

**Future Technology
 Devices International
 Limited
 Datasheet
 CleO-Speaker Module**



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

Part No.	Description
CleO-SPK1	CleO-Speaker , 8 OHM 0.5 W speaker driver in black bezel, with 30.5cm long cable terminated with 1X4 position 2mm pitch housing

Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied. Future Technology Devices International Ltd will not accept any claim for damages howsoever arising as a result of use or failure of this product. Your statutory rights are not affected. This product or any variant of it is not intended for use in any medical appliance, device or system in which the failure of the product might reasonably be expected to result in personal injury. This document provides preliminary information that may be subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH United Kingdom. Scotland Registered Company Number: SC136640

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

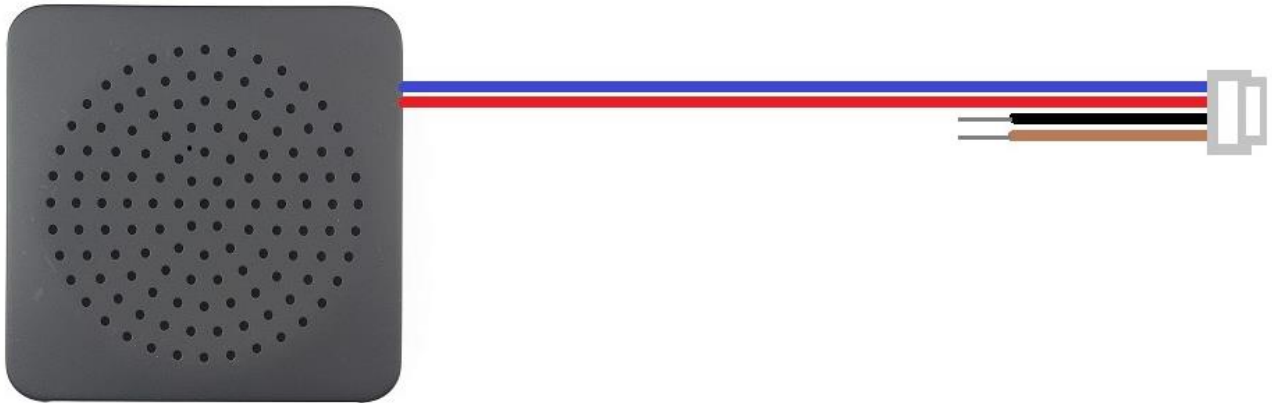


Figure 1 - CleO Speaker

1	FTDI Part Number	Cleo-SPK1
2	Dimension	63(W)X63(L)X23.8(D) MM
3	Norminal Impedance	8 OHM \pm 15 %
4	Norminal power	0.5W
5	Rated Power	1W
6	Resonance Frequency (FO)	400Hz \pm 20% Hz
7	Output SPL	87dB \pm 3dB /1Watt 0.5Meter
8	Cable length	30.5CM
9	Housing Used	JST ZHR -4

Table 1 - Technical Data

See the **Table 2** for the cable pin out definition

Pin No	Pin Description	Cable Colour
1	Speaker Negative Terminal	Blue
2	Speaker Positive Terminal	Red
3	Ground	Black
4	External Line In	Brown

Table 2 - Pin Out Definition

3.2 Typical Performance Characteristics

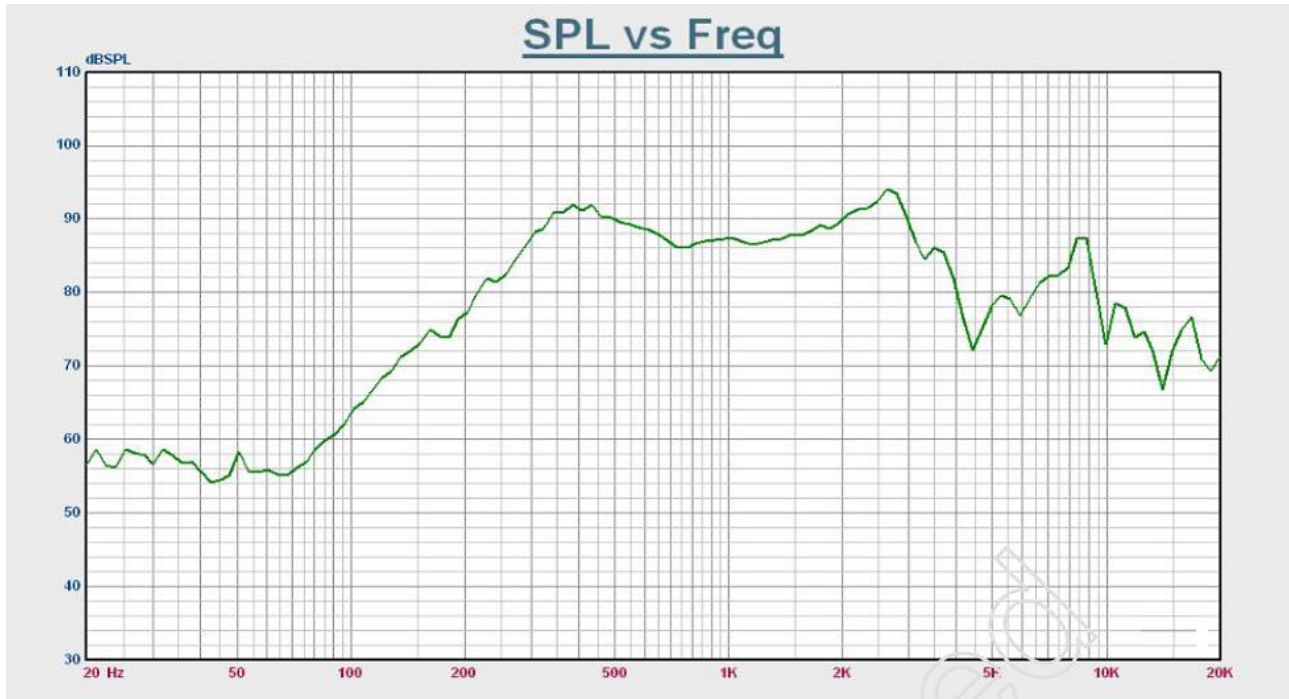


Figure 2- SPL Vs Frequency Curve

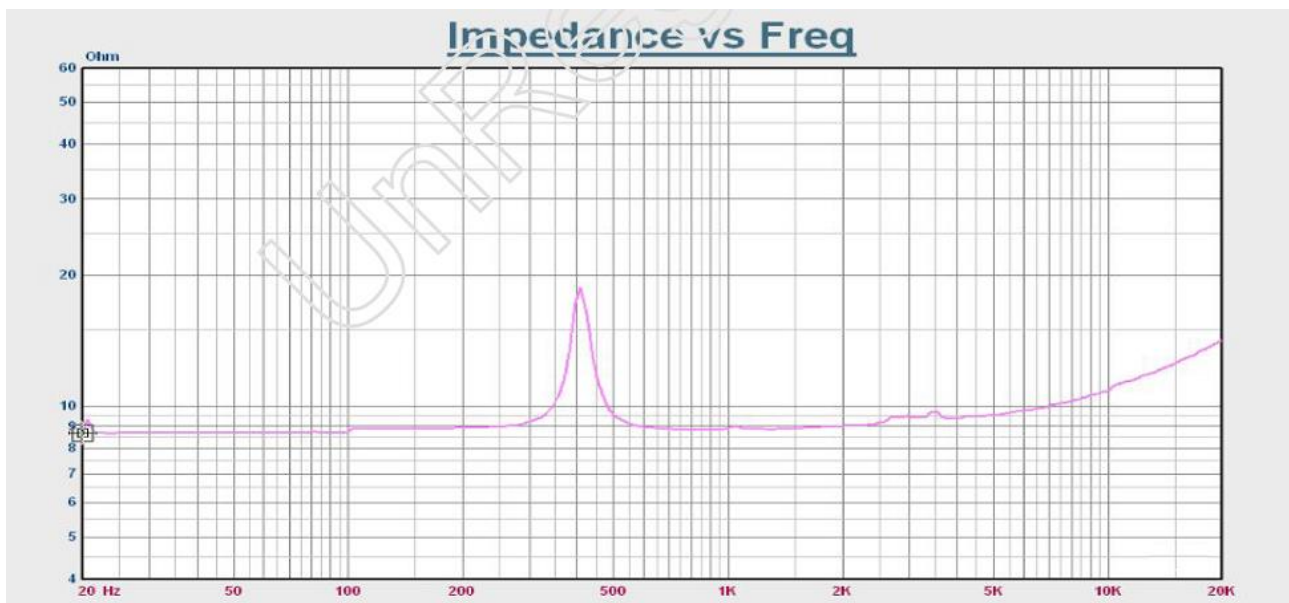


Figure 3 - Impedance Vs Frequency Curve

4 Mechanical Dimensions

4.1 Speaker Module Dimension

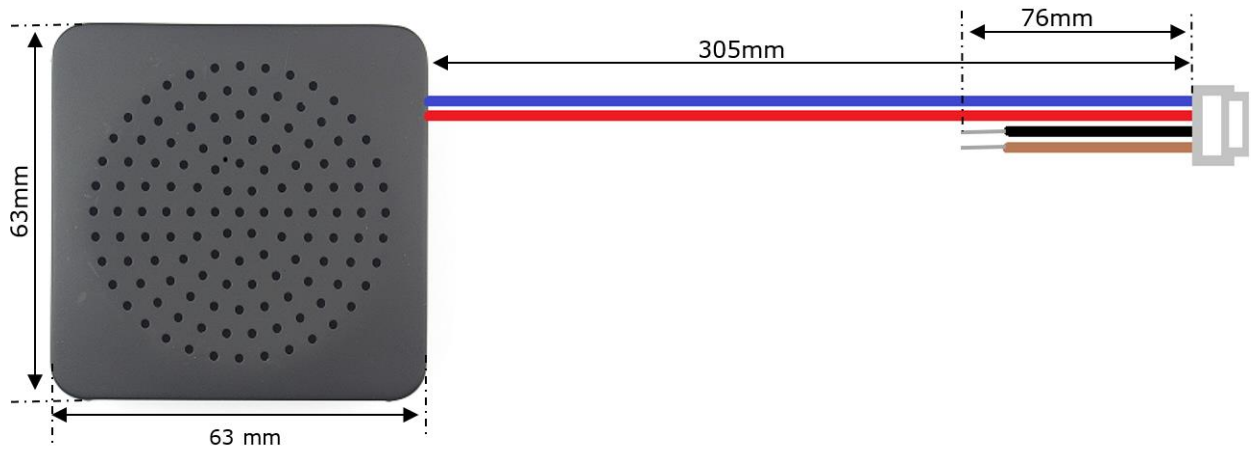


Figure 4 - CleO Speaker Module Dimensions

4.2 Speaker Enclosure Dimension

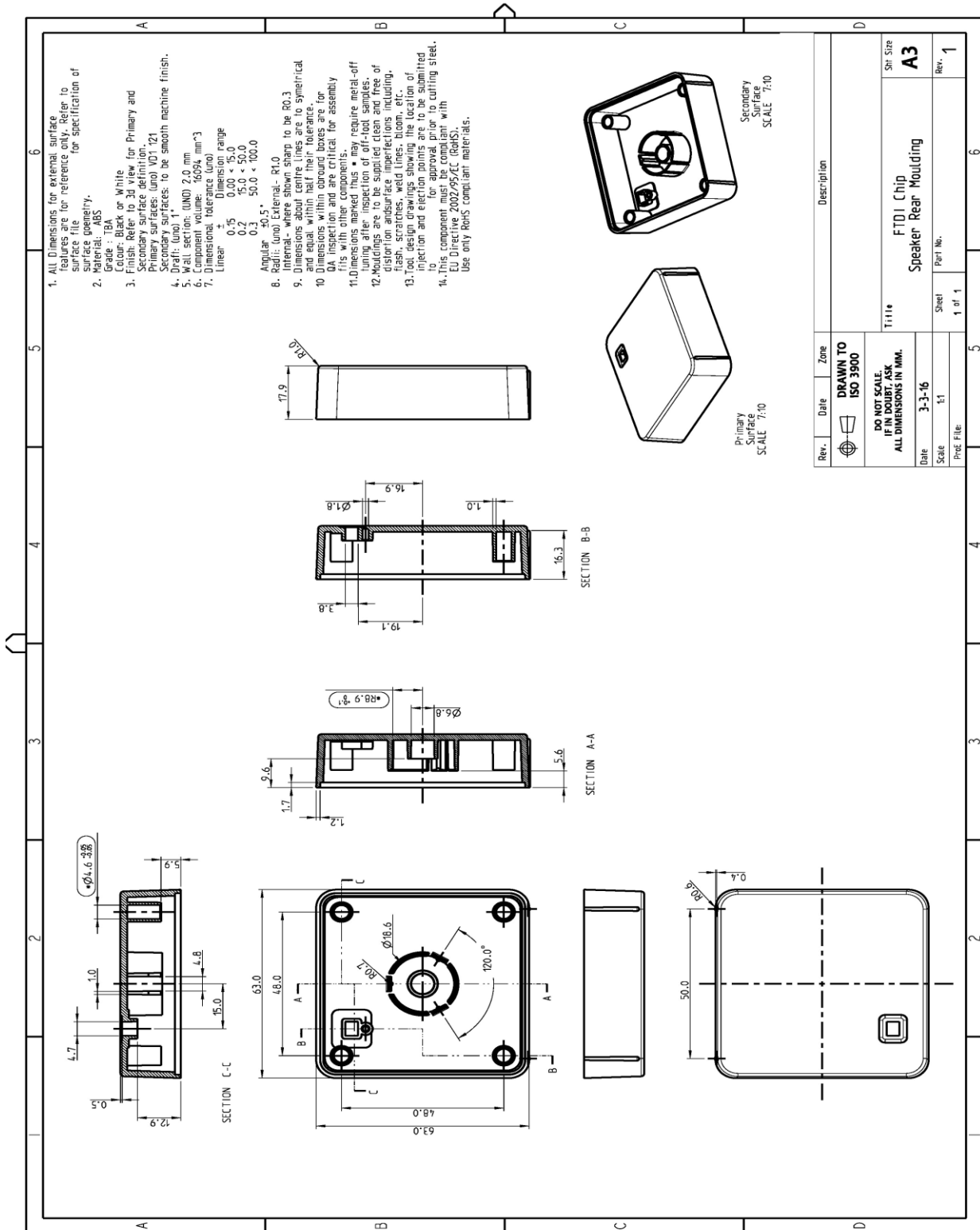
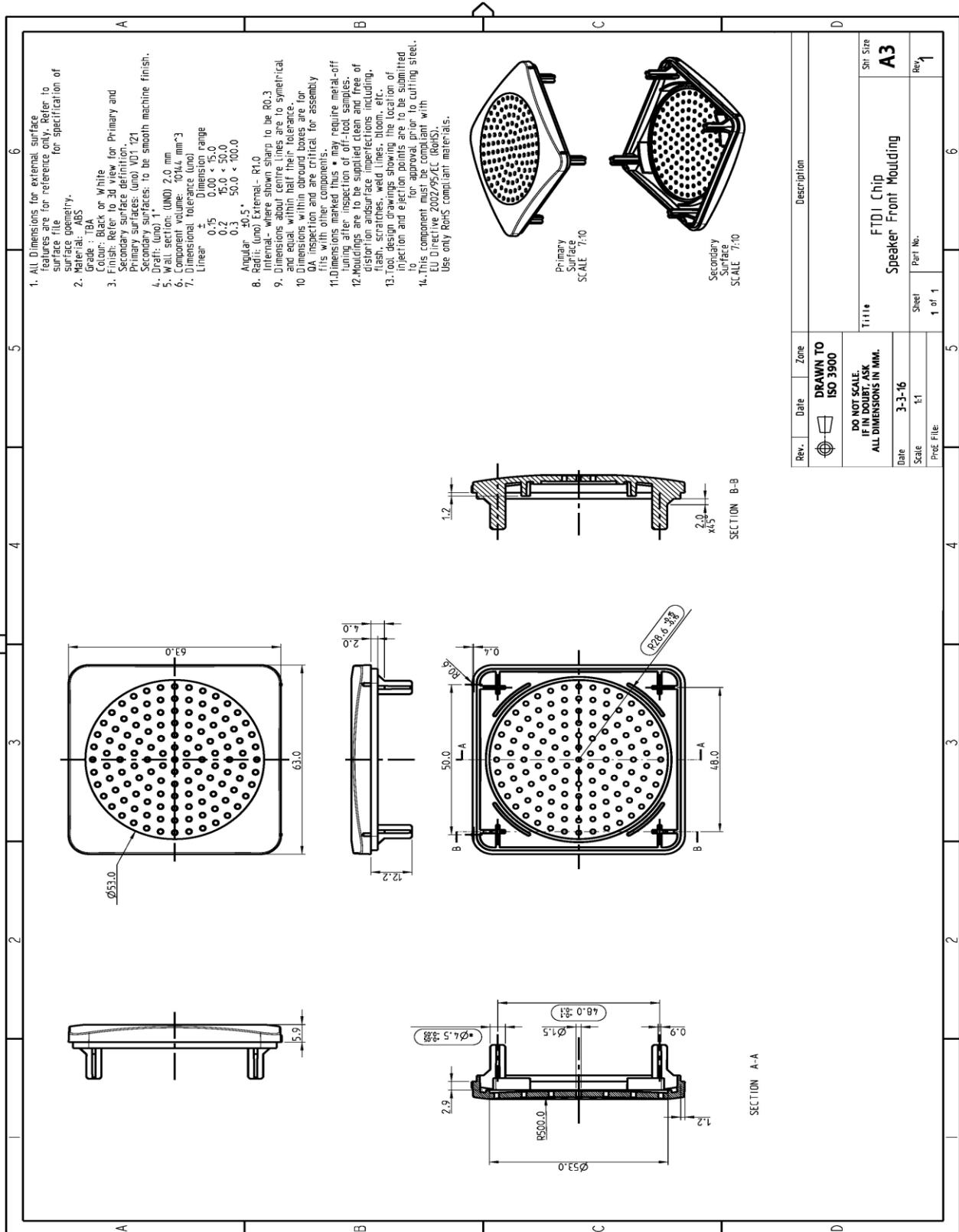


Figure 5 - CleO Speaker Enclosure Drawing (Rear)



Rev.	Date	Zone	Description
1	3-3-16	E1	FTDI Chip Speaker Front Moulding

<p>DO NOT SCALE IF IN DOUBT, ASK ALL DIMENSIONS IN MM.</p>		<p>Sh Size A3</p>
Date	Scale	Sheet
3-3-16	1:1	1 of 1
Part No.	Rev	
FTDI Chip Speaker Front Moulding	1	
Proj File	6	

5 Contact Information

Head Office – Glasgow, UK

Future Technology Devices International Limited
Unit 1, 2 Seaward Place, Centurion Business Park
Glasgow G41 1HH
United Kingdom
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758

E-mail (Sales) sales1@ftdichip.com
E-mail (Support) support1@ftdichip.com
E-mail (General Enquiries) admin1@ftdichip.com

Branch Office – Tigard, Oregon, USA

Future Technology Devices International Limited (USA)
7130 SW Fir Loop
Tigard, OR 97223-8160
USA
Tel: +1 (503) 547 0988
Fax: +1 (503) 547 0987

E-mail (Sales) us.sales@ftdichip.com
E-mail (Support) us.support@ftdichip.com
E-mail (General Enquiries) us.admin@ftdichip.com

Branch Office – Taipei, Taiwan

Future Technology Devices International Limited (Taiwan)
2F, No. 516, Sec. 1, NeiHu Road
Taipei 114
Taiwan, R.O.C.
Tel: +886 (0) 2 8797 1330
Fax: +886 (0) 2 8751 9737

E-mail (Sales) tw.sales1@ftdichip.com
E-mail (Support) tw.support1@ftdichip.com
E-mail (General Enquiries) tw.admin1@ftdichip.com

Branch Office – Shanghai, China

Future Technology Devices International Limited (China)
Room 1103, No. 666 West Huaihai Road,
Shanghai, 200052
China
Tel: +86 21 62351596
Fax: +86 21 62351595

E-mail (Sales) cn.sales@ftdichip.com
E-mail (Support) cn.support@ftdichip.com
E-mail (General Enquiries) cn.admin@ftdichip.com

Web Site

<http://ftdichip.com>

Distributor and Sales Representatives

Please visit the Sales Network page of the [FTDI Web site](#) for the contact details of our distributor(s) and sales representative(s) in your country.

System and equipment manufacturers and designers are responsible to ensure that their systems, and any Future Technology Devices International Ltd (FTDI) devices incorporated in their systems, meet all applicable safety, regulatory and system-level performance requirements. All application-related information in this document (including application descriptions, suggested FTDI devices and other materials) is provided for reference only. While FTDI has taken care to assure it is accurate, this information is subject to customer confirmation, and FTDI disclaims all liability for system designs and for any applications assistance provided by FTDI. Use of FTDI devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold harmless FTDI from any and all damages, claims, suits or expense resulting from such use. This document is subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Neither the whole nor any part of the information contained in, or the product described in this document, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH, United Kingdom. Scotland Registered Company Number: SC136640

Appendix A – References

Acronyms and Abbreviations

Terms	Description
SPL	Sound Pressure Level

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 - <i>CleO</i> Speaker	3
Figure 2- SPL Vs Frequency Curve	4
Figure 3 - Impedance Vs Frequency Curve.....	4
Figure 4 - <i>CleO</i> Speaker Module Dimensions	5
Figure 5 - <i>CleO</i> Speaker Enclosure Drawing (Rear)	6
Figure 6 - <i>CleO</i> Speaker Enclosure Drawing (Front).....	7
Figure 7 - Cable Drawing.....	8

Appendix C – Revision History

Document Title: CleO-Speaker Module Datasheet
Document Reference No.: FT_001311
Clearance No.: FTDI# xxx
Product Page: <http://www.ftdichip.com/Products/Modules/CleO.htm>
Document Feedback: [Send Feedback](#)

Revision	Changes	Date
Version 1.0	Initial Release	2016-04-21