

# MK4 A

CONTACTLESS MAGNETOSTRICTIVE LINEAR POSITION TRANSDUCER  
(ANALOG OUTPUT)



## TECHNICAL DATA

Model	from 50 to 4000 mm
Measurement taken	Displacement / Speed
Position read sampling time (typical)	1 ms
Speed measurement range	min 0 .. 0,1 m/s max 0 .. 10 m/s
Accuracy speed	< 2% (in all F.S. )
Shock test DIN IEC68T2-27	100g - 11ms - single shock
Vibrations DIN IEC68T2-6	12g / 10...2000Hz
Displacement speed	≤10 m/s
Max. acceleration	≤ 100 m/s <sup>2</sup> displacement
Resolution	INFINITE (only limited from the electrical noise)
Cursor (see note)	Sliding cursor Floating separate cursor
Working temperature	-30...+75°C
Storage temperature	-40...+100°C
Coefficient of temperature	0.005% F.S. / °C
Protection	IP67

Note: 1) For strokes > 2500 mt use sliding or floating cursors with max. distance of 4mm  
2) For multi-cursor versions, the cursors have to work under the same distance and temperature conditions

## ELECTRICAL DATA

	0...10V (N) -10...+10V (T) -5...+5V (L)	4...20mA (E) 0...20mA (B)
Output signal	24 Vdc ±20% (opt. 15V ±10%)	24 Vdc ±20% (opt. 15V ±10%)
Nominal power supply	1Vpp	1Vpp
Max. power ripple	70mA	90mA
Max. input	2KΩ	< 500Ω
Output load	< 5 mV pp	< 5 mV pp
Max. output ripple	10.6 V	25 mA
Max. output value	500 V	500 V
Electrical isolation	Yes	Yes
Protection against polarity inversion	Yes	Yes
Protection against overvoltage	Yes	Yes
Self-resetting internal fuse	Yes	Yes

## Main characteristics

- Absolute transducer
- Contactless transducer for longer lifetime
- Strokes from 50 to 4000mm
- Quick plug-in through stainless steel connectors
- Sliding or floating magnetic cursor
- Direct analog output (mA/V) for displacement and speed
- Cursor position: single or double (minimal distance 75mm)
- Work temperature: -30...+75°C
- Resistance to vibration (DIN IEC68T2/6 12g)
- IP67 protection
- EMI CE compatibility (EN 50081-2 50082-1)
- Power supply 24Vdc ±20%
- Improved internal structure with security set screws

Contactless linear position transducer with magnetostrictive technology.

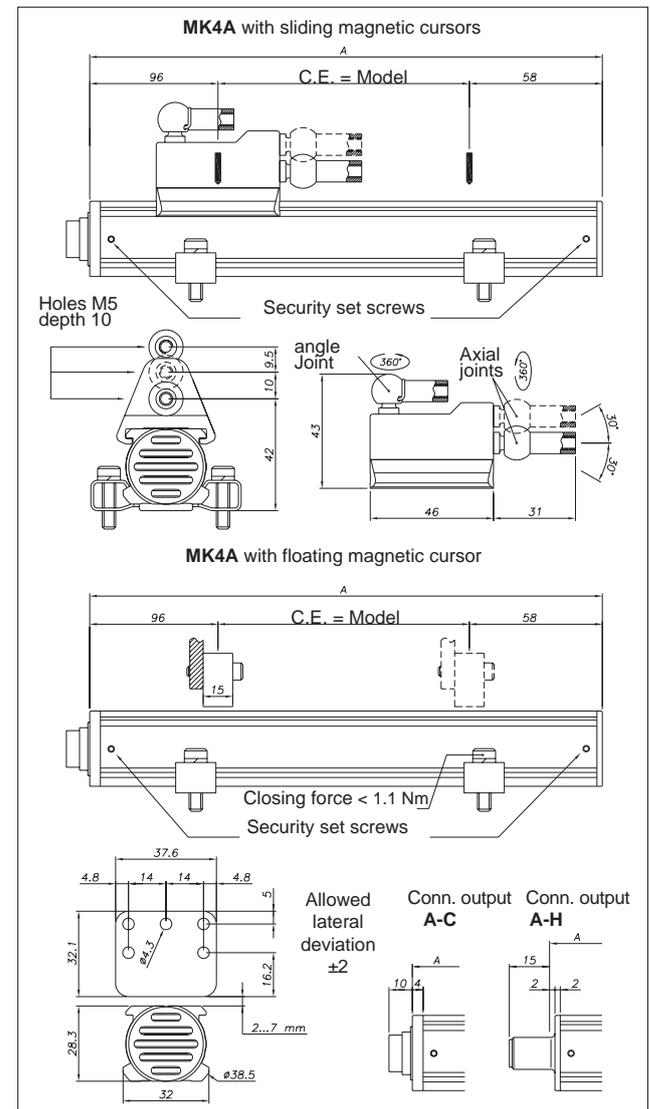
The absence of electrical contact on the cursor eliminates all wear and guarantees almost unlimited life.

Compact size for simple installation.

Full protection against outside agents for use in harsh environments with high contamination and presence of dust.

Excellent linearity, repeatability, resistance to mechanical vibrations and shocks.

## MECHANICAL DIMENSIONS

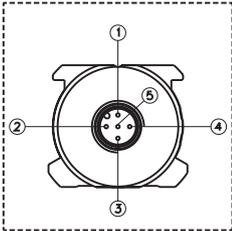


## ELECTRICAL / MECHANICAL DATA

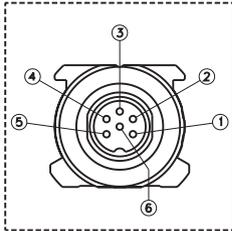
<b>Model</b>		50	75	100	130	150	175	200	225	250	300	350	360	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1250	1300	1400	1500					
																							1750	2000	2250	2500	2750	3000	3250	3500	3750	4000					
Electrical stroke (E.S.)	mm	<b>Model</b>																																			
Independent linearity	± % FS	typical 0,02 (Max. 0,04)																																			
Max. dimensions (A)	mm	<b>Model + 152</b>																																			
Repeatability	mm	< 0,01																																			
Hysteresis	mm	< 0,01																																			
Sampling time	ms	<b>0,5</b> (1 for stroke from 300 to 1100) <b>(1,5</b> for stroke from 1100 to 2000) <b>(2</b> for stroke >2000) <b>(3</b> for stroke >3000)																																			

## ELECTRICAL CONNECTIONS

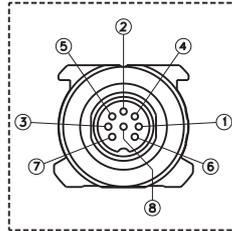
OUTPUT MK4A A



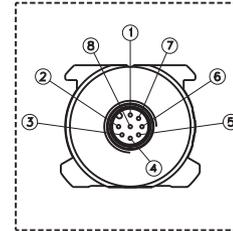
OUTPUT MK4A B



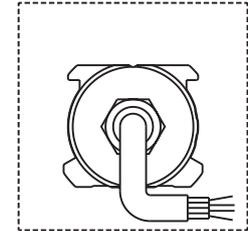
OUTPUT MK4A C



OUTPUT MK4A H



OUTPUT MK4A F

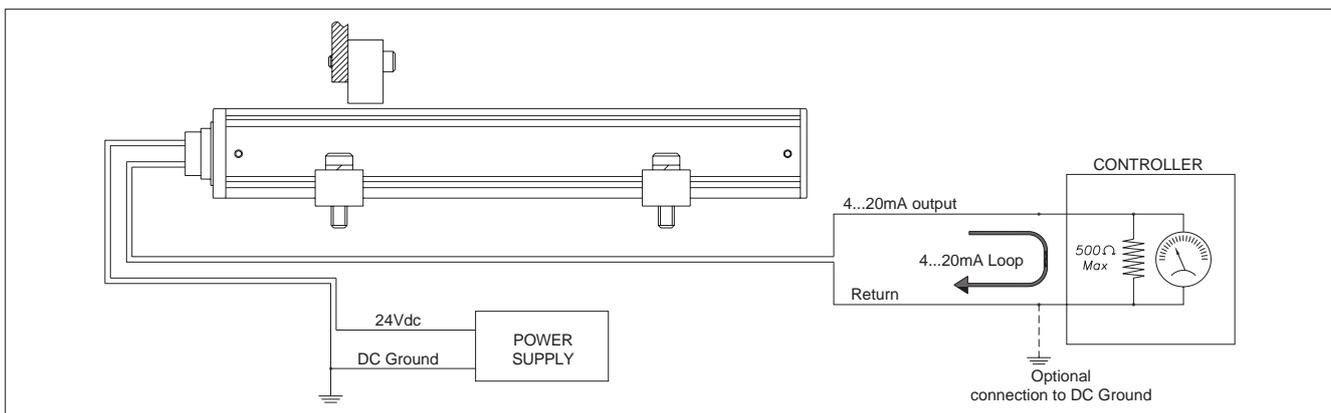


Function	CONNECTORS				CABLES	OPTIONAL CABLES	
	MK4A	MK4B	MK4C	MK4H	MK4F	MK4A	MK4H
	5 pin M12	6 pin M16	8 pin M16	8 pin M12	Standard cable	pre-assembled 5 pin	pre-assembled 8 pin
<b>Output cursor 1</b> 0...10V 4...20mA 0...20mA -10...+10V -5...+5V	1	1	5 (1*)	5	Grey	Brown	Green
<b>GND</b> <b>Output cursor 1</b> (0V)	2	2	2	1	Pink	White	Yellow
<b>Inverse output cursor 1</b> <b>Output cursor 2</b> <b>Output speed</b> 0...10V 4...20mA 0...20mA -10...+10V -5...+5V	3	3	3	3	Yellow	Blue	Pink
<b>GND</b> <b>Output cursor 1</b> <b>Output cursor 2</b> <b>Output speed</b> (0V)	2	4	6	2	Pink	White	Grey
<b>Power supply+</b>	5	5	7	7	Brown	Grey	Brown
<b>Power supply GND</b>	4	6	8	6	White	Black	Blue
<b>n.c.</b>	-	-	4	4	-	-	Red
<b>n.c.</b>	-	-	1(5*)	8	-	-	White

(\*) = for version I 4...20mA / 0...20mA

The transducer case must be grounded with the cable sheathing on the control system side only.

## CURRENT OUTPUT CONNECTION

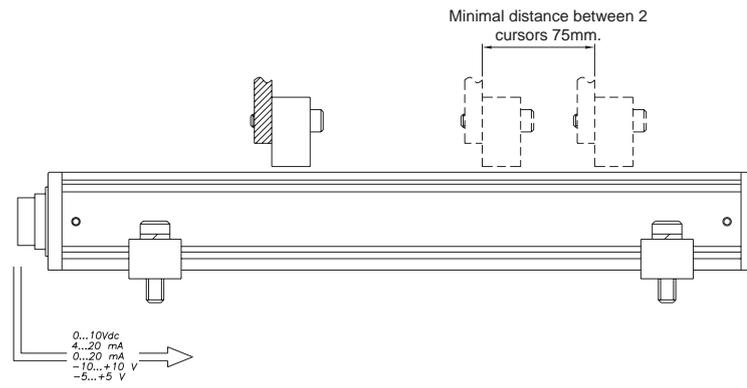


## ANALOG OUTPUT MK4A

Series MK4A magnetostrictive transducers supply a direct analog voltage or current output proportional to 1 or 2 magnetic cursors position and displacement speed.

The output is also provided in reverse action.

Since the outputs are direct, no electronic processing of the signal is required if interfaced with controllers or measurement instruments.



## ORDER CODE

Position transducer **M K 4 A B** [ ] [ ] [ ] [ ] **N**

Analog output **A**

### Connector

DIN45322 6-pin connector output **B**

### Available on request

M12 5-pin connector output **A**

DIN45326 8-pin connector output **C**

M12 8-pin connector output **H**

PVC cable output **F**

### Modello

### Output

0...10Vdc	1 cursor (STANDARD)	<b>N</b>
0...10Vdc	1 cursor, position and speed	<b>P</b>
0...10Vdc	2 cursors (min. stroke 360mm)	<b>Y</b>
4...20mA	1 cursor	<b>E</b>
4...20mA	1 cursor, position and speed	<b>F</b>
4...20mA	2 cursors (min. stroke 360mm)	<b>H</b>
<i>Available on request</i>		
0...20mA	1 cursor	<b>B</b>
0...20mA	1 cursor, position and speed	<b>C</b>
0...20mA	2 cursors (min. stroke 360mm)	<b>D</b>
0...+5Vdc	1 cursor	<b>K</b>
-5...+5Vdc	1 cursor, position	<b>L</b>
-10...+10Vdc	1 cursor, position	<b>T</b>

**0 0 0 0 X 0 0 0 X 0 0 X 0 X X**

### Output of speed

*Only for analogic output option C, F, P*

Maximum measurable speed:  
0.1...10.0 m/s

**00.0** Function not required

<b>00</b>	<b>B, A, C, H Outputs</b>
<i>Output F cable length</i>	
<b>00</b>	1 m
<b>05</b>	5 m
<b>10</b>	10 m
<b>15</b>	15 m

### Ex.: MK4-A-B-0400-N, PKIT090-02, PCUR035-01

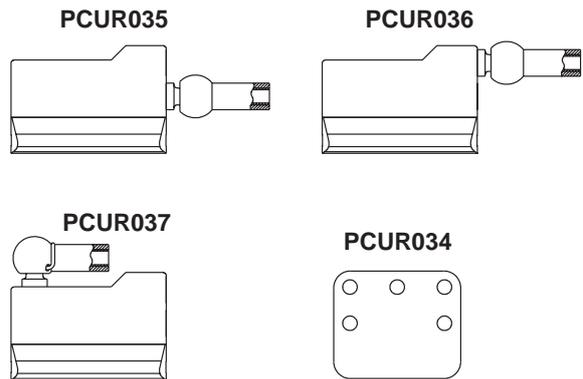
Transducer model MK4, analog output, 6-pin connector, model 400, 0...10Vdc output, n° 2 PKIT090 brackets, n°1 PCUR035 standard cursor.

Mechanical and/or electrical characteristics differing from those in the standard version may be arranged on request.

## CURSORS ON REQUEST

P C U R    0 1

Cursors	
Sliding cursor , axial joint (low) (STANDARD)	035
Sliding cursor, axial joint (high)	036
Sliding cursor, angled joint	037
Floating Cursor	034
Number of cursors	

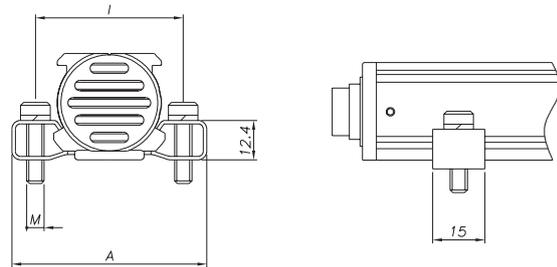


## BRACKET S ON REQUEST



P K I T

Brackets (2 brackets for every kit)	
Bracket in steel, interaxis 42.5mm	090
Bracket in steel, interaxis 50mm	091



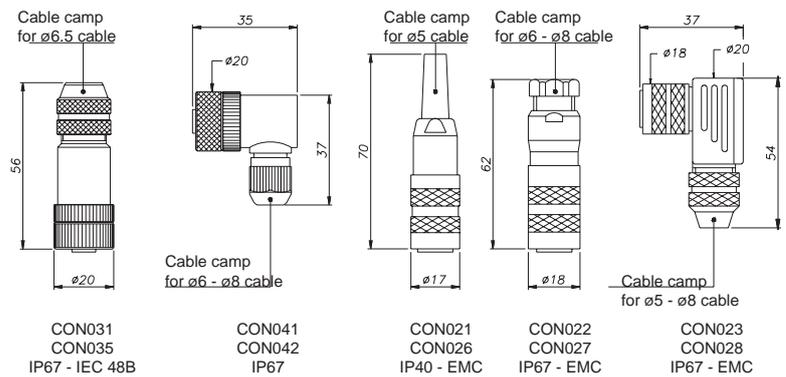
Brackets code	Interaxis (l)	Screw (V)	Dimension (A)
PKIT090	42.5	M4	56
PKIT091	50	M5	63.5

## OPTIONAL FEMALE CONNECTORS

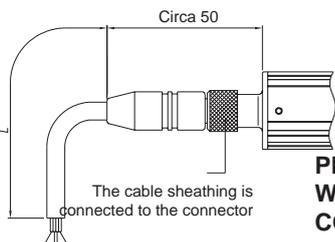
For A-H outputs, M12 thread connector  
 Code: **CON031** for 5-pin output (MK4A A)  
**CON041** for 5-pin output (MK4A A)  
**CON035** for 8-pin output (MK4A H)  
**CON042** for 8-pin output (MK4A H)

For B-C outputs, M16 thread connector  
 Code: **CON021** for 6-pin output (MK4A B)  
**CON022** for 6-pin output (MK4A B)  
**CON023** for 6-pin output (MK4A B)  
**CON026** for 8-pin output (MK4A C)  
**CON027** for 8-pin output (MK4A C)  
**CON028** for 8-pin output (MK4A C)

Connector extraction length: 10mm

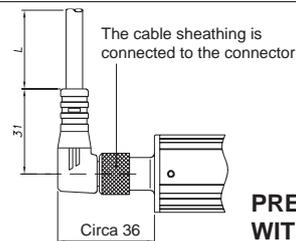


## OPTIONAL CABLES OUTPUT



**PRE-ASSEMBLED CABLE WITH STRAIGHT CONNECTOR**

5-pin cable code		MK4A - A	
Length "L"		CODE	
		straight cable	Cable to 90°
2	mt	CAV011	CAV021
5	mt	CAV012	CAV022
10	mt	CAV013	CAV023
15	mt	CAV015	CAV024



**PRE-ASSEMBLED CABLE WITH 90° CONNECTOR**

8-pin cable code		MK4A - H	
Length "L"		CODE	
		straight cable	Cable to 90°
2	mt	CAV002	CAV005
5	mt	CAV003	CAV006
10	mt	CAV004	CAV007
15	mt	CAV009	CAV008

Authorised Distributors :

**AJAY SENSORS & INSTRUMENTS**  
 No. 45/17, Gubbanna Industrial Garden, 12th 'A' Cross,  
 6th Block, Rajajinagar, Bangalore - 560 010.  
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