

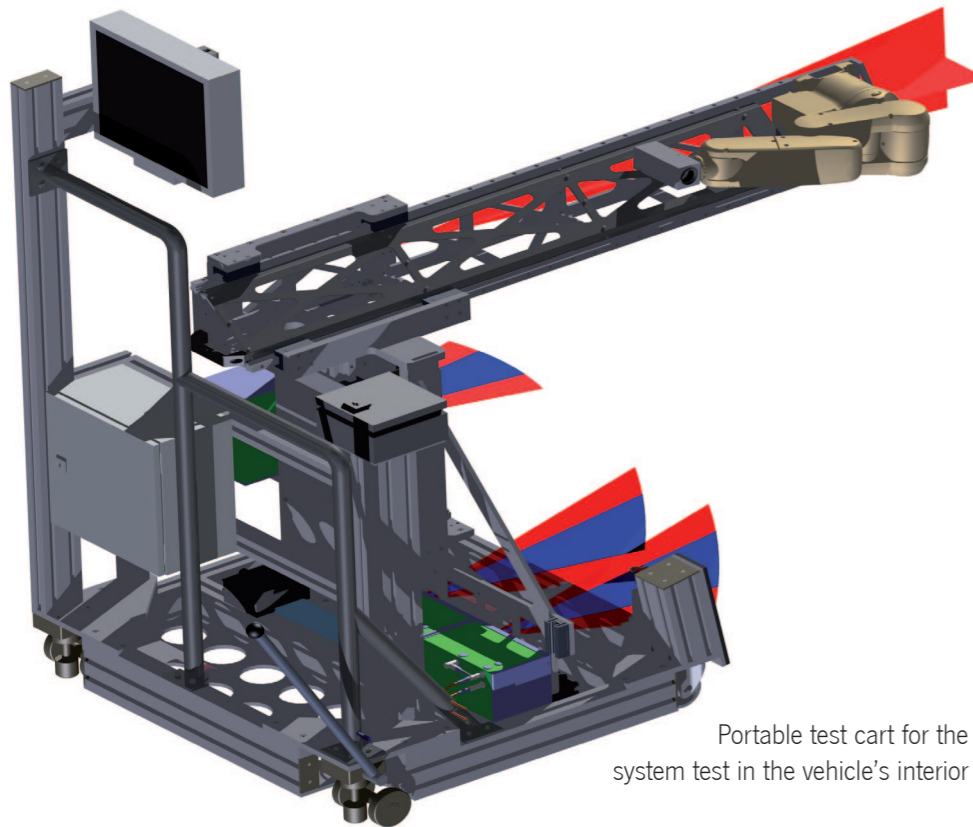
TEST AND MEASURING TECHNOLOGY
Optical characteristics test inside the vehicle

Options of the optical Characteristics test inside the vehicle

What is the test procedure principle?

It is possible to assess the relevant characteristics of the product through a combination of robots and intelligent camera system.

Through modern sensor systems the test object is calibrated in the product coordination system.



Portable test cart for the system test in the vehicle's interior

By doing so the travel position of the robot can be determined and the camera can be precisely positioned. The captured image is adjusted with target images or target characteristics and evaluated. As a result the evaluation is visualized in an understandable manner to the user.

Even complex inspection tasks can be inspected process capable. A precise example that has been proven in the field is the control of the more and more popular vehicle Head-up displays.

An imaging unit creates the graphic, which is displayed via an optical system on the projection level. The graphic appears virtually in the visual field of the viewer.

Quality assurance

The optimal matching between the windscreen and the projector is critically important for the clear and high-contrast display of information. Even the smallest deviations cause errors, which impair the drivers comfort.

How does the test procedure proceed in the example of the Head-up display?

The virtual images that appears for the viewer is captured and checked by the camera system from defined angles of vision. Vehicle contours are measured, the correct camera position is calculated and the cameras robot is positioned respectively. Although the test unit is aligned from the vehicle side, the robot in the cockpit space can be in the visual positions of a left-hand and right-hand drive.

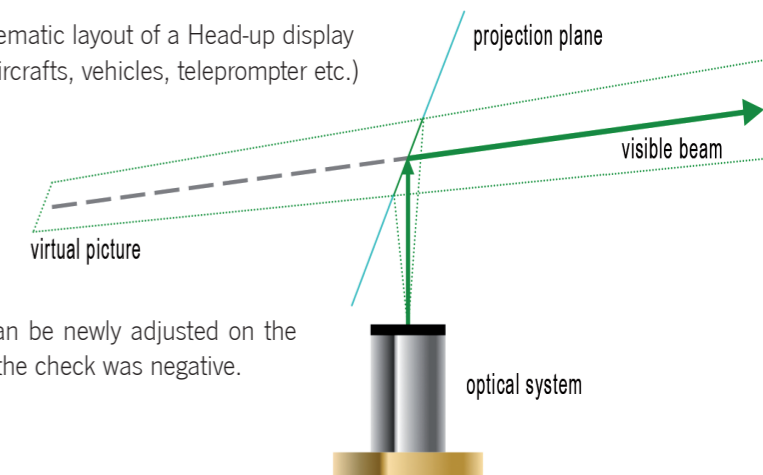
Design types

The design of the test unit is adjusted to the requirements and needs. A test cart (left image) is designed for portable purpose such as reworking. A firmly installed portal system forms the best condition for the production line. A portable version is best suitable for shop adjustments.

Is accuracy still available after considerable time and after maintenance?

Next to testing tasks it must be possible to check and calibrate the system. An adjustment unit provides reference points of an "ideal vehicle" with target images.

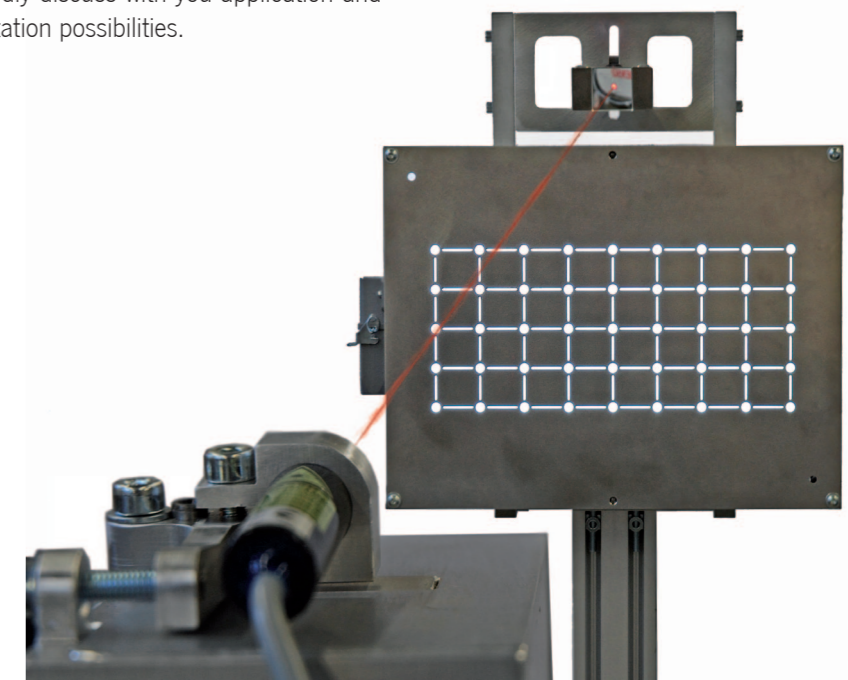
Schematic layout of a Head-up display (in aircrafts, vehicles, teleprompter etc.)



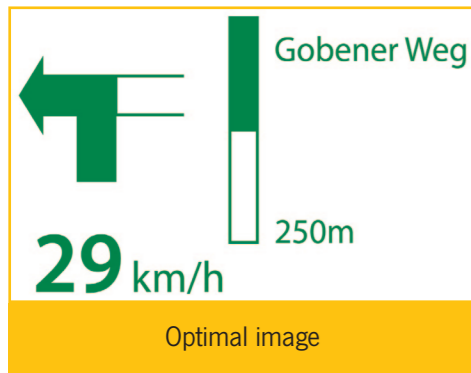
The test system can be newly adjusted on the adjustment unit if the check was negative.

Application

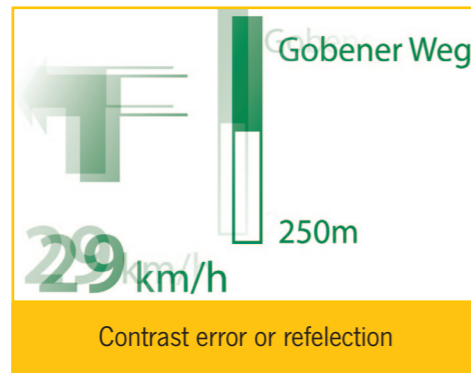
SAR already implemented this process in several versions at reputable companies. The individual requirements determine the tailored solution, whether that is in the complete vehicle or during the component installation. We will gladly discuss with you application and implementation possibilities.



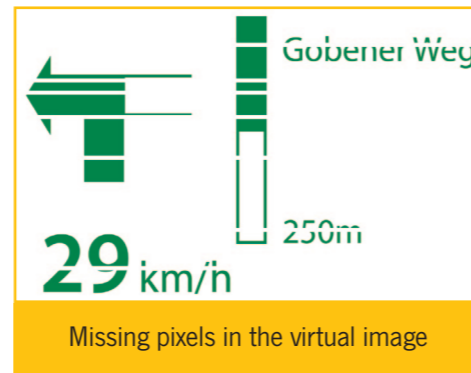
Target image for checking with laser calibration



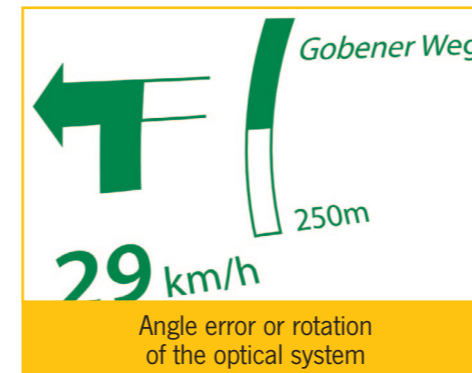
Optimal image



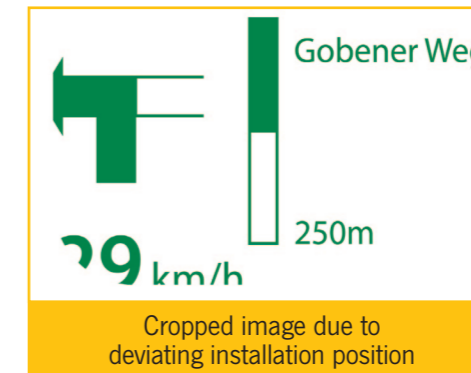
Contrast error or reflection



Missing pixels in the virtual image



Angle error or rotation of the optical system



Cropped image due to deviating installation position

- Requirement oriented and individual concept
- Flexibility in the application
- Precise measuring and test procedures
- Simple operation
- Process capable
- Testing in the whole process chain

Advantages for the customer



SAR is the partner for professional industry and process automation since 1985 with it's headquarter in Germany. Together with subsidiaries in the US, South Africa, Great Britain, Switzerland, Slovenia and China about 400 people are employed.

The products and services of the engineering fields of Automation, Environmental Technology, Test and Measuring Technology, IT Services, Surface Application Systems and Plastics Systems together with switching station construction, installation, training and services are offered flexible world-wide.

Our customers are reputable, industry companies, small businesses and communal organizations world-wide.

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