Hall Effect Zero Speed Sensor F16A25

GREEN LINE
INDUSTRIAL SPEED SENSORS

Product ID

Type #	Product #	Drawing #
F16A25	385Z-05579	114457 Rev.01

General

Function	The F16A25 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.

Technical data

Supply voltage	8...25 VDC
Current consumption	Max. 12 mA (without load)

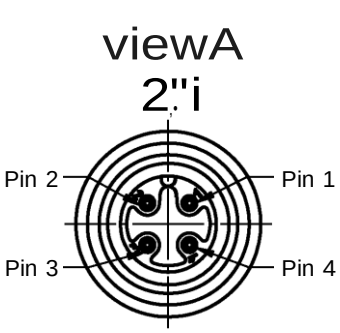
Signal output	Square wave signal from NPN output transistor with internal 2.7 kOhm pull-up resistor, DC-coupled to supply (negative pole = reference Voltage).
	• Sink current: max. 25 mA
	• Output voltage:
	  • U_{high} ~ supply voltage
	  • U_{low} < 0.5 V at I = 25 mA

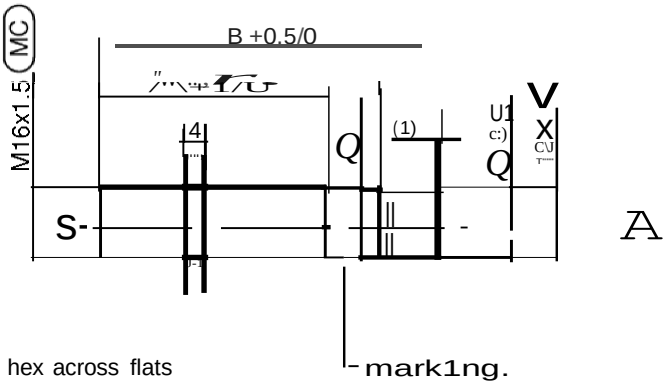
Frequency range	0 Hz...15 kHz
Housing	M16x1.5, tightening torque: max. 35 Nm
Connection	Connector: M12x1 thread, 4 pins, black
Protection	Sensor head: IP68 Cable outlet: IP67
Insulation	Housing and electronics galvanically separated (500 V/50 Hz/ 1 min)
Pole wheel	Prerequisite: Toothed wheel of a ferrous 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
Operating temperature	-40°...+125°C

Further Information

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Connection	Sensor wires are susceptible to radiated noise. Therefore, the following points have to be considered when connecting a sensor: 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. 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.
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. Within the air gap specified the amplitude of the output signal is not influenced by the air gap. 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. Within the air gap specified the amplitude of the output signals is not influenced by the air gap.
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



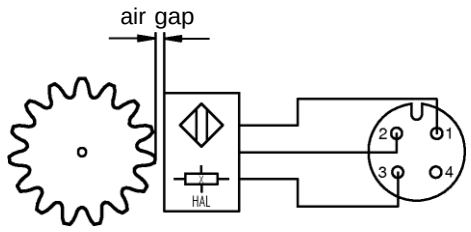


22 hex across flats

mark1ng.
CE fab. code
type

Sach-Nr.	Jaquet	A	8
385Z-05578	F16A	40	59.7
385Z-05579	F16A25	64	83.7
385Z-05580	F16A40	102	121.1

schematic diagram:



contact configuration:
1 +V
2 signal (JL)
3GND
4 not connected

mates with straight plug M12x1, 4 pins

FOR TECHNICAL SPECIFICATIONS SEE OPERATING INSTRUGTIONS

@ Critical characteristic

Major characteristic

dimension unit mm | CAD System SolidEdge V20 | Copyright reserved according DIN 34

part no | material / surface treatment remarks | project no

general tolerances according DIN ISO 2768-m

nominal size range	>0.5 -6	>6 -30	>30 -120	>120 -400	>400 -1000	>1000 -2000
allowed tolerance ±	0.1	0.2	0.3	0.5	0.8	1.2

firstangle | drawn | drawn by

projection 17.11.09 P

0_1-+---+-1_7_.1_1_.0_9 P- -+-tl_tle_ _oc_k_c_ha_n g_ed

date sign. change description

scale

worktlowstatus approved

-- LJ-E:1r--+-pa-rt n. m-.-.---------- _1_:_1 -o - ;_1;w_.O_ _'•- _A_ _flo_w_u_••_•_,

TEcHNoLoGv GRoup
Thannerstrasse 15
CH - 4009 Basel
www.jaquet.com

Greenllne
Speed Sensor
F16A, F16A25 und F16A40

drawing type Massbild

format A4 | drawing no 114457 | 01

COMPANY PROFILE

)AQUET TECHNOLOGY GROUP

)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

)AQUET – YOUR PARTNER

- Efficient and professional service -)AQUET 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 distri>utor 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

IN CHARGE OF SPEED

)AQUET North America, Inc. • 1601 East Bay Drive, Suite 3 • Largo • Florida 33771
Tel + 1 800 655 1424 • Fax + 1 800 663 8706 • salesna@jaquet.com • www.jaquet.com