Made in Germany

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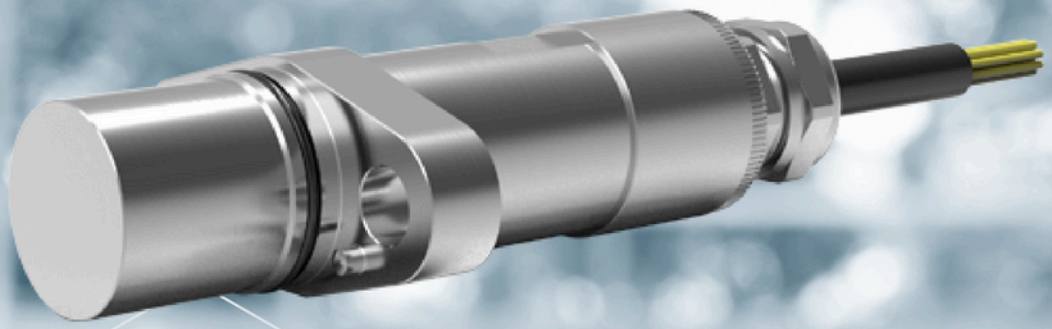


Technical Information

GEL 2475MS

Multisystem sensor

with various signal pattern combinations

D-51T-2475MS | Date of issue 2025-12-09

LENORD +BAUER

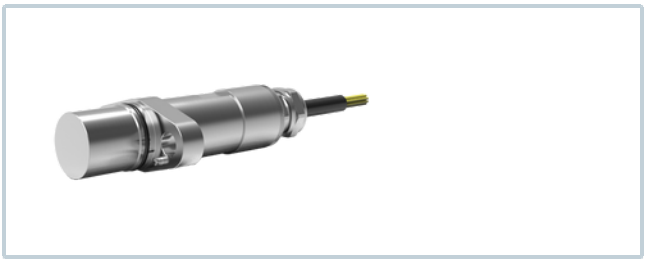
Finding solutions.
Founding trust.

Motion sensors and integrated drive technology

General

Description

- Application-proven speed sensor using magnetic scanning
- Maintenance- and wear-free operation by contactless rotary motion measuring
- Wide measuring range for reliable detection of creeping without pulse loss and also for fast rotary motion
- Detection of direction by evaluating two channels with 90° phase offset
- Constant duty cycle of output signals



Features

- Module of the measuring scale 1.0 to 3.5
- Degree of protection: IP 68 sensor housing
- In accordance with a range of standards and requirements for a variety of applications:
  see"Technicaldata - Environmentaltest",page10

Advantages

- Integrationofdifferent signal patterns in the familiar flange housing
- Perfectly suited for retrofits and for retrofitting additional systems
- No mechanical adjustments required
- Cost-efficient due to reduced cabling effort (cables, cable protection, connectors)
- Electrically isolated rotational speed systems for operation on different supply voltages and control systems
- Large permissible measuring distance facilitates design and assembly

Do you have special requirements regarding flange shape, shaft length, number of channels, cable protection, cable outlet, connector assembly or EMC concept? Talk to us. Our experts can design the optimal solution for your application from an extensive modular system and will be pleased to advise you how to customize your solution in the most cost-efficient way.

Write to support@lenord.de or call +49 208 9963-215.

Fields of application

Industry and automation

Printing and packaging machines:
- Synchronization ofconveyorbelts
- Register control during printing

Automotive and commercial vehicles

Vehicle drives:
- Speed measurement oncrankshaftsand camshafts for engine control units
- Determination of rotor position in electric motors (BLDC, PMSM)
- Input/output speed in gears for gear change strategy

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

Commercial vehicles and agricultural machinery:
- Speed monitoring on PTO shafts, hydraulic pumps
- Harvesting machinery: Worm conveyors, threshing drums

Railroad technology and transportation

Rail vehicles:
- Wheel speed sensorsfor tractioncontrol and brake control
- Drive control for electric locomotives and railcars

Conveyor belts and cable cars:
- Speed monitoring on deflection pulleys
- Drive synchronization in multi-motor systems

Maritime applications

Drive:
- Speedmeasurement on marine engines, turbochargers, gearboxes, and generators

Auxiliary units:
- Input/outputspeed detection for slip control

Energy and utilities

Wind turbines:
- Rotor speedfor power control
- Pitch adjustment (rotor blade angle control)

Hydropower plants/turbines:
- Speed controlfor synchronization withmains frequency

Generators and emergency power systems:
- Speed detection forfrequencymonitoringand load management

Building technology and infrastructure

Elevators and escalators:
- Speed andpositionofthecar
- Safety systems (emergency stop in case of overspeed)

Building machinery:
- Pump andfan speeds in large HVAC systems

Logistics and conveyor technology

Conveyor belts:
- Speed control in distribution centers

Automatic storage systems:
- Positioning of rack feeders

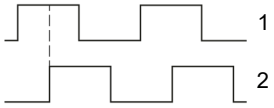
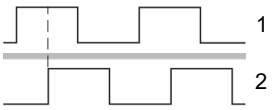
Crane systems:
- Lift and undercarriage control

Technical data voltage output

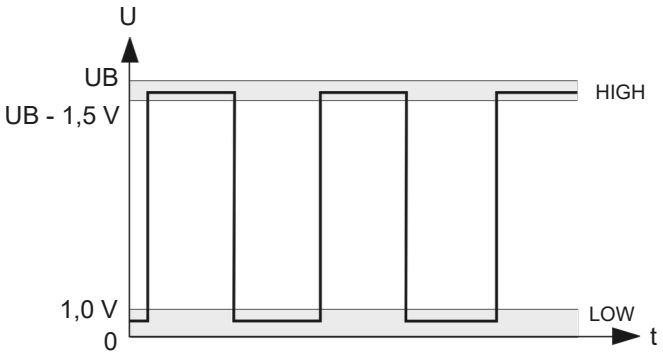
Signal pattern	E-	V-	D-
Electrical data			
Supply voltage UB(reverse polarity protected)	10 to 30 V DC		
Current consumption IB(without load)	≤ 30 mA		
Output signal (short-circuit-proof)	Square-wave signals		
Output signal level High(1)	≥ UB- 1.5 V		
Output signal level Low(1)	≤ 1.0 V		
Output current per channel	≤ 20 mA		
Frequency range	0 to 20 kHz		
Duty cycle	50 % ± 20 %(2)		
Phase offset	–	typ. 90°	
Mechanical data			
Sensor tube material			
Flange material	Stainless steel		
Sensor weight (incl. 2 m cable)	Stainless steel		
Cable(standard version – preferred type)	500 g		
Due to a 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 preferred type of connection assignment: *see "**Harting connector HAN HPR (preferred type)**", page 23*			
Cable			
Cable diameter	halogen-free and screened(3)		
Cable cross section	8.0 ± 0.3 mm		
Minimum bending radius static/dynamic	12 x 0.34 mm2		
Screening note	24 mm/40 mm		
	Cable screen is connected directly or, as an option, capacitively in the sensor		
Environmental tests			
The speed sensor complies with a range of standards and requirements for a variety of applications: *see"Technicaldata - Environmentaltest",page10*			
Requirements for the target wheel			
Material	Ferromagnetic steel		
Tooth form	Involute gear teeth as per DIN 867 (others upon request)		
Width	≥ 15 mm (smaller 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 *see "Air gap table", page 21*		
Air gap			

(1) depending on output current and temperature
(2) applies to operation with nominal air gap and toothing as per DIN 867
(3) Specification upon request

Voltage output - signal pattern

Signal pattern			
Output signals		**Supply voltage**	**Pulse diagram**
E-	1 channel	10 to 30 V DC	
V-	2 channels, 90° phase offset	10 to 30 V DC	
D-	2 channels, electrically isolated, 90° phase offset	10 to 30 V DC	

Output signal level – Voltage output



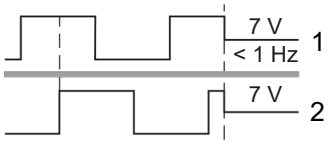
Technical data Voltage output with standstill voltage

Signal pattern	EM	DM
Electrical data		
Supply voltage UB(reverse polarity protected)	10 to 20 V DC ≤ 12	
Current consumption IB(without load)	mA per channel	
Output signal (short-circuit-proof)	Square-wave signals	
Output signal level High(1)	≥ UB- 1.8 V	
Output signal level Low(1)	≤ 1.5 V	
Output current per channel	≤ 10 mA	
Frequency range	0 to 8 kHz	
Duty cycle	50 % ± 10 %(2)	
Phase offset	-	typ. 90°
Mechanical data		
Sensor tube material		
Flange material	Stainless steel	
Sensor weight (incl. 2 m cable)	Stainless steel	
Cable	500 g	
Due to a 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 preferred type of connection assignment: *see **"Harting connector HAN HPR (preferred type)"**, page 23*		
Cable		
Cable diameter	halogen-free and screened(3)	
Cable cross section	8.0 ± 0.3 mm	
Minimum bending radius static/dynamic	12 x 0.34 mm2	
Screening note	24 mm/40 mm	
	Cable screen is connected directly or, as an option, capacitively in the sensor	
Environmental tests		
The speed sensor complies with a range of standards and requirements for a variety of applications: *see"Technicaldata - Environmentaltest",page10*		
Requirements for the target wheel		
Material	Ferromagnetic steel	
Tooth form	Involute gear teeth as per DIN 867 (others upon request)	
Width	≥ 15 mm (smaller 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 *see "Air gap table", page 21*	
Air gap		

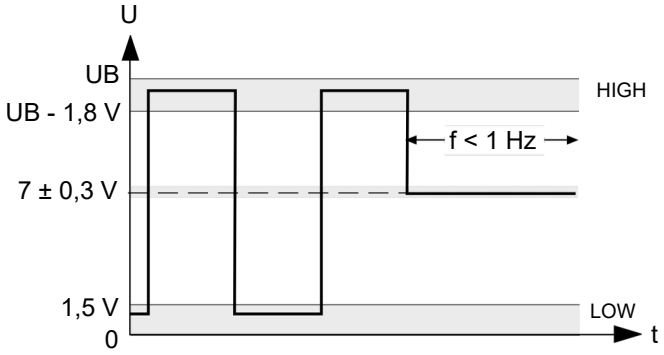
(1) depending on output current and temperature
(2) applies to operation with nominal air gap and toothing as per DIN 867
(3) Specification upon request

Output with standstill voltage - Output signals and connection

Signal pattern with standstill voltage (DM, EM)

Output signals		Supply voltage	Pulse diagram
EM	1 channel with standstill voltage	10 to 20 V DC	
DM	2 channels, electrically isolated, 90° phase offset, with standstill voltage	10 to 20 V DC	

Output signal level – voltage output (DM, EM)

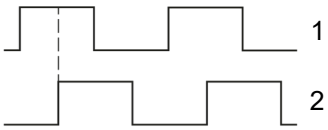
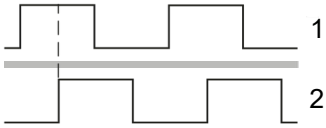


Technical data Voltage current output

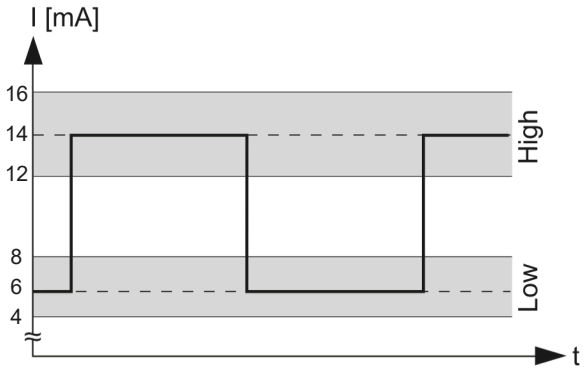
Signal pattern	EI	DI	VI
Electrical data			
Supply voltage UB(reverse polarity protected)	10 to 20 V DC		
Output signal (short-circuit-proof)	Square-wave signals		
Output signal level High(1)	typ. 14 mA		
Output signal level Low(1)	typ. 6 mA		
Output current per channel	≤ 16 mA		
Frequency range	0 to 12 kHz		
Duty cycle	50 % ± 10 %(2)		
Phase offset	-	typ. 90°	
Mechanical data			
Sensor tube material	Stainless steel		
Flange material	Stainless steel		
Sensor weight (incl. 2 m cable)	500 g		
Cable			
Due to a 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 preferred type of connection assignment: *see "**Harting connector HAN HPR (preferred type)**", page 23*			
Cable	halogen-free and screened(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		
Screening note	Cable screen is connected directly or, as an option, capacitively in the sensor		
Environmental tests			
The speed sensor complies with a range of standards and requirements for a variety of applications: *see"Technicaldata - Environmentaltest",page10*			
Requirements for the target wheel			
Material	Ferromagnetic steel		
Tooth form	Involute gear teeth as per DIN 867 (others upon request)		
Width	≥ 15 mm (smaller 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*		

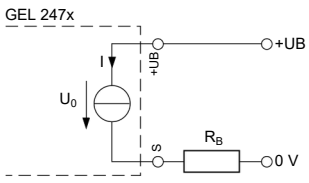
(1) depending on output current and temperature
(2) applies to operation with nominal air gap and toothing as per DIN 867
(3) Specification upon request

Current output - Output signals and connection

Signal pattern (EI, VI, DI)			
Output signals		**Supply voltage**	**Pulse diagram**
EI	1 channel	10 to 20 V DC	
VI	2 channels, 90° phase offset	10 to 20 V DC	
DI	2 channels, electrically isolated, 90° phase offset	10 to 20 V DC	

Output signal level (EI, VI, DI)





UB Supply voltage
S Signal
Imax Maximal output current

Measuring resistor
Themeasuringresistor RBto be connected must be within the following limits:
RB, min= 240 Ω
RB, max= (U– 5 V)/Imax

Example
With UB
RB, max = 15 V and Imax= 16 mA:
= 15 V - 5 V/16 mA = 10 V/16 mA
= 625 Ω

Technical data - Environmental test

Speed sensors fromLenord+Bauerare designedfor many different areas of application. During the design and manufacture of the sensors, attention is always paid to reliability and compatibility with a range of standards, and continuous testing is performed.

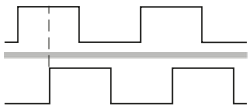
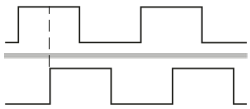
As a result of continuous development and optimization of sensors in a range of applications,Lenord+Bauerhas extensive experience in this field.

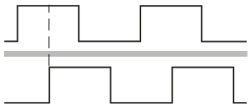
Only the minimum standards for all sensors are listed below.
If you have any further requirements regarding standards and approvals, please feel free to contact us.

	Rail vehicle industry	Maritime applications	Industrial applications
Working and operating temperature	-40 °C to +120 °C/ -40 °C to +85 °C (for signal patterns with standstill voltage)		
Storage temperature	-40 °C to +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 measuring side(1)	IP68		
MTTF value	2,000,000 at 55 °C		

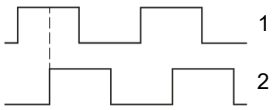
(1) Degree of protection on the cable outlet side depends on cable gland or cable protection

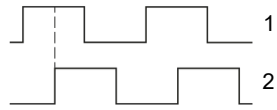
System combinations

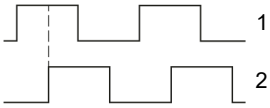
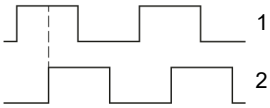
Signal pattern D/D(type code option 01)		
System 1		2 electrically isolated voltage signals with 90° phase offset
System 2		2 electrically isolated voltage signals with 90° phase offset

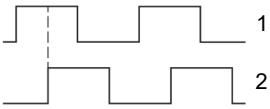
Signal pattern D/E(type code option 02)		
System 1		2 electrically isolated voltage signals with 90° phase offset
System 2		1 voltage signal

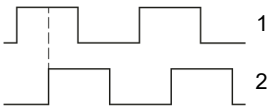
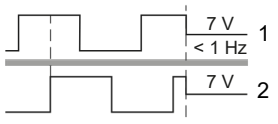
Signal pattern E/E/E/E(type code option 03)		
System 1		1 voltage signal
System 2		1 voltage signal
System 3		1 voltage signal
System 4		1 voltage signal

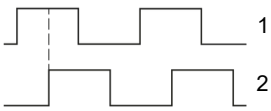
Signal pattern V/E/E(type code option 04)		
System 1		2 voltage signals with 90° phase offset
System 2		1 voltage signal
System 3		1 voltage signal

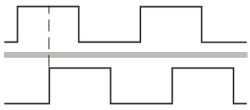
Signal pattern V/E(type code option 05)		
System 1		2 voltage signals with 90° phase offset
System 2		1 voltage signal

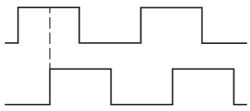
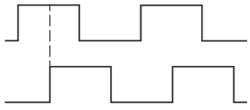
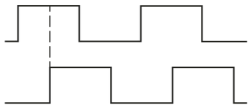
Signal pattern V/V(type code option 06)		
System 1		2 voltage signals with 90° phase offset
System 2		2 voltage signals with 90° phase offset

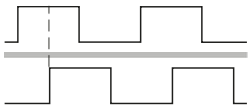
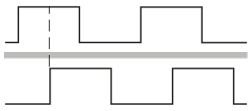
Signal pattern V/ EM/EM(type code option 07)		
System 1		2 voltage signals with 90° phase offset
System 2		1 voltage signal with standstill voltage
System 3		1 voltage signal with standstill voltage

Signal pattern V/DM(type code option 08)		
System 1		2 voltage signals with 90° phase offset
System 2		2 electrically isolated voltage signals with 90° phase offset and standstill voltage

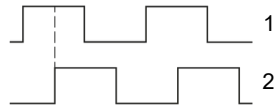
Signal pattern V/EM(type code option 09)		
System 1		2 voltage signals with 90° phase offset
System 2		1 voltage signal with standstill voltage

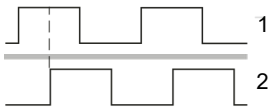
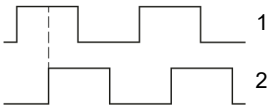
Signal pattern D/EM(type code option 10)		
System 1		2 electrically isolated voltage signals with 90° phase offset
System 2		1 voltage signal with standstill voltage

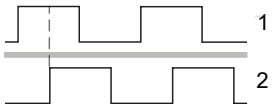
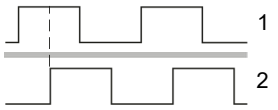
Signal pattern V/ V/V(type code option 11)		
System 1		2 voltage signals with 90° phase offset
System 2		2 voltage signals with 90° phase offset
System 3		2 voltage signals with 90° phase offset

Signal pattern DI/D(type code option 12)		
System 1		2 electrically isolated current signals with 90° phase offset
System 2		2 electrically isolated voltage signals with 90° phase offset

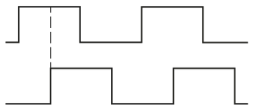
Signal pattern EI/EI/E/E(type code option 13)		
System 1		1 current signal
System 2		1 current signal
System 3		1 voltage signal
System 4		1 voltage signal

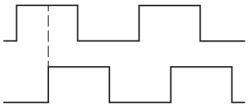
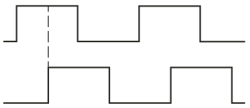
Signal pattern VI/E/E(type code option 14)		
System 1		2 current signals with 90° phase offset
System 2		1 voltage signal
System 3		1 voltage signal

Signal pattern D/VI(type code option 15)		
System 1		2 electrically isolated voltage signals with 90° phase offset
System 2		2 current signals with 90° phase offset

Signal pattern DI/DI(type code option 16)		
System 1		2 electrically isolated current signals with 90° phase offset
System 2		2 electrically isolated current signals with 90° phase offset

Signal pattern EI/EI/EI/EI(type 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(type code option 18)		
System 1		2 current signals with 90° phase offset
System 2		1 current signal

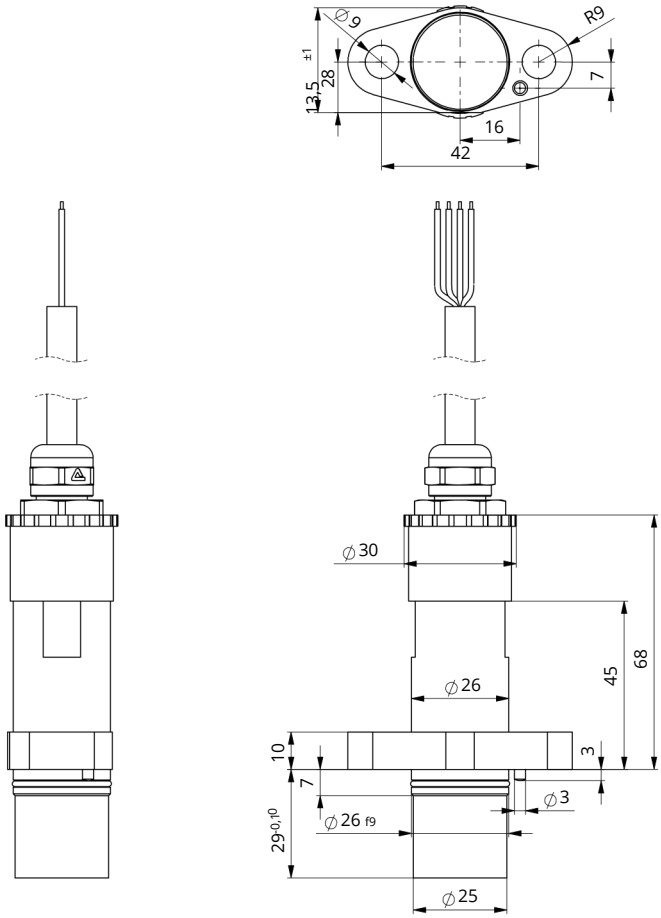
Signal pattern VI/VI(type code option 19)		
System 1		2 current signals with 90° phase offset
System 2		2 current signals with 90° phase offset

Mechanical properties

Cable outlet

Cable outlet straight
Option **S** (seetype code)

The straight cable outlet can also be connected via an angle:
*"**Cableoutletstraight** ", page 17*

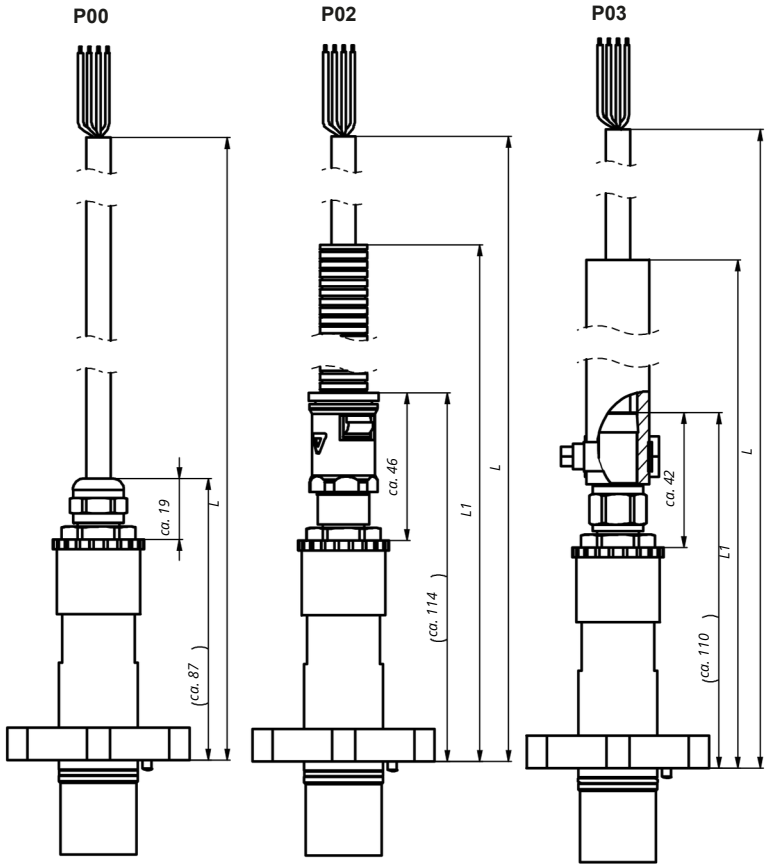


Cable protection at cable outlet	
The speed sensor can be equipped with different types of cable protection at the cable outlet as required.	
Selection **P00**	Without cable protection
Selection **P02**	Flexible conduit NW12
Selection **P03**	Hydraulic hose DN12

Technical data for cable protection		
Option	**P02**	**P03**
Type	Flexible conduit NW12	Hydraulic hose DN12
Material	Polyamid, halogen-free	Rubber compound
Outside diameter	15.8 mm	20.0 mm
Minimum bending radius	35 mm (static) 80 mm (dynamic)	70 mm

Cable outlet straight

Cable protection cable outlet straight - If option **S** is selected for cable outlet (see type code)

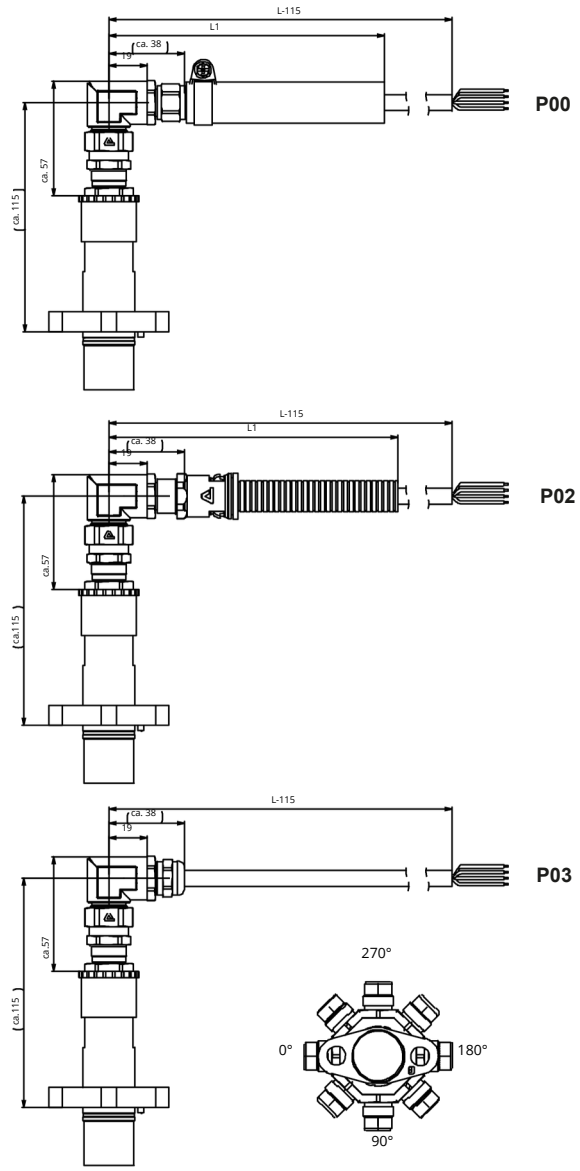


P00	Without cable protection
P02	Flexible conduit NW12
P03	Hydraulic hose DN12
L	Cable length **L** is determined by type code
L1	(Tolerance depends on the preassembled cable length) Protective sleeve length L1; depending on the cable connection and assembly, the protective sleeve length L1 corresponds to thecable length L - 100 mm

Cable outlet straight with angle

Cable outlet straight with angle - If option **S** is selected for cable outlet (see type code)

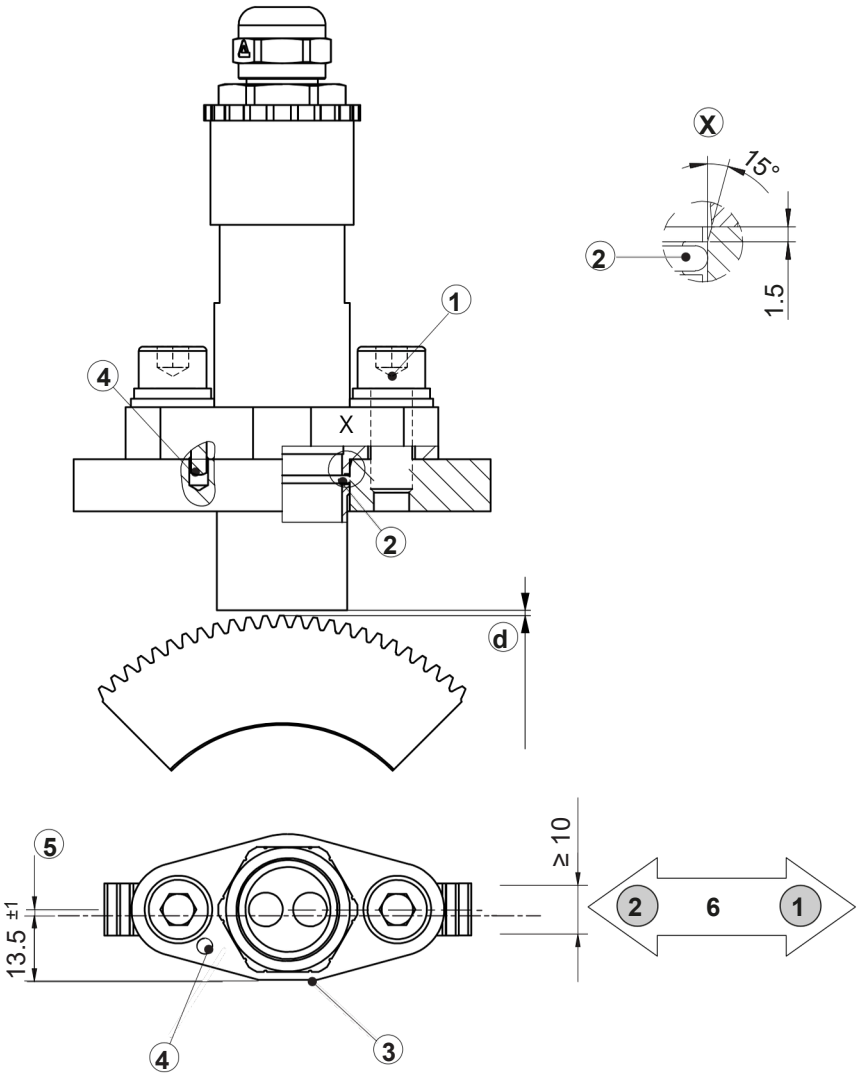
The selection can be made in 45° increments 000°; 045°; 090°; 135°; 180°; 225°; 270°; 315° (Tolerance ± 10°) (see type code).



P00	Without cable protection
P02	Flexible conduit NW12
P03	Hydraulic hose DN12
L	Cable length **L** is determined by type code (Tolerance depends on the preassembled cable length)
L1	Protective sleeve length L1; depending on the cable connection and assembly, the protective sleeve length L1 corresponds to thecable length L - 100 mm

Assembly drawing

All dimensions in mm, general tolerance DIN ISO 2768 mK

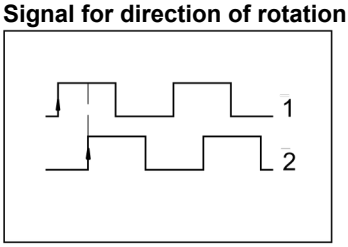


X Insertion chamfer

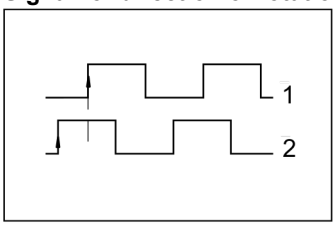
d Air gap (see air gap table)

1 Socket head screw (recommended: M8 x 20, EN ISO 4762)
2 Sealing ring O-ring
3 Reference surface
4 Index pin
5 Axial offset
6 Direction of rotation of target wheel

Signal for direction of rotation 1



Signal for direction of rotation 2



The direction of rotation is determined by the reference surface (3) or the index pin (4).

Index pin

- If the target wheel rotates from the index pin to the center of the sensor, this is **Direction of rotation 1**. If the target wheel rotates from the center of the sensor to the index pin, this is **Direction of rotation 2**.

Reference surface

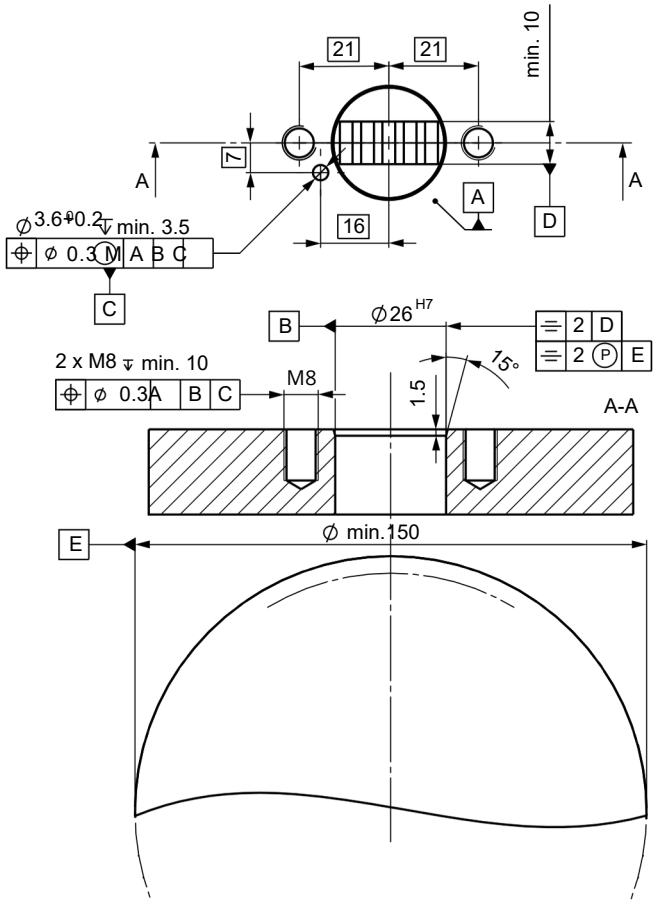
- If the target wheel rotates clockwise with view to the reference surface, this is **Direction of rotation 1**.
- If the target wheel rotates counterclockwise with view to the reference surface, this is **Direction of rotation 2**.

Despite the high electromagnetic immunity, integration into a screening concept is required for the sensor to ensure EMC stability.

Observe EMC notes in the relevant documents.

Hole pattern

All dimensions in mm, general tolerance DIN ISO 2768 mK



Air gap table

Module	Permissible air gap	Nominal air gap	max. permissible radial runout
1.00	0.2 to 1.4 mm	0.5 mm	±0.3 mm
1.25			
1.50	0.2 to 1.8 mm	0.7 mm	
1.75			
2.00	0.2 to 2.2 mm	0.7 mm	
2.25			
2.50	0.2 to 2.8 mm		
2.75			
3.00			
3.25			
3.50	0.2 to 3.0 mm		

Type code GEL 2475MS

2475MS	Product type						
	Signal pattern option System combination						
	01	2xsignalpatternD		**11**	3xsignal pattern V (for module 2.00 only)		
	02	SignalpatternDwithsignalpatternE		**12**	Signalpattern D with signal pattern DI		
	03	4xsignalpatternE		**13**	2xsignal pattern E with 2 x signal pattern EI		
	04	SignalpatternVwith2xsignalpatternE		**14**	2xsignal pattern E with signal pattern VI		
	05	SignalpatternVwithsignalpatternE		**15**	Signalpattern D with signal pattern VI		
	06	2xsignalpatternV		**16**	2xsignal pattern DI		
	07	SignalpatternVwith2xsignalpatternEM		**17**	4xsignal pattern EI		
	08	SignalpatternVwithsignalpatternDM		**18**	Signal pattern VI with signal pattern EI		
	09	SignalpatternVwithsignalpatternEM		**19**	System combination 2 x signal pattern VI		
	10	Signal pattern D with signal pattern EM					
		Screen connection					
		SD	connecteddirectly				
		SC	connected capacitively				
		SI	insulated 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	Cableoutletstraight			
				Angle			
				0	without angle		
				1	withangle,9 degrees		
				2	with angle, 45 degrees		
				3	with angle, 90 degrees		
				4	with angle, 135 degrees		
				5	with angle, 180 degrees		
				6	with angle, 225 degrees		
				7	with angle, 270 degrees		
				8	with angle, 315 degrees		
					Cable protection		
					P00		
					P02	without	
					P03	Flexibleconduit NW12	
					P04	FlexibleconduitNW17	
						Cable length L	
						L2	2000 mm
						L3	3000 mm
						L4	4000 mm
▼	▼	▼	▼	▼	▼	▼	▼
2475MS	__	__	___	_	_	___	__

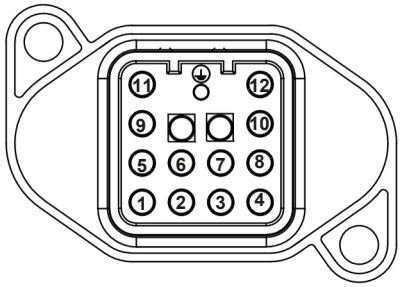
◀Product code

(1) Not available for all signal patterns

A Y-number is assigned for a customer-specific version. A special version is manufactured according to drawing or application description and may deviate from the standard technical specifications.

Assignment

Harting connector HAN HPR (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 D/E	Track B1	GND2	GND3	Track A2	GND1	UB2	$+U_{B3}$	Track B2	U_{B1}	+UB4 -	Track A1	GND4 -
E/E/E/E	Track B1	GND2	GND3	Track A2	GND1	UB2	$+U_{B3}$	- Track	U_{B1}	+UB4	Track A1	GND4
V/E/E	Track B1	GND2 - -	GND3	Track A2	GND1	UB2	$+U_{B3}$	B2 Track	U_{B1}	+UB4	Track A1	GND4 - -
V/E V/V	Track B1	- - - -	GND3	Track A2	GND1	-	$+U_{B3}$	B2 -	U_{B1}	-	Track A1	GND4
V/EM/EM	Track B1	GND2	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	- +UB4	Track A1	GND4 - -
V/DM	Track B1	GND1	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	+UB4	Track A1	Track B3
V/EM	Track B1	Track B1	GND3	Track A2	GND1	-	$+U_{B3}$	Track B2	U_{B1}	-	Track A1	GND4
D/EM	Track B1	Track B1	GND3	Track A2	GND1	-	$+U_{B3}$	- - Track	U_{B1}	- Track	Track A1	GND4
V/V/V	Track B1	Track B1	GND3	Track A2	GND1	UB2	$+U_{B3}$	B2 Track	U_{B1}	A3 +UB4	Track A1	GND4
DI/D	Track B1	Track B1	GND3	Track A2	GND1	UB2	$+U_{B3}$	B2 Track	U_{B1}	+UB4	Track A1	GND4
EI/EI/E/E	Track A2	Track B1	GND3	Track B1	GND1	UB2	$+U_{B3}$	B2 Track	U_{B1}	+UB4	Track A1	Track B2
VI/E/E	- - - - -		GND3	Track A2	Track A1	UB2	$+U_{B3}$	B2 Track	U_{B1}	+UB4	- - - - -	
VI/D DI/			GND3	Track A2	Track A1	-	$+U_{B3}$	B2 -	U_{B1}	+UB4		
DI			GND3	Track A2	Track A1	-	$+U_{B3}$		U_{B1}			
EI/EI/EI/ EI			GND3	Track A2	Track A1	UB2	$+U_{B3}$		U_{B1}			
VI/EI			Track A2	-	Track A1		$+U_{B3}$		U_{B1}			
VI/VI	-	Track B1	Track A2	-	Track A1	U_{B2}	$+U_{B3}$	-	U_{B1}	$+U_{B4}$	-	Track B2
	-	Track B1	Track A2	-	Track A1	-	$+U_{B3}$	-	U_{B1}	-	-	-
	-	Track B1	Track A2	-	Track A1	-	$+U_{B3}$	-	U_{B1}	-	-	Track B2

Core identifier:**BK**black**BN**brown**BU**blue**GY**gray**PK**pink**RD**red**WH**white**YE**yellow**VT**violet

If you decide to have our speed sensors assembled with cable protection and connectors, we recommend using the preferred types shown in the figure. The required materials are field-tested in large quantities and are always in stock. This guarantees the fastest delivery times with the best material availability and the lowest prices due to large purchasing volumes. If you need help in finding the product you need, please contact our internal sales team at support@lenord.de or call +49 208 9963-215.

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