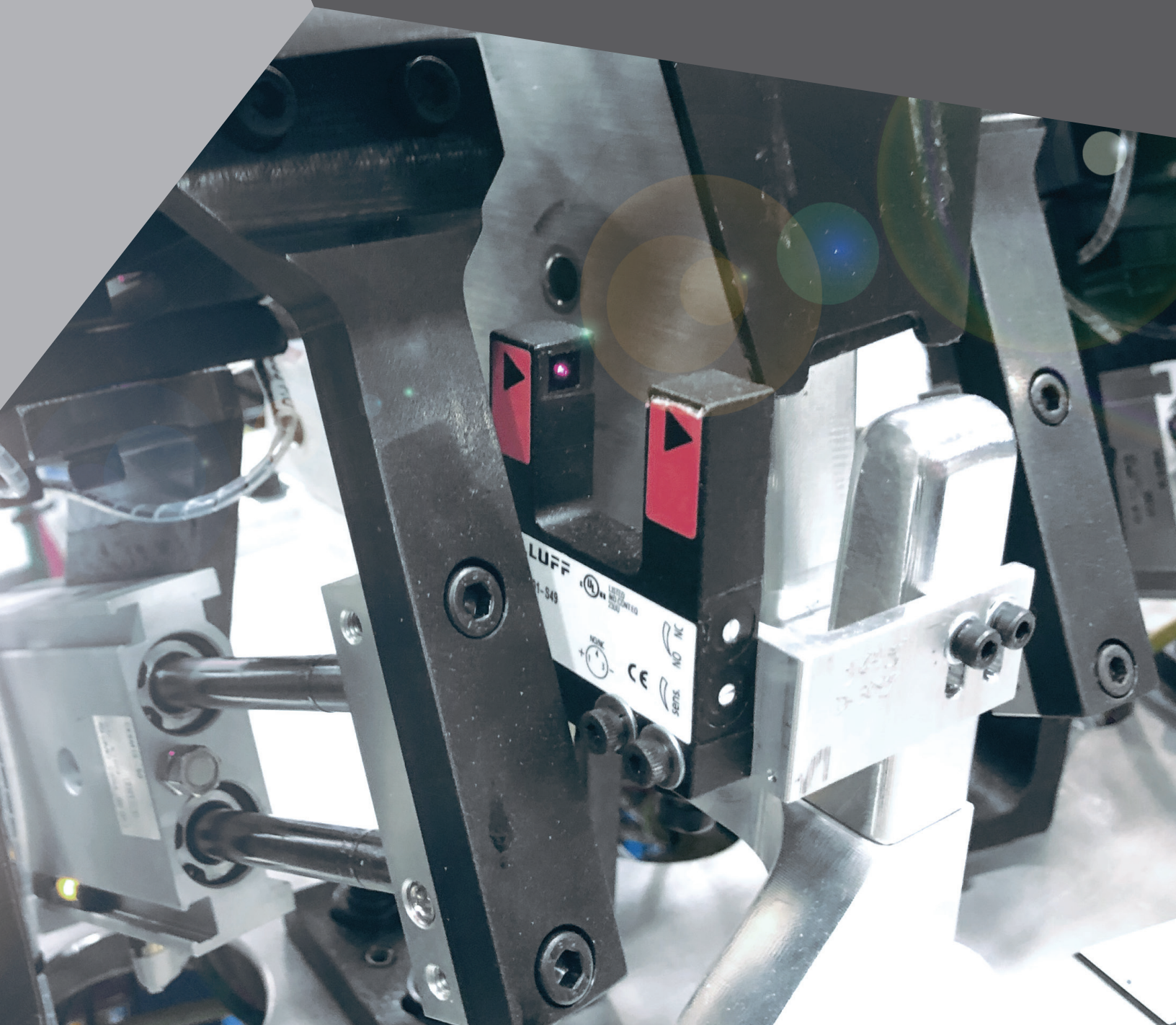
BALLUFF

PHOTOELECTRIC SENSORS

Self Contained
Through-Beam
Sensors



THE GO-TO SOLUTION FOR PHOTOELECTRIC APPLICATIONS

Self-contained through-beam sensors, also called fork or slot sensors, are key components for assembling and detecting objects in robotics, manual assembly, and general automation. They are available in different housing shapes, allowing you to choose the style that best suits your application, whether it's error-proofing, alignment, counting, feeding, or level detection.

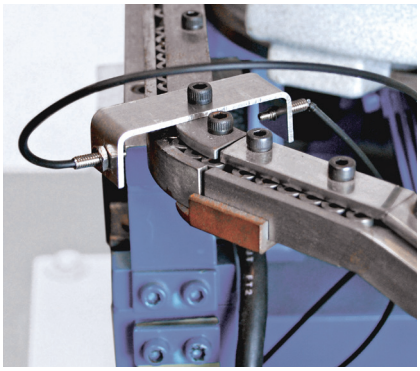
Balluff has a broad portfolio of fork sensors are available with beam gaps ranging from 5 mm to 220 mm. Stainless steel versions are also available for food and beverage applications where aggressive cleaning agents, chemicals and other hostile media must be considered. Through-beam sensors are a go-to solution for photoelectric applications, but with tough housings, various lighting options, and the ease of installation and alignment. They provide the flexibility, low-maintenance reliability, and performance characteristics necessary to deliver increased productivity and profitability all day, every day.

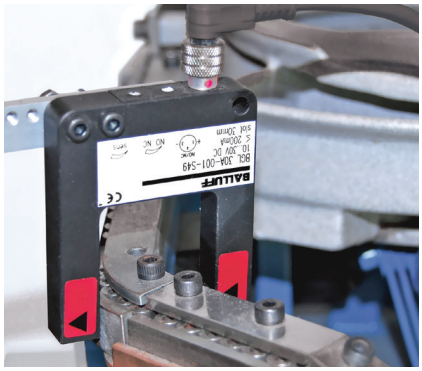
DEPENDABLE, ACCURATE

- Up to four application-specific light sources available to suit your design requirements
  - Visible red (easy set up)
  - Pinpoint visible red (higher precision)
  - Visible red laser (highest precision)
  - High-power infrared (burns through accumulated dirt)
- Rigid, one piece construction – always in alignment
- High level accuracy available for complex sensing needs includes:
  - Transparency detection
  - Liquid level detection

FLEXIBLE, LOW MAINTENANCE RELIABILITY

- Extremely tolerant of dirty environments
- Immune to target color, reflectivity, or surface condition
- Most repeatable non-contact sensing mode available





TROUBLESOME FIBEROPTICS

Problem

A traditional feed track detection system uses fiber optics. This fragile system consists of separate emitter and receiver and the amplifier to control them.
The emitter and receiver fibers must be held in alignment, but much care must be taken not to damage or misalign the fibers. They are usually held in place with a custom bracket.

Solution

Using a fork sensor provides easier set up and more reliability. By using the self-contained sensors, you can eliminate extra alignment brackets, fiber amplifiers, and fibers. The Balluff fork sensor is simply positioned on the track and connected to the bowl controller. That's it — installation complete.
This simple solution dramatically cuts installation time and eliminates fragile fiber optic runs and adjustments with robust hardware construction. And it can detects small parts down to 0.06 mm with outstanding repeatability of +/- .015 mm.

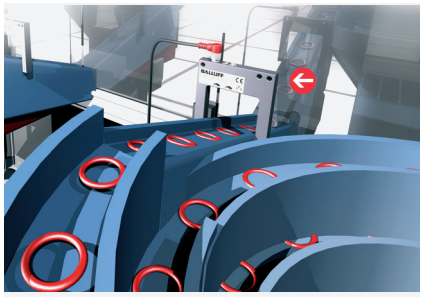
Light Sources

RED LIGHT
- Most economical
- Smallest detectable part: 0.3 mm
- Available on C and L Frame models

LASER
- Ultra-small part and variation detection
- Smallest detectable part: 0.08 mm
- Eliminates cross talk
- High Speed
- Available on C and L frame models

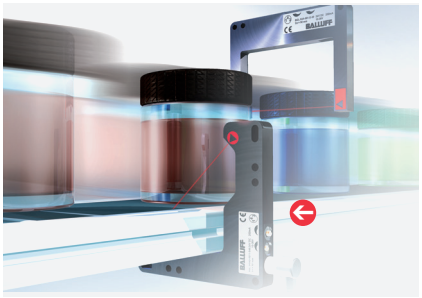
INFRARED
- Extreme reliability in dirty environments
- Smallest detectable part: 1 mm

SOLUTIONS



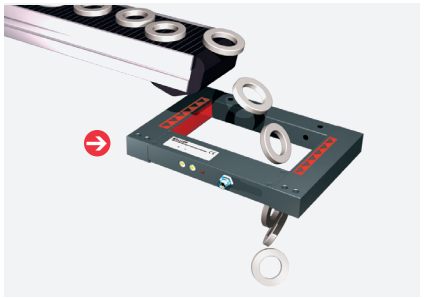
PART ACCUMULATION
ON A FEEDER TRACK

A fork sensor can detect whether a linear track contains product or is at full capacity. They can be placed along the track to detect the presence of conveyed items at different points in the system and monitor the accumulation of these items.



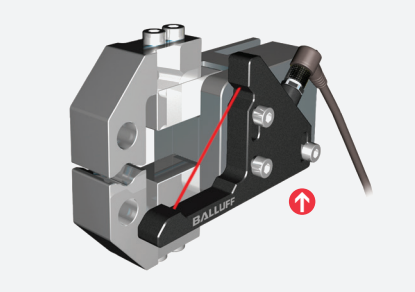
LARGE CONTAINER AND CAP HEIGHT
DETECTION FOR PACKAGING

Using two self-contained through-beam sensors allows you to detect large containers and ensure caps are in place. An L frame allows for the detection of containers too large to pass through a C frame while a C frame checks if the bottle is the right height, indicating the cap on.



HIGH SPEED PART COUNTING

W frame or pane sensors can count objects as small as 0.8 mm in diameter and are capable of 100/second trigger rates. Sensitivity is adjustable. They can also be used to count small objects dropped through a transparent chute or tube. Signal duration is adjustable across a 10 to 300 ms range to suit the speed of the controller and establish cut-offs for error-free detection of asymmetric parts. Signal response time is 200 µsec.



PRESENCE DETECTION
IN A ROBOTIC GRIPPER

A fork sensor can detect whether a linear track contains product or is at full capacity. They can be placed along the track to detect the presence of conveyed items at different points in the system and monitor the accumulation of these items.

PRESENCE OF FLUIDS

W frame or pane sensors can count objects as small as 0.8 mm in diameter and are capable of 100/second trigger rates. Sensitivity is adjustable. They can also be used to count small objects dropped through a transparent chute or tube. Signal duration is adjustable across a 10 to 300 ms range to suit the speed of the controller and establish cut-offs for error-free detection of asymmetric parts. Signal response time is 200 µsec.

RELIABLE OPTIONS TO MEET PHOTOELECTRIC SENSING NEEDS.

innovating automation

Fork sensors (or slot) are self-contained with the transmitter and receiver in one housing, already aligned and ready to use. This reduces effort, saves valuable time during setup, and ensures a more reliable process than manual alignment.

Balluff offers a comprehensive portfolio of these through-beam photoelectric sensors to meet the precise needs of your applications, including transparency detection, water detection, and web edge control. We offer a variety of sizes, shapes, housing materials and three different light types — red light, laser, and infrared. Selecting the right photoelectric light source is key to accurately detecting targets.
When it comes to accuracy, fork sensors from Balluff are unrivaled for small component and detail detection, as well as operational reliability. Our laser fork sensors are ideal for precise position, and secure detection of fast movement sequences and small parts in robotics and automation.

- Three different light types — red light, laser, infrared
- Robust metal housings, stainless steel available
- Simple alignment to the object
- High optical resolution and reproducibility
- Fork widths from 5…220 mm with standardized mounting holes
- Identical mechanical and optical axes
- Transmitter and receiver firmly aligned for high process reliability

More information at www.balluff.com/

	FORK SENSORS	ANGLE SENSORS	OPTICAL WINDOWS
Operating voltage	10 to 30 VDC		10 to 30 VDC
Output	PNP or NPN	PNP or NPN	PNP or NPN
Connector	M8 3-pin	M8 3-pin	M8 3-pin
Housing material	IP67 die-cast zinc	IP67 die-cast zinc	IP67 die-cast aluminum
Operating temperature	-10° to +60°C	-10° to +60°C	-10° to +60°C
Light sources	Visible red, Pinpoint LED, Infrared, Laser	Visible red, Pinpoint LED, Infrared, Laser	Infrared
Beam count	Single	Single	Multiple
Air gap	5mm...220mm	40mm...110mm	40mm...160mm

	ROBUST	WASHDOWN	MICROMOTE BOH001N
Operating voltage	10 to 30 VDC	10 to 30 VDC	
Output	PNP	2x PNP	PNP or NPN
Connector	M8 3-pin, M12 4-pin	M12 4-pin	M8x1-Female
Housing material	IP67 zinc plated steel	IP69K 1.4404 stainless steel	IP65 Aluminum, anodized, black
Operating temperature	-10° to +60°C	-10° to +60°C	-10° to +55°C
Light sources	Infrared	LED Red light, Infrared	LED Red light
Beam count	Single	Single	Multiple, Light array
Air gap	22mm...60mm	50mm...80mm	30mm

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