



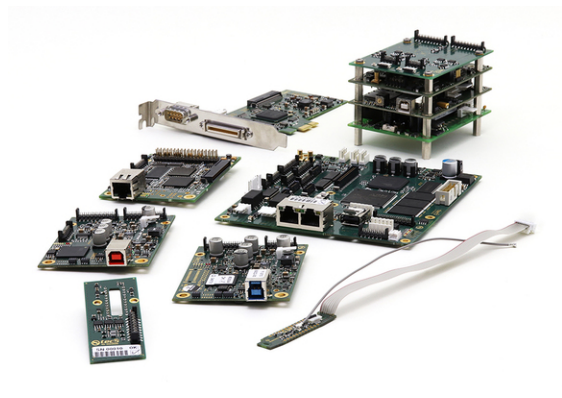
tec5 – TOPICS

- **Electronics for CMOS arrays | UV-VIS Spectroscopy**
- **tec5 Highlights | Agritechnica 2017**
- **tecSaaS® meets NAMUR-Recommendation 153 | Interview Part 2**

Have fun reading the news ...

We wish you and your families a peaceful and memorable Christmas, good health and happiness in the New Year.

Greetings from Oberursel
Your tec5 team



Support of CMOS Arrays

Fast and sensitive – with the advent of new CMOS photo diode arrays for spectroscopy, new applications are possible. Both, PC based components and systems as well as embedded spectrometers from tec5 are also available for operation with CMOS arrays. In this way, the advantages of these detectors can be utilized in combination with tec5 electronics, software and instrument technology. In our internal electronics and software development, high precision, accurate timing and synchronization as well as high measurement speed are the primary targets. The product information contains an overview of the available modular

tec5 Highlights at Agritechnica 2017

Two successful tec5 products delighted the visitors at the leading trade fair for agricultural machinery Agritechnica in Hannover.

Built on the [tecSaaS® platform](#) the compact nutrient measurement system VAN-CONTROL 2.0 contains current tec5-embedded technology. Due to the use of intelligent and compact sensors as well as the integration of the readout-function into the device, the spectrometer system obtains the very own embedded characteristics of intelligence and autonomy.

The function and benefit of the device in total is the substitution of expensive mineral fertilizer by affordable manure or fermenting substrates without loss of efficiency on the soil. So far it was only possible in the range of 40-60% of the nutrient demand, due to missing detailed nutritional content data. With its robust construction and fully automated operation VAN-Control measures and documents all data required by law and




M-U-T NIR SPEEDSPY ONBOARD
 ✓ Inhaltsstoffe in Rindergülle:
 TM, N_{total}, NH₄-N, K₂O
 ✓ Inhaltsstoffe in Schweinegülle:
 TM, N_{total}, K₂O
 ✓ Inhaltsstoffe in flüssigem Gärrest:
 TM, N_{total}, NH₄-N, K₂O
 DLG-Prüfbericht 6796



assists the farmer to fulfil his obligations. The tec5-sister and manufacturer of the nutrient measurement system, mut GmbH, has been honored at this year's Agritechnica by the DLG. The DLG certification is awarded for agricultural products and stands for highest product quality. [DLG audit report 6796].

The n-Sensor®ALS [ActiveLightSource], developed in cooperation with Yara and manufactured by tec5, is an active sensor, equipped with own light source for the determination of N-status and plant stock-biomass using a reflection measurement. Mounted on an agricultural vehicle the sensor provides the nitrogen content of the agricultural area and transmits the data in real time into the driver's cabin. Based on this information, an absolute resource- and environment-friendly output of farm manure takes place, adapted to the needs of each square meter.

For further information please do not hesitate to contact us sales@tec5.com

Embedded Spectroscopy >>

platform is the answer to IT-Security requirements, at present and in the future

Interview Part 2 with Steffen Piecha, Head of Sales & Marketing – **NAMUR recommendation 153** already included in **tec5 philosophy**

Question 1: Hello Mr. Piecha, you mentioned the NAMUR recommendation 153 earlier in the last tec5 Newsletter. Who or what actually is NAMUR?

Steffen Piecha: *NAMUR is an international association of automation technology users, founded on November 3rd, 1949. The original name “standardization association for measurement and control in chemical industries” has been changed in 2005 in the still current term of “Automation Systems Interest Group of the Process Industry”. The NAMUR campaigns for efficient, sustainable and secure processes in their members’ industries.*

Question 2: The NAMUR recommendation 153 has been published in mid-2015. In this document, the increasing complexity of modern automation solutions through subsequent installation of IT-Security components is addressed. In conclusion, the NAMUR spots an urgent need of a State of the Art IT security integration right in the planning and conception phase. How do you rate this recommendation?

Steffen Piecha: *I totally agree with it. An optimal use of IT-Security concepts is only possible if they are an integral part of the requirement profile and if they are already taken into account during the product design process.*

Question 3: How does tec5 react to these considerations?

Steffen Piecha: *During the development of the embedded platform tecSaaS® IT security has been an important aspect right from the start. An integration of intelligent measurement systems in the environment of Industry 4.0 will be only successful if its IT security is consistently provided. A fundamental element of our tailored security architecture is the use of dedicated hard- and software solution on the basis of a lean RTOS operating system instead of counting on widespread consumer components like e.g. Raspberry Pi. Furthermore, we implemented password protected user authentication, the use of encryption procedures and hash methods in addition to a targeted restriction of the used functionality and interfaces to what is really required for the application.*

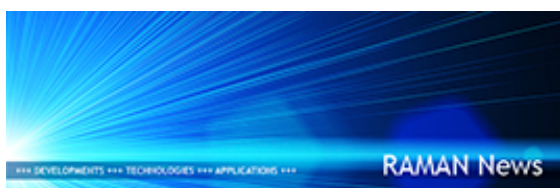
Question 4: What significant benefit does the customer have by using the tecSaaS® platform?

Steffen Piecha: *With a spectrometer system based on the tecSaaS® platform, tec5 offers a low-maintenance and highly reliable component for the process measuring industry. A powerful internal data processing [e.g. chemometrics] and various industrial interfaces enable the use of this system “as a sensor”, as known from much simpler sensors. The tecSaaS® platform is offered as a complete OEM component and permits a fast installation of automation projects without a need for the customer to provide his own engineering capacities.*

NAMUR-Recommendation 153 >>

For further questions, please do not hesitate to contact Steffen Piecha:

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