Sensitive *anniversary edition*
The magazine for non contact measurement gauges

Dear readers,

this year marks the 25th anniversary of ASTECH Angewandte Sensortechnik GmbH. For the management and employees this event is connected with pride of achieved results, and the consistency of the company's success. For this edition of the *Sensitive*, the ASTECH team decided to dedicate an anniversary edition.

In the 80s of the former German Democratic Republic, at the University of Rostock, research on non-contact speed measurement based on spatial filter was done. Though, by that time, it was unimaginable that the research with this technology would be the basis for the foundation of a successful company, which is now operating and selling its products on six continents.
With the fall of the Berlin Wall in 1989 and the consequent new freedom, the idea of the company founder Volker Ahrendt matured, to use the prototype of a CCD-based speed gauge, developed by him at the University of Rostock, as a technical basis for a business foundation.

From the beginning on, ASTECHs history was accompanied by its passion to work hard for the realization of an idea and the intuition for promising applications and situations. These characteristics are part of ASTECHs identity. They were given by its founder, segued into the employees and since then ensure that ASTECH is able to undergo eventful times with strength and confidence. ASTECHs guiding principles are also expressed in its products, which are deeply appreciated by customers due to their high-quality and longevity. They will furthermore ensure that the company is prepared for future market demands.

The company's gratitude goes to all customers, suppliers, partners and, above all, its employees. They were and will always be the ones that guarantee the success of the company.
ASTECH is looking forward to future businesses and partnerships with all of you.

ASTECH team at the company site in Rostock, summer 2017

In this edition

25 years of successful “Non-contact measurement with light”

The ASTECH Angewandte Sensortechnik GmbH celebrates its 25th anniversary. ASTECH was founded on the 17th September in 1992 and started its business on the 1st October. However its history starts much earlier.

Since 1983 a working group under the leadership of Prof. Dr. rer. nat. habil. Dr.-Ing. E. h. Otto Fiedler (†) and Dr.-Ing. Klaus-Peter Schulz (†) at the University of developed a non-contact speed length measurement principle based on the spatial filter, using a CCD line sensor. Among the group was Mr. Volker Ahrendt, one of the subsequent founders of ASTECH. By April 1990 he planned the establishment of a company and was searching for fellow campaigner. The technical basis for the company was the prototype of a speed gauge using a CCD line sensor, which was developed by Mr. Ahrendt at the University of Rostock.

sensor computer SR2 (open) with spatial filter camera OFK

For the signal analysis, a period time measurement and microcontroller were used for the first time. In 1990, the device was presented by Volker Ahrendt on the fair “Leipziger Frühjahrsmesse” at Prof. Fiedler’s suggestion. First business contacts, especially to companies from the old West German states, were established here and it became apparent that there would be a valuable market for such a device. However, the situation also showed that the prototype was not ready for an enduring application in the industrial environment. A further development and a marketing campaign were necessary. To finance such investment, a sponsorship from the public support program “Technologieorientierte Unternehmensgründung (TOU)“ was required.

In the first instance the “ASTECH GbR” (civil law association) was founded by Dipl.-Ing. Volker Ahrendt and Dr.-Ing. Klaus Christofori in September 1990. The young corporation settled in the “Technologiezentrum Warnemünde”, which had just opened, as one of the first companies. With the reception of the TOU subsidies, the product development “universal speed gauge” started in November 1991. Beside the development of the gauge, several development requests, such as an industrial CCD-camera for width measurement and a device to measure the breath alcohol concentration, were executed. The first own products were PC-cards for the analysis of Laser-Doppler signals and a large intelligent LED display.

PC cards MFB4000, FAB100 and BMB450

The promising work with the speed gauge, based on spatial filtering, led to the foundation of the “ASTECH Angewandte Sensortechnik GmbH” (limited liability company) in 1992. The commercial marketing of the speed gauge VLM200 began in 1994. The first customers were the Salzgitter AG, Krupp Edelstahlprofile GmbH (now Deutsche Edelstahlwerke) and Corning GmbH. The VLM200 was awarded with the prize for industrial research of Mecklenburg-Western Pomerania in 1994 and with the technology prize (3rd level) of Mecklenburg-Western Pomerania in 1996.

Till today, the “foundation product VLM” is one of the main growing products of ASTECH. The VLM is now in its 5th generation, with the VLM500. Its vast long-life cycle, high quality and the enormous robustness in the industrial environment are highly appreciated by customers all over the world.

A continuously growing customer base and market experience, as well as gained feedback from several fair visits, led to the decision to put the company on a wider product basis. As a consequence, the new business area “Laser distance sensor” was established in September 2000.

ASTECHs first industrial laser distance sensor LDM30

This area developed quickly to a top-selling business field.

Till this day, various types of gauges and their successors have been brought on the market. With its business segments ASTECH has high quality demand on its products. ASTECH not only sells the products, but also provides support and solution to customer’s applications. This working behavior raises economic effort first, but leaves satisfied customers in the end, who are willing to come back to ASTECH to solve future tasks. On the other hand ASTECH also clearly communicates to its customers if a task cannot be managed.
The success over the last 25 years confirms this way of corporate philosophy.

Additional marketing requirements led to further strategic decisions. Right from the beginning, the distribution of the products outside Germany was delegated to local partners around the world. When choosing these partners, ASTECH seeks for high quality and professionalism. Before becoming a local distributor, the prospective partner has to attend comprehensive product training.

After the successful participation, the company receives the status as a certified sales partner and can offer products in its country.

At the beginning of 2004 the second founder of ASTECH retired from the company, all the shares fell to ASTECH and Mr. Volker Ahrendt became the sole managing director. Literally in the last moment the company was prevented from a potential insolvency in the first half of 2004. Due to the commitment of all employees the debt relief was achieved within a few months. Till that day, the liquidity position of ASTECH is very solid.

In the years that followed, restructurings happened and new business areas were added. Production and testing technologies were modernized and much care and time were invested in product care. The VLM200, which had hardly been modified for nearly 10 years, was now revised. The VLM250, produced since 2006, received a new, significantly improved analog signal processing and, also for digital signal processing, new and faster circuits were developed.

Once more the decision was made to expand the product variety. In July 2009 the business field “Color sensor” was developed and brought to the market. This field was mainly administrated by the new shareholder and later managing director Prof. Dr.-Ing. Ansgar Wego.

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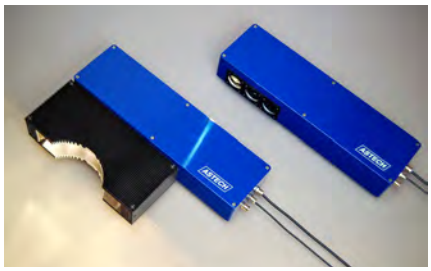
color sensors CR100 and CR200

Milestones of the past 25 years

1 VLM100

The first generation of the VLM series was the kick-off for a very successful model of speed and length measurement gauges, up to the present. In the VLM100 already the robust industrial standard enclosure was applied. The signal analysis took place in a separate personal computer.



2 VLM200

Only one year later the successor VLM200 was presented. It was the first commercially available speed and length measurement gauge of the ASTECH GmbH. It was offered in different versions. A wide range of interfaces made the VLM200 a versatile applicable device in a short period of time. Due to the easy handling and the almost maintenance-free operation, the industry sensor is appreciated by its customers.

3 Lixus-i PN

The ASTECH GmbH presents the first Lixus-i PN camera. This model is a smart line scan camera for the industrial sector.
It recognizes precisely and quickly positions of edges of various types of objects. The Lixus-i PN can be applied for measurement- as well as for inspection purposes.

1993 VLM100 — 1
1994 VLM200 — 2
1999 Lixus-i PN — 3
2000 LDM300C — 4

4 LDM300C

The LMD300C is the first candidate of the ASTECH-laser distance devices, based on the time of flight (TOF) principle. Ranges up to 1500 m and accuracies up to 50 mm can be achieved with gauge. For large distances the alignment happens with a special light point sight.

5 LDM41/42A

With the LDM41/42A the ASTECH Company presents a laser distance sensor for the precise measuring of distances. The working principle bases on phase comparison measuring. Distances of 30 m with uncertainty of measurement of only 3-5 mm can be acquired by this LDM. Hence this laser module fits for monitoring as well as for positioning purposes.

6 LDM301A

A larger detection range (up to 3000 m) and an improved accuracy (20 mm) characterize the successor LDM301 of the older LDM300C. Additionally a red pilot laser was integrated in the device which allows a convenient alignment to the measuring object. Like with the predecessor the measurement can be triggered externally.

7 VLM320

With the implementation of a 32bit microprocessor and new field programmable gate arrays, a more powerful signal processing could be achieved. With the replacement of the so far used halogen lamp, by a new high power illumination LED, the maintenance costs and maintenance periods were reduced significantly. The ASTECH GmbH provides a five-year warranty for the VLM320.

8 CR100/CR200/CR210

The beginning of the CROMLAVIEW® color sensor family is characterized by robustness for harsh industrial applications and connectivity to common industrial interfaces. The sensors work perceptively and are equipped with drift stabilization – CROMLASTAB®.

9 LDS30A

The compact laser distance sensor LDS30 comes with a high sampling rate. Measurements up to 30 kHz can be carried out with this device being housed in an IP67-enclosure. The detection of fast detections is one field of application. Like the other entire laser distance sensor this one is equipped with a 4-20 mA current loop as well.

10 VLM500

The VLM of the 4th generation is characterized by higher sensitivity, larger working distance, smaller and lighter enclosure and a new interface concept. This was achieved by a complete redesign of the internal electronics and the in-house development of the receiving optics. New fields of applications can be reached.

2006 LDM41/42A (5)
2007 LDM301A (6)
2010 VLM320 CR100/CR200 (7)
2011 CR210 (8)
2012 LDS30A (9)
2014 VLM500 LDM51A (10, 11)
2015 CR500 (12)
2016 VLM502 (13)

11 LDM51A

The LDM51A is the further development the successful LDM41/42 series. A revision of the signal processing and the usage of new algorithms allow measurement ranges up to 500m with uncertainty of measurements of only 1 mm.
Beside several interfaces, the LDM51A contains a build-in display to read out the measurement values.

12 CR500

A new and patented method to overcome the distance dependence to the test object was implemented in the CROMLAVIEW® CR500. The compensation of the measuring distance changes is achieved by a special, calibrated, optical fiber arrangement with the brand name CROMLADIST®.

13 VLM502

For applications with limited installation space the ASTECH GmbH developed the VLM502. The separated gauge head has a far smaller enclosure and a considerable shorter nominal working distance. This allows the installation in small or tight plants or test rigs. The signal analysis and the interfaces are covered in a second enclosure which is connected to the head by a set of cables.

CROMLAVIEW® series

NEW: Single channel color sensor CROMLAVIEW®-CR10

With the CROMLAVIEW® CR10, the CROMLAVIEW® color sensor series is extended by a single-channel color sensor.

The parameterization of the sensor is very simple and is done by only three times pressing a push button. Despite the localization of the sensor in a very attractive price segment, the sensor is equipped with a very generous range of functions. In addition to a single sensor button with a LED for indicating the operating conditions, the sensor has two control inputs, which can be used to trigger the measurement and to teach-in a color value. Color values can be stored with five different tolerance values. Furthermore, a teach-in is possible in the multiteach mode, in which the tolerance value is determined solely by the presentation of several color values.

Practically relevant in the industrial environment is the setting of a key lock and the optional setting of an output holding time of 50 ms at the output. Thus, very short color pulses, e.g. in the case of very fast objects can be extended for slow PLCs. The switching output itself (24 V / 200 mA) is short-circuit-proof. A special feature is the detection and display of an output short circuit. To be able

ASTECHs new single channel color sensor

to cope with the harsh industrial environment, the sensor electronics is housed in an anodized aluminum housing. This is waterproof so that the IP67 degree of protection can be achieved. Just like the existing CROMLAVIEW® color sensors, the CROMLAVIEW® CR10 also operates perceptively (according to the color perception of the human eye) and processes the color values in the L*a*b* color space.
This makes it unique in the category of single-channel color sensors in its market environment.

LDM series

Far… farther… Kolibri!

ASTECH is pleased to present the next new member in the group of OEM laser distance sensor modules. The RF601 increases the reflector-less long distance measurements to a new level.

Up to now, detections of targets with just 30 % reflection in a distance of more than 1350 m were nearly impossible, but with the new RF601 such measurements become reality. Beside of that, it is also impressive that the Kolibri provides accuracies below 0.5 m.

This unprecedented performance is owed by a statistic measurement principle, which was used to be reserved for military applications. Due to technical adjustments, like the usage of a harmless infrared laser (905 nm), the former military technology is now allowed to be used for civil purposes.

Along the mentioned outstanding measurement characteristic, it is even more astonishing what compact dimensions the RF601A provides. With just 46 x 43 x 24 millimeters, the Kolibri really lives up to its byname. In fact the maximum measurement rate of 25 Hz does not even meet the wing beat of its natural model, but considering the other measurement capabilities, this is fast enough for the targeted applications.

The group of possible applications for the new RF601A Kolibri is quite versatile. They are mainly focused on the fields of transport and logistics, geologic metrology, safety applications or altitude measurements for flying vehicles. The integration of the new OEM module in existing applications and systems is quite easy done, due to its compact dimensions and its electrical properties.

More information about the new RF601A Kolibri will be presented shortly on *www.astech.de/en*.

VLM series

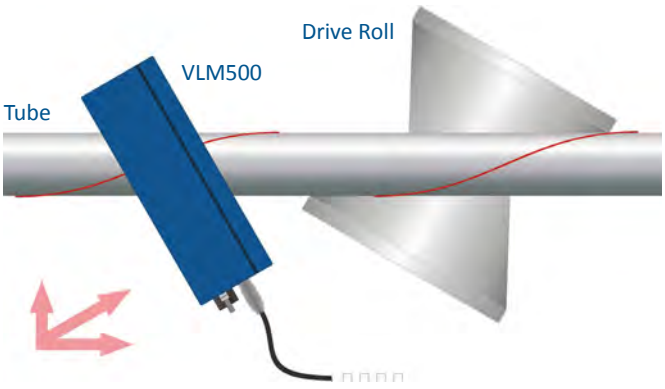
VLM500 – Application with rotating tubes

The steering of scanning technique (e.g. eddy current test), by measuring the velocity of a tube, is a typical application for the VLM500 in the tube industry. Depending on the test setup it is necessary to rotate the tube in axial direction additionally to the longitudinal motion. This leads to a superposed movement.

A tangential deviation of the drive rolls always yields to constant relation between the two velocity components v_x and v_y. By deviating the VLM500 upon the tube in the same way, the resulting velocity v_r can be measured with the gauge. For determining the interesting longitudinal speed component v_x, the VLM500 – software calculates the cosine of the deviation angle and recalculates it with the measured velocity v_r.

Via pulse outputs, field busses or other digital interfaces the resulting speed can be shared with further control parts of the facility. The deviation angle is programmed and stored in the VLM500 by the user.

For more information regarding this application please contact us via e-mail *info@astech.de* or phone +49 381 440730.



Company history

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The change from the 8bit microprocessor technology, with assembler programming, to 32bit with C programming happened with the introduction of the VLM320 in 2011.

In 2012 Mr. Jens Mirow took over the operational business management from Mr. Ahrendt, who managed the company successful in the past years. In the following years, the aim of ASTECH was to maintain the leadership in technology, by introducing further developed and new products.
The latest speed and length gauge was presented in 2014.

non-contact measurement device for speed and length VLM500

By a complete rework of the electronics, the VLM500 got a smaller enclosure. Better optical features were the result of the development of receiving optics.

At the moment, ASTECH is working on a new dimension of spatial filter and the complete digital signal analysis. Nearly all, so far unsolvable applications of speed measurement will be solvable in the future. Be curious about it. We will keep you updated with our Sensitive.

In addition to technological developments, it is also important to meet the rapidly changing conditions and requirements in a globalized world. Therefore, the focus of ASTECH is significantly on networking, establishing distribution channels, working closely with local partners and its online presence. It is strategically important to provide information about products in a short period of time and as clearly as possible. By doing so, ASTECH aims on providing customers with information and solutions, as time is a scarce resource in a fast changing environment. Furthermore, ASTECH puts great importance on the direct contact to customers, by regular visits, personal commissioning and consultations.

After 25 years on the national and international business platform, ASTECH went through eventful, successful and intensive times.
Being always loyal to our statement “Non-contact measurement with light”, ASTECH is looking optimistically into its future. With state-of-the-art technology and a high quality consciousness, ASTECH is successful on the market with contact-free measurement instruments worldwide.

Internal

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September 2017