

53E

Compact High-Precision Load Cell

- Measurement ranges 0 ... 20 N to 0 ... 200 kN
- Compression
- Non-linearity ± 0.25 % FS
- Supply voltage 5 VDC / 10 VDC
- Output 2 mV/V



Model 53E load cells are bonded foil strain gage transducers designed for cost efficient production and testing applications (i.e. press calibration). Engineered compression force measurements up to 200 kN, this model achieves a maximum non-linearity of 0.25 % full scale.

Precision gaging techniques and a stainless steel construction provides excellent long-term stability and reliability under severe operating conditions. The Model 53 compression-only load cell has an integral load button machined as part of the load cell. The Model 53 must be mounted on a smooth flat surface for proper operation. Three tapped holes are provided for mounting

■ Specifications

Rated load:	20 N to 200 kN
Non-linearity, max.:	± 0.25 % FS
Hysteresis, max.:	± 0.2 % FS
Non-repeatability, max.:	± 0.1 % FS
Output, nominal:	2 mV/V
Load type:	Compression
Load input:	Integral load button
Resolution:	infinite
Temperature, operating:	-54 ... +120 °C (-65 ... +250 °F)
Temperature, compensated:	+15 ... +70 °C (+60 ... +160 °F)
Temperature effect, zero:	0.01 % FS/K (0.005 % FS/°F)
Temperature effect, span:	0.02 % FS/K (0.01 % FS/°F)
Excitation:	
Rated load 20 N to 500 N	5 VDC
Rated load 1 kN to 200 kN	10 VDC
Bridge resistance, nominal:	350 Ω
Insulation resistance:	5000 M Ω at 50 VDC
Zero balance:	± 3 % FS
Electrical termination:	Teflon cable , 1.83 m
Max. allowable load:	150 % FS. (Note 1)
Dynamic load:	recommended approx. 70 % FS, possible up to 100 % FS
Material	17-4 PH stainless steel
Deflection at full scale	0.03 0.08 mm

Rated load	Natural ringing frequency	Weight with cable, approx.
20 N	2 kHz	59 g
50 N	3 kHz	59 g
100 N	16 kHz	62 g
200 N	21 kHz	63 g
500 N	28 kHz	64 g
1 kN	25 kHz	72 g
2 kN	32 kHz	72 g
5 kN	42 kHz	75 g
10 kN	53 kHz	77 g
50 kN	34 kHz	140 g
20 kN	47 kHz	145 g
100 kN	call	call
200 kN	24 kHz	1270 g

■ Wiring Codes

Red	+ excitation
Black	- excitation
Green	- output
White	+ output

Options

Temperature compensation:	1a	+15 ... +70 °C (Standard)
	1j	0 ... +50 °C
	1k	-20 ... +85 °C
	1m	-25 ... +110 °C
Electrical termination	6i	Integral underwater cable (Note 3)

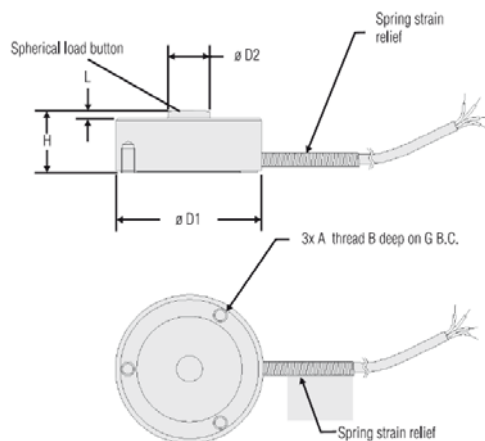
Changed wiring and other cables on request

Notes:

1. Allowable maximum loads – maximum load to be applied without damage (Note 2).
2. Without damage - loading to this level will not cause excessive zero shift or performance degradation. The user must consider fatigue life for long term use and structural integrity. All structurally critical applications (overhead loading, etc.) should always be designed with safety redundant load paths.
3. Dimension "H" may increase with option 6i. Consult factory. Maximum temperature is 82 °C (180 °F)

More options available on request.

Dimensions



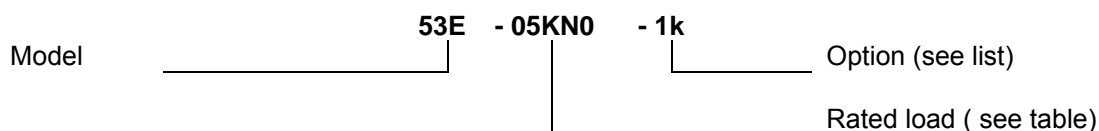
Rated load	A	D1	D2	H	L	B	G
20 N, 50 N, 100 N, 200 N, 500 N	M3 x 0.5	25.4	5.3	15.8	1.3	6	19.1
1 kN, 2 kN, 5 kN, 10 kN	M4 x 0.7	31.8	8.1	9.9	1.8	5	25.4
20 kN, 50 kN	M4 x 0.7	38.1	10.2	16.0	2.0	6	31.8
100 kN	M4 x 0.7	50.1	15.2	25.4	3.1	6	41.3
200 kN	M4 x 0.7	76.2	19.8	38.1	4.8	6	60.3

All dimensions in mm, approx. values.

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

Please ask for detailed drawings.

Ordering Information

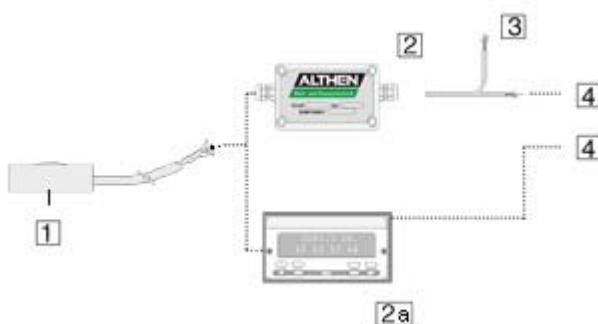


Example:

53E-05kN0-1k is a load cell with rated load 5 kN and compensated temperature range -20 °C to +85 °C.

Rated load	Order Code	Rated load	Order Code
20 N	020N0	5 kN	05KN0
50 N	050N0	10 kN	10KN0
100 N	100N0	20 kN	20KN0
200 N	200N0	50 kN	50KN0
500 N	500N0	100 kN	100KN0
1 kN	01KN0	200 kN	200KN0
2 kN	02KN0		

Typical Measurement System



(1) 53E

(2) External Amplifier:

4...20mA Signal: SG-IP-24E-420 (IP enclosure), SG-KS-24E-420 (for DIN rack mounting)

0...10V Signal: SG-IP-24E-010 (IP enclosure), SG-KS-24E-010 (for DIN rack mounting),
SG-2K-KA-15B-010 (dual channel, 19"-rack)

or

(2a) Display (e.g. Pax, TR150)

(3) Power supply

(4) Custom systems (e.g. recorder, alarm system, data acquisition system, computer, SPS)

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