

### **SERIE MSA**

#### **ABSOLUTE LINEAR MEASURING MAGNETIC SENSOR**



- Linear magnetic sensor, with direct reading of the absolute position
- Magnetic detection without contact
- High speed serial interface
- Easy assembly; Wide alignment tolerances
- Resolution 10 µm
- Accuracy ±15 μm
- Pole pitch 2+2
- **Protection class IP67**
- Warning indication through LED
- Connection by cable (other cable lenght available)









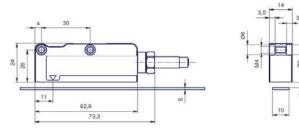




Absolute

Vibration

IP67

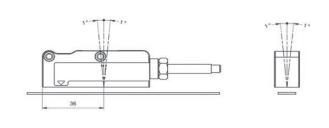


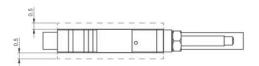


	CSMA	CSM + PS*	CSM + AP*
S (mm)	1.3	1.6	2.1
d (mm)	0.3 ÷ 1	0.7 MAX	0.2 MAX

(\*) PS and AP see accessories section

Drawing MSA sensor dimensions





Sensor alignment tolerances

SENSOR REFERENCE				Reference example: MSA-M10528S7M02		
Serie	Pole pitch	Resolution	Power supply	Interface	Connection	Special customer
MSA -						. 🗆 🗆
	<b>M.</b> 2+2 mm	<b>10.</b> 10 μm	<b>528.</b> 528 VDC	<b>S7.</b> SSI Gray	M02. 2 meter cable	

(\*) Resolution between edges (1 Pulse = 4 edges). Other resolutions available, upon request (1, 100  $\mu$ m).

### **BAND REFERENCE** Serie **CSMA**

For a better protection of magnetic band from shavings, liquid sprinklings, powder, etc. we suggest to always use the stainless steel cover PS, already equipped with a double-sided adhesive tape, or the aluminium support AP (see accessories).





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#### **ABSOLUTE LINEAR MEASURING MAGNETIC SENSOR**



SENSOR SPECIFICATIONS	
Absolute resolution	10 μm
Accuracy	±15 μm
Repeatability	±1 increment
Signal period	2 mm
GAP, distance sensor/band (d) see previous table	0,3 to 1 mm
Measuring lenght	up to 30 m
Max. traversing speed	300 m/min
Protection class (EN 60529)	IP67
Operating temperature range	0°C to +50°C
Storage temperature range	-20°C to +70°C
Humidity	100% not condensed
Vibration (EN 60068-2-6)	200 m/s² (552000 Hz)
Weight	80g
Axial connection	2 meter cable (other cable lenght or radial output available, upon request)

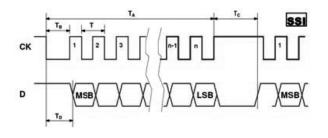
#### **OUTPUT SIGNALS**



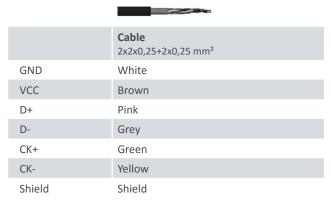
	Interface	SSI Gray
	Clock frequency	0,11,2 MHz
	n	Position bit* = 24 bit
ĺ	Tc	1245 μs
	Power supply	528 VDC ±5%
	Current consumption	150 mA MAX (Z=120Ω)
	Lenght of cable allowed	20 m
	Short circuit protection	Yes
	Protection polarity inversion	Yes

Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).

(\*) The number of bit transmitted is different for other resolutions. See values table in MSA reference manual, section 8.

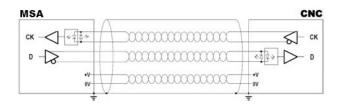


#### CONNECTION



The cable is suitable for continuous movements.

The cable's bending radius should not be lower than 70 mm.



In case of cable extension, it is necessary to guarantee:

- > The electrical connection between the body of the connectors and the cables shield.
- > Ensuring a minimum power supply of 5 V to the sensor, the maximum cable length can be extended to 50 m.



# **SERIE MSA**

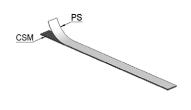
#### **ABSOLUTE LINEAR MEASURING MAGNETIC SENSOR**



AND SPECIFICATIONS			
Pole pitch	Incremental track 2+2 mm + absolute track		
Accuracy at 20°C	±20 μm/m (high accuracy) ±80 μm/m (low accuracy)		
Width band	10 mm		
Thickness band "S" (see previous table)	1,3 mm		
Maximum length	30 m		
Thermal expansion	10,5 x 10 <sup>-6</sup> °C <sup>-1</sup> Tref: 20°C ± 0,1°C		
Bending radius	≥ 130 mm		
Operating temperature range	0°C to +70°C		
Storage temperature range	-20°C to +80°C		

#### **ACCESSORIES**

#### PS: Cover for band protection



AP: Aluminium support



Stainless steel cover for protection. To be placed in the magnetic band (10 mm width - 0.3 mm thickness).

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It is not possible to use the support AP if the magnetic band is already covered by PS band protection.

#### **INSTALLATION AND HANDLING**

- 1. Degrease the surface you want to place the magnetic band by using alcohol and dry it carefully.
- 2. Place the band and keep it aligned with the reader head ensuring the magnetic part is just next to the sensor.
- 3. Place the cover PS or the support AP, if provided.
- 4. The max. adhesion will be achieved after 48 hours from sticking.
- 5. Keep other magnetic parts clear from the tape.
- 6. Store and roll up the tape keeping the magnetic strip on the outside, in order to avoid tensions.