1 Introduction

The CleO-Speaker module is a speaker accessory for the CleO series – The Smart TFT Display for Arduino. It consists of a 0.5W 8 OHM speaker driver preinstalled inside a black speaker.

With the CleO-Speaker module, users can playback music/tones whenever their CleO application requires it. There is also an audio line in capability provided to allow users to input audio from an external source to CleO’s on board speaker amplifier.

2 Ordering Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CleO-SPK1</td>
<td>CleO-Speaker, 8 OHM 0.5 W speaker driver in black bezel, with 30.5cm long cable terminated with 1X4 position 2mm pitch housing</td>
</tr>
</tbody>
</table>
# Table of Contents

1. **Introduction** ................................................................. 1

2. **Ordering Information** ..................................................... 1

3. **Module Technical Specification** ........................................ 3
   3.1 Technical Data .................................................................. 3
   3.2 Typical Performance Characteristics ................................. 4

4. **Mechanical Dimensions** ................................................... 5
   4.1 Speaker Module Dimension .............................................. 5
   4.2 Speaker Enclosure Dimension .......................................... 6
   4.3 Cable Dimension ............................................................ 8

5. **Contact Information** .......................................................... 9

Appendix A – References ............................................................ 10
   Acronyms and Abbreviations .................................................. 10

Appendix B – List of Figures and Tables ................................. 11
   List of Tables ........................................................................ 11
   List of Figures ....................................................................... 11

Appendix C – Revision History .................................................. 12
3 Module Technical Specification

3.1 Technical Data

![CleO Speaker](image)

**Figure 1 - CleO Speaker**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FTDI Part Number</td>
<td>Cleo-SPK1</td>
</tr>
<tr>
<td>2</td>
<td>Dimension</td>
<td>63(W)X63(L)X23.8(D) MM</td>
</tr>
<tr>
<td>3</td>
<td>Normal Impedance</td>
<td>8 OHM ± 15 %</td>
</tr>
<tr>
<td>4</td>
<td>Normal power</td>
<td>0.5W</td>
</tr>
<tr>
<td>5</td>
<td>Rated Power</td>
<td>1W</td>
</tr>
<tr>
<td>6</td>
<td>Resonance Frequency (FO)</td>
<td>400Hz ±20% Hz</td>
</tr>
<tr>
<td>7</td>
<td>Output SPL</td>
<td>87dB ±3dB /1Watt 0.5Meter</td>
</tr>
<tr>
<td>8</td>
<td>Cable length</td>
<td>30.5CM</td>
</tr>
<tr>
<td>9</td>
<td>Housing Used</td>
<td>JST ZHR -4</td>
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</table>

Table 1 - Technical Data

See the Table 2 for the cable pin out definition

<table>
<thead>
<tr>
<th>Pin No</th>
<th>Pin Description</th>
<th>Cable Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Speaker Negative</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>Terminal</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Speaker Positive</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Terminal</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
<td>Black</td>
</tr>
<tr>
<td>4</td>
<td>External Line In</td>
<td>Brown</td>
</tr>
</tbody>
</table>

Table 2 - Pin Out Definition
3.2 Typical Performance Characteristics

Figure 2 - SPL Vs Frequency Curve

Figure 3 - Impedance Vs Frequency Curve
4 Mechanical Dimensions

4.1 Speaker Module Dimension

Figure 4 - CleO Speaker Module Dimensions
4.2 Speaker Enclosure Dimension

Figure 5 - CleO Speaker Enclosure Drawing (Rear)
Figure 6 - CleO Speaker Enclosure Drawing (Front)
4.3 Cable Dimension

Figure 7 - Cable Drawing
5 Contact Information

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Appendix A – References

Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Terms</th>
<th>Description</th>
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<tbody>
<tr>
<td>SPL</td>
<td>Sound Pressure Level</td>
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Appendix B - List of Figures and Tables

List of Tables

Table 1 - Technical Data .................................................................................................................. 3
Table 2 - Pin Out Definition ............................................................................................................. 3

List of Figures

Figure 1 - CleO Speaker ..................................................................................................................... 3
Figure 2- SPL Vs Frequency Curve .................................................................................................. 4
Figure 3 - Impedance Vs Frequency Curve ...................................................................................... 4
Figure 4 - CleO Speaker Module Dimensions ............................................................................... 5
Figure 5 - CleO Speaker Enclosure Drawing (Rear) ...................................................................... 6
Figure 6 - CleO Speaker Enclosure Drawing (Front) ..................................................................... 7
Figure 7 - Cable Drawing .................................................................................................................. 8
Appendix C – Revision History

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Document Feedback: Send Feedback

<table>
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<tr>
<th>Revision</th>
<th>Changes</th>
<th>Date</th>
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<td>Version 1.0</td>
<td>Initial Release</td>
<td>2016-04-21</td>
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