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Achilles Tendon Load Cell

Type M55491A...

Uniaxial

Type M55491A... is designed to measure the force in the Achilles tendon of the crash test dummy Thor-M (TH).

- Uniaxial (F_y)
- UPS module integrable
- Low linearity errors and hysteresis errors
- Kistler system cabling
- Polarities according to SAE J211/1

Description

The load cell is based on the principle of a tensile/compression bar. In order to reduce cross impacts, the tensile bar is devided into four bars with equivalent cross section.

The induced force creates a mechanical stretching respectively buckling in the body. The resistance changes, which are proportional to the force, are measured by means of strain gage, designed as full 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

Measuring range	kN	4,45
Bridge output voltage (typ.)	mV/V	~1,34
Sensitivity (typ.)	µV/V/kN	~300
Bridge resistance	Ω	1 050
Ultimate load, static	%	150
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	%	<1
Hysteresis	%	<1
Bridge zero output (typ. / max.)	mV/V	0,01 / 0,03
Weight (without cable)	grams	25

All specifications are typical at 25 ° 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

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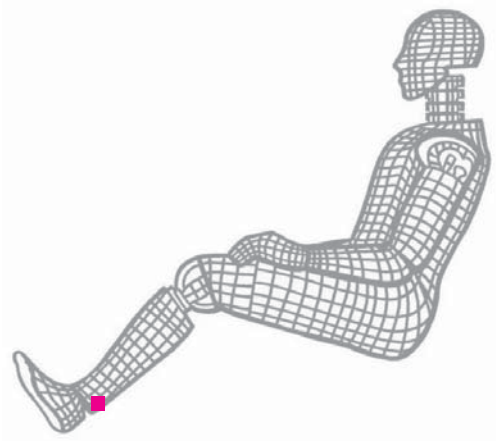

Fig. 1: Dummy application, location Achilles tendon

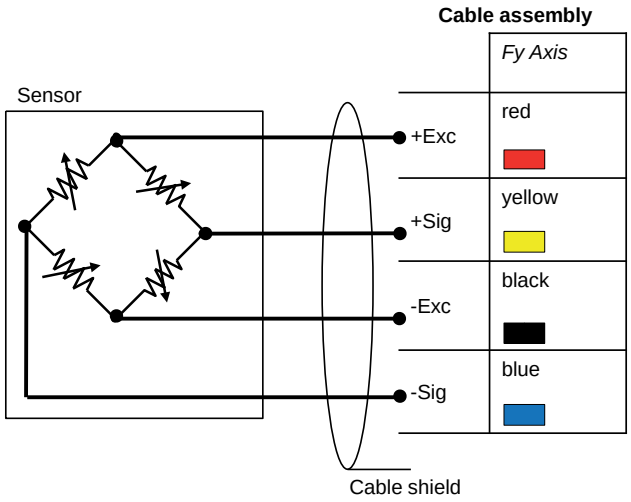

Fig. 2: Cable assembly

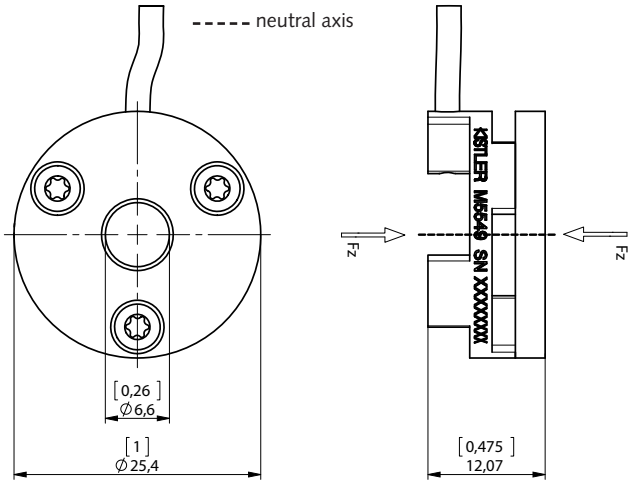

Fig. 3: Dimensions

Included Accessories
- None

Optional Accessories	**Type 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

Type M55491A ☐☐☐☐☐☐

Design

Standard	**M**

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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