THE COMPANY



TURCK is one of the leading manufacturers in industrial automation and was one of the first companies to recognise the possibilities of automating production processes using electronic components. Specialising initially in the production of sensors, today we offer solutions for the ever more complex field of automation, ranging from sensors for the periphery, through various switching and interface devices to system technology. Moreover, TURCK develops and manufactures customised hybrid switching circuits and SMD assemblies. This makes TURCK your first choice for all these products. The **sensor** range comprises more han 1500 standard sensors; the

national (DIN) but also European (EN) and international standards (IEC) and are manufactured according to DIN ISO 9001.

For the European market, there are three production sites in Germany and one in Switzerland. In order to meet the special requirements of our North American customers, the products for this market are manufactured in the United States. This is just one of the reasons why TURCK has achieved the leading position in the inductive sensor market in the United States. We focus on offering individual customer support and made-tomeasure solutions. The basis of our success is the close cooperation with our customers, using the most advanced





interface line features 600 different devices for hazardous area and standard applications. Furthermore, our busstop® programme includes fieldbus components for the most frequently used fieldbus systems.

These products feature protection degree IP67 as a standard. TURCK products not only fulfil

production technologies and a world-wide distribution network. With more than 1600 employees in 15 countries and representatives in over 60 countries, TURCK ensures competent support and solutions directly for the field and on the spot.



Your Satisfaction is our Success!









CAPACITIVE SENSORS

OVERVIEW



Bitte senden Sie mir Unterlagen:

Sensortechnik

- Induktive Sensoren
- □ Induktive Sensoren für Schwenkantriebe
- □ *uprox*[®] induktive Sensoren
- Kapazitive Sensoren
- □ Magnetfeldsensoren
- □ Opto-Sensoren
- Geräte für den Personenschutz Ultraschall-Sensoren
- □ *levelprox*-Füllstandssensoren
- Strömungswächter
- Druckwächter
- Temperaturwächter
- □ Identifikationssystem
- □ Linearweg-Sensoren
- Drehweg-Sensoren
- Steckverbinder
- CD-ROM Sensortechnik

Interfacetechnik

- Interfacetechnik im Aufbaugehäuse
- Bauform *multimodul*
- Bauform multisafe®
- Allgemeine Informationen
- □ Interfacetechnik auf 19"-Karte
- Bauform *multicart*® Miniaturrelais, Industrierelais,
- Zeitwürfel, Sockel □ Zeit- und Überwachungsrelais
- Ex-Schutz Grundlagen für die Praxis (Übersichtsposter)
- CD-ROM Interfacetechnik

Feldbustechnik

- □ *busstop*[®]-Feldbuskomponenten
- □ Bussystem *sensoplex*[®]2
- □ Bussystem sensoplex[®]2 Ex
- □ Bussystem sensoplex®MC
- □ Bussystem AS-Interface®
- □ Bussystem DeviceNet[™]
- Ethernet Netzwerkkomponenten
- BL20 I/O-Busklemmensystem □ Bussystem FOUNDATION[™] fieldbus
- Bussystem PROFIBUS-DP
- Bussystem PROFIBUS-PA
- □ Bussystem *piconet*®
- □ Remote I/O excom[®]

- Sensors
- □ inductive sensors □ inductive sensors for rotary actuators

Please send me more information:

- □ *uprox*[®] inductive sensors
- capacitive sensors
- magnetic-field sensors
- photoelectric sensors
- machine safety equipment
- ultrasonic sensors
- □ *levelprox* level sensors
- □ flow controls
- pressure controls
- □ temperature controls
- identification system
- □ linear position sensors
- □ rotary position sensors
- □ connectors
- CD-ROM Sensors

Interface technology

- devices in modular housings - multimodul style
- multisafe® style general information
- devices on 19" card - multicart® style
- miniature relays, industrial relays, time cubes, sockets
- programmable relays and timers explosion protection – basics for
- practical application (overview poster)
- □ CD-ROM Interface technology

Fieldbus technology

- □ *busstop*[®] fieldbus components
- □ bus system *sensoplex*[®]2
- □ bus system *sensoplex*[®]2*Ex*
- □ bus system *sensoplex*®*MC*
- □ bus system AS-Interface[®]
- □ bus system DeviceNet[™]
- Ethernet network components
- BL20 I/O bus terminal system
- □ bus system FOUNDATION[™] fieldbus
- □ bus system PROFIBUS-DP
- bus system PROFIBUS-PA □ bus system *piconet*®
- □ Remote I/O *excom*[®]

FAX-ANTWORT/FAX REPLY

Absender/Sender:

Name:

Firma/Company:

Abt./Position:

Adresse/Address:

Fax:

Tel./Phone: E-Mail:

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CAPACITIVE SENSORS - APPLICATION-ORIENTED FOR MAXIMUM PRODUCTIVITY

Capacitive proximity switches are non-contact and wear-free sensors for detection of metal (electrically conductive) and non-metal (nonconductive) targets.

Switching distances and dielectric constants

The switching distances of capacitive sensors can vary considerably. The largest switching distances are achieved by conductive materials (e.g. metals). When sensing metals with capacitive sensors, reduction factors for different metals do not have to be observed as opposed to conventional inductive sensors.

The switching distances for nonconductive materials depend on the dielectric constant: the larger the dielectric constant, the higher the switching distance (see table).



Adjustment of the switching distance

The switching distance of almost all capacitive TURCK sensors is adjustable (by a potentiometer) to match the specific application.

Humidity compensation

Capacitive sensors from TURCK incorporate a humidity compensation to prevent interferences due to wetting or dewing.



Level control made easy In order to guarantee smooth

production processes, it is indispensable to detect liquid levels reliably (overflow, run-dry protection and level control): Here, capacitive sensors made by TURCK are a valuable and reliable production aid due to mature and interference-immune electronics



and a convincing choice of housing styles, especially suited for level control.

No matter whether the sensor is mounted directly to the pipe or hose, or if it has to detect the medium through a plastic or glass wall - reliable detection is assured. If mounting inside a container is inevitable, TURCK has special polypropylene adapters with extra mechanical and chemical resistance, or special sensor versions in PVDF (Dyflor) housings and with sealing rings. TURCK also offers sensors with PTB approval for installation in explosion hazardous areas.

To ensure optimum adjustment to the specific medium, nearly all devices are equipped with a potentiometer for fine adjustment. There are also devices with fixed customer-specific settings for serial applications available.

Secure detection of non-

metal objects Non-metal objects are securely detected by TURCK's line of capacitive sensors. Typical applications include the detection of:

- wooden pallets
- plastic containers
- glass containers
- paper or cardboard

TURCK offers a range of sensors in special housings featuring switching distances of up to 50 mm for these purposes.



Accessories



Matching mounting accessories, e.g. mounting brackets, clamp terminals or mounting rails, or protective accessories, such as PTFE (teflon) adapters for container mounting or IP68 housings, are designed to provide perfect adjustment to the individual sensing conditions. Of course, there is also a large range of suitable connectors to choose from.

Our rectangular and compact Q-Pak series makes the most of the available mounting space, e.g. the Q20 type sensor has a height of just 20 mm while providing a switching distance of 30 mm!



Whether non-metal parts or tiny metal targets - capacitive TURCK sensors are capable of sensing other targets through non-metal materials. Typical application examples include: distinction between empty and full packings during final inspection of prepacked items, sensing of soap through a carton box, or of a film a light bulb through its carton can be securely detected at a large switching distance ing. Capacitive sensors are thus

Parts counting and inspection



Housing styles, materials, functions – made-to-measure solutions

Cylindrical housings





Threaded barrel	Housing	Max. switc flush	hing range non-flush	Connection	Electrical version
 Brass, chrome- plated 	M 12 x 1 M 18 x 1 M 30 x 1,5	3 mm 5 mm 10 mm		connector/ cable	2-wire AC 3/4-wire DC
• Plastic	M 12 x 1 M 18 x 1 M 30 x 1,5	3 mm 5 mm 10 mm	4,5 mm 7,5 mm 15 mm	connector/ cable/ terminal chamber	2-wire AC 3-wire DC NAMUR
Dyflor/Teflon	M 18 x 1 M 30 x 1,5	5 mm 10 mm	7,5 mm 15 mm	cable	3/4-wire DC NAMUR



Smooth barrel	Housing	Max. switching range flush non-flush		Connection	Electrical version
Plastic	Ø 34 mm	15 mm	23 mm	terminal	2-wire AC
	Ø 40 mm	20 mm	30 mm	chamber	4-wire DC

		-		0	1 20
Rectangular - compact	Housing	Max. switching flush no	g range on-flush	Connection	Electrical version
• Zinc die-cast	Q08	5 mm		connector cable	3/4-wire DC
Plastic	Q10 Q14 Q20	8 mm 10 mm 20 mm	15 mm 30 mm	connector/ cable	3/4-wire DC 2-wire AC

Rectangular - flat	Housing	Max. switching range	Connection	Electrical version
Plastic	QF 5,5	10 mm	cable	3-wire DC NAMUR

Rectangular - versatile	Housing	Max. switching range flush non-flush		Connection	Electrical version
Plastic	40 x 40 mm 80 x 80 mm	20 mm –	30 mm 50 mm	connector/ terminal chamber	3/4-wire DC

Rectangular - compact



Rectangular – flat



Rectangular - versatile



