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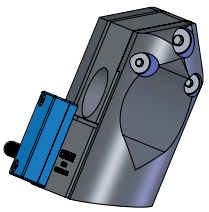
Iliac Wing Load Cell

Biaxial, triaxial

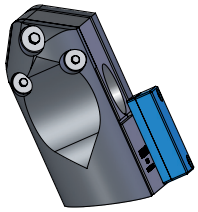
Type M52202B...,
M52212B...
M52203B...
M52213B...

Type M522xyB... is designed to measure forces (left and right) on the ASIS iliac wing of the crash test dummy HIII-5 % (HF).

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



Type M5220...



Type M5221...

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.

Technical Data

		F_x	F_z[1]	M_y
Measuring range	kN	8.9	6	
	N·m			225
Bridge output voltage (typ.)	mV/V	1.7/ 2.5[1]	0.6	1.1/ 1.8[1]
Sensitivity (typ.)	µV/V/kN	190/ 280[1]	100	5/ 8[1]
	µV/V/N·m			5
Bridge resistance	Ω	350		
Ultimate load, static	%	150		
Supply voltage[2]	VDC	2.5 ... 15		
Insulation resistance[3]	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	520		

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

1) Only in triaxial version
2) With UPS module 9 ... 12 VDC
3) All wires to load cell housing, measured with 500 VDC

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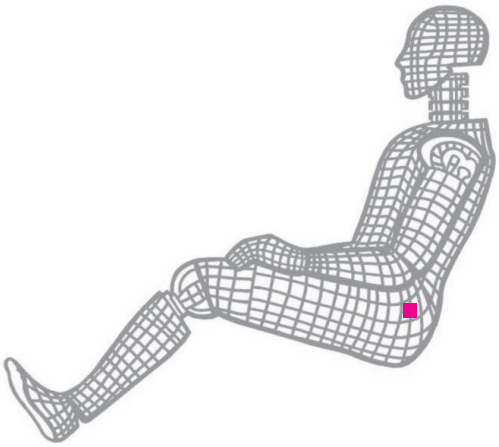

Fig. 1: Dummy application, location iliac wing

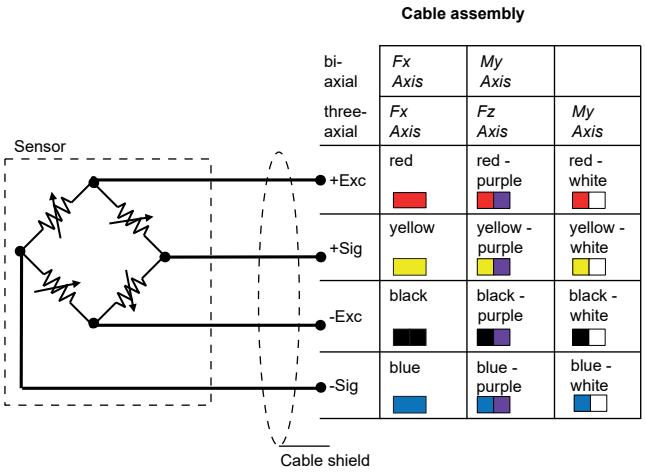

Fig. 2: Cable assembly

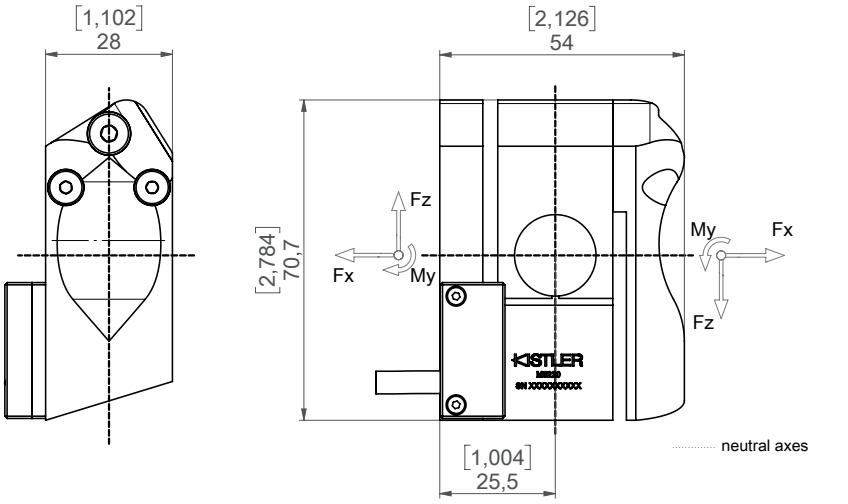

Fig. 3: Dimensions in mm, sample here Type M5220...

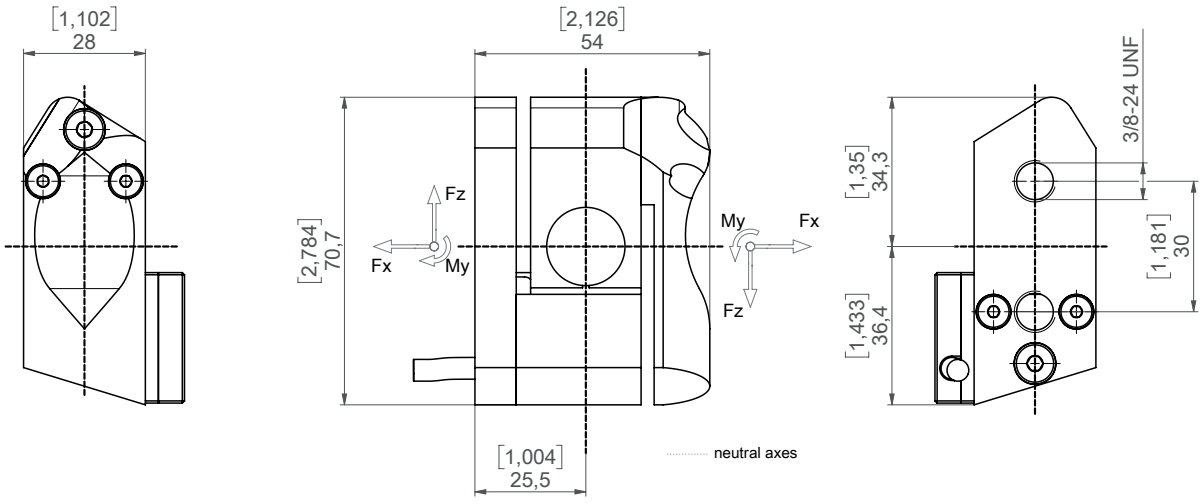

Fig. 4: Dimensions in mm, sample here Type M5221...

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Included Accessories	Type No.
• Calibration adapter	on request

Optional Accessories	Type No.
• Add. shunt	on request
• UPS module	on request

Ordering Key

Type M522 ☐☐☐☐☐

Design

Left, biaxial standard cable outlet	**02BTM**
Right, biaxial standard cable outlet	**12BTM**
Left, triaxial standard cable outlet	**03BTM**
Right, triaxial standard cable outlet	**13BTM**

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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