

# MBA button force transducer



## product description

The MBA 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 MBA to be easily embedded into machinery or test equipment – ideal for packaging machinery, assembly machinery or end-of-line test equipment.

Available in a wide range of standard capacities from 100lb through to 50klb; the MBA is configured for compression force measurement. 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. Constructed from stainless steel and protected from moisture with an epoxy bonded cover.

The MBA can be supplied with standard cable configurations or with industry standard connectors. As an additional aid to system integrators, the MBA 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 and accessories are 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

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Capacity range of 100lb to 50klb

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Stainless steel construction

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Environmental protection to IP65

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High accuracy  $\pm 0.25\%$

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Low profile, small diameter and low weight design

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Temperature compensated from  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$

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## options

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Range of cable lengths

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Flying leads or cable connectors

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TEDS IEEE 1451.4 memory chip

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Multi-point calibration available

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## specifications

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|---|--------------|--|
| Maximum Capacity ( $E_{\max}$ )             | lb           | 100/250/500/1,000/2,000/3,000/5,000/10,000/<br>15,000/20,000/30,000/50,000 |
| Rated Output (RO)                           | mV/V         | 2 Nom  |
| Non-Linearity                               | %RO          | $\leq \pm 0.250$   |
| Hysteresis                                  | %RO          | $\leq \pm 0.250$   |
| Temperature effect on min. dead load output | %RO/°C       | $\leq \pm 0.018$   |
| Temperature effect on sensitivity           | %RO/°C       | $\leq \pm 0.009$   |
| Excitation Voltage                          | V            | 5...15   |
| Zero Balance                                | %/°C         | $\leq \pm 5.0$   |
| Input Resistance                            | $\Omega$     | 700 Nom  |
| Output Resistance                           | $\Omega$     | 700 Nom  |
| Insulation Resistance (100 V DC)            | M $\Omega$   | $\geq 5,000$   |
| Compensated Temperature Range               | °C           | -10...+40  |
| Operating Temperature Range                 | °C           | -40...+90  |
| Safe Load Limit (Elim)                      | % $E_{\max}$ | 150  |
| Ultimate Load                               | % $E_{\max}$ | 300  |
| Safe Side Load                              | % $E_{\max}$ | 100  |
| Load Cell Material                          | -            | Stainless Steel 17-4 PH  |
| Protection according to DIN 40.050          | -            | IP65   |

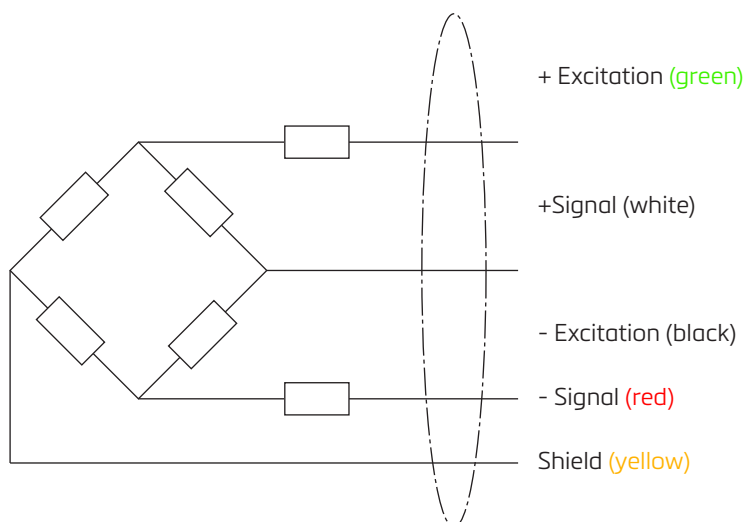
## wiring

The sensor is provided with a 28AWG  
4-conductor braided shield

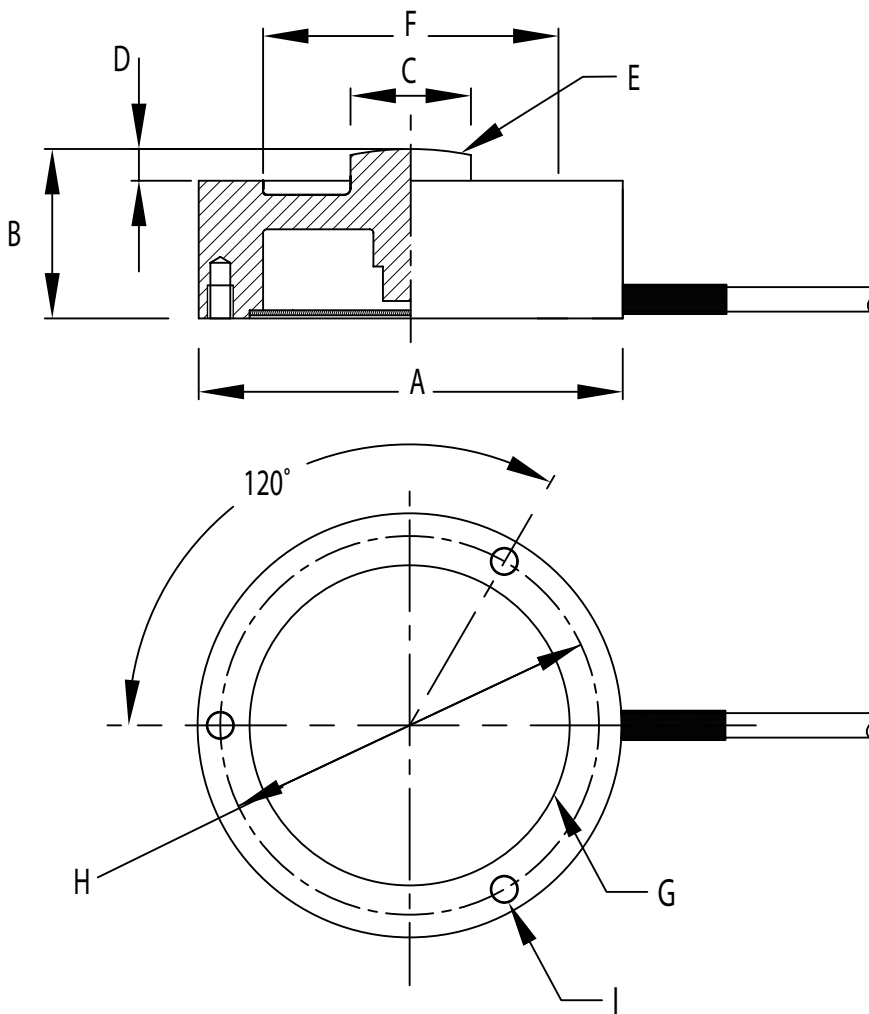
Standard cable jacket: polyurethane

Standard cable length: 3 m

Optional 30AWG 4-conductor braided shield,  
white Teflon jacket.

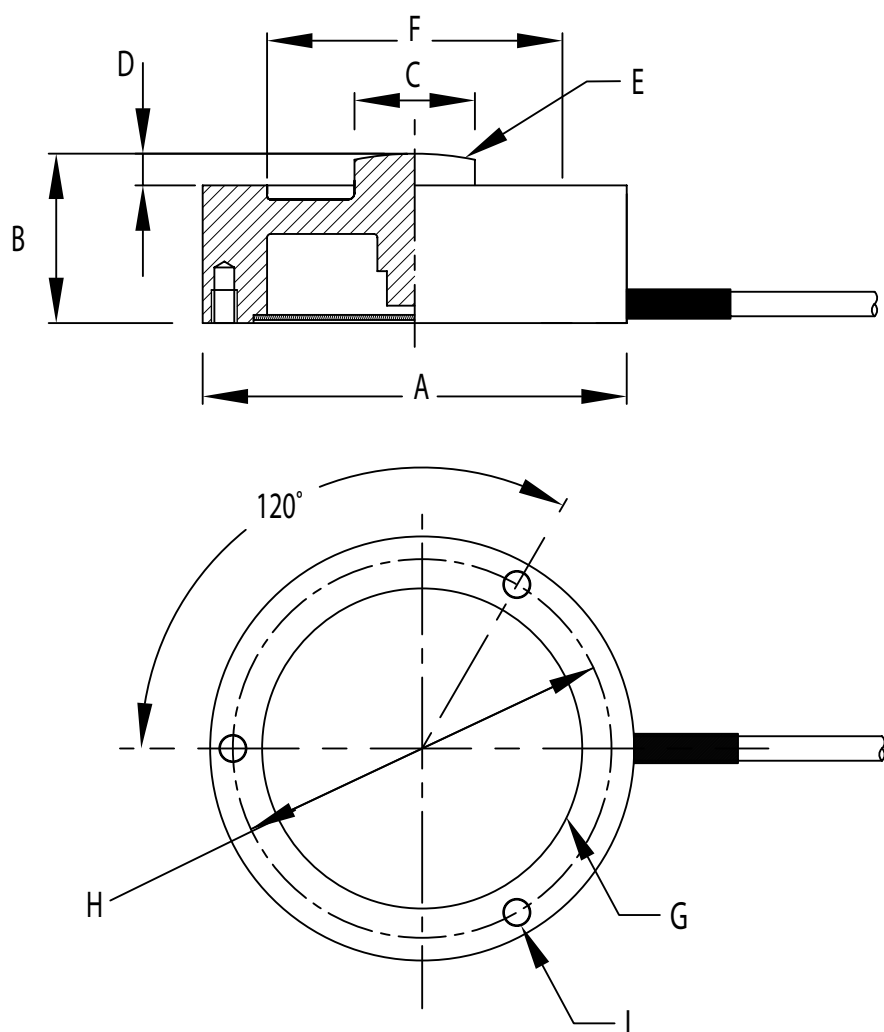


product dimensions for the 100lb - 5klb models (mm)



| dimension \ capacity               | 100lb           | 250-2,000lb | 3klb  | 5klb  |
|------------------------------------|-----------------|-------------|-------|-------|
| Outer diameter (mm) -A             | 31.2            | 31.2        | 50.8  | 50.8  |
| Load cell Height (mm) -B           | 10.16           | 10.16       | 16.0  | 16.0  |
| Spherical load button dia. (mm) -C | 8.18            | 8.18        | 10.0  | 10.92 |
| Load pin Height (mm) -D            | 1.78            | 1.78        | 1.78  | 2.0   |
| Spherical Radius (mm) -E           | 56.47           | 50.8        | 50.8  | 50.8  |
| Upper ring. Dia. (mm) - F          | 19.05           | 19.05       | 19.05 | 19.05 |
| Bottom ring. Dia. (mm) - G         | 20.83           | 20.83       | 32.0  | 32.0  |
| P.C.D. (mm) - H                    | 25.4            | 25.4        | 41.4  | 41.4  |
| Mounting hole dia. (mm) - I        | 6-32UNC 4.5Deep |             |       |       |

product dimensions for the 10klb - 50klb models (mm)



| dimension \ capacity          | 10klb           | 15klb | 20klb | 30klb | 50klb |
|-------------------------------|-----------------|-------|-------|-------|-------|
| Outer diameter -A             | 50.8            | 50.8  | 50.8  | 50.8  | 76.2  |
| Load cell Height -B           | 16.0            | 25.4  | 25.4  | 25.4  | 38.1  |
| Spherical load button dia. -C | 10.92           | 16.0  | 16.0  | 16.0  | 23.0  |
| Load pin Height -D            | 2.0             | 2.04  | 2.04  | 3.4   | 5.6   |
| Spherical Radius -E           | 50.8            | 50.8  | 50.8  | 50.8  | 50.8  |
| Upper ring. Dia. - F          | 32.92           | 34.0  | 32.42 | 31.02 | 42.8  |
| Bottom ring. Dia. - G         | 36.8            | 36.8  | 34.42 | 33.02 | 45.6  |
| P.C.D. - H                    | 43.8            | 43.8  | 42.61 | 41.91 | 59.4  |
| Mounting hole dia. - I        | 6-32UNC 4.5Deep |       |       |       |       |

Specifications and dimensions are subject to change without notice.