

## CD34 - Capacitive sensors

# Sensors

# CD34 Series

## Liquid detection through wall

The CD34.. capacitive sensor is designed for detection of water-based (conductive) liquids through a non-metallic wall. It automatically adapts to various thicknesses of plastic or glass walls while reliably compensating for any residual amounts of film, moisture or foam accumulation on the tank wall. The sensor's robust and compact housing, IP69K ratings and ECOLAB approval make it very suitable for washdown applications and harsh environments. Universal mounting brackets allow for the sensor to be easily mounted on different tubes or containers in a variety of ways. The sensor will function out of the box in most applications, and teach-in capabilities are available for adapting the sensor to more challenging applications.



## Precise and contactless level detection of water-based media

### Detection through different wall thicknesses

The CD34.. capacitive sensor is capable of detecting liquids through plastic walls of 0.5 to 6 mm and glass walls of 0.5 to 4 mm, and, moreover, it adapts automatically to changing wall thicknesses.

### Detection of a variety of liquids

The CD34.. sensor offers a highly reliable detection of media such as water, syrup, milk, body fluids (blood) as well as acid or alkaline solutions with a conductivity as high as 50 mS/cm.

It efficiently ignores and compensates for adhesive deposits on the wall or foam on the surface.

### IP69K - top-class protection

Tested according to the strictest protection ratings, the CD34.. sensor has proven able to withstand steam and high-pressure cleaning without suffering any damaging effects in appearance and function.

### ECOLAB-certified

Being resistant to aggressive cleansing agents and disinfecting chemicals, the CD34.. sensor operates impeccably in applications requiring high hygienic standards.

### Easy and flexible mounting

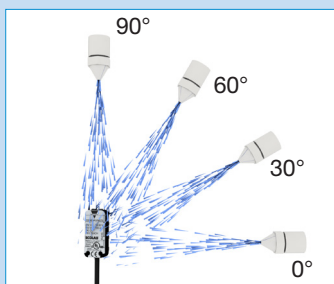
The universal bracket provides versatile mounting options and is exceptionally good at keeping the sensor in place yet still easy to replace.

### Approvals

CE (EN60947-5-2)  
cULus (UL508)  
ECOLAB-certified



## IP ratings



IP and NEMA ratings determine how well the sensors resist the intrusion of dust and moisture. The CD34 sensors are tested to both IP and NEMA rating systems and meet IP65, IP66, IP67, IP68, IP69K and NEMA 250 (1, 2, 4, 4x, 5 and 12) requirements. As a result, the CD34 sensor can be used in applications that are exposed to wind and weather as well as environments that use high-pressure washdown cleaning.

The IP69K test according to DIN 40050-9 for high-pressure, high-temperature washdown applications. The sensor must be not only dust tight (IP6X), but also able to withstand high-pressure and steam cleaning. The sensor is exposed to high-pressure water from a spray nozzle that is fed with 80°C water at 8'000– 10'000 KPa (80–100bar) and a flow rate of 14–16L/min. The nozzle is held 100 –150 mm from the sensor at angles of 0°, 30°, 60° and 90° for 30 seconds each. The test device sits on a turntable that rotates with a speed of 5 times per minute.

## Reliable detection

### Out of the box for most applications

The CD34 sensor works out of the box and is immediately capable of detecting media with a conductivity as high as 50 mS/cm. It automatically compensates for residue film, moisture or foam build-up from media such as water, milk, body fluids (blood), acid- or alkaline solutions whether inside or outside the container wall.

### Teach-in when conditions are demanding

The sensor is teachable when it comes to very challenging conditions; for instance, if the media are highly conductive and viscous at the same time, tubes have extraordinarily thin walls, or a tank has very thick walls. Through the teach wire, the sensor can be calibrated to either "full" or "empty" and thus adapted to demanding installations.



Foam forming on the surface of certain liquids such as soapy water constitutes a challenge to the level detection. The CD34 sensor automatically compensates for foam.



Viscous and adhesive substances such as syrup and milk are likely to adhere to the tank walls and trigger erroneous detection. The CD34 sensor efficiently differentiates between the actual liquid level and residue film.



## ECOLAB

Tolerates	Description of application	Concentration	Load duration
Topax 56	Acidic foam cleaner for the food industry	5%	240 hours at 50°C
P3 Hypochloran	Chlorine-containing disinfectant for the food industry	1%	240 hours at 24°C
TOPAZ CL1	Alkaline and chlorine-containing foam cleaner for the food industry	5%	240 hours at 50°C
TOPAZ AC1	Acidic foam cleaner for the food industry	4%	240 hours at 50°C
TOPAZ MD3	Alkaline foam cleaner for the food industry	5%	240 hours at 50°C
P3-topactive OKTO	Acidic foam disinfectant for the food industry	1%	240 hours at 24°C

The CD34 plastic housing withstands high-pressure cleaning processes with chemicals, and the sensor's object detection is continuous and reliable even in the harshest chemical surroundings. Certified by ECOLAB.

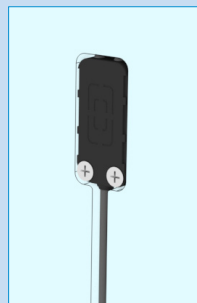



## Flexible and easy mounting

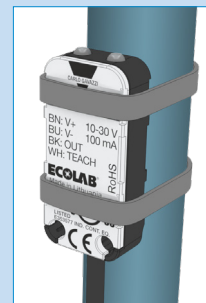
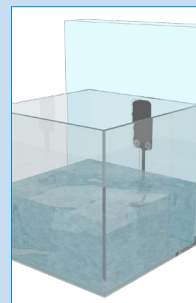
Mounting the sensor is easy and highly flexible, and the options are versatile and applicable for numerous installations. The sensor can be screwed in place, mounted with velcro fastener or cable ties or glued. It is smoothly inserted in the bracket in which it is firmly attached yet easy to remove and replace.



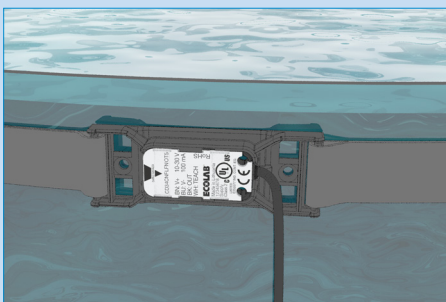
Mounting bracket on small pipe



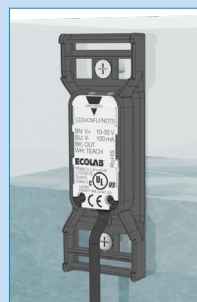
Flush mounting



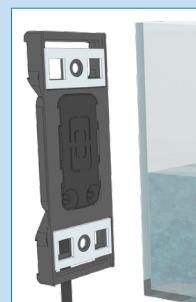
Mounting with cable ties on tube



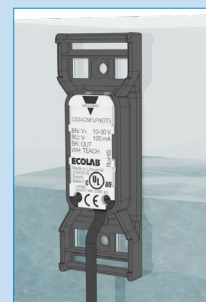
Mounting with velcro on tank



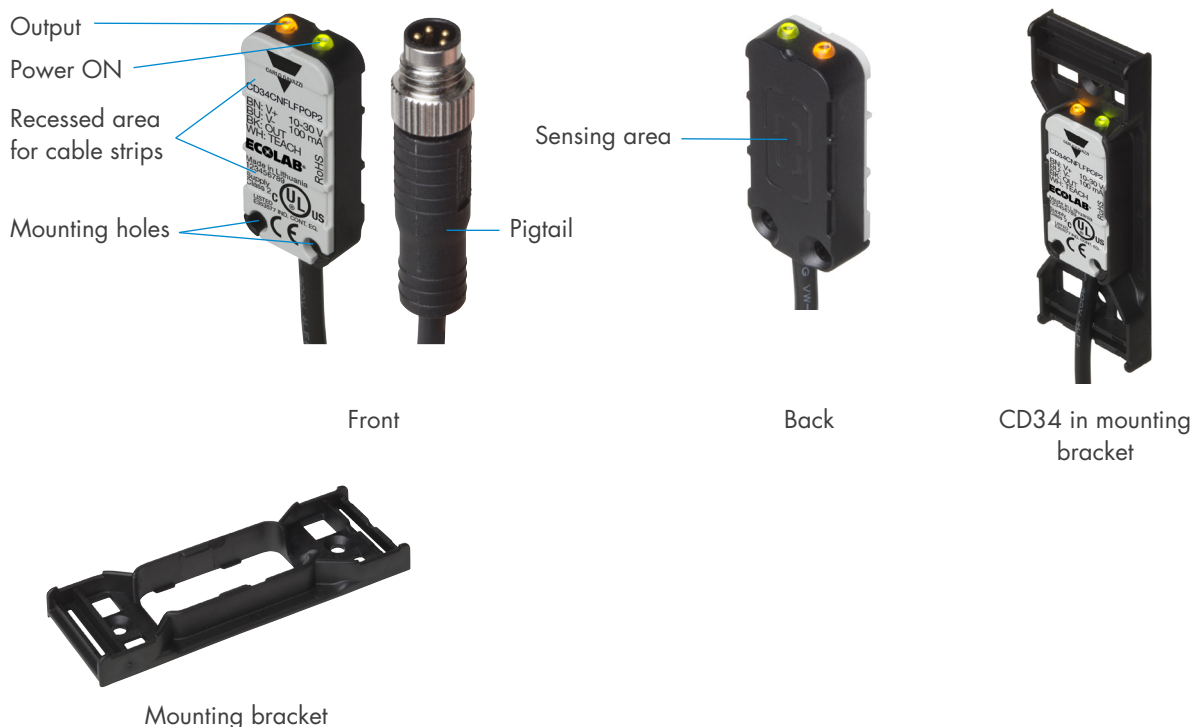
Screw mounting



Adhesive mounting



## Structure



## Specifications

	NPN, NO	NPN, NC	PNP, NO	PNP, NC
Cable	CD34CNFLNPOP2	CD34CNFLFNCP2	CD34CNFLFPOP2	CD34CNFLFPCT2
Pigtail	CD34CNFLFNOP5	CD34CNFLFNCT5	CD34CNFLFPOT5	CD34CNFLFPCT5
Detection	Pipes Diameter: Min Ø8 mm Wall thickness - out of the box: Plastic 0.5 - 6 mm, Glass 0.5 - 4 mm Wall thickness - manual teach: Plastic ≤10 mm, Glass ≤10 mm			
Detection liquids	Water-based liquids such as water, milk, syrup, honey, milkshakes, lubricates, acids, alkaline fluids, body fluids and other high-conductive liquids (up to 50 mS)			
Temperature drift	Factory settings: ≤ 20% (-25°C... +80°C), Manual teach: ≤ 20% (-25°C... +60°C)			
Rated operational voltage	10 to 30 V DC, Ripple included			
No load supply current	≤ 13 mA			
Voltage drop (U <sub>d</sub> )	≤ 1.5 V DC			
Sensor protection	Short circuit, reverse polarity and transients			
Response time	OFF-ON < 50 ms, ON-OFF < 50 ms			
LED indications	Yellow LED: Output ON, Green LED: Power ON			
Degree of protection	IP65, IP66, IP67, IP68 (1.3 meter, 24 h) and IP69K ; NEMA: 1, 2, 4, 4x, 5, 12			
Ambient humidity range	Storage and operating: 35% to 100 %			
Ambient temperature	Operating: -25 to +80°C (-13 to +176°F), Storage: -40 to +85°C (-40 to +185°F)			
CE marking	EN60947-5-2			
Approvals	cULus (UL508), CSA-C22.2No.14-13, ECOLAB			
Overvoltage category	III (IEC60664/60947-1)			
Pollution degree	3(IEC60664, 60664A, EN60947-1)			
Material	Body: PC/PBT , Mounting bracket: PC/PBT			
Cable / Pigtail	PVC, 2 m, 4 x 0.14 mm <sup>2</sup> , Ø=3.4 mm / M8 - 4 pin, male, stainless steel			
Dimensions / Weight	8 x 16 x 34 mm / Cable 60 g, Pig-tail 30 g			

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