

# Hall Effect Zero Speed Sensor F12A

**GREEN LINE**  
INDUSTRIAL SPEED SENSORS

## Product ID

| Type # | Product #  | Drawing #     |
|--------|------------|---------------|
| F12A   | 385Z-05322 | 113.590 Rev.1 |

## General

**Function** The F12A 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). <ul style="list-style-type: none"> <li>• Sink current: max. 25 mA</li> <li>• Output voltage: <ul style="list-style-type: none"> <li>• <math>U_{high} \sim</math> supply voltage</li> <li>• <math>U_{low} &lt; 0.5</math> V at <math>I = 25</math> mA</li> </ul> </li> </ul> |
| Frequency range                       | 0 Hz...15 kHz  |
| Housing                               | M12x1, tightening torque: max. 12 Nm   |
| Connection                            | Connector: M12x1 thread, 4 pins, black   |
| Protection                            | Sensor head: IP68<br>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).<br>Optimal performance with <ul style="list-style-type: none"> <li>• Involute gear</li> <li>• Tooth width &gt; 10 mm</li> <li>• Side offset &lt; 0.2 mm</li> <li>• Eccentricity &lt; 0.2 mm</li> </ul>  |
| Air gap between sensor and pole wheel | <ul style="list-style-type: none"> <li>• Module 1.0 (DP 25.4): 0.3...0.5 mm</li> <li>• Module 2.0 (DP 12.7): 0.3...1.5 mm</li> </ul>   |
| 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  |

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## Further Information

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| 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.   |

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