GEFRAN

WPA-F
CONTACTLESS MAGNETOSTRICTIVE LINEAR POSITION TRANSDUCER
(PROFINET IO OUTPUT)

HYPERWAVE
HIGH-PERFORMANCE MAGNETOSTRICTIVE TECHNOLOGY

CE

Main characteristics
- *Optimised mechanical structure*
- *Strokes from 50 to 4000mm*
- *Position and velocity measurement*
- *Quick mounting by steel brackets*
- *Sliding or Floating magnetic cursor*
- *Resistance to vibrations (DIN IEC68T2/6 15g)*
- *Environmental protection IP67*
- *Working temperature: -40...+85°C*
- *Electromagnetic compatibility EMC 2014/30/EU*
- *Compliant to the directive RoHS 2011/65/EU*
- *Power supply 10...32 Vdc*
- *Profinet IO RT & IRT interface (ver. 2.3)*

Contactless linear position transducer with **HYPERWAVE** magneto-strictive technology. The absence of electrical contact on the cursor eliminates all wear and guarantees almost unlimited life.
High accuracy of the mesurement with reference to the non linearity, repeatability and hysteresis. High resistance to vibrations, mechanical shocks, wide working temperature range. High performance in terms of environmental IP protection and EMC immunity, for use in a harsh industrial environment.
With **PROFINET IO** process data and alarms are always transferred in **real time**.
WPA-F can be configured in **RT** (Real Time) and **IRT** (Isochronous Real Time).
Profinet IRT offers synchronous communication with a minimum cycle time of 250 µs.

TECHNICAL DATA

Model	50 to 4000mm
Number of magnets	1…16 General Profile
	1 Encoder Profile
Measurements	Displacement/Velocity
Measuring principle	Magnetostrictive
Position read sampling time (typical), dependent on the stroke and the number of cursors	1ms typical
Min. cycle Time	250 μs
Shock test DIN IEC68T2-27	100g -11ms-single shock
Vibration DIN IEC68T2-6	15g / 10…2000Hz
Displacement speed	≤ 10m/s
Max. acceleration	≤ 100 m/s^2
Position data resolution (selectable)	0.5,1,2,5,10,20,50,100 µm
Velocity data resolution (selectable)	steps/10ms, steps/100ms, steps/1000ms, mm/s
Cursor (see note)	Sliding cursor; Floating cursor
Working temperature	-40…85°C
Storage temperature	-40…100°C
Coefficient of temperature	25 ppm FS/°C
Environmental protection	IP67

Note: For strokes > 2500m, use sliding or floating cursors at a maximum height of 4mm
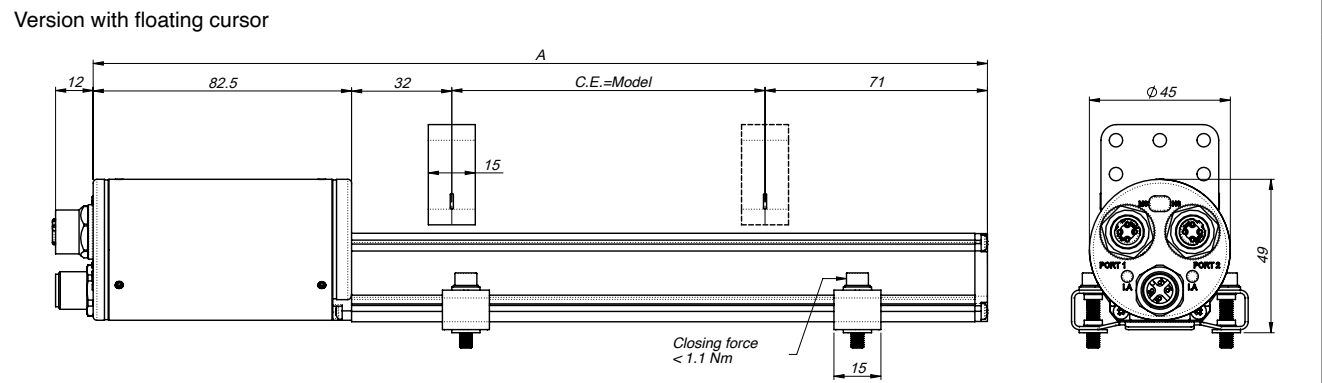
ELECTRICAL DATA

| Interface	Profinet IO
Protocol	Profinet RT & IRT
Profile	General or Encoder V4.2
Data Transmission rate	100 MBit/s
Position data	32 bit signed (General Profile) 32 bit unsigned or 64 bit insigned (Encoder Profile V4.2)
Velocity data	32 bit signed (General Profile) 16 bit signed or 32 bit signed (Encoder Profile V4.2)
Connection	2x M12 F D-coded (Bus) 1x M12 M A-coded (Power Supply)
Nominal power supply	10…32Vdc
Max. power ripple	1 Vpp
Max Power consumption	2 W
Electrical isolation	500 Vdc
Protection against polarity inversion	Yes (-30 Vdc)
Protection against overvoltage	Yes (36 Vdc)
EMC	EN 61326-1 EN 61326-2-3

CERTIFICATIONS

CE
EAC

MECHANICAL DIMENSIONS

Version with floating cursor

Closing force
< 1.1 Nm

Version with sliding cursor

Closing force
< 1.1 Nm
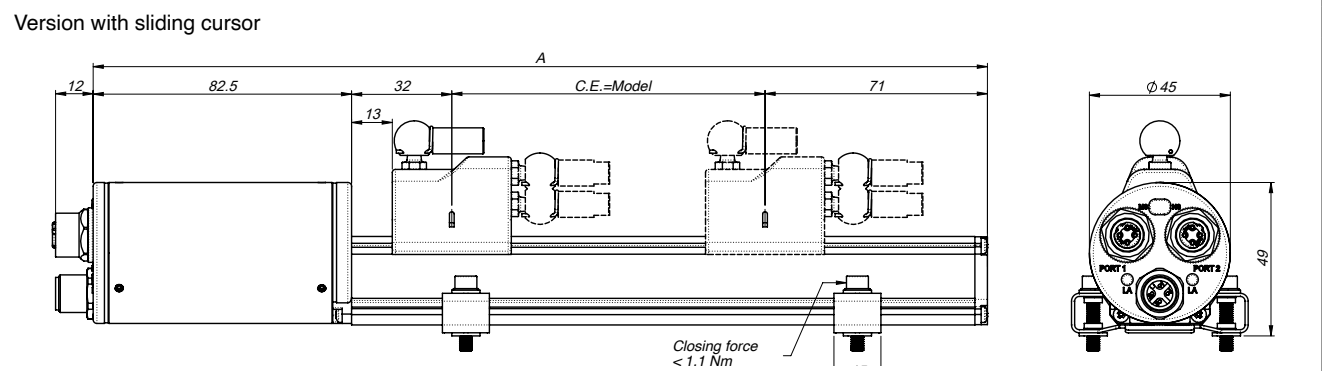
ELECTRICAL / MECHANICAL DATA

| 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	\multicolumn{5}{c} 0,5		\multicolumn{8}{c} 1		\multicolumn{4}{c} 1,5		\multicolumn{4}{c} 2		\multicolumn{4}{c} 3	
Electrical stroke	mm	**Model**
Independent linearity	± %/FS	Typical: ≤ ± 0,01 % FS (min ± 0,060 mm) with sliding cursor max: ≤ ± 0,02 % FS with floating cursor at a distance between 2 and 5 mm
Max. dimensions (A)	mm	**Model + 185.5**
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
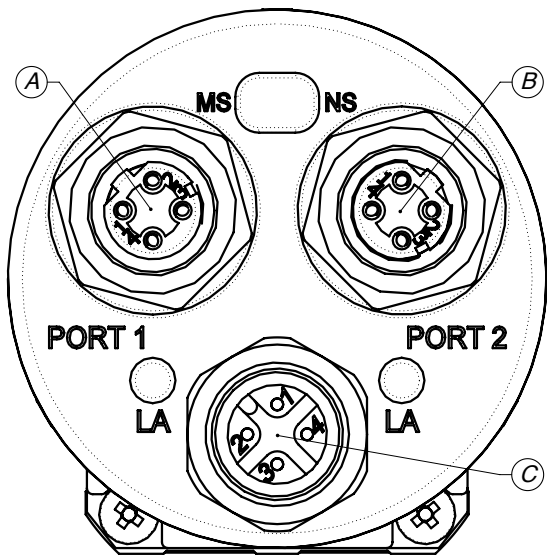
Port1 - Port 2 M12 4P Female D-coded connector connection
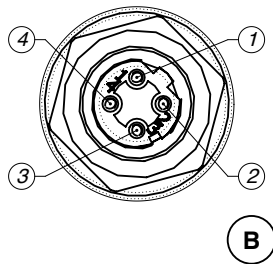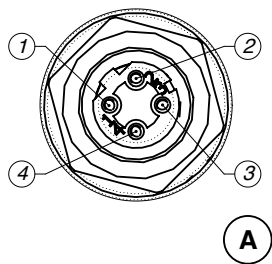
M12 Female 4 poles D coded connector (Port1 – Port 2)	Pinout
1	Tx+
2	Rx+
3	Tx-
4	Rx-

Power Supply M12 4P Male A-coded connector connection
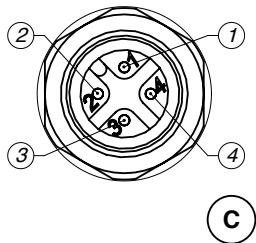
M12 Male 4 poles A coded connector (Power Supply)	Pinout
1	V+
2	NC
3	0V
4	NC

ORDER CODE

Position transducer	W	P	A	F						A

L	0	0	0	X	0	0	0	X	0	0	X	0	X	X

Interface

Profinet	F

Output Connector

2x M12 F 1x M12 M	T

MODEL

Output

Encoder Profile	A
General Profile	B

Calibration report

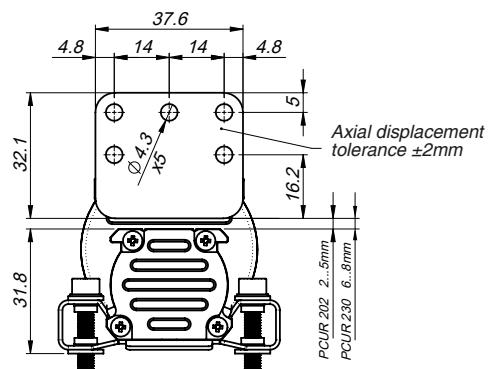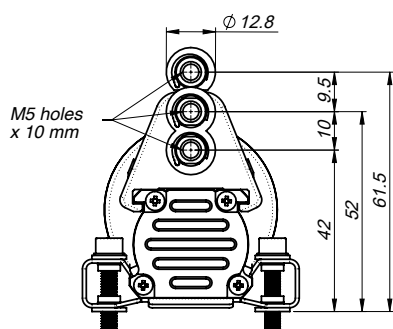| 0	no report
L	with report

Es.: WPA-F-T- 0400-A 0-0-0-0-X-0-0-0-X-0-0-X-0-XX
Transducer model WPA-F, Profinet output, encoder profile, 400 mm model
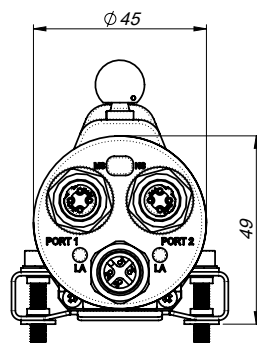
CURSORS ON REQUEST
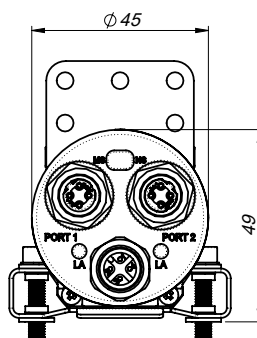
PCUR202/PCUR230

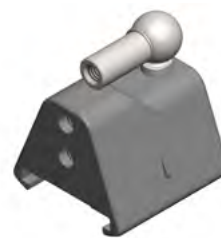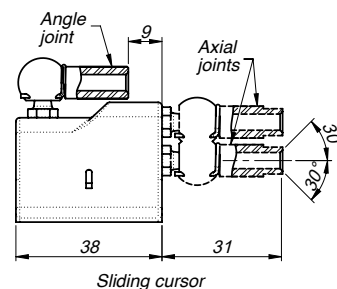Floating Cursor

PCUR210

Sliding cursor,
axial joint low

PCUR211

Sliding cursor,
axial joint high

PCUR212

Sliding cursor,
axial joint angle

Ø 12.8

M5 holes
x 10 mm

9.5

10

42

52

61.5

Ø 45

49

Angle
joint

9

Axial
joints

30°
30°

38

31

Sliding cursor

37.6

4.8 14 14 4.8

32.1

5

Ø 4.3
x5

16.2

31.8

Axial displacement
tolerance ±2mm

PCUR 202 2...5mm
PCUR 230 6...8mm

Ø 45

PORT 1 LA   LA PORT 2

49

15

Floating cursor

BRACKETS ON REQUEST

| P | K | I | T | | | |
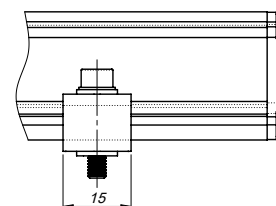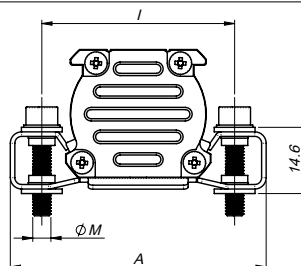
Brackets (2 brackets for every kit)	
Steel brackets, interaxis 42.5mm	**090**
Steel brackets, interaxis 50mm	**091**

i

14.6

Ø M

A

15

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

CABLE and CONNECTORS (on request)

Connectors for power supply
5 pin female connector   **CON031**
5-pin female connector, 90° angle   **CON041**

Cables for power supply
Straight cable 2m   **CAV011**
Straight cable 5m   **CAV012**
Straight cable 10m   **CAV013**
Straight cable 15m   **CAV015**
Cable 90° 2m   **CAV021**
Cable 90° 5m   **CAV022**
Cable 90° 10m   **CAV023**
Cable 90° 15m   **CAV024/CAV280**

Profinet connection connectors
Connector M12 Male 4 poles D-coded straight   **CON089**

Profinet connection cables
Pre-wired cable 5m 2x M12 Male 4 poles D-coded straight   **CAV815**
Pre-wired cable 5m M12 Male 4 poles D-coded straight RJ45 male straight **CAV816**
M12 F connector protection cap   **TAP1001**

Note: *For further information (order codes, technical specifications, etc.) please contact Gefran or write to: info@gefran.com.*

Electrical installation requirements and Conformity certificate are available on our web site: www.gefran.com
GEFRAN spa reserved the right to make aesthetic or functional changes at any time and without notice.

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