Single-phase A.C. tachogenerator

NORIS AUTOMATION

GE14-..

Tachogenerators

- **Cost-effective tachogenerator**
- **Straightforward application**
- **Suitable for severe conditions of duty**
- **NORIS tachogenerators are maintenance-free**
- **Compact design**
- **A.C. voltage output**
- **Meets CE requirements**
- **Noise-immune signal transmission**
- **No radio interference**
- **Direct or indirect drive possible**
- **Protection class: casing IP65, Drive end: IP54**
- **Choice of electrical terminations**
- **Choice of mechanical connections for speed sensing**
- **Flanges and brackets available for mounting**
- **Suitable evaluation devices available**

Lloyd's Register TYPE APPROVED

Germanischer Lloyd

Tachogenerators of series GE..

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 GE14-..

Method of operating of GE14-.. tachogenerator

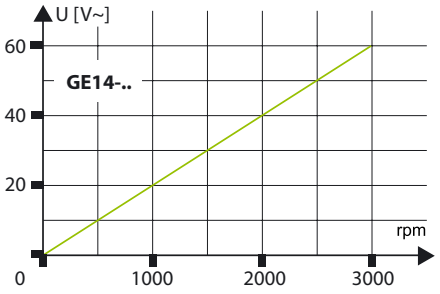
The drive shaft rotates a permanent magnet in a stationary conductor and induces a voltage in the latter whose amount and frequency are proportional to the speed of the drive shaft. The GE14-.. is of 12 the pole type having 6 pairs of poles so that the frequency of the alternating voltage is 1/10 of the input speed.

Details of the GE14-.. tachogenerator

- There are four standard variants available of this series:
  - GE14-09 with connection 8 to DIN 5377 and quick-connect terminal
  - GE14-091 with connection 8 to DIN 5377 and connecting cable
  - GE14-10 with connection 2 to DIN 5377 and quick-connect terminal
  - GE14-12 with skewing shaft with lug and quick-connect terminal
- Output is a sinusoidal A.C. voltage
- Long life through sturdy suspension of drive shaft (GE-14-10)
- Direct drive possible via flexible couplings (GE14-10)
- Indirect drive possible via V-belt pulleys or friction wheels (GE14-10
- Wheels or pulleys can be mounted directly on the shaft (GE14-10)

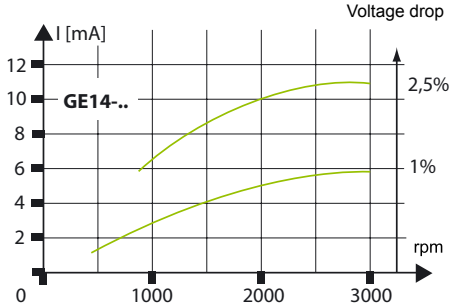
Voltage characteristic

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 GE14-..	
Maximum speed	3,000 rpm
Upper speed range	150 - 3,000 rpm
Calibration	1,000 rpm = 20 V/AC
Error class	1% DIN IEC 51-1
Output signal	AC voltage
Frequency of AC voltage	0.1 x speed
Wave form of AC voltage	Sinusoidal with about 10% ripple
Pole pairs/poles	6/12
Max. radial shaft loading	GE14-09: none, GE14-091: none, GE14-10: 10 N
Starting torque	0,01 Nm
Vibration resistance	4g DIN IEC 60068-T2-6 increased strain, characteristic 2 (10 - 100 Hz)
Shock resistance (impact)	300 m/s² with 18 ms dwell time DIN IEC 60068-T2-27
Climatic test	DIN IEC 60068-T2-30
Operating temperature	-20 ... +80 °C
Shelf temperature	-45 ... +85 °C
Humidity	RH 96% maximum
Insulation test	500 V
Protection class	Body: IP65, drive end: IP54 for GE14-09, GE14-091, GE14-12 or IP50 for GE14-10
Termination	GE14-09, GE14-10 and GE14-12: Quick-connect terminals 6,3 x 0,8 to DIN 46244, GE14-091: cable TEGL Ø P2 x 0,75, ca. 3,5 m
Mechanical Connection	GE14-09 and GE14-091: connection 8 to DIN 5377, GE14-10: connection 2 to DIN 5377, GE14-12: skewing shaft with lug
Installed position	Any
Weight	Approx. 0.4 kg
Standard supply	CE requirements complied with, DIN 5377, type approval by GL, LR

Accessory to tachogenerators

Item	Description
Pedestal, brackets and flanges for mounting of tachogenerators	
HA6	Bracket Ø 120, prepared, mounting hole Ø 40^{h7}
HA6-1	Bracket Ø 120, not prepared, mounting hole Ø 40^{h7}
HA8-1	Pedestal to DIN 5377, base mounting, axe height 63, mounting hole Ø 40^{h11}
HA8-2	Pedestal to DIN 5377, base mounting, axe height 125, mounting hole Ø 40^{h11}
FL21-1	Flange Ø 120 to DIN 5377 connection 7, with bore, mounting hole Ø 40^{h7}
FL21-2	Flange Ø 120, to DIN 5377 connection 7, not prepared, mounting hole Ø 40^{h7}
Driver for connection between shaft and coupling	
ANx-xG	Different thread, diameter and slit deliverable
Rubber coupling	
KG2-1	Rubber coupling, 10^{F7} bore, 50 mm length
Wheels or pulleys of indirect drive	
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

GE	Single-phase A.C. tachogenerator

Type series

14	Compact design, calibration 1,000 rpm = 20 V/AC, upper speed range 150 ... 3,000 1/min

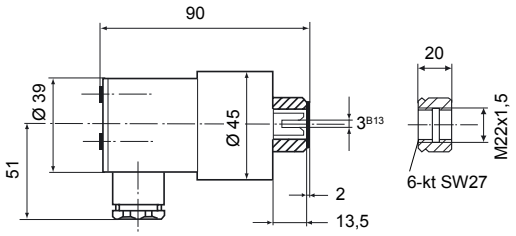
Design

-	09	Termination: quick-connect terminals 6,3 x 0,8 to DIN 46244 Mechanical connection of tachogenerator: connection 8 to DIN 5377
-	091	Termination: cable TEGL Ø P2 x 0,75, approx. 3,5 m Mechanical connection of tachogenerator: connection 8 to DIN 5377
-	10	Termination: quick-connect terminals 6,3 x 0,8 to DIN 46244 Mechanical connection of tachogenerator: connection 2 to DIN 5377
-	12	Termination: quick-connect terminals 6,3 x 0,8 to DIN 46244 Mechanical connection of tachogenerator: skewing shaft with lug

GE 14 -091 (GE14-091)

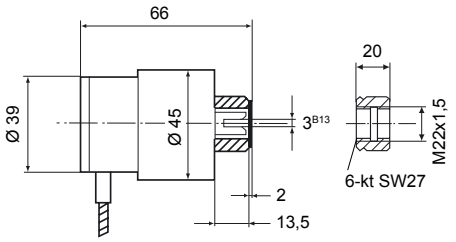
Other Data

GE14-09 with connection 8 to DIN 5377



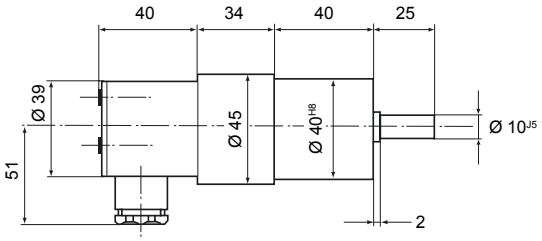
Termination
Quick-connect terminals 6,3 x 0,8 to DIN 46244, with cable entry PG11

GE14-091 with connection 8 to DIN 5377



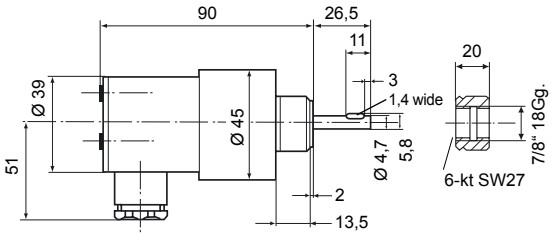
Termination
Cable TEGL Ø P2 x 0,75, approx. 3,5 m

GE14-10 with connection 2 to DIN 5377



Termination
Quick-connect terminals 6,3 x 0,8 to DIN 46244, with cable entry PG11

GE14-12 with skewing shaft and lug



Termination
Quick-connect terminals 6,3 x 0,8 to DIN 46244, with cable entry PG11

NORIS Automation GmbH
Muggenhofer Strasse 95

D - 90429 Nürnberg
Germany
Tel.: +49 (0)9 11/32 01-0
Fax: +49 (0)9 11/32 01-150
info@noris-automation.com
www.noris-automation.com

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Changes reserve