



**4D SYSTEMS**

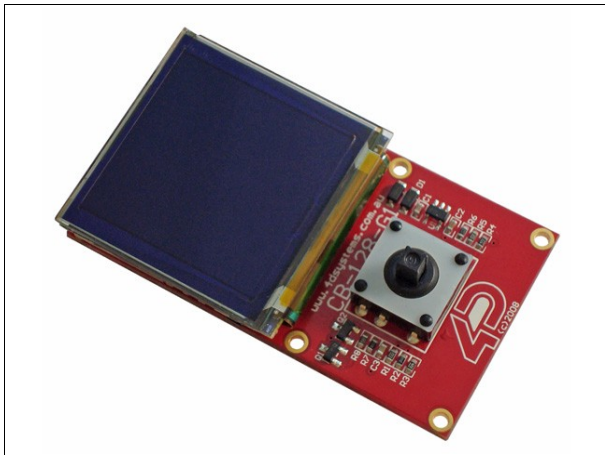
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## **CB-160-G1**

### **Carrier Board for uOLED-160-G1(SGC/GFX) Display Modules**

Document Date: 18th November 2011  
Document Revision: 3.0

#### Description



The **CB-160-G1** is a compact carrier board designed to provide a simple means of adding user input to the already capable uOLED-160-G1(SGC) (Serial Platform) and the uOLED-160-G1(GFX) (4DGL Platform) range of intelligent display modules. The tiny 5-position joystick, along with an on-board speaker, facilitates user input and output for these displays.

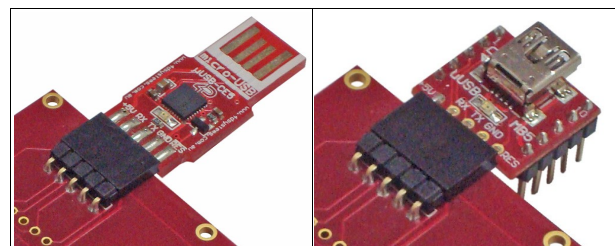
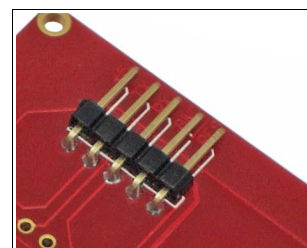
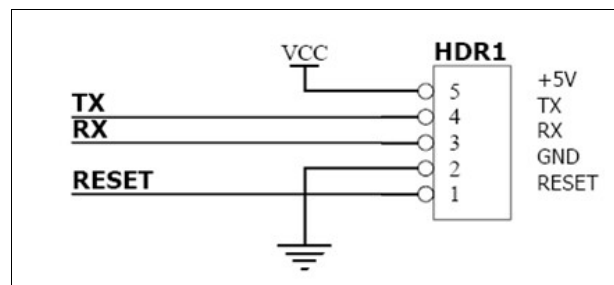
The joystick can be used for menu navigation, exciting game play or any kind of user input needed for your applications.

The small speaker can be used for game sounds, audible feedback for user interaction with applications or just to experiment with the sound capabilities of the embedded GOLDELOX-SGC or the GOLDELOX-GFX2 processors on the display modules.

The carrier board also provides a secure stable attachment for the OLED-160-G1 range of displays. When the display is mounted on the carrier board, the combination provides additional protection for the display.

#### User Interface

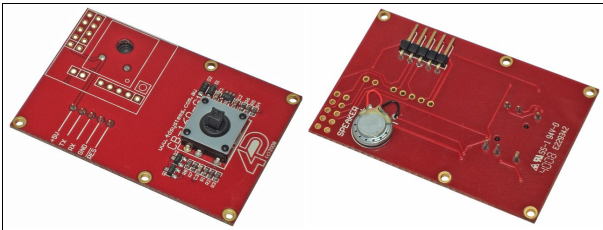
The user interface is the 5 pin male header, underneath the board. This provides direct access to the same 5 pin header on the uOLED-160-G1 display modules (extended electrically). It is also used to attach either a uUSB-MB5 or uUSB-CE5 (USB to Serial Converters) for connecting the display module to a PC for development and programming purposes as illustrated below.



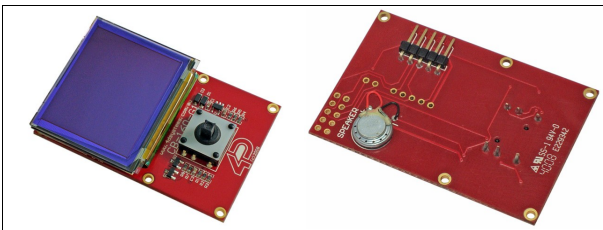
## Attaching the Display Module

The following images illustrate various ways of attaching the uOLED-160-G1(SGC) or the uOLED-160-G1(GFX) display modules to the CB-160-G1 carrier board.

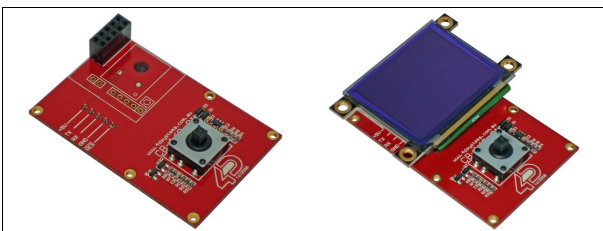
### 1 The Bare Board



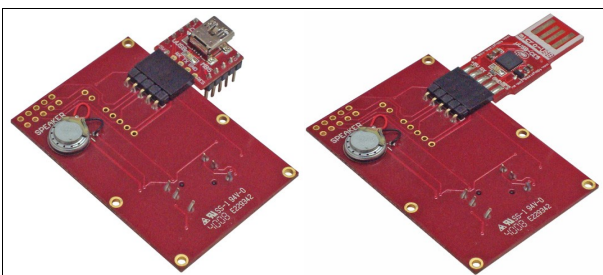
### 2 Display Module Directly Soldered



### 3 Display Module via Sockets



### 4 Interfacing the uUSB-MB5/CE5

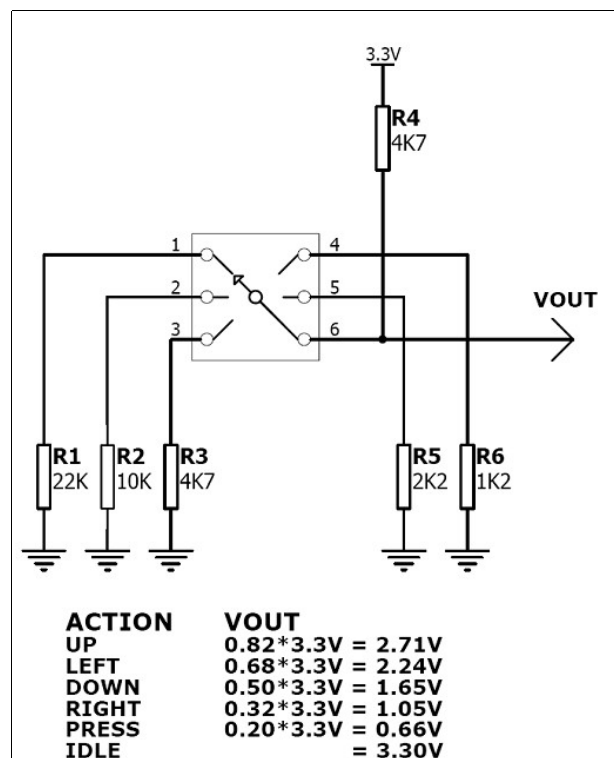


## Joystick Circuit

The Joystick is a 5 position multi switch and each position connects to a junction of a resistor ladder network that forms a voltage divider.

**uOLED-160-G1(SGC) Serial Display:** The output of the Joystick connects directly to the **SWITCH** pin. Each Joystick position is interpreted as 1 of 5 buttons or switches.

**uOLED-160-G1(GFX) 4DGL Display:** The output of the Joystick voltage divider connects directly to the **IO1** pin. The IO1 pin can be programmed as an Analogue to Digital (A2D) converter input under 4DGL. Utilising the A2D feature, each individual switch position voltage value can be read and decoded. The IO1 pin of the display modules are directly connected to the output of the joystick voltage divider circuit.



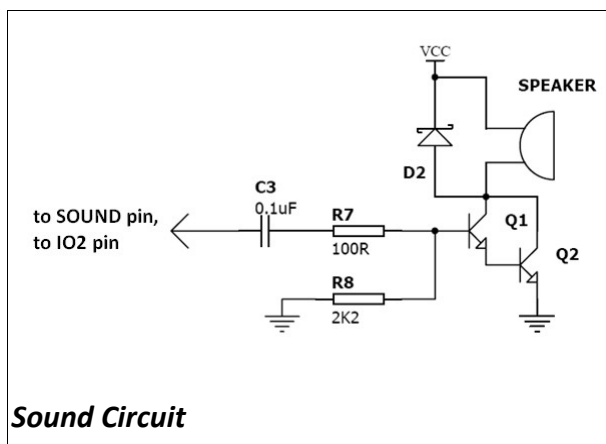
### Joystick Circuit

**Note:** The uOLED-160-G1(SGC) (Serial platform) and the uOLED-160-G1(GFX) (4DGL platform) display modules are both similar electrically and mechanically.

## Sound Circuit

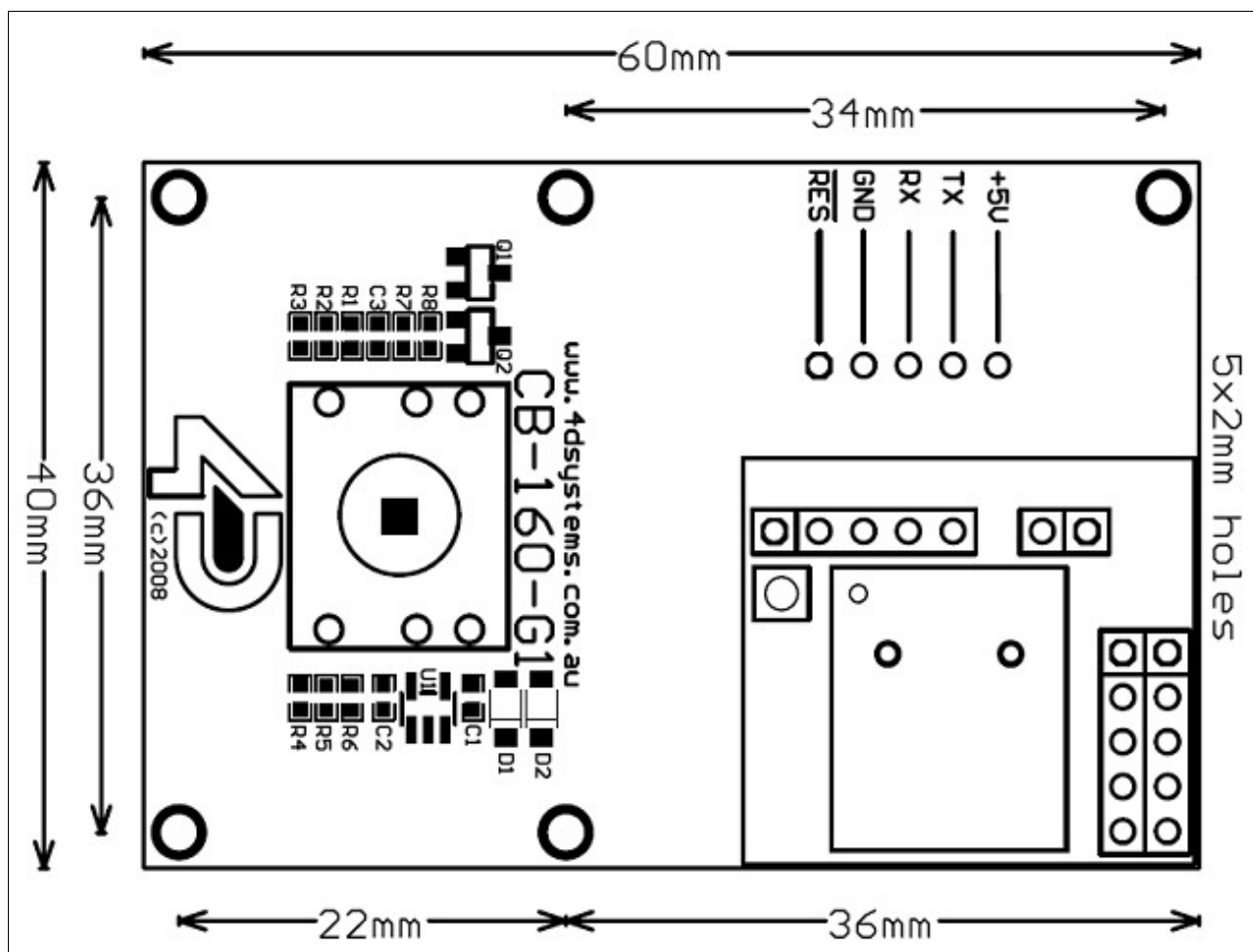
The uOLED-160-G1 display modules are capable of generating complex sounds and music from their respective I/O pins.

The **SOUND** pin of uOLED-160-G1(SGC) and **IO2** pin of uOLED-160-G1(GFX) is connected to the speaker circuit as illustrated in the circuit below.



**Note:** The uOLED-160-G1(SGC) (Serial platform) and the uOLED-160-G1(GFX) (4DGL platform) display modules are both similar electrically and mechanically.

## Mechanical Information



## Ordering Information

**Order Code:** CB-160-G1

**Package:** 150mm x 95mm (ZIF Bag dimensions).

**Packaging:** Module sealed in bubble bag inside a ZIF bag, both Antistatic.

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