



Force sensor Gantrisch



Datasheet KB-011-0300



Amplified force sensor bracket

Benefits & characteristics

- Measurement ranges: **0 - 2 N to 0 - 110 N**
- Integrated signal amplifier to minimize electromagnetic noise
- Can be attached to a component with M2.5 screw
- Custom-specific adjustment of the full scale or gain factor
- Integrated voltage stabilizer

Illustration



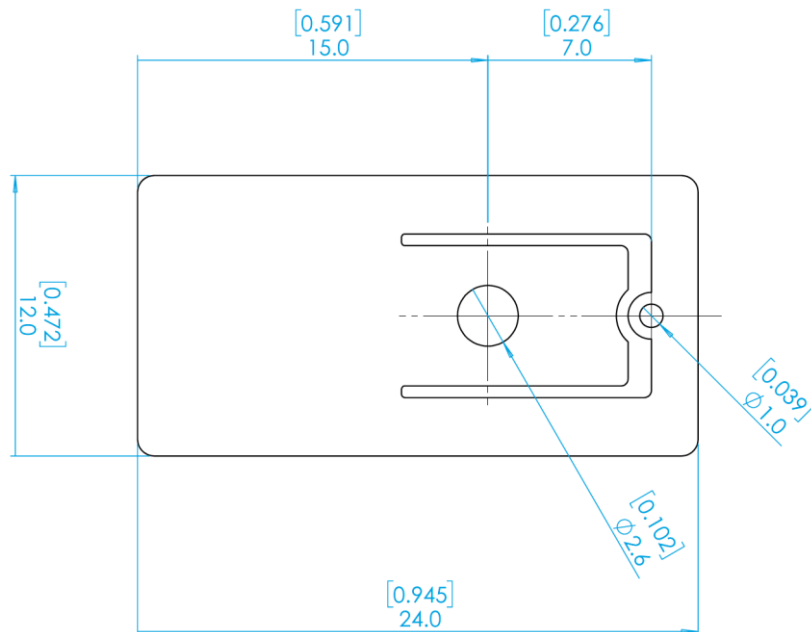
KB-011-0300-002N

Applications

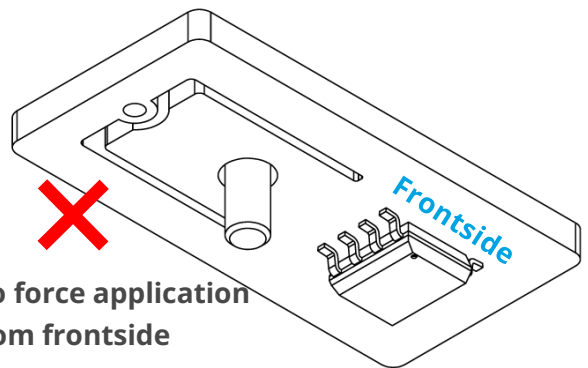
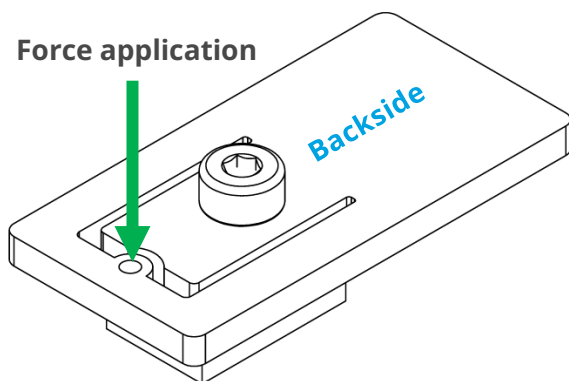
- Medical devices
- Process control
- Textile industry

Dimensions and integration

All dimensions in millimeters / [inches]



Sensor element dimensions



No force application from frontside

Overload protection: Mechanically limit displacement of the bracket

Integration and force application

Technical specifications

Measuring principle	Thin film strain gauge (full Wheatstone bridge)		
Measurement parameter	Force [N] or displacement [mm]		
Measurement ranges	2 to 110 N, see order information. Custom force ranges available on request		
Electrical contacting	Color scheme: (custom specific contacting on request)	Brown: Black: Blue:	Supply voltage + (VCC) Supply voltage – (GND) Signal voltage
Mounting	Attach with M2.5 screw via central hole, see previous section		
Application of force	On the bracket with reproducible point of application		
Direction of force	Perpendicular to sensor plane from backside, see pictures section		
Shielding	Sensor substrate is connected to supply ground		
Signal	Amplified by instrumentation amplifier (factor of 250 to 1300, as needed), Signal range 0.2 V to 9 V		
Substrate material	Stainless Steel 1.4542 / X5CrNiCuNb16-4 / 17-4 PH®		

Environmental specifications

	Min	Typ	Max	Unit	Notes/Conditions
Operating temperature range	-20		+80	°C	
Storage temperature range	-40		+80	°C	
Ambient humidity	0		95	%RH	Non-condensing

Operating specifications

	Min	Typ	Max	Unit	Notes/Conditions
Supply voltage (VCC)	12		28	V	Supply of strain gauge is stabilized to 9 V
Supply current		5.5		mA	At > 12 V
Zero signal	0.2		1.2	V	Output signal of the unloaded sensor
Rated characteristic value (FS) tolerance	-15		15	%	See order information for rated characteristic value (Full scale FS)
Relative linearity error		±0.3		%FS	
Temperature effect on zero signal	-0.02		0.02	%FS/°C	
Temperature effect on characteristic value	0.015		0.035	%/°C	

Order information

Force sensor Gantrisch

Basic sensor element

KB-011-0300 = Force sensor Gantrisch

Force range

Code	Rated force	Rated characteristic value (FS)	Substrate thickness	Force limit
2	2 N	8.0V/9V	0.5 mm	3 N
7	7 N	7.0V/9V	0.5 mm	10.5 N
30	30 N	8.1V/9V	1.0 mm	45 N
75	75 N	7.5V/9V	1.6mm	112.5 N
110	110 N	7.7V/9V	2.0 mm	165 N

Connection

Code	Variant
K7	Multi-core cable with open ends, 200 mm

Sensitivity

Code	Variant
S007: for 110 N variant	70mV/9V/N
S010: for 75 N variant	100mV/9V/N
S027: for 30 N variant	270mV/9V/N
S100: for 7 N variant	1V/9V/N
S400: for 2 N variant	4V/9V/N

KB-011-0300 **xxxN-** **Kx-** **Sxxx**

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