

Iliac Wing Load Cell

Biaxial

Type M52202A...,
M52212A...

Type M522x2A... is designed to measure forces (left and right) on the ASIS iliac wing of the crash test dummy HIII-5 % (HF).

- Biaxial (F_x , M_y)
- UPS module available
- Low linearity and hysteresis
- Kistler system cabling
- Polarities according to SAE J211/1

Description

The load cell is made of elements which are affected by forces and moments. The strain gage-applied deformation body serves the transformation of mechanical impacts to electric signals.

The load cell's operation mode is comparable to the principle of a spiral spring. The force or the moment to be measured generates mechanical strains and compressions inside the gaging member.

In order to avoid linearity errors, the deformation paths are constructively held small (high rigidity). Thus a proportional behavior is realized. The force and moment proportional resistance variations are measured by a Wheatstone-type 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.



Type M52202A...

Technical Data

| | | F_x | M_y |
|-------------------------------------|--|-------------|-------|
| Measuring range | kN | 8,9 | |
| | N·m | | 225 |
| Bridge output voltage (typ.) | mV/V | 1,8 | 1,3 |
| Sensitivity (typ.) | $\mu\text{V}/\text{V}/\text{kN}$ | 200 | |
| | $\mu\text{V}/\text{V}/\text{N}\cdot\text{m}$ | | 6 |
| 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 (typ.) | % | <1 | |
| Hysteresis (typ.) | % | <1 | |
| Channel cross talk | % | <5 | |
| Bridge zero output (typ. / max.) | mV/V | 0,01 / 0,03 | |
| Weight (without cable) | grams | 530 | |

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

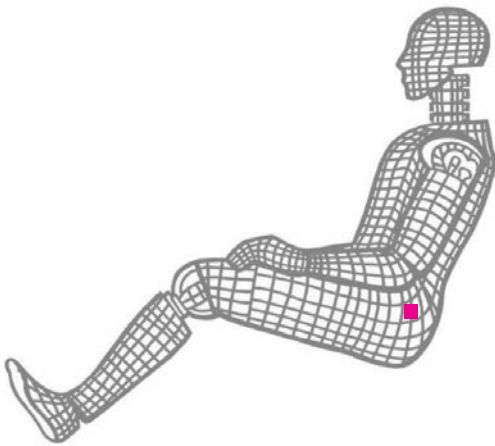


Fig. 1: Dummy application, location iliac wing

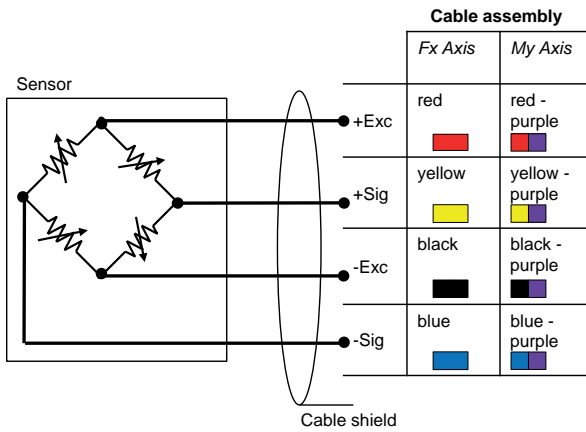


Fig. 2: Cable assembly

Included Accessories

- Calibration adapter

Type No.

on request

Optional Accessories

- Add. label, customized
- Add. shunt
- UPS module

Type No.

M015KABID
on request
on request

Ordering Key

Type M522

Design

| | |
|------------------------------|-------|
| Left, standard cable outlet | 02ATM |
| Right, standard cable outlet | 12ATM |
| Left, offset cable outlet | 02AXM |
| Right, offset cable outlet | 12AXM |

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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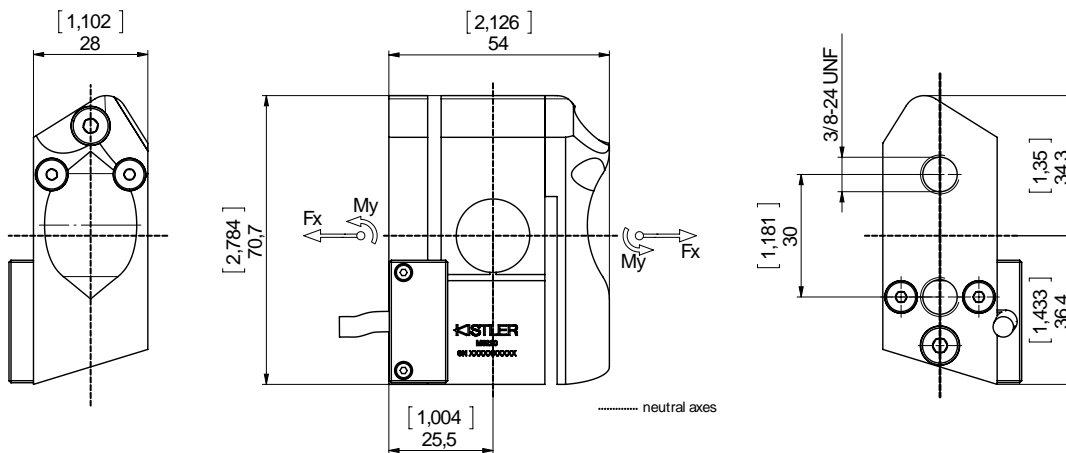


Fig. 3: Dimensions in mm, sample here Type M52202A...