Single channel speed sensor
GEL 2474

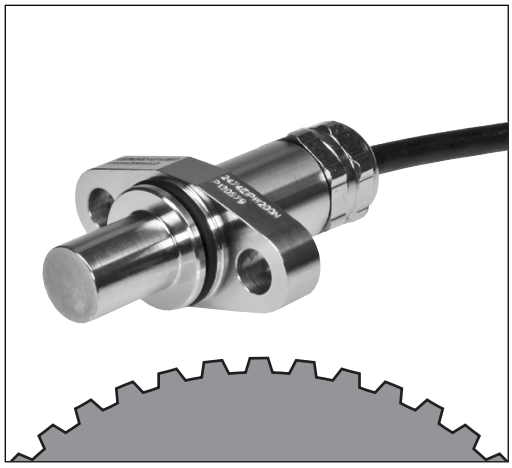
Flange mounting

Technical information

SENSORLINE

LENORD+BAUER

version 06.07



General information

- Contactless measurement of rotational movements
- Magnetic measurement principle for scanning target wheels
- Can be uses under very harsh conditions
- Detetction of very slow movements from 0 Hz to 25 kHz
- Compact mounting dimension

Main features

- Large air gap up to max. 3 mm (depends on the target module)
- Module range from m = 1.0 to 3.5 (D.P. = 25.4 - 7.3)
- Simple flange-mounting
- Robust stainless steel casing
- Customized cable fittings
- Protection class IP 68
- Wide temperature range –40 °C to +120°C
- High electromagnetic compatibility

Fields of application

- Rail vehicles
  - Traction control
  - Wheel slip prevention
  - Motor speed
- Automation
  - Measurement of speeds and positions in machines and motors

Outputs signal

Single square-wave signals as

- Voltage output
- Current output 7 mA/14 mA

Internet: http://www.lenord.de
E-Mail: info@lenord.de
Tel.: +49 (0)208 9963-0
Fax: +49 (0)208 676292
Lenord, Bauer & Co. GmbH
Dohlenstrasse 32
46145 Oberhausen, Germany

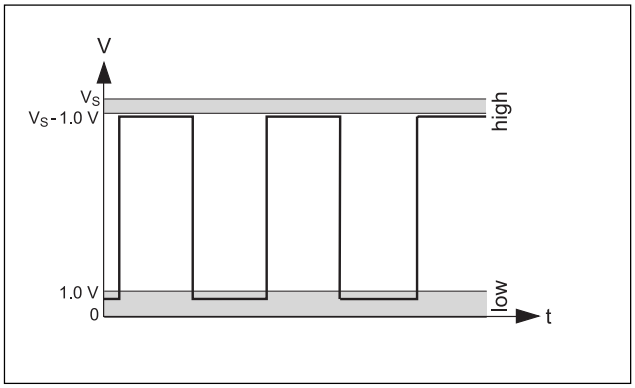
Technical data

	Signal pattern (see page 3)		
	E-	**EI**	**EM**
Supply voltage V_S, reverse polarity protected	10 ... 30 V DC	10 ... 20 V DC	
Current consumption I_S without load per channel	≤ 30 mA	-	< 12 mA
Output signals (short circuit-proof)	square-wave signal		
High level Low level	U_B - 1.0 V < 1.0 V at 120 °C, 30 VDC, 20 mA	14 mA nominal 7 m A nominal	U_B - 1.8 V < 1,5 V at 85 °C, 14 VDC, 10 mA; 7 V ± 0.3 V at frequencies below 1 Hz ± 0.3 Hz
Output current max.	< 20 mA	16 mA	10 mA
Signal frequency	0 ... 25 kHz		1 ... 8 kHz
Duty (depending on measuring scale and air ga	50 % ± 5 %		50 % ± 10 %
Slew rate (with 2 m cable)	≥ 10 V/µs	≥ 6 V/µs (R_B = 560 Ω)	≥ 4 V/µs
Cable length max.	100 m		
Electromagnetic compatibility (EMC)	rail vehicles: EN 50121-3-2 industry applications: EN 61000-6-1 to 4		
Insulation strength according to EN 60439-1	500 V		
Target wheel modul	m = 1.0 ... m = 3.5		m = 2.0
Air gap depending on the module m = 1.0 m = 1.5 m = 2.0 m = 2.5 m = 3.5	0.2 ... 1.4 mm 0.2 ... 1.8 mm 0.2 ... 2.2 mm 0.2 ... 2.8 mm 0.2 ... 3.0 mm		0.2 ... 1.5 mm
Operating and ambient temperature range	-40°C ... +120°C		-40°C ... +85°C
Storage temperature range	-40°C ... +120°C		
Protection class	IP 68		
Vibration and shock resistance	EN 61373 cat. 3		
Type test	in compliance with EN 50155		
Width of target wheel	≥ 10 mm ((smaller on request)		
Material of target wheel	ferromagnetic steel		
Form of target wheel	involute teeth according to DIN 867 or rectangular teeth 1:1 or slotted disk (on request) other tooth forms on request		
Weight	< 650 g with 2 m cable		
Housing	stainless steel		
Cable halogen free and screened	6 x 1.0 mm² diameter 8.2 mm bending radius fixed 24 mm / flexing 41 mm	4 x 1.0 mm² diameter 8.3 mm bending radius fixed 25 mm / flexing 42 mm	3 x 0.5 mm² diameter 6.3 mm bending radius fixed 19 mm / flexing 32 mm

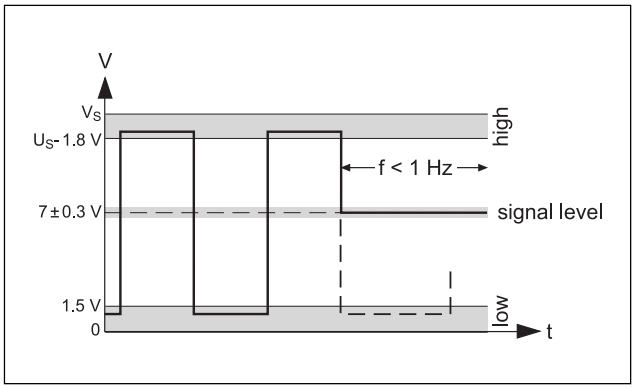
* Depending on target tooth form and air gap

** Conversion from module (M) to diametric pitch (D.P.) $D.P. = \frac{25.4}{M}$

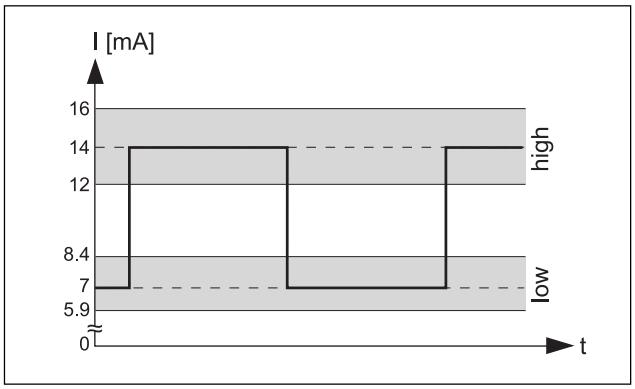
Voltage output (2474E-)

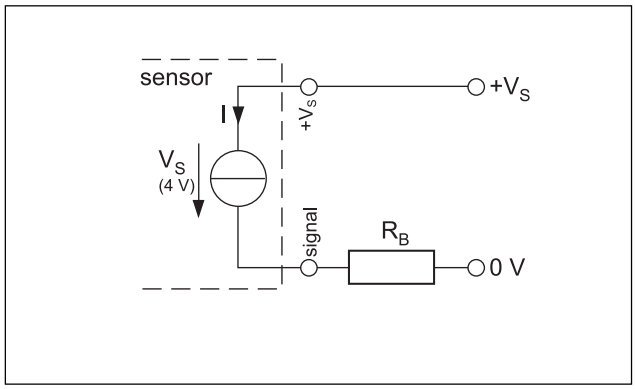


Voltage output (2474EM)



Current output (2474EI-)



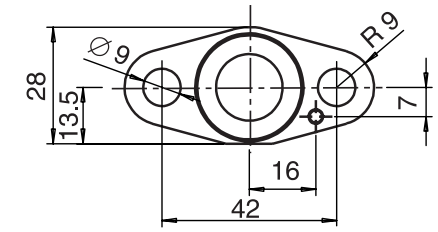


When using the current output, the resistor to be connected must not exceed a specific value:

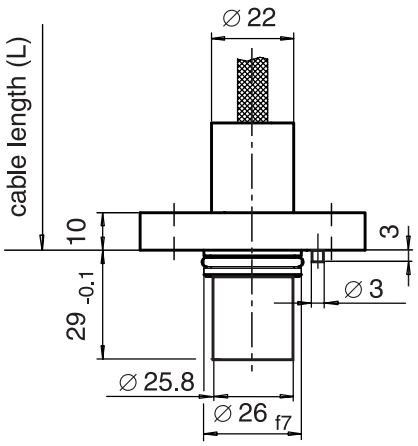
$R_{B,max} = (V_S – 4\ V) / I_{max}$
with V_S = 10 … 20 V DC and I_{max} = 16 mA

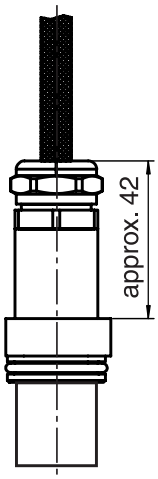
Example for V_S = 15 V:
$R_{B,max}$ = 11 V / 16 mA = 690 **Ω**

Dimensional drawing

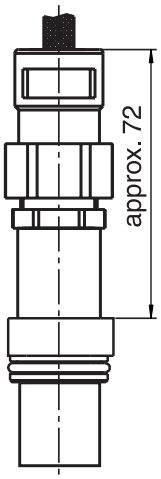


Cable gland
M 20 x 1.5

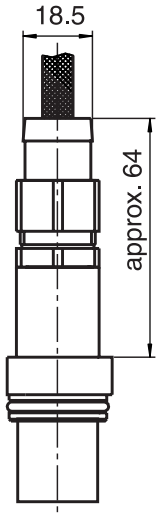




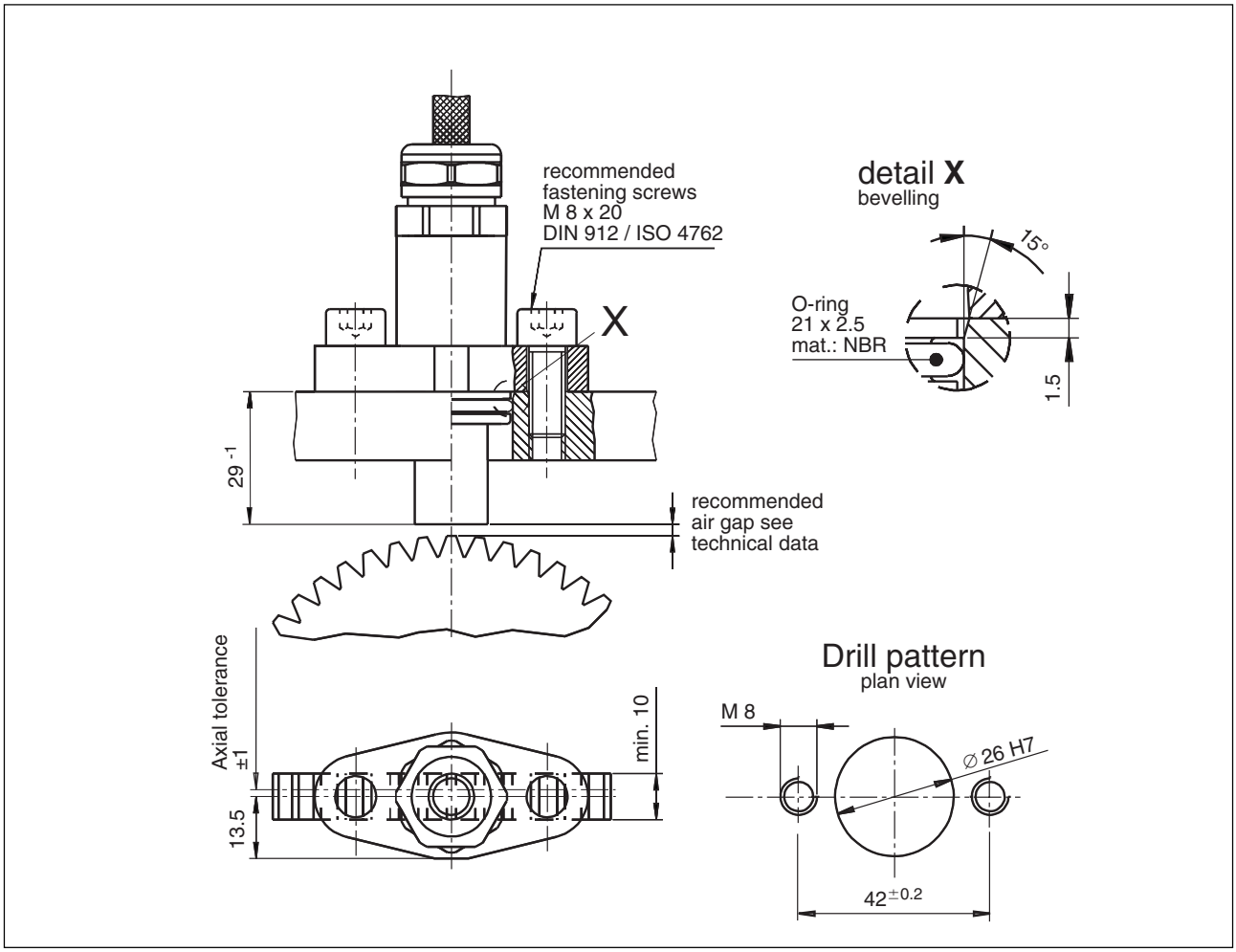
Flexible
conduit fitting
Nominal size 12



Hose fitting
Nominal size 18

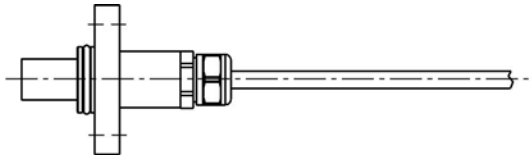


Assembly drawing

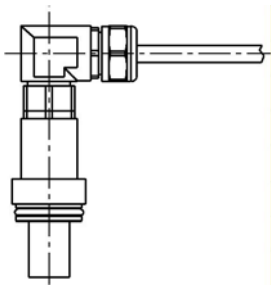


Example for customized cable connections

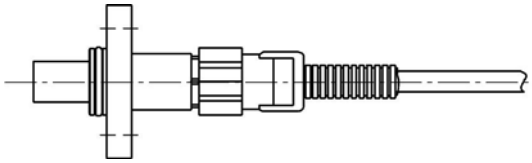
Encoder end



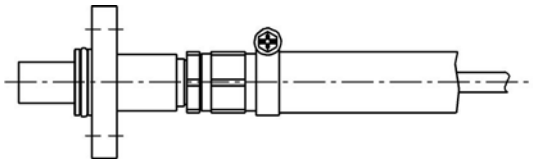
standard, straight outlet



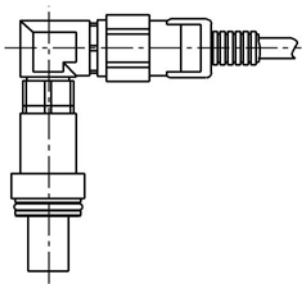
cable output, side outlet



flexible conduit, straight outlet

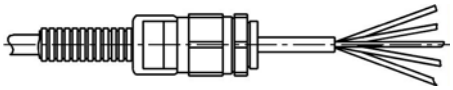


rubber conduit, straight outlet

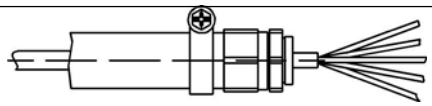


flexible conduit, side outlet

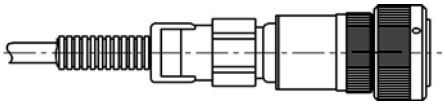
Cable end



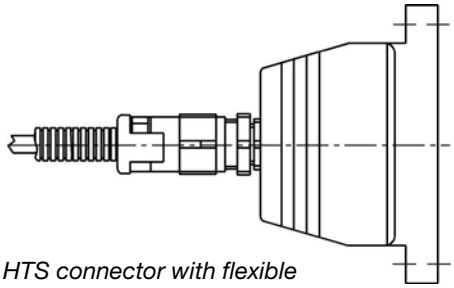
flexible conduit connection and cable end open



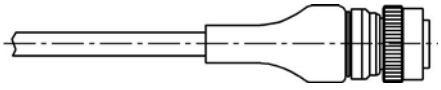
rubber conduit and cable end open



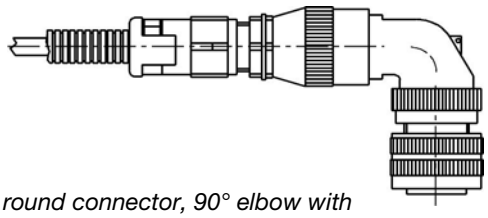
round connector with flexible conduit



HTS connector with flexible conduit



connector with shrink moulded sleeve



round connector, 90° elbow with flexible conduit

Pin layout, Type code

Pin layout

Lead colour	Voltage output 2474**E-**…	Current output 2474**EI**…	Standstill monitoring 2474**EM**…
red	+U_B (10 to 30 VDC)	+U_B (10 to 20 VDC)	+U_B (10 to 20 VDC)
blue	GND (0 V)		
green		–	
yellow		–	
brown	–		
white	–		
black	–		GND (0 V)

Type code GEL 2474

	E	**Signal pattern** square-wave signal					
		- **I**	**Output signal** voltage output current output				
			L **P**	**Cable screen** cable screeen connected to sensor housing cable screen not connected to sensor housing			
				K **W** **G**	**Cable outlet** cable gland flexible conduit fitting hose fitting		
					xxx	**Cable length (L)** cm cable length	
						N **S**	**Customizing** without customizing special version
2474	_	_	_	_	_ _ _	_	

Special variant

Speed sensors marked GEL 2474 Y ... are variants based on the standard sensors in this document. For details of the variation refer to the variant-specific drawing and or specification.

We have agencies in:
Austria
Belgium
Canada
Denmark
Finland
France
Germany
Great Britain
Israel
Italy
Korea
Malaysia
Norway
Portugal
Sweden
Switzerland
Spain
the Czech Republic
the Netherlands
the USA
Turkey

LENORD +BAUER
... automates motion.

Lenord, Bauer & Co. GmbH
Dohlenstrasse 32
46145 Oberhausen, Germany
Phone: +49 208 9963-0
Fax: +49 208 676292
info@lenord.de
www.lenord.de