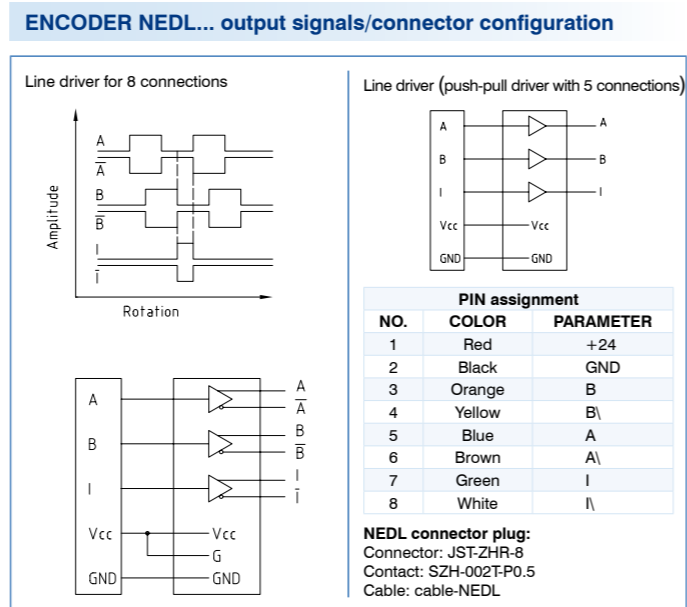
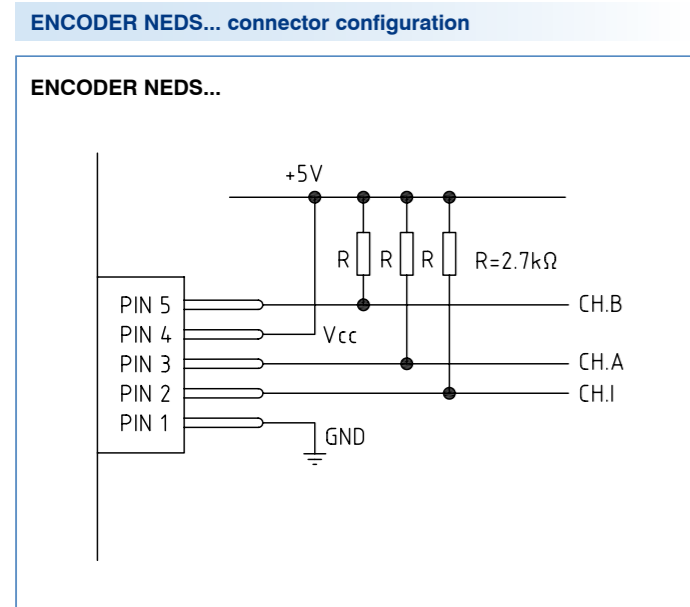
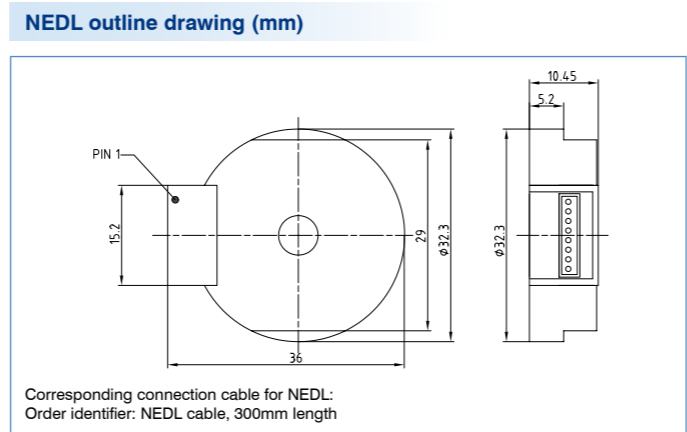
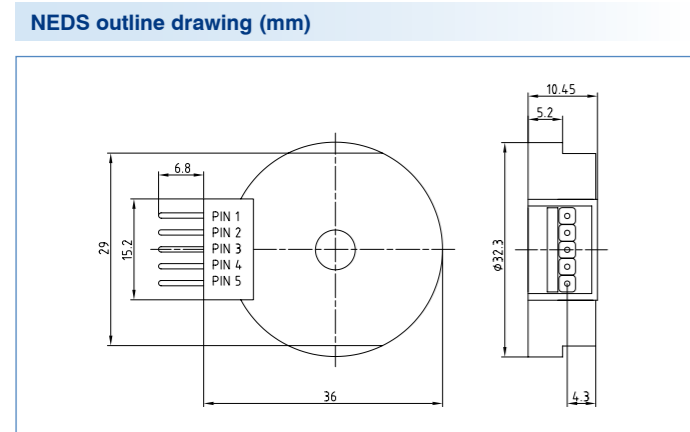


Optical pulse transducer - NEDS/NEDL series



In addition to their compact shape (flatter than HED..) and low inherent mass, the 3-channel encoders are primarily distinguished by their quick and easy assembly (they are also less expensive than HED..). The 24 V version is suitable for direct connection to PLC drive electronics.

Technical data	NEDS	NEDL
<b>Operating voltage:</b>	DC 4.5 V to 5.5 V	DC 12 V to 32 V
<b>Max. current consumption:</b>	50 mA	40/25/20mA at 12/24/32V
<b>Pulse width:</b>	180°±75°	180°±75°
<b>Signal phase angle:</b>	(Channel A to B) 90°±60°	90°±60°
<b>Signal rise/fall time:</b>	0.5/0.2 μs	0.8/0.5 μs
<b>Limit frequency:</b>	to 100 kHz	up to 60 kHz (4500 rpm)
<b>Output signals:</b>	Channel A/B and index	Channel A/B and index
<b>Pulses per revolution:</b>	500 (2000 quadrature)	500 (2000 quadrature)
<b>Operating temperature:</b>	0°C to +85°C	0°C to +85°C



Gears

**Application fields:**

**The compact and proven gears from Nanotec are ideal for use in the following tasks:**

- Increase and matching of the output torques  
 $M_{dgear} = M_{dMot} \times i \times \eta$
- Reduction of the output torque  
 $n_2 = n_{Mot}/i$
- Quadratic reduction of ext. moments of inertia  
 $J_{red} = J_{ex}/i^2$
- Reduction of the step angle  
 $\alpha_{Outp} = \alpha_{Mot}/i$

**Advantages**

- Large speed reduction bandwidth
- Wide torque spectrum
- High running smoothness
- Maintenance-free due to permanent lubrication
- Versatile combination options

**Note:** In the selection of the gears, it is essential to pay attention to the following criteria:

- Output torques**  
Output torques rise in proportion to the speed reduction and can lead to damage of the gearing (do not exceed max. admissible power take-off values!)
- Radial and axial forces**  
Radial and axial forces mainly impair the expected service life of the bearing and the shaft strength in some cases.
- Working temperatures**  
Working temperatures affect the thermal loading of the bearing.
- Load types**  
Various types of load lead to high gear, shaft and bearing stresses and hence reduce the service life.

Loads	Operating factor		
	5 h/day	8 h/day	24 h/day
1) Constant load	0.8	1.0	1.5
2) Slight impact (frequent starting of the motor)	1.2	1.5	2.0
3) Moderate shock (fast change of the direction of rotation)	1.5	2.0	2.5
4) Severe impact (vibrations and sudden stopping of the motor)	2.0 - 2.5	2.0 - 3.0	3.0 - 3.5

In our experience the expected service life with the spur gear units and when maintaining the admissible operating and load conditions is approximately 5000 hours. Load type 2 and an operating period of 24 hours/day reduces the expected service life by a half.

Which type of gear is advantageous?

- Spur gear**  
still have good efficiency and first-rate cost effectiveness even at high reduction ratios.
- Planetary gear**  
due to the triple meshing, offer the highest torque at comparable volume and have the highest efficiency with concentric shaft output
- Worm gear**  
enable smooth running performance and, due to the 90° force transfer, have a low installation depth and offer a self-locking torque due to continuous power transmission at higher reduction ratios.