Crash Test Dummy Load Cells

Hybrid II 50M

TECHNICAL DATA SHEETS

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MG-SENSOR
A HUMANETICS COMPANY

Technical Data Sheet

F1AIA11A

Load Cell, 1-axial

Location: Lumbar Spine

Force direction
F_z

Application
H2-50%

Equivalent types
Denton: 4408

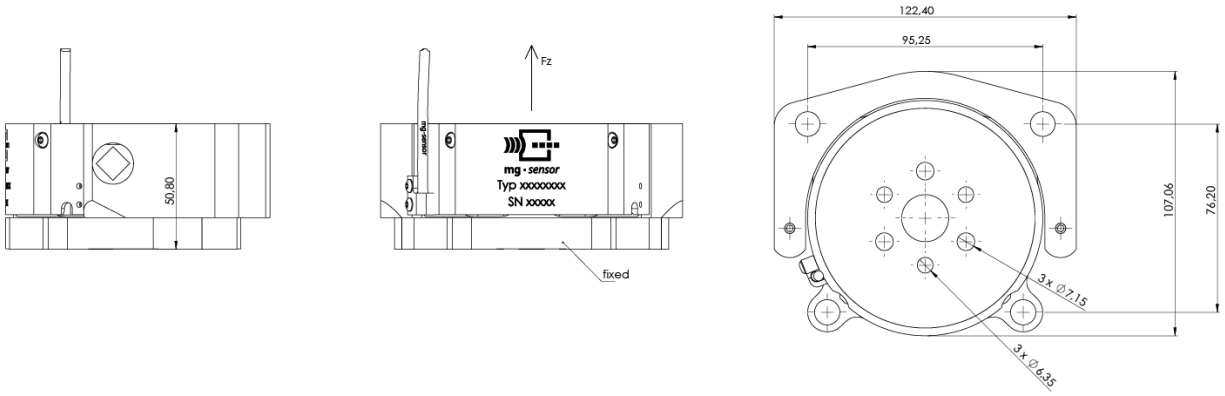
Measurement specification
Resistive
Strain gauges

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

F1AIA11A

Technical specification

	Unit	Value
		F_z
Measuring range	kN	22.2
Sensitivity[1)]	µV/V/kN	50
Output signal[1), 2)]	mV/V	1.0
Bridge resistance	Ω	700
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	2000

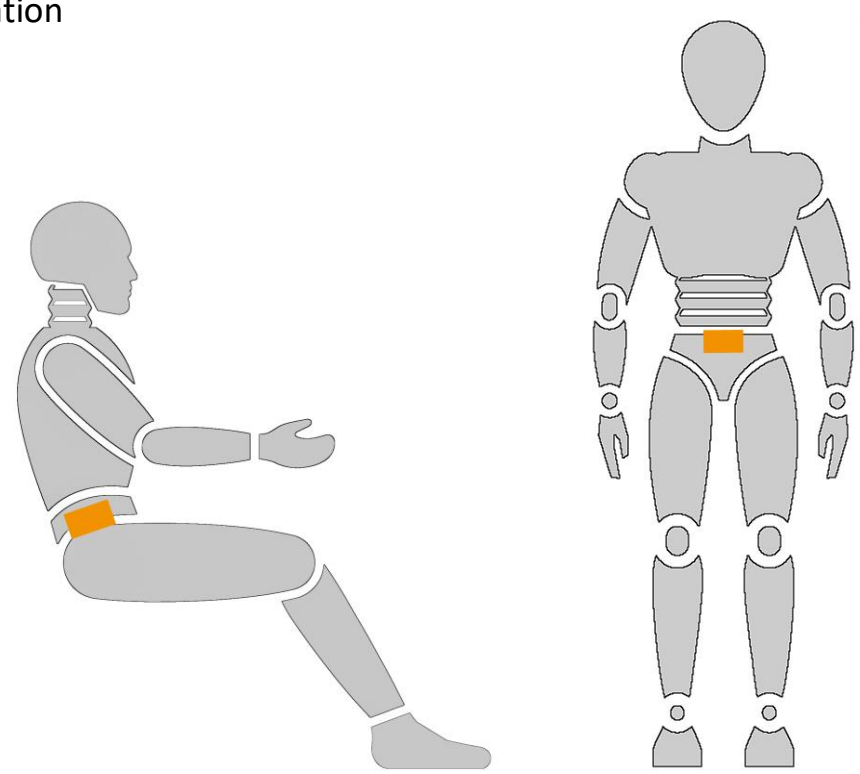
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

F2ACA11A

Load Cell, 2-axial

Location: Femur

Force direction
F_z, F_z

Application
H2-50%
H3-5%/ H3-50%/ H3-95%
FAA

Equivalent types
Denton: 3821

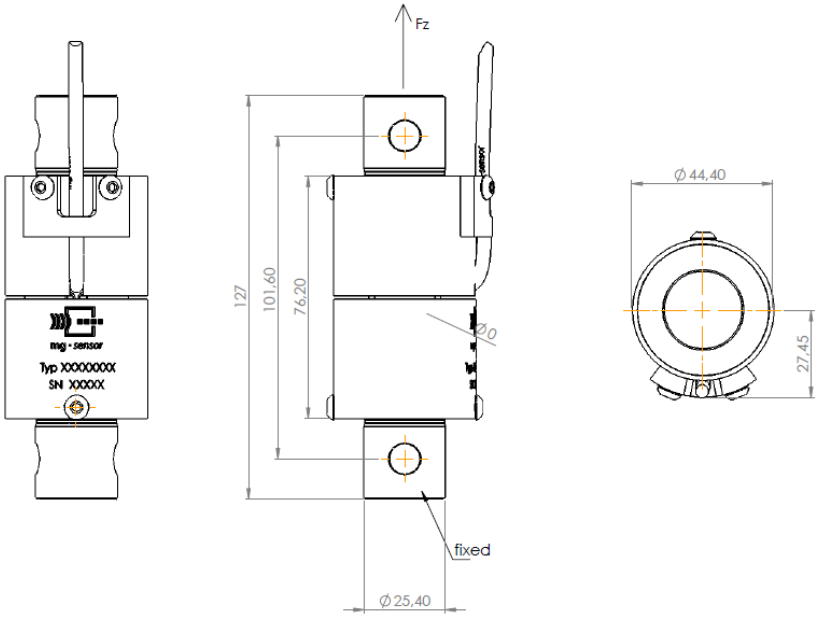
Measurement specification
Resistive
Strain gauges

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

F2ACA11A

Technical specification

	Unit	Value	
		F_z	F_z
Measuring range	kN	13.6	13.6
Sensitivity[1)]	µV/V/kN	110	110
Output signal[1), 2)]	mV/V	1.5	1.5
Bridge resistance	Ω	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	–	

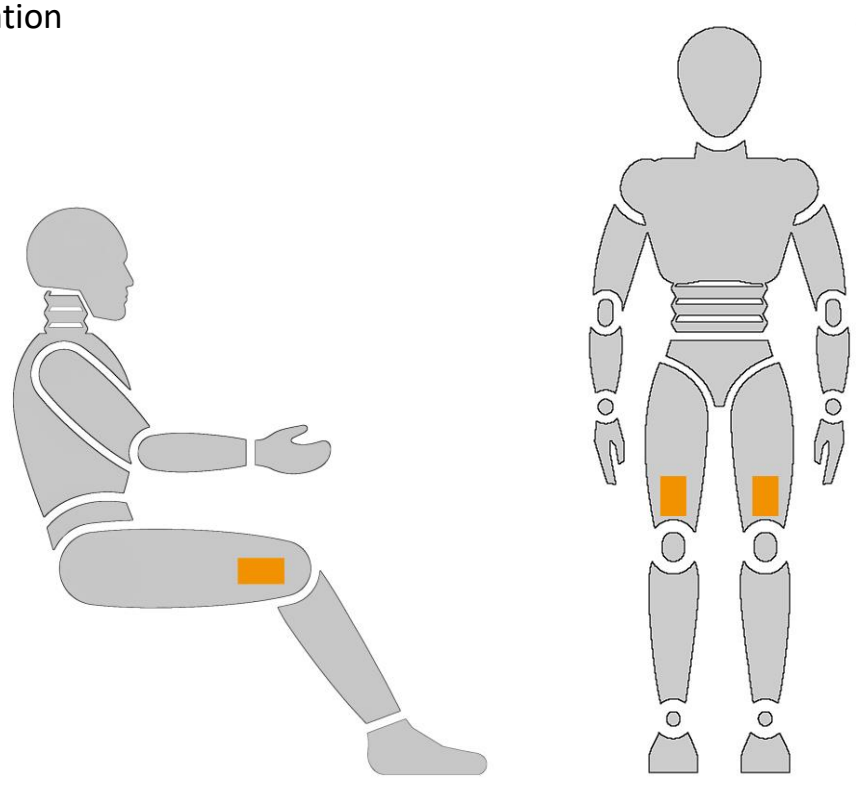
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy Application



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Technical Data Sheet

F3AIA11A

Load Cell, 3-axial

Location: Lumbar Spine

Force direction
F_x, F_y, F_z

Application
H2-50%

Equivalent types
(Denton: 4408)
FTSS: IF-400

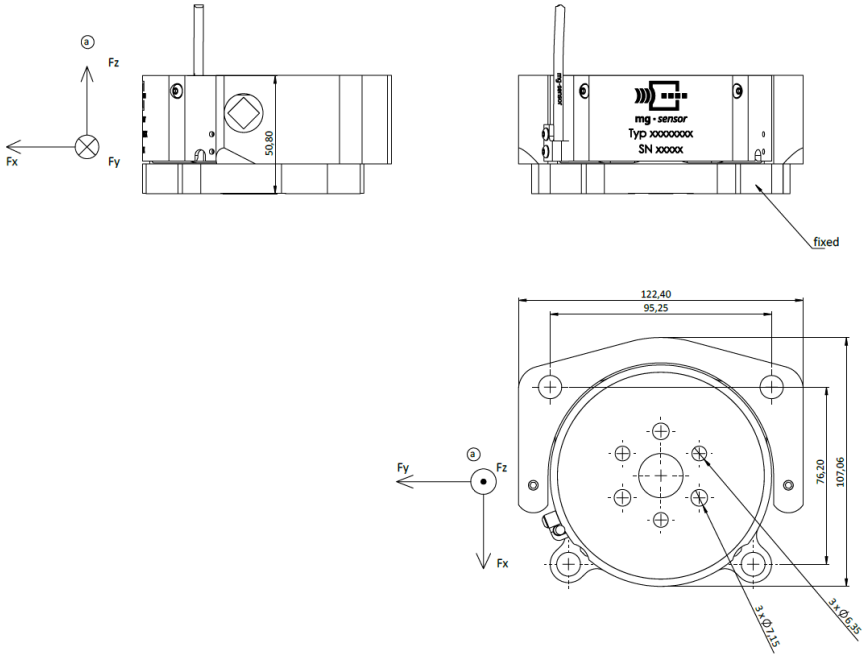
Measurement specification
Resistive
Strain gauges

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

F3AIA11A

Technical specification

	Unit	Value		
		F_x	F_y	F_z
Measuring range	kN	13.5	13.5	22.3
Sensitivity[1)]	µV/V/kN	74	74	50
Output signal[1), 2)]	mV/V	1.0	1.0	1.0
Bridge resistance	Ω	350	350	700
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	1600		

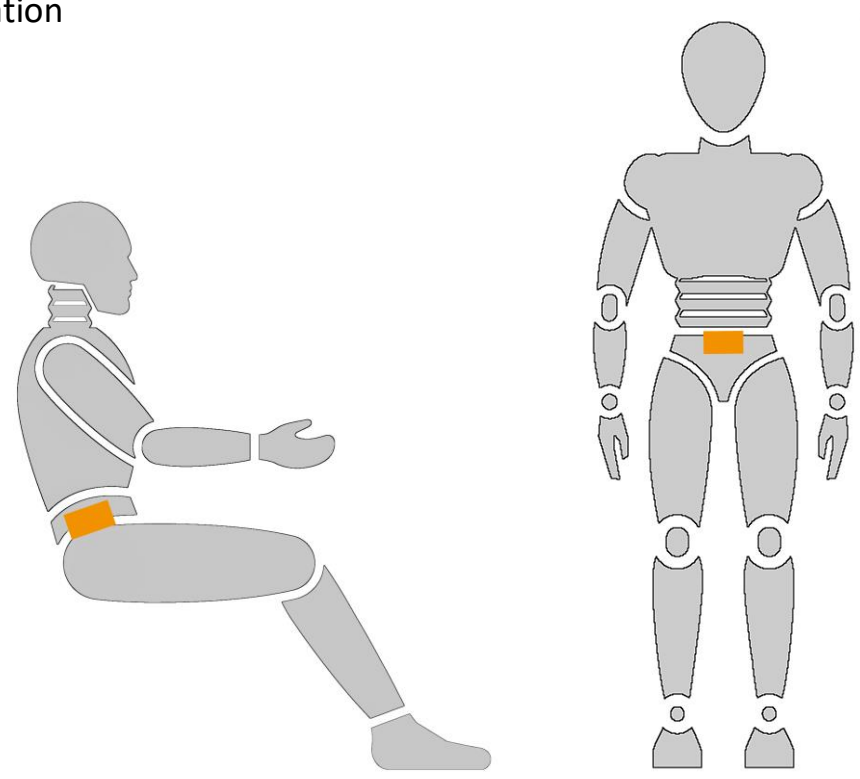
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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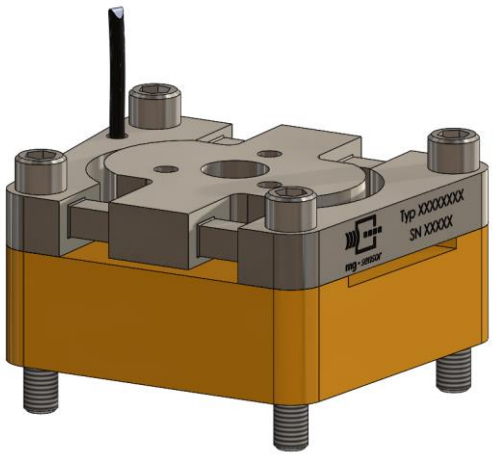
Technical Data Sheet

N3AIB11A

Load Cell, 3-axial

Location: Lumbar Spine



Force direction
F_x, F_z, M_y

Application
H2-50%

Equivalent types
Denton: 1891J

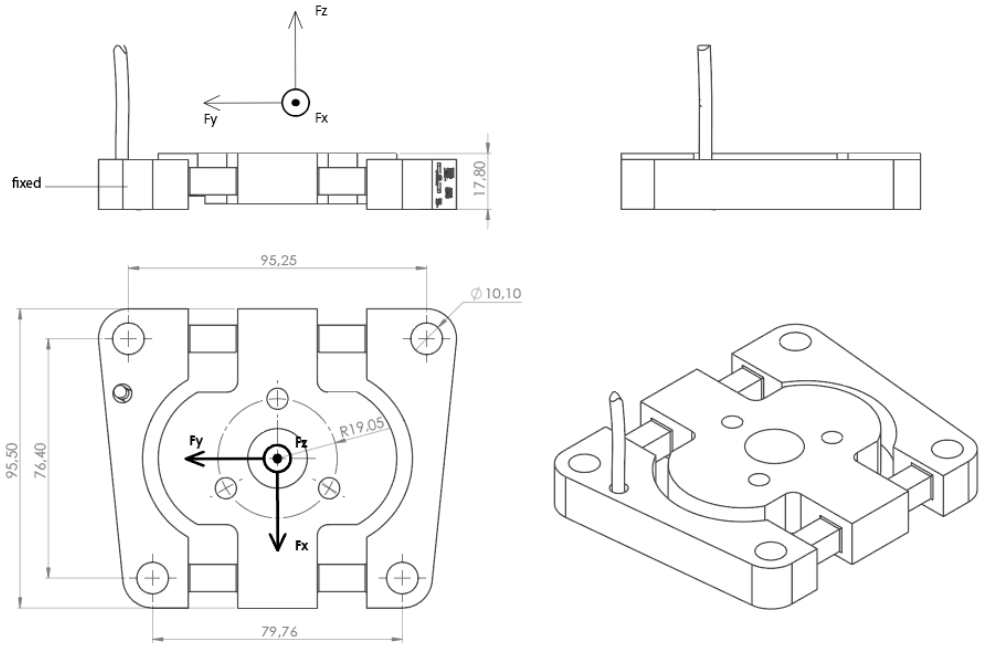
Measurement specification
Resistive
Strain gauges

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

N3AIB11A

Technical specification

	Unit	Value		
		F_x	F_z	M_y
Measuring range	kN Nm	15.5	15.5	 565
Sensitivity[1)]	µV/V/kN µV/V/Nm	129	129	 1.6
Output signal [1), 2)]	mV/V	2.0	2.0	0.9
Bridge resistance	Ω	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	950		

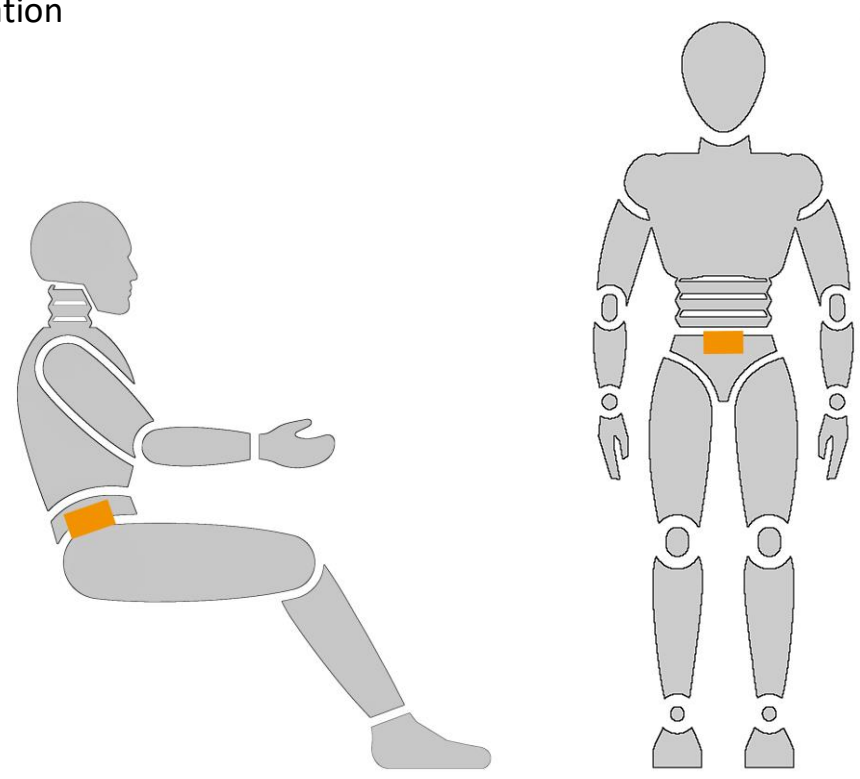
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N3AIE11A

Load Cell, 3-axial

Location: Lumbar Spine

Force direction
F_x, F_z, M_y

Application
H2-50%

Equivalent types
FTSS: IF-424

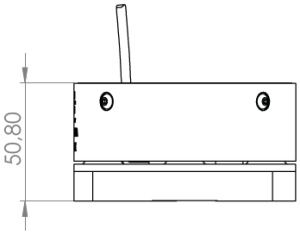
Measurement specification
Resistive
Strain gauges

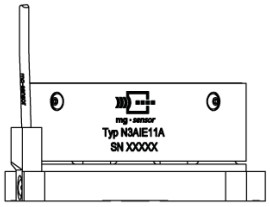
Options
ID-Module integrated in sensor
Polarity according to SAE J211

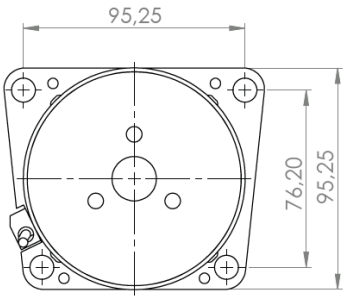
Technical description

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

N3AIE11A

Technical specification

	Unit	Value		
		F_x	F_z	M_y
Measuring range	kN Nm	13.3	22	 1130
Sensitivity[1)]	µV/V/kN µV/V/Nm	75.2	36.4	 1.5
Output signal [1), 2)]	mV/V	1.0	0.8	1.7
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	820		

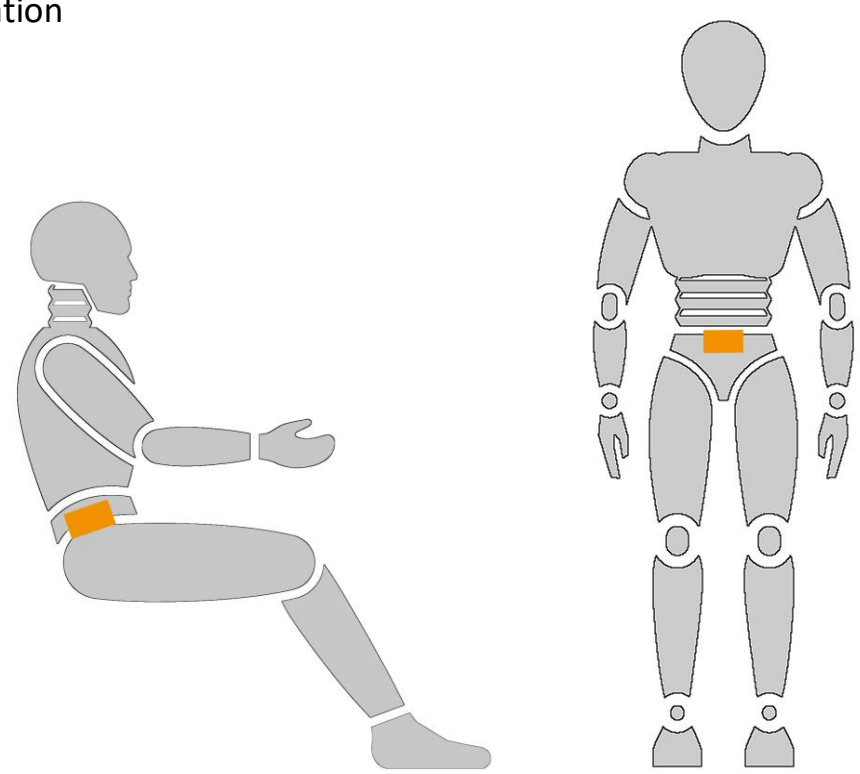
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N4AIB11A

Load Cell, 4-axial

Location: Lumbar Spine

Force direction
F_x, F_y, F_z, M_y

Application
H2-50%

Equivalent types
FTSS: IF-424

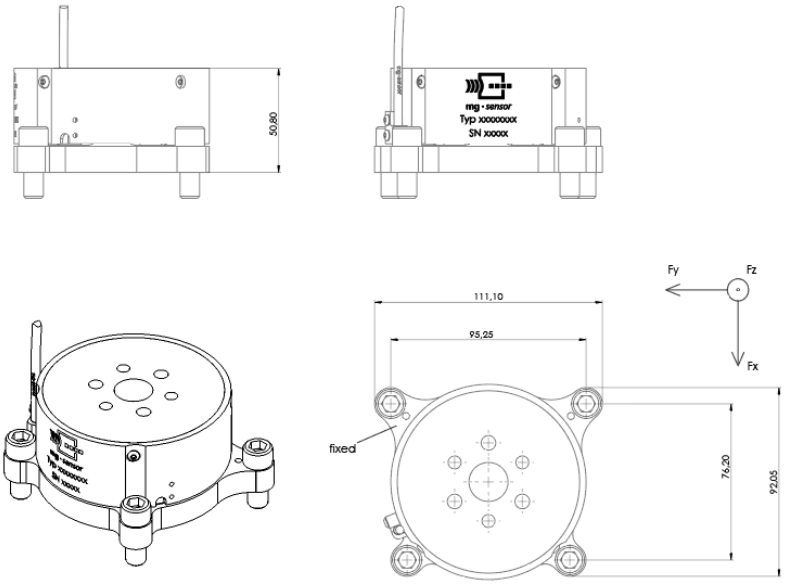
Measurement specification
Resistive
Strain gauges

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

N4AIB11A

Technical specification

	Unit	Value			
		F_x	F_y	F_z	M_y
Measuring range	kN Nm	13.3	13.3	22	 1130
Sensitivity[1)]	µV/V/kN µV/V/Nm	75	75	36.4	 1.5
Output signal[1), 2)]	mV/V	1.0	1.0	0.8	1.7
Bridge resistance	Ω	350	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	820			

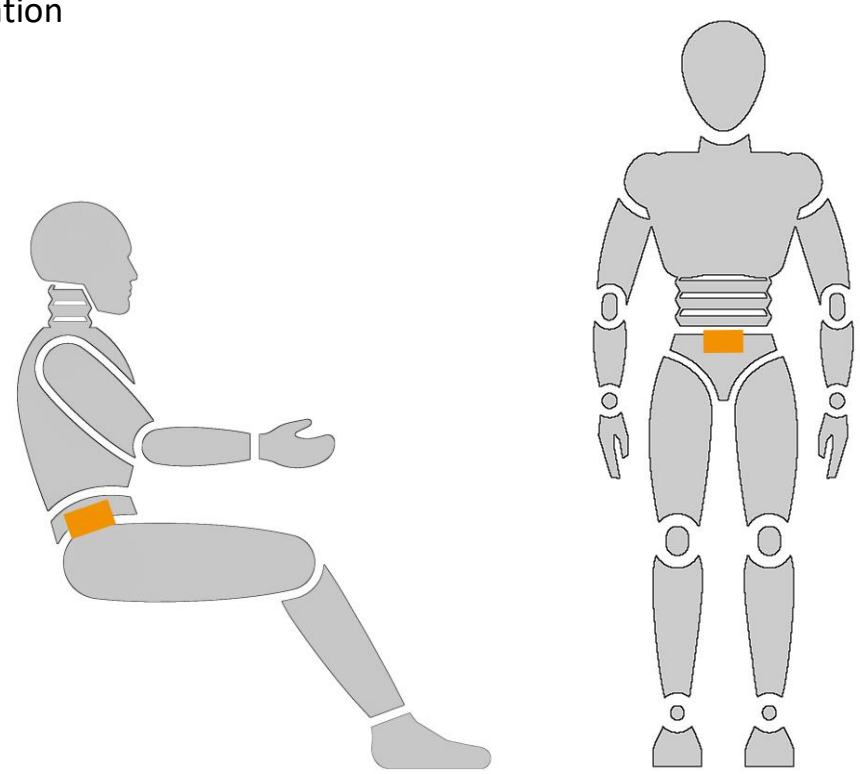
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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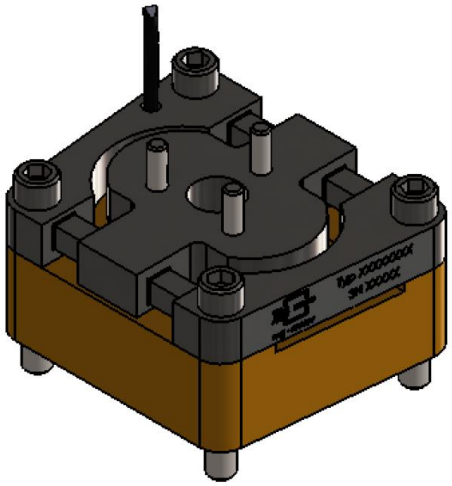
Technical Data Sheet

N6AIK11A

Load Cell, 6-axial

Location: Lumbar Spine



Force direction

F_x, F_y, F_z, M_x, M_y, M_z

Application

H2-50%

FAA

Equivalent types

Measurement specification

Resistive

Strain gauges

Options

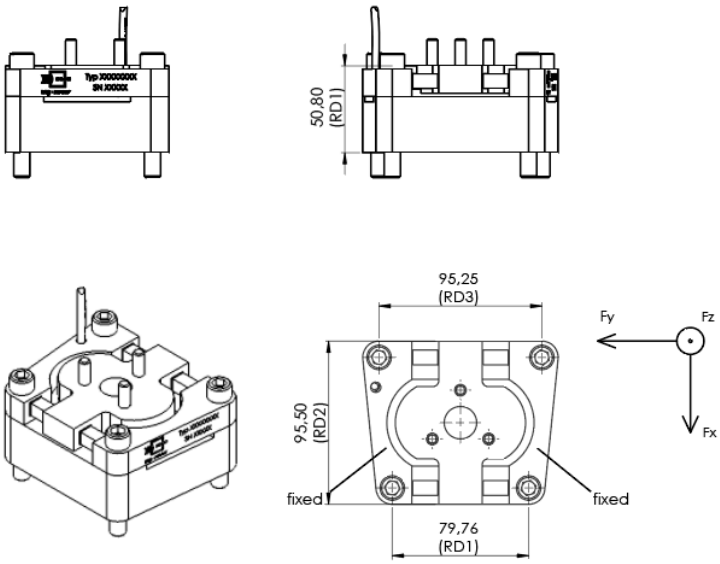
ID-Module integrated in sensor

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

N6AIK11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	13.3	13.3	15.0	 510	 510	 310
Sensitivity[1)]	µV/V/kN µV/V/Nm	128	75	127	 2.4	 1.6	 0.6
Output signal[1), 2)]	mV/V	1.7	1.0	1.9	1.2	0.8	0.2
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	–					

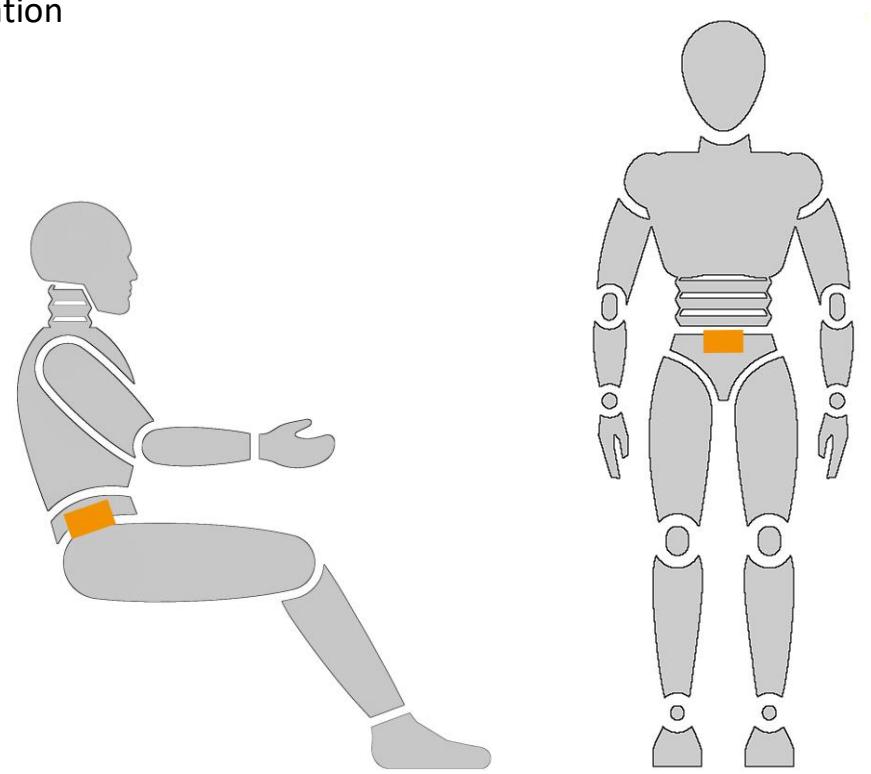
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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Technical Data Sheet

N7AIM11A

Load Cell, 7-axial

Location: Lumbar Spine

Force direction
F_x, F_y, F_z x 2, M_x, M_y, M_z

Application
H2-50%

Equivalent types
Denton: 1708
FTSS: (IF-405)

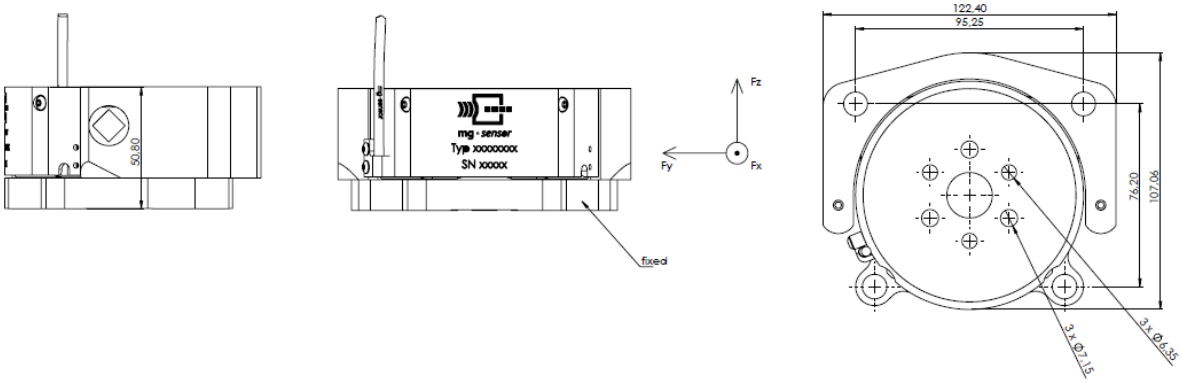
Measurement specification
Resistive
Strain gauges

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

N7AIM11A

Technical specification

	Unit	Value					
		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN Nm	13.3	13.3	22.2	 1130	 1130	 452
Sensitivity[1)]	µV/V/kN µV/V/Nm	98	98	36	 1.7	 1.7	 2.4
Output signal[1), 2)]	mV/V	1.3	1.3	0.8	1.9	1.9	1.1
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	820					

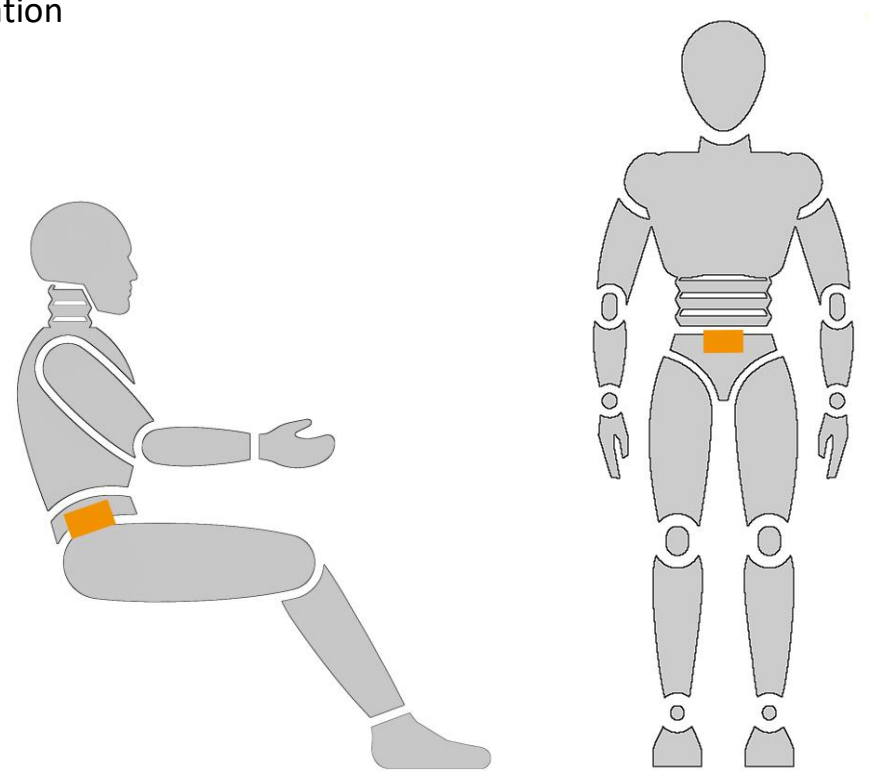
All values measured at 10 V sensor supply voltage and at 23 °C.

[1)] Typical value

[2)] At nominal load

[3)] Relative nominal range

Dummy application



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