

High pressure resistant sensors for hydraulic applications



M5 high pressure resistant sensors for compact spaces





Product description

The compact M5 sensors of the IMP family are resistant to high pressure up to 500 bar and reliably detect the end of stroke position on hydraulic cylinders or valve positions. They fulfill even the highest of requirements, such as fields of application up to 100 °C. State-of-theart ASIC and manufacturing technolo-

gies from SICK enable a high level of miniaturization. Optimized for restricted installation conditions and designed to take up minimal space, the sensors in model M5 offer high performance in a small format and boast an impressive sensing range of up to 1 mm.

At a glance

- Pressure resistant up to 500 bar
- Expected service life of up to 1 million pressure cycles
- Expanded temperature range of up to 100 °C
- Sensing range of 1 mm flush
- IP 68

- Stainless steel housing with active surface made from stable high-performance ceramic
- State-of-the-art ASIC technology from SICK
- · Gas-tight at the sensor face

Your benefits

- · Reduced maintenance costs
- · Extremely resilient and durable
- Up to 50 times longer service life compared to conventional sensors under pressure cycles
- Simple compensation of cylinder tolerances
- Simple integration due to small design
- Controlled piston deceleration
- Increased piston service life due to collision prevention at the end of the work cycle



Additional information

→ www.mysick.com/en/IMP05



Features

Housing	Cylindrical
Thread size	M5 x 0.5
Pressure resistance	≤ 500 bar
Sensing range S _n	1 mm
Assured sensing range S _a	0.8 mm
Installation type	Flush
Switching frequency	1,000 Hz
Output type	PNP / NPN (depending on type)
Output function	NO
Electrical wiring	DC 3-wire
Enclosure rating 1)	IP 68

 $^{^{\}mbox{\tiny 1)}}$ Sensing face.

O	10 V DC 30 V DC
Supply voltage	20.00.00.00
Ripple 1)	≤ 20 %
Voltage drop ²⁾	≤ 2 V
Current consumption 3)	≤ 10 mA
Time delay before availability	≤ 30 ms
Hysteresis 4)	1 % 15 %
Repeatability	≤ 5 %
Temperature drift (% of S _r)	± 10 % ⁵⁾ ± 15 % ⁶⁾
EMC	According to EN 60947-5-2
Output current I _a	≤ 200 mA
Vacuum resistance 7)	10 ⁻⁸ Torr
Size support ring	7.5 mm x 4.4 mm x 1 mm
Connection type	Cable, 2 m, PUR
Short-circuit protection	√
Reverse polarity protection	√
Shock/vibration	30 g, 11 ms / 10 55 Hz, 1 mm
Ambient operating temperature	-25 °C +100 °C
Housing material	Stainless steel, Phynox
Housing cap material	Ceramics, ZrO2
Material support ring	FPM
Tightening torque, max.	≤ 5 Nm

¹) Of V_S.

²⁾ With Ia = 200 mA.

³⁾ Without load.

⁴⁾ Typ. 8%.

⁵⁾ -25 °C...+70 °C.

⁶⁾ +70 °C...+100 °C.

⁷⁾ Front.

Carbon steel St37 (Fe)	1
Stainless steel (V2A, 304)	0
Aluminum (Al)	0
Copper (Cu)	0
Brass (Br)	0

Ordering information

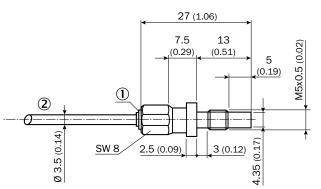
• Sensing range S_n: 1 mm • Installation type: flush • Output function: NO

• Connection diagram: cd-001

Output type	Connection	Model name	Part no.
PNP	Cable, 3-wire, 2 m, PUR	IMP05-01BPSVU2S	6050109
NPN	Cable, 3-wire, 2 m, PUR	IMP05-01BNSVU2S	6050110

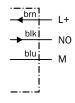
Dimensional drawings

dimensions in mm (inch)



Connection diagram

Cd-001

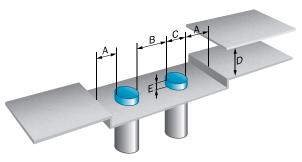


① LED indicator

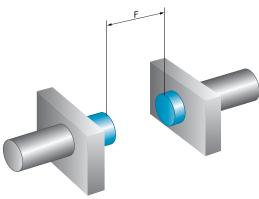
2 Cable, 3-wire

Installation note





Opposite installation



	Α	В	С	D	E	F
IMP05	1.5	5	5	3	0	8

M8 high pressure resistant sensors for high demands





Product description

State-of-the-art ASIC and manufacturing technologies from SICK are the foundation for the M8 IMP high-pressure-resistant sensor family. Ideally suited for high demands, these sensors have impressive pressure resistance of up to 500 bar and an expanded temperature

range of up to 100 °C. The combination of rugged stainless steel housing and an active high-performance ceramic surface ensures the longest possible use. With a service life of up to 1 million pressure cycles, these sensors fulfill even the highest demands.

At a glance

- Pressure resistant up to 500 bar
- Expected service life of up to 1 million pressure cycles
- Expanded temperature range of up to 100 °C
- Sensing range of 1.5 mm flush
- IP 68

- Stainless steel housing with active surface made from stable high-performance ceramic
- State-of-the-art ASIC technology from SICK
- Gas-tight at the sensor face

Your benefits

- · Reduced maintenance costs
- · Extremely resilient and durable
- Up to 50 times longer service life compared to conventional sensors under pressure cycles
- Simple compensation of cylinder tolerances
- Simple integration due to small design
- · Controlled piston deceleration
- Increased piston service life due to collision prevention at the end of the work cycle



Additional information

→ www.mysick.com/en/IMP08



Features

Housing	Cylindrical
Thread size	M8 x 1
Pressure resistance	≤ 500 bar
Sensing range S _n	1.5 mm
Assured sensing range S _a	1.2 mm
Installation type	Flush
Switching frequency	800 Hz
Output type	PNP / NPN (depending on type)
Output function	NO
Electrical wiring	DC 3-wire
Enclosure rating 1)	IP 68

 $^{^{\}mbox{\tiny 1)}}$ Sensing face.

Supply voltage	10 V DC 30 V DC
Ripple 1)	≤ 20 %
Voltage drop ²⁾	≤ 2 V
Current consumption 3)	≤ 10 mA
Time delay before availability	≤ 30 ms
Hysteresis 4)	1 % 15 %
Repeatability	≤ 5 %
Temperature drift (% of S _r)	± 10 % ⁵⁾ ± 15 % ⁶⁾
EMC	According to EN 60947-5-2
Output current I _a	≤ 200 mA
Vacuum resistance 7)	10 ⁸ Torr
Size support ring	9.9 mm x 6.6 mm x 1 mm
Connection type	Cable, 2 m, PUR
Short-circuit protection	V
Reverse polarity protection	V
Shock/vibration	30 g, 11 ms / 10 55 Hz, 1 mm
Ambient operating temperature	-25 °C +100 °C
Housing material	Stainless steel, V2A
Housing cap material	Ceramics, Zr02
Material support ring	FPM
Tightening torque, max.	≤ 12 Nm

 $^{^{\}mbox{\tiny 1)}}$ Of $\mbox{V}_{\mbox{\scriptsize S}}.$

 $^{^{2)}}$ With Ia = 200 mA.

³⁾ Without load.

⁴⁾ Typ. 8%.

⁵⁾ -25 °C...+70 °C.

⁶⁾ +70 °C...+100 °C.

⁷⁾ Front.

Carbon steel St37 (Fe)	1
Stainless steel (V2A, 304)	Approx. 0.66
Aluminum (Al)	Approx. 0.26
Copper (Cu)	Approx. 0.22
Brass (Br)	Approx. 0.39

Ordering information

Sensing range S_n: 1.5 mm
 Installation type: flush

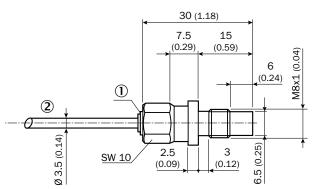
• Output function: NO

• Connection diagram: cd-001

Output type	Connection	Model name	Part no.
PNP	Cable, 3-wire, 2 m, PUR	IMP08-1B5PSVU2S	6050111
NPN	Cable, 3-wire, 2 m, PUR	IMP08-1B5NSVU2S	6050112

Dimensional drawings

dimensions in mm (inch)



Connection diagram

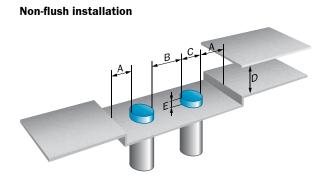
Cd-001



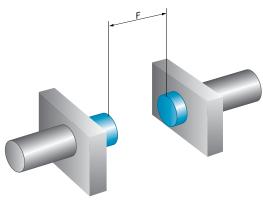
① LED indicator

2 Cable, 3-wire

Installation note



Opposite installation



	Α	В	С	D	Е	F
IMP08	2	6	8	4.5	0	12

M12 high pressure resistant sensors - always the best choice







Product description

M12 IMP high-pressure-resistant sensors offer cutting-edge technology for every-day use. Whether they are used for end position control in hydraulic cylinders or for the monitoring of valve positions, state-of-the-art ASIC and manufacturing technologies from SICK mean that these

sensors are always the right choice. An active high-performance ceramic surface combined with stable stainless steel housing ensures an above-average service life and enables a high load capability for the sensors, withstanding up to 1 million pressure cycles.

At a glance

- Pressure resistant up to 500 bar
- Expected service life of up to 1 million pressure cycles
- Sensing range of 1.5 mm flush
- IP 68

- Stainless steel housing with active surface made from stable high-performance ceramic
- State-of-the-art ASIC technology from SICK
- Gas-tight at the sensor face
- 3 and 4-wire versions

Your benefits

- · Reduced maintenance costs
- · Extremely resilient and durable
- Up to 50 times longer service life compared to conventional sensors under pressure cycles
- Simple compensation of cylinder tolerances
- Simple integration due to small design
- Controlled piston deceleration
- Increased piston service life due to collision prevention at the end of the work cycle



Additional information

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→ www.mysick.com/en/IMP12



Features

	DC 3-wire	DC 4-wire
Housing	Cylindrical	
Thread size	M12 x 1	
Pressure resistance	≤ 500 bar	
Sensing range S _n	1.5 mm	
Assured sensing range S _a	1.2 mm	
Installation type	Flush	
Switching frequency	600 Hz	
Output type	PNP / NPN (depending on type)	
Output function	NC / NO (depending on type)	Complementary
Electrical wiring	DC 3-wire	DC 4-wire
Enclosure rating 1)	IP 68	

¹⁾ Sensing face.

	DC 3-wire	DC 4-wire		
Supply voltage	10 V DC 30 V DC			
Ripple 1)	≤ 20 %			
Voltage drop ²⁾	≤ 2 V			
Current consumption 3)	≤ 10 mA			
Time delay before availability	≤ 50 ms			
Hysteresis 4)	1 % 15 %			
Repeatability	≤ 7 %			
Temperature drift (% of S _r)	≤ 15 %	± 10 % ⁵⁾		
		± 15 % ⁶⁾		
EMC	According to EN 60947-5-2			
Output current I _a	≤ 200 mA			
Vacuum resistance 7)	10 ⁻⁸ Torr			
Size sealing ring	5.3 mm x 2.4 mm			
Size support ring	10 mm x 5.9 mm x 1 mm			
Connection type	Connector, M12			
Short-circuit protection	V			
Reverse polarity protection	V			
Shock/vibration	30 g, 11 ms / 10 55 Hz, 1 mm			
Ambient operating temperature	-25 °C +80 °C	-25 °C +100 °C		
Housing material	Stainless steel, V2A			
Housing cap material	Ceramics, ZrO2			
Material sealing ring	FPM			
Tightening torque, max.	≤ 40 Nm			

 $^{^{\}scriptscriptstyle 1)}$ Of $V_{\scriptscriptstyle S}$.

 $^{^{2)}}$ With Ia = 200 mA.

³⁾ Without load.

⁴⁾ Typ. 8%.

⁵⁾ -25 °C...+70 °C.

^{6) +70 °}C...+100 °C.

⁷⁾ Front.

Note	The values are reference values which may vary
Carbon steel St37 (Fe)	1
Stainless steel (V2A, 304)	Approx. 0.75
Aluminum (AI)	Approx. 0.2
Copper (Cu)	Approx. 0.12
Brass (Br)	Approx. 0.34

Ordering information

• Sensing range S_n: 1.5 mm

• Installation type: flush

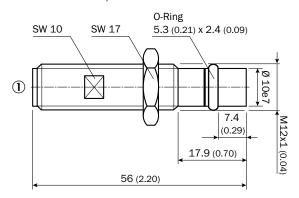
• Connection: Connector M12, 4-pin

Housing length	Output function	Output type	Connection diagram	Model name	Part no.
	NO	PNP	Cd-008	IMP12-1B5P0VC0B	6050114
	NC	NPN	Cd-008	IMP12-1B5NOVC0B	6050116
56 mm	NO	PNP	Cd-007	IMP12-1B5PSVC0B	6050113
56 mm	NO	NPN	Cd-007	IMP12-1B5NSVC0B	6050115
	Complementary	PNP	Cd-006	IMP12-1B5PPVC0B	6050117
	Complementary	NPN	Cd-006	IMP12-1B5NPVC0B	6050118
	NC	PNP	Cd-008	IMP12-1B5P0VC0C	6050120
	INC	NPN	Cd-008	IMP12-1B5NOVCOC	6050122
69 mm	NO	PNP	Cd-007	IMP12-1B5PSVC0C	6050119
69 111111	NO	NPN	Cd-007	IMP12-1B5NSVC0C	6050121
	Commission	PNP	Cd-006	IMP12-1B5PPVC0C	6050123
	Complementary	NPN	Cd-006	IMP12-1B5NPVCOC	6050124
	NC NO	PNP	Cd-008	IMP12-1B5P0VC0D	6050126
		NPN	Cd-008	IMP12-1B5NOVCOD	6050128
78 mm		PNP	Cd-007	IMP12-1B5PSVC0D	6050125
70111111	NO	NPN	Cd-007	IMP12-1B5NSVC0D	6050127
	Complementary	PNP	Cd-006	IMP12-1B5PPVC0D	6050129
	Complementary	NPN	Cd-006	IMP12-1B5NPVC0D	6050130
	NC	PNP	Cd-008	IMP12-1B5P0VC0F	6050132
	INC	NPN	Cd-008	IMP12-1B5NOVC0F	6050134
93 mm	NO	PNP	Cd-007	IMP12-1B5PSVC0F	6050131
93 mm		NPN	Cd-007	IMP12-1B5NSVC0F	6050133
	Complementary	PNP	Cd-006	IMP12-1B5PPVC0F	6050135
	Complementary	NPN	Cd-006	IMP12-1B5NPVC0F	6050136

Dimensional drawings

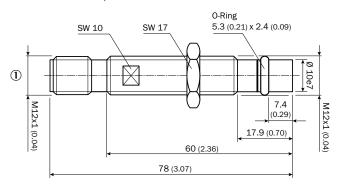
dimensions in mm (inch)

IMP12-xxxxxxxxB, 56 mm



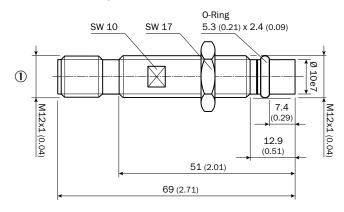
① Connector M12, 4-pin

IMP12-xxxxxxxxD, 78 mm



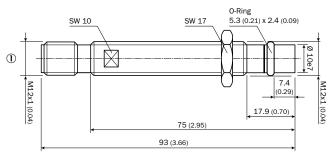
① Connector M12, 4-pin

IMP12-xxxxxxxxC, 69 mm



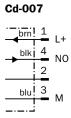
① Connector M12, 4-pin

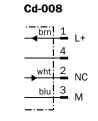
IMP12-xxxxxxxF, 93 mm



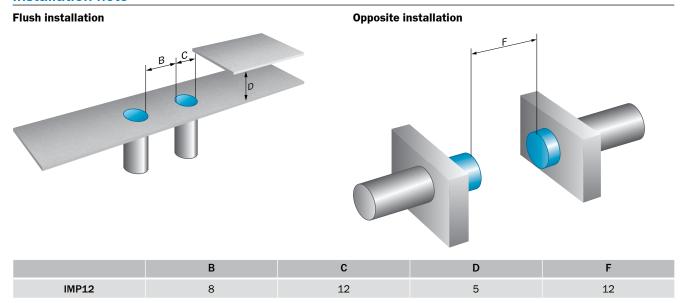
① Connector M12, 4-pin

Connection diagram

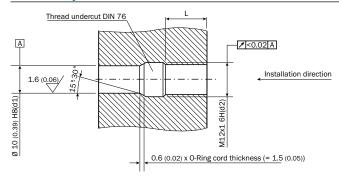




Installation note



Assembly note



L: recommended installation depth: L≥ 0.8 (0.03) x d2

M14 high pressure resistant sensor for hard everyday work







Product description

The design of the M14 IMP high-pressure-resistant sensor family is rugged and reliable in hard, everyday work.

State-of-the-art ASIC and manufacturing technologies from SICK enable up to 1 million pressure cycles and a sensing

range of 3 mm. The combination of rugged stainless steel housing and an active high-performance ceramic surface enables pressure resistance up to 500 bar.

At a glance

- Pressure resistant up to 500 bar
- Expected service life of up to 1 million pressure cycles
- Sensing range of 3 mm flush
- IP 68

- Stainless steel housing with active surface made from stable high-performance ceramic
- State-of-the-art ASIC technology from
 SICK
- Gas-tight at the sensor face

Your benefits

- · Reduced maintenance costs
- · Extremely resilient and durable
- Up to 50 times longer service life compared to conventional sensors under pressure cycles
- Simple compensation of cylinder tolerances
- Simple integration due to small design
- Controlled piston deceleration
- Increased piston service life due to collision prevention at the end of the work cycle

Additional information

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→ www.mysick.com/en/IMP14



Features

Housing	Cylindrical
Thread size	M14 x 1.5
Pressure resistance	≤ 500 bar
Sensing range S _n	3 mm
Assured sensing range S _a	2.4 mm
Installation type	Flush
Switching frequency	500 Hz
Output type	PNP / NPN (depending on type)
Output function	NO / NC (depending on type)
Electrical wiring	DC 3-wire
Enclosure rating 1)	IP 68

 $^{^{\}mbox{\tiny 1)}}$ Sensing face.

Supply voltage	10 V DC 30 V DC
Ripple 1)	≤ 20 %
Voltage drop ²⁾	≤ 2 V
Current consumption 3)	≤ 10 mA
Time delay before availability	≤ 50 ms
Hysteresis 4)	1 % 15 %
Repeatability	≤ 4 %
Temperature drift (% of S _r)	15 %
EMC ⁵⁾	According to EN 60947-5-2
Output current I _a	≤ 200 mA
Vacuum resistance 6)	10 ⁸ Torr
Size sealing ring	11.5 mm x 2.0 mm
Connection type	Connector, M12
Short-circuit protection	V
Reverse polarity protection	V
Shock/vibration	30 g, 11 ms / 10 55 Hz, 1 mm
Ambient operating temperature	-25 °C +80 °C
Housing material	Stainless steel, V4A
Housing cap material	Ceramics, ZrO2
Material sealing ring	NBR
Tightening torque, max.	≤ 70 Nm

 $^{^{1)}}$ Of $V_{\rm S}$.

²⁾ With Ia = 200 mA.

³⁾ Without load.

⁴⁾ Typ. 8%.

⁵⁾ IEC61000-4-4: 1kV.

⁶⁾ Front.

Note	The values are reference values which may vary
Carbon steel St37 (Fe)	1
Stainless steel (V2A, 304)	Approx. 0.85
Aluminum (Al)	Approx. 0
Copper (Cu)	Approx. 0
Brass (Br)	Approx. 0.15

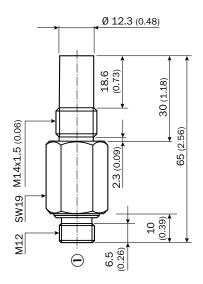
Ordering information

- Sensing range S_n: 3 mm
- Installation type: flush
- Connection: Connector M12, 4-pin

Output function	Output type	Connection diagram	Model name	Part no.
NO	PNP	Cd-007	IMP14-03BPSVC0S	6050137
	NPN	Cd-007	IMP14-03BNSVC0S	6050139
NC	PNP	Cd-008	IMP14-03BP0VC0S	6050138
	NPN	Cd-008	IMP14-03BNOVCOS	6050140

Dimensional drawings

dimensions in mm (inch)



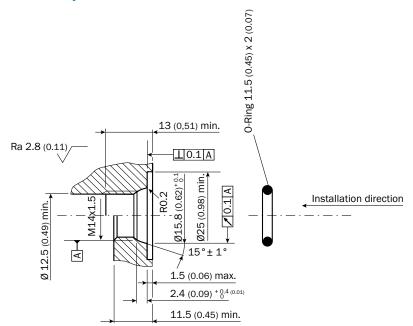
① Connector M12, 4-pin

Connection diagram

Cd-007

Cd-008

Assembly note



Other mounting accessories

• Accessory type: Others

Dimensions (L x W x H)	Model name	Part no.	IMP05	IMP08	IMP12	IMP14
1 mm x 7.5 mm x 4.4 mm	O-Ring IMP05	5327492	•	-	-	_
1 mm x 9.9 mm x 6.6 mm	O-Ring IMP08	5327493	-	•	-	-
5.3 mm x 2.4 mm	O-Ring IMP12	5327494	-	-	•	-
11.5 mm x 2 mm	O-Ring IMP14	5327495	-	-	-	•
1 mm x 10 mm x 5.9 mm	Support-Ring IMP12	5327496	-	-	•	-

Plug connectors and cables

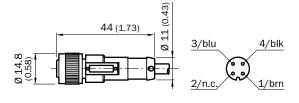
• Connection type: Connector M12, 4-pin

Connector type: Female connector

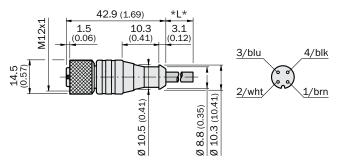
Figure	Configuration	Enclosure rating	Jacket material	Cable length	Model name	Part no.	IMP05	IMP08	IMP12	IMP14	
				2 m	DOL-1204-G02M	6009382	-	-	•	•	
				5 m	DOL-1204-G05M	6009866	-	-	•	•	
		IP 67	PVC	10 m	DOL-1204-G10M	6010543	-	-	•	•	
/ 6				15 m	DOL-1204-G15M	6010753	-	-	•	•	
				20 m	DOL-1204-G20M	6034401	-	-	•	•	
	Straight			2 m	DOL-1204-G02MC	6025900	-	-	•	•	
		IP 68		5 m	DOL-1204-G05MC	6025901	-	-	•	•	
			PUR halogen- free	10 m	DOL-1204-G10MC	6025902	-	-	•	•	
1				15 m	DOL-1204-G15MC	6034749	-	-	•	•	
				20 m	DOL-1204-G20MC	6034750	-	-	•	•	
				25 m	DOL-1204-G25MC	6034751	-	-	•	•	
		IP 67	PVC	2 m	DOL-1204-W02M	6009383	-	-	•	•	
				5 m	DOL-1204-W05M	6009867	-	-	•	•	
				10 m	DOL-1204-W10M	6010541	-	-	•	•	
	Dight angle				15 m	DOL-1204-W15M	6036474	-	-	•	•
	Right angle			20 m	DOL-1204-W20M	6033559	-	-	•	•	
				2 m	DOL-1204-W02MC	6025903	-	-	•	•	
	6	IP 68	PUR halogen- free	5 m	DOL-1204-W05MC	6025904	-	-	•	•	
				10 m	DOL-1204-W10MC	6025905	-	-	•	•	

Dimensional drawings Plug connectors and cables

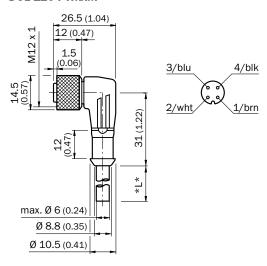
DOL-1204-GxxM, DOL-1204-GxxMC



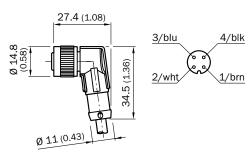
DOL-1204-G20M



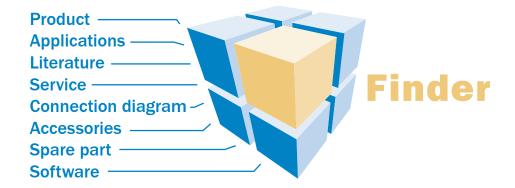
DOL-1204-WxxM



DOL-1204-W02MC



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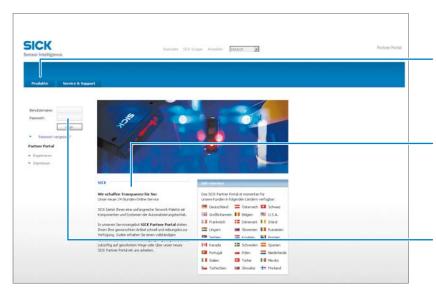
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SICK at a glance



Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.



Unique product range

- Non-contact detecting, counting, classifying, positioning and measuring of any type of object or media
- Accident and operator protection with sensors, safety software and services
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids



Comprehensive services

- SICK LifeTime Services for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under realworld conditions
- E-Business Partner Portal www.mysick.com – price and availability of products, requests for quotation and online orders

Worldwide presence with subsidiaries in the following countries:

Australia Belgium/Luxembourg Brasil Ceská Republika Canada China Danmark

Deutschland España France

Great Britain India

Israel Italia Japan Norge
Österreich
Polska
România
Russia
Schweiz
Singapore
Slovenija
South Africa
South Korea
Suomi
Sverige
Taiwan
Türkiye
United Arab Emirates

USA

México

Nederland

Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com

