



Life Energy Motion

PRESS INFORMATION

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Compact panel mounted voltage measurement with LEM DVC 1000 series

Key points:

- **Compact, light and robust package**
- **131.6 cm³ total volume**
- **Fully-isolated nominal measurement of 1000 V DC, AC or pulsed**
- **4.2kV as insulation test voltage**
- **Meets latest IRIS requirements for rail traction applications**

LEM introduces the [DVC 1000](#) series of voltage sensors for insulated nominal voltage measurements in rail traction and industrial applications.

The DVC 1000 series offers panel mounted voltage measurement in a compact package, measuring only 29 x 51 x 89 mm, giving a total volume of only 131.6 cm³.

Designed to measure a nominal voltage of 1000 V_{RMS}, the DVC 1000 series uses an isolating amplifier, providing very high levels of isolation with a safety insulation voltage of 4.2 kV. The use of an isolating amplifier offers significant space savings over other sensors of similar capacity, which use bulky galvanic insulation.

As well as being highly robust, the DVC 1000 series also offers high levels of accuracy and temperature stability. An optional DIN rail mounting adaptor makes it easy to integrate into users' own applications.

LEM developed the DVC 1000 to be fully compliant with the International Railway Industry Standards (IRIS). Engineers in the railway industry working with both rolling stock and sub-stations can use these versatile new sensors to measure DC links, the output voltages of inverters, the input voltage of 4 quadrant converters, or the battery voltage of Light Rail Vehicles. The features of the DVC 1000 voltage sensors also make them ideal for a broad range of small-to-medium voltage measurements in industrial markets such as DC power supply monitoring, EV chargers and battery storage applications.





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DVC 1000 sensors measure voltages by a direct connection on their primary sides, through an internal resistor network and other components designed to feed the signal to an isolation amplifier.

An isolated signal is recovered and then conditioned in order to supply a voltage or a current at the sensor's output connections, which is an exact representation of the primary voltage. No additional components are needed – the connections are simply connected between the voltage to be measured and the control device.

The DVC 1000 family can supply instantaneous +/- 30 mA current output (DVC 1000) or +/- 10 volt voltage output (DVC 1000-B) at +/- 1500 volt peak. The DVC 1000-UI model supplies a unipolar instantaneous 4-20 mA current output at 0...+1000 Volt DC (Unipolar DC Voltage measurement only).

All models deliver excellent overall accuracy, of +/- 1 % at +25°C with a high stability in temperature, leading to an overall accuracy of +/- 1.7% with an operating temperature range from -40°C to +85°C.

Measurement frequency bandwidth (-3dB point) is 35 kHz and the DVC 1000 models consume only 12 to 22 mA at no primary voltage, depending on the model and the power supply used - from +/- 15 to +/- 24 volt for the DVC 1000 and DVC 1000-B models and from a unipolar +15 to +24 V power supply for the DVC 1000-UI model.

With their compact size and weighing only 57g, the DVC 1000 series is unique on the market. Other key features include compliance to a range of internationally recognised safety standards in addition to their adherence to IRIS specifications. They also exhibit a fast response time of 12 to 17 μ s at 90% of nominal voltage.

Designed by LEM in accordance with the latest standards applicable for traction and industry, the DVC 1000 models use materials that comply with all relevant fire and smoke requirements (EN 45545), mandatory in railway applications. They are CE marked and are supplied with a five-year warranty, as are all LEM sensors.





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LEM – Life Energy Motion

Leading the world in electrical measurement, LEM engineers the best solutions in energy and mobility, ensuring that customers' solutions are optimized, reliable and safe. Our 1,500 people in over 15 countries transform technology potential into powerful answers. We develop and recruit the best global talent, working at the forefront of mega trends such as renewable energy, mobility, automation and digitization. With innovative electrical solutions, we are helping our customers and society accelerate the transition to a sustainable future.

Its core products - current and voltage sensors - are used in a broad range of applications in drives & welding, renewable energies & power supplies, traction, high precision, Smart-Grid, conventional and green car businesses.

LEM is a mid-size, global company with production plants in Geneva (Switzerland), Sofia (Bulgaria), Beijing (China) and Machida (Japan). With its regional sales offices close to its clients' locations, the company offers seamless service around the globe.

Listed on the SIX Swiss Exchange since 1986, the company's ticker symbol is LEHN.

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