

MK4 S (with ONDA technology)

CONTACTLESS MAGNETOSTRICTIVE LINEAR POSITION TRANSDUCER
(SYNCHRONOUS SERIAL OUTPUT)



Main characteristics

- ONDA technology
- Optimised mechanical structure
- Strokes from 50 to 4000 mm
- Fast installation by mean of steel brackets
- Sliding or floating magnetic cursor
- Synchronous Serial Interface direct to controllers
- Output data resolution available from 1 to 40 μm
- Data format: binary or Gray code; incremental/decremental
- Power supply 10...32 Vdc
- Resistance to vibration (DIN IEC68T2/6 12g)
- IP67 protection
- Work temperature: -30...+90°C

Contactless linear position transducer with ONDA magnetostrictive technology, with RS422-SSI digital output interface.

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.

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 - singolo colpo
Vibrations DIN IEC68T2-6	12g / 10...2000Hz
Displacement speed	≤ 10 m/s
Max. acceleration	≤ 100 m/s ² spostamento
Output data resolution available	1, 2, 5, 10, 20, 40 μm
Cursor (see note)	Sliding cursor Floating separate cursor
Working temperature	-30...+90°C
Storage temperature	-40...+100°C
Coefficient of temperature	20 ppm FS / °C
Protection	IP67

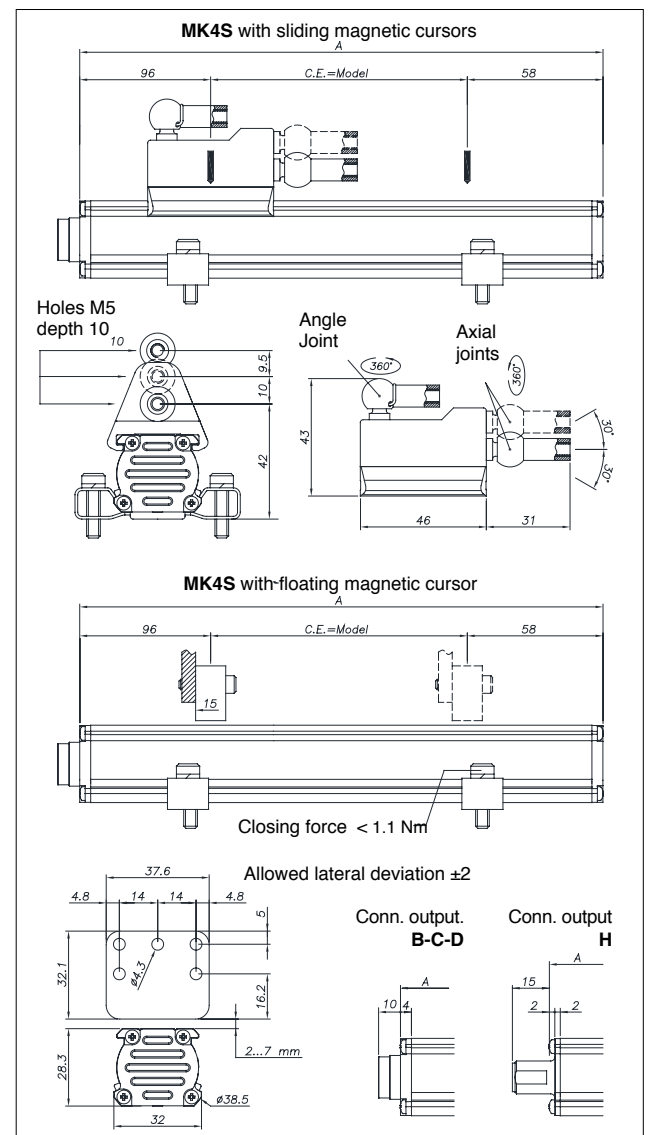
Note 1) For stroke > 2500mm use sliding or floating cursors with max. distance of 4mm

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	500V (*) (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

MECHANICAL DIMENSIONS

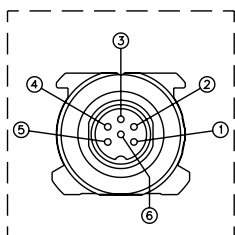


ELECTRICAL / MECHANICAL DATA

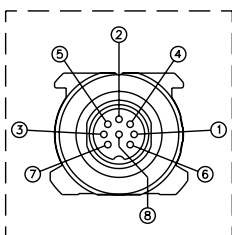
Model		50	75	100	130	150	175	200	225	250	300	350	360	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1250	1300	1400	1500
																	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000						
Electrical stroke (E.S.)	mm	Model																														
Independent linearity	± %F.S.	Typical : ≤ ± 0,01 %FS (min ± 0,060 mm) with sliding cursor Typical : ≤ ± 0.02% FS with floating cursor (value depending on the distance between the cursor and the sensor body)																														
Max. dimensions (A)	mm	Model + 154 mm																														
Repeatability	mm	< 0,01 (limited by the resolution of the output value)																														
Hysteresis		< ± 0,005% FS (min 0,010 mm)																														
Sampling time	ms	1 (for stroke from 1000) 2 (for stroke from 1100 to 2000) 4 (for stroke >2000)																														

ELECTRICAL CONNECTIONS

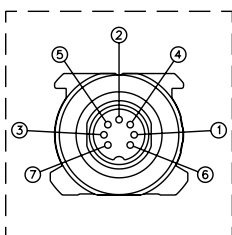
OUTPUT MK4S B



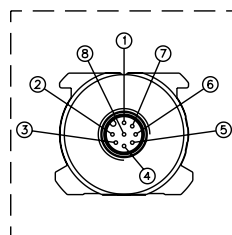
OUTPUT MK4S C



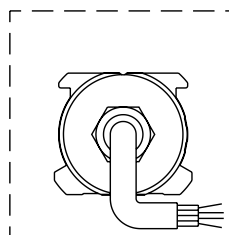
OUTPUT MK4S D



OUTPUT MK4S H



OUTPUT MK4S F/R



Function	MK4S B	MK4S C	MK4S D	MK4S H	MK4S F	MK4S R	CAV00X
	6-pin M16	8-pin M16	7-pin M16	8-pin M12	Cable output	PUR cable output	Optional 8-pin cable
Data -	1	5	1	5	Orange	Pink	Green
Data +	2	2	2	2	Orange / White	Blue	Gray
Clock +	3	1	3	3	Green / White	Gray	Pink
Clock -	4	3	4	1	Green	Yellow	Yellow
Power supply +	5	7	5	7	Blue / White	Green	Brown
Power supply GND	6	6	6	6	Blue	Brown	Blue
n.c.	-	8	7	8	-	-	White
n.c.	-	4	-	4	-	-	Red

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

ORDER CODE

Position
transducer

M K 4 S B

SSI digital output

S

Connector

DIN45322 6-pin
connector output

B

Available on request

DIN45326 8-pin
connector output

C

DIN45329 7-pin
connector output

D

M12 8-pin
connector output

H

Cable output PVC 6-pin
(1 meter)

F

Cable output PUR high
flexibility 7-pin 7x0,14

R

Model

Output

Binary data code
output

B

Gray data code
output

G

Data length

Data length 24 bit

3

Data length 25 bit

4

Data length 21+1 bit
(FM357)

5

0 0 0 0 X X X X X 0 X X

Data resolution

0.002 mm	0
0.005 mm (standard)	1
0.010 mm	2
0.020 mm	3
0.040 mm	4
0.001 mm	5

Scale orientation

Ascending (standard)	1
Descending	2
Ascending (over sampling refresh output 4 KHz)	4

Outputs

Outputs B, C, H	00
F outputs cables length	
1 meter (standard)	00
2 meters	02
3 meters	03
4 meters	04
5 meters	05
10 meters	10
15 meters	15

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

Ex.: MK4-S-B-0400-B-3, 0000-X-X-1-1-X-00-X-0-XX

Transducer model MK4, SSI output, connector B, model 400, binary data code output, data length 24 bit, system resolution 0.005mm, scale orientation ascending.

CURSORS ON REQUEST

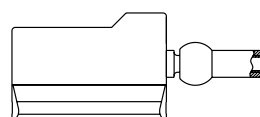
P C U R 0 1

Cursors

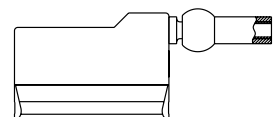
Sliding cursor, axial joint (low) (STANDARD)	035
Sliding cursor, axial joint (high)	036
Sliding cursor, angle joint	037
Floating cursor	039

Number of cursors

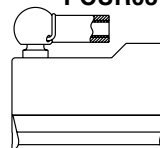
PCUR035



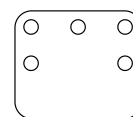
PCUR036



PCUR037



PCUR039

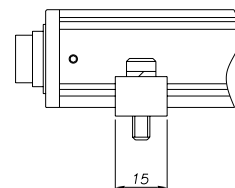
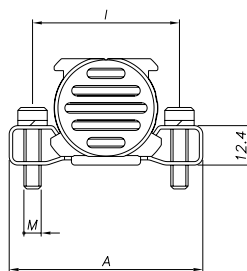


BRACKETS ON REQUEST



P K I T

Brackets (2 brackets for every kit)	
Steel bracket, center distance 42.5mm	090
Steel bracket, center distance 50mm	091



Brackets code	Center distance (l)	Screw (V)	Dimensions (A)
PKIT090	42.5	M4	56
PKIT091	50	M5	63.5

OPTIONAL CONNECTORS

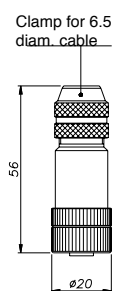
For output H, M12 connector thread

Codes: **CON035** for 8-pin output (MK4S H)
CON042 for 8-pin output (MK4S H)

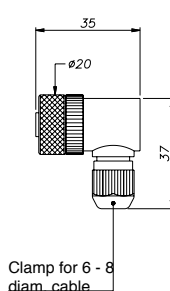
For outputs B-C-D, M16 connector thread

Codes: **CON021** for 6-pin output (MK4S B)
CON022 for 6-pin output (MK4S B)
CON023 for 6-pin output (MK4S B)
CON026 for 8-pin output (MK4S /D)
CON027 for 8-pin output (MK4S /D)
CON028 for 8-pin output (MK4S /D)

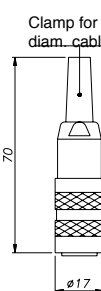
Connector extraction length 10 mm



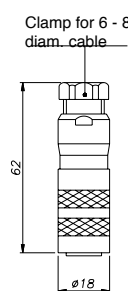
CON035
IP67 - IEC 48B



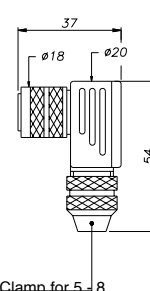
CON042
IP67



CON021
CON026
IP40 - EMC

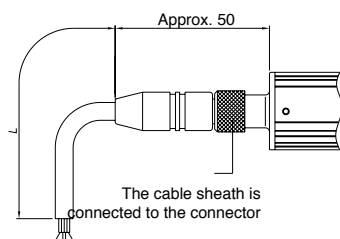


CON022
CON027
IP67 - EMC

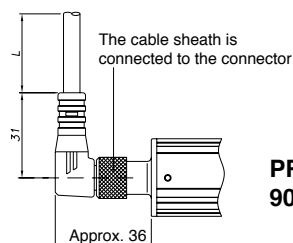


CON023
CON028
IP67 - EMC

OPTIONAL CABLES OUTPUT H



**PREWIRED CABLE WITH
STRAIGHT CONNECTOR**



**PREWIRED CABLE WITH
90° CONNECTOR**

Code for 8-pin cable		MK4S - H	
Length "L"		CODE	
		Straight cable	90° cable
2	mt	CAV002	CAV005
5	mt	CAV003	CAV006
10	mt	CAV004	CAV007
15	mt	CAV009	CAV008

Sensors are manufactured in compliance with:
- EMC 2004/108/CE compatibility directive
- RoHS 2002/95/CE directive

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 Internet: <http://www.gefran.com>

DTS_MK4S-ONDA_12-2013_ENG