Leuze

Series 33C and 35C
Robust and hygienic: Stainless-steel sensors for harsh environments

Large sensor portfolio in stainless-steel housings

Robust sensors in V4A stainless-steel housings are the perfect choice for hygiene-sensitive, wet or harsh production environments. They stand out thanks to their high resistance to moisture, cleaning agents, temperature fluctuations, dust, chips and vibrations, as well as mechanical loads.

Robust all-rounder

The Series 35C sensors can withstand high mechanical loads and intensive cleaning processes.

They are used in primary packaging processes for baked goods, confectionery and dairy products. The new series also stands out for its completely waterproof and dustproof stainless-steel housing for applications in secondary packaging, machine tools and the automotive industry.

The hygienic processes specialist

Thanks to its smooth housing contours with no fastening holes, Series 33C is suitable for hygiene-sensitive applications in the food, beverage and pharmaceutical industries – even in system areas with unpackaged products.

The sensors are mounted in a very innovative way using a mounting spigot. This allows a gas-tight connection between the sensor and the machine.

Quickly ready for use

Sensors with Power PinPoint® lighting technology are particularly easy to commission and align.

The small, bright, round, and homogeneous light spot precisely reflects the sensor's response behavior and remains constant throughout the sensor's entire working range.

Your advantages at a glance

— **Two full series in stainless-steel housings** with all operating principles (diffuse sensors, throughbeam photoelectric sensors and retro-reflective photoelectric sensors)

— **Wide range of possible uses** thanks to an extensive portfolio with lots of special solutions for packaging processes, e.g. for film irradiation, clear glass detection or multi-track conveyor systems

— **High resistance** in harsh or hygiene-sensitive areas of application

— V4A (AISI 316L) stainless-steel housing with smooth surfaces (≤ 0.8 Ra) **prevent product deposits and bacterial carryover**

— Housing materials are approved for **direct contact with food** (FDA-compliant)

— High reliability thanks to **extensive certifications:** ECOLAB, Diversey and CleanProof+

— The IP 69K protection class confirms the **tightness of the sensors**

— **Easy commissioning** and alignment thanks to **Power PinPoint®** LED

— IO-Link interface for **quick and easy parameterization,** diagnostic data and predictive maintenance

— **Easy mounting**: Sensors in stainless-steel housings do not require any additional enclosures

— **Everything from a single source**: Suitable connection cables, mounting devices and reflectors

Problem solvers for demanding fields of application

If you have high requirements for machines, systems and sensors,
our stainless-steel sensors are your perfectly coordinated solutions.

All housing components are designed for contact with food and harsh environmental conditions in production and packaging plants: Bacteria must be prevented from adhering to sensors, especially those in contact with unpackaged food. Sealed housing technology and an extended temperature range guarantee that the systems will function properly for years.

Water and dustproof

Systems and the sensors installed in them are very often cleaned with high-pressure cleaners. Sensors are constantly exposed to moisture and humidity due to the high number of cleaning cycles.
— Absolutely sealed housing
— Diffusion-tight materials (optics cover and operating elements)
— Protection classes IP 67, IP 68 and IP 69K

Chemically resistant

Regular cleaning cycles with foam cleaners, disinfectants, alkaline or basic cleaners require resistant sensors.
— ECOLAB certification
— Diversey certification
— Clean Proof+-certification

Mechanically resistant

In harsh production environments, sensors are exposed to dust, shavings, vibrations and other mechanical stresses.
— Absolutely sealed housing
— Robust housing: no additional housing necessary
— Vibration and shock resistance

Thermally resistant

Strong temperature fluctuations between ambient temperature and cleaning temperature put a high load on sensors.
— Sensor tests in the climate cabinet
— Thermal shock tests (hot-cold water bath)
— Steam jet test as part of the IP 69K approval
— Temperature ranges from –40°C to +70°C

The perfect solution for your application

Series 33C and 35C include throughbeam photoelectric sensors, retro-reflective photoelectric sensors and diffuse sensors.

The range includes a large selection of standard sensors and special sensors for particularly demanding tasks.

Retro-reflective photoelectric sensors:

— Versions with autocollimation optics and two-lens optics
— Working range: Up to 14 m (Power PinPoint® LED two-lens), up to 20 m (laser two-lens), up to 5 m (autocollimation), up to 3 m (detection of transparent objects)
— Switching frequency 1,500 Hz / Laser: 2,500 Hz
— Setting via teach button, potentiometer or IO-Link

Diffuse sensors:
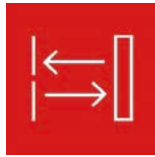
— Operating range 1.2 m (Power PinPoint® LED)
— Switching frequency 1,000 Hz / Laser: 2,500 Hz
— Setting via potentiometer (HT..), teach button or IO-Link (DRT, DRT.R.)

Throughbeam photoelectric sensors:

— Operating range 30 m (Power PinPoint® LED)
— Switching frequency: 1,500 Hz
— Two outputs

Our special solutions:

Retro-reflective photoelectric sensors for **glass and PET or film detection** with integrated intelligent step and peak tracking function for automatic threshold adjustment when contamination occurs.

Sensors with background suppression with **Power PinPoint® LED** for detecting small objects, for precise edge detection and for detecting shiny, color-textured objects
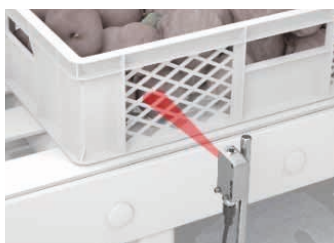
Sensors with background suppression and **elongated line light spot** for detecting transparent objects as well as objects with openings, holes and cutouts.

Strong throughbeam photo-electric sensors (high power) for **transilluminating packaging films**.

Dynamic reference diffuse sensors (DRT) for **object-independent detection** with the conveyor belt as a reference.
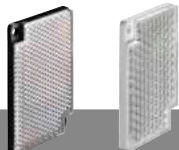
Connection cables, mounting devices and reflectors for hygiene requirements:

In demanding environments, not only the sensors but also the connection cables, fastenings and reflectors must meet high requirements.

Connection cables:

— Cables achieve protection class IP 69K and thus withstand intensive cleaning processes with high-pressure cleaners (NB: Must be installed to special tightening torque).
— ECOLAB certification confirms the cables' resistance to aggressive cleaning agents.
— The cable portfolio for use in hygienically demanding industrial areas includes M8 and M12 as well as cable lengths of 2, 5 and 10 meters.

Reflectors	For LED sensors with large light spot	For sensors with small light spot and clear-glass applications	
Advanced segment Ecolab (.P / ed) Alcohol & H_2O_2 (.Chem / blue) CleanProof+ (M5 / stainless steel)	TKS (e.g. TKS 40 x 60)	Micro-triad (MTKS…)	Basic REF6
Extended segment Anti-fog (.AF) UV coating (.UV) Heat-resistant (.HT)			
Standard segment Standard (_;.1; .A)			

Technical data

Parameter	PRK33C / PRK35C	LS/LE33C / LS/LE35C
Operating principle	Retro-reflective photoelectric sensor	Throughbeam photoelectric sensor
Housing design and dimensions (W x H x D)	Series 33C: Hygienic design (18.8 x 52.8 x 32.4 mm) Series 35C: Wash-down design (18.8 x 52.8 x 32.4 mm)	
Housing material	Stainless steel V4A (AISI 316L)	
Light sources	Power PinPoint® LED, red (typ. 645 nm) Laser, red (650 nm; laser class 1)	Power PinPoint® LED, red (typ. 645 nm)
Switching frequency	1,500 Hz (Power PinPoint®) 2,500 Hz (laser)	1,500 Hz (Power PinPoint®)
Operating range	0.05 … 14 m (Two-lens Power PinPoint®) 0 … 5 m (autocollimation) 0 … 3 m (detection of transparent objects) 0 … 20 m (laser: two-lens)	0 … 25 m (Power PinPoint®)
IO-Link	V1.1 (COM2)	V1.1 (COM2)
Operation	Multi-turn potentiometer, teach button (single lens), 270° potentiometer (laser)	
Temperature range	–40 … +70°C	–40 … +70°C
Protection class	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K
Certifications	CE, UL, ECOLAB, CleanProof+, Diversey	CE, UL, ECOLAB, CleanProof+, Diversey
Connection	M8 (SR33C), M12, cable, Pigtail M12 (SR35C) cable	M8 (SR33C), M12, cable, Pigtail M12 (SR35C) cable

Technical data

Parameter	LS/LE33CI LS/LE35CI	HT33C / HT35C	DRT35C / DRT33C DRT35C.R / DRT33C.R
Operating principle	Throughbeam photoelectric sensor for film (high power and super power)	Diffuse sensors with background suppression	Dynamic reference diffuse sensors
Housing design and dimensions (W x H x D)	Series 33C: Hygienic design (18.8 x 52.8 x 32.4 mm) Series 35C: Wash-down design (18.8 x 52.8 x 32.4 mm)		
Housing material	Stainless steel V4A (AISI 316L)		
Light sources	LED infrared (860 nm)	Power PinPoint® LED, red (typ. 645 nm) Laser, red (650 nm; laser class 1)	LED, red (645 nm)
Switching frequency	100 Hz (infrared)	1,000 Hz (Power PinPoint®) 2,500 Hz (red laser)	750 Hz (Teach 2 and 3) 500 Hz (Teach 1) 300 Hz (DRT33C.R/DRT35C.R)
Operating range	180 m high power (infrared) 340 m super power (infrared)	0 … 1,200 mm (Power PinPoint®) 0 … 600 mm (XL light spot) 5... 600 mm (laser)	0.05 … 0.15 m 0.08 … 0.4 m (six-pack detection)
IO-Link	V1.1 (COM2)	V1.1 (COM2)	V1.1 (COM2)
Operation	270° potentiometer (LE, LS high power)	Multi-turn spindle	Teach button
Temperature range	–40 … +70°C	–40 … +70°C	–40 … +70°C
Protection class	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K
Certifications	CE, UL, ECOLAB, CleanProof+, Diversey	CE, UL, ECOLAB, CleanProof+, Diversey	CE, UL, ECOLAB, CleanProof+, Diversey
Connection	M8 (SR33C), M12, cable, Pigtail M12 (SR35C) cable	M8 (SR33C), M12, cable, Pigtail M12 (SR35C) cable	M8 (SR33C), M12, cable, Pigtail M12 (SR35C) cable

Our product range at a glance

Switching sensors
— Optical sensors
— Inductive sensors
— Capacitive sensors
— Ultrasonic sensors
— Fiber optic sensors
— Fork sensors
— Light curtains
— Special sensors

Measuring sensors
— Distance sensors
— Sensors for positioning
— 3D sensors
— Light curtains
— Barcode positioning systems
— Fork sensors

Safety
— Safety solutions
— Safety laser scanners
— Safety light curtains
— Single and multiple light beam safety devices
— Safety radar sensors
— Safe locking devices, switches
  and proximity sensors
— Safety controls and relays
— Machine safety services

Identification
— Barcode identification
— 2D-code identification
— RF identification

Data transmission
— Optical data transmission systems

Network and connection technology
— Connection technology
— Modular connection units

Industrial image processing
— Light section sensors
— Industrial IP cameras
— Vision sensors

Accessories and supplementary products
— Signaling devices
— Mounting systems
— Reflectors

Contact

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