



# ESA Messtechnik GmbH

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## FORCE SENSOR MODEL CL 14U

### FEATURES:

- High accuracy
- Tension and compression mode
- Three year warranty and after sales service

Based on a spring element of high quality steel and a strain gauge full bridge circuit which is resistance balanced and temperature compensated, model CL 14U force sensor is designed for measuring static and slow-changing forces for applications both in laboratory and industrial environment. It is particularly suitable for use in industrial automation and control systems.

Model CL 14U is applicable both in tension and compression mode, features a 350  $\Omega$  bridge circuit impedance, and is available in two configurations R1 and R2 with sensitivities of 1 mV/V and 2 mV/V respectively. It complies with protection systems IP40 and IP67.

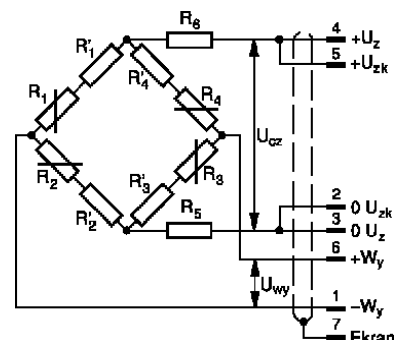


### TECHNICAL SPECIFICATIONS:

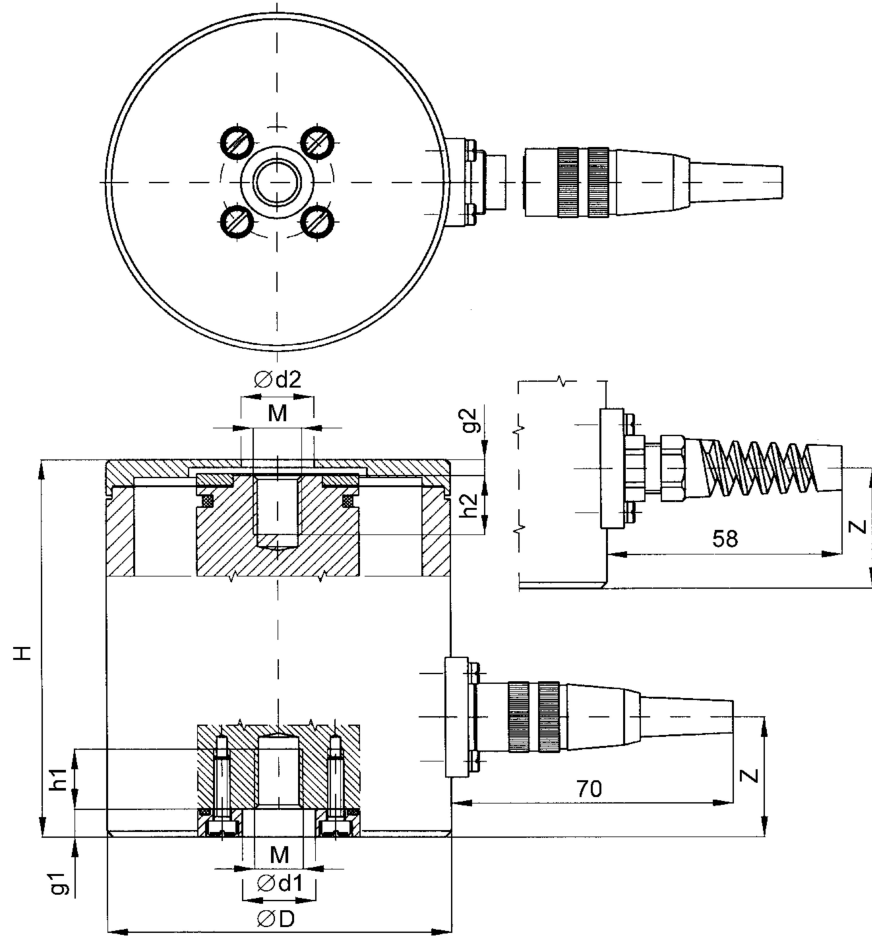
Range	[kN]	0,05; 0,1; 0,2; 0,5; 1; 2; 5; 10; 20; 50; 100
Sensitivity	[mV/V]	1 - R1, 2 - R2
Accuracy	%	0,5 or 1 (referred to full scale)
Nominal supply voltage	[VDC]	10
Input resistance	[ $\Omega$ ]	410 $\pm$ 10 up to 10 kN 380 $\pm$ 5 20 kN to 100 kN
Output resistance	[ $\Omega$ ]	350 $\pm$ 2
Operating temperature range	[ $^{\circ}$ C]	-20 to 100
Compensated temperature range	[ $^{\circ}$ C]	20 to 90
Zero drift	[%/30 min]	$\leq$ 0,03
Hysteresis after unloading from nominal load	[%]	$\leq$ 0,03
Temperature effect on sensitivity	[%/10K]	$\leq$ 0,05
Temperature effect on zero	[%/10K]	$\leq$ 0,05
Maximum strain	[mm]	0,5
Overload	[%]	50
Isolation resistance	[G $\Omega$ ]	$\geq$ 40
Connectors		LUMBERG (Z1) or O-Ring gland (O1)
Protection system		IP40 or IP67
Dimensions		See drawing and table below
Spring element material		Aluminium or Steel
Cable length		3 m (standard) or other optional

### Designations and wiring for R1 / R2

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	shield



**DIMENSIONS:**



Range kN	H	D	Z	M	d1	g1	h1	d2	g2	h2	Weight kg
	mm										
0,05	75	65	22	M8	10	7	10	18	10	10	0,38
0,1	75	65	22	M8	10	7	10	18	10	10	0,38
0,2	75	65	22	M8	10	7	10	18	10	10	0,38
0,5	75	65	22	M8	10	7	10	18	10	10	0,39
1	75	65	22	M8	10	7	10	18	10	10	0,39
2	75	65	22	M8	10	7	10	18	10	10	0,39
5	93	85	30	M12	14	7	19	28	10	20	0,83
10	93	85	30	M12	14	7	19	28	10	20	1,50
20	97	88	30	M24x2	28	8	16	45	10	19	2,40
50	97	88	30	M24x2	28	8	16	45	10	19	2,48
100	140	126	50	M39x2	42	8	30	64	10	34	6,32

**ORDER INFORMATION:**

**CL14U-10 kN-0,1-R2-10-Z1-1**

Measuring Range \_\_\_\_\_

Accuracy Class \_\_\_\_\_

Configuration/Sensitivity \_\_\_\_\_

Excitation \_\_\_\_\_

Connectors (Z1 or O1) \_\_\_\_\_

Cable Length in m \_\_\_\_\_