

#### Main characteristics

- Optimised mechanical structure
- Strokes from 50 to 4000mm
- Sliding or floating magnetic cursor
- Availability of several analogue outputs (voltage or current) for direct position and speed measurement or reverse measurement (only position)
- Single or double cursors models availability
- Power supply 24Vdc  $\pm 20\%$
- Resistance to vibration (DIN IEC68T2/6 15g)
- IP67 protection
- Work temperature:  $-30...+85^{\circ}\text{C}$
- Electromagnetic compatibility EMC 2014/30/EU
- Compliant to the directive RoHS 2011/65/EU

Contactless linear position transducer with HYPERWAVE magnetostriuctive technology.

The absence of electrical contact on the cursor eliminates all wear and guarantees almost unlimited life. High performance in terms of environmental IP protection and EMC immunity.

High accuracy of the measurement with reference to the non linearity, repeatability and hysteresis. High resistance to vibrations, mechanical shocks for use in a harsh industrial environment.



This symbol present on the product label stands for further indications on product manual. For correct and safe installation, follow the instructions and observe the warnings contained in this manual. No hazards shall arise by any reasonably foreseeable misuse in a way not intended, and not described in this manual.

The complete manual is available for download from the website [www.gefran.com](http://www.gefran.com)  
UL file number E216851

TECHNICAL DATA	
Model	From 50 to 4000 mm
Measurement taken	Displacement / Speed
Position read sampling time (typical)	From 0,5 ms to 3 ms (depending on stroke)
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	15g / 10...2000Hz
Displacement speed	$\leq 10$ m/s
Max. acceleration	$\leq 100$ m/s <sup>2</sup> displacement
Resolution	16 bit (max electrical noise 5 mVpp)
Cursor (see note)	Sliding cursor Floating separate cursor
Working temperature (*)	$-30...+85^{\circ}\text{C}$
Storage temperature	$-40...+100^{\circ}\text{C}$
Coefficient of temperature	0.005% F.S. / $^{\circ}\text{C}$
Protection	IP67

(\*) See possible restrictions in the paragraphs "Electrical connections" and "Accessories on request".

#### Note:

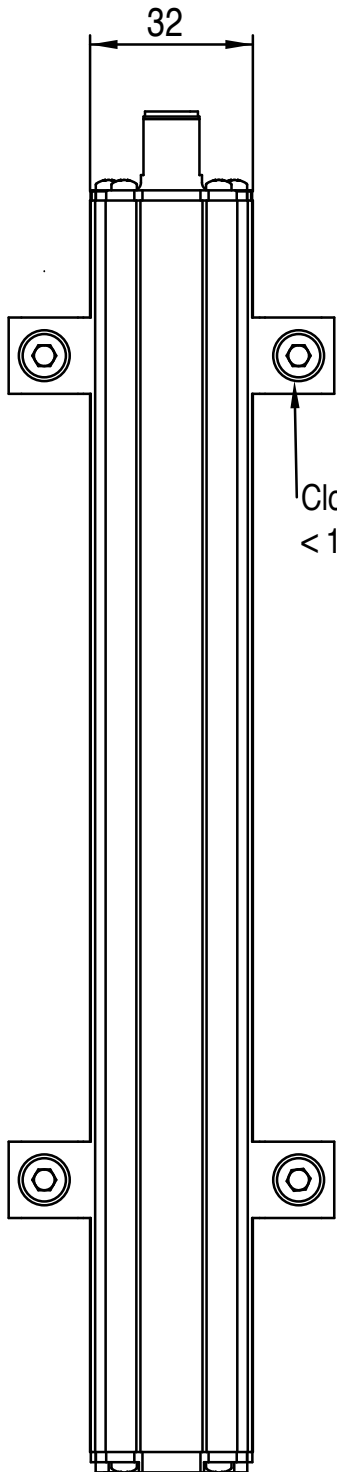
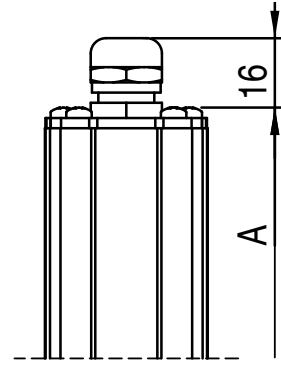
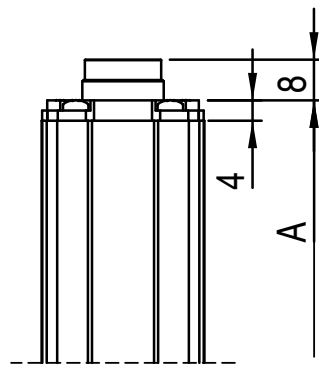
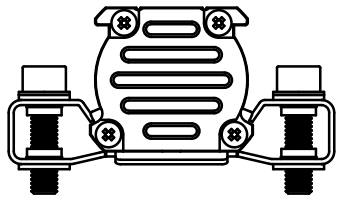
- 1) For strokes > 2500 mt use sliding or floating cursors with max. distance of 4mm
- 2) For multi-cursor versions, the cursors have to work under the same distance and temperature conditions

ELECTRICAL DATA		
Output signal	0...10V (N/P/Y)	4...20mA (E/F/H) 0...20mA (B/C/D)
Nominal power supply	24 Vdc $\pm 20\%$	24 Vdc $\pm 20\%$
Max. power ripple	1Vpp	1Vpp
Max. consumption (**)	70mA	90mA
Max. output load	5k $\Omega$	< 500 $\Omega$
Max. output noise	< 5mVpp	< 5mVpp
Max. output value	12V	30mA
Alarm output value	10.5V	21mA
Electrical isolation	500V (*)	500V (*)
Protection against polarity inversion	Yes	Yes
Protection against overvoltage	Yes	Yes
Protection against power supply in output	Yes	Yes

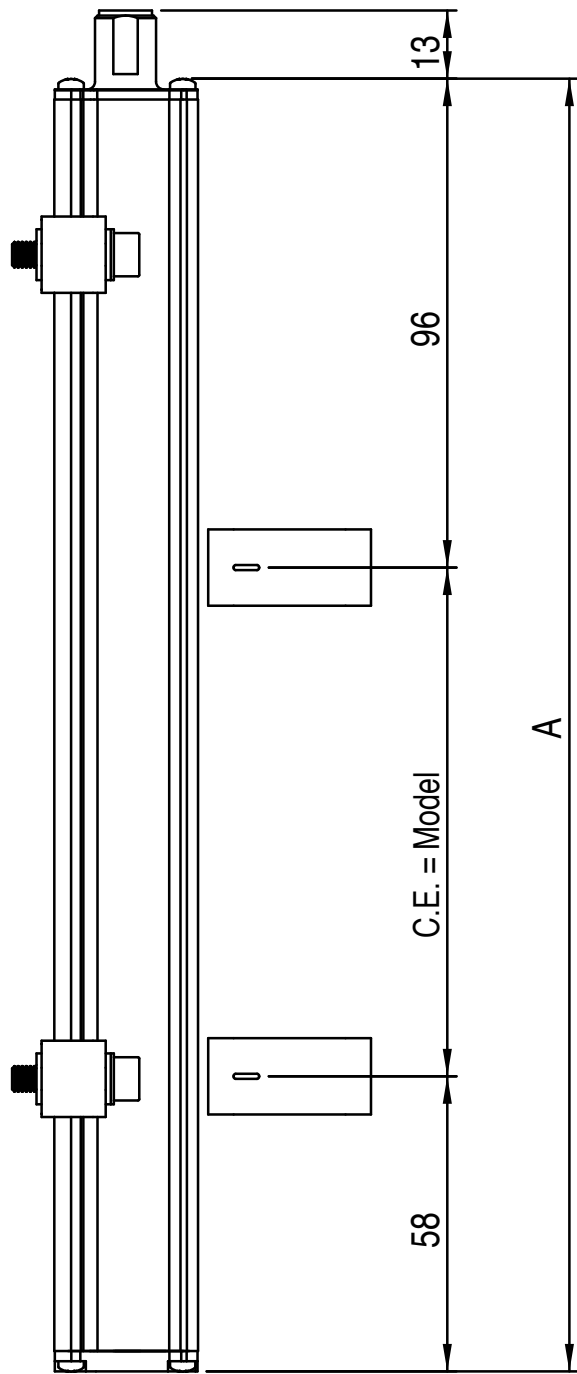
(\*) It includes a 30V 0,4J voltage suppressor

(\*\*) The devices must be supplied with a Class 2 Power Supply (as for NEC) or LPS Power Supply (as for EN 60950). If devices are permanently connected to the machine it's requested an external switch or circuit breaker and external overcurrent protection.

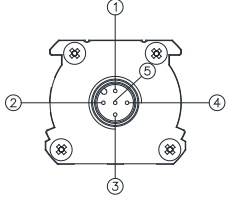
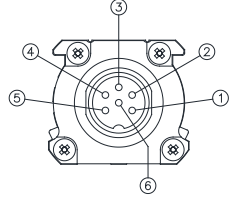
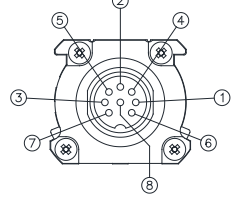
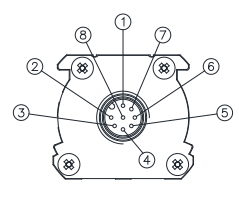
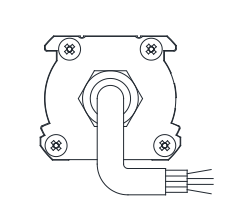
# MECHANICAL DIMENSIONS



Closing force  
< 1.1 Nm



ELECTRICAL / MECHANICAL DATA																										
Model		50	75	100	130	150	350	360	400	450	500	550	600	650	1200	1250	1300	1400	2250	2500	2750	3000	3250	3500	3750	4000
		175	200	225	250	300	700	750	800	850	900	950	1000	1100	1500	1750	2000									
Sampling time	ms	0,5					1							1,5			2			3						
Electrical stroke	mm	Model																								
Independent linearity	± %/FS	Typical: $\pm 0,01$ % FS (min $\pm 0,060$ mm) with sliding cursor max: $\leq \pm 0,02$ % FS with floating cursor at a distance between 2 and 5 mm max: $\leq \pm 0,04$ % FS with floating cursor at a distance between 5 and 7 mm																								
Max.dimensions (A)	mm	Model + 154																								
Repeatability	mm	<0,01 (limited by the resolution of the output value)																								
Hysteresis	mm	<0,01 (limited by the resolution of the output value)																								

ELECTRICAL CONNECTIONS				
OUTPUT WPA-A-A	OUTPUT WPA-A-B	OUTPUT WPA-A-C	OUTPUT WPA-A-H	OUTPUT WPA-A-F/R
				

Function	CONNECTORS				CABLES	OPTIONAL CABLES FOR	
	WPA-A-A	WPA-A-B	WPA-A-C(***)	WPA-A-H	WPA-A-F/R	WPA-A-A	WPA-A-H
	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	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	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
<b>Temperature ratings</b>	-25+80 °C	-30+85 °C	-30+85 °C	-30+85 °C	-30+80 °C / -30+75 °C	-25+80 °C	-25+80 °C

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

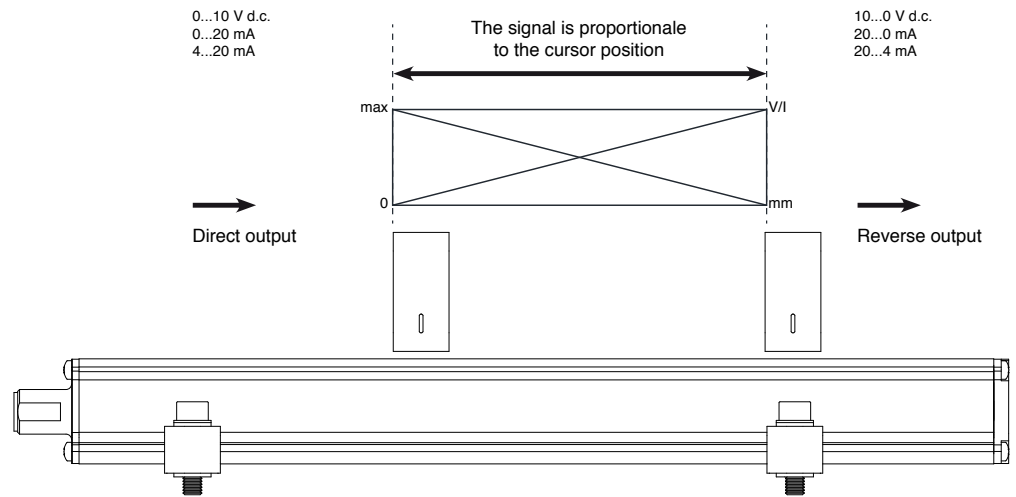
(\*\*) The operating temperature ranges, except where expressly indicated, are also applicable in the UL scope.

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

(\*\*\*) Not available with UL certification.

## ANALOG OUTPUT

The WPA-A magnetostrictive transducers provide a direct and reverse voltage or current analogue output proportional to the magnetic cursor's position. Since the output is direct, no signal electronic processing is required if interfaced with controllers or measurement instruments.



## ORDER CODE

Position transducer

W P A A [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Analog output **A**

### Connector

M12 5-pin connector output **A**

*Available on request*

DIN45322 6-pin connector output **B**

DIN45326 8-pin connector output **C**

M12 8-pin connector output **H**

PVC cable output **F**

PUR cable output high flexibility **R**

### Model

### Output

0...10Vdc	1 cursor	<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 ccursor, 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>

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

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

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

Es.: WPA-A-B-0400-N, PKIT090, PCUR210

Transducer model WPA, analog output, 6-pin connector, model 400, 0...10Vdc output, PKIT090 brackets, PCUR210 standard cursor.

## CURSORS ON REQUEST

PCUR202/PCUR230



Floating Cursor

PCUR210



Sliding cursor,  
axial joint low

PCUR211

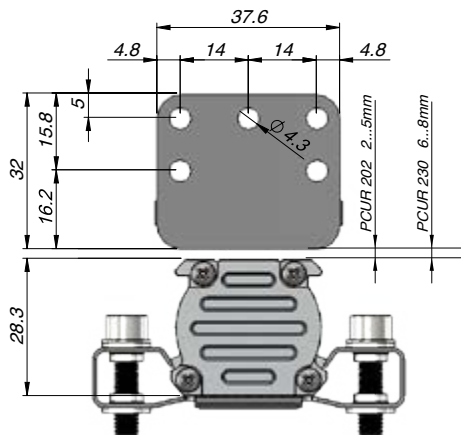
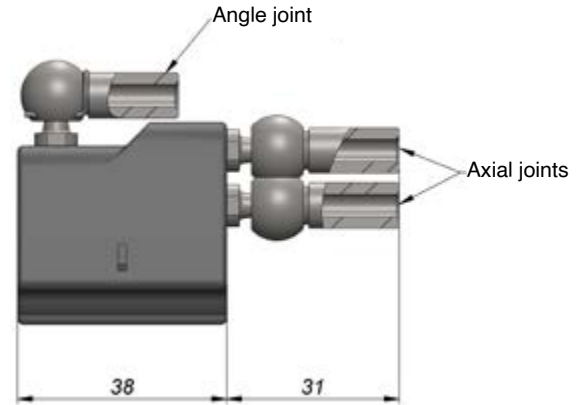
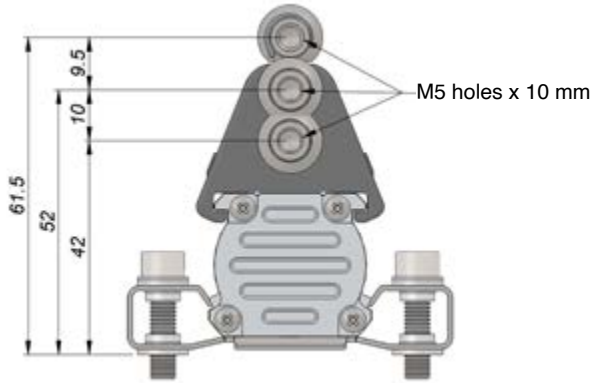


Sliding cursor,  
axial joint high

PCUR212



Sliding cursor,  
axial joint angle

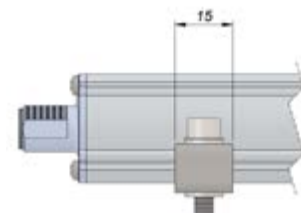


## BRACKETS ON REQUEST

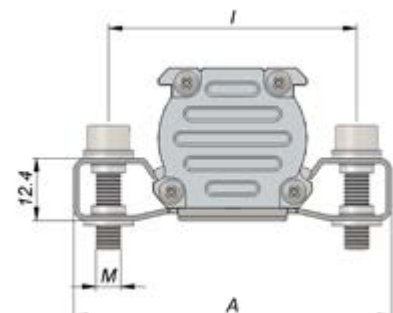


P K I T

Brackets (2 brackets for every kit)	
Steel brackets, interaxis 42.5mm	090
Steel brackets, interaxis 50mm	091



Brackets code	Interaxis (i)	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 (WPA-A-A)  
**CON041** for 5-pin output (WPA-A-A)  
**CON035** for 8-pin output (WPA-A-H)  
**CON042** for 8-pin output (WPA-A-H)\*  
**CON117** for 8-pin output (WPA-A-H)

For B-C outputs, M16 thread connector

Code: **CON021** for 6-pin output (WPA-A-B)  
**CON022** for 6-pin output (WPA-A-B)\*  
**CON023** for 6-pin output (WPA-A-B)  
**CON026** for 8-pin output (WPA-A-C)  
**CON027** for 8-pin output (WPA-A-C)  
**CON028** for 8-pin output (WPA-A-C)  
**CON118** for 6-pin output (WPA-A-B)

Connector extraction length: 10mm

<p><b>CON031</b> <b>CON035</b> IP67 - IEC 48B</p>	<p><b>CON041</b> <b>CON042/CON117</b> IP67</p>	<p><b>CON021</b> <b>CON026</b> IP40 - EMC</p>	<p><b>CON022/CON118/CON027</b> IP67 - EMC</p>	<p><b>CON023</b> <b>CON028</b> IP67 - EMC</p>	
Temperature ratings					
<b>CON031/CON035</b>	<b>CON041</b>	<b>CON042/CON117</b>	<b>CON021/CON026</b>	<b>CON022/CON118/CON027</b>	<b>CON023/CON028</b>
-30+85 °C	-25+85 °C	-30+85 °C	-30+85 °C	-30+85 °C	-30+85 °C

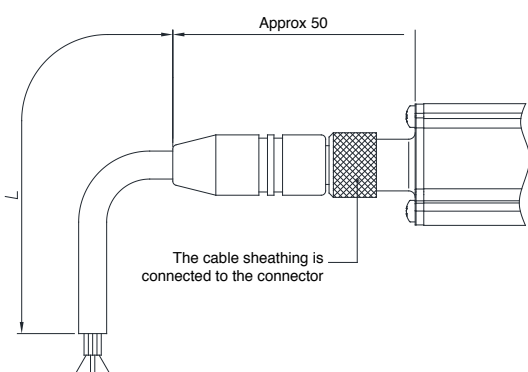
\* Not available with UL certification.

Note

- The IP protection class specified in this document is valid with the use of the proper female connector that has to be correctly installed and wired with the appropriate protections.
- The operating temperature ranges, except where expressly indicated, are also applicable in the UL scope.
- For cULus applications extension cables, a 6 pole 26AWG Style 2464 cable is advised

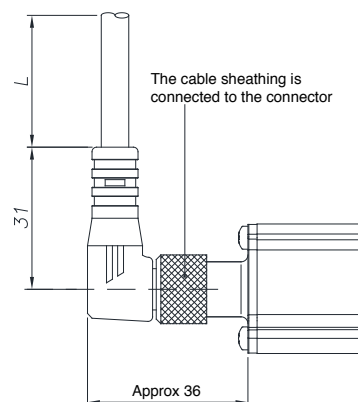
## OPTIONAL CABLES OUTPUT

### PRE-ASSEMBLED CABLE WITH STRAIGHT CONNECTOR



5-pin cable code		WPA-A-A	
Length "L"		CODE	
		Straight cable	Cable to 90°
2	mt	<b>CAV011</b>	<b>CAV021</b>
5	mt	<b>CAV012</b>	<b>CAV022</b>
10	mt	<b>CAV013</b>	<b>CAV023</b>
15	mt	<b>CAV015</b>	<b>CAV024*/CAV280</b>

### PRE-ASSEMBLED CABLE WITH 90° CONNECTOR



8-pin cable code		WPA-A-H	
Length "L"		CODE	
		Straight cable	Cable to 90°
2	mt	<b>CAV002</b>	<b>CAV005</b>
5	mt	<b>CAV003</b>	<b>CAV006</b>
10	mt	<b>CAV004*/CAV281</b>	<b>CAV007</b>
15	mt	<b>CAV009*/CAV282</b>	<b>CAV008</b>

\* Not available with UL certification.

Electrical installation requirements and Conformity certificate are available on our web site: [www.gefran.com](http://www.gefran.com)  
**GEFRAN spa** reserves the right to make aesthetic or functional changes at any time and without notice

**GEFRAN**

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