

# Two-phase A.C. tachogenerator

- Heavy-duty tachogenerator
- Straightforward application
- Suitable for extremely rigorous operating conditions
- NORIS tachogenerators are maintenance-free
- Rugged construction
- Two completely separate A.C. voltage outputs
- Meets  $\text{CE}$  requirements
- Noise-immune signal transmission
- No radio interference
- Direct or indirect drive possible
- Protection class: IP66
- Choice of mechanical connections for speed sensing
- Flanges and brackets available for mounting
- Suitable evaluation devices available



GZ121-B



Germanischer Lloyd

## Tachogenerators of series GZ..

NORIS A.C. tachogenerators are maintenance-free speed-measuring devices using permanent-magnet excitation. They are designed to provide an A.C. voltage signal that is proportional to a speed of their drive shaft. It is possible to use either voltage or frequency as the measured variable. Tachogenerators are used where a direct supply

is desired for indicating instruments, monitoring or processing devices. Drive is either direct from the take-off shaft by means of couplings or indirectly via belt-and-pulley or friction wheel arrangements. Tachogenerators are working without operating voltage.

## General notes on Type GZ121-..

### Method of operating of GZ121-.. tachogenerator

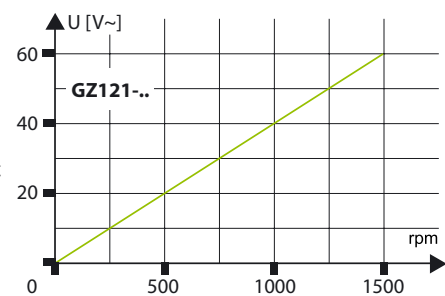
The drive shaft rotates two permanent magnets mounted at an angle relative to each other in two stationary conductors in which they induce voltages whose level and frequency are proportional to the speed of the drive shaft. The GZ121-.. is of the 12-pole type with 6 pairs of poles for each circuit so that the frequency of the alternating voltage is 1/10 of the input speed. The two A.C. voltages are identical but completely independent of each other. The phase angle between them is approx.  $90^\circ$  el. and can be used for contactless electronic speed direction detection. Suitable evaluation devices are deliverable.

### Details of the GZ121-.. tachogenerator

- Electrical termination by screw terminals
- Output of two  $90^\circ$  out-of-phase electrically and magnetically isolated approximately sinusoidal A.C. voltages
- High electric output for multiple indicator operation
- Extremely long life through extra-sturdy suspension of drive shaft
- Direct drive possible via flexible couplings
- Indirect drive possible via V-belt pulleys or friction wheels
- Wheels or pulleys can be mounted directly on the shaft
- Extremely high protection class (IP66) and rugged construction

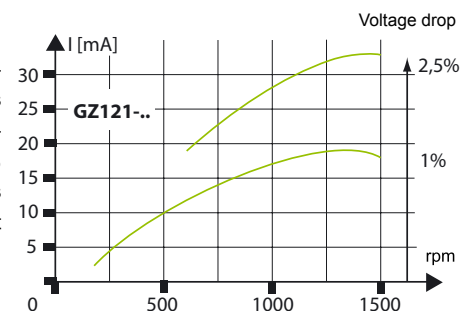
### Voltage characteristic

The voltage characteristic shows the output voltage plotted against speed at a load of 1 mA:



### Load characteristic

The load characteristic shows the drop in output voltage in % at varying loads and at different speeds:

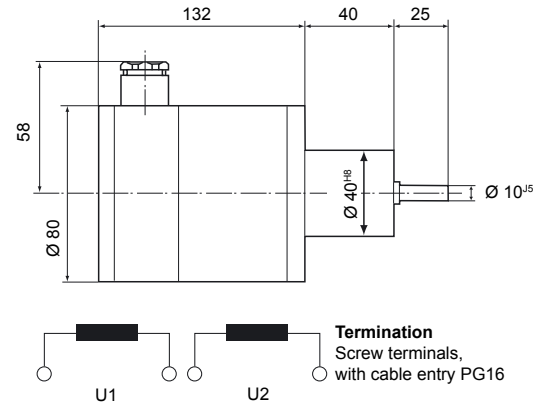


## Technical Data

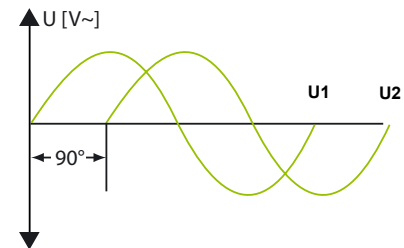
Series GZ121-..	
Maximum speed	2,500 rpm
Upper speed range	150 - 2,500 rpm
Calibration	1,500 rpm = 60 V/AC
Error class	1% IEC51-1
Output signal	2 x galvanic isolated AC voltages
Frequency of AC voltage	0,1 x speed
Wave form of AC voltage	Approximately sinusoidal with approx. 10% ripple
Pole pairs/poles	6/12
Max. radial shaft loading	70 N
Starting torque	0,08 Nm
Vibration resistance	4g DIN IEC 60068-T2-6 increased strain, characteristic 2 (10 - 100 Hz)
Shock resistance (impact)	300 m/s <sup>2</sup> with 18 ms dwell time DIN IEC60068-T2-27
Climatic test	DIN IEC60068-T2-30
Operating temperature	-20 ... +80 °C
Shelf temperature	-45 ... +85 °C
Humidity	RH 96% maximum
Insulation test	2 kV
Protection class	IP66
Termination	Screw terminals
Mechanical connection	GZ121-B: connection 2 to DIN 5377 (additional see type key)
Installed position	Any
Weight	Approx. 2.0 kg
Standard supply	CE requirements complied with, DIN 5377, type approval by GL

## Other Data

GZ121-B with connection 2 to DIN 5377



Phase relation



## Accessory to tachogenerators

Item	Description
<b>Pedestal, brackets and flanges for mounting of tachogenerators</b>	
HA6	Bracket Ø 120, prepared, mounting hole Ø 40 <sup>h7</sup>
HA6-1	Bracket Ø 120, not prepared, mounting hole Ø 40 <sup>h7</sup>
HA8-1	Pedestal to DIN 5377, base mounting, axe height 63, mounting hole Ø 40 <sup>h11</sup>
HA8-2	Pedestal to DIN 5377, base mounting, axe height 125, mounting hole Ø 40 <sup>h11</sup>
FL21-1	Flange Ø 120 to DIN 5377 connection 7, with bore, mounting hole Ø 40 <sup>h7</sup>
FL21-2	Flange Ø 120, to DIN 5377 connection 7, not prepared, mounting hole Ø 40 <sup>h7</sup>
<b>Driver for connection between shaft and coupling</b>	
ANx-xG	Different thread, diameter and slit deliverable
<b>Rubber coupling</b>	
KG2-1	Rubber coupling, 10 <sup>F7</sup> bore, 50 mm length
<b>Wheels or pulleys of indirect drive</b>	
RR99	Friction wheel Ø 99, additional deliverable
RK100	V-belt pulley Ø 100, additional deliverable

additional by inquiry  
additional information for drive and mounting see drawing

## Type key / variants

### Device code

<b>GZ</b>	Two-phase A.C. tachogenerator
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### Type series

<b>121-B</b>	Rugged construction, calibration 1,500 rpm = 60 V/AC, upper speed range 150 ... 2,500 rpm
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### Variante

without designation	Connection 2 to DIN 5377 (standard variant)
- D	Connection for flexible shaft to DIN 75532 E2, drawing 40.400
- R	Connection with shaft connection 10 x 3 mm, drawing 40.400
- Wx	Connection with shaft in special length, x=shaft length, drawing 40.400

additional by inquiry

**GZ 121-B** (GE121-B)



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