

# Universal Leg Load Cell

Type M56506A...

## Six-axial

Type M56506A... is designed to measure forces and moments in the legs of the crash test dummy WorldSID.

- Six-axial ( $F_x$ ,  $F_y$ ,  $F_z$ ,  $M_x$ ,  $M_y$ ,  $M_z$ )
- ID module available
- Low linearity error and hysteresis error
- 350/700  $\Omega$  measurement bridge
- Kistler system cabling
- Polarities according to SAE J211/1

### Description

The load cell is made of elements on which forces are transmitted. The mechanical deformation element, applied with strain gage, serves for mechanical electrical deformation. The effectiveness of the load cell resembles the behavior of a spiral spring. The forces to be measured create mechanical stretches and buckling in the gaging member.

Line-up of equivalent load cells:

	Type
Kistler	M56506A...
Denton	W50-71010



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 ID modules, either a UPS module (Universal Parameter Memory) or a Dallas module can be chosen for this functionality. These modules are 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		$F_x$	$F_y$	$F_z$	$M_x$	$M_y$	$M_z$
Measuring range	kN	15	15	15			
	N·m				350	350	300
Bridge output voltage (typ.)	mV/V	1,86	1,86	1,06	2,0	2,0	2,7
Sensitivity (typ.)	$\mu\text{V/V/kN}$	124	124	70			
	$\mu\text{V/V/N}\cdot\text{m}$				5,7	5,7	9
Bridge resistance	$\Omega$	350	350	700	350	350	700
Ultimate load, static	%	150	150	150	150	150	150

### General Data

Supply voltage		
without ID module	VDC	5 ... 15
with ID module	VDC	9 ... 12
Insulation resistance <sup>1)</sup>	M $\Omega$	>90
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	0,02/0,03
Weight (without cable)	grams	480

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

<sup>1)</sup> All wires to screen (GND), measured with 10 VDC

M56506A\_000-977e-04.12

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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**Application**

Type M56506A... is designed to measure forces and moments in the legs of the crash test dummy WorldSID.

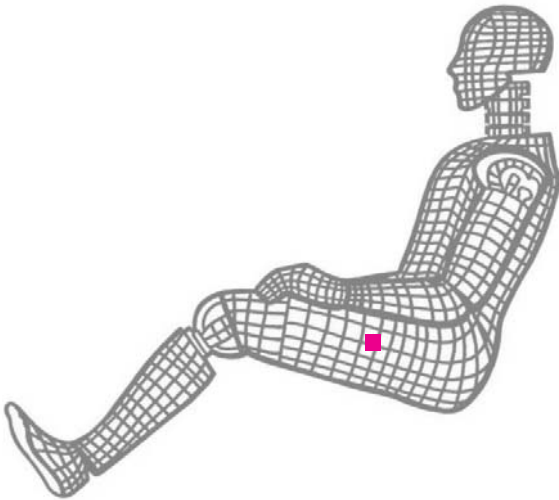


Fig. 1: Dummy application, location leg

**Ordering Key**

Type M56506A

**Design**

Standard	BM
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**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. type assignment, as per TP-600	-#

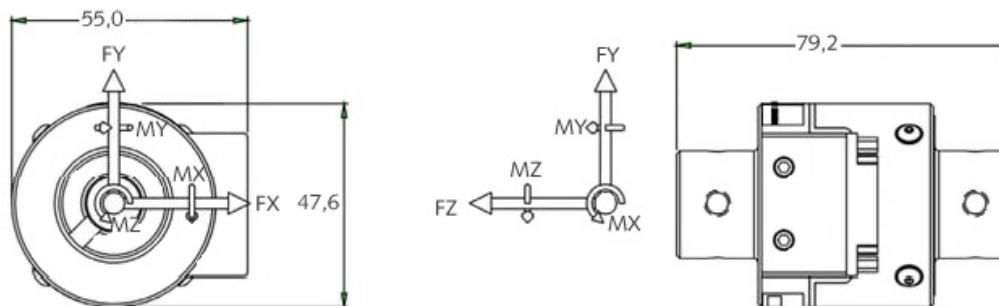


Fig. 2: Dimensions (inch) and direction of action

**Included Accessories**

- None

**Optional Accessories**

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

**Type No.**

on request  
M015KABID  
on request

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