

ASIS Iliac Wing Load Cell

Biaxial

Type M52242A...,
M52252A...

Type M522x2A... is designed to measure forces and moments on the ASIS iliac wing of the crash test dummy HIII-95 % (HM).

- Biaxial (F_{x1} , F_{x2})
- UPS module available
- Low linearity and hysteresis
- Kistler system cabling
- Polarities according to SAE J211/1



Description

The load cell is made of elements which are affected by forces. 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 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 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 Data¹⁾

		F_{x1}	F_{x2}
Measuring range	kN	18	18
Bridge output voltage (typ.)	mV/V	10,6	10,6
Sensitivity (typ.)	$\mu\text{V}/\text{V}/\text{kN}$	590	590
Bridge resistance	Ω	350	350
Ultimate load, static	%	150	150
Supply voltage ²⁾	VDC	2,5 ... 15	
Insulation resistance ³⁾	G Ω	>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	
Bridge zero output (typ. / max.)	mV/V	0,01 / 0,03	
Weight (without cable)	grams	695	

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

¹⁾ $F_x = F_{x1} + F_{x2}$; $((F_{x1} - F_{x2}) / (F_{x1} + F_{x2})) \times 35,5 [1,4] = \text{Distance}$

²⁾ With UPS module 9 ... 12 VDC

³⁾ All wires to load cell housing, measured with 500 VDC

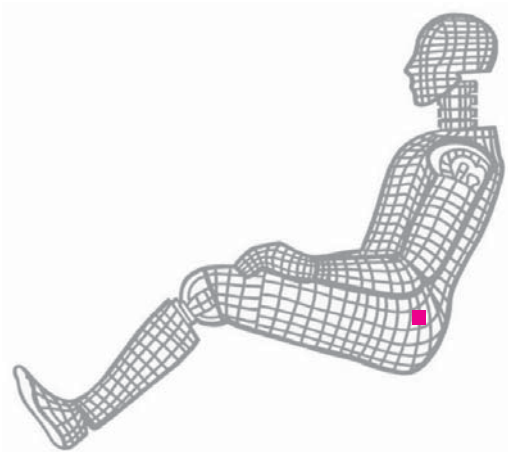


Fig. 1: Dummy application, location iliac wing

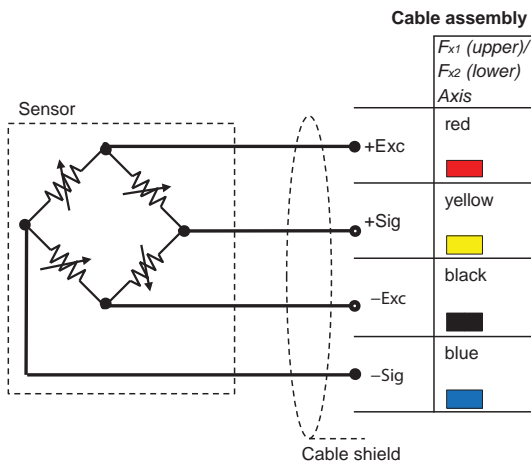


Fig. 2: Cable assembly

Included Accessories

- None

Optional Accessories

- Add. label, customized
- Add. shunt
- UPS module

Type No.
M015KABID
on request
on request

Ordering Key

Type M522

Design

Left side	42ATM
Right side	52ATM

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	#
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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	-#

M522x2A_003-242e-12.15

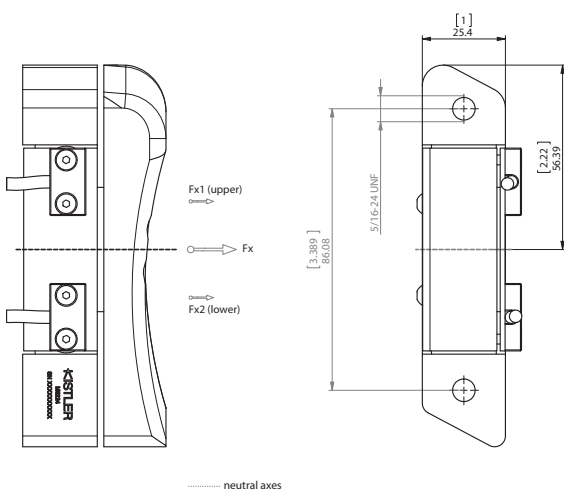


Fig. 3: Dimensions in mm (here: left side, Type M52242A...)