

# SENIS

magnetic & current measurement

Advanced  
Magnetic Field and  
Current Measurements  
Sensors, Instruments  
and Services



# NEWSLETTER

SENIS NEWSLETTER May 2013

**SENIS AG** provides Magnetic Field Measurement Instruments, Current Sensors and corresponding Services:

- Broad range of [Analog Magnetic Transducers](#) and [Digital Teslameters](#) with the smallest 3-axis Hall probes, very low noise and high frequency bandwidth
- [Magnetic Field Mapping Systems](#) for testing permanent and electro-magnets
- Miniature, high sensitivity [current sensors](#)
- Clamp-on DC [MicroAmmeter](#)
- [Insulation Defect Locator](#)
- Related consultancy and [engineering services](#), such as [calibration & characterization of magnetic and current measurement instruments](#)

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## [\*\*SENIS' new Digital Teslameter \(1ppm resolution and 0.001% accuracy\)\*\*](#)

Low Noise Teslameter with 1-, 2-, 3-axis Hall Probe incorporates a high accuracy magnetic field-to-analog-voltage transducer with a high-level, temperature compensated output signal for each of the three components of the measured magnetic flux density. A digital module is additionally applied to the analog transducer to form the digital Teslameter with an extraordinary resolution of only 1ppm and an accuracy of approximately 0.001%. SENIS' Teslameter, with the TFT LCD touchscreen provides the possibility of automatic data acquisition via a USB serial interface by a host computer. In this way, customers can easily integrate a measurement routine into their measurement system using its own programming

tools: <http://www.senis.ch/magnetics/digital-teslameter/overview-digital-teslameter-gaussmeter>



## Low-Noise Teslameter 3MH5 with Integrated Hall Probe

### Key Features

- High Performance Teslameter/Gaussmeter for Laboratory Applications
- Teslameter/Gaussmeter with Integrated 1-, 2-, 3-axis Hall Probes for measuring DC & AC magnetic fields of up to 5kHz
- Very High Resolution: 1ppm at magnetic field range: 0.2T, 2T, 20T
- Accuracy: up to approx. 0.001%
- High temperature stability (< 20ppm/°C)
- Auto range, zeroing, hold reading capability
- Signal Analysis (signal frequency measurement, rms value, min/max value, etc.)
- Units in gauss (G), tesla (T) or Oersted (Oe)
- Measured Channel Selection (Bx, By, Bz)
- TFT LCD graphic display (107x71mm), displaying Bx, By and Bz components and the temperature value measured on the Hall Probe
- Data Acquisition & Visualization PC Software
- Remote software access for measurements monitoring (LabVIEW VI)

### [SENIS at SENSOR + TEST 14.-16.5.2013 in Nürnberg, Germany](#)


SENIS will exhibit at the 2013 Europe's biggest Measuring Technology Trade Fair at

**BOOTH No. 352 in Hall 12.**

<http://www.sensor-test.de/sensor-test-2012-for-exhibitors/search-3/exhibitor/details/51415>

You will have the opportunity to meet at the booth Mr. Sasa Spasic, CEO of SENIS, and SENIS senior application engineers Marjan Blagojevic and Zarko Mitrovic.

Among others we will present and demonstrate the following products at the show:

	<p><b>Low Noise Teslameter with integrated Hall Probe</b></p> <p>1ppm resolution and 0.001% accuracy.</p> <p><a href="http://www.senis.ch/magnetics/digital-teslameter/overview-digital-teslameter-gaussmeter">http://www.senis.ch/magnetics/digital-teslameter/overview-digital-teslameter-gaussmeter</a></p>
	<p><b>Magnetic Field Mapping System</b></p> <p>Magnetic Field Mapping System enables a user to quickly map the magnetic field around an electromagnet or permanent magnet. The applied integrated 3-axis Hall Probe measures simultaneously all three components of the magnetic field with very high spatial resolution.</p> <p><a href="http://www.senis.ch/magnetics/magnetic-field-mapper/overview-magnetic-field-mappers">http://www.senis.ch/magnetics/magnetic-field-mapper/overview-magnetic-field-mappers</a></p>
	<p><b>Fully integrated thin 3-axis Hall Probe</b></p> <p>Very thin (0.5mm) and long (47mm) fully integrated 3-Axis Hall-Probe System. The probe has a very high spatial resolution (<math>B_y</math>: <math>0.03 \times 0.005 \times 0.03\text{mm}^3</math>; <math>B_x</math> and <math>B_z</math>: <math>0.15 \times 0.01 \times 0.15 \text{mm}^3</math>) and a high angular accuracy (orthogonality error less than <math>0.1^\circ</math>).</p> <p><a href="http://www.senis.ch/magnetics/hall-probes/integrated-hall-probes">http://www.senis.ch/magnetics/hall-probes/integrated-hall-probes</a></p>
	<p><b>Miniature Current Sensor</b></p> <p>Miniature low current four-range sensors (0.1A/0.2A/2A/8A) are high accuracy, high sensitivity sensors, with high voltage isolation capability. The sensors can be connected for either bi-polar operation (<math>2.5\text{V} \pm 2.5\text{V}</math>) or uni-polar operation (0 to 5V).</p> <p><a href="http://www.senis.ch/current/overview-current-measurement">http://www.senis.ch/current/overview-current-measurement</a></p>

## SENIS at CWIEME 2013 in Berlin, Germany

### **June 4<sup>th</sup> - 6<sup>th</sup>, Berlin, Germany**

SENIS will present its magnetic field mapping solution and its Insulation Defect Locator at the booth of [BOMATEC AG](#) (Booth No. 4333, Hall 4.2 upper level)

Details on Magnetic Field Mapping System: <http://www.senis.ch/magnetics/magnetic-field-mapper/overview-magnetic-field-mappers>

Deatails on Insulation Defect Locator <http://www.senis.ch/current/insulation-defect-locator>

### **June 5<sup>th</sup>, Berlin, Germany**

Presentation by Dr. Dragana Popovic Renella and Marjan Blagojevic on

## **Locating Winding Insulation Defects in Large Electrical Machines**



### Abstract

The windings of large electrical machines, such as the stator windings of hydro generators, may develop a current leakage path that might result in catastrophic machine failure. The conventional method of localization of insulation defects includes a costly destructive procedure. SENIS' new Insulation Defect Locator (IDL) can locate the problem coil or bar without the need of cutting conductor(s). The key component of IDL is a DC clamp-on  $\mu\text{A}$ -meter with the resolution of  $10\mu\text{A}(\text{rms})$ . The  $\mu\text{A}$ -meter incorporates a Hall magnetic sensor with the resolution of  $10\text{nT}(\text{rms})$ . A dual core structure of the  $\mu\text{A}$ -meter results in high immunity to environmental magnetic fields.

## Speakers



Dr. Dragana Popovic Renella is co-founder and COO of SENIS AG, Switzerland. She holds a Master's degree in electrical engineering from the Swiss Federal Institute of Technology Zurich (ETHZ), and a Ph.D. degree in Technology Management from the University of Novi Sad. Prior to starting SENIS AG, Dragana worked for Credit Suisse e-Business and Sentron AG. Her business and research interests include technology management, entrepreneurship, and marketing of high-tech start-ups.



Marjan Blagojevic is Senior Development Engineer at SENIS AG. Marjan obtained a Master's degree in electrical engineering from the University of Nis. He is currently working toward his Ph.D. degree. His business and research interests include magnetic field measurement, advanced current measurement and particularly the mapping of non-homogeneous magnetic fields using integrated Hall sensors.

## Imprint

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