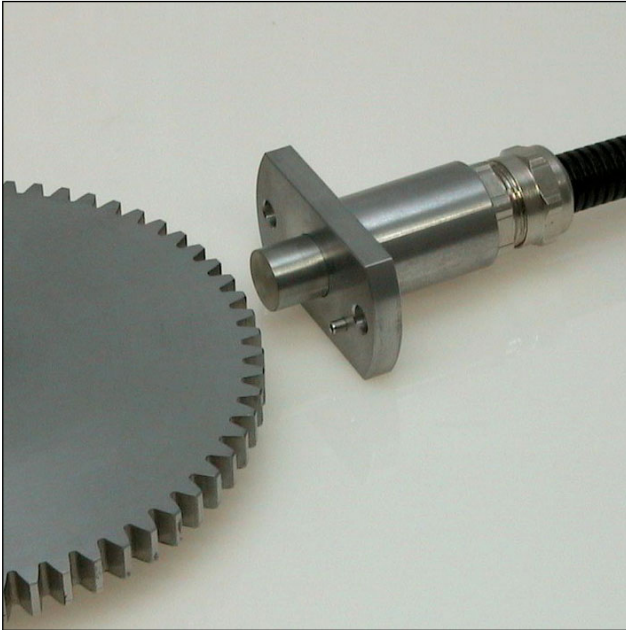


## 2-channel speed sensor

### ▶ GEL 2473Y1xx

Compact sensor for harsh applications



#### General

- ▶ Speed sensor based on magnetic measurement principle
- ▶ Maintenance- and wear-free operation due to non-contact measurement of rotation
- ▶ Safe detection of very slow rotation from 0 Hz without pulse loss and for high-speed rotation up to 25 kHz
- ▶ Suitable for ferromagnetic target wheels
- ▶ Two channels shifted by 90° provide the direction of rotation
- ▶ Robust and compact stainless steel housing suitable for harsh fittings conditions
- ▶ Simple flange mounting
- ▶ Customized cable fittings

#### Features

- ▶ Module target wheel 1.7 to 6.0
- ▶ Measuring range 0 Hz to 25 kHz
- ▶ Temperature range -40 up to +120 °C
- ▶ Protection class IP 67
- ▶ Type test according to EN 50155

#### Advantages

- ▶ Low lifecycle costs for end customer due to high reliability
- ▶ Place-saving sensor in a compact design

#### Fields of application

- ▶ Rail vehicles
  - Traction control
  - Anti-slip
  - Anti-skid
  - Motor speed

# Technical data

<b>Electrical data</b>	
Supply voltage $V_S$ (reverse polarity protected)	10 to 30 V DC
Current consumption per channel $I_S$ (without load)	$\leq 50$ mA
Current consumption per channel $I_S$ (normal conditions)	$\leq 90$ mA
Current consumption per channel $I_S$ (short circuit)	$\leq 140$ mA
Output signal (short circuit-proof)	Square-wave signals, push-pull circuit
Output signal level high <sup>(1)</sup>	$> V_S - 2.5$ V
Output signal level low <sup>(1)</sup>	$< 2.5$ V
Output current per channel	$\leq 20$ mA
Input frequency target wheel	0 to 25 kHz
Duty (depends on target wheel and air gap)	50% $\pm$ 20 %
Phase shift	typ. 90°
Electromagnetic compatibility	Rail vehicles (EN 50121-3-2)
Insulation	100 M $\Omega$ at 500 V DC
<b>Mechanical data</b>	
Diametric pitch of target wheel (module m)	D.P. 4 to 9 (m = 6.0 to 3.0) (other on request)
Permissible air gap	0.1 mm ... 1.5 mm for D.P. 4 to 9 (m = 6.0 to 3.0)
Width of target wheel	$\geq 10$ mm
Form of target wheel	Involute gear as per DIN 867 (other on request)
Material of target wheel	Ferromagnetic steel
Operating and ambient temperature	-40°C to +120 °C continuous <sup>(2)</sup> -40°C to +105 °C continuous <sup>(3)</sup> up to 120°C transient <sup>(3)</sup> (10% of speed sensor life)
Storage temperature	-40°C to +120 °C
Climatic resistance (relative humidity)	0 to 98% condensing
Protection class	IP 67
Vibration resistance	EN 61373 cat. 3
Shock resistance	EN 61373 cat. 3
Type testing	EN 50155
Housing material of sensor	Stainless steel
Weight of sensor (with 3 m lead + conduit)	approx. 730 g (un-terminated) approx. 840 g (incl. connector)
<b>Cable</b>	
Electrical connection	Cable screened and sheathed (specification on request) cable outlet straight or lateral
Cable length	$\leq 50$ m (capacitance 0.5 nFm <sup>-1</sup> )
Flexible conduit diameter	16 mm
Cable cross section	4 x 1.0 mm <sup>2</sup> + screen
Cable screen termination	Cable screen is not directly connected to the metallic housing of the speed sensor
Min. bending radius static / dynamic	30 mm / 70 mm

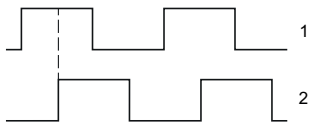
(1) Output signal level depends on output current and the temperature

(2) excluding flying cable lead + conduit

(3) for flying cable lead + conduit

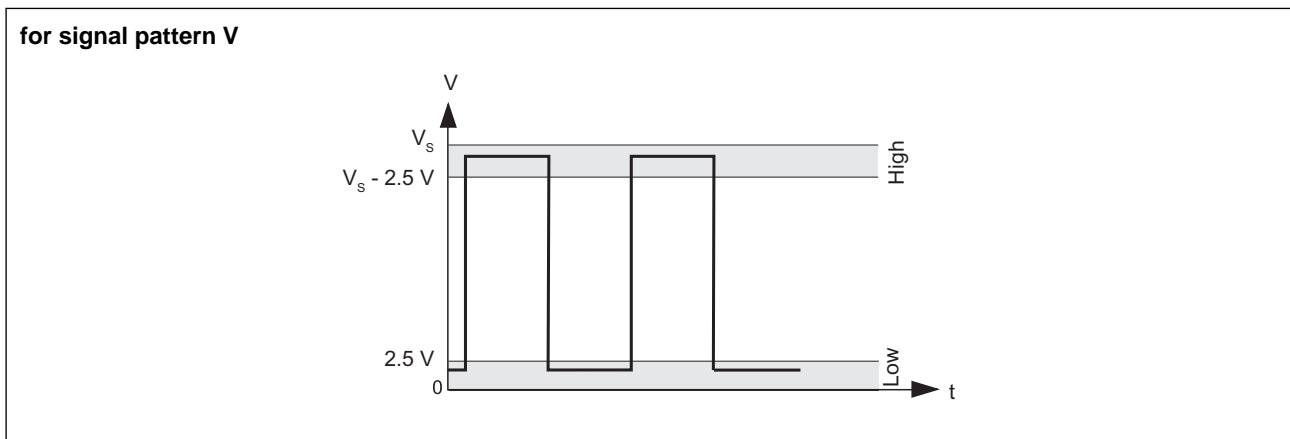
# Output signal

## Signal pattern – overview

Output signal	Signal pattern
2 channels shifted by 90°	<b>V</b> $V_S$ : 10 ... 30 V DC 

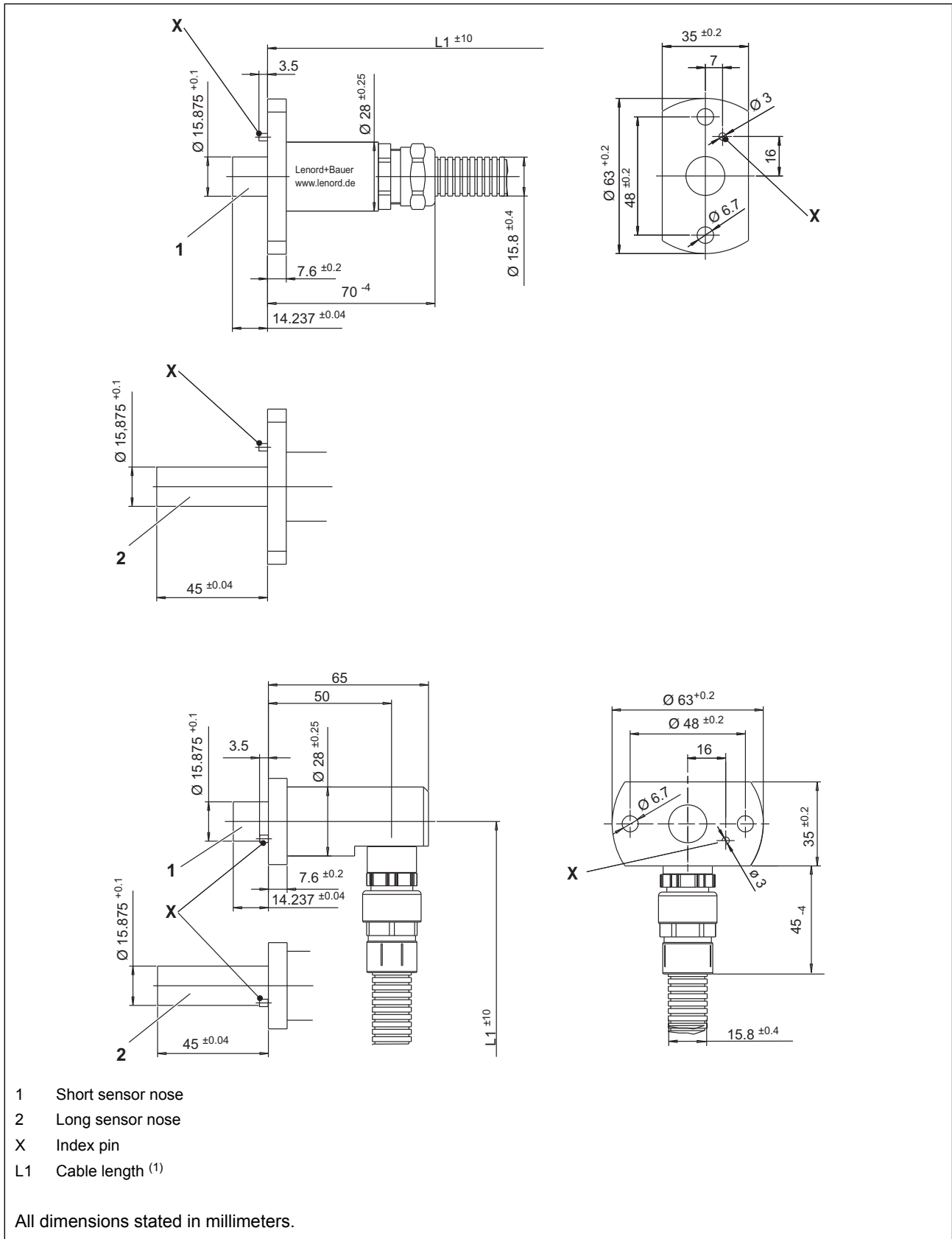
$V_S$  = supply voltage

## Output signal level – voltage output



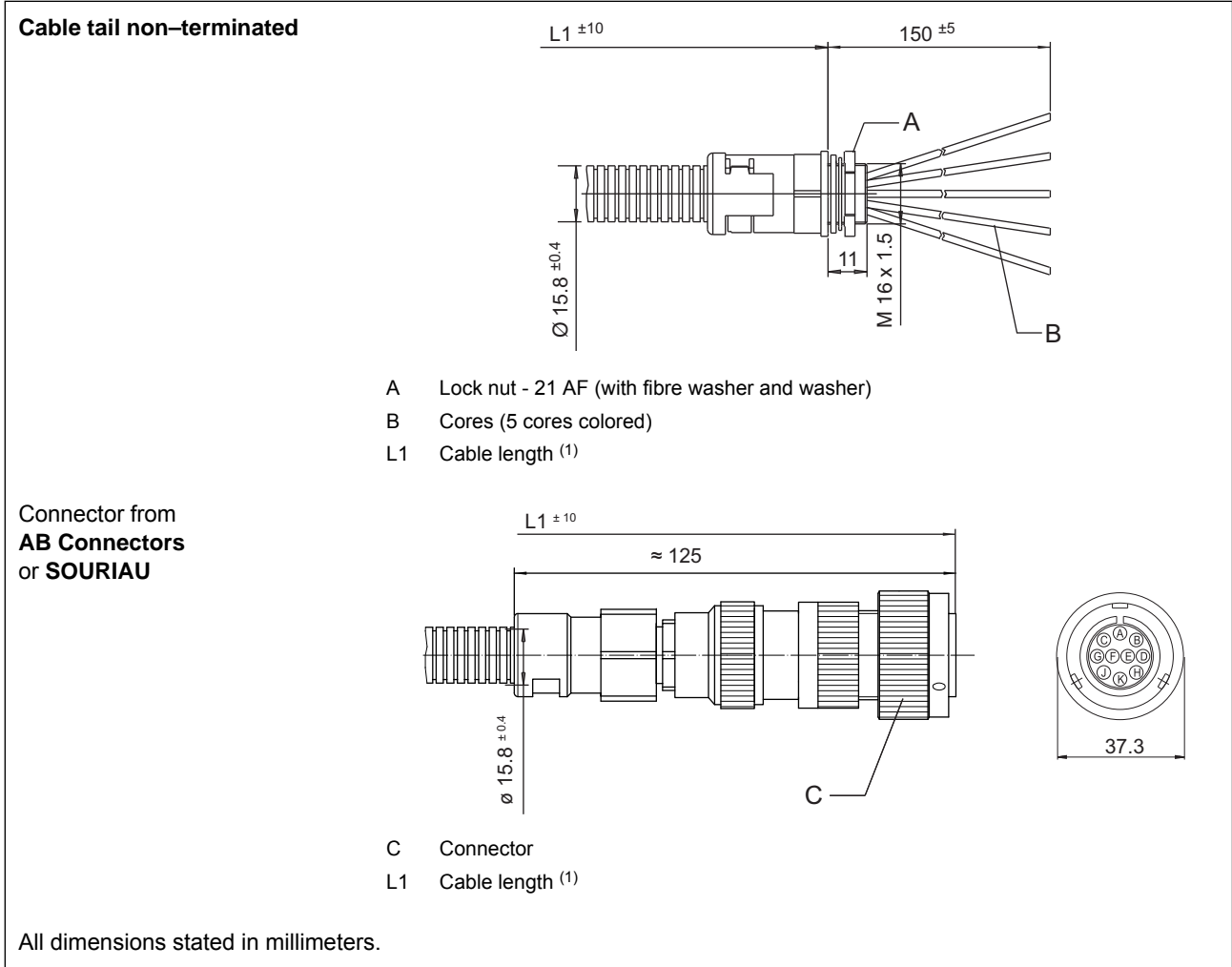
# Dimensional drawing

## Dimensional drawing



<sup>(1)</sup> for L1 see order options

# Electrical connection



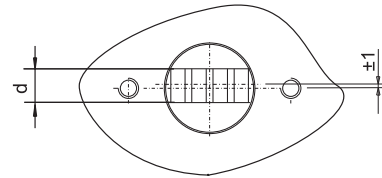
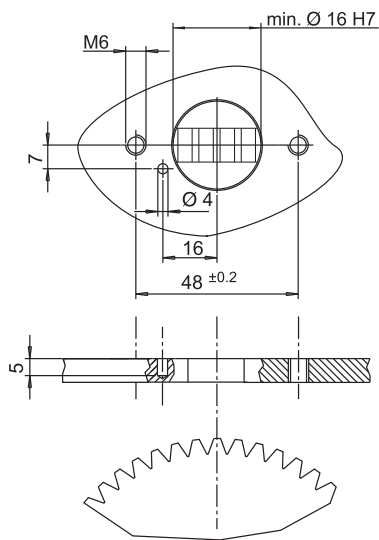
## Connection assignment

Signal	Connector		Core color
	AB Connectors	SOURIAU	
+ V <sub>S</sub> (10...30 V DC)	A	A	red
GND (0 V)	B	B	blue
Channel 1	C	C	green
Channel 2	D	D	yellow
Screen	E	E	colorless

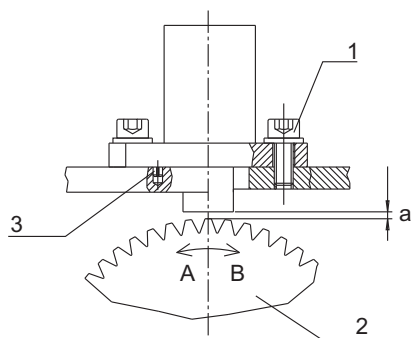
<sup>(1)</sup> for L1 see order options

# Assembly drawing

## Assembly drawing



- d Face width of target wheel  
≥ 10 mm
- ±1 Axial offset

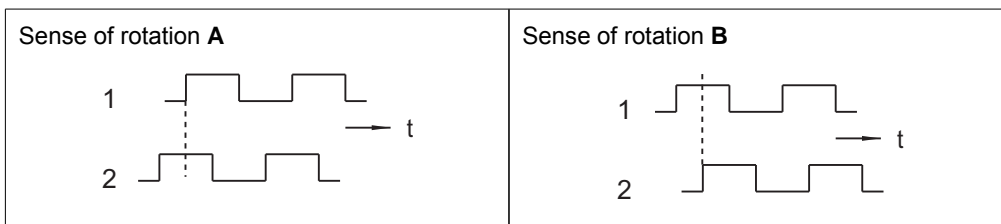


- 1 Mounting screw M6 or 1/4" x 20 UNC
- 2 Toothed target wheel
- 3 Index pin
- A or B Direction of rotation
- a Air gap

### For example

DP	Module	Air gap [mm]
4 to 9	6.0 to 3.0	0.1 to 1.5

### Output signals



All dimensions stated in millimeters.

Please observe the notes on electromagnetic compatibility in the operating instructions!

# Order options GEL 2473

<b>2473</b>	<b>Signal pattern</b>		
	<b>V</b>	2-channel square-wave signals shifted by 90°	
	<b>Module m</b>		
	<b>000</b>	(e. g. 300 = module 3)	
	<b>Length of sensor tube</b>		
	<b>K</b>	Short sensor nose (approx. 14 mm )	
	<b>L</b>	Long sensor nose (approx. 45 mm)	
<b>Cable outlet</b>			
<b>F</b>	Straight cable connection		
<b>G</b>	Lateral cable connection		
<b>Assembly length L<sub>1</sub> (incl. cable)</b>			
<b>00000</b>	Length measured from flange to end of cable gland in mm (see scale drawing)		
<b>Connection type</b>			
<b>T</b>	Cable tail non-terminated		
<b>P</b>	Cable tail terminated with connector from AB Connectors Ltd.		
<b>R</b>	Cable tail terminated with connector from SOURIAU SAS		

**Notes:** For every speed sensor variant ordered a specific Y-No. will be created, for example, GEL 2473Y105.  
The Lenord + Bauer drawings are outline drawings. For details of the variation refer to the specific drawing and / or specification.

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