

Optoelectronic sensor S00E

FESTO



Characteristics

At a glance

With the SOOE, you get all the optical functions for object sensing in an identical sensor housing. From through-beam sensing to distance sensing, you benefit from the most innovative technologies and at the same time reduce the component complexity thanks to the universal assembly.

- IO-Link®
- Easy to operate
- Fast commissioning
- Reliable and stable detection
- Low complexity, PNP and NPN are in one device
- Attractive price/performance ratio

Additional documents

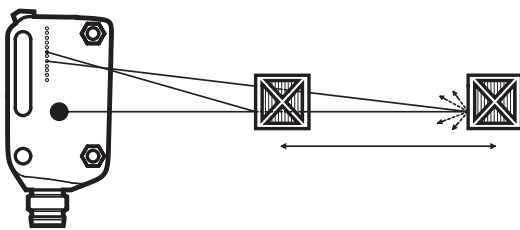
Link [SOOE](#)



The additional document S00D-SOOE_ADD contains further information on the features and characteristics.

Sensor function

[BS] Diffuse sensor with background suppression



The switching distance is not set based on energy, but using optical triangulation. The innovative and extremely precise multi-pixel technology (SOOE) offers a high degree of flexibility and enables customisation via IO-Link®. The integrated receiver with signal pre-processing of 160 x 16 pixels is crucial for precise detection and distance measurement. This technology offers unprecedented setting performance in the upper detection range thanks to its high resolution and linearisation. Object detection is therefore virtually independent of other objects in the background as well as colour, size or surface. These devices only require a very small diffuse remission devices.

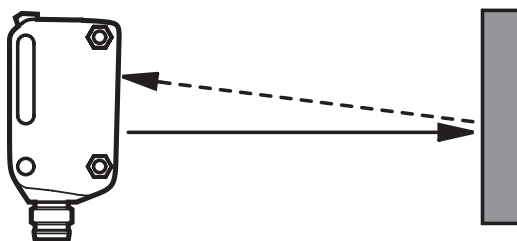
Benefits of diffuse sensors with background suppression:

- Switching distance virtually independent of colour and surface
- Can also be used with glossy or reflective backgrounds
- Detection of slight differences in distance
- Easy adjustments

[KS] Contrast sensor

The laser contrast sensor is basically a highly precise, energy-efficient laser diffuse sensor. It detects small contrast differences at various grey levels, trigger marks, etc. within a working range up to 120 mm.

[DS] Diffuse sensor



These sensors, which are also known as energy-efficient diffuse light sensors, have a transmitter and receiver in the same housing. The transmitted light beam is reflected by an object onto the receiver and the intensity of the reflected light is analysed. The switching distance can be set by adjusting the sensitivity of the receiver, either via IO-Link®, a potentiometer or a teach-in procedure. Diffuse sensors are among the most cost-effective solutions and are very quick to install. However, these sensors are not suitable for certain applications, for example for detecting poorly reflective objects in front of a highly reflective background. In addition, objects with different surfaces (in terms of material, colour or structure) are detected at varying distances because of their different reflective properties.

Benefits of energy-efficient diffuse sensors:

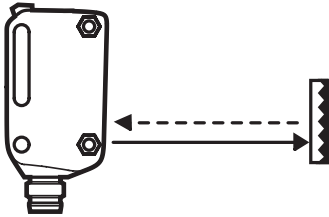
- Large switching distance
- Cost-effective

[MS] Distance sensor

Similarly to diffuse sensors with background suppression, which use multi-pixel technology, these sensors evaluate the distance and transmit the value through IO-Link®. Distance sensor SOOE-MS do not have an analogue output. The switching output can be programmed as a window comparator.

Characteristics

[RG] Retro-reflective sensor for transparent objects

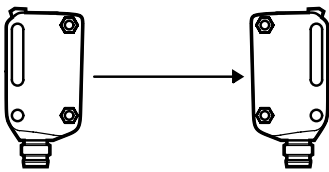


With the principle of autocollimation, the optical axes of the transmitting and the receiving channel are identical. This is possible because the light from one channel is deflected using a semi-transparent reflector. With this principle, very short distances can be selected between the sensor and reflector. Diffuse sensors with autocollimation are extremely suitable to transparent objects.

Benefits of diffuse sensors with autocollimation:

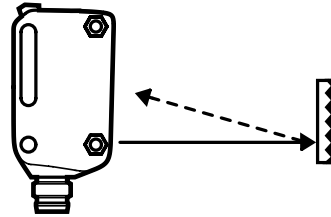
- No blind zone
- High precision across the entire sensing range
- Radially symmetrical detection range
- Good reproducibility
- Low hysteresis
- Detection of transparent objects

[TB] Through-beam sensor, transmitter/receiver



In the case of the through-beam sensor, the transmitter and receiver are located in different housings and must be installed opposite one another. Any object that interrupts the light beam between the transmitter and receiver will be detected. This is one of the most reliable principles in harsh ambient conditions. The disadvantage is that two separate components (transmitter and receiver) have to be wired and set up.

[RS] Retro-reflective sensor



The transmitter and receiver of these sensors are located in the same housing. The light transmitted is bounced back to the receiver by a reflector. Objects located between the sensor and the reflector interrupt the light beam and are thus detected. Diffuse sensors from Festo use polarised light to avoid problems with reflective objects.

Benefits of diffuse sensors with two lenses:

- The diffuse sensors with two lenses are economical and offer a cost-efficient solution for various applications.

Type of light

[L] Laser red

[R] Red

Electrical connection 1

[PNLK] PNP/NPN/IO-Link

Laser sensors SOOE comply with laser safety class 1 according to EN 60825-1:2007. Devices of laser safety class 1 have a safe radiation level; they therefore do not pose a threat to human life. Eye protection is not required when handling these devices.

Setting options

[T] Teach-in

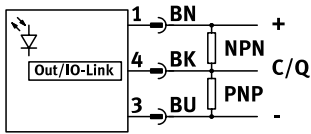
Type code

001	Series	
S00E	Optoelectronic sensor	
002	Sensor function	
BS	Diffuse sensor with background suppression	
DS	Diffuse sensor	
KS	Contrast sensor	
MS	Distance sensor	
RG	Retro-reflective sensor for transparent objects	
RS	Retro-reflective sensor	
TB	Through-beam sensor, transmitter/receiver	

003	Type of light	
L	Laser red	
R	Red	
004	Electrical output 1	
PNLK	PNP/NPN/IO-Link	
005	Setting options	
T	Teach-in	

Datasheet

General technical data – Diffuse sensor



Measuring principle	Optoelectronic
Detection method	Diffuse sensor
Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Degree of protection	IP65, IP67, IP69K

Input signal, measuring element diffuse sensor

Operating distance	2 ... 1,000 mm
Max. light spot	65 mm at a sensing range of 1000 mm
Detection method	Diffuse sensor
Measuring principle	Optoelectronic
Type of light	Red, LED
Ambient temperature	-40 ... 60°C

Communication interface IO-Link® diffuse sensor

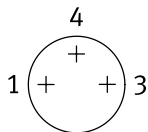
Protocol	IO-Link®
IO-Link, Protocol version	Device V 1.1
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	2 bit
IO-Link, Process data content OUT	1 bit (emitter disable), 1 bit (Hold)
IO-Link, Process data length IN	1 bit
IO-Link, Process data content IN	1 bit SSC (Switching Signal)
IO-Link, Min. cycle time	2.3 ms
IO-Link, Data storage required	2

Electronics – Diffuse sensor

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	25 mA
Reverse polarity protection	For all electrical connections
Timer function	Via IO-Link®
Short circuit current rating	Pulsed

Datasheet

Electromechanics – Diffuse sensor



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Snap-locking, Screw-type lock, Not rotatable
Electrical connection 1, compatible type of mounting	Compatible with latching lock, Compatible with rotatable screw-type lock
Material electrical contact	Gold-plated brass

Mechanics – Diffuse sensor

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	10 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation diffuse sensor

Type of light	Red, LED
Setting options	IO-Link®, Poti, Teach-in
Setting range lower limit	75 mm
Setting range upper limit	1,000 mm
Ready status indication	Green LED
Switching status indication	Yellow LED

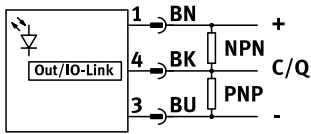
Immission, emission diffuse sensor

Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Pollution degree	3

1) More information www.festo.com/x/topic/kbk

Datasheet

General technical data – Diffuse sensor with background suppression



Measuring principle	Optoelectronic
Detection method	Diffuse sensor with background clipping
Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Degree of protection	IP65, IP67, IP69K

Input signal, measuring element diffuse sensor with background suppression

Type of light	Laser, Red	Red, LED
Operating distance	7 ... 300 mm	5 ... 350 mm
Min. object diameter	2 mm	10 mm
Max. light spot	1 mm at a sensing range of 200 mm	20 mm at a sensing range of 350 mm
Max. black-white difference	45%	15%
Hysteresis	18 mm	21 mm
Max. switching frequency	1,650 Hz	500 Hz
Detection method	Diffuse sensor with background clipping	
Measuring principle	Optoelectronic	
Ambient temperature	-40 ... 60°C	
Reference material	Standard white 90%, 100x100 mm	

Switching output diffuse sensor with background suppression

Switching output	Push-pull
Switching element function	Switchable PNP light switching NPN dark switching
Max. output current	100 mA
Voltage drop	0 ... 1.5 V

Communication interface IO-Link® diffuse sensor with background suppression

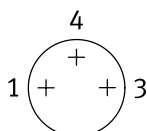
Protocol	IO-Link®
IO-Link, Profile	Smart sensor profile
IO-Link, Function classes	Process data variable (PDV)
IO-Link, Protocol version	Device V 1.1
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	2 bit
IO-Link, Process data content OUT	1 bit (emitter disable), 1 bit (Hold)
IO-Link, Process data length IN	1 bit
IO-Link, Process data content IN	1 bit SSC (Switching Signal)
IO-Link, Min. cycle time	2.3 ms
IO-Link, Data storage required	2

Datasheet

Electronics – Diffuse sensor with background suppression

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	25 mA
Reverse polarity protection	For all electrical connections
Timer function	Via IO-Link®
Short circuit current rating	Pulsed

Electromechanics – Diffuse sensor with background suppression



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Screw-type lock
Material electrical contact	Gold-plated brass

Mechanics – Diffuse sensor with background suppression

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	10 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation diffuse sensor with background suppression

Type of light	Laser, Red	Red, LED
Setting options	IO-Link®, Poti, Teach-in	
Setting range lower limit	25 mm	
Setting range upper limit	300 mm	350 mm
Ready status indication	Green LED	
Switching status indication	Yellow LED	

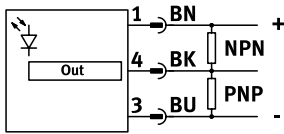
Immission, emission diffuse sensor with background suppression

Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Laser safety class	1
Pollution degree	3

¹⁾ More information www.festo.com/x/topic/kbk

Datasheet

General technical data – Retro-reflective sensor



Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III

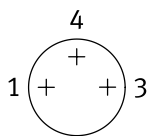
Input signal, measuring element retro-reflective sensor

Type of light	Laser, Red	Red, LED
Operating distance	0 ... 12,000 mm	0 ... 6,500 mm
Max. light spot	30 mm with 12000 mm	65 mm with 1000 mm
Detection method	Retro-reflective sensor	
Measuring principle	Optoelectronic	
Ambient temperature	-40 ... 60°C	

Electronics – Retro-reflective sensor

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	25 mA
Reverse polarity protection	For all electrical connections
Short circuit current rating	Pulsed

Electromechanics – Retro-reflective sensor



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Screw-type lock
Material electrical contact	Gold-plated brass

Datasheet

Mechanics – Retro-reflective sensor

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	10 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation retro-reflective sensor

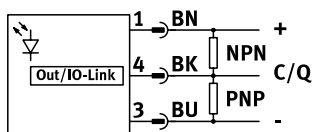
Ready status indication	Green LED
Switching status indication	Yellow LED
Function reserve indication	Flashing yellow LED

Immission, emission retro-reflective sensor

Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Laser safety class	1
Pollution degree	3

1) More information www.festo.com/x/topic/kbk

General technical data – Retro-reflective sensor for transparent objects



Measuring principle	Optoelectronic
Detection method	Retro-reflective sensor for transparent objects
Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Degree of protection	IP65, IP67, IP69K

Input signal, measuring element retro-reflective sensor for transparent objects

Operating distance	0 ... 3,500 mm
Max. light spot	300 mm with 3500 mm
Detection method	Retro-reflective sensor for transparent objects
Measuring principle	Optoelectronic
Type of light	Red, LED
Ambient temperature	-20 ... 60°C

Datasheet

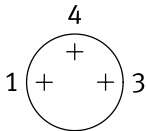
Communication interface IO-Link® retro-reflective sensor for transparent objects

Protocol	IO-Link®
IO-Link, Protocol version	Device V 1.1
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	2 bit
IO-Link, Process data content OUT	1 bit (emitter disable), 1 bit (Hold)
IO-Link, Process data length IN	2 bit
IO-Link, Process data content IN	1 bit (Stability Alarm), 1 bit SSC (Switching Signal)
IO-Link, Min. cycle time	2.3 ms
IO-Link, Data storage required	2

Electronics – Retro-reflective sensor for transparent objects

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	25 mA
Reverse polarity protection	For all electrical connections
Timer function	Via IO-Link®
Short circuit current rating	Pulsed

Electromechanics – Retro-reflective sensor for transparent objects



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Screw-type lock
Material electrical contact	Gold-plated brass

Mechanics – Retro-reflective sensors for transparent objects

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	10 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation retro-reflective sensor for transparent objects

Type of light	Red, LED
Setting options	IO-Link®, Poti, Teach-in
Setting range lower limit	–
Setting range upper limit	–
Ready status indication	Green LED
Switching status indication	Yellow LED

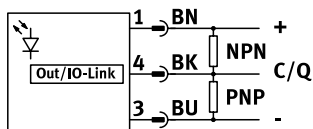
Datasheet

Immission, emission retro-reflective sensor for transparent objects

Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Pollution degree	3

1) More information www.festo.com/x/topic/kbk

General technical data – Through-beam sensor



Measuring principle	Optoelectronic
Detection method	Through-beam sensor, Transmitter, Receiver
Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Degree of protection	IP65, IP67, IP69K

Input signal, measuring element through-beam sensor

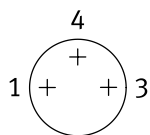
Type of light	Laser, Red	Red, LED
Operating distance	0 ... 20,000 mm	0 ... 12,000 mm
Ambient temperature	-40 ... 60°C	
Max. light spot	50 mm with 20000 mm	65 mm with 1000 mm
Measuring principle	Optoelectronic	
Detection method	Through-beam sensor, Transmitter, Receiver	

Electronics – Through-beam sensor

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	14 mA
Reverse polarity protection	For all electrical connections
Timer function	Via IO-Link®
Short circuit current rating	Pulsed

Datasheet

Electromechanics – Through-beam sensor



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Screw-type lock
Material electrical contact	Gold-plated brass

Mechanics – Through-beam sensor

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	20 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation through-beam sensor

Type of light	Laser, Red	Red, LED
Setting options	IO-Link®, Poti, Teach-in	
Ready status indication	Green LED	
Switching status indication	Yellow LED	

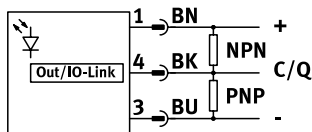
Immission, emission through-beam sensor

Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Laser safety class	1
Pollution degree	3

¹⁾ More information www.festo.com/x/topic/kbk

Datasheet

General technical data – Laser contrast sensor



Measuring principle	Optoelectronic
Detection method	Laser contrast sensor
Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Degree of protection	IP65, IP67, IP69K

Input signal, measuring element laser contrast sensor

Operating distance	25 ... 120 mm
Max. light spot	1 mm at a sensing range of 60 mm
Detection method	Laser contrast sensor
Measuring principle	Optoelectronic
Type of light	Laser, Red
Ambient temperature	-40 ... 60°C

Communication interface IO-Link® laser contrast sensor

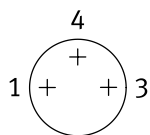
Protocol	IO-Link®
IO-Link, Protocol version	Device V 1.1
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	2 bit
IO-Link, Process data content OUT	1 bit (emitter disable), 1 bit (Hold)
IO-Link, Process data length IN	1 bit
IO-Link, Process data content IN	1 bit SSC (Switching Signal)
IO-Link, Min. cycle time	2.3 ms
IO-Link, Data storage required	2

Electronics – Laser contrast sensor

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	25 mA
Reverse polarity protection	For all electrical connections
Timer function	Via IO-Link®
Short circuit current rating	Pulsed

Datasheet

Electromechanics – Laser contrast sensor



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Screw-type lock
Material electrical contact	Gold-plated brass

Mechanics – Laser contrast sensor

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	20 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation laser contrast sensor

Type of light	Laser, Red
Setting range upper limit	–
Ready status indication	Green LED
Switching status indication	Yellow LED

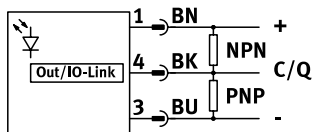
Immission, emission laser contrast sensor

Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Pollution degree	3

¹⁾ More information www.festo.com/x/topic/kbk

Datasheet

General technical data – Distance sensor



Measuring principle	Optoelectronic
Design	Block design
Conforms to standard	EN 60947-5-2
Approval	RCM, c UL us - Listed (Oil)
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Certificate issuing authority	UL E232949
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Degree of protection	IP65, IP67, IP69K

Input signal, measuring element distance sensor

Max. light spot	8 mm at a sensing range of 100 mm	3 mm at a sensing range of 100 mm
Detection method	–	
Measuring principle	Optoelectronic	
Operating distance	–	
Type of light	Red, LED	Laser, Red
Ambient temperature	10 ... 60°C	

Communication interface IO-Link® distance sensor

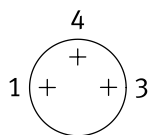
Protocol	IO-Link®
IO-Link, Protocol version	Device V 1.1
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	2 bit
IO-Link, Process data content OUT	1 bit (emitter disable), 1 bit (Hold)
IO-Link, Process data length IN	3 bytes
IO-Link, Process data content IN	1 bit (signal quality indicator), 16 bit PDV (distance), 2 bit SSC (Switching Signal)
IO-Link, Min. cycle time	3 ms
IO-Link, Data storage required	2

Electronics – Distance sensor

Operational voltage range DC	10 ... 30 V
Residual ripple	10%
No-load supply current	25 mA
Reverse polarity protection	For all electrical connections
Timer function	Via IO-Link®
Short circuit current rating	Pulsed

Datasheet

Electromechanics – Distance sensor



Electrical connection 1, function	IO-Link®, Switching output, Power supply
Electrical connection 1, connection type	Plug
Electrical connection 1, connector system	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	3
Electrical connection 1, type of mounting	Screw-type lock
Material electrical contact	Gold-plated brass

Mechanics – Distance sensor

Type of mounting	Via through-hole for M3 screw
Tightening torque	0.8 Nm
Mounting position	Any
Product weight	10 g
Material housing	Makrolon®, PLEXIGLAS®

Display, operation distance sensor

Type of light	Laser, Red	Red, LED
Ready status indication	Green LED	
Switching status indication	Yellow LED	

Immission, emission distance sensor

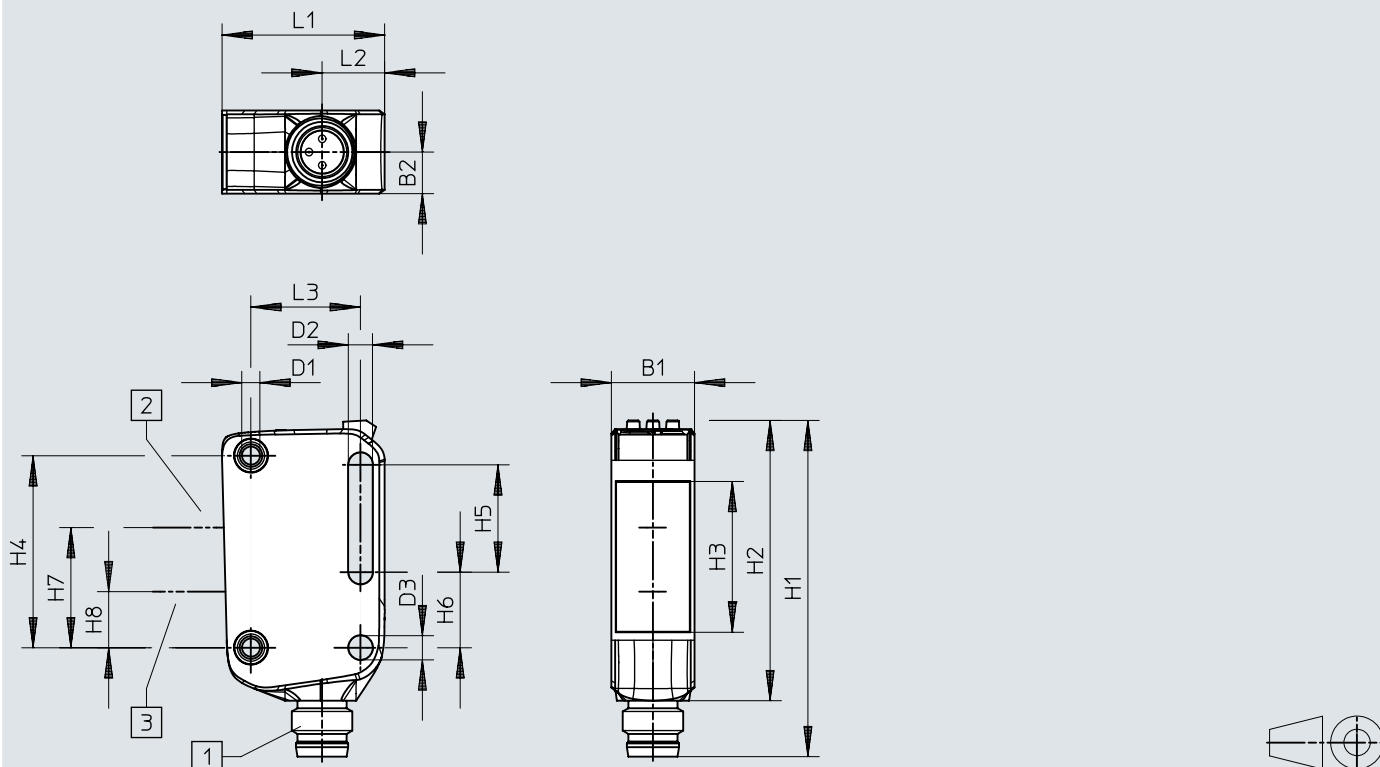
Insulation voltage	500 V
Immunity to surge	1 kV
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress
Pollution degree	3

¹⁾ More information www.festo.com/x/topic/kbk

Dimensions

Dimensions – S00E-...

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- [1] Electrical connection M8x1, plug
[2] Receiver
[3] Transmitter

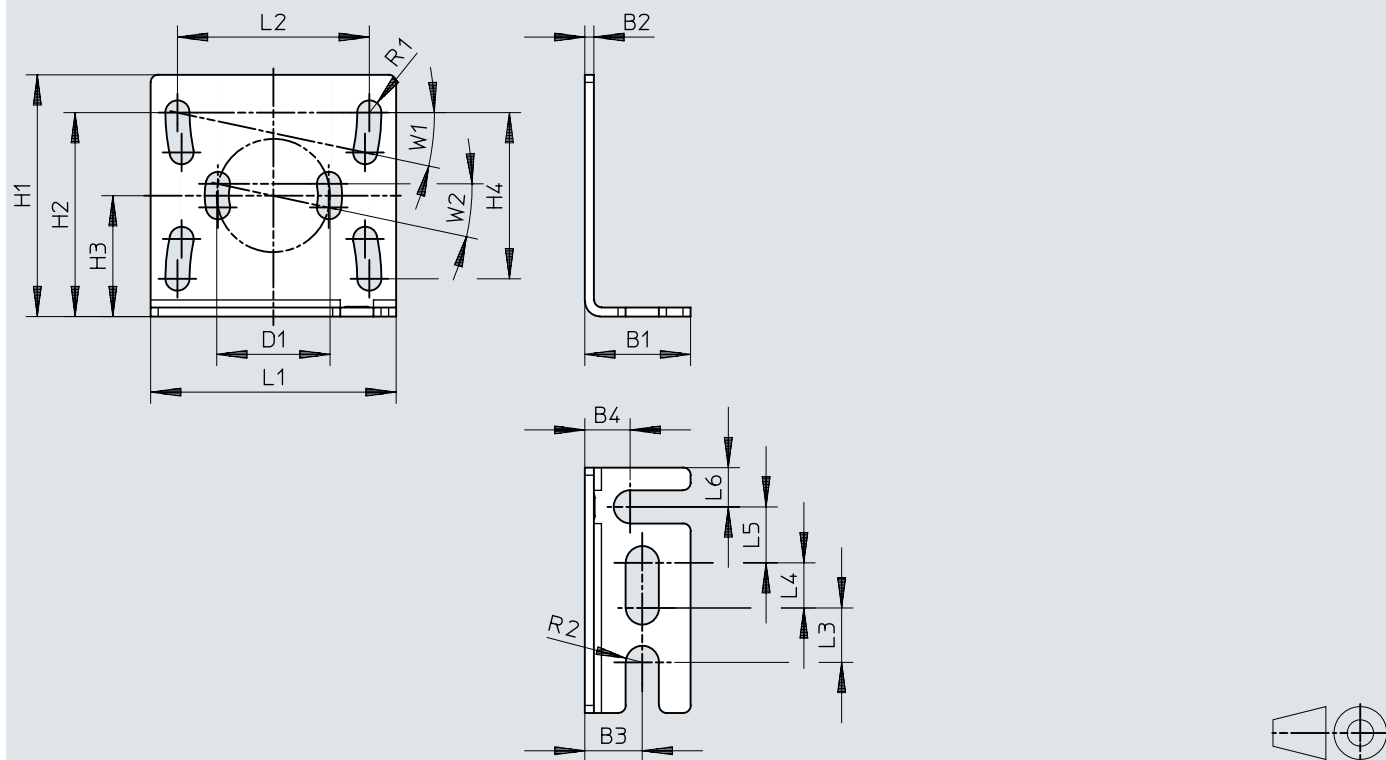
	B1	B2	D1	D2	D3 ø	H1	H2	H3
S00E-BS-R-PNLK-T	11	5,5	M3	3,2	3,2	44,5	37,1	20
S00E-BS-L-PNLK-T								
S00E-TB-R-PNLK-T								
S00E-TB-L-PNLK-T								
S00E-RG-R-PNLK-T								
S00E-RS-R-PNLK-T								
S00E-RS-L-PNLK-T								
S00E-DS-R-PNLK-T								
S00E-KS-L-PNLK-T								
S00E-MS-R-PNLK-T								
S00E-MS-L-PNLK-T								

	H4	H5	H6	H7	H8	L1	L2	L3
S00E-BS-R-PNLK-T	25,4	14,2	10	15,9	7,4	21,5	8,3	14,5
S00E-BS-L-PNLK-T								
S00E-TB-R-PNLK-T								
S00E-TB-L-PNLK-T				7,4				
S00E-RG-R-PNLK-T								
S00E-RS-R-PNLK-T								
S00E-RS-L-PNLK-T								
S00E-DS-R-PNLK-T								
S00E-KS-L-PNLK-T				15,9				
S00E-MS-R-PNLK-T								
S00E-MS-L-PNLK-T								

Dimensions

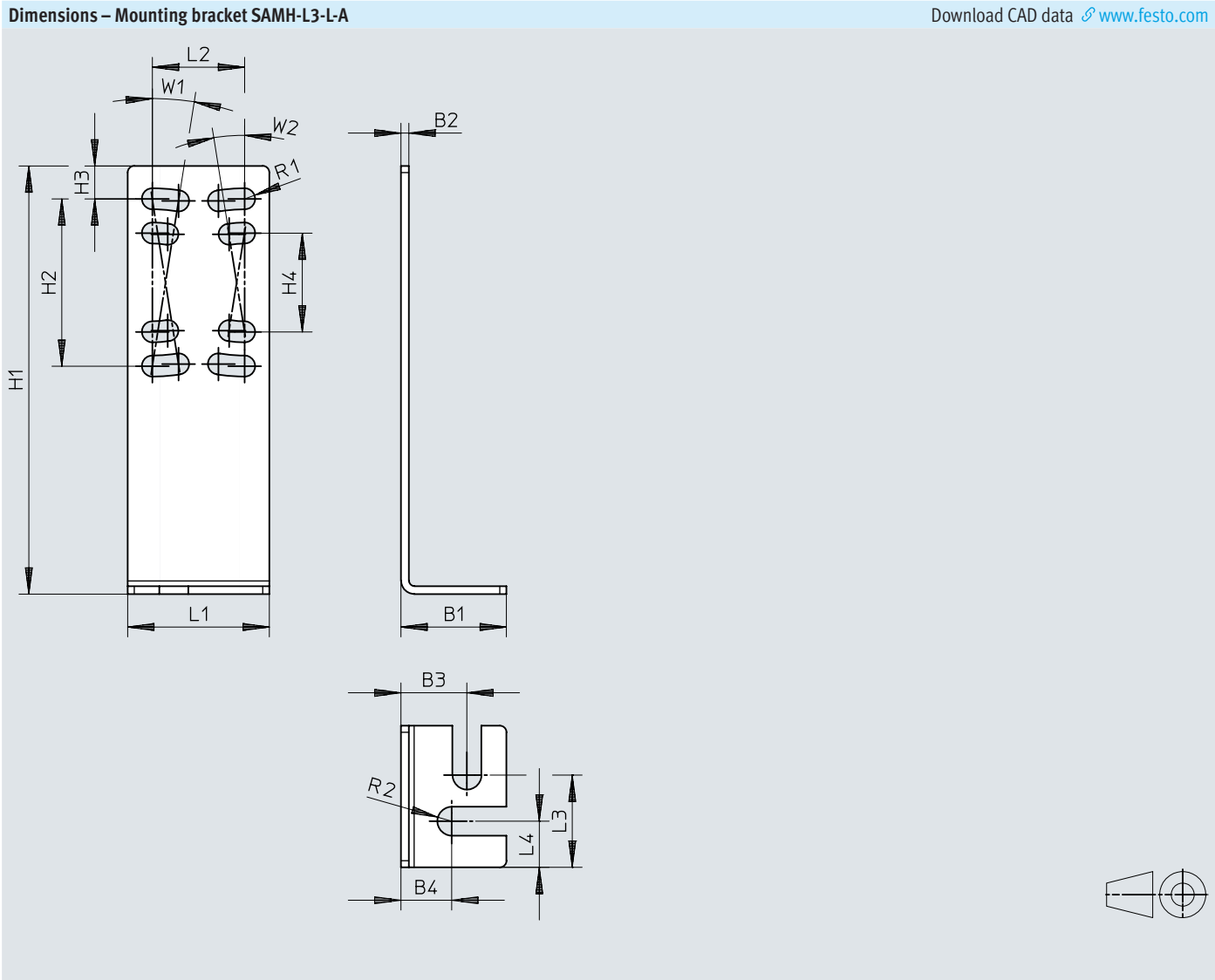
Dimensions – Mounting bracket SAMH-L3-A

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	B1	B2	B3	B4	D1 ø	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6	R1	R2	W1	W2
SAMH-L3-A	14	1,2	7,6	6	15	32	27	16	22	32,5	25,4	7,2	6	7,4	5,2	1,6	2,2	12°	12°

Dimensions

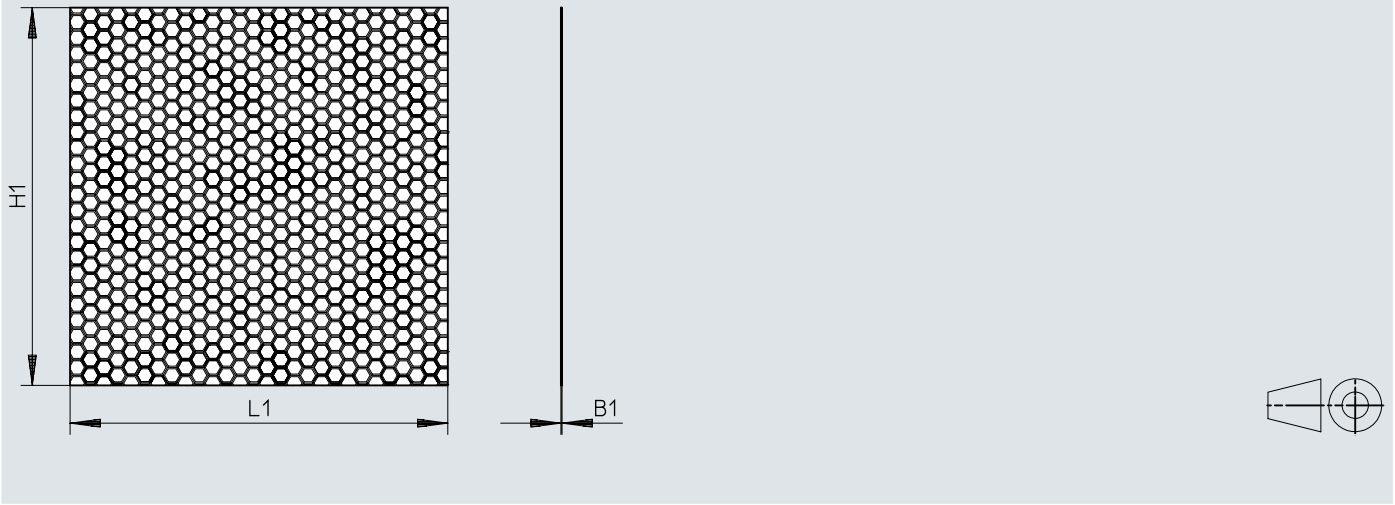


	B1	B2	B3	B4	H1	H2	H3	H4	L1	L2	L3	L4	R1	R2	W1	W2
SAMH-L3-L-A	16	1,2	10	7,7	65	25,4	5	15	21,5	14	14	7	1,6	2,2	9°	9°

Dimensions

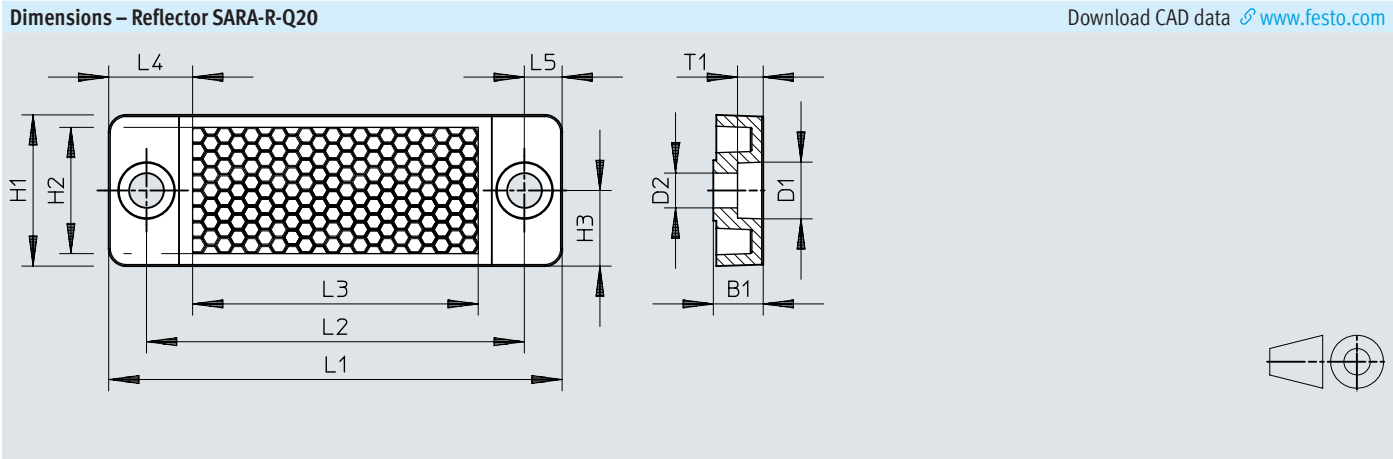
Dimensions – Reflector foil SARA-RF-Q100

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	B1	H1	L1
SARA-RF-Q100-S	0,3	100	100
SARA-RF-Q100-MC			

Dimensions

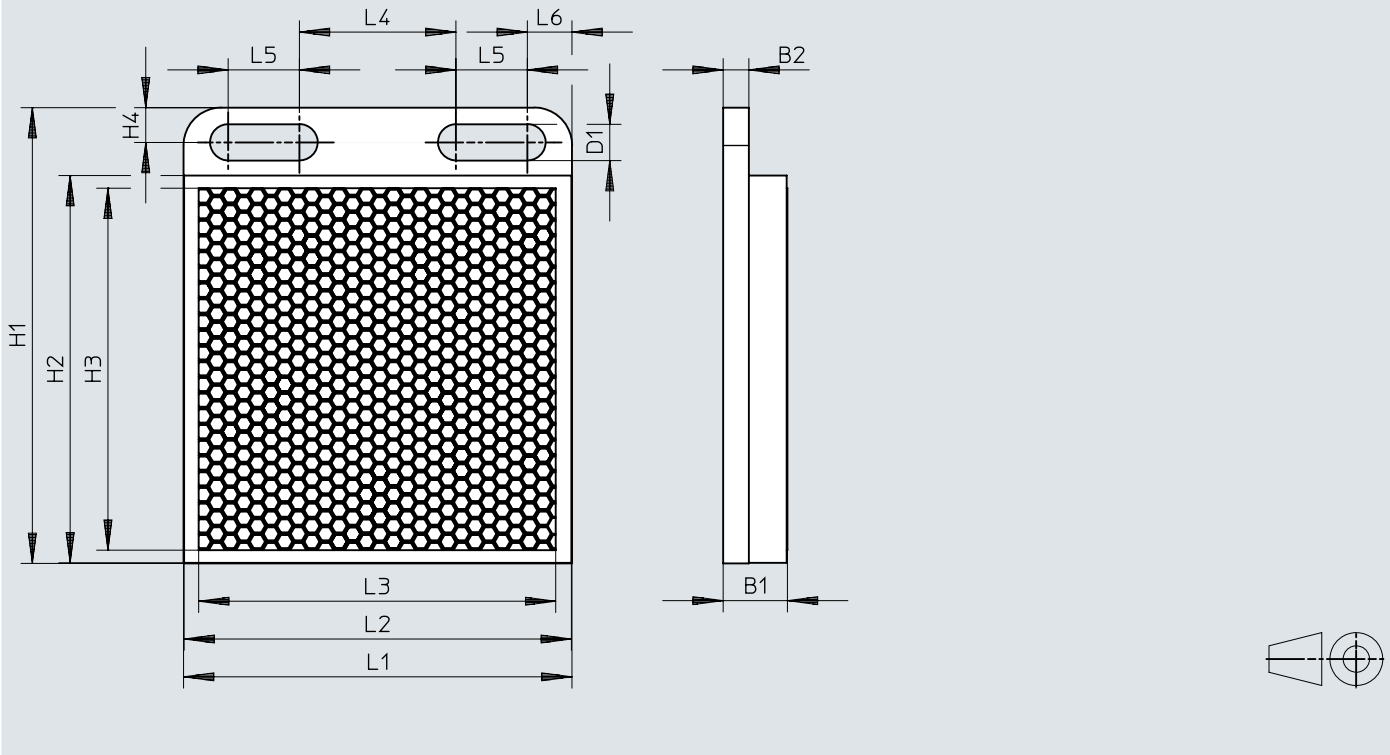


	B1	D1 ø	D2 ø	H1	H2	H3	L1	L2	L3	L4	L5	T1
	±0,3											
SARA-R-Q20-S	6,6	7,5	4,6	20	16,7	10	60	50	37,8	11,1	5	3,4
SARA-R-Q20-MC												

Dimensions

Dimensions – Reflector SARA-R-Q50

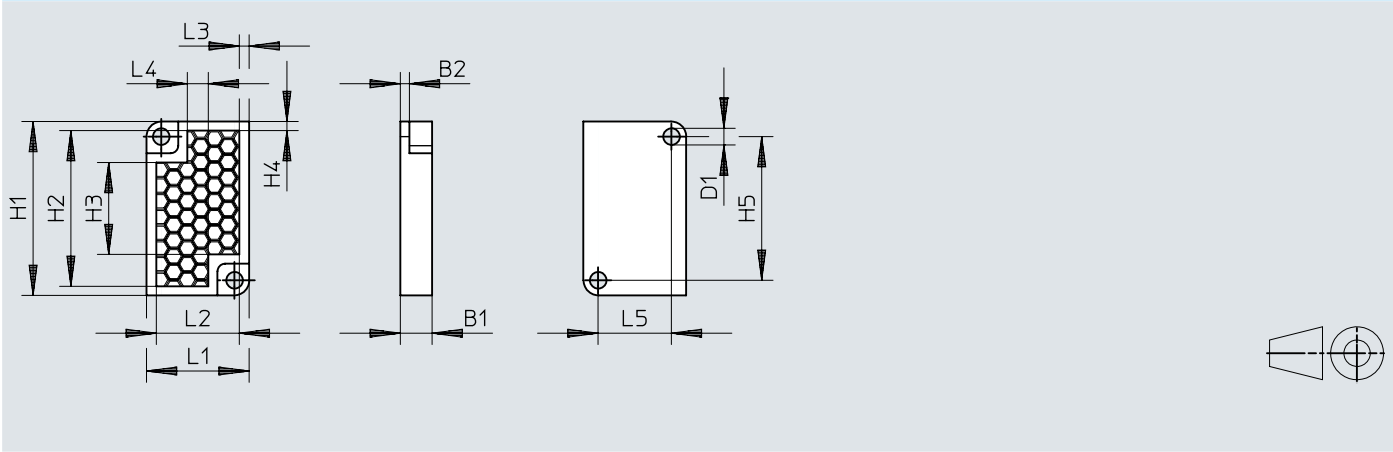
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	B1 ±0,5	B2	D1	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6
SARA-R-Q50-S	8,5	3,4	4,8	60,3	51,3	47,9	4,6	51,4	51,3	47,3	20,7	9,5	5,9
SARA-R-Q50-MC	6,5												

Dimensions

Dimensions – Reflector SARA-R-Q14-M
 [Download CAD data](#)
www.festo.com

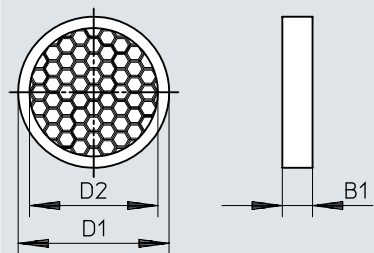


	B1 ±0,3	B2	D1 ø	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5
SARA-R-Q14-M	4,2	1,2	2,2	23	20,6	12,2	1,2	19	13,6	11	1,3	2,8	9,7

Dimensions

Dimensions – Reflector SARA-R-D20-M

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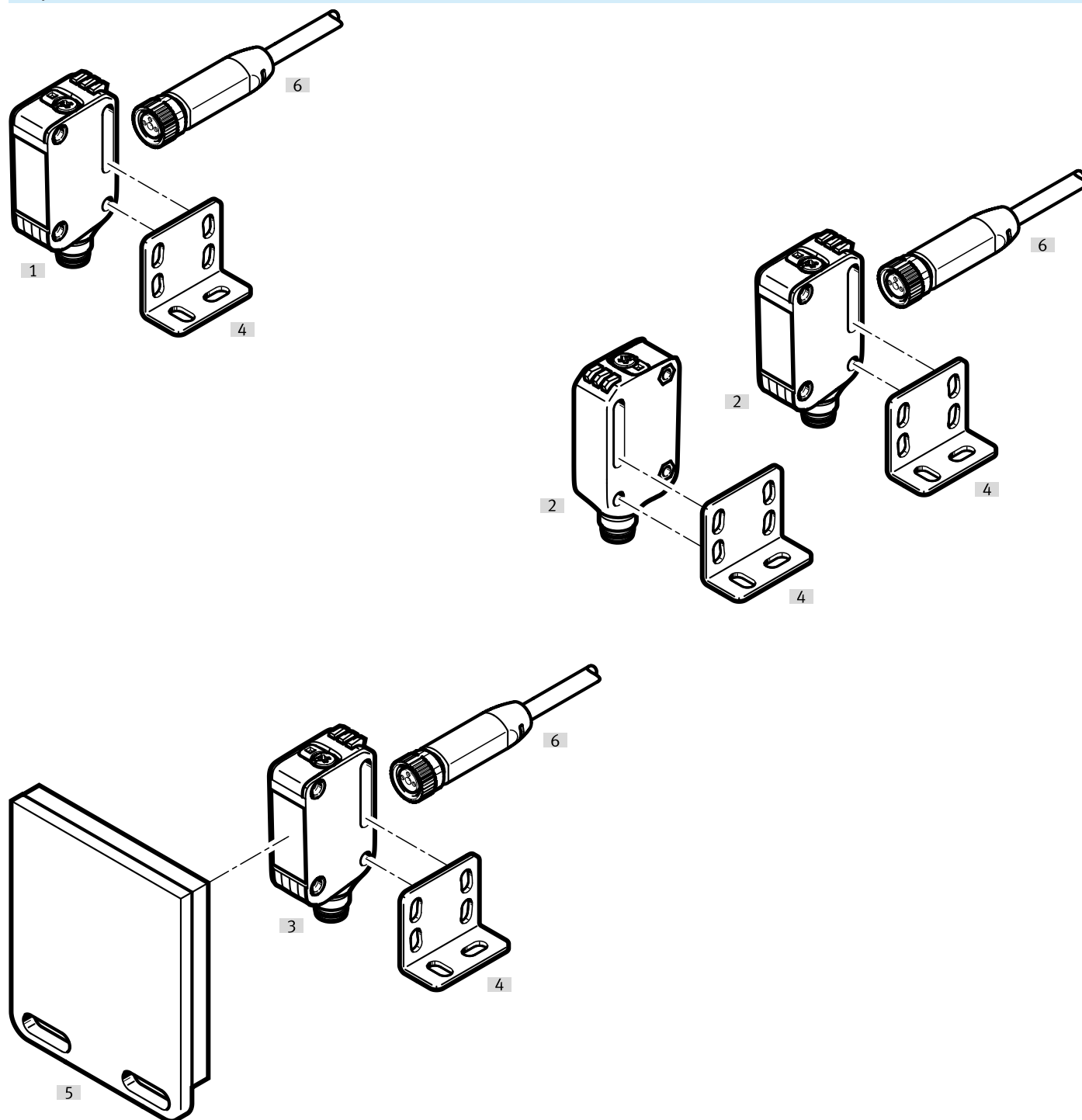
	B1 ±0,3	D1 Ø	D2 Ø
SARA-R-D20-M	4	20	17

Ordering data

SOOE, diffuse sensors with background suppression					
Detection method	Type of light	Operating distance	Reference material	Part no.	Type
	Laser, Red		Standard white 90%, 100x100 mm	8075673	SOOE-MS-L-PNLK-T
	Red, LED			8075668	SOOE-MS-R-PNLK-T
Retro-reflective sensor	Laser, Red	0 ... 12000 mm	Reference reflector: SARA-R-Q50-S	8075672	SOOE-RS-L-PNLK-T
	Red, LED	0 ... 6500 mm		8075666	SOOE-RS-R-PNLK-T
Through-beam sensor, Transmitter, Receiver	Laser, Red	0 ... 20000 mm		8075671	SOOE-TB-L-PNLK-T
	Red, LED	0 ... 12000 mm		8075665	SOOE-TB-R-PNLK-T
Diffuse sensor with back- ground clipping	Laser, Red	7 ... 300 mm	Standard white 90%, 100x100 mm	8075670	SOOE-BS-L-PNLK-T
	Red, LED	5 ... 350 mm		8075664	SOOE-BS-R-PNLK-T
Laser contrast sensor	Laser, Red	25 ... 120 mm		8075669	SOOE-KS-L-PNLK-T
Retro-reflective sensor for transparent objects	Red, LED	0 ... 3500 mm	Reference reflector: SARA-R-Q50-S	8075667	SOOE-RG-R-PNLK-T
Diffuse sensor		2 ... 1000 mm	Standard white 90%, 100x100 mm	8075663	SOOE-DS-R-PNLK-T

Peripherals

Peripherals overview

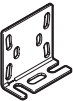


Accessories		→ Link
Type/order code	Description	
[1] S00E-RS-...	Retro-reflective sensor	s00e
[2] S00E-TB-...	Through-beam sensor	s00e
[3] S00E-BS-...	Retro-reflective sensor with background suppression	s00e
[4] SAMH-L3-...	Mounting bracket	28
[5] SARA-R-...	Reflector, reflective foil	28
[6] NEBA-M8G3-...	Connecting cables M8x1	30

Accessories

Mounting bracket SAMH-L2-L-A					
	Size	Corrosion resistance class CRC	Product weight	Part no.	Type
	22x31x17 mm	2 - Moderate corrosion stress	15 g	8077963	SAMH-L2-L-A

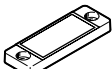
Mounting bracket SAMH-L2-A					
	Size	Corrosion resistance class CRC	Product weight	Part no.	Type
	23x20x11.2 mm	2 - Moderate corrosion stress	15 g	8077964	SAMH-L2-A

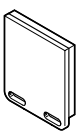
Mounting bracket SAMH-L3-L-A					
	Size	Corrosion resistance class CRC	Product weight	Part no.	Type
	65x21.5x16 mm	2 - Moderate corrosion stress	14 g	8077966	SAMH-L3-L-A

Mounting bracket SAMH-L3-A					
	Size	Corrosion resistance class CRC	Product weight	Part no.	Type
	32x32.5x14 mm	2 - Moderate corrosion stress	11 g	8077965	SAMH-L3-A

Reflector foil SARA-RF-Q100					
	Structural width of reflector	Ambient temperature	Product weight	Part no.	Type
	Standard	-40 ... 80 °C	4.4 g	8084162	SARA-RF-Q100-S
	Micro	-40 ... 70 °C	5.6 g	8084163	SARA-RF-Q100-MC

Accessories

Reflector SARA-R-Q20					
	Structural width of reflector	Ambient temperature	Product weight	Part no.	Type
	Standard	-40 ... 65 °C	5.4 g	8084164	SARA-R-Q20-S
	Micro		5.95 g	8084165	SARA-R-Q20-MC

Reflector SARA-R-Q50					
	Structural width of reflector	Ambient temperature	Product weight	Part no.	Type
	Standard	-40 ... 65 °C	10.35 g	8084159	SARA-R-Q50-S
	Micro		14.9 g	8084160	SARA-R-Q50-MC

Reflector SARA-R-Q14-M					
	Structural width of reflector	Ambient temperature	Product weight	Part no.	Type
	Mini	-40 ... 65 °C	1.25 g	8084167	SARA-R-Q14-M

Reflector SARA-R-D20-M					
	Structural width of reflector	Ambient temperature	Product weight	Part no.	Type
	Mini	-40 ... 65 °C	1.1 g	8084168	SARA-R-D20-M

Distance sensor retro-reflective sensor, SOOE-RG-R-PNLK-T

1 ... 1100 mm SARA-R-Q14-M
 1 ... 1400 mm SARA-R-D20-M
 1 ... 1800 mm SARA-R-Q20-MC
 1 ... 1800 mm SARA-RF-Q100-S
 1 ... 2000 mm SARA-R-Q20-S
 1 ... 2000 mm SARA-R-Q50-MC
 1 ... 3300 mm SARA-RF-Q100-MC
 1 ... 5000 mm SARA-R-Q50-S

Distance sensor retro-reflective sensor, SOOE-RS-L-PNLK-T

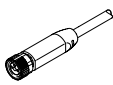
250 ... 8000 mm SARA-R-Q14-M
 250 ... 10000 mm SARA-R-Q20-MC
 250 ... 10000 mm SARA-R-Q50-MC
 250 ... 10000 mm SARA-RF-Q100-MC
 300 ... 2000 mm SARA-RF-Q100-S
 300 ... 7500 mm SARA-R-D20-M
 300 ... 10000 mm SARA-R-Q20-S
 300 ... 12000 mm SARA-R-Q50-S

Accessories

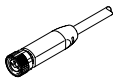
Distance sensor retro-reflective sensor, SOOE-RS-R-PNLK-T

40 ... 2500 mm SARA-R-Q20-S
 40 ... 6500 mm SARA-R-Q50-S
 100 ... 1200 mm SARA-R-Q14-M
 100 ... 1600 mm SARA-R-D20-M
 100 ... 2500 mm SARA-R-Q20-MC
 100 ... 2700 mm SARA-RF-Q100-S
 100 ... 4000 mm SARA-R-Q50-MC
 100 ... 6000 mm SARA-RF-Q100-MC

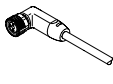
Connecting cables M8x1, straight socket

	Electrical connection 1, connection type	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	M8x1, A-coded, to EN 61076-2-104	0.5 m	8078282	NEBA-M8G3-U-0.5-N-M8G3
				8078278	NEBA-M8G3-U-0.5-N-M12G3
			1 m	8078222	NEBA-M8G3-U-1-N-LE3
				8078279	NEBA-M8G3-U-1-N-M12G3
				8078283	NEBA-M8G3-U-1-N-M8G3
			1.5 m	8078284	NEBA-M8G3-U-1.5-N-M8G3
			2 m	8078285	NEBA-M8G3-U-2-N-M8G3
			2.5 m	8078280	NEBA-M8G3-U-2.5-N-M12G3
				8078223	NEBA-M8G3-U-2.5-N-LE3
				8078286	NEBA-M8G3-U-2.5-N-M8G3
		Diameter 8 mm, A-coded to EN 61076-2-104		8078264	NEBA-M8CG3-U-2.5-N-LE3

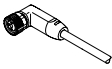
Connecting cables M8x1, straight socket

	Electrical connection 1, connection type	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	M8x1, A-coded, to EN 61076-2-104	5 m	8078287	NEBA-M8G3-U-5-N-M8G3
				8078281	NEBA-M8G3-U-5-N-M12G3
				8078224	NEBA-M8G3-U-5-N-LE3
			10 m	8078225	NEBA-M8G3-U-10-N-LE3
		Diameter 8 mm, A-coded to EN 61076-2-104	5 m	8078265	NEBA-M8CG3-U-5-N-LE3

Connecting cables M8x1, straight socket

	Electrical connection 1, connection type	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	M8x1, A-coded, to EN 61076-2-104	0.5 m	8078298	NEBA-M8W3-U-0.5-N-M8G3
			1 m	8078299	NEBA-M8W3-U-1-N-M8G3
			2.5 m	8078260	NEBA-M8W3P-U-2.5-N-LE3
				8078300	NEBA-M8W3-U-2.5-N-M8G3
				8078230	NEBA-M8W3-U-2.5-N-LE3
		Diameter 8 mm, A-coded to EN 61076-2-104		8078266	NEBA-M8CW3-U-2.5-N-LE3

Accessories

Connecting cables M8x1, straight socket					
	Electrical connection 1, connection type	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	M8x1, A-coded, to EN 61076-2-104	5 m	8078261	NEBA-M8W3P-U-5-N-LE3
				8078301	NEBA-M8W3-U-5-N-M8G3
				8078231	NEBA-M8W3-U-5-N-LE3
			10 m	8078232	NEBA-M8W3-U-10-N-LE3
		Diameter 8 mm, A-coded to EN 61076-2-104	5 m	8078267	NEBA-M8CW3-U-5-N-LE3