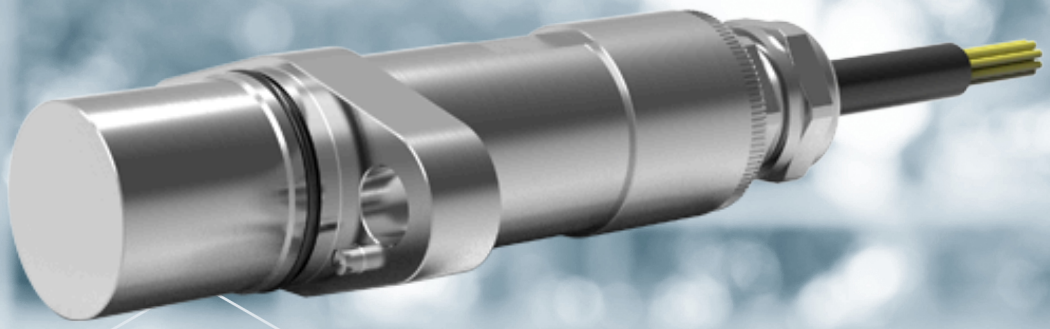
Made in Germany

www.lenord.com



Technical Information

GEL 2475MS

Incremental Bearingless Rotary Encoders

3-/4-Channel Hall-Effect Speed Sensor with a Wide Variety of Signal Combinations

D-51T-2475MS | Status 2026-07-07

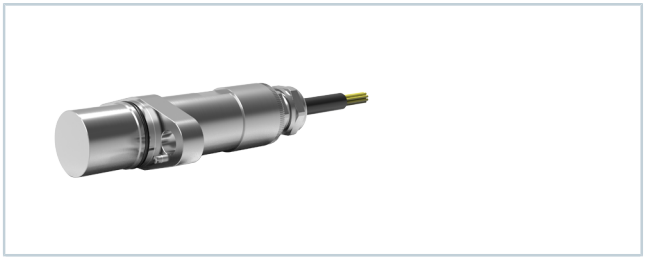
LENORD +BAUER

Finding solutions.
Founding trust.

Motion sensors and integrated drive technology

General Information

- Maintenance-free and wear-free Speed Sensor based on magnetic sensing
- Detection of measurement elements (such as target wheels made of ferromagnetic materials)
- Reliable detection of high rotational speeds down to creeping movements (0 Hz…20 kHz)
- Integration of a wide variety of Signal Patterns in the familiar flange housing
- Large permissible sensing distance simplifies design and installation



Features

- Incremental, differential-measuring 3-/4-channel Speed Sensor based on the Hall effect
- Galvanically isolated signals for reliable evaluation in various control systems
- Choice of 19 different Signal Patterns available
- High EMC immunity for interference-free signal transmission in demanding industrial environments
- Configuration flexibility thanks to freely selectable cable outlets, cable protection, and connector options
- Compliant with a wide range of standards and requirements for a variety of applications:
see „Technical Data - Environmental Testing“, page 10

Advantages

- Optimized lifecycle cost
- Maintenance-free and wear-resistant
- Wide range of Signal Pattern combinations
- Wide range of configuration options
- Compact and robust construction type
- Easy to install
- Easy integration
- Galvanically isolated measurement systems
- Ideal for safety applications
- High signal quality

Do you have specific requirements regarding the flange shape, tube length, number of channels, cable protection, cable outlet, connector assembly, or the EMC design? Please contact us. Our experts can create the optimal solution for your application from an extensive modular system and will be happy to advise you on the most cost-effective custom adaptation.

support@lenord.de or +49(0)208 9963-215

Applications

Industry & Automation

Printing & Packaging Machines:
- Synchronization of Conveyor Belts
- Register control in printing

Automotive & Commercial Vehicles

Vehicle Drivetrains:
- RPM measurement on crankshafts and camshafts for engine control units
- Rotor position detection in electric motors (BLDC, PMSM)
- Input/output speed in the transmission for shift strategy

Vehicle Dynamics Systems:
- Wheel speed sensors for ABS/ESP
- Torque distribution in all-wheel-drive systems

Commercial Vehicles & Agricultural Machinery:
- Speed monitoring on PTOs, hydraulic pumps
- Harvesting Machinery: Conveyor screws, threshing drums

Rail Technology & Transportation

Rail vehicles:
- Wheel speed sensors for slip control and brake control
- Drive control for electric locomotives and railcars

Conveyor and cable cars:
- Speed monitoring on idler pulleys
- Synchronization of drives in multi-motor systems

Marine applications

Drive:
- Speed measurement on marine engines, turbochargers, gearboxes, and generators

Auxiliary units:
- Input/output speed measurement for slip monitoring

Energy & Utilities

Wind turbines:
- Rotor speed for power control
- Pitch adjustment (blade angle control)

Hydroelectric Power Plants / Turbines:
- Speed control for synchronization with grid frequency

Generators & emergency power systems:
- Speed measurement for frequency monitoring and load management

Building Services & Infrastructure

Elevators & escalators:
- Cabin speed and position
- Safety Systems (Emergency Stop in Case of Overspeed)

Building equipment:
- Pump and fan speeds in large HVAC systems

Logistics & Conveyor Technology

Conveyor belts:
- Speed control in distribution centers

Automated Storage Systems:
- Positioning of Storage and Retrieval Machines

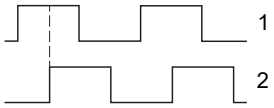
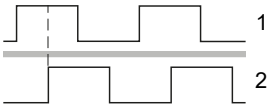
Crane Systems:
- Hoist and Traverse Control

Technical Data: Voltage Output

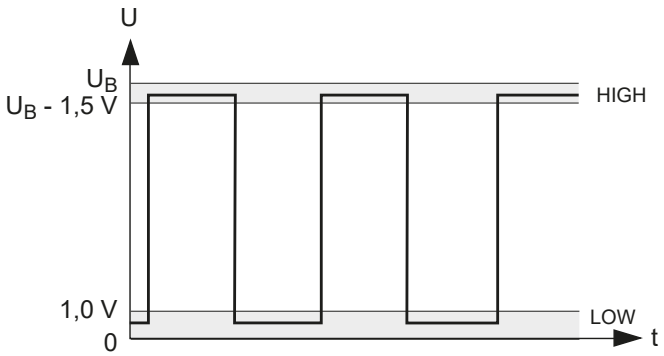
Signal Pattern	E-	V-	D-
Electrical Data			
Supply voltage U_B (reverse polarity protected)	10 ... 30 V DC		
Current consumption I_B (no load)	≤ 30 mA		
Output signal (short-circuit-proof)	Square-wave signals		
Output signal level (High) (1)	≥ U_B - 1.5 V		
Output signal level (Low) (1)	≤ 1.0 V		
Output current per channel	≤ 20 mA		
Frequency range	0 ... 20 kHz		
Duty cycle	50% ± 20% (2)		
phase offset	–	typ. 90°	
Mechanical Data			
Sensor tube material	Stainless steel		
Flange material	Stainless steel		
Sensor weight (including 2 m cable)	500 g		
Cable (standard version - preferred type)			
Due to the wide variety of possible signal pattern combinations, different cable variants may be installed. Unless otherwise specified or requested, the following standard cable is used, and the connection is made according to the pinout of the preferred type: *see „**Harting HAN HPR connector (preferred type)**“, page 23*			
Cable	halogen-free and with a Shield (3)		
Cable diameter	8.0 ± 0.3 mm		
Cable cross-section	12 x 0.34 mm²		
Minimum bending radius (static/dynamic)	24 mm / 40 mm		
Note on shielding	Cable shield directly attached to the sensor or optionally capacitively attached		
Environmental testing			
The Speed Sensor complies with a wide range of standards and requirements for a variety of applications: *see „Technical Data - Environmental Testing“, page 10*			
Requirements for the target wheel			
Material	ferromagnetic steel		
Tooth Profile	Involute teeth per DIN 867 Rectangular teeth, typically 1:1 (other ratios available upon request)		
Width	≥ 15 mm (smaller sizes available upon request)		
Module m	1.00 / 1.25 / 1.50 / 1.75 / 2.00 / 2.25 / 2.50 / 2.75 / 3.00 / 3.25 / 3.50		
Air gap	*see „Air Gap Table“, page 21*		

(1) depending on output current and temperature
(2) Applies to operation at the rated air gap and with gear teeth according to DIN 867
(3) Specifications available upon request

Voltage Output - Signal Pattern

Signal Pattern			
Output Signals		**Supply Voltage**	**Pulse Diagram**
E-	1 channel	10 ... 30 V DC	
V-	2 channels, 90° phase offset	10 ... 30 V DC	
D-	2 channels, electrically isolated, 90° phase offset	10 ... 30 V DC	

Output signal level – voltage output

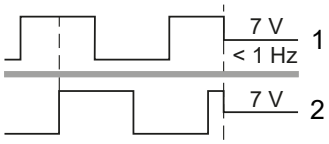


Technical Data: Voltage Output with Standstill Voltage

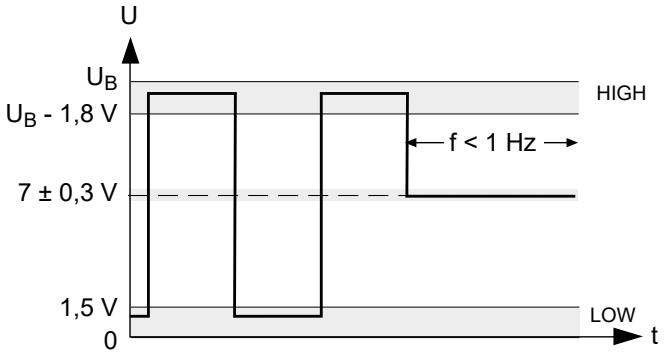
Signal Pattern	EM	DM
Electrical Data		
Supply voltage U_B (reverse polarity protected)	10 ... 20 V DC	
Current consumption I_B (no load)	≤ 15 mA	≤ 25 mA
Output signal (short-circuit-proof)	Square-wave signals	
Output signal level (High) (1)	≥ U_B - 1.8 V	
Output signal level (Low) (1)	≤ 1.5 V	
Output current per channel	≤ 10 mA	
Frequency range	0 ... 8 kHz	
Duty cycle	50% ± 10% (2)	
phase offset	-	typ. 90°
Mechanical Data		
Sensor tube material	Stainless steel	
Flange material	Stainless steel	
Sensor weight (including 2 m cable)	500 g	
Cable		
Due to the wide variety of possible signal pattern combinations, different cable variants may be installed. Unless otherwise specified or requested, the following standard cable is used, and the connection is made according to the pinout of the preferred type: *see „**Harting HAN HPR connector (preferred type)**“, page 23*		
Cable	halogen-free and with a Shield (3)	
Cable diameter	8.0 ± 0.3 mm	
Cable cross-section	12 x 0.34 mm²	
Minimum bending radius (static/dynamic)	24 mm / 40 mm	
Note on shielding	Cable shield directly attached to the sensor or optionally capacitively attached	
Environmental testing		
The Speed Sensor complies with a wide range of standards and requirements for a variety of applications: *see „Technical Data - Environmental Testing“, page 10*		
Requirements for the target wheel		
Material	ferromagnetic steel	
Tooth Profile	Involute teeth per DIN 867 Rectangular teeth, typically 1:1 (other ratios available upon request)	
Width	≥ 15 mm (smaller widths available upon request)	
Module m	1.00 / 1.25 / 1.50 / 1.75 / 2.00 / 2.25 / 2.50 / 2.75 / 3.00 / 3.25 / 3.50	
Air gap	*see „Air Gap Table“, page 21*	

(1) depending on output current and temperature
(2) Applies to operation at the rated air gap and with gear teeth according to DIN 867
(3) Specifications available upon request

Output with Standstill Voltage - Output Signals and Connectors

Signal Patterns with Standstill Voltage (DM, EM)			
Output Signals		**Supply Voltage**	**Pulse Diagram**
EM	1 channel with Standstill Voltage	10 ... 20 V DC	
DM	2 galvanically isolated channels, 90° phase offset, with Standstill Voltage	10 ... 20 V DC	

Output signal level – voltage output (DM, EM)

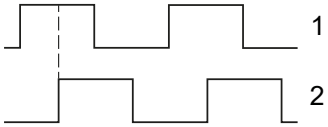
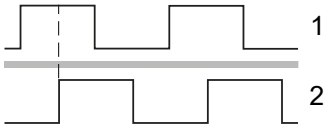


Technical Data: Current Output

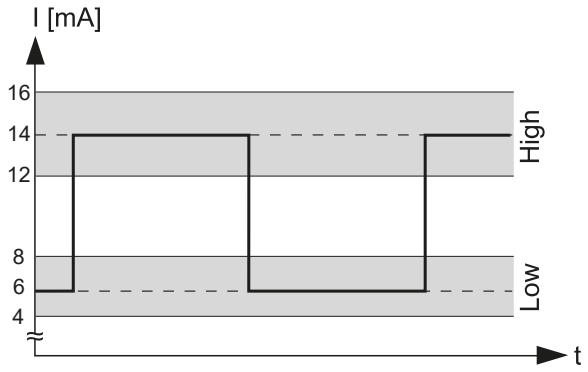
Signal Pattern	EI	DI	VI
Electrical Data			
Supply voltage U_B (reverse polarity protected)	10 ... 20 V DC		
Output signal (short-circuit-proof)	Square-wave signals		
Output signal level (High) (1)	typ. 14 mA		
Output signal level (Low) (1)	typ. 6 mA		
Output current per channel	≤ 16 mA		
Frequency range	0 ... 12 kHz		
Duty cycle	50% ± 10% (2)		
phase offset	-	typ. 90°	
Mechanical Data			
Sensor tube material	Stainless steel		
Flange material	Stainless steel		
Sensor weight (including 2 m cable)	500 g		
Cable			
Due to the wide variety of possible signal pattern combinations, different cable variants may be installed. Unless otherwise specified or requested, the following standard cable is used, and the connection is made according to the pinout of the preferred type: *see „**Harting HAN HPR connector (preferred type)**“, page 23*			
Cable	halogen-free and with a Shield (3)		
Cable diameter	8.0 ± 0.3 mm		
Cable cross-section	12 x 0.34 mm²		
Minimum bending radius (static/dynamic)	24 mm / 40 mm		
Note on shielding	Cable shield directly attached to the sensor or optionally capacitively attached		
Environmental testing			
The Speed Sensor complies with a wide range of standards and requirements for a variety of applications: *see „Technical Data - Environmental Testing“, page 10*			
Requirements for the target wheel			
Material	ferromagnetic steel		
Tooth Profile	Involute teeth per DIN 867 Rectangular teeth, typically 1:1 (other ratios available upon request)		
Width	≥ 15 mm (smaller widths available upon request)		
Module m	1.00 / 1.25 / 1.50 / 1.75 / 2.00 / 2.25 / 2.50 / 2.75 / 3.00 / 3.25 / 3.50		
Air gap	*see „Air Gap Table“, page 21*		

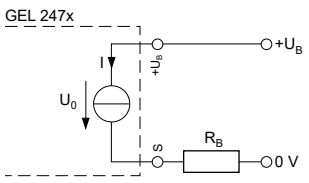
(1) depending on output current and temperature
(2) Applies to operation at the rated air gap and with gear teeth according to DIN 867
(3) Specifications available upon request

Current Output - Output Signals and Connectors

Signal Patterns (EI, VI, DI)			
Output Signals		**Supply Voltage**	**Pulse Diagram**
EI	1 channel	10 ... 20 V DC	
VI	2 channels, 90° phase offset	10 ... 20 V DC	
DI	2 channels, electrically isolated, 90° phase offset	10 ... 20 V DC	

Output signal level (EI, VI, DI)





U_B Supply voltage
S Signal
I_{max} Maximum output current

Measuring resistor
The measurement resistance R_B to be connected must fall within the following limits:
$R_{B,min}$ = 240 Ω
$R_{B,max}$ = (U_B – 5 V) / I_{max}

Example

with U_B = 15 V and I_{max} = 16 mA:
$R_{B,max}$ = 15 V - 5 V / 16 mA = 10 V / 16 mA
= 625 Ω

Technical Data - Environmental Testing

Lenord+Bauer's Speed Sensors are designed for a wide range of applications. During design and manufacturing, we consistently ensure the reliability and compatibility of the Speed Sensors with a wide variety of standards, and these are continuously tested.

Through the ongoing development and optimization of sensors for a wide range of applications, Lenord+Bauer has extensive experience in this field.

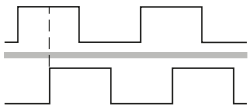
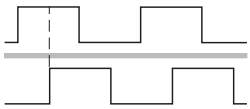
Only the minimum standards for all sensors are listed below.

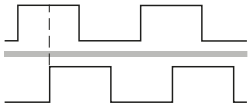
If you have additional requirements regarding standards and approvals, please feel free to contact us.

	Rail Vehicle Industry	Maritime Applications	Industrial applications
Operating and working temperature	-40 °C … +120°C / -40 °C … +85°C (for Signal Patterns with standstill voltage)		
Storage temperature	-40 °C … +120 °C		
General Industry Standard	DIN EN 50155:2022-06	DNV-CG-0339	Depending on the application
Dielectric strength	500 V AC / 750 V DC DIN EN 50155:2022-06	DNV-CG-0339	500 V AC
Electromagnetic compatibility	DIN EN 50121-3-2:2017-11	DNV-CG-0339	IEC 61000-6-2:2016 IEC 61000-6-4:2016
Vibration Resistance	DIN EN 61373:2011-04 Cat. 3	DNV-CG-0339	IEC 60068-2-64:2008 IEC 60068-2-6:2008
Shock resistance	DIN EN 61373-2011-04 Cat. 3	DNV-CG-0339	IEC 60068-2-27:2008
Fire protection	DIN EN 45545-2:2023-12 NFPA 130 upon request	IMO 2010 FTP	Upon request
Degree of protection on the measurement side (1)	IP68		
MTTF value	> 2,000,000 h at 55 °C		

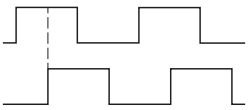
(1) The degree of protection on the cable outlet side depends on the cable gland or cable protection

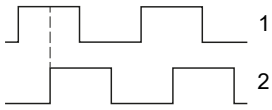
System Combinations

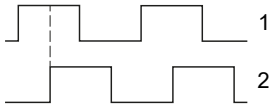
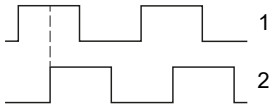
D/D Signal Pattern (Model Code Option 01)		
System 1		2 galvanically isolated voltage signals with a 90° phase offset
System 2		2 galvanically isolated voltage signals with a 90° phase offset

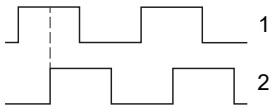
Signal Pattern D/E (model code option 02)		
System 1		2 galvanically isolated voltage signals with a 90° phase offset
System 2		1 voltage signal

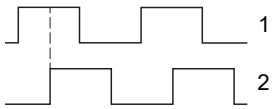
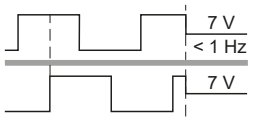
Signal Pattern E/E/E/E (model code option 03)		
System 1		1 voltage signal
System 2		1 voltage signal
System 3		1 voltage signal
System 4		1 voltage signal

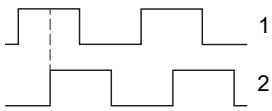
Signal Pattern V/E/E (model code option 04)		
System 1		2 voltage signals with a 90° phase offset
System 2		1 voltage signal
System 3		1 voltage signal

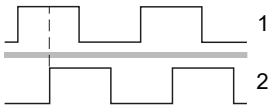
V/E Signal Pattern (model code option 05)		
System 1		2 voltage signals with a 90° phase offset
System 2		1 voltage signal

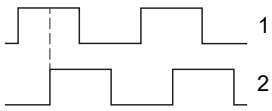
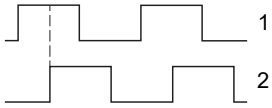
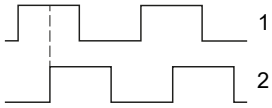
V/V Signal Pattern (model code option 06)		
System 1		2 voltage signals with a 90° phase offset
System 2		2 voltage signals with a 90° phase offset

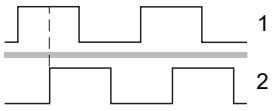
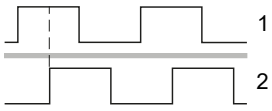
Signal Pattern V/EM/EM (Model Code Option 07)		
System 1		2 voltage signals with a 90° phase offset
System 2		1 voltage signal with Standstill Voltage
System 3		1 voltage signal with Standstill Voltage

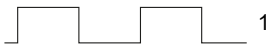
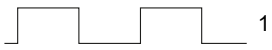
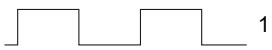
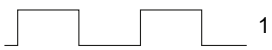
Signal Pattern V/DM (model code option 08)		
System 1		2 voltage signals with a 90° phase offset
System 2		2 galvanically isolated voltage signals with a 90° phase offset and Standstill Voltage

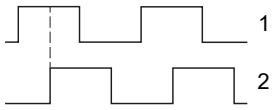
Signal Pattern V/EM (model code option 09)		
System 1		2 voltage signals with a 90° phase offset
System 2		1 voltage signal with Standstill Voltage

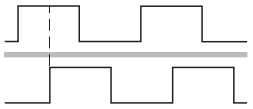
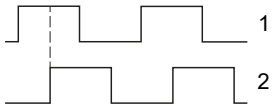
Signal Pattern D/EM (model code option 10)		
System 1		2 galvanically isolated voltage signals with a 90° phase offset
System 2		1 voltage signal with Standstill Voltage

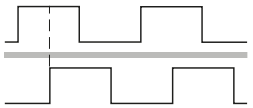
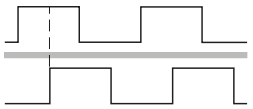
Signal Pattern V/V/V (model code option 11)		
System 1		2 voltage signals with a 90° phase offset
System 2		2 voltage signals with a 90° phase offset
System 3		2 voltage signals with a 90° phase offset

Signal Pattern DI/D (model code option 12)		
System 1		2 galvanically isolated current signals with a 90° phase offset
System 2		2 electrically isolated voltage signals with a 90° phase offset

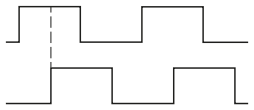
Signal Pattern EI/EI/E/E (model code option 13)		
System 1		1 current signal
System 2		1 current signal
System 3		1 voltage signal
System 4		1 voltage signal

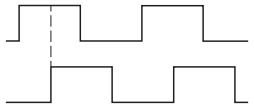
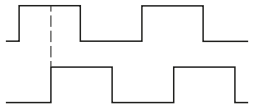
Signal Pattern VI/E/E (model code option 14)		
System 1		2 current signals with a 90° phase offset
System 2		1 voltage signal
System 3		1 voltage signal

Signal Pattern D/VI (model code option 15)		
System 1		2 galvanically isolated voltage signals with a 90° phase offset
System 2		2 current signals with a 90° phase offset

Signal Pattern DI/DI (model code option 16)		
System 1		2 galvanically isolated current signals with a 90° phase offset
System 2		2 electrically isolated current signals with a 90° phase offset

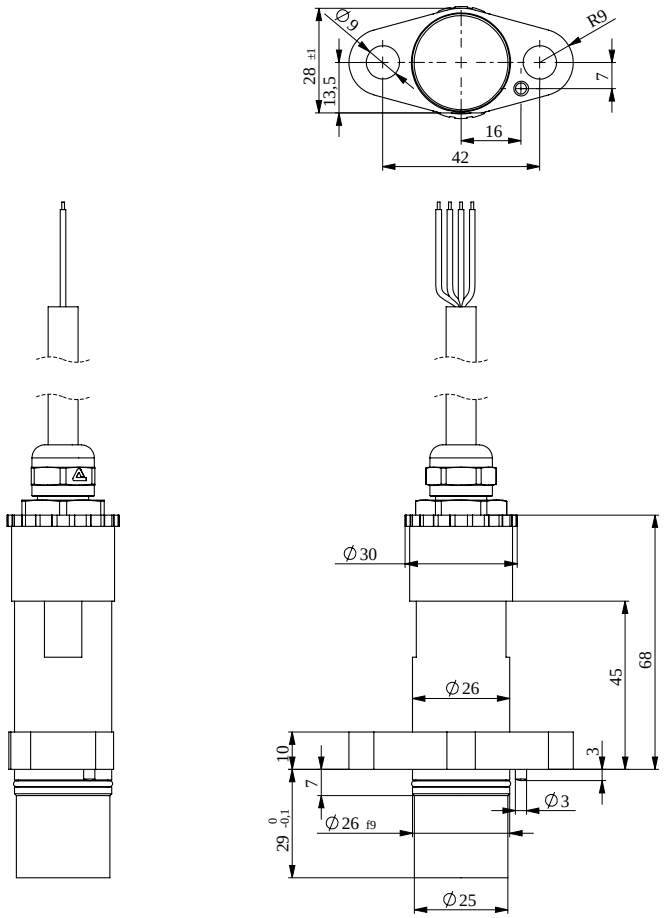
Signal Pattern EI/EI/EI/EI (model code option 17)		
System 1		1 current signal
System 2		1 current signal
System 3		1 current signal
System 4		1 current signal

Signal Pattern VI/EI (model code option 18)		
System 1		2 current signals with a 90° phase offset
System 2		1 current signal

Signal Pattern VI/VI (Model Code Option 19)		
System 1		2 current signals with a 90° phase offset
System 2		2 current signals with a 90° phase offset

Mechanical Properties

Cable outlet
Straight cable outlet Option **S** (see Type Code)
Additionally, the straight cable outlet can be connected at an angle: *„**Straight cable exit**“, page 17*

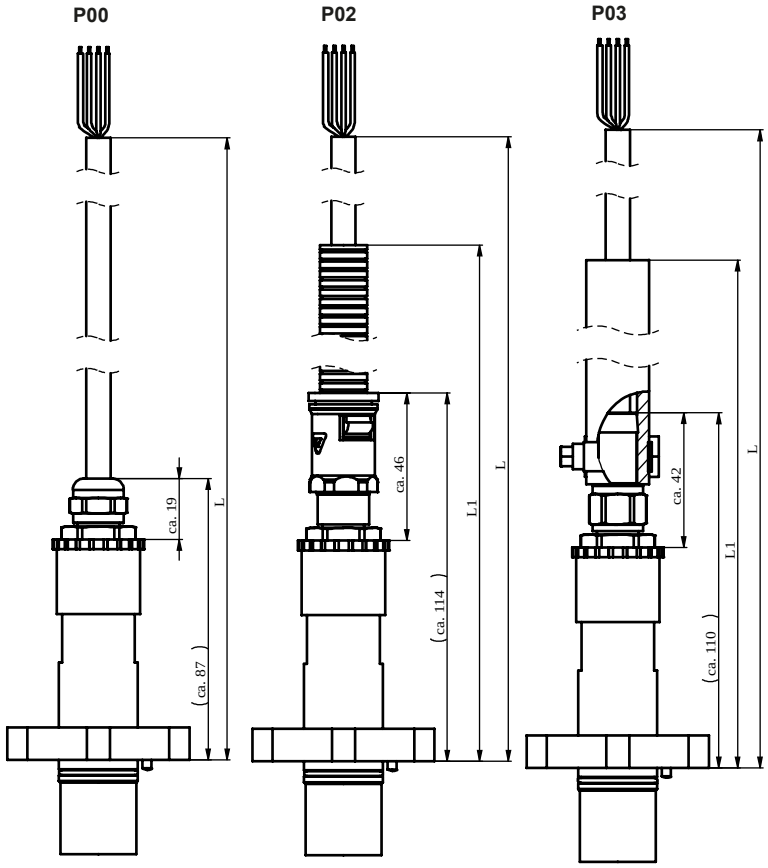


Cable Protection at the Cable Exit	
Depending on requirements, the Speed Sensor can be equipped with various types of cable protection at the cable outlet.	
Selection **P00**	No cable protection
Option **P02**	Corrugated tube NW12
Option **P03**	Hydraulic hose DN12

Technical Data for Cable Protection		
Option	**P02**	**P03**
Type	Corrugated tube NW12	Hydraulic hose DN12
Material	Polyamide, halogen-free	Rubber compound
Outer diameter	15.8 mm	19.5 ± 0.5 mm
Minimum bend radius	35 mm (static) 80 mm (dynamic)	70 mm

Straight cable exit

Cable protection for straight cable outlet—when option **S** is selected for the cable outlet (see Type Code)

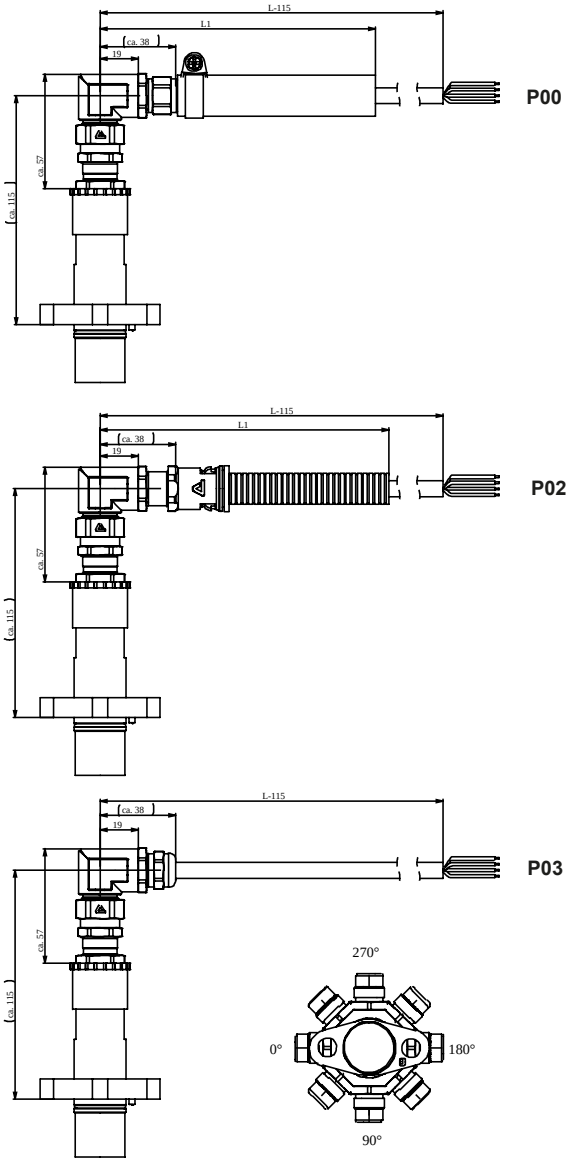


P00	Without cable protection
P02	Corrugated tube NW12
P03	Hydraulic hose DN12
L	Cable length **L** is determined by the Type Code (Tolerance depends on the assembled cable length)
L1	Protective hose length L1; depending on the cable connection and assembly, the protective hose length L1 corresponds to the cable length L minus 100 mm

Straight Cable Exit with Angle

Straight cable outlet with angle – When option **S** is selected for the cable outlet (see Type Code)

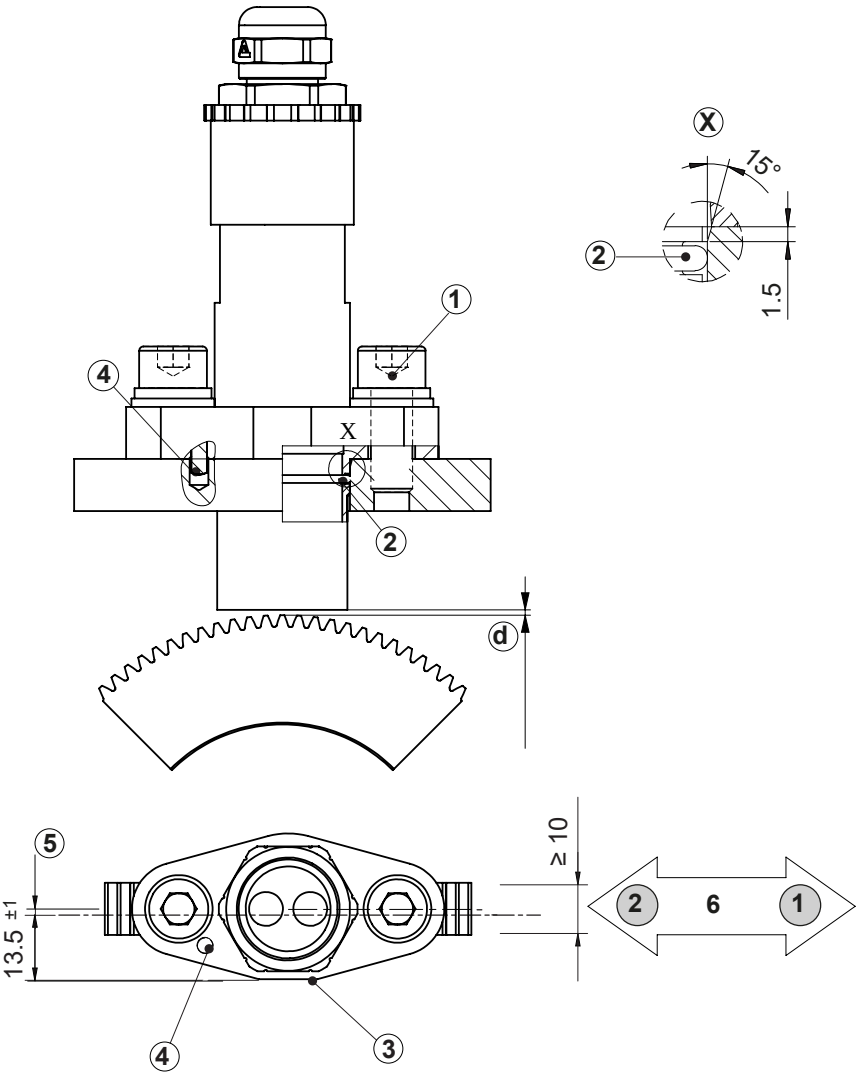
The selection can be made in 45° increments: 000°; 045°; 090°; 135°; 180°; 225°; 270°; 315° (tolerance ± 10°) (see Type Code).



P00	Without cable protection
P02	Corrugated tube NW12
P03	Hydraulic hose DN12
L	Cable length **L** is determined by the Type Code (tolerance depends on the assembled cable length)
L1	Protective hose length L1; depending on the cable connection and assembly, the protective hose length L1 corresponds to the cable length L - 100 mm

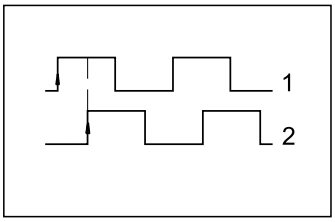
Installation Drawing

All dimensions in mm; general tolerance DIN ISO 2768 mK

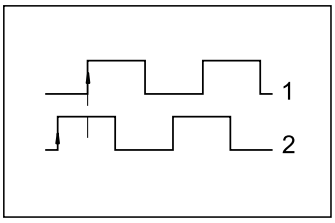


X Entry chamfer
d Air gap (see air gap table)
1 Hex socket screw (recommended: M8 x 20, EN ISO 4762)
2 O-ring
3 Reference surface
4 Index pin
5 Axial offset
6 Direction of rotation of the Target wheel

Signal for direction of rotation 1



Signal for direction of rotation 2



Other mounting orientations (such as rotated by 45°) are available upon request.

The reference surface (3) or the index pin (4) are used to determine the direction of rotation.

Index pin

- If the Target wheel rotates from the index pin toward the center of the sensor, this is **rotation direction 1**.
- If the Target wheel rotates from the sensor center toward the index pin, this is **rotation direction 2**.

Reference surface

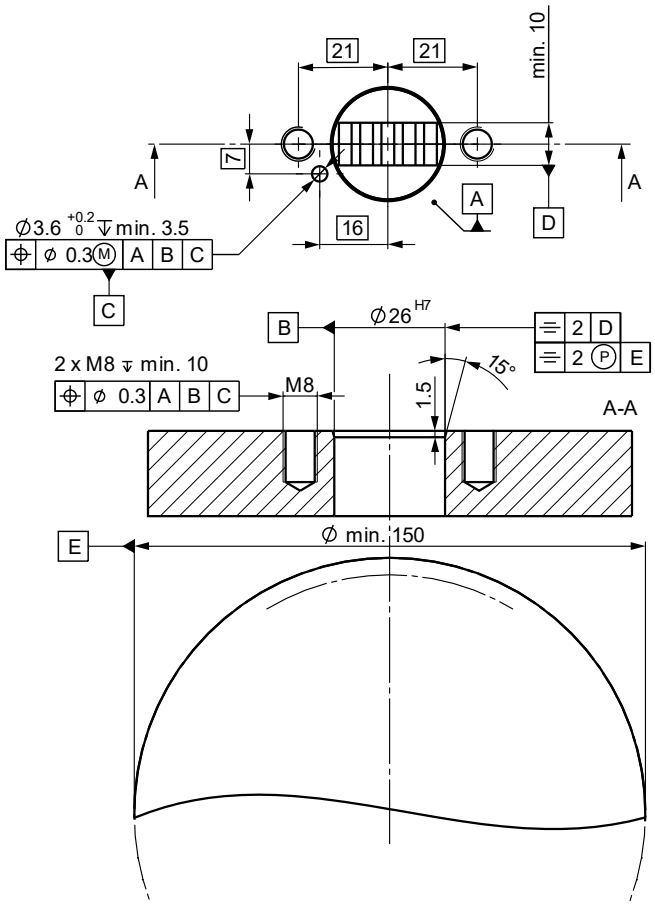
- If the Target wheel rotates clockwise when viewed from the reference surface, this is **rotation direction 1**.
- If the Target wheel rotates counterclockwise when viewed from the reference surface, this is **rotation direction 2**.

Despite its high immunity to interference, the sensor must be integrated into a shielding concept to ensure EMC immunity.

Follow the EMC instructions in the accompanying documents.

Drilling Pattern

All dimensions in mm; general tolerance per DIN ISO 2768 mK



Air Gap Table

Module	Permissible Air Gap	Nominal Air Gap	Max. Permissible Vertical Runout
1.00	0.2 … 1.4 mm	0.5 mm	± 0.3 mm
1.25			
1.50	0.2 … 1.8 mm	0.7 mm	
1.75			
2.00	0.2 … 2.2 mm	0.7 mm	
2.25			
2.50	0.2 … 2.8 mm		
2.75			
3.00			
3.25			
3.50	0.2 … 3.0 mm		

Type Code GEL 2475MS

2475MS	Product Type							
	Signal Pattern Option System Combination							
	01	2 x Signal Pattern D		**11**	3 x Signal Pattern V (For Module 2.00 only)			
	02	Signal Pattern D with Signal Pattern E		**12**	Signal Pattern D with Signal Pattern DI			
	03	4 x Signal Pattern E		**13**	2 x Signal Pattern E with 2 x Signal Pattern EI			
	04	Signal Pattern V with 2 x Signal Pattern E		**14**	2 x Signal Pattern E with Signal Pattern VI			
	05	Signal Pattern V with Signal Pattern E		**15**	Signal Pattern D with Signal Pattern VI			
	06	2 x Signal Pattern V		**16**	2 x Signal Pattern DI			
	07	Signal Pattern V with 2 x Signal Pattern EM		**17**	4 x Signal Pattern EI			
	08	Signal Pattern V with Signal Pattern DM		**18**	Signal Pattern VI with Signal Pattern EI			
	09	Signal Pattern V with Signal Pattern EM		**19**	System combination: 2 x Signal Pattern VI			
	10	Signal Pattern D with Signal Pattern EM						
		Shield support						
		SD	directly attached					
		SC	capacitively attached					
		SI	isolated from the housing (1)					
			Module		**Module**			
			M01	m = 1.00, steel, involute	**M12**	m = 1.00, steel, rectangular		
			M02	m = 1.25, steel, involute	**M13**	m = 1.25, steel, rectangular		
			M03	m = 1.50, steel, involute	**M14**	m = 1.50, steel, rectangular		
			M04	m = 1.75, steel, involute	**M15**	m = 1.75, steel, rectangular		
			M05	m = 2.00, steel, involute	**M16**	m = 2.00, steel, rectangular		
			M06	m = 2.25, steel, involute	**M17**	m = 2.25, steel, rectangular		
			M07	m = 2.50, steel, involute	**M18**	m = 2.50, steel, rectangular		
			M08	m = 2.75, steel, involute	**M19**	m = 2.75, steel, rectangular		
			M09	m = 3.00, steel, involute	**M20**	m = 3.00, steel, rectangular		
			M10	m = 3.25, steel, involute	**M21**	m = 3.25, steel, rectangular		
			M11	m = 3.50, steel, involute	**M22**	m = 3.50, steel, rectangular		
				Cable outlet				
				S	Straight cable outlet			
					angle			
					0	without angle		
					1	With angle, 0 degrees	**5**	with angle, 180 degrees
					2	with angle, 45 degrees	**6**	with angle, 225 degrees
					3	with angle, 90 degrees	**7**	with angle, 270 degrees
					4	with angle, 135 degrees	**8**	with angle, 315 degrees
						Cable protection		
						P00	None	
						P02	Corrugated tube NW12	
						P03	Hydraulic hose DN12	
						P04	Corrugated tube NW17	
							Cable length L	
							L2	2000 mm
							L3	3000 mm
							L4	4000 mm
▼	▼	▼	▼	▼	▼	▼	▼	
2475MS	__	__	___	_	_	___	__	◄ **Product code**

(1) Not available for all Signal Patterns

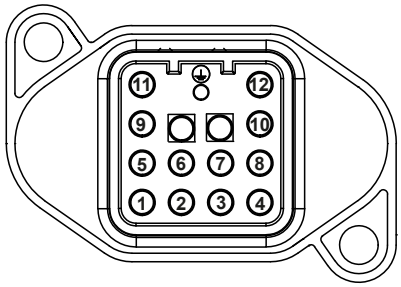
Accessories

ZB247XM8	2 M8 x 20 screws (EN ISO 4762) with washer and spring washer

A Y-number is assigned for customer-specific designs. Custom designs are manufactured according to drawings or application descriptions and may differ from the standard technical specifications.

Pin Assignment

Harting HAN HPR connector (preferred type)



PIN:	1	2	3	4	5	6	7	8	9	10	11	12
Color:	VT	PK-BU	GY	YE	BU	RD-BU	PK	WH	RD	GN	BK	BN
D/D	Track B1	GND2	GND3	Track A2	GND1	U_{B2}	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	Track A1	GND4
D/E	Track B1	GND2	GND3	Track A2	GND1	U_{B2}	$+U_{B3}$	-	U_{B1}	-	Track A1	-
E/E/E/E	Track B1	GND2	GND3	Track A2	GND1	U_{B2}	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	Track A1	GND4
V/E/E	Track B1	-	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	Track A1	GND4
V/E	Track B1	-	GND3	Track A2	GND1	-	$+U_{B3}$	-	U_{B1}	-	Track A1	-
V/V	Track B1	-	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	-	Track A1	-
V/EM/EM	Track B1	-	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	Track A1	GND4
V/DM	Track B1	-	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	Track A1	GND4
V/EM	Track B1	-	GND3	Track A2	GND1	-	$+U_{B3}$	-	U_{B1}	-	Track A1	-
D/EM	Track B1	GND2	GND3	Track A2	GND1	U_{B2}	$+U_{B3}$	-	U_{B1}	-	Track A1	-
V/V/V	Track A2	GND1	GND3	Track B1	GND1	U_{B2}	$+U_{B3}$	Track B2	U_{B1}	Track A3	Track A1	Track B3
DI/D	-	Track B1	GND3	Track A2	Track A1	U_{B2}	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	-	GND4
EI/EI/E/E	-	Track B1	GND3	Track A2	Track A1	U_{B2}	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	-	GND4
VI/E/E	-	Track B1	GND3	Track A2	Track A1	-	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	-	GND4
VI/D	-	Track B1	GND3	Track A2	Track A1	-	$+U_{B3}$	Track B2	U_{B1}	$+U_{B4}$	-	GND4
DI/DI	-	Track B1	Track A2	-	Track A1	U_{B2}	$+U_{B3}$	-	U_{B1}	$+U_{B4}$	-	Track B2
EI/EI/EI/EI	-	Track B1	Track A2	-	Track A1	U_{B2}	$+U_{B3}$	-	U_{B1}	$+U_{B4}$	-	Track B2
VI/EI	-	Track B1	Track A2	-	Track A1	-	$+U_{B3}$	-	U_{B1}	-	-	-
VI/VI	-	Track B1	Track A2	-	Track A1	-	$+U_{B3}$	-	U_{B1}	-	-	Track B2

Wire color codes: **BK** black, **BN** brown, **BU** blue, **GY** gray, **PK** pink, **RD** red, **WH** white, **YE** yellow, **VT** violet

If you decide to have us assemble our Speed Sensors with cable protection and connectors, we recommend using the preferred types shown here. The necessary materials have been field-tested in large quantities and are always in stock. This allows us to achieve the fastest delivery times thanks to optimal material availability and the lowest retail prices due to large purchasing volumes. If you need assistance defining your desired product, please contact our sales team atsupport@lenord.deor +49(0)208 9963-215.

Europe

Germany

Lenord, Bauer & Co. GmbH
Dohlenstrasse 32
46145 Oberhausen
Tel. +49 (0)208 9963 0
Email info@lenord.de
www.lenord.de

Italy

Lenord+Bauer Italia S.r.l.
Via Gustavo Fara, 26
20124 Milan
Tel. +39 340 1047184
Email salesitaly@lenord.com
www.lenord.com

Spain

Lenord Bauer Iberica, S.L.
Carrer de Balmes, 150, 5°
08008 Barcelona
Tel. +34 603 607 499
Email info@lenord.es
www.lenord.com

North America

USA

Lenord+Bauer USA Inc.
32000 Northwestern Highway, Suite 150,
Farmington Hills, MI 48334
Tel. +1 248 446 7003
Email orders@lenord.com
www.lenord.com

Asia

China

Lenord+Bauer Automation Technology (Shanghai) Co., Ltd.
Block 42, Room 302, No. 1000,
Jinhai Road, 201206 Shanghai
Tel. +86 21 50398270
Email Info@lenord.cn
www.lenord.cn

India

Lenord+Bauer India Private Limited
417 Golden Square Prime Serviced Office
Davanam Sarovar Portico Suites
Hosur Main Road, Bengaluru 560068
Karnataka
Tel. +919901516814
Email info@lenord.co.in
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