

Zero Speed Hall Effect Sensor F12S

GREEN LINE
INDUSTRIAL SPEED SENSORS

Product ID

Type #	Product #	Drawing #
F12S	385Z-05331	113624 Rev.3

General

Function	The F12S series Hall effect speed sensors are suitable, in conjunction with a ferrous pole wheel, for generating square wave signals proportional to rotary speeds. They exhibit a static function, whereby pulse generation down to 0 Hz is guaranteed. The sensor function is independent of rotational mounting angle.
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Technical data

Supply voltage	8...25 VDC
Current consumption	Max. 12 mA (without load)
Signal output	Square wave signal from NPN output transistor with internal 2.7 kOhm pull-up resistor, DC-coupled to supply (negative pole = reference Voltage). Sink current: max. 25 mA Output voltage: $U_{high} \sim$ supply voltage $U_{low} < 0.5$ V at $I = 25$ mA
Frequency range	0 Hz...15 kHz
Housing	M12x1, tightening torque: max. 12 Nm Maximum pressure on front surface: 100 bar (other pressure values upon request)
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 $\varnothing = 4.8$ 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	Module 1.0 (DP 25.4): 0.3...0.5 mm Module 2.0 (DP 12.7): 0.3...1.5 mm
Electromagnetic compatibility (EMC)	Please contact Jaquet for further details.
Vibration & shock immunity	Jaquet Greenline sensors are approved for rough environments. Please contact Jaquet for further details.
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	<p>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. Within the air gap specified the amplitude of the output signal is not influenced by the air gap.</p> <p>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.</p> <p>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.</p>
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.

Further Information

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Connection	<p>Sensor wires are susceptible to radiated noise. Therefore, the following points have to be considered when connecting a sensor:</p> <p>The sensor wires must be laid as far as possible from large electrical machines. They must not run parallel in the vicinity of power cables.</p> <p>The maximum permissible cable length is dependent upon the sensor voltage, the cable routing, along with cable capacitance and inductance. However, it is advantageous to keep the distance between sensor and instrument as short as possible. The sensor cable may be lengthened via a terminal box located in an IP20 connection area in accordance with EN 60529.</p>
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60 s
50 afMC
min. 000 (MC)
23 ±2
4
(9)
17 hex across flats
marking:(MC)
silicone cable 0.34mm² (AWG22)

CE_{sub. rode}
If12S

connecting diagram:
air gap

0.7
blue
black
brown

+V
signal
GND

FOR TECHNICAL SPECIFICATIONS SEE OPERATING INSTRUCTIONS

(Ge) Critical characteristic
(MG) Major characteristic

385Z-05331		dimension Unit	OAD Edge	ISO 2146-m
		mm	mm	mm
		IDW-d 0.1 0.2 a3		
03	14.09.09	PW	14.09.09	PW
		approved		
UET TECHNOLOGY GROUP		1:1	16.09.09	AK
Greenline Drehzahlsensor		Massbild		
GreenLine F12S		A4	113624	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

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- 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.
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- Reduction of total costs by intelligent and cost-effective solutions
- Fast turn around time