

ELHS Load Cell

- ▣ Measurement ranges 0 ... 1 kN to 0 ... 50 kN
- ▣ Compression/Tension
- ▣ Non-linearity and hysteresis ±0.5% FSO
- ▣ Output signal 13.3 mV/V
- ▣ Supply voltage 15 VDC



The ELHS load cell is a compact package able to fit into many applications where others cannot. The low noise Wheatstone bridge consists of piezo-resistive strain gages which provide 200 mV of typical full scale output. When compact design, extreme stiffness and superior resolution are required, the ELHS load cell is the sensor for your application. The ELHS is provided with either SAE or metric threads for tension and compression applications.

Care should be exercised to isolate your ELHS from off-axis loads. The ELHS is a Poisson column design providing low full scale input deflection and superior resolution. Designed specifically to provide high resolution and low deflection. The ELHS can be configured with a variety of options to fine tune the instrument to your application: select from several standard compensated temperature ranges, input voltages, lead lengths or specify entirely unique combinations of these options.

▣ Features

- Low mass compression style or tension compression with studs
- Ranges from 1 kN to 50 kN
- Low noise
- High reliability

▣ Applications

- Assembly forces
- Applications requiring ultra fast response
- Tool forces
- Thrust measurements
- Measurements requiring low sanar deflection and high resolution
- Product validation testing
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▣ Standard Ranges

Ranges		Overrange	Body Style		Output FSO (nom.)
kN	lbf		Compression	Tension & Compression	
1	200	1.5 x FS	ELHS-B1	ELHS-T1	200 mV
2.5	500	1.5 x FS	ELHS-B1	ELHS-T1	200 mV
5	1k	1.5 x FS	ELHS-B1	ELHS-T1	200 mV
10	2k	1.5 x FS	ELHS-B4	ELHS-T4	200 mV
25	5k	1.5 x FS	ELHS-B4	ELHS-T4	200 mV
50	10k	1.5 x FS	ELHS-B6	ELHS-T6	200 mV

Note:

Type B units:
- positive output in compression.

Type T units:
- positive output in tension.

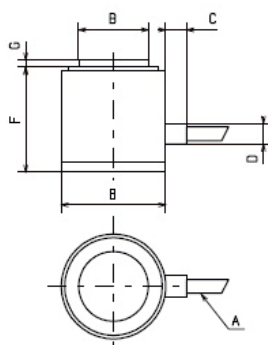
■ Specifications

All values are typical at temperature $20 \pm 1 \text{ }^\circ\text{C}$

Parameter	Value
Supply voltage:	15 VDC
Input resistance:	1500 Ω nom.
Output resistance:	500 Ω nom.
Non-repeatability:	$\pm 0.25 \%$ FSO
Combined non-linearity and hysteresis:	$\pm 0.5 \%$ FSO
Thermal Zero Shift "TZS":	$\pm 0.02 \%$ FSO/K
Thermal Sensitivity Shift "TSS":	$\pm 0.05 \%$ /K
Operating temperature:	-20 ... +80 $^\circ\text{C}$
Compensated temperature:	+20 ... +80 $^\circ\text{C}$, see option table for other temperatures
Zero offset at 23 $^\circ\text{C}$:	$\pm 10 \text{ mV}$ typ.
CE conformance according to	EN 61010-1, EN 50081-1, EN 50082-1

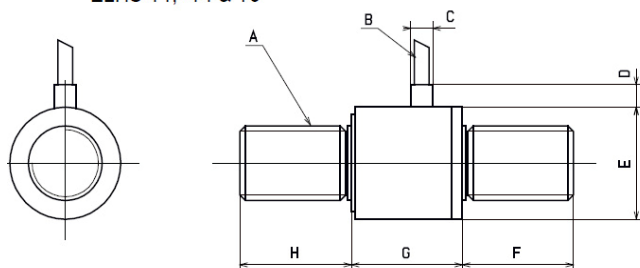
■ Dimensions

ELHS-B1, -B4 & -B6



	ELHS-B1 (1 kN to 5 kN)	ELHS-B4 (10 kN to 25 kN)	ELHM-B6 (50 kN)
A	3 m (10 ft) shielded cable	3 m (10 ft) shielded cable	3 m (10 ft) shielded cable
B	$\varnothing 10 \text{ mm}$ (0.39")	$\varnothing 20 \text{ mm}$ (0.78")	$\varnothing 28 \text{ mm}$ (1.1")
C	3 mm (0.12")	3 mm (0.12")	6 mm (0.24")
D	$\varnothing 3 \text{ mm}$ (0.12")	$\varnothing 3 \text{ mm}$ (0.12")	$\varnothing 5 \text{ mm}$ (0.2")
E	$\varnothing 15 \text{ mm}$ (0.59")	$\varnothing 25 \text{ mm}$ (0.98")	$\varnothing 35 \text{ mm}$ (1.38")
F	15 mm (0.59")	25 mm (0.98")	35 mm (1.38")
G	1 mm (0.04")	1 mm (0.04")	1 mm (0.04")

ELHS-T1, -T4 & T6



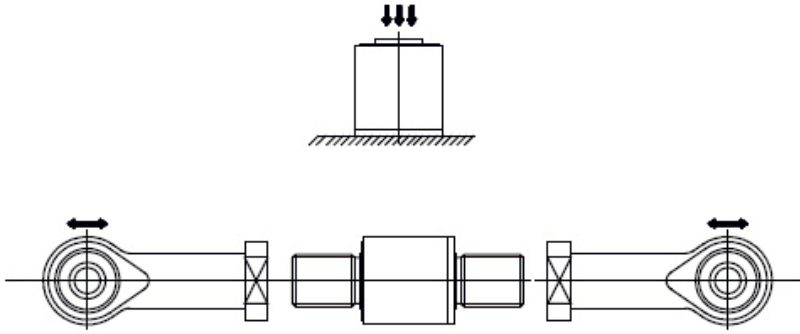
	ELHM-T1 (1 kN to 5 kN)	ELHS-T4 (10 kN to 25 kN)	ELHS-T6 (50 kN)
A	-T1E: 3/8-24 UNF -T1M: M10x1.5	-T4E: 5/8-18 UNF -T4M: M16x2	-T6E: 3/4-16 UNF -T6M: M20x2.5
B	3 m (10 ft) shielded cable	3 m (10 ft) shielded cable	3 m (10 ft) shielded cable
C	$\varnothing 3 \text{ mm}$ (0.12")	$\varnothing 3 \text{ mm}$ (0.12")	$\varnothing 5 \text{ mm}$ (0.2")
D	3 mm (0.12")	3 mm (0.12")	6 mm (0.24")
E	$\varnothing 15 \text{ mm}$ (0.59")	$\varnothing 25 \text{ mm}$ (0.98")	$\varnothing 35 \text{ mm}$ (1.38")
F	15 mm (0.59")	25 mm (0.98")	30 mm (1.18")
G	15 mm (0.59")	25 mm (0.98")	30 mm (1.18")
H	15 mm (0.59")	25 mm (0.98")	30 mm (1.18")

All dimensions in mm [inch], approx. values.

These drawings are for information only and not intended for construction purpose.

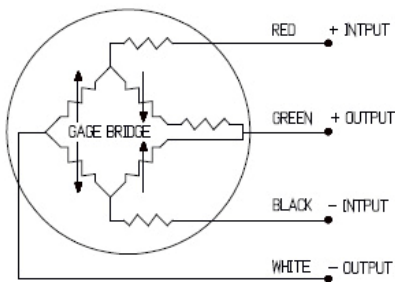
Please ask for detailed drawings.

Installation



Wiring

LOAD CELL



Ordering Information

ELHS	-	B1 M	-	5KN	-	/Z1/L2M/C
Model		B1/T1, B4/T4 or B6/T6, M = metric or E = SAE		Range with N or L		Options or blank

Comp. temperature ranges:	Z0	=	-40 ... +20 °C
	Z1	=	-20 ... +40 °C
	Z2	=	0 ... +60 °C
	Z*	=	Non-Standard, contact factory
Supply voltage:	V00	=	Replace "00" with excitation between 1 and 14 V.
Special cable length:	L00F	=	Replace "00" with total length in ft
	L00M	=	Replace "00" with total length in m
Connector wired to cable:	C	=	Microtech type male or equivalent
	RS	=	RJ telephone type male (w/o mate)
Calibration	AC	=	Alternate calibration: units with studs are calibrated in tension by default. Option AC provides compression calibration in addition to tension calibration

Note :

L=lbf ; N=Newton.

Metric threaded units must have Newtons range specified. SAE threaded units must have lbf range specified. Metric threaded units must have cable lengths specified in meters. SAE threaded units must have cable lengths specified in inches.

Due to continual product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.