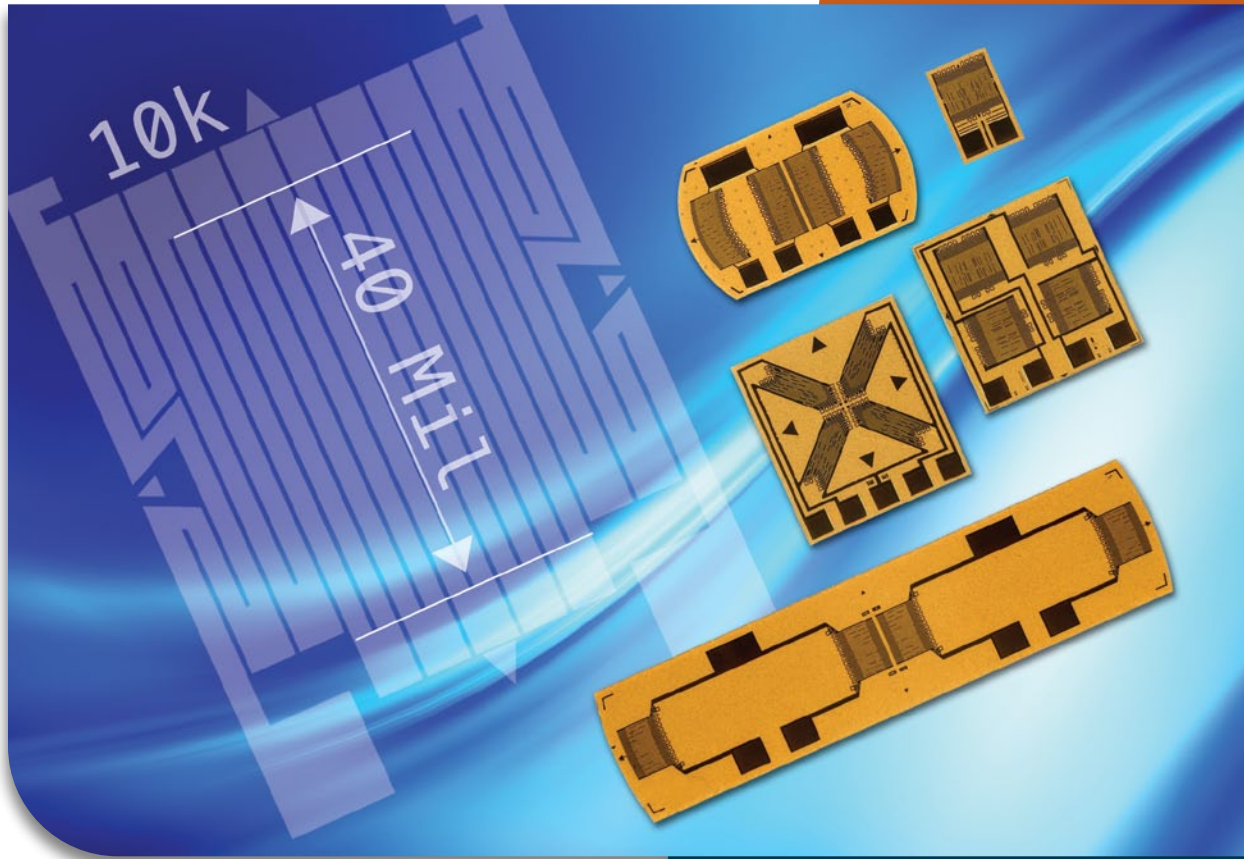




VISHAY
PRECISION
GROUP



Product Overview

Miniature High Resistance Strain Gages

Micro-Measurements



www.micro-measurements.com

Micro-Measurements Miniature Strain Gages are designed to give excellent performance with lower costs to the customer and they can be used in a wide range of applications. These gages are designed for high resistance in a very small grid area, such as a one millimeter by one millimeter grid area (0.04 inch x 0.04 inch) for a 10k-ohm gage.

A variety of gage types are available:

- 1k, 5k, and 10k ohm linear gages
- 1k and 5k ohm half-bridge gages
- 1k and 5k ohm full-bridge gages
- 1k and 5k ohm shear gages
- Miniature diaphragm gages are available in multiple sizes: 0.20, 0.25, 0.40, and 0.50 inch (5.08, 6.35, 10.16, and 12.7 mm)
- Customized patterns in miniature and larger sizes are available. Bondable Resistors for Transducers in Nickel foil are also available.

RoHS
COMPLIANT

Advantageous for Many Types of Applications

- Higher output than standard-size gages due to smaller grid sizes
- High resistance – up to 20k ohms
- Miniature size
- Low power consumption

Features

- Available in linear, half-bridge, and full-bridge patterns for use in a variety of transducer types including weighing transducers, pressure transducers, shear/torque transducers and bending beam transducers
- Modified-Karma-alloy foil with self-temperature compensation
- Modulus compensation foil available
- Gold-plated tabs
- Epoxy encapsulation
- A variety of sizes of standard and custom patterns available

Specifications

Gage Factor: 2.1 nominal

Resistance Tolerance as low as: $\pm 0.2\%$

Operating Temperature Range:

N5K: -100° to $+400^{\circ}$ F (-75° to $+205^{\circ}$ C)

N2K: -100° to $+200^{\circ}$ F (-75° to $+95^{\circ}$ C)

Benefits

- Higher output than standard-size gages due to shorter grid lengths positioned on peak strain locations.
- High resistance – up to 20k ohms. Higher excitation voltage can be used with high resistance gages, therefore making higher output signals possible
- Miniature size allows for use in applications with limited space
- Miniature gages offer an opportunity for lower cost and higher output
- Lower power consumption with high resistance gages

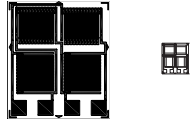

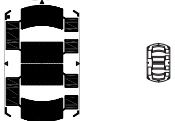

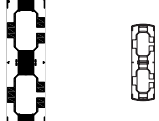
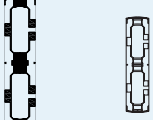
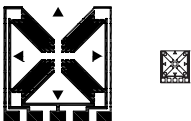
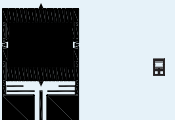
Fatigue life: 10^7 cycles at ± 1800 microstrain

Short gage length: 0.5–0.7 mm, enabling capture of peak strain levels

Miniature High-Resistance Gages

Micro-Measurements



GAGE PATTERN AND MATRIX (1X SIZE)	GAGE LENGTH in (mm)	OVERALL LENGTH in (mm)	GRID WIDTH in (mm)	OVERALL WIDTH in (mm)	GAGE DESIGNATION	RES. IN OHMS	STD. CREEP CODE
Full-Bridge Patterns							
S5027 	0.033 (0.86)	0.1515 (3.85)	0.056 (1.43)	0.127 (3.21)	N2K-XX-S5027P-10C/DG/E3 N5K-XX-S5027P-10C/DG/E3	1000 ±0.2% 1000 ±0.2%	P* P*
	1k Full bridge gage. Bridge is balanced to ±0.4 mV/V, but RG is 1000 ohms ±0.2%.						
S5020 	0.028 (0.71)	0.147 (3.73)	0.044 (1.12)	0.137 (3.48)	N2K-XX-S5020Q-50C/DG/E3 N5K-XX-S5020Q-50C/DG/E3	5000 ±0.2% 5000 ±0.2%	Q* Q*
	Full bridge gage for bending beam transducers. Bridge is balanced to ±0.4 mV/V, but RG is 5000 Ω ±0.2%.						
S5021 	0.019 (0.50)	0.181 (4.60)	0.062 (1.59)	0.112 (2.83)	N5K-XX-S5021M-50C/DG/E3 N2K-XX-S5021M-50C/DG/E3	5000 ±0.3% 5000 ±0.3%	M* M*
	Full bridge gage for use on 0.200 in (5.080 mm) diameter diaphragm.						
S5022 	0.021 (0.52)	0.228 (5.80)	0.044 (1.12)	0.094 (2.38)	N5K-XX-S5022M-50C/DG/E3 N2K-XX-S5022M-50C/DG/E3	5000 ±0.3% 5000 ±0.3%	M* M*
	Full bridge gage for use on 0.250 in (6.35 mm) diameter diaphragm.						
S5026 	0.020 (0.51)	0.382 (9.69)	0.044 (1.13)	0.111 (2.82)	N2K-XX-S5026M-50C/DG/E3 N5K-XX-S5026M-50C/DG/E3	5000 ±0.3% 5000 ±0.3%	M* M*
	Full bridge pattern for use on 0.400 in (10.16 mm) diameter diaphragm.						
S5025 	0.020 (0.51)	0.482 (12.23)	0.044 (1.13)	0.111 (2.82)	N2K-XX-S5025M-50C/DG/E3 N5K-XX-S5025M-50C/DG/E3	5000 ±0.3% 5000 ±0.3%	M* M*
	Full bridge pattern for use on 0.500 in (12.7 mm) diameter diaphragm.						
S5023 	0.046 (1.17)	0.167 (4.24)	0.019 (0.51)	0.150 (3.82)	N2K-XX-S5023M-10C/DG/E3	1000 ±0.2%	M*
	Full bridge pattern for shear or torque transducers.						
S5024 	0.028 (0.71)	0.066 (1.69)	0.048 (1.22)	0.048 (1.22)	N2K-XX-S5024F-50C/DG/E3 N5K-XX-S5024F-50C/DG/E3	5000 ±0.2% 5000 ±0.2%	F F
	Miniature 5k Ω linear gage. Can be used in 4 mA to 20 mA transmitters and battery-operated transducers.						

* Only creep code available for this gage.

Gold plated or copper plated tabs are available.

Additional high-resistance miniature sensors are available; please contact us for information.

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