

Data Sheet for Linear Sensors

Hall-Effect Linear Sensor

Series LHK



- Long lifespan - 100 million movements
- No wear-induced degradation of signal quality
- Reliable measurement even at vibration
- Resolution: 12 bit
- Analogue output: 0.5 V up to 4.5 V
enables wire break detection and short-circuit detection
- Supply voltage: 5 V

The LHK Hall Effect Linear Sensor is ideal for detecting small, dynamic movements in automatically controlled systems without loss of accuracy due to wear. It offers an excellent price/performance ratio compared to other non-contact measurement principles. The sensor provides an active output signal, eliminating the need for complicated signal conversion.

Electrical Data

Effective electrical stroke 1.)	30 mm ± 0.5mm
Independent linearity (best straight line) 1.)	± 0.5 %
Output signal	0.5 V up to 4.5 V ratiometric
Theoretical resolution 1.)	12 bit (4096 digits)
Update rate	typ. 0.4 ms
Switch-on delay	max. 10 ms
Supply voltage	5 V ±10%
Power consumption (no load)	
Single output	≤ 15 mA
Redundant output	≤ 30 mA
Output load	≥ 10 kOhm
Insulation voltage 1.)	500 VAC, 1min
Insulation resistance 1.)	1000 MOhm @ 500 VDC
Temperature behaviour of signal	max. ± 0.8 % V_{out} x FS

Mechanical and Environmental Data

Mechanical stroke 1.)	approx. 34 mm
Lifespan (90% Effective electrical stroke) 2.)	
Without spring return	≥ 100 Mio. rod movements
With spring return	approx. 20 Mio. rod movements
Bearing	Sleeve bearing
Max. operational speed	1.76 m/s
Operational torque @ ambient temperature 1.) 2.)	
Without spring return	≤ 0.6 N
With spring return	ca. 2.5 N
Operating temperature range	-40 °C up to +105 °C (increased temperature range on request)
Storage temperature range	-40 °C up to +105 °C
Protection grade (IEC 60529)	IP65
Protection grade push rod (IEC 60529) standard	No sealing (IP40 equivalent)
Vibration (IEC 68-2-6, Test Fc)	20 g (10..2000 Hz, 12 h)
Shock (IEC 68-2-27, Test Ea)	100 g (6 ms, 18x)
Connection type	Single strands AWG24 150 ±20 mm
Mass	approx. 44 g

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Mechanical and Environmental Data

Fastening parts not included in delivery	2 x M3
Material shaft	Stainless steel
Material housing	Plastic

- 1.) According IEC 60393
- 2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Emission / Immunity

EMS	100 V/m (80 Mhz ~ 1 GHz, 1kHz with 80% Amplitude modulation)
ESD IEC 61000-4-2	± 8 kV contact discharge ± 15 kV aerial discharge

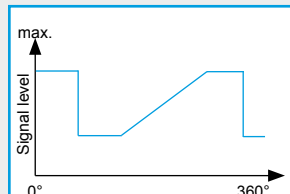
Order code

Description	Selection: standard=black/bold , possible <i>options=grey/italic</i>						
Series:	LHK						
Spring return: Without spring return With spring return		- R					
Output signal: Analog			A				
Variants output signal: Single output Redundant cross output (second output inverted) <i>Option redundant parallel output</i>				- X P			
Effective electrical stroke: 30 mm					30		
Electrical connection: Strands AWG25 length 150 mm <i>Option strand length in m</i>						K <i>Kx,xx</i>	
Supply voltage / Output signal: VSUP=5 V (4,5..5 V) / OUT=0,5..4,5 V							0545

For higher quantities or on-going demand, additional options are available as described below

For example:

- Machined rod
- Special cable
- Low current consumption



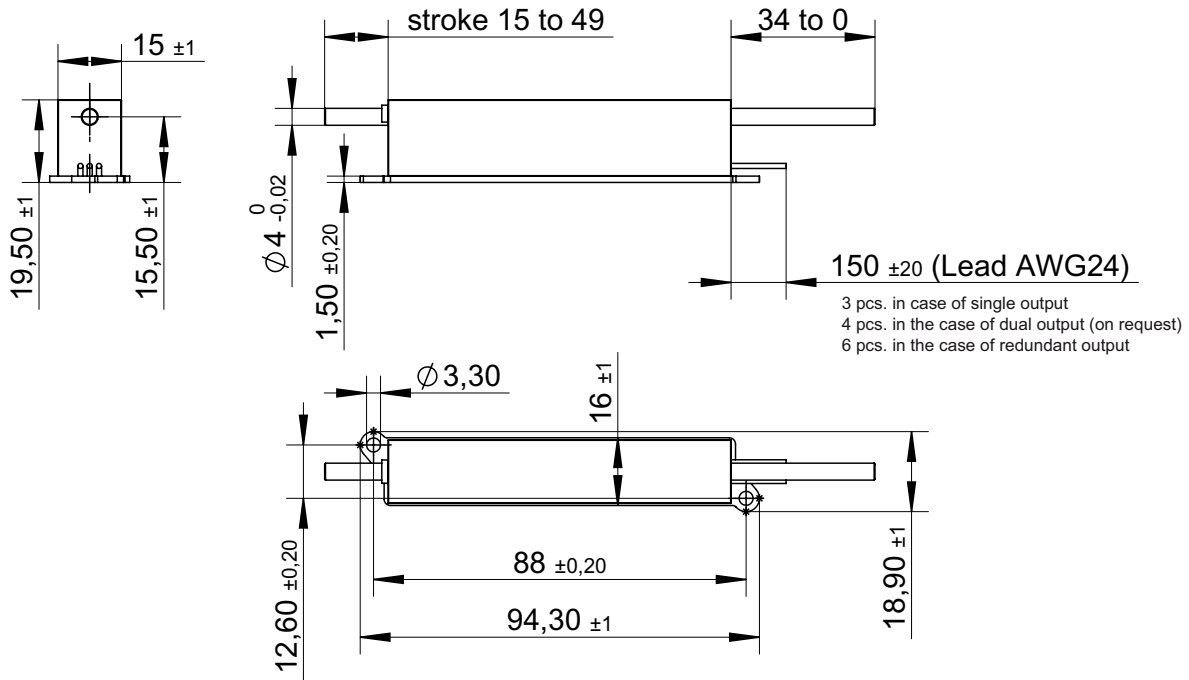
Customized programming of the output signal

For example:

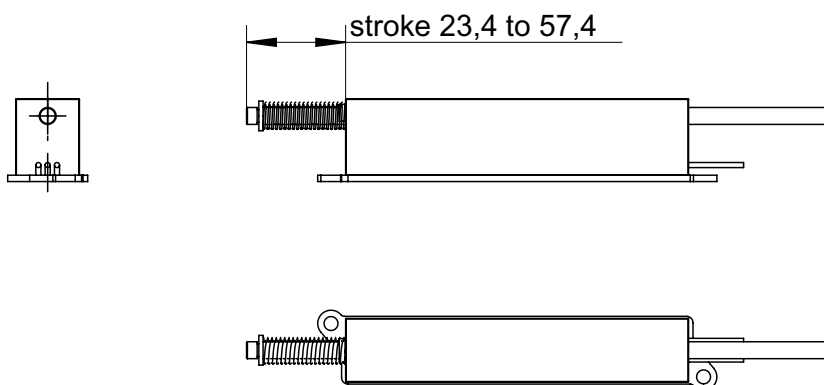
- Other minimum and maximum signal level
- Inverted signal
- Signal plateaus

Drawing

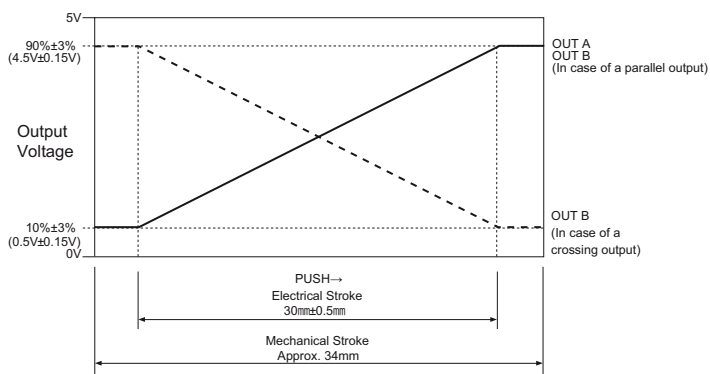
Without spring return:



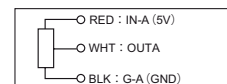
With spring return:



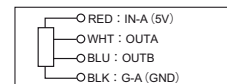
Dimensions in mm



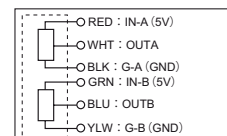
Single output



On request dual output

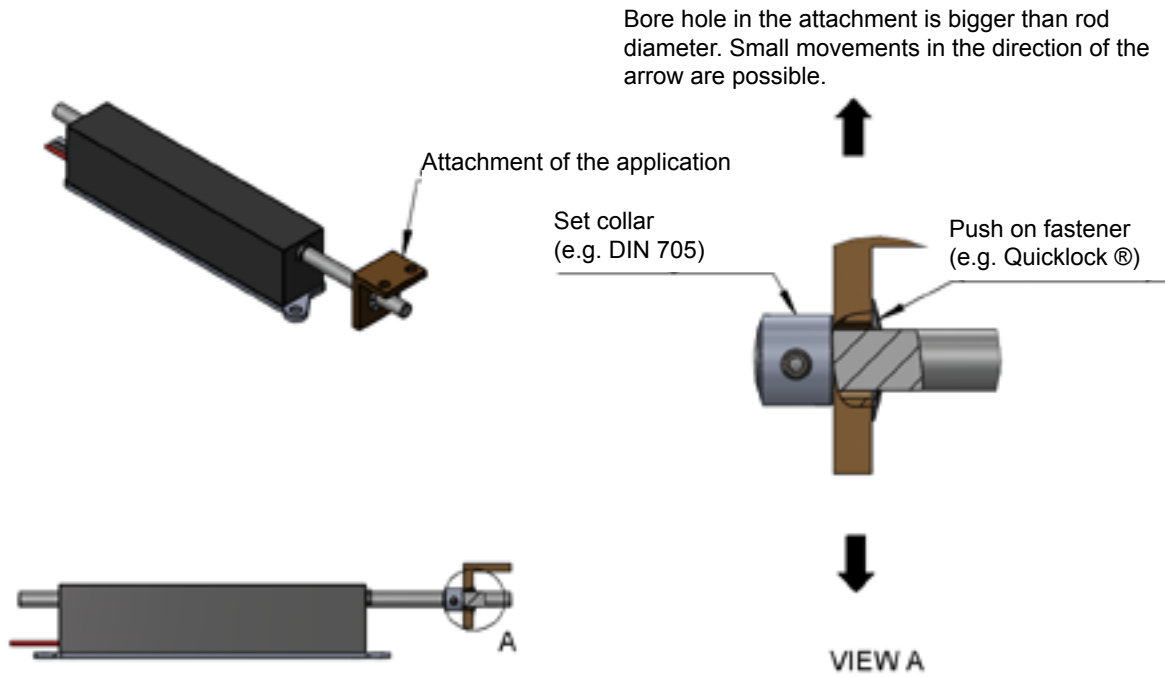


Redundant output



Installation suggestion

Without spring return:



With spring return:

