

Series MS

miniSNAP

Tiny – great – sensors to simply snap-in



Through-beam sensors MSS/MSE



High functionality

Enormous range

Thanks to most modern electronics and high quality optics for both, the emitter and the receiver a huge range and high signal reserve is achieved.

Fully integrated amplifier

The complete electronics is packed into the emitter and receiver housing. An external amplifier is not required. The sensors are directly connected to the control unit.

High switching frequency

The *miniSNAP* has a high switching frequency allowing reliable detection of even fast events.

Low power consumption

Although the optical performance is high, the power consumption is very low.

Test input

The emitter has a test input as standard. Herewith the emitter beam can be switched on and off by a control signal. This allows the functional check of the complete light barrier during operation. Also, via the test input multiple *miniSNAP* sensors can be controlled in multiplex operation.

Power-up output suppression

During power-up the outputs of the *miniSNAP* sensors are blocked for typically 90 msec.

Simple installation and operation

“Snap-in“ mounting concept

The *miniSNAP* sensor is just pushed into a hole (snap-in) and directly connected to the control unit. The thickness of the mounting plate can vary from 1 to 6 mm. Alignment and adjustment is not necessary. A removal without damaging the sensor is possible with suitable tooling only. The cable exit of emitter and receiver has different colors. It is very flexible and allows optimal adaptation to all mounting conditions.



Optimized emitting and receiving characteristics

The characteristics of the light beam and the response behaviour of the receiver allow slightly displacement or tilt of the sensors. This makes the sensor installation uncritically.

Various connection versions

The *miniSNAP* is available standard with a 2 m cable or with a 3-pol M8 connector (on cable).

Reliability for the highest demands

Robust construction with IP 67 sealing

The single-part housing is made from robust polyamide 12 and the electronics is densely encapsulated. This makes the *miniSNAP* insensitive to vibrations, temperature, dust and wetness.

Dirt-repellent front, protected optics

The front part is slightly curved and dirt-repellent. Deposition of residues is only hardly possible. Therefore, high reliability is given even under harsh conditions. The optics is well protected against mechanical damage.

EMC-tested

The *miniSNAP* sensors are tested according to EN 60947-5-2 and EN 61000-6-1/3/4. This assures trouble free use even in high electromagnetically contaminated environments.

High ambient light rejection

Thanks to pulse modulation and a very sensitive ambient light suppression with active disturbing light recognition and rejection, the *miniSNAP* sensors are extremely insensitive to foreign light sources e.g. HF-lamps, etc.

Reverse polarity protection

All of the *miniSNAP* sensor's electrical connections are protected against reverse wiring.

Short-circuit protection

The *miniSNAP* sensor's transistor outputs are electronically protected against short circuit.

Designation code

MS x xxx xxx xx

Principle	Supply	Outputs	Connection	Electr. option	Light	Range
E: Through-beam receiver S: Trough-beam emitter	1: 10-30 VDC	KA: No output ND: NPN dark-on NH: NPN light-on PD: PNP dark-on PH: PNP light-on	0: Cable special length 1: Cable 2 m 5: Connector M8 (on cable)	40: Range not adjustable 41: Range not adjustable, <i>test input</i>	1: Infrared	1: 15 m

Through-beam sensors miniSNAP, snap-in housing



- Simplest and quick snap-in mounting
- Fully integrated electronics in emitter and receiver
- Transistor output PNP or NPN, light-on or dark-on
- *Test input*
- Insensitive to foreign light sources, e.g. HF-lamps, etc.
- *Short-circuit protection, reverse polarity protection and power-up output suppression*
- Connection: Cable, 2 meter
Connector M8 on cable, 3 pin
- EMC-tested according to EN 60947-5-2, EN 61000-6-1/3/4



	Emitter		Receiver		
	MSS 1KA 141 I1	MSE 1NH 140 I1	MSE 1ND 140 I1	MSE 1PH 140 I1	MSE 1PD 140 I1
Product designation Cable 2 m ¹⁾	MSS 1KA 141 I1	MSE 1NH 140 I1	MSE 1ND 140 I1	MSE 1PH 140 I1	MSE 1PD 140 I1
Product designation Connector M8 ¹⁾	MSS 1KA 541 I1	MSE 1NH 540 I1	MSE 1ND 540 I1	MSE 1PH 540 I1	MSE 1PD 540 I1
Output		NPN, light-on	NPN, dark-on	PNP, light-on	PNP, dark-on
Range adjustment	No	No			
Optical data ²⁾					
Max. range	15 m				
Emitter	Infrared-LED, 875 nm, pulsed				
Aperture angle at 3 m	typ. +/-14 °		typ. +/-8 °		
Electrical data ²⁾					
Supply voltage U _s	10...30 VDC				
Allowable ripple	+/- 10% of U _s				
Current consumption (without load)	< 15 mA		< 8 mA		
Max. load current I _L			100 mA		
Residual voltage			< 1.6 V		
Max. switching frequency			200 Hz		
<i>Test input:</i> emitter on emitter off	≥ 7 V open or ≤ 3 V				
Environmental data					
Sealing (Sensor)	IP 67				
Light immunity	> 75'000 Lux @ > 3 °		> 100'000 Lux @ > 15 ° Angle incidence		
Temperature T _A (operating / storage)	-40...+70 °C / -25...+65 °C				
Weight (cable / connector)	ca. 50 g / 10 g				

1) For product designation of sensors with options see designation code

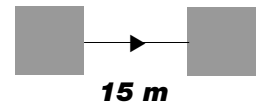
2) When not otherwise noted, all technical data at T_A = 25 °C, U_s = 24 V.

Note:

The emitter is only activated, if the *test input* is connected to U_s or to a corresponding test signal.

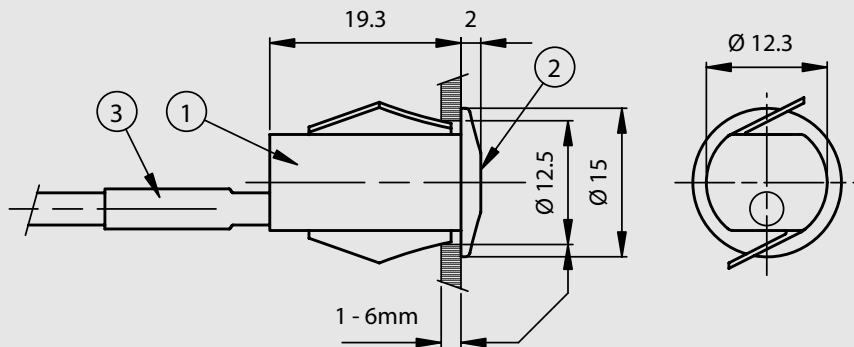
10...30 VDC

NPN / PNP
light-on or
dark-on output



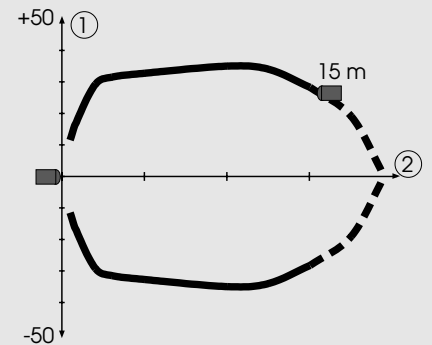
MSS/MSE

Dimensions (Ø 12.3 mm x 19.3 mm)



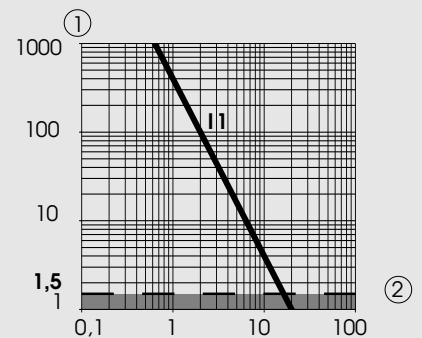
- ① Plastic housing
- ② Emitter or receiver optics
- ③ Cable outlet
(red: Emitter; blue: Receiver)

Optical diagrams



Typical beam diameter

- ① Diameter in (cm)
- ② Range in (m)



Typical excess gain curve

- ① Gain factor
- ② Range in (m)

Wiring diagram

