

Variable Reluctance Speed Sensor E16S40

GREEN LINE
INDUSTRIAL SPEED SENSORS

Product ID

Type #	Product #	Drawing #
E16S	385Z-05581	114460
E16S25	385Z-05582	114460
E16S40	385Z-05583	114460

General

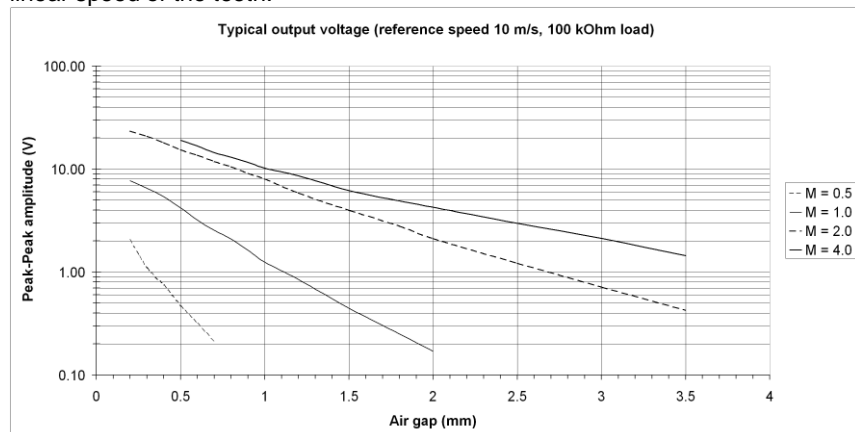
Function The E16Sxx series variable reluctance (VR) speed sensors consist of an iron core, an inductive coil, and a permanent magnet. A ferrous pole wheel passing the sensor face changes the magnetic field strength, resulting in an AC voltage being induced in the coil. The frequency of the output signal is proportional to the speed of the moving target. The amplitude of the signal depends on speed, air gap, geometry of target, magnetic properties of target material, and the electrical load. VR sensors, also known as passive or electromagnetic sensors, do not require an external supply.

Technical data

Coil properties Inductance @ 1 kHz: 140 mH \pm 15%
Resistance: 850 Ohm \pm 15%
Magnet polarity: north pole towards front face
Pole piece: diameter 2.7 mm

Polarity Upon approach of ferrous metal, the signal pin is positive with respect to GND.

Signal output The signal frequency is proportional to the target speed.
The signal amplitude shown in the figure is valid for a load of 100 kOhm, and is affected by air gap, target geometry and material. It is also proportional to the linear speed of the teeth.



Minimal voltage for 5 m/s circumferential speed, module 2 gear, 1 mm air gap and 10 kOhm load resistance: 1.8 Vpp

Frequency range Up to 20 kHz, lower limit depending on application

Housing M16x1.5, tightening torque: max. 35 Nm

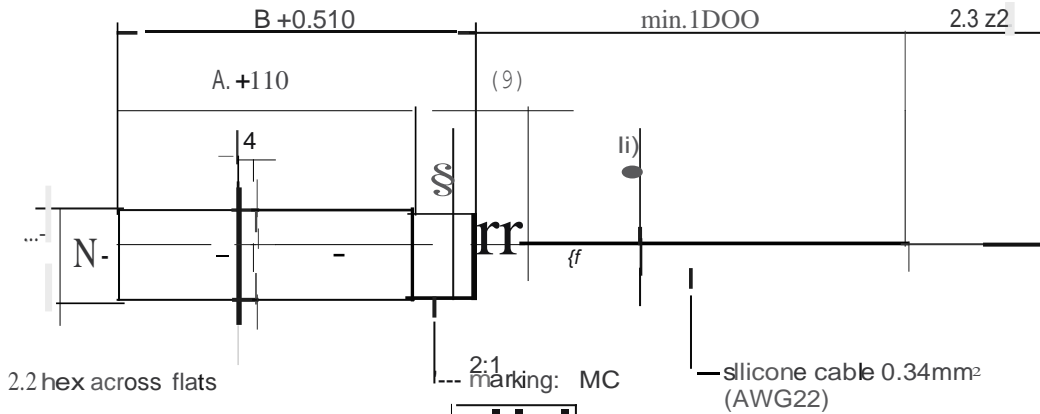
Connection Cable with open leads:
3-wire, 3 x 0.34 mm² (AWG22), stranded wires, elastomer isolation, green casing, fire retardant, low smoke, RoHS conform and halogen free, max. outer \varnothing = 4.8 mm, min. bending radius = 25 mm (static) and 50 mm (dynamic), cable length according to dimensional drawing

Protection	Sensor head: IP68 Cable outlet: IP67
Insulation	Housing and electronics galvanically isolated (Test: 500 V, 50 Hz for 1 minute)
Pole wheel	Prerequisite: Toothed wheel of a ferrous material (e.g. Steel 1.0036). Optimal performance with Involute gear Tooth width > 10 mm Side offset < 0.2 mm Eccentricity < 0.2 mm
Air gap between sensor and pole wheel	Depending on lowest circumferential speed which has to be detected and on trigger level. See figure.
Operating temperature	-40°C...125°C

Further Information

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Installation	The sensor has to be aligned to the pole wheel according to the sensor drawing independent of its rotational orientation. Deviations in positioning may affect the performance and decrease the noise immunity of the sensor. During installation, the smallest possible pole wheel to sensor gap should be set. The gap should however be set to prevent the face of the sensor ever touching the pole wheel. A sensor should be mounted with the middle of the face side over the middle of the pole wheel. Dependent upon the wheel width, a certain degree of axial movement is permissible. However, the middle of the sensor must be at minimum in a distance of 3 mm from the edge of the pole wheel under all operating conditions. A solid and vibration free mounting of the sensor is important. Eventual sensor vibration relative to the pole wheel can induce additional output pulses. The sensors are insensitive to oil, grease etc. and can be installed in arduous conditions.
Maintenance	Product cannot be repaired.
Transport	Product must be handled with care to prevent damage of the front face.
Storage	Product must be stored in dry conditions. The storage temperature corresponds to the operation temperature.
Disposal	Product must be disposed properly, it must not be disposed as domestic waste.

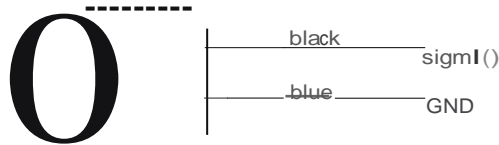
app ov



part no.	Jaquet	A.	B
3B5Z 5531	Ei6S	50	60
385Z-05582	E16S25	64	74
3B5Z-055B3	E 6S40	102	112



comeding di agrm:
airgap



Upon approach of ferrous metal black wire is positive with respect to blue wire.

FOR TECHNICAL SPECIFICATIONS SEE OPERATING INSTRUCTIONS

(CC) Critical characteristic

(MG) Major characteristic

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Greenli.ne				Massbld		
Speed Sensor						
E16Sxx				A4	114460	004

COMPANY PROFILE



JAQUET TECHNOLOGY GROUP offers the world's most versatile and advanced range of solutions for the detection, measurement, diagnosis and management of rotational speed. Our industry and application specific expertise ensures that you will achieve an optimum solution. Completely matched to your individual requirements, meeting key industrial standards and certifications, our products help boost the performance of your machinery while reducing cost of ownership.

TYPICAL INDUSTRIES SERVED

- Automotive and truck
- Diesel / Gas engines
- Hydraulics
- Railway
- Turbines
- Turbochargers
- Industrial machinery

PRODUCTS- SPEED SENSORS

- Various technologies
- Standard, custom and OEM models
- For demanding applications, e.g. 300,000 rpm, temperature up to 320 °C / 600 °F, high vibration, shock to 200 g, etc.
- GreenUnespeed sensors for general applications
- Ex models for hazardous areas
- Polebands and target wheels available where needed

PRODUCTS- SYSTEMS

- Multi-channel overspeed protection systems
- 1-2 channel measurement, protection and control modules
- Engine diagnostic systems
- Redundant speed measurement and indication

SPECIAL PROJECT EXAMPLES

- An automotive linear movement sensor
- Integrated power and torque measurement for display and gearbox control
- Naval spec. turbine protection for nuclear submarines
- Speed measurement in turreted, tracked vehicles

QUALITY MANAGEMENT AND STANDARDS

- Quality management: TS 16949 and ISO 9001, ZELMATEX 1020, KWU
- Sensors: GL, KWU, TÜV, ATEX, EN 50155, NF F 16-101102, ABS, EMC
- Systems: IEC 61508 SIL 2 and SIL 3, API 670, GL, TÜV, KWU, EX
- Environmental: RoHS - EU directive 2002/95 EC

JAQUET- YOUR PARTNER

- Efficient and professional service- JAQUET TECHNOLOGY GROUP is headquartered in Basel, Switzerland and has subsidiaries in Belgium, China, Germany, the Netherlands, United Kingdom and United States along with a worldwide distributor and end-user service network.
- Flexible production quantities; from 1 to millions per project
- Reduction of total costs by intelligent and cost-effective solutions
- Fast turn around time