

Upper Tibia Load Cell

Type M55295A...

Five-axial

Type M55295A... is designed to measure forces and moments in the upper tibia of the crash test dummies Thor-M (TH) and Thor-LX.

- Five-axial (F_x , F_y , F_z , M_x , M_y)
- 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 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	M_x	M_y
Measuring range	kN	11	11	11		
	N·m				400	400
Bridge output voltage (typ.)	mV/V	2,0	2,0	1,0	2,8	2,8
Sensitivity (typ.)	$\mu\text{V}/\text{V}/\text{kN}$	180	180	90		
	$\mu\text{V}/\text{V}/\text{N}\cdot\text{m}$				7,0	7,0
Bridge resistance	Ω	700	700	700	350	350
Ultimate load, static	%	150	150	150	150	150

General Data

Supply voltage ¹⁾	VDC	2,5 ... 15
Insulation resistance ²⁾	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
Channel cross talk	%	<5
Bridge zero output (typ. / max.)	mV/V	0,01 / 0,03
Weight, without cable	grams	460

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

¹⁾ With UPS module 9 ... 12 VDC

²⁾ 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.

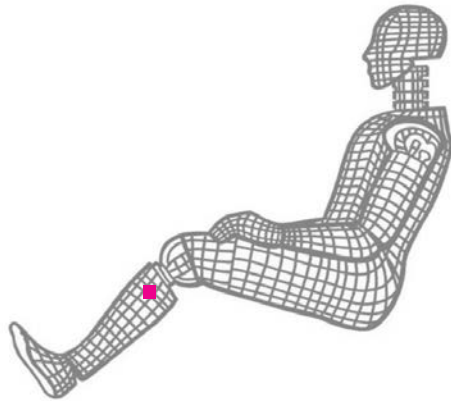


Fig. 1: Dummy application Upper Tibia

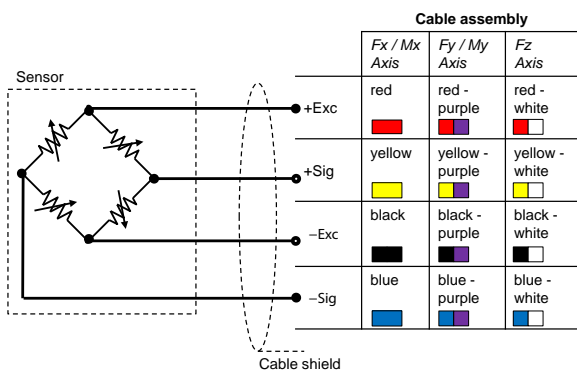


Fig. 2: Cable assembly

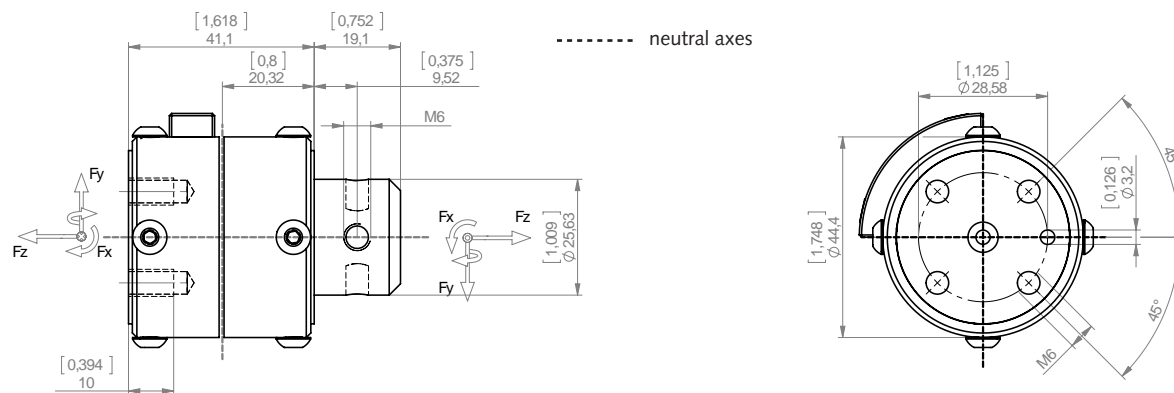


Fig. 3: Dimensions in mm

Included Accessories

- Mounting screws with MIL-LX/MX design version

Type No.

on request

Optional Accessories

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

Type No.

M015KABID
on request
on request

Ordering Key

Type M55295A

Design

Standard	SM
With MIL-LX/MX screw set	8M

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	-#

M55295A_003-208e-07.16