Load Cell Type SO / ED 21

Fully digital, monobloc oscillating-wire load cell, made of stainless-steel, for nominal loads from 1'500 to 10'000 kg.

General

As in all DIGI SENS load measuring cells, an oscillating-wire transducer is used to convert the force/load into an electrical signal.

This patented element is able to deliver a signal that can be directly processed by a computer. The calibration data is stored in the load cell electronics. A built-in temperature measurement ensures active temperature compensation.

Applications

Calibrated measurement of loads, weights and forces in applications such as:

- Platform scales
- Container scales
- Mixers
- Tipping weighing systems incorporated in vehicles
- Conveyor scales
- Robot arm scales

Description

A guide-plate of high tensile stainless steel allows weighing systems to be built using one load cell (monobloc construction), where normally three or more conventional cells would be required.

Torsion forces due to eccentric application of the load are filtered out and complicated suspension systems (pendulum bearings), designed to avoid unwanted stresses, are superfluous.

The logically designed, practically displacement-free mounting is characterised by a very low measuring displacement of less than 0.2 mm. The result is a weighing system with outstanding measuring precision.

The calibration data of the load cell are stored in a built-in memory.

No adjustment whatsoever is required either at commissioning or when a load cell is replaced.

A 5V TTL output signal is available for load and temperature.

For processing and transmission of the signal, as well as for other more complex measuring and regulating functions, DIGI SENS offers suitable electronics and software.

Together with this electronics and other components, such as inclinometers or accelerometers, the SO loads cells can be extended to form complete weight or force-measuring systems for static or dynamic applications.

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Technical Data

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Certification (load cell and calculator)			OIML R60 C3		
Nominal load (other ranges on request)	E_{max}	kg	1500	5000	10000
Number of verification scale intervals	n_{max}		3000		
Min. verification scale interval	v_{min}	kg	0.2	0.65	1.35
Ratio of min. verification scale interval	y		7500		
Combined error		% of E_{max}	< ±0.030		
Repeatability[1]		% of E_{max}	< 0.010		
Hysteresis[1]		% of E_{max}	±0.015		
Linearity over measuring range[1]		% of E_{max}	±0.010		
Creep 30 min		% of E_{max}	±0.015		
Temperature drift of zero		%/10K	±0.010		
Temperature drift of sensitivity[1]		%/10K	±0.010		
Overload capability without permanent damage		% of E_{max}	100		
Deflection at nominal load	s_{nom}	mm	< 0.10		
Warming-up time for max error 0.03%		min	< 5		
Power supply • voltage • max current consumption • type current consumption		V DC mA mA	5±10% < 25 10		
Temperature range • calibration • service		°C	-10...+40 -15(opt. -30) ...+70		
Output signal • frequency at zero • sensitivity • amplitude	f_0 f_n-f_0	Hz Hz V DC	13000±500 4300±300 5V TTL		
Protection class			IP68 / IP69K		
Weight	P	kg	6.75	14.20	14.35
EMC			According to IEC 61000		
Environmental (shocks / vibrations)			According to IEC 60068		
Cable			Version with exchangeable cable (PLG) for SO1500 and version with connectors (K-8) for SO5000 and SO10000		

[1] **The sum of repeatability, hysteresis, linearity and temperature drift of sensitivity meets the requirements according to OIML R60.**
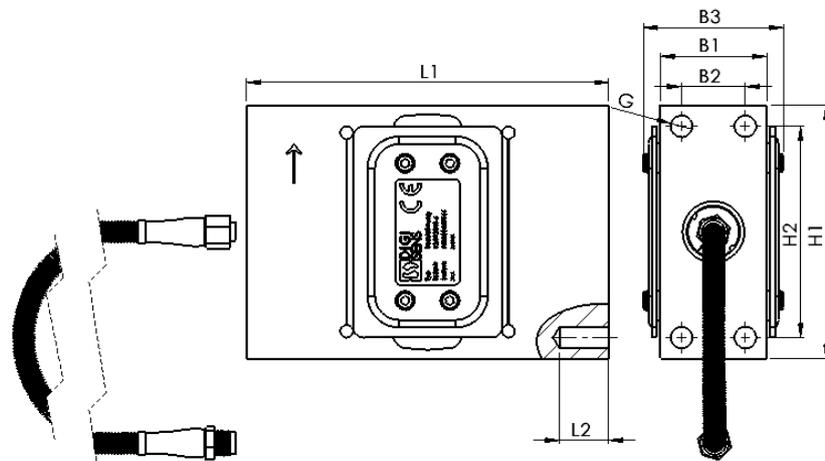
Dimensional drawing

SO5000
SO10000
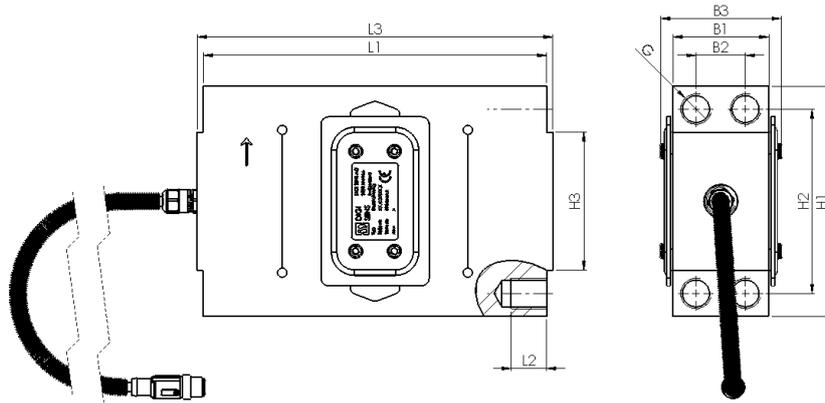
SO1500
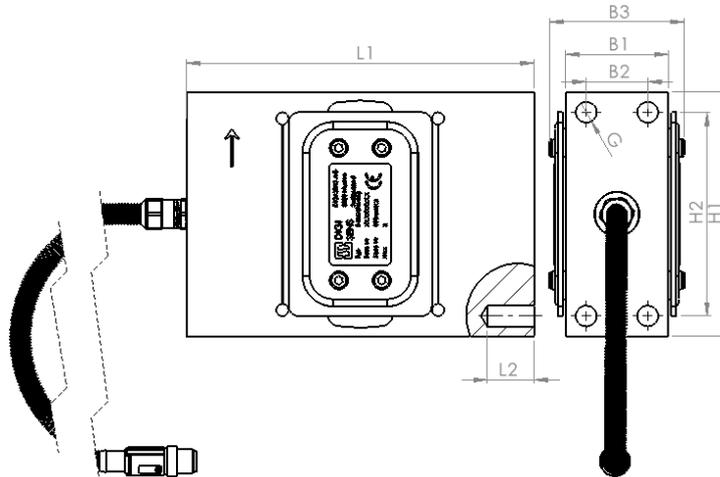
SO1500 PLG

	L1	B1	H1	G	L2	B2	H2	B3	H3	L3
SO 1500 kg	170	50	120	M12	16	30	100	66	--	--
SO 5000 kg	222	62	150	M20	23	32	120	78	90	230
SO 10000 kg	222	62	150	M20	23	32	120	78	90	230

Mounting instruction manual K235