Rotary Encoder Board and Volume Control Board User's Guide

ROTARY ENCODER BOARD AND VOLUME CONTROL BOARD USER'S GUIDE

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NOTES:

Product Version : Ver 1.0

Document Version : Ver 1.0

ROTARY ENCODER BOARD AND VOLUME CONTROL BOARD USER'S GUIDE

Chapter 1. Overview

1.1 Overview

These are matching products, composed of a rotary encoder board and a volume control board, for use with those amplifiers which have extensible interfaces for volume adjustment in audio applications. The range of volume adjustment is up to -83dB to 0dB with 1dB/step accuracy. This combination provides high precision volume control, low THD+N and high sensitivity as well as convenient installation. In addition, you can also use a single rotary encoder for instrument parameter control.

FIGURE 1-1 OVERVIEW

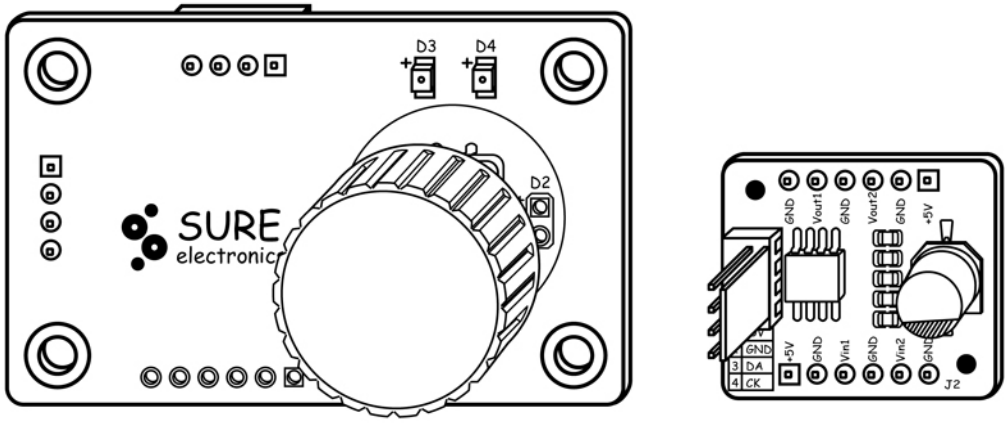
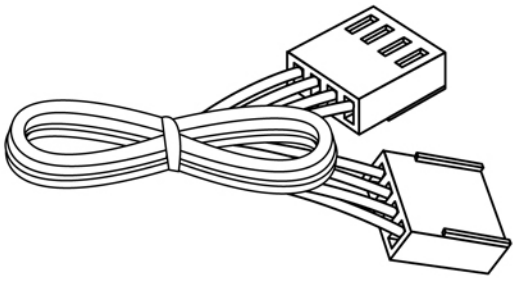
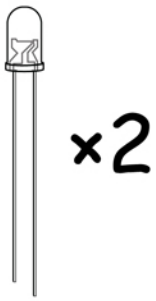


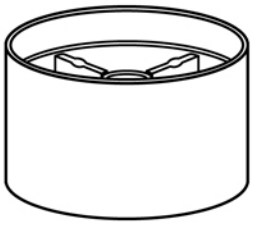
FIGURE 1-2 ACCESSORIES



4-pin 2510 cable



high-brightness yellow LED



black alluminum alloy knob

M3mm×8mm 6mm bolt

M3mm×6mm screw

Note: All the diagrams in this manual are for reference only.

1.2 Features

- Low distortion, low noise, high sensitivity
- Wide control range: -83dB to 0dB
- Accuracy: 1dB/step
- Dual-channel individual control
- Wide use range and easy installation

1.3 Applications

- Volume Control
- Home Speaker
- Instrument Parameter Control

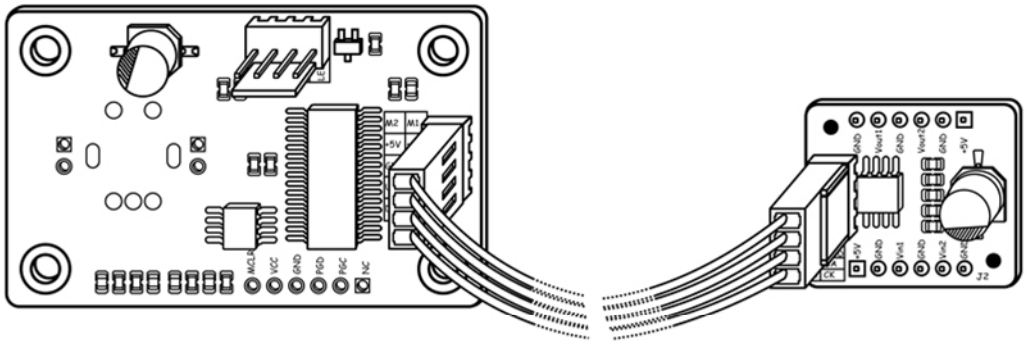
1.4 Benefits

- Mounting hole facilitates installation and fixing
- Several wiring methods facilitate connection

1.5 Quick Start

Suggested connection is shown in figure 1-3.

FIGURE 1-3 CONNECTION



Note:

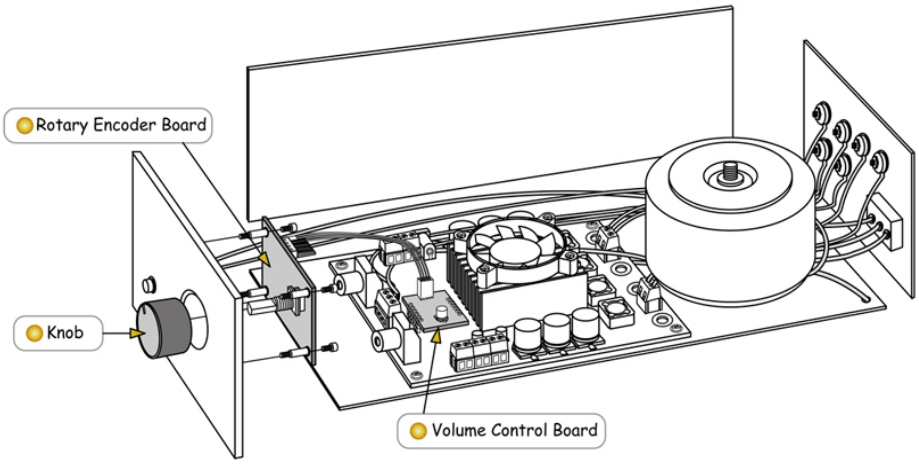
- Open the amplifier package and make sure the product is intact (No missing or damaged components and no deformation).
- GND should be grounded or connected to the housing of the device.
- The mounting holes of this product should be grounded.

Chapter 2. Hardware Detail

2.1 Installation Method

When an amplifier board with extensible external interface is used, both rotary encoder control daughter board and volume control daughter board must be used at the same time. The connection is as follows:

FIGURE 2-1 INSTALLATION SCHEMATIC



Following are the port definitions of rotary encoder control daughter board and volume control daughter board.

TABLE 2-1 PORT DEFINITION OF ROTARY ENCODER BOARD

Connector Mark				Description
4-pin 2510 Jack	J1	1	+5V	Power Supply Input
		2	GND	GND
		3	DA	Data Signal
		4	CLK	Clock Signal

TABLE 2-2 PORT DEFINITION OF VOLUME CONTROL BOARD

Connector Mark				Description
4-pin 2510 Jack	J1	1	+5V	Power Supply Input
		2	GND	GND
		3	DA	Data Signal
		4	CLK	Clock Signal

TABLE 2-3 INSTALLATION JACK OF VOLUME CONTROL BOARD

Connector Mark				Description
Installation Jack	J2	1	+5V	Power Supply Input
		2	GND	GND
		3	Vin1	Channel 1 Input
		4	GND	GND
		5	Vin2	Channel 2 Input
		6	GND	GND
		7	GND	GND
		8	Vout1	Channel 1 Output
		9	GND	GND
		10	Vout2	Channel 2 Output
		11	GND	GND
		12	+5V	Power Supply Input

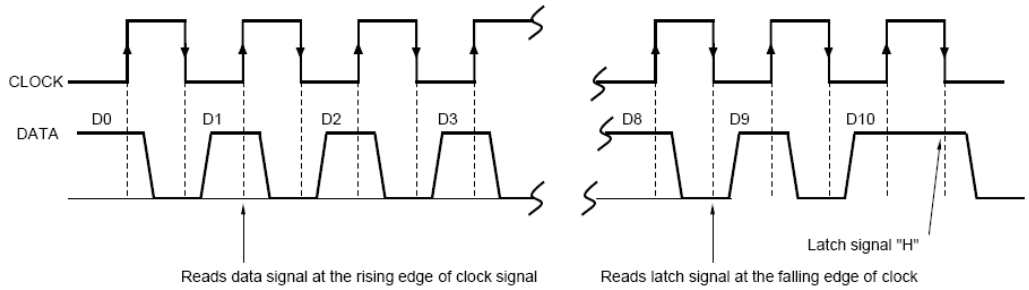
2.2 Power Supply

Rotary encoder control daughter board is powered by volume control board via 4-pin 2510 jack. The volume control board is connected with the amplifier board via J2. Power supply is 4.5 to 5.5V

2.3 Signal Control

Following is the timing diagram of data signal and clock signal outputted by the rotary encoder board which is used together with the volume control board for volume adjustment.

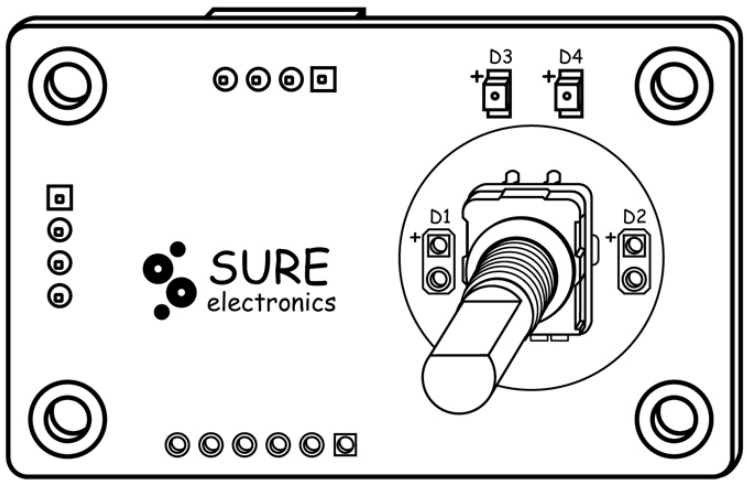
FIGURE 2-2 TIMING DIAGRAM



2.4 LED Indicators

There are two SMD LEDs as indicators on the rotary encoder control daughter board and two diameter 3mm LEDs provided so that they can be installed on the amplifier with housing by users for better visual effect as well as indicating amplifier's working state.

FIGURE 2-3 LED INDICATORS



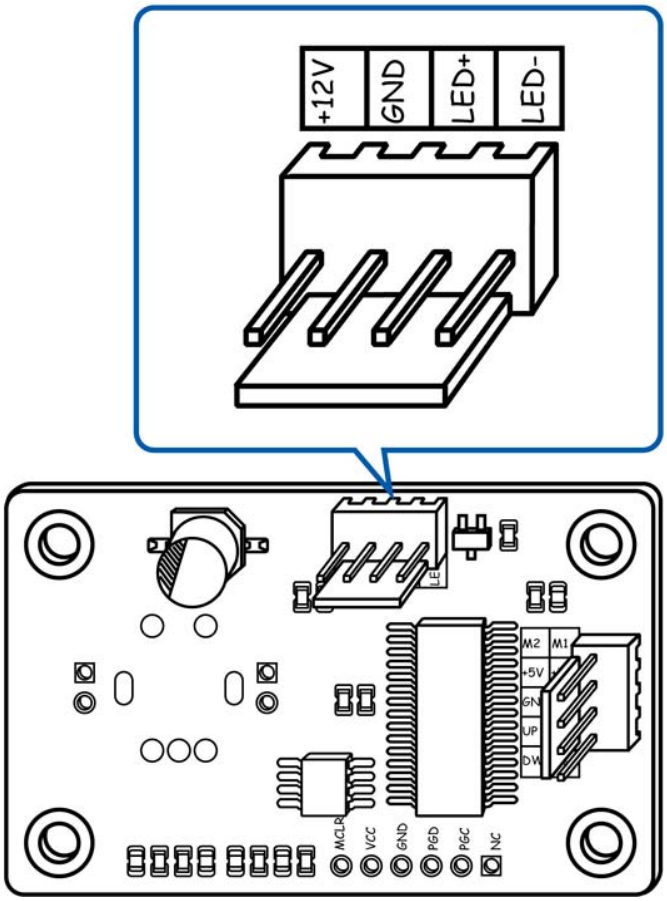
2.5 LED Interface

LED interface is reserved for users to connect LED clusters to create a fantastic breathing effect.

TABLE 2-3 LED INTERFACE

Interface	Definition
+12V	Positive Input of Power Supply
GND	GND
LED+	Positive of LED
LED-	Negative of LED

FIGURE 2-4 LED INTERFACE



Chapter 3. Electrical Characteristics

AA-AB32181 (2*100W amplifier board) is used in here helping test this product. T_A=20℃, DC12V, f=1000Hz, Sine wave input, R_L=4Ω (unless otherwise stated)

FIGURE 3-1 ELECTRICAL CHARACTERISTICS

Parameter		Condition	Min.	Typ.	Max.
Supply Voltage		AA-AB11113, AA-AB11114	4.5V	5V	5.5V
Quiescent Current		AA-AB11113	-	20mA	50mA
		AA-AB11114	-	10mA	20mA
Signal/Noise Ratio		AA-AB11114	-	85dB	
Signal Input Range		AA-AB11114, A=0dB	0V	-	1.5V
Signal Output Range		AA-AB11114, A=0dB	0V	-	1.3V
THD+N*		Vin=0.5V, F=1000Hz	-	-	0.05 %
		Vin=1.0V, F=1000Hz	-	-	0.10 %
Frequency Range		-	20HZ to 20KHz（±3dB）		
Channel Separation*		Gain=0db		-80dB	-70dB
Gain*	Volume Adjustable	-	-83dB	-	0dB
	Accuracy	-	-	1dB/step	-
Operating Temperature		-	-10℃	20℃	75℃
Storage Temperature		-	-20℃	20℃	125℃

Chapter 4. Mechanical Drawing

FIGURE 4-1 MECHANICAL DRAWING OF THE ROTARY ENCODER BOARD

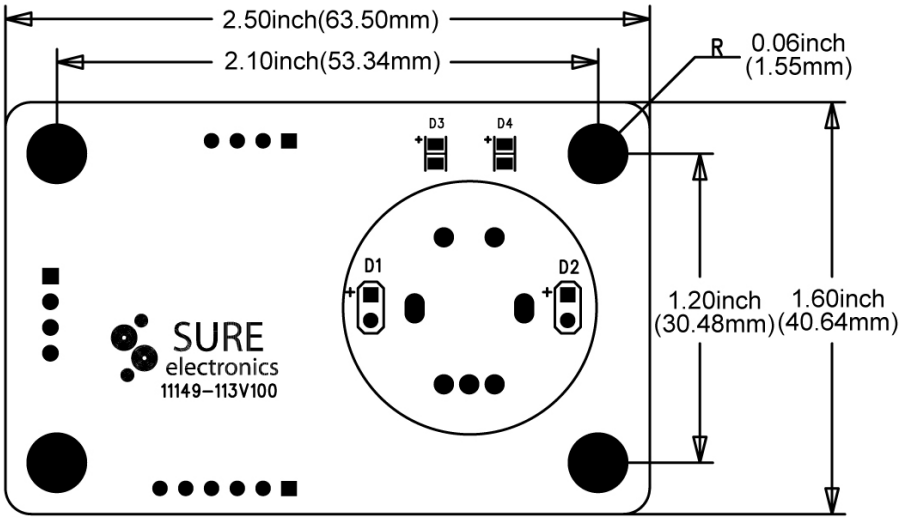
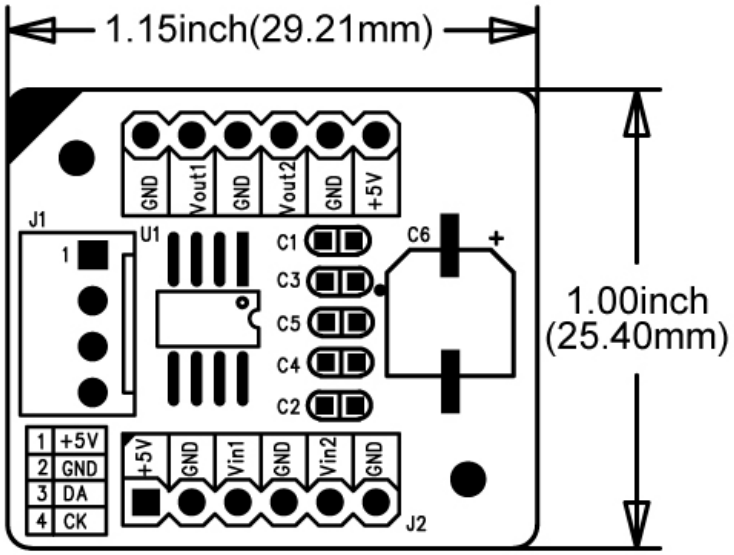


FIGURE 4-2 MECHANICAL DRAWING OF THE VOLUME CONTROL BOARD



Chapter 5. Contact Us

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