Model 6991
S-Type Force Transducers with Overload-Protection

Description

Model 6991 is designed as an S-type force transducer with overload protection, to measure tension or compression forces. It is widely used for material test and for process control.

Its feature of the overload protection prevents it from damage in force measurements in which overload is often happens.

Moreover, this transducer features compact design of low-profile which makes it easy to be integrated into existing systems.

The transducers are made from stainless steel and sealed with silicone rubber in order to meet IP65 protection rating, compatible with the most industrial environments.

Thanks to advanced strain gauge technology from BCM SENSOR, the 6991 force transducers can deliver stable measuring results of high precision up to 0.1%fs.

On request, this 6991 transducer can be integrated with a TEDS (transducer electronic data sheet) chip in a 6-pin plugin connector at the end of its cable, by which the 6991 transducer can be easily re-calibrated on site without need for conventional calibration facility.
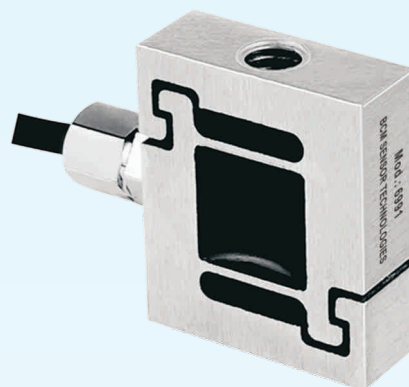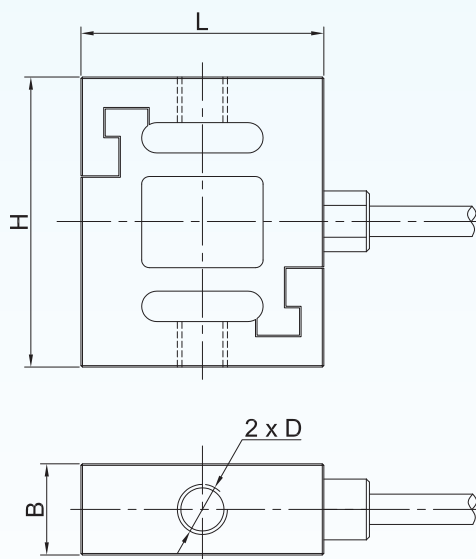
Features

- overload protection
- TEDS available on request
- accuracy up to 0.1%fs
- compact design

Applications

- tension or/and compression force measuring or monitoring
- material test in consumer electronics or electronic industry
- force test in medical-, robotical-, textile- & automotive-industries

Dimensions

Capacity (N)	L	H	B	D
3, ..., 30	16	19.1	5	M3x0.5
50, ..., 500	16	19.1	6	M4x0.7
700, ..., 2000	26	40	12	M8x1.25

Note: All dimensions are in mm.

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Electrical Connection

- excitation + (red)
- signal - (white)
- excitation - (black)
- signal + (green)
- shielding
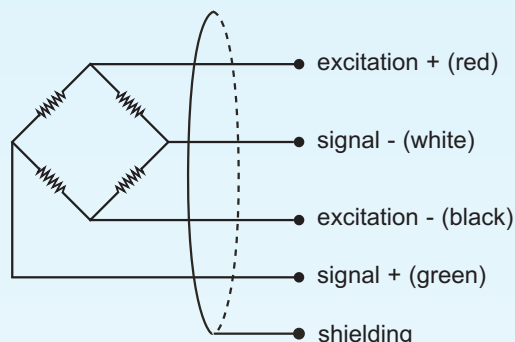
Technical Data

Parameters	Units	Specifications	Notes
capacity	N	3, 5, 7, 10, 20, 30, 50, 70, 100, 200, 300, 500, 700, 1000, 2000	
safe load limit	%fs	150	1
ultimate overload	%fs	500	
output sensitivity at fs	mV/V	≥1.8	
zero unbalance	%fs	≤±2	
accuracy	%fs	±0.1	2
creep error (30min)	%fs	≤±0.05	
excitation (constant voltage source)	Vdc	3, ..., 10	
max. excitation voltage	Vdc	15	
input resistance	Ω	350±15	
output resistance	Ω	350±5	
insulation resistance	MΩ	≥ 5000 @100Vdc	
storage temp. range	°C	-35 ~ +80	
operating temp. range	°C	-20 ~ +80	
compensated temp. range	°C	-10 ~ +60	
temp. coefficient of sensitivity	%fso/°C	≤±0.005	3
temp. coefficient of zero	%fso/°C	≤±0.005	3
body material		17-4PH stainless steel	
sealing		potted with silicone rubber	
mechanical interface		refer to its dimensions	
electrical interface		Φ2mm, 4-core shielded PVC jacket, 0.5m cable length	
environment protection		IP65	
natural frequency	kHz	0.8, ..., 5 depending on measuring capacities	
unit weight (without cable)	g	~20, ..., ~40 depending on measuring capacities	

Notes: 1. "fs" refers to full scale pressure.

2. Accuracy = sqrt (non-linearity^2 + hysteresis^2 + repeatability^2).

3. Calculated as a rate of output change between -10°C and +60°C, and normalized by the output at room temperature (25°C).

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Ordering Information

position (pos.) 1: model								
6991								
	pos. 2: capacities							
	3N 10N 50N 200N 700N 5N 20N 70N 300N 1000N 7N 30N 100N 500N 2000N							
		pos. 3: output sensitivity						
		1.8mV/V						
			pos. 4: accuracy					
			0.1%fs					
				pos. 5: bridge resistance				
				350Ω				
					pos. 6: mechanical interface			
					M3: for capacity 3N, ..., 30N M4: for capacity 50N, ..., 500N M8: for capacity 700N, ..., 2000N			
						pos. 7: electrical interface		
						2/4/PVC/0.5 = Φ2mm, 4-core shielded, PVC, cable length = 0.5m(#) (#): 0.5m is standard length, but users can define another length in the code, e.g., 2/4/PVC/1 refers to cable length of 1m.		
							pos. 8: environment protection	
							IP65	
								pos. 9: customized specifications
								"(*)" is necessary only if any customized specification is required, otherwise it is neglectable.
pos.1	**pos. 2**	**pos. 3**	**pos. 4**	**pos. 5**	**pos. 6**	**pos. 7**	**pos. 8**	**pos. 9**

Examples of Ordering Code

- standard transducer:

  6991-100N-1.8mV/V-0.1%fs-350Ω-M4-2/4/PVC/0.5-IP65

  6991-3N-1.8mV/V-0.1%fs-350Ω-M3-2/4/PVC/1-IP65

- customized transducer:

  6991-3N-1.8mV/V-0.1%fs-350Ω-M2-2/4/PVC/1-IP65-(*)

  (*): Customized mechanical interface = M2x0.4 thread.

The listed dimensions, specifications and ordering information are subject to change without prior notice.

BCM SENSOR TECHNOLOGIES BV

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