CONTACTLESS MAGNETOSTRICTIVE LINEAR POSITION TRANSDUCER WITH REMOTE ELECTRONICS (ANALOG OUTPUT)



GEFRAN

RK-A

Main characteristics

- Absolute transducer with remote electronics structure
- Sensor available in three different mechanical versions
- Strokes from 50 to 4000mm
- Analog output in voltage or current for measuring shift and speed
- Cursor position: single or double (minimal distance 75mm).
- Operating temperature: -30...+90°C
- Resistance to vibration (DIN IEC68T2/6 20g)
- IP67 protection
- EMI CE compatibility (EN 50081-2 50082-1)
- Power supply range 10...30 Vdc
- Optional adjustment of zero and full-scale over 100% of stroke by means of "magnetic pen"
- Connection to remote electronics with connector or terminal board (PUR 5 mm diameter wire)
- Max. distance between remote electronics and sensor: 50 m

Contactless linear position transducer with magnetostrictive technology with analog output.

The separate, remote electronics (up to a maximum of 50 metres) reduces sensor size to a minimum and facilitates installation in the cylinder.

The sensing element is available in three versions for adaptation to different mechanical installation requirements.

The overall dimensions of the sensor are among the smallest available on the market.

Excellent linearity, repeatability, resistance to mechanical vibrations and shocks complete the product's specifications overview

TECHNICAL DATA	
Model	from 50 to 4000 mm
Measurement taken	Displacement / Speed
Position read sampling time (typical)	1 ms
Speed range	0.1 10 m/s
Accuracy speed	< 2% (in all F.S.)
Speed calculation time	Sampling time + 500µsec
Shock test DIN IEC68T2-27	100g, 11ms single shock
Vibrations DIN IEC68T2-6	20g, 102000Hz
Displacement speed	≤10 m/s
Max. acceleration	≤ 100 m/s ² displacement
Resolution	16 bit
Working pressure RK-1 and RK-3	350 bar (peak max 500 bar)
RK-2	700 bar (peak max 1000 bar)

ENVIRONMENTAL DATA

TECHNICAL DATA

Protection	IP 67
Operating temperature	-30°+90°C
Storage temperature	-40°+100°C
Coeffcient temperature	0.005% F.S. / °C

ELECTRICAL DATA

Output signal	010V (N,P,Y)	420mA (E,F,H)		
	05V (K)	020mA (B,C,D)		
Nominal power supply	1030Vdc	1030Vdc		
Max. power ripple	1Vpp	1Vpp		
Input	Depends on power supply voltage:			
	max 70mA with	power supply of		
	30Vdc *			
	max 85mA with	n power supply of		
	24Vdc *			
	max 110mA wi	th power supply of		
	18Vdc **			
	max 200mA wi	th power supply of		
	10Vdc **			
	* peak 0,2A at po	ower-up		
	** peak 0,4A at p	ower-up		
Output load	2KΩ	< 500Ω		
Max. output ripple	< 5 mV pp	< 5 mV pp		
Max. output value	10.6 V	25 mA		
Electrical isolation	200 V	200 V		
Protection against	Yes	Yes		
polarity inversion				
Protection against	Yes	Yes		
overvoltage				
Self-resetting	Yes	Yes		
internal fuse				

MECHANICAL DIMENSIONS (RK-1 and RK-2)



MECHANICAL DIMENSIONS (RK-3)



MECHANICAL DIMENSIONS (EKA)



MOUNTING INSIDE A CYLINDER (RK-1 and RK-2)



MOUNTING INSIDE A CYLINDER (RK-3)



ELECTRICAL / MECHANICAL DATA

Model		50 100 130 150 200 225 300 400 450 500 600 700 750 800 900 1000 1250 1500 1750 2000 2250 2500 2750 3000 3250 3500 3750 4000		
Electrical stroke (C.E.)	mm	Model		
Independent linearity	± %F.S.	typical 0,02 (Max. 0,04)		
Max. dimensions (L)	mm	Model + 131,5 (excluding cable)		
Repeatability	mm	< 0,01		
Hysteresis	mm	< 0.01		
Sampling time	mm	1 (1.5 for stroke from 1100 to 2000) (2 for stroke from ≥2000)		

ELECTRICAL CONNECTIONS





RK-_-___-S-EKA-_-B-_-_

Function	EKAM M12 5-pin	EKAB M16 6-pin DIN 45322	Optional cable for M12
Output 1 (displacement)			
010V			
05V	1	1	Brown
420mA			
020mA			
GND shift 1			
(0V)	2	2	White
Output 2			
(reverse displacement, or second cursor or speed,			
depending on the model			
010V	3	3	Blue
05V			
420mA			
020mA			
GND shift 1/2			
(0V)	2	4	White
Power supply +	5	5	Grey
Power supply -	4	6	Black

CALIBRATION WITH MAGNETIC PEN (option RK- _ - _ _ _ -S-EKA-D- _ - _ - _)

The magnetic pen is needed to calibrate the useful stroke of the transducer in a manner other than as configured in the factory (default).

• CALIBRATION OF ZERO POINT

when the magnet is at the required zero point, position the magnetic pen in the ZERO zone for a time between 0.5 and 10 seconds.

• CALIBRATION OF FULL-SCALE POINT

when the magnet is at the required full-scale point, position the magnetic pen in the FS zone for a time between 0.5 and 10 seconds.

SAVING THE NEW CALIBRATION

position the magnetic pen in the ZERO or FS zone for a time between 10 and 60 seconds. The programmed configuration will be saved and active at the next power-up.

• RESTORING FACTORY DEFAULT CALIBRATION

position the magnetic pen in the ZERO or FS zone for more than 60 seconds. This will restore the original factory calibration in the internal EEPROM.



F.F.S.O: 10V, 20mA, 0mA, +10V, +5V

INTERCONNECTION BETWEEN PRIMARY SENSOR AND REMOTE ELECTRONICS





Attention:

do all wiring BEFORE powering the electronics (i.e., with unit off).

ORDER CODE

ansducer RK		
Head type		Output of speed
Internal flange, max 350 bar	1	Only for analogic output
Internal flange, max 700 bar	2	option C, F, P
Threaded external flange	3	Max. measurable speed: 0.1 ÷ 10.0 m/s
Model		00.0 Function not required
Analog output		Power supply
Analog output with zero and		S 10 30V (standard)
span setting	D	
Output connector type		Connection cable to remote element
M12 5-pin connector output	M	
DIN45322 6 pin		00 = 1 mt 02 = 2 mt 03 = 3 mt
connector output B		04 = 4 mt 05 = 5 mt 10 = 10 mt
Type of connection to the primary sensor		Threading
Internal screw terminal	R	None (RK-1 and RK-2) X
M12 - 8 pin connector	M	M18 x 1,5 (RK-3 standard) M 3/4"-16LINE (RK-3 option) L
Output		
Output 010Vdc 1 Cursor, double	output position (standard)	
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio	output position (standard) n and speed	N P
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio 010Vdc 2 Cursors	output position (standard) n and speed	N P Y
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio 010Vdc 2 Cursors 420mA 1 Cursor, double	output position (standard) n and speed output position	N P Y E
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio 010Vdc 2 Cursors 420mA 1 Cursor, double 420mA 1 Cursor, osition	output position (standard) n and speed output position and speed	N P Y E F
Output010Vdc1 Cursor, double010Vdc1 Cursor, positio010Vdc2 Cursors420mA1 Cursor, double420mA1 Cursor, osition420mA2 Cursors	output position (standard) n and speed output position and speed	N P Y E F H
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, position 010Vdc 2 Cursors 420mA 1 Cursor, double 420mA 1 Cursor, osition 420mA 2 Cursors 420mA 1 Cursor, osition 420mA 2 Cursors Available on request 1	e output position (standard) n and speed output position and speed	N P Y E F H
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio 010Vdc 2 Cursors 420mA 1 Cursor, double 420mA 1 Cursor, osition 420mA 2 Cursors 420mA 2 Cursors Available on request 020mA 1 Cursor, double 120mA	e output position (standard) n and speed output position and speed output position	N P Y E F H B B
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio 010Vdc 2 Cursors 420mA 1 Cursor, double 420mA 1 Cursor, osition 420mA 1 Cursor, osition 420mA 2 Cursors Available on request 020mA 020mA 1 Cursor, double 020mA 1 Cursor, double	e output position (standard) n and speed output position and speed output position and speed	N P Y E F H B C Mechanical and/or electrical characteristics differing
Output 010Vdc 1 Cursor, double 010Vdc 1 Cursor, positio 010Vdc 2 Cursors 420mA 1 Cursor, double 420mA 1 Cursor, osition 420mA 1 Cursor, osition 420mA 1 Cursor, osition 420mA 1 Cursor, double 020mA 1 Cursor, double 020mA 1 Cursor, double 020mA 1 Cursor, osition 020mA 1 Cursor, osition 020mA 2 Cursors	e output position (standard) n and speed output position and speed output position and speed	N P Y E F H B C D Mechanical and/or electrical characteristics differing from those in the standard version may be arranged on the standard version may be arranged

FLOATING CURSOR (to order separately)



OPTIONAL FEMALE CONNECTORS (to order separately)



OPTIONAL CABLES OUTPUT (to order separately)

Cable code (fo	or RK	S-EKA	M)
Length "L"	CODE		
		Straight cable	Cable to 90°
2	mt	CAV011	CAV021
5	mt	CAV012	CAV022
10	mt	CAV013	CAV023
15	mt	CAV015	CAV024

ACCESSORIES (to order separately)

RK sensor (see Order Code details)
RK-A electronics (see Order Code details)
M12, 8-pin axial male connector for interconnection
Magnetic pen to calibrate remote electronic (model RK-A-D)
Non-magnetic spacer for mounting PCUR022 cursor
Cable clamp

RK-_-___-S 0000X000X __X0XX EKA-_-_- 0000X _ _ S00X0XX CON460 PKIT312 available soon PRE064



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