I/O Breakout Cable
Data Sheet

SPECIFICATIONS
> Input Voltage Range: 0-3V
> Output Voltage Range: 0-3V or ±1.5V (if reference is GND)
> Maximum Output Current: 200mA (with no other sensors connected to the hub)

GENERAL DESCRIPTION
This accessory allows the connection, within the specified electric values, of a wide range of analog or digital third party sensors to the biosignalsplux hub. This allows, for instance, the acquisition and visualization in real time on OpenSignals of a third party sensor, using the biosignalsplux hub.

WARNING
Usage of this input interface VOIDS THE ELECTRICAL WARRANTY of the hub and sensors.

DISCLAIMER
BEWARE when using this accessory as to preserve electrical isolation of the user. We expressly disclaim any liability whatsoever for any direct, indirect, consequential, incidental or special damages, including, without limitation, lost revenues, lost profits, losses resulting from business interruption or loss of data, regardless of the form of action or legal theory under which the liability may be asserted, even if advised of the possibility of such damages.

Fig. 1. I/O breakout cable image
Fig. 2. Interface pinout

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## PINOUT ON ANALOG PORT

<table>
<thead>
<tr>
<th>PIN</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-</td>
<td>0V</td>
</tr>
<tr>
<td>GND</td>
<td>1.5V</td>
</tr>
<tr>
<td>V+</td>
<td>3V</td>
</tr>
<tr>
<td>IN</td>
<td>Analog input</td>
</tr>
</tbody>
</table>

## PINOUT ON DIGITAL PORT

<table>
<thead>
<tr>
<th>PIN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-</td>
<td>0V</td>
</tr>
<tr>
<td>GND</td>
<td>DIGITAL OUTPUT</td>
</tr>
<tr>
<td>V+</td>
<td>3V</td>
</tr>
<tr>
<td>IN</td>
<td>DIGITAL INPUT</td>
</tr>
</tbody>
</table>
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TRANSFER FUNCTION

\[ [0 V, 3 V] \]

\[ \text{IN}(V) = \frac{\text{ADC}}{2^n - 1} \cdot \text{VCC} \]

\[ \text{VCC} = 3V \text{ (operating voltage)} \]

\[ \text{IN}(V) \text{ – Input voltage in Volt (V)} \]
\[ \text{ADC} \text{ – Value sampled from the channel} \]
\[ n \text{ – Number of bits of the channel}^1 \]

PHYSICAL CHARACTERISTICS

> W x L x H: 1.0 x 1.8 x 0.4 cm
> A: 105.0 ± 0.5 cm
> S: White, Black, Blue, Green, Red, Yellow, Gray or Brown

ORDERING GUIDE

<table>
<thead>
<tr>
<th>Reference</th>
<th>Package Description</th>
</tr>
</thead>
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1 The number of bits for each channel depends on the resolution of the Analog-to-Digital Converter (ADC); in biosignalsplux the default is 16-bit resolution \((n = 16)\), although 12-bit \((n = 12)\) and 8-bit \((n = 8)\) may also be found.