

Variable Reluctance Speed Sensor E58S

GREEN LINE
INDUSTRIAL SPEED SENSORS

Product ID

Type #	Product #	Drawing #
E58S	385Z-05227	113298 Rev.003

General

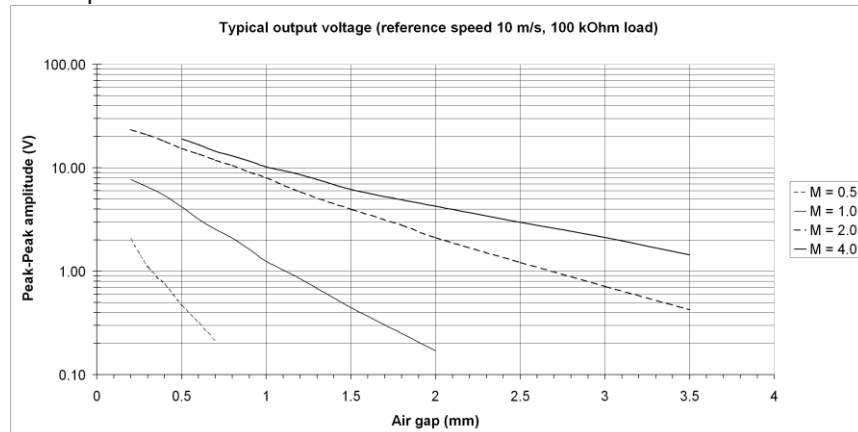
Function	The E58S series variable reluctance (VR) speed sensors consist of an iron core, an inductive coil, and a permanent magnet. A ferrous pole wheel passing the sensor face changes the magnetic field strength, resulting in an AC voltage being induced in the coil. The frequency of the output signal 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.
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Technical data

Coil properties	Inductance @ 1 kHz: 170 mH ± 10% Resistance: 850 Ohm ± 10% Magnet polarity: north pole towards front face Pole piece: diameter 2.7 mm
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Polarity	Upon approach of ferrous metal, the signal pin is positive with respect to GND.
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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.
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Minimal voltage for 5 m/s circumferential speed, module 2 gear, 1 mm air gap and 10 kOhm load resistance: 1.8 Vpp

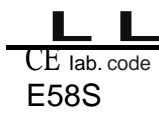
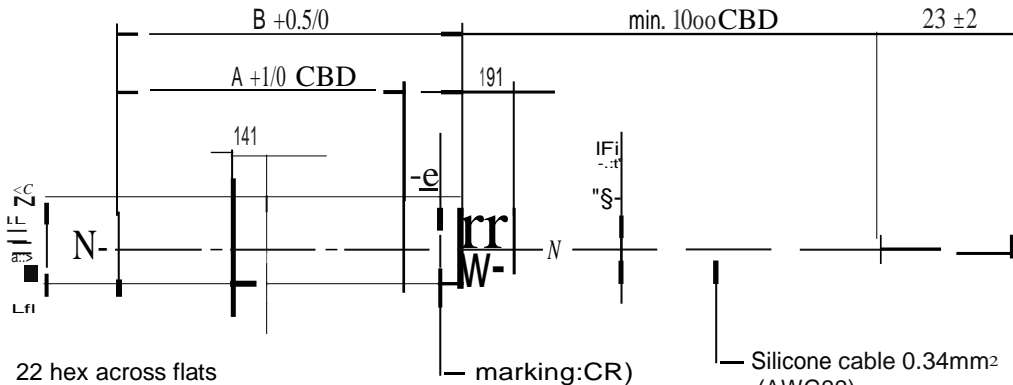
Frequency range	Up to 20 kHz, lower limit depending on application
Housing	5/8"-18 UNF-2A, tightening torque: max. 35 Nm
Connection	Cable with open leads: 3-wire, 3 x 0.34 mm ² (AWG22), stranded wires, elastomer isolation, green casing, fire retardant, low smoke, RoHS conform and halogen free, max. outer Ø = 4.8 mm, min. bending radius = 25 mm (static) and 50 mm (dynamic), cable length according to dimensional drawing
Protection	Sensor head: IP68
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

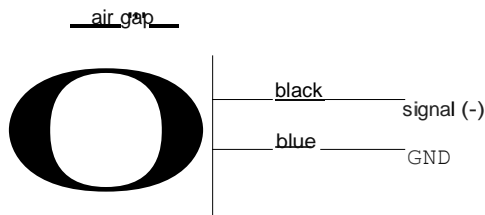
Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Installation	The sensor has to be aligned to the pole wheel according to the sensor drawing independent of its rotational orientation. Deviations in positioning may affect the performance 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 of properly, it must not be disposed as domestic waste.

approved



part no.	Jaquet	A	B
385Z-05227	E58S	50	60
385Z-05557	E58S25	64	74
385Z-05558	E58S40	102	112

connecting diagram:



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

FOR TECHNICAL SPECIFICATIONS SEE OPERATING INSTRUCTIONS

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part no.				material / surface treatment / remark				project no.				dimension unit	CO System	Copyright reserved			
												mm	SolidEdge V20	according DIN 34			
general tolerance:: according DIN ISO 2768-m												nominal size range		±0.20		0.31	
allowed tolerance												±1.01		1.02		0.31	
03				26.03.09				PW				first angle projection	drawn	drawn by			
				MC and CC added; title block changed								26.03.09	PW				
rev.				date				sign.				workflow status					
												approved					
												scale		workflow user			
												1:1		AK			
												drawing type					
												Massbild					
												formal	drawing no	rev.			
												A4	113298	03			

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

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- Flexible production quantities; from 1 to millions per project
- Reduction of total costs by intelligent and cost-effective solutions
- Fast turn around time