Dual Channel Hall Effect Speed Sensor
DSY 1205.02 SHW

Product ID

Type #	Product #	Drawing #
DSY 1205.02 SHW	374Z-05341	4-113.645 Rev.004

General

Function

The DSY 1205.02 SHW Hall sensor is suitable, in conjunction with a pole wheel, for generating square wave signals proportional to rotary speeds. It has a static behaviour, so that pulse generation is guaranteed down to a speed corresponding to a frequency of 0Hz. The monitoring element consists of a magnetically biased Hall effect semiconductor. The internal two channel structure means that the sensor must be oriented. The sensor has a special orientation sleeve with pin for ease of installation.
This sensors can also be used as a proximity switch.

Technical data

Supply voltage	8 VDC to 32 VDC, protected against transient overvoltages
Current consumption	Max. 20 mA (without load)
Signal output	• 2 phase shifted square wave signals: Minimum edge shift S1 to S2 : 20° with an involute gear wheel. (consult JAQUET for other pole wheels) • Open Collector outputs with 10kΩ pull-up, Sink current: I_{max} = 20mA • The outputs are short circuit proof and protected against reverse polarity.
Frequency range	0 Hz ... 15 kHz
Electromagnetic compatibility (EMC):	According to 2004/108/EC applying EN 61000-6-4, EN 61000-6-2 • Electrostatic discharge into housing, cable shield and wires : Up to ±4 kV peak according to IEC 61000-4-2, severity level 2 • 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 • 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 For the .02 amplifier : Load dump according to DIN 40839, 24V, severity level 1 Version SH : **The shield has to be connected to 0 Volt of the power supply**
Housing	Stainless steel 1.4305, front side sealed hermetically Max. allowable pressure on sensor head: **25 bar.** Dimensions according to drawing.
Cable Version SH	

Jaquet cable type	Properties
824L-37709	PUR cable, 4-wire, 0.34 mm² (AWG 22), halogen free, outer-Ø max. 5.4 mm, bending radius min. 55 mm, screened (metal net), black Operating temperature: -40°C to +85°C (static), -20°C to +85°C (dynamic)

Requirements for pole wheel	Ferromagnetic toothed wheel (e.g. USt 37-2), preferred involute gear wheel module ≥1, minimum tooth width 10 mm, side offset < 0,2mm, eccentricity < 0,2mm • Pole wheel – sensor airgap with Module 2 (involute) : 0.1 ... 1.5 mm • Pole wheel – sensor airgap with Ring gear F12-30 : 0.1 ... 2.0 mm • Pole wheel – sensor airgap with Shaft wheel target Nr.1 : 0.1 ... 2.0 mm Used as proximity switch, detection of ferromagnetic steel parts covering the housing head in a distance of 3.50 mm.
Insulation	Housing and electronics galvanically separated (500 V/50 Hz/ 1 min)
Protection class	IP68 head and connection side (cable inlet)
Vibration immunity	20 g in the range of 5 ... 750 Hz
Shock immunity	100 g for 11 ms, half sine wave
Operating temperature	• Sensor head: -40° ... +125°C • Cable: according to cable specifications (see above)
Weight	ca. 100 grams

Additional Information

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Connection	The sensor wires are susceptible to radiated noise. For this reason note the following points: • A screened 4 core must be used. The screen must be connected to the appropriate instrument terminal provided. • The sensor wires must be laid as far as possible from large electrical machines. They must not be run parallel in the vicinity of power cables. The maximum permissible cable length is dependent upon the sensor voltage, the cable run, 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 DIN40050.
Installation	The sensor has to be aligned to the pole wheel according to the sensor drawing. A deviation in positioning may affect the performance and decrease the noise immunity of the sensor. Within the air gap specified the amplitude of the output signals is not influenced by the air gap. The smallest possible pole wheel to sensor gap should be set, however, the gap should be set to prevent the face of the sensor from touching the pole wheel. The sensor should be positioned such that the center of the sensor face corresponds to the middle of a pole wheel tooth. For larger teeth a misalignment of the sensor center to the middle of a tooth is permissible, however, the center of the sensor must be at a minimum of 3 mm from either edge of the pole wheel under all operating conditions. A solid and vibration free mounting of the sensor is important. Sensor vibration relative to the pole wheel may add spurious noise to the signal. The sensors are insensitive to oil, grease etc. and can be installed in arduous conditions.
Operation	The sensor is designed for normal use in its dedicated environment. The manufacturer cannot take responsibility for any abnormal use that might lead to a reduced lifetime of the sensor.
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.