



Load and Pressure



Index

Load

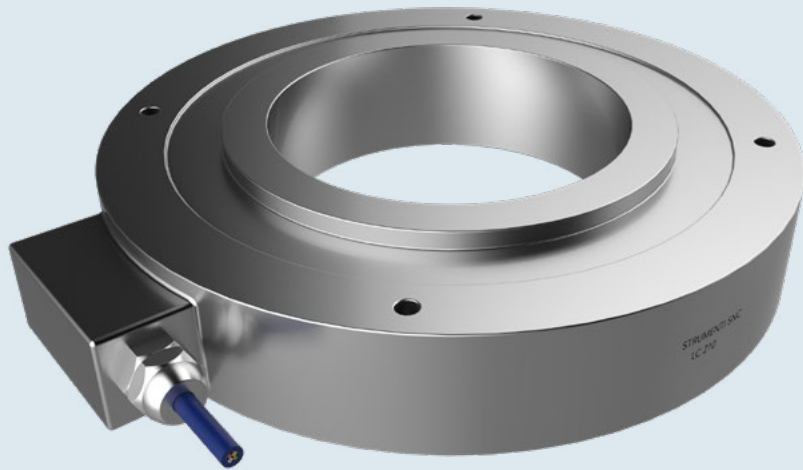
LC210	Anchor load cell
LC220	Embedment strain gauge
LC225	Embedment strain gauge
LC230	"S" load cell
LC240	Rods load cell
LC250	Low profile load cell
LC255	Low profile load cell
LC260	Bracket load cell
LC270	Column type load cell

Pressure

PR310	Pressure cell
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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.

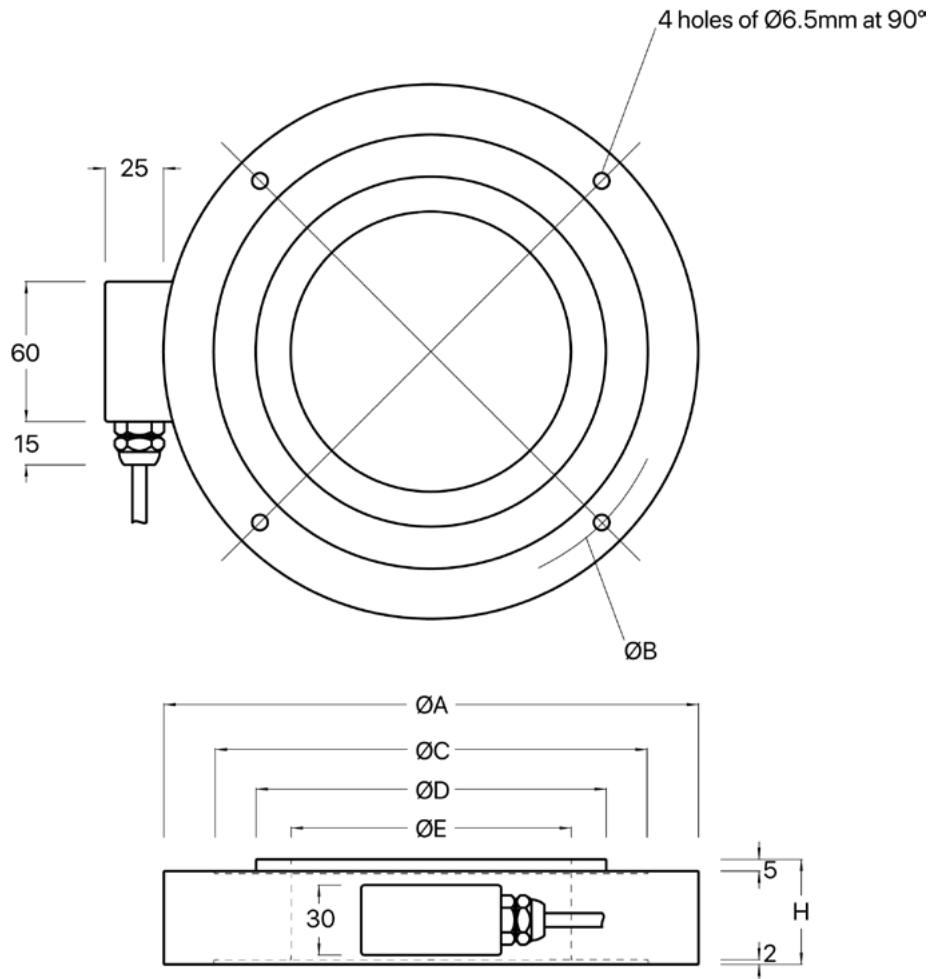
Applications

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	3200	302	302	285	250	225	55	20
LC210-300-KN	2500	3000	3200	230	208	186	150	120	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

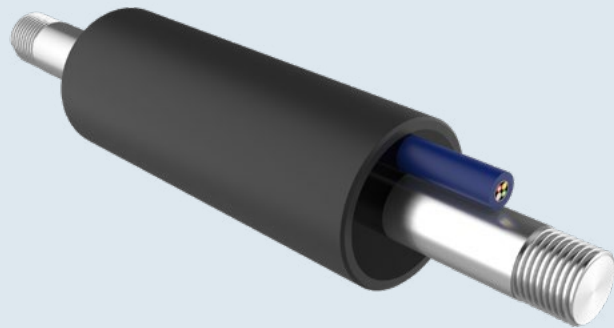
LC210-AX-BEMA

*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 measure deformations in piles, tunnel linings, diaphragm walls and bridges during the installation phases or during normal working stages. The LC220 consist 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

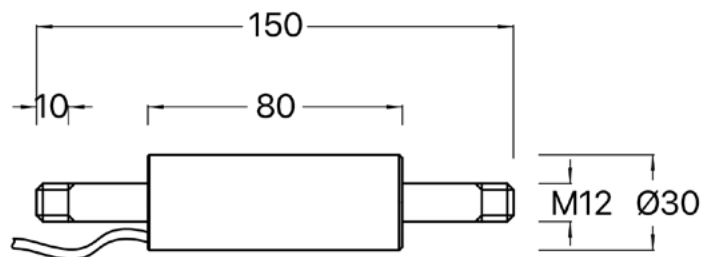
Strain measurement in piles, tunnel linings, diaphragm walls, concrete, used in dams, bridges, piles, caissons, tunnel linings etc.



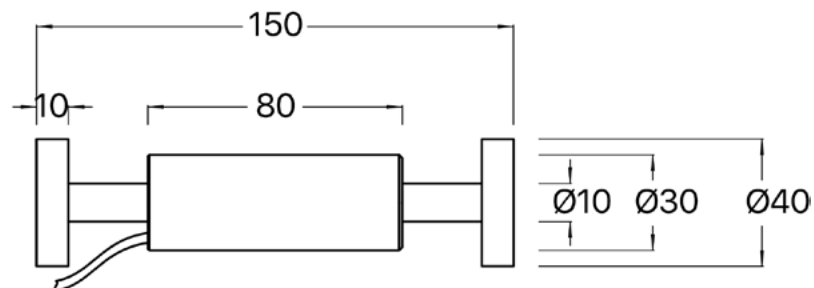
LC220

Embedment strain gauge

MOD. LC220 - 01



MOD. LC220 - 02



Technical features

Model	LC220-01	LC220-02
Range	± 3500 mε ±0.375 mm	
Supply	1-10Vcc x 1mV/V ; 8-24Vcc x 4-20 mA	
Output	2 mV/V, 4-20 mA	
Linearity	1% FS	
Repeatability	<0.01% FS	
Input resistance	350 Ω	
Output resistance	350 Ω	
Insulation	> 5000 MΩ	
Overload	150% FS	
Diameter Bar	Ø12 mm	Ø10 mm
Material	Stainless Steel 17-4 PH	FE o AISI304
Protection	IP68	

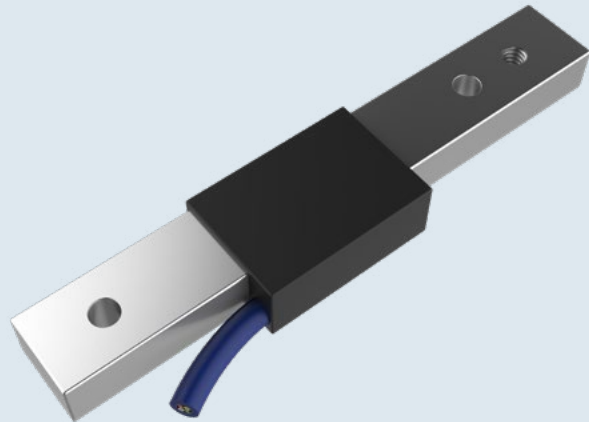
Accessories

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 consist 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.

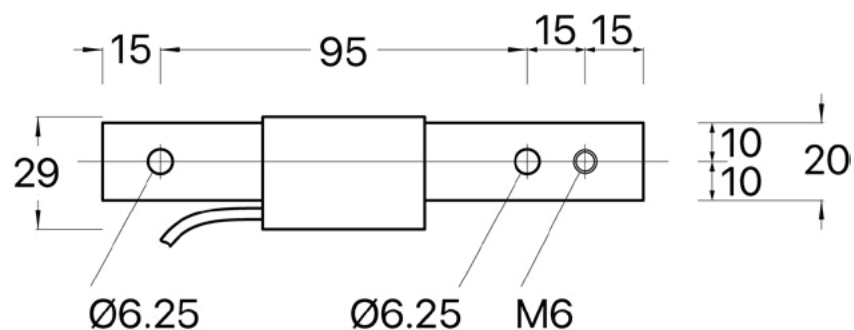
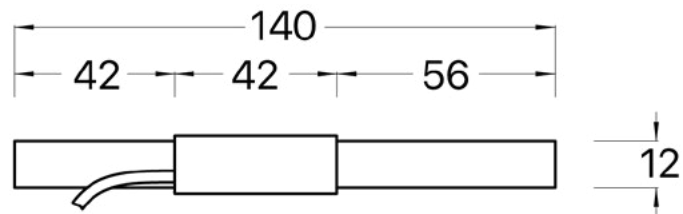
Applications

Monitoring of microcracks in concrete etc.



LC225

Embedment strain gauge



Technical features

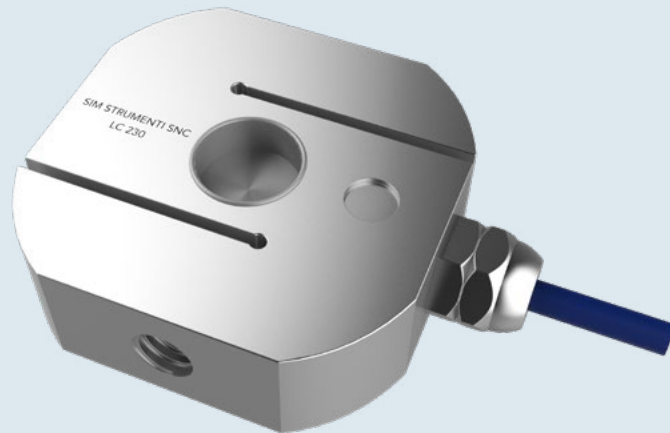
Model	LC225-01	LC225-02
Range	±0.4 mm	±0.2 mm
Max. load	50 Kg	100 Kg
Supply	1-10 Vcc	
Output	2 mV/V	
Linearity	0.5% FS	
Repeatability	<0.01% FS	
Input resistance	350 Ω	
Output resistance	350 Ω	
Insulation	> 5000 MΩ	
Overload	50% FS	
Dimension	Bar	260 x 20 x 12 mm
	Central case	140 x 20 x 12 mm
		42 x 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.

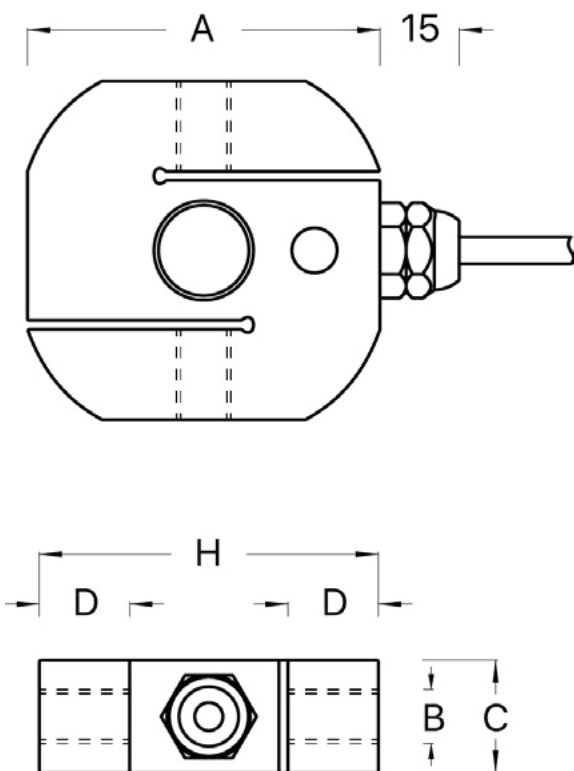
Applications

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

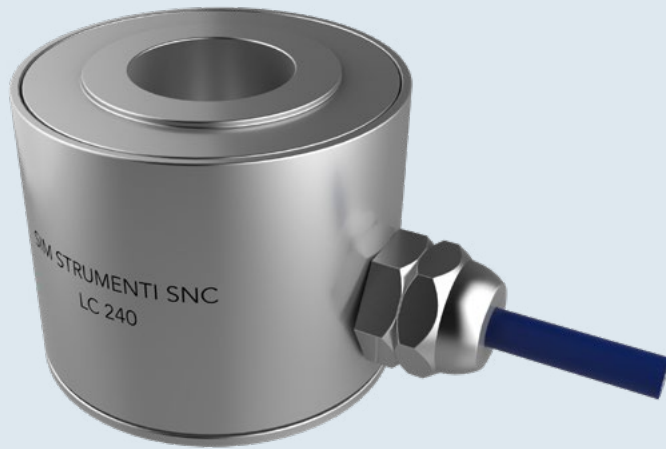
Accessories

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.

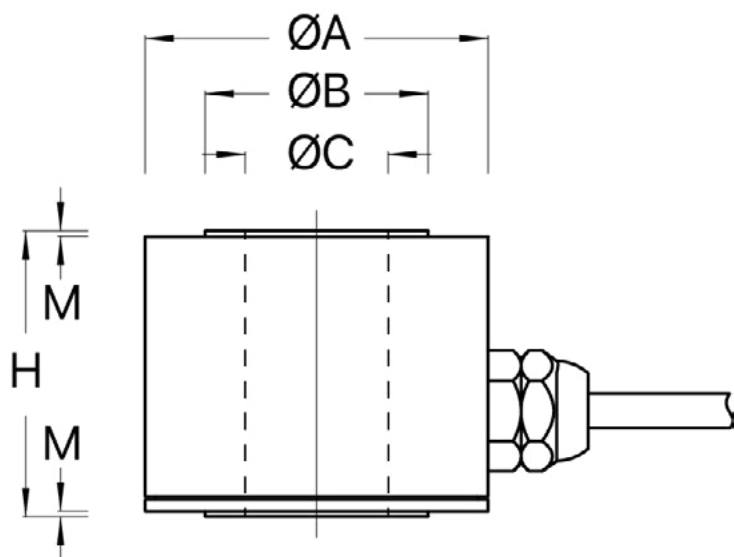
Applications

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

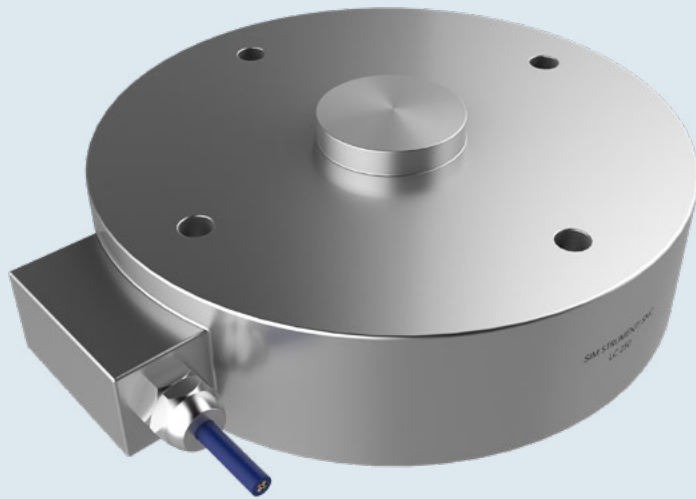
Accessories

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 they require many cycles of loading-unloading.

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.

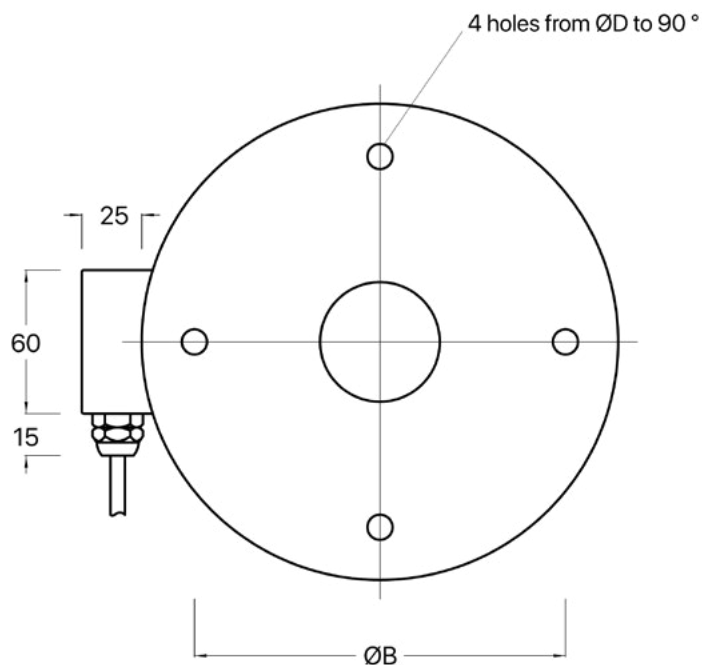
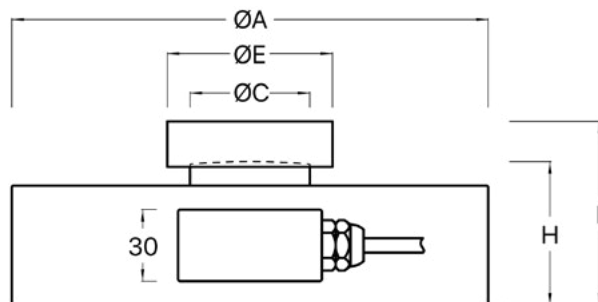
Applications

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



LC250

Low profile load cell



Modello	Carico (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	299	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

Technical features

Load	500 – 7500 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

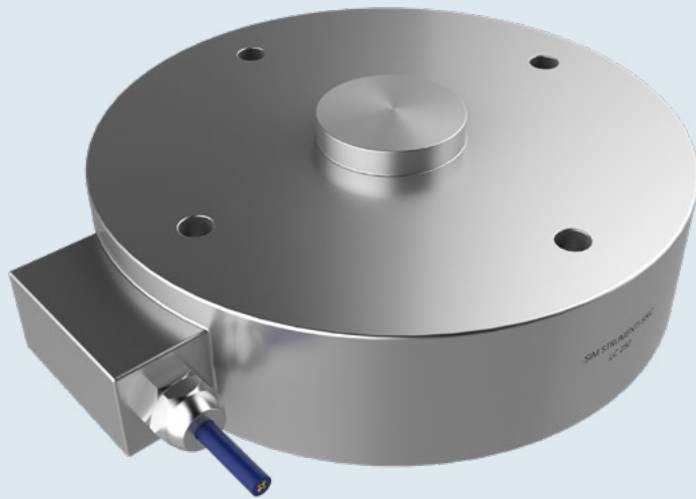
LC250-AX-BEMA

*KN Indicate the range

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

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.

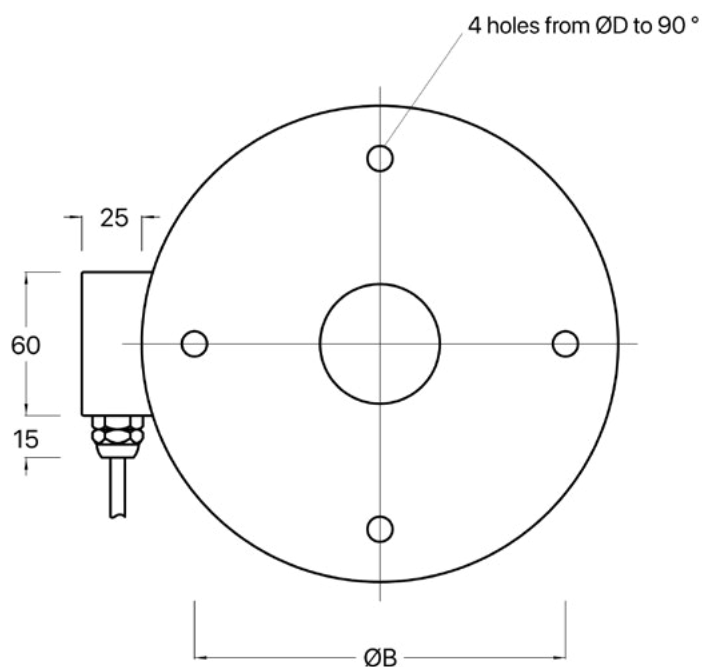
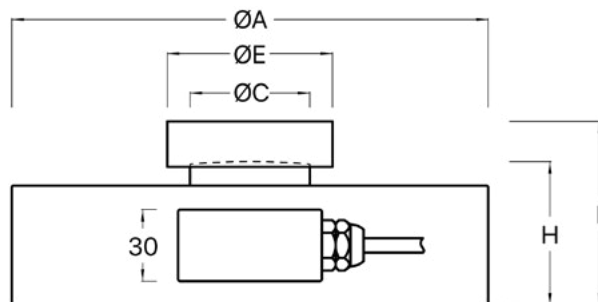
Applications

Pile load tests, weighing of silos, etc.



LC255

Low profile load cell



Model	Load (Kg)	ØA	ØB	ØC	ØD	ØE	H	l	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*

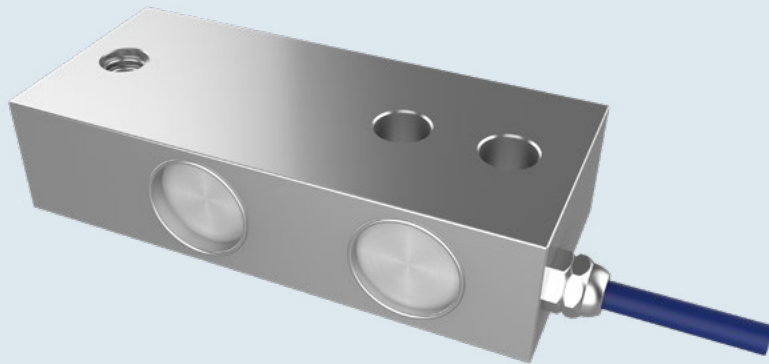
4-20 mA converter

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 they require many cycles of loading-unloading.

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.

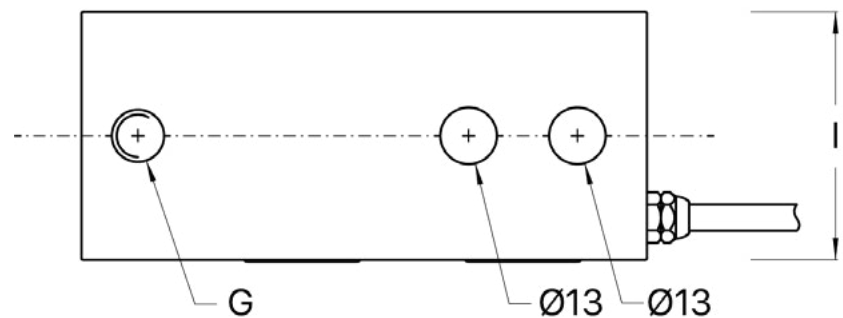
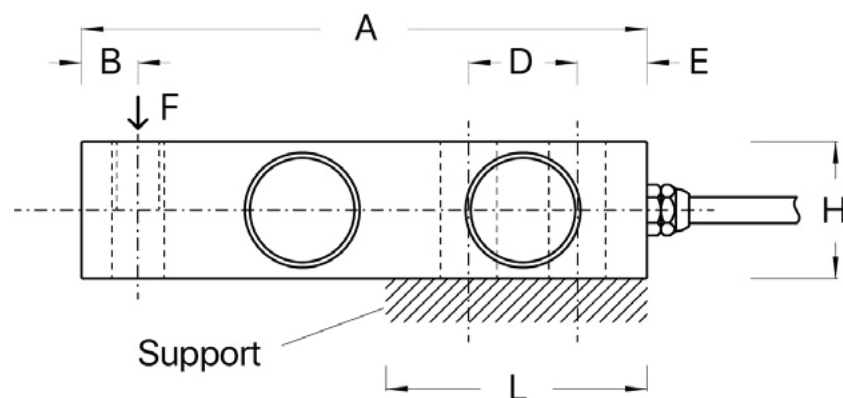
Applications

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

SIM STRUMENTI SNC

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Fax: +39 02 9729 01 67

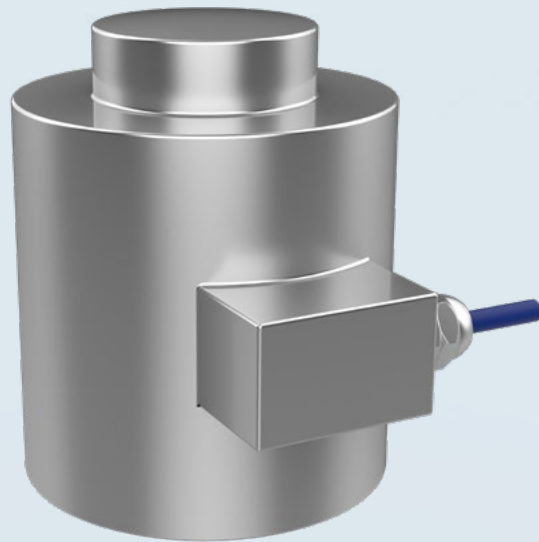
www.simstrumenti.com

sim@simstrumenti.com



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.

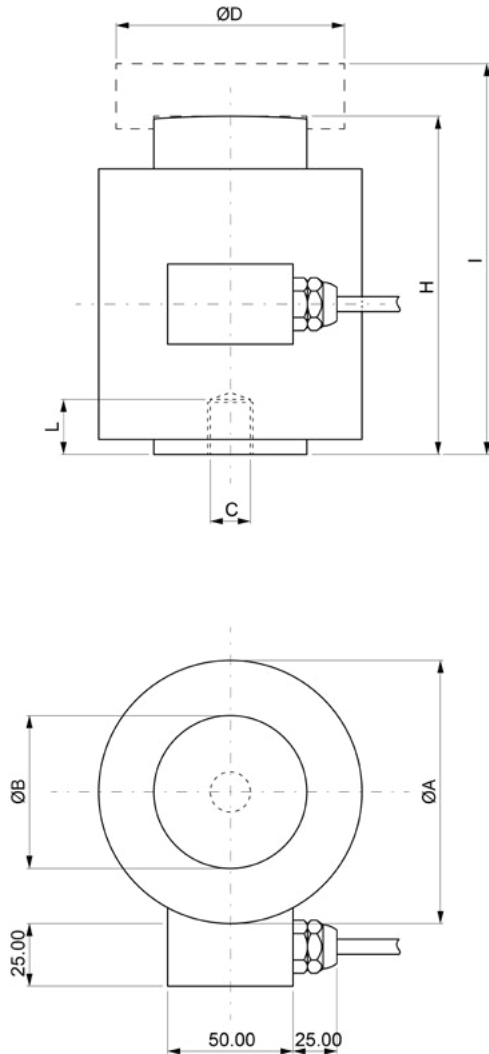
Applications

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

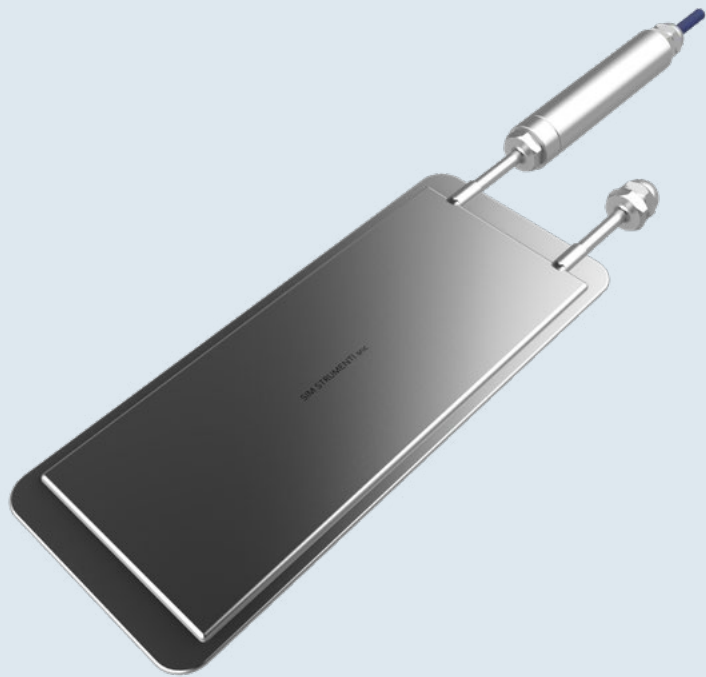
LC270-AX-BEMA

*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.

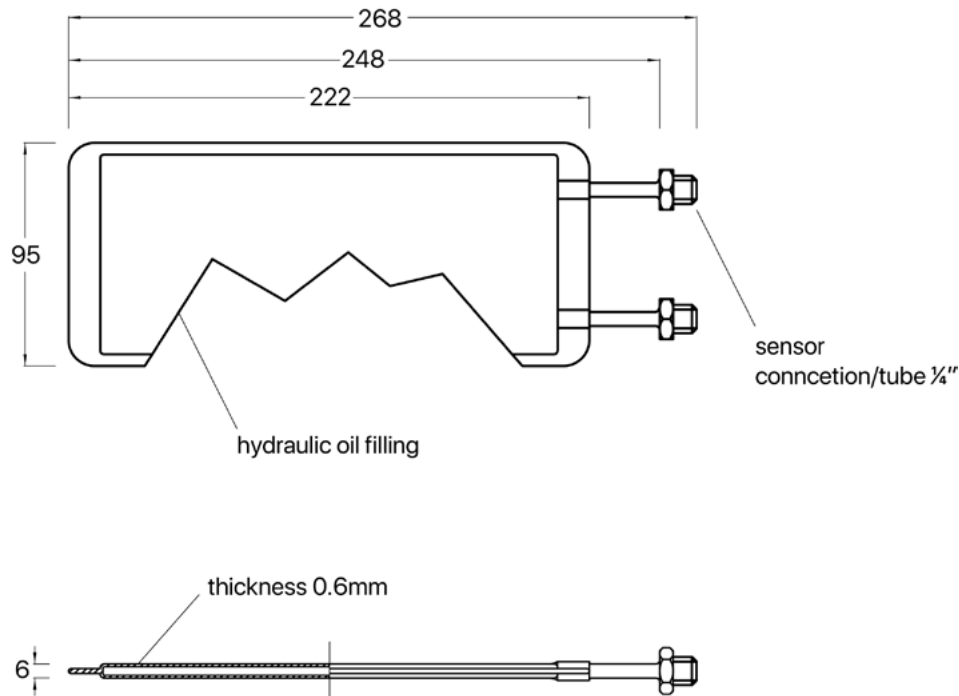
Readout units with NATUN.

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 Indicate 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



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