

Acetabulum Load Cell

Type M52831A...

Uniaxial

Type M52831A... is designed to measure the force in the acetabulum of the crash dummy HIII-3 years old (Y6).

- Uniaxial (F_y)
- UPS module integrable
- Low linearity errors and hysteresis errors
- Kistler system cabling
- Polarities according to SAE J211/1

Description

The load cell is based on the principle of a tensile/compression bar. In order to reduce cross impacts, the tensile bar is divided into four bars with equivalent cross section.

The induced force creates a mechanical stretching respectively buckling in the body. The resistance changes, which are proportional to the force, are measured by means of strain gage, designed as full bridge circuit.

The load cell is available with UPS module which is integrated in an external housing in the wiring or in the connector. Customized cable lengths and connectors with specific pin assignments are optionally available.

Application

The load cell is directly assembled at the designated location in the dummy and provides important information about the loads on the human body occurring during a crash test.



Technical Data

| | | |
|-------------------------------------|----------------------------------|-------------|
| Measuring range | kN | 4,45 |
| Bridge output voltage (typ.) | mV/V | 1,74 |
| Sensitivity (typ.) | $\mu\text{V}/\text{V}/\text{kN}$ | 0,39 |
| Bridge resistance | Ω | 350 |
| Ultimate load, static | % | 150 |
| Supply voltage ¹⁾ | VDC | 2,5 ... 15 |
| Insulation resistance ²⁾ | G Ω | >10 |
| Operating temperature range | $^{\circ}\text{C}$ | -20 ... 80 |
| Storage temperature range | $^{\circ}\text{C}$ | -30 ... 90 |
| Amplitude non-linearity | % | <1 |
| Hysteresis | % | <1 |
| Bridge zero output (typ. / max.) | mV/V | 0,01 / 0,03 |
| Weight (without cable) | grams | 170 |

All specifications are typical at 25 ° C and rated at 10 V sensor supply voltage, unless otherwise specified.

¹⁾ With UPS module 9 ... 12 VDC

²⁾ All wires to load cell housing, measured with 500 VDC

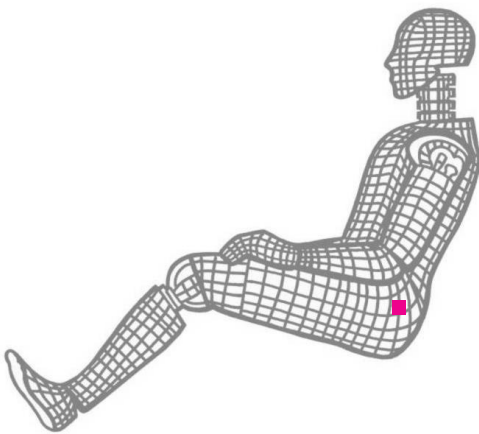


Fig. 1: Dummy application, location acetabulum

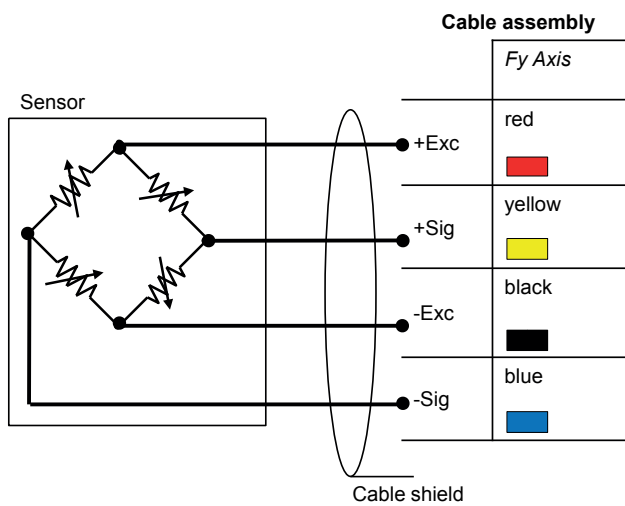


Fig. 2: Cable assembly

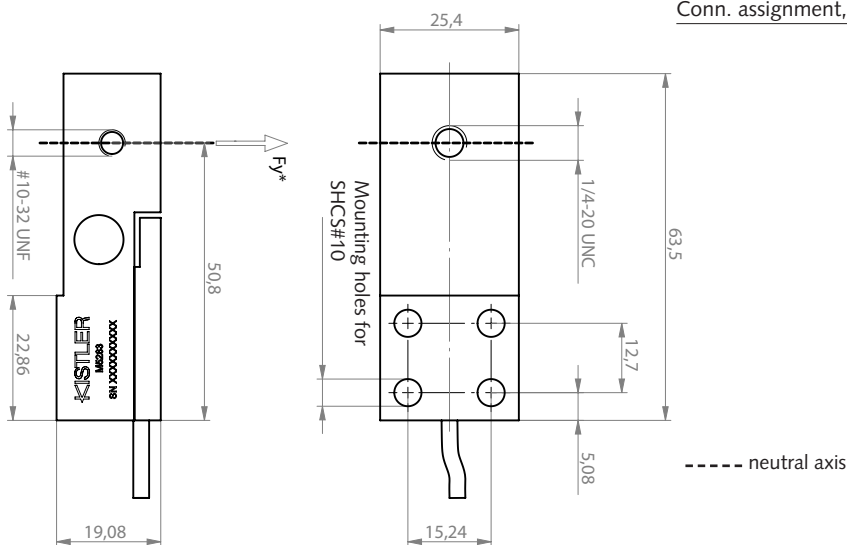


Fig. 3: Dimensions

Included Accessories

- None

Optional Accessories

- Add. label with serial number, plug side
- UPS module
- Add. label with ID number at sensor
- Add. shunt

Type No.

M015KABID
on request
M015KABID
on request

Ordering Key

Type M52831A

Design

| | |
|----------|----|
| Standard | EM |
|----------|----|

Cable Length before Electronics

| | |
|---------------------------------|----|
| 0 cm | 00 |
| <10 cm (digit x 1 cm) | C# |
| 10 cm ... 9,9 m (digit x 10 cm) | ## |
| 10 m ... 90 m (digit x 10 m) | D# |

Additional Electronics

| | |
|--|---|
| Sensor detail, as per type declaration force-moment TP-650-2 | # |
|--|---|

Cable Length after Electronics

| | |
|---------------------------------|----|
| 0 cm | 00 |
| <10 cm (digit x 1 cm) | C# |
| 10 cm ... 9,9 m (digit x 10 cm) | ## |
| 10 m ... 90 m (digit x 10 m) | D# |

Connector

| | |
|---------------------------------|----|
| Conn. type, as per TP-600 | #- |
| Conn. assignment, as per TP-600 | -# |

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