

# 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 and P 1 1/2 year old (P2) crash test dummies.

- Six-axial ( $F_x$ ,  $F_y$ ,  $F_z$ ,  $M_x$ ,  $M_y$ ,  $M_z$ )
- UPS 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 rigidity).



P2 variant

Crabi variant

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.

### 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	0,74	0,74	0,58	1,12	1,12	1,19
Sensitivity (typ.)	$\mu\text{V/V/kN}$	820	820	290			
	$\mu\text{V/V/N·m}$				20	20	35
Bridge resistance	$\Omega$	350	350	700	350	350	350 <sup>1)</sup>
Ultimate load	%	150	150	150	150	150	150

### General Data

Supply voltage <sup>2)</sup>	VDC	2,5 ... 15
Insulation resistance <sup>3)</sup>	G $\Omega$	>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	120

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

<sup>1)</sup> Up to serial number 0004544029 (up to year of construction 2015) the bridge resistance of the load cells is 700  $\Omega$  in  $M_z$ . Please mind the first calibration!

<sup>2)</sup> With UPS module 9 ... 12 VDC

<sup>3)</sup> All wires to load cell housing, measured with 500 VDC

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**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.

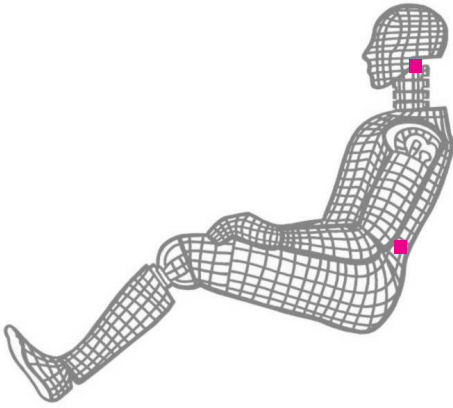


Fig. 1: Dummy application, locations upper neck and lumbar spine

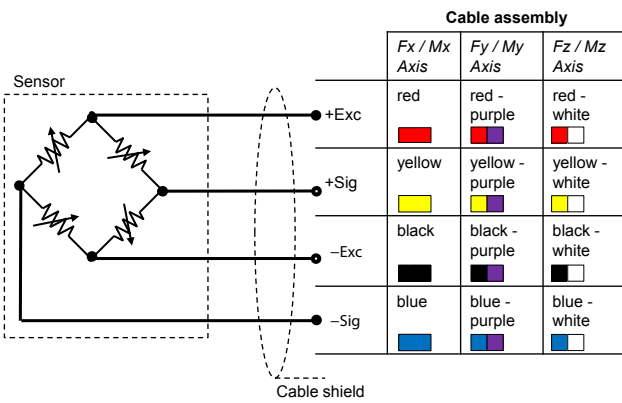


Fig. 2: Cable assembly

**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 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  -#

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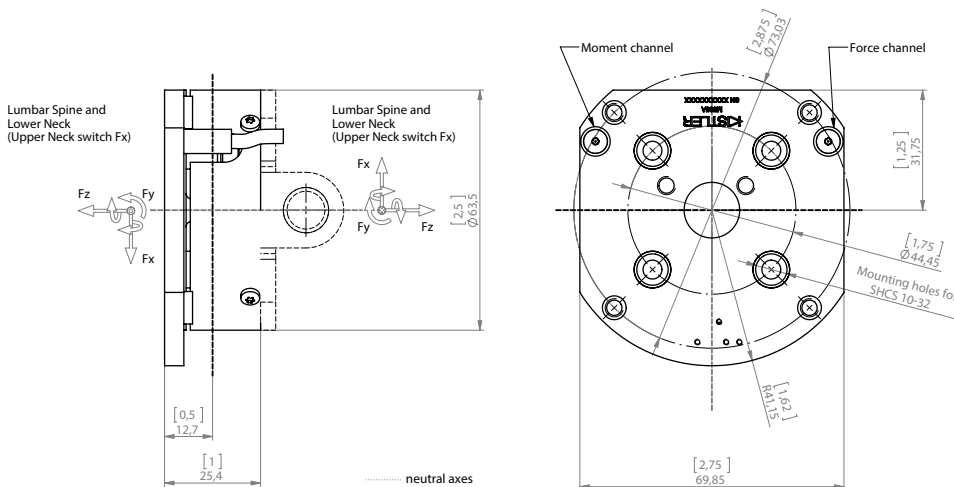


Fig. 3: Dimensions in mm (left P1,5; right Crabi)

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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Tel. +41 52 224 11 11, Fax +41 52 224 14 14, info@kistler.com, www.kistler.com  
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