

# Upper Neck Load Cell

Type M585A6A...

## Six-axial

Type M585A6A... is designed to measure forces and moments in the upper neck and the lumbar spine of the Crabi crash test dummy.

- Six-axial ( $F_x$ ,  $F_y$ ,  $F_z$ ,  $M_x$ ,  $M_y$ ,  $M_z$ )
- Measuring ranges 0,9 ... 2 kN and 34 ... 56 N·m
- ID module available
- Low linearity errors and hysteresis errors
- Kistler system cabling
- Polarities according to SAE J211/1



### Description

The load cell is made of elements on which forces and moments are transmitted. The mechanical deformation element, applied with strain gage, serves for mechanical electrical deformation. The effectiveness of the load cell resembles the behavior of a spiral spring. The forces to be measured create mechanical stretches and buckling in the gaging member.

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

Line-up of equivalent load cells:

|         | Type       |
|---------|------------|
| Kistler | M585A6A... |
| FTSS    | IF-234     |
| Denton  | 3303       |

The load cell is available with ID modules, either a UPS module (Universal Parameter Memory) or a Dallas module can be chosen for this functionality. These modules are integrated in an external housing in the wiring or in the connector. Customized cable lengths and connectors with specific pin assignments are optionally available.

### Technical Data

| Axial Data                   |                     | $F_x$ | $F_y$ | $F_z$ | $M_x$ | $M_y$ | $M_z$ |
|------------------------------|---------------------|-------|-------|-------|-------|-------|-------|
| Measuring range              | kN                  | 0,9   | 0,9   | 2     |       |       |       |
|                              | N·m                 |       |       |       | 56    | 56    | 34    |
| Bridge output voltage (typ.) | mV/V                | 1,8   | 1,8   | 0,8   | 1,3   | 1,3   | 1,3   |
| Sensitivity (typ.)           | $\mu\text{V/V/kN}$  | 2 000 | 2 000 | 400   |       |       |       |
|                              | $\mu\text{V/V/N·m}$ |       |       |       | 23    | 23    | 38    |
| Bridge resistance            | $\Omega$            | 350   | 350   | 700   | 350   | 350   | 700   |
| Ultimate load                | %                   | 150   | 150   | 150   | 150   | 150   | 150   |

### General Data

|                                     |                    |            |
|-------------------------------------|--------------------|------------|
| Supply voltage                      |                    |            |
| without ID modules                  | VDC                | 5 ... 15   |
| with ID modules                     | VDC                | 9 ... 12   |
| Insulation resistance <sup>1)</sup> | M $\Omega$         | >90        |
| 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              | 120        |

All specifications are typical at 25  $^{\circ}\text{C}$  and rated at 10 V sensor supply voltage, unless otherwise specified.

<sup>1)</sup> All wires to screen (GND), measured with 10 VDC

### Application

Type M585A6A... is designed to measure forces and moments in the upper neck and the lumbar spine of the Crabi crash test dummy.

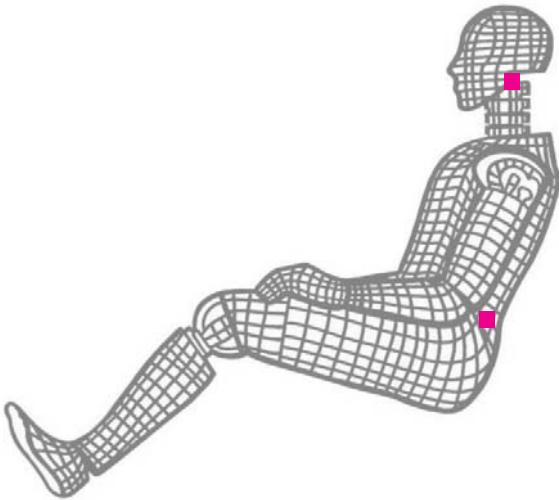


Fig. 1: Dummy application, locations upper neck and lumbar spine

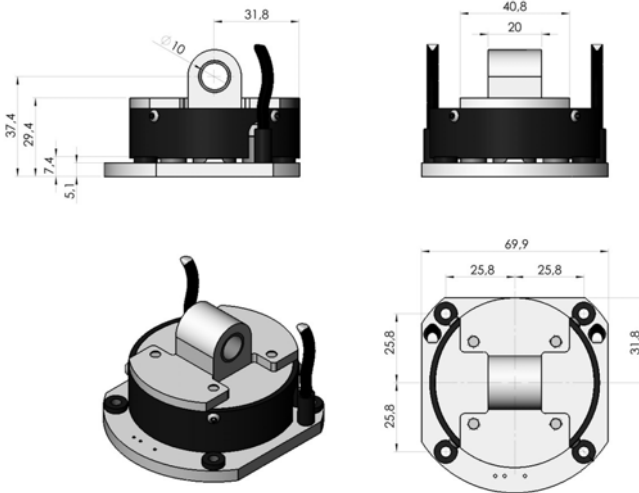


Fig. 2: Dimensions in mm

### Included Accessories

- None

### Optional Accessories

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

### Type No.

M015KABID  
on request  
M015KABID  
on request

### Ordering Key

Type M585A6A

#### Design

Standard  UM

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

M585A6A\_000-854e-12.11