KISTLER
measure. analyze. innovate.

Lower Tibia Load Cell

Type M55155A...

Five-axial

Type M55155A... is designed to measure forces and moments in the lower tibia of the crash test dummy Thor-M (TH) and MIL-LX.

- Five-axial (F_x, F_y, F_z, M_x, M_y)
- UPS module available
- Low linearity error and hysteresis error
- 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 stiffness). 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

Axes		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.)	µV/V/kN	180	180	90		
	µV/V/N·m				8,0	8,0
Bridge resistance	Ω	350	350	700	350	350
Ultimate load, static	%	150	150	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	500

All specifications are typical at 25 °C and 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

M55155A_000-966e-03.16

KISTLER
measure. analyze. innovate.

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. If tibia load cells are mounted in a dummy, the dummy must be assembled with Thor LX legs.

Fig. 1: Instrumented Thor LX leg

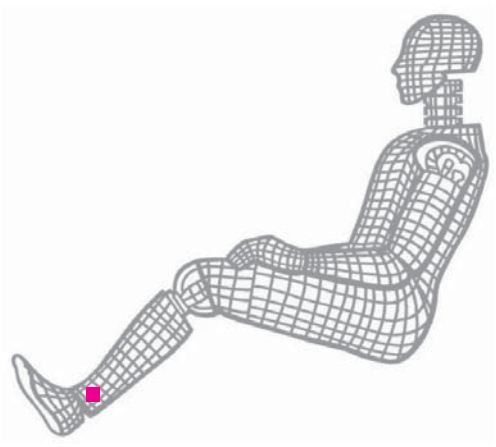

Fig. 2: Dummy application, location lower tibia

Included Accessories	Type No.
• Mounting screws, imperial 1/4-28 UNF, 4 units	on request

Optional Accessories	Type No.
• Add. label with serial number, plug side	M015KABID
• UPS module	on request
• Add. label with ID number at sensor	M015KABID

Ordering Key

Type M55155 ☐☐☐☐☐☐

Design

Standard	**ARM**

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	**-#**

M55155A_000-966e-03.16