The BLD01 is a non-invasive, optical sensor with remote electronics (probe and PCB) developed to detect smallest amounts of blood in a clear fluid from the outside through transparent plastic tubing. The sensor has no contact with the liquid.

The sensor with UART interface is designed as a component to be integrated into machines.

Technical Data

<table>
<thead>
<tr>
<th>Blood Leak Detector type BLD01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring method</td>
</tr>
<tr>
<td>Specification</td>
</tr>
<tr>
<td>Order number</td>
</tr>
<tr>
<td>Blood sensitivity</td>
</tr>
<tr>
<td>Measuring cycle</td>
</tr>
<tr>
<td>Response time; Holding time</td>
</tr>
<tr>
<td>Operating temperature</td>
</tr>
<tr>
<td>Storage temperature</td>
</tr>
<tr>
<td>Materials</td>
</tr>
<tr>
<td>Versions / Designs</td>
</tr>
<tr>
<td>Measuring channel width</td>
</tr>
<tr>
<td>Measuring channel height</td>
</tr>
</tbody>
</table>
### Requirements for tube

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer diameter</td>
<td>5.5 … 7.0 mm</td>
</tr>
<tr>
<td>Material</td>
<td>Plastics, e.g. PVC, PE, silicone, PUR, other materials on request</td>
</tr>
<tr>
<td>Special features</td>
<td>Tube must be optically transparent within the spectral range of about 420 nm</td>
</tr>
<tr>
<td>Elasticity</td>
<td>Tube must be able to adjust flexibly</td>
</tr>
<tr>
<td></td>
<td>Tube is inserted into sensor without any coupling fluid</td>
</tr>
</tbody>
</table>

### Requirements for liquid

Optically transparent liquids

### Mounting

Clamp-on sensor, free hanging on tubing

Ears with fixation screw holes (Ø=3.25 mm)

### Protection

IP67

### Operating voltage

3.3 … 5.5 VDC

⚠️ Note: No overvoltage protection implemented.

### Current consumption

≤ 30 mA with open current output

### Directives / Standards

The sensors were developed to be tested with respect to the following standards:
- Safety requirements: IEC 60601-2-16:2008

### Scope of delivery

Blood leak detector type BLD01 sensor head with connection cable and external electronic board, technical data sheet

### Accessories / Options

- USB Data Converter Set (consisting of serial interface BLD01 RS232-dsub9, USB Data Converter type 002_V001 SUB-D-9-pole and CD with driver)
- Description of serial interface (on request)

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Table 1: Technical data for blood leak detector type BLD01
## Connectors

**Interfaces / Connectors on electronic board**

> Note: The board needs to be protected against direct contact with external electronic potentials.

<table>
<thead>
<tr>
<th>TTL</th>
<th>Wire to board connector header; 6-pin; 1.25 mm Molex: 53261-0671</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin</td>
<td>Colour</td>
</tr>
<tr>
<td>1</td>
<td>Red</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
</tr>
<tr>
<td>3</td>
<td>Yellow</td>
</tr>
<tr>
<td>4</td>
<td>Green</td>
</tr>
<tr>
<td>5</td>
<td>White</td>
</tr>
<tr>
<td>6</td>
<td>Blue</td>
</tr>
</tbody>
</table>

**Outputs and inputs**

(Standard mode: Logic interface)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Colour</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Clear liquid</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Plausibility error</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Internal error (self-test)</td>
<td>H</td>
<td>L</td>
</tr>
</tbody>
</table>

**Output specification**

(Standard mode: default)

<table>
<thead>
<tr>
<th>Serial interface (RS232)</th>
<th>Wire to board connector header; 4-pin; 1.25 mm Molex: 53261-0471</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin</td>
<td>Colour</td>
</tr>
<tr>
<td>1</td>
<td>Red</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
</tr>
<tr>
<td>4</td>
<td>Yellow</td>
</tr>
</tbody>
</table>
Blood Leak Detector type BLD01

Technical Drawings

Fig. 1: Scheme of BLD01
(The drawings are not to scale)

Fig. 2: Side and top view of BLD01