Tensile Force Sensor Series LC 1121 and LC 1321

Application: measuring tensile forces on: optical fibres, wires, threads, tapes, etc.
optimal for measurements ONLINE, as well for labs

Characteristics: extremely flat system
the sensor works (almost) lever-arm-independent, as well with wide rollers

Amplifier: **LC 1321** = with built-in amplifier
LC 1121 = without built-in amplifier
please see corresponding data sheets

Nominal loads: **2 N, 4 N, 5 N, 10 N, 20 N, 30 N and 50 N,**
Special design up to 500 N / others upon request

Measuring range: 1 % up to 115% corresp. the nominal load

Overload protection: > 10 times the nominal load. Safe protection against unexpected operation conditions.
No damage of the sensor due to a blockage by means of tearing material.

Measuring principle: the - on the (in the middle located) measuring-roller - radial acting force, causes a proportional, minimum deformation of a complex formed bending-beam. The built-in strain-gage full-bridge transforms this deformation into a proportional electric outputsignal.

Fixing: 4 cylinder-head-screws, M 4 x 20 DIN 84

Electrical connection: connection cable, 3 m, fixed

Rollers: standard: aluminium rollers running in double-ball-bearings
Option: aluminium-rollers running in double-ball-bearings, ceramic coated
Option: steel-rollers running in double-ball-bearings
suited for speeds up to 2400 m/min

Included in delivery: sensor with fixed cable, instruction manual

Accessories available: - tailor-made rollers
- amplifier KMV 10 without display
please ask for the corresponding data sheets

Recommended instruments with digital display : Tensometric series SA DMS 610, SA 310 DMS

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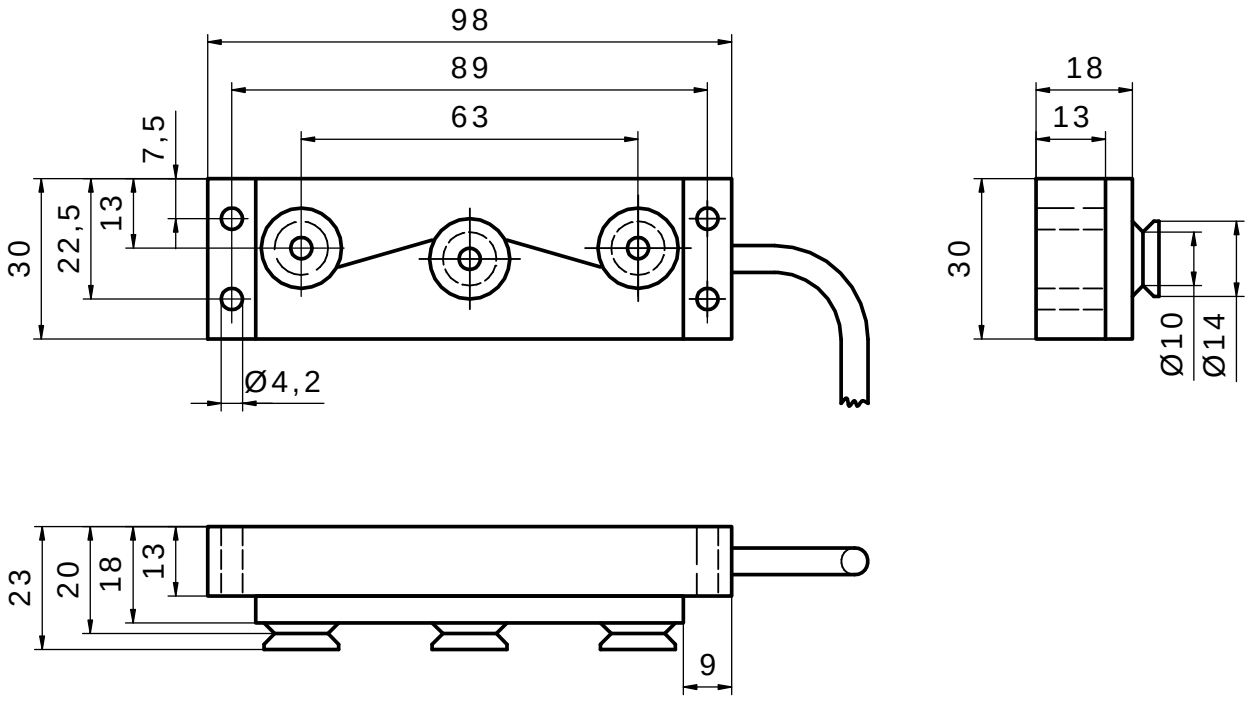
Technical data LC 1121

Dimensions sensor LC 1121:



Series

Type LC 1121	tensile force sensor with 3 - rollers, realization the measured data via strain-gages
Type LC 1321	tensile force sensor with 3 - rollers, realization the measured data via strain-gages amplifier is built-in. Please see separate data sheet

Nominal loads ***2 N,* 4 N, 5 N, 10 N, 20 N, 30 N, 40 N and 50 N** others upon request

Measuring principle	strain-gage, full-bridge	*Resistance input*	350 Ohm
Measuring range	1 % up to approx. 115 %	*Resistance output*	350 Ohm
Charact. value	1,5 m V / V	*Reference voltage*	10 V
Char.range of temp.	+ 5℃ ...+ 60℃	*Max. service voltage*	10 V
Coef. of temp.	< +- 0,01 % / ℃	*Error system strain-gage*	< 0,3 %

Measuring error < 0,8 %, depends on the material

Natural frequency 300 Hz up to 500 Hz, depends on the nominal load

Overload protection 10 times

Protection IP 50

Cable connections

brown	+ 10 V	bridge excitation
white	0 V	bridge excitation
green	+ Out	measuring signal
yellow	- Out	measuring signal
grew		not connected

Technical data - subject to change

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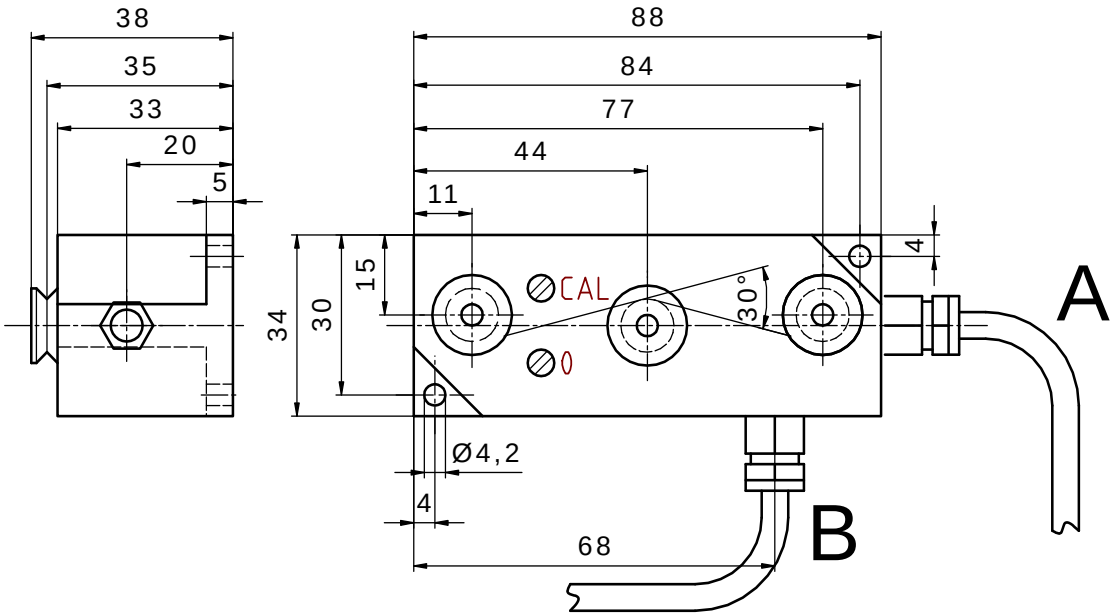
Technical data LC 1321

Dimensions sensor LC 1321:



Sensor series LC 1321 is equiped with built-in amplifier.
It supplies an outputsignal of 0 up to +10 V, corresponding 0 up to 100% the nominal load.
To adjust the electrical zero and the gain (calibration), corresp. potentiometer are accessible at the front page.

The desired service voltage is adjusted by Tensometric. It is necessary to specify this together with the order.
Service voltage and outputsignal are galvanic separate. (not with service voltage of ± 15V !)
The 3 m long connection cable is fixed. Shield of the cable is connected to the housing.

Cable at pos. A or B

Nominal loads n	**2 N, 3 N, 4 N, 5 N, 6 N, 10 N, 20 N, 30 N, and 50 N**	others upon request
Overload protection	**> 10 - times the nominal load**	

Measuring principle	strain-gage, full-bridge	Service voltage	5 V ± 10% < 90 mA
Measuring range	1 % up to > 115%		12 V ± 10% < 70 mA
Charact. range of temp.	+ 5℃ ...+ 60°C		24 V ± 10% < 25 mA
Coef. of temp.		*Option*	±15 V ± 10% +20 / -5 mA
- of the zero	< 0,025 % / ℃	*Adjusting range zero*	± 20% of the nom.load
- of the meas.range	< 0,05 % / ℃	*Adjusting range gain*	± 20% of the nom.load
System strain-gage		*Outputsignal*	± 10 V
meas. error	< ± 0,3%,	*Output current max.*	2 mA
max. error in line.	< ± 0,2 %	Option: Output current	4-20mA

Protection	IP 50
Material	rollers - standard: aluminium rollers running in double-ball-bearings
Housing	aluminium - alloy
Electrical connection	fixed, shielded 5 pol. connection cable. Standardlength 3 m, 5 m upon request Shield is connected to the housing
Extent of delivery	Sensor with fixed connection cable, instruction manual

Technical data - subject to change

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