

HYPERWAVE
HIGH-PERFORMANCE MAGNETOSTRICTIVE TECHNOLOGY



Main characteristics

- Optimized mechanical structure
- Strokes from 50 to 4000 mm
- Wide range of connectors for the electrical connection
- Rod, nipple, exagonal flange AISI 316
- Power supply 10...32 Vdc
- Resistance to vibration (DIN IEC68T2/6 15g)
- Protection IP67
- Work temperature: -30°...+90°C
- Synchronous Serial Interface direct to controllers
- Output data resolution available from 0.5 to 40µm
- Data format: binary or Gray code; incremental/decremental
- Electromagnetic compatibility EMC 2014/30/EU
- Compliant to the directive RoHS 2011/65/EU

Contactless linear position transducer with HYPERWAVE magnetostrictive technology with RS422-SSI digital output interface. Housing closure with removable ring nut to allow the whole electronics and sensing element replacement.

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

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.

TECHNICAL DATA

Model	from 50 to 4000 mm
Measurement taken	Displacement
Position read sampling time (typical)	1 ms
Shock test DIN IEC68T2-27	100g - 11ms - single shock
Vibrations DIN IEC68T2-6	15g / 10...2000Hz
Displacement speed	≤ 10 m/s
Max acceleration	≤ 100 m/s ² displacement
Output data resolution available	0.5.....40µm
Cursor (see note)	Floating magnet
Working temperature	-30...+90°C
Storage temperature	-40...+100°C
Coefficient of temperature	20ppm FS/°C
Protection	IP67
Operative pressure	350 bar (peak max. 500 bar(**))
(**) The operating and max. peak pressure, can only be reached by following the installation guide specified on the data sheet (see section "INSTALLATION INSIDE A CYLINDER").	

ELECTRICAL DATA

Output signal	Synchronous Serial (SSI); Binary/Gray; Incremental/Decremental
Data length	24 - 25 bit
Nominal power supply	10... 32 Vdc
Max. power ripple	1Vpp
Max. input	50mA
Output load	RS422/485 standard
Electrical isolation	500 V (*) (D.C. supply / earth)
Protection against polarity inversion	Yes
Protection against overvoltage	Yes
Self-resetting internal fuse	Yes
(*) it includes a 50V 2J voltage suppressor	

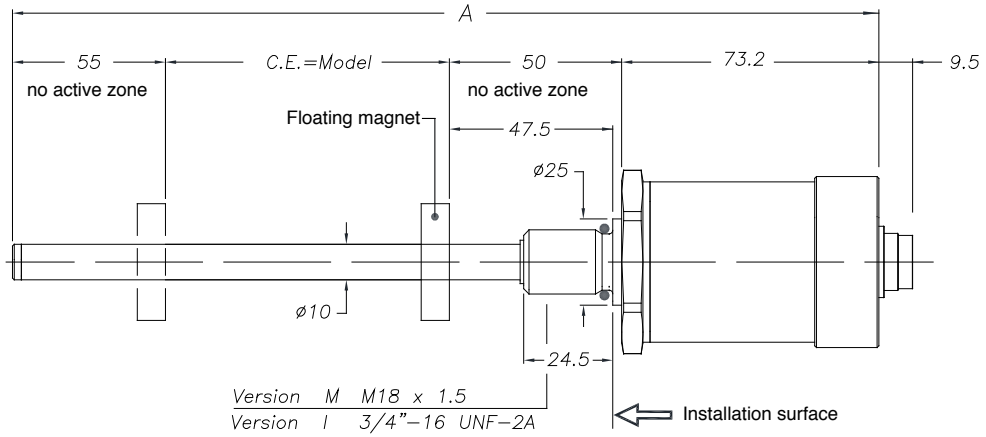
Note: For multi-cursor versions, the cursors have to work under the same distance and temperature conditions

ELECTRICAL / MECHANICAL DATA

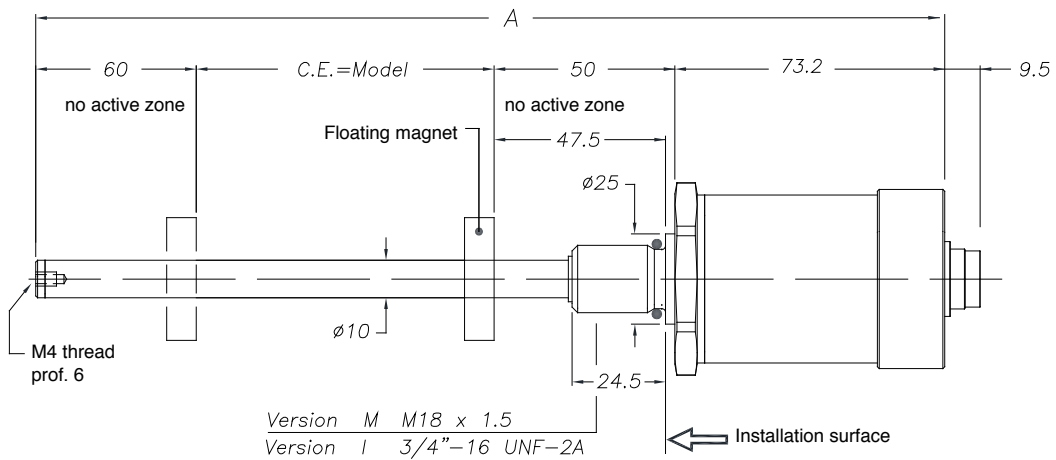
Model	50 75 100 130 150 175 200 225 250 300 350 360 400 450 500 550 600 650 700 750 800 850 900 950 1000 1100 1200 1250 1300 1400 1500																
	1750 2000 2250 2500 2750 3000 3250 3500 3750 4000																
Electrical stroke (E.S)	mm	Model															
Independent linearity	% FS	Typical ≤ 0,01 %FS (min ± 0,060mm)															
Max. dimensions (A)	mm	< 1250 mm = Model + 178.2mm ; ≥ 1250mm = Model +183.2mm															
Repeatability	mm	Typical ≤ 0,01 (limited by the resolution of the output value)															
Hysteresis	mm	Typical ≤ 0,02 (limited by the resolution of the output value)															
Sampling time	ms	1 (for stroke from 1000) 2 (for stroke from 1100 to 2000) 4 (for stroke >2000)															

MECHANICAL DIMENSIONS

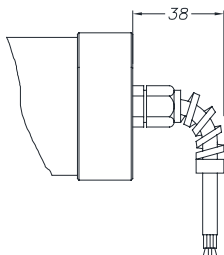
Strokes from 50 to 1000 mm



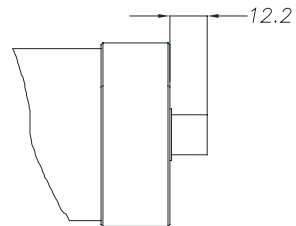
Strokes from 1100 to 4000 mm



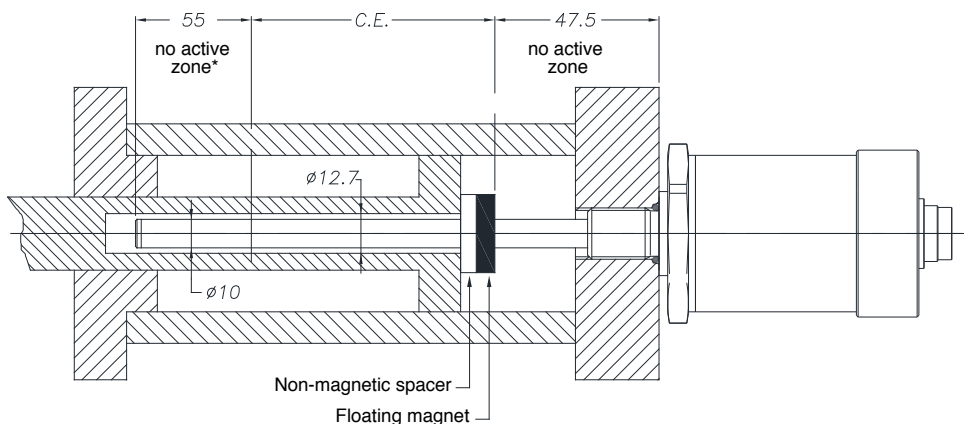
WRA-S-F/R cable output



WRA-S-B/D connector output

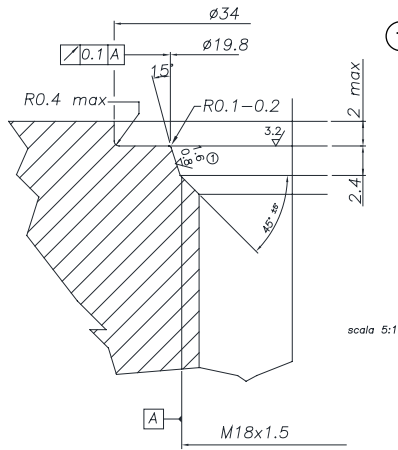


MOUNTING INSIDE A CYLINDER



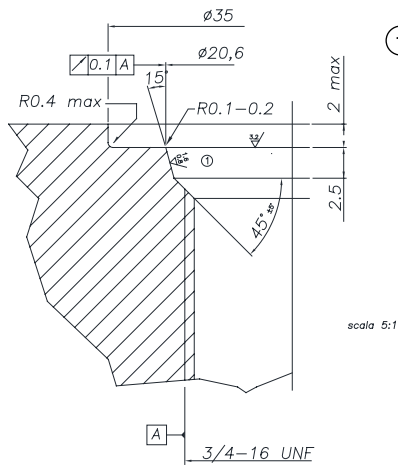
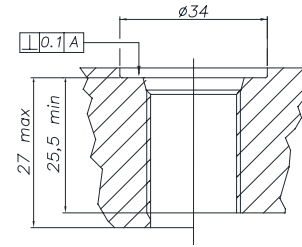
* for stroke up to 1000 mm (included) – over 1000 mm, the non-active zone becomes 60 mm because the tip includes a M4 threaded hole

INSTALLATION INSIDE A CYLINDER



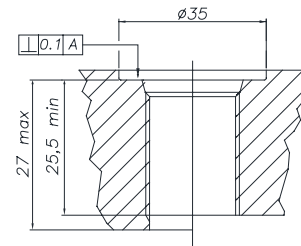
- ① **THREAD M18x1,5**
 The sealing surface must be free from scratches longitudinal or spiral
 Ro 1.6 μm for sealing with NON-pulsating pressure
 Ro 0.8 μm for seals with pulsating pressure

Suggested o-ring:
 PARKER 6-349 15,4x2,1
 Material: Viton 90° Shore-A
 Mixes: PARKER N552-90



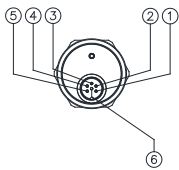
- ① **THREAD 3/4"-16UNF**
 The sealing surface must be free from scratches longitudinal or spiral
 Ro 1.6 μm for sealing with NON-pulsating pressure
 Ro 0.8 μm for seals with pulsating pressure

Suggested o-ring:
 PARKER 3-908 16,36x2,21
 Material: Viton 90° Shore-A
 Mixes: PARKER N552-90

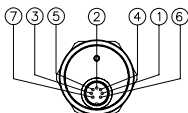


ELECTRICAL CONNECTIONS

OUTPUT WRA-S-B



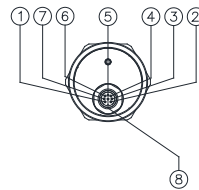
OUTPUT WRA-S-D



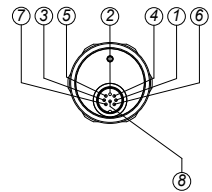
OUTPUT WRA-S-F/R



OUTPUT WRA-S-H



OUTPUT WRA-S-C



Function	WRA-S-B	WRA-S-D	WRA-S-F	WRA-S-R	WRA-S-H	WRA-S-C
	6-pin M16	7-pin M16	Cable output	PUR cable output	8-pin M12	8-pin M16
Data -	1	1	Orange	Pink	5	5
Data +	2	2	Orange / White	Blue	2	2
Clock +	3	3	Green / White	Gray	3	1
Clock -	4	4	Green	Yellow	1	3
Power supply +	5	5	Blue / White	Green	7	7
Power supply GND	6	6	Blue	Brown	6	6
n.c.	-	7	-	-	8	8
n.c.	-	-	-	-	4	4

FLOATING CURSOR



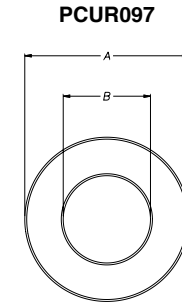
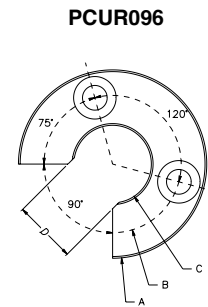
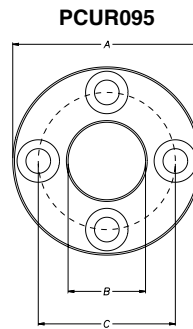
Cursors	
Cursor Diameter 32.8	095
Cursor Diameter 32.8 with 90° slit	096
Cursor Diameter 25.4	097
Floating cursor for liquids with hole diameter 12	098

The **PCUR095** is supplied with:
 N° 8 Brass nuts M4
 N° 8 Brass washers D4
 N° 4 Brass screws M4x25

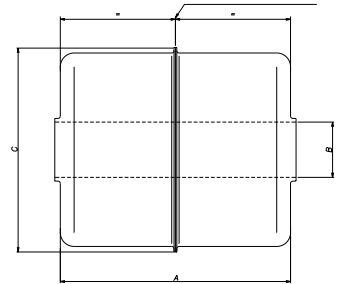
The **PCUR096** is supplied with:
 N° 4 Brass nuts M4
 N° 4 Brass washers D4
 N° 2 Brass screws M4x25

Dimensions	A	B	C	D	Thickness
PCUR095	32.8	13.5	23.9	-	7.9
PCUR096				11	
PCUR097	25.4	13.5		-	

Model	PCUR098	
Length A	mm	52.4
Diameter B (hole)	mm	12
Diameter C	mm	44
Material		AISI 316



HEIGHT DETECTION POSITION



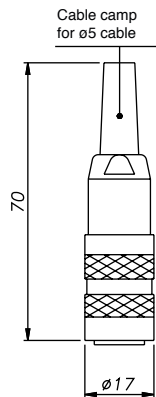
Note: PCUR098 is supplied with kit PKIT036 for floating cursor for liquids.

OPTIONAL CONNECTORS

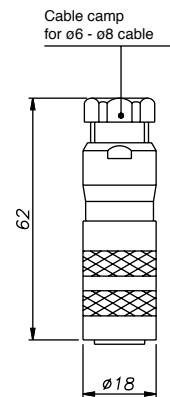
For outputs **B-D**, M16 connector thread

Codes: **CON021** 6-pin (WRA-S-B)
CON022 6-pin (WRA-S-B)
CON023 6-pin (WRA-S-B)
CON026 7-pin (WRA-S-D)
CON027 7-pin (WRA-S-D)
CON028 7-pin (WRA-S-D)

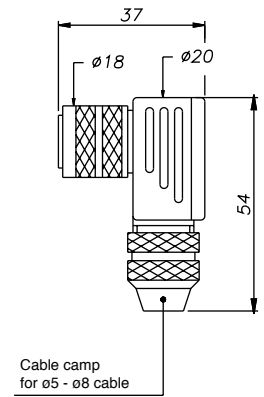
Connector extraction length: 10mm



CON021
CON026
 IP40 - EMC



CON022
CON027
 IP67 - EMC



CON023
CON028
 IP67 - EMC

Note:

The IP rating specified in this document normally applies with the suitable female connector plugged-in and properly wired.

Electrical installation requirements and Conformity certificate are available on our web site: www.gefran.com

GEFRAN spa reserves the right to make aesthetic or functional changes at any time and without notice

GEFRAN

GEFRAN spa
 via Sebina, 74
 25050 PROVAGLIO D'ISEO (BS) - ITALIA
 ph. 0309888.1 - fax. 0309839063
<http://www.gefran.com>

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