



BBULL LG IMAGE

Universal Empties Management with
Image Processing Technology

PRODUCT SPECIFICATION

System Features

- sensor bridge with universal ultrasonic line without shifts in case of format changes
- conversion of US height information into gray scale values for evaluation by image-processing technology
- camera unit for inspection of bottles, gaps, and crates
- additional inputs to extend system application (logo recognition, grip holder inspection)
- associations formed between US and camera images enabling evaluation via detection software, **BBULL IMAGE**
- scalable hardware and software components for different types of tasks
- unlimited memory to store different formats and crate types
- database module for batch-related evaluation
- remote control and remote maintenance module
- user management (via transponder reading device)



Cameras

Range of Applications

- inspection of decrating capability for linear and offset crate cells
- bottle sorting based on:
 - bottle height
 - bottle colour
 - cap type (swing-top bottles)
 - neck ring
- crate sorting based on:
 - crate format
 - crate colour
 - crate logo
 - case type
- for areas of application with a wide variety of types
- recommended for sorting and logistic centres
- to handle batch evaluation and calculation of deposit amounts

System Design

Sensor bridge:

- universal ultrasonic line with up to 16 individual sensors
- CCD colour camera
- high-performance light module
- overheight protection

Thanks to the application of the universal ultrasonic line there is no need for any adjustment of the sensors to accommodate different crate formats and positions of bottles. **BBULL LG IMAGE** is therefore optimally equipped for integration into sorting systems where a huge variety of crate formats (all mixed up) have to be checked. Activation of the respective sensor information is handled by the software, so the operator does not need to intervene. This reduces set-up times and secures that errors due to incorrect operation are largely avoided.

The high-performance light modules are installed above the transport system and are protected against dirt and damage.

BBULL IMAGE can be installed above all established crate transport systems. It is most important that the crate transport is performed smooth by and that there are no reflections from the transport system.



BBULL LG IMAGE
Inside view of sensor bridge

110 [Paulaner 20x 0.5L] Paulaner 0.5L system running. no faults

Line-Speed 30000

Nr	Name	dHor	dVer	dLim	OK
1	Kasten-Typ	0.0	0.0	0.0	OK
2	Puzel-Kasten	0.0	0.0	0.0	OK
3	Zwischenraum-1	0.0	0.0	0.0	OK
4	Zwischenraum-ROI	0.0	0.0	0.0	OK
5	Zwischenraum-2	0.0	0.0	0.0	OK
6	Bügel-ROI	0.0	0.0	0.0	OK
7	Bügel-Breite	0.0	0.0	2.0	OK
8	Bügel-Höhe (L)	0.0	0.0	2.0	OK
9	Bügel-Höhe (R)	0.0	0.0	2.0	OK
10	Stülflaschen	-103.9	-16.9	0.0	OK
11	Splitbox L	0.0	0.0	1.0	OK
12	Splitbox R	0.0	0.0	1.0	OK

Production Counters Type Sortments Setup Checker Service History Tracking Ultrasonic Camera Messages

0 84.1 [ms] T1 0.000 0-1-0 Test on image: \Type1001+02-1

110 [Paulaner 20x 0.5L] Paulaner 0.5L Master Suspended 18.03.2019 15:32:33

Control Unit

- PC-Technology with Windows XP embedded operating system and Touch Screen operation
- statistical and graphical representation of product data and system settings
- monitoring of all relevant operating data including discharge trend analysis
- representation of real-time camera images on display
- access to user interface via individual passwords
- different access levels for individual users
- transponder reading device for access management (optional)



Row of sensors

Software

An outstanding component of the **BBULL LG IMAGE** Empties Management System is the application „**BBULL IMAGE**“, a universal image-processing software.

Each individual sensor/camera supplies raw data to the processing software.

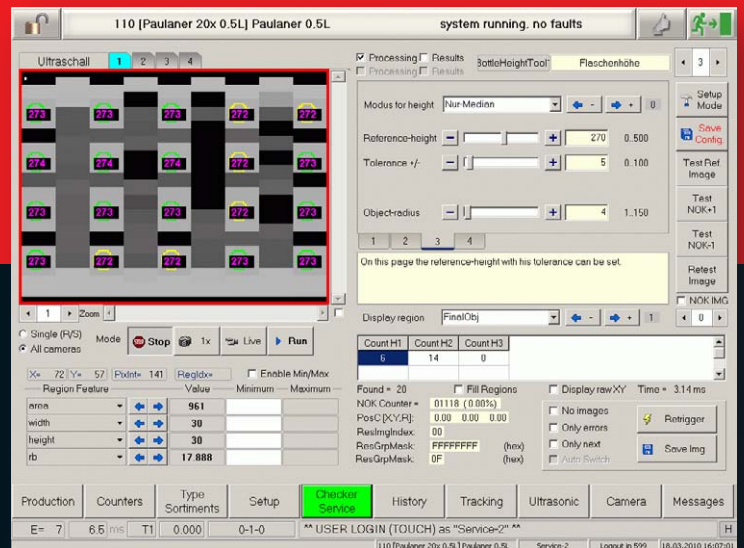
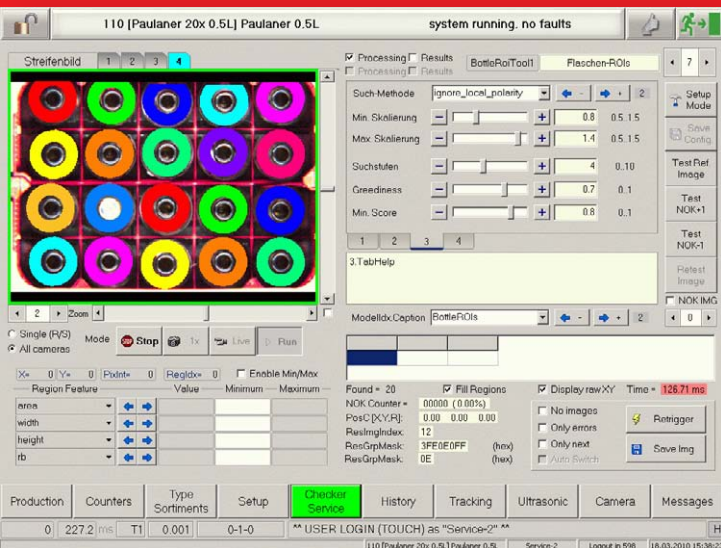
Height information provided by the US sensors is converted into gray values enabling the image-processing software to generate a three-dimensional image of the container being examined. By applying a scalable evaluation algorithm, which checks absolute or relatively opposing characteristics, an evaluation about the content and crate is produced. In the process, connections and associations among different characteristics can be set to produce an extremely high degree of recognition reliability, even under variable conditions (e.g. in a sorting centre).

The software includes an extensive database function, which ensures the back-up and recognition of very different crate types. Optionally a batch-related evaluation module can be integrated enabling not only to supervise each received delivery of empties separately, but also to evaluate the container deposit accordingly. **BBULL LG IMAGE** achieves levels of transparency regarding your empties and your distributors that would otherwise only be possible under considerable manual effort. Significant savings in time and personnel are able to be realized.



Your Benefit

- transparency regarding empties quality and distributors
- transparency regarding condition of the system and user intervention
- minimal effort required when changing format, thus avoiding operating errors
- quick set-up times
- suitable for a wide variety of crates and crate cells
- no limitation in detection options when crate cells are offset
- excellent reliability by relating different inspection features to each other
- economy of time and personnel when recording returned empties
- „unlimited“ data memory for a wide variety of containers
- remote operation and remote maintenance software



TECHNICAL DATA



Mains connection: _____	110-250 VAC; 50/60 Hz
Environment temperature range: _____	5 - 40 °C
Size of operating device (WxHxD): _____	520 x 1700 x 400 mm
Size of sensor bridge (WxHxD): _____	1280 x 2120 x 1030 mm
Performance: _____	7500 crates/hour
Max. speed: _____	1,0 m/sec
Crate width, sideways insertion: _____	max. 410 mm
Crate distance: _____	min. 60 mm
Crate rolling direction: _____	lengthways/sideways
Detection technology: _____	2 x CCD camera ultrasonic sensors optical

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