Reflex Sensor
with Background Suppression

HK12ND8
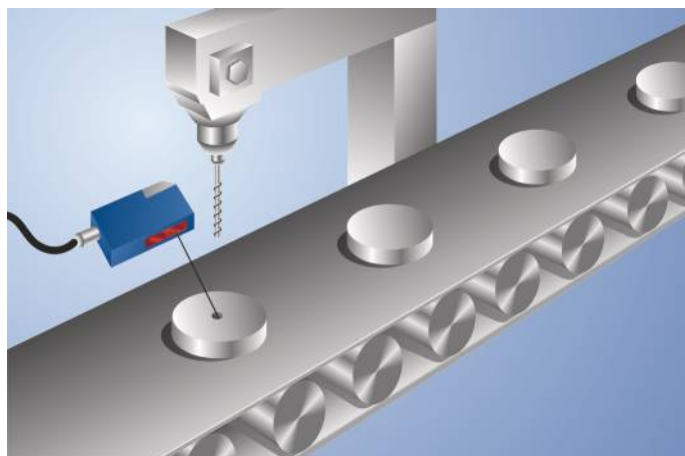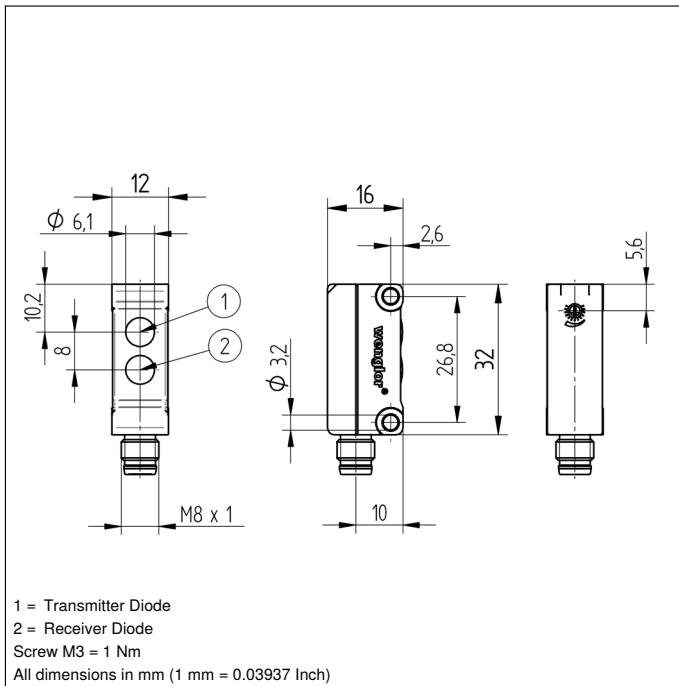Part Number

- **Electronic background suppression**
- **Miniature design**
- **Red light**
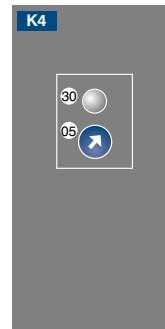- **Switching distance adjuster**

Technical Data

Optical Data	
Range	120 mm
Adjustable Range	18...120 mm
Switching Hysteresis	< 15 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Spot Diameter	see Table 1
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (Ub = 24 V)	< 30 mA
Switching Frequency	700 Hz
Response Time	714 μs
Temperature Drift	< 5 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	< 2,5 V
NPN Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Protection Class	III
Mechanical Data	
Setting Method	Potentiometer
Housing Material	Plastic
Full Encapsulation	yes
Degree of Protection	IP67
Connection	M8 × 1; 3-pin
NPN NC	●
Connection Diagram No.	309
Control Panel No.	K4
Suitable Connection Technology No.	8
Suitable Mounting Technology No.	400

These sensors detect distance by measuring angles. They are particularly good at recognizing objects in front of any background. The color, shape and surface characteristics of the object have practically no influence on sensor switching performance.
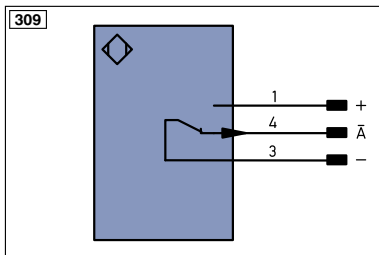
![wenglor the innovative family]

Ctrl. Panel

K4

30 = Switching Status/Contamination Warning
05 = Switching Distance Adjuster

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30 = Switching Status/Contamination Warning

Dimensions:

12
Ø 6,1
10,2
8
16
2,6
5,6
26,8
32
Ø 3,2
M8 x 1
10

1 = Transmitter Diode
2 = Receiver Diode
Screw M3 = 1 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

309

1 = + Supply Voltage +
4 = Ā
3 = −

Legend

+	Supply Voltage +	PT	Platinum measuring resistor	ENA	Encoder A
−	Supply Voltage 0 V	nc	not connected	ENB	Encoder B
~	Supply Voltage (AC Voltage)	U	Test Input	AMIN	Digital output MIN
A	Switching Output (NO)	Ū	Test Input inverted	AMAX	Digital output MAX
Ā	Switching Output (NC)	W	Trigger Input	AOK	Digital output OK
V	Contamination/Error Output (NO)	O	Analog Output	SY In	Synchronization In
V̄	Contamination/Error Output (NC)	O−	Ground for the Analog Output	SY OUT	Synchronization OUT
E	Input (analog or digital)	BZ	Block Discharge	OLT	Brightness output
T	Teach Input	AMV	Valve Output	M	Maintenance
Z	Time Delay (activation)	a	Valve Control Output +	rsv	reserved
S	Shielding	b	Valve Control Output 0 V		
RxD	Interface Receive Path	SY	Synchronization		
TxD	Interface Send Path	E+	Receiver-Line	**Wire Colors according to**	
RDY	Ready	S+	Emitter-Line	**DIN IEC 757**	
GND	Ground	⏚	Grounding	BK	Black
CL	Clock	SnR	Switching Distance Reduction	BN	Brown
E/A	Output/Input programmable	Rx+/−	Ethernet Receive Path	RD	Red
⦿	IO-Link	Tx+/−	Ethernet Send Path	OG	Orange
PoE	Power over Ethernet	Bus	Interfaces-Bus A(+)/B(−)	YE	Yellow
IN	Safety Input	La	Emitted Light disengageable	GN	Green
OSSD	Safety Output	Mag	Magnet activation	BU	Blue
Signal	Signal Output	RES	Input confirmation	VT	Violet
BI_D+/−	Ethernet Gigabit bidirect. data line (A-D)	EDM	Contactor Monitoring	GY	Grey
EN0RS422	Encoder 0-pulse 0-0̄ (TTL)	ENARS422	Encoder A/Ā (TTL)	WH	White
		ENBRS422	Encoder B/B̄ (TTL)	PK	Pink
				GNYE	Green/Yellow

Table 1

Detection Range	30 mm	75 mm	120 mm
Spot Diameter	4,0 mm	5,0 mm	7,5 mm

Switching Distance Deviation

Typical characteristic curve based on Kodak white (90 % remission)

HK12
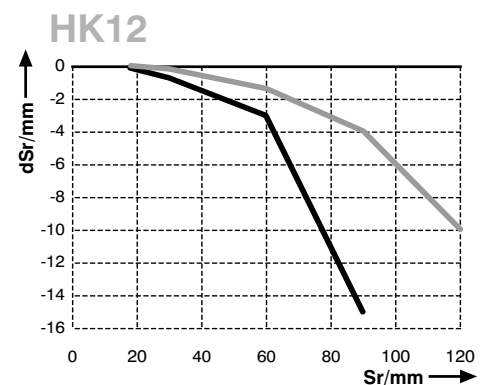
Sr = Switching Distance
dSr = Switching Distance Change

— black 6 % remission
— grey 18 % remission