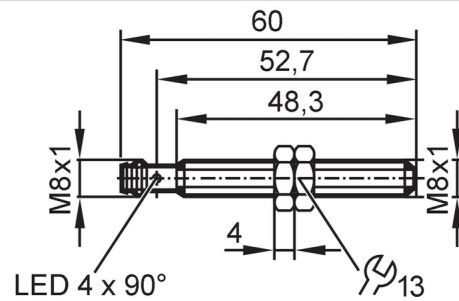


# IEP200



## Inductive sensor

IEK31,5-FRKG/V4A/IO/AS



### Product characteristics

Electrical design	PNP/NPN; (configurable)
Output function	normally open / closed; (configurable)
Communication interface	IO-Link
Housing	Threaded type
Dimensions [mm]	M8 x 1 / L = 60

### Application

Special feature	gold-plated contacts; Magnetic-field immune
Application	Non-contact detection of the smallest distance changes in the micrometer range; Industrial applications
Magnetic-field immune	yes
Max. electromagnetic field immunity [mT]	300

### Electrical data

Operating voltage [V]	10...30 DC
Current consumption [mA]	< 20
Protection class	III
Reverse polarity protection	yes

### Outputs

Electrical design	PNP/NPN; (configurable)
Output function	normally open / closed; (configurable)
Max. voltage drop switching output DC [V]	2.5
Permanent current rating of switching output DC [mA]	100
Switching frequency DC [Hz]	75
Short-circuit protection	yes
Overload protection	yes

### Monitoring range

Switch point IO-Link [mm]	0.05...1.455
Measuring range IO-Link [mm]	0.05...1.5

### Accuracy / deviations

Repeatability	< 10 µm
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Factory calibration (target: aluminium, 16x16 mm)		
Resolution	[ $\mu\text{m}$ ]	5
Temperature drift		$\pm 0,6 \mu\text{m/K}$
Linearity deviation		$\pm 10 \mu\text{m}$
Application calibration (1-point calibration; target: steel, 16x16 mm)		
Resolution	[ $\mu\text{m}$ ]	5
Temperature drift		$\pm 1,5 \mu\text{m/K}$
Linearity deviation		$\pm 75 \mu\text{m}$
Application calibration (3-point calibration; target: steel, 8x8 mm)		
Resolution	[ $\mu\text{m}$ ]	5
Temperature drift		$\pm 1,5 \mu\text{m/K}$
Linearity deviation		$\pm 50 \mu\text{m}$
Interfaces		
Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.1
SDCI standard		IEC 61131-9 CDV
Profiles	Smart Sensor - SSP 4.1.1	Measuring and Switching Sensor, 1 channel
	Common - I&D	Identification and Diagnosis
	Extension	Object detection, switches when value falls below the setpoint
	Function	Locator
	Function	ProductURI
SIO mode		yes
Required master port class		A
Min. process cycle time	[ms]	3.2
Supported DeviceIDs	<b>Type of operation</b>	<b>DeviceID</b>
	default	1815
Operating conditions		
Ambient temperature	[ $^{\circ}\text{C}$ ]	-25...70
Protection		IP 65; IP 66; IP 67; IP 68; IP 69K
Tests / approvals		
EMC	EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	EN 61000-4-3 HF radiated	10 V/m
	EN 61000-4-4 Burst	2 kV
	EN 61000-4-6 HF conducted	10 V
	EN 55011	class A
Vibration resistance	EN 60068-2-6 Fc	20 g (10...3000 Hz) / 50 sweep cycles per frequency; 1 octave per minute in 3 axes
Shock resistance	EN 60068-2-27 Ea	100 g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes
Continuous shock resistance	EN 60068-2-27 Eb	40 g 6 ms; 4000 shocks each in every direction of the 3 coordinate axes
Fast temperature changes	EN 60068-2-14 Na	TA = -25 $^{\circ}\text{C}$ ; TB = 70 $^{\circ}\text{C}$ ; t1 = 30 min; t2 = < 10 s; 50 cycles
MTTF	[years]	1347

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IEK31,5-FRKG/V4A/IO/AS


Embedded software included	yes	
UL approval	Ta	-25...70 °C
	Enclosure type	Type 1
	voltage supply	Limited Voltage/Current
	UL approval number	A031
	File number UL	E174191

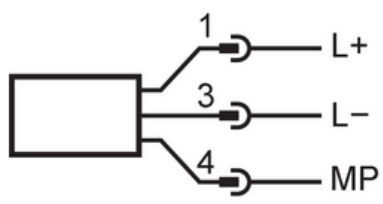
Mechanical data		
Weight	[g]	46.8
Housing		Threaded type
Mounting		flush mountable
Dimensions	[mm]	M8 x 1 / L = 60
Thread designation		M8 x 1
Material		housing: stainless steel (1.4404 / 316L); sensing face: LCP white; LED window: PPSU; lock nuts: stainless steel (1.4404 / 316L)
Tightening torque	[Nm]	7

Displays / operating elements		
Display	Switching status	4 x LED, yellow
	SIO mode	
	output stage supplied with current	LED, yellow lights
	IO-Link mode	
	target in measuring range	LED, yellow lights

Accessories	
Items supplied	lock nuts: 2

Remarks	
Pack quantity	1 pcs.

Electrical connection - plug	
Connector: 1 x M8; coding: A; Contacts: 3, gold-plated; Locking: snap-fit	
	

Connection	
	
1	L+
3	L-
4	MP
DO (NO/NC), IO-Link	

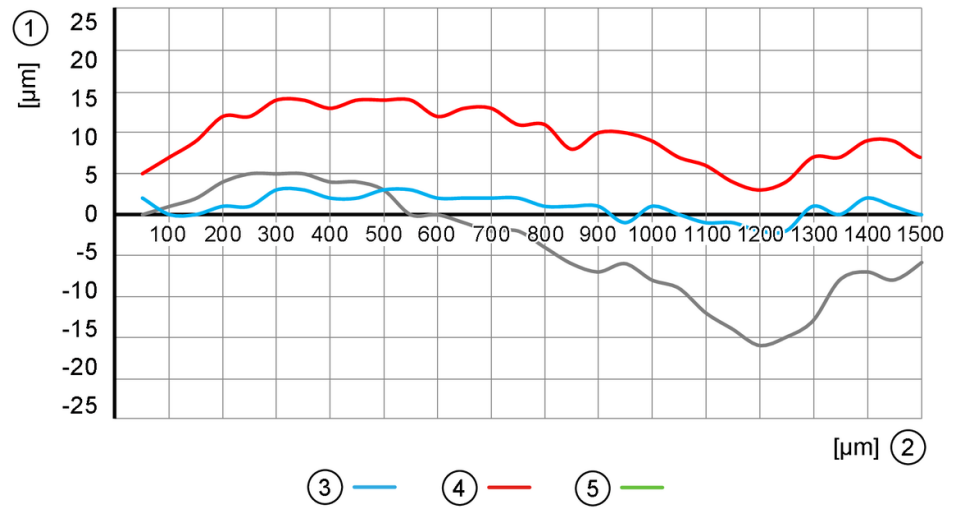
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## Inductive sensor

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### Diagrams and graphs



- 1 Measured value [ $\mu\text{m}$ ]
- 2 Linearity deviation [ $\mu\text{m}$ ]
- 3 factory calibration (target: aluminium, 16x16 mm)
- 4 application calibration (1-point calibration; target: steel, 16x16 mm)
- 5 application calibration (3-point calibration; target: steel, 8x8 mm)