

For Immediate Release

Sendyne IC Achieves Ten-Fold Increase in Dynamic Range of Current Measurement

The Sendyne SFP100 IC Enables Use of Ultra-Low Resistance Shunts for Sensing Currents from Kiloamperes Down to Milliamperes in Automotive Temperature Conditions

New York, New York, April 9, 2013 – Sendyne Corp. announces the SFP100, a high precision current sensing IC, that extends by at least an order of magnitude the range of accurate measurements of current through a resistive shunt. Utilizing the Sendyne SFP100, ultra-low resistance and low-power consumption shunts can now be used on the field to measure currents ranging from kiloamperes to milliamperes with a precision that was previously available only in laboratory instruments.

The Sendyne SFP100 was designed to address the unique requirements of battery monitoring in energy storage systems, such as those used for electric vehicles (EVs) grid storage and photovoltaic arrays, where large variations of current need to be monitored accurately. Errors in current measurement in these systems accumulate over time, leading to incorrect predictions of the system energy capacity. Although preferred for their simplicity and low cost, shunts have in the past been problematic for use, as system designers were forced to make a trade-off between the desired accuracy and the excessive power consumption of the measurement system. The Sendyne SFP100 addresses this issue with a proprietary “Continuous Calibration” patented and patent pending technology that minimizes the current offset error to a negligible level.

Offset error determines the minimum current value for which the desired accuracy of current measurement can be achieved. The Sendyne SFP100 achieves a remarkable reduction of the maximum offset error measured across a shunt to a value of less than 150 nanovolts, regardless of the shunt resistance, without calibration and throughout the entire automotive temperature range. Using the Sendyne SFP100 and a 1 micro-

ohm shunt for example, it is possible to measure up to 37,000 amperes with an offset current that is less than 150 mA in all ambient temperature conditions. In this scenario, the shunt's heat dissipation at 1000 A would be just 1 W. The Sendyne IC was rated to this accuracy in a configuration that included external EMI/RFI filters, which are required in many applications.

Smaller currents applications where measurement accuracy is critical can equally benefit from the low offset current and thermal stability of the Sendyne SFP100. A 10-milliohm shunt for example, can measure up to 3.75 A with an offset error of just 15 microamperes.

The Sendyne SFP 100 is the first release in the Sendyne Sensing Family of products. The IC simultaneously measures bi-directional DC current across a resistive shunt, provides internally-accumulated coulomb counting information, offers accurate voltage measurement, and measures temperature at four points utilizing two 24-bit $\Sigma\Delta$ ADCs. The Sendyne SFP100 communicates to the host system over a simple serial interface; custom interfaces can be provided. The IC is qualified to AECQ100, and is rated for the automotive temperature range of $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$.

In the past, this level of performance was only available from metrology-grade equipment operating in a lab environment. The Sendyne SFP100 brings this performance to the field, making it ideal for use in battery monitoring for automotive, industrial, railroad and utility scale storage, as well as in uninterruptible power supplies, converters, photovoltaic arrays and drive controls.

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About Sendyne

Sendyne develops key semiconductor components and advanced circuits for the management of battery systems used for grid storage and EVs, as well as innovative tools for battery system design and optimization.

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