

**T&J ELECTRIC (SINGAPORE) PTE LTD**

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Telephone: +65 6547-4333 Fax: +65 6547-4666

Date: 18/9/2014

**Subject: Product Info: Multi-Media Hub**

## Overview

This document covers the main functions and features for Multi-Media Hub.



### 1. Main Functions and specifications:

Through automatic detection or by pressing on the button, different sources of audio and video will be converted to 720P/60Hz (or 1080P/60Hz) through the HDMI interface.

The RS232 will control the input channels, and connect them automatically to the converter

Other functions include converting AV (or S-Video) to HDMI, VGA (or YPbPr) to HDMI, Bluetooth music player, HDMI3 x1 Switcher, and combining USB charging with data transfer

#### Main function features:

- (1) HD conversion function: Converts Audio + CVBS or S-Video, Audio + VGA or YPbPr audio and video to 720P/60Hz (Or 1080P/60Hz)
- (2) Module switching function: When there's only one input signal, the converter will auto detect the signal and change the channel. When two different input signal is connected (CVBS/S-Video; VGA/YPbPr; HDMI), the user can choose which output to play by pressing on the switch.
- (3) Auto adaptation function: When user is at the default channel (an indication light will light up), any changes to the specifications (Example, VGA/YPbPr input resolution) will cause the converter box to auto detect the input signal and convert it to a HD HDMI signal output.

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- (4) TV link function: By writing specific codes to the RS232 channel controller of the TV, the converter is able to control and change channels through the panel; the converter is able to retain the previous channel information, so even when the input source from the front panel is removed, it will return to the previous source channel.
- (5) Charging Function: Able to charge a USB device, transfer data as well as having a protective fuse to prevent overloading
- (6) Bluetooth audio player: External Bluetooth function to listen to music through a Bluetooth audio module decoder through the HDMI output.

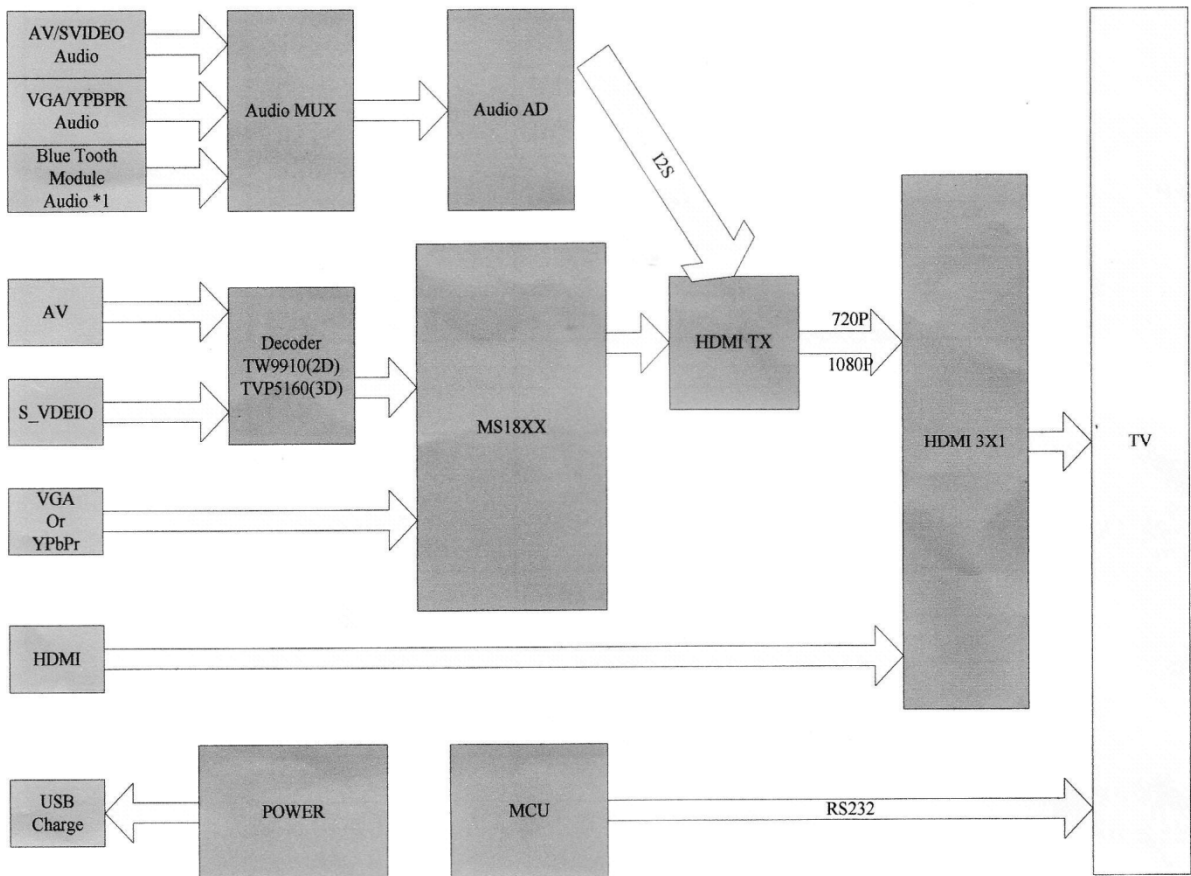
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**2. System Diagram**



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### 3. Detailed Features

#### (1) Audio + CVBS or S-Video

- CVBS/S-V+R/L module uses the same channel button
- Software will auto detect for an input source
- The corresponding LED will light up accordingly
- User do not need to restart program if a signal is changed
- Signal are decoded in the following priority: S-Video having the most priority and CVBS having the least priority
- For example, user just needs to press on one button to choose which input ( CVBS/S-Video+R/L)
- At the same time it is also able to connect to standalone audio, standalone video, CVBS audio and video, CVBS audio and video, Y-C audio and video and different formats of TV signal (PAL/NTSC)
- Converter will continue to auto detect and refresh to decode input signals
- For example, when user connects a S-V input signal while in CVBS state, it will auto detect the input signal and changes to S-V source
- At the same time, if the S-V signal is removed, the source will go back to the preset channel which was CVBS

#### (2) Audio + VGA or YPbPr

- VGA/YPbPr+R/L modules uses the same channel selection button
- VGA signal and colour difference signal uses the same VGA physical port.
- When the corresponding led lights up , the software will auto detect and auto convert it to 720P or 1080P output.

When there is only audio (no video signal input), TV screen will be blank.

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VGA/YPbPr main support data

Input	Resolution Support	
VGA	640*480_60	640*480_75
	800*600_60	800*600_75
	1024*768_60	1024*768_75
	1280*720_60	
	1280*800_60	
	1280*960_60	
	1280*1024_60	1280*1024_75
	1360*768_60	
	1440*900_60	
	1600*1200_60	
	1680*1050_60	
	1920*1080_60	
YPBPR	480i	576i
	480P	576P
	720P50	720P60
	1080i50	1080i60
	1080P50	1080P60

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(1) HDMI input

HDMI port is used as a standalone configuration, no decoding or zoom needed. After going through the filter it will enter a HDMI2\*1 switcher and (AV or VGA module) decoder to switch to the HDMI signal.

Includes: HPD forward detecting; EDS protection; HDMI switching.

Main supported data: 480i, 480p, 576i, 576p, 720p (50Hz; 60Hz), 1080i (50Hz; 60Hz), 1080p (50Hz; 60Hz).

(2) USB port

The output power of the USB port gives power to the digital device for charging. The maximum power supply is set at 5V DC / 2000mA. It also can be used for data transfer.

(3) Buttons and indicator Panel

If two or more inputs are plugged in at the same time, three LED indicators are used for you to make your choices and change to the input source. The converter will automatically refresh and detect source channels. When a single source is connected, the user does not need to press any button, and the converter will auto detect, at this time the corresponding LED of the module will light up. When any signal is removed, the TV channel will be restored to the previous channel (example: AV1) when all signals are removed, all LEDs will switch off except for the main supply power LED light.

(4) Power Port

DC powered port: Provides a maximum voltage of 5V/2000mA to media hub

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(5) RS232 Port

RS232 communication control port: connects to the TV or projector, it will send a code to control the output equipment signal and converts it to HDMI output. Usually, the converter will activate (will detect if there's an input or button signal) and changes from the default channel to the input source. When it detects all input have been removed), it will switch back to its original channel

(6) HDMI

HDMI interface: Provides connection to the output device. Transfers the converter's output HDMI signal of 720p or 1080p to the output device.

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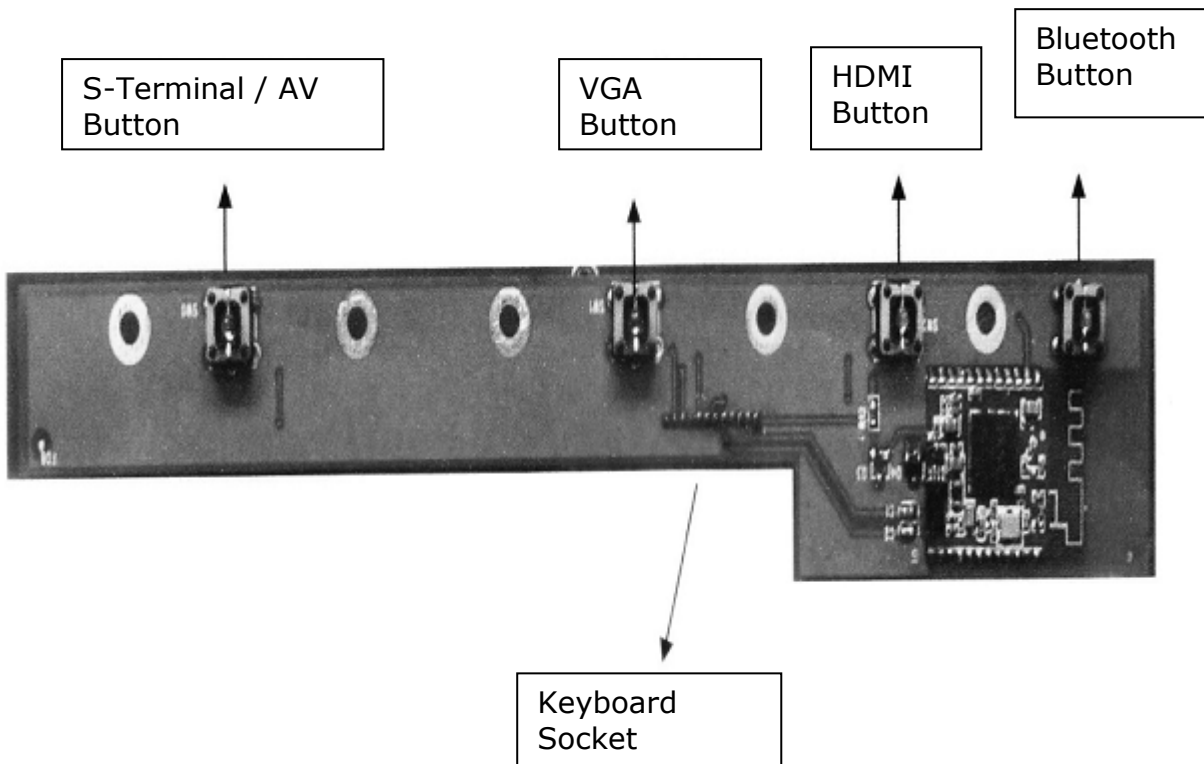
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Wiring Diagram

(1) Keyboard

A. Multi-Media Hub (Bluetooth)





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B. Multi-Media Hub (Without Bluetooth)

