

# STRATEC LK-U

Empty Crates Inspection  
(on Base of high-frequency Ultrasound)



**BULL**  
INFORMATIK & INDUSTRIE  
ELEKTRONIK

**CENTRO**  
KONTROLLSYSTEME

**STRATEC**  
CONTROL-SYSTEMS

## General introductions

After leaving the crate washer and before reaching the packer, it is necessary to check if the crate is really empty and ready for packing.

Jammed bottles or foreign objects in the crate disturb the packer and causes down time.

The new **STRATEC LK-U** B.Bull TECHNOLOGY offers new ultrasound technology for empty crate inspection after the crate washer.

The empty crates are scanned three dimensionally while passing the sensor bridge by high-frequency ultrasound with a scan rate of 450 Hz.

The system is designed to detect jammed bottles as well as foreign substances in the crate.

All sources of error are recognized before reaching the packer and this reduces down time.

Consequently faulty crates can be detected and removed from the production process.

Depending on the system, the possibilities are simple rejection of the faulty crate to a buffer or the activation of an acoustic, or an optical alarm.

The outstanding feature of the STRATEC LK-U is its simple operation. It offers optimal comfort and high performance, but with an extremely low space requirement.

The profiles of the current types of crates are stored in memory with a TEACH IN mode. (It's possible to store up to 16 different types of crates).

Changing the crate type can be done at the touch of a button without mechanical modifications.

## Mode of Operation

The system consists of a sensor bridge and a control unit. The sensor bridge is adjustable in height through a spindle. (Used for installation only).

The sensor bridge is equipped with a line of 30 high-frequency (400 kHz) ultrasound sensor.

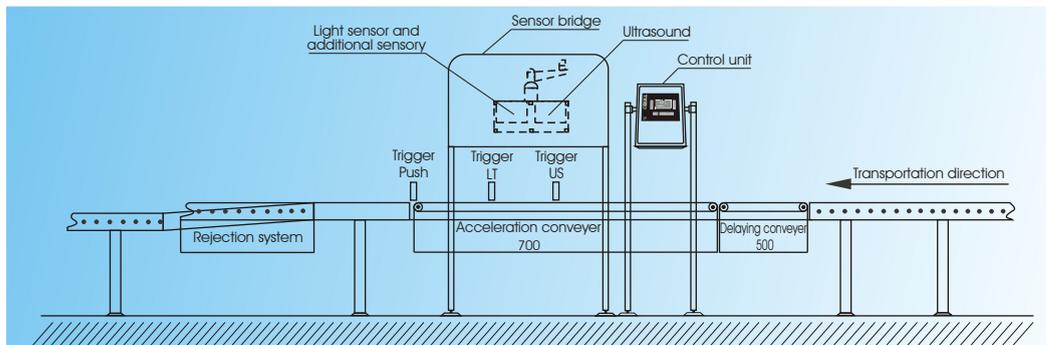
While being transported under the sensor bridge, the crate is scanned with a scan rate of 450 times/s. The high frequency ultrasound in combination with the extremely high scan rate allows a resolution down to 1 mm.

The evaluation of the sensor signal as well as the control to the rejection or distribution unit is carried out by the control unit.

To guarantee trouble-free-operation, we recommend a transport through the sensor bridge over a rubber belt and a crate separation of 100 - 150 mm

## Control unit

- Simple operation by means of 4 push buttons
- Counter for total number and number of rejected crates
- Integrated printer interface (V24)
- Control and transfer to the rejection or distribution unit
- Change of crate types via SPC or RS 232 interface
- Text display (5 languages switchable to D, GB, E, I, F)
- Capacity available for processing of additional sensors
- Operating data acquisition



## Application

- Empty crate inspection in the beverage industry
- **STRATEC LK-U** is installed between the crate washer and the packer
- Inspection if jammed bottles are in the crate
- Inspection if jammed foreign objects are in the crate
- Inspection if broken bottles, bottle bottoms or glass fragments are in the crate (reflection surface > 5x5 mm)

## Technical data

Main supply:	230 V
Enclosure:	IP 55
Environment temperature:	5 <sup>0</sup> - 45 <sup>0</sup> C
Dimensions control unit (WxDxH) in mm:	400x220x500
Dimensions sensor bridge (WxDxH) in mm:	1000x700x630
Rejection signal (positive Switch):	24 V (0,5 max.)
Max. transportation speed:	0,6 m/s
Crate width:	max. 410 mm
Distance from crate to crate:	min. 60 mm
Running direction of crate:	lengthwise/crosswise
Storable number of different types of crates:	16
Recognition method:	Ultrasound 400 Hz
Scan rate:	450 Hz
Resolution height:	3 mm
surface:	5x5 mm

BULL TECHNOLOGY

BBULL

INFORMATIK & INDUSTRIE  
ELEKTRONIK

BERNHARD BULL COMPUTER GmbH  
Ankerstrasse 73  
75203 Königsbach-Stein/Germany  
Telefon (+49) 72 32-40 06-0  
Telefax (+49) 72 32-40 06-25  
E-mai: info@bbull.de  
<http://www.bbull.de>

CENTRO

KONTROLLSYSTEME

CENTRO KONTROLLSYSTEME GmbH  
Hagener Strasse 75  
57072 Siegen/Germany  
Telefon (+49) 2 71-48 96 3-6  
Telefax (+49) 2 71-48 96 3-74  
E-mail: info@centrok.de  
<http://www.centrok.de>

STRATEC

CONTROL-SYSTEMS

STRATEC CONTROL-SYSTEMS GmbH  
Ankerstrasse 73  
75203 Königsbach-Stein/Germany  
Telefon (+49) 72 32-40 06-0  
Telefax (+49) 72 32-40 06-25  
E-mail: info@stratec-control.de  
<http://www.stratec-control.de>