

MBD2 through-hole force sensor



product description

The MBD2 is a series of miniature force transducers designed for applications in general test and measurement as well as machine monitoring and control.

The low profile, small diameter design enables the MBD2 to be easily embedded into machinery or test equipment – ideal for packaging machinery, assembly machinery or end-of-line test equipment.

Available in a very wide range of capacities from 10lb through to 5,000lb; the MBD2 is configured for compression force measurement acting on cylinders, bolts or shafts. A range of internal thru-hole diameters are available. Full-bridge, bonded foil strain gauge technology provides excellent long-term stability and ensures high performance even in applications requiring in excess of 1 million load cycles.

The MBD2 can be supplied with standard cable configurations or with industry standard connectors. As an additional aid to system integrators, the MBD2 can be supplied as a TEDS (Transducer Electronic Data Sheet) enabled smart transducer this provides an on-board memory chip storing manufacturing and calibration data.

Comprehensive range of electronic modules available.

applications

General test and measurement as well as machine monitoring and control. Ideal for packaging machinery, assembly machinery or end-of-line test equipment.

key features

Capacities from 10lb to 5,000lb

Stainless steel construction

Environmental protection to IP64

High accuracy $\pm 0.5\%$

Low profile design

Range of internal diameters

Temperature compensated from -15°C to $+71^{\circ}\text{C}$

options

Range of cable lengths

Flying leads or cable connectors

TEDS IEEE 1451.4 memory chip

Multi-point calibration available



specifications

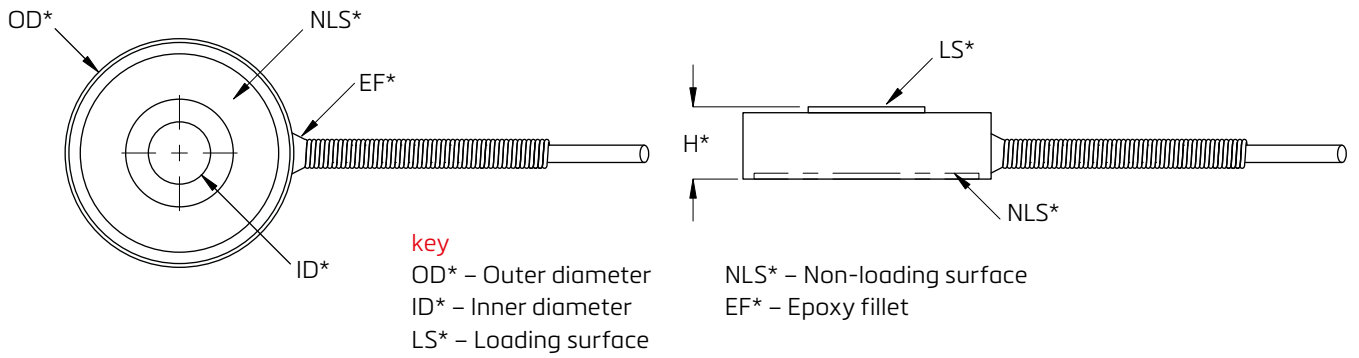
Capacity	lb	10, 20, 25, 50, 100, 250, 500, 1,000, 2,000, 5,000
Rated output (RO)	mV/V	0.4 (10lb), 0.8 (20lb), 1 (25lb), 2 (50-5,000lb) nom.
Excitation voltage (vdc or vac)	V	5 (recommended), 10 (max)
Safe overload	% RO	150
Zero balance	% RO	±2
Bridge resistance	Ω	700 nom.
Non-linearity	% RO	±0.5
Hysteresis	% RO	±0.5
Nonrepeatability	% RO	±0.1
Temp. Shift zero	% RO/°C	±0.01 (±0.005% RO/°F)
Temp. Shift span	% load/°C	±0.01 (±0.005% load/°F)
Compensated temp.	°C	-15 to 71 (5 to 160 °F)
Operating temp.	°C	-51 to 93 (-60 to 200 °F)
Material	-	Stainless steel
Ip rating	-	Ip64
Calibration test excitation	VDC	5
Calibration (std)	-	5 Pt. Compression

MBD2 model (by outer diameter)	weight (g)	deflection (mm)
1	60 (0.13lb)	0.05 (0.002")
1.5	100 (0.22lb)	0.05 (0.002")
2	227 (0.50lb)	0.05 (0.002")
3	750 (1.65lb)	0.05 (0.002")

Weights and deflections are nominal values



product dimensions (mm)



Outer diameter (inch)	Inner diameter (inch)	Screw size (unified)	Height (inch)	Capacity (lb)								
				10	25	50	100	250	500	1,000	2,000	5,000
1	0.136	1/8	0.28	y	y	y	y	y	y	y	-	-
1	0.201	3/16	0.28	y	y	y	y	y	y	y	-	-
1	0.266	1/4	0.28	y	y	y*	y*	y	y*	y*	-	-
1	0.332	5/16	0.28	y	y	y	y	y	y	y	-	-
1	0.397	3/8	0.28	y	y	y*	y*	y	y*	y*	-	-
1.5	0.397	3/8	0.5	-	-	-	y	y	y	y	y	y
1.5	0.469	7/16	0.5	-	-	-	y	y	y	y	y	y
1.5	0.531	1/2	0.5	-	-	-	y	y	y	y	y	y*
1.5	0.656	5/8	0.5	-	-	-	y	y	y	y	y	y*
2	0.136	1/8	0.63	-	-	-	-	y	y	y	y	y
2	0.201	3/16	0.63	-	-	-	-	y	y	y	y	y
2	0.266	1/4	0.63	-	-	-	-	y	y	y	y	y
2	0.332	5/16	0.63	-	-	-	-	y	y	y	y	y
2	0.397	3/8	0.63	-	-	-	-	y	y	y	y	y
2	0.469	7/16	0.63	-	-	-	-	y	y	y	y	y
2	0.531	1/2	0.63	-	-	-	-	y	y	y	y	y
2	0.594	9/16	0.63	-	-	-	-	y	y	y	y	y
2	0.656	5/8	0.63	-	-	-	-	y	y	y	y	y
3	0.136	1/8	1	-	-	-	-	-	-	-	y	y
3	0.201	3/16	1	-	-	-	-	-	-	-	y	y
3	0.266	1/4	1	-	-	-	-	-	-	-	y	y
3	0.332	5/16	1	-	-	-	-	-	-	-	y	y
3	0.397	3/8	1	-	-	-	-	-	-	-	y	y
3	0.469	7/16	1	-	-	-	-	-	-	-	y	y
3	0.531	1/2	1	-	-	-	-	-	-	-	y	y
3	0.594	9/16	1	-	-	-	-	-	-	-	y	y
3	0.656	5/8	1	-	-	-	-	-	-	-	y	y
3	0.781	3/4	1	-	-	-	-	-	-	-	y	y
3	0.906	7/8	1	-	-	-	-	-	-	-	y	y
3	1.031	1	1	-	-	-	-	-	-	-	y	y
3	1.281	1 1/4	1	-	-	-	-	-	-	-	y	y

y - available on request
 y* - common capacities

wiring

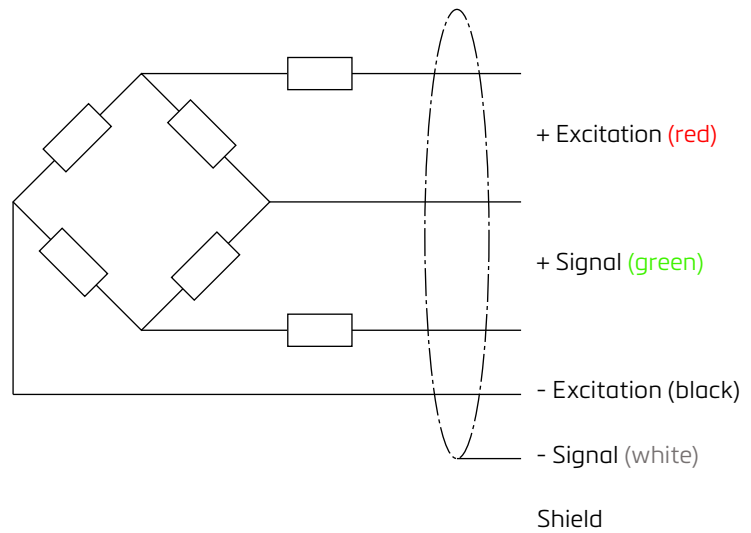
The 10 to 1,000lb models are provided with a #32 AWG 4-conductor braided shielded cable with an outer jacket diameter of 2.2mm (0.086").

The 100 to 5,000lb models are provided with a #28 AWG 4-conductor braided shielded cable with an outer jacket diameter of 3.2mm (0.126").

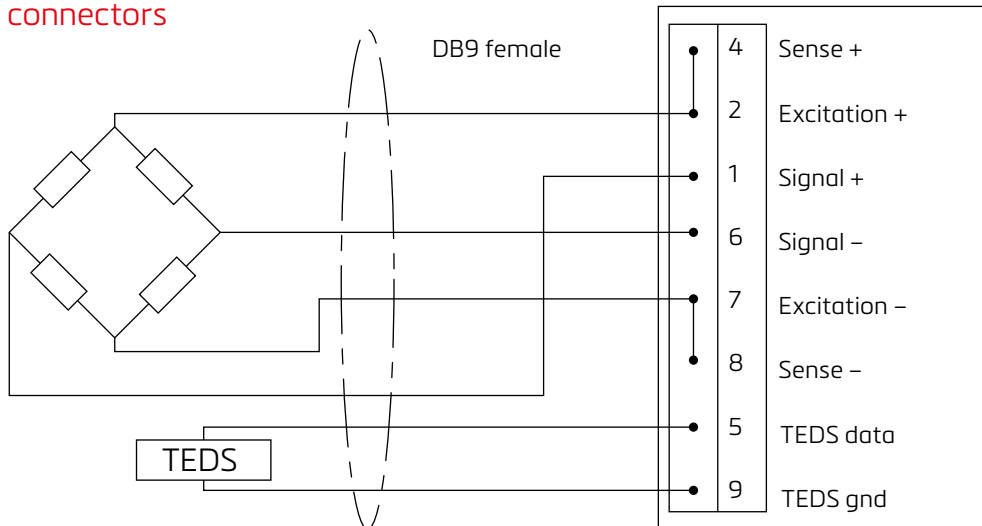
Standard cable length: 1m

There is no connection between the shield and the sensor body.

For additional protection, the cable is contained within a stainless-steel spring for strain relief purposes.

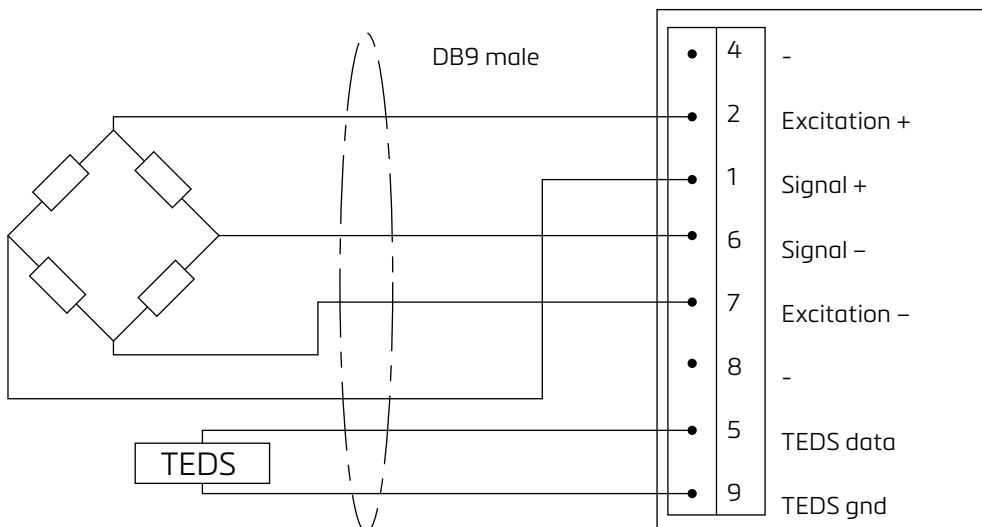


connectors



The MBD2 is offered without a connector as standard.

Optionally, a DB9 male or female connector can be supplied. Pin configurations shown to the left.



Specifications and dimensions are subject to change without notice.