

Model 159A

Miniature Single-bending-beam Force Sensors



Features

- single bending beam working principle
- reverse beam installation
- 17-4PH stainless steel construction
- range from 5 N to 100 lb
- accuracy up to 0.1 %fs



Applications

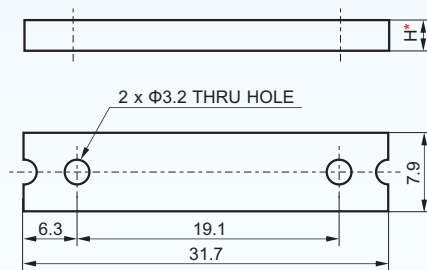
- postage scales
- kitchen scales
- small sized portable scales

Description

Based on BCM advanced strain gauge technology, model 159A miniature force sensors are designed to measure vertical force or load employing single-bending-beam working principle. These force sensors are made from 17-4PH stainless steel.

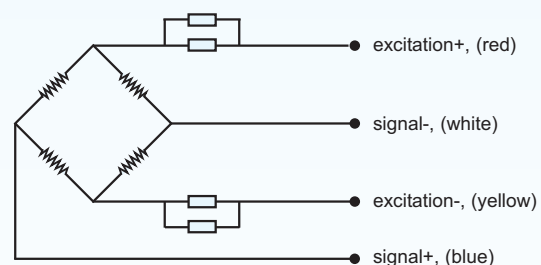
The capacities of 159A force sensors range from 5 N to 100 lb with a measuring accuracy of 0.1 %fs. Featuring low profile, 159A force sensors are widely used to build postage scales, kitchen scales, and other small-sized portable scales.

Dimensions



*: H is different for different capacity.

Electrical Connection



BCM SENSOR TECHNOLOGIES BVBA

Model 159A

Miniature Single-bending-beam Force Sensors



Technical Data

parameters	units	specifications
capacity	N	5, 10, 20, 30, 50, 70, 100, 150, 200, 300, 400
	lb	1, 2, 5, 7, 10, 15, 20, 35, 50, 70, 100
safe load limit	%fs	120
ultimate overload	%fs	200
output sensitivity at fs	mV/V	1.5 ± 10%
zero unbalance	%fso	-13.3 ~ +66.7 (*)
non-linearity	%fs	± 0.1
hysteresis	%fs	± 0.1
repeatability	%fs	± 0.1
creep error (5 min.)	%fs	± 0.1
excitation (supply voltage)	Vdc	6
max. excitation voltage	Vdc	9
input resistance	Ω	350 ± 50
output resistance	Ω	350 ± 50
insulation resistance	MΩ	≥ 2000@50 Vdc
storage temp. range	°C	-35 ~ +80
operating temp. range	°C	-20 ~ +65
compensated temp. range	°C	-10 ~ +40
temp. coefficient of sensitivity	%fs/°C	± 0.01
temp. coefficient of zero	%fs/°C	± 0.02
load cell body material		17-4PH stainless steel
sealing		potted
mechanical interface		refer to the dimensions on the datasheets
electrical interface		4-color PVC isolated flying wires, 150 mm
environment protection		IP 65
unit weight	g	~ 1

The listed specifications are subject to change without prior notice.

*: According to the test data of "zero unbalance", model 159A sensors are classified into three groups. Assume the sensor is excited by 6 Vdc constant voltage, the classification is done according to the following conditions:

- group-1: zero output is between -1200 ~ +1200 μV;
- group-2: zero output is between +1201 ~ +3000 μV;
- group-3: zero output is between +3001 ~ +6000 μV.

The sensors belong to the same group are packed in the same packages.



BCM SENSOR TECHNOLOGIES BVBA

ISO9001 Certified Company

Industriepark Zone 4, Brechtsebaan 2
B-2900 Schoten - Antwerpen, BELGIUM

Tel.: +32-3-238 6469
Fax: +32-3-238 4171

website: www.bcmsensor.com
email: sales@bcmsensor.com

Model 159A

Miniature Single-bending-beam Force Sensors



Ordering Information

position (pos.) 1: model																																																											
159A: made from 17-4PH stainless steel																																																											
pos. 2: capacities																																																											
<table border="0"> <tr> <td>5 N</td> <td>10 N</td> <td>100 N</td> <td>1 lb</td> <td>10 lb</td> <td>70 lb</td> <td colspan="4"></td> </tr> <tr> <td>7 N</td> <td>20 N</td> <td>150 N</td> <td>2 lb</td> <td>15 lb</td> <td>100 lb</td> <td colspan="4"></td> </tr> <tr> <td></td> <td>30 N</td> <td>200 N</td> <td>3 lb</td> <td>20 lb</td> <td colspan="5"></td> </tr> <tr> <td></td> <td>50 N</td> <td>300 N</td> <td>5 lb</td> <td>35 lb</td> <td colspan="5"></td> </tr> <tr> <td></td> <td>70 N</td> <td>400 N</td> <td>7 lb</td> <td>50 lb</td> <td colspan="5"></td> </tr> </table>										5 N	10 N	100 N	1 lb	10 lb	70 lb					7 N	20 N	150 N	2 lb	15 lb	100 lb						30 N	200 N	3 lb	20 lb							50 N	300 N	5 lb	35 lb							70 N	400 N	7 lb	50 lb					
5 N	10 N	100 N	1 lb	10 lb	70 lb																																																						
7 N	20 N	150 N	2 lb	15 lb	100 lb																																																						
	30 N	200 N	3 lb	20 lb																																																							
	50 N	300 N	5 lb	35 lb																																																							
	70 N	400 N	7 lb	50 lb																																																							
pos. 3: output sensitivity																																																											
1.5 mV/V																																																											
pos. 4: non-linearity or accuracy class																																																											
0.1 %fs																																																											
pos. 5: bridge resistance																																																											
350 Ω (Rin = 350±50 Ω, Rout = 350±50 Ω)																																																											
pos. 6: mechanical interface																																																											
Refer to the dimensions on the datasheets. Pos. 6 can be omitted from the ordering code.																																																											
pos. 7: electrical interface																																																											
4F/PVC/0.15 = 4-color PVC isolated flying wires, length = 0.15* m																																																											
pos. 8: environment protection																																																											
IP 65																																																											
pos. 9: accessories for installation																																																											
N = NA**. In case of "NA", pos.9 can be omitted.																																																											
pos. 10: customized spec's																																																											
<p>When any customized spec's are required, the customer needs to add "C" as the last parameter in the ordering code, and specifies the wished spec's on his order clearly.</p> <p>The customized spec's needs to be confirmed in advance by BCM's sales representative.</p> <p>Code "C" can be omitted if no customized spec's are required.</p>																																																											
pos.1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6	pos. 7	pos. 8	pos. 9	pos. 10																																																		

*: This value can also be a customized value.

** : NA = not available or not applicable

example: 159A-15lb-1.5mV/V-0.1%fs-350Ω-4F/PVC/0.15-IP65-C



BCM SENSOR TECHNOLOGIES BVBA

ISO9001 Certified Company