

High Frequency Speed Sensors

DSH 1880.x0 PHV



Product ID

Set 1:

Type #	Product #	Drawing #
DSH 1880.00 PHV (Set)	381Z-05664	No drawing for set
DSH 1800.00 PHZ (Sensor)	381Z-05665	115161 Rev. 4
DSH 0080.00 AHV (Amplifier)	351Z-05666	115160 Rev. 2

Set 2:

Type #	Product #	Drawing #
DSH 1880.10 PHV (Set)	3812607216	No drawing for set
DSH 1800.10 PHZ (Sensor)	3812607050	117696 Rev. 1
DSH 0080.00 AHV (Amplifier)	351Z-05666	115160 Rev. 2

General

Function

The sensor/amplifier set DSH 1880.x0 PHV is suitable, in conjunction with a pole wheel, for generating square wave signals proportional to rotary speeds. It is composed of a box containing the electronics (DSH 0080.00 AHV) and an independent sensing head (DSH 1800.x0 PHZ), connected to each other through a connector. The complete sensor is named by the composition of both parts (DSH 1880.x0 PHV). The two sets differ in the length of the sensor housing.

The sensor has a dynamic behaviour, so that pulse generation is guaranteed down to a speed corresponding to a frequency of 50Hz. The sensing element is an HF-Oscillator. A metallic pole wheel influences the oscillator's behavior. This modulation is converted to a square wave output signal by an amplifier with trigger characteristics. The sensors are short-circuit protected by current limitation in the power supply line.

Certification

The DSH sensors are approved by Germanischer Lloyd (GL):
Certificate 17332-00 HH

Technical data

Supply voltage	8 V ... 24 V \pm 10%, protected against transient overvoltages
Current consumption	Maximum 30 mA (without load)
Power-Up behaviour	At power-up, the sensor needs a maximum of 30 μ C to start (i.e. 80mA for 375 μ Sec, etc...)
Signal output	Square wave signal from Push-Pull output stage, DC-coupled to the supply, $I_{source\ max} = 25\ mA$ Output voltage HI: > supply voltage -2.5 Volt at $I = 15\ mA$ Output voltage LO: < 1.5 Volt at $I = 15\ mA$ Short-circuit proof and protected against false polarity
Frequency range	Depending on target and air gap, approximately 50Hz...20 kHz. The sensor's functionality can be tested at lower frequency, but no guarantee is given with respect to the target's frequency.
Electromagnetic compatibility (EMC):	With internal shield connected to electronic supply ground. According to the directive 2004/108/EC (EMC) Applied standards: EN 61000-6-2, EN 61000-6-4

Housing	Anodized aluminum alloy, epoxy filled. Dimensions according to drawing			
Connector	Spring connector Phoenix Contact MKDS 1/3-3.81 HTBK			
Pole wheel and Air gap	Pole wheel (aluminum) with blades:			
	Blade thickness	Blade width	Distance between blades	Pole wheel - sensor gap
	1 mm	>10 mm	15 mm	0,5...1.7 mm
	2 mm	>10 mm	7,5 mm	0,5...2.0 mm
	4 mm	>10 mm	6 mm	1,0...2.5 mm
	6 mm	>10 mm	6 mm	1,2...3.2 mm
	8 mm	>10 mm	16 mm	1,4...3.4 mm
	Double pulses may appear depending on the used wheel (material conductivity) and blade thickness if the gap between sensor and target is too small. Ideally the gap should be fixed in the middle of the above given limits. This gap will also have an influence on the signal jitter.			
Insulation	Housing and electronics galvanically separated (500 V/50 Hz/ 1 min)			
Protection class	Sensor head and amplifier : IP67. Connector : IP50			
Vibration immunity	5 g in the range of 5 ... 2000 Hz			
Shock immunity	50 g for 11 ms, half sine wave			
Temperature	Operating temperature of the electronics: -40° ... +125°C			
	Operating temperature of the sensor head: -40° ... +180°C			
	Storage Temperature: -55° ... +150°C			

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.