

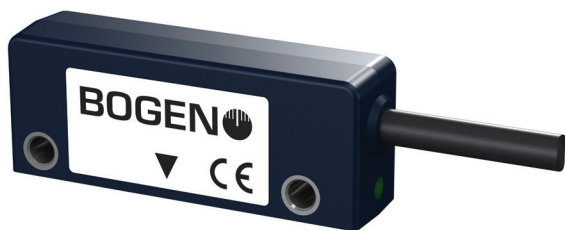


Measuring



Positioning

## IKS15 Analog Magnetic Sensing Head



- Linear applications
- Rotary applications
- Non contact, quick position measurement

### Features

- High accuracy
- Software programmable interface
- Connector options with multiple cable lengths
- No wear from usage
- Resistant to dust, cooling lubricant emulsion, oil, etc.
- High fly height tolerance
- Unlimited measuring length

### Analog measuring with the IKS15 – fast signal for multiple controllers

The IKS15 impresses customers in automation, instrumentation and motion control applications with an extremely high accuracy and a particularly high degree of modularity. BOGEN offers different variants of IKS15 that can be configured to customer-specific requirements. In combination with BOGEN precision scales, measurement solutions for almost every application can be custom-tailored.

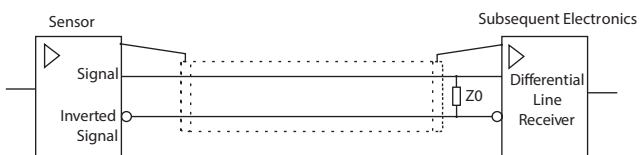
Features

Signal bandwidth	up to 1 MHz
Max. Movement Speed	up to 5000 m/s, depending on the pole pitch, resolution and Max Output Frequency (maximum movement speed of P 0.5 is 500 m/s; P 1 is 1000 m/s; P 2 is 2000 m/s; P 2.54 is 2540 m/s; P 5 is 5000 m/s)
Energy consumption (without Load)	<50 mA (UB = 5 V)
Operating temperature	-20 to +70 °C
Storage temperature	-20 to +80 °C
Protection class	IP67
LED	green LED = set up ok red LED = LED Error Mode see order code on page 5
Adjustable parameters	Interface (with optional programming device and the appropriate software)
Weight	Weight IKS15 (plastic case) ~60g (L2 T1 C4 standard quality cabel with length 2 m; connector D-SUB 15) Weight IKS15.1 (metal case) ~75g (L2 T1 C4 standard quality cabel with length 2 m; connector D-SUB 15)

Sensing Head Variants

Pole pitch	0.5 mm; 1 mm; 2 mm; 2.54mm; 5 mm
Reference	Reference chip for 2nd track (except for 0.5 mm pole pitch) or periodically from the pole pitch
Supply voltage	V5 = 5 V ± 5 % V7 = 7 - 32 V
Interface (without load)	D4 = 1 Vpp D5 = 2 Vpp
Cable length of sensing head	Standard 2 m, optional variable length from 10 cm up to 6 m
Connector	plug according to order code, other options on request

Output Circuit

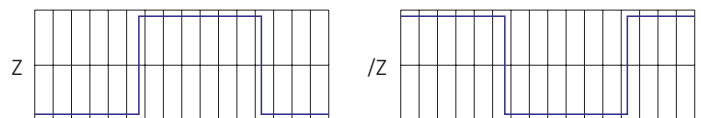
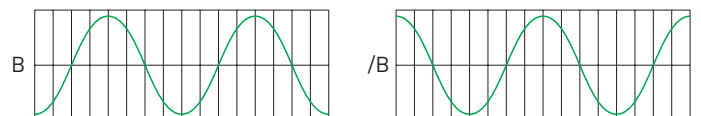
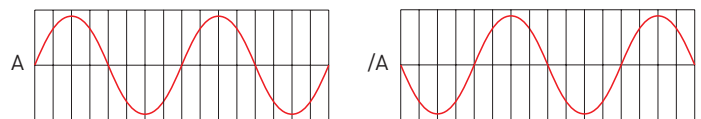


Load resistor 1 Vpp Z0 = 100 Ω, 2 Vpp Z0 = 1 kΩ at the receiving end

Output Signals

Signals	Cosinus (A,/A), Sinus (B,/B), Index (Z,/Z)
Signal error indicator	output signals (A, /A, B, /B, Z, /Z)

Output Signals



Z Length depend on magnetic pole length

LED Error Codes (Order Parameter E1)

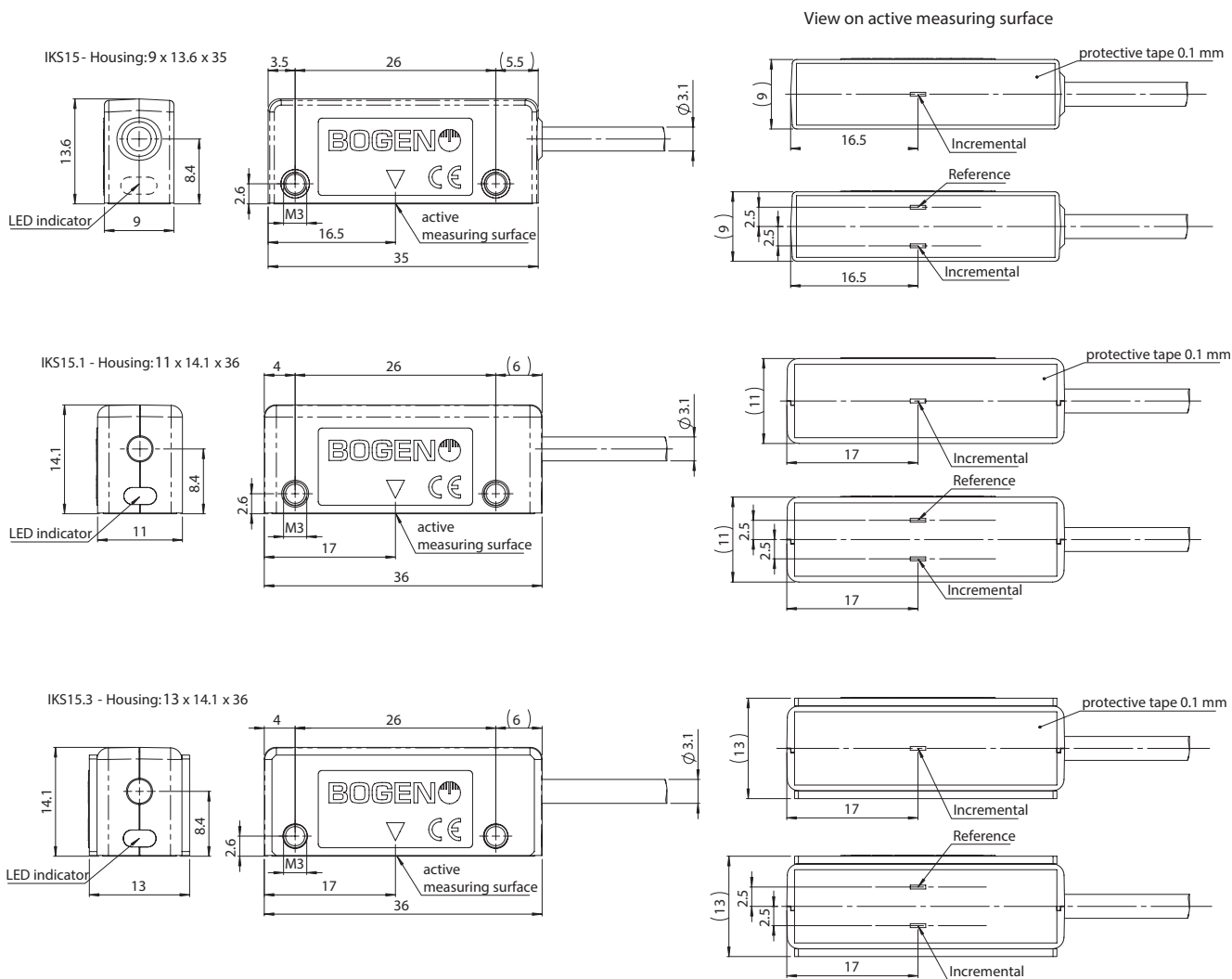
The amount of flashing signs of the red LED indicates the fault. It starts after a fast pulsed light.



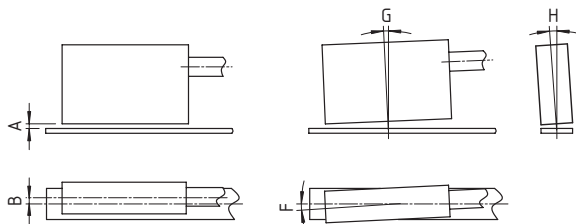
The example displays a weak and fluctuating magnetic field (fault 2 and 3).

LED flashing signs amount	Description
1, 2	Magnetic field error
3	The range of the magnetic fluctuation is too large
4	Output frequency is too high
5	Movement speed is too high
6	Movement speed is much too high (latched)
7, 8	Movement speed too high for internal signal processing with current programming (latched)
9, 10, 11	Internal Error 9, 10, 11 (latched)

Dimensions



Installation Tolerances



	Pole Pitch 0.5 mm	Pole Pitch 1 mm	Pole Pitch 2 mm	Pole Pitch 2.54 mm	Pole Pitch 5 mm
A [mm]	0.1 to 0.25	0.1 to 0.5	0.1 to 1.0	0.1 to 1.25	0.1 to 2.5
B <sup>(1)</sup> [mm]	2.5	2.5	2.5	2.5	2.5
B <sup>(2)</sup> [mm]	0.5	0.5	0.5	0.5	0.5
G	0.5°	1°	1°	1°	1°
H	3°	3°	3°	3°	3°
F	3°	3°	3°	3°	3°

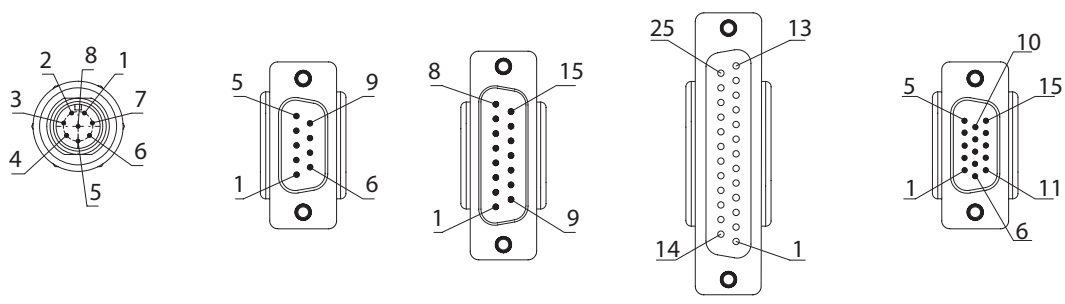
<sup>(1)</sup> relative to 10 mm scale width (1-track)

<sup>(2)</sup> relative to 10 mm scale width (2-track)

Pin Assignment

Signal	Color	Pin No.				
		C2 M12 plug (male)	C3 D-SUB 9 (male)	C4 D-SUB 15 (male)	C5 D-SUB 25 (female)	C6 D-SUB 15 HD (male)
V -	blue	1	9	2	2 + 16 <sup>[3]</sup>	2
V +	red	2	5	7	1 + 14 <sup>[3]</sup>	7
Cos	A	3	4	14	3	14
	/A	4	8	6	4	6
Sin	B	5	3	13	6	13
	/B	6	7	5	7	5
Z	pink	7	2	12	17	12
/Z	white	8	6	4	18	4
Shield	-	1	Case	Case	Case	Case + 15

<sup>[3]</sup> PIN 1 with Pin 14 and Pin 2 with Pin 16 connected through solder bridge



C2: M12 plug (male)    C3: D-SUB 9 (male)    C4: D-SUB 15 (male)    C5: D-SUB 25 (female)    C6: D-SUB 15 HD (male)

Optional Accessory – Order Codes for Linear Scales, 10 mm Width<sup>[4]</sup>

Pole Pitch	Accuracy A3	Accuracy A10	Accuracy A20	Accuracy A40 (standard)
0.5	KBEE10-0.5-A3K	KBEE10-0.5-A10K	KBEE10-0.5-A20K	KBEE10-0.5-K
1	KBEE10-1-A3K	KBEE10-1-A10K	KBEE10-1-A20K	KBEE10-1-K
2	KBEE10-2-A3K	KBEE10-2-A10K	KBEE10-2-A20K	KBEE10-2-K
2.54	KBEE10-2.54-A3K	KBEE10-2.54-A10K	KBEE10-2.54-A20K	KBEE10-2.54-K
5	KBEE10-5-A3K	KBEE10-5-A10K	KBEE10-5-A20K	KBEE10-5-K

<sup>[4]</sup> Scale dimensions: 10 mm x 1.3 mm (w/o cover tape), length up to 50 m. Other accuracies, other pole pitches, other scale widths and scales with reference track on request. See separate data sheet for linear scales for further possibilities.

Optional Accessory –Rotary Scales

See separate data sheet for rotary scales for further possibilities.

Order Code

Parameters

 IKS15 W - Z P V D L T C E

		Code <sup>(5)</sup>	Explanation <sup>(5)</sup>
<b>W</b>	<b>Width [mm]</b>		9 mm (Plastic case)
		.1	11 mm (Metal case)
		.3	13 mm (Metal case)
<b>Z</b>	<b>Reference Signal <sup>(8)</sup></b>	<b>Z0</b>	<b>Without periodic index signal <sup>(7)</sup></b>
		Z2	From reference marks (requires 2-track magnetic tape with incremental track and reference track)
<b>P</b>	<b>Pole Pitch [mm]</b>	P0.5	0.5 mm (not interoperable with Z2)
		P1	1 mm
		<b>P2</b>	<b>2 mm</b>
		P2.54	2.54 mm
		P5	5 mm
<b>V</b>	<b>Supply Voltage [V]</b>	<b>V5</b>	<b>5 V</b>
		V24	7...32 V (on request only)
<b>D</b>	<b>Interface <sup>(6)</sup></b>	<b>D4</b>	<b>1 Vpp</b>
		D5	2 Vpp
<b>L</b>	<b>Cable Length [m]</b>	L1	1 m
		<b>L2</b>	<b>2 m</b>
		L3	3 m
		L...	... m
		L6	6 m
<b>T</b>	<b>Cable Type</b>	T1	Standard quality (3.1 mm diameter)
		<b>T2</b>	<b>Drag chain quality</b>
<b>C</b>	<b>Connector (others on request)</b>	C2	M12 plug (male) (on request only)
		C3	D-SUB 9 (male)
		<b>C4</b>	<b>D-SUB 15 (male)</b>
		C5	D-SUB 25 (female)
		C6	D-SUB 15 HD (male)
		C99	Customer specific connector.
<b>E</b>	<b>LED Mode <sup>(6)</sup></b>	E0	LED Green: Best performance LED RED: Error signalization with LED on
		<b>E1</b>	<b>LED Green: Best performance</b> <b>LED RED: Error signalization with blinking codes, see on page 2</b>

<sup>(5)</sup> standard parameters are bold<sup>(6)</sup> user programmable parameters (optional IKS-Programming device necessary)<sup>(7)</sup> please do not connect pin "Z" an "/Z" on delivered connector<sup>(8)</sup> Z Length depend on magnetic pole length

## Ordering Example

IKS15-Z0P2V5D4L2T2C4E1

IKS15 Magnetic Sensing Head, width 9 mm, without periodic index signal, 2 mm pole pitch, voltage 5 V, interface 1 Vpp, cable length 2 m, standard cable, D-SUB 15 (male) connector, error signalization with blinking error codes

BOGEN can provide customised resolutions and cables. Here is an ordering example for a customized order code:

IKS15.1-Z2P2V5D5L0.3T2C4E1

IKS15 Magnetic Sensing Head, width 11 mm, with periodic index, 2 mm pole pitch, voltage 5 V, interface 2 Vpp, cable length 0.3 m, standard cable, D-SUB 15 (male) connector, error signalization with blinking error codes