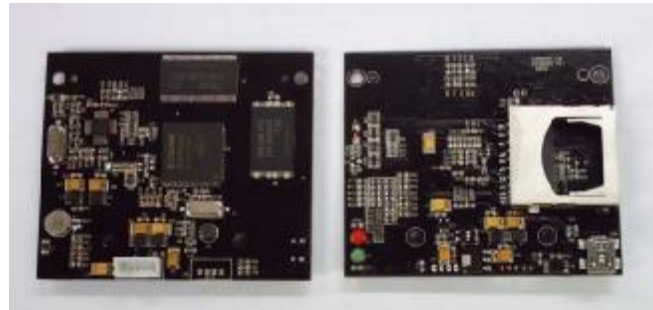


Introduction

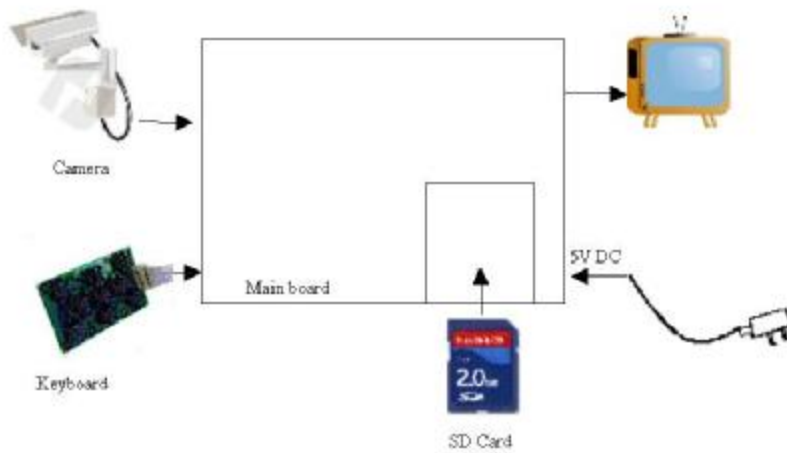
This DVR is designed for analog video input. It has very simple function of video recording.

Key Features

- ü Analog video Input, PAL/NTSC by factory setting
- ü Real time video output to TV monitor
- ü Resolution and format can be set to VGA/QVGA, AVI/MPEG
- ü Highest Quality MPEG of VGA at 30fps
- ü RTC, on board battery backup
- ü Storage to SD card, up to 2G



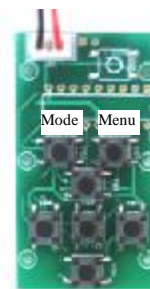
Block Diagram



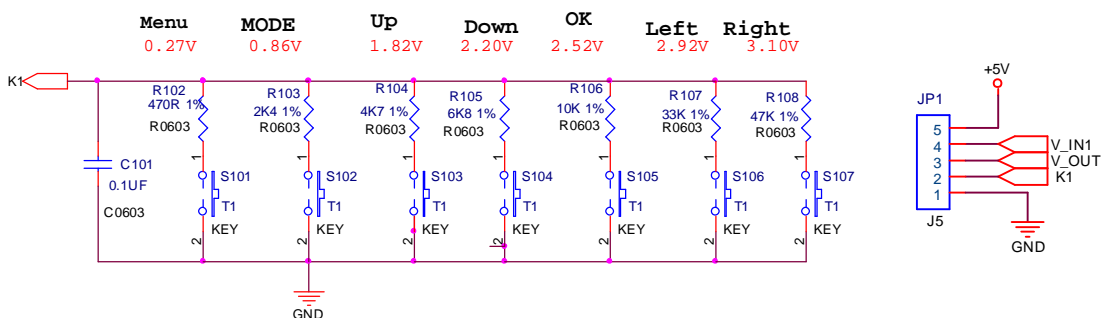
Keyboard Design

7- Key design: mode/menu/UP/DN/LF/RT/OK

1. Mode: to switch to playback or preview mode
2. Menu: to enter setup menu or quit the setup menu
3. LF/RT/UP/DN: to move cursor
4. OK: to confirm



Keyboard and Connection Circuit



Operation

There are 3 operation modes, namely Preview, Playback and System Setup mode.

To Switch to the three modes:

1. Press MODE to toggle preview and playback mode
2. Press and hold the MODE key in preview mode to enter system setup mode,
3. Press MODE to exit system setup mode and return to preview mode.

PREVIEW MODE

A. To Record Videos

- 1 Press OK to start recording.
- 2 During recording, a video camera icon with a flashing red dot appears on top of the screen.
- 3 Press OK again to stop recording.

Note: The recording duration is not fixed. It has to be stopped manually or it will stop recording automatically when the memory is full.

B. To Change Video Format.

- 1 Press MODE to enter preview mode.
- 2 Press MENU to view video setup menu.
- 3 Choose FORMAT option by UP/DN key.
- 4 Press LF/RT to change setting to MPEG or AVI.
- 5 Choose Exit by UP/DN key and press OK to save and quit menu.

C. To Change Video Size.

- 1 Press MODE to enter preview mode.
- 2 Press MENU to view video setup menu.
- 3 Choose SIZE option by UP/DN key.
- 4 Press LF/RT to change setting to VGA or QVGA.
- 5 Choose Exit by UP/DN key and press OK to save and quit menu.

PLAYBACK MODE

A. To View Files in playback mode

1. Press MODE to enter playback mode.
2. The latest video recorded will be shown on the screen
3. Press LF to view previous files and press RT to view following files.

B. To Playback Videos

1. Select the video to play by LF/RT key.
2. Press OK to play the movie.
3. Press RT to fast forward (FF) and LF to fast backward (FB).
4. During FF or FB, it has to be paused before changing back to normal speed.
5. Press DN to pause and then press UP to resume.
6. Press OK to stop and return to the start position.

Note: Resume will playback at normal speed at any cases

C. To Delete Files

1. Press MODE to enter playback mode.
2. Select the file to delete by LF/RT key.
3. Press MENU to view menu.
4. Choose DELETE ONE or DELETE ALL by UP/DN key and press OK to select
5. Choose CONFIRM by LF/RT key and press OK to delete.

SYSTEM SETUP MODE

A. To Set Date and Time

1. Press and hold the MODE key to enter system setup mode.
2. Choose DATE TIME by UP/DN key and press OK to select.
3. In Date Time option, set digits by UP/DN and shift to other items by LF/RT key.
4. Choose Exit by LF/RT key and press OK to save and return to menu.

Note: The system has built-in the real time clock, and time stamping to the image. Thus, entering the correct date and time is essential for the system

B. To Format the Board Memory or the SD Card

1. Press and hold the MODE key to enter system setup mode.
2. Choose FORMAT by UP/DN key and press OK to select.
3. Choose CONFIRM by LF/RT key and press OK to format.

Note: Once formatted, all contents in the memory are deleted. This operation cannot be undone.

C. To View Version

1. Press and hold the MODE key to enter system setup mode.
2. Choose VERSION by UP/DN key and press OK to select.
3. The version information of the firmware will be shown on screen.
4. After 5 seconds, it will go back to the system setup menu automatically.

Menu Design

Preview Menu

Options: Video Format, Video Size and Exit.

Keyboard Control: Use UP/DN key to select, use LF/RT to toggle settings.

1. Video Format

To select AVI or MPEG format. Default is AVI.

For AVI, the compression is in MJPEG. Files will be bigger but image quality will be better and therefore shorter recording time for the same SD card.

For MPEG, the compression is high and image quality is poor compare to AVI. But less memory is used to store longer video clip.

2. Image Size

To select VGA (640x480) or QVGA (320x240), default is QVGA.

3. Exit: To quit menu.

<p><u>Video Setup</u></p> <p>Format: AVI Size: QVGA</p> <p>Exit</p>

Playback Menu

Options: Delete One, Delete All and Exit.

Keyboard Control: Use UP/DN key to select, use OK to confirm.

1. Delete One: To delete the current file, confirmation required. Default is Cancel in the sub-menu.

2. Delete All: To delete all the files in the memory, confirmation required. Default is Cancel in the sub-menu.

3. Exit: To quit menu.

<p><u>Delete</u></p> <p>Delete ONE Delete ALL</p> <p>Exit</p>

<p><u>Delete File</u></p> <p>Cancel Confirm</p>

System Setup

Options: Date/Time, Format, Version and Exit.

Keyboard Control: Use UP/DN key to select, use OK to confirm.

1. Date/Time: To set date and time.
2. Format: To format the on board memory or the SD card, confirmation required.
3. Version: To show the version of the firmware, no operation.
4. Exit: To quit menu.

<u>System Setup</u>
Date Time Format Version
Exit

<u>Date Time</u>
YY MM DD 07 01 01 HH MM SS 12 : 00 : 00
Exit

<u>Format</u>
Cancel Confirm

Keys Operation matrix

	Preview	Playback	Playing Movie
Mode	Change to playback	Change to preview	-
Menu	Enter setup Menu	Enter file delete menu	
UP	-		Resume to normal playing
DN	-		Pause
LF	-	Previous file	Fast Backward
RT	-	Next file	Fast Forward
OK	Start/Stop video capture	Enter to play AVI	Stop

	Video Set up	Set up Menu	Date time setting
Mode	-	-	-
Menu	Quit Menu without saving	Quit menu mode	Quit menu mode
UP	Select item	Select item	Increase digit
DN	Select item	Select item	Decrease digit
LF	Toggle selection	Cfm and shift to previous	Cfm and shift to previous
RT	Toggle selection	Confirm and shift to next	Cfm and shift to next
OK	Cfm	Confirm and quit	Cfm and quit

Electrical Characteristics (at room temperature 25C)

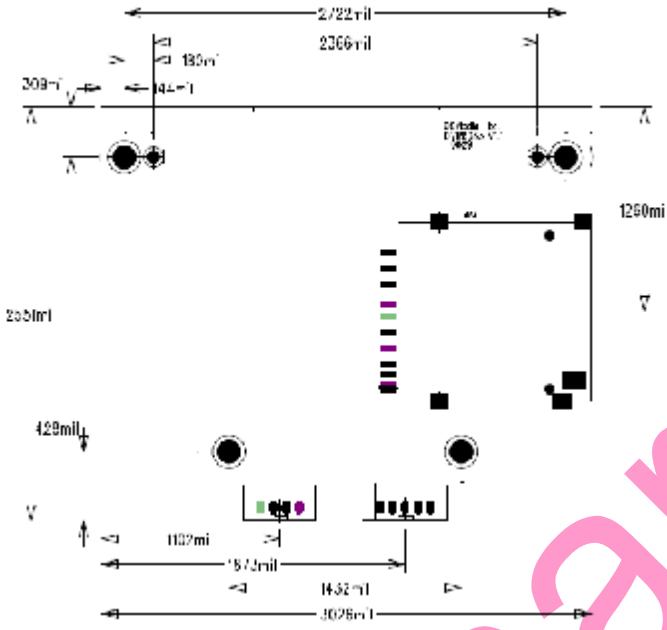
Parameter	Min	Type	Max	Unit
Operation Voltage	4.5	5	6	V
Preview Current		250		mA
Video Capture Current		320		mA
Playback current	-	300		mA

Video and file storage information

Video format	AVI-VGA	AVI-QVGA	MPEG4-VGA	MPEG4-QVGA
File size per second	2M	570K	470K	120K
Folder Name	DCIM / 100Coach			
File name	PICT0001-PICT9999			
Max memory size for SD card	2G			

Note: file size will be varied a lot from different scene.

Mechanical Dimension



Preliminary