

## Hall Effect Single Channel Speed Sensor DSL CH10.0x xxV



### Product ID

| Type #           | Product #  | Drawing #      |
|------------------|------------|----------------|
| DSL CH10.00 PHV  | 3742608168 | 119753 Rev.005 |
| DSL CH10.00 P1HV | 3742608244 | 119854 Rev.002 |

### General

|                 |  |
|-----------------|--|
| <b>Function</b> | <p>The speed sensors DSL are suitable, in conjunction with a pole wheel, for generating square wave signals proportional to rotary speeds. They have a static behaviour, so that pulse generation is guaranteed down to a speed corresponding to a frequency of 0 Hz. The sensing element is a magnetically biased Hall effect semiconductor. The sensor function is independent of the rotational orientation of the sensor axis.</p> <p>The sensor types differ in housing size, connection options (connector, cable type, pin assignment) and electronics.</p> |
|-----------------|--|

### Technical data

|                                       |  |
|---------------------------------------|--|
| Supply voltage                        | 10...25 VDC  |
| Current consumption                   | Max. 12 mA (without load)  |
| Signal output                         | <p>Square wave signal from NPN output transistor with internal 5 kΩ pull-up resistor, DC-coupled to supply (negative pole = reference voltage).</p> <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} \approx</math> supply voltage</li> <li>• <math>U_{low} &lt; 1.0</math> V at <math>I = 25</math> mA</li> </ul> </li> <li>• Protected against reverse polarity and overvoltage</li> </ul> |
| Frequency range                       | 0 Hz ... 15 kHz  |
| Housing                               | <p>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.</p> <p>Dimensions according to drawing.</p>  |
| Requirements for pole wheel           | <p>Toothed wheel of a magnetically permeable material (e.g. Steel 1.0036)</p> <p>Optimal performance with</p> <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>   |

Cable versions

| Type #           | Cable [Jaquet part no.] | Cable length [mm] |
|------------------|-------------------------|-------------------|
| DSL CH10.00 PHV  | 8242600416              | 700               |
| DSL CH10.00 P1HV | 8242600416              | 610               |

Cable type:

- 8242600416:  
Leoni Adascar 125 GW 5x0.35 5.15 (FLR4G11Y 5x0.35), TPE-U cable, 0.35 mm<sup>2</sup> (AWG 22), outer-Ø max. 5.3 mm, black  
Operating temperature: -40°C to +125°C

Connector versions

| Type #           | Connector                             |
|------------------|---------------------------------------|
| DSL CH10.00 PHV  | Connector mates with DEUTSCH DTM04-3P |
| DSL CH10.00 P1HV | Connector mates with DEUTSCH DT04-3P  |

|                    |   |
|--------------------|---|
| Insulation         | Housing and electronics galvanically separated (500 V/50 Hz/ 1 min) |
| Vibration immunity | 30 g in the range 5...2000 Hz.                                      |
| Shock immunity     | 50 g during 20 ms, half-sine wave                                   |
| Temperature        | Operating temperature of entire sensor: -40° ... +125°C             |

**Further Information**

|              |  |
|--------------|--|
| Safety       | All mechanical installations must be carried out by an expert. General safety requirements have to be met.   |
| Connection   | The sensors must be connected according to the sensor drawing.<br>Sensor wires are susceptible to radiated noise. Therefore, the following points have to be considered when connecting a sensor: <ul style="list-style-type: none"> <li>• The sensor wires must be positioned as far as possible from large electrical machines.</li> <li>• They must not run in the vicinity of power cables.</li> <li>• It is advantageous to keep the distance between sensor and instrument as short as possible. If the signal requirements are met, the sensor cable may be lengthened via a terminal box located in an IP20 connection area in accordance with EN 60529.</li> </ul>  |
| 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.<br>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.<br>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.<br>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.   |