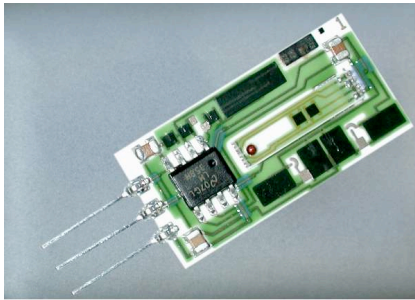


## Millinewton – generic OEM force sensor



### Highlights

- Force sensor for 400...2'000 mN in thick-film technology
- Amplified ratiometric output
- Entirely calibrated
  - Offset  $\pm 1\%$
  - Span  $\pm 1\%$
- Temperature compensated
- Base 25.4 x 12.7 mm

### Applications

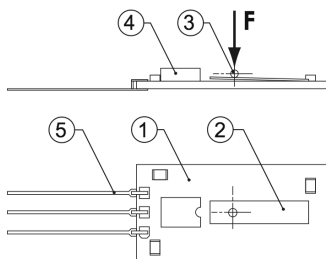
- Robotics
- Assembly
- Yarn tension measurement
- Indirect pressure measurement

### Description

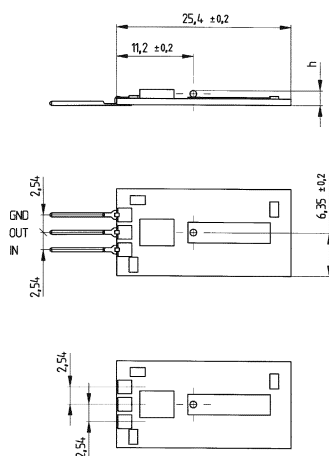
The MilliNewton force sensor is a simple and advantageous solution for the measurement of small forces.

The force is measured through bending of a cantilever beam, which carries a piezoresistive bridge. The electronics on the base carry out the signal amplification and deliver a voltage output which is a linear function of the force.

The sensor is entirely made in thick-film technology, which guarantees exceptional stability. Its design allows automated fabrication and calibration using standard production equipment.



- 1 Base
- 2 Cantilever beam
- 3 Force centring ball
- 4 Amplifier
- 5 Contacts



## Specifications (supply at $U_s = 5.00V$ )

Parameter	Value	Unit
Environment	Air and non-aggressive gases	
Temperature range	0...70	°C
Humidity	0...80	%
Nominal force (short-term overload)	0... 400 (1'000) 0...1'000 (2'000) 0...2'000 (3'000)	mN
Offset: output at zero force	0.50 (10%; ratiometric output)	V (% $U_s$ )
Span: output difference between nominal and zero force	3.00 (60%; ratiometric output)	V (% $U_s$ )
Precision of offset	±1	% Span
Precision of span	±1	%
Temperature coefficient of offset	±0.02 (typical) ±0.05 (maximal)	%FS/K
Temperature coefficient of span	-0.02 (typical)	%/K
Response time	<10	ms
Weight	1.4	g
Allowed electrical load	≥ 33 ≤ 10	kΩ nF
Supply current	< 3	mA

## Variants

## MilliNewton - X - XXXX - X - X - X

<b>Type</b>	13x3 beam Others	B -	
<b>Force ranges</b>	400 mN 1'000 mN 2'000 mN	0400 1000 2000	
<b>Contacts</b>	SIL pins Contact pads	L P	
<b>Temperature</b>	Compensated Uncompensated	C U	
<b>Supply</b>	5.0 V ; absolute maximum ≤ 6V ! Same as A; lead-free solder	A B	

Headquarter Switzerland:  
Angst+Pfister Sensors and Power AG

Thurgauerstrasse 66  
CH-8050 Zurich  
Phone +41 44 877 35 00  
sensorsandpower@angst-pfister.com

Office Germany:  
Angst+Pfister Sensors and Power  
Deutschland GmbH  
Edisonstraße 16  
D-85716 Unterschleißheim  
Phone +49 89 374 288 87 0  
sensorsandpower.de@angst-pfister.com



## We are here for you. Addresses and Contacts.

### Sales Germany & Austria

Geometrical sensors  
Other products

Kurt Stritzelberger  
Phone +49 89 374 288 87 22  
kurt.stritzelberger@angst-pfister.com

Pressure sensors  
Other products

Gerhard Vetter  
Phone +49 89 374 288 87 26  
gerhard.vetter@angst-pfister.com

Gas sensors and modules

Peter Felder  
Phone +41 44 877 35 05  
peter.felder@angst-pfister.com

### Sales Switzerland & Liechtenstein

Postcode 3000 – 9999

Basil Frei  
Phone +41 44 877 35 18  
basil.frei@angst-pfister.com

Postcode 1000 – 2999

Christian Mohrenstecher  
Phone +41 76 444 57 93  
christian.mohrenstecher@angst-pfister.com

### Sales International Key Accounts

Peter Felder  
Phone +41 44 877 35 05  
peter.felder@angst-pfister.com

### Sales Other Countries / Product Management

Pressure Sensors  
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Philipp Kistler  
Phone +41 44 877 35 03  
philipp.kistler@angst-pfister.com

Gas sensors  
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Phone +49 89 374 288 87 24  
thomas.clausen@angst-pfister.com

Flow / Level / Medical products

Dr. Adriano Pittarelli  
Phone +49 89 374 288 87 67  
adriano.pittarelli@angst-pfister.com

Power supplies

Sebastiano Leggio  
Phone +41 44 877 35 06  
sebastiano.leggio@angst-pfister.com

Linear position sensors  
Angle sensors

Eric Letsch  
Phone +41 44 877 35 14  
eric.letsch@angst-pfister.com

Accelerometers  
Sensor elements

Christoph Kleye  
Phone +49 89 374 288 87 61  
christoph.kleye@angst-pfister.com

Drive technology  
CH Postcode 5000 – 9999 / DE

Roman Homa  
Phone +41 76 444 00 86  
roman.homa@angst-pfister.com

Drive technology  
CH Postcode 1000 – 4999 / AT / IT / FR

Christian Mohrenstecher  
Phone +41 76 444 57 93  
christian.mohrenstecher@angst-pfister.com

Harald Thomas  
Phone +49 89 374 288 87 23  
harald.thomas@angst-pfister.com