DIGITAL PITOT STATIC PROBE DRIVER SYSTEM

This high-precision, low-cost package includes all of the sensing elements required for high quality measurements with a standard Pitot-static probe. Ideal for use in process control, flow speed monitoring or education, this system provides a simple, high-power sensing solution.

- 24-bit differential pressure sensor accurate to +/- 0.75% full-scale, with internal temperature compensation
- 24-bit, 0-1.6 Atm. absolute pressure sensor for high-precision static pressure measurements
- Sensor calibration carried in on-board memory
- Temperature probe with dedicated 16-bit A/D system for accurate density estimates
- Simple and intuitive software for real-time monitoring and data recording included
- Powered and driven by USB for simple plug-and-play operation
- Integrated enclosures with probe mounts and pressure connections are available

**Specification**

<table>
<thead>
<tr>
<th>Standard sensor specifications (custom available on request)</th>
<th>Differential pressure sensor</th>
<th>Static pressure sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>ID2HP-160P</td>
<td>ID2HP-1K0</td>
</tr>
<tr>
<td>Standard pressure ranges</td>
<td>160 Pa FS</td>
<td>1 kPa FS</td>
</tr>
<tr>
<td>Maximum overpressure</td>
<td>33.5 kPa</td>
<td>37.5 kPa</td>
</tr>
<tr>
<td>Sensor accuracy(^1)</td>
<td>± 0.1 % FS</td>
<td></td>
</tr>
<tr>
<td>Total error band after auto-zero(^2)</td>
<td>± 0.5 % FS</td>
<td>± 0.25 % FS</td>
</tr>
<tr>
<td>Compensated temperature range (extended ranges available)</td>
<td>-40° to +65° C</td>
<td>0° to +50° C</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-40° to +65° C non-condensing</td>
<td></td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-40° to +65° C non-condensing</td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td>Sensors rated to 15 g, 10 Hz to 2 Hz</td>
<td></td>
</tr>
<tr>
<td>Maximum relative humidity</td>
<td>95 %</td>
<td></td>
</tr>
<tr>
<td>Relative ambient humidity sensor specification</td>
<td>0 % to 100 % RH, +/- 3%</td>
<td></td>
</tr>
</tbody>
</table>
Ambient temperature sensor specification  
0°C - 65°C ± 0.5°C

Ambient absolute pressure sensor specification  
30-110 kPa FS, +/- 0.1kPa

Remote temperature probe  
-40°C - 150°C ± 0.5°C

Absolute temperature limits  
5° to +65° C non-condensing

Absolute pressure limits  
0.2 - 1.5 atm

Weight (approximate)  
< 20 g

Voltage  
6-24 VDC or via USB

Power  
min. 290 mW

Communications interface  
USB2.0 or RS485

Data acquisition rate  
1 kHz (equivalent)

Digital resolution  
24-bit pressure, 16-bit environmental and IMU

System requirements  
Windows 7 or later, minimum 3GHz & 4Gb RAM

IMU specification  
3 axis gyro, 125 °/s FS, ± 3.9 x10⁻³ °/s  
3 axis accelerometer, 2g FS, ± 0.061 mg

1 Includes errors due to pressure non-linearity, pressure hysteresis, non-repeatability and calibration uncertainty.  
2 Total residual error after auto-zero, excluding residual temperature sensitivity.  
3 Temperature is recorded at the location of the PCB. Waste heat from electronic components may distort temperature readings.

Dimensions

The content of this datasheet is for general information only and is subject to change without notice. It may contain inaccuracies or errors and Surrey Sensors Ltd. expressly exclude liability for any such inaccuracies or errors to the fullest extent permitted by law. Your use of any information is entirely at your own risk, for which Surrey Sensors Ltd. shall not be liable.

© Surrey Sensors Ltd. (2019) www.surreysensors.com DS-ID2HP-092019-0.1