

plasmo presents innovation for the first time at Control 2008:

plasmo 3D-Observer – machine vision system for robot working spaces

16 April 2008 – At Control 2008 – the international trade fair for quality assurance to be held in Stuttgart from 22 to 25 April 2008 - **plasmo** will present the new machine vision system for robot working spaces called “**plasmo 3D-Observer**” officially for the first time in the context of the special exhibition “Non-contact Metrology”. **Plasmo** is among the leading companies in quality assurance with sensor- and camera-based solutions for manufacturing industries. The development of the “**plasmo 3D-Observer**” for measuring of objects and parts in robot working spaces required the entire know-how of the **plasmo** engineers from the fields of industrial image processing and quality assurance.

“The 3D-Observer is fast, flexible, freely scaleable and achieves absolute precisions of less than 0.5 mm in measuring depending on the working range”, Arnold Braunsteiner, CEO of **plasmo** Industrietechnik GmbH, explains the advantages of the system.

Innovation = interdisciplinarity

The development of the 3D-Observer is an excellent example of the innovative power of the Austrian company **plasmo**, which is now active on four continents and has opened a new office in Germany as well as an agency in Japan at the beginning of the year 2008. “In our company, innovation also means interdisciplinarity at the same time. For this new development, the know-how which our engineers have in the fields of machine vision laser triangulation, automation technology, 3D data modelling and 3D data processing as well as in the calibration of measuring systems and in other fields was combined”, Braunsteiner explains on the occasion of the first presentation of the 3D-Observer before an international audience at Control 2008.

plasmo 3D-Observer – the state-of-the-art machine vision system

The **plasmo** 3D-Observer is a newly developed machine vision system for robot working spaces developed by the **plasmo** engineers. The **plasmo** 3D-Observer, which was designed to measure industrial working spaces in 3D within the shortest possible period of time, enables the recognition of parts, type checking, the determination of dimensional accuracy and the calculation of the grip points so that parts can be welded or stacked with a high precision. On account of the CAD interface the sensor remains programming-free even in case of a large number of diverse parts and it is, hence, optimally suited for flexible automation.

The plasmo 3D-Observer at ABB

The newly developed machine vision system “**plasmo 3D-Observer**” is already used successfully at ABB. ABB Austria employs 1300 members of staff in the fields of power transmission, power distribution, automation and building services engineering. The 3D-Observer is e.g. used in the automatic production of pre-fabricated supports for hall constructions at ABB. Parts to be welded on with a sandblasted, matt surface are taken to the plant as per the specific order concerned. On the basis of a comparison with the appertaining CAD data the camera system recognises which parts are located in which position. The data of the parts to be processed is forwarded by means of XML files (component geometry description). The machine vision system then determines the grip points on the basis of the 3D coordinates measured. Afterwards, the co-ordinates of the individual parts are transmitted: x-, y-, z-coordinate and rotation angle +/-1 mm. The camera is positioned 3mm above the reference surface and achieves an absolute precision of less than +/- 1mm.

Machine vision at plasm

The test methods used in production are diverse; however, they are not always suitable for in-line inspections. Visual 3D inspection methods are increasingly gaining in importance. With the help of this method, e.g. mounting errors, wrong geometric shapes, surface errors, etc. can already be detected and recognised in the production line and error removal is, hence, made much easier. The systems from the **plasm** ProfileObserver product range have already become classics in this field. They are faster than the human eye with 10,000 images per second and represent the utmost precision in the fast and reliable detection of surface errors, such as raised parts on seams, edge notches, cracks, splashes, precision of the seam, position of the seam and other geometric shapes. The ProfileObserver has already proven its mettle in the field of mirror inspection at Magna Donnelly.

Plasm ProcessObserver – A success story

“Quality assurance on the highest possible level for the best possible quality of your customers’ products” – this is **plasm**’s stated aim. Audi, BMW, Mercedes, VW, ... The big players in the international automobile industry have relied on the **plasm** ProcessObserver, the “classic” in the entire **plasm** product range, for years. The **plasm** ProcessObserver series is a high-performance process monitoring system for industrial welding. A system for on-line process monitoring in laser material processing (welding, cutting, drilling and soldering). Monitoring is effected by observing the process light – which is generated during processing – in the visible and invisible range.

Fast signal processors ensure on-line classification and error evaluation directly during the processing procedure. Visualisation and parameterisation are provided by an industrial PC. The ProcessObserver series quickly and reliably detects irregularities and errors, such as interruptions of the weld seams, pores (even inside the material), etc.

The advantages of the plasm 3D-Observer at a glance:

The **plasm** 3D-Observer ...

- ... provides 3D laser measurement for robot working spaces of several cubic metres.
- ... measures those parts which the robot grips and singularises with a high precision and determines the grip point.
- ... takes component tolerances into account.
- ... is based on laser triangulation and is adjusted very precisely and calibrated precisely to the camera pixels.
- ... is particularly temperature stable on account of carbon fibre elements.
- ... achieves the shortest possible cycle times on account of its very high scanning speed and, hence, the highest possible degree of integration into the automation process.
- ... enables positioning of the camera several metres above the measuring area and prevents possible collisions with the robot in this way.
- ... offers a high degree of flexibility as regards the solutions for interfaces to CAD data.
- ... has a freely scaleable system which facilitates optimum adjustment of the measuring area and working distance to the customer’s system.
- ... reaches absolute precisions of less than 0.5 mm depending on the working area.

Plasmo Industrietechnik GmbH

Plasmo Industrietechnik GmbH is among the leading companies in quality assurance with sensor- and camera-based solutions for manufacturing industries internationally. Its field of activity comprises laser performance measurements, welding process monitoring, weld seam geometry measurement, industrial image processing and analysis software for quality assurance as well as extensive service offers. The team consisting of ten experts accompanies its customers from the definition of the inspection task to the implementation of the test system. Almost all vehicles produced in Europe by manufacturers ranging from Audi to VW as well as white goods and many other industrial products are tested with the innovative plasmo test systems during production. Internationally, many renowned customers – from ABB to Hettich and Magna as well as numerous automobile manufacturers such as Audi, BMW, Daimler or the Dutch steel manufacturer Corus rely on plasmo's quality and quality assurance. The company consisting of a team of 10 experts, which began its business operations in 2003 and has its headquarters in Vienna, generated turnover to the amount of EUR 1.46 million in 2006. At the beginning of the year 2008, the new plasmo office in Germany was opened and the plasmo distribution partner in Japan also began its activities.

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