

# ESA Messtechnik GmbH

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## Miniature Force Transducer Model CL-21ms

### Features:

- Measurement of compression forces
- High Accuracy
- High stability and reproducibility
- Miniaturized design
- Two different designs
- 3 years warranty

The Miniature Force Transducer type CL 21ms is designed for measuring compression forces. It is used in high accuracy applications when small dimensions are required.

CL 21 ms features high quality steel or aluminium spring elements with high-precision, fully balanced and compensated strain gauge full bridge circuitry.

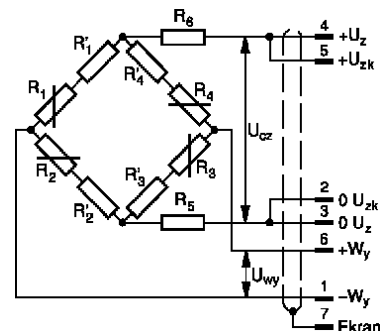
Bridge impedance is 350  $\Omega$  with aluminium, and 1000  $\Omega$  with steel spring elements.

### Specifications:

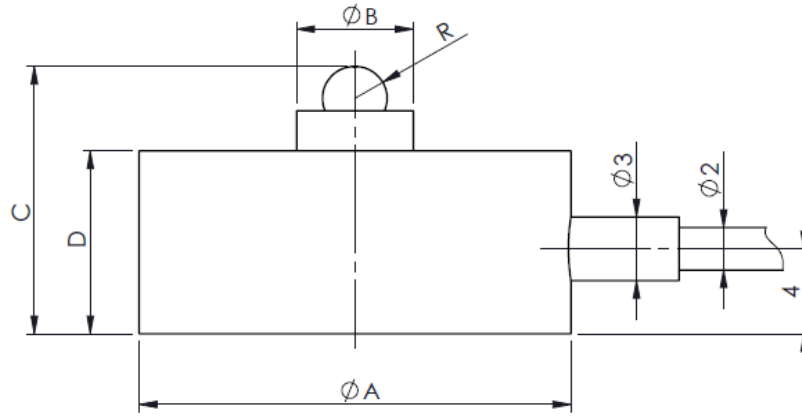
Range	[kN]	0,2; 0,5; 1; 2; 5
Accuracy	%	0.5; 1 (referred to full scale)
Sensitivity	[mV/V]	1 – R1; 2 – R2
Excitation Voltage	[VDC]	10
Input Impedance	[ $\Omega$ ]	350 (Aluminium); 1000 (Steel)
Output Impedance	[ $\Omega$ ]	350 (Aluminium); 1000 (Steel)
Operating Temp. Range	[ $^{\circ}$ C]	+5 to +90
Compensated Temp. Range	[ $^{\circ}$ C]	+20 to +90
Zero Drift	[%/30 min]	$\leq$ 0.03
Hysteresis after unloading from nominal load	[%]	$\leq$ 0.03
Temp. Stability of Sensitivity	[%/10K]	$\leq$ 0.05
Temp. Stability of Zero	[%/10K]	$\leq$ 0,05
Max. Strain	[mm]	0.1
Overload Capability	[%]	50
Insulation Resistance	G $\Omega$	$\geq$ 40
Cable Connection		Flexible Wire
Protection		IP56
Dimensions		See drawing and table
Spring Element Material		Aluminium or Steel
Cable Length		3 m (Standard) or user specification

### Wiring Schematic:

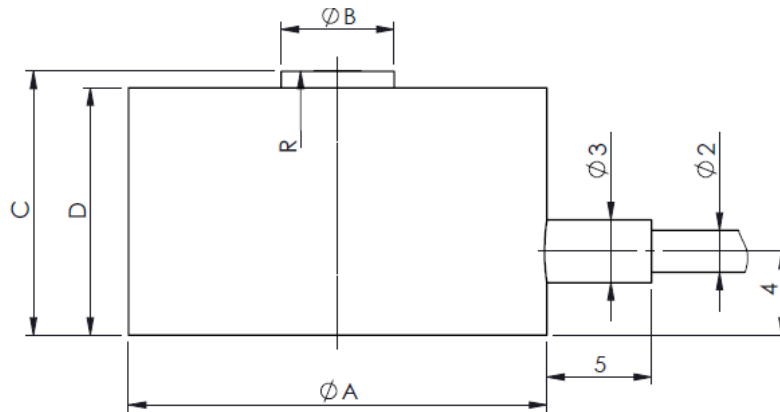
1 brown	-W <sub>y</sub>
2 pink	0 U <sub>zk</sub>
3 white	0 U <sub>z</sub>
4 yellow	+U <sub>z</sub>
5 grey	+U <sub>zk</sub>
6 green	+W <sub>y</sub>
7 black	guard



**Dimensions:**



Design 1



Design 2

Dimensions	A	B	C	D
	mm	mm	mm	mm
Design 1	20	5,4	12,6	8,6
Design 2	20	5,4	12,6	11,8

**Ordering Information:**

**CL-21ms-1 kN-0,5-R1-5-5**



This designation means:

Force Transducer CL-21ms; Range 1kN; Accuracy 0,5%; Sensitivity 1mV/V; Exc. Voltage 5V; Connection Cable Length 5 m