

# Upper Neck Load Cell

Type M558A6A...

## Six-axial

Type M558A6A... is designed to measure forces and moments in the upper neck of the P 3/4 year old (P1) crash test dummy.

- Six-axial ( $F_x$ ,  $F_y$ ,  $F_z$ ,  $M_x$ ,  $M_y$ ,  $M_z$ )
- Measuring ranges 3,5 kN and 70 N·m
- ID module integrable
- Low linearity errors and hysteresis errors
- Kistler system cabling
- Polarities according SAE J211/1



### Description

The load cell is made of elements on which forces are transmitted. The mechanical deformation element, applied with strain gage, serves for mechanical electrical deformation. 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).

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 ID 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	3,5	3,5	3,5			
	N·m				70	70	70
Bridge output voltage (typ.)	mV/V	2	2	0,8	1	1	1
Sensitivity (typ.)	$\mu\text{V}/\text{V}/\text{kN}$	570	570	230			
	$\mu\text{V}/\text{V}/\text{N}\cdot\text{m}$				14	14	14
Bridge resistance	$\Omega$	350	350	700	350	350	700
Ultimate load, static	%	150	150	150	150	150	150

### General Data

Supply voltage <sup>1)</sup>	VDC	2,5 ... 15
Insulation resistance <sup>2)</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  $^{\circ}\text{C}$  and rated at 10 V sensor supply voltage, unless otherwise specified.

<sup>1)</sup> With UPS module 9 ... 12 VDC

<sup>2)</sup> All wires to load cell housing, measured with 500 VDC

**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.

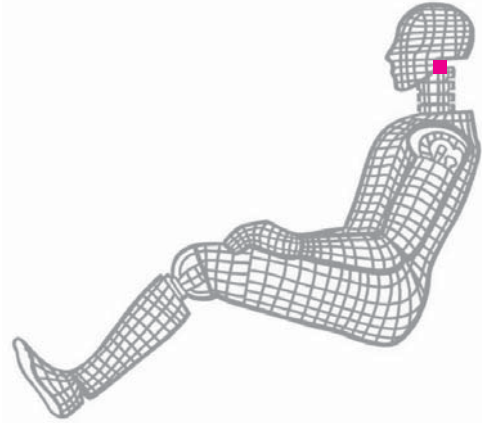


Fig. 1: Dummy application, location upper neck

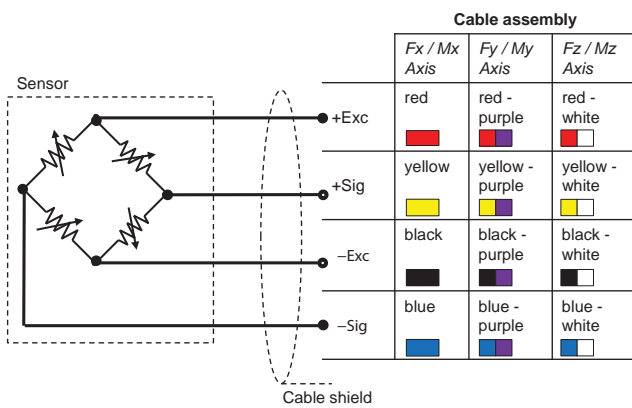


Fig. 2: Cable assembly

**Included Accessories**

- None

**Optional Accessories**

- Add. label with serial number, plug side
- M015KABID
- ID module
- Add. shunt

**Type No.**

M015KABID

on request  
on request

**Ordering Key**

Type M558A6A

**Design**

Standard	FM
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**Cable Length before Electronics**

0 cm	0
<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	#
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**Cable Length after Electronics**

0 cm	0
<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	-#

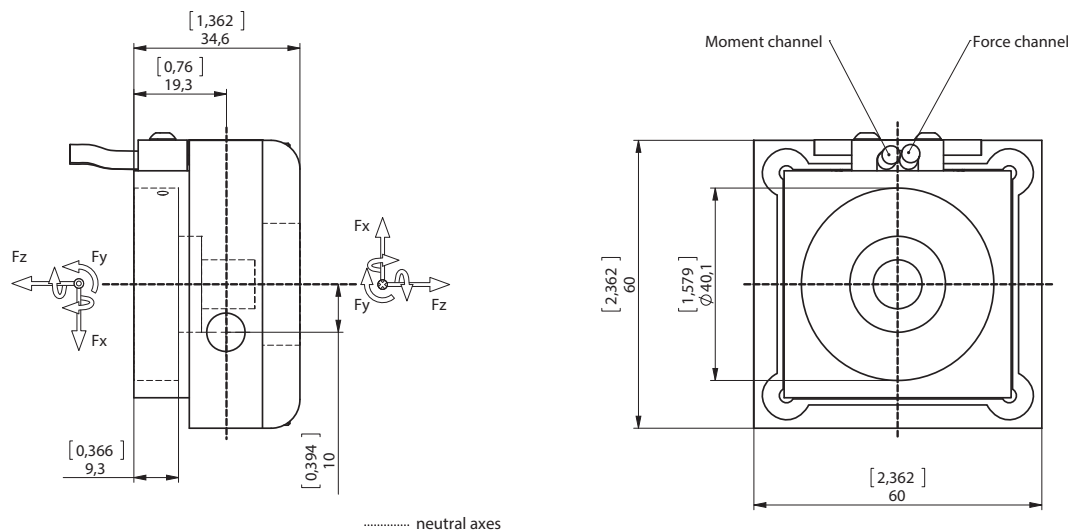


Fig. 3: Dimensions in mm

..... neutral axes

M558A6A\_000-830e-03.16

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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