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Acetabulum Load Cell

Type M52x93A...

Triaxial

Type M52x93A... measures forces and moments in the acetabulum area of the dummy type Thor-M (TH).

- Triaxial (F_x, F_y, F_z)
- UPS module integrable
- Low linearity errors and hysteresis
- Kistler system cabling
- Polarities according to 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 and moments 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 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**
Measuring range	kN	22,24	13,34	13,34
Bridge output voltage (typ.)	mV/V	2,7	0,8	2,2
Sensitivity (typ.)	µV/V/kN	123	62	165
Bridge resistance	Ω	350	700	350
Ultimate load, static	%	150	150	150

General Data		
Supply voltage[1)]	VDC	2,5 ... 15
Insulation resistance[2)]	GΩ	>10
Operating temperature range	°C	–20 ... 80
Storage temperature range	°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	425

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

1) With UPS module 9 ... 12 VDC
2) 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.

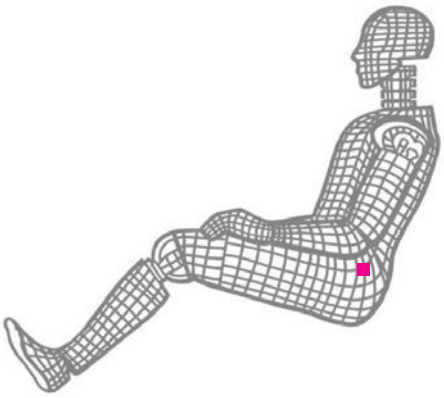

Fig. 1: Dummy application, left acetabulum

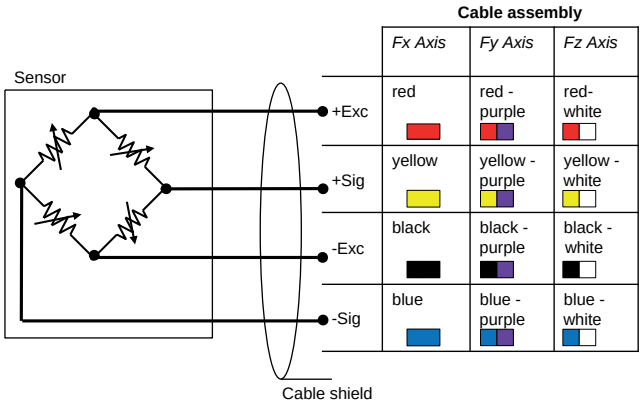

Fig. 2: Cable assembly

Included Accessories

- None

Optional Accessories

	Art. No.
• Add. label with serial number, plug side	M015KABID
• UPS module	on request
• Add. label with ID number at sensor	M015KABID
• Add. shunt	on request

Ordering Key

Type M52 ☐☐☐☐☐☐

Design

left	**893AEM**
right	**993AEM**

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	**-#**

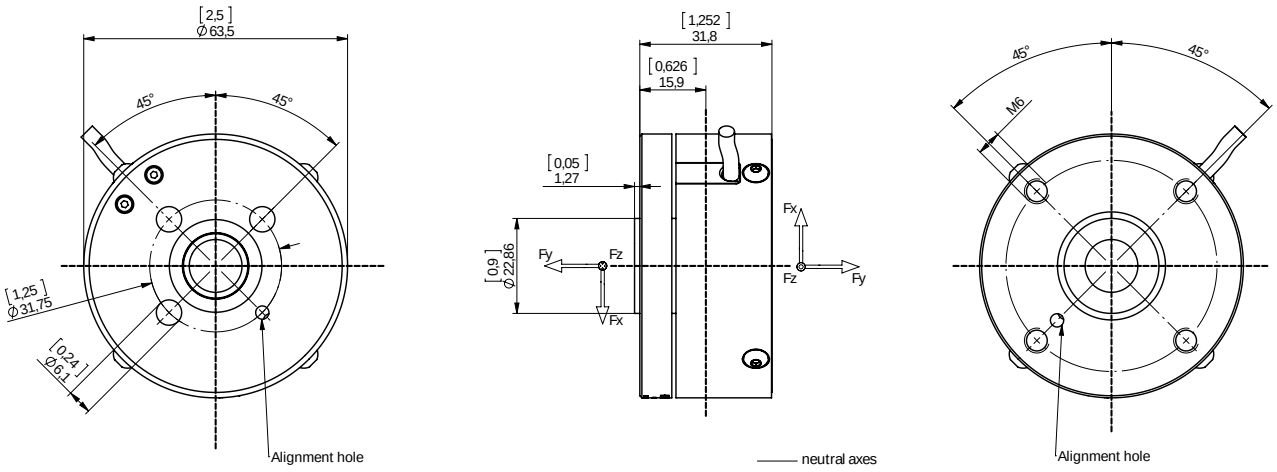

Fig. 3: Dimensions (left design) in mm

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