Variable Reluctance Speed Sensor E58AM25

GREEN LINE
INDUSTRIAL SPEED SENSORS

Product ID

Type #	Product #	Drawing #
E58AM25	385Z-05552	113718 Rev.003

General

Function

The E58AM25 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

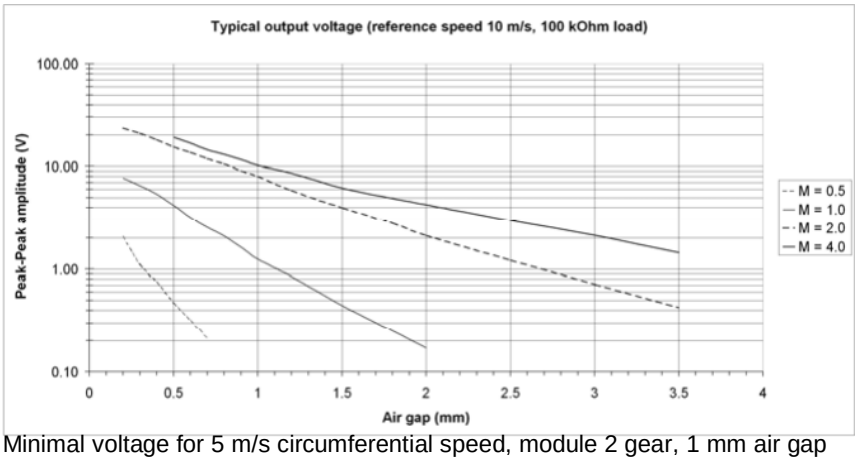
- Inductance @ 1 kHz: 140 mH ± 10%
- Resistance: 870 Ohm ± 10%
- Magnet polarity: north pole towards front face
- Pole piece: diameter 2.7 mm

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

5/8"-18 UNF-2A, tightening torque: max. 35 Nm

Connection

Connector mates with straight plug MS3106A-10SL-4S, 2 pins

Protection

Sensor head: IP68
Connector: 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

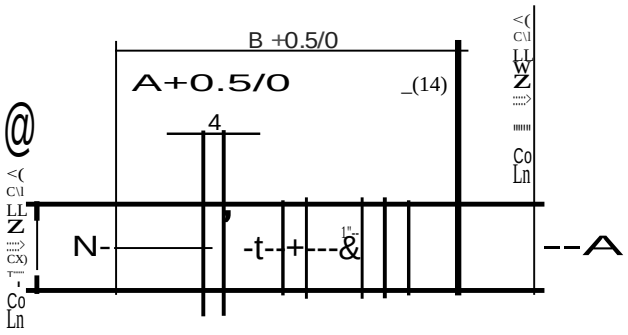
Further Information

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 of properly, it must not be disposed as domestic waste.

viewA

signal

GND



22 hex across flats

Lmarking:

d2L'E!

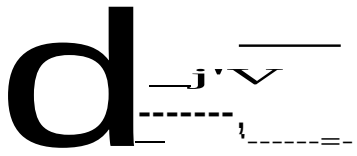
CE tab. oode

type

part no.	type	A	B
385Z-05360	E58AM	33	61
385Z-05552	E58AM25	64	92
385Z-05553	E58AM40	102	130

connecting diagram:

air gap



contact configuration:

signal (-)

GND

mates with straight plug MS3106A-1OSL-48

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

FOR TECHNICAL SPECIFICATIONS SEE OPERATING INSTRUGTIONS

@g) Critical characteristic

Major characteristic

part no	material / surface treatment remarks	proj ect no	dimension unit mm; CAD System SolidEdge V20; Copyrig_ht reserved accord1ng DIN 34
			general tolerances according DIN ISO 2768-m
			nominal size range >6 5 1_; >301 >1201 >4001 >1000 -1201-400 -10001-2000
			allowed tolerance ± 0.1 0.2; 0.3 1 0.51 0.8 1 1.2
			firstangle projection; drawn 16.09.09; drawn by PW
	date Sign Change description		scale 1:1; worktlowstatus approved; workflow user
			drawing type Massbild
Thannerstrasse 15	Greenlline Speed Sensor E58AM, E58AM25 and E5840		format A4; drawing no 113718

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)AQUET 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.
- GreenLine speed 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 PRO)ECT 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, ZELM ATEX 1020, KWU
- Sensors: GL, KWU, TÜV, ATEX, EN 50155, NF F 16-101102, ABS, EMC
- Systems: IEC 61508 SIL 2 and SIL 3, API670, GL, TÜV, KWU, EX
- Environmental: RoHS - EU directive 2002 95 EC

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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

IN CHARGE OF SPEED

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