Crash Test Dummy Load Cells

THOR-50M

TECHNICAL DATA SHEETS

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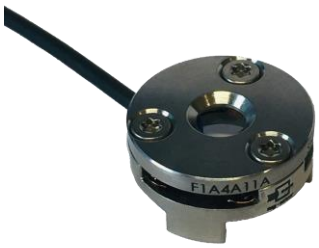
MG-SENSOR
A HUMANETICS COMPANY

Technical Data Sheet

F1A4A11A

Load Cell, 1-axial

Location: Achilles



Force direction
F_z

Application
Thor

Equivalent types
Denton: 5145J

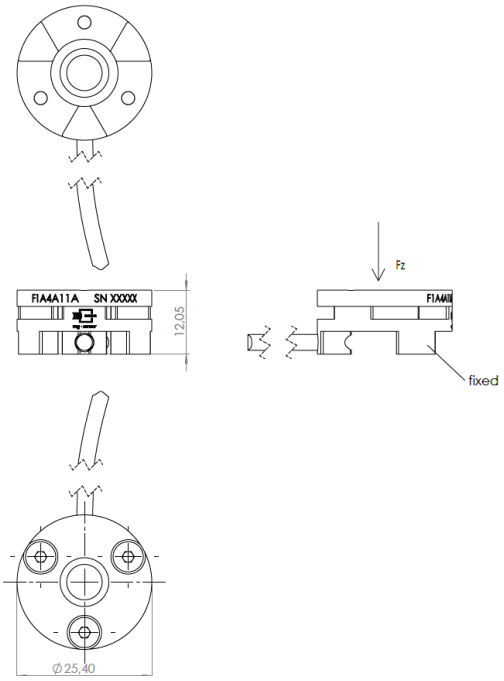
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

F1A4A11A

Technical specification

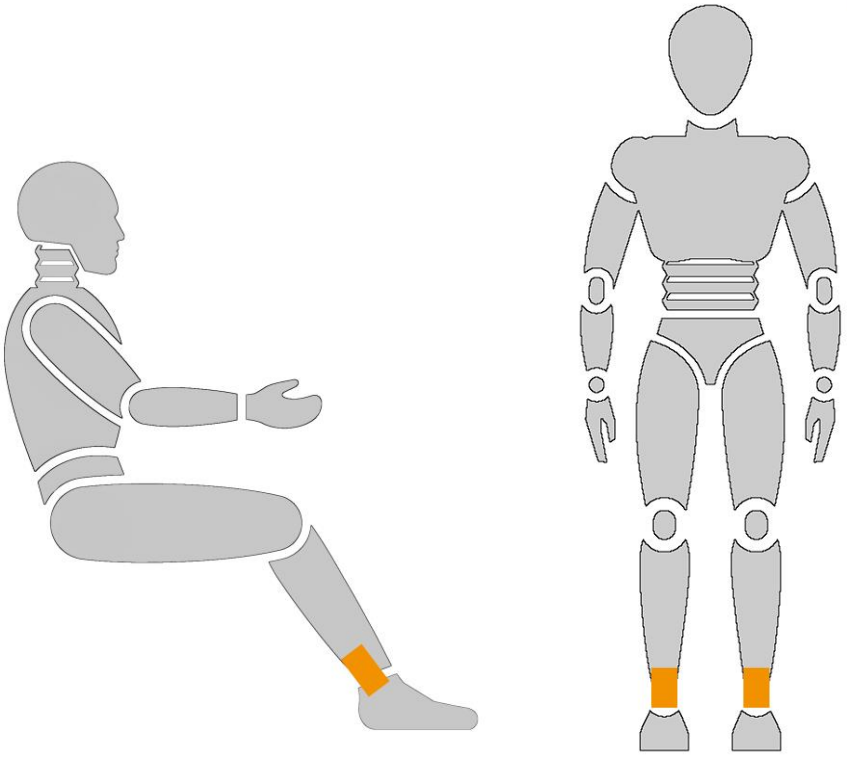
	Unit	Value
		F_z
Measuring range	kN	4.5
Sensitivity[1)]	µV/V/kN	222
Output signal[1), 2)]	mV/V	1.0
Bridge resistance	Ω	1050
Zero signal[1)]	mV/V	≤ 0.05
Amplitude non-linearity[3)]	%	≤ 1.0
Hysteresis[3)]	%	≤ 1.0
Channel cross talk[3)]	%	–
Supply voltage	V	2–15
Ultimate load	%	150
Insulation resistance	MΩ	> 100
Temperature range	°C	-30…+70
Weight (approximate)	g	25

All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range



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Technical Data Sheet

F1ABA11A

Load Cell, 1-axial

Location: Face

Force direction
F_x

Application
Thor

Equivalent types
Denton: 4168

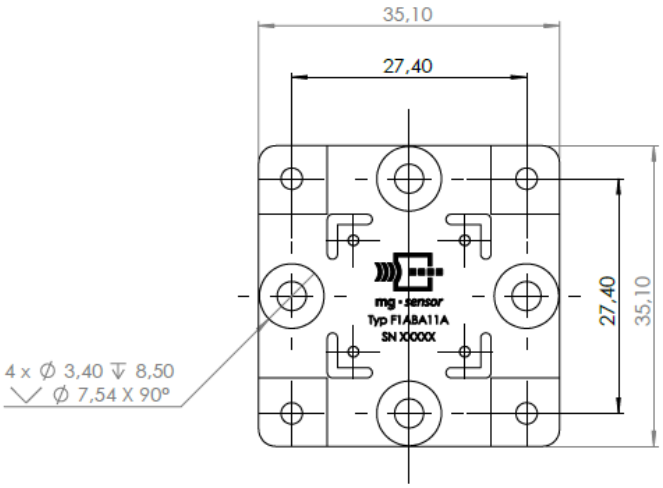
Measurement specification
Resistive
Strain gauges

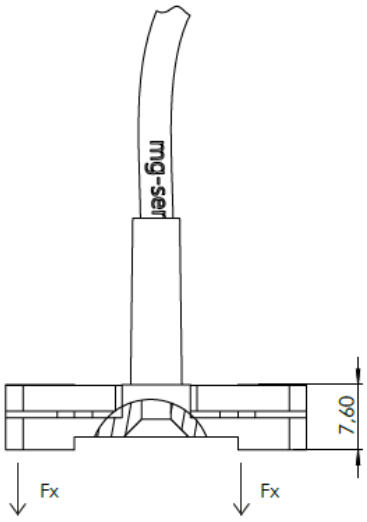
Options
ID-Module integrated in sensor

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions





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Technical Data Sheet

F1ABA11A

Technical specification

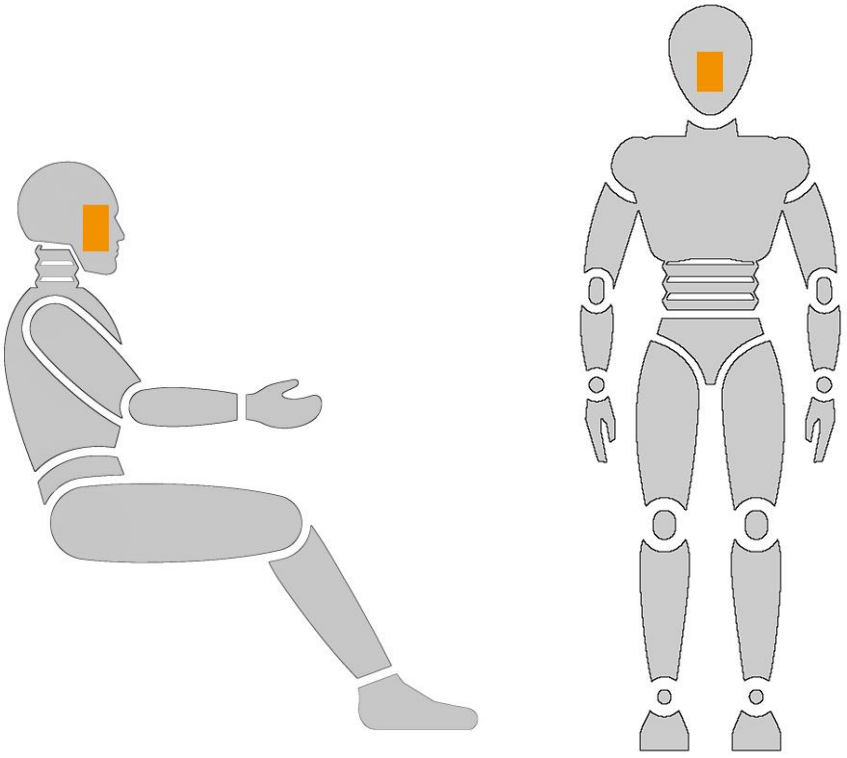
	Unit	Value
		F_x
Measuring range	kN	4.5
Sensitivity[1)]	µV/V/kN	200
Output signal[1), 2)]	mV/V	0.9
Bridge resistance	Ω	1400
Zero signal[1)]	mV/V	≤ 0.05
Amplitude non-linearity[3)]	%	≤ 1.0
Hysteresis[3)]	%	≤ 1.0
Channel cross talk[3)]	%	–
Supply voltage	V	2-15
Ultimate load	%	150
Insulation resistance	MΩ	> 100
Temperature range	°C	-30…+70
Weight (approximate)	g	35

All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range



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Technical Data Sheet

F1ARA11A

Load Cell, 1-axial

Location: Skull Spring

Force direction
F_z

Application
Thor

Equivalent types
Denton: 6005

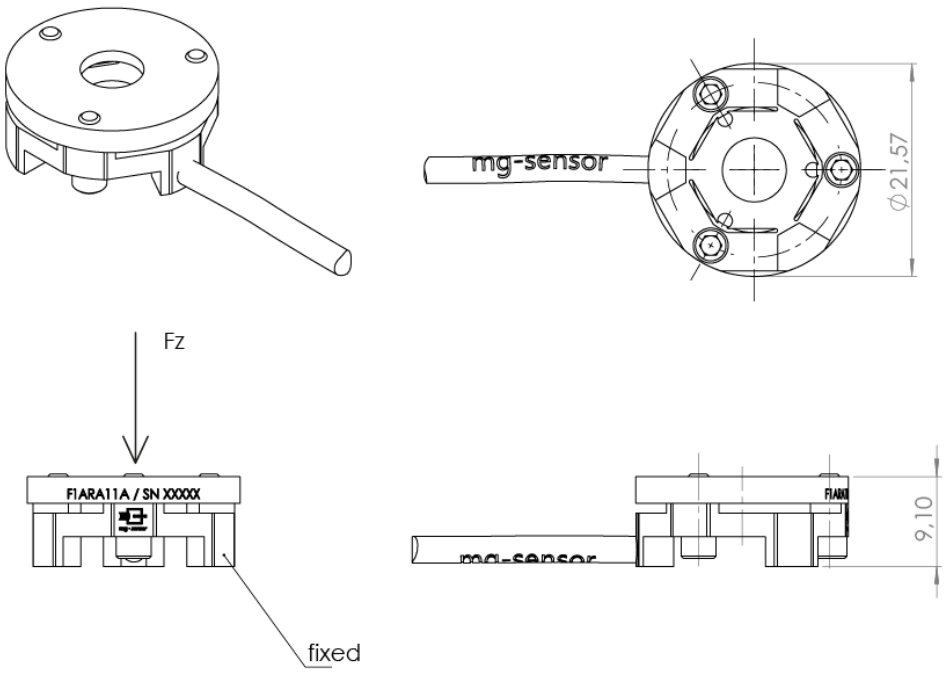
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

F1ARA11A

Technical specification

	Unit	Value
		F_z
Measuring range	kN	4.5
Sensitivity[1)]	µV/V/kN	467
Output signal[1), 2)]	mV/V	2.1
Bridge resistance	Ω	1050
Zero signal[1)]	mV/V	≤ 0.05
Amplitude non-linearity[3)]	%	≤ 1.0
Hysteresis[3)]	%	≤ 1.0
Channel cross talk[3)]	%	–
Supply voltage	V	2–15
Ultimate load	%	150
Insulation resistance	MΩ	> 100
Temperature range	°C	-30…+70
Weight (approximate)	g	15 (without cable)

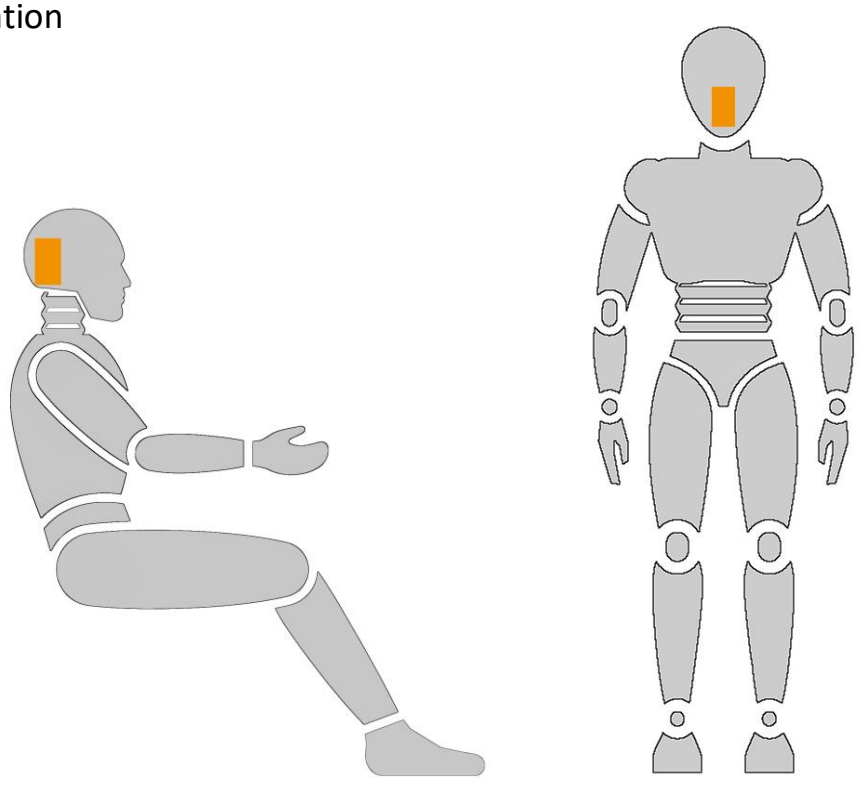
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

F3A3A11B

Load Cell, 3-axial

Location: Acetabulum left

Force direction
F_x, F_y, F_z

Application
Thor

Equivalent types
Denton: 3855
Humanetics: 10530JI4

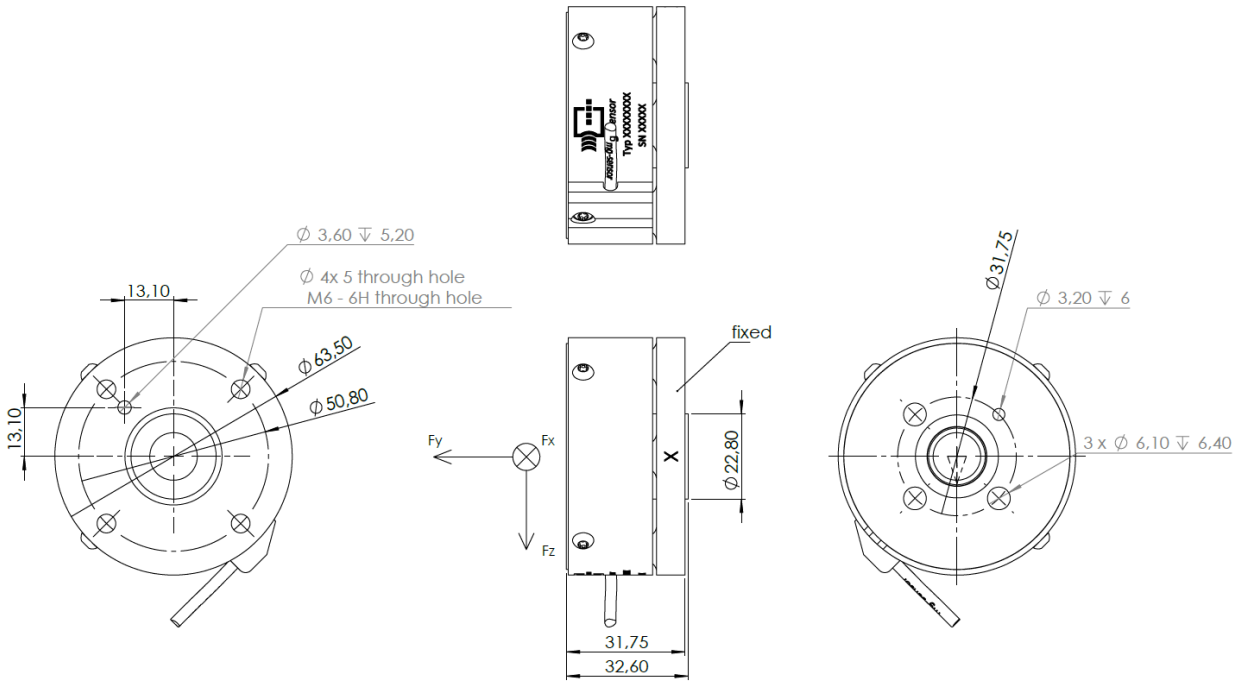
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

F3A3A11B

Technical specification

	Unit	Value		
		F_x	F_y	F_z
Measuring range	kN	22.2	13.3	13.3
Sensitivity[1)]	µV/V/kN	113	68	150
Output signal [1), 2)]	mV/V	2.5	0.9	2.0
Bridge resistance	Ω	350	700	350
Zero signal[1)]	mV/V	≤ 0.05		
Amplitude non-linearity[3)]	%	≤ 1.0		
Hysteresis[3)]	%	≤ 1.0		
Channel crosstalk[3)]	%	≤ 5.0		
Supply voltage	V	2–15		
Ultimate load	%	150		
Insulation resistance	MΩ	> 100		
Temperature range	°C	-30…+70		
Weight (approximate)	g	450		

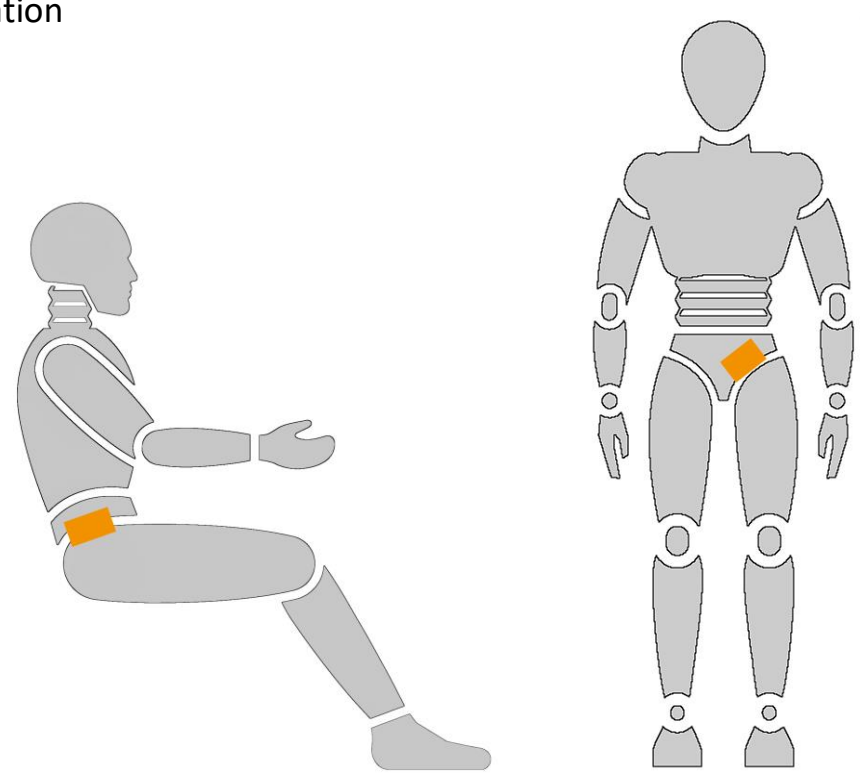
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

F3A3B11B

Load Cell, 3-axial

Location: Acetabulum right

Force direction
F_x, F_y, F_z

Application
Thor

Equivalent types
Denton: 3455
Humanetics: 10570JI4

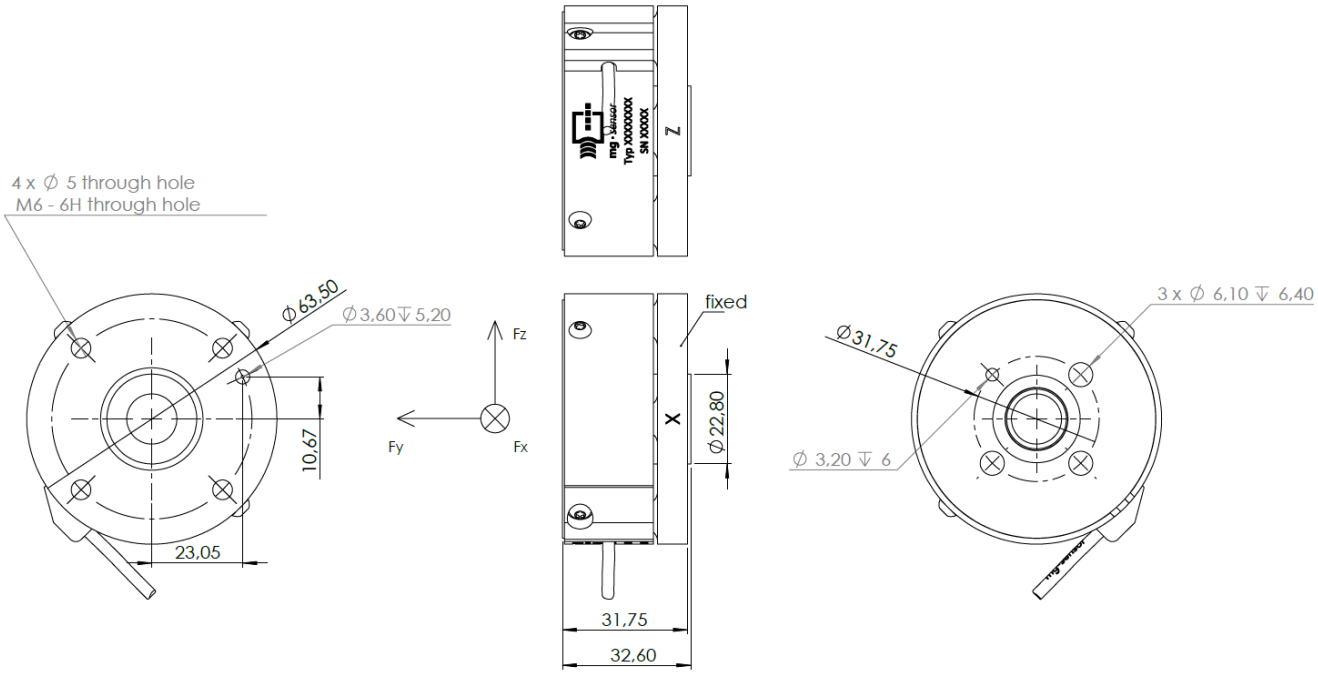
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

F3A3B11B

Technical specification

	Unit	Value		
		F_x	F_y	F_z
Measuring range	kN	22.2	13.3	13.3
Sensitivity[1)]	µV/V/kN	113	68	150
Output signal [1), 2)]	mV/V	2.5	0.9	2.0
Bridge resistance	Ω	350	700	350
Zero signal[1)]	mV/V	≤ 0.05		
Amplitude non-linearity[3)]	%	≤ 1.0		
Hysteresis[3)]	%	≤ 1.0		
Channel crosstalk[3)]	%	≤ 5.0		
Supply voltage	V	2–15		
Ultimate load	%	150		
Insulation resistance	MΩ	> 100		
Temperature range	°C	-30…+70		
Weight (approximate)	g	450		

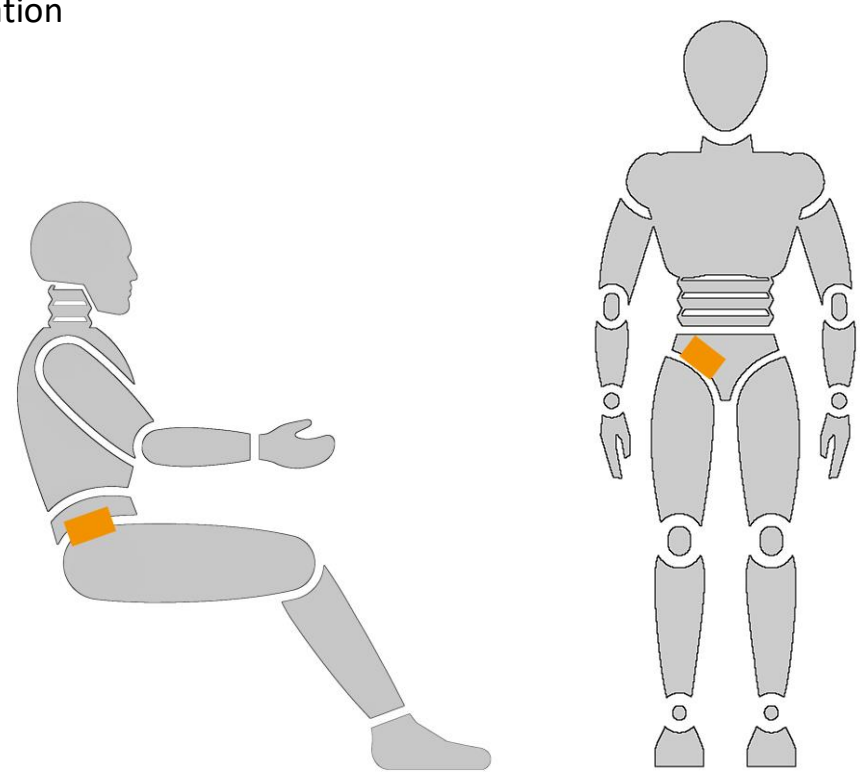
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N2AXE11A

Load Cell, 2-axial

Location: A.S.I.S. Iliac Spine
left & right (Pair)

Force direction
F_x, M_y

Application
Thor

Equivalent types
Kistler: M52292A

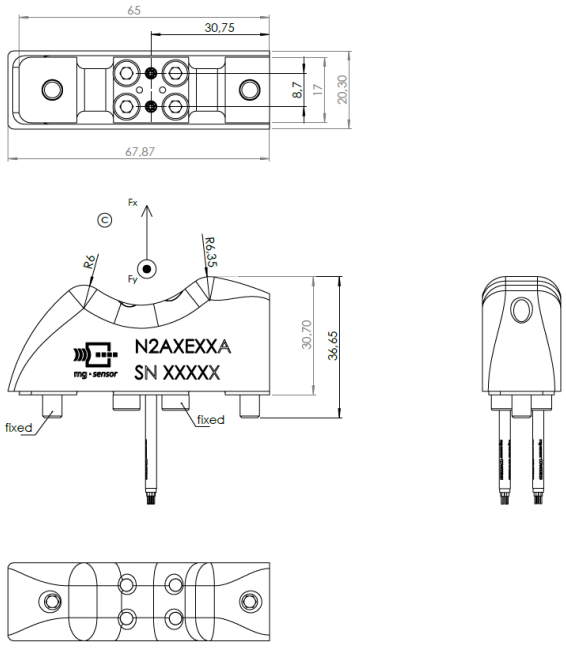
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N2AXE11A

Technical specification

	Unit	Value	
		F_x	M_y
Measuring range	kN Nm	13	 320
Sensitivity[1)]	µV/V/kN µV/V/Nm	92	 4.4
Output signal [1), 2)]	mV/V	1.2	1.4
Bridge resistance	Ω	350	350
Zero signal[1)]	mV/V	≤ 0.05	
Amplitude non-linearity[3)]	%	≤ 2.0	
Hysteresis[3)]	%	≤ 2.5	
Channel crosstalk[3)]	%	≤ 5.0	
Supply voltage	V	2–15	
Ultimate load	%	150	
Insulation resistance	MΩ	> 100	
Temperature range	°C	-30…+70	
Weight (approximate)	g	250	

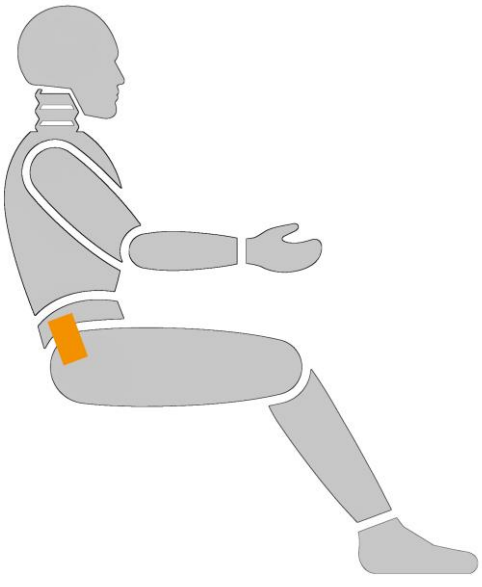
All values measured at 10 V sensor supply voltage and at 23 °C.

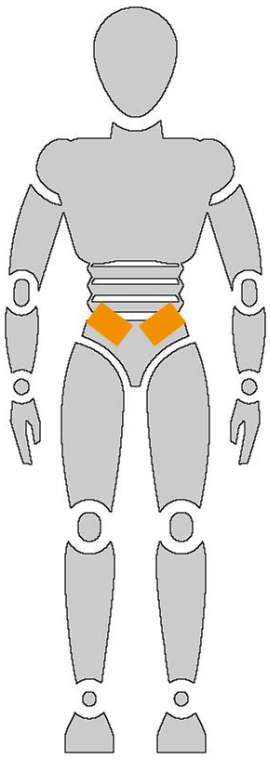
[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application





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Technical Data Sheet

N3ASA11A

Load Cell, 3-axial

Location: Thoracic Spine

Force direction
F_x, F_z, M_y

Application
H3-50%, H3-95%
Thor

Equivalent types
FTSS: IF-315, (IF-310), (IF-319)

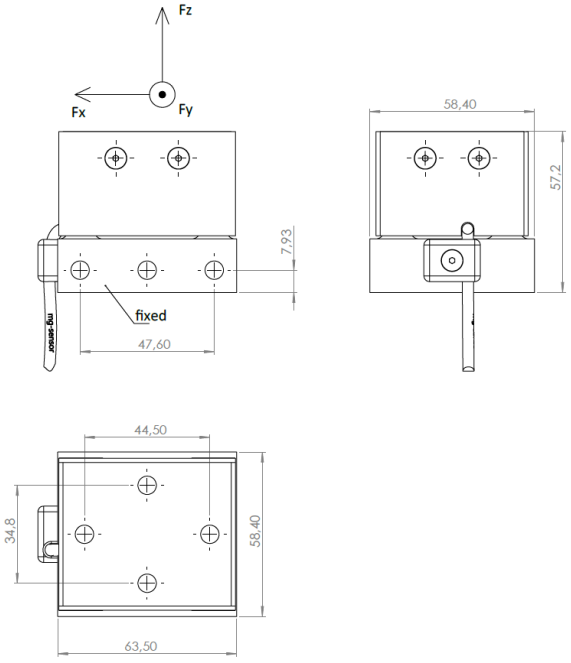
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N3ASA11A

Technical specification

	Unit	Value		
		F_x	F_z	M_y
Measuring range	kN Nm	13.3	17.8	 900
Sensitivity[1)]	µV/V/kN µV/V/Nm	135	56	 1.8
Output signal[1), 2)]	mV/V	1.8	1.0	1.6
Bridge resistance	Ω	350	700	350
Zero signal[1)]	mV/V	≤ 0.05		
Amplitude non-linearity[3)]	%	≤ 1.0		
Hysteresis[3)]	%	≤ 1.0		
Channel cross talk[3)]	%	≤ 5.0		
Supply voltage	V	2–15		
Ultimate load	%	150		
Insulation resistance	MΩ	> 100		
Temperature range	°C	-30…+70		
Weight (approximate)	g	1000		

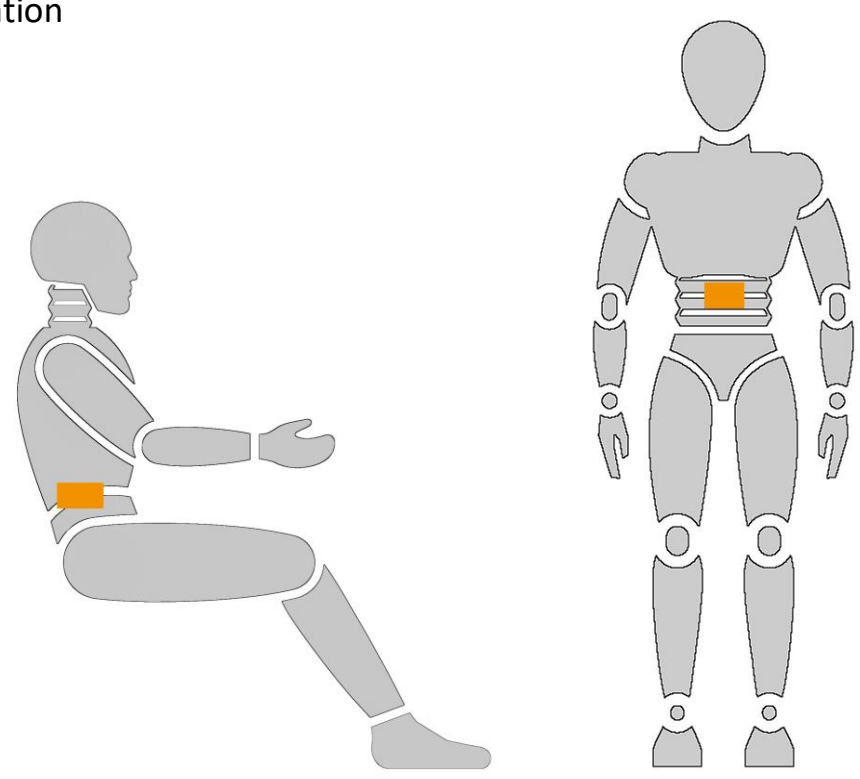
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N4A8A11A

Load Cell, 4-axial

Location: Clavicle left

Force direction
$F_{x(L)}$, $F_{x(M)}$, $F_{z(L)}$, $F_{z(M)}$

Application
Thor

Equivalent types
Humanetics: IH-10925JI4F

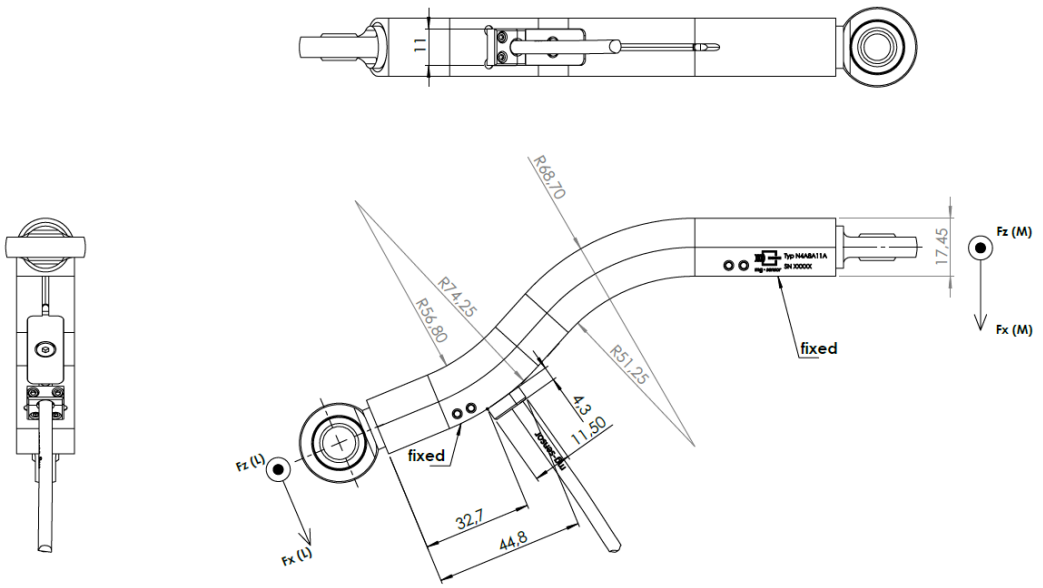
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N4A8A11A

Technical specification

	Unit	Value			
		$F_{x(L)}$	$F_{z(L)}$	$F_{x(M)}$	$F_{z(M)}$
Measuring range	kN	2.0	2.0	2.0	2.0
Sensitivity[1)]	µV/V/kN	200	200	200	200
Output signal[1), 2)]	mV/V	0.4	0.4	0.4	0.4
Bridge resistance	Ω	350	350	350	350
Zero signal[1)]	mV/V	≤ 0.05			
Amplitude non-linearity[3)]	%	≤ 1.0			
Hysteresis[3)]	%	≤ 1.0			
Channel cross talk[3)]	%	≤ 5.0			
Supply voltage	V	2–15			
Ultimate load	%	150			
Insulation resistance	MΩ	> 100			
Temperature range	°C	-30…+70			
Weight (approximate)	g	300			

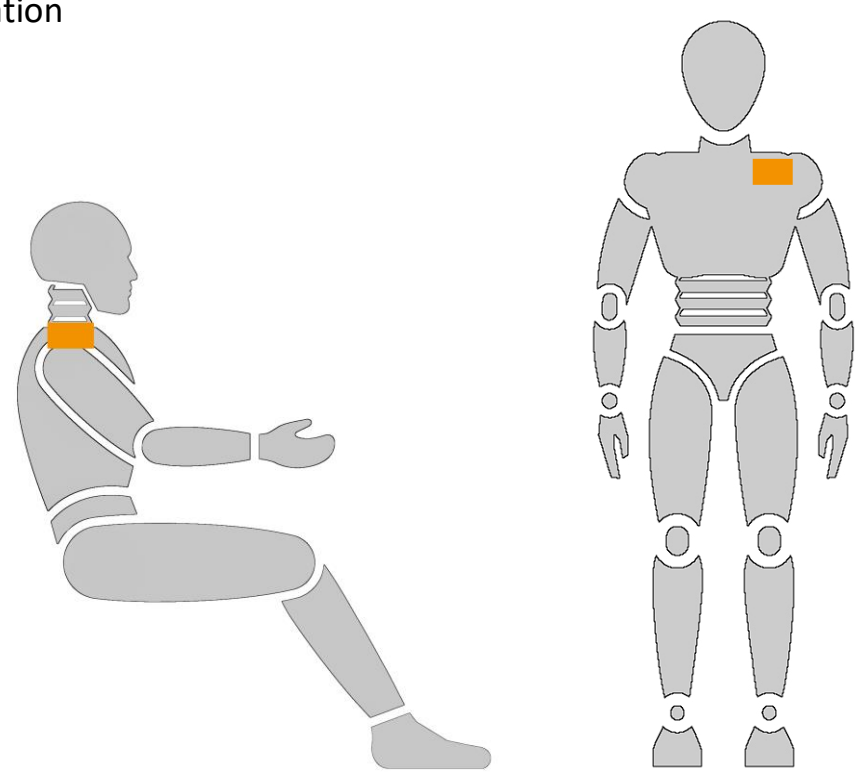
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N4A8B11A

Load Cell, 4-axial

Location: Clavicle right

Force direction
$F_{x(L)}$, $F_{x(M)}$, $F_{z(L)}$, $F_{z(M)}$

Application
Thor

Equivalent types
Humanetics: IH-10935JI4F

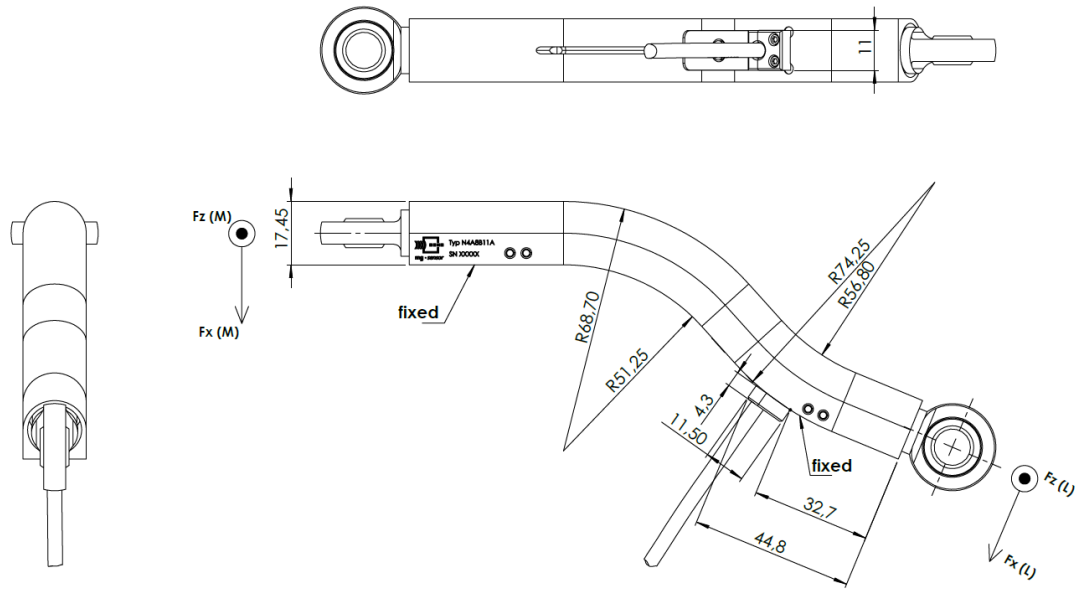
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N4A8B11A

Technical specification

	Unit	Value			
		$F_{x(L)}$	$F_{z(L)}$	$F_{x(M)}$	$F_{z(M)}$
Measuring range	kN	2.0	2.0	2.0	2.0
Sensitivity[1)]	µV/V/kN	200	200	200	200
Output signal[1), 2)]	mV/V	0.4	0.4	0.4	0.4
Bridge resistance	Ω	350	350	350	350
Zero signal[1)]	mV/V	≤ 0.05			
Amplitude non-linearity[3)]	%	≤ 1.0			
Hysteresis[3)]	%	≤ 1.0			
Channel cross talk[3)]	%	≤ 5.0			
Supply voltage	V	2–15			
Ultimate load	%	150			
Insulation resistance	MΩ	> 100			
Temperature range	°C	-30…+70			
Weight (approximate)	g	300			

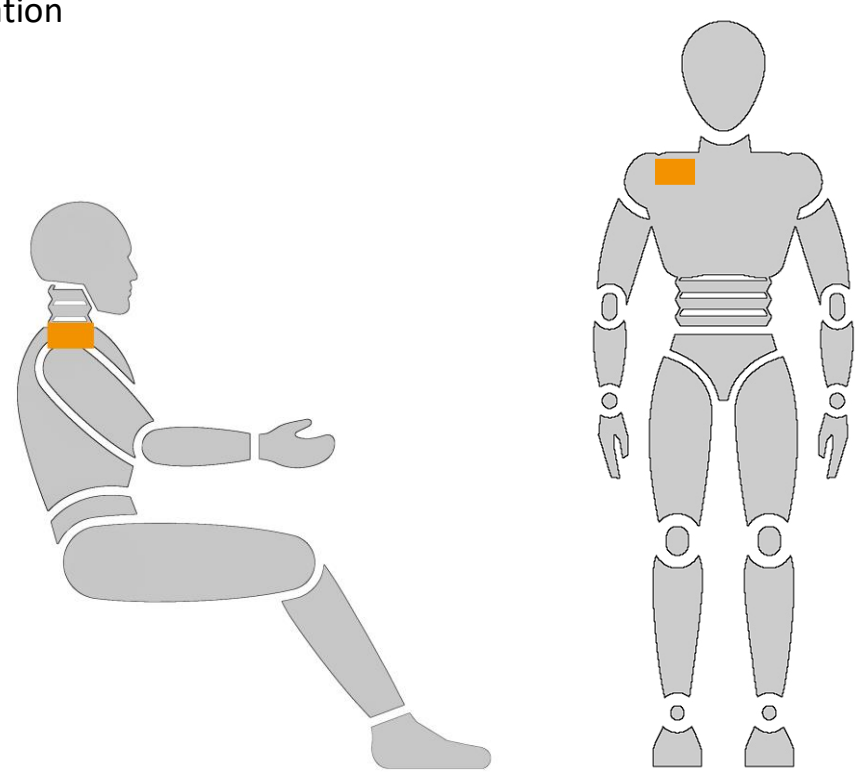
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N5A3A11A

Load Cell, 5-axial

Location: Acetabulum left

Force direction
F_x, F_y, F_z, M_x, M_z

Application
Thor

Equivalent types

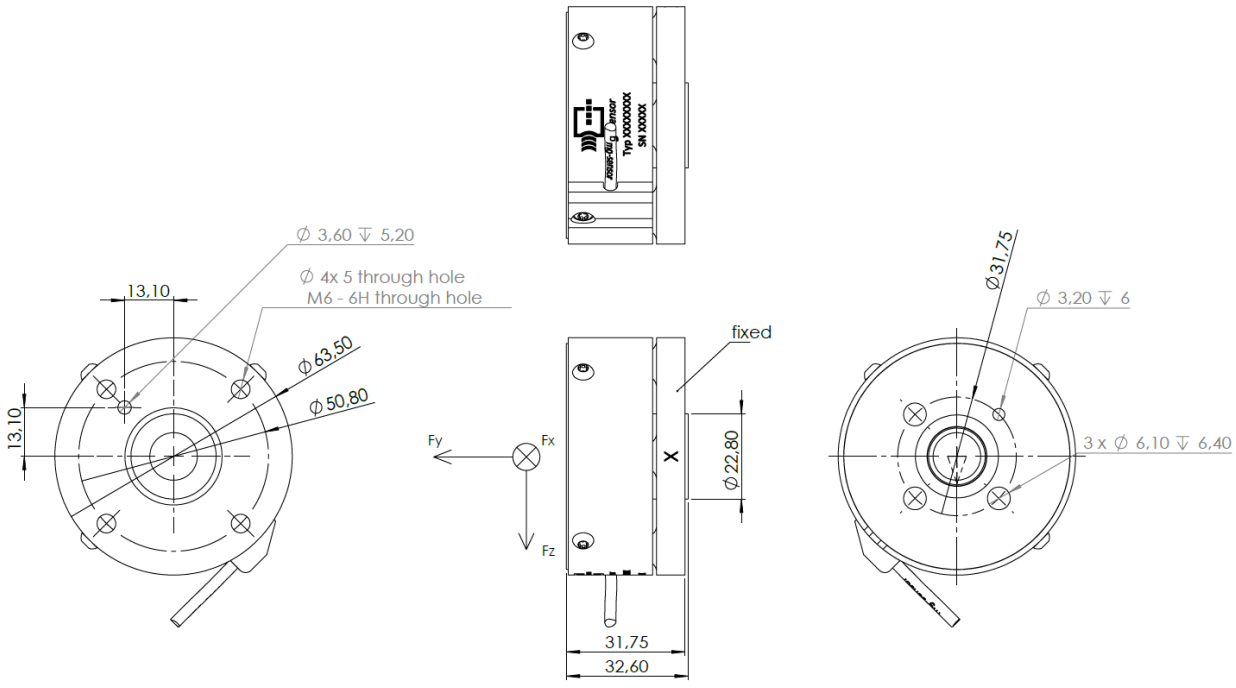
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N5A3A11A

Technical specification

	Unit	Value				
		F_x	F_y	F_z	M_x	M_z
Measuring range	kN Nm	22.2	13.3	13.3	 340	 340
Sensitivity[1)]	µV/V/kN µV/V/Nm	112	60	158	 3.2	 3.5
Output signal [1), 2)]	mV/V	2.5	0.8	2.1	1.1	1.2
Bridge resistance	Ω	350	700	350	350	350
Zero signal[1)]	mV/V	≤ 0.05				
Amplitude non-linearity[3)]	%	≤ 1.0				
Hysteresis[3)]	%	≤ 1.0				
Channel crosstalk[3)]	%	≤ 5.0				
Supply voltage	V	2–15				
Ultimate load	%	150				
Insulation resistance	MΩ	> 100				
Temperature range	°C	-30…+70				
Weight (approximate)	g	450				

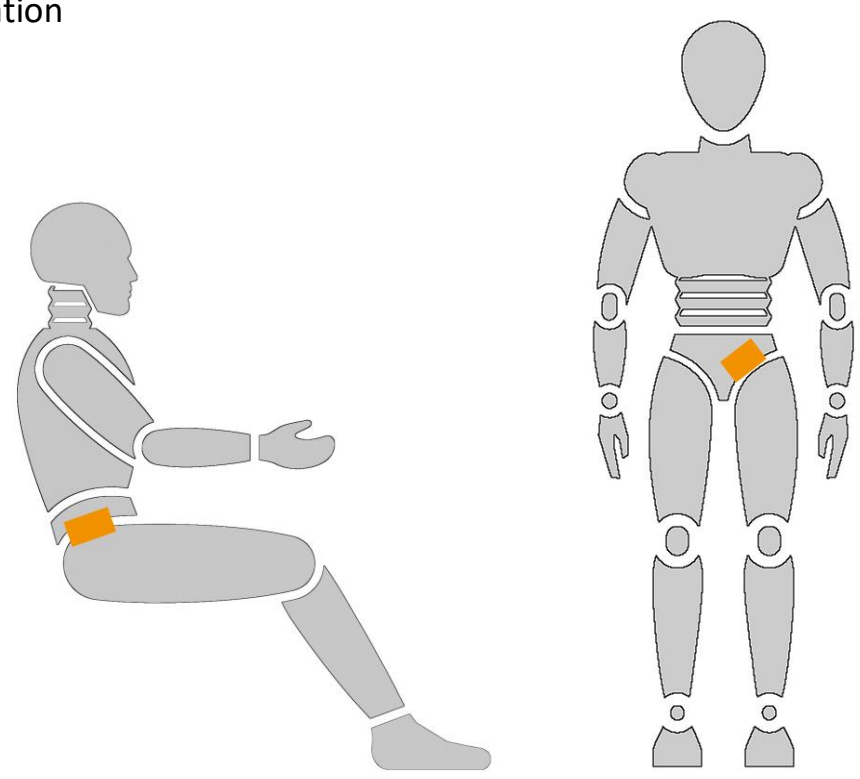
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N5A3B11A

Load Cell, 5-axial

Location: Acetabulum right

Force direction
F_x, F_y, F_z, M_x, M_z

Application
Thor

Equivalent types

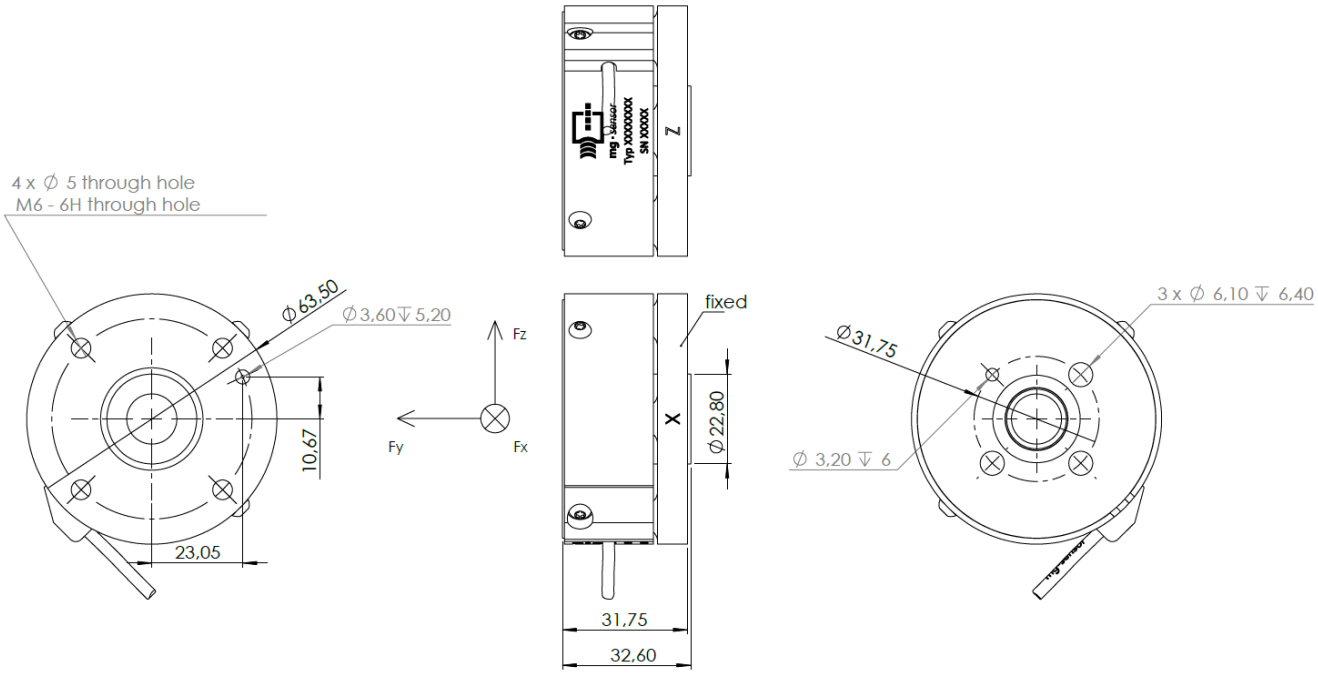
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J1733

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N5A3B11A

Technical specification

	Unit	Value				
		F_x	F_y	F_z	M_x	M_z
Measuring range	kN Nm	22.2	13.3	13.3	 340	 340
Sensitivity[1)]	µV/V/kN µV/V/Nm	112	60	158	 3.2	 3.5
Output signal [1), 2)]	mV/V	2.5	0.8	2.1	1.1	1.2
Bridge resistance	Ω	350	700	350	350	350
Zero signal[1)]	mV/V	≤ 0.05				
Amplitude non-linearity[3)]	%	≤ 1.0				
Hysteresis[3)]	%	≤ 1.0				
Channel crosstalk[3)]	%	≤ 5.0				
Supply voltage	V	2–15				
Ultimate load	%	150				
Insulation resistance	MΩ	> 100				
Temperature range	°C	-30…+70				
Weight (approximate)	g	450				

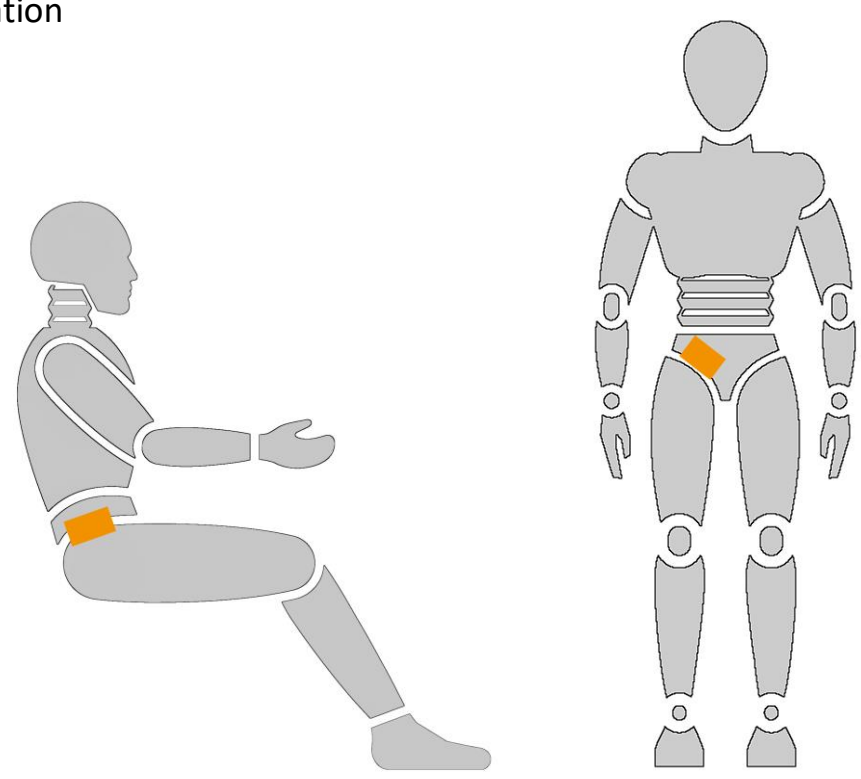
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N5ASA11A

Load Cell, 5-axial

Location: Thoracic Spine

Force direction
F_x, F_y, F_z, M_x, M_y

Application
H3-50%, H3-95%
Thor

Equivalent types
Denton: 1911
FTSS: IF-310, (IF-315), (IF-319)

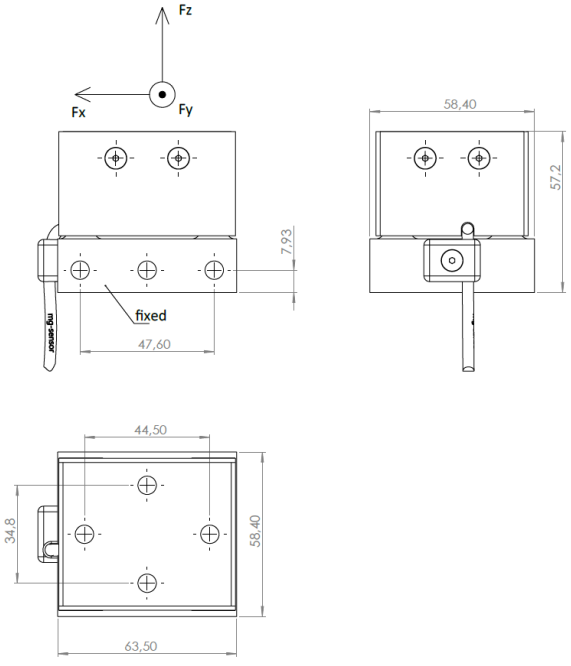
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N5ASA11A

Technical specification

	Unit	Value				
		F_x	F_y	F_z	M_x	M_y
Measuring range	kN Nm	13.3	13.3	17.8	 678	 905
Sensitivity[1)]	µV/V/kN µV/V/Nm	94	94	19.6	 1.6	 1.3
Output signal[1), 2)]	mV/V	1.25	1.25	0.35	1.1	1.2
Bridge resistance	Ω	350	350	700	350	350
Zero signal[1)]	mV/V	≤ 0.05				
Amplitude non-linearity[3)]	%	≤ 1.0				
Hysteresis[3)]	%	≤ 1.0				
Channel cross talk[3)]	%	≤ 5.0				
Supply voltage	V	2–15				
Ultimate load	%	150				
Insulation resistance	MΩ	> 100				
Temperature range	°C	-30…+70				
Weight (approximate)	g	1000				

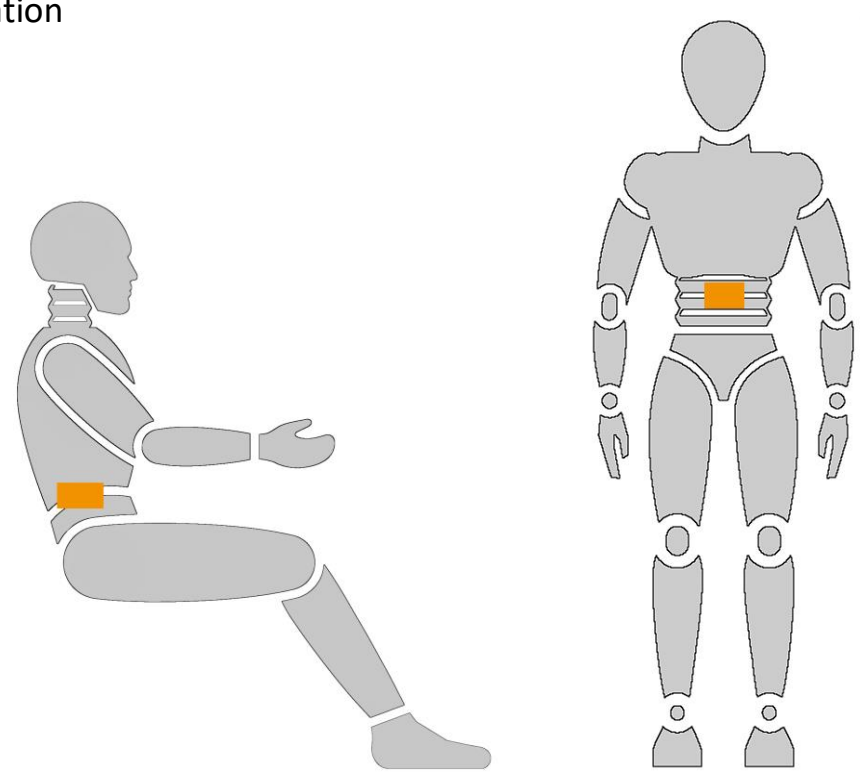
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N5ASD11A

Load Cell, 5-axial

Location: Thoracic Spine

Force direction

F_x, F_y, F_z, M_x, M_y

Application

Thor

Equivalent types

Measurement specification

Resistive

Strain gauges

Options

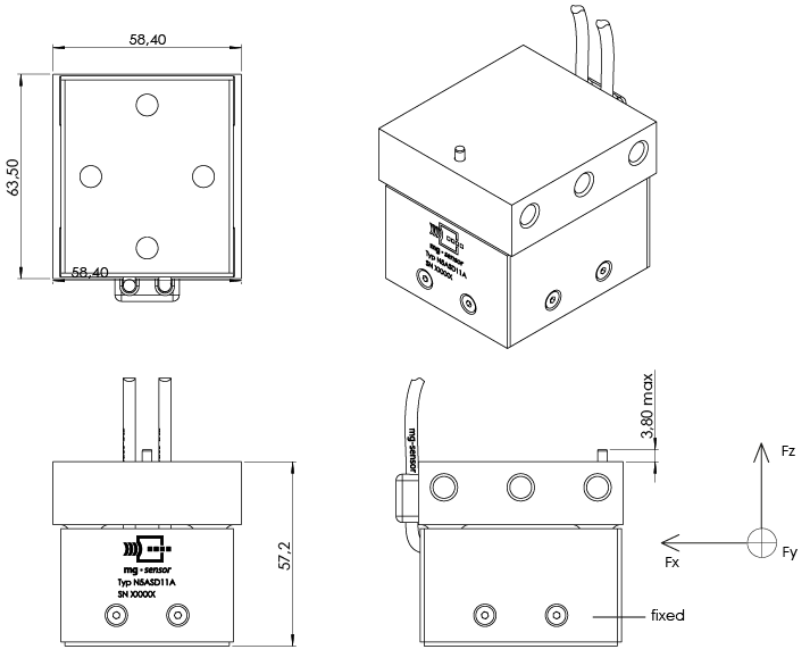
ID-Module integrated in sensor

Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N5ASD11A

Technical specification

	Unit	Value				
		F_x	F_y	F_z	M_x	M_y
Measuring range	kN Nm	13.3	13.3	17.8	 678	 904
Sensitivity[1)]	µV/V/kN µV/V/Nm	92	92	22	 1.6	 1.3
Output signal [1), 2)]	mV/V	1.2	1.2	0.4	1.1	1.2
Bridge resistance	Ω	350	350	1400	700	700
Zero signal[1)]	mV/V	≤ 0.05				
Amplitude non-linearity[3)]	%	≤ 1.0				
Hysteresis[3)]	%	≤ 1.0				
Channel crosstalk[3)]	%	≤ 5.0				
Supply voltage	V	2–15				
Ultimate load	%	150				
Insulation resistance	MΩ	> 100				
Temperature range	°C	-30…+70				
Weight (approximate)	g	1000				

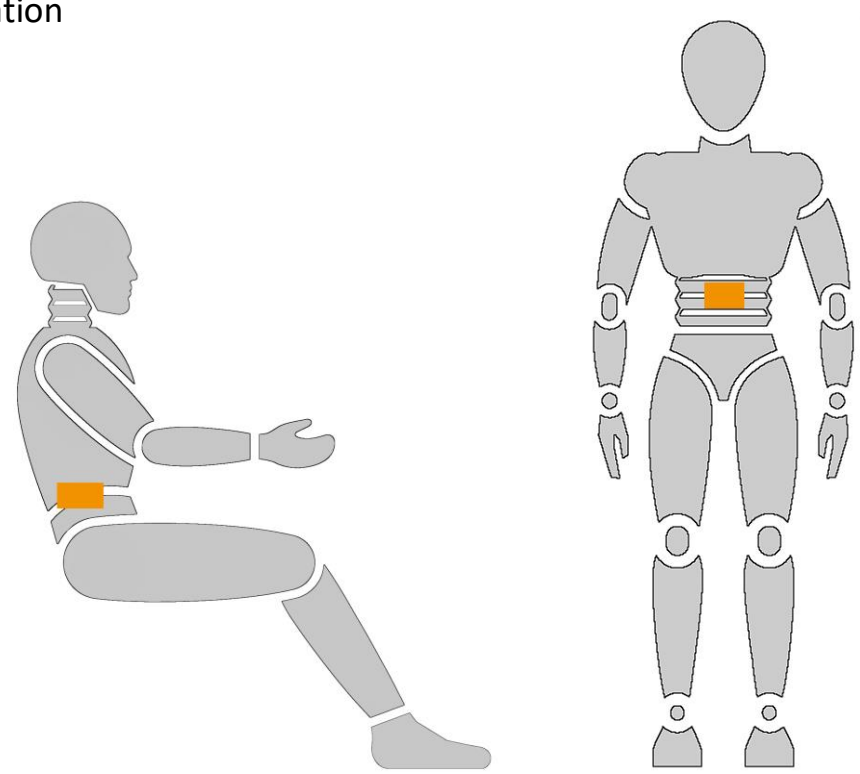
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N5ATB11A

Load Cell, 5-axial

Location: Tibia, Lower

Force direction
F_x, F_y, F_z, M_x, M_y

Application
Thor

Equivalent Types
Denton: 4929

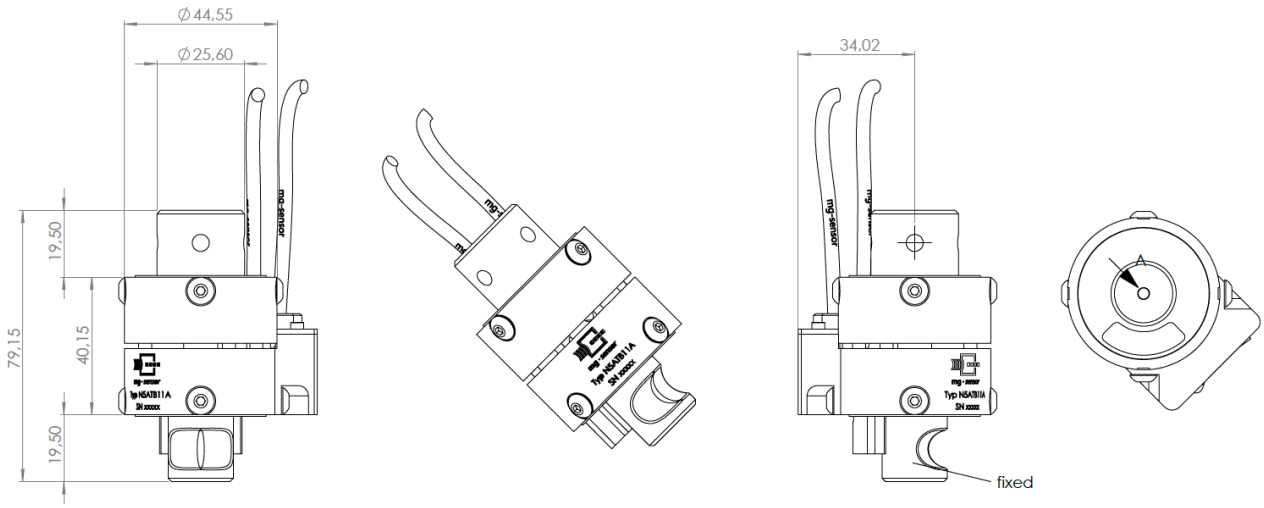
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The induced force causes a compression or elongation of the body. The deformation is measured using strain gauges. The strain gauges are connected into a Wheatstone bridge circuit in order to eliminate the temperature effect on zero and the cross interference from other force and torque introduction.

Dimensions



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Technical Data Sheet

N5ATB11A

Technical specification

	Unit	Value				
		F_x	F_y	F_z	M_x	M_y
Measuring range	kN Nm	11	11	11	 390	 390
Sensitivity[1)]	µV/V/kN µV/V/Nm	200	200	91	 7.9	 7.9
Output signal[1), 2)]	mV/V	2.2	2.2	1.0	3.1	3.1
Bridge resistance	Ω	350	350	700	350	350
Zero signal[1)]	mV/V	≤ 0.03				
Amplitude non-linearity[3)]	%	≤ 1.0				
Hysteresis[3)]	%	≤ 1.0				
Channel crosstalk[3)]	%	≤ 5.0				
Supply voltage	V	2–15				
Ultimate load	%	150				
Insulation resistance	MΩ	> 100				
Temperature range	°C	-30…+70				
Weight (approximate)	g	500				

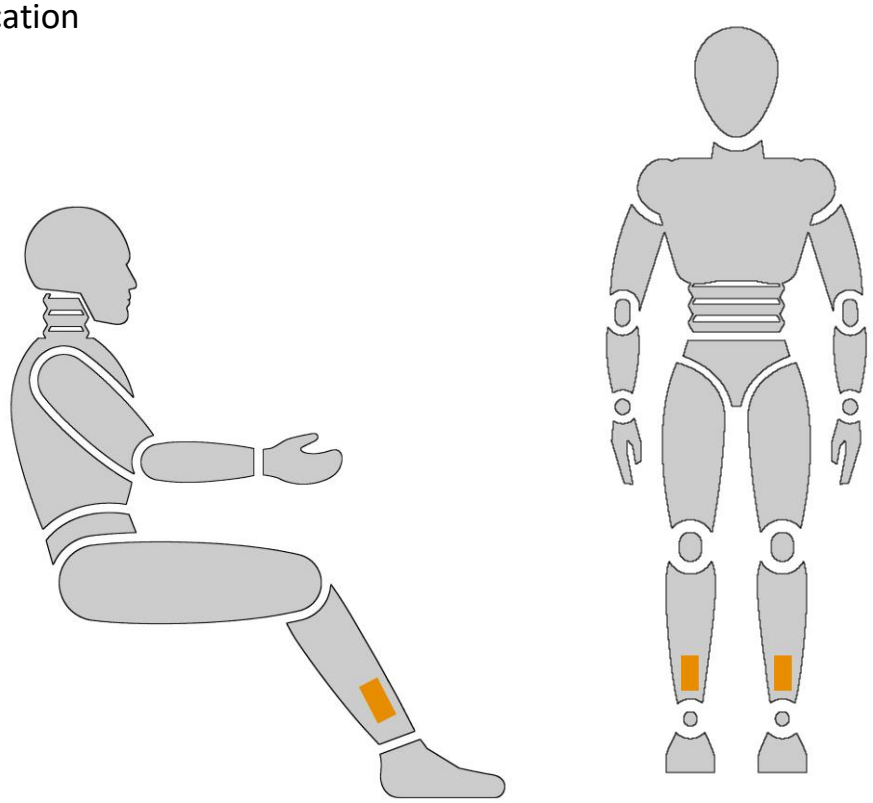
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy Application



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Technical Data Sheet

N5AUB11A

Load Cell, 5-axial

Location: Tibia, Upper

Force direction
F_x, F_y, F_z, M_x, M_y

Application
Thor

Equivalent types
Denton: 4509

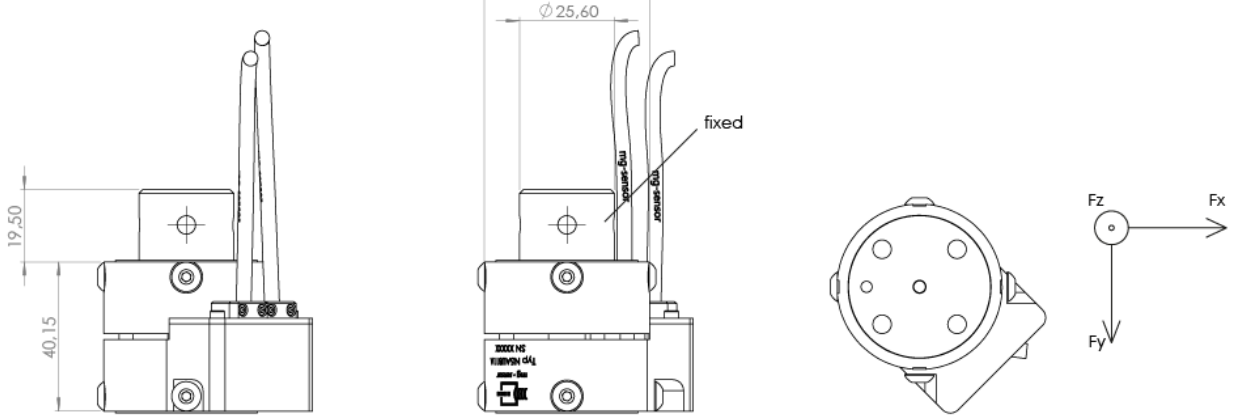
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N5AUB11A

Technical specification

	Unit	Value				
		F_x	F_y	F_z	M_x	M_y
Measuring range	kN Nm	11	11	11	 390	 390
Sensitivity[1)]	µV/V/kN µV/V/Nm	200	200	91	 7.9	 7.9
Output signal[1), 2)]	mV/V	2.2	2.2	1.0	3.1	3.1
Bridge resistance	Ω	350	350	700	350	350
Zero signal[1)]	mV/V	≤ 0.05				
Amplitude non-linearity[3)]	%	≤ 1.0				
Hysteresis[3)]	%	≤ 1.0				
Channel crosstalk[3)]	%	≤ 5.0				
Supply voltage	V	2–15				
Ultimate load	%	150				
Insulation resistance	MΩ	> 100				
Temperature range	°C	-30…+70				
Weight (approximate)	g	500				

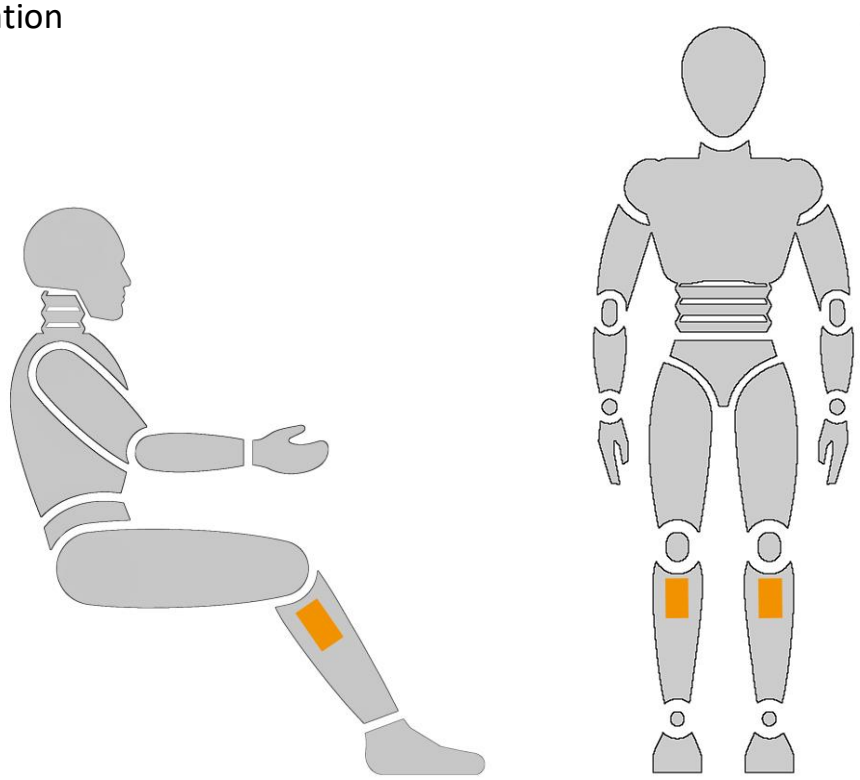
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N6ACB11A

Load Cell, 6-axial

Location: Femur

Force direction

F_x, F_y, F_z, M_x, M_y, M_z

Application

H2-50%, H3-5%, H3-50%, H3-95%, Thor, BioSID, EUROSID, ES2, ES1, SIDIIs

Equivalent types

Denton: 4257
FTSS: IF-631

Measurement specification

Resistive
Strain gauges

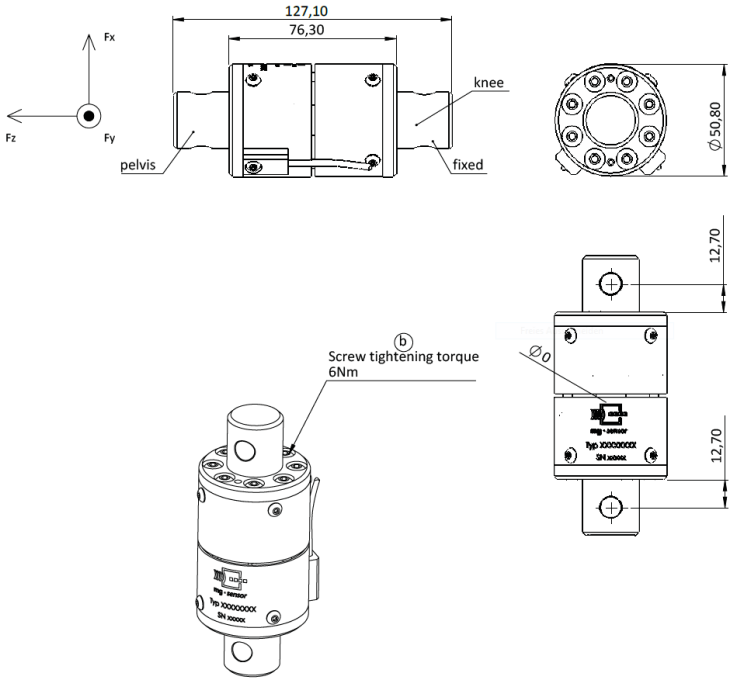
Options

ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N6ACB11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	13.4	13.4	22.3	 340	 340	 340
Sensitivity[1)]	µV/V/kN µV/V/Nm	112	112	58.3	 4.1	 4.1	 6.7
Output signal[1), 2)]	mV/V	1.5	1.5	1.3	1.4	1.4	2.3
Bridge resistance	Ω	350	350	700	350	350	700
Zero signal[1)]	mV/V	≤ 0.05					
Amplitude non-linearity[3)]	%	≤ 1.0					
Hysteresis[3)]	%	≤ 1.0					
Channel crosstalk[3)]	%	≤ 5.0					
Supply voltage	V	2–15					
Ultimate load	%	150					
Insulation resistance	MΩ	> 100					
Temperature range	°C	-30…+70					
Weight (approximate)	g	900					

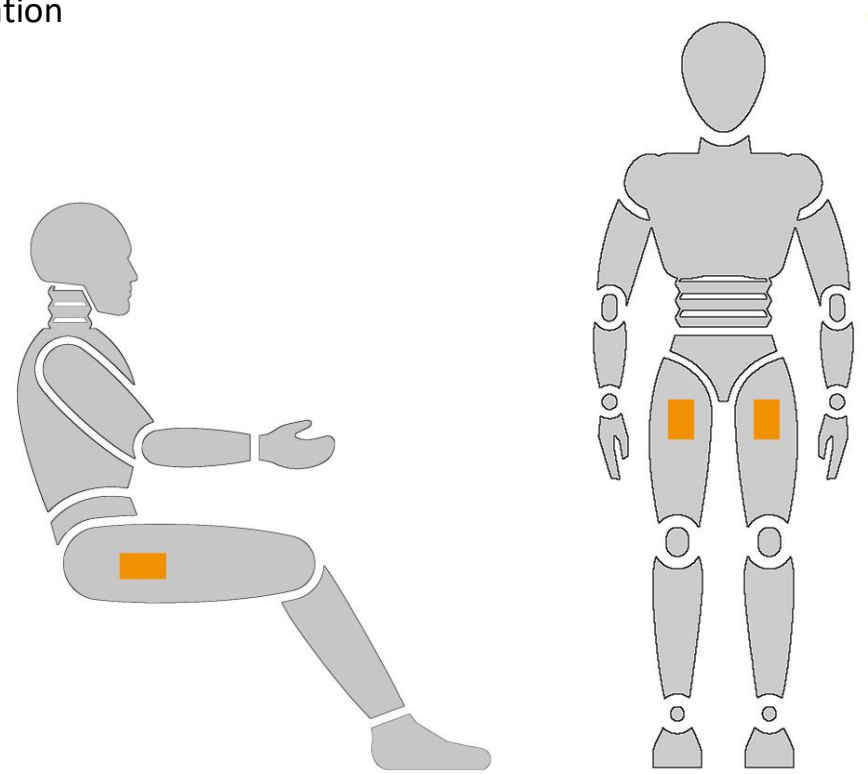
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N6ACC11A

Load Cell, 6-axial

Location: Femur

Force direction

F_x, F_y, F_z, M_x, M_y, M_z

Application

H2-50%, H3-5%, H3-50%, H3-95%, Thor, BioSID, EUROSID, ES2, ES1, SIDIIs

Equivalent types

FTSS: IF-625

Measurement specification

Resistive

Strain gauges

Options

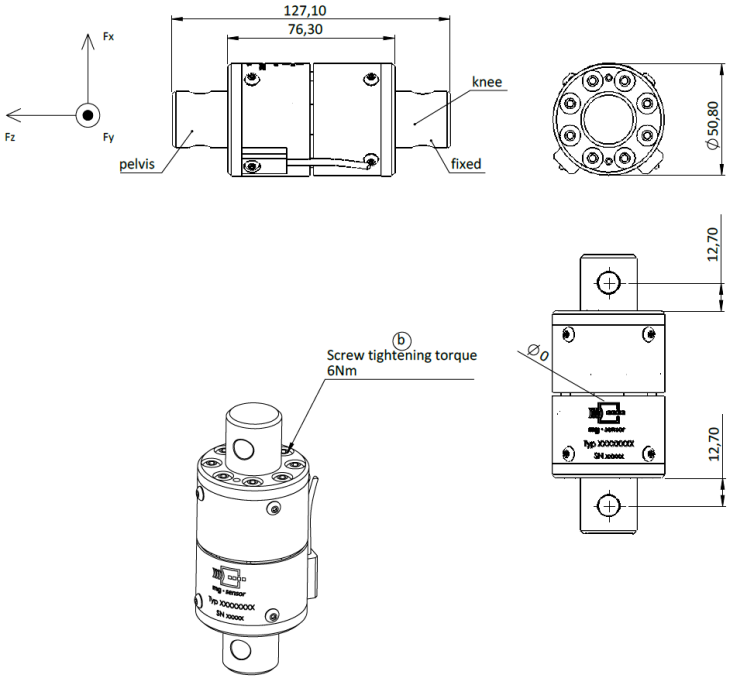
ID-Module integrated in sensor

Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N6ACC11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	13.4	13.4	22.3	 340	 340	 340
Sensitivity[1)]	µV/V/kN µV/V/Nm	113	113	58.3	 4.1	 4.1	 6.6
Output signal[1), 2)]	mV/V	1.5	1.5	1.3	1.4	1.4	2.3
Bridge resistance	Ω	350	350	700	350	350	700
Zero signal[1)]	mV/V	≤ 0.05					
Amplitude non-linearity[3)]	%	≤ 1.0					
Hysteresis[3)]	%	≤ 1.0					
Channel crosstalk[3)]	%	≤ 5.0					
Supply voltage	V	2–15					
Ultimate load	%	150					
Insulation resistance	MΩ	> 100					
Temperature range	°C	-30…+70					
Weight (approximate)	g	1000					

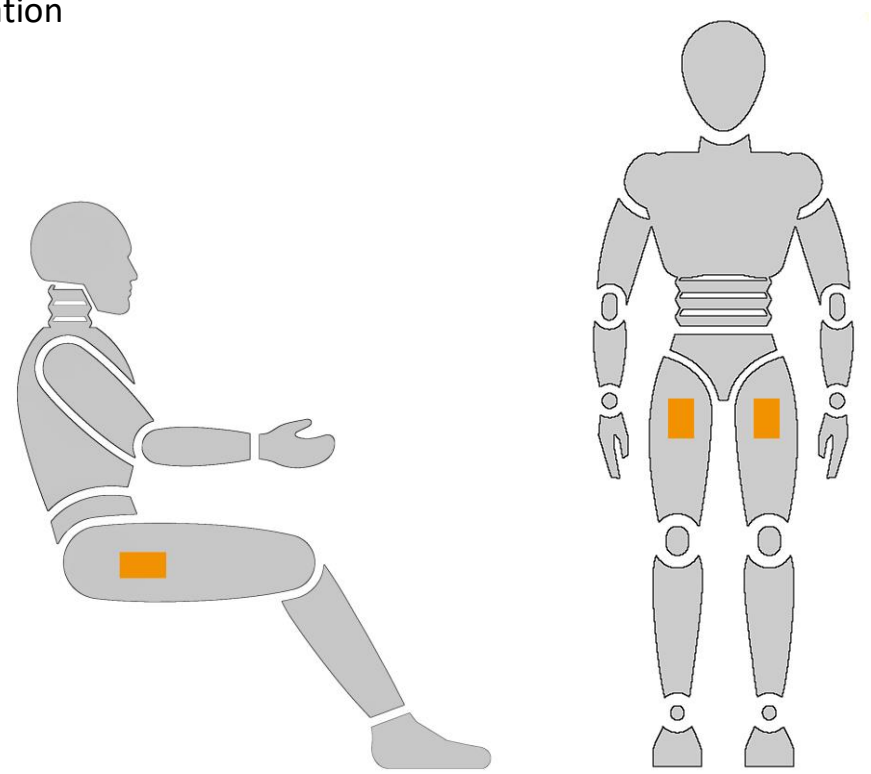
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N6AGA11A

Load Cell, 6-axial

Location: Universal Leg

Force direction

F_x, F_y, F_z, M_x, M_y, M_z

Application

WorldSID-5%
WorldSID-50%
Thor-50%

Equivalent types

Humanetics: W50-71010

Measurement specification

Resistive
Strain gauges

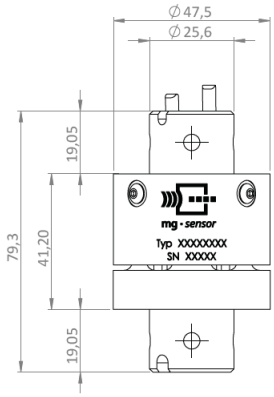
Options

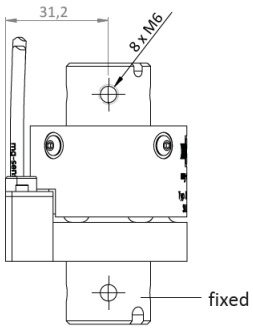
ID-Module integrated in sensor
Polarity according to SAE J211

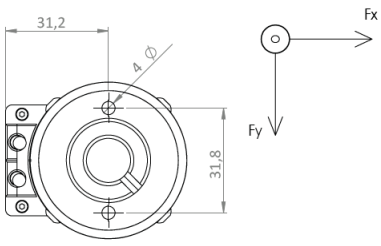
Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions







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Technical Data Sheet

N6AGA11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	15	15	15	 350	 350	 200
Sensitivity[1)]	µV/V/kN µV/V/Nm	133	133	73	 6.0	 6.0	 10.0
Output signal[1), 2)]	mV/V	2.0	2.0	1.1	2.1	2.1	2.0
Bridge resistance	Ω	350	350	700	350	350	700
Zero signal[1)]	mV/V	≤ 0.05					
Amplitude non-linearity[3)]	%	≤ 1.0					
Hysteresis[3)]	%	≤ 1.0					
Channel crosstalk[3)]	%	≤ 5.0					
Supply voltage	V	2–15					
Ultimate load	%	150					
Insulation resistance	MΩ	> 100					
Temperature range	°C	-30…+70					
Weight (approximate)	g	500					

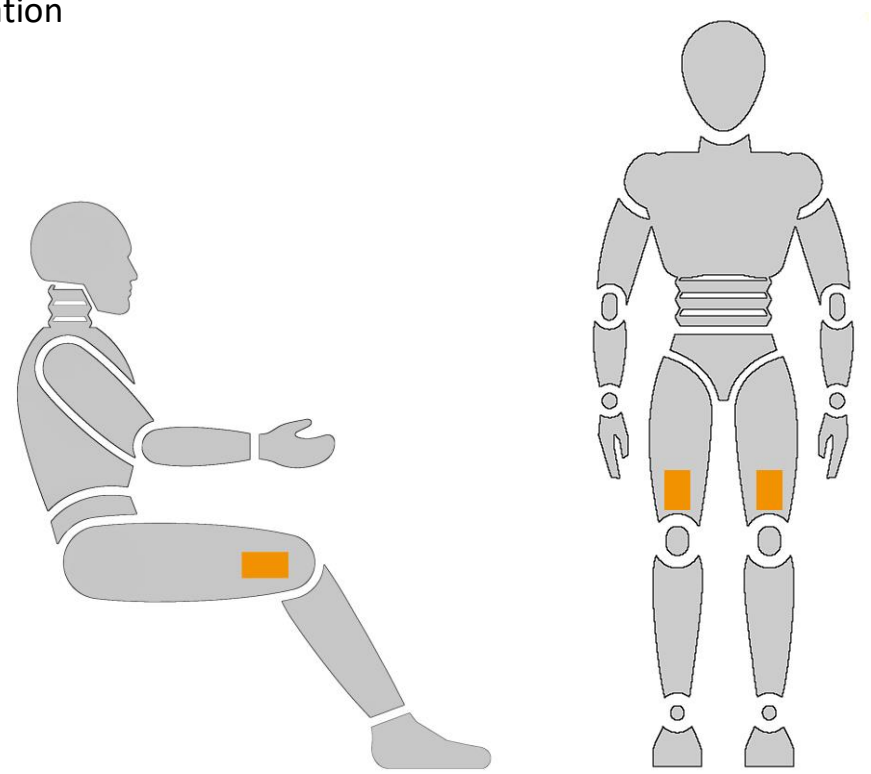
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N6AKM11A

Load Cell, 6-axial

Location: Neck, Lower

Force direction
F_x, F_y, F_z, M_x, M_y, M_z

Application
Thor

Equivalent types
Denton: 4366
Humanetics: 10381JI4

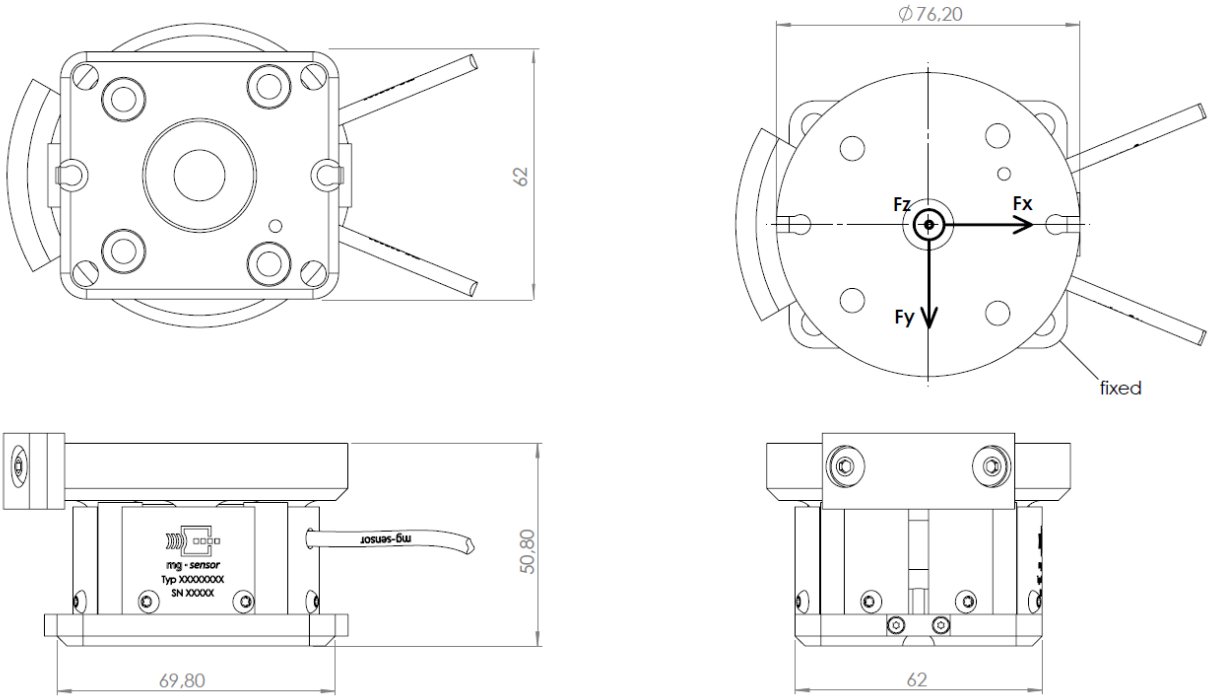
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N6AKM11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	13.3	13.3	13.3	 452	 452	 226
Sensitivity[1)]	µV/V/kN µV/V/Nm	173	173	75	 4.0	 4.0	 6.6
Output signal[1), 2)]	mV/V	2.3	2.3	1.0	1.8	1.8	1.5
Bridge resistance	Ω	350	350	700	350	350	700
Zero signal[1)]	mV/V	≤ 0.05					
Amplitude non-linearity[3)]	%	≤ 1.0					
Hysteresis[3)]	%	≤ 1.0					
Channel crosstalk[3)]	%	≤ 5.0					
Supply voltage	V	2–15					
Ultimate load	%	150					
Insulation resistance	MΩ	> 100					
Temperature range	°C	-30…+70					
Weight (approximate)	g	1100					

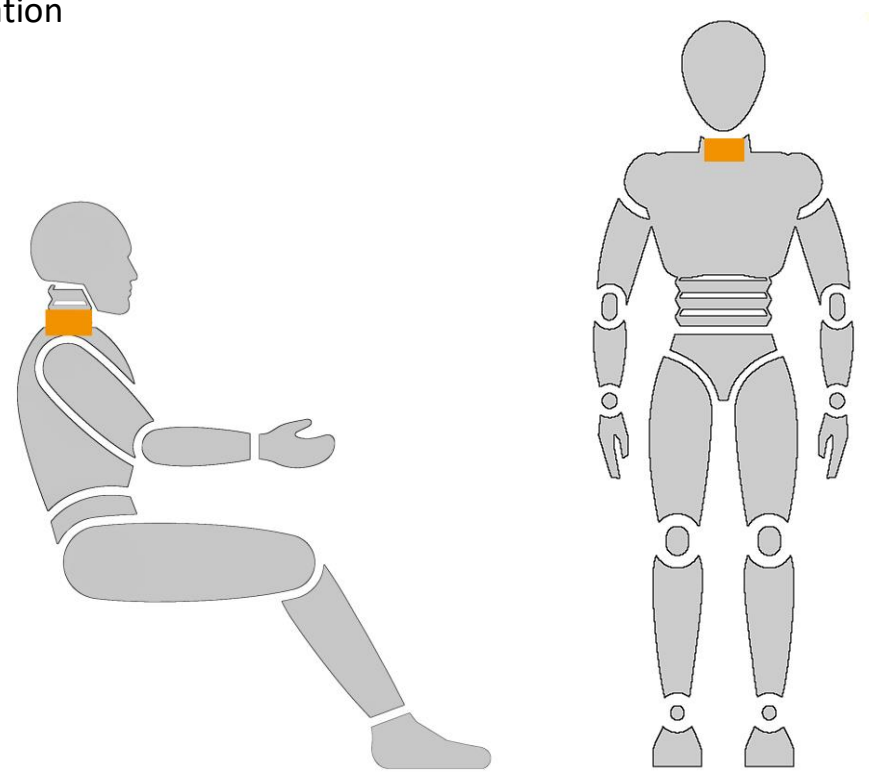
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N6ALD11A

Load Cell, 6-axial

Location: Neck, Upper

Force direction
F_x, F_y, F_z, M_x, M_y, M_z

Application
Thor

Equivalent types
Denton: 3454

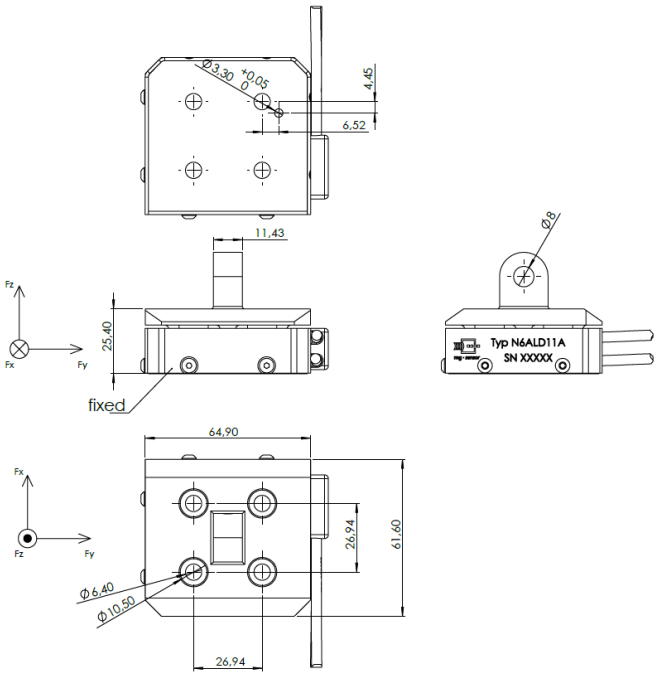
Measurement specification
Resistive
Strain gauges

Options
ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N6ALD11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	8.9	8.9	13.5	 283	 283	 283
Sensitivity[1)]	µV/V/kN µV/V/Nm	260	260	98	 6.5	 6.5	 12
Output signal[1), 2)]	mV/V	2.2	2.2	1.3	1.8	1.8	3.4
Bridge resistance	Ω	350	350	700	350	350	700
Zero signal[1)]	mV/V	≤ 0.05					
Amplitude non-linearity[3)]	%	≤ 1.0					
Hysteresis[3)]	%	≤ 1.0					
Channel crosstalk[3)]	%	≤ 5.0					
Supply voltage	V	2–15					
Ultimate load	%	150					
Insulation resistance	MΩ	> 100					
Temperature range	°C	-30…+70					
Weight (approximate)	g	600					

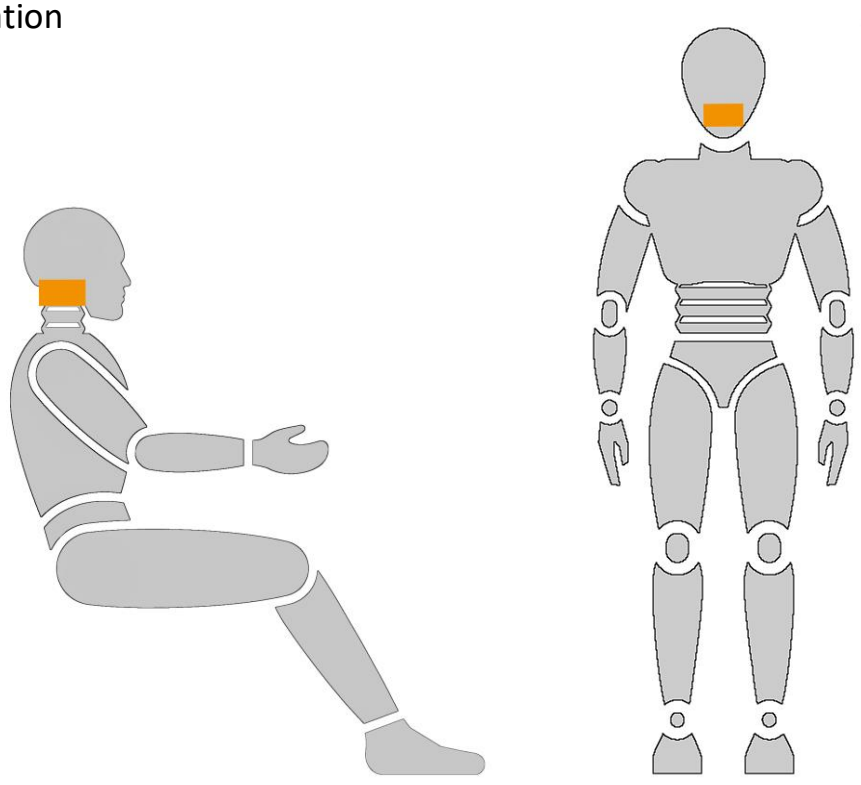
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N6ASA11A

Load Cell, 6-axial

Location: Thoracic Spine

Force direction

F_x, F_y, F_z, M_x, M_y, M_z

Application

H3-50%
H3-95%
Thor

Equivalent types

Denton: 1911
FTSS: IF-319, (IF-310), (IF-315)

Measurement specification

Resistive
Strain gauges

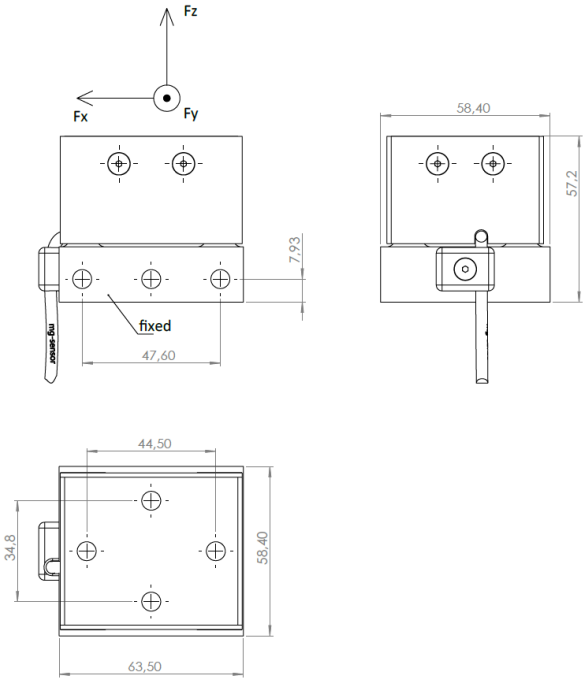
Options

ID-Module integrated in sensor
Polarity according to SAE J211

Technical description

The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.

Dimensions



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Technical Data Sheet

N6ASA11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	13.3	13.3	17.8	 900	 900	 340
Sensitivity[1)]	µV/V/kN µV/V/Nm	135	135	56	 1.8	 1.8	 5.3
Output signal[1), 2)]	mV/V	1.8	1.8	1.0	1.6	1.6	1.8
Bridge resistance	Ω	350	350	700	350	350	700
Zero signal[1)]	mV/V	≤ 0.05					
Amplitude non-linearity[3)]	%	≤ 1.0					
Hysteresis[3)]	%	≤ 1.0					
Channel crosstalk[3)]	%	≤ 5.0					
Supply voltage	V	2–15					
Ultimate load	%	150					
Insulation resistance	MΩ	> 100					
Temperature range	°C	-30…+70					
Weight (approximate)	g	1000					

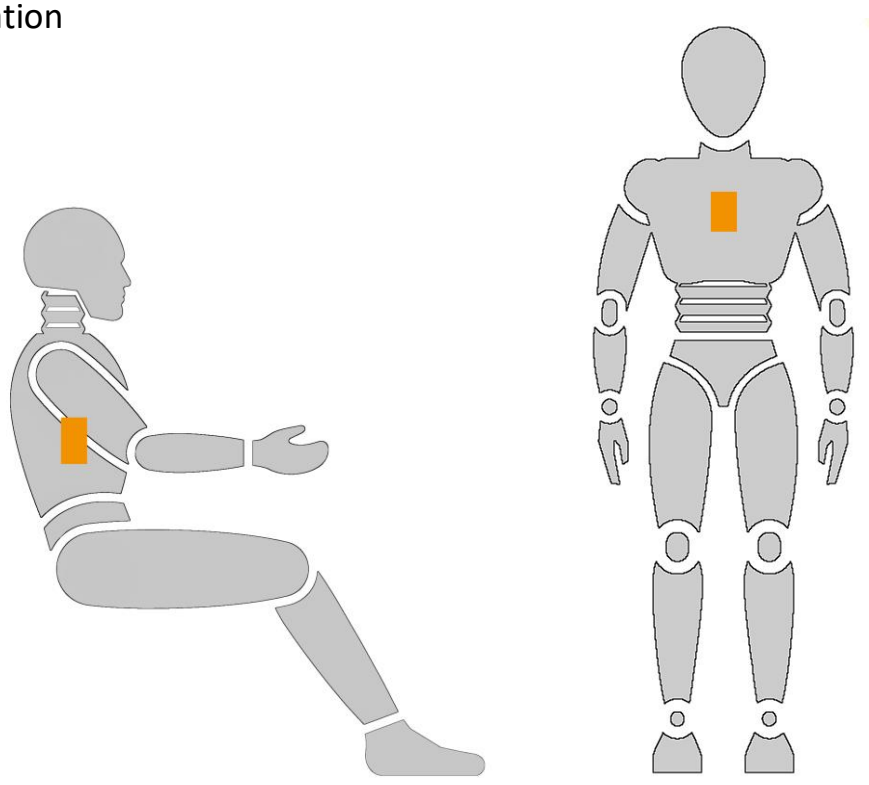
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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