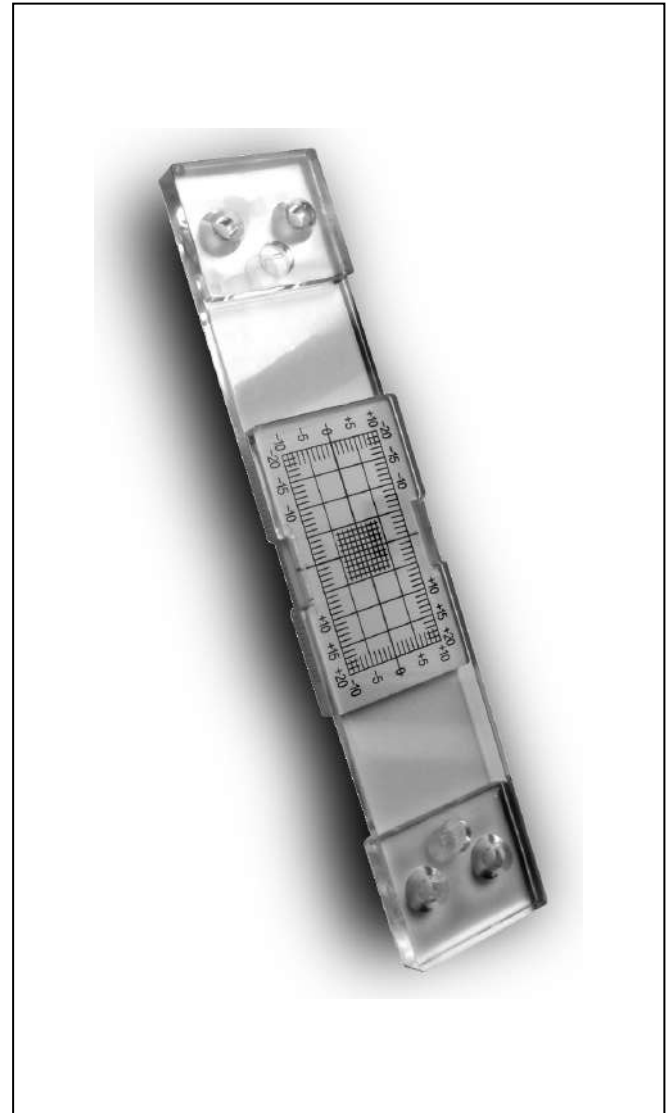
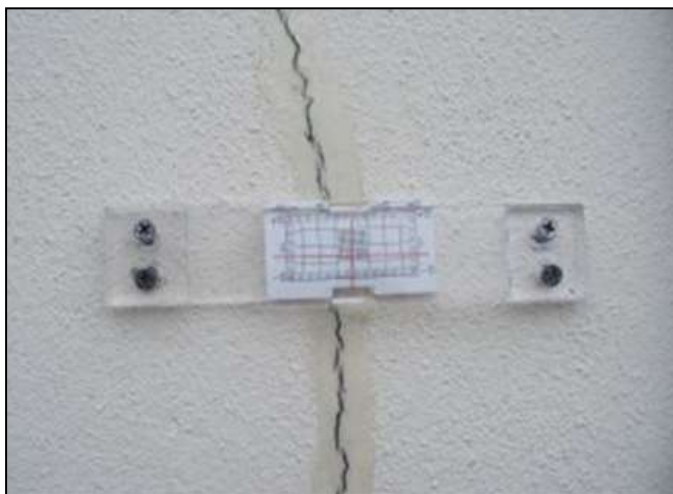
## MANUAL CRACKMETERS

### Description

Manual crackmeters are used for the measurement and of cracks on surfaces having vertical and/or horizontal movements, failures or adjustments of floors on masonry, pillars, etc.

They consist of two overlapped moving plates: the upper plate is engraved with a grating while the lower plate is calibrated in millimeters.

The measurement of movement can be detected in fractions of millimeter, and it is marked by the displacement of the plate with grating from the underlying millimeter plate, starting from 0.



### Technical features

<b>Types</b>	planar, angular
<b>Material</b>	resin
<b>Horizontal grid</b>	+/- 20 mm
<b>Vertical grid</b>	+/- 10 mm
<b>Accuracy</b>	0.5 mm

### Please Specify

CODE	PRODUCT DESCRIPTION
FEM-100	Manual crackmeter

### For further information:

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# Inclinometers

- Tiltmeter (electrolytic)
- Tiltmeter (MEMS 0-5 V)
- Tiltmeter (MEMS 4-20 mA)
- In-place inclinometer
  - Tilt beam sensor
- Digital inclinometer probe
  - Test probe
- Inclinometer casing

## TILTMETERS (electrolytic tilt sensor)

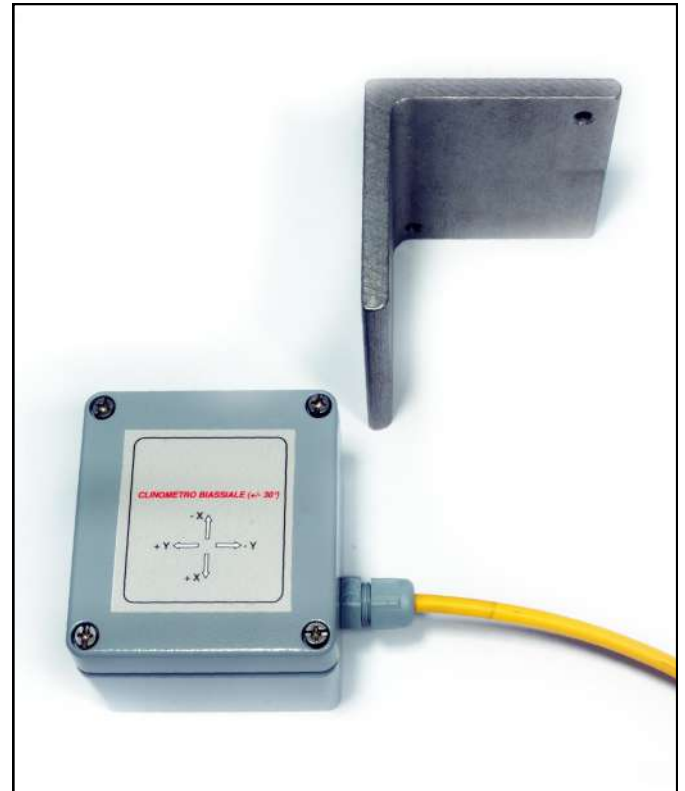
### Description

Tiltmeters are used to monitor changes in the inclination of structures, walls, retaining walls, rock masses, and to assess the behavior of bridges or loaded beams. Equipped with an electrolytic high sensitivity inclinometer sensor, this instrument detects the angular variations of the structures with extreme precision and accuracy.

Gestecno also provides the accessories required for mounting on both horizontal and vertical supports.

### Applications

- Monitoring of concrete structures, beams and columns
- Historical buildings
- Retaining walls
- Monitoring of steel structures
- Concrete dams
- Wind blades
- Ground subsidence
- Landslides monitoring



### Features

- Reliability on long time monitoring
- Precision and resistance
- Degree of protection IP67
- Sturdy construction, also suitable for harsh environments
- Vertical and horizontal installation
- Easy to install

## Technical Specifications

<b>Type of sensor</b>	uniaxial or biaxial electrolytic tilt sensor
<b>Total range</b>	+/- 3°
<b>Linear range</b>	+/- 1°
<b>Linearity (+/- 1°)</b>	<3%
<b>Repeteability</b>	+/- 0.001°
<b>Resolution</b>	+/- 0.0003°
<b>Long term stability</b>	<0.001°
<b>Operating temperature</b>	-20...+50 °C
<b>Power supply</b>	3.3-5.0 Vdc stabilized
<b>Output signal</b>	voltage (from 0 to max 5 V)
<b>Container material</b>	aluminium
<b>Protection class</b>	IP67

## Accessories and spare parts

- Shelf for the installation on vertical walls
- Shelf for the installation on inclined walls
- Cut-to size signal cable

## Please specify

CODE	PRODUCT DESCRIPTION
CLE-101	Uniaxial tiltmeter
CLE-102	Biaxial tiltmeter
CLV-200	Shelf for the installation on vertical walls
CLV-220	Shelf for the installation on inclined walls
CAV-040	4x0.22 cable (please specify the lenght)



## For further information:

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## TILTMETER (MEMS 0-5 Volt)

### Description

Tiltmeters are used to monitor changes in the inclination of structures, walls, retaining walls, rock masses, and to assess the behavior of bridges or loaded beams. A dual-axis MEMS-type sensor, this tool detects the angular variation of structures, providing useful information regarding rotational movements. Gestecno also provides the accessories required for mounting on both horizontal and vertical supports.



### Applications

- Monitoring of concrete structures, beams and columns
- Historical buildings
- Retaining walls
- Monitoring of steel structures
- Concrete dams
- Wind blades
- Ground subsidence
- Landslides monitoring

### Features

- Reliability on long time monitoring
- Precision and resistance
- Degree of protection IP67
- Sturdy construction, also suitable for harsh environments
- Vertical and horizontal installation
- Easy to install

## Technical Specifications

	F.S. +/- 10°	F.S. +/- 30°
<b>Sensor</b>	MEMS biaxial	MEMS biaxial
<b>Range</b>	+/- 10°	+/- 30°
<b>Power supply</b>	9-30 Vdc	7-35 Vdc
<b>Resolution</b>	0,001°	0,005°
<b>Accuracy</b>	< 0,2% F.S.	< 0,5% F.S.
<b>Output signal</b>	0,5-4,5 Volt	0,5-4,5 Volt
<b>Long term stability</b>	< 0,02°	< 0,02°
<b>Protection class</b>	IP67	IP67
<b>Operating temperature</b>	-40.....+85 °C	-40.....+85 °C
<b>Dimensions</b>	80*75*57 mm	80*75*57 mm
<b>Container material</b>	aluminium	aluminium

## Accessories and spare parts

- Shelf for the installation on vertical walls
- Shelf for the installation on inclined walls
- Cut-to size signal cable

## Please Specify

CODE	PRODUCT DESCRIPTION
CLV-110	Tiltmeter FS +/- 10°
CLV-130	Tiltmeter FS +/- 30°
CLV-200	Shelf for the installation on vertical walls
CLV-220	Shelf for the installation on inclined walls
CAV-040	4x0.22 cable (please specify the length)



## For further information

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## TILTMETER (MEMS 4-20 mA)

### Descrizione

Tiltmeters are used to monitor changes in the inclination of structures, walls, retaining walls, rock masses, and to assess the behavior of bridges or loaded beams. A dual-axis MEMS-type sensor, this tool detects the angular variation of structures, providing useful information regarding rotational movements.

The case containing the sensors and signal conditioning tools is completely resin-coated in order to guarantee the maximum seal over time and avoid water infiltration.

Gestecno also provides the accessories required for mounting on both horizontal and vertical supports.



### Technical features

<b>Sensor type</b>	biaxial MEMS
<b>Range</b>	from +/-5° to +/-30°
<b>Power</b>	12-15 Vdc
<b>Output Signal</b>	4-20 mA (3 wires)
<b>Resolution</b>	0.005°
<b>Total Accuracy</b>	< 0.2% F.S.
<b>Long term stability</b>	< 0.05°
<b>Operating temperature</b>	20.....+60 °C
<b>Dimensions</b>	diam. 30 mm, L= 150 mm
<b>Material</b>	stainless steel
<b>Class of protection</b>	IP67

### Please Specify

CODE	PRODUCT DESCRIPTION
CLA-600	Tiltmeter (output 4-20 mA)

### For further information:

**Gestecno** s.a.s.

Loc. Lanciano, 13 - 62022 Castelraimondo (MC) - Italy  
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e-mail: info@gestecno.it - WEB: www.gestecno.it

## IN-PLACE INCLINOMETER

### Description

The In-place Inclinator consists of a tilt sensor (or two tilt sensors mounted at 90° in the biaxial version) mounted inside a stainless steel tube through two coasters each equipped with a pair of wheels, inserted inside the tube inclinometer to continuously measure the deformation.

Generally connected to one another through a stainless steel cable in order to form a column of instruments, the In-place Inclinator are used in continuous monitoring of landslides and soil movements in general, but also in structural control of dams, walls, bulkheads, poles, masts, etc. The probe allows you to attach a stainless steel cable for the placement into the hole and for possible recovery. All mechanical parts, including the pair of coasters with wheels, are made completely in stainless steel AISI 316. The compartment that contains sensors and conditioning electronics is completely covered in resin to ensure maximum durability against water infiltration.

Gestecno also provides all the accessories for the correct installation of tools within the inclinometric tube columns (stainless steel suspension cable, suspension, stainless screws and nuts, etc.).

### Applications

- Unstable landslides and slopes
- Tunnels and dams
- Deep excavations
- Bridges and viaducts



### Features

- Reliability also for long time monitoring
- High resolution and accuracy
- Degree of protection IP68
- Hursh stainless steel construction
- Analog and digital outputs signals

## Technical specifications

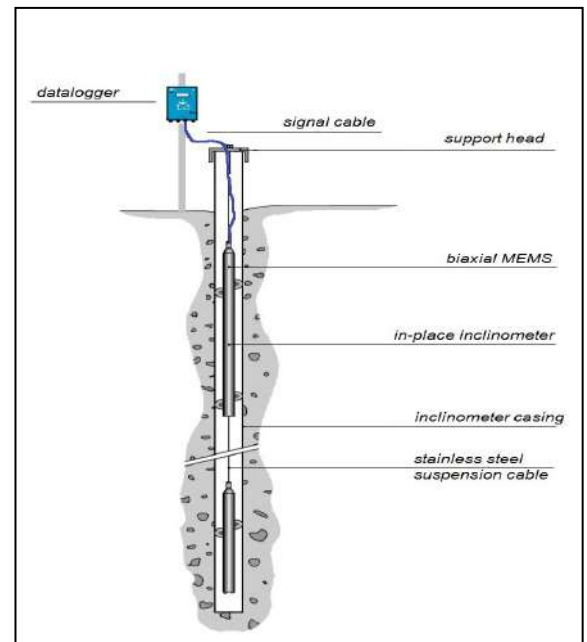
	Analog output model	Digital output model
<b>Sensor type</b>	biaxial MEMS	biaxial MEMS
<b>Range</b>	from +/-5° to +/-30°	from +/-5° to +/-30°
<b>Power</b>	12-15 Vdc	12-15 Vdc
<b>Output signal</b>	4-20 mA 3 wires	RS 485 (Modbus RTU)
<b>Resolution</b>	0.005°	0.001°
<b>Total accuracy</b>	< 0.2% F.S.	< 0.1% F.S.
<b>Long term stability</b>	< 0.05°	< 0.05°
<b>Operating temperature</b>	-20.....+60 °C	-20.....+60 °C
<b>Dimensions</b>	30 mm diameter, 1400 mm lenght	30 mm diameter,1400 mm lenght
<b>Distance between wheels</b>	1000 mm	1000 mm
<b>Material</b>	stainless steel	stainless steel
<b>Suspension cable</b>	2 mm stainless steel cable	diam. 10 mm stainless steel rods

## Accessories and spare parts

- Support head
- Stainless steel suspension cable
- 1 m stainless steel rod
- Cut to size signal cable

## Please specify

CODE	PRODUCT DESCRIPTION
IFF-110	Vertical in-place inclinometer, FS +/-10°
IFF-300	Support head
IFF-350	Stainless steel suspension cable
IFF-510	Digital vertical in-place inclinometer, FS +/-10°
IFF-700	Support head for digital inclinometer
IFF-801	1 m stainless steel rod
IFF-400	Signal cable for in-place inclinometer (please specify lenght)



## For further information:

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## TILT BEAM SENSOR

### Description

Tilt beam sensors consist of aluminum metal bars of 1, 2 or 3 meters long on which is mounted a high-sensitivity inclinometric electrolytic-type sensor. They are typically installed in a series, so that the end of a bar coincides with the beginning of the next, until it covers the required distance.

Tilt beam sensors consist of aluminum metal bars of 1, 2 or 3 meters long on which is mounted a high-sensitivity inclinometric electrolytic-type sensor. They are typically installed in a series, so that the end of a bar coincides with the beginning of the next, until it covers the required distance. The differential movements of the structure cause a different rotation of the bars and this shows the movements or differential settlements of the structure to be monitored.



### Please specify

CODE	PRODUCT DESCRIPTION
ELB-101	Tilt beam sensor, FS +/-1° (output 0-5 Volt)
ELB-210	Aluminium beam lenght 1 m
ELB-220	Aluminium beam lenght 2 m
ELB-230	Aluminium beam lenght 3 m
ELB-400	Accessories for vertical mounting

### Technical specifications

<b>Sensor type</b>	Uniaxial and biaxial electrolytic
<b>Range</b>	+/- 3°
<b>Linear range</b>	+/- 1°
<b>Linearity (+/- 1°)</b>	<3%
<b>Repeteability</b>	+/- 0.001°
<b>Resolution</b>	+/- 0.0003°
<b>Long term stability</b>	<0.001°
<b>Operating temp.</b>	-20...+50 °C
<b>Power</b>	3.3-5.0 Vdc stabilized
<b>Signal output</b>	voltage (da 0 a max 5 V)
<b>Case material</b>	aluminium
<b>Class of protection</b>	IP67

### For further information:

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## DIGITAL INCLINOMETER PROBE

### Description

The removable inclinometer probe is a tool for monitoring the displacements of inclinometer pipes installed on potentially unstable slopes, overheads, dams, embankments, excavations, retaining structures (pylons, bulkheads, posts), etc.

The system consists of:

- a vertical inclinometer probe with biaxial MEMS digital sensors;
- multipolar cable divided into half meters, supplied with cable reel available in different lengths;
- a cable clamp that allows the probe to stay suspended in the center of the inclinometer tube.

The system communicates with the smartphone through a Bluetooth connection, thanks to a free application download.



### Please Specify

CODE	PRODUCT DESCRIPTION
SIR-100	Digital Inclinometer Probe SLOPE INDICATOR or ROCTEST
SIR-205	Inclinometer 50 m cable with reel SLOPE INDICATOR or ROCTEST
SIR-210	Inclinometer 100 m cable with reel SLOPE INDICATOR or ROCTEST
SIR-400	Software DigiPro 2 license

### Technical features

<b>Sensor type</b>	MEMS biaxial
<b>Distance between wheels</b>	50 cm
<b>Range</b>	+/- 30°
<b>Resolution</b>	0.005 mm
<b>Repeatability</b>	0.003°
<b>Operating Temperature</b>	-20...+70 °C
<b>Material</b>	stainless steel
<b>Cable</b>	PU, 4 wires
<b>Cable length</b>	50 o 100 m
<b>Operating system</b>	Android

### For further information:

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## TEST PROBE

### Description

The test probe has mechanical properties similar to the inclinometric probe, but without sensors, and is used to verify in advance the accessibility of the inclinometric casing so as to reduce the probability of damage/loss of the inclinometric probe itself. The instrument is completely made of stainless steel and is equipped with a steel cable coated with a polyurethane sheath and graduated every centimeter.



### Technical features

<b>Dimensions</b>	diameter 30 mm length 760 mm
<b>Distance between wheels</b>	500 mm
<b>Material</b>	stainless steel
<b>Weight</b>	1,50 Kg
<b>Cable</b>	steel with PVC and transparent PU coating
<b>Traction resistance</b>	150 Kg
<b>Graduation</b>	Every cm
<b>Available length</b>	50-100-150-200 m
<b>Cable reel</b>	drum in plastic (or steel) and frame in steel

### Please Specify

CODE	PRODUCT DESCRIPTION
STE-100	Test probe
STE-205	Reel with 50 m cable
STE-210	Reel with 100 m cable

### For further information:

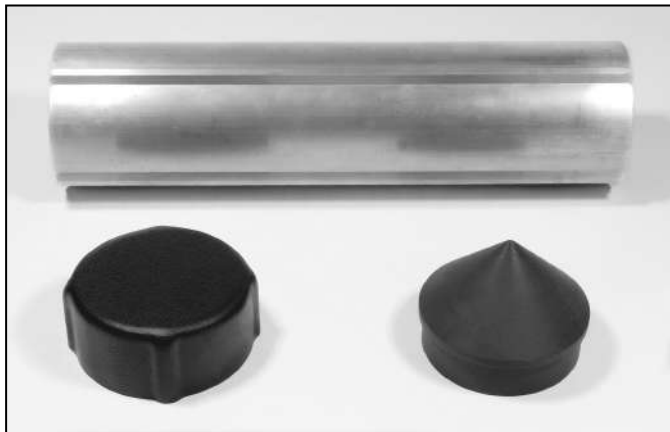
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## INCLINOMETER CASING

### Description

The inclinometer casing is a special tube equipped with four grooves with driving function for the inclinometer probe. It is generally installed in sub-vertical boreholes drilled through the ground mass, or preinstalled in the construction phase, in case of containment works as poles, bulkheads, diaphragms, etc. Inclinometer casing consists of the following elements: cut pieces of tube with a length of 3-6 meters, barrel fittings that enable the connection of cut pieces of tube (keeping the orientation of the guide), a bottom stopper that prevents the entry of grout during cementing, and a bolt head. Gestecno has all items described above in stock and is able to make deliveries very quickly with affiliated national couriers.



### Technical specifications

<b>Material</b>	aluminium
<b>Casing internal diameter</b>	76,1 mm
<b>Casing external diameter</b>	86,4 mm
<b>Bar length</b>	3 m
<b>Casing thickness</b>	2,2 mm
<b>Spiral of the casing</b>	<0,5°/m
<b>Coupling internal diameter</b>	81,0 mm
<b>Coupling external diameter</b>	92,0 mm
<b>Coupling length</b>	30 cm
<b>Top cap and bottom cap</b>	PVC

### Please specify

CODE	PRODUCT DESCRIPTION
TIN-303	Inclinometer casing 3"
TIN-310	Coupling for casing 3"
TIN-320	Bottom conical cap 3"
TIN-330	Simple top cap 3"

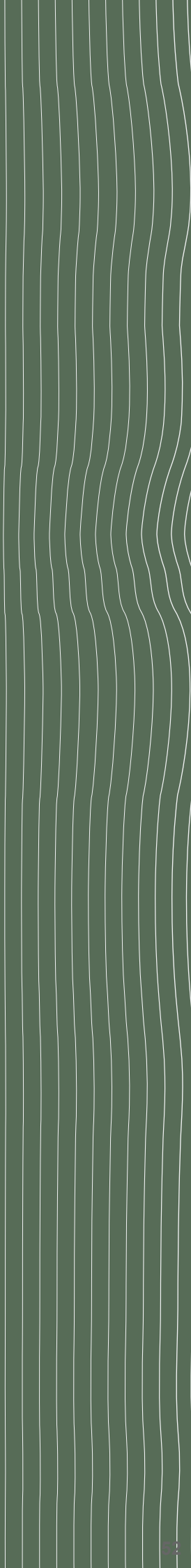
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# FI at Ja cks

Flat jacks  
Hydraulic hand pump  
Mechanical strain gauge





## FLAT JACKS

### Description

The flat jacks are primarily used in diagnostics of buildings and walls to determine experimentally what the static conditions of the structures under investigation are. The single jack test methodology is based on the variation of the tensional state in a point on the structure in question as a result of a cutting plan run in the normal direction at the surface. The release of injuries causes a closure of the cut, which it detects through a high-precision measurement of convergence. A special flat jack is then placed inside the cut and gradually pressurized with a special hydraulic pump until you cancel the previously measured convergence. From this pressure, annulling the deformations caused by cutting, you can derive the test agents in tensions in the area through the use of correction factors that take into account the shape and size of the jack and the cutting surface. To determine the characteristics of deformability, two jacks should be employed parallel to each other and installed at about 50 cm apart. Then the material they are composed by undergoes a test of compressive strength.

The GESTECNO flat jacks are made with the sealed union of two special steel sheets, 0.8 mm thick in various shapes and sizes; moreover, they are individually tested for a 60 bar seal. The standard dimensions that can be supplied are: semi-oval 350x260x4, semi-circular 300x120x4 or 325x125x4, rectangular 400x200x4.

On request, it is possible to supply special versions with shape, dimensions and seal according to the Customer's specifications. They are supplied complete with certification on production batch issued by accredited universities.

### Features

- Robust and reliable
- Available in various sizes
- Possibility of special executions on customer request
- Possibility of automatic monitoring



### Applications

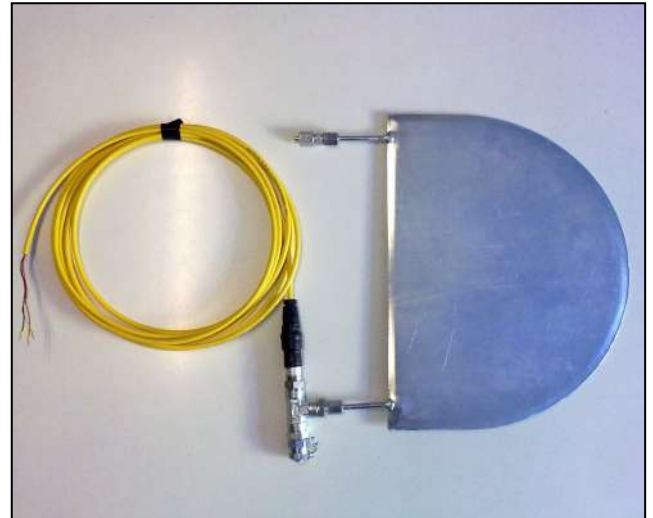
- Measurement of the stress state in situ by single jack test
- measurement of the deformability characteristics by double jack test
- Evaluation of the mechanical properties of concrete and rock masses
- Monitoring of variations in the stress state (for example in the coverings of existing tunnels)
- Restoration of monuments and historical buildings

## Technical specifications

FLAT JACKS	
<b>Material</b>	steel sheet thickness 0.8 mm
<b>Max working pressure</b>	60 bar
<b>External finish</b>	painting
<b>Standard dimension</b>	semi-oval 350X260X4 semi-circular 350X175X4 semi-circular 325X120X4 rectangular 400X200X4

PRESSURE TRANSDUCER	
<b>Type</b>	piezoresistive
<b>Material</b>	stainless steel AISI 304
<b>Output</b>	4-20 mA
<b>Range</b>	1-2-5-10 bar (others on request)
<b>Total accuracy</b>	< 0,5% FS (others on request)
<b>Operating temperature</b>	-10...+60 °C

For the continuous survey of the tensions acting inside a masonry and for the control of any variations over time, special jacks are used, equipped with an electric transducer that transforms any variation of pressure acting on the lung in an electric signal variation with standard output 4 ÷ 20 mA. These jacks have the characteristic of being repressurizable by means of a special refill valve. The repressurization of the jack is necessary to restore its adherence with the walls of the masonry after having inserted it into the specially made cut and therefore to guarantee the normal operation of the instrument. The data reading of the electric pressure transducer can be done through the use of a portable control unit or through an automatic data acquisition system designed to carry out continuous monitoring.



## Please specify

CODE	PRODUCT DESCRIPTION
MAP-260	Semi-oval flat jacks 350X260X4
MAP-120	Semi-circular flat jacks 300x120x4
MAP-125	Semi-circular flat jacks 325X125X4
MAP-180	Semi-circular flat jacks 350x180x4
MAP-420	Semi-rectangular flat jacks 400X200X4

### For further information:

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## HYDRAULIC HAND PUMP



### Description

The system consists of a hydraulic hand pump unit connected to a flexible full of quick couplings and a manometer to display the pressure value. The test system with a double jack is completed by a second hose and fittings and faucets. The equipment is all designed and manufactured in aluminium and light alloys to provide superior mechanical characteristics in combination with lightness and ease of use. The system comes with a digital pressure reader unit of high accuracy and reliability. On request, a practical and robust carrying case is available for all your gear.

### Technical specifications of pump

<b>Pump type</b>	single-stage lever
<b>Material</b>	aluminum
<b>Max pressure</b>	700 bar
<b>Flow rate</b>	3,1 cm <sup>3</sup> oil/stroke
<b>Tank capacity</b>	1,6 liter
<b>Weight</b>	5,1 Kg

### Technical specifications of manometer

<b>Manometer type</b>	digital
<b>Range</b>	0...300 bar
<b>Resolution</b>	100 mbar
<b>Accuracy</b>	0,1% FS
<b>Compensated temp. range</b>	0...50 °C
<b>Powe supply</b>	battery 3 V type CR 2430
<b>Protection class</b>	IP65

### Please specify

CODE	PRODUCT DESCRIPTION
KPR-100	Hydraulic hand pump
KPR-550	Travel bag

### For further information:

**Gestecno s.a.s.**

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## MECHANICAL STRAIN GAUGE

### Description

The mechanical strain gauge consists of a highly repeatable measuring tool that is also removable. During deformability tests by using flat jacks, the mechanical strain gauge (usually with a measurement base of 250 mm) is used for the detection of convergence measures across the cutting in which the jacks are introduced. It consists of a stainless steel bar with two heads with cone points mounted at each end. One of the heads is fixed, while the other is free to flow, minimizing backlash thanks to high-precision mechanics. The cone points of the instrument should be placed in the small holes of special stainless steel pillars that should be applied, using the template provided, to the structure that needs to be checked with the adhesive supplied.

The equipment consists of:

- a full digital mechanical strain gauge
- a steel calibration bar with a low expansion coefficient
- a space template for placement of disks
- 50 reference disks
- adhesive for attaching disks

All parts are contained in a practical, robust, watertight carrying case.



### Technical Features

<b>Measurement base</b>	250 mm
<b>Material</b>	Stainless steel
<b>Reading</b>	digital
<b>Indicator</b>	Mitutoyo ABSOLUTE solar
<b>Working</b>	> 40 lux
<b>Range</b>	12,7 mm
<b>Resolution</b>	0,001 mm
<b>Accuracy</b>	+/- 0.001 mm
<b>Calibration bar</b>	RIGOR steel
<b>Case</b>	IP67 plastic

### Please specify

CODE	PRODUCT DESCRIPTION
DEF-250	Digital strain gauge, lenght 250 mm
DEF-500	Stronghold to paste
DEF-550	Stronghold to resine

### For further information:

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# FI OW Me ters

V-notch flow meters  
Insertion flow meter

## V-NOTCH FLOW METER

### Description

The flow measurement in open channels is widely used and applied in the environmental and geotechnical fields. The V-notch flow meter causes a variation of the water level of the tub where it has been installed directly proportional to the flow rate variation. V-notch flow meters transform the value of the water level in a measurement of instantaneous flow rate of the channel to which it is applied. The level measurement is done by an electric transducer. Gestecno provides V-notch flow meters in thin-wall steel of different shapes (triangular, trapezoidal, etc.) according to the extent of the flow rate that has to be measured.



### Please specify

CODIE	PRODUCT DESCRIPTION
MPS-100	Triangular notch flow meter
MPS-200	Rectangular notch flow meter
MPS-500	Cement tank, dimensions 120x70 cm, height 60 cm

### Technical features

<b>Material</b>	stainless steel
<b>Shape</b>	triangular, trapezoidal, etc.
<b>Dimensions</b>	at request
<b>Tub material</b>	reinforced concrete
<b>Tub dimensions</b>	at request
<b>Sensor type</b>	piezoresistive
<b>Sensor range</b>	1 m
<b>Output signal</b>	4-20 mA
<b>Total accuracy</b>	< 0.1% FS

### For further information

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## INSERTION FLOW METER

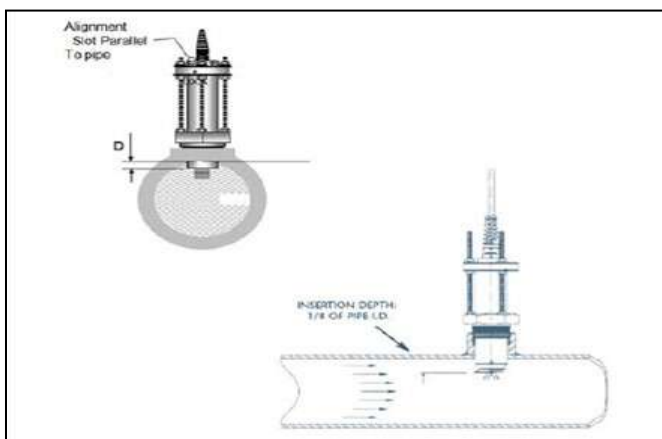
### Description

Turbine insertion flow meters are a simple solution for measuring water and other fluids having low viscosity and they can be inserted into the pipeline without cutting it.

These meters have long time resistance as they are equipped with a non-magnetic rotor, made of PEEK, with graphite seals covered by PTFE and tungsten carbide shaft; the entire body is made of 316L stainless steel.

The turbine inclusion flow meter is a simple and reliable device, designed to be used with any type of solid-free liquid and it is ideal for any type of remote application.

The sensor can measure flows starting from 0.3 m/s, producing a highly repeatable output signal. Its solid structure and its consolidated technology guarantee exceptional performances and need low maintenance.



### Technical Specifications

<b>Measurement type</b>	insertion meter
<b>For pipelines</b>	from 40 to 900 mm diameter
<b>Range</b>	0,3...10 m/sec
<b>Flow range</b>	0,25...6300 liter/sec
<b>Output</b>	squared wave, 4-20 mA
<b>Linearity</b>	0,15% FS
<b>Operating temperature</b>	-40...+150 °C
<b>Material</b>	316L stainless steel
<b>Class of protection</b>	IP68

### Please specify

CODE	PRODUCT DESCRIPTION
MPI-100	Insertion flow meter with display (output 4-20 mA)
MPI-200	Insertion flow meter without display (output impulsive)

### For further information:

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# Pie zo me ters

Resistive piezometers  
Water Level Loggers  
Water level meters  
Casagrande filters  
Radar level sensor



## RESISTIVE PIEZOMETER

### Description

The resistive piezometer is a pressure transducer, which allows to measure the interstitial pressure in the soil (absolute version) allows to define the piezometric height in the piezometer pipe (relative version). On the inside of the self-supporting cable, a small tube connects the reference room of the sensor with the atmosphere, so that any changes in environmental pressure act on the piezometric surface rather than on the reference room. This allows to measure just the water pressure, and therefore the water level.

The self-supporting electric cable, is fixed to the piezometer casing, allowing to introduce and recover it without problems. Compact and robust execution and excellent quality components make this level gauge a unique tool for controlling and monitoring water levels in piezometers, in wells, pits, canals, tanks, rivers, lakes, etc.

Gestecno supplies a miniature level 12 mm diameter sensor, suitable for installation inside Casagrande piezometer.

Data can be read by using a portable control unit or an automatic data acquisition system designed for continuous monitoring.

### Applications:

- Interstitial pressure measurement
- Water level measurement inside piezometers
- Water level measurement inside wells, tanks and reservoirs
- Water level measurement inside canals, rivers and lakes



### Features

- Absolute or relative pressure measurements
- Reliability on long time monitoring
- High resolution and accuracy
- Degree of protection IP68
- Stainless steel sturdy construction
- Sensor version also with 12 mm diameter
- Possibility to transmit the signal also over long distances

## Technical Specifications

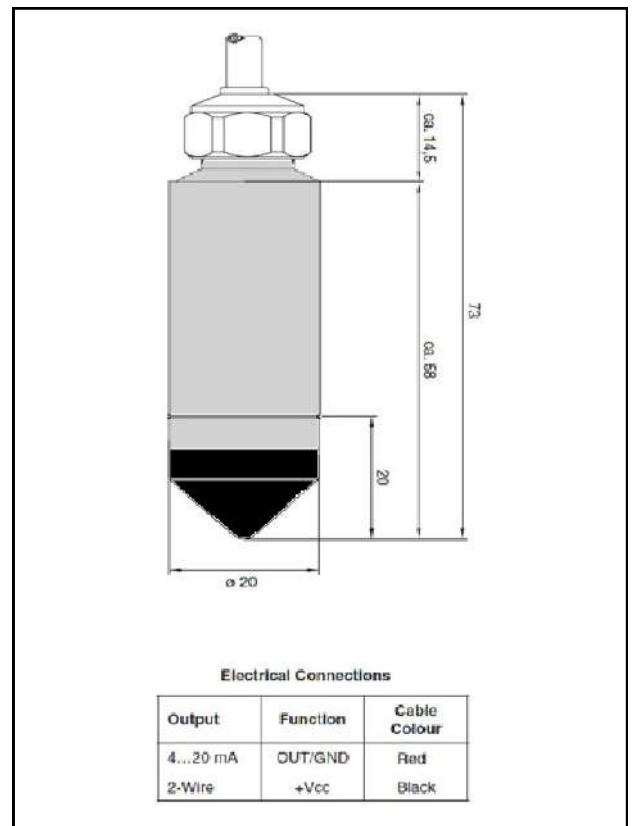
	21 mm diameter sensor	12 mm diameter sensor
<b>Sensor Type</b>	piezoresistive	piezoresistive
<b>Application</b>	to measure the interstitial pressure (absolute version) and to measure water level (relative version)	to measure the interstitial pressure (absolute version) and to measure water level (relative version)
<b>Cable</b>	self-supporting , PUR external shieth, without internal cable	self-supporting , PUR external shieth, without internal cable
<b>Measurement</b>	from 5 to 100 meters water	from 20 to 100 water meters
<b>Overpressure</b>	100% F.S.	100% F.S.
<b>Output Signal</b>	4-20 mA, 2 wires	mV/V (not amplified)
<b>Power</b>	8...32 Vdc	5 Vdc
<b>Total Accuracy</b>	+/-0,25% F.S.	+/-0,5% F.S.
<b>Long term stability</b>	2 mbar (1 cm water)	2 mbar (1 cm water)
<b>Operating temperature</b>	-20.....+80 °C	-20.....+80 °C
<b>Degree of protection</b>	IP68	IP68
<b>Dimensions</b>	diam. 21 mm - length 75 mm	diam. 12 mm - length 110 mm
<b>Material</b>	stainless steel	stainless steel

## Accessories and spare parts

- Cut to size electric cable
- Ventilated junction box

## Please specify

CODE	DESCRIPTION
PEP-100	Piezo-resistive piezometer, diameter 21 mm
PEP-200	Piezo-resistive piezometer, diameter 12 mm
PEP-300	Piezo-resistive piezometer with temperature, diameter 24 mm



## For further information

### Gestecno s.a.s.

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## WATER LEVEL LOGGER

### Description

The resistive piezometer is a relative pressure transducer, which allows to define the piezometric height by measuring the hydrostatic pressure that acts on the sensor. On the inside of the self-supporting cable, a small tube connects the reference room of the sensor with the atmosphere, so that any changes in environmental pressure act contemporarily on the piezometric surface rather than on the reference room: this allows to measure just the water pressure, and therefore the water level.

In the integrated logger version, a data acquisition board provides automation and storage of measurements. The sensor is made of two parts connected by a cable of variable length based on the installation depth. The lower part, where the sensor and the circuit board are located, is cylindrical in shape, with a diameter of 21 mm and a length of 75 mm. The upper part, of a different shape according to the installation requirements, contains the connector for interfacing with your computer. Gestecno supplies a miniature level 12 mm diameter sensor, suitable for installation inside Casagrande piezometer.

The exceptional autonomy, due to the very low power consumption (with a range of one hour, the battery life is over 2-3 years), the enormous storage capacity, compact and robust execution and excellent quality components make this level gauge a unique tool for controlling and monitoring water levels in piezometers, in wells, pits, canals, tanks, rivers, lakes, etc.

### Applications

- Control of ground water level in standpipe and Casagrande piezometers
- Control of ground water level in canals, rivers, lakes, wells, reservoirs, springs, etc.



### Features

- Reliability also for long term monitoring
- Atmospheric pressure compensation
- Powered by low consumption battery
- High resolution and accuracy
- Degree of protection IP68
- Sensor also available in 12 mm diameter
- Easy and intuitive software interface

## Sensor Technical Specifications

	21 mm diameter sensor	12 mm diameter sensor
<b>Sensor type</b>	piezoresistive	piezoresistive
<b>Range</b>	from 5 m to 100 m water	from 20 m to 100 m water
<b>Pressure measurement</b>	absolute and relative pressure	absolute and relative pressure
<b>Resolution</b>	1 mm	2 mm
<b>Total accuracy</b>	< 0.25% F.S.	< 0.5% F.S.
<b>Operating temperature</b>	-10.....+40 °C	-10.....+40 °C
<b>Dimensions</b>	21 mm diameter — 75 mm length	12 mm diameter — 110 mm length
<b>Material</b>	stainless steel	stainless steel

## Datalogger Technical Specifications

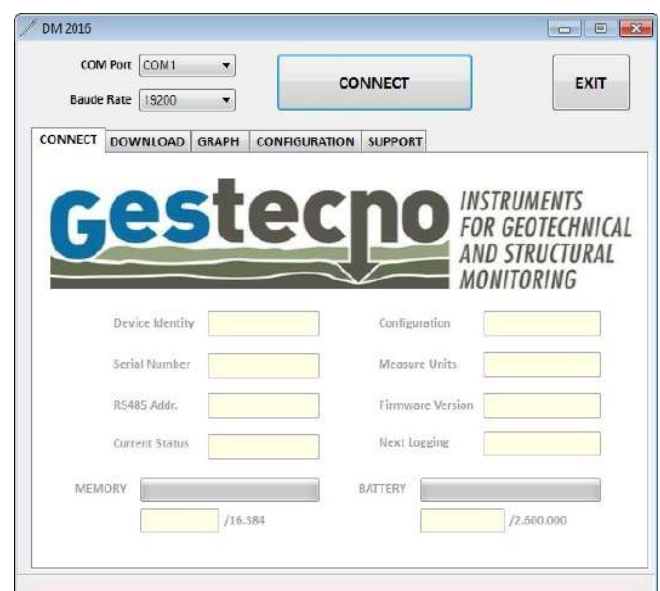
<b>Type of memory and capacity</b>	non volatile - 32.000 measurements with date and hour
<b>A/D Converter</b>	16 bit
<b>Power</b>	n. 1/3 lithium batteries 3.6V
<b>Connection Cable Interface</b>	USB
<b>Measuring range</b>	from 2 sec. to 24 hours programmable
<b>Resolution</b>	1 mm
<b>Dimensions</b>	30 mm diameter —250 mm length
<b>Material</b>	stainless steel

## Accessories and spare parts

- Battery kit
- Piezometer support
- Software kit and USB cable
- Cut to size signal cable

## Please Specify

CODE	PRODUCT DESCRIPTION
PED-100	Water level logger (vented), diameter 21 mm, FS 10 m
PED-200	Water level logger (vented), diameter 12 mm, FS 20 m
PED-300	Surcharge for temperature measurement (for d. 21 mm )
PED-400	Signal cable (please specify length)
PED-500	Software and USB cable



## For further information:

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 e-mail: info@gestecno.it - WEB: www.gestecno.it

## WATER LEVEL INDICATOR

### Description

Water Level Indicator is used to determine the water level within a borehole, piezometer pipe or well. Mounted on a rugged lightweight drum with integral brake, battery and probe holder for easy operation. The probe when touches the water send an acutic and vsual signal by respectively a buzzer and a led. The depth of the water can be read on the graduated tape.



Gestecno also produces the version with temperature sensor integrated in the tip. This model is a versatile tool for level and temperature measurements in any type of well thanks to the display for controlling the temperature, the signal indicating that the well has reached the bottom of the well (supplied on request) and the ease of use.

### Applictions

- Water level measurements in piezometers pipe model Casagrande and open pipe
- Water level in wells
- Water level measurements in dikes, lakes and artificial reservoirs
- Water level measurements in slopes, tunnels, excavations and dams
- Water temperature measurements

### Features

- Cheap, compact, durable
- Segnalatore acustico e visivo
- Acustic and visual indicator
- Adjustable sensitivity
- Drum with integral brake and probe holder
- Probe diameter 12mm (10mm on demand)
- Round or flat cable, provide with anti foam tip as request
- Lengths available (30-50-100-150-200-300 m)



## Technical specifications

	Sensor with round cable	Sensor with flat cable	Temperature and level sesor
<b>Indicator</b>	Acustic (buzzer) and visual (led)	Acustic (buzzer) and visual (led)	Acustic (buzzer) and visual (led)
<b>Sensibility</b>	Handle	Handle	Handle
<b>Alimentation</b>	1 battery with 9 Volt	1 battery with 9 Volt	1 battery with 9 Volt

### CABLE

Type	Round	Flat	Round
<b>Graduation</b>	Centimeter	Millimeter	Centimeter
<b>N. conductors</b>	2 + core in kevlar	2 steel	4 + core in kevlar
<b>Sheath</b>	Polyurethane	Polyurethane	Polyurethane
<b>Dimensions</b>	Ø 4,7 mm	10X1 mm	Ø 5,0 mm
<b>Lengths</b>	30-50-100-150-200-250-300-500 m (other lengths available on request)	30-50-100-150-200-250-300 m (other lengths available on request)	30-50-100-150-200-250-300 m (other lengths available on request)

### PROBE

<b>Diameter</b>	12 mm (10 mm on request)	12 mm	12 mm
<b>Length</b>	150 mm	150 mm	150 mm
<b>Material</b>	Stainless steel	Stainless steel	Stainless steel

### REEL

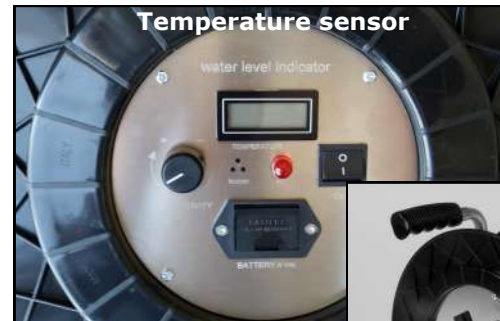
<b>Material</b>	Drum in plastic (o steel) and frame in steel	Drum in plastic (o steel) and frame in steel	Drum in plastic (o steel) and frame in steel
<b>Drum diameter</b>	Ø260 mm (30-50 m) Ø320 mm (100-150-200 m)	Ø260 mm (30-50-100 m) Ø320 mm (150-200-250-300m)	Ø260 mm (30-50 m) Ø320 mm (100-150 m)
<b>Accessories</b>	Brake and probe holder	Brake and probe holder	Brake and probe holder

## Accessories and spare parts

- Probe 10 and 12 mm
- Anti foam probe
- Electronic panel
- Hole bottom
- Cable (30-50-100-150-200-250-300 m)

## Please specify

Length (m)	ROUND CABLE	FLAT CABLE	TEMPERATURE SENSOR
<b>30</b>	<i>FRE-030</i>	<i>FRE-603</i>	<i>FRE-803</i>
<b>50</b>	<i>FRE-050</i>	<i>FRE-605</i>	<i>FRE-805</i>
<b>100</b>	<i>FRE-100</i>	<i>FRE-610</i>	<i>FRE-810</i>
<b>150</b>	<i>FRE-150</i>	<i>FRE-615</i>	<i>FRE-815</i>
<b>200</b>	<i>FRE-200</i>	<i>FRE-620</i>	<i>FRE-820</i>
<b>250</b>	<i>FRE-250</i>	<i>FRE-625</i>	<i>FRE 825</i>
<b>300</b>	<i>FRE-300</i>	<i>FRE-630</i>	<i>FRE-830</i>
<b>500</b>	<i>FRE-500</i>	-	-



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## CASAGRANDE FILTERS

### Description

The piezometers are widely used to measure the piezometric quota of groundwater and for the measurement of pore pressure in saturated soils. The main feature that distinguishes the various types of piezometers is the volume of water required to get the measurement. The smaller the volume is, the more suitable the piezometer is to measure pressure variations very rapidly. According to the previous description, there are two main types of piezometers: those in open pipe and those of Casagrande type. The open pipe piezometer consists of one or more perforated pipes connected to the surface by means of one or more pipes with dead ends. In this case, water gets through the tube, then through the filter of sand and gravel obtained by filling the space between the pipe and the walls of the hole. Within the piezometer in open tube, water stabilizes at a specific level that represents the level of the surrounding groundwater. If the filter cell is cut off from the rest of the hole, it will serve to measure the water pressure in the layer in which it is installed. In this case, we deal with Casagrande filters, which are used for pore pressure measurements of soils on the average permeable. The measurement of the water level inside of open pipe and Casagrande piezometers is commonly done by using the electric water level meters or electric pressure transducer, possibly connected to a data acquisition unit.



### Technical features

<b>Filter external diameter</b>	55 mm
<b>Length of porous filter</b>	250 mm
<b>Pore diameter</b>	20 micron
<b>Porous filter material</b>	ceramic
<b>Porous filter joints</b>	n. 2 da 1/2"
<b>PVC pipe diameter</b>	1/2"
<b>PVC pipe length</b>	3 m
<b>PVC pipes threading</b>	1/2" M/M with coupling F/F

### Please Specify

CODE	PRODUCT DESCRIPTION
PCA-100	Casagrande filter unit
PCA-212	PVC tube 1/2"

### For further information:

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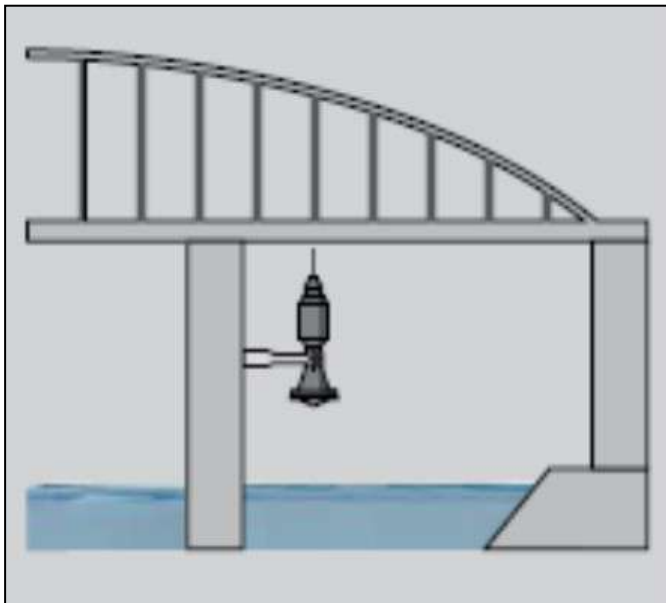
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## RADAR LEVEL SENSOR

### Description

The radar level sensor is ideal for all water, level and water measurement applications. The radar measurement technique is not altered by environmental influences and therefore it allows to measure the level of water with the utmost precision (the measurement is not influenced by temperature variations, fog, rain or snow). Moreover, this sensor is not subject to wear and does not require maintenance, so it is ideal for remote applications.

It is used for flow measurements on open channels, to measure the level of rivers and channels, for flow measurements on V-notch flow meters, to measure water level on wells or tanks, etc.



### Technical features

<b>Measurement technique</b>	microwave impulses (radar)
<b>Power</b>	9...36 Vdc
<b>Range</b>	15 m water
<b>Total accuracy</b>	+/- 2 mm
<b>Output</b>	4-20 mA (2 wires)
<b>Operating temperature</b>	-40...+80 °C
<b>Class of protection</b>	IP66

### Please Specify

CODE	PRODUCT DESCRIPTION
SLR-100	Radar level sensor

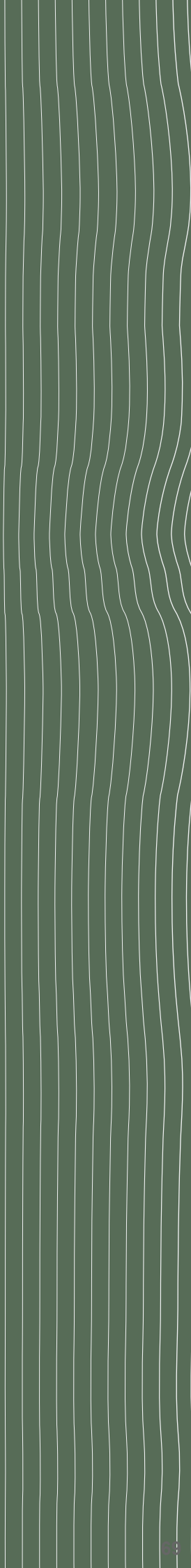
### For further information

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# Weather Sensors

Rain gauge  
Wind direction and wind velocity sensor  
Air temperature sensor (outdoor)  
Temperature sensor (indoor)  
Submersible temperature sensor



## RAIN GAUGE

### Description

The rain gauge consists of a cylindrical body made of anodized aluminum with a collection surface of 200 cm<sup>2</sup> or 1000 cm<sup>2</sup> inside the rain gauge a funnel-shaped opening is mounted, it conveys precipitation through a filter, towards a stainless steel weighbridge, having a measurement system with knife blade support. Every mechanical component has been shaped in order to minimize every phenomenon that could keep of divert the flow of water, directing it towards a nozzle in the center of the rain gauge. It is available in heated version, suitable for cold climates, and with signal normalisation module (0 ... 2 Vdc, 4 ... 20 mA).



### Technical features

<b>Collection surface</b>	200 cm <sup>2</sup> , 1000 cm <sup>2</sup>
<b>Range</b>	illimitato
<b>Instrumental Constant</b>	0.2 mm/impulse
<b>Precision</b>	+/- 2%
<b>Transducer</b>	oscillating weighbridge
<b>Operating temperature</b>	0...80 °C
<b>Output signal</b>	reed contact
<b>Material</b>	aluminium alloy with stainless steel weighbridge
<b>Protection Class</b>	IP67

### Please Specify

CODE	PRODUCT DESCRIPTION
PLU-020	Electric rain gauge not heated, 200 cmq
PLU-100	Electric rain gauge not heated, 1000 cmq

### For further information:

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## WIND DIRECTION SENSOR AND WIND VELOCITY SENSOR

### Description

Wind direction sensors are compact and robust, low consumption sensors, made of anodized aluminum alloy for protection against salt and oxidizing agents. Extremely linear and precise, with high dynamic response even at strong gusts, easy to connect to any datalogger.

The wind velocity sensor uses special self-lubricating bearings that make it ideal for monitoring applications, ensuring high performance.

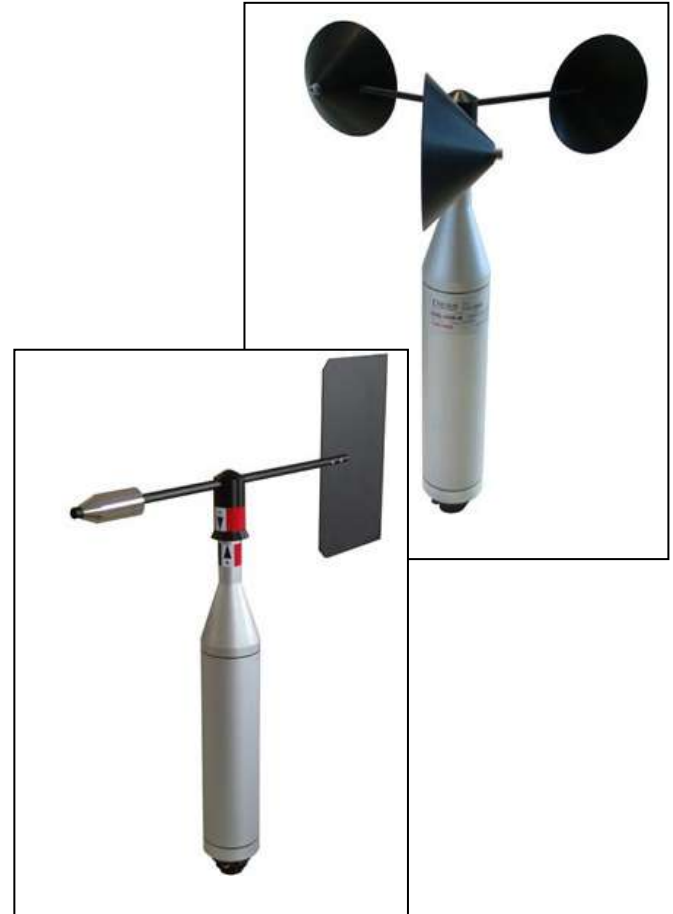
The direction sensor uses a special high-precision potentiometer, that ensures excellent resolution, high sensitivity and considerable mechanical life with a 360 ° angle.

### Direction sensor technical features

<b>Range</b>	0...360°
<b>Resolution</b>	0,1°
<b>Accuracy</b>	+/-1°
<b>Sensor type</b>	potentiometer
<b>Output signal</b>	0...2 Vdc, 4-20 mA
<b>Power</b>	10 ÷ 28 Vdc
<b>Operating temperature</b>	-10...+70 °C
<b>Material</b>	aluminium and stainless steel
<b>Class of protection</b>	IP67

### Please specify

CODE	PRODUCT DESCRIPTION
SEV-100	Wind direction sensor
SEV-600	Wind velocity sensor



### Speed sensor technical features

<b>Range</b>	0,28...50 m/s
<b>Resolution</b>	0,05 m/s per rotazione
<b>Accuracy</b>	<0,1 m/s (0,4 ÷ 30 m/s)
<b>Minimum speed</b>	<0,3 m/s
<b>Output signal</b>	0...2 Vdc, 4-20 mA
<b>Power</b>	10 ÷ 28Vdc
<b>Operating temperature</b>	-10...+70 °C
<b>Material</b>	aluminium and stainless steel
<b>Class of protection</b>	IP67

### For further information

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## TEMPERATURE SENSOR (indoor)

### Description

The measurement of air temperature is made in order to control phenomena with high temperature range, such as the day / night cycle on structures, or to compare thermal errors made by some instruments. The type of sensor (platinum resistance thermometer) is protected by an IP68 stainless steel container.

If used externally it should be install in the northern side or in a sheltered position.

Furthermore in case of direct exposition to solar rays it has to be installed inside a cover

Gestecno also supplies all the accessories for wall or integrated installation inside watertight covers.



### Please specify

CODE	PRODUCT DESCRIPTION
TEM-100	Temperature sensor indoor

### Technical Features

<b>Sensor</b>	resistance Pt100
<b>Material</b>	stainless steel
<b>Range</b>	-40...+60 °C
<b>Accuracy</b>	<0.1 °C
<b>Resolution</b>	0.01 °C
<b>Power</b>	10-30 Vdc
<b>Output signal</b>	4-20 mA, 2 wires
<b>Ventilation</b>	natural
<b>Class of protection</b>	IP65

### For further information:

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## AIR TEMPERATURE SENSOR (outdoor version)

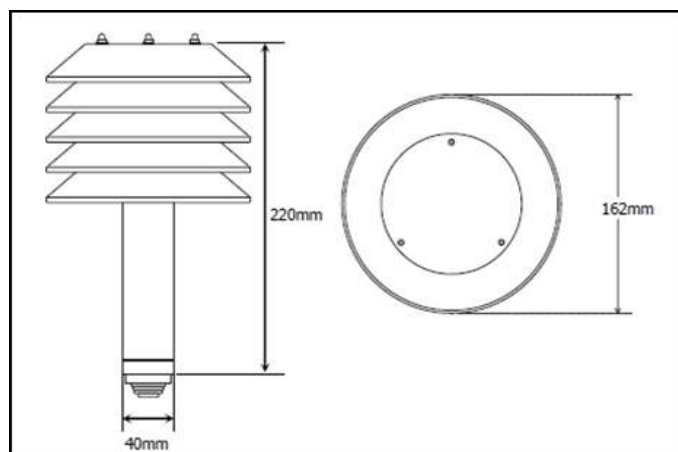
### Description

The temperature measurement is performed to control phenomena with strong temperature variations, such as the day/night cycle on structures, or to compensate for the thermal errors of some instruments.

The Gestecno air temperature sensor is an instrumentation made in compliance with WMO standards (World Meteorological Organization).

The sensitive element (platinum resistance thermometer) is protected against rain and incident solar radiation by means of four overlapping circular screens arranged to guarantee natural internal ventilation.

Their particular white and reflective color, cancels the effect of heating induced on the sensitive element, ensuring maximum measurement accuracy.



### Technical specifications

<b>Sensitive element</b>	Pt100
<b>Material</b>	Stainless steel and aluminium
<b>Range</b>	-40...+80 °C
<b>Accuracy</b>	<0.1 °C
<b>Resolution</b>	0.01 °C
<b>Power supply</b>	10-30 Vdc
<b>Output signal</b>	4-20 mA
<b>Ventilation</b>	natural
<b>Protection class</b>	IP67

### Please specify

CODE	PRODUCT DESCRIPTION
TEM-200	Temperature sensor outdoor

### For further information:

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## SUBMERSIBLE TEMPERATURE SENSOR

### Description

It is used immersed in water, placed under the ground or embedded in concrete to control phenomena with high temperature range, such as the day / night cycle on structures, or to compare thermal errors made by some instruments.

The type of sensor (platinum resistance thermometer) is protected by an IP68 stainless steel container.

The instrument is a stainless steel cylinder inside which the sensor is embedded and sealed by thermoconductive resins.



### Technical features

<b>Type of sensor</b>	Pt100
<b>Material</b>	stainless steel and aluminium
<b>Measurement range</b>	-40...+60 °C
<b>Accuracy</b>	<0.1 °C
<b>Resolution</b>	0.01 °C
<b>Power</b>	10-30 Vdc
<b>Output signal</b>	4-20 mA, 2 wires
<b>Class of protection</b>	IP68

### Please specify:

CODE	PRODUCT DESCRIPTION
TEM-500	Submersible temperature sensor

### For more information:

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# Other Sensors

Shock-vibration sensor  
Bolts, Strongholds, Targets, Prisms  
Remote camera

## SHOCK-VIBRATION SENSOR

### Description

Gestecno's shock-vibration sensors are accelerometers that provide an electrical output signal (4-20 mA) proportional to the vector sum of the accelerations on the X, Y and Z axes.

It starts operating at very low frequencies and allows not to detect the acceleration of gravity, that way the measurement is independent from the inclination of the sensor compared to the earth's axis. Thanks to an internal microcontroller the highest peak of the instantaneous value is maintained for a certain period of time (from 1 sec to 1 hour) thus making it possible to read the analogue value even with the normal control units used in geotechnical-structural monitoring.



### Please specify

CODE	PRODUCT DESCRIPTION
VIB-100	Shock-vibration sensor



### Technical features

<b>FS</b>	+/- 6g
<b>Tension</b>	8-40 Vcc
<b>Output Signal</b>	4-20 mA
<b>Peak value maintenance</b>	da 1 sec a 1 ora
<b>Frequency</b>	2-300 Hz
<b>Maximum Shock</b>	2000 g
<b>Opersting temperature</b>	-20...+80 °C
<b>Material</b>	stainless steel
<b>Class of protection</b>	IP68

### For further informatoion:

#### Gestecno s.a.s.

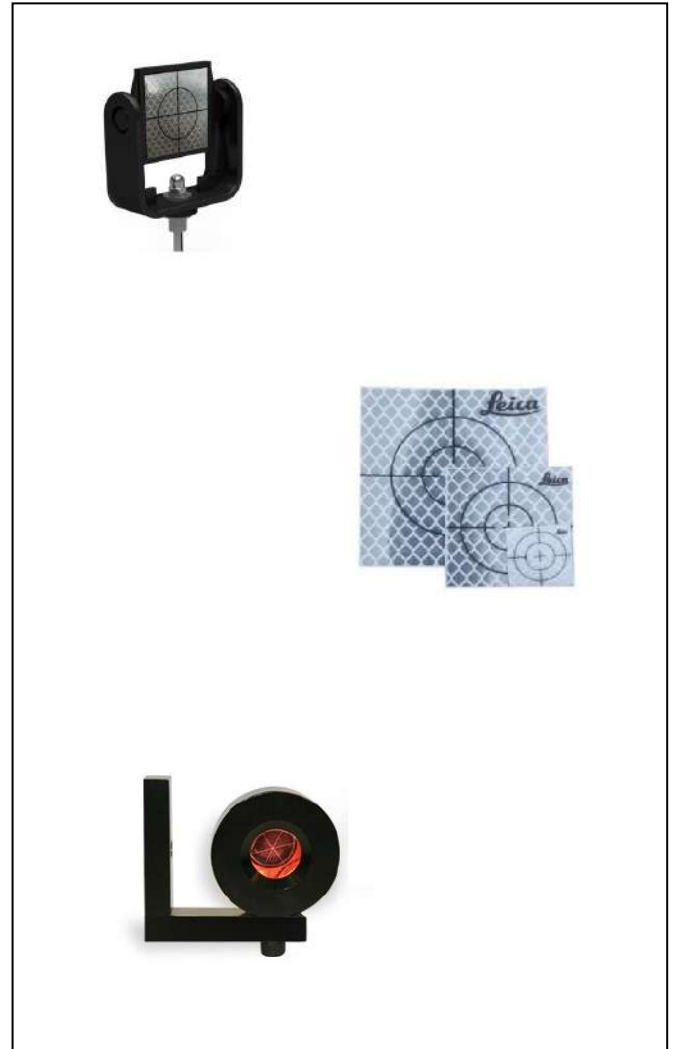
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## BOLTS, STRONGHOLDS, TARGETS, PRISMS

### Description

They are used for monitoring convergence of tunnels in construction and of underground cavities such as culverts and caves; examine plano-altimetric variations in outdoor excavations, landslides and unstable rock mass; supervise structural controls on buildings and infrastructures.

The use of topography accessories such as targets, levelling rods, bolts, prisms is ideal for monitoring. They are applied in geotechnical and structural monitoring, they are fixed on place, and keep long time excellent performance and accuracy.



### Technical Features

<b>Target</b>	Reflective target sticker Range: 10-120 m
<b>Prism</b>	Reflective mini prism Range: 0-2000 m
<b>Convergence bolts</b>	Zinc coated steel Threading 3/8"

### Please specify

CODE	PRODUCT DESCRIPTION
BUL-025	Threaded-head reference bolts, L=250 mm
CMG-100	Stronghold for GPS measure
POT-100	Mini prism with "L" shaped bracket

### For further information:

**Gestecno** s.a.s.

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## REMOTE CAMERA

### Description

The camera used by Gestecno is IP bullet, 3 MP video resolution, with UMTS 3G integrated modem and integrated standard antenna. The camera is equipped with infrared LEDs that allow night vision up to 30 meters without light sources.

The camera is very solid and resistant, suitable for open air applications (IP67 protection class).

The remote control is in P2P mode through software or with smartphone or tablet application (Android and iOS operating systems).



### Technical features

<b>Sensor</b>	1/3" 3 Megapixel CMOS
<b>Effective Pixels</b>	2304x1536
<b>IR led</b>	18 with automatic control
<b>Minimum lighting</b>	0.1 lux (color), 0 lux (with IR)
<b>IR Distance</b>	max 30 m
<b>Power</b>	12 Vdc
<b>Consumption</b>	< 7.5 W
<b>Operating temperature</b>	-30...+60 °C
<b>Material</b>	metal and plastic
<b>Protection Class</b>	IP67

### Please Specify

CODE	PRODUCT DESCRIPTION
TEL-100	Camera IP, 3 Megapixel

### For further information:

**Gestecno s.a.s.**

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# Read out Units and Data log gers

Readout unit  
1-2 channels datalogger  
Low consumption datalogger with gprs modem  
Datalogger with GPRS modem  
Data trasmission and alarm

## READOUT UNIT

### Description

The readout unit is a tool enabled to power sensors and to display data from them. It is typically used when it is not possible or it is unintended to acquire automatically and continuously those data coming from transducers (by a remote acquisition unit). In order to make the reading operations faster, sometimes the signals of two or more sensors are grouped into centralized panels from which, connecting with the portable reading unit using the supplied cable and with the simple use of a channel selector, you can display data from all sensors installed. Models for reading all popular sensors are available on the market. The reading unit also comes complete with a connecting cable.

### Applications

- Manual readings of electric crackmeters, tiltmeter, piezometers, VW, etc.
- Not continuous structural and geotechnical monitoring
- Readings of laboratory instruments



### Features

- Compatible with most analog sensors on the market
- Large display
- Easy to use
- Protection class IP65
- Power supply with alkaline battery
- Reads both electrical and engineering units

## Technical specifications

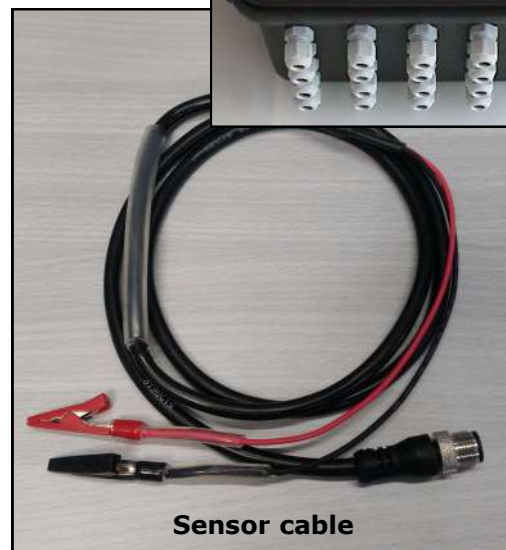
<b>Type of measurements</b>	VW, 0-10 Volt, 4-20 mA, mV/V, ohm (configurable at the factory)
<b>A/D converter</b>	14 bit
<b>Power supply</b>	9 Volt alkaline battery
<b>Display</b>	LCD
<b>Total accuracy</b>	+/- 0,1 %FS (+/- 1 digit)
<b>Operating time</b>	about 15 hours of continuous operation
<b>Case</b>	handheld box IP 65
<b>Dimensions (L x W x H)</b>	165 x 90 x 30 mm
<b>Operating temperature</b>	-10.....+60 °C
<b>Connector</b>	M12 - 8 poles with cap IP65
<b>Weight</b>	260 gr

## Accessories and spare parts

- Sensor cable
- Travel bag
- Switch terminal boxes

## Please specify

CODE	PRODUCT DESCRIPTION
CLM-100	Readout with input 4-20 mA
CLM-200	Readout with input 0-10 Volt
CLM-300	Readout with input mV/V
CLM-400	Readout with input thermistor
CLM-500	Readout with input VW
CLM-801	Sensor cable for 4-20 mA
CLM-802	Sensor cable for 0-10 Volt
CLM-803	Sensor cable for mV/V
CLM-805	Sensor cable for VW



## For further information:

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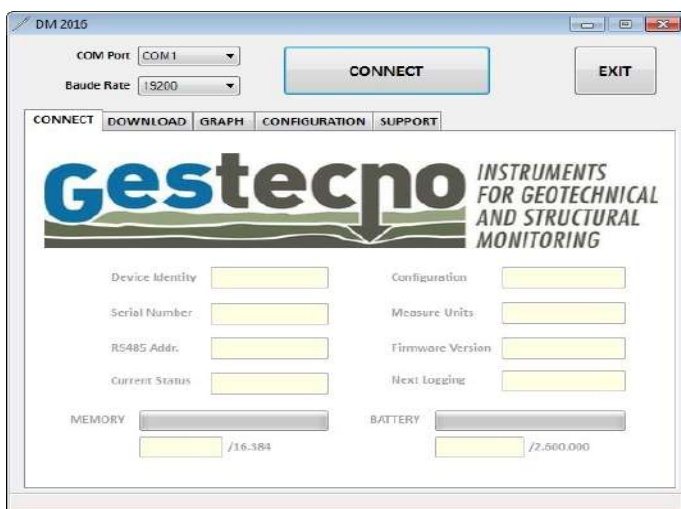
## 1-2 CHANNEL DATALOGGER

### Description

Gestecno's single and dual channel datalogger powers the sensor and saves the data. It is powered by a long term lithium internal battery and has a "non-volatile" memory to ensure data retention with no power temporary absence.

It is supplied with a cable to connect it to a laptop and with a software, through which it is possible to program acquisition times and set a whole range of useful configuration parameters. The stored data are saved to your PC directly into files that are readable with Excel and other well-known spreadsheets.

Exceptional autonomy due to very low power consumption (with a one-hour measurement range, battery life is over 2 years), large storage capacity, compact and robust performance and high quality of components, make this datalogger a unique tool for surveying data for long periods and/or in unattended or not easily accessible locations.



### Technical Features

<b>Memory type</b>	"non-volatile"
<b>Memory capacity</b>	32000 measurements with date and hour
<b>Converter A/D</b>	16 bit
<b>Power supply</b>	n. 1/3 3.6V lithium battery
<b>Analog inputs</b>	1-2 (0-5 V, 4-20 mA)
<b>Interface</b>	USB
<b>Measuring interval</b>	programmable from 2 sec. to 24 hours
<b>Resolution</b>	0.01% FS
<b>Dimensions</b>	30 mm diameter, 250 mm length
<b>Material</b>	stainless steel
<b>Protection class</b>	IP66

### Please specify

CODE	PRODUCT DESCRIPTION
UAA-113	1-2 Channel datalogger
UAA-400	Software and USB cable

### For further information:

#### Gestecno s.a.s.

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## LOW CONSUMPTION DATALOGGER WITH GPRS MODEM

### *Description*

This system is a low consumption transmission module (it can be powered by means of a long term battery) It is able to detect the data coming from the sensors and transmit them automatically to the server through an integrated GPRS modem and a data connection (by means of an internal SIM CARD).

The server receives the data and stores them, processes them and makes them available in a reserved and protected area to which the user can access by a userid and a password.

You can access the system using a common internet browser and you don't need to install it by the customer.

The following functions are available on the web portal:

- Reading the requested variables
- Graphic trend of the measurements
- Data transmission in various formats
- Alarm management

### *Applications*

- Landslides monitoring
- Geotechnical and structural monitoring
- Underground and surface water monitoring
- Spring, tank, water main monitoring



### *Technical Features*

- No software needed
- It fits the most common geotechnical instruments on market
- Long term battery powered
- Compact and sturdy construction
- Alarm transmission through SMS and mail



## Technical Specifications

<b>Analogue input</b>	n. 1 (4-20 mA, 0-5 Volt, pulse counter)
<b>Resolution</b>	12 bit
<b>Accuracy</b>	< 0,25% F.S.
<b>Power</b>	long term lithium battery (size D - 17 Ah)
<b>Absorption</b>	30 $\mu$ A in standby - 50 mA (in transmission)
<b>Dimension</b>	60 mm diameter- 150 mm high
<b>Environmental conditions</b>	temperature: -20...+70 °C - relative humidity: 30...95%
<b>Modem</b>	3G Quad Band integrated with external antenna
<b>Case</b>	IP67
<b>Installation</b>	Wall installation or pole installation, by means of supplied bracket

## Accessories and spare parts

- Spare battery
- Pole installation accessories
- Amplified antenna

## Please specify

CODE	PRODUCT DESCRIPTION
URS-050	1 ch datalogger with GPRS modem



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## DATA ACQUISITION UNIT WITH GPRS TRANSMISSION SYSTEM

### Description

The distinctive feature of these systems is the ability to collect data from sensors and being able to independently forward them to a server through an integrated GPRS modem and a data connection. The server receives and stores the data, to process them and to make them available in a designated protected place which the user can log into with user ID and password. The user can access the system with a standard internet browser and requires no installation for the customer.

The following functions are available directly on the WEB portal:

- Reading the required variables
- Graphic representation of measurements
- Data transmission in various formats
- Alarm management

### Application

- Landslides monitoring
- Geotechnical and structural monitoring
- Tunnels, dams, bridges and viaducts
- Alarm management at a certain limit



### Technical Features

- No software needed
- It fits the most common geotechnical instruments on market
- It can be powered by a solar panel
- Alarm transmission through SMS and mail

## Techincal Specifications

<b>Analogue input</b>	4 input main board (4 or 8 channels expandible)
<b>Analogue input</b>	4 or 8 (4-20 mA, 0-5 Volt, mV/V)
<b>Resolution</b>	12 or 16 bit
<b>Digital input</b>	2 pulse counter
<b>Accuracy</b>	< 0,1% F.S. or < 0,02% F.S.
<b>Power</b>	12-24 Vdc with 7Ah battery
<b>Output</b>	2 relè for the activation of external devices (semaphore, alarm, etc.)
<b>Interface</b>	RS485 to connect the expantions
<b>Environmental conditions</b>	temperature: -20...+70 °C - relative humidity: 5...95%
<b>Modem</b>	GPRS quadriband integrated with internal antenna
<b>Case</b>	IP65 case

## Accessories and spare parts

- 4 or 8 channels expansion
- 220 Vca power supply
- Solar panel
- Steel pole
- External and / or amplified antenna

## Please specify

CODE	PRODUCT DESCRIPTION
URS-100	Datalogger with GPRS modem (main board 4 ch)
URS-204	Expansion 4 ch
URS-308	Expansion 8 ch
PFV-050	Photovoltaic module 50 W
PFV-100	Photovoltaic module 100 W
BAT-112	Spare battery 12 V - 12 Ah



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## ALARM MONITORING SYSTEM

### Description

The alarm management system is used whenever it is necessary to signal an alarm condition, when at least one of the sensors connected to it changes and exceeds a set threshold. The system can send an SMS to one or more telephone numbers and activate a relay that can be used for example to turn on a traffic light system, a siren, a flashing light, etc.

All types of sensors with analogue output can be connected to the system, such as displacement sensors (for fracture checks in rocks, etc.), inclination sensors, acceleration sensors (for the detection of falling rocks on rockfall barriers), etc.



### Technical Specification

<b>Input</b>	2-4 analogue - 2-4 digital
<b>Output</b>	n. 2 relays
<b>Trasmission</b>	with integrated GPRS modem
<b>Antenna</b>	stilo
<b>Power</b>	photovoltaic panel
<b>Backup battery</b>	12 V - 12 Ah
<b>Operating temperature</b>	-20...+55 °C
<b>Alarms</b>	SMS and/or mail
<b>Case</b>	IP65 case

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# Cables and Accessories

- Electrical cables
- Measuring and switch terminal boxes
- Junction boxes
- Overvoltage protections
- Signal converters
- Photovoltaic module
- Batteries





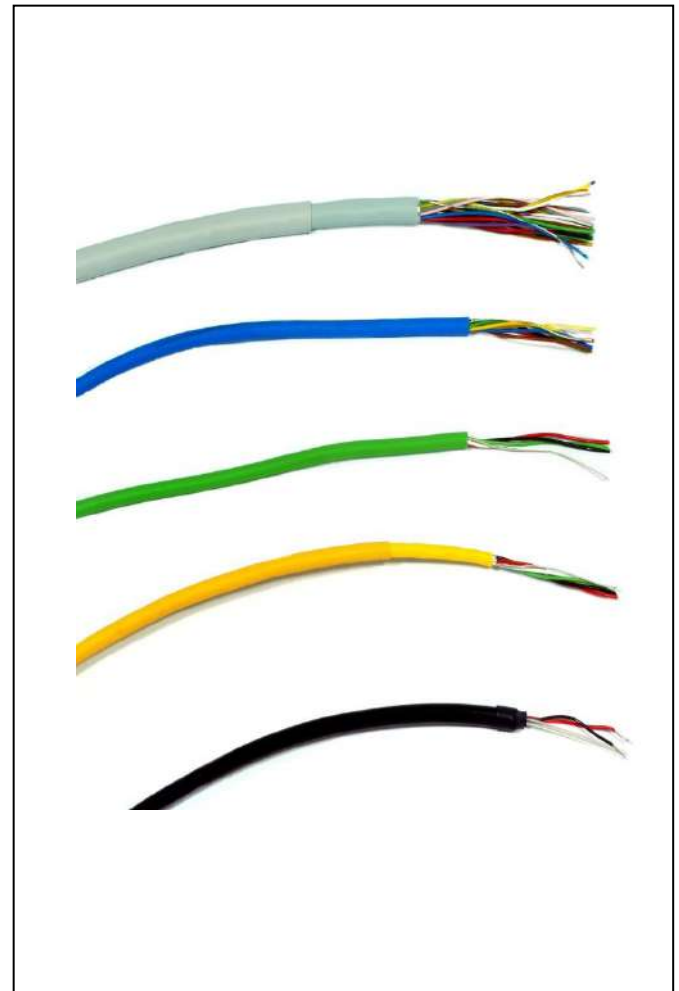
## ELECTRIC CABLES

### Description

The cables are the trickiest part of any network monitoring. They must be guaranteed totally waterproof in connection with tools and must resist the installation both within concrete products and in soil. They are generally composed of two or more tinned copper conductors coated with an insulating sheath and arranged to form a ring-shaped cable with a double protective sheath. Gestecno provides different types of cables. Some of them have a protective outer sheath that makes them highly water resistant and therefore suitable for submersible applications. On the contrary, others have an outer sheath made of abrasion-resistant material. Some cables must also be able to withstand efforts in tension without breaking or elongate and are therefore equipped with a steel wire or kevlar. Lastly, some others are supplied with small nylon tubes for barometric compensation used for instruments that require it. To ensure good transmission of electrical signals, in particular that are weak, all cables are shielded so as to eliminate any possible alteration.

### Please specify

CODE	PRODUCT DESCRIPTION
CAV-040	Electrical cable 4x24 AWG green
CAV-060	Electrical cable 6X24 AWG light blue
CAV-120	Electrical cable 12X24 AWG white
CAV-240	Electrical cable 24X24 AWG white
PEP-400	Signal cable vented



### Technical features

<b>Conductor number</b>	2, 4, 6, 12, 24
<b>Material</b>	sealed copper
<b>Shielding</b>	total shield, aluminium braided wire
<b>Protective Sheath</b>	polyurethane, polyethylene
<b>Diameter</b>	from 5 to 11 mm
<b>Color</b>	white, green, light blue, black

### For further information:

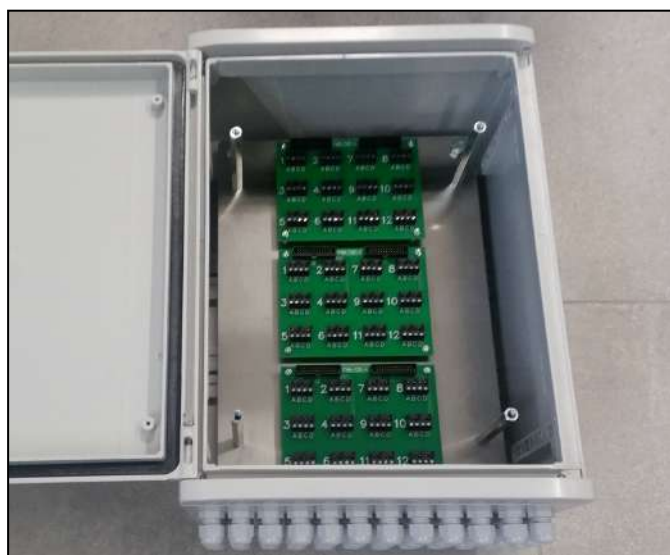
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## MEASURING AND SWITCH TERMINAL BOXES

### Description

In order to make the reading operations faster, sometimes the signals of two or more sensors are grouped into measuring and switch terminal boxes from which, connecting with the portable reading unit using the supplied cable and with the simple use of a channel selector, you can display data from all sensors installed. Measuring and switch terminal boxes from Gestecno are designed for various business needs and are produced in various sizes according to their capability in relation to the number of sensors that can be connected.



### Please specify

CODE	PRODUCT DESCRIPTION
PAN-120	Switch terminal box 12 channels
PAN-240	Switch terminal box 24 channels
PAN-136	Switch terminal box 36 channels

### Technical Features

<b>Input number</b>	12 channels 24 channels 36 channels
<b>Switches number</b>	1 (12 channels) 2 (24 channels) 3 (36 channels)
<b>Dimensions</b>	300*220*160 mm (12 channels) 300*220*160 mm (24 channels) 400*300*200 mm (36 channels)
<b>Material</b>	Plastic material enforced by fibres
<b>Class of protection</b>	IP66

### For further information

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## JUNCTION BOX

### Description

Junction boxes are widely used during the installation of monitoring systems.

They are necessary to protect and waterproof various junctions of cables.

Gestecno supplies various types of junction boxes, all waterproof and equipped with both inlet and outlet cable glands.



### Technical Specification

<b>Dimensions</b>	depending on the number of inlets
<b>Cable inlet</b>	IP67 cable glands
<b>Material</b>	aluminium, ABS
<b>Class of protection</b>	from IP65 to IP67

### Please Specify

CODE	PRODUCT DESCRIPTION
SCA-011	Junction box, 1 input 1 output
SCA-012	Junction box, 1 input 2 output
SCA-013	Junction box, 1 input 3 output
SCA-014	Junction box, 1 input 4 output

### For further information:

#### Gestecno s.a.s.

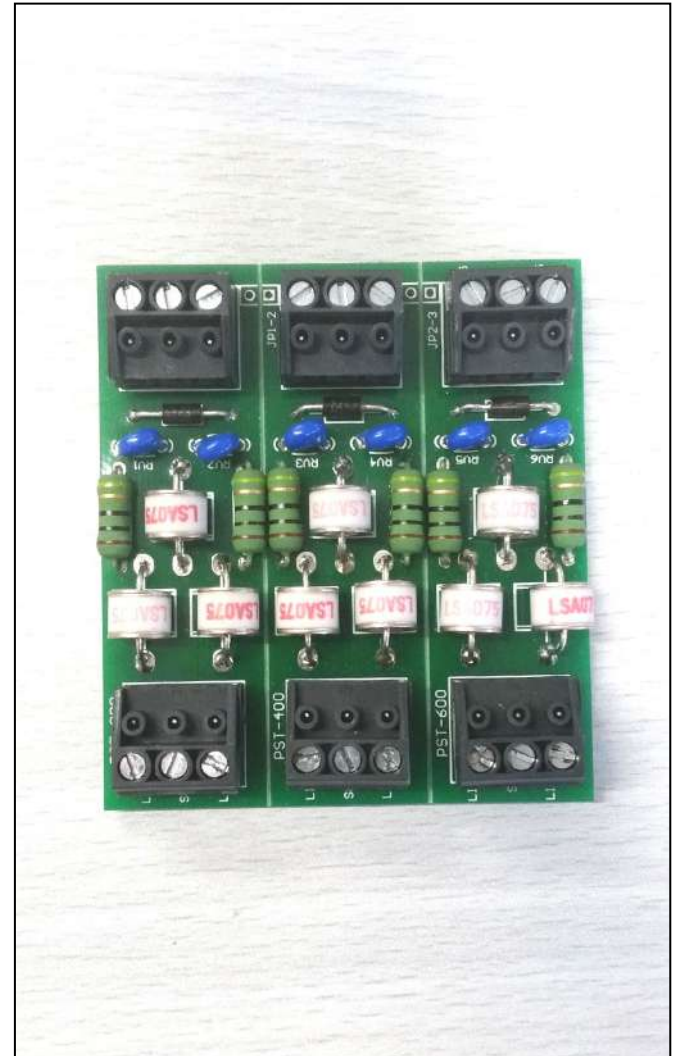
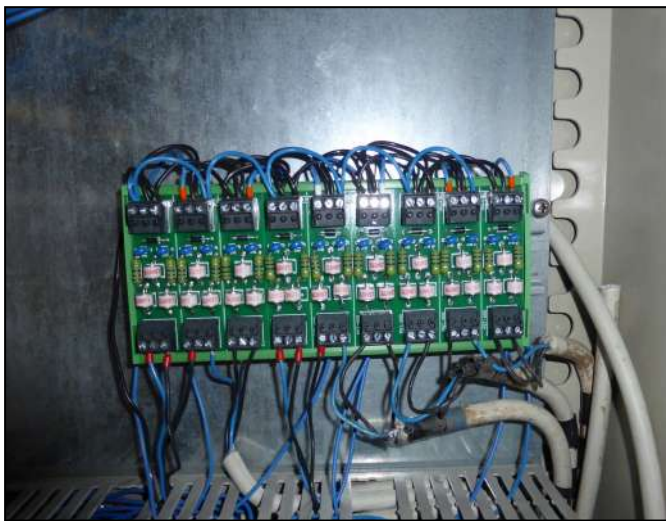
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## OVERVOLTAGE PROTECTION

### Description

Overvoltage protections provided by Gestecno come in three types and are used to prevent unwanted lightning strikes to the tools which they are connected to. They are located in junction boxes that can be equipped with 2, 4 or 6-wire instruments.



### Please specify

CODE	PRODUCT DESCRIPTION
PST-100	Overvoltage protection for voltage or current output
PST-200	Overvoltage protection for mV/V output
PST-300	Overvoltage protection for voltage or current input
PST-400	Overvoltage protection for mV/V input

### Technical features

<b>Models</b>	equipped with 2, 4 e 6 conductors
<b>Type of protection</b>	3 stages
<b>Connection cables</b>	IP67 strain relieves
<b>Case</b>	ABS
<b>Class of protection</b>	IP67

### For further information:

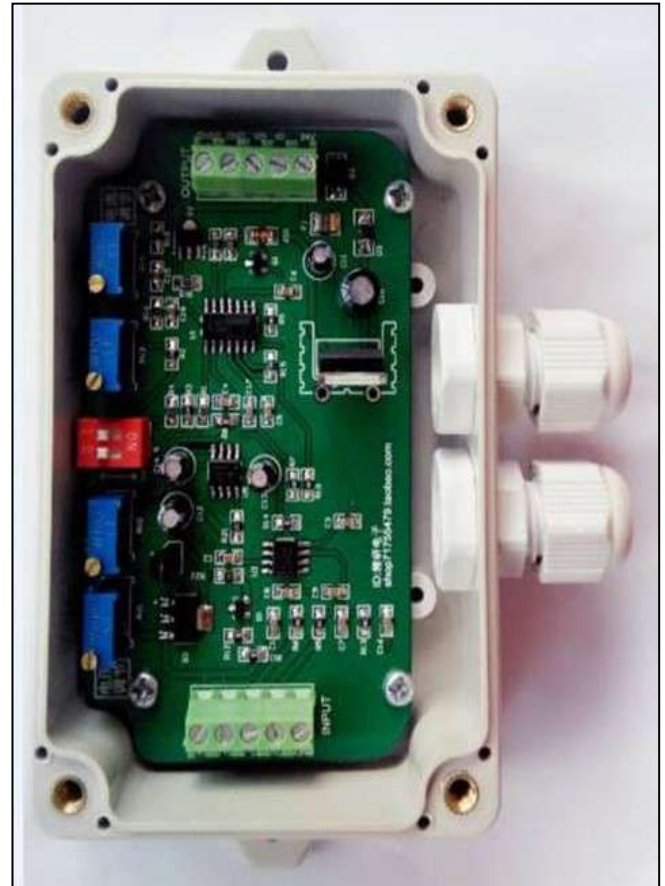
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## SIGNAL CONVERTERS

### Description

Signal converters are electronic boards that convert the output signal of the sensors. Gestecno provides various types in order to convert the signal of the load cells (mV/V) in more widespread 4-20 mA, signal converters from voltage to current, from current to voltage, etc. All converters are equipped with polarity inversion protection and are housed in watertight ABS protection boxes. On board there are potentiometers for zero adjustment (OFFSET) and for gain regulation (SPAN). In addition, practical connection clamps are placed on board.



### Please Specify

CODE	PRODUCT DESCRIPTION
CDS-100	Signal converter (from Voltage to 4-20 mA)
CDS-200	Signal converter (from mV/V to 4-20 mA)
CDS-500	Signal converter (from Frequency to 4-20 mA)

### Technical features

<b>Input</b>	mV/V, potentiometric
<b>Output</b>	0-5 V, 0-10 V, 4-20 mA
<b>Power</b>	11-18 Vdc
<b>Power consumption</b>	35-55 mA
<b>Operating temperature</b>	-20...+60 °C
<b>Class of protection</b>	IP66

### For further information:

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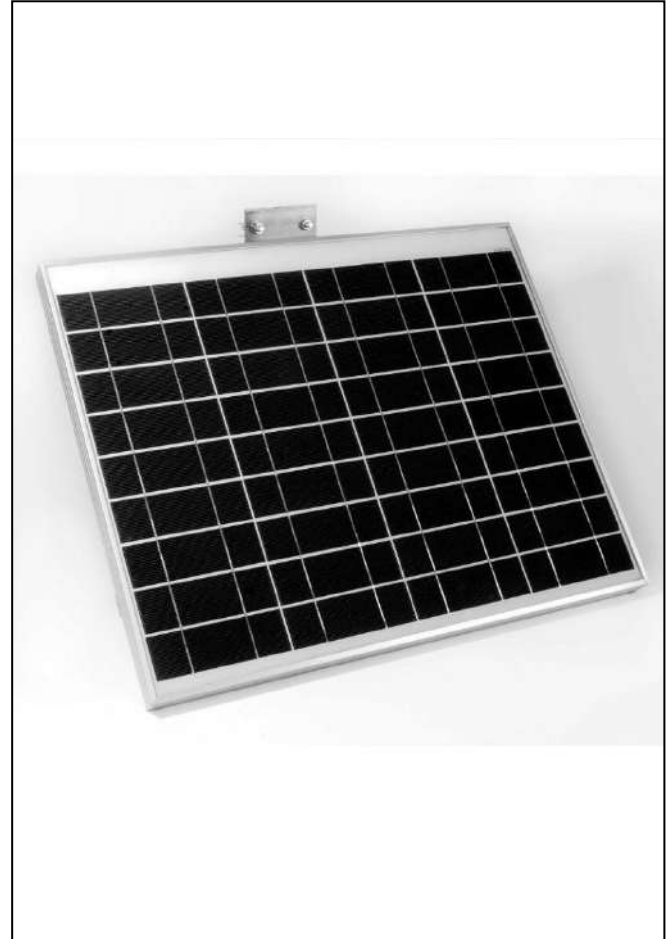
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## PHOTOVOLTAIC PANELS

### Description

Photovoltaic panels are used to recharge lead batteries that power sensors and data acquisition units. They are supplied in different sizes and dimensions depending on the complexity and therefore depending on the consumption of the monitoring system. They are made of high quality materials and are reliable and long life productive. Photovoltaic panels are supplied with suitable fixing systems (both suitable for pole and wall installation), charge regulators and support poles.



### Please Specify

CODE	PRODUCT DESCRIPTION
PFV-050	Photovoltaic module 50 W
PFV-100	Photovoltaic module 100 W
PFV-150	Photovoltaic module 150 W
PFV-310	Charge controller 10 A
PFV-320	Charge controller 20 A
PFV-630	Galvanized steel pole, diameter 60 mm

### Technical Specification

<b>Type</b>	monocrystalline silicon
<b>Power</b>	50, 100, 150 W
<b>Open circuit Voltage</b>	22 V
<b>Maximum Voltage</b>	18.5 V
<b>Operating temperature</b>	-40...+80 °C
<b>Dimensions</b>	depending on the power
<b>Weight</b>	depending on the power
<b>Class of protection</b>	IP67

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## BATTERIES

### Description

Gestecno uses lead batteries to power most of its devices, they are the most popular and widespread rechargeable batteries on the market. They are supplied in different amperages depending on the complexity of the instruments to be supplied.

They can be recharged with a battery charger or with photovoltaic panels equipped with suitable charge regulators.



### Technical Features

<b>Battery Type</b>	Sealed lead acid battery
<b>Voltage</b>	12 Volt
<b>Ampere</b>	7, 12, 18, 26, 36, 100 Ah
<b>Operating temperature</b>	-15...+40 °C
<b>Dimensions</b>	Depending on the amperage
<b>Weight</b>	Depending on the amperage

### Please Specify

CODE	Product description
BAT-107	Lead battery 12 Volt - 7 Ah
BAT-112	Lead battery 12 Volt - 12 Ah
BAT-118	Lead battery 12 Volt - 18 Ah
BAT-126	Lead battery 12 Volt - 26 Ah
BAT-136	Lead battery 12 Volt - 36 Ah
BAT-200	Lead battery 12 Volt - 100 Ah
BAT-300	Battery charger

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If we can **THINK** it  
we can **MAKE** it

**MANUFACTURING DEPARTMENT AND OFFICES**

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