



PHOTOELECTRIC SENSORS: SERIES 1120

- ✓ M12 **miniature sensor series**
- ✓ Rugged **metal housing**
- ✓ **Accurate & speed-independent target detection**; response time 0.5 msec
- ✓ **Shock & vibration resistant** due to fully vacuum-potted electronics
- ✓ **High system reserves** (excess gain)
- ✓ **Pre-failure warning** (pollution monitoring)
- ✓ **Easy adjustment** (due to visible red light)
- ✓ Accurate **analog sensor** (10 ... 100 mm)



TECHNICAL DATA

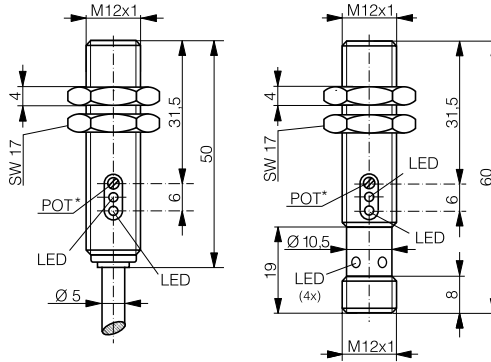
(according to IEC 60947-5-2)	
Housing material	Chrome-plated brass
Hysteresis	10 % typ. / --- (LA)
Supply voltage range U_b	10 ... 36 VDC / 10 ... 30 VDC (LA)
Max. ripple content	20 %
Output current	≤ 200 mA / --- (LA)
Output voltage drop	≤ 2.0 V at 200 mA / --- (LA)
Max. switching frequency / Bandwidth (-3dB)	1,000 Hz / 100 Hz at $s = 50$ mm (LA)
Switching time (\uparrow and \downarrow)	0.5 msec / --- (LA)
Max. ambient light:	
halogen	5,000 Lux
sun	10,000 Lux
Ambient temperature range	-25 ... +55 °C / 0 ... +55 °C (LA)
Degree of protection	IP 67
EMC protection:	
IEC 60947-5-2 (7.2.3.1)	1 kV
IEC 61000-4-2	Level 2
IEC 61000-4-3	Level 3 / Level 2 (LA)
IEC 61000-4-4	Level 3
IEC 61000-4-6	Level 2 (LA)
Short-circuit protection	Built-in
Polarity reversal protection	Built-in
Power-on reset	Built-in / --- (LA)

Rugged M12 miniature sensors in metal housings for accurate and speed-independent target detection. Shock and vibration, scratch and chemically resistant with high system reserves (excess gain). Pollution monitoring (green LED) in case of reduced system reserves prevents downtime caused by pollution. Easy adjustment due to visible red light. Particularly suited for rough industrial environments and where space is limited:

- ✓ **packaging machines**
- ✓ **printing industry**
- ✓ **automation equipment**
- ✓ **handling systems**
- ✓ **conveyor systems**
- ✓ **special machinery**
- ✓ **machine tool industry (in combination with inductive sensors)**
- ✓ **inserters & sorting machines**

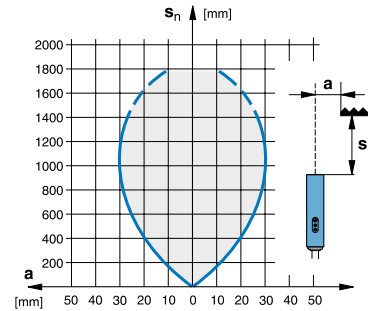
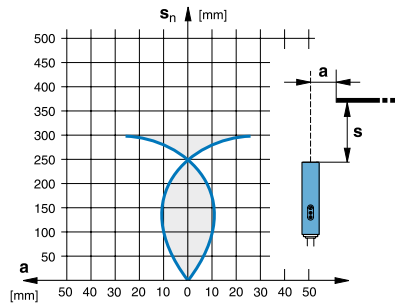
HOUSING SIZE	M12	
SENSING RANGE	DIFFUSE SENSOR 300 mm	REFLEX SENSOR (POLARIZED) 1,500 mm

Dimensions:



* diffuse sensor only

Response curves:

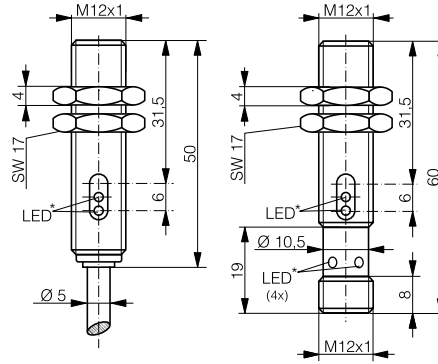


TECHNICAL DATA		
Sensing range (setting range)	300 mm (70 ... 300 mm)	1,500 mm
Standard target / reflector (page 197)	100 x 100 mm white	Reflector type 3
No-load supply current	≤ 15 mA	≤ 15 mA
Emitter	LED red 660 nm	LED red polarized 660 nm
Approvals	CE, UL, RoHS	CE, UL, RoHS
Weight (cable / connector model)	100 / 20 g	100 / 20 g

PART REFERENCES		
(bold: preferred types)		
NPN light-ON / cable	LTK-1120-301	---
NPN dark-ON / cable	---	LRK-1120-302
NPN light-ON / connector S12	LTS-1120-301	---
NPN dark-ON / connector S12	---	LRS-1120-302
PNP light-ON / cable	LTK-1120-303	---
PNP dark-ON / cable	---	LRK-1120-304
PNP light-ON / connector S12	LTS-1120-303	---
PNP dark-ON / connector S12	---	LRS-1120-304
Compatible connectors (page 268)	G, H	G, H
Wiring (pages 198-199)	Diagram 1	Diagram 1

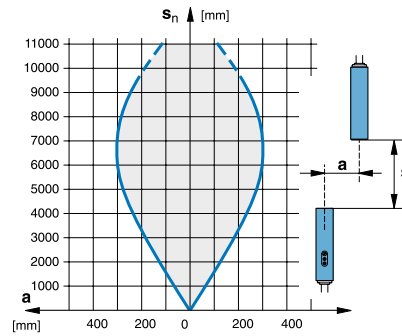
HOUSING SIZE	M12
SENSING RANGE	THROUGH-BEAM SENSOR 10,000 mm

Dimensions:



* receiver only

Response curve:



TECHNICAL DATA

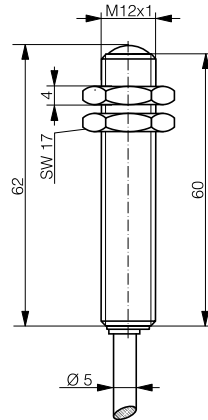
Sensing range	10,000 mm
Standard target	---
No-load supply current	≤ 15 mA (R) / ≤ 15 mA (E)
Emitter	LED red 660 nm
Approvals	CE, UL, RoHS
Weight (cable / connector model)	200 / 65 g (R and E)

PART REFERENCES

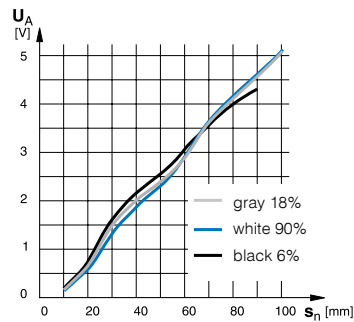
(bold: preferred types)	(R) receiver / (E) emitter
NPN light-ON / cable	LLK-1120-201 (R) / LLK-1120-200 (E)
NPN dark-ON / cable	LLK-1120-202 (R) / LLK-1120-200 (E)
NPN light-ON / connector S12	LLS-1120-201 (R) / LLS-1120-200 (E)
NPN dark-ON / connector S12	LLS-1120-202 (R) / LLS-1120-200 (E)
PNP light-ON / cable	LLK-1120-203 (R) / LLK-1120-200 (E)
PNP dark-ON / cable	LLK-1120-204 (R) / LLK-1120-200 (E)
PNP light-ON / connector S12	LLS-1120-203 (R) / LLS-1120-200 (E)
PNP dark-ON / connector S12	LLS-1120-204 (R) / LLS-1120-200 (E)
Compatible connectors (page 268)	M, N
Wiring (pages 198-199)	Diagram 1 (R) / 4 (E)

HOUSING SIZE	M12 WITH ANALOG OUTPUT
SENSING RANGE	DIFFUSE SENSOR 10 ... 100 mm

Dimensions:



Response curve:



TECHNICAL DATA	
Sensing range	10 ... 100 mm
Standard target	100 x 100 mm white
No-load supply current	≤ 25 mA
Emitter	LED red 660 nm
Approvals	CE, RoHS
Weight	85 g

PART REFERENCES	
(bold: preferred types)	
Analog output 0 ... 5 V	LAK-1120-309
Compatible connectors (page 268)	---
Wiring (pages 198-199)	Diagram 8