

# Data sheet - strain gauges

Thin film material *U*, adjustment *A*

Technical specifications	unit	
Thin film material thickness	nm	modified Ni 100-200
Carrier material thickness	µm	Polyimide 50±5
moisture absorption	%	approx. 1
Cover material thickness	µm	Polyimide, adhesive 40±7,5
Pads material thickness	nm	Ti, W, Ni, Au 200-400
Adjustment		A
Temperature response adjust to	ppm/K	0-4
range	°C	-10 - 85
tolerance	ppm/K	±2
Reference temperature	°C	23
Operating temperature range	°C	-10 - 85
Nominal resistance (e.g.: LM02)	Ω	>1400
Resistance tolerance**	%	±2

	unit	
Gauge factor** (e.g.: LM02)		10-30
Gauge factor-longitudinal**		10-30
Gauge factor-transversal**		5-20
Gauge factor tolerance** (related to gauge factor-long.)	%	±20
Maximum elongation	µm/m	5000
Number of load cycles (±1100µm/m, drift <30µm/m)		>>10 Mio.
Radius of curvature, inner radius	mm	>6
outer radius	mm	>6
Requirement bonding materials max. curing temperature	°C	165
max. curing pressure	bar	2-4
max. after curing temperature	°C	200
Requirement solder max. soldering temperature	°C	300
max. duration	s	<3

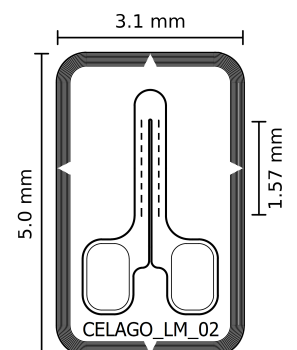
**Note:** \*Optionally stated on the packaging (option P).  
\*\*Optionally on packaging with tighter tolerance limits specified (option P).

## Available types

Strain gauge-type		Grid-length	Overall-length	Overall-width	Nominal resistance
LM01	Linear SG	2,80 mm	8,0 mm	4,0 mm	from 3 kΩ
LM02		1,57 mm	5,0 mm	3,1 mm	from 1,4 kΩ
LM03		1,57 mm	5,0 mm	3,1 mm	from 15 kΩ
LM06		1,0 mm	3,0 mm	1,0 mm	from 500 Ω
LM07		1,57 mm	5,0 mm	3,1 mm	from 60 kΩ
SM01_R	Shear SG	1,57 mm	5,0 mm	2,5 mm	from 1,5 kΩ
SM01_L		1,57 mm	5,0 mm	2,5 mm	from 1,5 kΩ
TR01	T-ro- sette	0,80 mm	8,4 mm	2,0 mm	from 1,8 kΩ
PM01	Half- bridge	1,15 mm	10,0 mm	2,0 mm	from 5 kΩ
VB04	Full- bridge	2,0 mm	8,0 mm	8,0 mm	from 4 kΩ
VB05		2,0 mm	8,0 mm	8,0 mm	from 1,5 kΩ
VB06		2,0 mm	8,0 mm	8,0 mm	from 15 kΩ
MR01	Membrane rosette	2,0 mm (radial)	20,0 mm	20,0 mm	from 15 kΩ

Linear and shear strain gauges are also available as double strain gauges (SG) or chain SG. Customized designs can be made on request. The freedom of form is not related only on measuring grid size and position, but in particular on the foil shape.

Example of a linear strain gauge in the LM02 version:



Grid length: 1,57 mm  
Overall length: 5,0 mm  
Overall width: 3,1 mm

Further information as well as an overview of possible custom made can be found in our product and service catalogue at [www.celago-sensors.de](http://www.celago-sensors.de).

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