



OptoSpeed 1.0R1

MSO Meßtechnik und Ortung GmbH

01.11.2023

1 Technical Data

Power Supply	9 - 28V DC
Current Consumption	typ. 70 mA @ 12V DC
Power consumption	< 1W
Update Rate	10 Hz
Measurement Range	typ. 0.01 km/h up to 20 km/h The measurement range depends on the application, especially from mounting height and can differ significantly from the specification.
Temperature Range	Storage -20°C - 85°C Operation 0°C - 60°C
Environmental Protection	IP6X, IPX4 according to ISO 20653
Connection	Plug M12 12 Pole A-coded according to IEC 61076-2
Cable Length	Casing to plug 300 mm \pm 20 mm
	 

Quadrature Output (Push-Pull): Frequency Signal proportional to Velocity.

RS232 serial Interface full-duplex Communication over a few Meters. Cyclic Data output as Text Strings. Parameterization is possible.

2 Serial Interface RS232

Baud-Rate	115200
Parity	No Parity
Data bits	8
Stopp bits	1
Update rate	10 Hz

Output of data in comma - separated records.

Record Separator New line <CR><LF>, bzw. 0x0D 0x0A

Field Separator Comma

Feld 1 Record Identifier: os

Feld 2 X - Velocity in km/h

Feld 3 Y - Velocity in km/h

Feld 4 Resulting Velocity in km/h

Feld 5 internal raw value for X-Movement

Feld 6 internal raw value for Y-Movement

Feld 7-12 Internal Value for Analysis

os,0.0000,0.0259,0.0341,-2,-5,01,3F,0,5D,3455,0<\r><\n>

os,0.0000,0.0213,0.0274,0,-1,01,3F,0,5A,3455,0<\r><\n>

os,0.0000,0.0160,0.0242,-2,0,01,3F,0,59,3455,0<\r><\n>

3 Quadrature Output

The Sensor generates an output Signal like a Quadrature Encoder. For each X- and Y Direction a Signal on 4 leads is being generated. Whereas A+ and B+ are $\pm 90^\circ$ phase shifted. The sign of the Phase difference indicates the direction of movement.

The frequency of the signal is proportional to the velocity.

$$f_{out} = \frac{5000 Pulse}{m} = \frac{1388,889 Hz}{\frac{km}{h}}$$

Furthermore each of the signals is output differentially. $A_{diff} = A^+ - A^-$



Figure 1: Signal on A+ and B+

4 Connection

Description	Pin Connector	Lead color
Power supply +12V (< 200mA at 12V)	1	Brown
Power supply GND	2	Blue
Velocity A+	3	White
Velocity A-	4	Green
Velocity B+	5	Pink
Velocity B-	6	Yellow
Velocity transverse C+	7	Black
Velocity transverse C-	8	Grey
Velocity transverse D+	9	Red
Velocity transverse D-	10	Purple
RS232 TX. Sensor send data	11	Grey-Pink
RS232 RX. Sensor receive data	12	Red-Blue

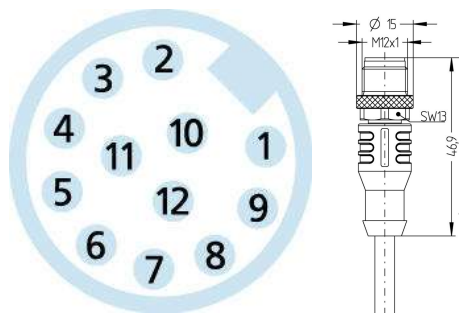


Figure 2: Pin-Out of the M12 Connector

5 Montage

The sensor has to be mounted level under the machine with unobstructed view to the ground. Pointing forward in direction of forward movement. Distance to ground 50 mm to 200 mm (Pre-Configured default value 100 mm). The mounting height / distance to ground influences the velocity computed.

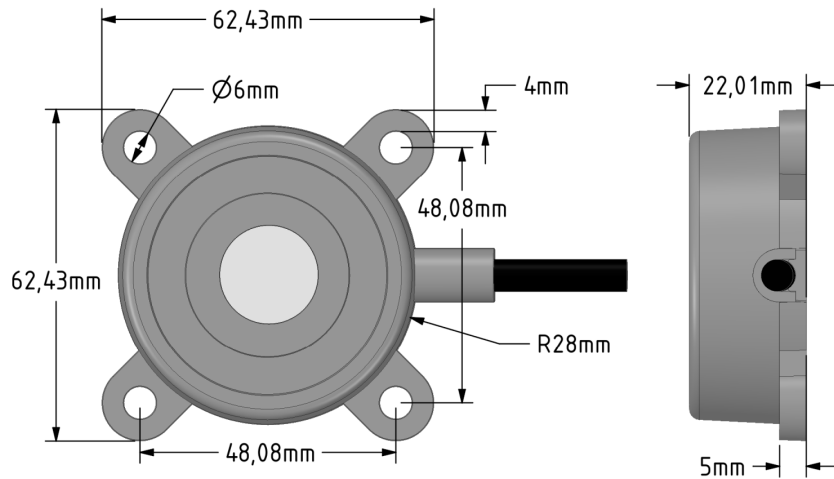


Figure 3: Dimensions OptoSpeed

6 Contact

Company	MSO Meßtechnik und Ortung GmbH
Street	Hohweg 8-10
Post Code	53902
Town	Bad Münstereifel
Country	Germany
Website	www.mso-technik.com
Telephone	+49 2257 95 92 090
email	info@mso-technik.de

7 Declaration of conformity

Name of manufacturer	MSO Meßtechnik und Ortung GmbH
Adress of the manufacturer	Hohweg 8-10, 53902 Bad Münstereifel, Germany
Type of product	Optical velocity Sensor
Model	OptoSpeed Version 1.0
Product Status from	01 November 2023
TARIC Number / Tariff number	90292031
Country of origin	Germany

	applied specifications / Standards
RoHS	Directive 2011/65/EU, EN 50581:2012 (EN IEC 63000:2018)