

Model 159A Miniature Force Transducers

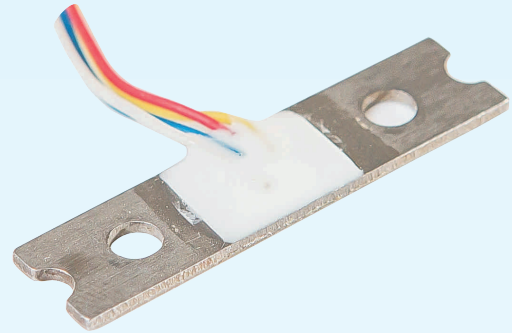
Description

The 159A miniature force transducer is developed for force measurements which require a compact design.

This model employs single-bending-beam working principle, so it needs to be installed as reverse beam in order to function properly.

Based on BCM advanced strain gauge technology, the 159A provides excellent stability and reliability.

This force transducer is made from stainless steel to realize wide range from 30N to 500N.



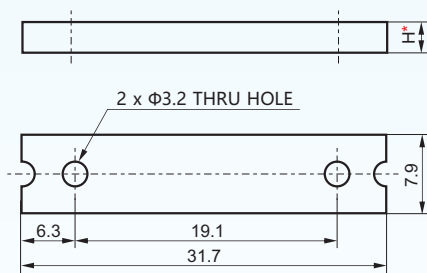
Features

- single bending beam working principle
- reverse beam installation
- compact design
- stainless steel construction
- range from 30N to 500N
- accuracy up to 0.1%fs

Applications

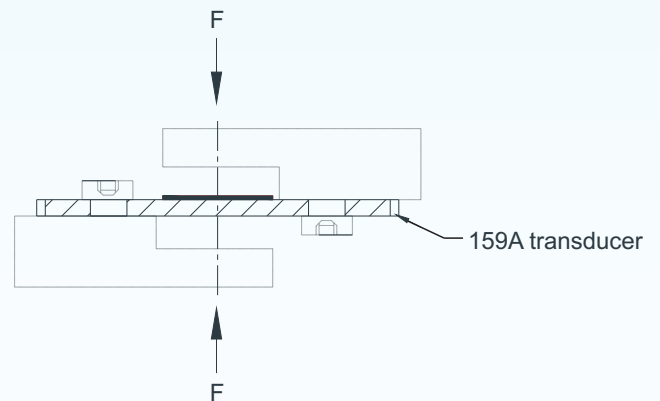
- force measurement
- force control
- medical instrumentation
- home appliances

Dimensions



*: H is different for different capacity.

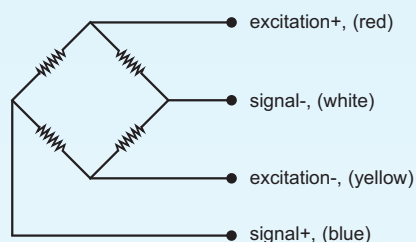
Schematic Diagram of Reverse-Beam Mounting Arrangement



Model 159A

Miniature Force Transducers

Electrical Connection



Technical Data

Parameters	Units	Specifications	
capacity	N	30, 50, 70, 100, 150, 200, 300, 400, 500	
safe load limit	%fs	150, 120 in case capacity < 100N	
ultimate overload	%fs	200, 150 in case capacity < 100N	
output sensitivity at fs	mV/V	≥ 1	
zero unbalance	mV/V	≤ ±1 (*)	
non-linearity	%fs	≤ ±0.1	≤ ±0.2 (standard)
hysteresis	%fs	≤ ±0.05	≤ ±0.1
repeatability	%fs	≤ ±0.05	≤ ±0.1
creep error (5 min.)	%fs	≤ ±0.05	≤ ±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 @50Vdc	
storage temp. range	°C	-35 ~ +70	
operating temp. range	°C	-20 ~ +65	
compensated temp. range	°C	-10 ~ +40	
temp. coefficient of sensitivity	%fso/°C	≤ ±0.03	
temp. coefficient of zero	%fso/°C	≤ ±0.03	
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, 150mm	
environment protection		IP65	
unit weight	g	~1	

The listed specifications are subject to change without prior notice.

*: For batch production, the 159A sensors are classified into three groups as follows, according to the test data of "zero unbalance":
 group-1: zero output is between -1200 ~ +1200 μV at 6Vdc excitation;
 group-2: zero output is between +1201 ~ +3000 μV at 6Vdc excitation;
 group-3: zero output is between +3001 ~ +6000 μV at 6Vdc excitation.

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

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Ordering Information

position (pos.) 1: model									
159A									
pos. 2: capacities									
30N 200N 50N 300N 70N 400N 100N 500N 150N									
pos. 3: output sensitivity									
1mV/V									
pos. 4: non-linearity or accuracy class									
0.1%fs 0.2%fs (standard)									
pos. 5: bridge resistance									
350Ω (Rin = 350±50Ω, Rout = 350±50Ω)									
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 = 0.15m*									
pos. 8: environment protection									
IP65									
pos. 9: accessories for installation									
N = NA**. In case of "NA", pos.9 can be omitted.									
pos. 10: customized spec's									
"(*)" is necessary only if any customized parameter is required, otherwise it is neglectable.									
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

Examples of Ordering Code

- standard transducer:

159A-50N-1mV/V-0.2%fs-350Ω-4F/PVC/0.15-IP65

- customized transducer:

159A-60N-1mV/V-0.2%fs-350Ω-4F/PVC/0.15-IP65-(*)

(*): Customized capacity = 60N.

BCM SENSOR TECHNOLOGIES BVBA

