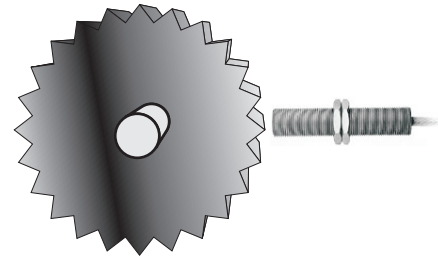


With this type of sensor objects like gear wheels, punched discs or integral shafts made of steel can be sensed. They consist out of a magnet and a coil wound around an iron rod, where a voltage, which frequency is proportional to the speed is induced by changing the gap between the object and sensor tip. This measuring method can allow operating temperature of up to 110°C (Type FGL 1/ 2).



PICKUP AND GEARWHEEL

The output voltage of the inductive sensor is dependent on the speed of the ferromagnetic gearwheel, the form of teeth (module) and the gear-to-sensor distance. Please note in general when sensing a lower speed of 15 rpm on a gear with 60 teeth, module 2, a distance of $s = 0.5\text{mm}$ may not be exceeded. The gear-to-sensor distance must be reduced to a lower peripheral speed and if the conditions are reversed, it can be increased. This relationship can be approximated within the ranges $= 0.4 \dots 1.0\text{mm}$ and $M = 2$ to 4 by the equation (1).

For other tooth forms, or pins or holes in a shaft, the simplified equation (2) is valid, if the dimensions of the teeth, pins and holes are bigger than the corresponding dimensions of a gearwheel with module 4.

For the minimum speed calculated this way, the signal voltage is approximatedly 0.4 Vpp

Technical Data

Measured

object:	ferromagnetic gearwheel, punched discs, shafts with groves of something similar.	Enclosure	IP67 DIN 40050
Signal frequency:	$f = n \cdot z/60$	Weight include. connecting cable:	about 110g
Type of signal:	according to the measured object for gearwheels sinusoidal	Max cable length	approx. 300m
Signal voltage	depending on module, air gap, and peripheral speed, in the range $s=0.4..1$ and $M > 2$	Connection cable:	FGL 1/1 2m LiYCY 2 x 0.25 mm2 shielded FGL 1 /2 2 m 2 x 0.55 m2 shielded
Minimum speed:	at a signal voltage of 0.4 Vpp (1) $n \geq 0.8 \cdot s / M^2 \cdot 2 \cdot 10^4$ (2) $n \geq 2 \cdot s / s \cdot 10^3$	Housing material	brass nickel-plated
	Working and storage temperature	FGL 1/1 -10 ..+80°C FGL 12 -10 ..+110°C	

Where: n = lower limit of speed measuring range in rpm
 z = number of teeth on sensed gearwheel
 d = sensor tip diameter in mm.

M = module of the sensed gearwheel
 s = distance between sensor and gear