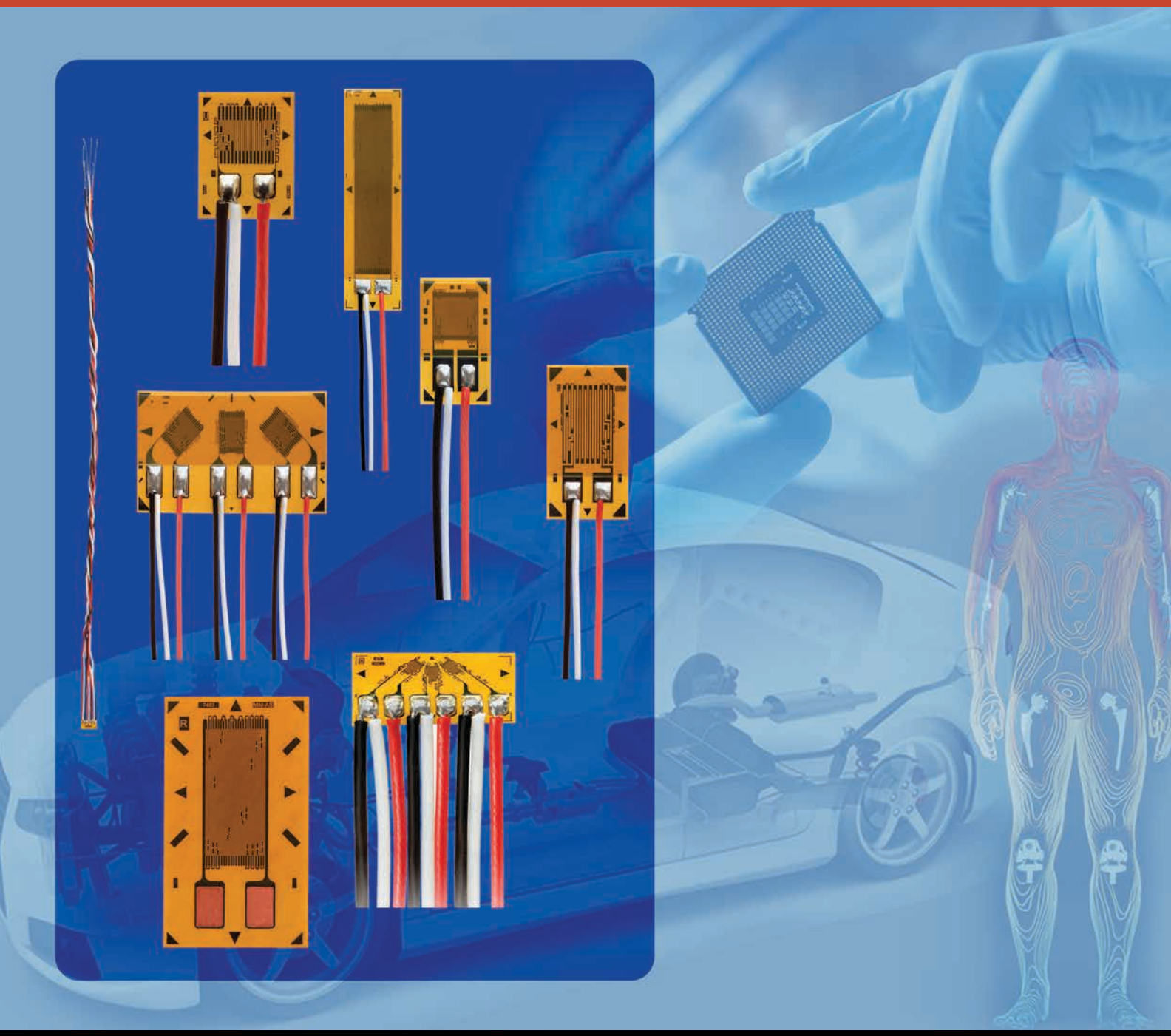
C5K Series

High performance Strain Gages for General-Purpose Applications

Product Overview



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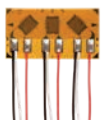
High performance Strain Gages for General-Purpose Applications

Fully encapsulated General-purpose Karma Alloy strain gages with extended temperature range offered in wide range of resistance values and wiring options, RoHs compliant, Lead-free solder.

Features and Benefits

- Operating temperature: +260°C without leadwires (+205°C with leadwires)
- Extended grid resistance range from 350Ω to 5000Ω
- High Resistance gages allow for:
  - Improved heat dissipation
  - Use of high excitation voltage
  - Reduction of drifts on thermoplastic materials
  - Reduction of STC mismatch
- High resistance strain gages can be coupled with the new MRF-50C-130 Bridge Completion Module allowing to turn any standard strain measurement device compatible with 5000Ω strain gage measurement
- C5K series gages are offered as stand alone gage, with flat lead ribbons or with pre-attached Teflon leadwires

Gage Pattern	Gage Length	Grid Width	Matrix Length	Matrix Width	Gage Designation (XX = STC Number)	Resistance in Ohms	Options Available
S5145 	0.030 (0.76)	0.063 (1.60)	0.12 (3.1)	0.10 (2.6)	C5K-XX-S5145-350	350 ± 0.2%	XXF, 2R
050LK	0.050 {1.27}	0.073 {1.85}	0.17 (4.4)	0.14 (3.6)	C5K-XX-050LK-50C	5000 ± 0.2%	
125LK 	0.125 (3.18)	0.065 (1.65)	0.25 (6.3)	0.14 (3.6)	C5K-XX-125LK-350 C5K-XX-125LK-50C	350 ± 0.2% 5000 ± 0.2%	
250LK 	0.250 (6.35)	0.125 (3.18)	0.44 (11.1)	0.19 (4.7)	C5K-XX-250LK-350	350 ± 0.2%	
400LK 	0.400 (10.0)	0.102 (2.59)	0.55 (14.0)	0.16 (4.0)	C5K-XX-400LK-50C	5000 ± 0.2%	
S5198 	0.014 ES (0.36) ES	0.012 ES (0.30) ES	0.08 (2.2)	0.15 (3.9)	C5K-XX-S5198-350	350 ± 0.5%	
062PR 	0.062 ES (1.57) ES	0.062 ES (1.57) ES	0.25 (6.4)	0.46 (11.7)	C5K-XX-062PR-350	350 ± 0.2%	

C5K Series Specifications

Carrier Matrix: Thin, laminated, polyimide-film backing featuring encapsulated grids

Leadwires (optional)**:** Thin, flexible, color coded high performance etched Teflon® leadwires allowing simplified gage installation and ensure dependable installations, particularly in difficult locations on components or in the field

Lead Ribbons (optional)**:** 1.25" (31.75mm) long Ni-Clad Copper flat ribbons

Temperature Range: –100° to +400°F (–75° to +205°C) with leadwires
–100° to +500°F (–75° to +260°C) without leadwires

Grid Encapsulation: Entire grid is encapsulated (solder tabs are not encapsulated)

Strain Range: ±1.5%

Fatigue Life: 10^7 cycles at ±1800 microstrain

Option XXF

General Description: C5K gage series can be supplied with preattached cables for direct connection to instrumentation.

Wiring Selection:

	Length		Options Available	
			2 wires	3 wires
C5K	0.1"	25 mm	2R	-
	1"	0.3M	21F	-
	3"	1M	23F	33F
	9"	3M	-	39F

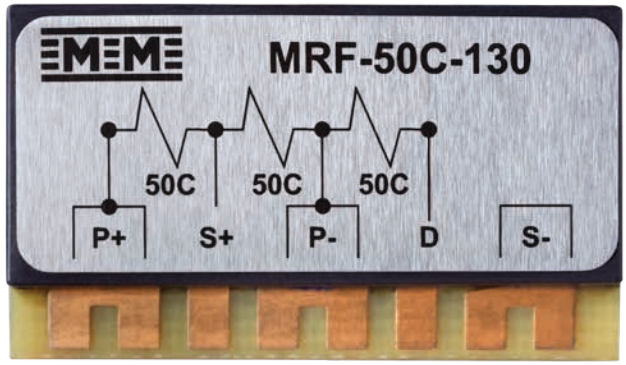
Cable: Color-coded, thin, two or three-conductor 36-gauge (0.127 mm), flexible, etched Teflon insulated flexible wires.

Solder: +361°F (+180°C) tin-lead alloy solder joints. Exposed leadwires on unattached end of cable are pretinned for ease of hookup.

Wires Resistance Considerations: Each conductor of the cable has a nominal resistance of 0.1 ohm/ft (0.35 ohm/m). Gage resistance is measured at gage tabs.

Gage Factor: Gage factor is determined for gages without preattached cable.

5000Ω Bridge Completion Module



Strain gage instrumentation is readily available with built-in bridge completion resistors and "dummy" gages to accept quarter- and half-bridge strain gage input circuits. However, if the instrumentation at hand is not provided with these components, or if the measurement application does not permit their use, external bridge completion must be provided, and MR-Series Bridge Completion Modules can be an excellent choice in these applications.

MRF-Series Bridge Completion Modules employ Bulk Metal Foil Resistors. The resistors are specially processed to "match" the thermal expansion coefficient of the ceramic, resulting in a very low resistance temperature coefficient equivalent to ±0.15με/°F (±0.27με/°C) for the half-bridge circuits, and ±0.35με/°F (±0.63με/°C) for the dummy gages, over a temperature range from 0° to +200°F (–18° to +95°C). Maximum operating temperature range is –50° to +250°F (–45° to +120°C).

Each module is covered with a special environmental protection system to ensure long-term stability. Each module is provided with foam tape for easy attachment to the test-part surface or at the instrumentation site, and gold plated copper terminals facilitate attachment of up to 22-gauge (0.64 mm dia.) leadwires.

Completing the bridge circuit at the strain gage site provides for a symmetrical, balanced leadwire system between the strain gage circuit and the instrumentation. This can reduce effects of noise pickup in the leadwire system in some environments. Where switch contacts, slip rings, or other mechanical connections are employed between the strain gages and measuring instrumentation, or when leadwires will be periodically disconnected from the measuring instrument, accuracy can be improved by completing the bridge at the measurement site. Bridge completion modules can be designed to meet special circuit requirements. Contact our Applications Engineering Department for a detailed discussion of your special needs.

CHARACTERISTICS		
MODULE TYPE AND FEATURES	BRIDGE EXCITATION (VOLTS)	
	RECOMMENDED	MAXIMUM
MRF 50C-130: Provides a precision 5000 Ω dummy gage. Recommended for use with half-bridge strain gage circuits of any resistance value, or with 5000 Ω quarter-bridge circuits. High resistance extends battery life in battery-powered instrumentation, reduces strain gage self-heating, and permits higher bridge excitation voltage to improve signal-to-noi ratio. Size (including foam tape): 1.3 x 0.7 x 0.2 in(32 x 18.2 x 5.7 mm). Weight: 6g.	0.5–30 V	40 V

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