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Accessories

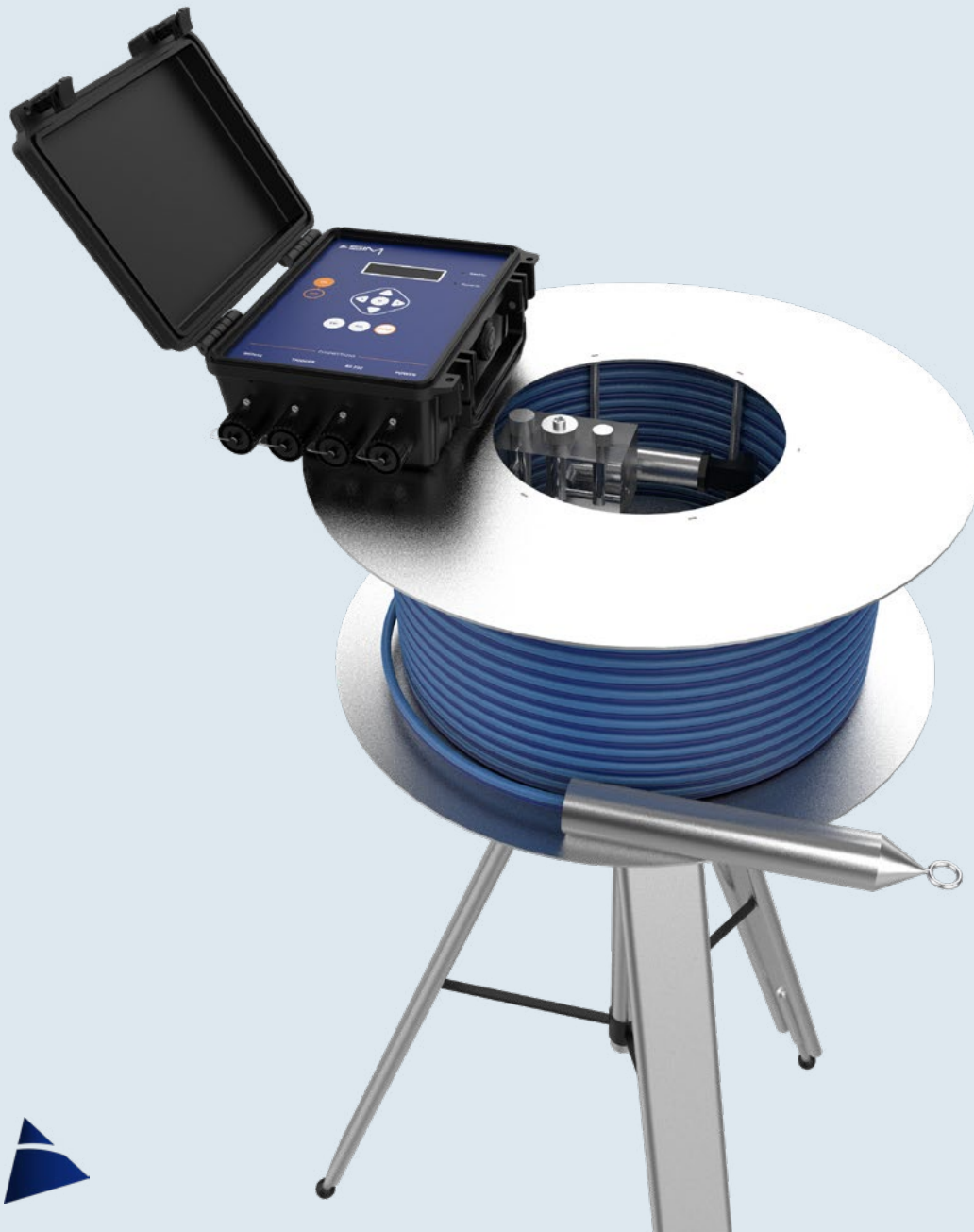
MD	2G/3G/4G GSM/GPRS modem
JB	Junction board
CB	Cables



Complete Systems



ST150 PROFILAB System



Description

The ST150 profilometer was designed by SIM STRUMENTI to measure vertical settlements in embankments or in foundations. The particular care with which the instrument was made guarantees high precision and reliability of the measurements. The system consists of a sensor (pressure sensor), a reference cup, an electric cable, an hydraulic cable and the PROFILAB data acquisition unit.

The sensor is inserted from one side of the polyethylene pipe (previously laid horizontally), it is pulled from the opposite side by a pull cord or pushed with a fiberglass rod. In the case of blind pipes, it is possible to use a dead end pulley to be able to insert and slide the sensor on the same side of the pipe.

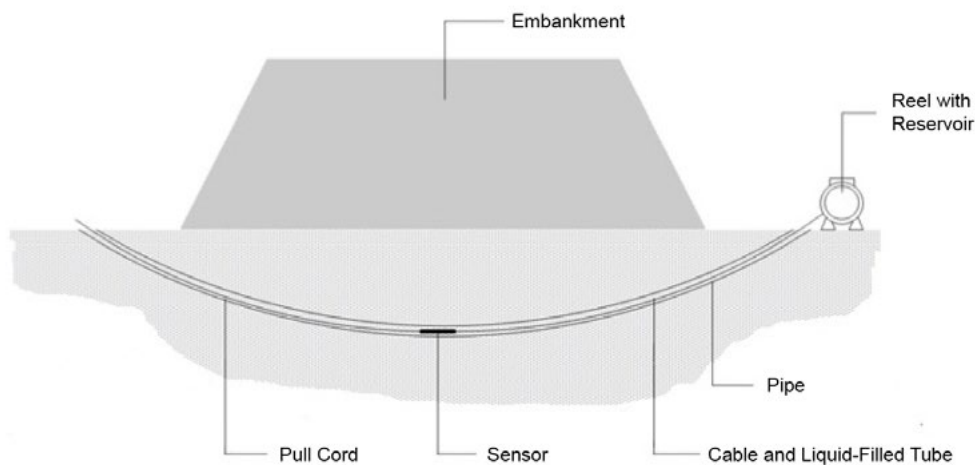
The sensor is made to slide inside the tube and stop every meter. The pressure sensor located inside it detects the level of the liquid acting on the sensitive membrane and consequently the difference in height between the reference cup and the sensor. The PROFILAB control unit will acquire the data and store it.

Applications

Settlement measurements in earthworks, embankments, foundations etc.



ST150 PROFILAB System



Technical features

Sensor

Range	3, 5, 7, 8, 10, 20 mt
Supply	8-24Vcc
Output	4-20mA
Overpressure	150% FS
Linearity	0.1% FS
Operating temperature	-20 ÷ +70 °C
Protection	IP68
Material	Stainless Steel
Dimensions	Ø40 x 200 mm

Data acquisition unit - PROFILAB

Supply	12Vcc
Resolution	±20000 points
Acquisitions interval	1 mt
Max. length	150 mt
Memory	30 pipes of 100 mt
Communication	RS232
Display	LCD 4x20 characters, Backlit
Keyboard	membrane
Operating temperature	-20 ÷ +70 °C
Dimensions	267 x 197 x 115 mm
Weight	1.8 Kg

Accessories

Stainless Steel pull cord	ST150-AX-FNAC-MM*
Reel for Stainless Steel pull cord	ST150-AX-RLFN
Fiberglass rod	ST150-AX-FBRD-MM*
Vertical cage for fiberglass rod	ST150-AX-VCFB
Dead end pulley	ST150-AX-DEPL

*MM Indicate the desired length

DS826

ALF System (Landslide alert)



Description

The ALF system (Landslide Alarm) mod. DS826 is an autonomous system, designed to give a quick response to the monitoring of surface landslides. The system, which is very simple to install and manage, is able to provide an alarm for real time event.

In case of need, the system can be quickly and easily moved from one point to another. The system is battery powered and can be further equipped with a photovoltaic panel, installed at the top of the mounting pole.

The system consists of a multiturn rotary displacement sensor, with a maximum development wheel of 2000mm, a data acquisition unit and a GSM modem. The sensor, the data acquisition unit and the modem are placed in the same container. A Kevlar or invar wire is stretched between two points, where on one side it is fixed to a pole, using a special bracket, while on the other, it is slid around the wheel and held by ballast. In this way the wire can be stretched for distances up to 40 meters. For the assembly it is sufficient to anchor two piles in the ground at the desired distance and successively install it, with the appropriate supplied brackets: the sensor, its corresponding counter and stretch the wire.

The alarm can be triggered:

- by SMS messages
- Locally, by activating a siren, flasher, traffic light, etc.
- by activating remote devices (e.g. traffic light for road block), radio or modem with I / O inputs (MDS-ADV model)

In order to activate a local alarm, it is required a relay board.

Applications

Monitoring of settlements of rock or terrain surfaces, tunnels, dams, etc.



DS826

ALF System (Landslide alert)

Technical features

Sensor	DS826-FS*
Type	Potentiometer
Range	From 100 to 2000 mm in 100 mm steps
Supply / Output	2.5Vcc / 2400mV
Linearity	± 0.1 %FS
Repeatability	<0.01%
Operating temperature	-30 ÷ +80 °C
Protection	IP65

Material	Wheel	Stainless Steel
	Box	Reinforced polyester with fiberglass

Acquisition System Unit	MYLOG***
Alarm level	1
Scan rate	Programmable from 1min to 24hrs
Memory rate	Programmable from 1min to 24hrs
Consumption	20mA for reading 120mA with modem in communication

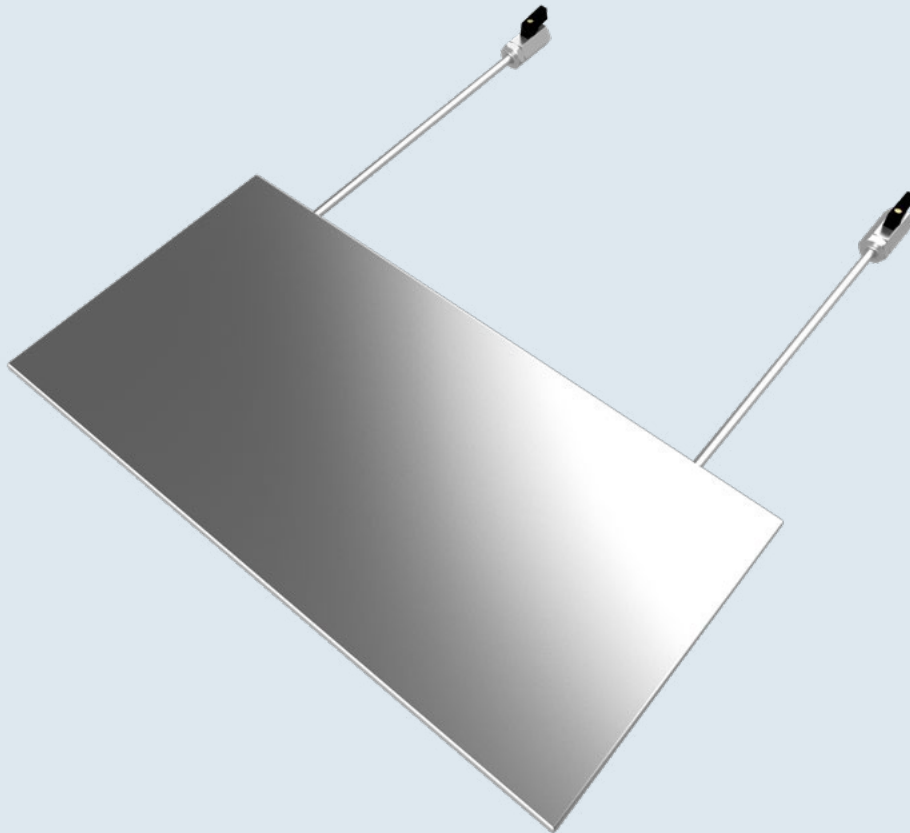
GSM modem	MDS-BSE****
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Accessories

Wall mounting bracket	DS825- MWVL
Pole mounting bracket	DS825 - MWBM
Invar wire	DS825- WRIN-MM**
Kevlar wire	DS825- WRKV-MM**
4-20 mA converter	DS825 -BEMA
Stainless steel mounting pole (1" x 3mt)	DS825 -PLIN
Photovoltaic panel	DS826-PN-FV
Alarm board with Test and Reset buttons	DS826-SC-AL
Radio board	DS826-RD
GSM modem with alarm	MDS-ADV

- *FS Indicate the range
 **MM Indicate the length
 *** For further information about the technical features see the technical sheet of the data acquisition unit MYLOG
 **** For further information about the technical features see the technical sheet of the modem mod. MDS-BSE

PR330 Flat Jack



Description

The PR330 system is able to perform non-destructive mechanical measurements in masonry, allowing to determine the state of stress present in the structures, as well as to determine its deformability characteristics.

The test is based on the measurement of the stress state in a point of the structure due to the effect of a cut made on the analysis part. The release of the tensions causes a closure of the cut. By initially positioning the heaters, in a symmetrical position with respect to the cut, the relative distance is measured before the cut and immediately after using a displacement sensor. A flat jack (made of a thin steel sheet) is inserted inside the cut which, managed by a hydraulic pump, will restore the initial state of the masonry by canceling the failure previously measured by the displacement sensor after the cutting operation .

Under these conditions, the pressure inside the jack, measured by a precision pressure gauge, is equal to the pre-existing stress in the masonry.

SIM STRUMENTI offers as an alternative to the mechanical measuring system (displacement sensor - pressure gauge) an automatic system, composed of displacement meters and a pressure meter, connected to a SIM STRUMENTI data acquisition system.

Finally, the flat jack can be left inside the walls during the restoration of the structures, so as to detect any overloads induced in the structures by means of special pressure gauges.

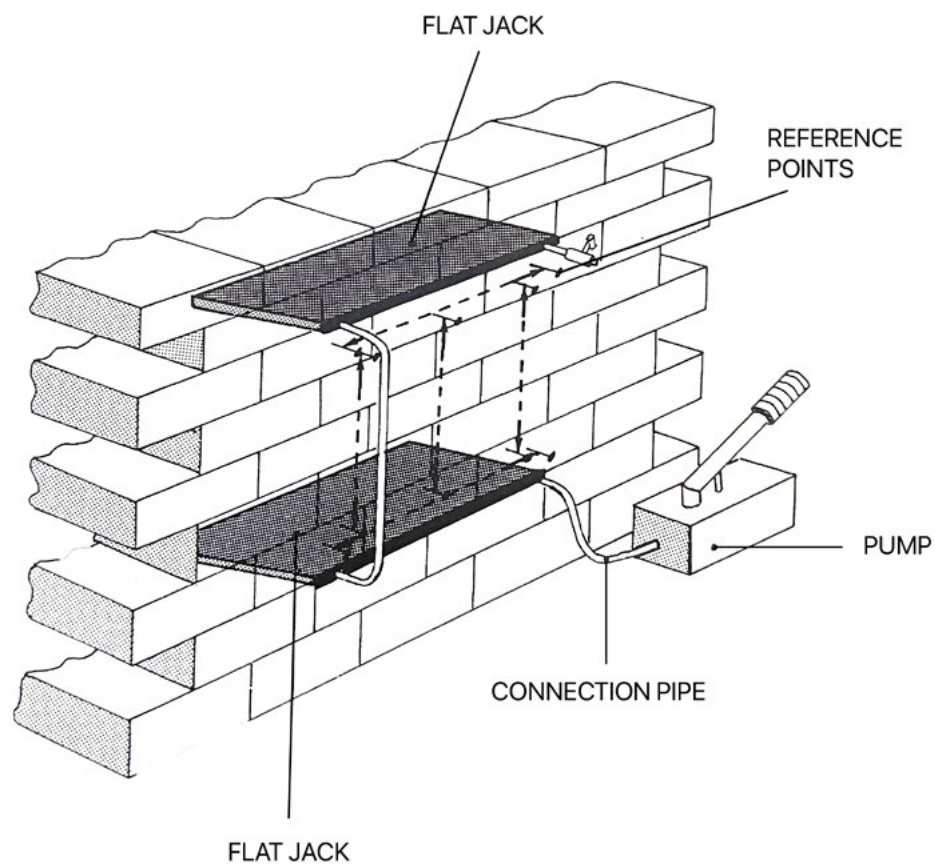
Applications

Pressure measurement in masonry, foundations, structures etc.



PR330

Flat Jack



Technical features

Model	PR330-FS*
Range	0.5-1-2-3-4-6-10-16-25-40-60-100 bar
Supply	8-24 Vcc
Output	4-20 mA
Linearity	0.25% FS
Repeatability	0.01% FS
Operating temperature	-20 ÷ +70 °C
Dimensions	200 x 400 x 6 mm
Weight	0.6 Kg
Material	Stainless Steel
Protection	IP68

Accessories

Hydraulic Pump	PR330-AX-PM
Joint meter	DS810

LV660

ALIN System (Flood alert)



Description

Given the growing demand from municipalities and authorities to monitor the levels of rivers, streams and canals, with the need to alert the local population and prepare for the eventual closure of roads due to a flooding danger, SIM STRUMENTI designed the ALIN system (Flood Alert).

The system consists mainly of an ultrasonic level sensor mod. LV630 connected to a data acquisition system capable of storing data and managing alarm thresholds. Two data acquisition units can be used: MYLOG, if only 1 alarm threshold is required or MINILOG in case more levels of alarm are required.

The alarms can be local (traffic light, siren, closing bar, etc.) and / or sent via GSM modem with SMS messages. Traffic lights or sirens can be activated via cable, GSM modem or radio.

The system is equipped with a battery and can be additionally powered by electric power supply or, upon request, with a photovoltaic panel.

The system is supplied with the VEDO management software that can be used both on site as well as remotely.

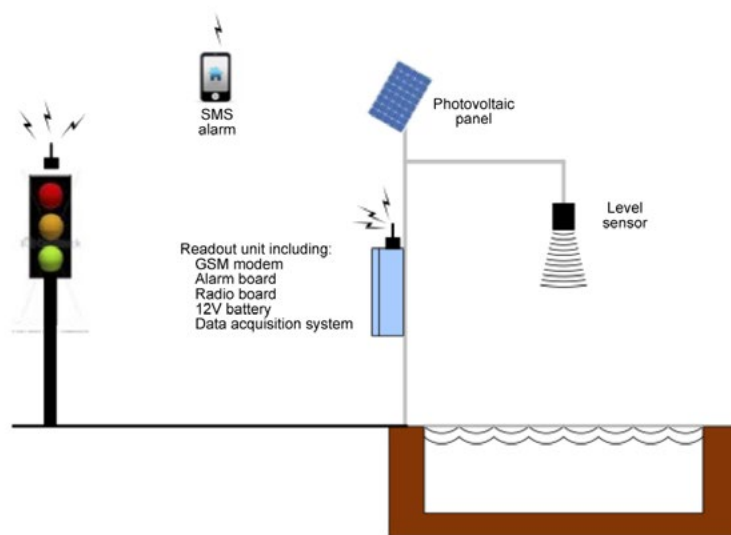
Applications

Measurement of water levels in wells, torrents, basins, rivers, channels etc.



LV660

ALIN System (Flood alert)



Technical features

Model	LV 660-LY-FS*	LV 660-ML
Max range (mt)**		0.1 ÷ 15.2 mt
Supply		10-30 Vcc
Data acquisition system***	MYLOG	MINILOG ML-4CH
Alarm levels	1	Max 4
Scanning rate	Programmable from 1min to 24h	Programmable from 10sec to 24h
Reading rate	Programmable from 1min to 24h	Programmable from 10sec to 24h
Consumption		120 mA max
GSM modem		MDS-BSE

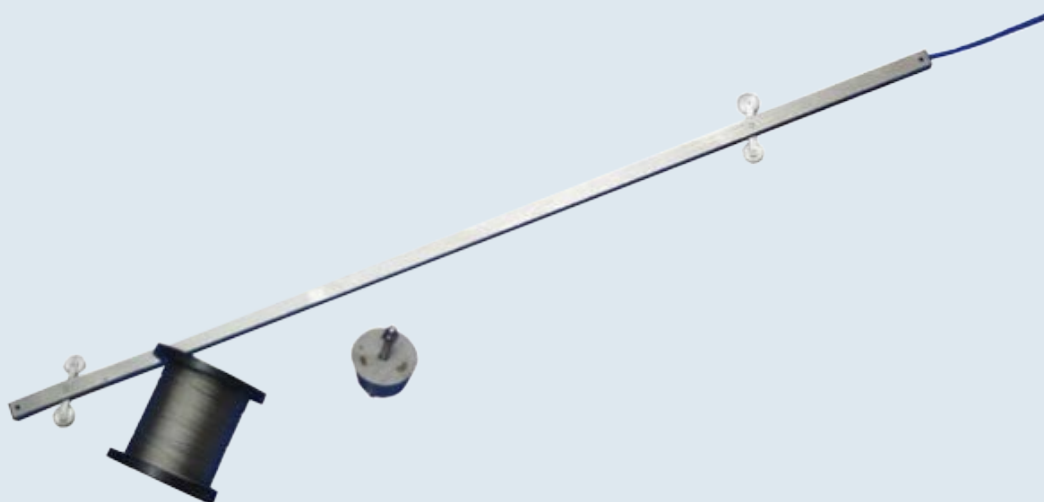
Accessories

Photovoltaic panel	LV660-AX-PF
LV630 bracket	LV660-AX-ST
MINILOG data acquisition system	LV660-AX-ML
MYLOG data acquisition system	LV660-AX-LY
Alarm board (with TEST and RESET buttons)	LV660-AX-AL
GSM modem mod. MDS-MDV	FL555-AL
Radio board	LV660-AX-RD
Traffic light	LV660-AX-SF
Siren	LV660-AX-SR

- *FS Indicate the range:
01 for max 4.3 mt / **02** for max 9.1 mt / **03** for max 15.2 mt
- ** For additional information on the technical features, refer to the ultrasound level meter LV630 technical data sheet.
- *** For additional information on the technical features, refer to the data acquisition systems technical data sheets.

IN935

Depth fixed inclinometer



Description

The necessity for a continuous monitoring of the landslide areas with effective alarm systems, has led SIM to develop the depth fixed inclinometers model IN935.

Keeping the same high quality features of the inclinometric system IN910, this model has the advantage of resetting the all the occasional errors existing in the mobile inclinometric measurements, as well as having real time landslide monitoring. Inserted in inclinometric casing, the IN935 series electrolytic or Hall effect probes can measure position shifts of sliding planes.

The probe consists of a cart having inside the sensor. A desired number of probes are inserted in the inclinometric casing, installed at a specific depth.

The connection between the elements of the inclinometric column is fastened by a stainless steel cable and the distance between the probes can be decided or in the project phase as well as during installation.

The entire inclinometric column is hanged at the top the casing by a element called "Support head".

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

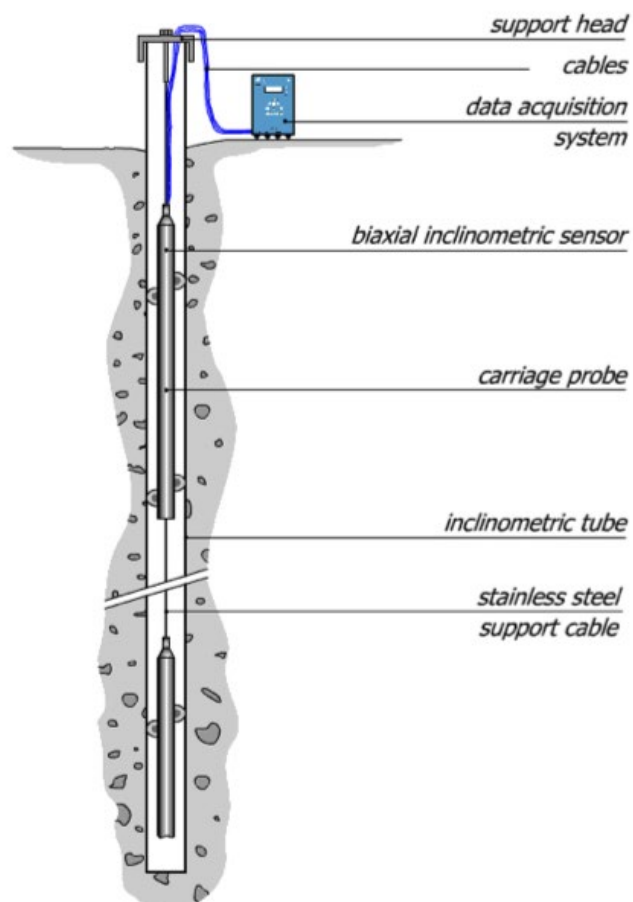
Applications

Measurement of horizontal displacement in landslides, dams, embankments, bridges, viaducts, tunnels etc.



IN935

Depth fixed inclinometer



Technical features

Model	IN935-HL-FS*	IN935-EL-FS*
Sensor	Hall effect	Electrolytic
Range	$\pm 5, \pm 10, \pm 20, \pm 30$	$\pm 5, \pm 10$
Supply	12-24Vcc	
Output	$\pm 2V$	4-20mA
Linearity	0.5%	0.25%
Repeatability	0.03%	0.01%
Alignment	0.2°	0.1°
Zero shift in temperature	0.03%FS/°C	0.001%FS/°C
Temperature sensibility	0.02 %FS/°C	0.001%/°C
Operating temperature	-20 ÷ 80°C	-54 ÷ 125°C
Diameter	25x25 mm	
Length	1150 mm	
Probe step	1000 mm	
Weight	1.8 Kg	
Material	Stainless steel	

Accessories

Stainless steel cable	IN930-MWDM-MM**
Clamps	IN930-MR01
Stainless steel connecting rod (2mt)	IN930-AS02
Stainless steel connecting rod (1mt)	IN930-AS01
Support head	IN930-TS01
Bag	IN910-BRIN

*FS Indicate the range
 **MM Indicate the meters



Settlements and Displacement



ST110

Magnetic settlement meter



Description

The magnetic settlement meter ST110, suited to be installed in drilling holes, provides an indication of vertical displacements between different ground measuring points.

It consists in a double guided tube (externally wrinkled and internally a PVC tube), around which are placed, at prefixed depth, plastic covered magnetic rings.

The column is built during the insertion in the drilled hole, or step by step during the embankment construction.

At the bottom of the magnetic settlement column is installed a telescopic anchor. At the head is installed a suspension head.

The measurement is obtained by lowering the settlement magnetic meter probe into the tube. Every time the probe enters the magnetic field a reed switch is closed. Measuring the distance between the head of the tube, as reference, and every point in the column, is possible to extract the absolute ground settlement.

The settlement magnetic probe consist of a PVC reel on which is coiled a graduated with cm or mm markings cable of different length. At the end of the cable is placed a reed switch.

In the central reel body are place the acoustic and visual signals supplied by a 9V battery.

on demand you can request for the COMBO probe so you can have 2 instruments in one (the magnetic meter probe and the water level probe).

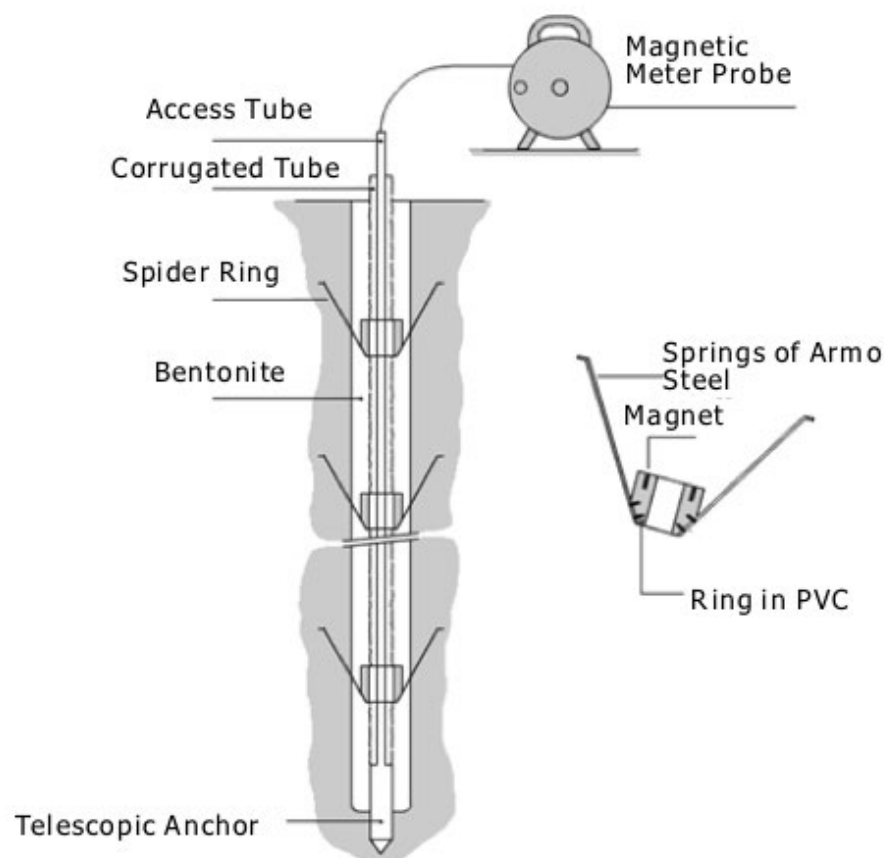
Applications

Monitoring settlement in ground, embankments etc.



ST110

Magnetic settlement meter



Technical features

Magnetic Meter Probe	ST110-SO-CM-XXX* - cm markings cable
Cable	Ext. sheath in transparent polyurethane armoring with Kevlar core, 4 conductors
Cable Diameter	Ø4.7mm
Dimension Probe	Ø12 x 150mm
Length Available	50 - 100 - 150 - 200 - 300 mt
Magnetic Meter Probe	ST110-SO-MM-XXX* - mm markings cable
Cable	polyethylene jacketed measuring tape 2 conductors
Cable Diameter	10 x 1mm
Dimension Probe	Ø12 x 150mm
Length Available	50 - 100 - 150 mt
Spider Ring	ST110-AM-AL
Material	Ring in PVC and 3 Springs of Harmonic Steel
Ring Dimension	Int. Ø60mm Est. Ø90mm x 45mm
Spring Dimension	20 x 400 x 0.7mm
Plate Ring	ST110-AM-PI
Material	Ring and Plate in PVC
Ring Dimension	Int. Ø60mm Est. Ø90mm X 45mm
Spring Dimension	300 x 300 x 2mm
Corrugated Tube	ST110-TU-PR-XXX*
Material	HDPE threading corrugated
Dimension	Int. Ø42mm Est. Ø60mm
Length Available	50 - 100 mt
Access Tube	ST110-TU-IS-XXX*
Material	PVC
Dimension	3/4"
Length Available	1.5 - 2 - 3 mt
Telescopic Anchor	ST110-AN
Dimension	Ø90mm x 1000mm
Material	PVC
Suspension Head	ST110-TS
Dimension	Ø120mm x 120mm
Material	PVC
Combo Probe	Add -CO to the magnetic meter probe

*XXX Indicate the length

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ST120

Settlement plate



Description

The ST120 is used to monitor settlement in embankments using an optical survey. The instrument consists of an anchor (500x500x5mm galvanized or stainless steel plate), a galvanized or stainless steel tube fixed on the anchor plate, a special corrugated tube and a measuring point mounted on the top of the steel tube.

The ground settlement is measured topographically referred to the top of the tube.

The settlement plate is delivered with caps and central cylinders for easy and precision mounting of the corrugated tube.

As the height of the embankment continues to rise, the settlement meter plate column can be extended using further rod. Displacement sensor can be used without the use of optical survey.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

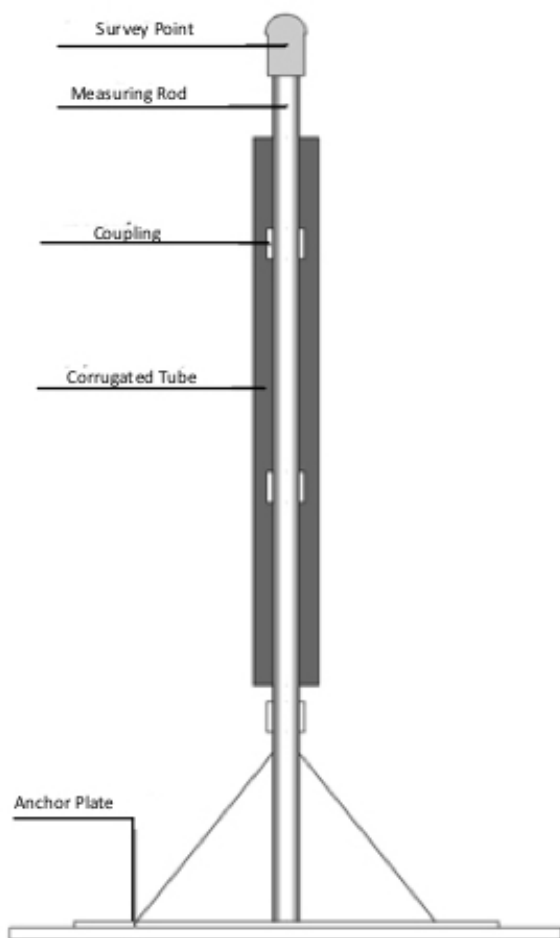
Applications

Monitoring settlement in ground, embankments etc.



ST120

Settlement plate



Technical features

Model	ST120-AC	ST120-IN
Anchor	ST120-AN-AC-XX**	ST120-AN-IN-XX**
Material	Galvanized steel	Stainless steel
Dimension	500 x 500 x 5 mm	
Measuring rod	ST120-AS-AC-XX**	ST120-AS-IN-XX**
Material	Galvanized steel	Stainless steel
Diameter	3/4"	
Length	0.5 - 1 - 2 - 3 mt	
Coupling	Threaded coupling 3/4"	
Threading corrugated tube	ST120-TP5-XX*	
Material	HDPE	
Diameter	Int. Ø42mm Ext. Ø60mm	
Length available	50 - 100 mt	
Head fitting	ST120-RA-SU	
Material	PVC	
Dimension	Ø65 x 50 mm	
Bottom fitting	ST120-RA-IF	
Material	PVC	
Dimension	Ø65 x 50 mm	
Survey point	ST120-RB-ME	
Material	Stainless steel	
Dimension	Ø20 X 50 mm	

Accessories

Coupling 3/4"	ST120-RA-AC	ST120-RA-IN
Top rod	ST120-TP-AC	ST120-TP-IN
Displacement sensor	ST120-DS-MM***	
Range available	200-500-750-1000-1500-2000 mm	
Linearity / repeatability	0.02% FS / 0.01mm	
Supply	18-30Vcc	
Output	4-20mA	
Protection	IP67	
Installation Kit for displacement sensor	ST120-DS-KIT	

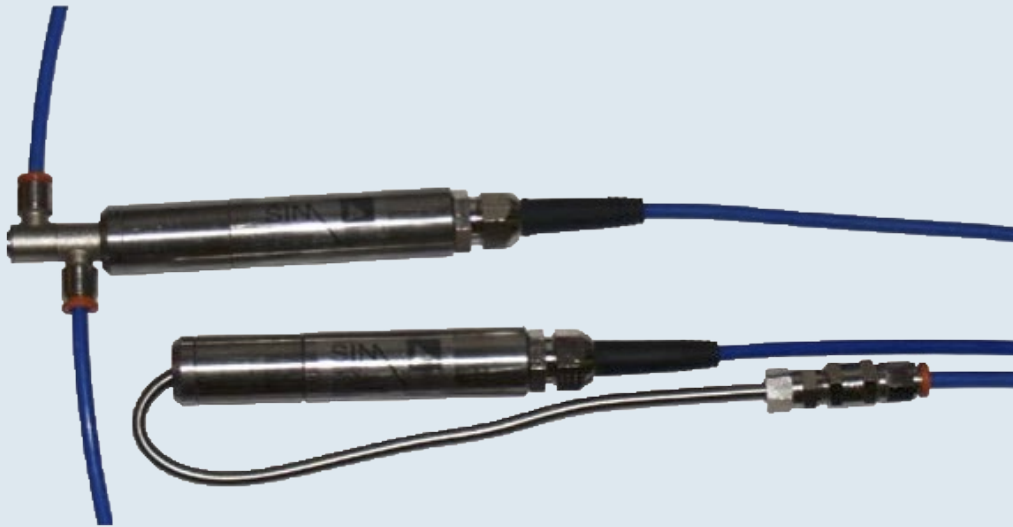
*XX Indicate the tube length (0.5 - 1 - 2 - 3 mt)

**XX Indicate the tube length welded on plate

***MM Indicate the sensor range

ST130

Electric settlement meter



Description

The settlement meter ST130 has been designed by SIM STRUMENTI to measure vertical settlements in embankments and foundations. The instruments are produced with high quality materials in order to assure high precision and measurement reliability for long terms.

The system consists of one or more sensors connected between them by a hydraulic tube to a reference tank.

The sensors are produced in stainless steel allowing, if necessary, to be buried into the ground.

The reference tank, made in PVC material, is provided with a universal mounting bracket allowing to be mounted on any surface. The connection between the reference tank and all elements is done by nylon tubes filled by a special measuring liquid.

The measurement is done by a piezoelectric sensor which measures the pressure of the liquid above him, translating this pressure into vertical settlement. In each particular case, sensors can be used with different ranges.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

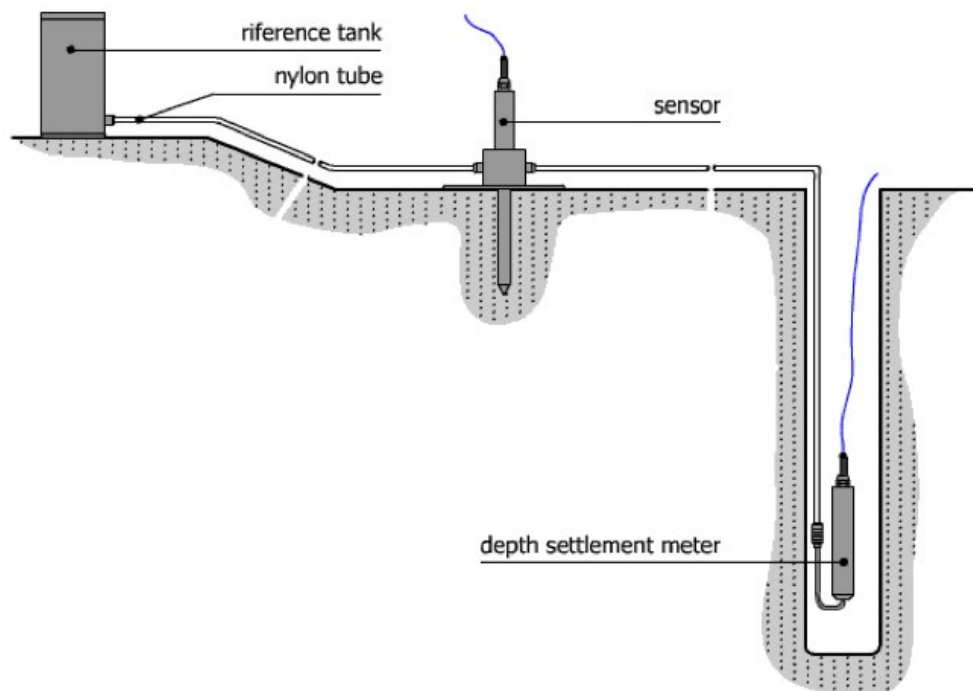
Applications

Settlement measurements of embankments, foundations etc.



ST130

Electric settlement meter



Technical features

Surface settlement meter

ST130-AS-FS*

Range Available	available FS from 0.5 to 5 mt
Supply	8-24Vcc
Output	4-20mA
Linearity	0.25% FS
Repeatability	0.01% FS
Operating temperature	-20 ÷ +70 °C
Protection	IP68

Material	Sensor	Stainless Steel
	Couplings	Stainless Steel
	Plate	Galvanized Steel

Dimensions	250 x 100 x 100 mm
Weight	0.800 Kg

Depth settlement meter

ST130-AP-FS*

Range Available	available FS from 0.5 to 30 mt
Supply	8-24Vcc
Output	4-20mA
Linearity	0.25% FS
Repeatability	0.01% FS
Operating temperature	20 ÷ +70 °C
Protection	IP68

Material	Sensor	Stainless Steel
	Couplings	Stainless Steel

Dimensions	Ø50 x 200 mm
Weight	0.350 Kg

Reference Tank

ST130-TR

Material	PVC / Stainless Steel
Dimensions	Ø150 x 200 mm

Accessories

Hydraulic tube

ST130-TU-ID-XX**

Corrugated tube

ST130-TU-PR-XX**

Liquid

ST130-LI-LL***

Material	50% glycerine 98% and 50% water
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*FS	Indicate the sensor range
**XX	Indicate the length tube
***LL	Indicate liquid quantity in Lt.

ST140

Settlement multipoint system



Description

The level measurement system ST140 has been designed by SIM STRUMENTI to monitor with high precision and continuously the altimetry variations between two or more points placed at great distance one from the other.

The system is used in all applications where high precision settlement monitoring is required and in particular: stages, foundations, bridges, dams, monuments, or structures in general subject to vertical settlement.

One of the greatest advantages of the ST140 settlement system is absence of moving parts, which allow a great reliability of the measurement.

The level system is based on the communicating vessels principle and consist of a PVC tank, completed of stainless steel mounting bracket, connected to one or more instruments of the same family by flexible nylon tubes, one for the hydraulic system and one for the pneumatic circuit.

Every couple of measuring tanks is connected to a high precision differential pressure sensor, which is capable to monitor settlement variations up to 0.01 mm.

An important feature of the system is the possibility to control and set the zero value of the instruments even if already installed and operative.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

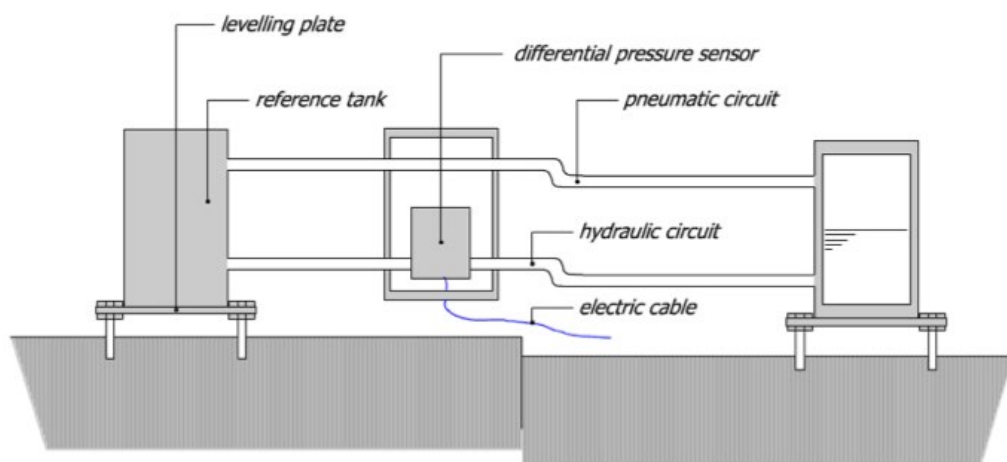
Applications

Measurement of vertical settlements in buildings, bridges, structures etc.



ST140

Settlement multipoint system



Technical features

Differential Pressure Sensor

ST140-SL-FS*

Range Available	±50, ±70, ±100, ±250, ±500, ±1000mm
Supply	15- 45Vcc
Output	4-20mA
Linearity	0.2% FS
Repeatability	0.01% FS
Overpressure	1bar
Protection	IP65
Operating temperature	-40 ÷ +85 °C

Material	Membrane	Stainless Steel
	Sensor case	Stainless Steel / Aluminum
	Coupling	Stainless Steel
	Case	Reinforced Polyester

Dimensions 200 x 300 x 160 mm

Weight 5 Kg

Reference Tank

ST140-TZ

Material	PVC / Stainless Steel
Dimensions	Ø120/150 mm

Adjustable Bracket

ST140-SR

Material	Stainless Steel
Dimensions	Ø20/300 mm
Adjustment	±125mm

Accessories

Hydraulic tube

ST140-LQ-XX**

Material	Rilsan
Dimensions	Ø12/10 transparent

Pneumatic tube

ST140-AR-XX**

Material	Rilsan
Dimensions	Ø12/10 blue

Corrugated tube

ST140-TU-XX**

Liquid

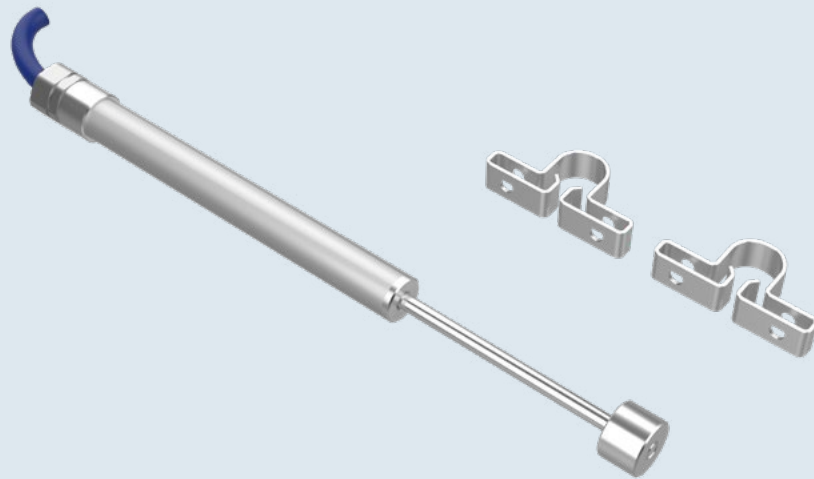
ST140-LI-LL***

Material	50% glycerine 98% and 50% water
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*FS Indicate the sensor range
 **XX Indicate the length tube
 ***LL Indicate liquid quantity in Lt.

DS805

Joint meter



Description

The DS805 joint meters are suitable for measuring displacement between two points, therefore they are used for monitoring cracks or joints in structures or rocks.

Used in any environmental situation, they guarantee high reliability.

The DS805 joint meters are slim and robust. They are constructed with an aluminum body that allows them to also be used outdoors.

They are supplied with copper-braid shielded cable, marine grade jacket.

The DS805 have various technical configurations: several ranges (25...250mm), supplies (1...24Vcc) and outputs (mV, mA).

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Structural cracks, structural joints, pile displacements etc.



DS805

Joint meter

Technical features

Model	DS805-AA-FS-AS*	
Sensor	Potentiometer	
Range	25, 50, 100, 150, 200, 250, 300 mm	
Dimensions	Ø12mm x 180(min)÷232(max) mm	
Possible combinations between Supply / Output	- 01	1-12Vcc / 1000mV/V
	- 02	7-24Vcc / 0-1V
	- 03	7-24Vcc / 0-2V
	- 04	7-24Vcc / 0-5V
	- 05	8-24Vcc / 4-20mA
Linearity	±0.1 %FS	
Resolution	0.001 mm	
Operating temperature	-30 ÷ +100 °C	
Insulation	>100MΩ a 500V	
Protection	IP65	
Material: body transducer, rod, ball joint, screw, gland and threaded rod anchors	Aluminum	

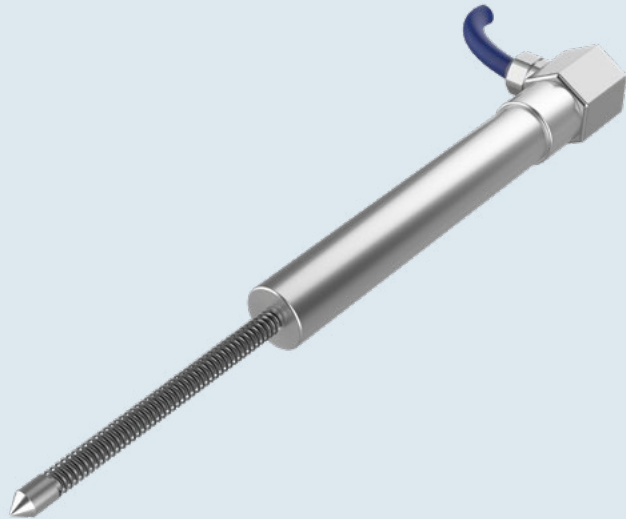
Accessories

Ball joint and mounting bracket	DS805-AX-SGS1
X axis brackets	DS805-AX-MWAX
Y axis brackets	DS805-AX-MWAY
Z axis brackets	DS805-AX-MWAZ

- *FS Indicate the range
 *AA Indicate the combination Supply/Output (-01... -05)
 *AS Indicate measuring axis (-X, -Y, -Z)

DS810

Joint meter



Description

The DS810 joint meters are designed for measuring displacement between two points. Therefore they are used for monitoring cracks or joints in structures or rocks.

They are produced in 3 different versions, using a range of mounting brackets they can be used in orthogonal, vertical or transversal applications. The joint meters are suited for every weather condition maintaining high reliability.

The DS810-01 model is suited to be mounted on the head of the multipoint borehole extensometer.

The DS810 has various technical configurations: several ranges can be chosen (10...100mm), supply (2...12Vcc) and output (mV,mA).

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

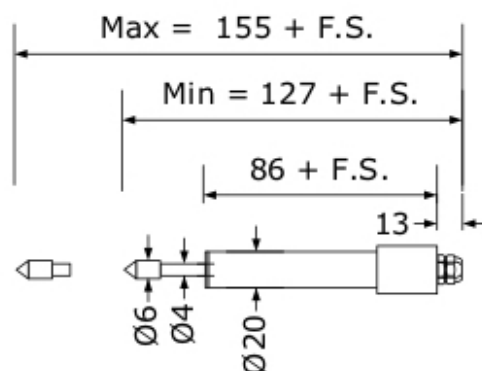
Structural cracks monitoring.



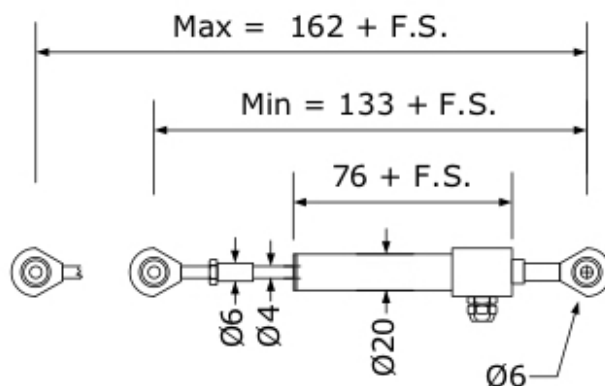
DS810

Joint meter

Mod. DS810-01



Mod. DS810-03



Technical features

Model	DS810-01-AA-FS*	DS810-03-AA-FS*
Sensor	Potentiometer	
Range	25, 50, 100, 150, 200, 250, 300 mm	
Possible combinations between Supply / Output	- 01	1-12Vcc / 1000mV/V
	- 02	7-24Vcc / 0-1V
	- 03	7-24Vcc / 0-2V
	- 04	7-24Vcc / 0-5V
	- 05	8-24Vcc / 4-20mA
Linearity	± 0.1 %FS	
Repeatability	<0.01%	
Resolution	0.01 mm	
Operating temperature	-30 ÷ +100 °C	
Insulation	>100MΩ a 500V	
Protection	IP65	
Material	Stainless Steel	

Accessories

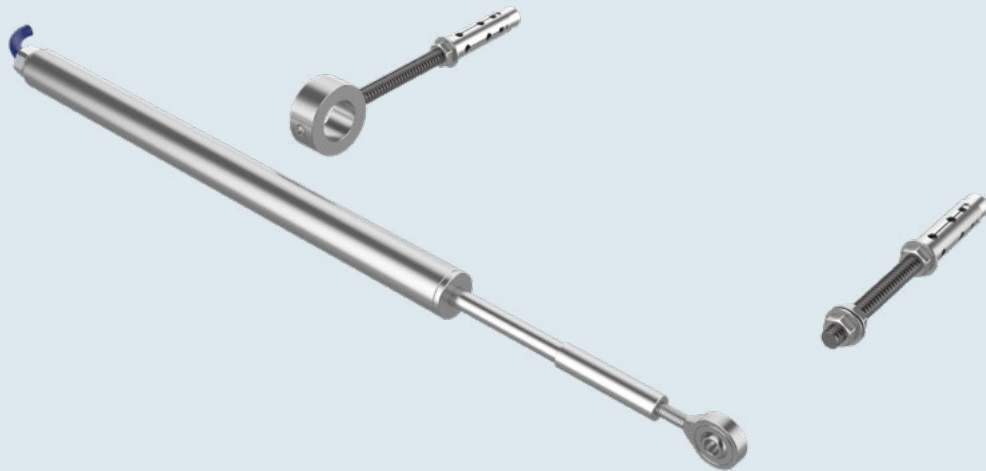
Couple of spherical joints	DS810-AX-SGS1
Mounting bracket with adjustment X axis	DS810-AX-MWAX
Mounting bracket with adjustment Y axis	DS810-AX-MWAY
Mounting bracket with adjustment Z axis	DS810-AX-MWAZ
Triaxial bracket	DS810-AX-MWAT
Demo plate for wall mounting	DS810-AX-MWDP
4-20 mA converter	DS810-AX-BEMA

*FS Indicate the sensor range

*AA Indicate the Supply / Output combination (-01... -05)

DS811

Joint meter



Description

The DS811 joint meters are suitable for measuring displacement between two points, therefore they are used for monitoring cracks or joints in structures or rocks.

Thanks to their sturdiness and protection (IP67) they are particularly suited to an external mounting in harsh environment conditions, ensure high reliability.

They are supplied with standard mounting kit (ball joint, mounting and adjustment bracket), but they can be ordered with more kinds of anchor brackets which allow the use in transverse, orthogonal and vertical position and can be customized on request.

They are supplied with copper-braid shielded cable, marine grade jacket.

The DS811 have various technical configurations: several ranges (25...250mm), supplies (1...24Vcc) and outputs (mV, mA).

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

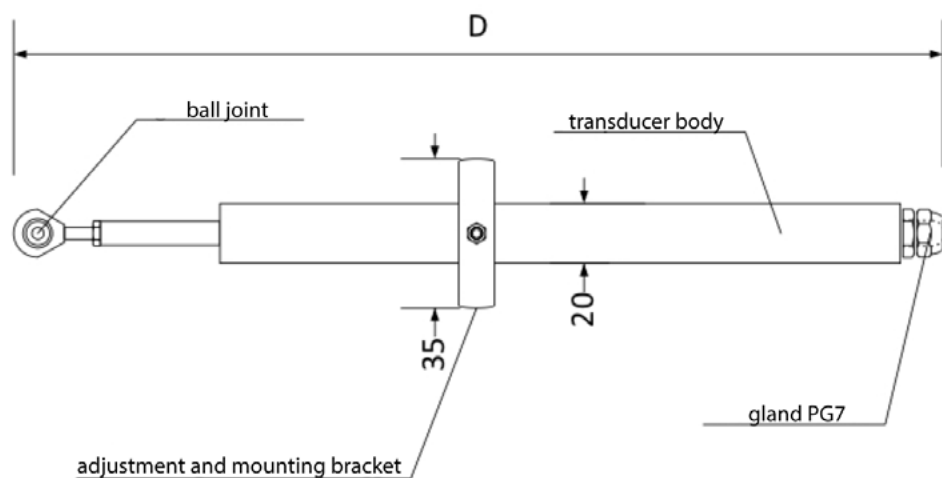
Applications

Structural cracks, structural joints, pile displacements etc.



DS811

Joint meter



Technical features

Model		DS811-AA-FS-AS*					
Sensor		Potentiometer					
Range		25	50	100	150	200	250
Linearity		±0.1 %FS			±0.05 %FS		
Length (D) mm	Min.	285	335	435	585	735	935
	Max.	310	385	535	735	885	1135
Weight (kg)		0.35	0.41	0.58	0.70	0.82	0.94
Possible combinations between Supply / Output		- 01	1-12Vcc / 1000mV/V				
		- 02	7-24Vcc / 0-1V				
		- 03	7-24Vcc / 0-2V				
		- 04	7-24Vcc / 0-5V				
		- 05	8-24Vcc / 4-20mA				
Resolution		0.001 mm					
Operating temperature		-30 ÷ +100 °C					
Insulation		>100MΩ a 500V					
Protection		IP67					
Material: body transducer, rod, ball joint, screw, gland and threaded rod anchors		Stainless Steel					

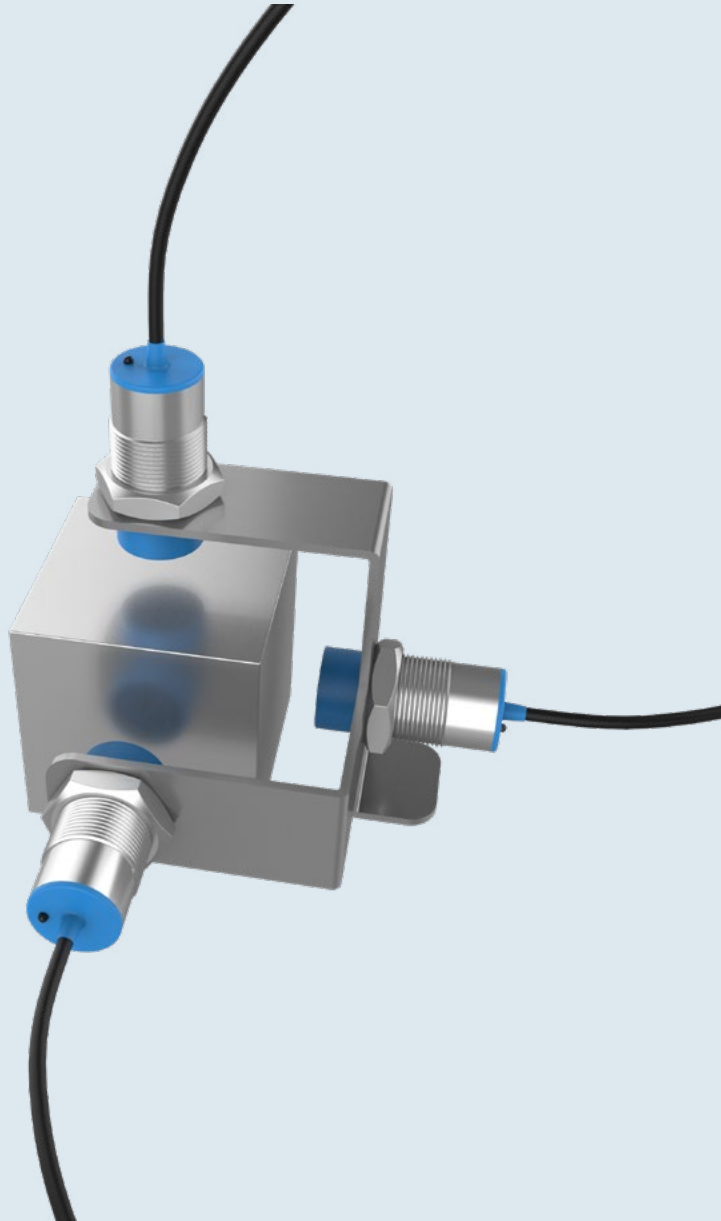
Accessories

Ball joint and mounting bracket	DS811-AX-SGS1
X axis brackets	DS811-AX-MWAX
Y axis brackets	DS811-AX-MWAY
Z axis brackets	DS811-AX-MWAZ

- *FS Indicate the range
 *AA Indicate the combination Supply/Output (-01... -05)
 *AS Indicate measuring axis (-X, -Y, -Z)

DS812

Triaxial joint meter



Description

It is not always possible to detect movements on joints, cracks or fractures using the traditional uniaxial joint meter. In fact, sometimes the result of a displacement is the sum of several components: orthogonal, transversal and vertical.

Then, using the geometrically arranged uniaxial joint meters can become difficult, considering the available space and expensive considering the cost. To this end, SIM INSTRUMENTI has produced the DS812, an instrument capable of simultaneously detecting three axes (X-Y-Z) with electric-type sensors.

In addition to the high reliability inherent in traditional uniaxial joint meters, the triaxial system combines two more advantages:

- mechanical retraction between the sensor and the feedback (this allows not to invalidate in any way the simultaneous readings on three axes, as there are no frictions due to the sensor-feedback contact)
- economic convenience compared to the purchase of three uniaxial joint meters.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Structural cracks, structural joints, pile displacements etc.



DS812

Triaxial joint meter

Technical features		
Model	DS812-01	DS812-02
Sensor	Inductive	
Range	1.5 ÷ 15 mm	0.1 ÷ 20 mm
Linearity	±0.15% FS	
Maximum dimensions	150 x 150 x 150 mm	
Weight	0.5 Kg	0.7 Kg
Supply	10 ÷ 30 Vcc	
Output	4 ÷ 20 mA	
Resolution	0.01 mm	
Operating temperature	-10 ÷ +55 °C	
Protection	IP67	
Material: sensor body / feedback / support bracket	Nickel plated brass / Anticorodal / Stainless Steel	
Accessories		
Protection case	DS812-AX-SCA	
Replacement sensor 15 mm	DS812-AX-01	
Replacement sensor 20 mm	DS812-AX-02	

DS820

Wire joint meter



Description

The wire joint meters DS820 measure relative displacement between two points placed horizontally or vertically at a distance not less than 0.5mt and no more than 25mt. An invar wire (material with low thermal coefficient) is connected by one end to the displacement sensor and on the other end to a special bolt and it is tended by a spring.

The mounting kits are of two types: one for vertical and one for horizontal mounting, and can be customized on request.

Thanks to their sturdiness and protection (IP67) they are particularly suited to an external mounting in harsh environment conditions, ensure high reliability.

The DS820 have various technical configurations: several ranges (25...150mm), supplies (1...24Vcc) and outputs (mV, mA).

The invar wire must be protected in a protective tube to prevent breakage.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

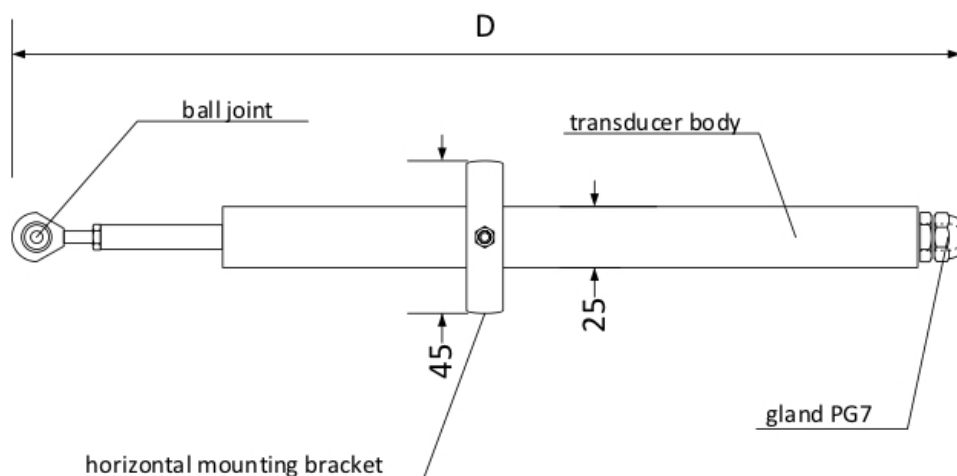
Applications

Structural cracks, structural joints, rock fall etc.



DS820

Wire joint meter



Technical features

Model	DS820-AA-FS-MT*			
Sensor	Potentiometer			
Range	25	50	100	150
Linearity (%FS)	±0.1	±0.1	±0.1	±0.05
Length (D) mm	Min.	380	380	480
	Max.	405	430	580
Weight (kg)	0.45	0.45	0.70	0.90
Possible combinations between Supply / Output	- 01	1-12Vcc / 1000mV/V		
	- 02	7-24Vcc / 0-1V		
	- 03	7-24Vcc / 0-2V		
	- 04	7-24Vcc / 0-5V		
	- 05	8-24Vcc / 4-20mA		
Resolution	0.001 mm			
Operating temperature	-30 ÷ +100 °C			
Insulation	>100MΩ a 500V			
Protection	IP67			
Material: body transducer, rod, ball joint, cardan joint, bracket, bolts and screws, gland and threaded rod anchors	Stainless Steel			

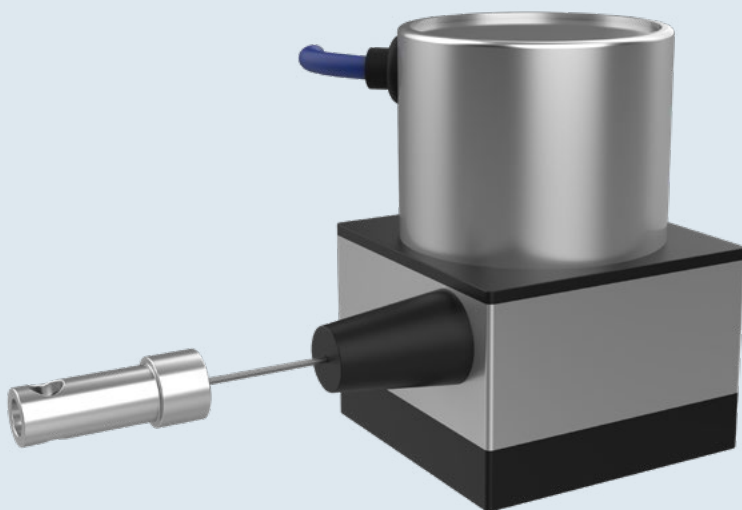
Accessories

Horizontal mounting kit	DS820-OR
Vertical mounting kit	DS820-VE
Invar wire	IN-MT*

- *FS Indicate the sensor range
- *AA Indicate the Supply / Output combination (-01... -05)
- *MT Indicate Invar wire lenght

DS821

Wire extensometer



Description

The wire extensometer DS821 measures the **displacements between two points placed horizontally or vertically**, spaced from each other by a **minimum of 0.5mt** to a **maximum of 10mt**.

The sensor is mounted on one of the points of interest and the end of the wire is fixed to an anchor placed on the other point.

The DS821 model integrates a **spring system** that keeps the wire under tension once it is pulled and fixed. It is advisable to protect the wire with a protective tube to avoid damage.

The standard mounting kits are of two types: one for **vertical mounting** and one for **horizontal mounting**. For specific cases, on request, it is possible to **customize the mounting kit**.

The electrical transducer, available in standard **measuring ranges between 100 and 8000mm**, provides an electrical signal proportional to the displacement.

Thanks to its sturdiness and protection IP65 they are particularly suited to an **external mounting in harsh environment conditions**, ensure high reliability.

Wire extensometer has **various technical configurations**, based on: **range** (100...8000mm), **supply-out** (1...24Vcc) and **output** (mV/mA).

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Structural cracks, structural joints, rock fall etc.



DS821

Wire extensometer

Technical features			
Model	DS821-01-AA*	DS821-02-AA*	DS821-03-AA*
Sensor	Potentiometer		
Range (mm) [Step (mm)]	100-1000 [100]	1100-4000 [500]	4500-8000 [500]
Linearity	±0.1 %FS		
Repeatability	±0.02 %FS		
Possible combinations between Supply / Output	- 01	1-12Vcc / 1000mV/V	
	- 02	7-24Vcc / 0-1V	
	- 03	7-24Vcc / 0-2V	
	- 04	7-24Vcc / 0-5V	
	- 05	8-24Vcc / 4-20mA	
Resolution	0.01 mm		
Operating temperature	-20 ÷ +80 °C		
Traction	Max 700g	Max 700g	Max 1500g
Protection	IP65		
Material	Housing: Aluminum		
	Wire: Stainless steel and Teflon		
Dimensions (mm) without the wire	50x50x70	87x102x120	
Weight (kg)	0.20	0.70	1.20
Accessories			
Horizontal mounting Kit		DS820-OR	
Vertical mounting Kit		DS820-VE	
*AA	Indicate the Supply / Output combination (-01... -05)		

DS825

Rotary extensometer



Description

The rotary extensometer mod. DS825 was designed and developed to control surface landslides. The instrument is equipped with a multiturn rotary displacement sensor, with a maximum development wheel of 2000mm.

An Invar wire is stretched between two points, where on one side it is fixed to a pole, using a special bracket, while on the other, it is slid around the wheel and held by a ballast. In this way the wire can be stretched for distances up to 40 meters.

The system is easy to assemble and maintain. For the assembly it is sufficient to anchor two piles in the ground at the desired distance and successively install it, with the appropriate supplied brackets: the sensor, its corresponding counter and stretch the wire. In case of need, the system can be quickly and easily moved from one point to another.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Monitoring of surface landslide movements.



DS825

Rotary extensometer



Technical features

Model	DS825-AA-FS*	
Sensor	Potentiometer	
Range	From 100 to 2000 mm every 100mm	
Possible power/output combinations	- 01	1-12Vcc / 1000mV/V
	- 02	7-24Vcc / 0-1V
	- 03	7-24Vcc / 0-2V
	- 04	7-24Vcc / 0-5V
	- 05	8-24Vcc / 4-20mA
Linearity	± 0.1 %FS	
Repeatability	<0.01%	
Operating temperature	-30 ÷ +100 °C	
Protection	IP65	
Material	Wheel	Stainless Steel
	Box	Reinforced polyester with fiberglass

Accessories

Wall mounting bracket	DS825- MWWL
Pole mounting bracket	DS825 - MWBM
Invar wire	DS825- WRIN-MM**
4-20 mA converter	DS825 -BEMA
Stainless steel mounting pole (1" x 3mt)	DS825 -PLIN

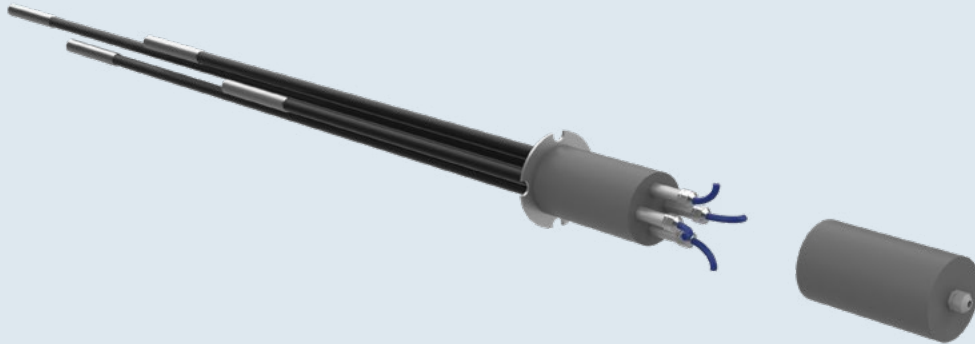
*FS Indicate the range

*AA Indicate the power/output combinations (-01... -05)

**MM Indicate the length

DS830

Multipoint borehole extensometer



Description

The multipoint borehole extensometer is designed to measure soil and rock movements such as subsidence, foundation settlement, convergence measurement etc.

The extensometer measures the variation displacement between two points: the anchor placed at depth and the head placed at surface. The extensometers DS830 are produced in several models, they can have a single or several rods (from 2 to 6 measuring bases). The anchor, produced in a special form, allows a perfect adherence with the concrete ensuring the whole system a great precision. SIM can also provide inflatable anchors that allow a punctual cementation without inserting concrete in the entire hole.

The measuring head is produced entirely in stainless steel in order to ensure longevity to the system.

In case of a multipoint extensometer, the anchors are placed in different depths. The rods (invar, stainless steel, fiberglass), which connect the anchors to the measuring head, are inserted into a sliding protective tube.

The measuring head is prearranged to support a removable mechanical caliper or a displacement sensor (DS810-01).

The multipoint borehole extensometer DS830 can be installed at great depths with great simplicity.

Applications

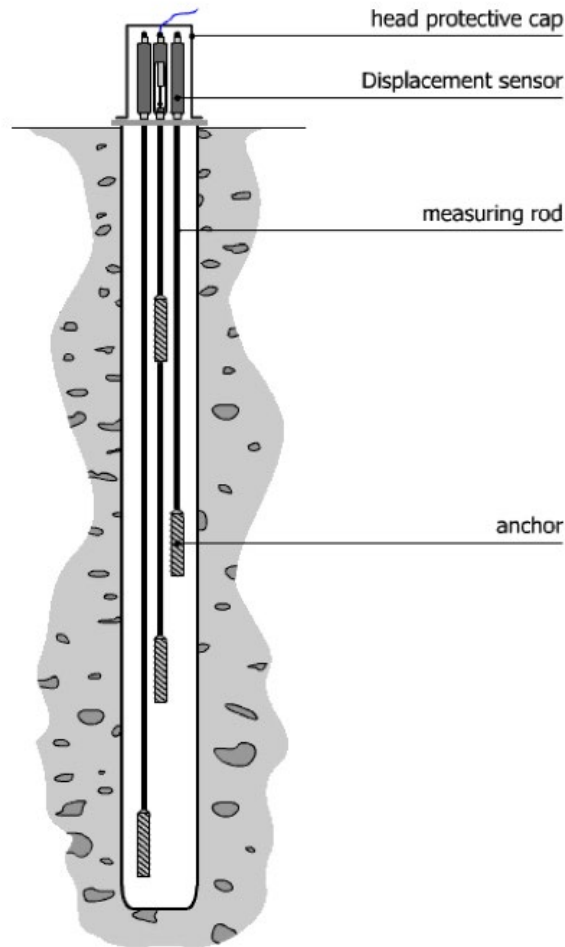
Settlement measurement in rocks and soil.

Used in tunnels, dams, retaining walls etc.



DS830

Multipoint borehole extensometer



Technical features

Head	DS830-NB*		
N. Bases	1 base	2 - 4 bases	5 - 8 bases
Diameter	Ø50 mm	Ø90 mm	Ø115 mm
Diameter of head with rods	Ø50 mm	Ø98 mm	Ø122 mm
Drilling diameter (min-max)	Ø25-40 mm	Ø60-100 mm	Ø80-150 mm
Material	Stainless steel		

Measuring rod	DS830-BS-MA-B1(MM)-B2(MM)....**	
Material	Invar, Stainless Steel, Fiberglass	
Diameter	Invar / Stainless Steel	Ø8 mm
	Fiberglass	Ø9 mm
Diam. sliding tube	Ø 16 mm	
Rod length	Invar / Stainless Steel	1, 2, 3 mt
	Fiberglass	single piece

Anchor		
Material	zinc-plated steel	
Diameter	20 mm	
Length	330 mm	
Dilatation coeff.	Invar	1,5x10E-6/°C
	Stainless Steel	12x10E-6/°C
	Fiberglass	5x10E-6/°C

Accessories

Inflatable anchor	DS830-ANC2
Cover for single-sided head	DS830-TM1
Cover for heads from 2 to 4 bases	DS830-TM2
Cover for heads from 5 to 8 bases	DS830-TM5
Injection tube	DS830-TU-IN-MM***
Digital gauge for manual reading	DS830-CAL
Displacement sensor	DS810-01****

*NB Indicate number of bases

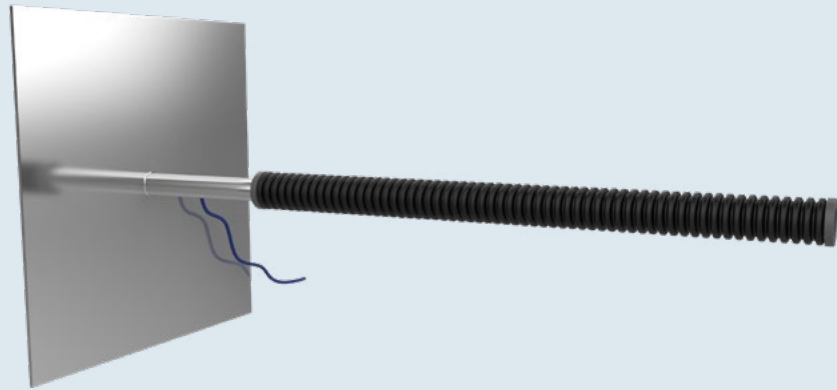
**B1(MM) Indicate each bases lenght ex. B1(20)-B2(40)...
base 1 is 20mt long and base 2 is 40mt long; the injection tube will be of the length corresponding to each base

***MM Indicate the lenght

**** For displacement sensors, see the displacement sensor technical sheet mod. DS810-01

DS835

Extensometer for embankment



Description

The DS835 extensometer for embankments has been designed to measure the lateral deformations caused in the embankment and can be used as a single instrument or as a chain composed of several units.

The strain gauge consists of: two anchor plates, a displacement sensor, a telescopic element, a extension rod (variable in size) and a jointed corrugated pipe in HDPE that acts as both protection which gives anti-friction.

The instrument is installed longitudinally with respect to the embankment for its entire width. For this reason it is advisable to install several units in the same chain, where a displacement sensor is installed between each two anchor plates.

The bottom The scale of the displacement sensor is chosen based on the expected deformation.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Embankments monitoring.



DS835

Extensometer for embankment

Technical features

Anchor

Material	Galvanized Steel
Dimensions	500x500x2 mm

Extension cord

Material	Galvanized Steel
Diameter	$\frac{3}{4}$ "
Available lengths	1, 2, 3 mt

Corrugated jointed tube

Material	HPDE
Dimensions	Int. Ø42mm - Ext. Ø60mm
Available lengths	25, 50, 100 mt

Telescopic element

Material	Stainless Steel
Diameter	40 mm
Length	50 mm

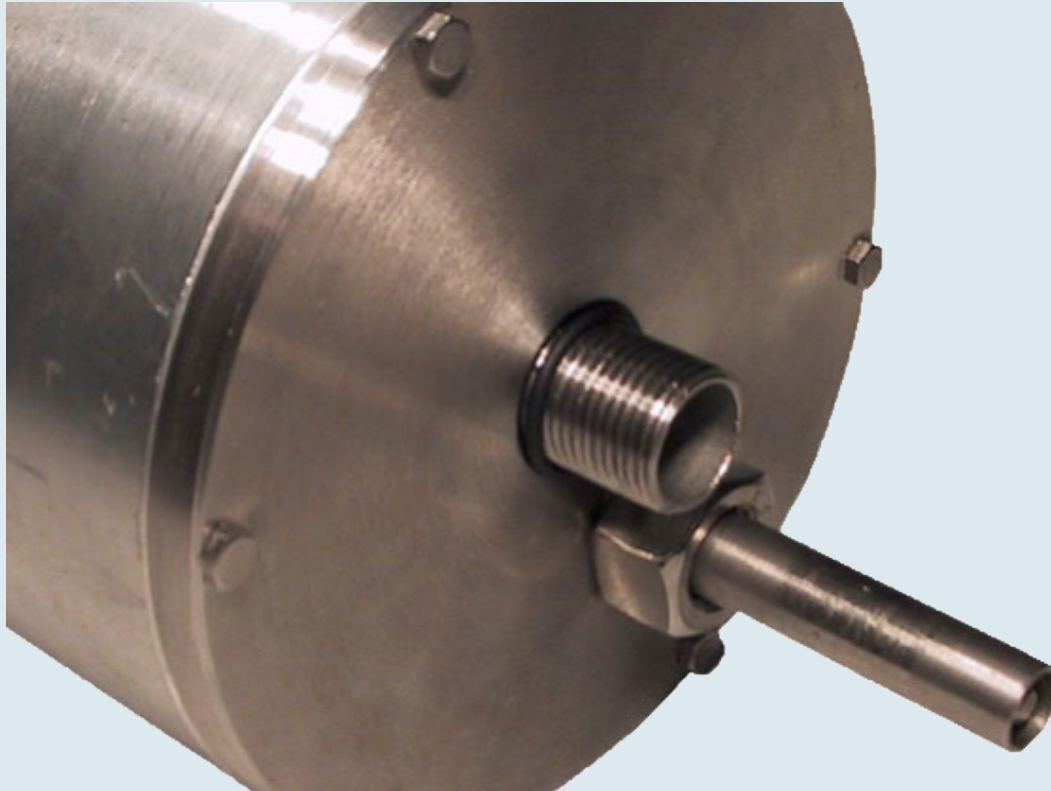
Sensor

DS810-01

Type	Piezometric	Magnetostrictive
Range	50, 100, 150 mm	50, 100, 200 mm
Linearity	0.1%FS	0.02%FS
Supply	DS810 combination	12-24Vcc
Operating temperature	-30 ÷ +75 °C	
Protection	IP68	
Material	Stainless Steel	

DS840

Fixed extrude meter



Description

The fixed extrude meter DS840 was designed to measure the excavation face in tunnels during excavation procedures.

It consists of an anchor and a measuring head placed at a different depth (i.e. anchor at 12 mt. from face and head at 6 mt. from face). In the measuring head are placed a displacement sensor DS810 with a range of 200mm and a radio transmitter allowing to send the data to a data logger and record the movements in real time without needing to stop the excavation works.

SIM provides inflatable anchors that allow a punctual cementation without inserting concrete in the entire hole. As for the measuring head SIM supplies inflatable anchor in order to have a better adherence.

The radio transmitter is equipped with an antenna placed in a metallic tube in order to ensure the data transmission in every situation.

The extrusometer measuring head is produced in anticorrosive and stainless steel material in order to ensure great longevity to the system. The measuring heads are produced with different number of measuring points, from 1 to 4 rods.

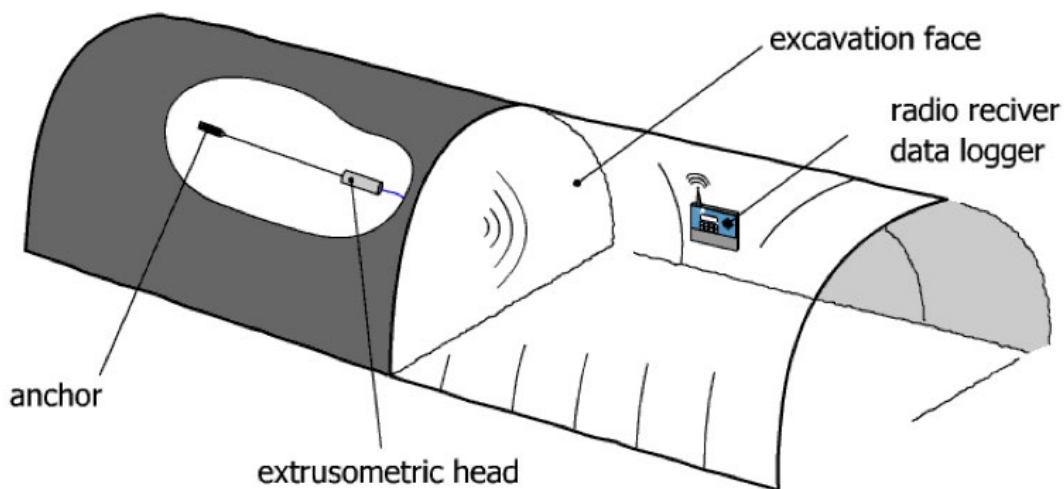
Applications

Tunnel path monitoring during excavation.



DS840

Fixed extrude meter



Technical features

Model	DS840-01 DS840-02 DS840-03 DS840-04			
N.bases	1	2	3	4
Supply	3.6V		12Vcc	
Material	Stainless steel + Alluminium			
Dimensions	Ø120 x 400		Ø150 x 600	
Displacement sensor	DS815-01-02-200			
Range	200 mm			
Output	0-1Vcc (4-20mA via radio)			
Linearity	0.1% FS			
Repeatability	<0.01%			
Operating temperature	55 ÷ +125 °C			
Measuring rod	DS815-BS-B1(MM)-B2(MM)....*			
Material	Fiberglass			
Diameter	Ø120 mm			
Thermal expansion coefficient	5x10E-6/°C			
Protection tube	DS815-TU-PR-MM**			
Material				
Dimensions	Ø12 / 16			
Injection tube	DS815-TU-IN-MM**			
Material				
Dimensions	Ø12 / 16			
Anchor	DS815-AN			
Material	Steel + Inflatable fabric			
Dimensions	Steel: Ø20x330mm Inflatable: Ø150x500mm			
Radio	DS815-RD-EL			
Frequency	868.525MHz			
Transmission	FM			
Power	500mW			
Transmission speed	19.2Kbps			
Antenna	Coaxial cable RG57			
Antenna protection	Steel tube 1" x 2mt			
Accessories				
Antenna cable	DS815-CV-AN-MM**			
Cable gland for antenna	DS815-PC-AN			
Battery 3.6V	DS815-RD-36			
Battery 12V	DS815-RD-12			

*B1(MM) Indicate the lenght for each base ex. B1(20)-B2(40)...
it means that the base 1 is 20mt and the base 2 is 40mt

**MM Indicate the lenght

DS850

Extrude meter



Description

The removable extensometer DS850 was designed to measure the excavation face in tunnels during excavation procedures. It measures the distance between two magnetic rings allocated along the inclinometer casing.

The system is equipped with a probe, cable, a readout unit ESTRUDAT and a software package.

The probe consists of two wheel-carriages and two contactless magnetoresistant linear transducers. The electric cable is equipped with a waterproof connector up to 50 bar and supports the probe during measurement. The cable has a kevlar core to guarantee the cable non-extendibility and positioning precision. The cable is also equipped with reference marks at 50 cm intervals, has a max error margin of $\pm 5\text{cm}/100\text{m}$ and max extensibility of $<0,05\%$ of the nominal cable length with a load of 20 kg.

The readout unit is equipped with trigger cable power supply and serial cable.

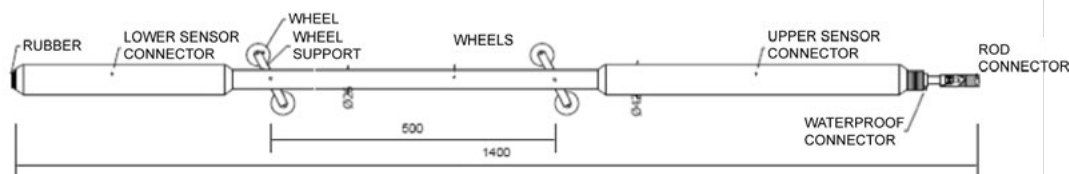
Applications

Tunnel path monitoring during excavation.



DS850

Extrude meter



Technical features

Probe step	1000mm
Range	$\pm 100\text{mm}$
Combined error	$\pm 0.02\text{mm}$
Repeatability	$< 0.01\text{mm}$
Supply	24Vcc
Output	0-5Vcc
Consumption	138mA
Operating temperature	$-30 \div 75^{\circ}\text{C}$
Temperature coeff.	0.005%FS/ $^{\circ}\text{C}$
Protection	IP68
Length	1400
Max. diameter	$\varnothing 42$
Weight	4.3 Kg
Material	Stainless Steel
Readout unit	ESTRUDAT
Software	ESTRUDAT Manager + Processing

Accessories

Magnetic ring	DS850-RNG1
Positioning rod with quick-joint coupling (2m)	DS850-RDAR
Calibrator	DS850-MWDM

ED-06/22

DS855

Depth fixed extrude meter



Description

The DS855 extrusometer has been designed for high precision monitoring of vertical/horizontal movements, through repeated measurements over time. The variations are detected in relative displacement between reference rings. The probe is especially suitable for use in an assestimetric chain. The system consists of one or more probes connected to each other by means of a wire or a rigid rod (both in stainless steel), a reading unit, an inclinometer tube, a suspension head and magnetic rings.

The extrusometer probe is composed of a two wheel carriers and a magnetostrictive sensor; the electric connection cable is equipped with an external marine grade sheath and a Kevlar core that guarantees readings reliability over time.

The inspection tube is equipped with grooves that guarantee the sliding of the probe inside the tube, while outside the magnetic rings are installed, at pre-set distances, in order to guarantee a good adherence to the surrounding soil. The tube is tightened to the surrounding soil by cementation.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

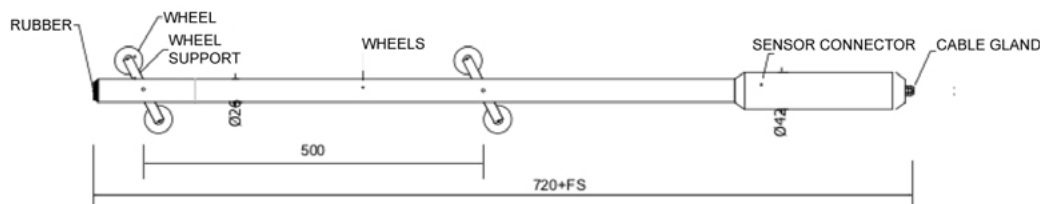
Applications

Settlement monitoring in embankment.



DS855

Depth fixed extrude meter



Technical features

Range	50mm, 100mm, 250mm, 1000mm
Combined error	±0.02mm
Repeatability	< 0.01mm
Supply	24Vcc
Output	4-20mA
Consumption	138mA
Operating temperature	-30 ÷ 75°C
Temperature coeff.	0.005%FS/°C
Protection	IP68
Length	720mm + range
Max. diameter	Ø42
Material	Stainless Steel
Weight	Between 1kg and 2kg, depending on range

Accessories

Magnetic ring	DS850-RNG1
Connecting rod (2mt)	DS855-RD02
Hanging stainless steel wire	DS855-MWDM
Hanging head	DS855-TSSP

*FS Indicate the range

ED-06/22

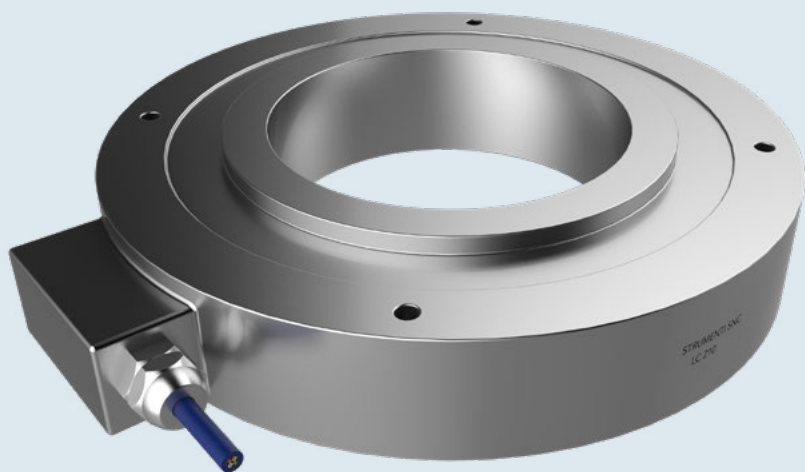


Load and Pressure



LC210

Anchor load cell



Description

The LC210 load cells are designed for measuring loads and changes of loads in tie roads, with high precision and accuracy. Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauges bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate the flexion effect. In addition, the instrument compensates thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any the risk of malfunction or damage. Along with the load cells SIM STRUMENTI can also provide load distribution plates to insert between the instrument and the comparison surface, to further increase the accuracy of the measurement and rule out all errors of alignment with the tie road.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

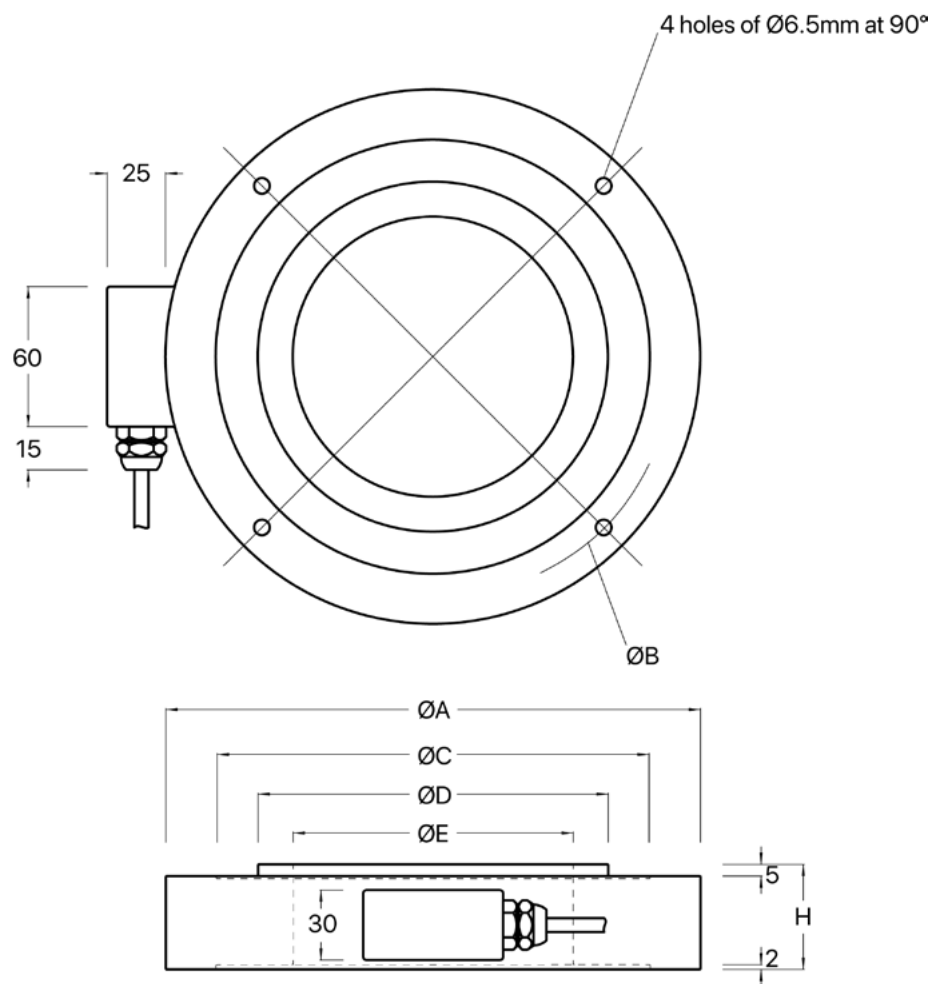
Applications

Measure of loads in tie roads, used in dams, retaining walls, bridges, underground constructions, pile load test, tunnels etc.



LC210

Anchor load cell



Model	Load (KN)			ØA	ØB	ØC	ØD	ØE	H	Kg
LC210-050-KN	300	500	750	163	145	131	95	50	45	5
LC210-075-KN	500	750	1000	163	145	131	95	75	45	5
LC210-120-KN	750	1000	1250	229	207	186	150	120	45	9
LC210-165-KN	1250	1500	1800	275	252	231	195	165	45	14
LC210-225-KN	1800	2500	320	302	285	250	225	55	20	
LC210-300-KN	2500	3000	230	208	186	150	300	55	15	

Technical features

Load	300 - 3000 KN
Supply	1 - 10 Vcc
Output	2 mV/V
Zero temperature coeff.	±0.005% F.S./°C
F.S. temperature coeff.	±0.005% F.S./°C
Linearity	0.1% FS
Repeatability	0.02% FS
Input resistance	700 ± 20 Ohm
Output resistance	700 ± 5 Ohm
Insulation	> 5000 MΩ
Overload	150% FS
Breaking overload	300% FS
Temperature compensation	-10 ÷ +50 °C
Operating temperature	-20 ÷ +70 °C
Deflection at rated capacity	0.4 mm
Material	Stainless Steel 17-4 PH
Protection	IP68

Accessories

Plates

LC210-AX-DS-MOD**

4-20 mA Converter

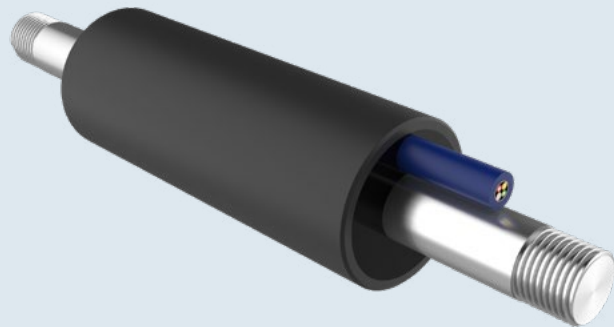
LC210-AX-BEMA

*KN Indicate the Range

*MOD Indicate the model of the load cell (-050 -070 -120 -165 -225 -300)

LC220

Embedment strain gauge



Description

The LC220 embedment strain gauge measures deformations in piles, tunnel linings, diaphragm walls and bridges during the installation phases or during normal working stages. The LC220 consists of a full strain gauge bridge. It has all the features to work properly in every environment, it is waterproof and it can be mounted externally to strain solicited structures or embedded in concrete. Upon request, SIM STRUMENTI can supply embedment strain gauges with better adherence.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

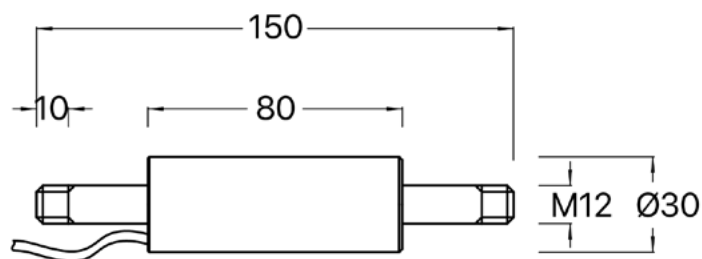
Strain measurement in piles, tunnel linings, diaphragm walls, concrete, used in dams, bridges, piles, caissons, tunnel linings etc.



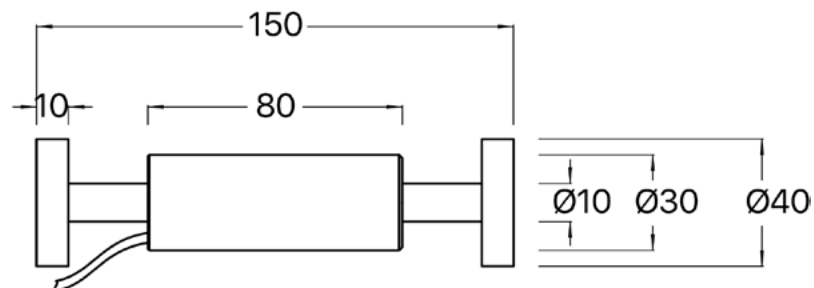
LC220

Embedment strain gauge

MOD. LC220 - 01



MOD. LC220 - 02



Technical features

Model	LC220-01	LC220-02
Range	$\pm 3500 \text{ m}\epsilon$ $\pm 0.375 \text{ mm}$	
Supply	1-10Vcc x 1mV/V ; 8-24Vcc x 4-20mA	
Output	2 mV/V ; 4-20mA	
Linearity	1% FS	
Repeatability	<0.01% FS	
Input resistance	350 Ω	
Output resistance	350 Ω	
Insulation	> 5000 M Ω	
Overload	150% FS	
Diameter Bar	$\varnothing 12 \text{ mm}$	$\varnothing 10 \text{ mm}$
Material	Stainless Steel 17-4 PH	FE o AISI304
Protection	IP68	

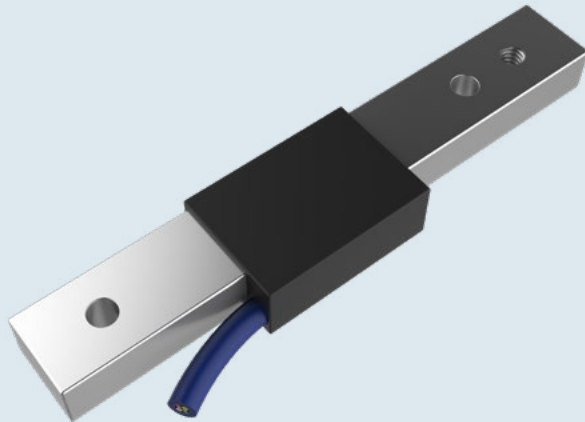
Accessories

4-20 mA Converter

LC220-AX-BEMA

LC225

Embedment strain gauge



Description

The LC225 strain gauge is suitable for measuring microcracks. Geometrical and mechanical characteristics ensure high performance in any environment. The LC225 consists of a full strain gauge bridge, it's waterproof and it can be applied in severe environments conditions.

The models LC225-01 and LC225-02 were designed and manufactured for use in long-term monitoring.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

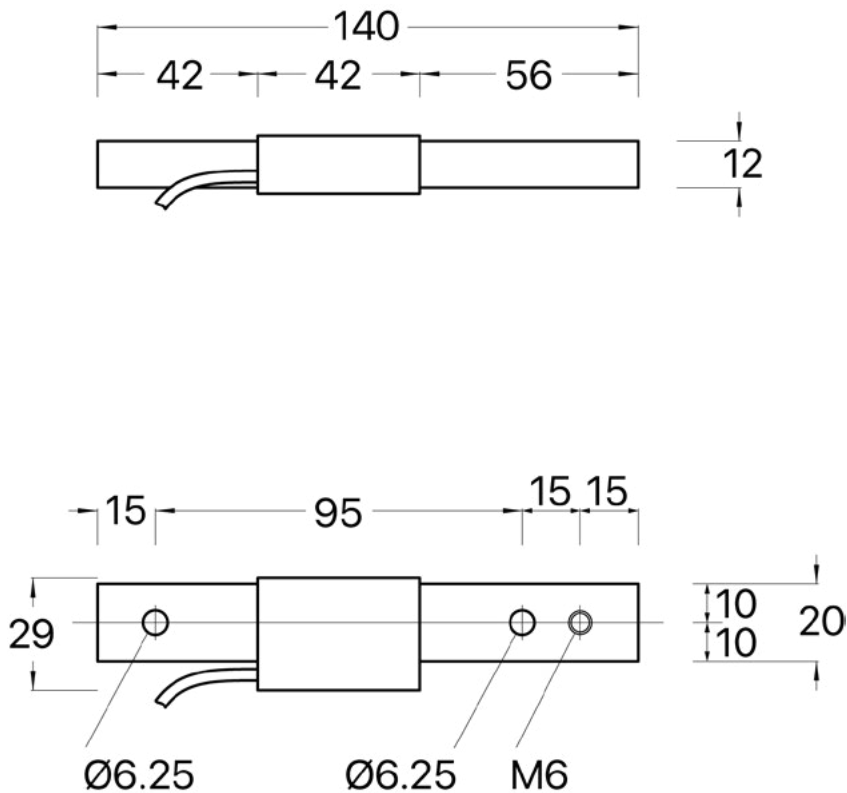
Readout units with NATUN.

Applications

Monitoring of microcracks in concrete etc.



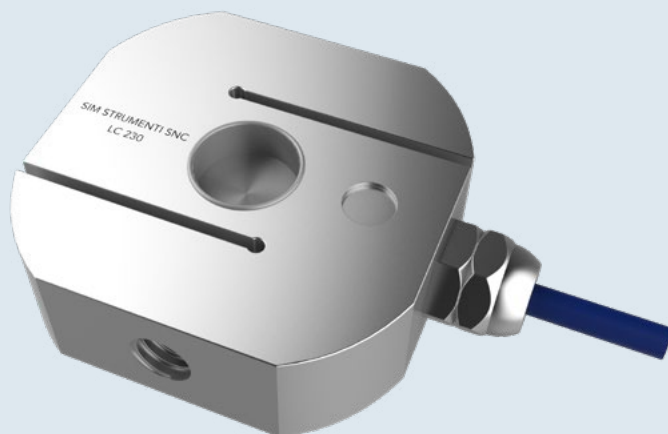
LC225



Technical features			
Model		LC225-01	LC225-02
Range		±0.4 mm	±0.2 mm
Max. load		50 Kg	100 Kg
Supply		1-10 Vcc	
Output		2 mV/V	
Linearity		0.5% FS	
Repeatability		<0.01% FS	
Input resistance		350 Ω	
Output resistance		350 Ω	
Insulation		> 5000 MΩ	
Overload		50% FS	
Dimension	Bar	260 x 20 x 12 mm	140 x 20 x 12 mm
	Central case	42 x 29 x 15 mm	
Operating temperature		-10÷50°C	
Material		Stainless Steel 17-4 PH	
Protection		IP68	
Accessories			
4-20 mA converter		LC225-AX-BEMA	

LC230

"S" load cell



Description

The LC230 load cells are designed for measuring load and changes of load in machines on which are made load test.

Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauges bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate the flexion effect. In addition, the instrument compensates thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any the risk of malfunction or damage. Along with the load cells Sim can also provide, upon request, a couple of spherical joints to allow the connection of the cell. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

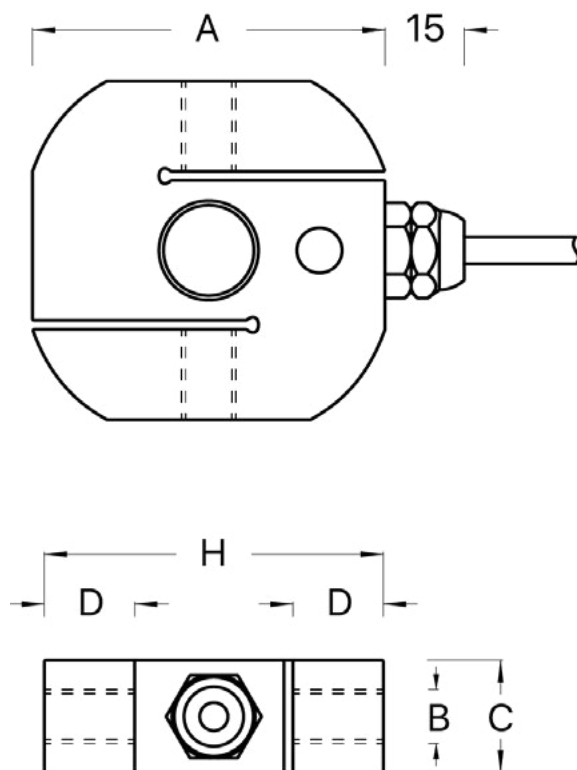
Applications

Testing machines, cranes, ropes etc.



LC230

"S" load cell



Model	Load (KN)	A	B	C	D	H	Kg
LC230-01-KN	1	61	M12 x 1.75	23	14	60	0.5
LC230-02-KN	2	61	M12 x 1.75	23	14	60	0.5
LC230-05-KN	5	78	M12 x 1.75	25	20	75	1.0
LC230-10-KN	10	78	M12 x 1.75	25	20	75	1.0
LC230-25-KN	25	78	M20 x 1.50	30	20	75	1.5
LC230-50-KN	50	95	M24 x 2.00	30	23	90	2.5
LC230-00-KN	100	130	M36 x 3.00	45	38	140	5.0

Technical features

Load	1 ÷ 100 KN
Supply	5 Vcc
Output	2 mV/V
Zero temperature coeff.	±0.005% F.S./°C
F.S. temperature coeff.	±0.005% F.S./°C
Linearity	0.05% FS
Repeatability	0.02% FS
Input resistance	350 ± 20 Ohm
Output resistance	350 ± 5 Ohm
Insulation	> 5000 MΩ
Overload	150% FS
Breaking overload	300% FS
Temperature compensation	-10 ÷ +50 °C
Operating temperature	-20 ÷ +70 °C
Deflection at rated capacity	0.3 mm
Material	Stainless Steel 17-4 PH
Protection	IP67

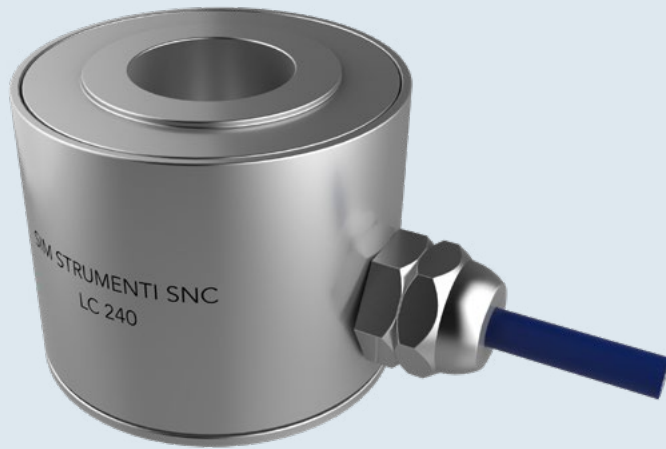
Accessories

Couple of spherical bearings	LC230-SGS1-MOD*
Couple of mounting bearings	LC230-SGS2-MOD*
4-20 mA Converter	LC230-BEMA

*MOD Indicate the model of the load cell

LC240

Rods load cell



Description

The LC240 load cells are designed and built to measure with maximum accuracy and reliability the variations in workload to which the single strand nails are subjected, allowing to carefully evaluate the possible losses for release during the year. Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauge bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any risk of malfunction or damage. Along with the load cells SIM STRUMENTI can also provide load distribution plates to insert between the instrument and the comparison surface, to further increase the accuracy of the measurement and rule out all errors of alignment with the force. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

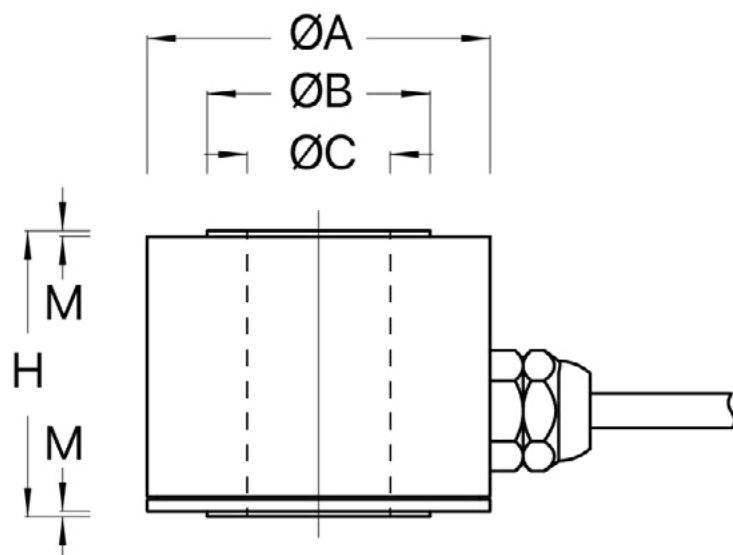
Applications

Measurement of the single tie rods load, used in dams, embankments, bridges, viaducts, rods in tunnels etc.



LC240

Rods load cell



Model	Load (KN)	ØA	ØB	ØC	M	H	Kg
LC240-200	200	50	32	18	1	50	1
LC240-250	250	54	35	20	1	50	1
LC240-260	260	60	39	25	1	50	1
LC240-300	300	63	52	30	2	50	1
LC240-320	320	63	52	32.5	2	50	1

Technical features

Load	200 ÷ 3000 KN
Supply	1-10 Vcc
Output	2 mV/V
Zero temperature coeff.	±0.005% F.S./°C
F.S. temperature coeff.	±0.005% F.S./°C
Linearity	0.1% FS
Repeatability	0.03% FS
Input resistance	350 ± 20 Ohm
Output resistance	350 ± 5 Ohm
Insulation	> 5000 MΩ
Overload	150% FS
Breaking overload	300% FS
Temperature compensation	-10 ÷ +50 °C
Operating temperature	-20 ÷ +70 °C
Deflection at rated capacity	0.3 mm
Material	Stainless Steel 17-4 PH
Protection	IP68

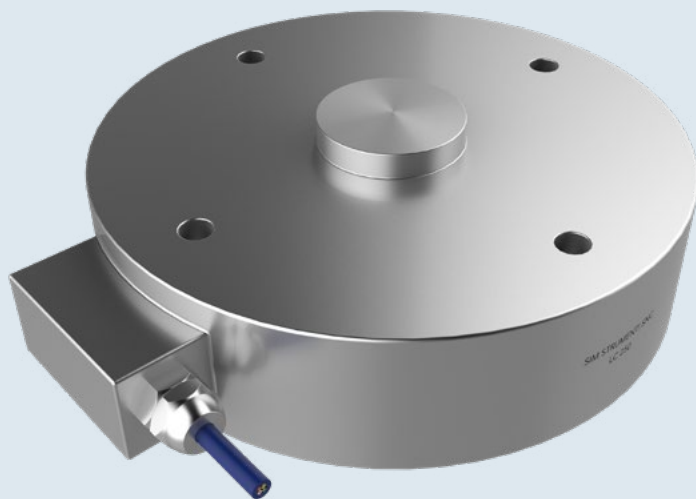
Accessories

Distribution plates	LC240-AX-DS-MOD*
4-20 mA converter	LC210-AX-BEMA

*MOD Indicate the model (-200 -250 -260 -300 -320)

LC250

Low profile load cell



Description

The LC250 load cells are designed for measuring loads and changes of loads, with high precision and accuracy. They are suitable where many cycles of loading-unloading are required.

Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauge bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any risk of malfunction or damage. Along with the load cells SIM STRUMENTI can also provide load distribution plates to insert between the instrument and the comparison surface, to further increase the accuracy of the measurement and rule out all errors of alignment with the force. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

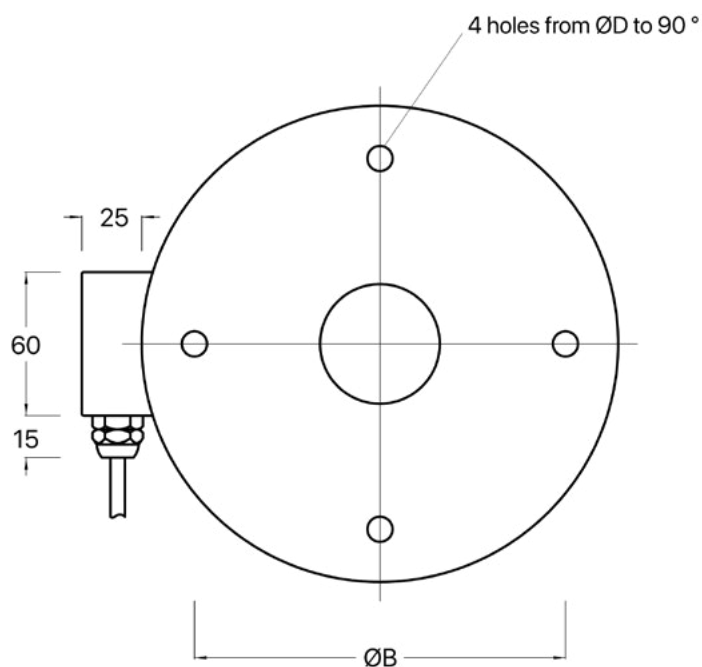
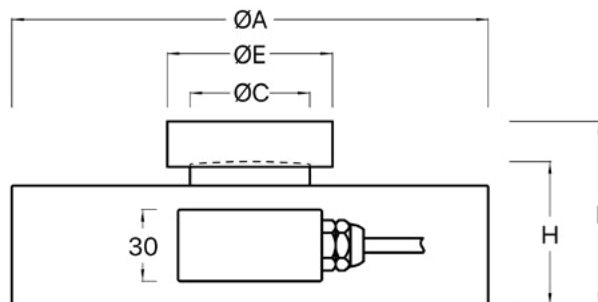
Applications

Used in dams, embankments, bridges, viaducts, piles load tests, ribs in tunnels, etc.



LC250

Low profile load cell



Model	Load (KN)		ØA	ØB	ØC	ØD	ØE	H	I	Kg
LC250-050-KN	500	600	199	155	50	10.5	69	60	77	13
LC250-100-KN	1000	2000	229	200	87	10.5	119	70	125	20
LC250-300-KN	3000	4000	299	260	155	12.5	198	85	140	42
LC250-500-KN	5000	7500	299	260	155	12.5	198	120	200	60
LC250-1000	10.000		323	285	175	12.5	229	140	228	82.5

Technical features

Load	500 - 10.000 KN
Supply	1-10 Vcc
Output	2 mV/V
Zero temperature coeff.	±0.005% F.S./°C
F.S. temperature coeff.	±0.005% F.S./°C
Linearity	0.1% FS
Repeatability	0.02% FS
Input resistance	700 ± 20 Ohm
Output resistance	700 ± 5 Ohm
Insulation	> 5000 MΩ
Overload	150% FS
Breaking overload	300% FS
Temperature compensation	-10 ÷ +50 °C
Operating temperature	-20 ÷ +70 °C
Deflection at rated capacity	0.4 mm
Material	Stainless Steel 17-4 PH
Protection	IP68

Accessories

Distribution plates

LC250-MOD*

4-20 mA converter

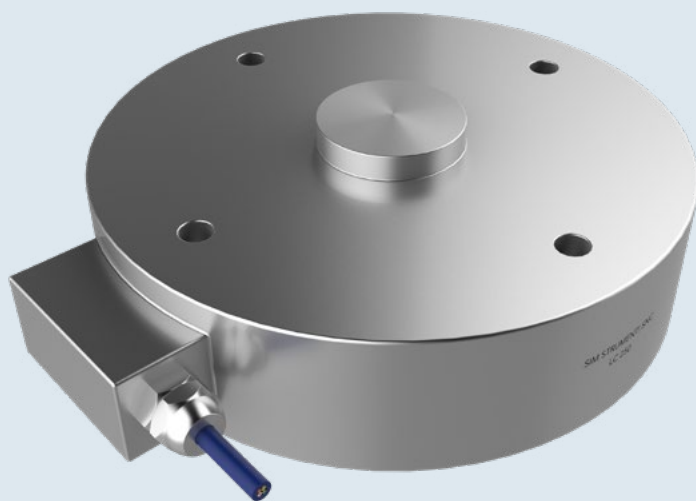
LC250-AX-BEMA

*KN Indicate the range

*MOD Indicate the model (-050 -100 -300 -500 -1000)

LC255

Low profile load cell



Description

The LC255 load cells are designed for measuring loads and changes of loads, with high precision and accuracy. They are suitable where many cycles of loading-unloading are required.

Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauge bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any risk of malfunction or damage. Along with the load cells SIM STRUMENTI can also provide load distribution plates to insert between the instrument and the comparison surface, to further increase the accuracy of the measurement and rule out all errors of alignment with the force. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

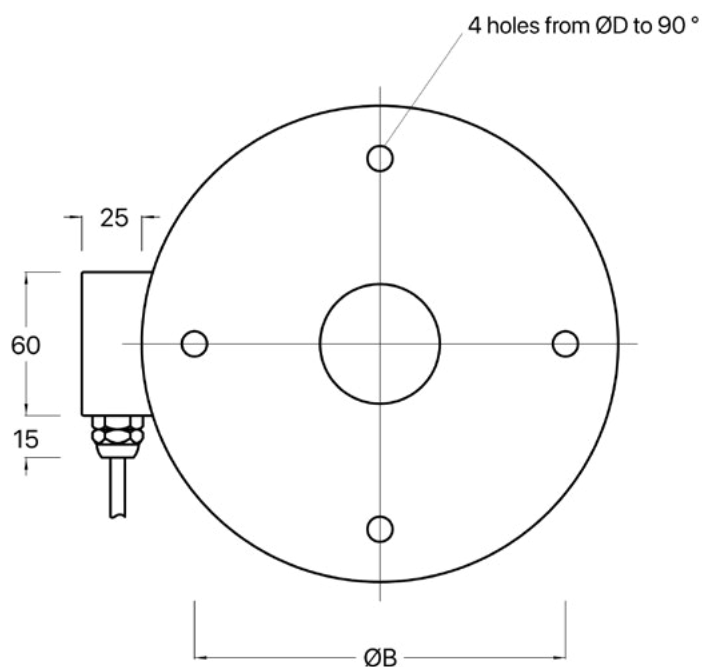
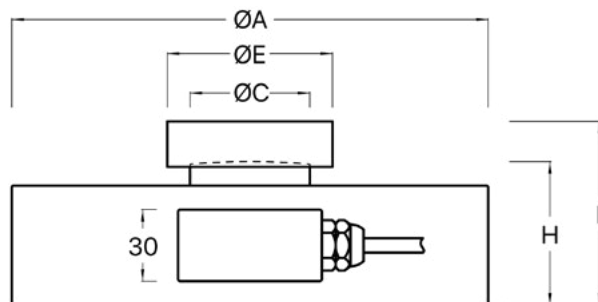
Applications

Pile load tests, weighing of silos, etc.



LC255

Low profile load cell



Model	Load (Kg)	ØA	ØB	ØC	ØD	ØE	H	I	Kg
LC255-01	100	84	70	20	M6x1	84	35	47	2.5
LC255-02	250	84	70	20	M6x1	84	35	47	2.5
LC255-03	500	84	70	20	M6x1	84	35	47	2.5
LC255-04	1000	84	70	20	M6x1	84	35	47	2.5
LC255-05	2500	110	90	25	M8x1.25	89	35	47	4.3
LC255-06	5000	110	90	25	M8x1.25	89	35	47	4.3
LC255-07	10000	110	90	25	M8x1.25	89	35	47	4.3
LC255-08	20000	110	90	25	M8x1.25	89	35	47	4.3

Technical features

Load	100 - 20.0000 Kg
Supply	1-10 Vcc
Output	2 mV/V
Zero temperature coeff.	±0.005% F.S./°C
F.S. temperature coeff.	±0.005% F.S./°C
Linearity	0.1% FS
Repeatability	0.02% FS
Input resistance	700 ± 20 Ohm
Output resistance	700 ± 5 Ohm
Insulation	> 5000 MΩ
Overload	150% FS
Breaking overload	300% FS
Temperature compensation	-10 ÷ +50 °C
Operating temperature	-20 ÷ +70 °C
Deflection at rated capacity	0.2 - 0.3 mm
Material	Stainless Steel 17-4 PH
Protection	IP68

Accessories

Distribution plates

LC255-MOD*

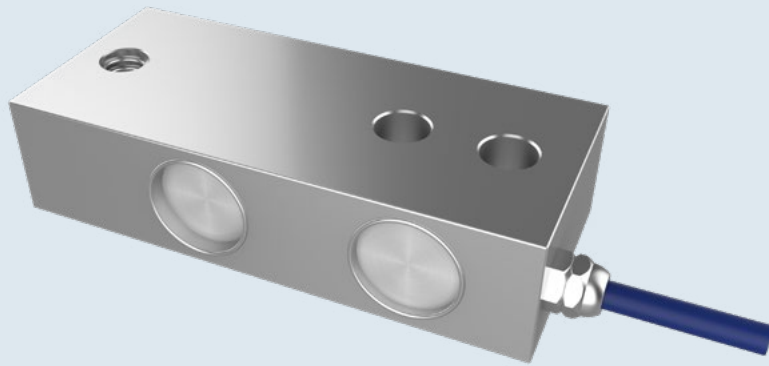
4-20 mA converter

LC255-AX-BEMA

*MOD Indicate the model (-01-08)

LC260

Bracket load cell



Description

The LC260 load cells are designed for measuring loads and changes of loads, with high precision and accuracy. They are suitable where many cycles of loading-unloading are required.

Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauge bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any risk of malfunction or damage. Along with the load cells SIM STRUMENTI can also provide load distribution plates to insert between the instrument and the comparison surface, to further increase the accuracy of the measurement and rule out all errors of alignment with the force. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

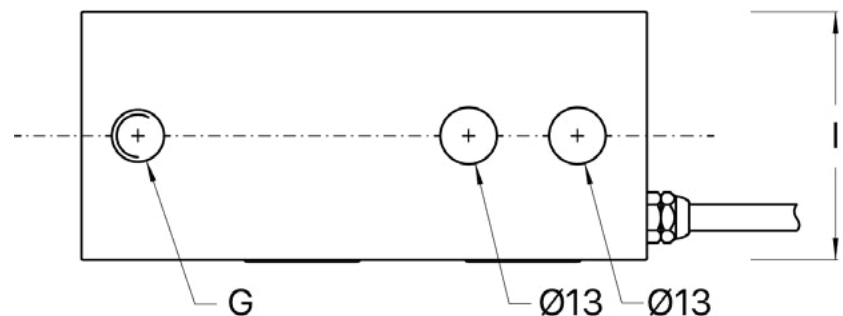
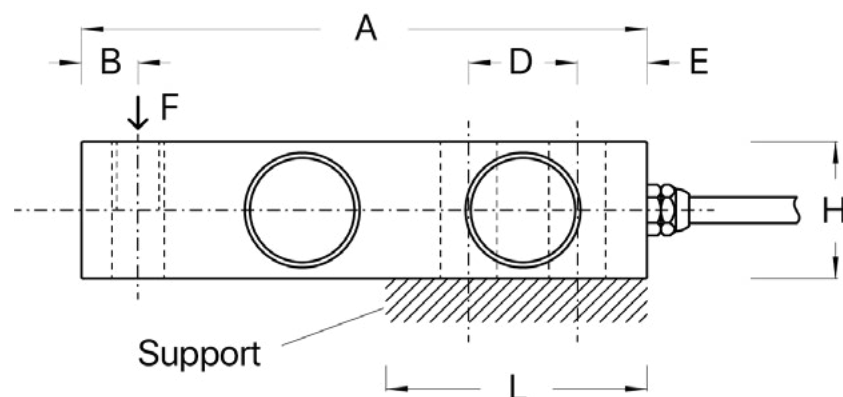
Applications

Pile load tests, weighing of silos, etc.



LC260

Bracket load cell



Model	Load (Kg)	A	B	D	E	ØG	H	I	Kg
LC260-01	500	130	13	25	16	M12x1.75	31.5	57	1.0
LC260-02	750	130	13	25	16	M12x1.75	31.5	57	1.0
LC260-03	1000	130	13	25	16	M12x1.75	31.5	57	1.0
LC260-04	2000	130	13	25	16	M12x1.75	31.5	57	1.0
LC260-05	150	130	12.7	25.4	15.7	Ø13.5	31.5	57	1.0
LC260-06	300	130	12.7	25.4	15.7	Ø13.5	31.5	57	1.0
LC260-07	500	130	12.7	25.4	15.7	Ø13.5	31.5	57	1.0
LC260-08	750	130	12.7	25.4	15.7	Ø13.5	31.5	57	1.0
LC260-09	1000	130	12.7	25.4	15.7	Ø13.5	31.5	57	1.0
LC260-10	2000	130	12.7	25.4	15.7	Ø13.5	31.5	57	1.0

Technical features

Model	Mod. 01-04	Mod. 05-10
Load	150 - 2.000 Kg	
Supply	2 - 15 Vcc	
Output	2mV/V	3mV/V
Zero temperature coeff.	±0.005% F.S./°C	
F.S. temperature coeff.	±0.005% F.S./°C	
Linearity	0.1% FS	
Repeatability	0.02% FS	
Input resistance	350 ± 20 Ohm	
Output resistance	350 ± 5 Ohm	
Insulation	> 5000 MΩ	
Overload	150% FS	
Breaking overload	300% FS	
Temperature compensation	-10 ÷ +50 °C	
Operating temperature	-20 ÷ +70 °C	
Deflection at rated capacity	0.3 mm	0.4mm
Material	Stainless Steel 17-4 PH	
Protection	IP67	IP65

Accessories

Anti-vibration joint

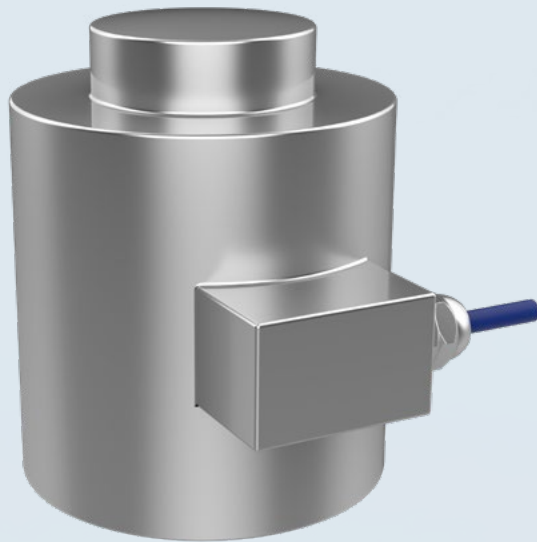
LC260-GV

4-20 mA converter

LC260-AX-BEMA

LC270

Column type load cell



Description

The LC270 load cells are designed for measuring loads and changes of loads, with high precision and accuracy. They are suitable where many cycles of loading-unloading are required.

Submitted to an external load, the cell sustains a deformation that is measured from the internal strain-gauge bridge and converted to an electrical output signal. The strain-gauges, connected with a configuration of a Wheatstone bridge, detect the deformations in compression and automatically compensate thermal changes.

The load cells are well protected to meet all necessary requirements of extreme weather conditions without any risk of malfunction or damage. Along with the load cells SIM STRUMENTI can also provide load distribution plates to insert between the instrument and the comparison surface, to further increase the accuracy of the measurement and rule out all errors of alignment with the force. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

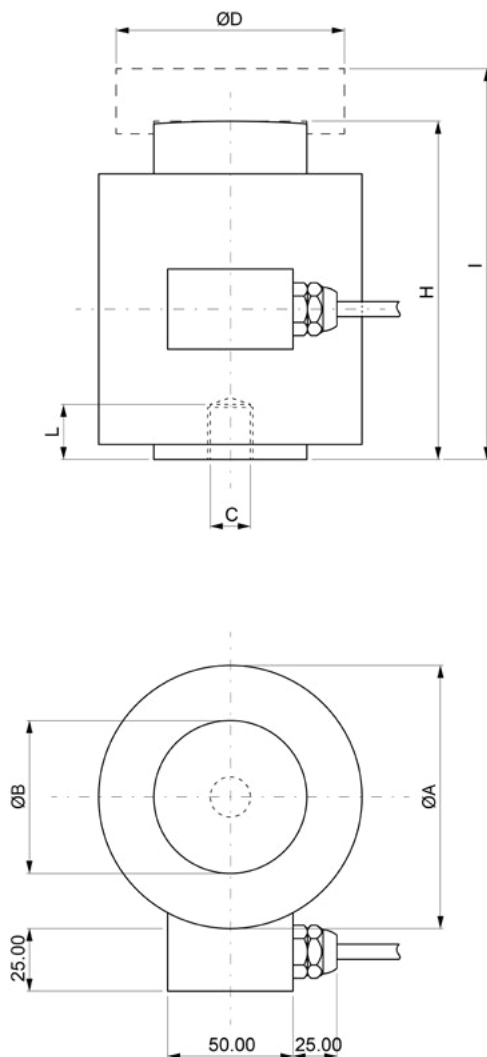
Applications

Pile load test etc.



LC270

Column type load cell



Model	Load	ØA	ØB	C	ØD	H	I	L	R	Ω	Kg
LC270-005	50 KN	59	14	M8 x 1.25	59	72	89	16	77	1.5	
LC270-010	100 KN	59	19.5	M8 x 1.25	59	88	105	16	125	1.8	
LC270-030	300 KN	59	33	M8 x 1.25	59	105	122	16	140	2.1	
LC270-060	600 KN	78	47	M16 x 2	69	120	137	22	200	4.2	
LC270-100	1000 KN	105	61	M16 x 2	89	135	156	22	77	8.3	
LC270-200	2000 KN	129	87	M16 x 2	119	160	215	22	125	16	
LC270-300	3000 KN	129	106.5	M16 x 2	124	175	230	22	140	17.5	
LC270-500	5000 KN	165	133	M16 x 2	159	230	285	22	200	38.3	
LC270-750	7500 KN	199	164	M16 x 2	198	270	350	22	140	66	

Technical features

Load	50 - 7500 KN
Supply	2-15 Vcc/ca
Output	20000 mV/V
Zero temperature coeff.	±0.005% F.S./°C
F.S. temperature coeff.	±0.005% F.S./°C
Linearity	±0.01% FS
Repeatability	±0.02% FS
Input resistance	700 ± 20 Ohm
Output resistance	700 ± 20 Ohm
Insulation	> 5000 MΩ
Overload	>150% FS
Breaking overload	>300% FS
Temperature compensation	-10 ÷ +50 °C
Operating temperature	-20 ÷ +70 °C
Deflection at rated capacity	0.3 mm
Material	Stainless Steel
Protection	IP68

Accessories

Distribution plates

LC270-MOD*

4-20 mA converter

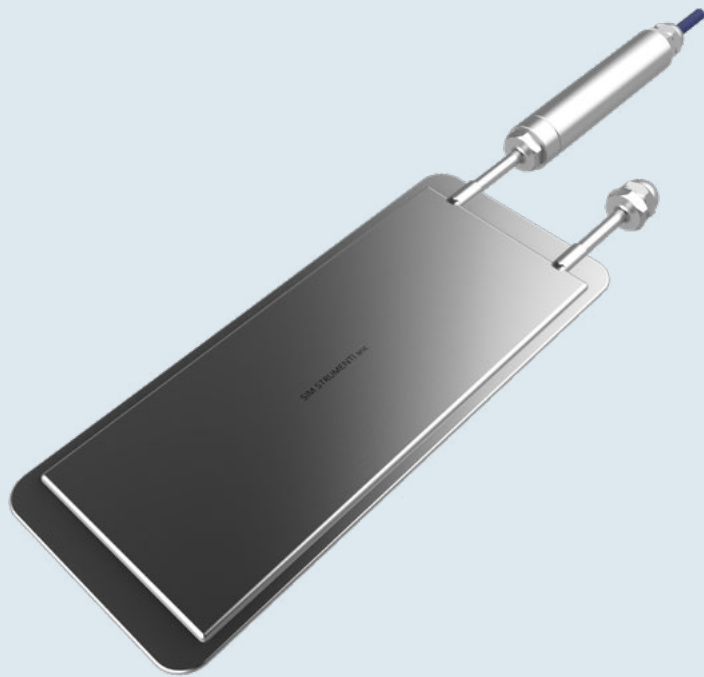
LC270-AX-BEMA

*KN Indicate the range

*MOD Indicate the model (-005 -010 -030 -060 -100 -200 -300 -500 -750)

PR310

Pressure cell



Description

The electric pressure cell PR310 was designed to measure the ground total pressures in order to evaluate the interaction between the ground and the structures above.

The instruments consist of a membrane uniformly loaded, which works on the first part of its elasticity curve.

The pressure cell is produced in several versions in order to allow versatility to every possible application and montage:

- With hydraulic tube allowing loading the cell, with pressure sensor directly mounted either to the cell or to the tube;
- Without hydraulic tube, with pressure sensor directly mounted to the cell either horizontally or vertically.

Upon request, SIM can also supply a piston in order to have a better contact between the cell and the ground.

Great attention was made to the mechanical parts during design and production, allowing the membrane to have high accuracy and the instrument to be robust.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

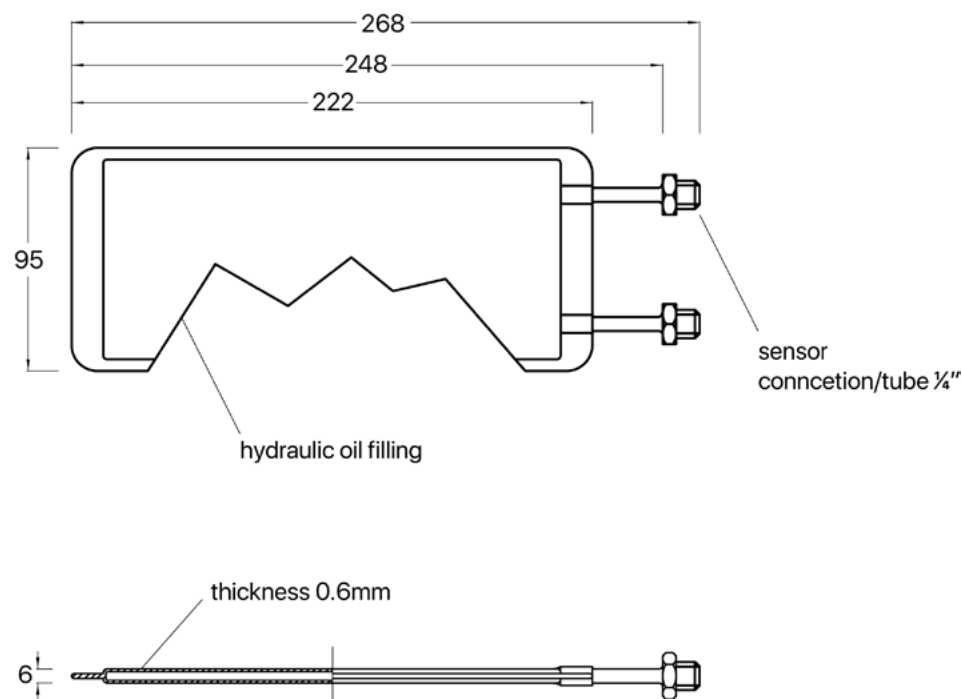
Applications

Pressure measurement in masonry, foundations, rocks, ground, structures in concrete etc.



PR310

Pressure cell



Technical features

Model	PR310-FS*
Range	0.5-1-2-3-4-6-10-16-25-40-60-100 bar
Supply	8-24 Vcc
Output	4-20 mA
Linearity	0.25% FS
Repeatability	0.01% FS
Operating temperature	-20 ÷ +70 °C
Dimensions	95 x 230 x 6 mm
Weight	0.6 Kg
Material	Stainless Steel
Protection	IP68

Accessories

Injection tube	Add -TI-MM** to acronym
Soldering winglets	Add -AS to acronym
"T" adapter ***	Add -RT to acronym
Piston	Add -PI-MM**** to acronym
Male fast connector	PR310-RM

- *FS Indicare the sensor range
 **MM Indicare the tube lenght in mt
 *** The "T" fitting is supplied with a female quick coupling and a protective cap. The sensor will be mounted on the fitting
 **** The piston needs hydraulic tube: indicate the lenght



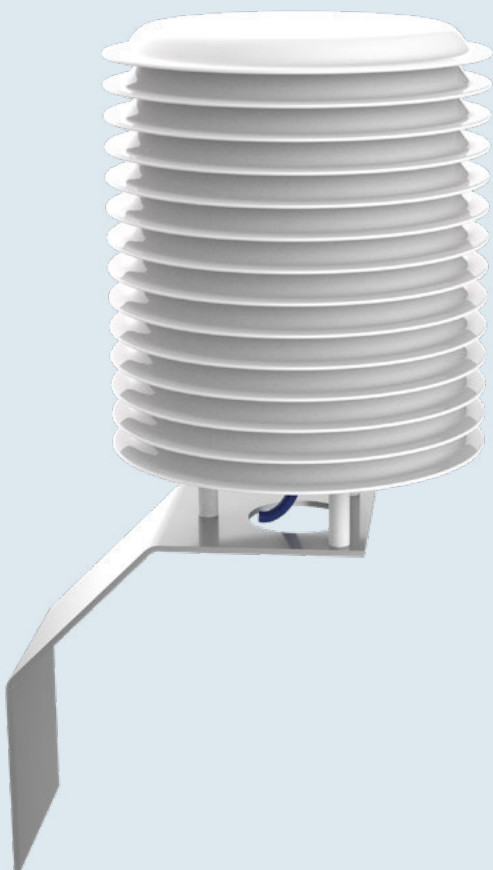
Air Quality



AQ300

Dust Sensor

PM1 + PM2.5 + PM10



Description

AQ300 dust concentration sensor uses laser scattering principle to detect the existence of dust particle concentration in the air.

AQ300 can detect PM1, PM2.5 and PM10 concentration.

The sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

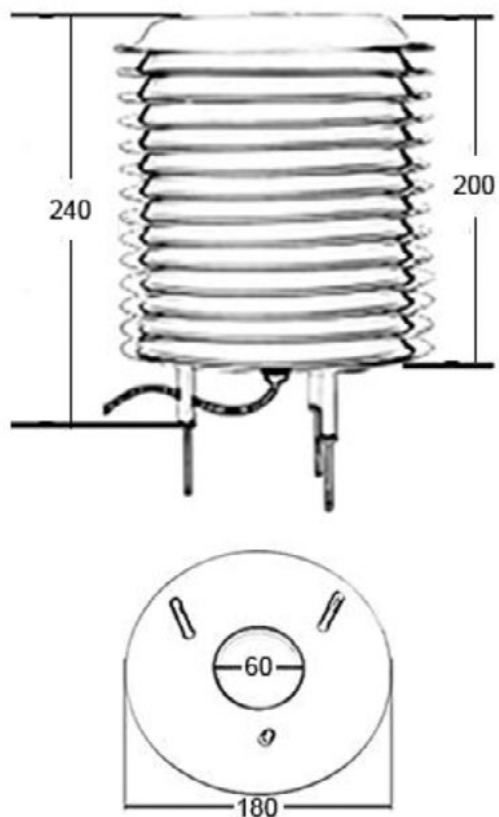
Air quality monitoring.



AQ300

Dust Sensor

PM1 + PM2.5 + PM10



Technical features	
Concentration measurable	PM1.0, PM2.5, PM10
Range	0-1000 $\mu\text{g}/\text{m}^3$
Supply	12-24Vcc
Output	4-20mA
Power consumption	<50mA (24V)
Accuracy	$\pm 3\%$ FS (25°C)
Repeatability	< $\pm 1\%$ FS
Stability	< $\pm 2\%$ FS
Warm up time	3min
Response time	<90s
Temperature drift	$\leq 0.2\%$ FS/°C
Operating temperature	-20 ÷ +50 °C (15-80%RH)
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ302

Indoor Dust Sensor PM1 + PM2.5 + PM10



Description

The AQ302 dust concentration sensor uses the principle of laser scattering to detect the existence of dust particle concentration in the air.

AQ302 can detect the concentration of PM1, PM2.5 and PM10.

The sensor is designed for indoor use, therefore it is not recommended to use it outdoors.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

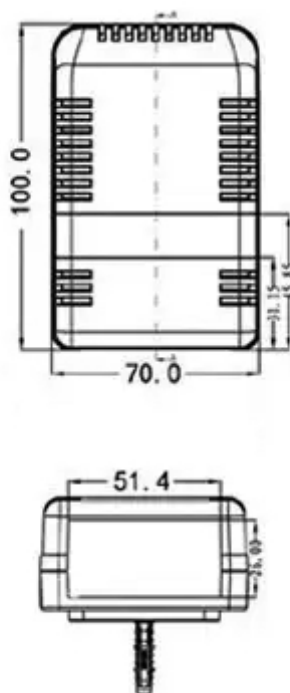
Indoor air quality monitoring.



AQ302

Indoor Dust Sensor

PM1 + PM2.5 + PM10

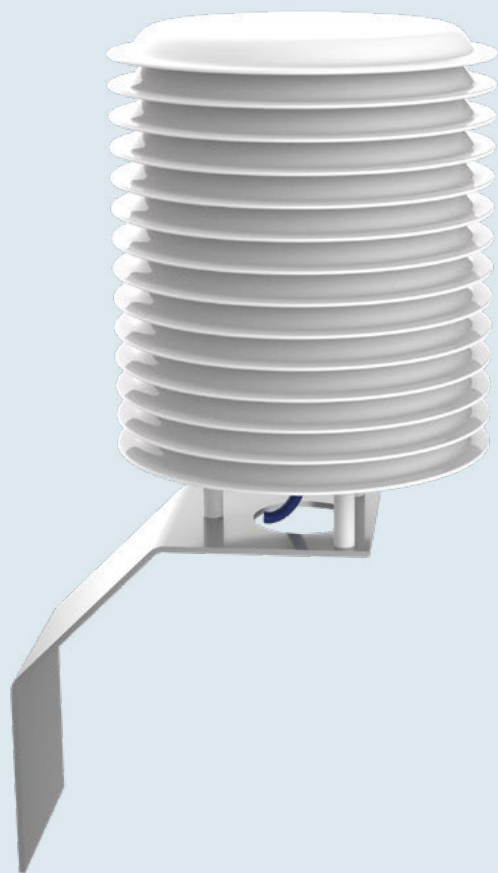


Technical features

Concentration measurable	PM1.0, PM2.5, PM10
Range	0-1000 $\mu\text{g}/\text{m}^3$
Supply	12-24Vcc
Output	4-20mA
Power consumption	<50mA (24V)
Accuracy	$\pm 3\%$ FS (25°C)
Repeatability	$< \pm 1\%$ FS
Stability	$< \pm 2\%$ FS
Warm up time	3min
Response time	<90s
Temperature drift	$\leq 0.2\%$ FS/°C
Operating temperature	-20 ÷ +50 °C (15-80%RH)
Material	ABS
Dimensions	100 x 70 x 51.4 mm

AQ305

CO2 Sensor (Carbon dioxide)



Description

AQ305 CO₂ concentration sensor uses NDIR principle to detect the CO₂ concentration in the air. It is designed with advanced infrared absorption gas detection technology, a precise optical path and an excellent circuit. A temperature sensor built-in realizes temperature compensation to ensure the accuracy of measurement. It is without oxygen dependence, of long service life.

AQ305 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

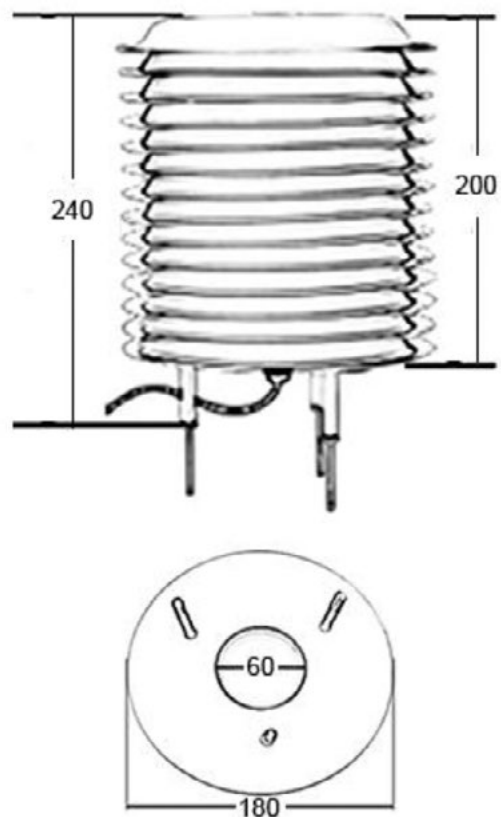
Applications

Air quality monitoring.



AQ305

CO2 Sensor (Carbon dioxide)

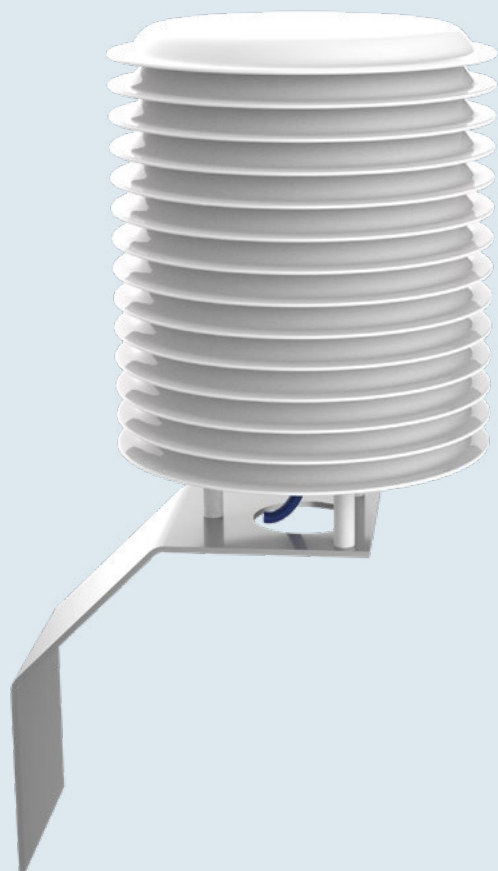


Technical features

Model	AQ305-01	AQ305-02
Range	0-5000 ppm	0-10000 ppm
Supply	12-24Vcc	
Output	4-20mA	
Power consumption	<0.25W	
Accuracy	$\pm 50\text{ppm} + 2\%\text{rdg}$ (25°C)	
Repeatability	< $\pm 1\%$ FS	
Stability	< $\pm 40\text{ppm}/\text{year}$	
Warm up time	3min	
Response time	<20s	
Temperature drift	$\leq 0.2\%$ FS/°C	
Operating temperature	$-20 \div +60^\circ\text{C}$ (15-80%RH)	
Material	Shield (ABS) ; Bracket (Stainless Steel)	
Dimensions	$\varnothing 180 \times 240$ mm	

AQ310

NH₃ Sensor (Ammonia)



Description

AQ310 NH₃ concentration sensor is composed of three electrode electro-chemical sensors and high performance microprocessor and it can accurately measures the Ammonia concentration in the air. A temperature sensor built-in realizes temperature compensation to ensure the accuracy of measurement. AQ310 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

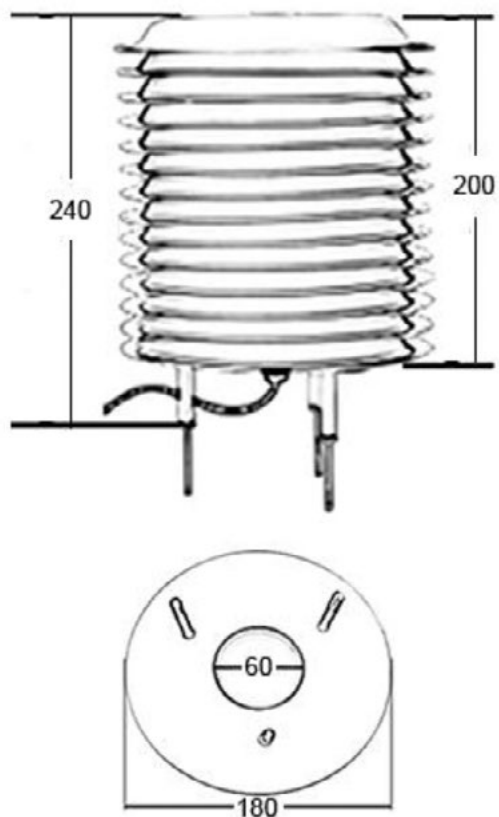
Applications

Air quality monitoring.



AQ310

NH3 Sensor (Ammonia)

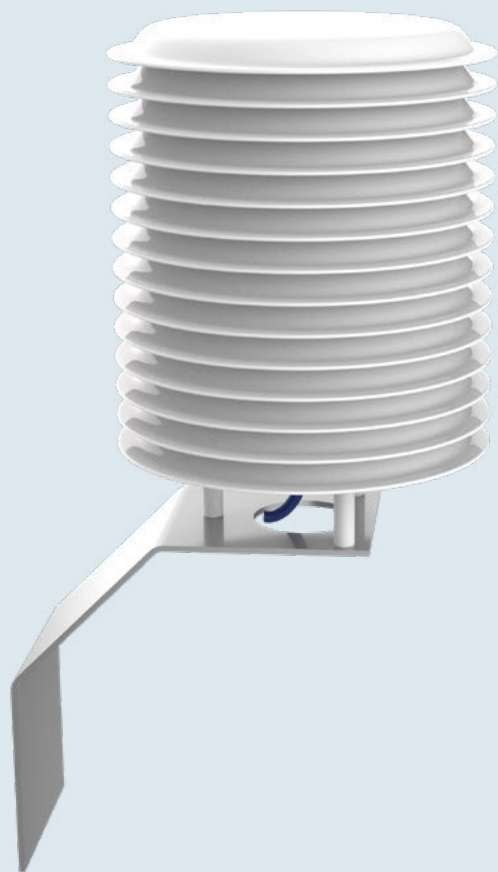


Technical features

Range	0-100 ppm
Supply	12-24Vcc
Output	4-20mA
Power consumption	<50mA (24V)
Accuracy	±5% FS (25°C)
Repeatability	<±1% FS
Resolution	1ppm
Response time	<15s
Temperature drift	≤0.2% FS/°C
Operating temperature	-20 ÷ +50 °C (15-80%RH)
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ315

SO₂ Sensor (Sulfur dioxide)



Description

AQ315 SO₂ concentration sensor adopts professional test SO₂ concentration sensor probe as the core detection device.

AQ315 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

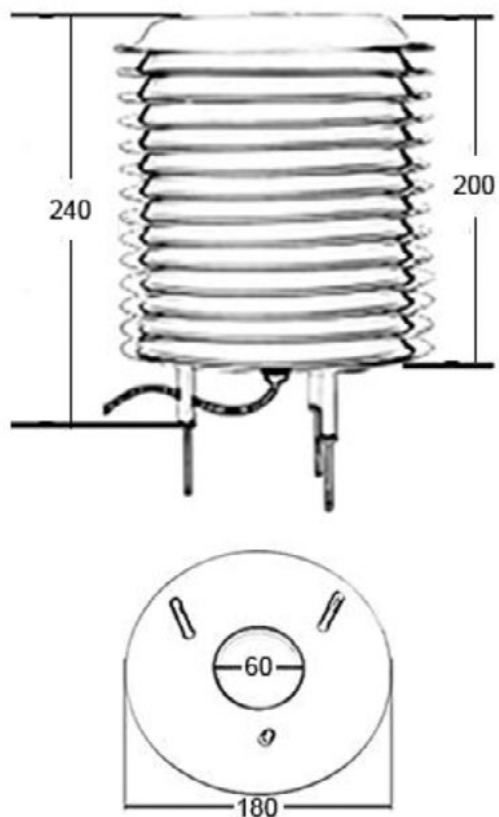
Applications

Air quality monitoring.



AQ315

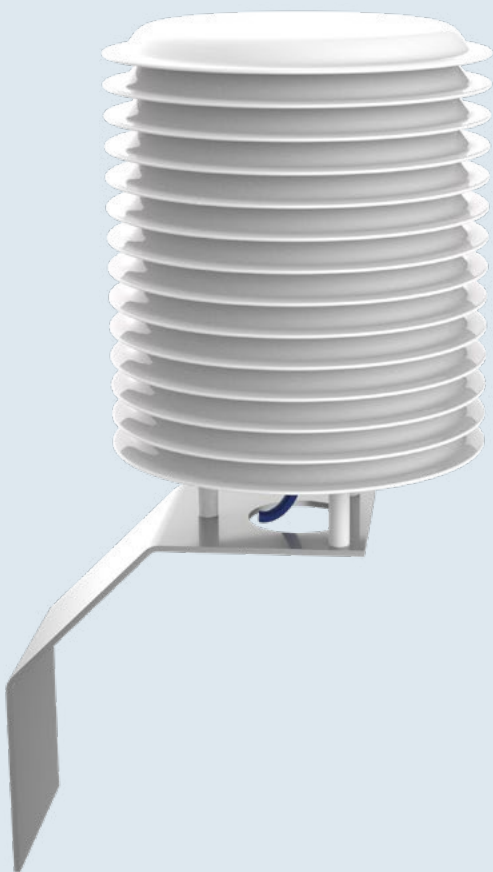
SO2 Sensor (Sulfur dioxide)



Technical features	
Range	0-20ppm
Supply	12-24Vcc
Output	4-20mA
Power consumption	≤0.2W
Accuracy	±3% FS (25°C)
Resolution	0.001ppm
Response time	≤15s
Operating temperature	-20 ÷ +50 °C
Relative humidity	0-95% (no condensation)
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ320

CO Sensor (Carbon monoxide)



Description

AQ320 CO concentration sensor uses electro-chemical technology to measure CO concentration, which is fast and sensitive.

AQ320 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

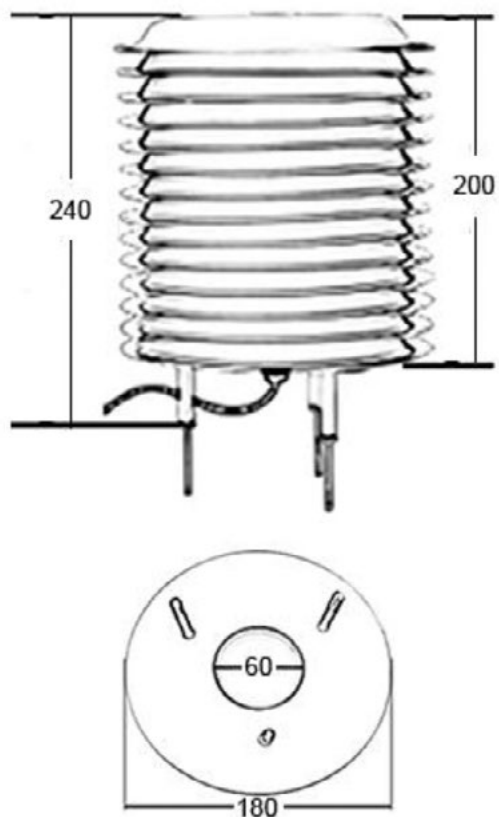
Applications

Air quality monitoring.



AQ320

CO Sensor (Carbon monoxide)

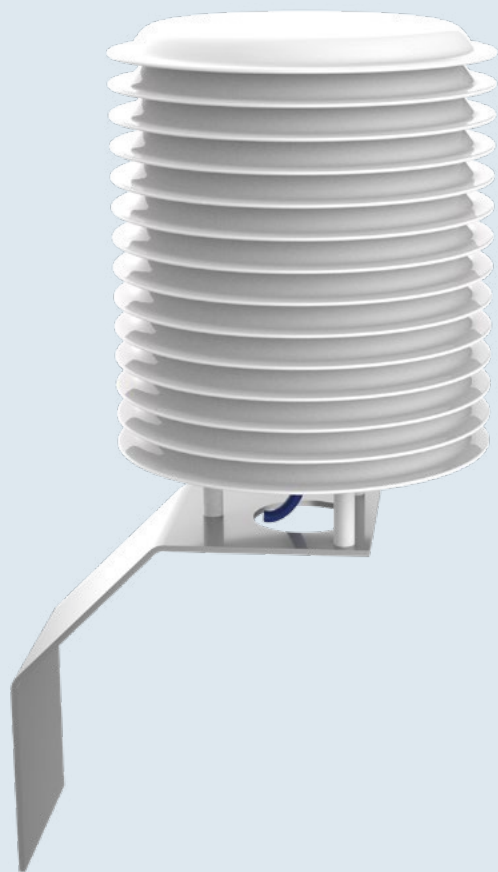


Technical features	
Range	0-2000 ppm
Supply	12-24Vcc
Output	4-20mA
Power consumption	<0.25W
Accuracy	10% FS (25°C)
Repeatability	<±10% FS
Resolution	0.1ppm
Warm up time	3min
Response time	<2s
Zero drift	<10ppm
Operating temperature	-20 ÷ +50 °C (15-80%RH)
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ325

VOC Sensor

(Volatile organic compounds)



Description

AQ325 sensor is a gas detection sensor that adopts MEMS principle and it is used for Volatile organic compounds detection in various environments. The sensor has a stable signal, high precision and a fast response time.

AQ325 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

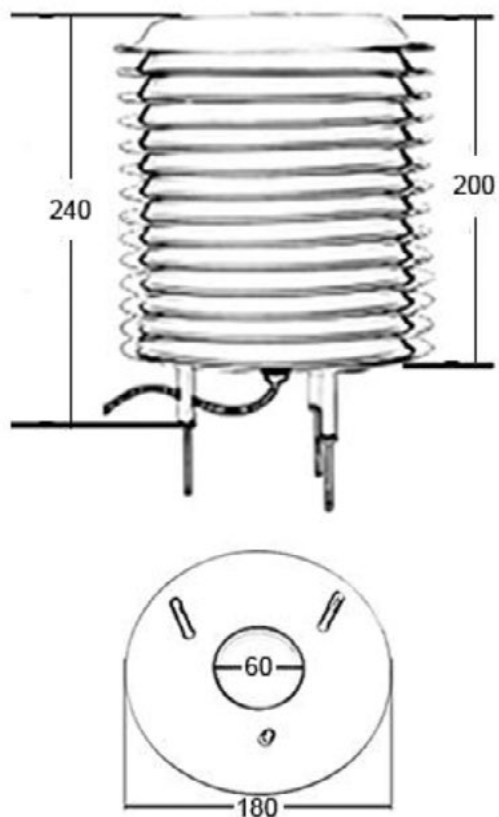
Air quality monitoring.



AQ325

VOC Sensor

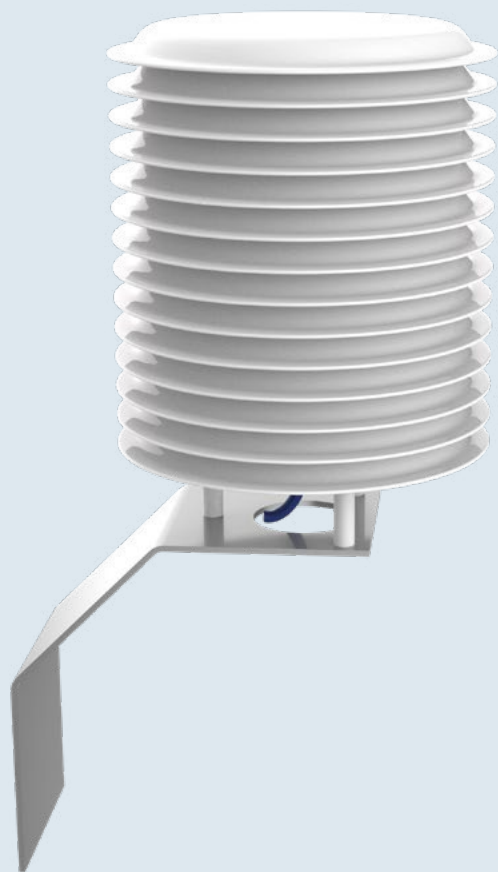
(Volatile organic compounds)



Technical features	
Range	0-10ppm
Supply	12-24Vcc
Output	4-20mA
Power consumption	≤0.2W
Accuracy	≤±3% rdg (25°C)
Resolution	0.001ppm
Response time	<2s
Operating temperature	-20 ÷ +50 °C (15-80%RH)
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ330

NO2 Sensor (Nitrogen dioxide)



Description

AQ330 sensor uses the electrochemical principle to detect NO₂ concentration in the air.

AQ330 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

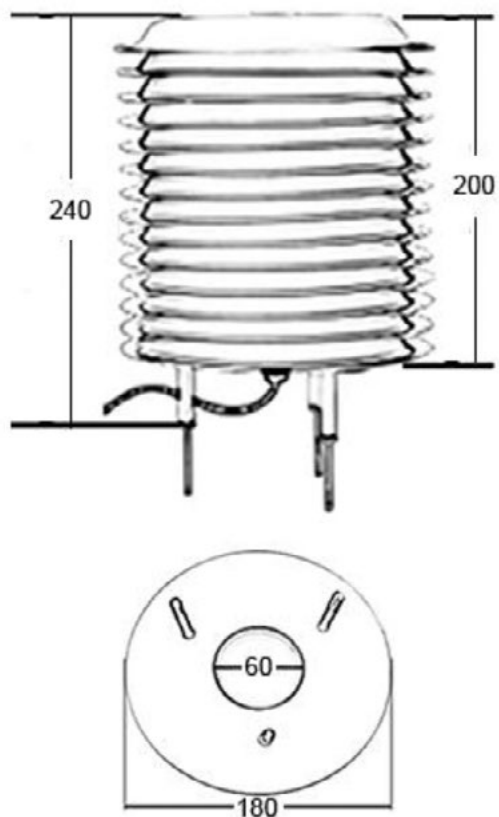
Applications

Air quality monitoring.



AQ330

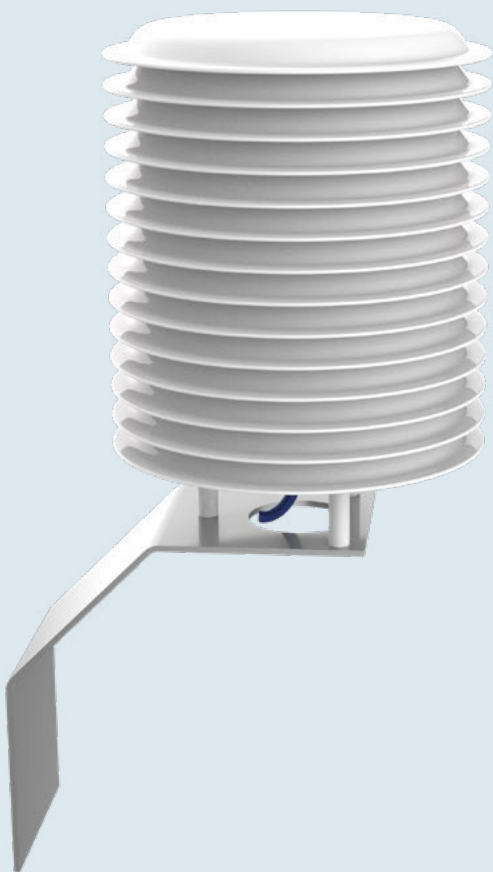
NO2 Sensor (Nitrogen dioxide)



Technical features	
Range	0-20ppm
Supply	12-24Vcc
Output	4-20mA
Power consumption	<1W
Accuracy	±3% FS
Response time	<30s
Operating temperature	-30 ÷ +50 °C
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ335

H2S Sensor (Hydrogen sulfide)



Description

AQ335 sensor is used to detect H₂S (hydrogen sulfide) concentration in the air.

AQ335 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

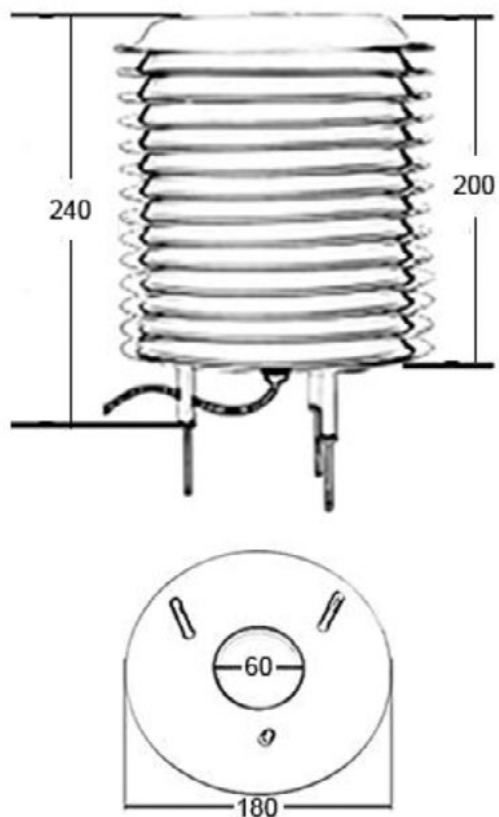
Applications

Air quality monitoring.



AQ335

H2S Sensor (Hydrogen sulfide)

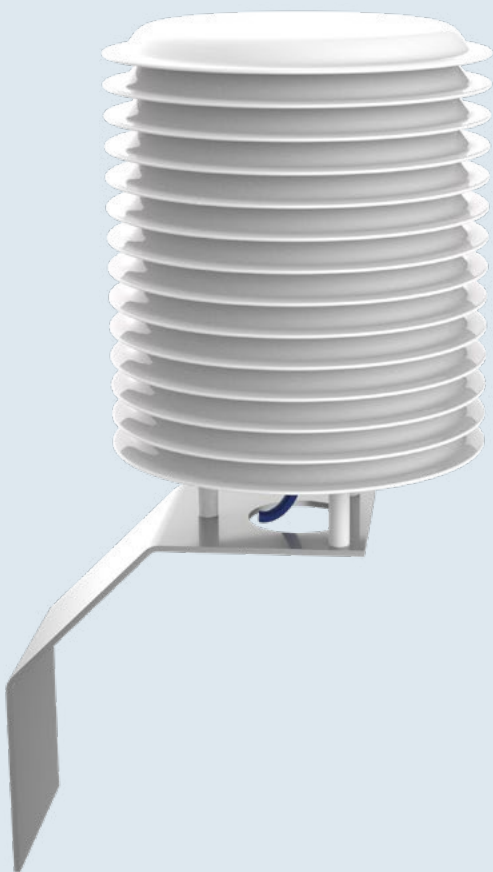


Technical features

Model	AQ335-01	AQ335-02
Range	0-100ppm	0-1000ppm
Supply	12-24Vcc	
Output	4-20mA	
Power consumption	<1.15W	
Accuracy	±3% FS	
Response time	<30s	
Operating temperature	-30 ÷ +50 °C	
Material	Shield (ABS) ; Bracket (Stainless Steel)	
Dimensions	Ø180 x 240 mm	

AQ345

CH4 Sensor (Methane)



Description

AQ345 sensor uses the catalytic combustion principle to detect CH₄ (methane) concentration in the air.

AQ345 sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

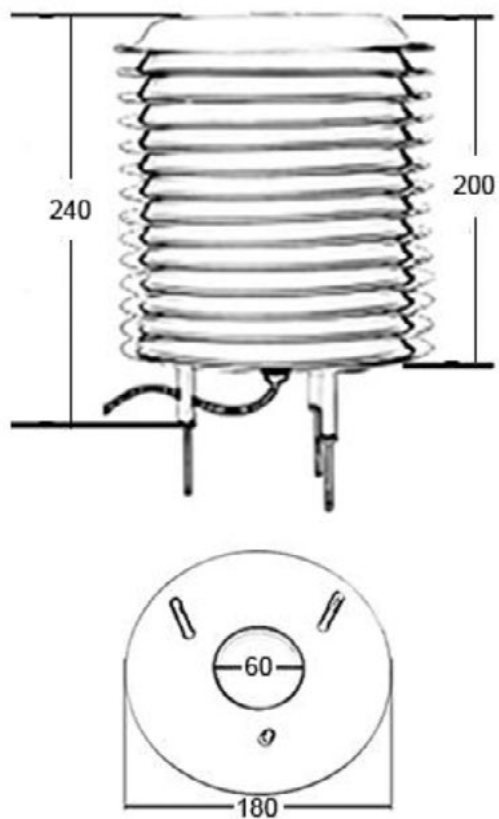
Applications

Air quality monitoring.



AQ345

CH4 Sensor (Methane)



Technical features	
Range	0-100%LEL
Supply	12-24Vcc
Output	4-20mA
Power consumption	≤0.2W
Accuracy	±5% (25°C)
Resolution	1%LEL
Response time	<15s
Operating temperature	0 ÷ +40 °C
Relative humidity	0-95%RH (no condensation)
Material	Shield (ABS) ; Bracket (Stainless Steel)
Dimensions	Ø180 x 240 mm

AQ360

Smoke detector



Description

The AQ360 smoke detector is able to detect particles produced in the air during combustion.

The AQ360 smoke detector is an instrument for closed internal environments, which can be wall-mounted.

It is important that the detector is installed in an optimal position so that any fumes can reach the detector.

Automatic read out with MINILOG, MYLOG.

Applications

Smoke detection in closed environments.



AQ360

Smoke detector

Technical features

Ranges	0-2000ppm / 0-5000ppm / 0-10000ppm
Supply	9-24V
Output	4-20mA
Accuracy	$\pm 10\text{ppm} + 5\% \text{ F.S.}$
Response time	2 seconds
Warm-up time	< 5min
Load impedance	<500 Ω

ED-06/22

AQ370

Noise level sensor



Description

AQ300 dust concentration sensor uses laser scattering principle to detect the existence of dust particle concentration in the air.

AQ300 can detect PM1, PM2.5 and PM10 concentration.

The sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

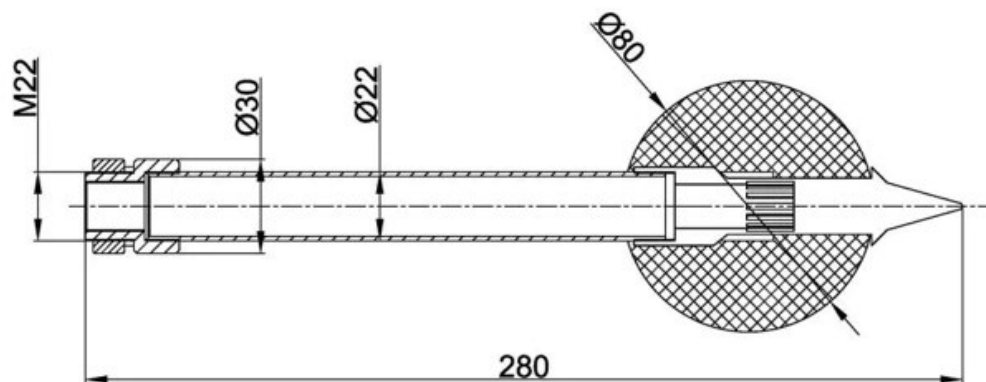
Applications

Air quality monitoring.



AQ370

Noise level sensor



Technical features

Range	30 ÷ 130 dB
Supply	12-24Vcc
Output	4-20mA
Power consumption	≤20mW
Accuracy	±3dB
Response frequency	31.5Hz ÷ 8kHz
Response time	<200ms
Operating temperature	-10 ÷ +50 °C
Relative humidity	5-80%RH
Material	ABS/Aluminum alloy
Dimensions	Ø80 x 280 mm
Protection	IP65

AQ370

Noise level sensor



Description

AQ300 dust concentration sensor uses laser scattering principle to detect the existence of dust particle concentration in the air.

AQ300 can detect PM1, PM2.5 and PM10 concentration.

The sensor is placed in a special waterproof casing which acts also as a shield against solar radiation, allowing for precise measurements even in the long term.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

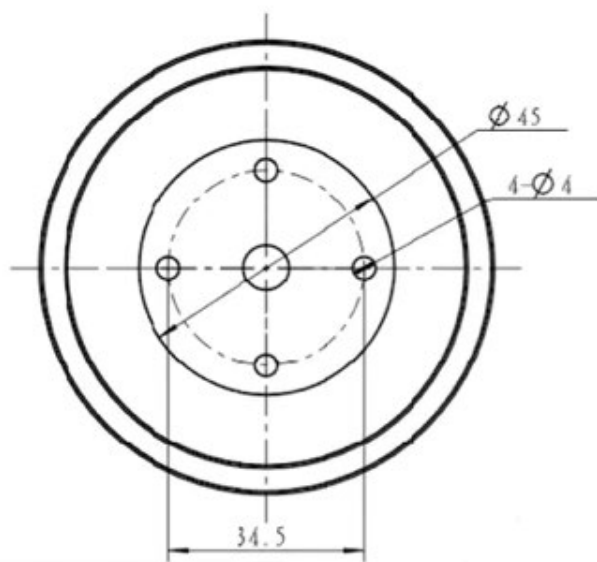
Applications

Air quality monitoring.



AQ370

Noise level sensor



Technical features

Range	30 ÷ 130 dB
Supply	12-24Vcc
Output	4-20mA
Power consumption	≤20mW
Accuracy	±1.5dB
Response frequency	31.5Hz ÷ 20kHz
Response time	<2s
Operating temperature	-20 ÷ +60 °C
Relative humidity	10-90%RH
Material	Aluminum alloy
Dimensions	Ø80 x 91 mm
Protection	IP65

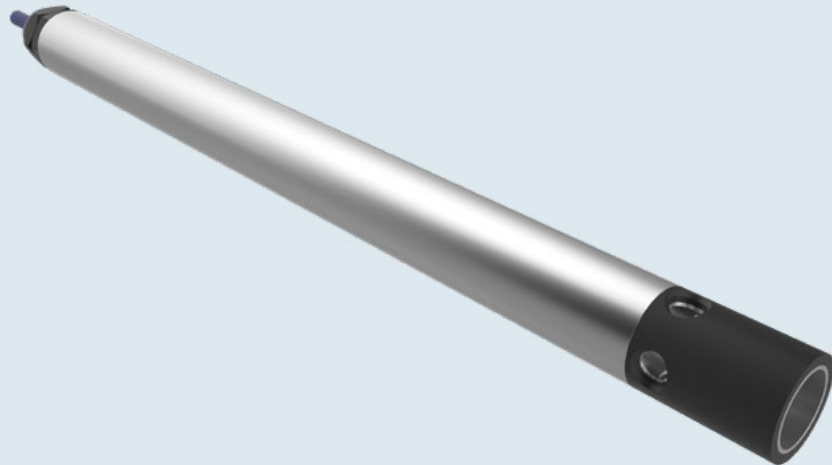


Water Quality



WQ410

Conductivity sensor



Description

The WQ410 conductivity sensor is rugged and compact instrument suited for measuring conductivity in surface and underground waters.

The sensor consist of two stainless steel electrodes: the outside electrode is a ring the inside electrode is a wire.

The conductivity sensor measures the ability of a solution to conduct an electric current between the two electrodes.

The conductivity sensor is automatically temperature compensated using an internal thermistor.

The WQ410 conductivity sensor is produced in a 25 mm stainless steel housing, which can be inserted in small size wells.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

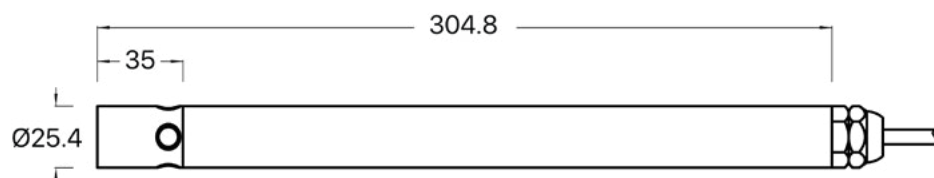
Applications

Conductivity measurement in wells, tanks, etc.



WQ410

Conductivity sensor

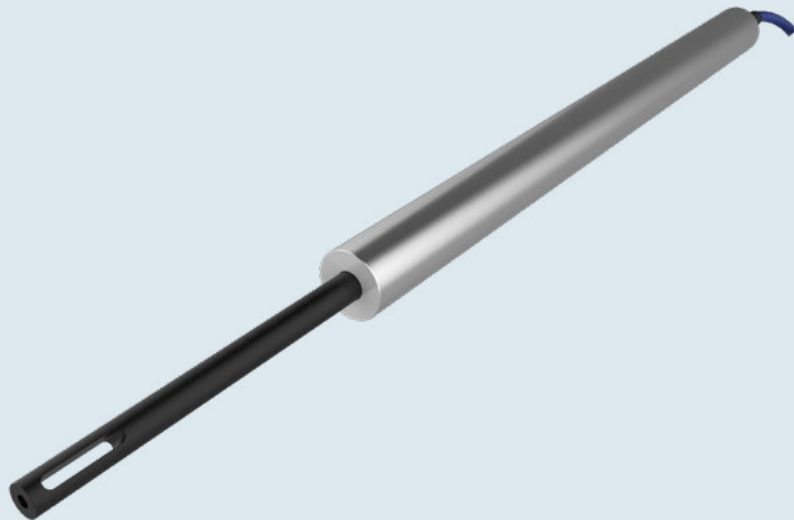


Technical features

Model	WQ410					
	- 01	- 02	- 03	- 04	- 05	- 06
Range (μS)	500	2000	5000	10000	20000	40000
Supply	12 Vcc (±5%)					
Output	4-20 mA					
Linearity	2% FS					
Consumption	0.8 mA + sensor output					
Max pressure	3 bar					
Operating temperature	-40 ÷ + 55 °C					
Temperature compensation	2% per °C					
Warm up	3 sec					
Dimensions	25 x 300 mm					
Weight	0.450 Kg					
Material	Stainless Steel / PVC					
Temperature sensor	Add to acronym					
	- CT			- PT		
Output	μA/K			PT100 100Ω a 0 °C		
Range	-50 , 105°C			-100÷104°C		
Accuracy	0.3°			0.1°		

WQ411

Conductivity sensor



Description

The conductivity sensor WQ411 is suitable for measuring conductivity in a wide variety of applications including laboratories, streams, rivers, and groundwater. The small diameter and rugged housing make it useful for hand held measurements or permanent installation.

The conductivity sensors use a 4-electrode measuring technique that provides accurate readings over a wide range of conductivities and temperatures. Because the conductivity of ionic solutions increases with increasing temperature, a temperature sensor is also incorporated and is used to provide automatic temperature compensation of 2%/°C normalized to 25°C. An in-line interface module converts the digital conductivity sensor and temperature data into two separate 4-20mA signals.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

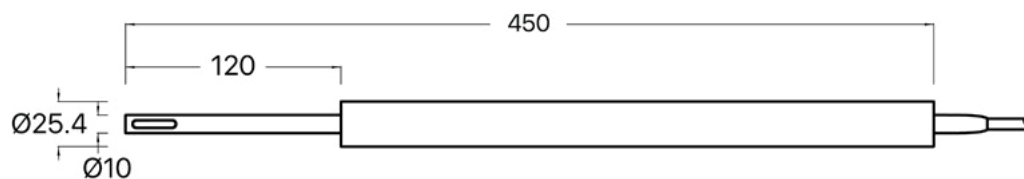
Applications

Conductivity measurement in wells, tanks, etc.



WQ411

Conductivity sensor



Technical features

Conductivity Sensor

Model	WQ411				
	- 01	- 02	- 03	- 04	- 05
Range	0-200 μ S	200-2000 μ S	2-20 mS	20-200 mS	200-2000 mS
Supply	12 Vcc ($\pm$ 5%)				
Output	4-20 mA				
Linearity	2% FS				
Operating temperature	$-40 \div +55$ °C				
Temperature compensation	2% per °C				

Temperature Sensor

Range	$-5 \div 70$ °C
Temperature accuracy	± 0.2 °C
Output	4-20 mA
Response	99% < 20sec

General

Warm up	15 sec
Dimension	25 x 300 mm
Weight	0.450 Kg
Material	Stainless Steel / PVC
Consumption	20 mA + sensor output
Max Pressure	3 bar

WQ420 PH sensor



Description

The WQ420 PH sensor is a rugged and compact instrument suited for measuring PH in surface and underground waters.

The sensor is produced with a replaceable sensible element, for an easy maintenance and to allow a long longevity to the sensor.

The WQ420 PH sensor consists of a Hydrogen ion-sensitive glass bulb, and a reference electrode. The mA output signal is directly proportional to the measured liquid PH.

The WQ420 PH sensor is produced in a 32 mm stainless steel housing, which can be inserted in small size wells.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

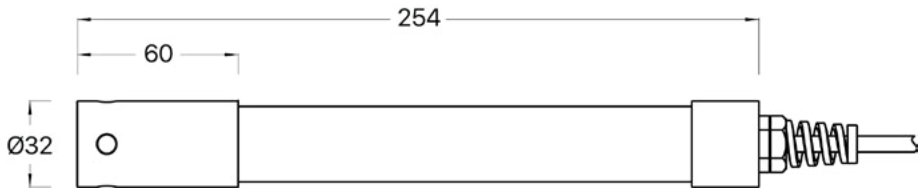
Applications

PH measurement in wells, tanks, rivers etc.



WQ420

PH sensor

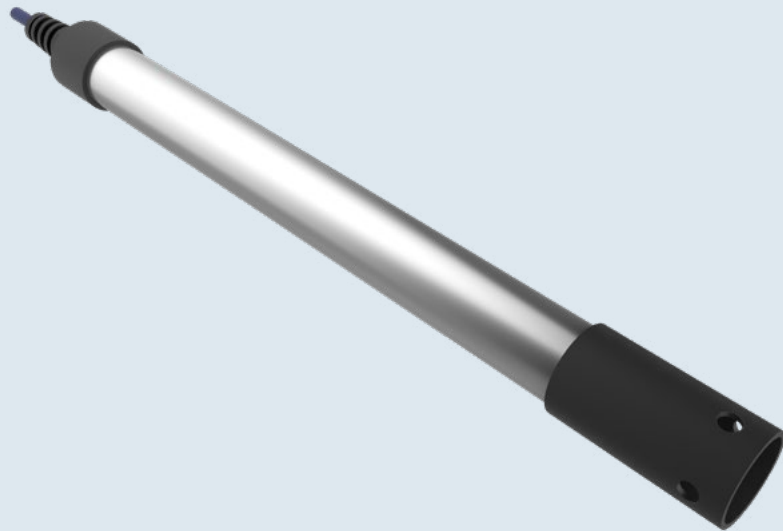


Technical features		
Range	0-14 PH	
Supply	10-30 Vcc	
Output	4-20 mA	
Linearity	2% FS	
Consumption	5.5 mA + sensor output	
Max pressure	3 bar	
Operating temperature	-40 ÷ + 55 °C	
Warm up	3 sec	
Dimensions	32 x 255 mm	
Weight	0.450 Kg	
Material	Stainless Steel / PVC	
Add to acronym		
Temperature sensor	- CT	- PT
Output	µA/K	PT100 100Ω a 0 °C
Range	-50 , 105°C	-100÷104°C
Accuracy	0.3°	0.1°
Accessories		
PH electrode	WQ420-AX-ELPH	

WQ420_EN_ED05/18

WQ430

Dissolved oxygen sensor



Description

The WQ430 DO sensor is rugged and compact instrument suited for measuring dissolved oxygen in surface and underground waters. The sensor is produced with a replaceable sensible element, for a easy maintenance and to allow a long longevity to the sensor. The WQ430 PH sensor is produced in a 32 mm stainless steel housing, which can be inserted in small size wells. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

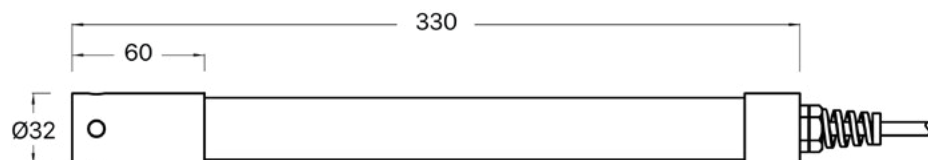
Applications

DO measurement in wells, tanks, rivers etc.



WQ430

Dissolved oxygen sensor



Technical features

Range	0-100% 0-8 ppm	
Supply	10-36 Vcc	
Output	4-20 mA	
Accuracy / Combined Error	0.5%FS / 2% FS	
Temperature compensated to	25 °C	
Consumption	5.5 mA + sensor output	
Max pressure	3 bar	
Operating temperature	-40 ÷ + 55 °C	
Warm up	3 sec	
Dimensions	32 x 255 mm	
Weight	0.450 Kg	
Material	Case	Stainless Steel / PVC
	Membrane	Teflon

Add to acronym

Temperature sensor

- CT

- PT

Output	µA/K	PT100 100Ω a 0 °C
Range	-50 , 105°C	-100÷104°C
Accuracy	0.3°	0.1°

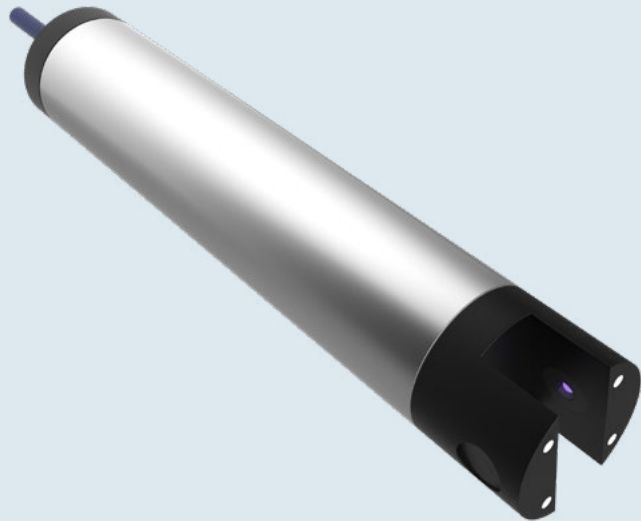
Accessories

DO Electrode

WQ430-AX-ELDO

WQ440

Turbidity sensor



Description

The WQ440 turbidity sensor is rugged and compact instrument suited for measuring turbidity in surface and underground waters. The WQ440 turbidity sensor consists of a 90 degree scatter nephelometer and a photodetector positioned at 90 degrees to the light beam.

In accordance with USEPA Method 180.1 for turbidity measurement, the Turbidity Sensors are a 90 degree scatter nephelometer. The turbidity sensor directs a focused beam into the monitored water. The light beam reflects off particles in the water, and the resultant light intensity is measured by the turbidity sensor's photodetector positioned at 90 degrees to the light beam. The light intensity detected by the turbidity sensor is directly proportional to the turbidity of the water. The turbidity sensors utilize a second light detector to correct for light intensity variations, color changes, and minor lens fouling. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

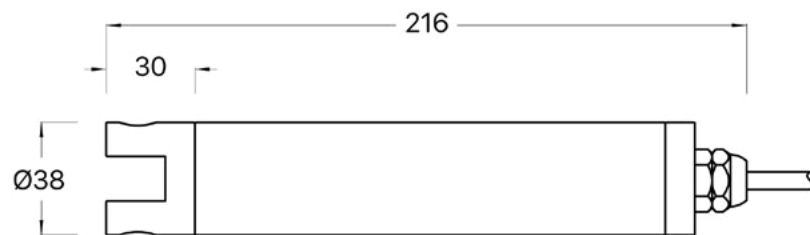
Applications

Turbidity measurement in wells, tanks, flumes, streams etc.



WQ440

Turbidity sensor

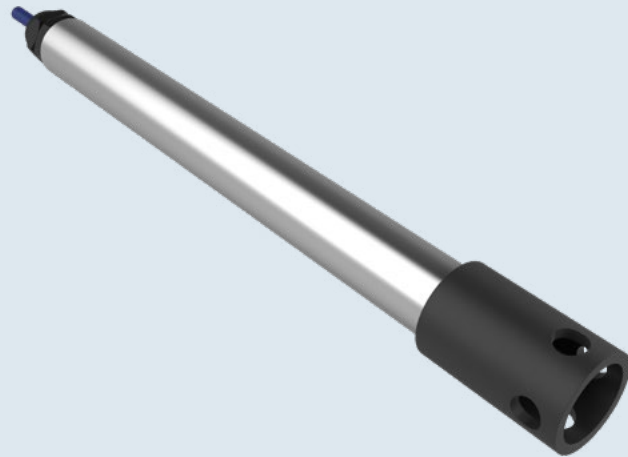


Technical features

Range	0-50 NTU e 0-1000 NTU	
Light source	Infrared LED (880nm)	
Supply	10-36 Vcc	
Output	2 x 4-20 mA	
Linearity	±1% FS	
Consumption	30 mA + sensor output	
Max pressure	2 bar	
Operating temperature	-10 ÷ + 50 °C	
Warm up	5 sec	
Dimensions	38 x 216 mm	
Weight	0.454 Kg	
Material	Case	Stainless steel and Polyether
	Sensore housing	Delrin

WQ450

ORP sensor



Description

The WQ450 ORP sensor is rugged and compact instrument suited for measuring redox in surface and underground waters.

Redox or ORP (Oxidation Reduction Potential) is a measure of the oxidation activity of the water. ORP is also used as an alternative way to measure chlorine concentration, since water high in chlorine (a strong oxidizer) has a high ORP.

The WQ450 ORP sensor consists of a platinum wire and a reference electrode. The mA output signal is directly proportional to the ORP.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

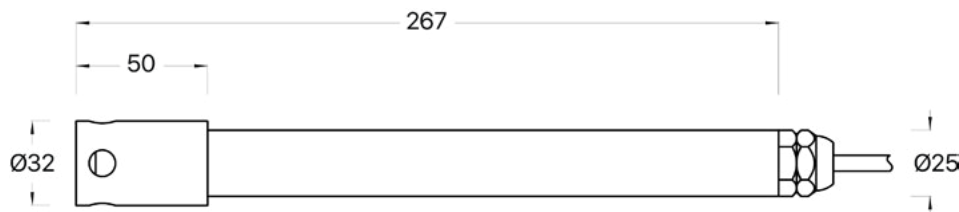
Applications

ORP measurement in wells, tanks, rivers, streams etc.



WQ450

ORP sensor



Technical features

Range	-500 ÷ +500 mV
Supply	10-36 Vcc
Output	4-20 mA
Linearity	2% FS
Consumptio	0.2 mA + sensor output
Max pressure	3 bar
Operating temperature	-40 ÷ + 55 °C
Warm up	3 sec
Dimensions	25 x 267 mm
Weight	0.227 Kg
Material	Stainless steel / PVC

Add to acronym		
Temperature sensor	- CT	- PT
Output	µA/K	PT100 100Ω a 0 °C
Range	-50 , 105°C	-100÷104°C
Accuracy	0.3°	0.1°

WQ450 EN_FD05/18
#506/22

WQ455

Industrial ORP transmitter



Description

The industrial ORP transmitter WQ455 has an isolated 2-wire 4-20mA output load with a big size LCD display. The scales can be selected via an internal dip switch. The Industrial ORP transmitter use BNC connections for the ORP sensor. The transmitter can be connected to a PLC or, using the 4-20mA output, connected to any SIM STRUMENTI data acquisition system:

- A. MINILOG data acquisition system
- B. DATAVIEW readout unit
- C. MYLOG data acquisition system
- D. PC320 controller

Applications

Measurement of water oxidation in tanks, etc.



WQ455

Industrial ORP transmitter

Technical features

Model	PR310-FS*
Range	0.5-1-2-3-4-6-10-16-25-40-60-100 bar
Supply	8-24 Vcc
Output	4-20 mA
Linearity	0.25% FS
Repeatability	0.01% FS
Operating temperature	-20 ÷ +70 °C
Dimension	95 x 230 x 6 mm
Weight	0.6 Kg
Material	Stainless Steel 17-4 PH
Protection	IP68

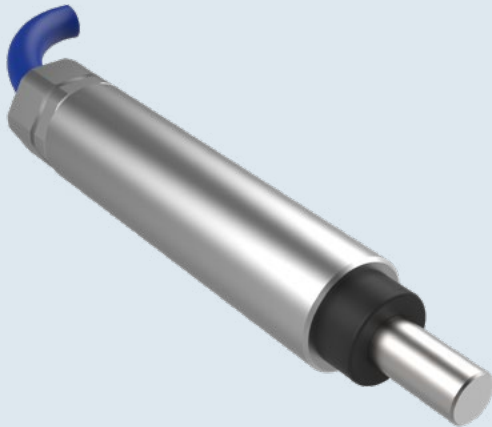
Accessories

Hydraulic tube	Add -TI-MM** to the product abbreviation
Soldering brackets	Add -AS to the product abbreviation
"T" connector ***	Add -RT to the product abbreviation
Piston	Add -PI-MM** to the product abbreviation
Male quick connector	PR310-RM

- *FS Indicate the range
 **MM Indicate the tube length in meters
 *** The "T" connector is supplied with a female quick connector and protection cap. The sensor is connected to the quick connector.
 **** The piston requires a hydraulic tube, indicate the desired length.

WE711

Temperature sensor



Description

The WE711 sensor is an instrument suitable for temperature control in many situations: in liquid, masonry and rock, embedded in concrete, inserted in soils, etc.

The WE711 temperature gauge consists of a stainless steel watertight container, which allows it to be used in all environments. For each of the uses mentioned, SIM STRUMENTI designed an adequate protection which, in addition to guaranteeing reliability, does not influence the characteristics of the sensitive element.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

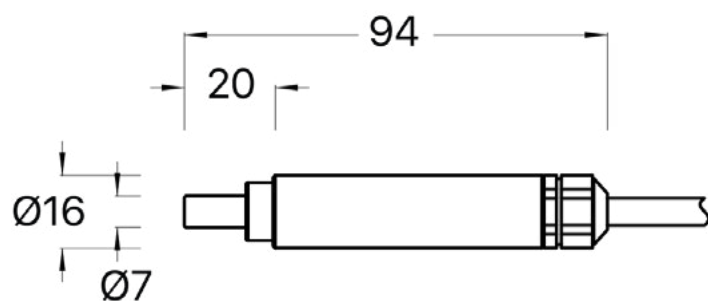
Applications

Temperature measurement in water, concrete, soil, etc.



WE711

Temperature sensor



Technical features				
Model	WE711-PT	WE711-42	WE711-AN	WE711-CN
Supply	1 mA	10-30 Vcc	5-30 Vcc	5-30 Vcc
Output	100 Ω a 0 °C	4-20mA	10mV/°C	$\mu\text{A/K}$ $K = ^\circ\text{C} + 273.1$
Range	-100 ÷ 104°C	Adjustable*	-40 ÷ 110°C	-50 ÷ 105°C
Accuracy	1/3 DIN	0.25 °C	0.3 °C	0.1 °C
Consumption	1 mA	30 mA	0.3 mA	0.3 mA
Material**	Stainless Steel			
Dimension***	Ø16 x 110 mm			
Protection	IP68			

- * The converter is calibrated in the laboratory; the desired scale must be specified at the time of the order.
- ** In the model WE711-42, the converter is inserted in reinforced polyester IP65 box with dimensions of 55x55x38mm.
- *** In the model WE711-42-IM, if the converter has to have also an IP68 protection, both sensor and converter will be placed in a stainless steel Ø48x70mm container.

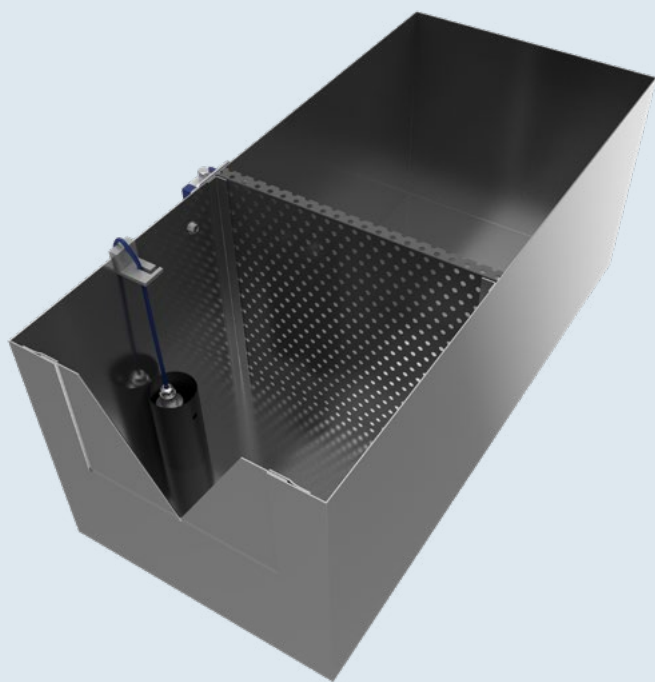


Flow and Level



FL510

V-notch weir



Description

The V-Notch FL510, produced by SIM STRUMENTI, allow measuring the water flow in open channels. The water is been canalized through a specific calibrated v-notch. The measurement of the level (level variation) is done upstream the v-notch with great precision. The v-notch must be chosen considering that the maximum flow must be at $\frac{3}{4}$ of the v-notch maximal height. All materials at water contact are produced in plastic material and/or stainless steel material in order to ensure longevity an measuring precision.

The level measuring, with an appropriate range, can be either an ultrasound sensor (LV630) or either a piezometric sensor (LV610).

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAFLOW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

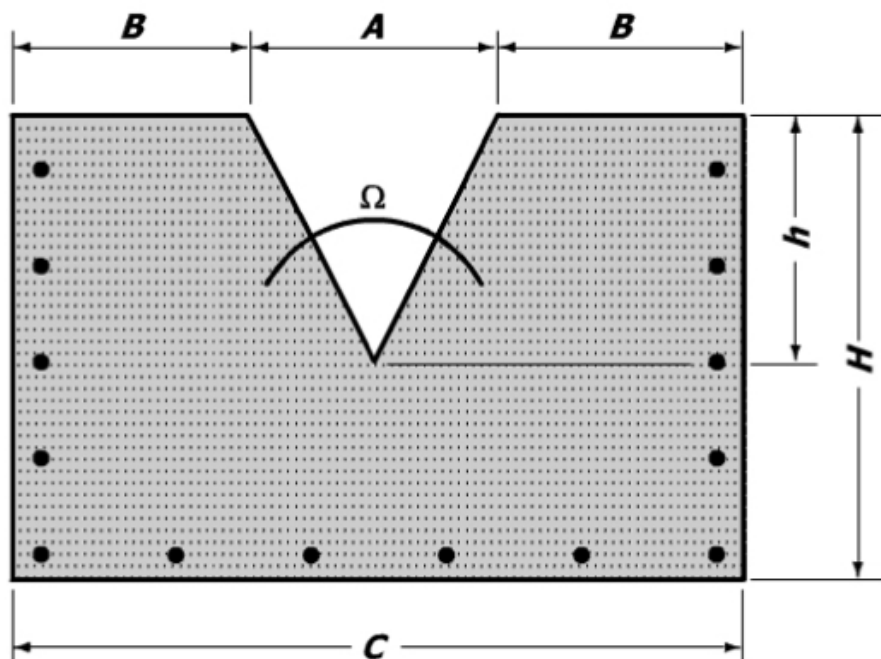
Applications

Flow measurement in canals, rivers etc.



FL510

V-notch weir



Model	Flow (l/s)	A	B	C	H	h	Ω	Sp.	Kg
FL510-10	10	125	63	250	250	150	45	4	1.5
FL510-20	20	202	74	350	250	175	60	4	2.0
FL510-50	50	300	50	400	300	200	*	4	1.8

Sensors and data acquisition units available **
(also available other customized solutions)

FL510-01	Level meter mod. LV610-RL
FL510-02	Ultrasound level meter mod. LV630-01
FL510-03	Piezometer with datalogger mod. LV615-RL
FL510-04	Piezometer with datalogger mod. LV616-RL
FL510-05	Ultrasound level meter mod. LV610-RL with datalogger MINILOG
FL510-06	Ultrasound level meter mod. LV630-01 with datalogger MINILOG
FL510-07	Ultrasound level meter mod. LV630-01 with datalogger MYLOG
FL510-08	Level meter mod. LV610-RL with readout unit DATAVIEW
FL510-09	Level meter mod. LV630-01 with readout unit DATAVIEW

Accessories

Custom calibrated plate	FL510-PR-LL-AA***
Mounting bracket for ultrasound sensor	FL510-ST-US
Mounting bracket for piezoelectric sensor	FL510-ST-PE
Stainless steel calm bowl 1000x450x400 Sp.2mm	FL510-VS
Division plates	FL510-PFV

* Rectangular

** For more information on the technical features of the level sensors or the readout units, see the related technical sheets

*** Indicate with LL the width and with AA the height

FL520

Electromagnetic flow meter



Description

The magnetic flow meter FL520, produced by SIM, allows to measure the flow in tubes. The measurement principle is based on the Faraday's law of electromagnetic induction. The measurement is done with great precision, since inside the tube there is no moving parts.

The magnetic flow meter FL520 is equipped with a display allowing to view several measuring options, such as: minimum flow, maximum flow, totalized flow and the possibility to show different measuring units.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

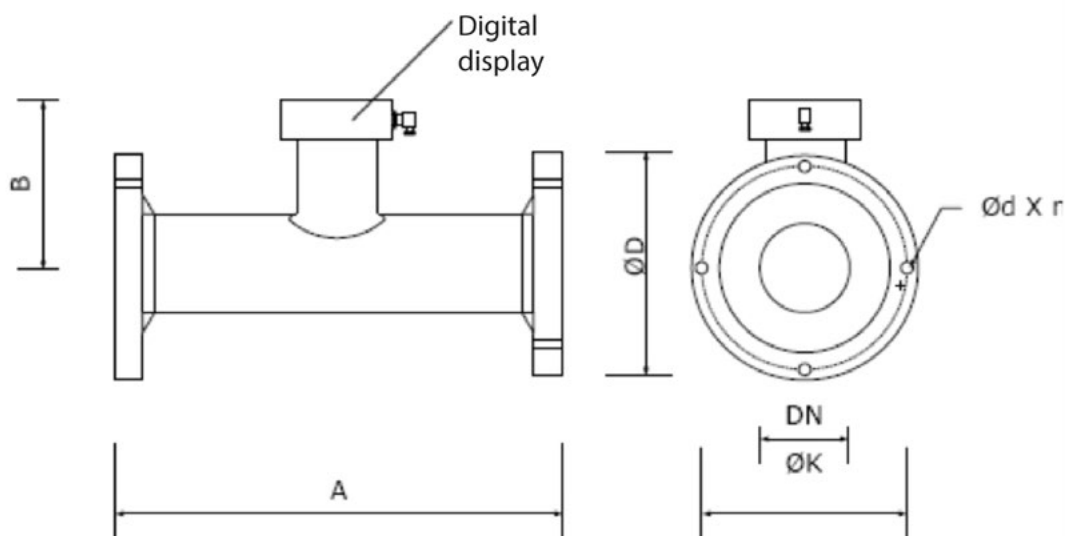
Applications

Flow measurement in tubes.



FL520

Electromagnetic flow meter



Model	DN	A	ØD	ØK	Ød X n	B	KG
FL520-100	4"	260	228.6	190.5	19 x 8	178	15
FL520-150	6"	312	279.4	241.3	22.2 x 8	206	21
FL520-200	8"	362	342.9	298.5	22.2 x 8	231	31
FL520-250	10"	462	406.4	361.9	25.4 x 12	257	57
FL520-300	12"	500	482.6	431.8	25.4 x 12	282	66

Technical features

Model	FL520-XXX-01*	FL520-XXX-02*
Supply	2 batt. al litio 3,6V "D"	8-32 Vcc
Output	Display	Pulses and display
Linearity	1% among 10% and 100% of the scale 2% among 0 and 10% of the scale	
Operating temperature	-12° ÷ +54 °C	
Min conductivity	20 µS/cm	
Max pressure	10.3bar	
Protection	IP65, IP68 upon request	
Display	5 digit instantaneous 8 digit totalized	
Measure unit**	Lit/min, Lit/sec, m3h, Mlit/day	
Material	External body	Resin coated steel
	Internal body	Hard rubber
	Electrodes	AISI 316 Stainless steel
	Electronics	Coated aluminum hard container

Accessories

Batteries	FL520 - AX - BATT
Flange	FL520 - AX - XXX*

Flow table in Lit/sec

Model	-100	-150	-200	-250	-300
Minimum	0.75	2	3.8	6	8.2
Maximum	63	151.4	277.6	441.6	630.9

*XXX Specify the model (-100.... -300)

** Specify to order; on-site modification is not possible

FL521

Flow meter



Description

The FL521 meter is a versatile flow meter, available in two types of material and in several sizes. It provides an accurate flow rate measurement, using a precision and quality mechanics with long-lasting and high tolerance bearings. In case of necessity, the sensor can be easily replaced.

The polypropylene model FL521-01 is low cost and suitable for the measurement of water or low corrosion fluids. The cover lens (used to visualize the liquid) is available in acrylic for low corrosion or polypropylene, when a higher corrosion protection is required.

The rotor is made of kynar, the nickel and tungsten carbide shaft and the O-ring in EPDM.

The model FL521-02 is Teflon made, which guarantees greater resistance to chemical agents. The rotor is made of kynar, the shaft of ceramic material and the O-ring in Teflon coated viton. An optional silicon carbide shaft is available. Upon request, the sensor can be connected to a pulse / current converter which transforms the pulses into a 4 ÷ 20mA output, or a pulse / current converter also equipped with a digital display (totalizer + instantaneous flow).

The converter (with or without display) is equipped with wall mounting brackets. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

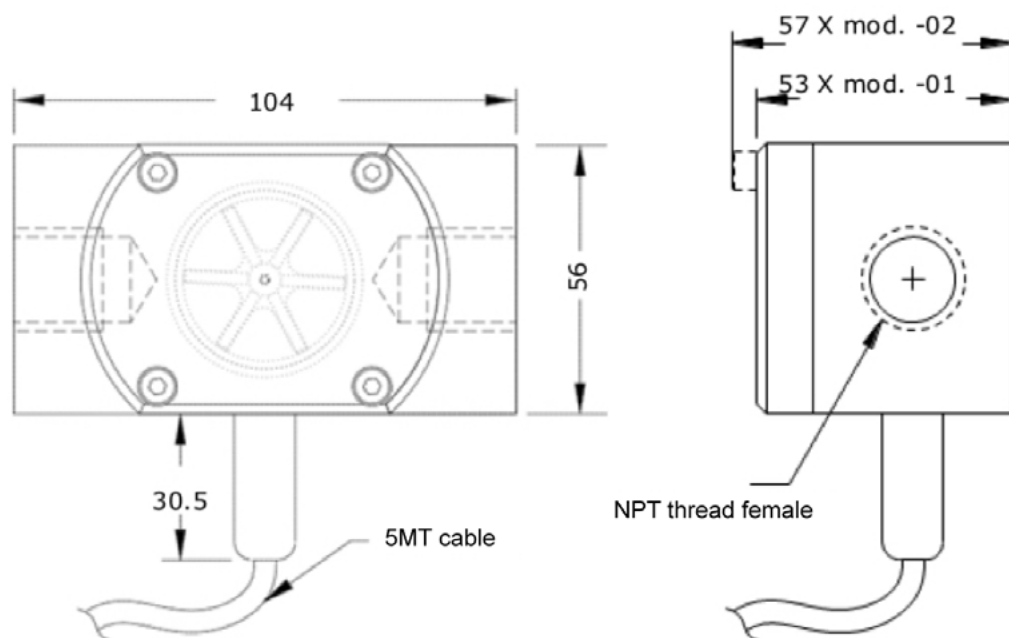
Applications

Measurement of small flows, chemical liquids, fertilizers, etc.



FL521

Flow meter



Technical features

Model		FL521-01-XX*	FL521-02-XX*
Range	-01	0.27 ÷ 18.9 Lit/min	3/8" NTP thread
	-02	0.38 ÷ 37.9 Lit/min	1/2" NTP thread
	-03	0.75 ÷ 75 Lit/min	3/4" NTP thread
	-04	1.90 ÷ 150 Lit/min	1" NTP thread
Linearity		±1% FS	
Supply		5-24Vdc / 2mA minimum	
Output		Pulse 6-24Vdc	
Max. Pressure		10 bar	
Max. Temperature		70°C	82°C
Max. Temperature		Standard 5mt; extensible up to 500mt	
Materials	Body	Polypropylene	Teflon
	Rotor	PVDF (kynar)	
	Shaft	Nickel and tungsten carbide	Ceramic
	O-ring	EPDM	Teflon coated viton
	Cover	Acrylic	Teflon

Accessories

Ceramic shaft	FL521-AC
Silicon carbide shaft	FL521-AS
Sensor	FL521-SE
Wall mounted display with 4-20 mA output	FL505-DS-WL
Wall mounted 4-20 mA converter	FL505-CO-WL
Lighter supply cable	IN910-AX-CPS1

* Indicate the range (-01... .. -04)

FL522

Flow meter



Description

The FL522 flow meter can be used in a wide range of flow measurement typologies. It is made of compact stainless steel, providing an accurate flow measurement using a precision and quality mechanics with long-lasting and high tolerance bearings.

The standard rotor is made of PVDF, while the shaft is in a particular alloy of nickel and tungsten carbide. The optional ceramic shaft increases resistance to particular concentrated chemicals. The standard O-Ring is in Teflon coated viton, for a better resistance to chemical agents; an EPDM and kalrez O-ring is available upon request.

In case of necessity, the sensor can be easily replaced.

Upon request, the meter can be connected to a pulse / current converter that transforms the pulses into a 4 ÷ 20mA output, or to a pulse / current converter also equipped with a digital display (totalizer + instantaneous flow).

The converter (with or without display) is equipped with wall mounting brackets. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Measurement of small flows

Chemical liquids

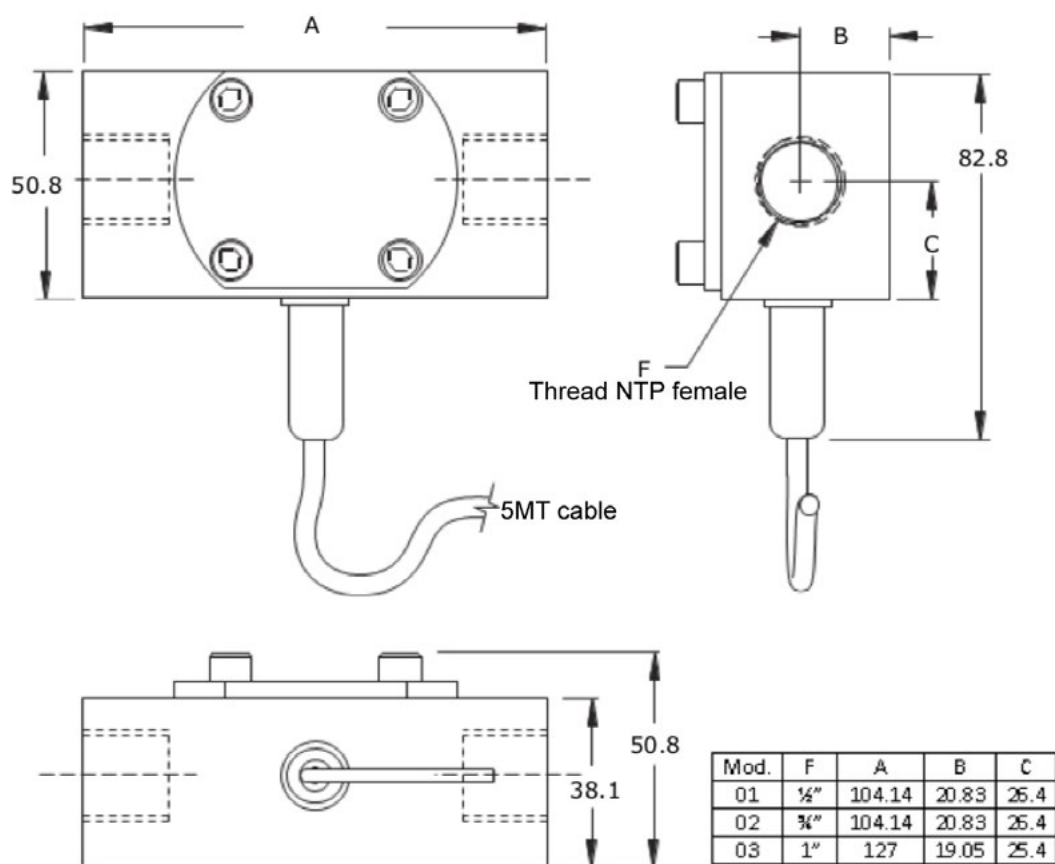
Fertilizers

Sprayed chemical products



FL522

Flow meter



Technical features

Model	FL522-01-XX*	
Range	-01	0.38 ÷ 37.9 Lt/min 1/2" NTP thread
	-02	0.75 ÷ 75 Lt/min 3/4" NTP thread
	-03	1.90 ÷ 95 Lt/min 1" NTP thread
Linearity	±1% FS	
Supply	5-24Vdc 2mA minimum	
Output	Pulse 6-24Vdc	
Max. Pressure	35 bar	
Max. Temperature	93°C	
Sensor cable	Standard 5mt; extensible up to 500mt	
Materials	Body	Stainless Steel AISI 316
	Rotor	PVDF (kynar)
	Shaft	Nickel and tungsten carbide
	O-ring	Teflon coated viton
	Cover	Stainless Steel AISI 316

Accessories

Ceramic shaft	FL522-AX-01
Silicon carbide shaft	FL522-AX-02
Sensor	FL522-AX-03

*XX Indicate the range (-01, -02, -03)

FL525

Electromagnetic flow meter



Description

The FL525 electromagnetic flowmeter is entirely made of polypropylene guaranteeing a corrosion resistance for a wide range of chemical agents. Its light weight and the simplicity of connection to the pipes with fittings, makes it easy to assemble and disassemble. There are different types of fittings to facilitate adaptation to a wide variety of configurations.

The FL525 flowmeter has no moving parts and allows free flow of liquids, minimizing noises. It is resistant to the wear from sand and debris that may be carried in the water flow, thus saving maintenance costs and downtime.

It can be used where the pipe configuration has tight spaces between pump, valves and flow meter. It is also equipped with a display that shows the instantaneous flow and total flow; it is available in two power supply versions: a 10 to 30Vdc one and a battery operated one.

Upon request, the FL525-01 meter can be connected to a pulse / current converter that transforms the pulses into a 4 ÷ 20mA output, or to a pulse / current converter also equipped with a digital display (totalizer + instantaneous flow).

The converter (with or without display) is equipped with wall mounting brackets. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Flow measurement in wells with industrial wastewater.

Flow measurement in remediation operations.

Cooling water etc.



FL525

Electromagnetic flow meter



Technical features

Model	FL525-01-XX*	FL525-02-XX*
Supply	10-30 Vcc	6 alkaline batteries or 2 lithium C batteries
Consumption	MAx 60mA; average 15mA	1-2 years or 2-4 years
Output	Pulse	----
Tube	1", 2" or 3"	
Linearity	1% from 10% to 100%; 3% from 0% to 10%	
Speed	1" da 0.14 a 6.94 l/s; 2" da 0.37 a 18.9l/s; 3" da 0.88 a 42.3l/s	
Unit of measurement**	Instantaneous l/sec, l/min, M3/min Totalizer liter, mgl, M3	
Min. Conductivity	20 µS/cm	
Pressure	Up to 10 bar	
Operating temperature	-12 ÷ +54 °C	
Protection	IP65	
Material	Polypropylene	
Material electrodes	Hastelloy C	
Totalizer flow	8 digit	
Instantaneous flow	6 digit	
Dimension	1" 110x137x140mm; 2" 118x153x140mm; 3" 118x185x185	

Accessories

Pipe fittings for 1" tube	FL525-RA-01
Pipe fittings for 2" tube	FL525-RA-02
Pipe fittings for 3" tube	FL525-RA-03
Lithium C batteries package	FL525-BT-OC
Alkaline AA batteries package	FL525-BT-AA
External power supply	FL525-AL

*XX Indicate the tube diameter (-01 for 1" , -02 for 2" , -03 for 3")
 ** Specify at the time of the order, on-site changes are not possible

ED-06/22

FL530

Flow probe



Description

The flow probe FL530 is an instrument suitable for measuring the water speed in channels, rivers and partially filled tubes. The system consists of telescopic bar with a propeller and digital display. The working principle consist of a free-moving prop, which inserted into the water, creates a number of impulses directly proportional to the water speed. Those impulses are shown on a display under actual and average speed.

The flow probe FL530 is produced in two models, which differs from the extension of the telescopic bar.

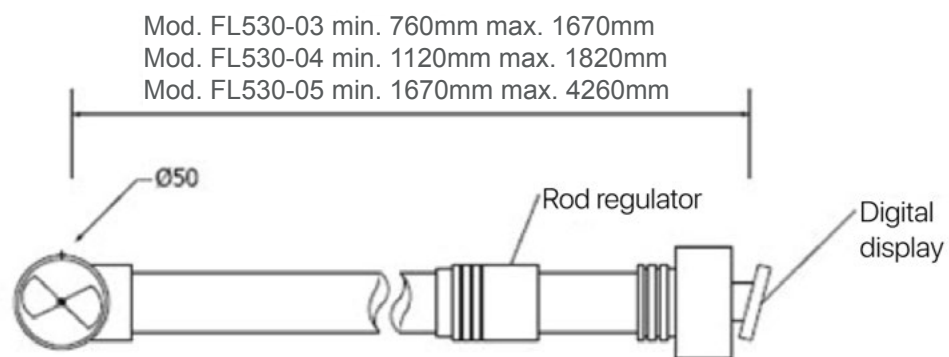
Applications

Water flow measurement in canals, rivers etc.



FL530

Flow probe



Technical features

Model	FL530-03	FL530-04	FL530-05
Range	0.1 - 6.0 m/s		
Accuracy	0.3 m/s		
Display	LCD		
Supply	Internal battery		
Sensor	Propeller with magnetic impulse		
Rod (mm)	760-1670	1120-1820	1670-4260
No. elements in the rod	3	2	3
Operating temperature	-20 ÷ +70 °C		
Material	PVC, anodised aluminum, Stainless steel		
Adjustable propeller body	-	-OR*	-OR*

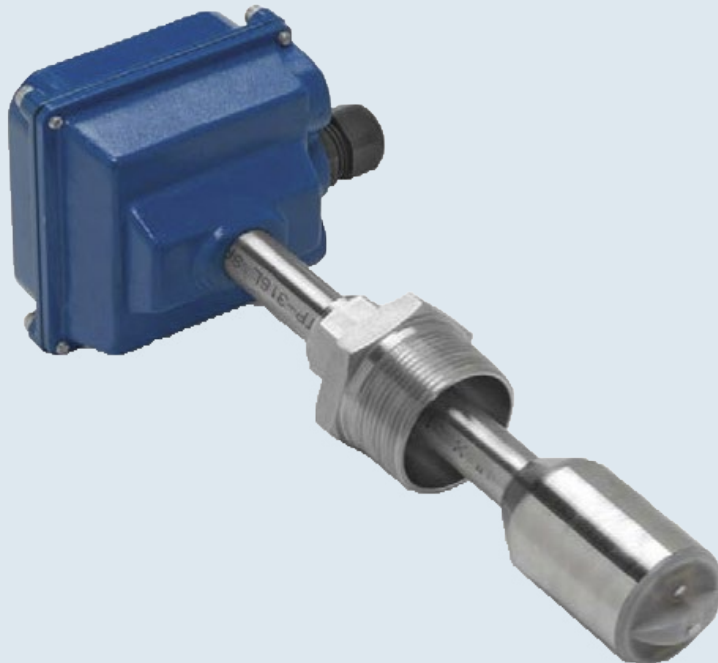
Accessories

Digital display	FL530-VS
Display holder	FL530-PV
Model -03 telescopic rod	FL530-AS-03
Model -04 telescopic rod	FL530-AS-04
Model -05 telescopic rod	FL530-AS-05
Propeller kit	FL530-KE
Propeller holder	FL530-PE
"Fin"	FL530-PN
Model -03 case	FL530-BS-03
Model -04 case	FL530-BS-04
Model -05 case	FL530-BS-05

* To request the adjustable propeller, add the -OR abbreviation to the instrument code

FL540

Insertion electromagnetic flow sensor



Description

The Electromagnetic Flow Sensors of the series FL540 are highly reliable adjustable depth insertion flow sensors. The meters have no moving parts, no rotors to stop turning in dirty water, and no bearings to wear out.

The sensor produces a rapidly reversing magnetic field in the lower housing. As fluid moves through this field, a voltage is generated. This voltage is measured and translated into a frequency signal that is proportional to flow rate. This square wave signal can then be sent directly to a PLC or other control system, or it can be converted using optional output displays and converters with a 4-20mA signal. There are two types of displays: mounted directly on the sensor or on a wall.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

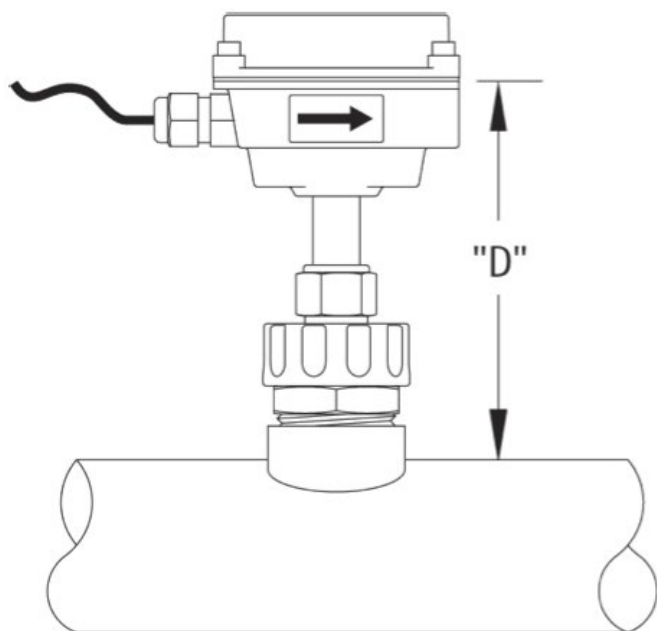
Applications

Water flow measurement in pipes.



FL540

Insertion electromagnetic flow sensor



Technical features

Model	FL540-01IN FL540-01OT FL540-02IN FL540-02OT				
Range	0.06-6.09 m/sec				
Pipe size	3"-10"		10"-48"		
Output	Opto-isolated square wave frequency 500Hz 20ft/sec				
Supply	12-24Vcc				
Consumption with display	250mA				
Accuracy	1%				
Max pressure	13.8 bar				
Room temperature	-17 ÷ +82°C				
Liquid temperature	0 ÷ +100°C				
Min conductivity	20μS				
Material	Sensor	AISI 316	Brass	AISI 316	Brass
	Case			Aluminum	
	Electrode			Hastelloy	
Dimensions	10x10x30.5cm			10x10x43.2cm	
Weight with display	1.36Kg			1.54Kg	

Accessories

Wall mounted display with 4-20 mA output	FL505-DS-WL
Instrument mounted display with 4-20mA output	FL505-DS-SE
Wall mounted 4-20 mA converter	FL505-CO-WL
Instrument mounted 4-20 mA converter	FL505-CO-SE

Flow in m3/h

Diameter	3"	4"	6"	8"	10"	12"	14"
Minimum	1.36	2.50	5.68	9.99	15.67	22.49	30.43
Maximum	99.93	177.8	400.1	711.6	1111.8	1601.2	2,179.5

Diameter	16"	18"	20"	24"	30"	36"	48"
Maximum	39.75	50.42	62.23	89.71	140.14	201.69	358.86
Minimum	2846.6	3602.9	4448	6404.9	10008	14411	25620

ED-06/22

FL545

Insertion electromagnetic flow meter



Description

The FL525 electromagnetic flow sensors are highly reliable and easy to assemble. The great advantage of those sensors, is that they have no bearings or moving parts that can wear out or interrupt the measurement even with dirty water.

The sensor produces an electromagnetic field in the lower part which generates an electrical voltage when the liquid passes. This is converted into a frequency signal proportional to the flow.

Upon request, the meter can be connected to a pulse / current converter that transforms the pulses into a 4-20mA output, or to a pulse / current converter also equipped with a digital display (totalizer + instantaneous flow).

The converter (with or without display) can be mounted via brackets to the wall or directly on the meter. This choice must be specified at the time of the order.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Measurement of flows in tubes.



FL545

Insertion electromagnetic flow meter



Technical features

Model	FL545-01-XX*	FL545-02-XX*	FL545-03-XX*
Range	0.08-6.09 m/sec		
Tube size	1"-12"		
Output	Freq. square wave opto isolated 500Hz 20ft / sec		
Supply	12-24Vcc		
Consumption	40-250mA		
Accuracy	±1%		
Max pressure	13.8 bar		10 bar
Environment temperature	-17 ÷ +72°C		
Liquid temperature	0 ÷ +93°C		0 ÷ +55°C
Min conductivity	20µS		
Material	Sensor	Stainless Steel AISI 316	Brass
	Casing		Aluminum
	Electrode		Hastelloy
Dimensions**	100 x 100 x H mm		
Weight	0.9Kg		

Accessories

Wall mounted display with 4-20mA output	FL505-DS-WL
Sensor mounted display with 4-20mA output	FL505-DS-SE
Wall mounted 4-20mA converter	FL505-CO-WL
Sensor mounted 4-20mA converter	FL505-CO-SE

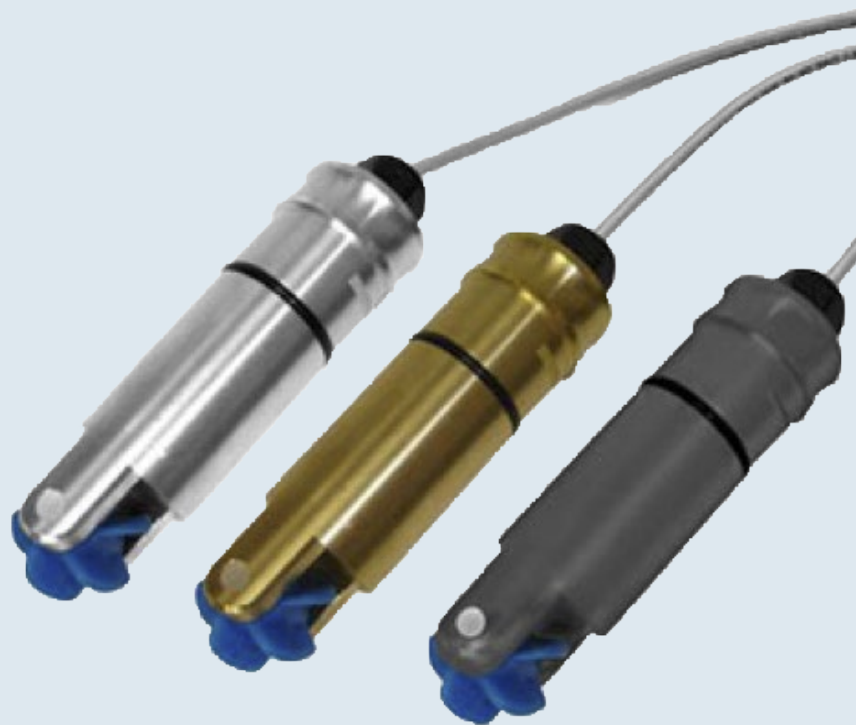
Flow in m3/h

Diameter	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"
Minimum	0.16	0.34	0.61	1.40	2.50	5.68	9.76	15.44	22.48
Maximum	11.13	24.98	44.52	99.93	177.8	400	711	1113	1601

*XX -D1 for diameters 1"- 3"; -D2 for diameters 4" – 10"; -D3 for diameter 12"
 **H = 1783mm for -D1 ; 2087mm for -D2 ; 2392mm for -D3

FL546

Insertion flow meter



Description

The FL546 series are highly reliable and easy to assemble propeller flow sensors. They provide an accurate measurement of the flow, thanks to a mechanic precision and quality, with long lasting and high tolerance bearings. Rotation of the rotor is detected by a Hall effect sensor. The output is a square wave pulse that can be sent over long distances (up to 650mt).

Upon request, the meter can be connected to a pulse / current converter that transforms the pulses into a 4-20mA output, or to a pulse / current converter also equipped with a digital display (totalizer + instantaneous flow).

The converter (with or without display) can be mounted via brackets to the wall or directly on the meter. This choice must be specified at the time of the order. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Measurement of flows in tubes.



FL546

Insertion flow meter



Technical features

Model	FL546-01-XX*	FL546-02-XX*	FL546-03-XX*
Range	0.15-9.14 m/sec		
Tube size	1.5" - 8"		
Output	Impulsi 20mA max 30Vdc Max		
Supply	6-30Vcc		
Consumption	8mA		
Accuracy	±2%		
Max pressure	14 bar**		12 bar
Environment temperature	-17 ÷ +72°C		
Liquid temperature	0 ÷ +93°C		0 ÷ +55°C
Min conductivity	20µS		
Material	Sensor	Stainless Steel AISI 316	Brass
	Casing		Aluminum
	Rotor		PVDF
Dimensions**	100 x 100 x H*** mm		
Weight	0.9Kg		

Accessories

Wall mounted display with 4-20mA output	FL505-DS-WL
Sensor mounted display with 4-20mA output	FL505-DS-SE
Wall mounted 4-20mA converter	FL505-CO-WL
Sensor mounted 4-20mA converter	FL505-CO-SE
Rotor kit	FL546-KR
Sensor	FL546-SE

Portata in m3/h

Diameter	1 1/2"	2"	3"	4"	6"	8"
Minimum	0.64	1.14	2.61	4.50	10.22	17.72
Maximum	43.2	71.3	157	270	613	1063

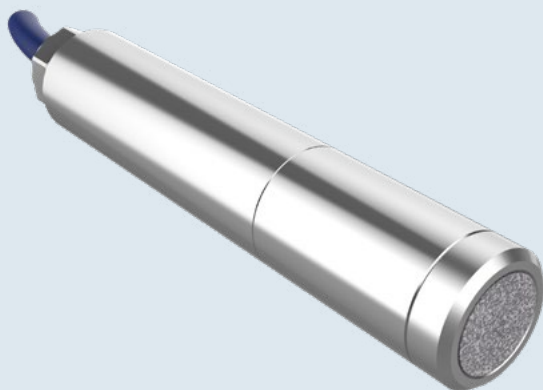
*XX -D1 for diameters 1"-3", -D2 for diameters 4"-10"

** upon request 28 bar only for stainless steel AISI 316 sensor

***H (including transmitter) = 190.5mm for -D1, 215.9mm for -D2

LV610

Electric piezometer



Description

The electric piezometer model LV610 measure pressures, interstitial overpressures and water levels in wells, dams, channels and tanks. The LV610 series is produces in two models:

- LV610-AS, absolute pressure piezometer, is able to measure interstitial ground pressures; equipped with copper shielded cable 4x0.22, outer sheath marine grade.
- LV610-RL, relative pressure piezometer, is able to measure hydrostatic pressures, equipped with vented cable 4x0.22 copper shielded, outer sheath marine grade.

The electric piezometer, inserted in a well, will give a directly proportional signal to the water level. The electric cable, fixed to the piezometer body, can be used for lowering the sensor as well as for recovering it. Inside the vented cable a tube connects the transducer with the atmosphere, allowing automatic barometric compensation.

The sensor consist of a piezoelectric element applied on a flexible metallic membrane, which can translate the pressure to a directly proportional electric signal.

The electric piezometer connection cable is provided with the required length. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

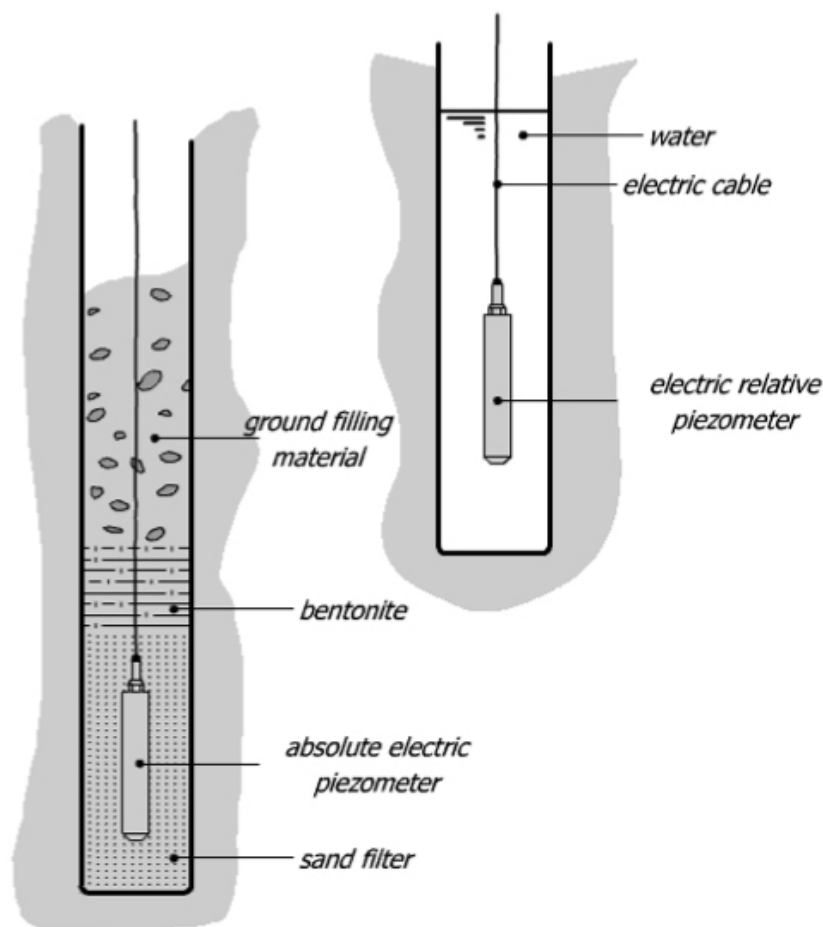
Applications

Water level measurement, interstitial pressure measurement.



LV610

Electric piezometer



Technical features

Model	LV 610-AS-FS*	LV 610-RL-FS*
Sensor	Piezoelectric	
Range available	from 0.05 to 1.0 bar every 0.05bar from 1 to 10 bar every 0.5 bar	
Overpressure	150 % FS	
Supply	8-28Vcc	
Output	4-20mA	
Linearity	0.25% FS	
Max. thermal error	< 0.04% / °C	
Long term precision	<0.2% FS (1 year)	
Insulation	>100MΩ	
Operating temperature	-25 ÷ +100 °C	
Temperature compensation	-10 ÷ +80 °C	
Protection	IP68	
Dimensions	Ø25x145 mm**	
Weight	0.325 Kg	

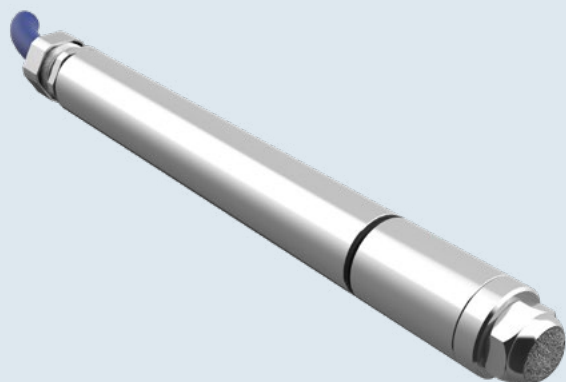
Accessories

Cap with filter (porous stone)	LV611-AX-FT01
Ballast	LV610-AX-WT01
Cable holder	LV610-AX-CBL1
90° cable holder	LV610-AX-CBL2
Junction box with filter	LV611-AX-SCFI

*FS Specify range on the order
** On request available Ø 22

LV611

Electric piezometer



Description

The electric piezometer model LV611 measure pressures, interstitial overpressures and water levels in wells, dams, channels and tanks. The LV611 series is produces in two models:

- LV611-AS, absolute pressure piezometer, is able to measure interstitial ground pressures; equipped with copper shielded cable 4x0.22, outer sheath marine grade.
- LV611-RL, relative pressure piezometer, is able to measure hydrostatic pressures, equipped with vented cable 4x0.22 copper shielded, outer sheath marine grade.

The electric piezometer, inserted in a well, will give a directly proportional signal to the water level. The electric cable, fixed to the piezometer body, can be used for lowering the sensor as well as for recovering it. Inside the vented cable a tube connects the transducer with the atmosphere, allowing automatic barometric compensation.

The sensor consist of a piezoelectric element applied on a flexible metallic membrane, which can translate the pressure to a directly proportional electric signal.

The electric piezometer connection cable is provided with the required length. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

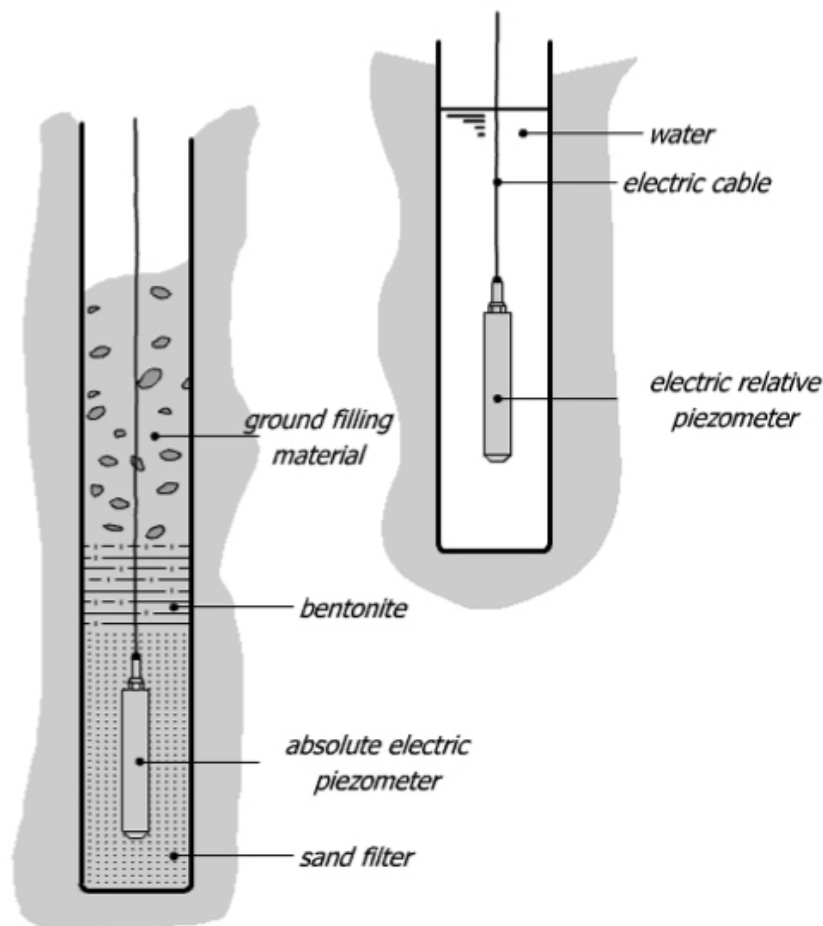
Applications

Water level measurement, interstitial pressure measurement.



LV611

Electric piezometer



Technical features

Model	LV611-01-MM-FS*	LV611-02-MM-FS*
Sensor	Piezoelectric	
Range available	from 1 to 10 bar every 0.5 bar	
Overpressure	150 % FS	
Supply	8-28Vcc	
Output	4-20mA	0-60mV
Linearity	0.2% FS	
Repeatability	0.05% FS	
Zero thermal error	0.75% FS a 35°C	
Span thermal error	0.75% FS a 35°C	
Long term precision	<0.1% F.S. (1 anno)	
Insulation	>100MΩ	
Operating Temperature.	-40÷ +125 °C	
Compensated temp. range	-10÷ +80 °C	
Protection	IP68	
Dimensions	Ø16x160 mm	Ø13.5x100 mm
Weight	100g	80g

Accessories

Cap with filter	LV611-AX-FT01
Cable holder	LV610-AX-CBL1
90° Cable holder	LV610-AX-CBL2
Junction box with filter	LV611-AX-SCFI

*FS Indicate the range

*MM Indicate the model -AS or -RL (with or without atmospheric compensation)

LV615

Piezometer with datalogger



Description

The electric piezometers of LV615 series measure pressures, interstitial overpressures and water levels in wells, dams, canals and reservoirs. LV615 series is produced in 3 models:

- LV615-AS1, absolute piezometer able to detect interstitial pressures in the ground, equipped with 4x0.22 shielded electric cable with marine grade anti-scratch outer sheath.
- LV615-AS2, absolute piezometer able to detect interstitial pressures in the ground without cable, equipped with a hook for fixing a suspension cord.
- LV615-RL, relative piezometer, able to detect a hydrostatic pressure, equipped with 4x0.22 shielded electric cable with atmospheric compensation tube and marine grade anti-scratch outer sheath.

The piezometer, inserted in a well, carries out a pressure measurement directly proportional to the height of the liquid contained in it. The electrical connection cable is fixed to the piezometer casing, allowing it to enter and recover without problems. Inside the connection cable a small pipe connects the reference chamber of the transducer with the atmosphere, in order to compensate for variations in atmospheric pressure: a relative pressure measurement results. In -AS2 model, the data acquisition unit and the battery are inside the piezometer, while, in the -AS1 and -RL models, the data acquisition unit is located at the head of the hole and the electrical connection cable of the piezometers is supplied with the desired length.

MYLOG data acquisition system is housed inside a cylindrical body in Stainless Steel or inside a PVC housing.

Acquisition intervals are programmable from 1min to 24hrs. WARM UP function can be programmed from 1 to 60 seconds and allows to supply current to the instrument before reading, in order to stabilize it. When connected, MYLOG unit provides all the parameterization data stored in it, as well as the status of the battery. The data is saved in a FLASH memory that can store 128.000 data, as well as date and time. The datalogger comes with two rods, so you can fix it by mouth.

It is possible to connect MYLOG unit to a GSM modem.

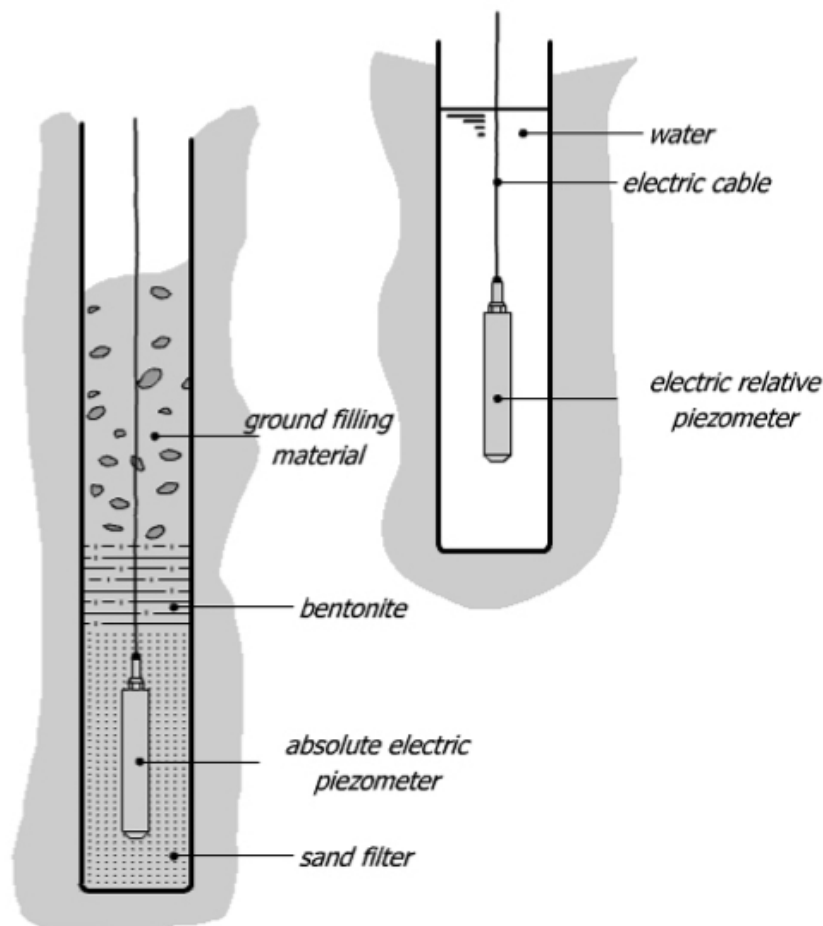
Applications

Level measurement of the stratum, measurement of interstitial pressure.



LV615

Piezometer with datalogger



Technical features

Model		LV615-AS1-FS* LV615-AS2-FS* LV 615-RL-FS*	
Sensor		Piezoelectric	
Range available		from 0.05 to 1.0 bar every 0.05 bar from 1 to 10 bar for every 0.5 bar	
Overpressure		150 % FS	
Linearity		0.25% FS	
Total thermal error		< 0.04% / °C	
Long term stability		<0.2% FS (1 year)	
Isolation		>100MΩ	
Protection		IP68	IP68 IP61
Temperature sensor		Add -TM to instrument acronym	
Measuring range		-10 ÷ 105°C	
Precision		0.1°C	
Datalogger		MYLOG	
Channels		2	
Converter		16bit	
Input		CH1 Piezometer 4-20mA CH2 Temperature 0-2V	
Real time		✓	
Battery control		✓	
Warm Up		✓	
Com. Speed (BPS)		9600, 57600baud	
Acquisition rate		Programmable from 1min to 24hrs.	
Memory per channel		64.000 data plus date and time	
Housing material		Stainless Steel / PVC	
General			
Power		Power supply 3x3.6V 1200mAh	
Consumption		0.01mA in standby 20mA during connection; 30mA during acquisition	
Average duration		In standby 7 years With an acquisition every hour 2.5 years	
Operating temperature		-20 ÷ +70 °C	
Weight	Mod. -AS1 -RL	Sensor 0.325 Kg / Datalogger 0.480Kg	
	Mod. -AS2	0.610Kg	
Dimensions	Mod. -AS1 -RL	Sensor Ø25x145mm / Datalogger Ø25x260mm	
	Mod. -AS2	Ø25x300 mm	
Accessories			
Cap with filter (porous stone)		LV610-AX-FT01	
Ballast		LV610-WT-KG**	
Power supply 3x3.6Vx1200mA		LV615-AX-3612	
Communication Kit (USB cable, driver and software VEDO)		ML-LY-COM	

*FS Indicate sensor range
**KG Indicate the weight in KG (standard 4 Kg)

LV616

Piezometer with datalogger



Description

The LV616 electric piezometers measure pressures, interstitial overpressures and water levels in wells, dams, canals and tanks. The LV 616 series is produced in 3 models:

- LV616-AS1, absolute piezometer capable of detecting interstitial pressures in the ground, equipped with shielded electric cable 4x0.22 with anti-scratch marine grade outer sheath.
- LV616-AS2, absolute piezometer able to detect interstitial pressures in the ground without cable, equipped with a hook for fixing to a suspension cable.
- LV616-RL, relative piezometer, able to detect a hydrostatic pressure, equipped with 4x0.22 shielded electric cable with atmospheric compensation tube and anti-scratch marine grade outer sheath.

The piezometer, inserted in a well, measures the pressure as a direct proportional to the height of the liquid contained in it. The electrical connection cable is fixed to the piezometer casing, allowing it to be recovered without problems. Inside the connection cable a small pipe connects the reference chamber of the transducer with the outside atmosphere, in order to compensate for variations of atmospheric pressure: this is resulting in a relative pressure measurement.

In the -AS2 model, the data acquisition unit and the battery are inside the piezometer casing, while, in the -AS1 and -RL models, the data acquisition unit is located at the head of the hole and the electrical connection cable is supplied based on any desired length.

MYLOG data acquisition system is housed inside a cylindrical body in Stainless Steel or inside a PVC housing.

Acquisition intervals are programmable from 1min to 24h. The WARM UP function can be programmed from 1 to 60 seconds and allows to power supply the sensor prior to recording, in order to stabilize the signal output. MYLOG unit provides all stored setup data as well as the status of the battery. The data is saved in a FLASH memory that can store up to 128,000 readings, in addition to date and time. The datalogger comes with two rods, allowing it to be fixed at the head of the tube.

It is possible to connect the MYLOG unit to a GSM modem.

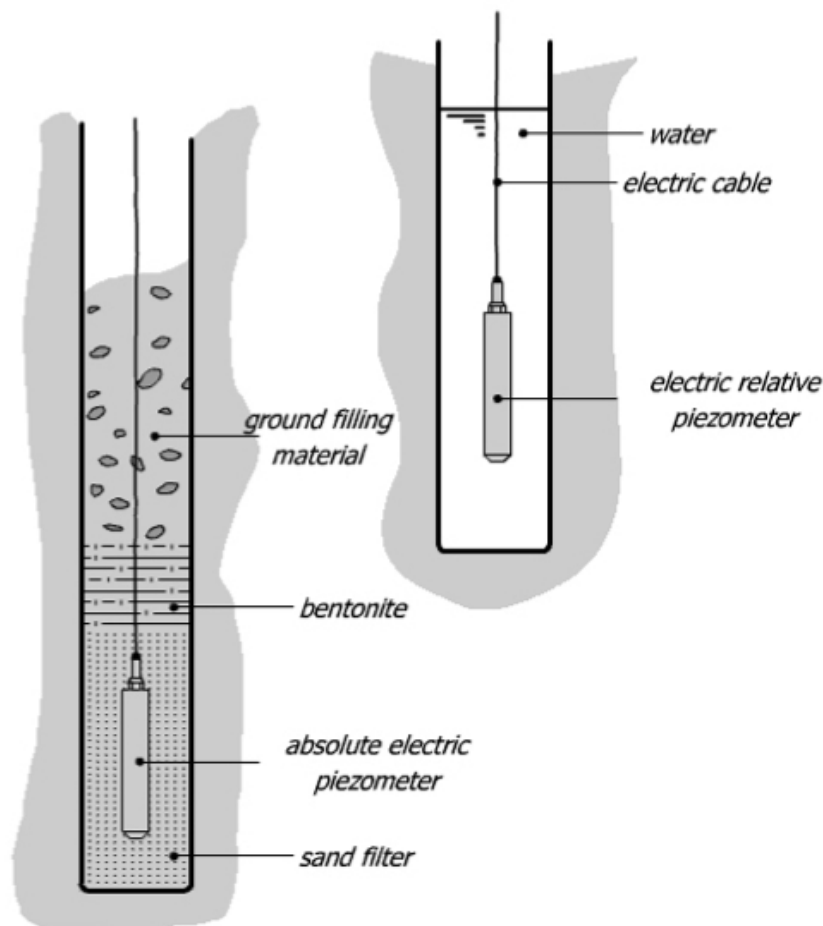
Applications

Measurement of wells level, measurement of interstitial pressure.



LV616

Piezometer with datalogger



Technical features

Model	LV616-AS1-FS* LV616-AS2-FS* LV 616-RL-FS*	
Sensor	Piezoelectric	
Available range	from 0.05 to 1.0 bar every 0.05 bar from 1 to 10 bar for every 0.5 bar	
Overpressure	150 % FS	
Linearity	0.25% FS	
Total thermal error	< 0.04% / °C	
Long term stability	<0.2% FS (1 year)	
Isolation	>100MΩ	
Protection	IP68	IP68 IP61
Temperature sensor	Add -TM to instrument acronym	
Measuring range	-10 ÷ 105°C	
Precision	0.1°C	
Datalogger	MYLOG	
Channels	2	
Converter	16bit	
Input	CH1 Piezometer 4-20mA CH2 Temperature 0-2V	
Real time	✓	
Battery control	✓	
Warm Up	✓	
Com. Speed (BPS)	9600, 57600baud	
Acquisition rate	Programmable from 1min to 24hrs.	
Memory per channel	64.000 data plus date and time	
Housing material	Stainless Steel / PVC	
General		
Power	Power supply 1x3.6V 8500mAh	
Consumption	0.01mA in standby 20mA during connection; 30mA during acquisition	
Average duration	In standby 7 years With an acquisition every hour 2.5 years	
Operating temperature	-20 ÷ +70 °C	
Weight	Mod. -AS1 -RL	Sensor 0.325 Kg / Datalogger 0.780Kg
	Mod. -AS2	0.970Kg
Dimensions	Mod. -AS1 -RL	Sensor Ø25x145mm / Datalogger Ø35x350mm
	Mod. -AS2	Ø35x330 mm
Accessories		
Cap with filter (porous stone)	LV610-AX-FT01	
Ballast	LV610-WT-KG**	
Power supply 1x3.6Vx8500mA	LV616-AX-3685	
Communication Kit (USB cable, driver and software VEDO)	ML-LY-COM	

*FS Indicate sensor range
**KG Indicate the weight in KG (standard 4 Kg)

LV617

Piezometer with datalogger



Description

The LV617 electric piezometers measure pressures, interstitial overpressures and water levels in wells, dams, canals and tanks. The LV 617 series is produced in 3 models:

- LV617-AS1, absolute piezometer capable of detecting interstitial pressures in the ground, equipped with shielded electric cable 4x0.22 with anti-scratch marine grade outer sheath.
- LV617-AS2, absolute piezometer able to detect interstitial pressures in the ground without cable, equipped with a hook for fixing to a suspension cable.
- LV617-RL, relative piezometer, able to detect a hydrostatic pressure, equipped with 4x0.22 shielded electric cable with atmospheric compensation tube and anti-scratch marine grade outer sheath.

The piezometer, inserted in a well, measures the pressure as a direct proportional to the height of the liquid contained in it. The electrical connection cable is fixed to the piezometer casing, allowing it to be recovered without problems. Inside the connection cable a small pipe connects the reference chamber of the transducer with the outside atmosphere, in order to compensate for variations of atmospheric pressure: this is resulting in a relative pressure measurement.

In the -AS2 model, the data acquisition unit and the battery are inside the piezometer casing, while, in the -AS1 and -RL models, the data acquisition unit is located at the head of the hole and the electrical connection cable is supplied based on any desired length.

MYLOG data acquisition system is housed inside a cylindrical body in Stainless Steel or inside a PVC housing.

Acquisition intervals are programmable from 1min to 24h. The WARM UP function can be programmed from 1 to 60 seconds and allows to power supply the sensor prior to recording, in order to stabilize the signal output. MYLOG unit provides all stored setup data as well as the status of the battery. The data is saved in a FLASH memory that can store up to 128,000 readings, in addition to date and time. The datalogger comes with two rods, allowing it to be fixed at the head of the tube.

It is possible to connect the MYLOG unit to a GSM modem.

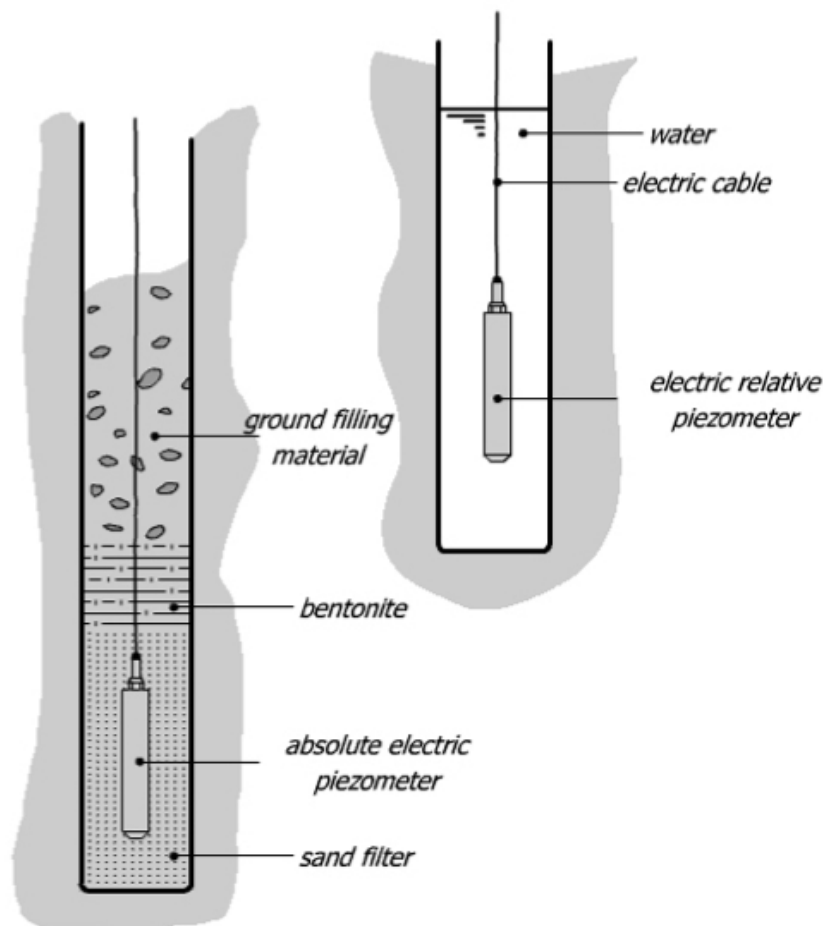
Applications

Measurement of wells level, measurement of interstitial pressure.



LV617

Piezometer with datalogger



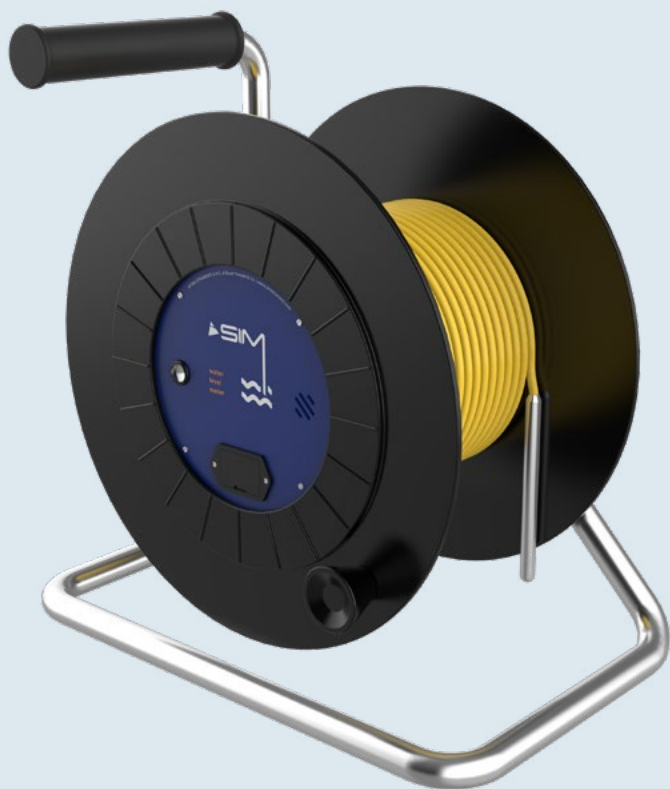
Technical features

Model		LV617-AS1-FS* LV617-AS2-FS* LV 617-RL-FS*	
Sensor		Piezoelectric	
Available range		from 1 to 10 bar for every 0.5 bar	
Overpressure		150 % FS	
Linearity		0.25% FS	
Total thermal error		< 0.04% / °C	
Long term stability		<0.2% FS (1 year)	
Isolation		>100MΩ	
Protection		IP68	IP68 IP61
Dimensions		Ø 16 x 160 mm	
Weight		100 g	
Datalogger		MYLOG	
Channels		2	
Converter		16bit	
Input		CH1 Piezometer 4-20mA CH2 Temperature 0-2V	
Real time		✓	
Battery control		✓	
Warm Up		✓	
Com. Speed (BPS)		9600, 57600baud	
Acquisition rate		Programmable from 1min to 24hrs.	
Memory per channel		64.000 data plus date and time	
Housing material		Stainless Steel / PVC	
General			
Supply		Power supply 3x3.6V 1200mAh	
Consumption		0.01mA standby 20mA during connection; 30mA during acquisition	
Average duration		In standby 10 years With an acquisition every hour 2.5 years	
Operating temperature		-20 ÷ +70 °C	
Weight	Mod. -AS1 -RL	Sensor 0.325 Kg / Datalogger 0.780Kg	
	Mod. -AS2	0.970Kg	
Dimensions	Mod. -AS1 -RL	Sensor Ø16x160mm / Datalogger Ø35x350mm	
	Mod. -AS2	Ø35x330 mm	
Accessories			
Cap with filter (porous stone)		LV611-AX-FT01	
Ballast		LV611-WT-KG**	
Power supply 3x3.6Vx1200mA		LV617-AX-3685	
Communication Kit (USB cable, driver and software VEDO)		ML-LY-COM	

*FS Indicate sensor range
**KG Indicate the weight in KG (standard 4 Kg)

LV620

Water level meter



Description

In order to ease the level measurement in wells and piezometric holes etc., SIM has developed the water level meter LV620, compact, portable and lightweight. The water meter consist of a graduated cable (every centimeter), mounted on a reel and a probe, which after making a contact with the water closes an internal circuit mounted in the central part of the reel. The probe has a diameter of 12 cm, and it can be used with all piezometric tubes of normal use. The probe, as already mentioned, closes an internal circuit, which has an acoustic and a visual signal, mounted in the central part of the cable reel, supplied by a 9V battery, also mounted in the reel. The measurement is done by reading the cable mark, at the time of the activation of the signals. The cable is to be referred to the head tube. SIM supplies upon request a temperature sensor placed in the probe, with a digital display, also place in the central part of the cable reel.

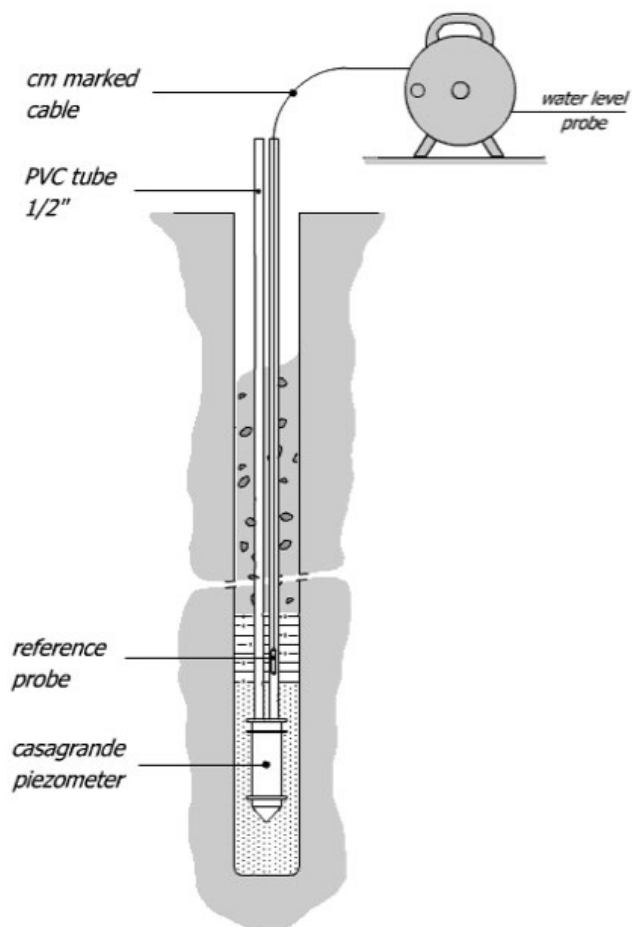
Applications

Underground water level measurement.



LV620

Water level meter



Technical features

Model	LV620-01	LV620-02
Tip		
Material	Stainless steel / PVC	
Dimensions	Ø12 x 150mm	
Cable	Centimeter	Millimeter
Type	Round	Flat
Conductors number	4 + anima in kevlar	2
External sheath	Transparent polyurethane	Transparent polyurethane
Dimensions	Ø4.7mm	10x1mm
Cable length available*	50-100	50-100-150
Cable reel		
Material	Thermoplastic tambour and steel trestle	
Accuracy	Reel diameter	Ø260 mm
	Width	260 mm
	Total height	295 mm
	Depth	175 mm
Cable reel with wheels		
Material	Thermoplastic tambour and steel trestle	
Accuracy	Reel diameter	Ø420 mm
	Width	475 mm
	Total height	610 mm
	Depth	385 mm
Accessories		
Temperature sensor and digital display		
Add -T to the model code:		
	LV620-01-T	LV620-02-T

* Indicate the desired cable length

LV621

Water level alarm sensor



Description

The Water Level Alarm Sensor LV621 is a solid state water sensor for detecting the presence of conductive solutions, such as water spills, water tank levels and drainage ponds. The water alarm sensor features two stainless steel electrodes that are positioned at a desired point for liquid detection. When fluid is detected, a relay closes in the water level alarm and the signal can be used for a:

- visual and/or audible alarm,
- pump control,
- SMS message via modem.

The relay output is fully isolated and can handle 2 amps of current.

After the water level alarm sensor is in dry conditions, the detection sensor will automatically reset without requiring additional service. The water level alarm is rugged and durable and requires minimal maintenance.

Applications

Ideal for water spills, tank failure, pump failure, rising water, floods etc.



LV621

Water level alarm sensor



Technical features

Sensor	LV621-SE
Supply	8-24Vcc
Consumption	Continuous 4mA Active 44 mA
Output	Isolated relay
Switching voltage	100Vdc max
Switching current	250 mA max
Dimensions	Ø25mm x 130mm
Weight	170g
Alarm (light and sounder)	LV621-AL
Input	Contact
Output	12Vcc 25mA max
Supply	12V-36cc
Visual alarm	Red light
Audible alarm	95dB 2900Hz
Dimensions	PVC 36cm x Ø6.5
Weight	1.1Kg

Accessories

Modem with alarm	MDS-ADV
-------------------------	----------------

LV625

Portable ultrasonic level meter



Description

The LV625 ultrasonic level meter is a compact, versatile and easy to use battery-powered instrument, which, through sound waves, measures the water level. The measurement can be carried out quickly and precisely, without lowering any tools into the hole, avoiding contamination and the inconvenience of cables to be unrolled and transported. The LV625 level meter allows the detection of the level with 2 measurement scales: in the NORMAL mode the scale goes from 3 to 152 meters, while in the DEEP mode the scale goes from 61 to 366 meters.

Applications

Measurement of wells level in tubes.



LV625

Portable ultrasonic level meter



Technical features

Model	LV625
Range	Normal 3-152mt Deep 61-366mt
Display resolution	0.03 mt
Accuracy	0.06mt
Opearating Temperature	-1 ÷ +60 °C
Supply	8 batteries AA
Dimensions	180x100x130 mm
Weight	1.5Kg

Accessories

Bag

LV625-BG01

LV630

Ultrasonic level meter



Description

SIM has developed the ultrasound level meter LV630 in order to monitor the water level in wells, channels, where the absence of moving parts under water allow the instrument to have a very easy installation and having high quality at the same time. This instrument, due to its features, is used for low depth waters, for example, for measuring the flow in channels with V-Notch etc.

The instrument working principle is based on the response time of a sound wave. In the first phase the instrument releases a define number of sound waves, in the second phase it receives back the eco, calculating the time elapsed between the wave sent and the one received. The instrument translate the time elapsed into distance. The output signal produce is mA, and it is directly proportional to the distance between the sensor and the water surface, where 4 mA is max height and 20 mA is the min one.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

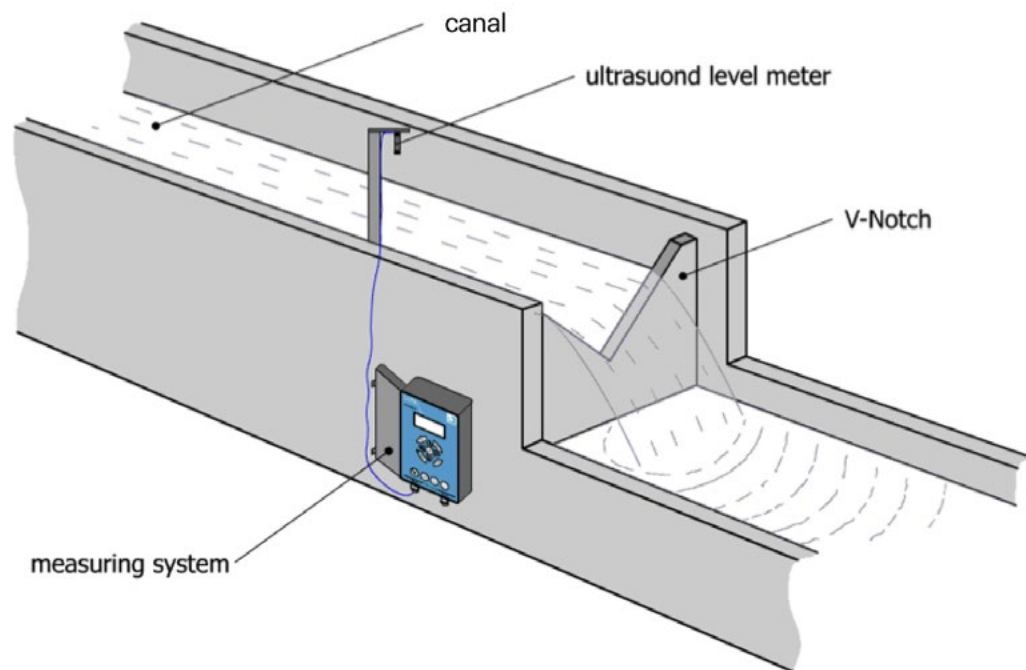
Applications

Water level measurement of dams, basins, rivers, weirs, silos etc.



LV630

Ultrasonic level meter



Technical features

Model	LV630-01-FS*	LV630-02-FS*	LV630-03-FS*
Max range (mt)*	0.1 - 4.3	0.1 - 9.1	0.3 - 15.2
Min range (mt)	0.1 - 0.6	0.1 - 3.0	0.3 - 4.0
Supply	10-30 Vcc		
Output	4-20mA		
Linearity	0.5% FS		
Consumption	70mA max		
Dimensions	Ø26.7x103 M30 x 1.5	Ø48x188mm 1.5"NPT	Ø60x121mm
Angle	12°		
Warm Up	15 sec		
Readout update	50ms	100ms	200ms
Protection	IP68		
Material	Stainless steel		
Weight	0.360Kg	0.560Kg	0.730Kg

Accessories

Puncheon	LV630-MWPL
"L" mounting bracket	LV630-MW00
Mounting beam for LV 630-01	LV630-MW01
Mounting beam for LV 630-02	LV630-MW02
Mounting beam for LV 630-03	LV630-MW03

*FS Indicate the range

LV680

Piezometric head



Description

The piezometric head is an accessory used in the dams for overpressure monitoring. It consists of a cross connector where there are installed:

- Pressure sensor
- Bourdon pressure gauge or digital sensor for on-site visual inspection
- Quick coupling for the control and calibration of the pressure sensor
- Ball valve, to carry out maintenance and / or replacement of the instrumentation.

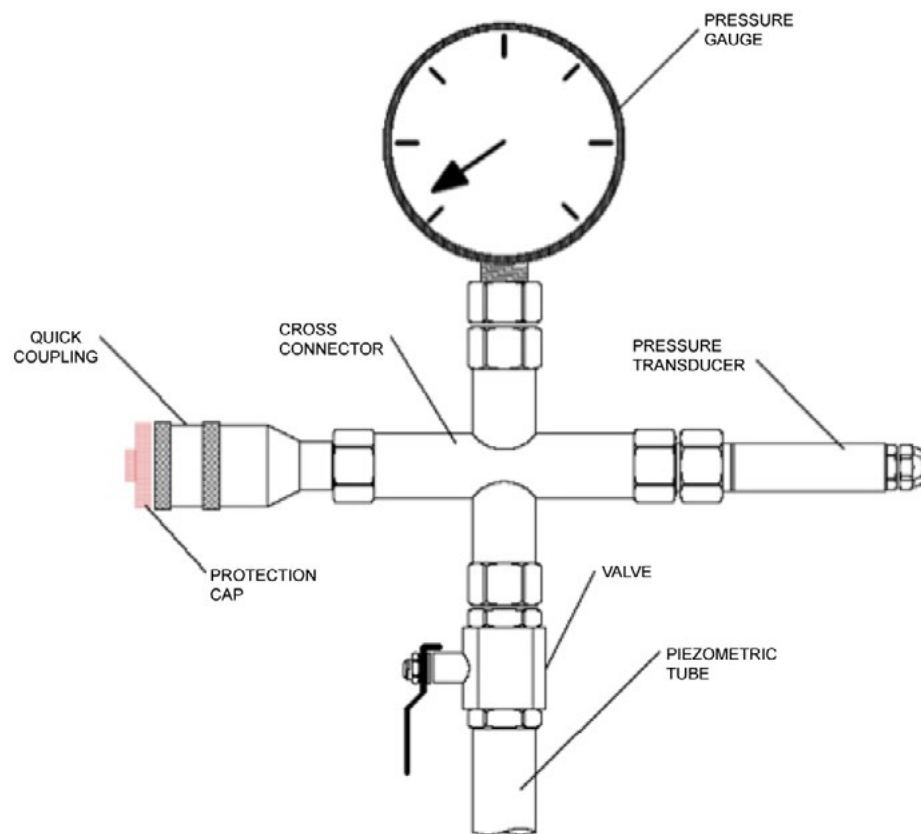
Applications

Measurement of pressure in dams.



LV680

Piezometric head



Technical features

Pressure gauge**		LV680-M1-DN-FS	LV680-M2-DN-FS	LV680-M3-DN-FS
DN Diameter		63-80-100-150-200-250	63-80-100-150	100-150-200-250
Coupling		G 1/4" for Ø63-80 G1/2" for Ø100-150-200-250		G1/2"
Range		1 - 4 - 6 - 10 - 16 - 25 - 40 - 60 - 100bar		
Accuracy		1% (1.6 for Ø63-80)		0.25% EN837-1
Overload		25%FS (100bar 15%FS)		
Temperature		-30 ÷ 65°C	-5 ÷ 65°C	-10 ÷ 30°C
Protection		IP55	IP65	IP65
Filling		-	Glycerine	-
Material	Box	AISI 304		
	Intern	AISI 316		
	Coupling	AISI 316		
Sensor*		LV680-SE-FS		
Type		Piezoelectric		
Range		1 - 4 - 6 - 10 - 16 - 25 - 40 - 60 - 100bar		
Overload		150%		
Supply		8-24Vcc		
Output		4-20mA		
Linearity		0.25% FS		
Total thermal error		0.04%/°C		
Long term stability		<0.2% FS (1 year)		
Insulation		>100mΩ		
Operating temperature		-25 ÷ 100°C		
Protection		IP68		
Input		¼" male		
Couplings				
Cross connector		Stainless Steel AISI304 4 inputs ¼" female		
Quick coupling		Brass		
Valve		Stainless Steel AISI316 4 inputs ¼" female		
Reducers		Stainless Steel AISI316		

*DN Indicate the nominal diameter of the pressure gauge

*FS Indicate the desired sensor and gauge range

** With the abbreviation LV680-MA-DI-FS it is possible to order a digital manometer specifying in FS the desired full scale

LV690

Submersed purged pump



Description

Submersible pumps mod. LV690 are of high quality and ready to use, representing an economical solution for both draining and sampling. They are ideal to be used in wells from 2" and up to 29 meters deep. They are robust and can pump up to 13 liters per minute.

The LV690 pumps are made of plastic and moving parts are stainless steel. They are equipped with a filter so that any sand or debris residual found in the water does not clog the pump.

It is possible to reduce the flow of the outlet water by mounting a valve at the end of the pipe or reducing the electric current.

The life expectancy of the pump is about 400 hours.

Applications

Sampling and draining.



LV690

Submersed purged pump

Technical features										
Model		LV690-40				LV690-60		LV690-90		
Supply		12Vcc								
Max. current		5 amp				10 amp				
Dimension		129xØ36mm				258xØ36mm		387xØ36mm		
Outlet connection		Ø11mm (3/8")								
Cable lenght		15.24				20.11		28.95		
Temperature		66°								
Notes		Pump casing				ABS				
		Impeller casing				Stainless Steel/PBT				
		Filter				Polypropylene				
		Gasket				Nitrile				
		Cable				PVC				
Recommended operation		15 minutes operation and 5 minutes break								
Yield table										
Current		Yield in liters/minute at various depths (m)								
Model	consumption	3	6	9	12	15	18	21	24	27
LV690-40	2.0-3.5Amp	12	7.5	3.8	0.4	-	-	-	-	-
LV690-60	3.3-6.4Amp	11	8.7	6	4.1	1.9	0.4	-	-	-
LV690-90	5.1-8.0Amp	13	12	10	8.3	6.4	5.3	3.4	2.3	0.7
Accessories										
Outlet connection Ø13mm (1/2")						LV690-AX-01				

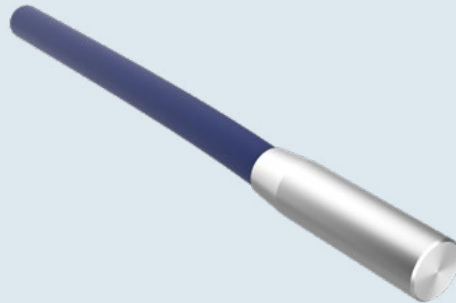


Meteorology



WE710

Temperature sensor



Description

This element is one of the most used in different field of application, it engage a leading role in the meteorological field, which can be correlated to other meteorological components, and it's used has a compensation data for structural monitoring.

The WE710 temperature sensor is an instrument suited for measuring temperature in different applications:

air, liquid, walls, stones, embedded in concrete, inserted into the ground etc.

The WE710 temperature sensor consists in a stainless steel housing that allow his use in all environments.

SIM has developed an adequate protection for all above situations, which, has the capability to assure long longevity to the sensor, without changing the sensible element features

For external applications SIM also provide, upon request, a solar shield, required for accurately measure temperature, the sensor should be shielded from direct sunlight or precipitation and it should be adequately ventilated.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

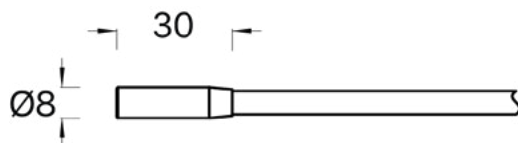
Applications

Temperature measurement for internal and external mounting.



WE710

Temperature sensor



Technical features				
Model	WE710-PT	WE710-42	WE710-AN	WE710-CN
Supply	1 mA	10-30 Vcc	5-30 Vcc	5-30 Vcc
Output	100 Ω a 0 °C	4-20mA	10mV/°C	μA/K K= °C+273.1
Range	-100 ÷ 104°C	Adjustable*	-40 ÷ 110°C	-50 ÷ 105°C
Accuracy	1/3 DIN	0.25 °C	0.3 °C	0.1 °C
Consumption	1 mA	30 mA	0.3 mA	0.3 mA
Material	Stainless steel			
Dimensions**	Ø8 x 30 mm			
Protection	IP65			
Accessories				

Solar shield

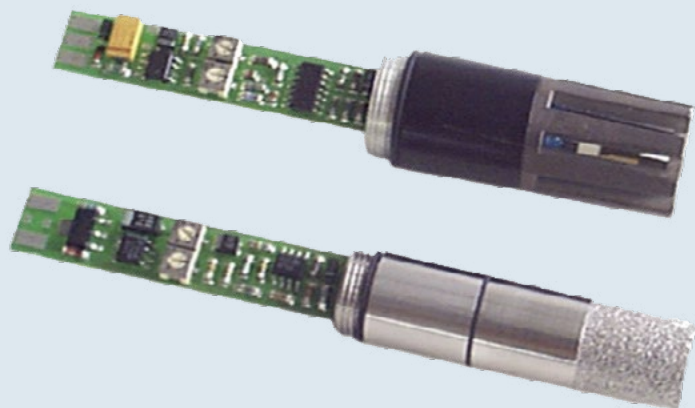
WE710-AX-SSH1

* The range cannot be changed in the field, please specify range when you order.

** In WE710-42 model the 4-20mA transmitter is housed in a rugged enclosure in polyester glass fibers reinforced, IP65 dimension 55X55X38mm.

WE720

Humidity sensor



Description

The WE720 is a sensor suited for measuring relative humidity in inners, outers and masonry applications.

The sensor produces an electrical output signal (0-1Vcc, 4-20mA), directly proportional to the percentage of the humidity measured. Since the humidity is influenced from the temperature fluctuations, the measurement is automatically compensated by an internal thermistor (PT100).

For masonry applications, the sensor should be inserted in a hole and the measurement should be taken after 48 hours, in order to allow a stabilized readout.

For external applications SIM also provides, upon request, a solar shield.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Humidity measurement for inners and outers.



WE720

Humidity sensor



For outers with solar shield



For inners

Technical features

Model	WE720-IN	WE720-ES
Use	for inners	for outers
Supply/output	6÷30Vdc /0 ÷ 1Vcc 12÷30Vdc /4 ÷ 20mA	4-20mA
Range	0 ÷ 100 %RH	
Operating temperature	-20 ÷ +80 °C	
Linearity	±2%RH (5 ÷ 95 %RH a 10 ÷ 40 °C)	
Additional error	<0,1% (<10°C >40°C)	
Casing material	PVC	
Filter material	PVC	Stainless steel
Dimensions	Ø16 x 150 mm	

Accessories

Solar shield

WE710-AX-SSH1

WE730

Barometer



Description

The WE730 barometric pressure transmitter is a sensor suited for measuring the atmospheric pressure.

The barometer is one of the most common instruments used in the meteorological field, since an atmospheric pressure variation suggests a climate shift. Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Atmospheric pressure measurement.



WE730

Barometer

Technical features

Supply	7-24 Vcc
Output	4-20 mA
Range	800 ÷ 1200 mbar
Linearity	0.25% FS
Operating temperature	-20 ÷ +70 °C
Protection	IP65
Dimensions	Ø 25 x 145mm
Material	Stainless steel
Weight	0.325 Kg

Accessories

Mounting hangers	WE730-AX-MW01
Mounting hangers for puncheon	WE730-AX-MW02

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WE740

Rain gauge



Description

The WE740 tipping bucket measures the rain rate: a data that correlated to the groundwater level, represents an important factor in the hydrogeological field study.

The WE740 rain gauge is produced in two models: the first is in plastic material and the second in aluminum, which assure a long functionality in every atmospheric condition. The measuring system consists of a standard measurement weight magnet that takes measurements in 0.25mm for every tip of the bucket, producing an electrical pulse that can be read by any data acquisition system produced by SIM:

- MINILOG data acquisition system
- NATUN data acquisition system

SIM also provides, upon request, a 4-20 mA converter that allows the tipping bucket connection to any PLC or data logger or with the data acquisition systems NATUN or MINILOG.

Applications

Rain measurement.



WE740

Rain gauge

Technical features		
Model	WE740-AL	WE740-PL
Resolution	0.2 mm	
Accuracy	1% x 25mm/h	3% x 100mm/h
Range	0 ÷ +51 °C	
Average switch closure time	135 ms	
Operating temperature	0 ÷ 51 °C	
Material	Aluminum	ABS
Dimensions	Ø200 x 283mm	Ø 210 x 380mm
Rain area	0.0314 m ²	0.0214 m ²
Weight	3.0 Kg	0.900 Kg
Accessories		
4-20 mA converter	WE740-IM-420	
Range	20mA per 32impulses/min	
Supply	10-30Vcc	
Temperature	0÷51 °C	
Dimensions	83 x 38 x 50	
Weight	0.225 Kg	
Heating resistor	WE740-AX-TRRS	
Mounting hangers	WE740-AX-STMU	
Mounting hangers for puncheon	WE755-AX-MW01	
Puncheon	WE-PA-IN-MM*	
Material	Stainless steel	
Dimensions	1"	
Puncheon	WE-PA-AZ-MM*	
Material	Galvanized steel	
Dimensions	1"	

* The puncheon in Stainless steel or galvanized steel is available in 3mt templates; specify the desired length on the order.

WE750

Wind speed sensor



Description

The WE750 wind speed sensor is one of the most used sensors for meteorological measurements.

The detection of wind speed is widely used in many sectors such as agriculture, meteorology, industry as well as in the protection of the environment and in new technologies concerning renewable energy sources. In consideration of the environmental characteristics in which these instruments are used, particular care has been taken in their implementation. The wind speed sensor mod. WE750, made of plastic material, consists of three spoons connected to a body which rotates at a variable speed according to the intensity of the wind, creating an electrical signal directly proportional to the speed.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

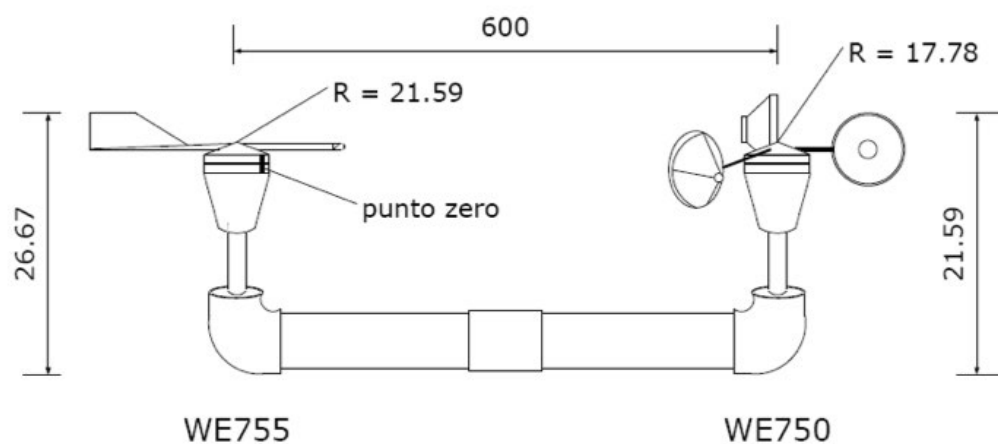
Applications

Agriculture, meteorology, environment protection, etc.



WE750

Wind speed sensor



Technical features

Supply	10-36 Vcc
Output	4-20 mA
Range	0÷50 m/s
Minimum threshold	1.35 m/s
Accuracy	0.09 m/s
Consumption	as output
Warm up	3 sec
Operating temperature	-40 ÷ +55 °C
Dimensions	Ø178 x 216 mm
Material	PVC
Weight	0.450 Kg

Accessories

Mounting hangers for puncheon	WE750-AX-MW01
Puncheon	WE-PA-IN-MM*
Material	Stainless steel
Dimensions	1"
Puncheon	WE-PA-AZ-MM*
Material	Galvanized steel
Dimensions	1"

* The puncheon in Stainless steel or galvanized steel is available in 3mt temples; specify the desired length on the order.

WE753

Wind speed and direction sensor



Description

The WE753 wind speed and direction sensor is one of the most used sensors for weather measurements.

The detection of speed and wind direction, finds great use in many sectors such as agriculture, meteorology, industry as well as in safeguarding environment and in new technologies concerning renewable energy sources.

Considering of the environmental characteristics in which these instruments are used, it has been taken particular care in the production of this sensor.

The WE753 sensor is made of plastic material and based on the ultrasound principle. It is suitable for all climatic zones and also for solar-powered stations; furthermore it does not need any special maintenance or re-calibrations.

An integrated heater guarantees operation even at extremely low temperatures down to -40°C .

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

Applications

Agriculture, meteorology, industry, safeguarding environment, etc.



WE753

Wind speed and direction sensor

Technical features	
Supply	24V $\pm 10\%$ Vcc with heater 12V without heater
Output	2 uscite 4-20 mA
Range	Sp. 0÷90 m/s ; Dir. 0÷359.9°
Soglia minima	1.35 m/s
Accuracy	0.2 m/s ; 3° RMSE da 1,0 m/s
Consumption	Same as signal output With heater 1A
Warm up	10 sec
Operating temperature	-40 ÷ +60 °C with heater
Dimension	Ø 150 x 170 mm
Material	PVC
Weight	0.800 Kg
Accessories	
Bracket for supporting pole	WE753-AX-MW01
Supporting pole	WE-PA-IN-MM*
Material	Aluminum
Dimension	Ø 50mm
Supporting pole	WE-PA-AZ-MM*
Material	Galvanized steel
Dimension	1.5"

* The supporting pole, both in stainless steel and in galvanized steel, is available in 3mt rods; specify the desired length at the time of the order

WE755

Wind direction sensor



Description

The WE755 wind direction sensor is one of the most used devices for weather measurements.

The detection of wind direction, finds great use in many sectors such as agriculture, meteorology, industry as well as in the protection of the environment and in new technologies concerning renewable energy sources. Considering of the environmental characteristics in which these instruments are used, it has been taken particular care in the production of this sensor. The WE755 wind direction sensor is made of PVC and stainless steel consists of a fin which, following the wind direction, produces a 4-20mA signal which corresponds to an angle from 0 to 360 °.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

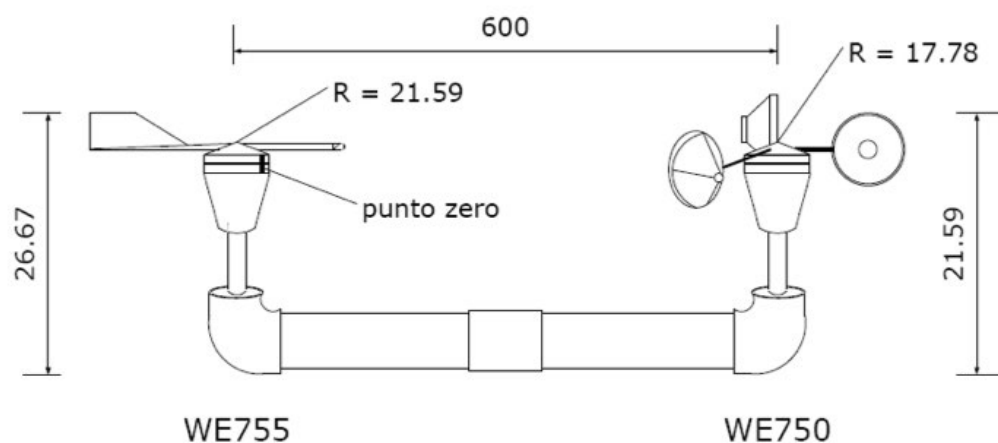
Applications

Agriculture, meteorology, industry, safeguarding environment, etc.



WE755

Wind direction sensor



Technical features

Supply	8-30 Vcc
Output	4-20 mA
Range	0÷360°
Accuracy	0.5% FS
Resolution	12 bit
Updating data	1 ms
Consumption	Same as signal output
Operating temperature	-40 ÷ +55 °C
Dimension	Ø216 x 267 mm
Material	Casing in PVC, wing in stainless steel
Weight	0.550 Kg

Accessories

Bracket for supporting pole	WE755-AX-MW01
Supporting pole	WE-PA-IN-MM*
Material	Stainless Steel
Dimension	1"
Supporting pole	WE-PA-AZ-MM*
Material	Galvanized steel
Dimension	1"

* The supporting pole, both in stainless steel and in galvanized steel, is available in 3mt rods; specify the desired length at the time of the order

WE760

Solar radiation sensor



Description

The solar radiation sensor or pyranometer WE760 consist of a pyrliometer, an instruments suited for measuring the direct solar rays intensity (the rays that reach earth without reflection)

The solar radiation sensor is produced with a mounting plate, (with a bubble level and leveling screws) for an easy sensor leveling adjustment.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

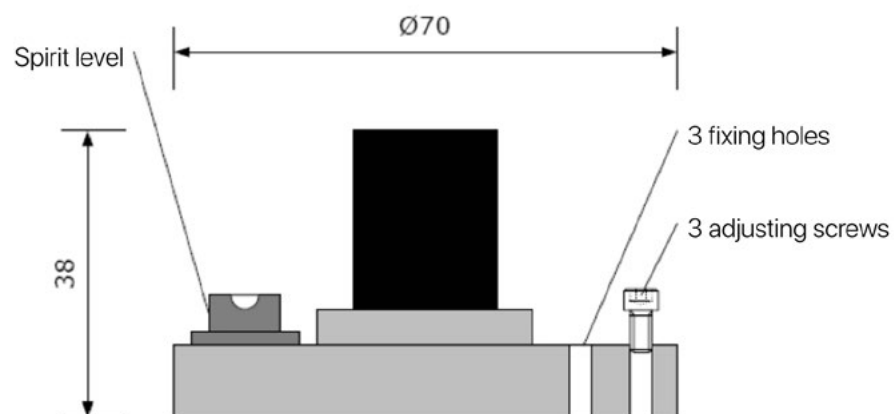
Applications

Meteorology, environment etc.



WE760

Solar radiation sensor

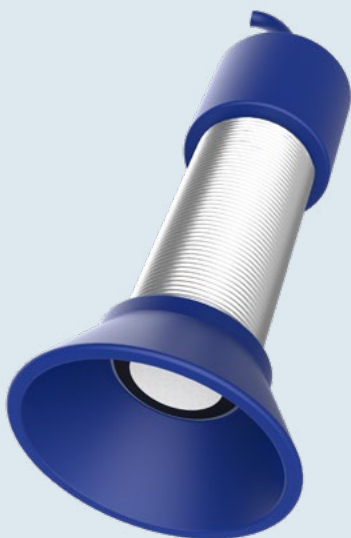


Technical features

Supply	10-36 Vcc
Output	4-20 mA
Range	0-1500 W/m ²
Accuracy	1% FS
Consumption	as output
Warm up	3 sec
Operating temperature	-40 ÷ + 55 °C
Dimensions	Ø76 x 38 mm
Weight	0.150 Kg

WE770

Snow meter



Description

The snow meter WE770 is an instrument suited for measuring the snow height, it consist of an ultrasonic sensor.

The working principle of the sensor consists by timing how long a sound wave takes to return after reflecting into an object.

The instrument translate the elapsed time of the sound wave into distance, producing a 4-20 mA output signal directly proportional to the distance between the sensor and the snow.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

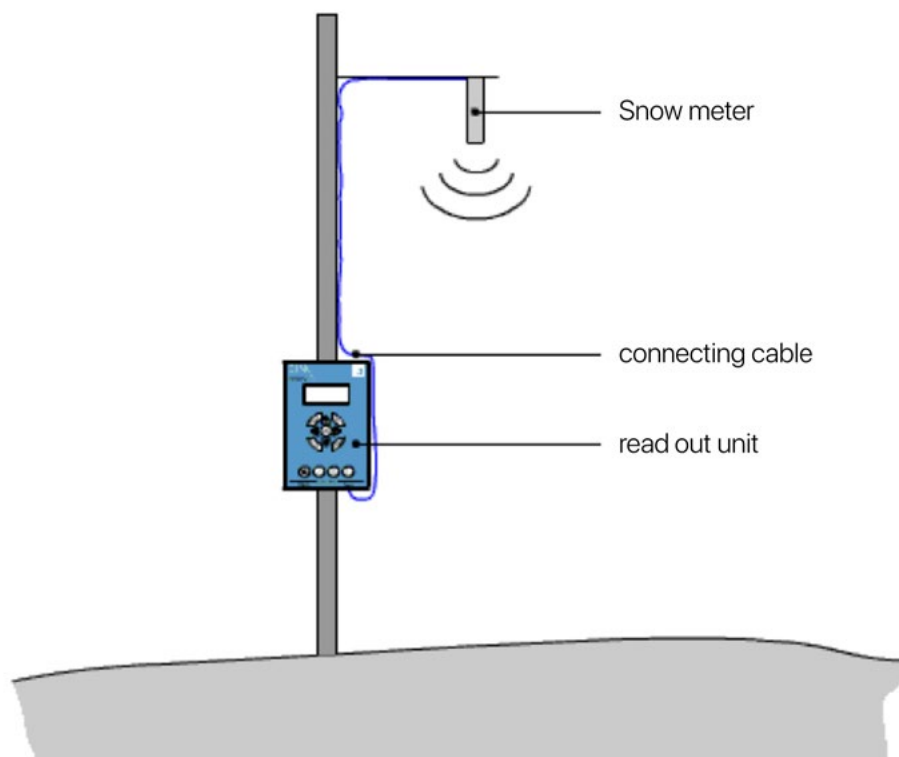
Applications

Snow depth measurement.



WE770

Snow meter



Technical features

Model	WE770-FS*
Supply	14-30 Vcc
Consumption	70mA max
Warm up	15 sec.
Output	4-20 mA
Max. range	0.1 – 4.3 mt
Min. range	0.1 – 0.6 mt
Accuracy	Better of 0.5% FS
Repeatability	0.1% reading
Angle	12°
Reading update	50ms
Operating temperature	-40 ÷ + 70 °C
Protection	IP68
Dimensions	M30 x 1.5 x 103 mm
Material	ABS
Weight	0.360Kg - with mounting bracket 1Kg

Accessories

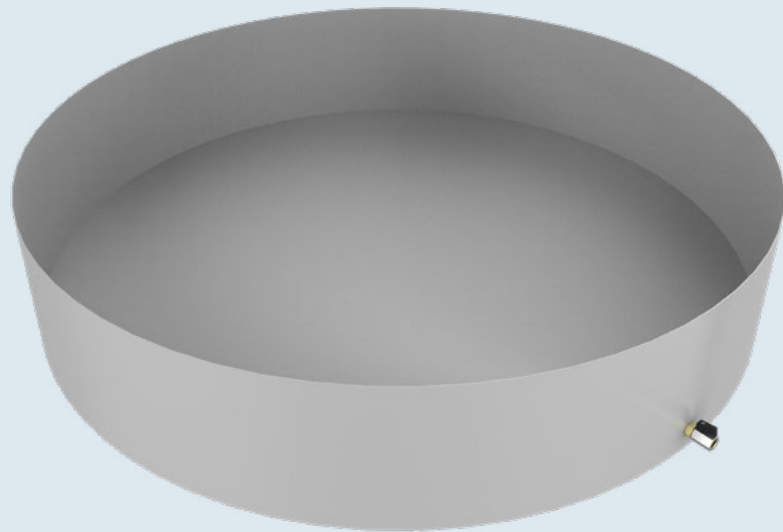
Puncheon (1" x 3mt)	WE770-AX-MW01
Mounting bracket	WE770-AX-MWL1

*FS Indicate the range

ED-06/22

WE780

Evaporimeter



Description

The WE780 Evaporation Pan is a stainless steel pan for measuring daily evaporation. The Evaporation Pan is built to be compatible with all standard National Weather Service pan evaporation measurements. The WE780 is a Class A Evaporation Pan that features a drain plug and an attached stilling well for easy installation of a water level sensor.

The WE780 Evaporation Pan is normally installed on a wooden platform set on level ground. The stainless steel pan is used to hold the water. Since the amount of evaporation is a function of temperature, humidity, wind, and other conditions, in order to relate the evaporation to current or expected conditions, the maximum and minimum temperature of the water and the amount of air passage are normally recorded along with the evaporation. SIM STRUMENTI offers water level sensors, water temperature sensors and weather sensors to complete an evaporation monitoring system.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

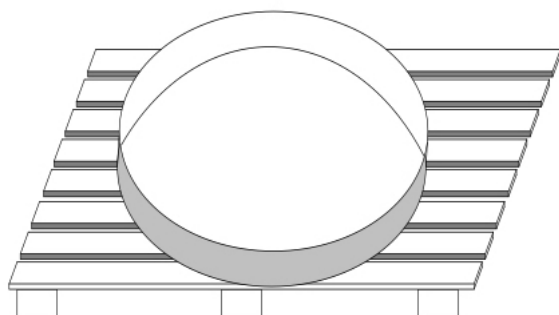
Applications

Agriculture, meteorology, environmental protection.



WE780

Evaporimeter



Technical features

Tank	WE780-VS	
Material	Stainless Steel	
Dimension	Ø 121 x 24 mm	
Weight	22 Kg	
Level sensor	WE780-SE	
Type	Piezoelectric	
Range	500 mm	
Overpressure	150%	
Supply	8-24 V	
Output	4-20 mA	
Linearity	0.25% FS	
Max. thermal error	< 0.04% / °C	
Long term precision	< 0.2% FS (1 year)	
Operating Temperature.	-25 ÷ 80 °C	
Protection	IP68	
Material	Stainless Steel	
Dimension (mm)	Ø 25 x 120 mm	
Temperature sensor	WE780-TE-CN	WE780-TE-PT
Supply	5-30 Vcc	1 mA
Output	µA/K K=°C+273.1	100 Ω a 0 °C
Range	-50 ÷ 105°C	-100 ÷ 104°C
Accuracy	0.1 °C	1/3 DIN
Consumption	0.3 mA	1 mA
Material	Stainless Steel	
Dimension	Ø15x40mm	
Protection	IP68	

Accessories

Wooden platform	WE780-BS
Automatic pan refilling	WE780-PR
4-20mA converter for the WE780-TE-CN temperature sensor	WE710-PT-420

ED-06/22



Inclination



IN910

Inclinometric system



Description

SIM STRUMENTI, in order to measure the landslide movements, has developed the IN910 inclinometric system that has high quality features and also has easy and comfortable usage.

Cured mechanical features, joint with advanced electronics, allow optimizing the measurements without filling endless data.

The software, supply with the acquisition system, can automatically measure the A and B components at specific depths.

The inclinometer probe consists of two wheel-carriages and a central part containing the sensor. The distance between the two carriages (probe step) is 500mm.

The electric cable, equipped with waterproof connector up to 50 bar, is used as supporter for the probe during measurement. The cable has a kevlar core, which assure to cable a non-extendable feature and positioning precision.

The cable is also equipped with reference marks every 50cm and it has a max error of $\pm 5\text{cm}/100\text{m}$ and a max extensibility, with 20Kg load, of $<0,05\%$ of the nominal cable length.

SIM supplies, upon request, a dummy probe, which allows to test of the inclinometric casing before measuring, in order to avoid jamming the probe into the tube.

The probe is delivered with a rugged suitcase, used for the inclinometer transportation and the eventual dummy probe.

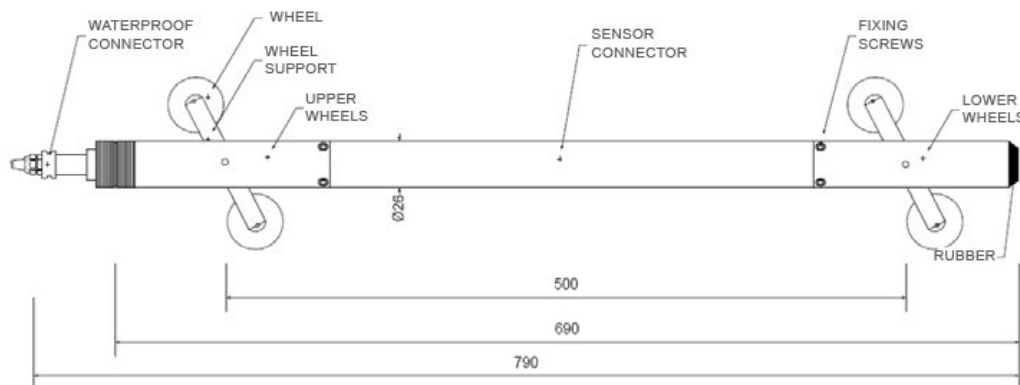
Applications

Landslides monitoring, dams monitoring etc.



IN910

Inclinometric system



Technical features

Model	IN910-SV-FS*
Sensor	Servoaccelerometer
Range	±15, ±30
Supply	±15Vcc
Output	±5V
Linearity	0.02% FS
Repeatability	0.005%
Alignment	0.2°
Zero shift in temperature	0.005% FS/°C
Temperature sensitivity	0.0005 V/°C
Operating temperature	-10 ÷ +50 °C
Diameter	26 mm
Length	690 mm
Probe step	500 mm
Weight	2.8 Kg
Probe accuracy (20mt)	2 mm
Material	Stainless steel

Inclinometric cable	IN910-6022-MM**
Conductors / Shielding / Reinforcement	5x0.15 / copper / kevlar braid
Square footage	Stainless steel notches every 0.5mt
Diameter	Ø6.5 mm
Weight	53g / 1mt
Reel weight with 50m cable	~4Kg

Readout unit	INCLAB
Software	INCLAB Manager and Processing

Accessories

Dummy probe	IN910-DP01
Cable for dummy probe including reel	IN910-CR02-MM**
Wheels (4), springs (2), pins (4) kit	IN910-KT01
Caps (2) kit for inclinometer connectors	IN910-KT02
Cable stop	IN910-FECV
Bag	IN910-BRIN
Plastic reel for 50 mt	IN910-RP50
Plastic reel for 50 mt	IN910-RM50
Plastic reel for 100 mt	IN910-RP00

*FS Indicate the range
 **MM Indicate the meters

ED-06/22

IN915

Horizontal inclinometer



Description

SIM STRUMENTI developed the IN915 inclinometer system to control movement and settlements in embankments or foundations.

The mechanical components combined with state of the art electronics, allows optimizing the execution of site measurements, without having to manually insert big amount of data.

The INCLAB Manager & Processing software supplied as standard with the measuring system INCLAB, which automatically detects measurements at the desired distance.

The inclinometer probe consists of two wheel carriers and a central sensor-holder part. It can be equipped with one or two mounted sensors placed at 180° from each other and. The distance between the trolleys (probe step) is equal to half a meter.

The electric connection cable is equipped with a waterproof connector up to 50 bar. A special kevlar core gives the cable an inextensible feature, which guarantees reliability and precision while positioning.

The cable is also equipped with stainless steel reference notches every half meter and can have a maximum error on the length of $\pm 5\text{cm} / 100\text{m}$ and a stretch, with a load of 20Kg, less than 0.05% of the nominal length.

SIM STRUMENTI provides, upon request, a test probe that allows test the tube before carrying out the measurement, avoiding the risk that the inclinometer probe gets stuck inside the tube.

The inclinometer probe is supplied with a strong carrying case, with the appropriate space for a possible test probe. Upon request it is available a dragging cable, necessary for moving the probe inside the inclinometer tube. If the inclinometer tube is not reachable from both sides, it is possible to order a pulley (placed in a watertight container) and a protection tube, to be positioned parallel to the inclinometer tube, necessary for dragging the probe.

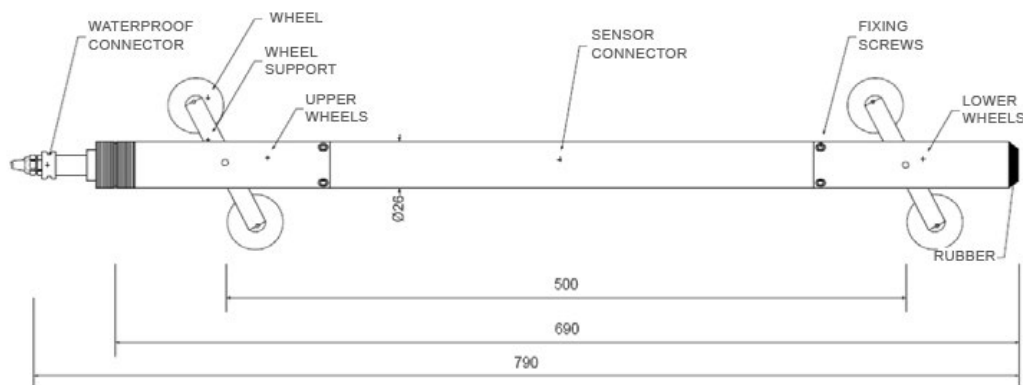
Applications

Monitoring of embankments, etc.



IN915

Horizontal inclinometer



Technical features

Model	IN915-SV-FS*
Sensor	Servoaccelerometer
Range	$\pm 15, \pm 30$
Supply	$\pm 15V_{cc}$
Output	$\pm 5V$
Linearity	0.02% FS
Repeatability	0.005%
Alignment	0.2°
Zero shift in temperature	0.005% FS/°C
Temperature sensibility	0.0005 V/°C
Operating temperature	-10 ÷ +50 °C
Diameter	26 mm
Length	690 mm
Probe step	500 mm
Weight	2.8 Kg
Probe accuracy (20mt)	2 mm
Material	Stainless Steel

Inclinometric cable

IN910-6022-MM**

Conductors / Shielding / Reinforcement	5x0.15 / copper / kevlar braid
Square footage	Stainless Steel notches every 0.5mt
Diameter	Ø6.5 mm
Weight	53g / 1mt
Reel weight with 50m cable	~4Kg

Readout unit

INCLAB

Software

INCLAB Manager and Processing

Accessories

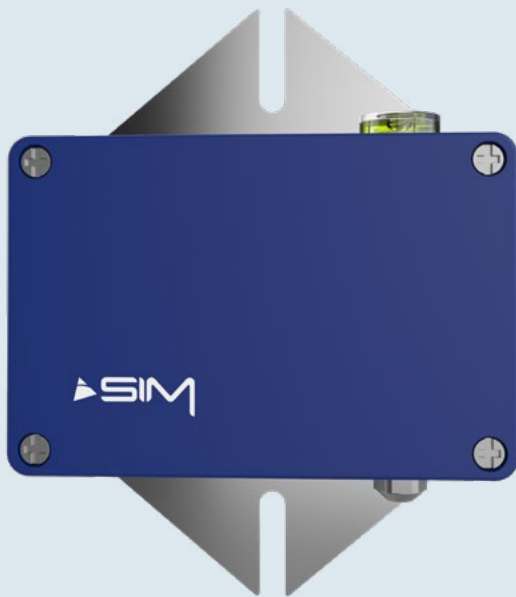
Test probe	IN915-DP01
Test probe cable (reel included)	IN915-CR02-MM**
Kit of wheels (4), springs (2), pins (4)	IN915-KT01
Kit of plugs (2)	IN915-KT02
Watertight box with pulley	IN915-CR00
Dragging tube	IN915-CRTU
Dragging cable	IN915-AC-MM**

*FS Indicate the range
 **MM Indicate the meters

ED-06/22

IN920

Wall fixed inclinometer (tiltmeter)



Description

With the purpose of constantly controlling structures subject to any kind of rotations, SIM STRUMENTI has developed the wall inclinometers series IN920. These sensors can measure the rotational movement of structures, and they are available with fixed bracket, uniaxial ($0.5 - 10^\circ$) or biaxial ($3 - 10^\circ$), having an electrolytic sensor.

The uniaxial versions are equipped with adjustment bracket for easy levelling. Mounted on a special metal bar provided by the SIM STRUMENTI, they become tilt beam sensors, able to monitor the inclination between two fixed points. Bars are available from 1, 2 or 3 meters. The mounting brackets are different for horizontal (floor) or vertical mounting (wall). The sensors can be mounted to measure the inclination along the axis of the bar or at 90° of it.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

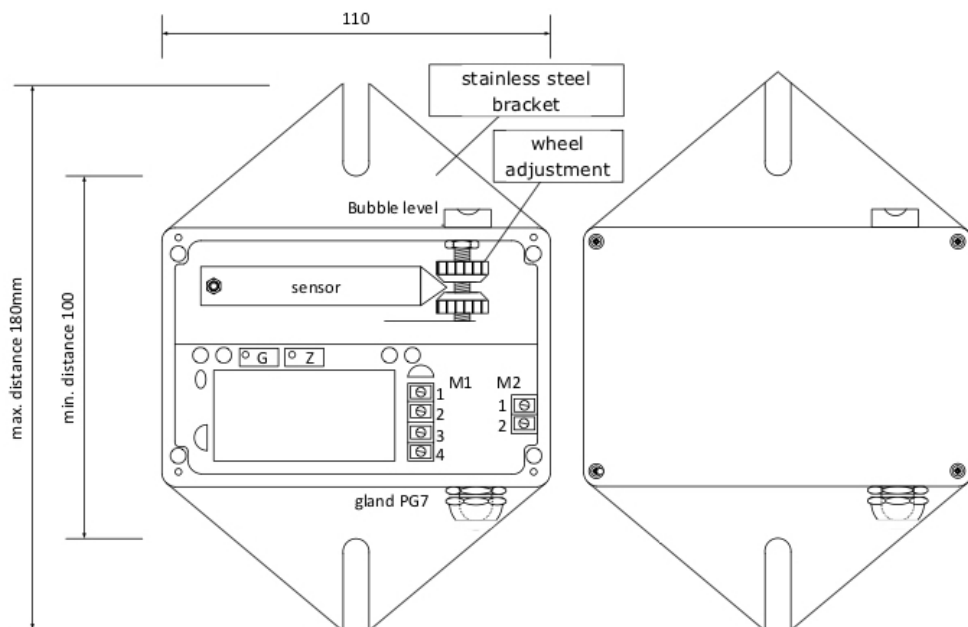
Applications

Structural monitoring of civil and industrial buildings.



IN920

Wall fixed inclinometer (tiltmeter)

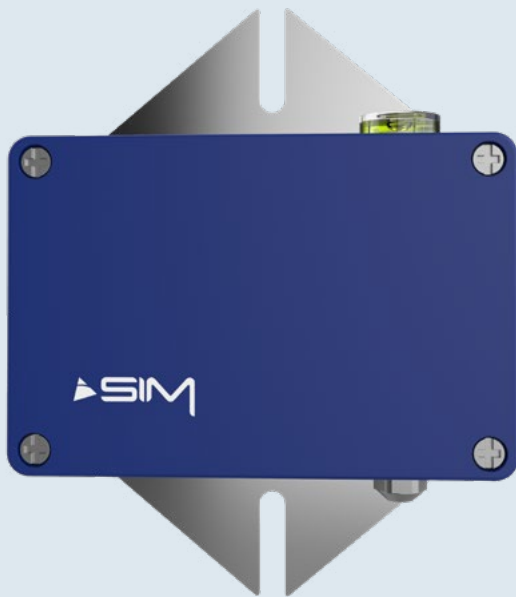


Technical features			
Model	IN920-EL-V-XX-FS*		IN920-EL-A-XX-FS*
Sensor	Electrolytic		Electrolytic
Range	±0.5°, ±1°	±3°, ±5°, ±10°	±0.75°, ±1.5°, ±3°, ±5°, ±7.5°, ±10°
Supply	8-24 Vcc		12-24 Vcc
Output	Not linear ±1800mV	Linear ±2V	Linear 4-20mA
Consumption	50 mA	< 5 mA	50 mA
Linearity	0.3%FS		0.3%FS
Temperature variation	0.0008°/ C		0.0008°/ C
Repeatability	0.0008° from 0.5° to 3° FS 0.005° from 5° to 10° FS		0.0008° from 0.5° to 3° FS 0.005° from 5° to 10° FS
Operating temperature	-20 ÷ 70°C		-20 ÷ 70°C
Protection	IP65 / IP68 **		IP65 / IP68 **
Material	Body	Polyester reinforced with Fiberglass	Polyester reinforced with Fiberglass
	Bracket	Stainless steel	Stainless steel
Dimensions	180x111x60 mm (including bracket)		180x111x60 mm (including bracket)
Weight	0.875 Kg (including bracket)		0.875 Kg (including bracket)
Accessories			
Bracket kit for wall mounting		IN920-MR11	
1mt bar		IN920-BR01	
2mt bar		IN920-BR02	
3mt bar		IN920-BR03	
Mounting kit for horizontal bar		IN920-STMU	
Mounting kit for vertical bar		IN920-STTE	

*FS Indicate the range
 *XX Indicate -MO uniaxial or -BI biaxial
 ** Specify at the order

IN921

Wall fixed inclinometer



Description

In order to keep under constant control structures affected by rotations of any kind and to provide them with an adequate control system and alarm, SIM STRUMENTI developed the IN921 wall fixed inclinometers series.

Equipped with a servoaccelerometer MEMS technology, this instrument detects the angular rotations of the structures and is supplied as standard with wall mounting brackets. It is available in the single-axis version or in a biaxial version. This sensor detects angular rotations of the structures, providing useful indications regarding the rotational movements.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

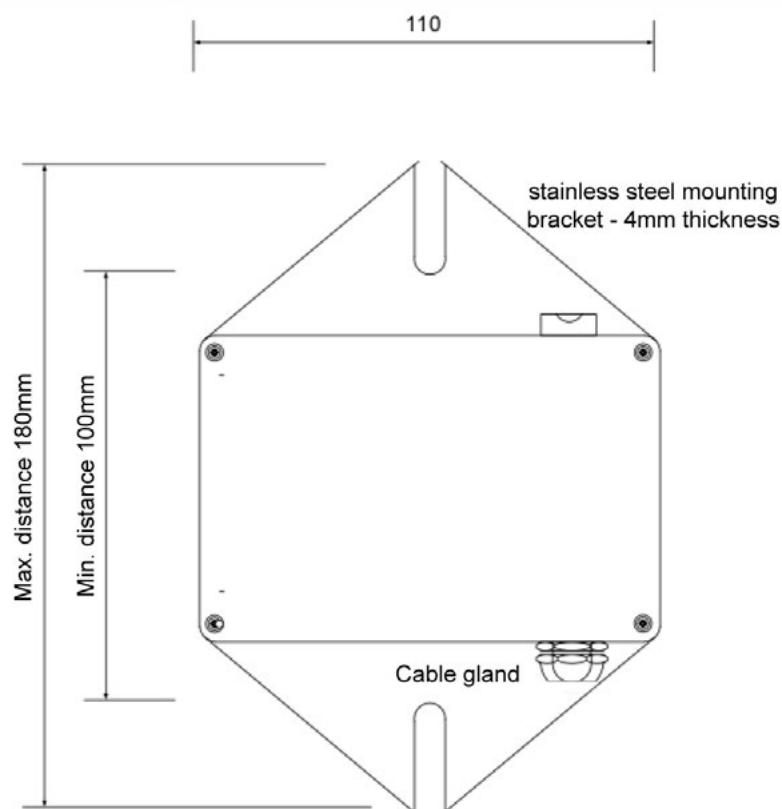
Applications

Structural monitoring in civil and industrial buildings.



IN921

Wall fixed inclinometer



Technical features

Model	IN921-SV-XX-FS*	IN921-MM-XX-FS*
Sensor	Servoaccelerometer	MEMS
Range	$\pm 1^\circ, \pm 14.5^\circ, \pm 30^\circ$	$\pm 5^\circ, \pm 15^\circ, \pm 30^\circ$
Supply	$\pm 15V_{cc}$	12-24 Vcc
Output	± 5000 mV	4-20mA
Consumption	<25 mA (mono)	30mA + reading
Linearity	$<0.05\% \times \pm 1^\circ$ $<0.02\% \times \pm 14.5^\circ, \pm 30^\circ$	0.25%
Sensitivity	0.001 %	0.001°
Repeatability	<0.002 V	0.03°
Temperature sensitivity	0.0005 V/°C	0.02% /°C
Operating temperature	-40 ÷ 80°C	-20 ÷ 70°C
Protection	IP65	IP65
Material	Body Bracket	Polyester reinforced with Fiberglass Stainless Steel
Dimensions	180x111x60 mm (with mounting bracket)	
Weight	0.875 Kg (with mounting bracket)	

Accessories

Temperature sensor

WE710-CN**

Datalogger

MYLOG***

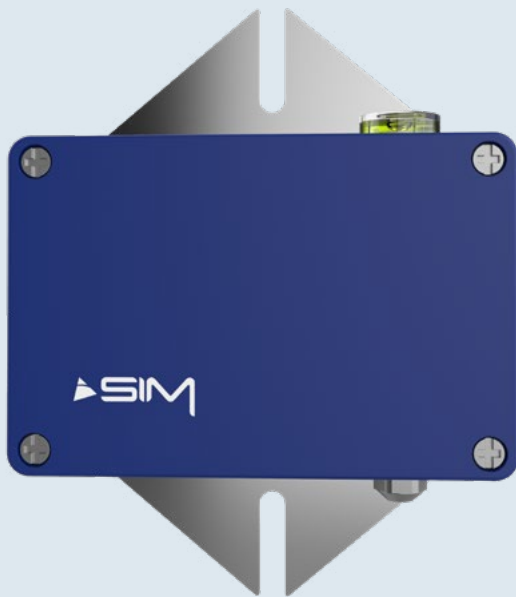
2m rod

IN920-BR02

- *FS Indicate the range
- *XX Indicate -MO for monoaxial or -BI for biaxial
- ** For further information about the technical features see the technical sheet of the temperature sensor WE710-CN
- *** For further information about the technical features see the technical sheet of the data acquisition unit MYLOG

IN922

Wall fixed inclinometer



Description

In order to keep under constant control structures affected by rotations of any kind and to provide them with an adequate control system and alarm, SIM STRUMENTI developed the IN922 wall fixed inclinometer.

Equipped with a Hall effect sensor, this instrument detects the angular rotations of the structures and is supplied, as standard, with special brackets for wall mounting. It is available both in the monoaxial and in the biaxial version.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

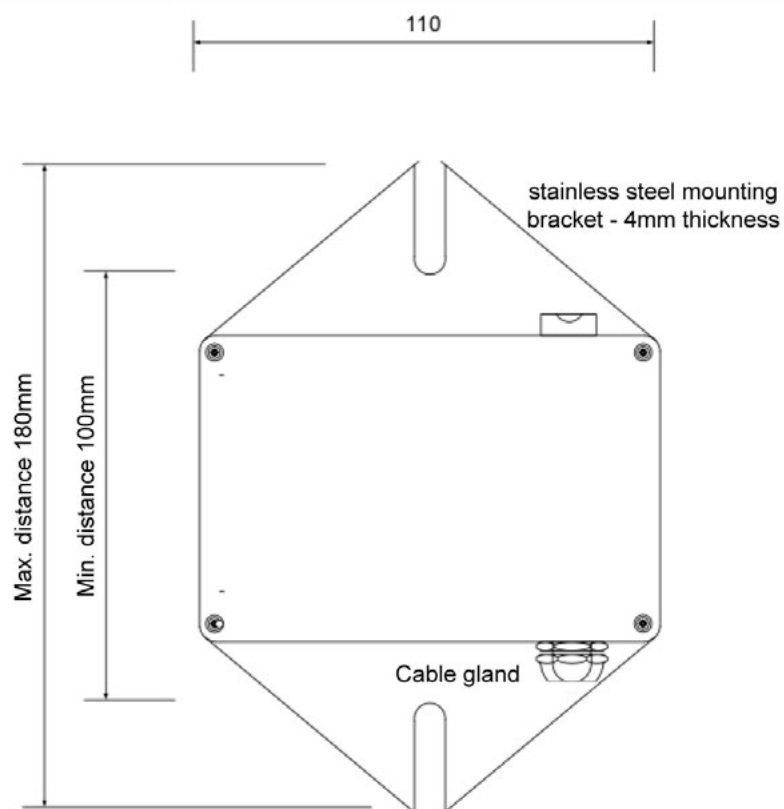
Applications

Structural monitoring in civil and industrial buildings.



IN922

Wall fixed inclinometer



Technical features

Model	IN922-HL-V-XX-FS*	IN922-HL-A-XX-FS*
Sensor	Hall Effect	
Range	$\pm 5^\circ, \pm 10^\circ, \pm 20^\circ$	
Supply	8-24 Vcc	
Output	0-2V	4-20mA
Consumption	5 mA	20mA + 4÷20mA
Linearity	0.5%FS	
Sensitivity	$0.01^\circ + 0.02\%/^\circ\text{C}$	
Repeatability	0.03°	
Operating temperature	$-20 \div 70^\circ\text{C}$	
Protection	IP65	
Material	Box	Polyester reinforced with glass fiber
	Brackets	Stainless Steel
Dimensions	180x111x60 mm (with mounting bracket)	
Weight	0.875 Kg (with mounting bracket)	

Accessories

Kit for wall mounting

IN922-MRI1

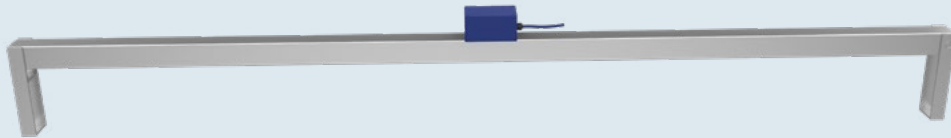
- *FS Indicate the range
 *XX Indicate -MO for uniaxial or -BI for biaxial

IN923

Beam tiltmeter



Wall mounting



Pavement mounting

Description

The beam tiltmeter has been designed in order to keep under constant control, structures affected by rotations of any kind and provide them with an adequate monitoring and alarm system. Equipped with a servoaccelerometer sensor or electrolytic sensor, this instrument detects the angular rotations of the structures and is supplied, with special brackets for wall mounting. It is available in a single-axial version or in a biaxial version.

The beam tiltmeter are normally mounted in series on the special aluminum beams 1,2 or 3 meters long in order to create a chain.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

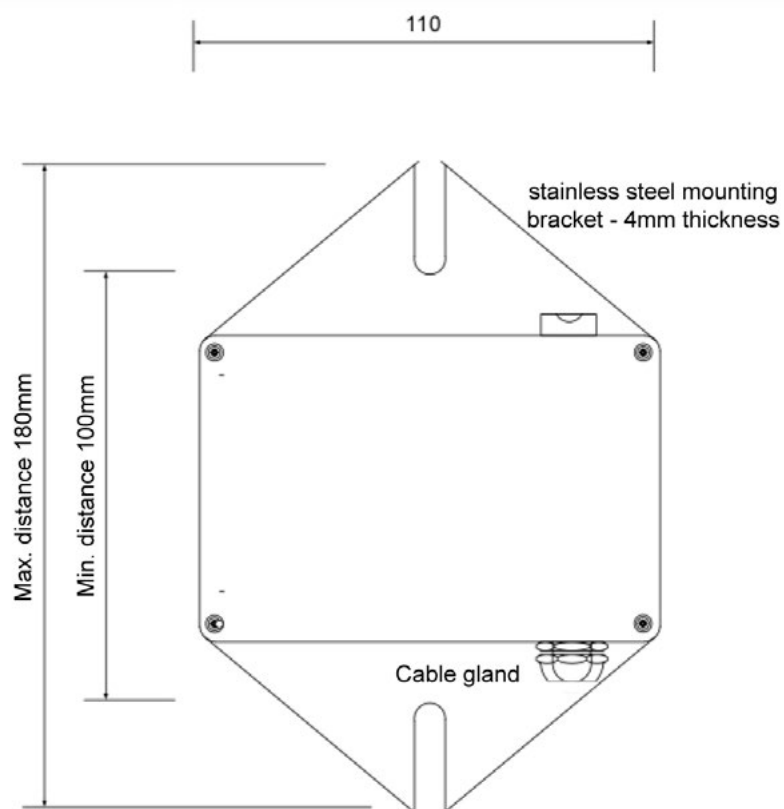
Applications

Structural monitoring in civil and industrial buildings, tracks, etc.



IN923

Beam tiltmeter



Technical features

Model	IN923-SV-XX-FS*	IN923-MM-XX-FS*
Sensor	Servoaccelerometer	MEMS
Range	$\pm 1^\circ, \pm 14.5^\circ, \pm 30^\circ$	$\pm 5^\circ, \pm 15^\circ, \pm 30^\circ$
Supply	$\pm 15V_{cc}$	12-24 Vcc
Output	± 5000 mV	4-20mA
Consumption	<25 mA (mono)	30mA + reading
Linearity	$<0.05\% \times \pm 1^\circ$ $<0.02\% \times \pm 14.5^\circ, \pm 30^\circ$	0.25%
Sensitivity	0.001 %	0.001°
Repeatability	<0.002 V	0.03°
Temperature sensitivity	0.0005 V/°C	0.02% /°C
Operating temperature	-40 ÷ 80°C	-20 ÷ 70°C
Protection	IP65	IP65
Material	Body Bracket	Polyester reinforced with Fiberglass Stainless Steel
Dimensions	180x111x60 mm (with mounting bracket)	
Weight	0.875 Kg (with mounting bracket)	

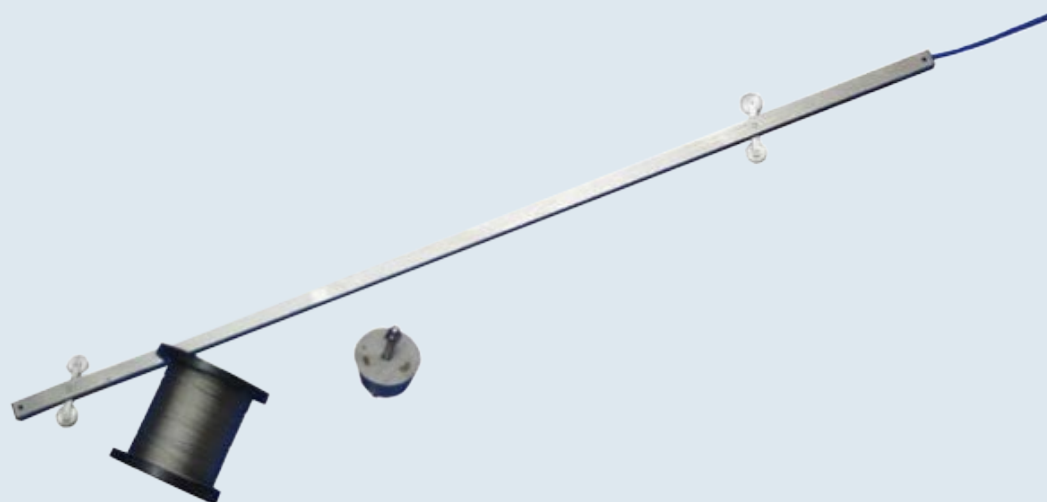
Accessories

Temperature sensor	WE710-CN
1 mt beam	IN923-01
2 mt beam	IN923-02
3 mt beam	IN923-03
Wall mounting kit	IN923-STMU
Pavement mounting kit	IN923-STTE

- *FS Indicate the range
 *XX Indicate -MO for uniaxial or -BI for biaxial
 ** For additional information on the technical features, refer to the MYLOG technical data sheet.

IN930

Depth fixed inclinometer



Description

The necessity for a continuous monitoring of the landslide areas with effective alarm systems, has led SIM to develop the depth fixed inclinometers model IN930.

Keeping the same high quality features of the inclinometric system IN910, this model has the advantage of resetting the all the occasional errors existing in the mobile inclinometric measurements, as well as having real time landslide monitoring. The IN930 probes can carry servoaccelerometer sensor as well as pendulum. Inserted in inclinometric casing, they can measure position shifts of sliding planes.

The probe consists of a cart having inside the sensor. A desired number of probes are inserted in the inclinometric casing, installed at a specific depth.

The connection between the elements of the inclinometric column is fastened by a stainless steel cable and the distance between the probes can be decided or in the project phase as well as during installation.

The entire inclinometric column is hanged at the top the casing by a element called "Support head".

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

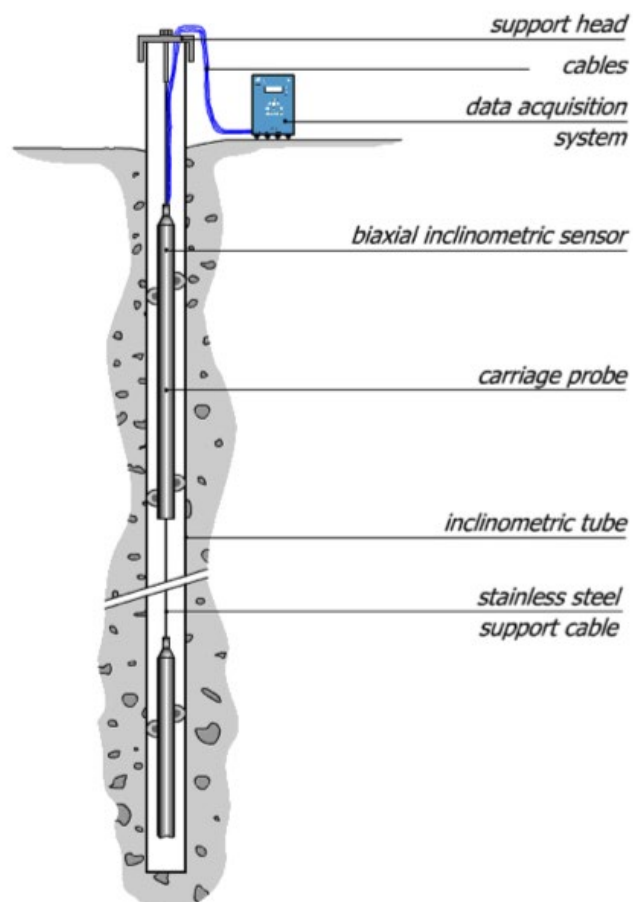
Applications

Measurement of horizontal displacement in landslides, dams, embankments, bridges, tunnels etc.



IN930

Depth fixed inclinometer



Technical features

Model	IN930-SV-FS	IN930-MM-FS*
Sensor	Servo accelerometer	MEMS
Range	$\pm 15, \pm 30$	$\pm 10, \pm 15$
Supply	$\pm 15V_{cc}$	12-24Vcc
Output	$\pm 5V$	$\pm 1V$
Linearity	0.05%	0.25%
Repeatability	0.005%	0.03%
Alignment	0.2°	
Zero shift in temperature	0.005%FS/°C	0.09%FS/°C
Temperature sensibility	0.0005 V/°C	0.02 %/°C
Operating temperature	-40 ÷ 80°C	-20 ÷ 70°C
Diameter	32 mm	25x25 mm
Length	1150 mm	
Probe step	1000 mm	
Weight	2.5 Kg	1.8 Kg
Material	Stainless steel	

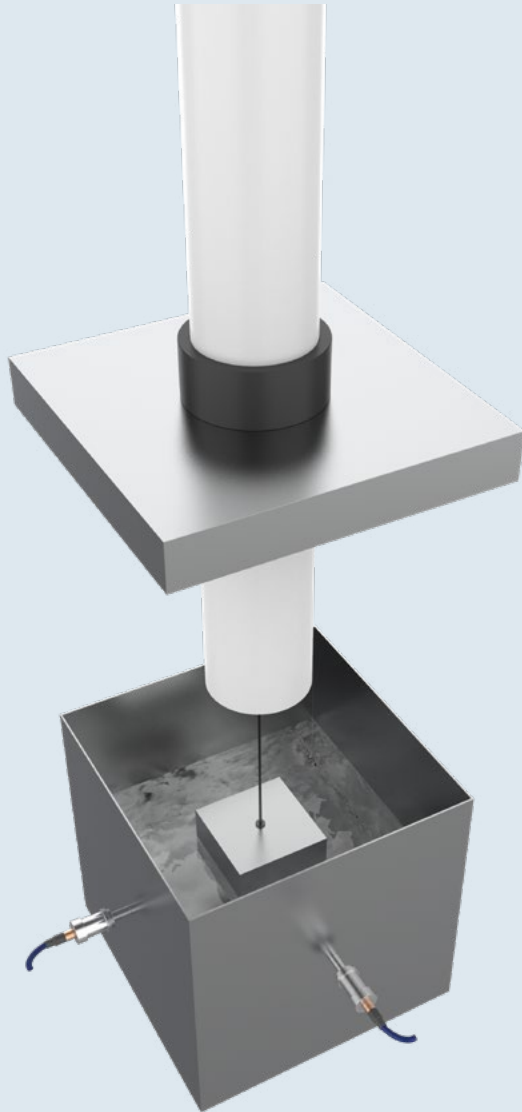
Accessories

Stainless steel cable	IN930-MWDM-MM**
Clamps	IN930-MR01
Stainless steel connecting rod (2mt)	IN930-AS02
Stainless steel connecting rod (1mt)	IN930-AS01
Support head	IN930-TS01
Bag	IN910-BRIN

*FS Indicate the range
 **MM Indicate the meters

IN940

Direct pendulum



Description

The direct pendulum IN940 is an instrument able to measure, with great sensitivity, the rotations of structures caused by disruptions of any kind. Based on the plumb line principle, the instrument is able to control rotations on measurement bases, according to the needs.

The pendulum consists of a damping tank, a ballast, a rod and an anchor. The size and shape of the adjustable bracket that holds the rod will vary depending on the problems of each installation.

The measuring system consists of inductive or laser sensors, positioned orthogonally in the damping tank. On request, sensors are available which, placed at various points along the shaft, measure the possible variation of the position of the rod itself.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

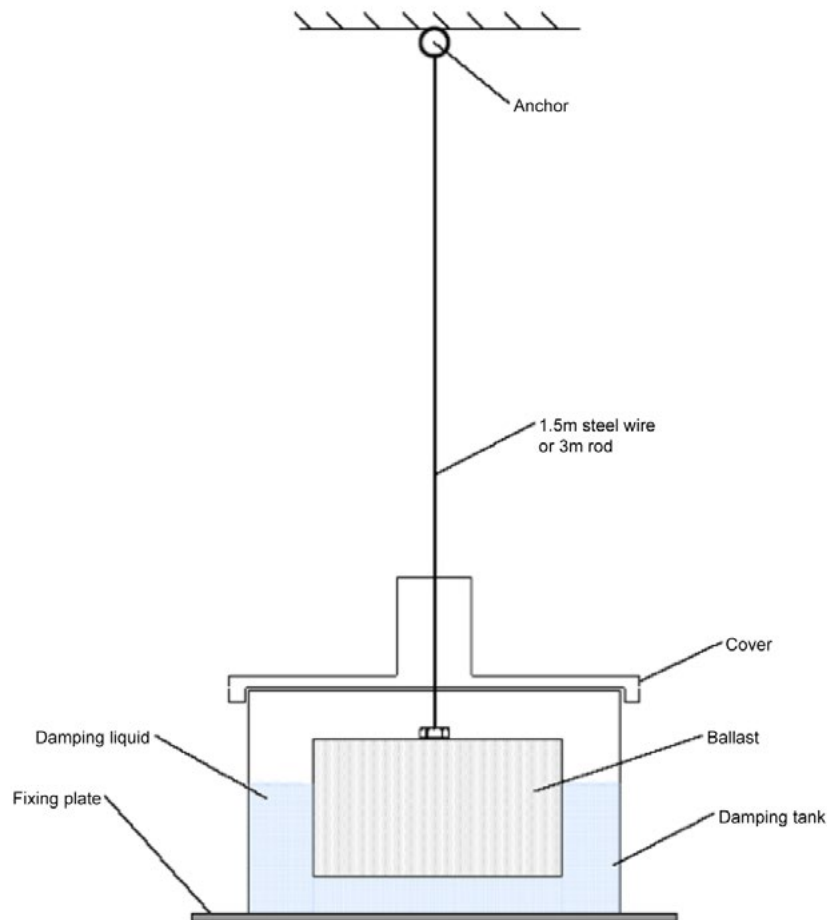
Applications

Rotation measurement in dams, bridges, viaducts, bell towers, buildings etc.



IN940

Direct pendulum



Technical features

Tank		IN940-VS	
Material		Stainless Steel	
Dimension		250x250x250 mm	
Ballast		IN940-ZA	
Material		Stainless Steel	
Dimension		150x150x150mm	
Weight (tank+ballast)		20Kg	
Rod		IN940-AS-MM**	
Material		Stainless Steel	
Diameter		Ø3mm	
Available lengths		0.5, 1, 2 mt	
Protection tube		IN940-TU	
Material		PVC	
Dimension		Ø120mm 3mm thickness	
Anchor* (standard)			
Material		Stainless Steel	
Dimension		"L" bracket with adjustment 200x500x4 mm	
Liquid		Glycerine 98%	
Sensor		IN940-SE-IN	IN940-SE-LA
Type		Inductive	Laser
Range		8 mm	20 mm
Supply		+15 ÷ 30V	±15V
Consumption		40mA	<120mA
Output		4-20mA	
Linearity		400 µm	0.04% FS
Repeatability		<15µm	0.02% FS
Operating temperature		-10 ÷ 70°C	-20 ÷ 50°C
Protection		IP67	IP65
Weight		0.200Kg	0.920Kg

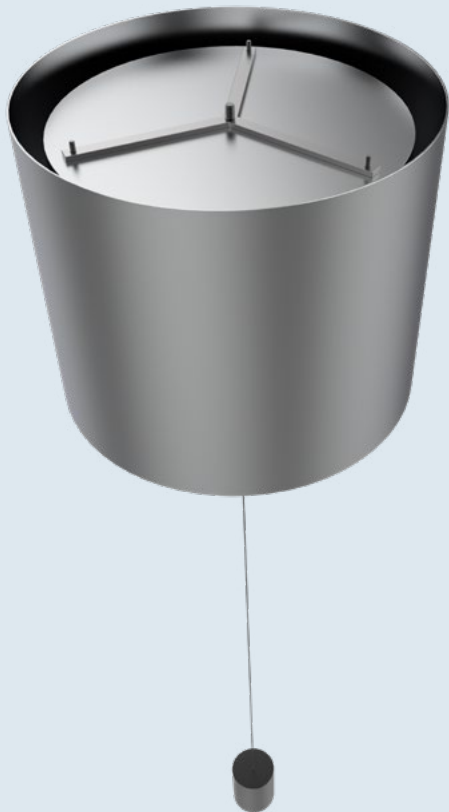
Accessories

Connecting rod connection	IN940-RS-M3
Upper rod stopper	IN940-FA
Liquid (glycerine)	IN940-GL-LT***

- * The bracket size and shape will change depending on the installation
 **MM Indicate the rod length
 ***LT Indicate the quantity

IN950

Inverted pendulum



Description

The inverted pendulum IN950 is an instrument able to measure with great sensitivity the rotations of structures, caused by disruptions of any nature. Based on the plumb line principle, the instrument is able to control rotations on measurement bases, according to the needs.

The pendulum consists of a damping tank, a float, a wire or a rod and an anchor (ballast). It is particularly indicated for the control of the rotations of a structure with respect to a deep and fixed point of the ground, in which the anchorage point is positioned. This tool is suitable for all those applications where the anchor point is not accessible.

The measuring system consists of inductive or laser sensors, positioned orthogonally in the damping tank. On request, sensors are available which, placed at various points along the shaft, measure the possible variation of the position of the rod itself.

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

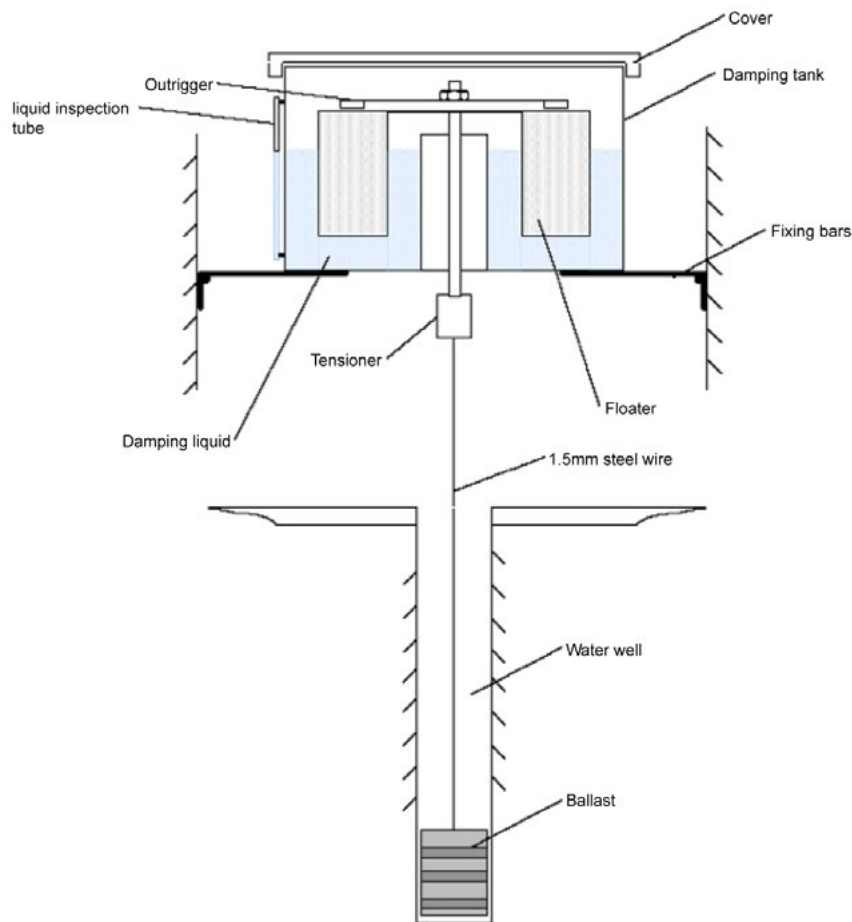
Applications

Rotation measurement in dams, bridges, viaducts, bell towers, buildings etc.



IN950

Inverted pendulum



Technical features

Tank	IN950-VS	
Material	Stainless Steel	
Dimension	Ø600x500 mm	
Floater	IN950-GL	
Material	Stainless Steel	
Dimension	Ø520x420 mm	
Wight (tank+floater)	40Kg	
Rod	IN950-AS-MM**	
Material	Stainless Steel	
Diameter	Ø3mm	
Available lengths	0.5, 1, 2 mt	
Protection tube	IN950-TU	
Material	PVC	
Dimension	Ø120mm Sp. 3mm	
Anchor* (standard)		
Material	Stainless Steel + Lead	
Dimension	Ø 200x150mm	
Sensor	IN950-SE-IN	IN950-SE-LA
Type	Inductive	Laser
Range	8 mm	20 mm
Supply	+15 ÷ 30V	±15V
Consumption	40mA	<120mA
Output	4-20mA	
Linearity	400 µm	0.04% FS
Repeatability	<15µm	0.02% FS
Operating temperature	-10 ÷ 70°C	-20 ÷ 50°C
Protection	IP67	IP65
Weight	0.200Kg	0.920Kg
Accessories		
Connecting rod connection	IN950-RS-M3	
Upper rod stopper	IN940-FA	
Liquid (mineral oil)	IN950-OL-LT***	
Floating adjustment bar	IN950-BR-03	

- * The anchor dimensions change depending on the installation
 **MM Indicate the rod length
 ***LT Indicate the quantity

IN980

Spiral probe



Description

The spiral probe is recommended when very accurate inclinometer measurements are required, with very deep inclinometer tubes (> 50mt) or when data processing shows an unlikely direction.

The mechanical components combined with state of the art electronics, allows optimizing the execution of site measurements, without having to manually insert big amount of data.

The INCLAB Manager & Processing software supplied as standard with the measuring system INCLAB, which automatically detects measurements at the desired distance.

The spiral probe consists of two wheel carriers and a central sensor-holder part. The distance between the trolleys (probe step) is equal to half a meter.

The rotary displacement sensor, positioned at the center of the probe, measures the axial deviation in degrees between the lower and the upper wheel.

The electric connection cable is equipped with a waterproof connector up to 50 bar. A special kevlar core gives the cable an inextensible feature, which guarantees reliability and precision while positioning.

The cable is also equipped with stainless steel reference notches every half meter and can have a maximum error on the length of $\pm 5\text{cm} / 100\text{m}$ and a stretch, with a load of 20Kg, less than 0.05% of the nominal length (it is possible to use the same inclinometer cable also for the spiral probe).

The spiral probe is supplied with a strong carrying case.

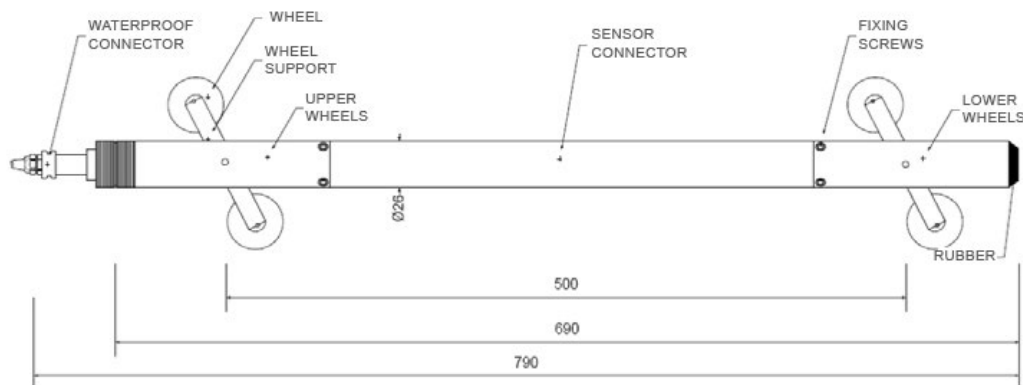
Applications

Inclinometer tubes monitoring.



IN980

Spiral probe



Technical features

Model	IN980
Sensor	Rotary potentiometric
Range	359°
Supply	15Vcc
Output	±5V
Linearity	0.1% FS
Repeatability	0.01%
Operating temperature	-10 ÷ +50 °C
Diameter	32 mm
Length	690 mm
Probe step	500 mm
Weight	2.8 Kg
Probe accuracy (20mt)	2 mm
Material	Stainless Steel

Inclinometric cable	IN910-6022-MM**
Conductors / Shielding / Reinforcement	5x0.15 / copper / kevlar braid
Square footage	Stainless steel notches every 0.5mt
Diameter	Ø6.5 mm
Weight	53g / 1mt
Reel weight with 50m cable	~4Kg

Readout unit	INCLAB
Software	INCLAB Manager and Processing

Accessories

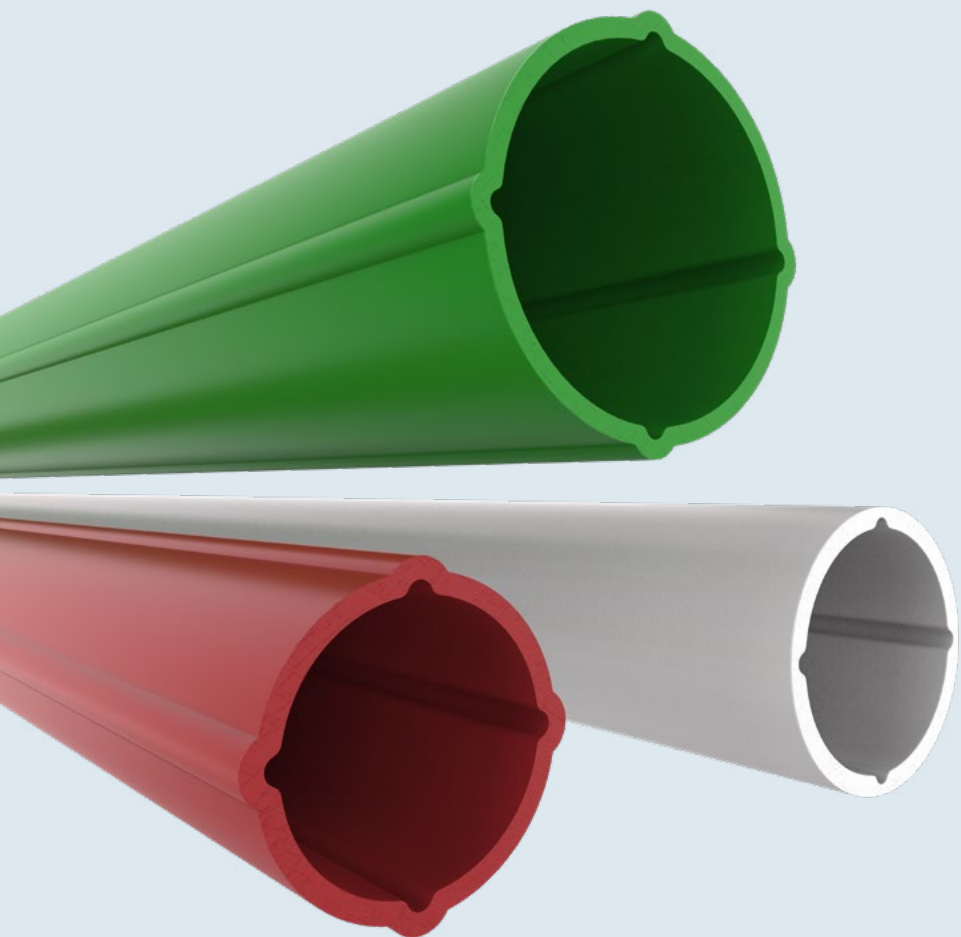
Kit of wheels (4), springs (2), pins (4)	IN910-KT01
Kit of plugs (2)	IN910-KT02
Cable stopper	IN910-FECV
Bag	IN910-BRIN
Plastic reel 50m	IN910-RP50
Plastic reel 50m	IN910-RM50
Plastic reel 100m	IN910-RP00

**MM Indicate the meters

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INT

Inclinometer casing



Description

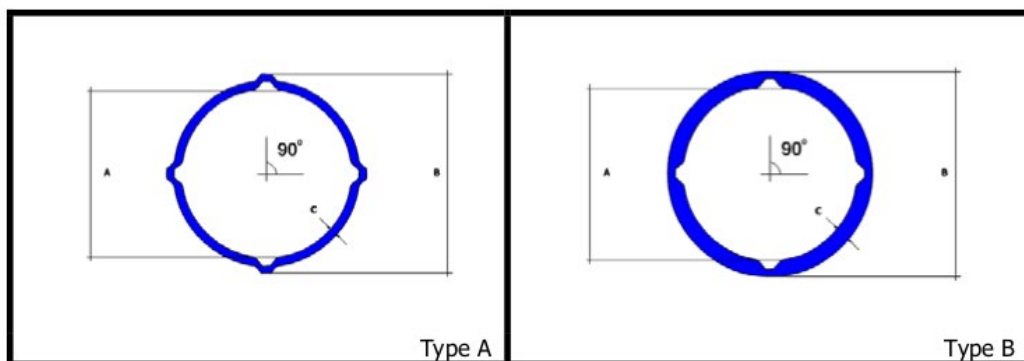
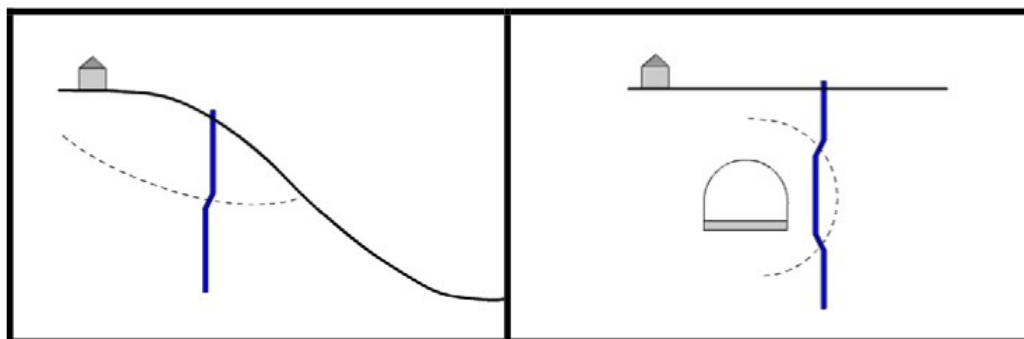
ABS and PVC inclinometer casings are used as a driving tube for the inclinometric system IN910 and for the fixed depth inclinometer model IN930, which allow to monitor sliding movements of dams, embankments, and all retaining structures. It is necessary to make particular attention to the installation of the casing, and the gluing of the couplings to the tube using the special glue provided by SIM. Once the mounting stage is ended, it is necessary to fill the annular space (i.e. the space between the external casing and the borehole wall) with cement grout or gravel pack, to ensure a perfect tight seal to the surrounding soil. The upper end of the casing must be fully protected to avoid damage and to allow several subsequent measurements.

Applications

Used in landslide, excavations, embankments, piles, load test etc.



INT Inclinometer casing

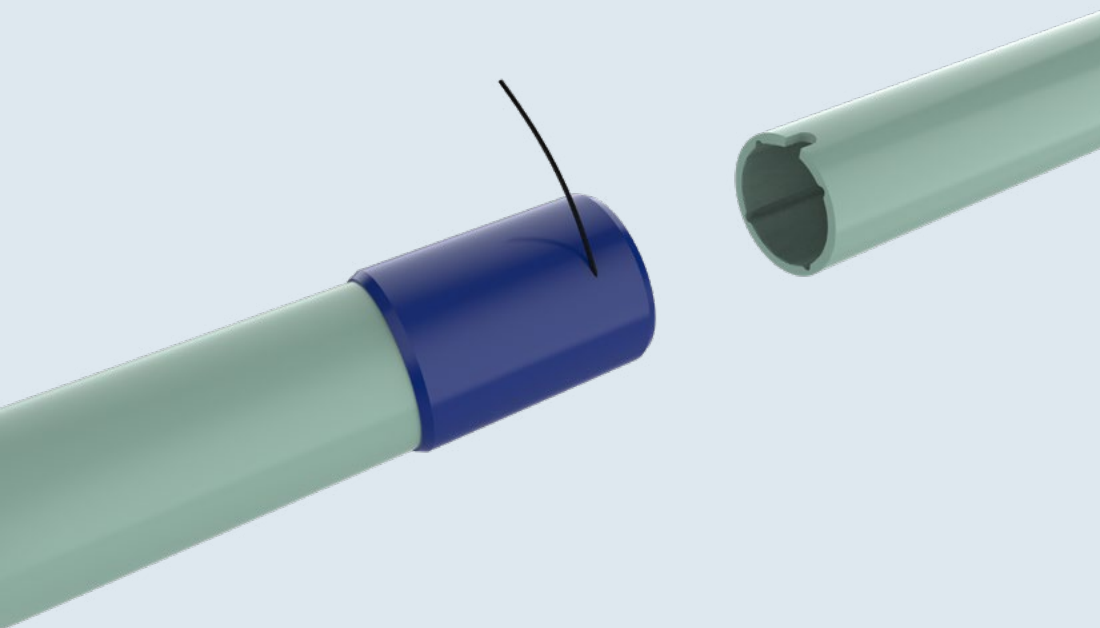


Technical features						
Model - Type A		INT-A2		INT-A3		
Nominal diameter		2"		3"		
Length		3 mt				
A (Internal diameter)		47 ± 0.7 mm		74 ± 1.0 mm		
B (External diameter)		60 ± 0.5 mm		87 ± 0.7 mm		
C (Grooves diameter)		54 ± 0.5 mm		80 ± 0.6 mm		
Linear weight		625 g ± 5%		1050 g ± 5%		
Groove spiral		-		0.3° / 3 mt		
ABS Shock-Resistant						
Material	Density	ASTM D1505: 1.0 ± 0.1 g/cm³				
	Tensile properties	ASTM D638				
	Tensile Strength	≥ 40 MPa				
	Breaking Elongation	≥ 10 %				
Connection socket	Material	ABS				
	Length	120 ± 2.0 mm		191 ± 2.0 mm		
	External diameter	66 ± 0.5 mm		95 ± 1.0 mm		
Model - Type B		INT-B57-A	INT-B60-A	INT-B57-P	INT-B60-P	
Nominal diameter		57/70 mm		60/70 mm	57/70 mm	60/70 mm
ABS Shock-Resistant					PVC rigid Shock-Resistant	
Material	Density	1.0 ± 0.1 g/cm³		1.5 ± 0.1 g/cm³		
	Tensile Strength	40 MPa		30 MPa		
	Breaking Elongation	20%		50%		
	Elastic Modulus	2700 MPa				
Length		3 mt				
A (Internal diameter)		57 mm		60 mm	57 mm	60 mm
B (External diameter)		70 mm		70 mm	70 mm	70 mm
C (Grooves diameter)		61 mm		64 mm	61 mm	64 mm
Weight		1350 g/m		970 g/m	1850 g/m	1360 g/m
Grooves		4 every 90°				
Collapse pressure (20°C)		20 bar		7 bar	25 bar	13 bar
Connection socket	Material	-		ABS	-	PVC
	Length	-		105 mm	-	105 mm
	External diameter	-		76 mm	-	76 mm
Accessories						
Mounting kit			INT-AX-KT01			
Injection tube			INT-AX-TB01			
Lockable top cap			INT-AX-ME01			
Head cap Type A 2"			INT-A2-AX-HCP			
Bottom cap Type A 2"			INT-A2-AX-BCP			
Head cap Type A 3"			INT-A3-AX-HCP			
Bottom cap Type A 3"			INT-A3-AX-BCP			
Head cap Type B			INT-B-AX-HCP			
Bottom cap Type B			INT-B-AX-BCP			

Tolerances ± 0.8 mm on internal or external diameter | ±8% on weight | ± 1.5 mm on connection socket

INTQL

Quick Lock Inclinometer casing



Description

Quick Lock ABS and PVC inclinometer casings are used as a driving tube for the inclinometric system IN910 and for the fixed depth inclinometer model IN930, which allow to monitor sliding movements of dams, embankments, and all retaining structures. It is necessary to make particular attention to the installation of the casing.

Quick Lock inclinometer casing is designed to be assembled quickly and accurately, and used for long and short-term monitoring in the most adverse field conditions.

Once the mounting stage is ended, it is necessary to fill the annular space (i.e. the space between the external casing and the borehole wall) with cement grout or gravel pack, to ensure a perfect tight seal to the surrounding soil.

The upper end of the casing must be fully protected to avoid damage and to allow several subsequent measurements.

Applications

Used in landslide, excavations, embankments, piles, load test etc.



INTQL

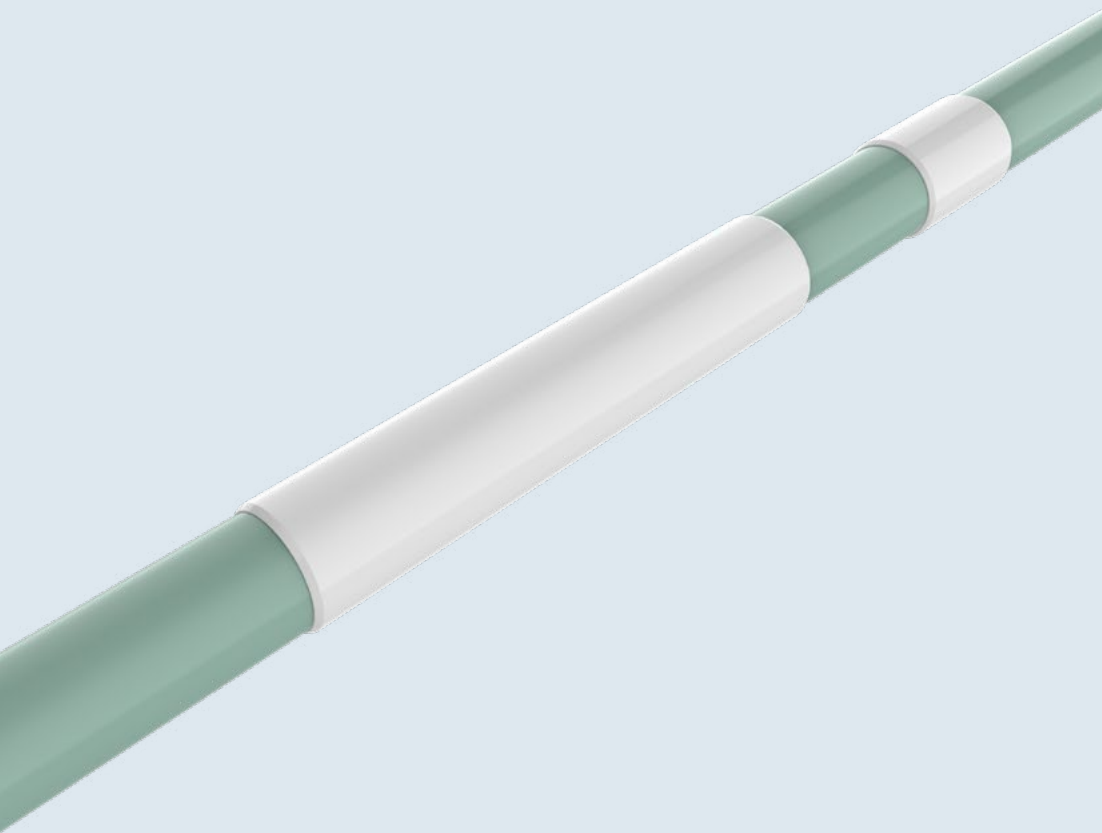
Quick Lock

Inclinometer casing

Technical features				
Model	INTQL-57-A	INTQL-60-A	INTQL-57-P	INTQL-60-P
Nominal diameter	57/70 mm	60/70 mm	57/70 mm	60/70 mm
Material	ABS Shock-Resistant		PVC rigid Shock-Resistant	
	Density		1.0 ± 0.1 g/cm³	
	Tensile Strength		40 MPa	
	Breaking Elongation		20%	
	Elastic modulus		2700 MPa	
Length	3 mt			
Internal diameter	57 mm	60 mm	57 mm	60 mm
External diameter	70 mm	70 mm	70 mm	70 mm
Grooves diameter	61 mm	64 mm	61 mm	64 mm
Weight	1350 g/m	970 g/m	1850 g/m	1360 g/m
Grooves	4 every 90°			
Collapse pressure (20°C)	20 bar	7 bar	25 bar	13 bar
Connection socket	Material	-	ABS	-
	Length	-	105 mm	-
	External diameter	-	76 mm	-
Accessories				
Mounting kit	INT-AX-KT01			
Injection tube	INT-AX-TB01			
Lockable top cap	INT-AX-ME01			
Head cap	INT-B-AX-HCP			
Bottom cap	INT-B-AX-BCP			

Tolerances ± 0.8 mm on internal or external diameter | ±8% on weight | ± 1.5 mm on connection socket

INTSP Telescopic Inclinometer casing



Description

ABS and PVC inclinometer casings are used as a driving tube for the inclinometric system IN910 and for the fixed depth inclinometer model IN930, which allow to monitor sliding movements of dams, embankments, and all retaining structures. Telescopic inclinometer casings are used when the casing will be subject to large amounts of settlement.

Thanks to the telescopic socket it is possible to manage the length of the tube, increasing or decreasing it according to the need.

It is necessary to make particular attention to the installation of the casing, and the gluing of the couplings to the tube using the special glue provided by SIM.

Once the mounting stage is ended, it is necessary to fill the annular space (i.e. the space between the external casing and the borehole wall) with cement grout or gravel pack, to ensure a perfect tightseal to the surrounding soil.

The upper end of the casing must be fully protected to avoid damage and to allow several subsequent measurements.

Applications

Used in landslide, excavations, embankments, piles, load test etc.



INTSP

Telescopic Inclinometer casing

Technical features				
Model	INTSP-C60	INTSP-T60	INTSP-C57	INTSP-T57
Nominal diameter	60/70 mm		57/70 mm	
Admissible movement	- 100 mm	+ 150 mm	- 100 mm	+ 150 mm
Material	ABS Shock-Resistant		PVC rigid Shock-Resistant	
	Density	1.0 ± 0.1 g/cm³	1.5 ± 0.1 g/cm³	
	Tensile Strength	40 MPa	30 MPa	
	Breaking elongation	20%	50%	
	Elastic modulus	2700 MPa		
Length	3 mt			
Internal diameter	60 mm		57 mm	
External diameter	70 mm		70 mm	
Grooves diameter	64 mm		61 mm	
Telescopic socket	Material	PVC	PVC	
	Length	400 mm	400 mm	
	External diameter	80 mm	80 mm	
Rivet type	Material	Alluminum	Alluminum	
	-	105 mm	105 mm	
	-	4 mm	4 mm	
Connection socket	Material	ABS	PVC	
	Length	105 mm	105 mm	
	External diameter	76 mm	76 mm	
Accessories				
Mounting kit	INT-AX-KT01			
Injection tube	INT-AX-TB01			
Lockable top cap	INT-AX-ME01			
Head cap	INT-B-AX-HCP			
Bottom cap	INT-B-AX-BCP			



Reasout Units and Accessories



DATAVIEW

Manual readout unit



Description

DATAVIEW manual readout unit is a compact and easy to use device that allows reading of electrical signal from the whole range of instruments produced by SIM STRUMENTI. DATAVIEW control unit, equipped with a rechargeable battery, has a great autonomy.

DATAVIEW has a membrane keyboard with HOLD, OFFSET and SETUP functions, a LCD that displays the sensor data, maximum and minimum values from two channels.

MEM function can store up to 99 readings, complete with date, time and a tag name, for easy recognition of the measurement performed.

This unit has 8 GAIN data conversion units for transforming electrical signal into physical units (one prefixed and seven programmable).

DW-BSE model allows the reading of a single type of input (to be chosen), while the DW-ADV model allows the reading of all types of electrical signal.

The mod. DW-ADVX performs as a two-channel data acquisition system (up to 7000 readings per channel). In the SETUP menu there is the possibility to set the acquisition interval. During the data acquisition mode the display will continue to update the data in real time. DW-ADV and DW-ADVX models are equipped with serial / USB output (using the converter supplied by the SIM STRUMENTI) that allows easy data setting and download directly to a computer.

Applications

Manual and / or automatic instrumentation readout.



DATAVIEW

Manual readout unit

Technical features			
Model	DW-BSE	DW-ADV	DW-ADVX
Channels number		2	
Converter		16 bit	
2mV/V input	*	•	•
±20mV input	*	•	•
±200mV input	*	•	•
±2V input	*	•	•
±5V input	*	•	•
4-20mA input	*	•	•
HOLD function	•	•	•
OFFSET function	•	•	•
MEM function	•	•	•
Memory	99	99	14000
Internal supply		Batteria 12V 2.3Ah	
External supply		12Vcc	
Serial port / USB**	-	•	•
Com. speed (Baud)	-	9600	9600
Operating temperature		-20 ÷ +60 °C	
Protection		IP65	
Dimensions		166x208x82 mm	
Weight		1.850 Kg	

Accessories	
Power supply	DW000-AX-PS01
Car lighter supply cable	DW000-AX-CPS1
Connection cable to JBDW	DW000-AX-CCB1
16 Ch. junction board	DW000-AX-JBDW
Cable with 4 alligators (1 channel)	DW000-AX-C401
Cable with 6 alligators (2 channels)	DW000-AX-C601
Communication kit (USB cable, driver and DATAVIEW software)	DW000-AX-SWDW

• standard - not available * upon request

** Using the converter provided by SIM STRUMENTI

DATAFLOW

Manual flow readout unit



Description

DATAFLOW manual readout unit is a compact and easy to use device that allows, by inserting a calculation formula, reading of electrical signal from the level and flow sensor produced by SIM STRUMENTI and convert them into flow units.

DATAFLOW unit is equipped with a keyboard and a display that allows viewing the instantaneous and total flow, as well as the sensor data (water level). It also has the HOLD and OFFSET functionality and has the ability to store up to 7000 readings per channel, included of date and time.

This unit has 8 GAIN data conversion units for transforming electrical signal into physical units (one prefixed and seven programmable).

DATAFLOW control unit, equipped with a rechargeable battery, has a great autonomy.

Applications

Flow readout in tubes, channels, etc.



DATAFLOW

Manual flow readout unit

Technical features	
Channels number	2
Converter	40000 points
2mV/V input	*
±20mV input	*
±200mV input	*
±2V input	*
±5V input	*
4-20mA input	*
HOLD function	•
Funzione OFFSET	•
OFFSET function	•
Memory	14000
Internal supply	12V 2.3Ah battery
External supply	12Vcc
Serial port / USB	•
Com. speed (Baud)	9600
Operating temperature	-20 ÷ +60 °C
Protection	IP65
Dimension	166x208x82 mm
Weight	1.850 Kg
Accessories	
Power supply charger	DW000-AX-PS01
Lighter cable	DW000-AX-CPS1
USB cable	DW000-AX-CRS1
DATAVIEW / DATAFLOW software	DW000-AX-SWDW

• standard - not available * upon request

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INCLAB

Inclinometric readout unit



Description

INCLAB is the data acquisition system delivered with the inclinometer probe. It allows the operator, through a keyboard and an LCD display, to set, read and record data during the measurements.

INCLAB data acquisition system, can record data in two simple ways: in manual mode, using a pulse-button (trigger), and in automatic-timed mode, setting the recording rate by the end user. In both option the unit will beep after the acquisition stage.

SIM STRUMENTI also supplies, upon request, an outer visual signal and an acoustic beeper placed on the trigger button.

INCLAB readout unit has a RS232 serial port allowing its connection to a PC, for setting the data into the unit and for the transfer of the stored measurements. Using the TEST procedure the inclinometer probe can be checked for his functioning.

INCLAB readout unit can be connected to a servo accelerometer sensor as well as to an pendulum sensor.

SIM STRUMENTI also supply a software package INCLAB Manager and Processing.

The Manager software is used to set the unit and to download the stored measurements. It also has a database with all the executed measurements, allowing further unit setting with great simplicity.

The Processing software is used to process and to visualize graphically the inclinometric data, giving temporal indications over the landslide movements, as well as printing the data and the graphics.

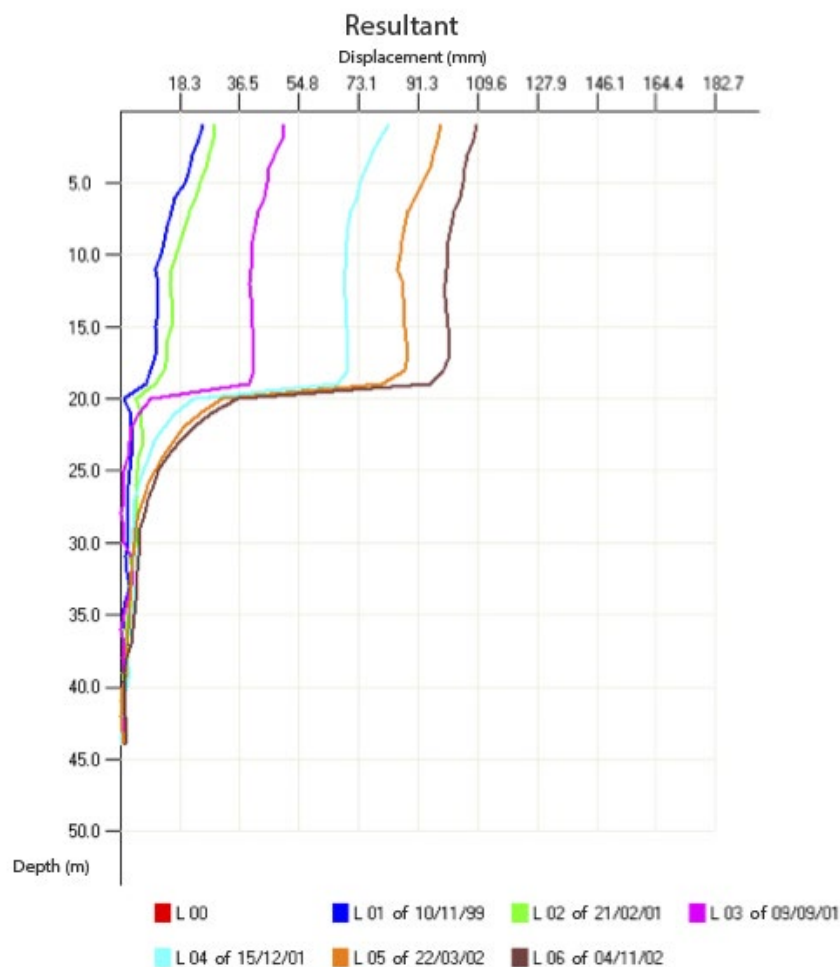
Applications

Reading and acquisition of inclinometer measurements.



INCLAB

Inclinometric readout unit



Technical features

Model	INCLAB
Sensor	Biaxial servo accelerometer
Input	2
Supply	12Vcc
Resolution	±20000 points (40000 sin alpha with sensor at 30°) (80000 sin alpha with sensor at 15°)
Aquisition interval	0.5, 1 mt
Maximum depth	100, 200 mt
Memory	30 measurements (4 guides x 200 mt)
Guides	2, 4
Communication	RS232
Speed (baud)	9600
Display	LCD 4x20 characters, Backlit
Keyboard	membrane
Operating temperature	-20 ÷ +70 °C
Dimensions	267x197x115 mm
Weight	1.8 Kg

Accessories

Serial cable	IN910-AX-CRS1
Trigger cable	IN910-AX-CT01
Trigger cable with acoustic and visual signal	IN910-AX-CT02
Connection reel-INCLAB cable	IN910-AX-CC01
220V Power supply	IN910-AX-PS01
Car lighter supply cable	IN910-AX-CPS1

ESTRUDAT

Extrusion readout unit



Description

The measuring system supplied with the incremental probe DS850 is the ESTRUDAT control unit which allows the operator, through a keyboard and a display, to set, read and record the stored data.

ESTRUDAT data acquisition unit allows the recording of data in manual mode with a push button, emitting an acoustic signal once the recording is performed. SIM STRUMENTI also provides, upon request, an external acoustic and visual warning device installed on the trigger button.

ESTRUDAT control unit has a serial RS232 output that allows connection to a PC for setting the data and for receiving the measurements.

Being equipped with a TEST mode, ESTRUDAT also allows you to control the system functionality.

ESTRUDAT is supplied with a Manager and Processing software package.

The Manager software allows setup the unit and downloading the data recorded.

The Processing software, on the other hand, allows data processing, graphical visualization and printing of the incremental data.

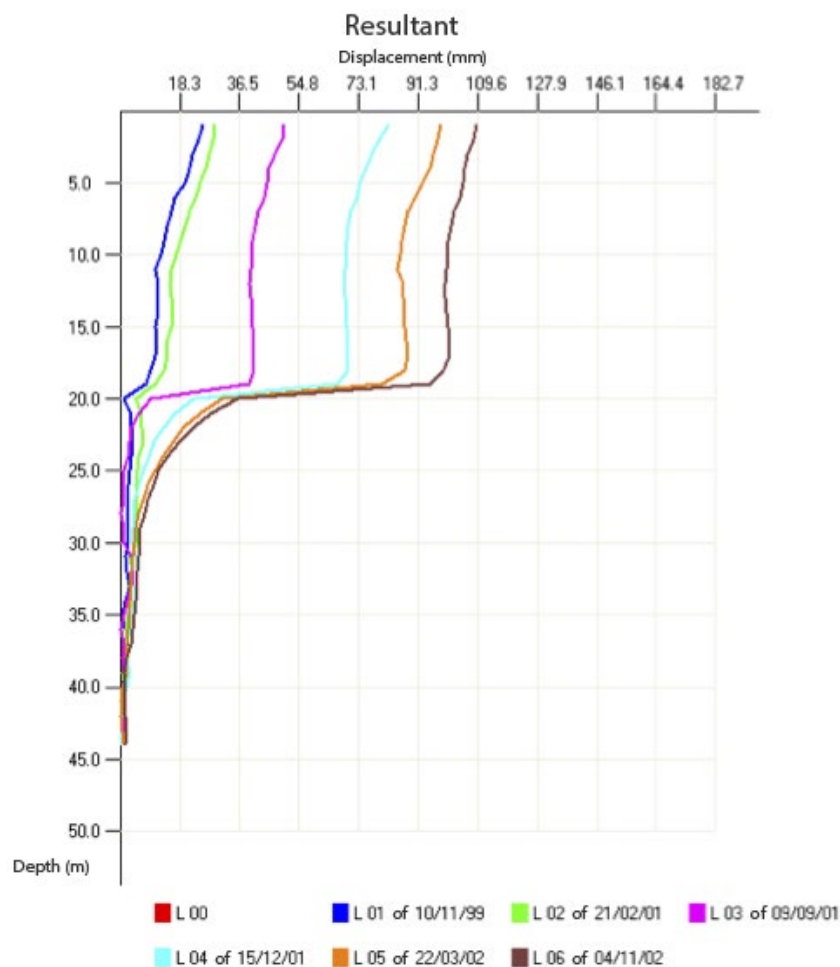
Applications

Readout and acquisition of extrusion data.



ESTRUDAT

Extrusion readout unit



Technical features

Signal	4-20mA
No. of channels	2
Supply	30Vcc
Resolution	±20000 points
Acquisitions interval	1 mt
Max. depth	200 mt
Memory	30 measures
Communication	RS232
Com speed (Baud)	9600
Display	LCD 4x20 characters, Backlit
Keyboard	membrane
Operating temperature	-20 ÷ +70 °C
Dimensions	300 x 250 x 190 mm
Weight	5 Kg

Accessories

Serial cable	IN910-AX-CRS1
Trigger cable	IN910-AX-CT01
Trigger cable with acoustic and visual signal	IN910-AX-CT02
Connection cable reel-readout unit	IN910-AX-CC01
220V power supply cable	IN910-AX-PS01
Lighter power supply cable	IN910-AX-CPS1

PC320

Process controller



Description

PC320 control unit is a reliable process controller and is suitable for measuring sensors with 2 or 3-wire output. The process controller is programmed by default for 12 different sensor types with selectable engineering units. The control unit has a keyboard and a display used for sensor conversion programming.

The controller can accept 2 or 3 calibration points to correct linearity in sensor output; for non-linear sensors, such as the flow meter, a 3rd degree polynomial equation is supported.

During operation, the following data will appear on the display: sensor type, the average reading in the selected range, the engineering unit and the status of the 4 relays. Two other display modes are available: one displaying minimum and maximum values, the other displaying the real time status of the process controller's 4 relays and the sensor reading that caused the last triggering event. The backlight of the display can be switched off for power saving.

The control unit is available in two versions: battery operated or with an external current.

Upon request, it is possible to add a memory unit in order to upgrade the process controller to a data acquisition unit.

Applications

Sensor measurement.



PC320

Process controller

Technical features				
Model	PC320AC	PC320AC D	PC320DC	PC320DC D
Supply	90-220 Vcc		12Vcc o 18-24Vcc	
Consumption	34mA + sensor current + 4-20Ma in output			
Sensor resolution	Max 7 digits, Auto-floating			
Input 2-wire	•	•	•	•
Input 3-wire	•	•	•	•
Input 4-20mA	•	•	•	•
Input 0-1V	•	•	•	•
Input 0-5V	•	•	•	•
Data Logger USB	-	•	-	•
Display	2 lines x 16 characters, LCD, Backlit			
Keyboard	Membrane with 8 keys			
Analog output	4-20 mA scalato			
Alarm outputs	4 independents SPDT relè			
Dimensions	180x130x35 mm			
Weight	0.454 Kg			
Accessories				
Power supply	PC320-AX-PS01			

• standard - not available

FL555

Flow computer



Description

FL555 series flow converters are microprocessor controlled indicators that transform sensor signals into flow values. They are equipped with keyboard functions for programming and a digital display indicating the instantaneous and total flow. A password can be set, in order to avoid tempering, variations or to reset the converter.

There are 3 available models:

- FL555-01 battery operated
- FL555-02 with external power supply
- FL555-03 with external power supply and 4-20mA output.

The flow converter is available with wall mounting or with panel mounting bracket.

The models -01 and -02 have two pulse outputs: one scaled and one passing, while the -03 model has two scaled pulse outputs and a 4-20mA output. The pulse outputs can be set as alarm outputs.

FL555 series flow converters have a IP67 robust casing with an optional protection cover.

FL555-03 model can be connected to one of the data acquisition systems (MINILOG, MYLOG, NATUN) supplied by us.

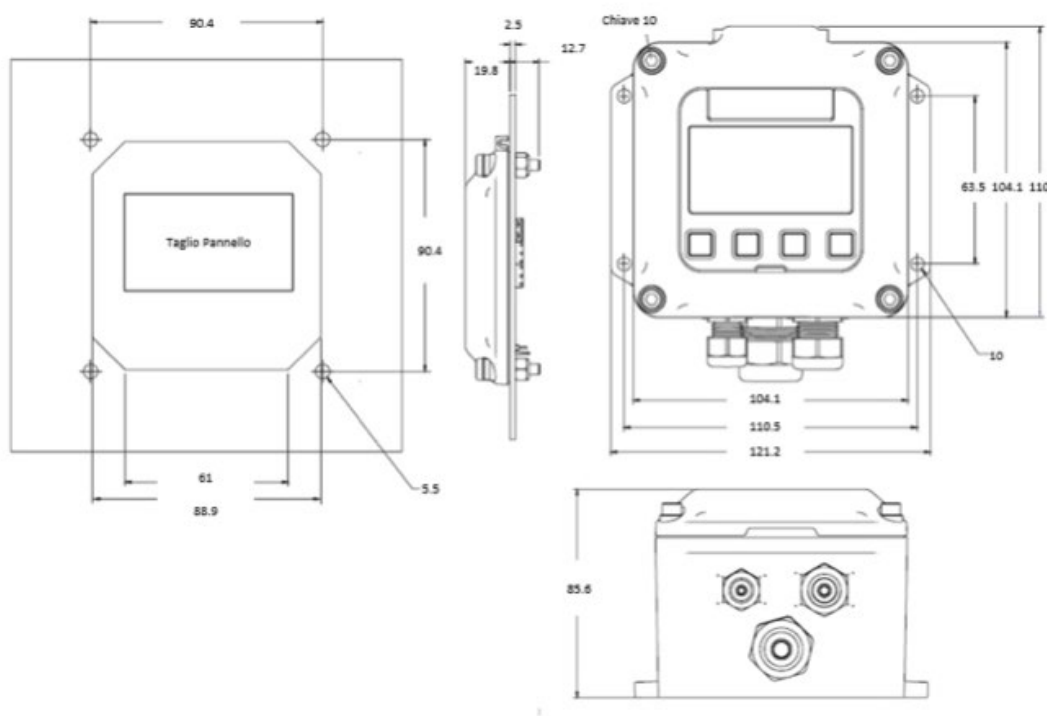
Applications

Measurement of flows in tubes.



FL555

Flow computer



Technical features

Model	FL555-01		FL555-02	FL555-03
Supply	3.6V lithium "C" bat		7-30Vdc	7-30Vdc
Display	Instantaneous		5 digit	
	Totalizer		8 digit	
Unit of measurement	Instantaneous	Gal or Lit or OZ or ft3 or m3 /sec/min/hh/dd; ML/dd; MilGal/day		
	Totalizer	Gal; MGal; Lit; ML; ft3; m3; Mft3; MilGal; Ounce		
"P" setting	0.1 – 99999.9 units/pulse			
"K" setting	0.001 – 999999.999			
Output Alarm	0.1 – 99999.9			
Input signal	Micropower GMR		5V pulse or clean contact	
Operating temperature	0 ÷ 55°C			
Protection	IP67 ; NEMA 4X			
Output	Pulse 1	Scaled output, alarm high or alarm low		
	Pulse 2	Passing		Scaled output, alarm high or alarm low
	Current	- 4-20mA		
	Max voltage	3.6V	45V	
	Insulation	300V	150V	

Accessories

Protection cover	FL555-CO
External power supply	FL555-AL
External power supply double powered	FL555-AL2

MYLOG

Data acquisition system



Description

MYLOG data acquisition system, designed and produced by SIM STRUMENTI, is a compact, versatile and inexpensive datalogger; its small size and low consumption make it suitable for targeted monitoring at one point, where daily data is needed, without incurring complex monitoring. MYLOG is particularly suitable to be inserted inside the various measuring instruments in order to reduce costs and dimensions.

MYLOG unit can be connected to all the instruments produced by the SIM STRUMENTI and be supplied with the sensor already connected or with a centralization box. Designed to be used with different types of power supply, when ordering you can choose the type, considering sensor, frequency and duration of monitoring.

MYLOG unit will be housed inside a container whose size and material will depend on the different needs, the batteries and the chosen accessories.

The acquisition intervals are programmable from 1min to 24 hours and there is also the "Scan" function that allows to control the alarms of each single channel, with a programmable frequency from 1min to 24 hours.

The WARM UP function, programmable from 1 to 60 seconds, allows to supply current to the instrument before reading, in order to stabilize it. When connected, MYLOG unit provides all the parameterization data stored in it, as well as the status of the battery. The data is saved in a FLASH memory that can store 128,000 data, as well as date and time.

It is possible to connect MYLOG unit to a GSM modem.

Applications

Connected to piezometers, fixed wall inclinometers with temperature sensor, joints meters, temperature and humidity sensors etc.



MYLOG

Data acquisition system

Technical features	
Nr. of channels	2
Converter	16 bit
Available inputs	$\pm 10\text{mV}$, $\pm 200\text{mV}$, $\pm 2\text{V}$, 4-20mA*
Battery control	✓
Real time	✓
Stored phones number	6
SMS messages	1 for every channel + 1 main message
Alarm	✓
Alarm output	Pulse +V e/o Message SMS (via modem)**
Warm Up	Programmable from 1 sec to 60 sec
Internal power (standard)	Battery 9V 1.2Ah Power supply 3x3.6V 1200mAh
External power	3.6-24Vcc***
Memory per channel	64000 data
Consumption	0.01mA in standby 20mA during connection; 30mA during acquisition
Sensor power	-0.8V
RS232/USB	✓
Com. Speed (BPS)	9600, 57600
Operating temperature	-20 ÷ +70 °C
Acquisition rate	Programmable from 10 sec to 24 hrs.
Scan rate	Programmable from 10 sec to 24 hrs.
Protection	IP68 for inox case IP63 for ABS case
Dimensions	Power supply 3x3.6V 1200mAh Ø32x260mm Power supply 4x3.6V 1200mAh Ø32x260mm Battery 9V 1.2Ah 100X64X40mm
Weight / Material	Power supply 3x3.6V 0.480Kg. / Inox Power supply 4x3.6V 0.480Kg. / Inox Battery 9V 1.2Ah 0.200Kg / ABS

Accessories	
Battery 9V 1.2Ah	MLY AX-0912
Power supply 3x3,6V 1200mAh	LY-AX-3612
Power supply 4x3,6V 1200mAh	LY-AX-4612
Alarm card includes TEST/RESET buttons and bistable relay	ML-LY-SA
DC/DC for sensor supply +15Vcc	ML-LY-DC15
Communication Kit (USB cable, driver and software VEDO)	ML-LY-COM
Centralization data sheet (2CH)	LY-JB
Material	ABS
Dimensions	100x64x40mm

* Specify for each channel the sensor.

** For the alarm pulse is available an relay card and for the SMS message is available a GSM modem model MDS-BSE.

*** Specify at the order if an external power supply is needed.

MINILOG

Data acquisition system



Description

MINILOG data acquisition system designed by SIM STRUMENTI is a compact and economic data logger meeting all fields requirements and perfectly match to all SIM STRUMENTI instruments. The MINILOG is available in three standard versions, connectable with a variety of instruments, thus providing an excellent quality-price ratio.

MINILOG is powered by a 9V battery that provide to switched power for most of the connected sensor as well. The internal battery life is guaranteed for 7 years in standby mode, while in the acquisition mode the battery life is dependent on the acquisition interval and the types of instruments connected (example: for 4 displacement sensor with 6hrs recording interval, the data logger will last 3 years). If necessary, it is possible to connect an external power supply.

The acquisition time interval is programmable from 10 seconds to 24 hours. The "Scan" function, in order to control the threshold alarm limit, is programmable from 10 seconds to 24 hours. The "Warm Up" function switched power to the instrument from 1 to 60 seconds (programmable) before the actual readout, in order to data stabilization.

The data is stored onto the solid-state memory, which has a storage capacity for 32000 data.

SIM STRUMENTI offers a special Switch unit mod. ML-SW to which up to 8 minilog can be connected, achieving 32 channels. In this case the communication would be via serial for all data loggers.

A modem can be connected either to the MINILOG or to the Switch unit.

MINILOG is housed in a rugged enclosure in polyester glass fibers reinforced, IP65 whose dimensions depends on number of channels and/or required accessories. VEDO software supplied with the data logger enables a perfect management process data on-site or for remote control.

Applications

Connected to piezometers, multipoint borehole extensometers with displacement sensors, inclinometers, conductivity sensors, meteorological stations etc.



MINILOG

Data acquisition system

Technical features			
Model	ML-4CH	ML-PT	ML-PTX
Nr. of channels	4	2	2
A/D	16 bit	8 bit	8 bit
Input 4-20mA	•	-	-
Input ±2V	•	-	-
Input ±200mV	•	-	-
Input PT100	-	•	•
Counter Pulse	-	8 bit	8 bit
totalizer	-	16 bit	32 bit
Input ±5V	*	-	-
Input ±20mV	•	-	-
Test	•	•	•
Alarm output	•	-	-
Alarm	Pulse +V e/o Message SMS (via modem)		
Warm Up	•	•	•
Stored phones number	6		
SMS messages	1 for every channel + 1 main message		
Internal Power	Battery 9V 1200Ah		
External Power	9-24Vcc		
Memory per channel	8190 data	16000 data	8190 data
RS232/USB**	•		
Consumption	0.01mA in standby 20mA during connection + sensor consumption 30mA during acquisition + sensor consumption		
Com. Speed (BPS)	9600		
Operating temperature	-20 ÷ +70 °C		
Acquisition rate	Programmable from 10 sec to 24 hrs.		
Scan rate	Programmable from 10 sec to 24 hrs.		
Proteztion	IP65		
Dimensions	75x55x190 mm		
Weight	0.600 Kg		

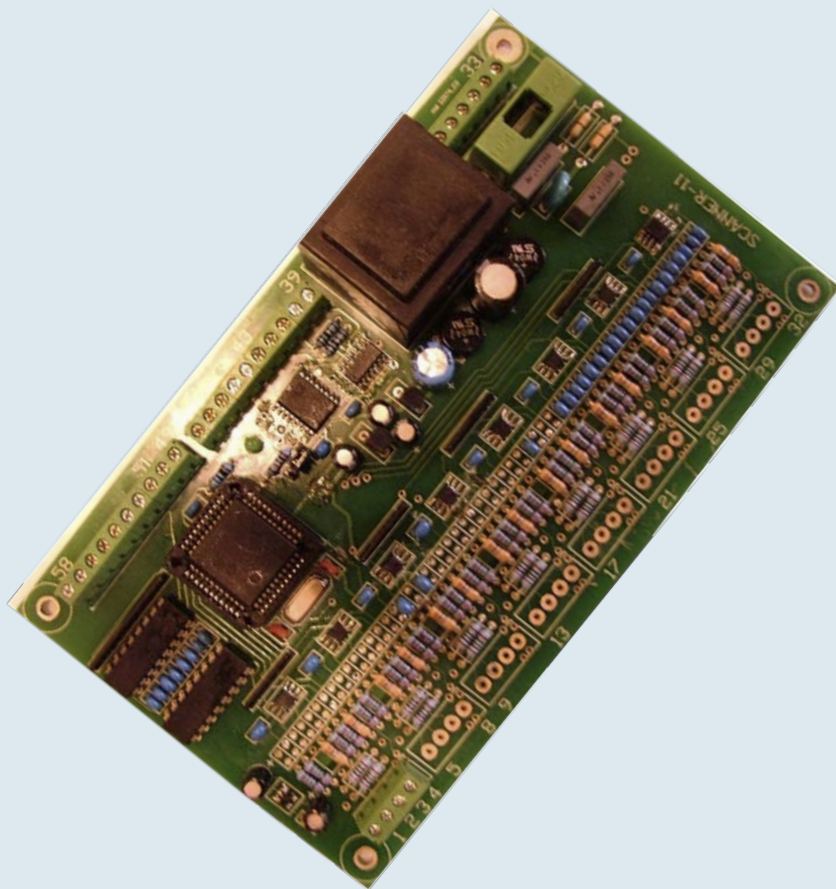
Accessories	
Battery 9V	ML000-AX-PS09
Power supply 220V	ML000-AX-PS01
Supply cable lighter	ML000-AX-CPS1
External power supply cable	ML000-AX-CPSE
Bracket kit	ML000-AX-MW01
Communication Kit (USB cable, driver and software VEDO)	ML-LY-COM
Alarm card includes TEST/RESET buttons and bistable relay	ML-LY-SA
GSM/GPRS modem	MDS-BSE
DC/DC for sensor supply +15Vcc	ML-LY-DC1515

• standard - not available * upon request

** with SIM STRUMENTI converter

NATUN

Data acquisition system



Description

NATUN is a data acquisition system based on A / D boards managed by a microprocessor and connected to each other through one or more RS485 serial lines. The system can be connected on several lines, where each line can contain up to 32 8-channel boards; the system has a maximum of 600 channels.

NATUN is managed by a central computer equipped with a software capable of acquiring and processing all data in real time, as well as storing and sending them to an e-mail address or to a FTP site. The lines that collect the A / D cards are connected to the computer via USB ports.

The A / D boards are of different types: for 4 ÷ 20mA sensors, for Volt output sensors with or for PT100 sensors. The choice must be made at the time of the order.

Each board has its own address that can be modified on site through a dip switch placed on the board itself. The boards are equipped with a total galvanic separation between the communication and the data acquisition part.

Each card is equipped with 8 A / D circuits (one for each channel) independent from each other, in order to speed up the acquisition time (one acquisition per second of all the channels at the same time). For all connected channels, the time required for the update is approximately one minute.

The central computer can also manage alarm cards; each card is equipped with 8 output relays.

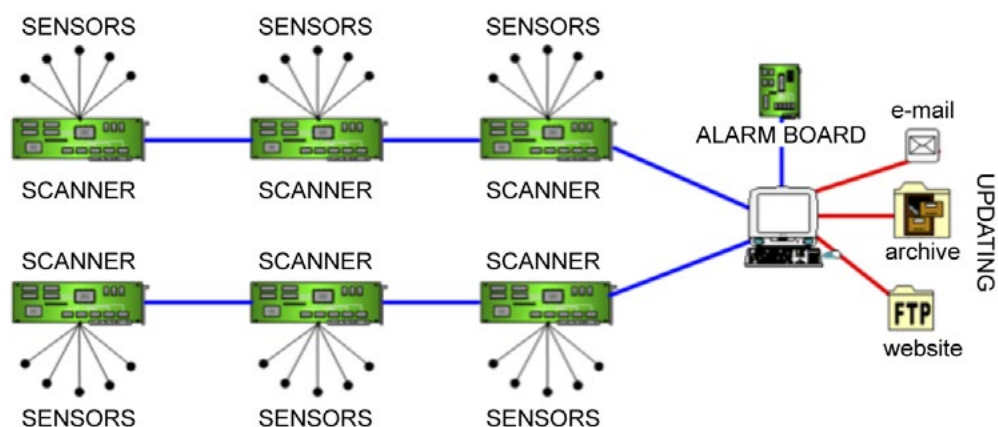
Applications

Hydro geological, geophysical, geotechnical and weather monitoring, etc.



NATUN

Data acquisition system



Technical features

A/D converter	±18bit	
Inputs	0-20 mV, 0-200 mV, 0-2 V, 0-20 V , 0-20mA , 4-20mA, PT100, digitals*	
No. of channels	8 channels per board (max 600 channels) max 32 cards per line	
Sensor power supply	power supply board* +24V dc, +12V dc, +5V dc, +2V dc, +1 mA dc	
External power supply	220Vcc	
Internal power supply	24Vcc	
Consumption	4VA each board	
Dimensions	Scanner board	162 x 95 mm
	A/D module	62 x 25 mm
	Sensor power supply board	90 x 95 mm
	Alarm board	120 x 140 mm

Accessories

4-20mA board	NT01-AX-0420
±2V board	NT01-AX-0202
±200mV board	NT01-AX-2020
±20mV board	NT01-AX-0202
Alarm board	NT01-AX-0800
Alarm board	NT01-AX-AB00**
Transformer 230-24 Vac 300 Va	NT01-AX-2024

* Specify at the time of order

** Specify the desired power supply, for example: for 24V A+24, B = + or ± ;00 = 24, 12 etc for 1 mA, mark Am01

MD

2G/3G/4G

GSM/GPRS modem



Description

The MD series GSM/GPRS modems have been specifically designed for data transmissions deriving from data loggers. They are built with a sturdy industrial aluminum casing.

They are equipped with two connectors, one for power supply and one for the **RS232** serial line. There is also a slot for inserting the telephone card.

The modems are supplied with: power cables, antenna and a serial connector. The MD series modems can be connected to all SIM STRUMENTI data acquisition systems and have the following functions:

- **DATA** - Data transmission to a website via FTP (*all models*)
- **SMS** - Sending alarm SMS messages (*all models*)
- **CSD** - Remote connection to the control unit, using another modem (*only for mod. MD2*)

Applications

Remote connection.



MD

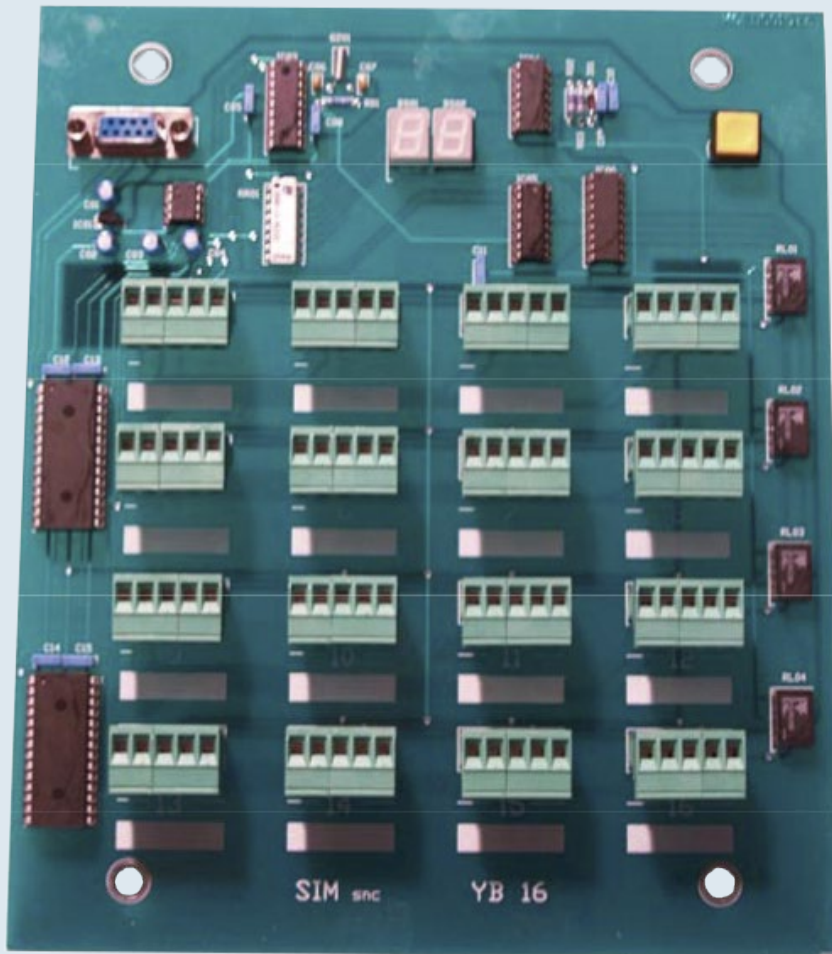
2G/3G/4G

GSM/GPRS modem

Technical features			
Model	MD2	MD3	MD4
Generation	2G	3G	4G
Communication	GSM / GPRS		
Frequency	850/900/1800/1900 MHz		
Speed	85.6 Kbit/S		
Supply	5-30 Vcc		
Operating temperature	-20 ÷ +60 °C		
Humidity	Max. 85%		
Dimensions	72x53.5x26 mm		
Weight	0.089 Kg		
Communication			
Speed	Up to 115200bps (Default 9600 bps)		
Version	GSM 07.05 / 07.07		
Modality	Not transparent		
SMS	MO/MT Text & PDU mode		
Default configuration	9600, 8, N, 1, None		
CSD function	✓	-	-
Interface			
Antenna	SMA/F male connector		
Supply	Micro FIT F 2Pin connector		
Status	Led		
Serial	Sub DB9F HD connector		
Accessories			
12V power supply		MD-AX-A1	
Modem/PC serial cable		MD-AX-MP	
Modem/Datalogger serial cable		MD-AX-ML	

JB

Junction board



Description

The junction board has been designed for multiple application and they are produce in various dimensions, depending on their capacity in relation to the number of instruments/cable connectable:

- Junction boards for the instruments connections and their readout with the manual unit DATAVIEW;
- Junction boards for the instruments connections to a central data acquisition system through a multicore cable;
- Junction boards for the instruments connections through a chain of multicore cables, where on every boards there is different instruments type and all connected to a central data logger;
- Junction boards for cables extension (splices), or for a anti-lightning protection.

SIM STRUMENTI supplies upon request two type of resin, in order to ensure better protection to the junction boxes. The first resin, silicon based, allows easy maintenance and further splices connections. The second type is an epossidic resin, allow the junction boxes great durability to high pressures and perfectly waterproof.

Applications

Cable connection, instruments multiplexing etc.



JB

Junction board

Technical features				
Model	JBSC	JB01	JBLT	JB04
Inputs	-	6	8	10
Outputs	-	6	8	40
Max connectable ch	1	1	2	4
Protection	IP68	IP65	IP65	IP65
Dimensions (mm)	Ø15 x 80	55x55x37	110x75x55	190x75x55
Material	PVC Stainless steel*	Reinforced polyester	Reinforced polyester	Reinforced polyester
Notes	Anti-lightning			

Model	JBDW	JB16
Inputs	80	64
Outputs	DB9 (DATAVIEW)	40
Max connectable ch	16	16
Digital commutation	•	-
Protection	IP65	
Dimensionis	300 x 200 x 160 mm	
Material	Polyester	

Accessories	
Mounting brackets (DW, 16)	JBS-AX-MW01
Silicon resin kit	JBS-AX-RSS1
Epossidic resin (90 gr.) kit	JBS-AX-RSE1
Epossidic resin (210 gr.) kit	JBS-AX-RSE2
Crimp terminals kit	JBS-AX-KT01
Extractable terminal block 5 pins	JBS-AX-TEB5
DATAVIEW connectin cable	JBS-AX-CCB1
Metallic cable gland M10	JBS-AX-GM10
Metallic cable gland M12	JBS-AX-GM12
Plastic cable gland PG7	JBS-AX-GP07
Plastic cable gland PG16	JBS-AX-GP16
Metallic cable gland PG9	JBS-AX-GM09

• standard - not available * upon request

CB Cables



Description

The cables produced by SIM STRUMENTI were designed for several applications and every cable is suitable for a different one.

The cables ensure an excellent connection between the instrument and the measuring device. All the cables are shielded, in order to ensure a good signal transmission also the low ones, clearing all electrical disturbance.

Some cables have a Kevlar core, in other also a twist Kevlar, in order to ensure a durability of the cables in those applications where they are subject to extension stress.

All cables are produced with an outer protective sheath, in order to ensure waterproofing, in some case the sheath is also scratch protected and in other cases the sheath is marine grade.

Vented cables are also produced having an internal nylon tube, for the barometric compensation.

Applications

Connecting instruments to reading units.



CB Cables

Technical features					
Cable	4022	6022	6022k	2015kf	4015kf
Conductors	4	6	6	2	10
Diameter	5.6	5.0	8.0	4.7	4.7
Conductor	Red Copper	Red Copper	Soldered Copper	Soldered Copper	Soldered Copper
Ext. sheat	PVC	PVC	Polyurethane	Polyurethane	Polyurethane
Int. sheat	Polyethylene	Polyethylene	PVC		
Shield	Red Copper	Red Copper	Red Copper		
Armoring			Kevlar core and twist	Kevlar core	Kevlar core
Color	Blue	Blue	Blue	Blue	Yellow
Insulation Resistance MΩ x Km a 20°	>2000MΩ >2000MΩ >2000MΩ >2000MΩ >2000MΩ				

Note Cm marked on external sheat

Cable	2022t	6022t	40022	4022m	40022m
Conductors	2	6	40	4	40
Diameter	5.0	7.5	12.5	5.8	11.3
Conductor	Soldered Copper	Soldered Copper	Red Copper	Red Copper	Red Copper
Ext. sheat	Polyurethane	Polyurethane	PVC	Polyurethane Ether	Polyurethane Ether
Int. sheat				Polyethylene	Polyethylene
Shield	Aluminum with cont. wire	Soldered Copper	Red Copper	Red Copper	Red Copper
Armoring			Kevlar core and twist	Anima in Kevlar	Anima in Kevlar
Color	Blue	Blue	Blue	Blue	Blue
Insulation Resistance MΩ x Km a 20°	>2000MΩ >2000MΩ >2000MΩ >2000MΩ >2000MΩ				

Notes Tube Ø0.5/1.5 Tube Ø1.5/2.5 Marine Grade Marine Grade

Accessories	
Splice kit	CBS-AX-KT01
Waterproof splice kit	CBS-AX-KT02

ED-06/22



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