

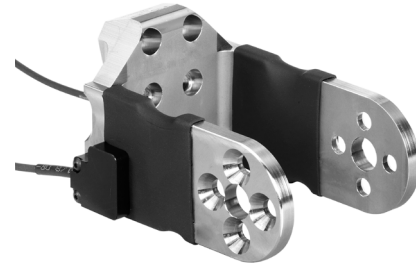
Knee clevis load cell

Biaxial

Type M55102A...,
M55112A...,
M55122A...

Load Cells of the Type series M551x2A... are designed to measure forces in the knee clevis of the HIII crash test dummy family. Type M55102A... is used with the HIII-5 % (HF) dummy, Type M55112A... with the HIII-50 % (H3) and Type M55122A with the HIII-95 % (HM) dummy.

- Biaxial (2 x F_z)
- UPS module available
- Low linearity errors and hysteresis errors
- Kistler system cabling
- Polarities according to SAE J211/1



Type M55112A...

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.

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 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.

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		
Type M55102A...	kN	2x6,8
Type M55112A..., Type M55122A...	kN	2x8,9
Bridge output voltage		
Type M55102A...	mV/V	2x0,58 ¹⁾
Type M55112A..., Type M55122A...	mV/V	2x0,9 ²⁾
Sensitivity		
Type M55102A...	$\mu\text{V/V/kN}$	2x85 ¹⁾
Type M55112A..., Type M55122A...	$\mu\text{V/V/kN}$	2x100 ²⁾
Bridge resistance	Ω	2x350
Ultimate load	%	2x150
Supply voltage ³⁾	VDC	2,5 ... 15
Insulation resistance ⁴⁾	G Ω	>10
Operating temperature range	$^{\circ}\text{C}$	-20 ... 80
Storage temperature range	$^{\circ}\text{C}$	-30 ... 90
Amplitude non-linearity	%	<1
Hysteresis	%	<1
Weight (without cable)		
Type M55102A...	grams	470
Type M55112A...	grams	580
Type M55122A...	grams	630

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

¹⁾ Series numbers 0004712776 and higher

²⁾ Series numbers 0004648772 and higher and 1627H60166

³⁾ With UPS module 9 ... 12 VDC

⁴⁾ All wires to load cell housing, measured with 500 VDC

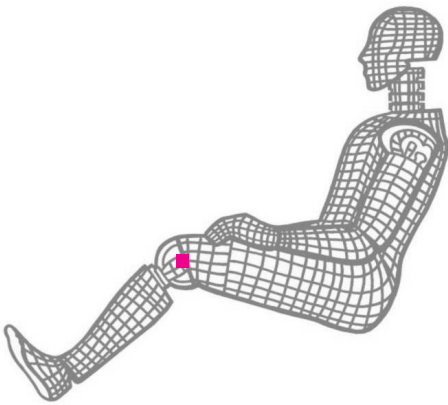


Fig. 1: Dummy application, location knee clevis

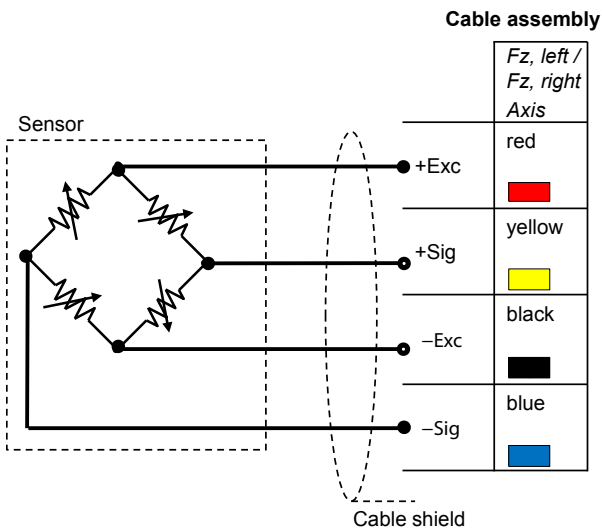


Fig. 2: Cable assembly

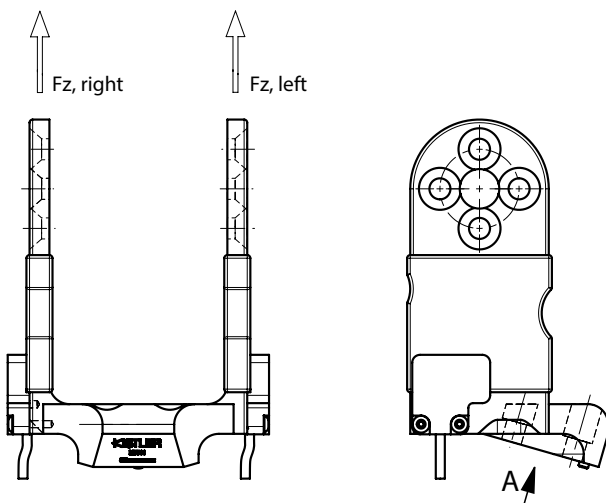


Fig. 3: Dimensions

Included accessories

- Fixing screws, 1/4-28 UNFx5/8" (DIN912), 4 units

Type No.

on request

Optional accessories

- Add. label with serial number, plug side
- UPS module
- Add. label with ID number at sensor
- Add. shunt

Type No.

M015KABID
on request
M015KABID
on request

Ordering key

Type M551

Dummy and design

HIII-5 % (HF), Standard	02AJM
HIII-50 % (H3), Standard	12AJM
HIII-95 % (HM), Standard	22AJM

Cable length before electronics

0 cm	0
<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

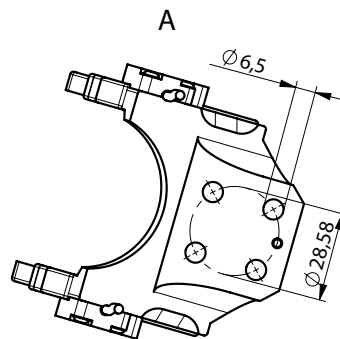
Sensor detail, as per type declaration force-moment TP-650-2	#
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Cable length after electronics

0 cm	0
<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	-#



M551x2A_003-137e-01_18