Image processing devices for reliable detection and recording

MACHINE VISION AND OPTICAL IDENTIFICATION

innovating automation

The demands on modern production equipment are high: they must be extremely productive and flexible – while achieving maximum quality. Our Balluff Vision Solutions are designed precisely to meet these requirements. They reliably detect error, check the quality and are suitable for reliable reading and verification of codes. They scan objects, 1D and 2D barcodes, and plain text.

The sensors are extremely flexible – for parts checking in assembly or parts tracking in production. Their standardized interface mean the devices are simple to integrate and easy to use.

Your Balluff solutions

- Machine vision
- Optical identification

Quality assurance with industrial grade image processing

MACHINE VISION

Machine Vision from Balluff ensures quality and flexibility in modern production facilities. Through the use of industrial image processing they provide reliable defect detection and thereby ensure exact quality control. All functions of the sensors can be flexibly combined.

Features

- High cost-effectiveness and potential for cost reduction
- Less scrap thanks to early defect detection
- High system up-time when changing batches

PRODUCT OVERVIEW

innovating automation

Product family		
BVS-E Standard vision sensor 	**Globally proven solutions for controlling, positioning and monitoring** With our standard series of vision sensors, you control the quantity of your production process in a cost-conscious and precise manner. You can use a total of seven testing tools that can be employed independently of each other and simultaneously check multiple product features. Up to twenty storable inspections can easily be activated via the PLC. This supports continuous production even with changing workpieces. The Standard vision sensor is suitable for simple tasks in error detection.	**Features** ■ Cost savings using one vision sensor for multiple tasks ■ Early defect detection ensures the highest quality ■ Fast format changing through simple switching of inspection functions
BVS E Advanced vision sensor 	**Reliable monitoring of product quality** Advanced vision sensors efficiently and reliably monitor your production process. The identified position of the objects and the detected process data are output via Ethernet TCP/IP interface. The rapid processing of data and the combination of individual test results ensure a precise and reliable monitoring of the product quality. The wide application range for a single vision sensor saves real money. This is because a vision sensor simultaneously handles multiple inspection tasks.	**Features** ■ Quality control also on parts with random rotational position ■ Simple changing of the inspection task for changing lots means high system availability

Product family		
BVS-E Universal vision sensor 	**An all-rounder with a wide range of applications** The versatile Universal vision sensors feature especially high-performance, contour-based image processing tools. They localize, inspect and count parts in any rotational orientation. The sensor can transfer the part orientation and position via the interface. The Universal vision sensor reads bar and data matrix codes especially quickly and precisely. It reliably checks up to 40 codes per second.	**Features** ■ Checking of part orientation or position reduces expenses in part management ■ Quality control also on parts with random rotational position ■ Simple changing of the inspection task for changing lots means high system availability
BVS E Infrared vision sensor 	**Greater security and precision through infrared light** Fluctuating light conditions can impair the checking reliability of common vision sensors. At the same time, employees are often irritated by their flashing light. BVS E vision sensors provide the solution: the infrared light is invisible to humans. Simultaneously, its firmly integrated light filter prevents ambient light from influencing the testing of the objects. This contributes to greater process security.	**Features** ■ Spurious ambient light is blocked ■ No disturbance of employees ■ Light intensity 10% higher than comparable red light sensors
BVS SC SmartCamera 	**Traceability and quality control – simple and flexible** Our easy-to-operate SmartCamera from Balluff has all the functions needed for visual traceability and quality control tasks. It reliably identifies objects by code. And it reads 1D, 2D and stacked or directly marked codes just like plain text (OCR). Production objects are reliably found and checked in the process. And the results are forwarded via standardized industry interfaces to higher-level systems. With the SmartCamera you can directly control IO-Link devices.	**Features** ■ Smart data management for limiting the load on Profinet ■ Simple integration into the production environment through IO-Link ■ Secure, customer-specific result management for the controller or for the server ■ Robust, industrial-grade design

Product finder and more technical details:
www.balluff.com/go/**machine-vision**

Secure identification and decoding of objects

OPTICAL IDENTIFICATION

Optical identification via 1D and 2D barcodes is an established way of identifying components and objects and flawlessly managing systems and processes. Our broad range of offerings in this area includes stationary barcode readers, mobile handheld readers and accessories for standard and industrial grade applications.

Features

- Reliable traceability of products and assembly
- Application areas: controlling supply processes (e.g., Kanban system), production control, optical tool identification
- Simple startup

PRODUCT OVERVIEW

innovating automation

Product family		
BVS-E Identification vision sensor 	**Reliable identification in the compact housing** The Identification vision sensor uniquely identifies your products. It reliably reads 1D or 2D codes and stacked codes – up to 40 times a second. In this it makes no difference whether the codes were adhered with a label, printed on, lasered or directly marked. Nor are position deviations a problem for the sensor. In addition you can use the vision sensor to check ISO standard Sensor Identification Codes or verify texts and number sequences, such as in monitoring expiration dates.	**Features** ■ Simple, self-explanatory operation ■ Simultaneously and securely read multiple codes ■ Easy linking to PLC via RS232 and Ethernet interface ■ Compact design ■ Different optics available ■ Optionally available with built-in red or infrared light source
BVS HS-P handheld barcode readers 	**Industrial grade handhelds with outstanding reading performance** These handheld barcode readers read all standard 1D, 2D and stacked barcodes from documents, plastic labels, circuit boards and metal parts. The readers are robust and combine maximum reading performance with user friendliness. The reader offers IP65 protection and also withstands multiple falls onto concrete from up to 2 meters. This means they can be reliably used in industry, logistics and inventory control. The wireless versions with Bluetooth provide users with maximum freedom of movement. This is because reliable data transmission is possible in a surrounding area of up to 100 m around the base station.	**Features** ■ Reliable read confirmation via acoustic signal, 2 green LEDs and projection of a green LED spot on the code that has been read ■ Intuitive aiming system using a highly visible laser marking frame ■ Charge once – up to 30,000 read cycles using lithium ion rechargeable battery ■ Work without fatigue thanks to low weight and ergonomic shape ■ High-Density versions read high-resolution codes (up to 2.5 mil for 1D) as well as large areas (up to A4) ■ Maximum read ranges up to 110 cm

Product family		
BVS HS-Q handheld barcode readers 	**Handheld readers for versatile use in the warehouse and in logistics** The handheld readers in this series read all standard 1D, 2D and stacked barcodes as well as postal codes in every rotary position up to 40° tilt and while moving. Reading under more difficult conditions – such as displays and against a slightly reflective background – does not present any difficulties for them. The readers are suitable for reading codes on documents or code labels and offer maximum read ranges of 40 cm. The ergonomic shape and maximum 200 g weight eliminate fatigue and are easy on the user's hands.	**Features** ■ Automatic adaptation to different read situations ■ Reliable read confirmation via a green LED and an acoustic signal as well as projection of a green LED spot on the code that has been read ■ Intuitive aiming system with highly visible blue LED marking
SmartCamera BCS SC 	**Traceability and quality control with easy, flexible operation** Our easy-to-operate SmartCamera from Balluff has all the functions needed for visual traceability and quality control tasks. It reliably identifies by code and reads 1D, 2D and stacked or directly marked codes just like plain text (OCR). The results are forwarded via standardized industry interfaces to higher-level systems. The SmartCamera is also equipped with functions for integrated test creation as well as inspection views and statistics. The SmartCamera allows direct control of IO-Link devices. Another plus: you can create any test plan for using the camera more flexibly.	**Features** ■ Smart data management for limiting the load on Profinet ■ Simple integration into the production environment through IO-Link ■ Secure, customer-specific result management for the controller or for the server ■ Rugged, industrial-grade design