FOR IMMEDIATE RELEASE

Bourns Introduces MSF Series Four-Terminal Shunt Power Resistors for Accurate High-Current Measurement

Driving Innovation Across the Entire Electronics Ecosystem

RIVERSIDE, Calif., November 4, 2026 - Bourns today announced its Bourns® MSF Series Four-Terminal Shunt Power Resistors, including the MSF-2 and MSF-2L models, for accurate current measurement in high-current power systems. The series combines a four-terminal Kelvin measurement design with a 5 W power rating and resistance values from 0.5 mΩ to 5 mΩ. Maximum current is 100 A at 0.5 mΩ, with lower current at higher resistance values to stay within the 5 W rating.

Current measurement in battery management, power conversion, motor control, welding, and industrial power equipment can be affected by the resistance of leads, conductors, and electrical connections. The MSF Series separates the load-current path from the voltage-measurement path through its four-terminal Kelvin configuration, minimizing measurement errors caused by lead resistance. A Manganin® resistance element welded to oxygen-free high-conductivity copper terminals provides thermal stability, while a flame-resistant, high-temperature silicone coating protects the resistor. The series operates from -55 °C to +275 °C and provides a temperature coefficient of resistance (TCR) of ±100 ppm/°C from 0 °C to +85 °C.

"Accurate current measurement becomes more difficult as system current increases because resistance in the conductors and connections can influence the sensed voltage. The MSF Series uses a four-terminal Kelvin configuration to separate the measurement path from the load-current path, supporting current measurement up to 100 A with resistance values as low as 0.5 mΩ."
— Walter Garcia, Product Line Manager, Resistors, Bourns

Design Features

- Radial, self-supporting construction — mounts directly on the PC board
- Four-terminal Kelvin design — minimizes errors caused by lead resistance
- 5 W power rating
- 100 A maximum current at 0.5 mΩ — higher resistance values carry less current to stay within the 5 W rating
- -55 °C to +275 °C operating range
- ±100 ppm/°C TCR — limits resistance variation from 0 °C to +85 °C; other TCR values are available by contacting Bourns
- Flame-resistant coating
- RoHS compliant*

Electrical Specifications

Parameter	MSF-2/MSF-2L
Power rating (W)	5
Maximum current (A)	100 at 0.5 mΩ
Resistance range (mΩ)	0.5 to 5
Standard tolerance (%)	±0.5 to ±10
TCR, 0 °C to +85 °C (ppm/°C)	±100
Operating temperature range (°C)	-55 to +275
Dielectric strength (VAC)	1000
Maximum working voltage (V)	√(P × R)

Target Applications

- Battery management systems (BMS)
- Power supplies and power conversion equipment
- Industrial motor controls
- Current monitoring circuits
- Welding equipment
- Energy storage systems
- Industrial automation and control systems

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Availability

The MSF Series four-terminal shunt power resistors are available now through Bourns authorized distribution partners. Product details, inventory information and sample requests are available at bourns.com/products/resistors/current-sense-resistors. Engineers may also contact Bourns Customer Service or Inside Sales for application support and ordering information.

About Bourns

Bourns is the global electronic components partner for design engineers whose systems must keep working—in vehicles, aircraft, defense and navigation systems, medical devices†, data centers, satellites, consumer electronics, energy systems, and the networks that connect them. Across power, protection, sensing, timing, and thermal management, Bourns builds solutions for the demanding requirements those systems create. The family that founded Bourns in 1947 still governs the company—a stewardship that lets Bourns commit to its people, technologies, and customers for decades rather than quarters. For more information, visit bourns.com.

Bourns® and the Bourns logo are registered trademarks of Bourns, Inc. and may be used only with the permission of Bourns and proper acknowledgement. Other listed names and brands are trademarks or registered trademarks of their respective owners.

†Bourns® products have not been designed for and are not intended for use in "lifesaving," "life-critical" or "life-sustaining" applications nor any other applications where failure or malfunction of the Bourns® product may result in personal injury or death. See Legal Disclaimer Notice bourns.com/docs/legal/disclaimer.pdf

Media Contacts

Company Contact:
Anneliese Treckmann
Bourns Electronics GmbH
Anneliese.Treckmann@bourns.com

TEL +49 151 1478 5809

###