

PRESS RELEASE

PRESS RELEASENovember 17, 2015 || Page 1 | 2

Energy harvesting solution for an energy-independent flow measuring system on pipelines and filling pumps

Nuremberg, November 17, 2015: Scientists at the Fraunhofer Institute for Integrated Circuits IIS have succeeded in using the existing mechanical flow energy on an oval wheel meter to produce electrical energy. This allows data from filling pumps or pipelines to be read remotely using an independent energy source and without requiring maintenance.

The measurement of volume flows – to determine the amount of gas that has been put in the tank, for example – can be carried out using oval wheel meters. To transmit the measurement for evaluation and checking, a wireless remote solution would be beneficial for many applications. The necessary energy has previously come from batteries or via cables, which has always resulted in additional maintenance and installation work and thus extra costs. With pipelines in particular, the additional cost is so high or the locations are so inaccessible that economical use of flow measurements using remote reading has not been possible due to a lack of alternative power supply methods.

Energy harvesting which uses environmental energy such as light, heat, or motion to produce electrical energy has allowed the Fraunhofer IIS team led by Dr. Peter Spies, head of the “Integrated Energy Supplies” group, to use the turning of the cog wheels in oval wheel meters to generate energy. Peter Spies explains the benefits of the technology as follows: “A suitable arrangement of magnets on the cog wheels and fixed coils on the housing of the oval wheel allows the rotary motion to produce the electrical energy needed to supply a wireless module and to transmit the measurements wirelessly.”

The flow measurement system with remote read-out and its own energy supply was developed jointly with the project partners Bopp & Reuther Messtechnik GmbH and WIKON GmbH within the “Oval Wheel Meters” project of the Central Innovation Program for SME (ZIM). The project was funded by Germany’s Federal Ministry of Economics and Technology under the project sponsorship of the German Federation of Industrial Research Associations (AiF).

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You will find further information on energy harvesting here:
www.iis.fraunhofer.de/energyharvesting.

PRESS RELEASENovember 17, 2015 || Page 2 | 2

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Energy-independent flow measurement system with remote read-out © Fraunhofer IIS/Heiko Wörrlein | Picture in color and print quality: www.iis.fraunhofer.de/pr.

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