

Photoelectric proximity switches SIMATIC PXO

Fast and accurate sensing with light and laser

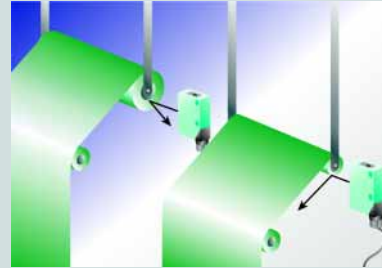
The various versions of the photoelectric proximity switches SIMATIC PXO are predominantly used in the following applications:

- in conveyor systems
- in packaging machines
- in mechanical engineering applications
- in paper, textile and plastics processing
- in printing machines
- for access control.

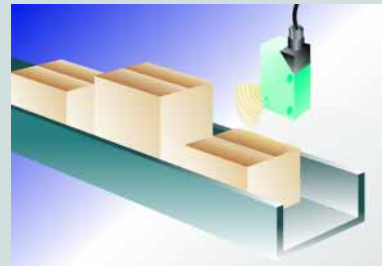
These photoelectric sensors detect all objects regardless of their composition, whether metal, wood or plastic. Special versions of the K 20 form in miniature enclosure and the C 40 are available for detecting transparent objects.

Special devices such as the color sensor or color mark sensor can be used to detect differences in color or contrast. The analog laser supports extremely precise distance measurements and position monitoring.

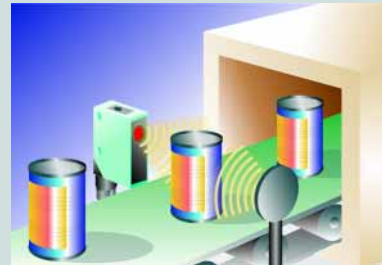
The devices can be mounted in any position. They should be installed in such a manner as to prevent dirt deposits as far as possible.



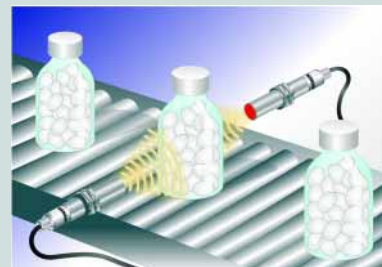
Measurement of diameter using diffuse sensor



Height measurement (diffuse sensor with background suppression)



Counting with retroreflective sensor



Counting with thru-beam sensor

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Functionality and highlights

Diffuse sensor (energetic sensor)

The light from the emitter falls on an object and is reflected in a diffuse pattern. Part of this reflected light reaches the receiver located in the same device. If the intensity of the received light is sufficient, the output is switched. The sensing range depends on the size and color of the object involved as well as its surface texture. The sensing range can be varied within a wide range by means of the built-in potentiometer. The energetic sensor can therefore also be used to detect different colors.

Diffuse sensor with background suppression

Diffuse sensors with background suppression can detect objects up to a specific sensing range. All objects beyond this range are suppressed. The focus level can be adjusted. The background is suppressed due to the geometric constellation between the emitter and the receiver.

Retro-reflective sensors

The light from the emitter diode is focused through a lens and directed via a polarization filter to a reflector (principle of a 3-way mirror). Part of the reflected light passes through another polarization filter and reaches the receiver. The filters are selected and aligned in such a way that only the light reflected from the reflector reaches the receiver and not the light reflected from other objects within the beam range.

Thru-beam sensors

Thru-beam sensors comprise an emitter and a receiver. The emitter is aligned in such a way that the greatest possible amount of pulsed light from the emitter diode reaches the receiver. The receiver evaluates the incoming light to clearly separate it from the ambient light and other light sources.

Highlights

- Extremely accurate and fast
- High performance even across large distances
- Small, compact housing
- Reliable measurement even in the smallest spaces with Mini-Sensor (K20/K21)
- Degree of protection up to IP68
- Settable sensing ranges
- Simple commissioning (TeachIn)
- UL/CSA approvals



Product families

The photoelectric proximity switches are grouped into separate product families according to their technical design or type of construction:

SIMATIC Sensors	Design	Type
PXO100	Cylindrical	M18
PXO200	Cubic	K40, C40, K80
PXO300	Cylindrical, miniature type	D4, M5, M12
PXO400	Cubic, miniature type	K20, K21, K21R, K30, K31
PXO500	Laser	C20, L18, L20, L50, L80

Photoelectric proximity switches SIMATIC PXO Overview

SIMATIC PXO100



SIMATIC PXO200



SIMATIC PXO300



Type	M18			M18S			C40			K40			K80				D4, M5	
Operating mode																		
• Diffuse sensor				■			■				■							■
• Diffuse sensor with background suppression	■							■						■				
• Retro-reflective sensor				■				■		■				■				
• Thru-beam sensor					■						■					■		■
Sensing range																		
• 1.5 cm - 1.8 cm																		■
• 5 cm - 10 cm																	■	
• 12 cm - 15 cm																		
• 20 cm - 30 cm								■										
• 40 cm - 50 cm																		
• 60 cm - 70 cm				■				■										
• 1 m - 1.5 m					■				■					■				
• 2 m - 3 m										■				■				
• 4 m - 6 m											■					■		
• 12 m - 15 m												■						
• 50 m																	■	
Output																		
• pnp				■	■	■		■	■	■		■	■	■	■		■	■
• npn							■	■	■			■	■	■	■		■	■
• Relay																		
• AS-Interface													■	■	■			
• Analog																		
Direct communication with the PLC								ET 200S via IQ-Sense		ET 200S via IQ-Sense				ET 200S via IQ-Sense	ET 200S via IQ-Sense	ET 200S via IQ-Sense		
Operational voltage																		
• 24 V DC	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
• 20 ... 265/320 V AC/DC														■		■	■	
Connection																		
• M8 connector										■	■	■					■	■
• M12 connector		■	■	■		■	■	■		■	■	■		■	■	■		■
• Cable		■	■	■						■	■	■					■	■
• Terminals														■	■	■	■	
• AS-Interface with FK block													■	■	■	■		
Special features																		
• Timer function														■	■	■	■	
• Anti-interference																		
• Surplus light		■	■	■						■			■	■		■		
• Transparent objects								■										
• Metal housing		■	■	■														
Light type																		
• Visible light		■	■	■		■	■	■		■	■	■			■			
• Infrared light										■				■			■	■
• Laser light, red																		
Product selection code	3RG7134	3RG7640 3RG7650 3RG7641 3RG7651	3RG7642 3RG7652		3RG7240	3RG7244	3RG7241		3RG7020	3RG7021	3RG7022		3RG7210	3RG72.4	3RG72.1	3RG72.2	3RG7030 3RG7040	3RG7042

