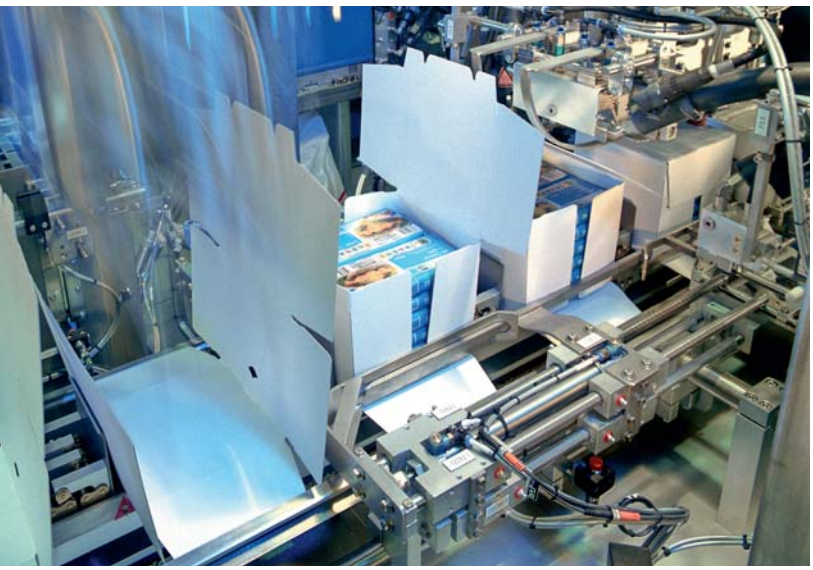
SIMATIC PX proximity switches

for reliable sensing, counting, measuring or monitoring

SIMATIC Sensors

Answers for industry.

SIEMENS



Contents

SIMATIC PX proximity switches – Overview of portfolio

Extensive automation, complex processes and high speeds represent the demands that must be met by our comprehensive range of proximity switches – regardless of whether solids, liquids or powders are involved. Sensing, counting, measuring, monitoring or positioning: The SIMATIC proximity switches offer contactless precision and have proved themselves in many areas of automation engineering.

SIMATIC PXS sonar proximity switches

Sonar proximity switches are used wherever objects have to be detected or distances measured through air, regardless of the condition of the material. They are particularly reliable under changing or difficult environmental conditions.

SIMATIC PXO optical proximity switches

Thanks to their compact and economical construction, optical proximity switches offer great flexibility in their range of possible applications. They detect a wide variety of materials over large distances and at great speed.

SIMATIC PXI inductive proximity switches

Inductive proximity switches are the low-cost solution for non-contact detection of metal objects. And thanks to their wear-free operation and insensitivity to temperature, noise, light and water, they have a particularly long service life.

SIMATIC PXC capacitive proximity switches

Capacitive proximity switches are also non-contact sensors for measuring conductive and non-conductive materials in solid, powder or liquid state. By means of detection on the basis of a shift in capacitance, an object can even be detected through other objects, for example when filling a drink carton.

Fully integrated with IO-Link

IO-Link is a concept for the intelligent integration of sensors in automation systems. For the first time, plant-wide communication down to the sensor level can be implemented not just extremely easily, but highly profitably as well.

Highlights

- Contactless detection of objects
- Extensive and complete product range including photoelectric, inductive, sonar and capacitive sensors
- International versions (UL/CSA/CCC)
- Up to degree of protection IP69K, depending on type of sensor
- Versions available for use in Ex Zone 2/22
- Customer-specific product versions
- Integrated protection mechanisms against polarity reversal, short circuit and overload

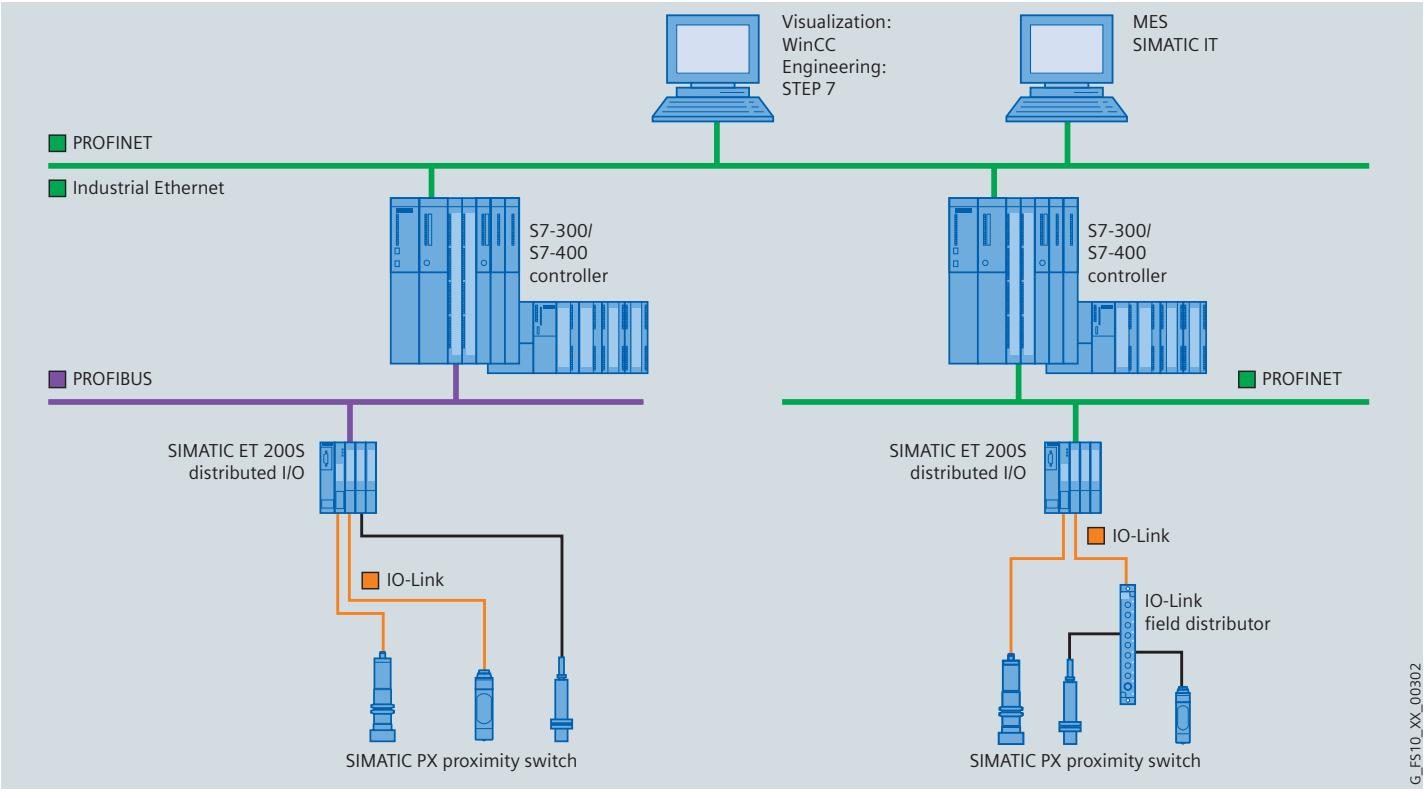
Seamless communication down to the last meter: IO-Link

In order to fulfill requirements for a steady reduction in costs as well as higher plant availability, the market demands systematic diagnostic concepts and efficient handling of parameter data at all levels of automation engineering. Modern sensors and actuators can meet these needs to a certain extent, but the crunch point is how they are integrated into the automation network.

IO-Link is the innovative interface for the last few meters to the process and facilitates new solutions here.

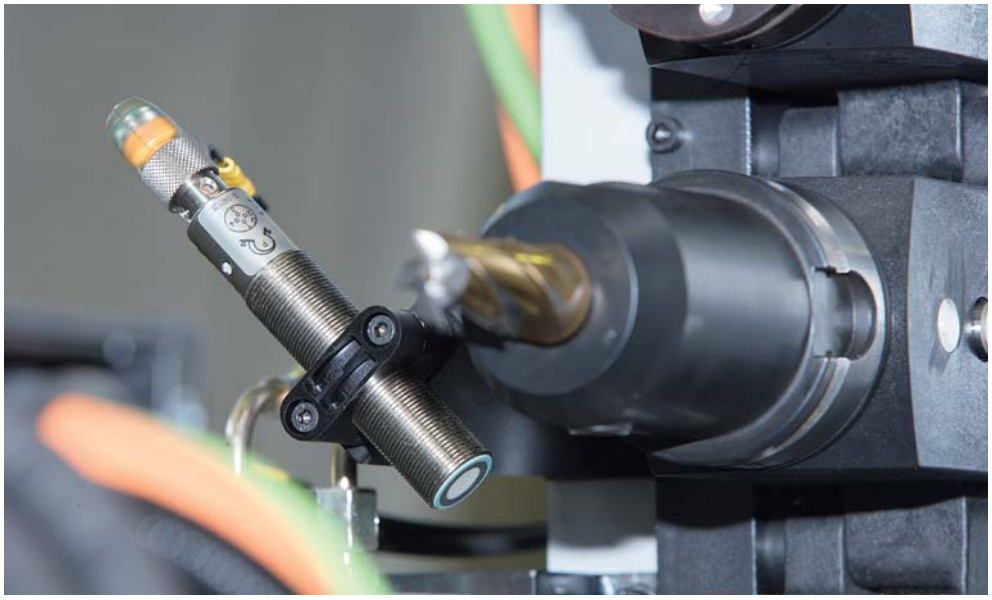
New communications standard: IO-Link

The new communications standard below the fieldbus level permits central fault diagnostics and location as far as the sensor/actuator level. Moreover it simplifies



Unique: IO-Link is incorporated in Totally Integrated Automation

commissioning and maintenance by allowing the parameter data to be modified dynamically direct from the PLC. The result: Greater fault-tolerance, faster commissioning and reduced engineering overhead. As an open interface, IO-Link can be integrated into all common fieldbus and automation systems. Consistent interoperability ensures excellent protection of investment. The new communication standard was developed by the IO-Link Working Group of PROFIBUS & PROFINET International (PI) – under the chairmanship of Siemens. The approved IO-Link specification, which has already been submitted for standardization at the IEC, is based on the essential features of the Siemens IQ-Sense technology that has been ensuring intelligent communication between sensors and controllers since 2001.



Sensors and controllers are converging

Sensors are becoming more intelligent and versatile. This also increases the number of adjustment and evaluation options. Thanks to intelligent linking with the controller, IO-Link enables significantly greater flexibility and reliability to be implemented in the sensors.

The integrated data exchange also conceals a host of benefits for both plant construction and operation. Thanks to the consistent availability of parameters, for example, an adjustment made to one sensor can be copied as often as required to other sensors.

Central data storage ensures that sensors continue operating with the correct settings, even after replacement, without the need for resetting the parameters. In addition, IO-Link permits precise, channel-based diagnostics. Apart from interference to the wiring, sensor-specific faults are also detected. All these extended functions are available in the familiar system environment thanks to TIA. TIA already ensures this on a system-integrated basis.

IO-Link Highlights

- Lower engineering costs
- Faster configuration
- Reduced number of parameterization tools, flexible parameterization
- Shorter commissioning times
- Less wiring overhead
- Increased plant availability
- Maximum data transparency
- Faster conversion times
- Straightforward fault clearance
- Fewer downtimes

Unique level of consistency: IO-Link incorporated into Totally Integrated Automation

Engineering | Start-up | Operation and maintenance

Reduced engineering costs

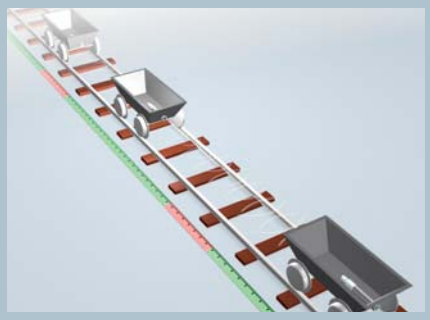
- Faster configuring thanks to central data management and reproducibility of sensor resp. actuator parameters
- Reduced number of parameterization tools required thanks to central configuration and data management in STEP 7
- Easier integration of devices thanks to defined profiles
- Open IO-Link solution with IODD standard for maximum flexibility; third-party devices can be integrated in the same way via GSD
- Protection of investment through retention of tried and tested topologies

Shorter commissioning times

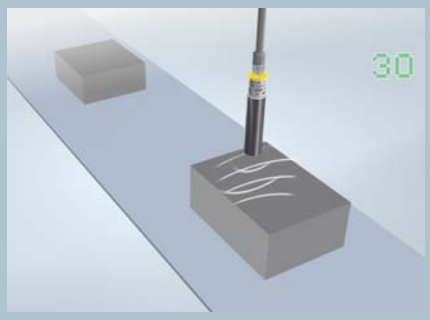
- Homogeneous and reduced wiring overhead of different sensors and actuators
- Saves time, as no individual parameterization is necessary
- Straightforward parameterization due to central data management
- High flexibility during sensor/ actuator parameterization

Increased plant availability

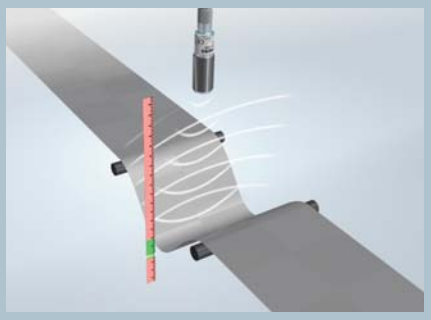
- Maximum transparency all the way to the field level thanks to integration of the IO-Link standard into Totally Integrated Automation
- Shorter conversion times thanks to central parameter and recipe management; also applies to field devices
- Reduced downtimes due to plant-wide diagnostics all the way to the field level and fast fault clearing; also due to the reporting and display of pre-failure messages thanks to preventive maintenance of sensors and actuators
- Easy clearance of faults by hot-swapping of devices during operation without resetting parameters because integrated parameter storage is provided in the PLC
- Absolute reliability of all of the Siemens components in the Siemens system – thanks to comprehensive system tests



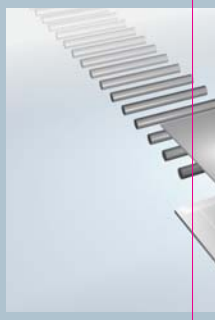
Distance monitoring



Size measurement



Loop monitoring



Measurement of stack height

SIMATIC PXS sonar proximity switches

The sonar proximity switches detect objects of different materials, shapes or consistencies with absolute precision, flexibility and reliability.

The range of applications of the sonar proximity switches is almost limitless. In filling-level or height sensing, distance measurement or bottle counting – at distances from 2.5 cm to 10 m, they detect objects with widely differing characteristics. Regardless of whether they are liquid, solid, powder or even transparent. The nature of the surfaces is also irrelevant; they can be rough or smooth, clean or dirty, wet or dry. In addition, they are not sensitive to extraneous influences such as light or temperature.

Mode of operation

The sonar proximity switches operate only in air and can record any objects that reflect ultrasonic waves. They emit ultrasonic pulses at cyclic intervals. If these are reflected off objects, the resulting echo is received and converted into an electrical signal.
They operate on the echo delay principle, i.e. the interval between the transmitted pulse and the echo pulse is measured and evaluated.

Diffuse sensor
In the case of the diffuse sensor, the object that is to be detected acts as the reflector. As soon as an object moves into the preset sonic range, the ultrasonic echo from this object triggers the proximity switch. In this mode, the object is detected directly or the distance from the object can be measured. Interference objects in the foreground or background are filtered out.

Reflex sensor
When operating as a reflex sensor, a fixed reflector reflects the emitted ultrasonic signal. The switching process is adjusted on the reflector. If the path between sensor and reflector is interrupted by an object, the echo delay becomes shorter than the preset delay. This triggers the switching process. The object is detected without any blind spots, which means that maximum use is made of the space in the plant.

Thru-beam sensor
Transmitter and receiver are set up in separate devices. The transmitter emits ultrasonic pulses to the receiver positioned opposite. If the signal path is interrupted by an object so that the receiver no longer receives a signal, the latter triggers a switching operation at the receiving device. This operating mode does not have any blind zones either and facilitates particularly fast detection of objects.

SIMATIC PXS sonar proximity switches

Overview

	SIMATIC PXS100								
									
Design	**Compact range K0**		**Sonar thru-beam sensor**	**3SG16 compact form**	**Compact range K21**				
					Version A			**Version B**	
Sensing range	**6 ... 30 cm**	**20 ... 100 cm**	**5 ... 150 cm**	**20 ... 100 cm**	**2,5 ... 40 cm**	**0 ... 40 cm**	**0 ... 80 cm**	**2 ... 25 cm**	
Operating mode									
Diffuse sensor	●	●		●	●			●	
Reflex sensor				●		●			
Thru-beam sensor			●				●		
Design									
Fixed/Straight sensor head	●	●	●	●	●	●	●	●	
Angled sensor surface									
Swivel-mounted sensor head									
Separate sensor head	●	●							
Output									
1 switching output	●	●	●		●	●	●	●	
2 switching outputs				●					
Analog output 0 ... 20 mA									
Analog output 4 ... 20 mA									
Analog output 0 ... 10 V	●	●							
Frequency output					●			●	
Direct communication with controller									
Temperature compensation	●	●							
Adjustment									
1 potentiometer	●	●							
2 potentiometers									
Teach-in					●	●	●	●	
Jumper plug				●					
Programming device									
Connection									
M8 connector			●		●	●	●	●	
M12 connector	●	●	●						
Cable			●		●	●	●	●	
Terminals				●					
Degree of protection									
IP65	●	●		●					
IP67			●		●	●	●	●	
Product selection code	3RG63 42	3RG63 43	3RG62 43	3SG16 67	6GR62 41	6GR62 41	6GR62 41	6GR62 42	

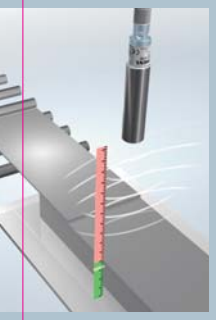
*) = available depending on version See pages 26/27 for more information on the use of the product selection code.

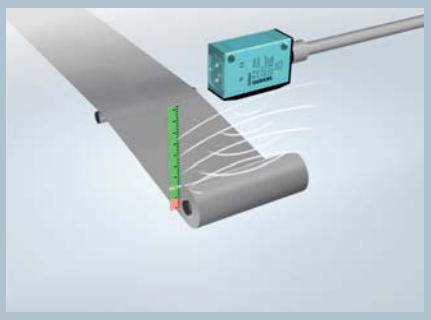
	Compact range M30 K1				Compact range K08			Compact range M18 S		
0 ... 25 cm	6 ... 30 cm	20 ... 130 cm	40 ... 300 cm	60 ... 600 cm	5 ... 40 cm	0 ... 80 cm	0 ... 40 cm	2 ... 25 cm	2,5 ... 40 cm	5 ... 70 cm
	●	●	●	●	●			●	●	●
●	●	●	●	●			●	●	●	●
						●				
●	●	●	●	●	●	●	●	●	●	●
								●	●	●
	●	●	●	●						
	●	●								
●	●	●	●	●				●	●	●
					●	●	●		●	●
								●	●	●
	●	●	●	●						
●					●	●	●	●	●	●
●										
	●	●	●	●	●	●	●	●	●	●
●										
	●	●	●	●						
●					●	●	●	●	●	●
6GR62 42	3RG60 12 3RG60 22	3RG60 13 3RG60 23	3RG60 15 3RG60 25	3RG60 14 3RG60 24	3RG64 51	3RG64 51	3RG64 51	6GR62 32 6GR62 22	6GR62 31 6GR62 21	6GR62 33 6GR62 23

SIMATIC PXS300

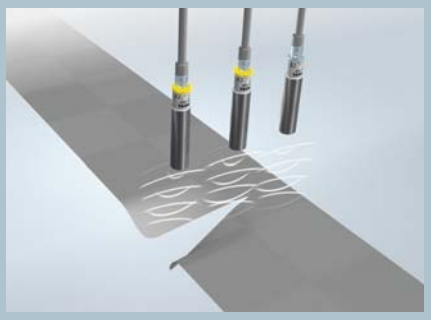
Compact range M30 K2				Compact range M18			Compact range K65			
6 ... 30 cm	20 ... 130 cm	40 ... 300 cm	60 ... 600 cm	5 ... 30 cm	10 ... 100 cm	15 ... 100 cm	6 ... 50 cm	20 ... 150 cm	25 ... 250 cm	6 ... 30 cm
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●		●				●
●	●	●	●	●		●				●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●							●
●	●									●
●	●	●	●	●	●	●	●	●	●	●
●*)	●*)	●*)	●*)				●	●	●	
				●		●	●	●	●	●
				●		●	●	●	●	●
				●		●	●	●	●	●
●	●	●	●	●		●	●	●	●	
				●	IO-Link ●	●				
●	●	●	●	●	●	●	●	●	●	●
				●		●				
●	●	●	●							●
							●	●	●	
●	●	●	●	●		●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●				●	●	●	●
				●	●	●				
3RG60 12 3RG60 22	3RG60 13 3RG60 23	3RG60 15 3RG60 25	3RG60 14 3RG60 24	3RG62 32 3SF62 32	6GR63 33	3RG62 33 3SF62 33	3RG62 52	3RG62 53	3RG62 55	3RG61 12 3RG61 22

SIMATIC PXS400				SIMATIC PXS800						SIMATIC PXS900
										
12 Compact range M30 K3				Compact range M18 ATEX		Compact range M30 K3 ATEX				Double-layer sheet monitoring
20 ... 130 cm	40 ... 300 cm	60 ... 600 cm	80 ... 1000 cm	5 ... 30 cm	15 ... 100 cm	6 ... 30 cm	20 ... 130 cm	40 ... 300 cm	60 ... 600 cm	2 ... 6 cm
•	•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	
•	•	•				•	•	•	•	
•						•	•			•
•	•	•	•	•	•	•	•	•	•	
										•
•	•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	•	
				•	•					
•	•	•	•	•	•	•	•	•	•	
				•	•					
•	•	•	•			•	•	•	•	
										•
•	•	•	•	•	•	•	•	•	•	
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•			•	•	•	•	•
				•	•					
3RG61 13 3RG61 23	3RG61 15 3RG61 25	3RG61 14 3RG61 24	3RG61 76	3RG62 32	3RG62 33	3RG61 12	3RG61 13	3RG61 15	3RG61 14	3RX22 10

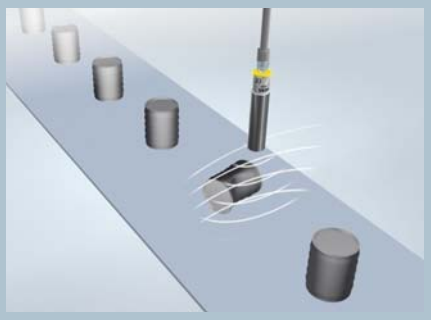




Measuring the diameter



Contour detection



Quality control

Highlights

- Measurement with millimeter accuracy
- Independent of color and material, even for transparent objects
- Individual parameter setting option
- Small, compact enclosure
- Very high repeat accuracy
- Temperature compensation for Compact range K0, M30 K2 and M30 K3
- Synchronization for Compact range M30 K2, M30 K3 and M18
- Programming with SONPROG
- Can be used worldwide: UL/CSA/CCC approvals
- Sensors for Ex Zone 2/22 available
- Customer-specific product versions: Sensors with high-grade steel enclosures
- Proximity switches with IO-Link fully integrated in TIA

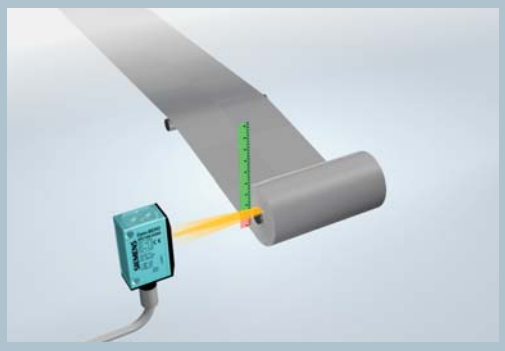
Sectors

- Food and packaging industry
- Logistics and conveyor systems
- Paper industry
- Machine tool construction
- Pharmaceutical industry

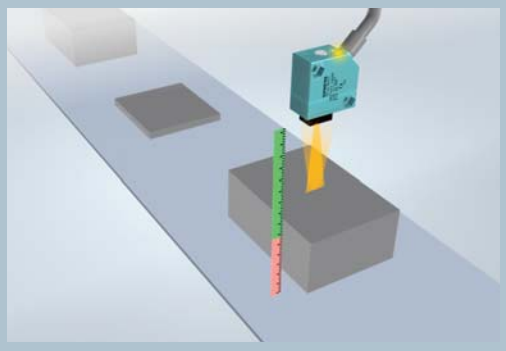
Product families and designs

SIMATIC sensors	Design
PXS100	Compact range 0, compact form 3SG16, sonar thru-beam sensor
PXS200	Compact range K21, compact range M30 K1, compact range M18S, compact form K08
PXS300	Compact range M30 K2, compact range M18, compact form K65
PXS400	Compact range M30 K3
PXS800	Compact range M18 ATEX, compact range M30 K3 ATEX
PXS900	Double-layer sheet monitoring

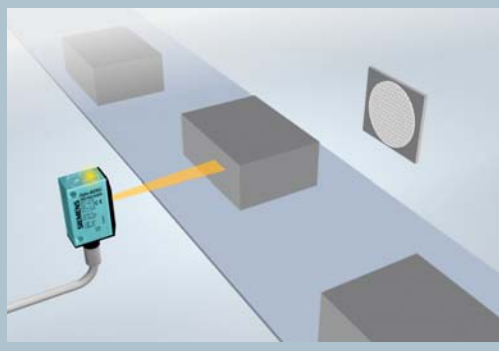
Sonar proximity switch SIMATIC PXS310C M18 with IO-Link



Sensing the diameter



Height measurement



Counting with reflex sensor

SIMATIC PXO optical proximity switches

These photoelectric, optical sensors detect all objects regardless of their surface condition, whether metal, wood or plastic.

For sensing transparent objects, there are special versions of the K20 models in a miniature enclosure as well as the C40. Using special devices such as the color sensor or print mark sensor, it is also possible to detect different colors or differences in contrast. Extremely accurate distance measurements and position checks are made possible by fork sensors, analog lasers and fiber-optic sensors. For high-precision distance sensing on conveyors, the use of a laser distance sensor is recommended.

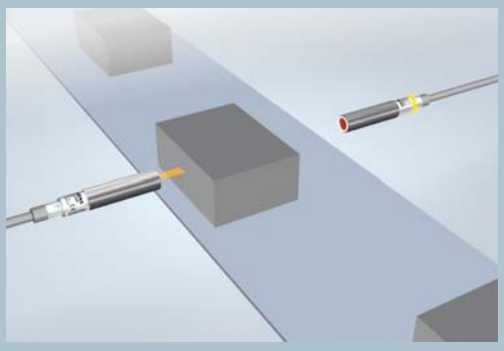
Mode of operation

Diffuse sensor
The light from the emitter reaches an object which diffuses the reflected light. Some of this light returns to the receiver located in the same device. If the received light is strong enough, the output switches – a simple and economical form of object sensing. The sensing range depends on the size and color of the object as well as on its surface condition. The sensing range can be adjusted over a wide range using the built-in potentiometer.

Diffuse sensor with background suppression
Diffuse sensors with background suppression can detect objects within a defined sensing range. Everything beyond this is filtered out, due to the geometrical arrangement of transmitter and receiver. This ensures particular flexibility in the use of the sensor in the machine.

Reflex sensors
The light of the transmitter diode is focused through a lens and directed by means of a polarization filter onto a reflector (triple mirror principle). A part of the reflected light reaches the receiver via a second polarization filter. The filters are selected and arranged in such a way that only the light returned by the reflector reaches the receiver, but not the light from other objects within the field of radiation. This type of detection guarantees a high level of immunity to interference as well as large sensing ranges.

Thru-beam sensors
These consist of a transmitter and a receiver. The receiver is oriented in such a way that the greatest possible amount of pulsed light from its transmitter diode falls on the receiver. This in turn evaluates the received light so that it can be clearly differentiated from ambient light and other light sources. This principle also functions at very long distances.



Counting with thru-beam sensor

Optical proximity switches SIMATIC PXO550C L50 and PXO560C C50 with IO-Link

Product families and designs

SIMATIC sensors	Version	Design
PXO100	Cylindrical design, mini	D4, M5, M12
PXO200	Cylindrical designs	M18S, M18, L18
PXO300	Cubic design, mini	K21, K21R, K20, L20, C20
PXO400	Cubic design, small	K31, K30
PXO500	Cubic design	C40, L50, L50HF, L50HF advanced, C50
PXO600	Cubic design, large	K80, L80HF, L90L
PXO800	Special devices, amplifiers	GL, LV70

Highlights

- Extremely fast and precise
- High performance, even over considerable distances
- Small, compact enclosure
- In mini-sensor form (K20/K21), reliable sensing in a very small space
- Degree of protection up to IP68
- Adjustable range
- Easy commissioning (teach-in)
- Can be used worldwide: UL/CSA/CCC approvals
- Versions available for use in Ex Zone 2/22 (K80 design)
- Proximity switches with IO-Link fully integrated in TIA

Sectors

- Conveyor systems
- Packaging
- Machine building
- Paper, textile and plastics processing
- Printing technology

SIMATIC PXO opto proximity switches

Overview

	SIMATIC PXO100					SIMATIC PXO200					SIMATIC PXO300								
																			
Design	**D4**	**M5**	**M12**			**M18S**			**M18**	**L18**	**K21/K21R**		**K20**		**L20**		**C20**	**K31**	
Operating mode																			
Diffuse sensor	●	●	●			●					●							●	
Diffuse sensor with background suppression									●				●		●				●
Reflex sensor				●			●					●		●		●			
Thru-beam sensor	●	●			●			●		●									
Contrast sensor																	●		
Color sensor																			
Sensing range																			
1.2 cm – 3.2 cm																			
1 m – 1.5 m	●	●											●		●				
12–15 cm									●								●		●
20–30 cm	●	●	●																
40–50 cm											●			●					
60–70 cm						●*)												●	
1–1.5 m				●		●													
2–3 m							●					●				●			
4–6 m					●			●											
12–15 m																			
15–20 m																			
20–50 m										●									
Output																			
Contact element, electronic	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Relay																			
Analog																			
Direct communication with the controller																			
Operating voltage																			
24 V DC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20 ... 265/320 V AC/DC																			
Connection																			
M8 connector	●	●									●	●	●	●	●	●	●	●	●
M12 connector			●	●	●	●	●	●	●	●									
Cable	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●	●
Terminals																			
Special features																			
Timing function																			
Surplus light						●	●	●											
Transparent objects														●					
Approval for hazardous area																			
Illuminant																			
Visible light (red)			●	●	●	●	●	●	●		●	●	●	●					●
Infrared light	●	●																●	
Laser light, red										●					●	●	●		
Laser light, infrared																			
White light																			
Product selection code	3RG70 42 3RG70 40	3RG70 32 3RG70 30	3RG71 20	3RG71 21	3RG71 22	3RG76 40 3RG76 50	3RG76 41 3RG76 51	3RG76 42 3RG76 52	3RG71 34	3RG71 35 3RG71 75	3RG74 00 3RG74 20	3RG74 01 3RG74 21	3RG74 04	3RG74 01	3RG74 06	3RG74 07	3RG74 08	3RG70 10	3RG70 14

*) = available depending on version See pages 26/27 for more information on the use of the product selection code.

SIMATIC PXO400		SIMATIC PXO500										SIMATIC PXO600						SIMATIC PXO800	
																		
		K30			C40				L50			C50	K80				L80	L90L	PXO830 GL	PXO840 LV70
		●			●						●		●				●	●		●
						●			●					●							
●			●				●	●		●					●						
	●			●												●			●	●
												●								
												●							●	
											●								●	Depending on fiber-optic conductor
									●										●	
						●														
					●												●			
		●					●							●						
●													●							
	●		●					●							●			●		
				●																
										●						●		●		
●	●	●	●	●	●	●	●	●	●	●		3X ●	●	●	●	●	●	●	●	●
													●		●	●				
											●						●	●		●
					●			●					●	●	●					
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
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●	●	●	●	●															●	●
					●	●	●	●	●	●	●	●	●	●	●	●	●	●		
●	●	●	●	●					●	●	●									●
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											●		●	●	●	●			●	●
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●			●		●	●	●	●								●			●	●
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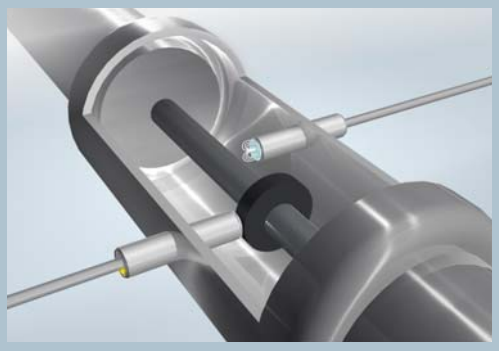
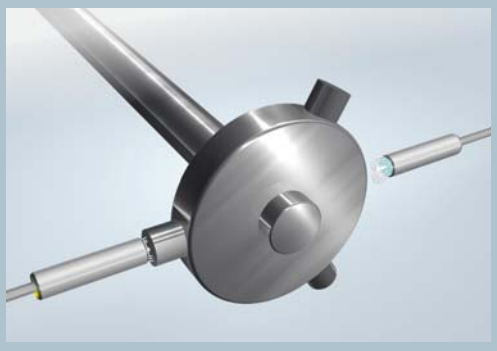
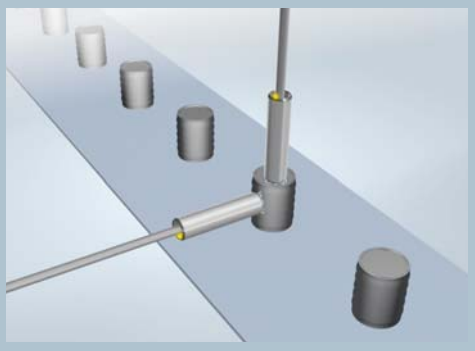
									●	●	●						●			
																		●		
												●								
3RG70 11	3RG70 12	3RG70 10	3RG70 11	3RG70 12	3SF72 40 3RG72 40	3RG72 44	3RG72 41	3SF72 41 3RG72 41	3RG70 56	3RG70 57	3RG70 56	3RG70 50	3RG72 00 3RG72 10	3RG72 04 3RG72 14	3RG72 01 3RG72 11	3RG72 02 3RG72 12	3RG72 56	6GR16 54	6GR18 0	6GR18 1



Recognition of the valve position (completely open or closed)



Recognition of adjusting screws on the wheel for velocity or direction control



Recognition of cans and lids

SIMATIC PXI inductive proximity switches

For contact-free detection of metal objects, proximity switches are quite simply the most cost-effective solution.

If an excellent conductor of electricity or magnetism moves towards the sensor or away from it, inductive proximity switches immediately trigger a signal change. Thanks to their excellent repeat accuracy, they are extremely reliable. And thanks to their wear-free operation and insensitivity to temperature, noise, light and water, they have an extremely long service life. We have covered the complete application spectrum with a wide range of different types and ranges. Customized product versions offer maximum flexibility in our wide range of inductive proximity switches.

Mode of operation

In the inductive proximity switch, a high-frequency alternating field is generated which is output on the "active surface" of the proximity switch. The physical size of this alternating field determines the range of the device. When a good conductor of electricity/magnetism approaches, the field is attenuated. Both states (field attenuated or not attenuated) are evaluated in the proximity switch and result in a signal change at the output.

The inductive proximity switches are classified according to various application options or technical features:

- For normal requirements
- For PLC (2-wire)
- For increased electrical requirements
- For extreme environment conditions (IP69K)
- With increased operating distance
- Without reduction factor
- Pressure-resistant up to 500 bar
- With analog output
- For use in Ex Zone 2/22

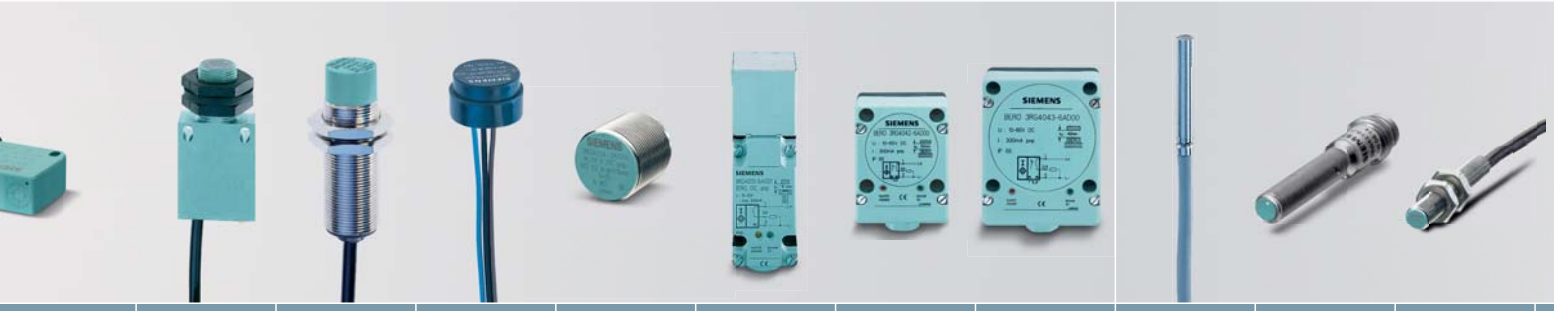
SIMATIC PXI inductive proximity switches

Overview

Design, Ø	3 mm	4 mm	M5	5 mm x 5 mm	M8	6.5 mm	8 mm x 8 mm	M12	12 mm x 40 mm
Operating distance									
0–0.8 mm (PXI.1.)	0.6 mm	0.8 mm	0.8 mm	0.8 mm					
1–4 mm (PXI.2.)					1 mm 1.5 mm 2.5 mm	1.5 mm 2.5 mm	1.5 mm	2 mm 4 mm	2 mm 4 mm
5–10 mm (PXI.3.)									
12–22 mm (PXI.4.)									
25–40 mm (PXI.5.)									
50–75 mm (PXI.6.)									
Output									
NO contact/NC contact	• / –	• / •	• / •	• / –	• / •	• / •	• / •	• / •	• / •
pnp / npn	• / –	• / –	• / •	• / •	• / •	• / •	• / •	• / •	• / –
Analog									
Number of wires	3	3	3	3	2, 3, 4	3	3	2, 3, 4	3, 4
Operating voltage									
10 / 15 ... 30 / 35 V DC	•	•	•	•	•	•	•	•	•
10 ... 65 V DC									
20 ... 265 / 320 V AC/DC									
Connection									
M8 connector		•	•		•	•	•		•
M12 connector					•			•	•
Cable	•	•	•	•	•	•	•	•	•
Terminal compartment									
Degree of protection									
IP65 / IP67	– / •	– / •	– / •	– / •	– / •	– / •	– / •	– / •	– / •
IP68 / IP69K									
Product selection code	3RG4603	3RG4200	3RG4210 3RG4610	3RG4636 3RG4236	3RG4011 3RG4021 3RG4611 3RG4211	3RG4050 3RG4060 3RG4601 3RG4201	3RG4637 3RG4237	3RG4012 3RG4022	3RG4070 3RG4080

See pages 26/27 for more information on the use of the product selection code.

200



12 mm x 32 mm	Cuboid with M14	M18	18 mm	M30	40 mm x 40 mm	60 mm x 80 mm	80 mm x 100 mm	4mm	M5	M8	
								0.6 mm	0.6 mm		
2 mm	2.5 mm									1 mm 2 mm 2.5 mm 3 mm	
	5 mm	5 mm 8 mm	5 mm	10 mm						6 mm	
				15 mm	15 mm 20 mm						
						30 mm	40 mm				
• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / •	• / –	• / –	• / •	
• / –	• / •	• / •	• / •	• / •	• / •	• / –	• / –	• / –	• / –	• / •	
4	2, 3, 4	2, 3, 4	3	2, 3, 4	2, 3, 4	4	4	3	3	3	
•	•	•	•	•	•	•	•	•	•	•	
										•	
										•	
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					•	•	•				
– / •	– / •	– / •	– / •	– / •	• / •	• / –	• / –			– / •	
								• / –	• / –	• / –	
3RG4071	3RG4072 3RG4082	3RG4013 3RG4023	3RG4075	3RG4014 3RG4024	3RG4031 3RG4034 3RG4038 3RG4041	3RG4042	3RG4043	3RG4600	3RG4610	3RG4011 3RG4111 3RG4611 3RG4621	

SIMATIC PXI300

M12	Cuboid with M14	6.5 mm	8 mm x 8 mm	M18	18 mm	M30	40 mm x 40 mm	60 mm x 80 mm	80 mm x 100 mm	M8	
2 mm 4 mm	2.5 mm	2.5 mm 3 mm	3 mm							1.5 mm 4 mm	
6 mm 10 mm	5 mm			5 mm 8 mm	5 mm 8 mm	10 mm					
				12 mm 20 mm		15 mm 22 mm	15 mm 20 mm				
						40 mm	25 mm 30 mm 35 mm 40 mm	30 mm	30 mm 40 mm		
								50 mm	65 mm		
• / •	• / •	• / –	• / –	• / •	• / •	• / •	• / •	• / •	• / •	• / –	
• / •	• / –	• / –	• / •	• / •	• / •	• / •	• / •	• / –	• / –	• / •	
2, 3	2, 3	3	3	2, 3	3	2, 3	2, 3, 4	2, 3	2, 3	3	
•		•	•	•	•	•	•			•	
•	•			•		•	•	•	•		
•	•			•		•	•	•	•		
		•	•							•	
•	•			•		•	•			•	
•	•	•	•	•	•	•	•			•	
							•	•	•		
– / •	– / •	– / •	– / •	– / •		– / •	• / •	• / –	• / –		
• / •		• / –		• / •	• / •	• / •	• / •			• / –	
3RG4012 3RG4022 3RG4112 3RG4612 3RG4622	3RG4072 3RG4082	3RG4302 3RG4602	3RG4337 3RG4637	3RG4013 3RG4323 3RG4313 3RG4613 3RG4623 3RG4023 3RG4113	**3RG4053** **3RG4063**	**3RG4014** **3RG4324** **3RG4314** **3RG4614** **3RG4624** **3RG4024** **3RG4114**	**3RG4030** **3RG4031** **3RG4038** **3RG4041** **3RG4134** **3RG4138** **3RG4131** **3RG4144** **3RG4148** **3RG4141**	**3RG4042** **3RG4142**	**3RG4033** **3RG4043** **3RG4143**	**3RG4611** **3RG4621**	

SIMATIC PXI400					SIMATIC PXI600				SIMATIC PXI900	
					ATEX/e1	ATEX/e1	ATEX/e1	ATEX		
										
M12	**M18**	**M30**	**40 mm x 40 mm**	**80 mm x 80 mm**	**M12**	**M18**	**M30**	**40 mm x 40 mm**	**M14**	**M12**
3 mm					2 mm 4 mm				3 mm	
8 mm	5 mm	10 mm				5 mm 8 mm	10 mm			0 ... 6 mm
	12 mm	20 mm	15 mm				15 mm	15 mm		
			25 mm 35 mm 40 mm					35 mm		
				75 mm						
• / –	• / –	• / –	• / –	• / –	• / •	• / •	• / •	• / •	• / •	
• / •	• / •	• / •	• / •	• / •	• / –	• / –	• / –	• / –	• / •	
3	3	3	3	3	4-ATEX/3-e1	4-ATEX/3-e1	4-ATEX/3-e1	4	3	4
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•		•	•	•	•	•	•
•	•	•			•	•	•		•	•
			•	•						
– / •	– / •	– / •		– / •	– / •	– / •	– / •	– / •		– / •
• / –	• / –	• / –	• / –						• / –	
3RG4612 3RG4622	**3RG4613 3RG4623**	**3RG4614 3RG4624**	**3RG4634 3RG4638 3RG4644 3RG4648**	**3RG4643**	**3RG4012 3RG4022**	**3RG4013 3RG4023**	**3RG4014 3RG4024**	**3RG4038 3RG4138**	**3RG4652**	**3RG4612**

Highlights

- Extremely compact and robust
- High degree of protection: IP67/IP68/IP69K
- Correction factor 1
- Extensive recording ranges
- Fast operating frequencies
- Flexible installation options
- Specifically for confined spaces
- UL/CSA/CCC approvals
- Versions for use in Ex Zone 2/22 and for use in the vehicle zone e1
- Customer-specific product versions

Sectors

- Automotive industry
- Machine building
- Robot industry
- Conveyor systems
- Paper and printing industries

Product families and designs

SIMATIC sensors	Application areas and special features
PXI200	Sensors for normal applications and for PLC use
	Operating distance according to standard
PXI300	Sensors for increased electrical requirements
	Sensors with longer operating distance
	Sensors for extreme environmental conditions (IP68/IP69K)
PXI400	Sensors without reduction factor, for welding applications
PXI600	Sensors for Ex Zone 2/22 and e1 type approval Approval for gas: EX II3G EEx nA II T6 X Approval for dust: EX II 3D IP65 T 80 °C X
PXI900	Pressure-resistant sensors up to 500 bar
	Sensors with analog output

SIMATIC PXC capacitive proximity switches

SIMATIC PXC capacitive proximity switches sense all materials, whether in solid, powder or liquid state – even through certain non-metallic materials.

The active surface of a capacitive sensor is formed from two concentric metallic electrodes that are similar to the electrodes of an opened capacitor. When an object approaches the active surface of the sensor, it enters the electrical field in front of the electrode surfaces and causes a change in the coupling capacitance. The oscillation of the resonant circuit is changed, the oscillation amplitude is sensed by means of an evaluation circuit and converted into a switching command.

Highlights

- Detection of all materials (e.g. plastic, wood, paper)
- Measurement of liquid through plastic hoses or glass tubes
- Measurement of corrosive chemicals
- Balancing of operating distance adaptable on object

Sectors

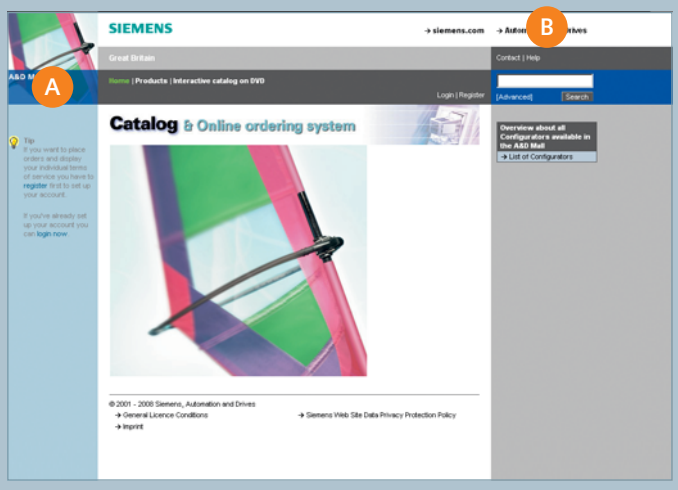
- Food, beverages and tobacco industries
- Bottling plants
- Metalworking

Areas of application

- Level indication
- Fissure alarm signaling
- Object counting
- Automation control
- Counting of consumer goods

	SIMATIC PXC200				
					
Design	**M18**	**M30**	**Ø 40 mm**	**20 mm x 32 mm**	**40 mm x 40 mm**
Operating distance					
5 mm	●			●	
10 mm		●			
20 mm			●		●
Operating voltage					
10 ... 30 V DC				●	
10 ... 65 V DC	●	●	●		●
20 ... 250 V AC		●	●		●
Number of wires					
2-wire		●	●		●
3-wire	●			●	
4-wire		●	●		●
Output					
pnp	●	●	●	●	●
NO contact	●	●		●	
NC contact		●			
NO contact and NC contact		●	●		●
NO contact and NC contact		●	●		●
Mounting					
Flush	●	●	●	●	●
Connection					
Connector M8, Ø 8 mm				●	
Cable	●	●		●	
Terminal compartment		●	●		●
Degree of protection		●			
IP67	●	●	●	●	●
Product selection code	**3RG1613**	**3RG1614**	**3RG1655**	**3RG1673**	**3RG1630**

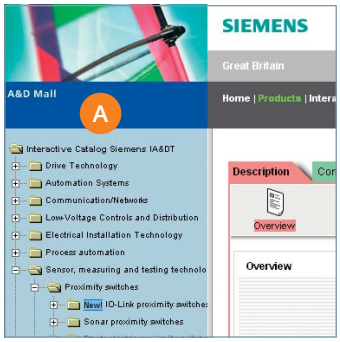
See pages 26/27 for further information on the use of the product selection code.



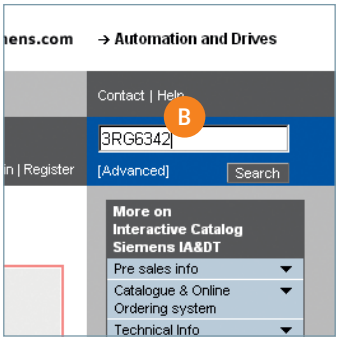
How to find the right proximity switch quickly and easily

Our interactive catalog on DVD or our electronic catalog and ordering system (A&D Mall) on the Internet at www.siemens.com/automation/mall provide you with a detailed overview of our comprehensive range of proximity switches. As a registered user, you can order selected products immediately.

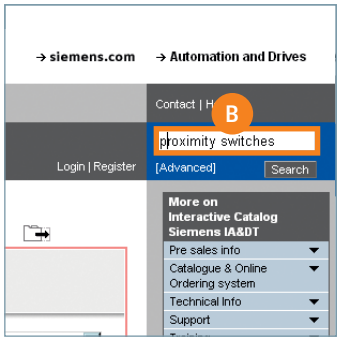
Selecting the right proximity switch



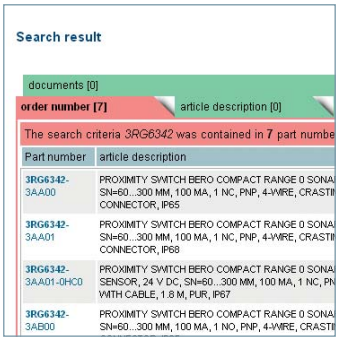
Product tree
In the Mall, under the "Products" tab, you will find our product tree structure on the left of the page. Click on "Sensor, measurement and test technology" and with a few more clicks you will find your way to our sonar, optical, inductive and capacitive proximity switches.

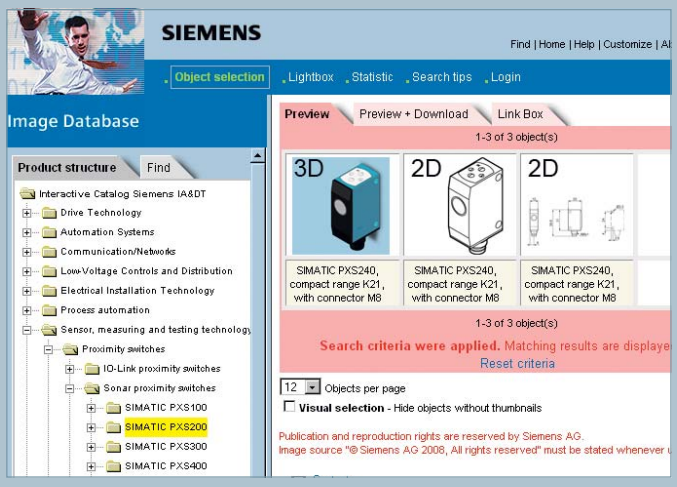


Product selection code
An even quicker way is to call up a list of relevant proximity switches using the product selection code. You can find the specific product selection code in the tables of this brochure. You can also enter this code in the "Product search" field (top right) and the relevant proximity switches will immediately appear on your screen.



Product search
Alternatively, you can enter a search term using the "Product search" field (top right), which will also lead you to the required products.





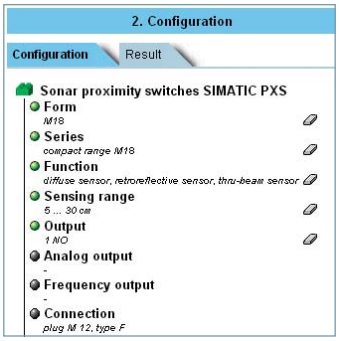
2D and 3D design data in the image database

In order to provide efficient support for your design, configuration and documentation processes, we have made the 2D and 3D design data for the key products in our range of proximity switches available at www.siemens.com/simatic-sensors/px-cad. Here you will quickly find the data for the required product with the aid of detailed search options such as order number, product name, 3D or CAD.

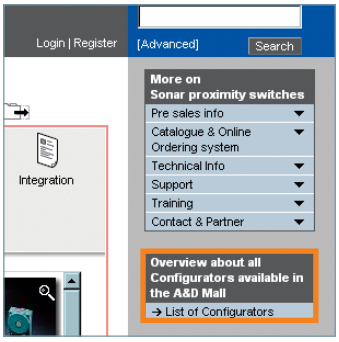
- The latest product data direct from the manufacturer at all times
- Direct download via Internet without registration
- Data can be used immediately for creating design
- Savings made when generating the machine or plant documentation
- Reduction of possible sources of faults when planning a plant

Using configurators to select the right proximity switch

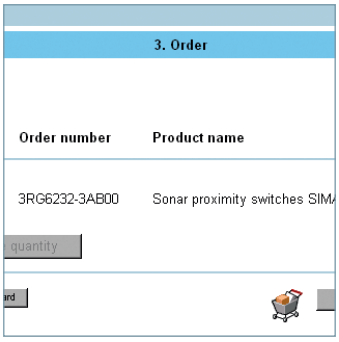
If you have not yet decided on the specific product best suited to your requirements, the configurators will help you make the right choice. We have integrated intelligent and user-friendly tools into the Mall which will make this search significantly easier. The configurator helps you find the required product quickly and easily on the basis of the required technical features and then places it in your shopping cart ready for ordering.



Under “Configuration” you can select the necessary parameters step by step on the basis of technical features and the appropriate products will immediately be displayed. You can change the selection parameters at any time.



To use a configurator, click on the configurator list button in the lower right corner and select the appropriate configurator under “Sensor, measurement and test technology”.



Once you have chosen a product, click “Order” to print or save your choice as an Excel file or, if you are a registered user, you can place it in your shopping cart for immediate ordering.

Further information

Product information on SIMATIC sensors:
www.siemens.com/simatic-sensors

SIMATIC sensor Success Stories
www.siemens.com/simatic-sensors/references

Ordering on the Internet:
www.siemens.com/automation/mall

Your personal contact – in your locality:
www.siemens.com/automation/partner

Range of services and support:
www.siemens.com/automation/service&support

Training for SIMATIC sensors:
www.sitrain.com

Newsletter on SIMATIC Sensors and Totally Integrated Automation – Subscribe at:
www.siemens.com/automation/newsletter

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System partners of SIMATIC Sensors:
www.siemens.com/simatic-sensors/partner

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