

## Dual Channel Hall Effect Speed Sensor DSY 1225.02 PHW



### Product ID

Type #	Product #	Drawing #
DSY 1225.02 PHW	374Z-05520	114.351 Rev.06

### General

**Function** The DSY 1225.02 PHW speed sensors are suitable, in conjunction with a pole wheel, for generating square wave signals proportional to rotary speeds. They have a static behaviour, i.e. the pulse generation is guaranteed down to a speed corresponding to a frequency of 0 Hz. The monitoring elements consist of magnetically biased hall effect semiconductors. The internal two channel structure requires that the sensor must be oriented according to the drawing.

### Technical data

Supply voltage	8 V to 32 V, protected against reverse polarity and transient overvoltage
Current consumption	Max. 20 mA (without load)
Signal output	<ul style="list-style-type: none"> <li>• 2 phase shifted square wave signals, minimum edge shift with a customer wheel: minimal 20° between output 1 (S1) and output 2 (S2); consult JAUQUET for other pole wheels</li> <li>• Open collector outputs with 10KΩ pull-up, I<sub>max</sub> = -20mA</li> <li>• The outputs are short circuit proof and protected against reverse polarity.</li> </ul>
Frequency range	0 Hz ... 15 kHz
Electromagnetic compatibility (EMC):	According to 89/336/EWG, EN 50081-2, EN 50082-2: <ul style="list-style-type: none"> <li>• Electrostatic discharge into housing, cable shield and wires: up to ±4 kV peak according to IEC 61000-4-2, severity level 2</li> <li>• Radiated electromagnetic field: up to 30 V/m, 50% AM, 1 kHz in the range of 1 MHz to 1000 MHz according to IEC 61000-4-3, severity level 3</li> <li>• Electrical fast transients/bursts, coupled to sensor cable with a capacitive coupling clamp: up to ±4 kV peak according to IEC 61000-4-4, severity level 4</li> </ul>
Housing	Stainless steel 1.4305, front side sealed hermetically and resistant against splashing water, oil, conducting carbon- or ferrous dust and salt mist. Electronic components potted in chemical and age proof synthetic resin. Dimensions according to drawing.
Cable	FEP sheathing, 0.6mm <sup>2</sup> (AWG 20), outer-Ø 5.7 mm, bending radius min. 55 mm, strand shielded screen (metal net), white Operating temperature: -90°C to +150°C
Convolute	PFA
Connector	FCI JBXSE2G04FCSDS
Requirements for pole wheel	Toothed wheel of a magnetically permeable material (e.g. Steel 1.0036) 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> <li>• Sensor is optimized to operate with an customer gear.</li> </ul>
Air gap between sensor and pole wheel	Air gap between pole wheel (customer gear) and sensor housing: 0.1 ... 0.8 mm
Insulation	Housing and electronics galvanically separated (500 V/50 Hz/ 1 min)
Protection class	IP68 (head) and IP67 (cable inlet)
Vibration immunity	20 g in the range of 5 ... 750 Hz
Shock immunity	100 g for 11 ms, half sine wave
Temperature	Operating temperature of entire sensor: -40° ... +125°C

Last change by: Sim, 21.07.2010	Checked by: WH, 21.07.2010	Document status: APPROVED	Document Nr.: 118109	Document Revision: 003
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**Further Information**

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Connection	<p>The sensors must be connected according to sensor drawing.</p> <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>
Installation	<p>The sensor has to be aligned to the pole wheel according to the sensor drawing. 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.</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.</p> <p>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.</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.