

Crash Test Dummy Load Cells

EuroSIDs

TECHNICAL DATA SHEETS



Technical Data Sheet



F1A1A11A



Load Cell, 1-axial Location: Abdomen

Force direction

F_y

Application

ES1

ES2

EuroSID

Equivalent types

Denton: 2631J

FTSS: IF-600

Measurement specification

Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

Digitalization

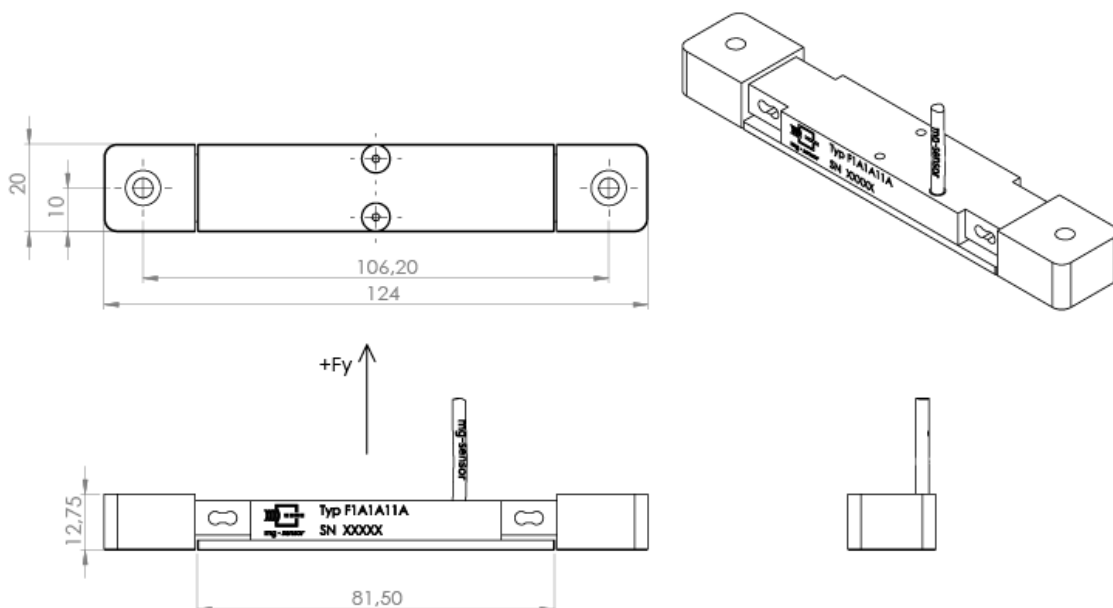


Technical description

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



Technical Data Sheet



mg · sensor
PURE PRECISION

F1A1A11A



Technical specification

	Unit	Value
		F_y
Measuring range	kN	5.0
Sensitivity ¹⁾	$\mu\text{V/V/kN}$	600
Output signal ^{1), 2)}	mV/V	3.0
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	M Ω	> 100
Temperature range	°C	-30...+70
Weight (approximate)	g	210

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

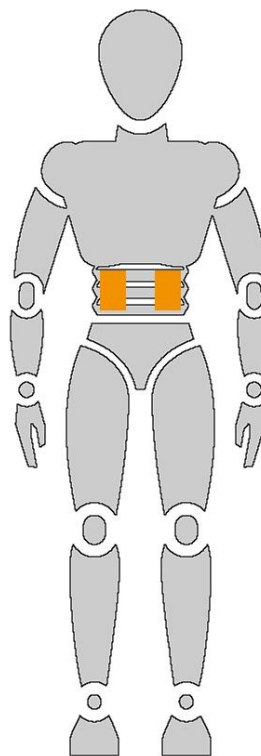
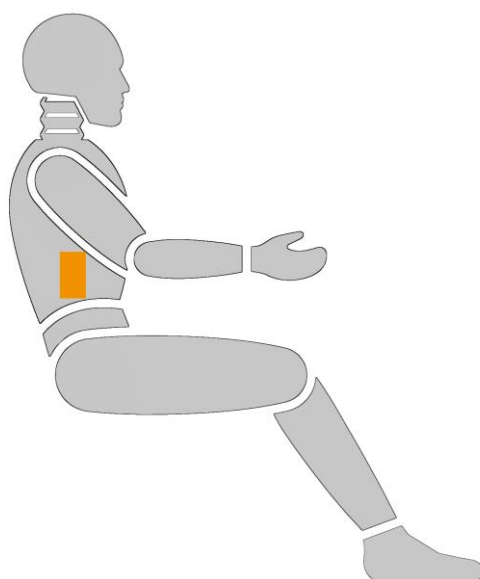
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



Technical Data Sheet



F3AQF11A



Load Cell, 3-axial Location: Shoulder

Force direction

F_x, F_y, F_z

Application

EUROSID

ES2 RE

ES1/ ES2

Equivalent types

Denton: 3155

FTSS: IF-317

Measurement specification

Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

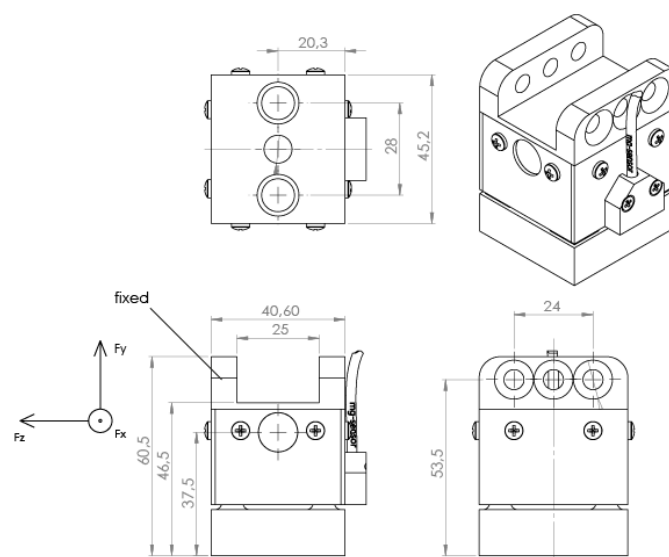


Technical description

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



Polarity indication for use as left shoulder
(cable outlet pointing upwards)

Technical Data Sheet



mg · sensor
PURE PRECISION

F3AQF11A



Technical specification

	Unit	Value		
		F _x	F _y	F _z
Measuring range	kN	4.0	8.0	4.0
Sensitivity ¹⁾	μV/V/kN	575	238	575
Output signal ^{1), 2)}	mV/V	2.3	1.9	2.3
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	260		

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

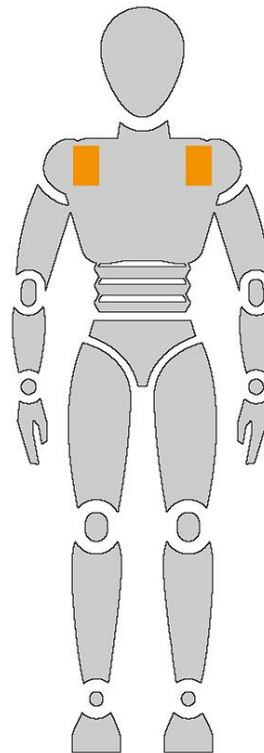
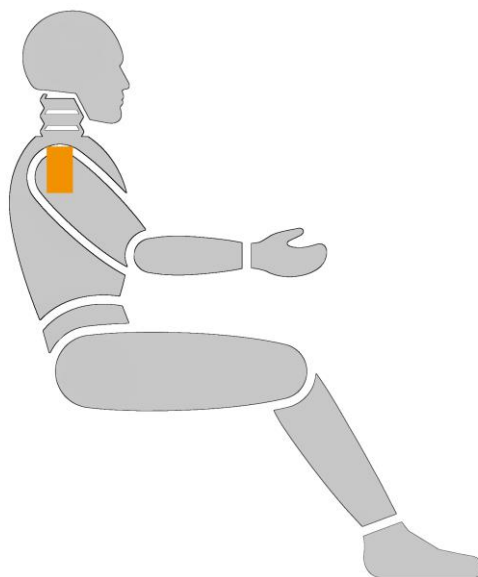
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



Technical Data Sheet



N4A6A11A



Load Cell, 4-axial

Location: Back

Force direction

F_x, F_y, M_y, M_z

Application

EUROSID

ES2

Equivalent types

Denton: 3795

FTSS: IF-437

Measurement specification

Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

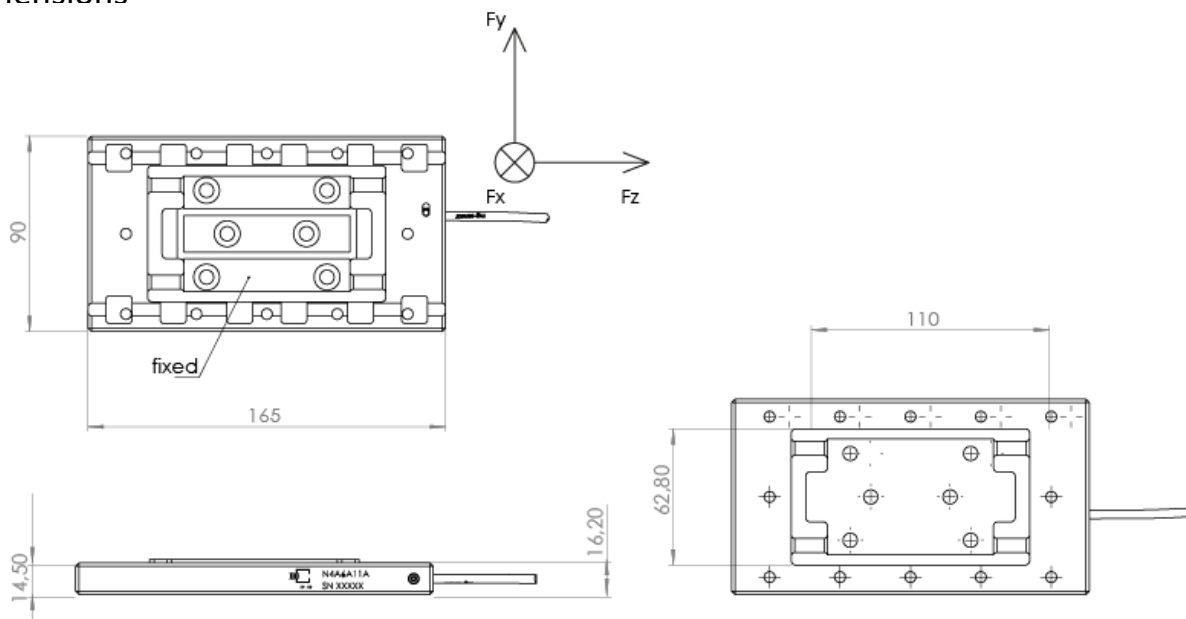


Technical description

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



Technical Data Sheet



mg · sensor
PURE PRECISION

N4A6A11A



Technical specification

	Unit	Value			
		F _x	F _y	M _y	M _z
Measuring range	kN Nm	3.0	3.0	160	160
Sensitivity ¹⁾	μV/V/kN	300	300		
	μV/V/Nm			2.5	4.4
Output signal ^{1), 2)}	mV/V	0.9	0.9	0.4	0.7
Bridge resistance	Ω	350	350	700	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	1300			

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

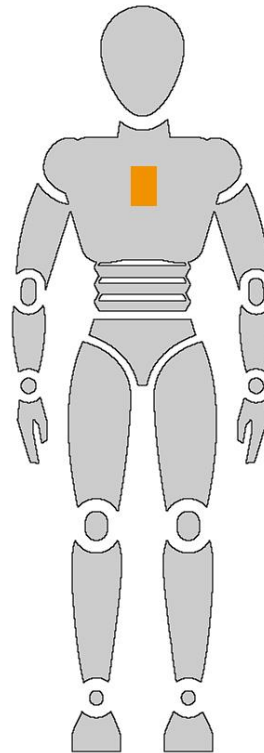
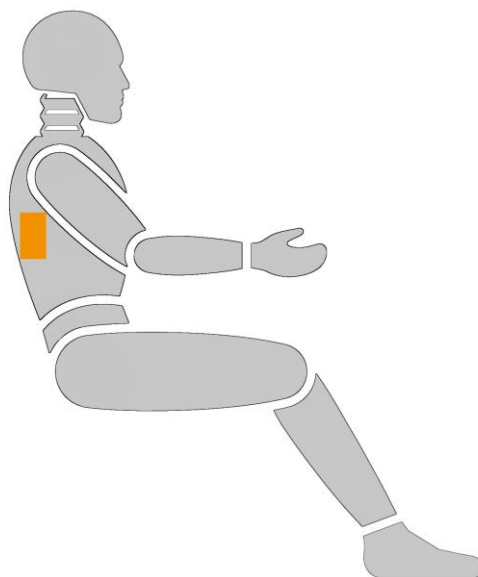
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



Technical Data Sheet



N4A6B11A



Load Cell, 4-axial

Location: Back

Force direction

F_x, F_y, M_y, M_z

Application

EUROSID

ES2

Equivalent types

Denton: 3795

FTSS: IF-437

Measurement specification

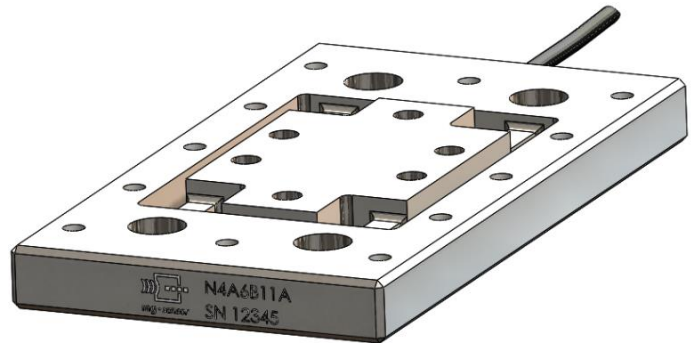
Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

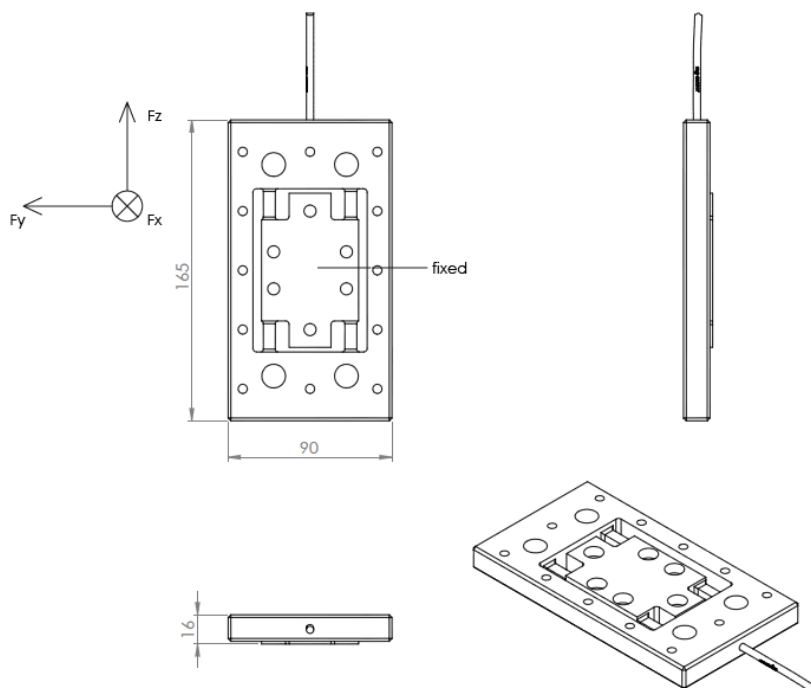


Technical description

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



Technical Data Sheet



mg · sensor
PURE PRECISION

N4A6B11A



Technical specification

	Unit	Value			
		F _x	F _y	M _y	M _z
Measuring range	kN Nm	3.0	3.0	160	160
Sensitivity ¹⁾	μV/V/kN	667	667		
	μV/V/Nm			9.4	6.9
Output signal ^{1), 2)}	mV/V	2.0	2.0	1.5	1.1
Bridge resistance	Ω	700	700	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	1300			

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

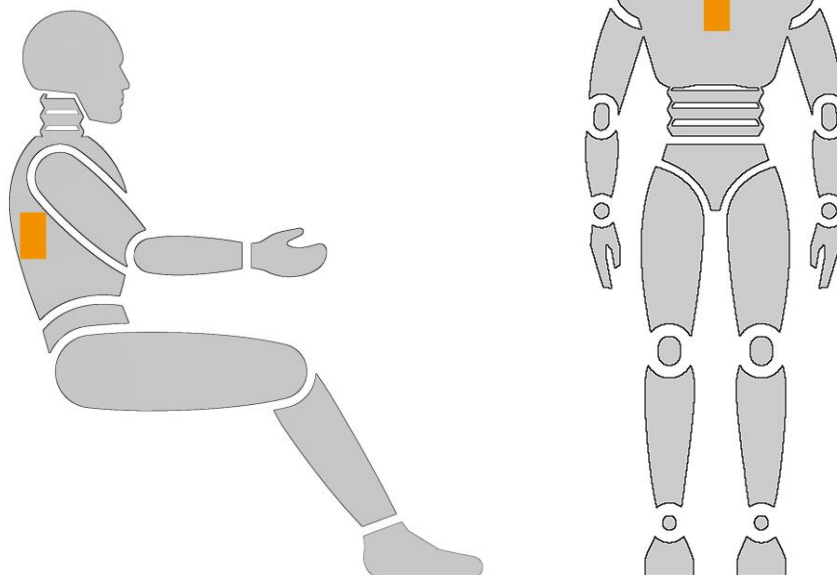
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



Technical Data Sheet



N4AIA11A



Load Cell, 4-axial

Location: Lumbar Spine

Force direction

F_x, F_y, M_x, M_y

Application

EUROSID

ES2 RE/ ES2

Equivalent types

Denton: 4284

FTSS: IF-420

Measurement specification

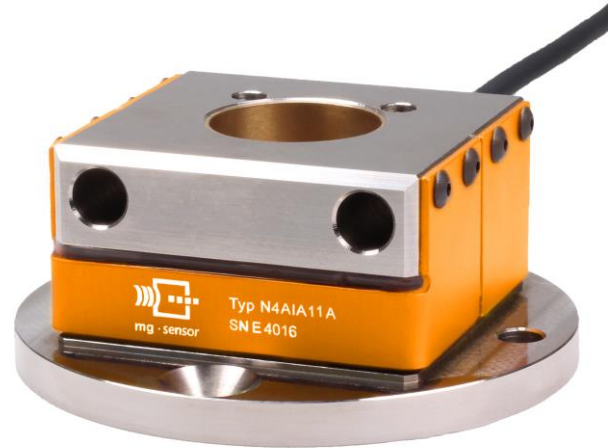
Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

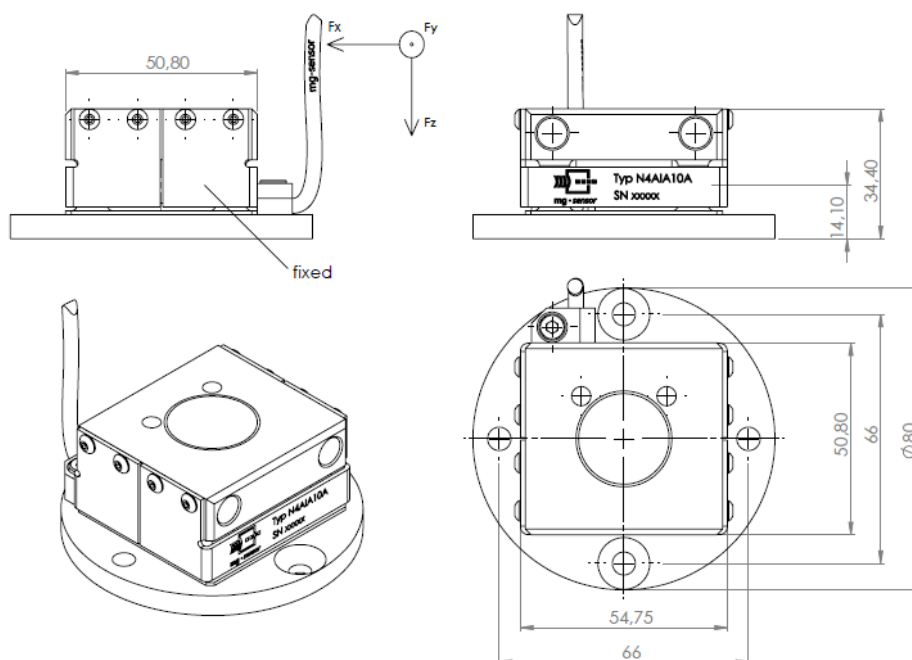


Technical description

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



Technical Data Sheet



mg · sensor
PURE PRECISION

N4AIA11A

Technical specification

	Unit	Value			
		F _x	F _y	M _x	M _y
Measuring range	kN Nm	14	14	1000	1000
Sensitivity ¹⁾	μV/V/kN	125	125		
	μV/V/Nm			2.0	2.0
Output signal ^{1), 2)}	mV/V	1.7	1.7	2.0	2.0
Bridge resistance	Ω	350	350	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	500			

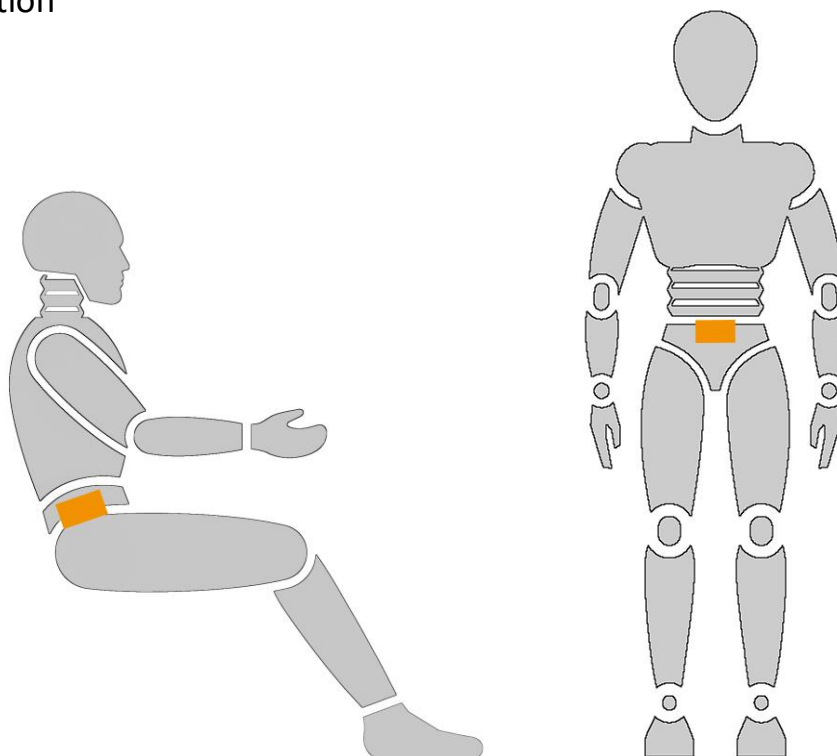
All values measured at 10 V sensor supply voltage and at 23 °C.

¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range

Dummy application



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

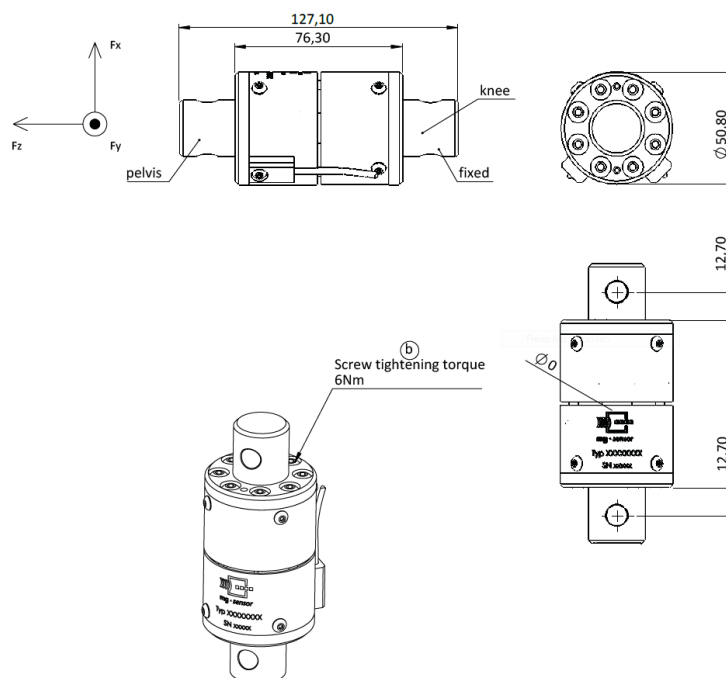


Technical description

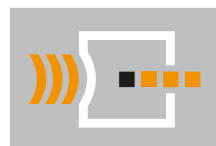
The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.



Dimensions



Technical Data Sheet



mg · sensor
PURE PRECISION

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	112	112	58.3			
	μV/V/Nm				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.

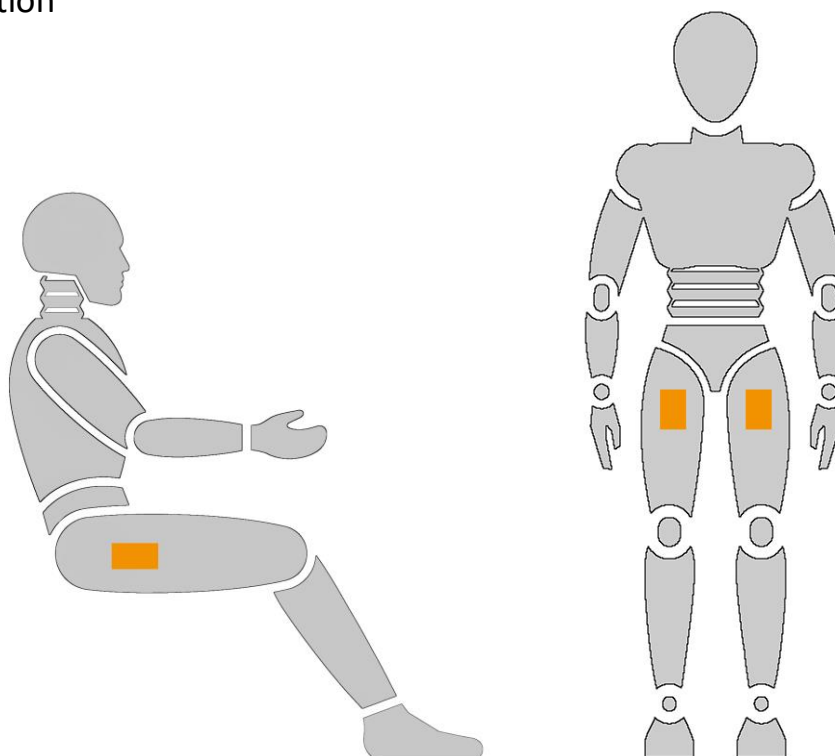
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



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

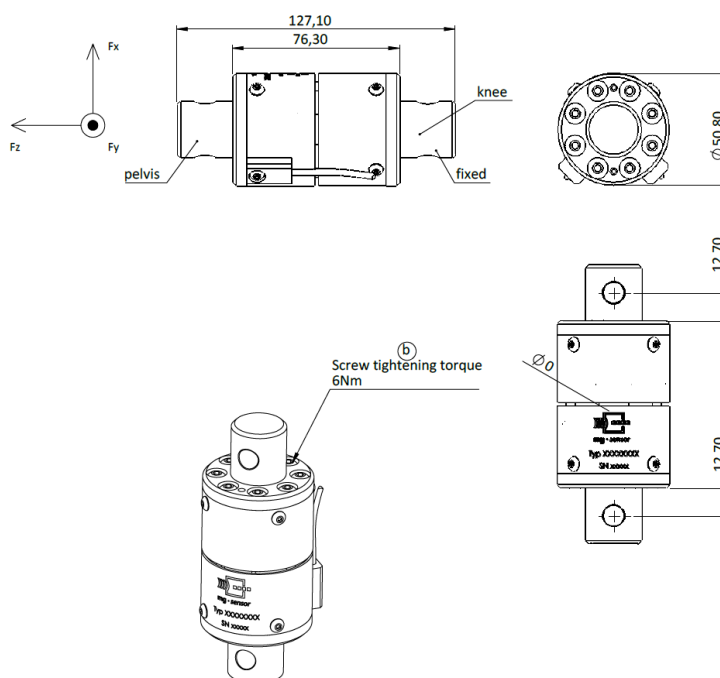


Technical description

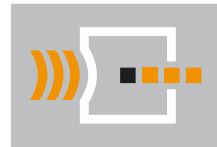
The applied force causes compression or strain of the base body. The deformation is measured using strain gauges. The wiring of multiple strain gauges for a full bridge circuit compensates for the temperature influence on the zero signal and the cross-influence from other force and torque application.



Dimensions



Technical Data Sheet



mg · sensor
PURE PRECISION

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	113	113	58.3			
	μV/V/Nm				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.

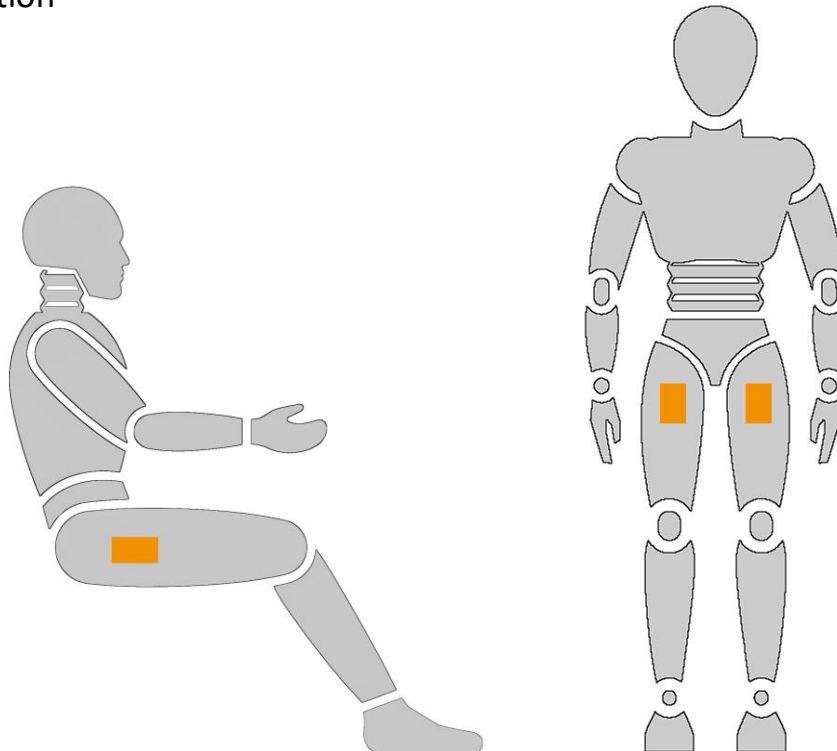
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



Technical Data Sheet



N6ACG11A

Load Cell, 6-axial with 3-axial ARS integration Location: Femur

Force direction

$F_x, F_y, F_z, M_x, M_y, M_z$

Application

H3-5%, H3-50%, H3-95%,
BioSID, EUROSID, SIDIIs

Equivalent types

Measurement specification

Resistive

Strain gauges

Options

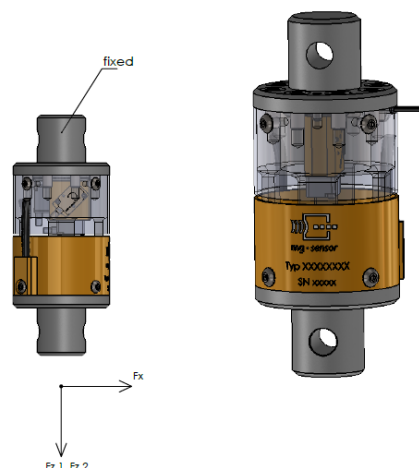
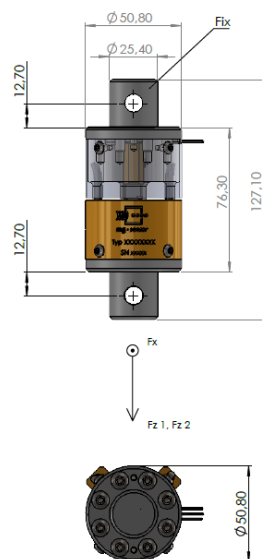
ID-Module integrated in sensor
Polarity according to SAE J211



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



Technical Data Sheet



N6ACG11A



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	112	112	62.8			
	μV/V/Nm				4.1	4.1	6.7
Output signal ^{1), 2)}	mV/V	1.5	1.5	1.4	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.

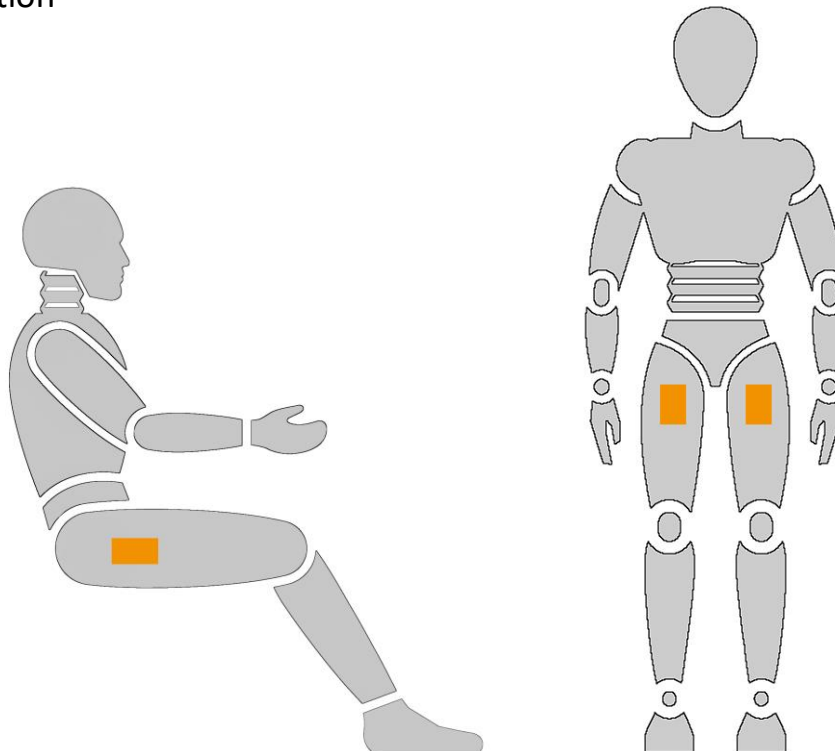
¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range



Dummy application



Technical Data Sheet



N6AKB11A



Load Cell, 6-axial

Location: Neck, Lower

Force direction

$F_x, F_y, F_z, M_x, M_y, M_z$

Application

EUROSID

ES RE

ES2/ ES1

Equivalent types

Denton: 3300

FTSS: IF-221

Measurement specification

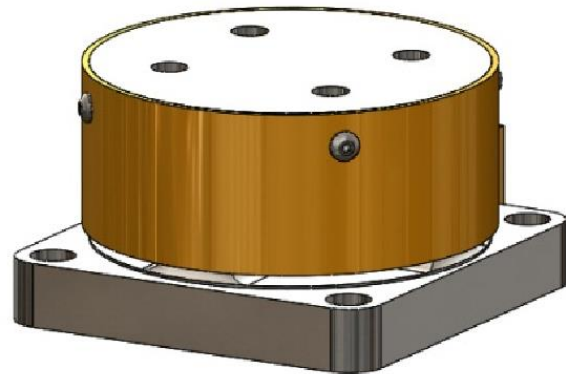
Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

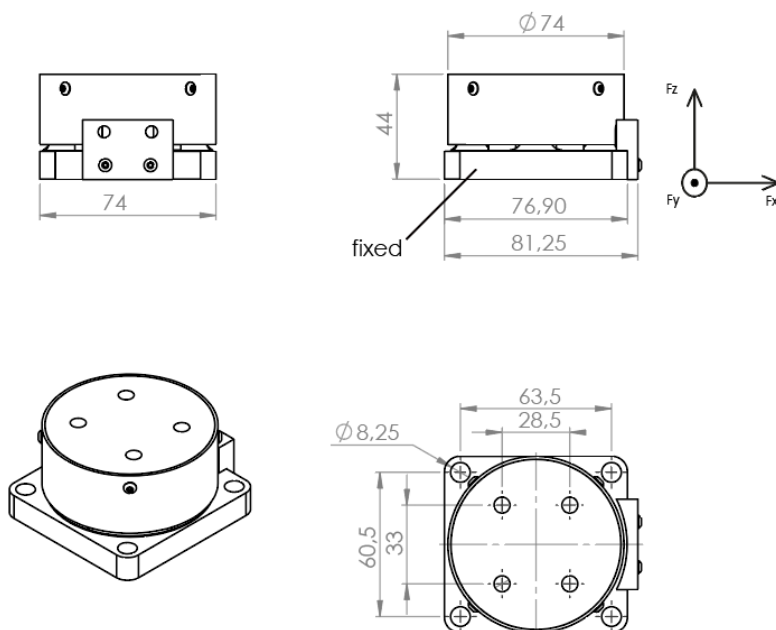


Technical description

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



Technical Data Sheet



N6AKB11A

Technical specification

	Unit	Value					
		F _x	F _y	F _z	M _x	M _y	M _z
Measuring range	kN Nm	12	12	14	450	450	300
Sensitivity ¹⁾	μV/V/kN	50	50	30			
	μV/V/Nm				1.8	1.8	2.0
Output signal ^{1), 2)}	mV/V	0.6	0.6	0.4	0.8	0.8	0.6
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					

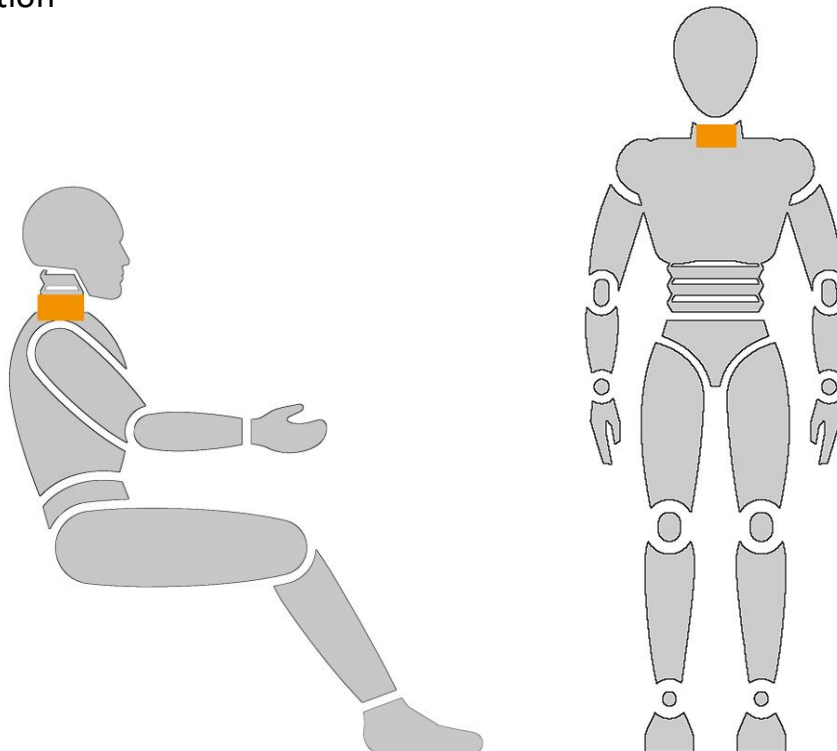
All values measured at 10 V sensor supply voltage and at 23 °C.

¹⁾ Typical value

²⁾ At nominal load

³⁾ Relative nominal range

Dummy application



Technical Data Sheet



N6ALC11A



Load Cell, 6-axial

Location: Neck, Upper

Force direction

$F_x, F_y, F_z, M_x, M_y, M_z$

Application

EUROSID

ES2 RE

ES2

Equivalent types

Denton: 4085

FTSS: IF-240

Measurement specification

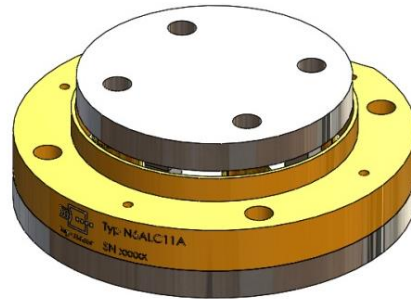
Resistive

Strain gauges

Options

ID-Module integrated in sensor

Polarity according to SAE J211

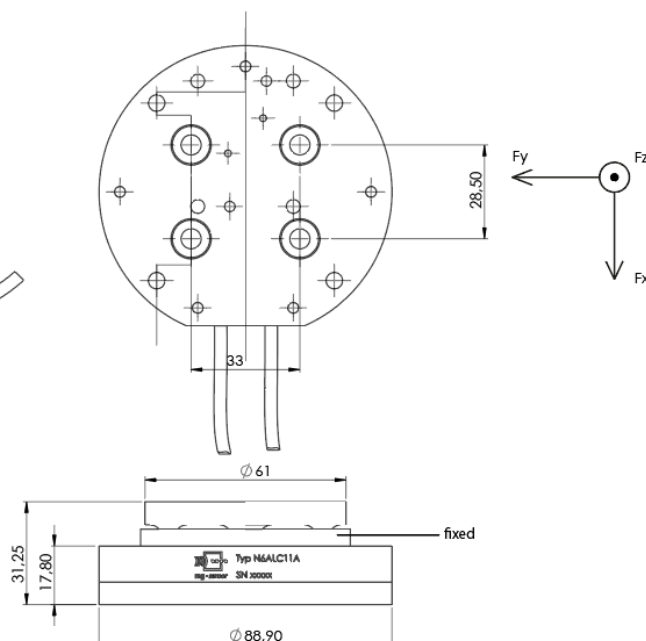
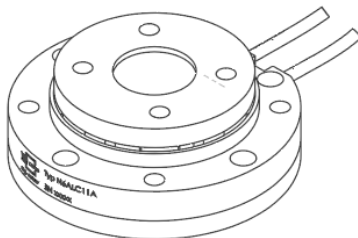


Technical description

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



Technical Data Sheet



mg · sensor
PURE PRECISION

N6ALC11A



Technical specification

	Unit	Value					
		F _x	F _y	F _z	M _x	M _y	M _z
Measuring range	kN Nm	10	10	15	300	300	300
Sensitivity ¹⁾	μV/V/kN	190	190	100			
	μV/V/Nm				5.7	5.7	8.7
Output signal ^{1), 2)}	mV/V	1.9	1.9	1.5	1.7	1.7	2.6
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

