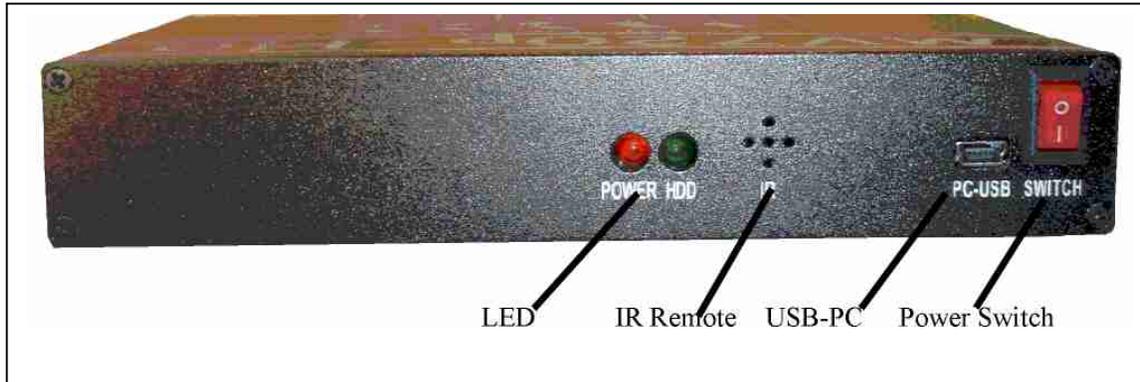# MV720p-HD HDMI Video player with SYNC

FRONT VIEW:

Power switch:
Switch to ON position to power the MV720p-HD. When using USB drive, bootup time is 35 seconds. When using the (optional) internal SATA Hard Drive, bootup time is 25 seconds.

Mini USB port:
Use this port to access the internal Hard Drive only. Use Mini USB to Std USB cable. Connect to PC's USB port and turn MV720p-HD power on. PC will see the MV720p-HD and assign a letter hard drive. Use it to format the hard drive (NTFS format)   and to copy and delete files in the Hard Drive.

SATA socket (built in internal socket only, no hard drive):
The MV720p-HD has a built in SATA socket for 2.5" laptop SATA hard drive, 5400 or 7200 rpm. The SATA hard drive is not included. For new hard drive only, format it using NTFS before use. For heavy duty application, use Solid State SATA hard drive.
CAUTION:
Due to heat generated by the internal SATA laptop hard drive, place the MV720p-HD in an air conditioned and well ventilated area. If possible, use solid state hard drive to minimize the heat.
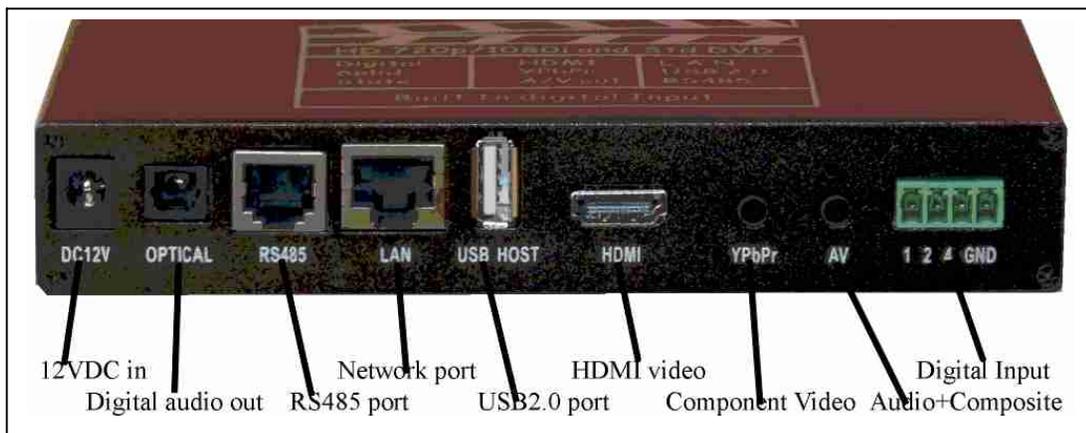
Remote:
IR receiver for IR remote control. Use the IR remote control ("SEARCH" key) to adjust the resolution output (from 480p to 1080i) and to test the input and adjust the MV720p-HD setting in manual mode. Use the IR remote control to set the IR mode and auto time delay.

LED indicator:
RED LED indicates power is ON.
GREEN LED blinks only when using Hard disk. When using USB drive or playing from network, green LED is OFF.

REAR VIEW:

Digital Input: (see description below)
Built in digital input. Connect 3 single pole push buttons OR 3 single contact + 3 double contact for a total of 6 push buttons.
To trigger the input, short it momentarily to ground.
Input 1 plays line 01=xx in the autoplay.txt etc. For more info, see digital input section below.

A/V port, Composite and audio out:
For Audio use a regular stereo mini jack to 2 RCA cable adapter.
NOTE: Audio is always ON at all video setting. For Closed Caption set player to NTSC or 480p.
For composite video PLUS stereo audio use triple mini jack to 3 RCA cable adapter. The triple mini jack is included with the unit. A regular Ipod triple mini jack will not work because the metal plug is too short. Output is composite video and 2 RCA audio line out. While booting up, the output is at 576p. You need a monitor that can automatically switch between PAL/NTSC. If you are using NTSC monitor, you will not see anything during booting up.
NOTE: Composite video out is available only when the MV720p output is set at 480p, NTSC or 576p(PAL). At 720p or 1080I, the composite (CVBS) output is not available (out of range), but the stereo audio is still ON.
Use SEARCH key of the IR remote to toggle the video resolution.

YPbPr component video out:
This output is always on at all video setting. Use triple mini jack to 3 RCA cable adapter available from Akman Inc.
A regular Ipod triple mini jack will not work because the metal plug is too short.
Audio for YPbPr is available on the A/V port. Use a standard stereo mini jack to 2 RCA.
Use SEARCH key of the IR remote to toggle the video resolution.

HDMI out:
This output is always on at all video setting. Use HDMI cable to connect into the HDMI input of the LCD TV monitor. HDMI cable carries the digital Audio and Video signal.
USING DVI (with HDCP):
Use HDMI to DVI cable converter to connect directly into the DVI input.
DVI INPUT CAUTION:
There are 2 types of DVI input. The older LCD projectors and PC Monitors have regular DVI input. This input does not decode HDCP. MV720p-HD HDMI output will not work with this DVI input. We can provide you with the DVI software that will enable you to use this older DVI input.

The new LCD projectors and PC Monitors have DVI input with HDCP. Look at the DVI input of monitor's specification. The DVI input should read DVI(HDCP). The MV720p-HD HDMI output will work fine with this DVI(HDCP) input.
Use SEARCH key of the IR remote to toggle the video resolution.

USB2.0 port:
Connect to USB Flash drive (thumb drive, Stick drive) and any other memory storage that use USB2.0 interface such as External Hard Drive (passport), Memory card reader etc.

LAN port:
Connect into the hub of the local area network using Cat5 cable.
Currently you can only connect to the network from manual mode.

RS485 port:
Connect into IN6 board using RJ12 cable. You can connect up to 4 IN16 board, total 48 digital input. This port is also used to sync MV720p's using the IN6 and Sync board.

SPDIF digital audio out:
Digital audio out using TOSLINK fiber optic cable. Connect this into digital audio processor unit using fiber optic cable.

Power input:
Connect into the power supply (included). Power supply is universal 110VAC/220VAC and output is 12VDC 25 watt. MV720p-HD input is 16VDC max.

The term Memory Card used in this manual refers to one of the following:
USB Flash Drive, Stick Drive, Thumb drive, External Hard drive and Card reader using USB 2.0 and Internal SATA 2.5" solid state or laptop hard drive.

LOOP VIDEO AFTER POWERING UP:
To loop video files after powering up, you have to do at least 2 items:
1. Copy the video files into the memory card.
2. Create autoplay.txt using notepad etc. The content of autoplay.txt can be anything or even empty.

The MV720p-HD needs autoplay.txt as a pointer to locate the drive that will be used to play the file.
- **If playing through USB port, autoplay.txt is NOT required.**
- **Autoplay.txt is required only when playing from the built in SATA hard drive.**
- **Files in the memory card will be sorted and played numerically.**
Here is an example of the memory card content for loop after powering up:
F:/
   1Cat.ts
   2Bird.ts
   3Dog.ts
   autoplay.txt (could be empty)
After powering up, the MV720p-HD will play 1Cat.ts and then 2Bird.ts and then 3Dog.ts and then loop back to play 1Cat.ts.

SEAMLESS LOOP VIDEO AFTER POWERING UP:
The MV720p-HD will only seamlessly loop a single video file, it will not seamlessly loop multiple files. To seamlessly loop a video file after powering up, you have to do at least 2 items:
1. Copy the video file into the memory card.
2. Create autoplay.txt using notepad etc and add endtime=xxx statement **(lower case only)**
3. xxx is the length of playtime time in seconds.

Here is an example of the memory card content for seamless loop after powering up:
Suppose cat.ts playtime is 30 seconds. Normally the MV720p-HD will loop cat.ts with black screen in between. To seamlessly loop cat.ts, add endtime=30 statement inside autoplay.txt.
F:/
   Cat.ts
   autoplay.txt
   Content of autoplay.txt is: endtime=30.
   Make sure that endtime is in lower case letters only.
After powering up, the MV720p-HD will play Cat.ts.
30 seconds after it starts playing cat.ts, MV720p-HD will automatically (instantly) loops back to the start. It will loop back instantly without black screen in between.
To loop several files seamlessly, you have to join the files together and create a single file. To join the files, you can use DOS binary function OR use join utility software. Please contact Akman Inc for info.
Example:
F:/
   Cat.ts
   Bird.ts
   Dog.ts
In the root directory you have Cat.ts, bird.ts and dog.ts. To seamlessly loop these file, join the 3 ts files into a single ts file. Suppose the new join file is New.ts and the total playtime is 120 seconds. Replace the 3 files in the memory card with this new.ts file. Create autoplay.txt where the content is endtime=120
Here is the new F drive.
F:/
   New.ts
   Autoplay.txt (content is endtime=120, lower case letters only).
After powering up, the MV720p will automatically plays new.ts and after 120 seconds will instantly loops back to start.
NOTE:
When joining the files together, the files have to be of the same type, same bit rate and same resolution. You can not join different types of files together.

AUTOMATICALLY PLAY different video files with time delay in between (TIMER Mode):

In Timer mode, the MV720p-HD will play lines 80=xxx to 99=xxx in the autoplay.txt.
To enter timer mode you have to set 2 items, number of files to play and time delay. Use the IR remote control and do the following:
Set number of files:
SLOW SLOW x SLOW. X is the number of files to play and is a value from 1 to 20.
If x=0, the MV720p will exit timer mode.
Set time delay:
A-B A-B x A-B where X is the number of time delay in minutes.
If x=0, the MV720p will exit timer mode.
To use this mode you have to do the following items:
1. Copy the loop video files into the root of the memory card. This file will automatically loop after powering up.
2. Create a file folder and copy the files that you want to automatically play (with time delay in between) inside this file folder.
3. Create autoplay.txt and define lines 80 to 99 in the autoplay.txt
4. Set the time delay
5. Set the number of files that you want to sequentially play.

And here is how the MV720p-HD operates:

After powering up, the MV720p-HD will loop the root files. After a set time delay, it will automatically play 80=xxx file and then return to play the root again. . After another time delay, it will automatically play 81=xxx file and then return to play the root again. After playing the last file, MV720p-HD will repeat the cycle. This mode is called TIMER MODE.

SET TIME DELAY (Timer mode, use A-B key):
To enter timer mode use IR remote and do the following:
A-B A-B x A-B where X is the number of time delay in minutes.
If x=0, the MV720p will exit timer mode.
Suppose you want to set time delay to 15 minutes.
While the MV720p is booting up or while playing a video, press the following key sequence:
A-B   A-B   15 A-B.
The time delay is now set to 15 minutes.
To exit timer mode use IR remote and do the following:
A-B A-B 0 A-B
SET NUMBER OF FILES (Timer mode, use SLOW key):
In Timer mode, set lines 80=xxx to 99=xxx in the autoplay.txt.
Use the IR remote control and do the following:
Suppose you only want to play 4 files (line 80 to line 83).
While the MV720p is booting up or while playing a video, press the following key sequence: \
SLOW SLOW 4 SLOW
The number of files to play is now 4 (lines 80 to 83).
To exit timer mode use IR remote and do the following:
SLOW SLOW 0 SLOW
NOTE: The MV720p will remember this Timer Mode setting.

Example of the memory card content for timer mode:
Tiger.ts
autoplay.txt
        VIDEO …… (file folder)
          Bird.ts
          Cat.ts
          Dog.ts
          Lion.ts

And here is an example of the autoplay.txt for timer mode:
80=VIDEO/Bird.ts
81=VIDEO/Cat.ts
82=VIDEO/Dog.ts
83=VIDEO/Lion.ts
Suppose the time delay is set a 15 minutes and the number of files to play is 4 (lines 80 to 83).
Here is how the MV720p-HD operates:
After powering up, MV720p-HD will loop Tiger.ts. After 15 minutes delay, it will play Line 80 (Bird.ts) and then return to loop the root files. After 15 minutes delay, it will play Line81 (Cat.ts) and then return to play the root files again etc. After playing the last file (Lion.ts), it will repeat the cycle again.

PLAY VIDEO USING BUILT IN PUSH BUTTON:

MV720p-HD has 3 built in digital input. They are configured as IN1, IN2 and IN4, lines 01 to 06 in the autoplay.txt.

To play file(s) using push buttons you have to do the following items:

1. Copy the loop video files into the root of the memory card. This file will automatically loop after powering up. Note: Add endtime=xxx statement to seamlessly loop this file.
2. **Create a file folder and copy the files that you want to play using the push buttons inside this file folder.**
3. Create autoplay.txt using wordpad, notepad etc and save it into the root of the memory card. The content of autoplay.txt contains the instruction on how you want to play the files using the push buttons. MV720p built in input plays lines 01 to 06 in the autoplay.txt.

Example of the memory card content for push button input:

Tiger.ts
autoplay.txt
      VIDEO …… (file folder)
        Bird.ts
        Cat.ts
        Dog.ts
        Lion.ts
        Tiger.ts
        Bear.ts

Content of autoplay.txt for push button input:

01=VIDEO/bird.ts
02= VIDEO/dog.ts
03= VIDEO/cat.ts
04= VIDEO/lion.ts
05= VIDEO/tiger.ts
06= VIDEO/bear.ts
endtime=60

In this example, the video files are stored inside VIDEO folder.

60 seconds after playing tiger.ts, the MV720p-HD will instantly loops back.

When IN1 is momentarily shorted to ground (01), bird.ts will play.

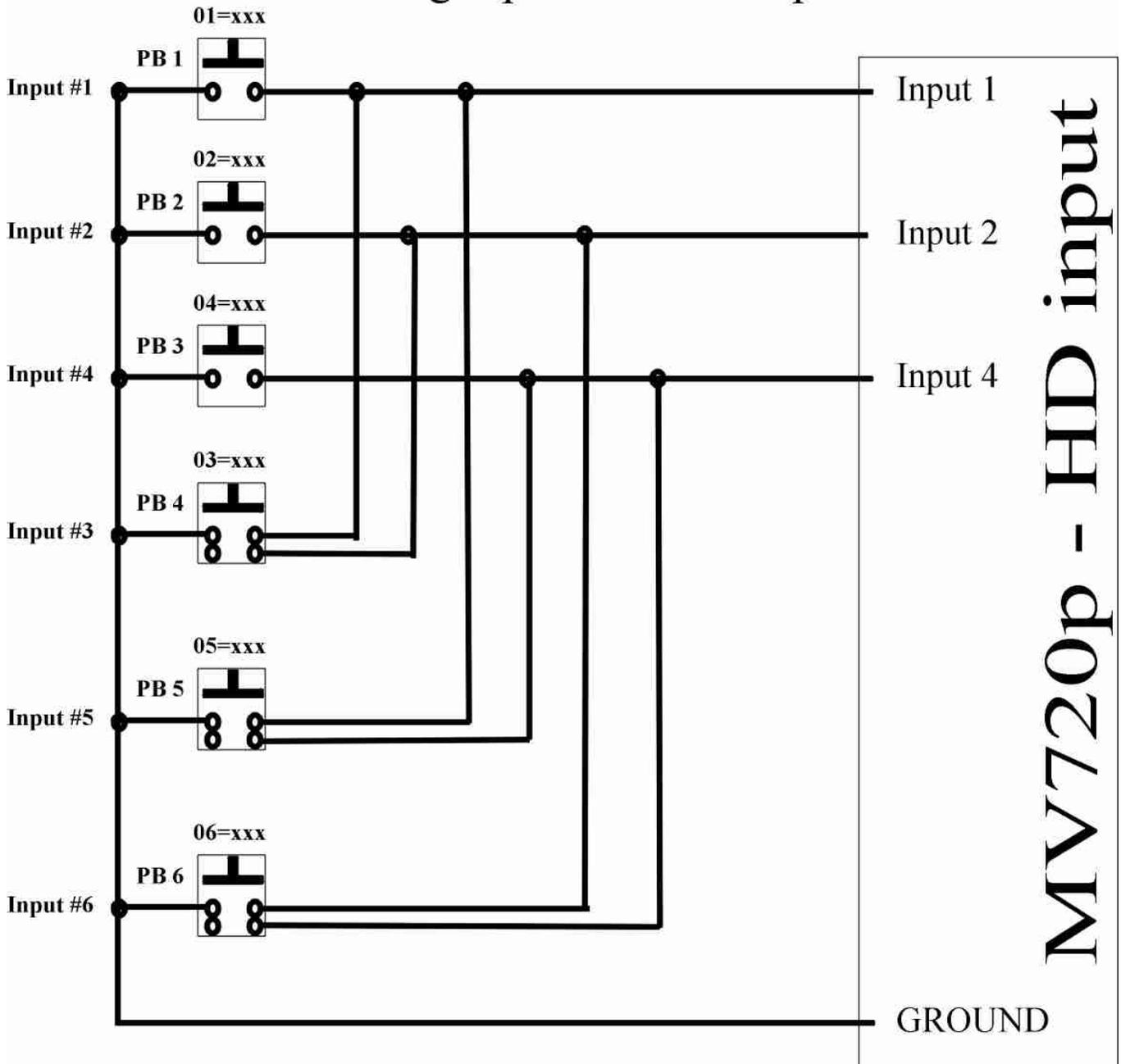If IN2 is momentarily shorted to ground (02), dog.ts will play.

If IN4 is momentarily shorted to ground (04), lion.ts will play.

If IN1 + IN2 are momentarily shorted to ground(1+2=3), cat.ts will play.

If IN1+ IN4 are momentarily shorted to ground (1+4=5), tiger.ts will play.

If IN2+ IN4 are momentarily shorted to ground (2+4=6), bear.ts will play.

6 PB wiring input for MV720p-HD

For inputs 1,2 and 4 you can use single pole push butto ns.
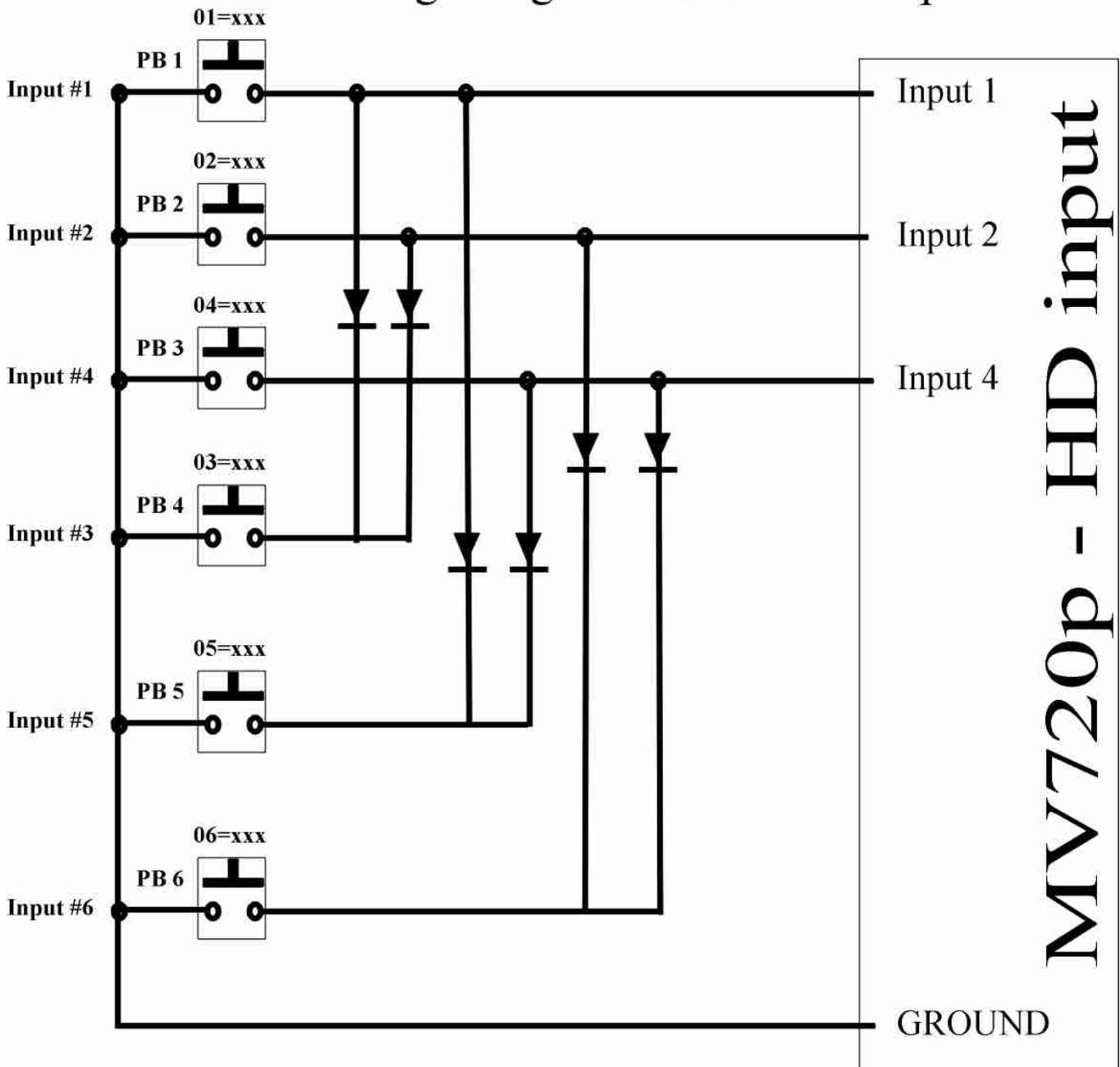For inputs 3,5 and 6, use double pole push buttons.
Push button is wired normally open, this means when idling the contacts are open (not connected).
If you are using single pole push button only, you need to use diodes to prevent false trigger. You can use any small signal/blocking diodes such as IN4118 etc.
Here is the diode wiring diagram:

6 PB wiring using diodes for MV720p-HD

Push buttons are single pole, normally open contact.

CONVERT MV720p-HD built in input into IR MODE:

Use this if you want to use NEXT, PREV, PAUSE/PLAY, STOP and VOL+/- functions using push buttons through the MV720p-HD built in digital input.

NOTE: NEXT and PREV function will play lines 60 to 79 only.

To ENTER IR mode use the IR remote keys and press the following key sequence:

CLEAR   CLEAR   x   CLEAR where x is a number between 1 to 20

To play 6 files, press CLEAR   CLEAR   6   CLEAR

To exit IR mode, set the number of files to 0.

To EXIT IR mode press: CLEAR   CLEAR   0   CLEAR

In IR mode, the NEXT/PREV input (input 2 and input 4) of the MV720p -HD will play lines 60=xxx to 79=xxx in the autoplay.txt.
MV720p-HD has a total of 6 built in input. In this mode, these inputs operate as follows:
IN1 operates as PAUSE/PLAY.
IN2 operates as PREV (previous, for lines 60 to 79 only).
IN4 operates as NEXT (next, for lines 60 to 79 only).
IN3 (IN1+IN2) operates as STOP.
IN5 (IN1+IN4) operates as VOL + (volume up).
IN6 (IN2+IN4) operates as VOL- (volume down).

To use the IR mode, you have to do the following:
1. Copy the loop video files into the root of the memory card. This file will automatically loop after powering up.
2. Create a file folder and copy the files that you want to play using the Prev/NEXT input inside this file folder.
3. Set the number of files to play. Use CLEAR key of the IR remote. This function sets the number of files to play using Next/Prev input. It will also causes the MV720p-HD to enter the IR mode. If the number of file is 0, the MV720p-HD will automatically exit the IR mode.
4. Define lines 60 to 79 in the autoplay.txt

SET the NUMBER of FILES TO PLAY (use CLEAR key):
Setting the number of files between 1 to 20 will cause the MV720p-HD to automatically enter the IR mode. The number of files function will be used only by the NEXT/PREV input and plays lines 60 to 79 in the autoplay.txt.
To set the number of files to 6, press the following key sequence: **CLEAR   CLEAR   6   CLEAR**
The MV720p is now in IR mode and is set to play 6 files.
The Prev/Next input will sequentially plays lines 60=xxx to 65=xxx in the autoplay.txt.

To EXIT IR mode, press: CLEAR   CLEAR   0   CLEAR
NOTE: The MV720p will remember this IR setting.

Example of the memory card content for IR mode:
Tiger.ts
autoplay.txt
        VIDEO …… (file folder)
         Bird.ts
         Cat.ts
         Dog.ts
         Lion.ts
Here is an example of the autoplay.txt, set to play 4 files using NEXT/PREV:
60=VIDEO/Bird.ts
61=VIDEO/Cat.ts
62=VIDEO/Dog.ts
63=VIDEO/Lion.ts
After powering up, the MV720p-HD will loop Tiger.ts.
If NEXT input is triggered, line 60 will play (Bird.ts) and then return to loop the root. If NEXT input is triggered while playing bird.ts OR while looping the root, line 61 will now play (Cat.ts) and then return to loop the root. If NEXT input is triggered while playing Cat.ts OR after while looping the root file, line 62 will now play (Dog.ts) and then return to loop the root files etc.
After playing the last file, MV720p-HD will repeat the cycle.
If PREV is triggered, MV720p-HD will play the previous line.

SYNC a GROUP of MV720p-HD's:

Use this mode if you want a group of MV720p to play in sync together to create a single video presentation.

To sync together a group of MV720p-HD's, you need 1pc IN6 and the sync board(s). Please refer to the IN6 section below.

The IN6 has a 4 pole dipswitch located at the rear. Switch is OFF if it is in UP position and ON if in DOWN position.

The IN6 is in sync mode if switch #3 (JP3) is ON (switch is in down position).

When IN6 is in SYNC MODE, it will automatically send SYNC command 90 seconds after powering up.

Switches 1 and 2 of the dipswitch are for the sync command delay.

JP1and JP2 are OFF ……… Sync command will be issued every 30 minutes.

JP1 is ON, JP2 is OFF ……… Sync command will be issued every 1 hour.

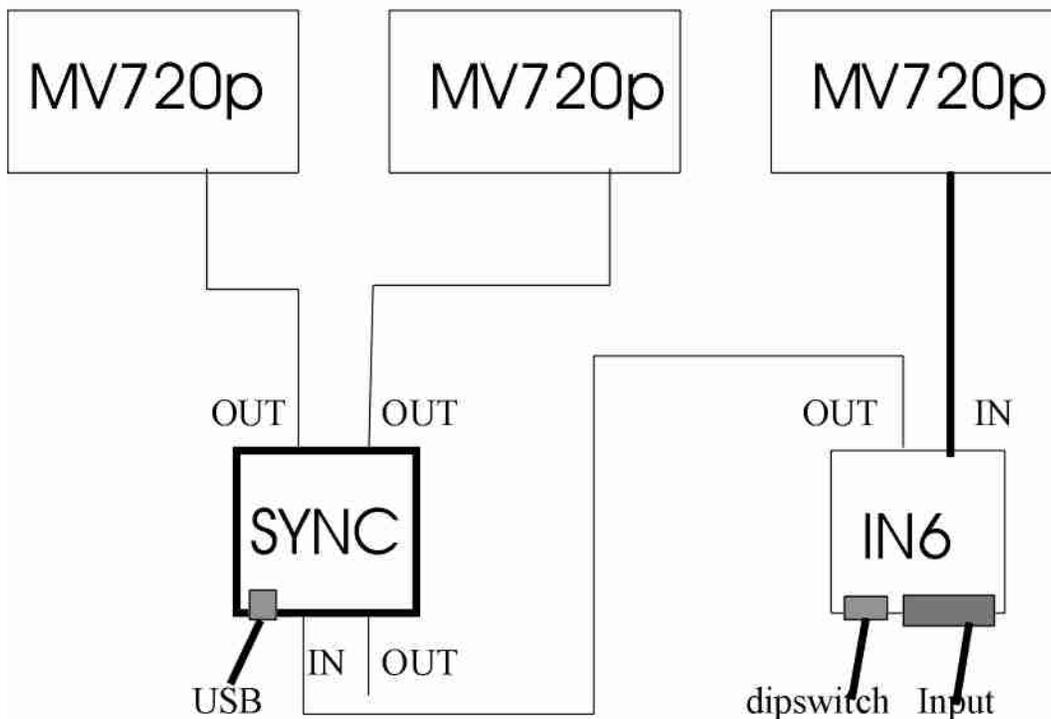JP1 is OFF, JP2 is ON ……… Sync command will be issued every 2 hours.

JP1 is ON, JP2 is ON ……… Sync command will be issued every 3 hours.

The sync board itself does not have any switches or settings.

Note: The MV720p's are sync based on its internal time function not the SMPTE clock.

Here is an example on how to sync 3 MV720p-HD's:

Note:

IN6 will automatically send SYNC command 90 seconds after powering up and will maintain the sync as long as it is playing the loop file(s). While playing the loop file, it will maintain the sync periodically.

Once an input is triggered, the sync will be OFF! To return to sync mode again, manually trigger the sync command by momentarily shorting the UP and Ground terminal.

To expand the sync network, add Sync board only. You do not need to add another IN6. Each sync board can connect into 2 (or 3) MV720p. Example: To sync 5 or 6 MV720p, you only need to add 1 more sync board (total 2 sync boards).To sync 9 MV720p, you need to add 3 more sync boards (total 4 sync boards).

MV720p-HD MEMORY STORAGE:

The MV720p-HD plays from the built in SATA Hard drive OR USB Flash drive (stick drive) and any external memory storage with USB 2.0 interface. Using the built in SATA interface, you can use a 5400 rpm/7200 rpm 2.5" SATA laptop hard drive. When using SATA hard drive, format is NTFS. When using USB 2.0 memory device, format is FAT. **When playing from NET, MV720p-HD will play without USB drive /SATA HDD.**
NOTE:
The term "Memory card" used in this manual refers to the memory storage used by the MV720p-HD. Memory card could be one of the following memory storage devices: Memory card reader, USB Flash drive or Hard Drive.

TYPE of MEMORY CARD:Using SATA hard drive.

MV720p-HD has a built in socket for 2.5" SATA Hard Drive. You have to supply your own Hard Drive such as 2.5" 5400 or 7200 rpm SATA laptop (notebook) hard drive. Please note that this is a SATA (Serial ATA) hard drive, not IDE hard drive. For new hard drive, the format is NTFS. The MV720p will only play NTFS and FAT, it will not play other format. To install the SATA hard drive, remove the front and rear panels and push out the MV720p-HD PC board. Insert the SATA hard drive into the socket and install the 2 mounting screws. Slide the PC board back on the enclosure and install the front and rear panels.
CAUTION:
Due to heat generated by the SATA laptop hard drive, place the MV720p-HD in a air conditioned and well ventilated area. Try to use solid state hard drive when possible.
NOTE:
♦ For every 1 GB of hard drive space, you can store about 5 minutes of HD video file or 22 minutes of regular DVD file. Boot up time is approximately 25 seconds.

TYPE of MEMORY CARD: Using USB 2.0 port.

You can use the following memory storage from the MV720p-HD's built in USB2.0 port:
• USB 2.0 Flash drive such as Cruizer, Thumb Drive, etc. Format is FAT.
• USB 2.0 card reader to play SD card, Compact Flash card and Memory stick. Format is FAT.
• External USB hard drive such as Passport etc. Format hard drive using NTFS.
MV720p-HD will not play memory card that has a MAC format however you can use it to copy the files.
NOTE:
♦ For every 1 GB of memory space, you can store about 5 minutes of HD video file or 22 minutes of regular DVD file. When booting up from USB2.0 port, boot up time is approximately 35 seconds.

MV720p-HD VIDEO OUTPUT:

MV720p has 3 types of video output: HDMI, Component (YPbPr) and CVBS (Composite).
The MV720p-HD video out is factory set at HDMI 720p. Video resolution is maximum 1080i, but the MV720p will play 1080p xxx.ts file at up to 25mbps and output it simultaneously through HDMI and YPbPr (component) at 480p, NTSC, 576p, 720p and 1080i. CVBS (composite) video out is only available at 480p, NTSC and 576p. MV720p will play HD file and automatically forced it into composite video out at 480p. NTSC or 576p. MV720p will also play regular DVD (vob) files and automatically up-convert it into 720p and 1080i through YPbPr and HDMI video out.
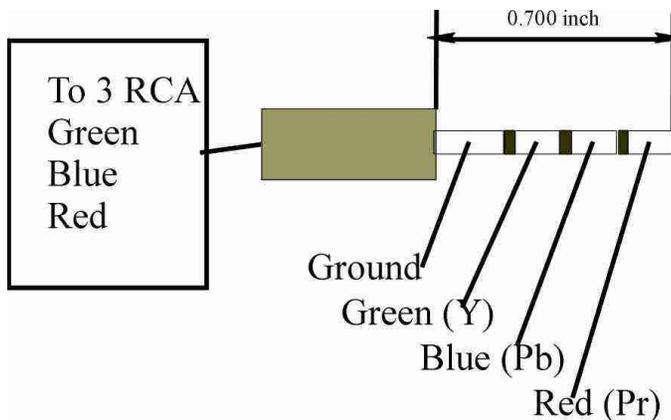
HDMI:

Use this output to connect directly into the HDMI port of the LCD TV. **CAUTION:** When using a DVI monitor (using HDMI to DVI cable adapter), the DVI monitor might not be able to show any picture (does not work)!
Use SEARCH key to adjust/toggle video resolution.

YPbPr (component):
Use a triple mini jack to 3 RCA (from Akman Inc) and connect into the component video input of the monitor.
Use SEARCH key to adjust/toggle video resolution.
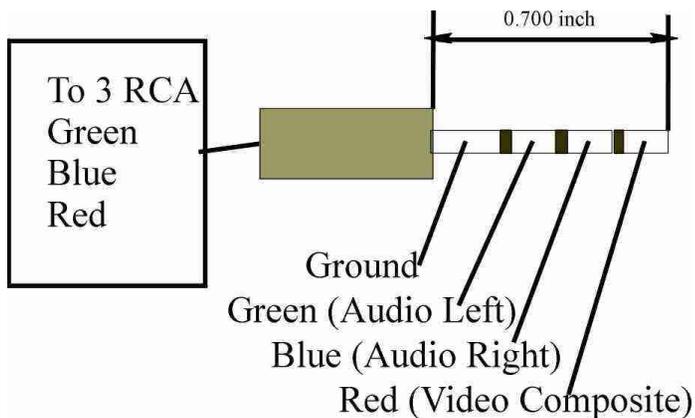

A/V out (composite):
For AUDIO only, use a standard stereo mini jack to 2 RCA.
You can also use the YPbPr triple mini jack to 3 RCA (from Akman Inc) and connect the Red RCA to the Composite Video in of the monitor. Connect the Green and Blue RCA into the audio input of the monitor. Connect the Blue and Green RCA directly into an external stereo amplifier.
Please note that at 720p and 1080I, the RED RCA (composite video) does not have any signal.
Use SEARCH key to adjust/toggle video resolution.
Do not use the I-pod triple mini jack into 3 RCA cable.

VIDEO file types:
Note: MV720p plays 1080p file but output is limited to 1080i only.
Below is the list of file formats that are compatible with MV720p-HD.
- Standard DVD xxx.vob and xxx.mpg Mpeg2 video file.
- Standard blu ray xxx.m2ts file, rename file into xxx.ts.
- M2ts files from HD camcorder, rename the file into xxx.ts

If you have the following 480p file format:
- Apple's Quicktime mov, convert it into mpeg2 HD xxx.ts file (1280X720p)
- Windows media AVI file, convert it into mpeg2 HD xxx.ts file (1280X720p).
- Std mpeg4 xxxs.mp4 file, convert it into mpeg2 HD xxx.ts file (1280X720p).
- Convert the above formats using ImToo HD video converter.

If you have the following 720p or 1080p file format:

- Apple's Quicktime mov, convert it into mpeg2 HD xxx.ts file (1920X1080p) .
- Windows media wmv file, convert it into mpeg2 HD xxx.ts file (1920X1080p).
- Blu ray's H.264 HD and VC-1 video files, convert it into mpeg2 HD xxx.ts file (1920X1080p).
- Convert the above format using ImToo HD video converter.

Convert HD video files into mpeg2=HD xxx.ts file using the built in templates:
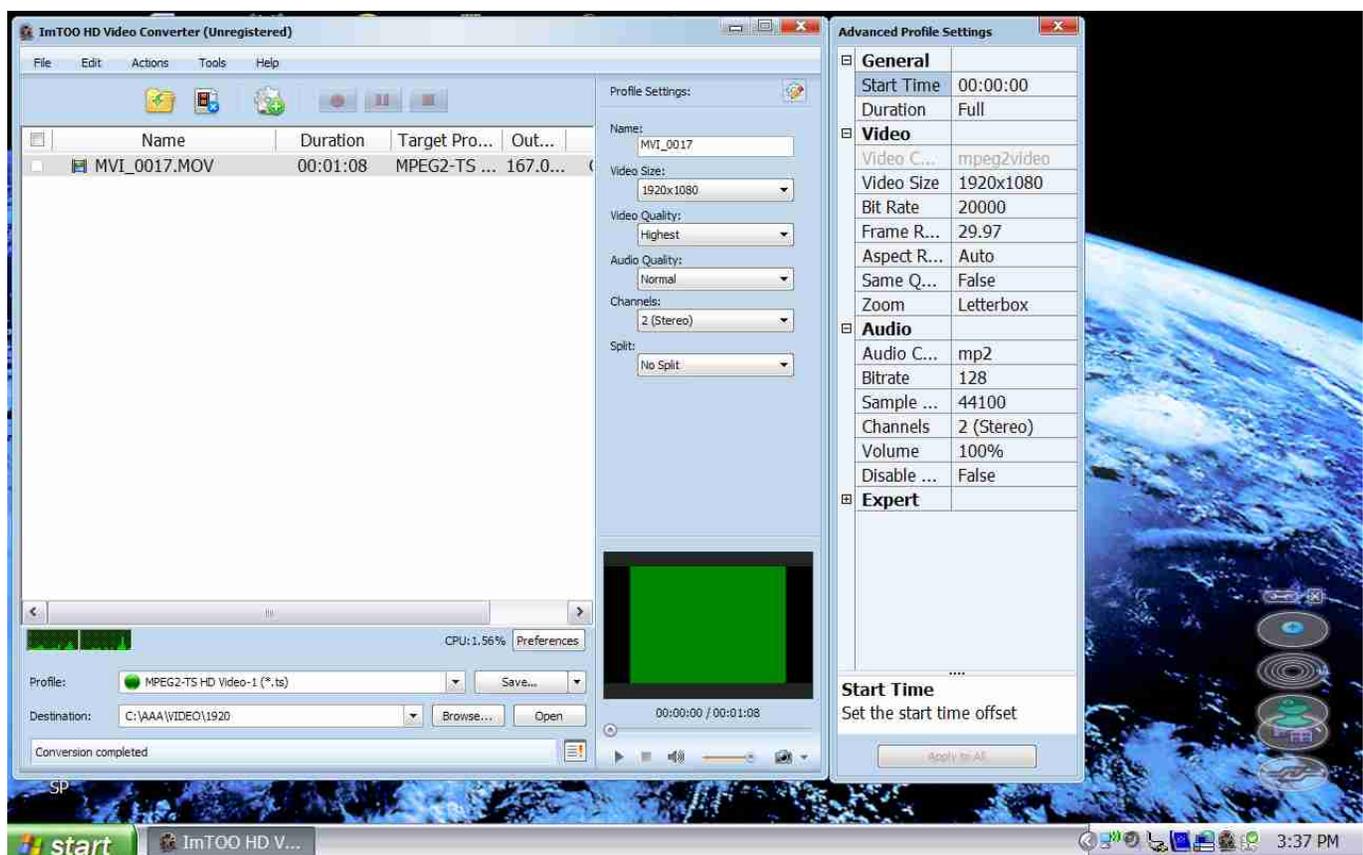www.ImToo.com and download HD Video converter V5.1.
TMPGEnc HD video converter version 4.0 from www.Pegasys-Inc.com
If you are using MAC's final cut, use Indie HD Toolkit plug in from HEURIS (www.heuris.com) to create Mpeg2-HD files.

CONVERT VIDEO FILES into Mpeg2-TS using ImTOO HD video converter:

Using IMToo HD Video converter, you can convert standard DVD or HD Video files such as Mpeg4 HD h.264, VC-1, Apple's quicktime MOV or Windows media HD file.
Here is an example of a quicktime HD movie conversion into Mpeg2 TS using the ImToo HD converter:

NOTE: MV720p plays 1080p xxx.ts file, however the output is only 1080i.
Settings:
Video size is either 1920 X 1080p or 1280 X 720p.
Video quality is Highest. (template setting is 20mbps).
Audio quality is Normal (Important: set to normal only !!!!)

xxx.m2ts Mpeg2 HD transport stream (1080p @ 25mbps):
Note: MV720p plays 1080p file but output is limited to 1080i only.
This is Mpeg2 transport stream useds by Blu ray player and is also commonly found in HD Camcorder such as Canon, JVC, Sony etc. Typical bit rate is around 25mbps. This Mpeg2 stream is basically the same as the TS stream below but has additional Time Code information.
This m2ts stream is the ideal bit rate and produces the best video quality.
To play this xxx.m2t (or xxx.m2ts) file, simply rename it into xxx.ts.
Note: MV720p plays 1080p file but output is limited to 1080i only.

xxx.ts Mpeg2 HD transport stream:
This is another Mpeg2 transport stream commonly found in HD DVD and cable broadcast. Typical bit rate is around 19 mbps. **Note: Maximum bit rate is 25mbps.**

xxx.avi Divx HD program file:
This is a HD video file using Divx video compression.

xxx.vob (VOB file from DVD) and xxx.mpg Mpeg2:
The MV720P-HD plays regular and wide screen format (16X9) VOB files. The wide screen format is known as Anamorphic file OR Square Pixel.

JPEG PICTURE File:
The MV720P-HD plays Jpeg file and up converts it into the video resolution output. The transition time and effect can be adjusted from the SETUP MENU, PHOTO setup.

HOW TO COPY files USING PC/MAC:
Use your PC (or MAC) to copy the files into the memory storage.
For SATA internal hard drive, turn MV720p-HD ON and connect the USB SLAVE port into the PC's USB port. The PC will see the MV720p-HD as another drive.
For USB Flash drive, use the PC's USB 2.0 port. PC will recognize it and automatically assign a letter drive e.g.: F:/.

For CF and SD card use USB card reader and connect it into the PC's USB2.0 port. To copy the files, "drag" and "drop" the files directly into the drive. The MV720p-HD will only read DOS format. It will not play memory card that has a MAC format however you can use MAC to copy the files.
When using USB card reader (only), you might not be able to play the maximum 25mbps.

HOW TO NAME THE VIDEO FILE:
USE simple 8 character letters only, DO NOT use any space in the file name. The MV720P-HD will not play if a file has a space in its name or if the name has more than 8 characters.
Example:
Big Bird.ts. This file will not play because of the space between Big and Bird. To play, change it to BigBird.ts (no space).

HOW TO SORT THE VIDEO FILE:
MV720p-HD will sort and loop the file numerically.
Example:
The root directory contains Bird.ts, Dog.ts and Cat.ts.
If you want to play Bird.ts to play first, add 1 in front of Bird.ts. The new file name is 1Bird.ts.
The new files are: 1Bird.ts, 2Cat.ts, 3Dog.ts. After powering up, 1Bird.ts will play first. Followed by 2Cat.ts and 3Dog.ts.

POWER REQUIREMENT:

The MV720P-HD is supplied with a desktop switching power supply. The power supply operates from 120VAC to 240VAC at 50 –60Hz. Output is 12VDC, power draw is 20 watt. The power supply is supplied with a PC style plug AC power cord that fits a standard North America power jack. Maximum input is 16VDC. This means that the MV720p-HD will play directly from a 12VDC car battery.

AUTOPLAY and SETUP MODES:

The MV720p-HD is set at AUTOPLAY mode from factory and resolution is set at 720p.

Use SEARCH key of the IR remote to toggle the video resolution.

At AUTOPLAY mode, the MV720p-HD will loop the files in the root after powering up. However if after powering up the setup menu screen shows up, then you are in SETUP mode.

Use IR remote control that is supplied with the MV720p-HD.

To exit AUTOPLAY mode and enter SETUP mode, do the following:

While the MV720p-HD is playing, press STOP to stop the playback and then press PROG. The MV720p will boot up again and enter manual mode. SETUP screen will appear.

To exit SETUP mode and return back to AUTOPLAY mode do the following:

From setup menu screen, go to BROWSER, select the drive (e.g.USB) and select any video folder. While video is playing inside the small window, press PROG again. The MV720p will boot up and return back to auto play mode.

NOTE: While navigating the menu screen, use STEP to return to previous screen.

Autoplay.txt:

The autoplay.txt is a file that relates (lists) video files to certain inputs. The purpose of this autoplay.txt is to create "software input" so that each file can be associated with "an input". Create autoplay.txt using text editor such as Notepad, Wordpad etc.

If using NOTEPAD, save the file as follows:

Use your cursor and Go to FILE. Go to SAVE AS. Choose the location on your hard drive. In the File name column type lower case only: **autoplay.** Important: DO NOT type autoplay.txt, type autoplay only. Save as type: Text Documents (*.txt). Encoding: ANSI and save the file.

If using WORDPAD, save the file as follows:

Use your cursor and Go to FILE
Go to SAVE AS.
Choose the location on your hard drive
In the File name column type lower case only: **autoplay**
Important: DO NOT type autoplay.txt, type autoplay only
Save as type: Text Documents and save the file.

If using MSWORD, save the file as follows:

Use your cursor and Go to FILE
Go to SAVE AS
Choose the location on your hard drive
In the File name column type lower case only: **autoplay**
Important: DO NOT type autoplay.txt, type autoplay only
Save as type: Text only (*.txt) and save the file.

INPUT DEFINITION in the AUTOPLAY.TXT:

Each input is defined by a 2 number system, additional letter X, N or L (if so required) and the location of the file itself.
Example:

Input 1 of MV720p-HD OR IN6 is line 01 in the autoplay.txt.

Input 12 of MV720p-HD or IN6 is line 12 in the autoplay.txt.

You can also use the IR remote control to test the input. To trigger input 1, press key1. To trigger input 2, press key 2.

AUTOPLAY.TXT sample:

autoplay.txt
01=VIDEO/CAT.TS
02=MOV/BIRD.TS
03X=TEST/DOG.TS
04N=VIDEO/LION.TS
05L=VIDEO/TIGER.TS
endtime=30 (lower case only)

Explanation:

01=VIDEO/CAT.TS ….. Input 1 plays Cat.ts, after playing it will return to loop the files inside the root. Cat.ts is located inside VIDEO file folder.

02=MOV/BIRD.TS ……Input 2 plays bird.ts, after playing it will return to loop the files inside the root. Bird.ts is located inside MOV file folder.

03X=TEST/DOG.TS …….. Input 3 plays dog.ts, after playing it will stop and wait for another input. While waiting screen is dark. Dog.ts is located inside TEST file folder.

04N=VIDEO/LION.TS … Input 4 plays Lion.ts, while playing other inputs are disabled (no interrupt). After playing it will return to the root. Lion.ts is located inside VIDEO folder.

05L=MOV/TIGER.TS ……Input 5 loops Tiger.ts.

endtime=30 ………… **(lower case only)** After playing 30 seconds instantly loop back to beginning.

Note:

You can use the IR remote key to test the input.

- **If the input does not have X, after playing the MV720p-HD will automatically return to loop files in root.**
- **If the input has X, then after playing this file it will stop and wait for another input. It will not return to the root. While waiting screen is dark.**
- **If the input has N, it will play with No Interruption. It will ignore other input. After playing this file MV720p-HD will automatically return to loop the files in the root.**
- **If the input has L it will LOOP this file.**

INPUT CODES:

PLAY a file and then RETURN to loop video inside the root directory.
Input code is none.
Autoplay.txt example:
01=MOV/CAT.TS **.** Input 1 (IN6) plays Cat.ts, after playing it will return to play root again.

PLAY a file and then STOP and WAIT for an input. While waiting screen is dark.
Input code is X.
Autoplay.txt example:
01X=MOV/CAT.TS Input 1 (IN6) plays Cat.ts, after playing it will stop and wait for an input.

PLAY a file with NO INTERRUPTION and return to loop video in root. While playing ignore input.

Input code is N.
Autoplay.txt example:
01N=MOV/CAT.TS Input 1 (IN6) plays Cat.ts to the end. While playing it will ignore other input.

LOOP a file using an input.

Input code is L.
Autoplay.txt example:
01L=MOV/CAT.TS Input 1 (IN6) loops Cat.ts.

REMEMBER: Input in autoplay.txt is the software input of the MV720p-HD, not the real (physical) digital input. For real digital input, use MV720p-HD or IN6 board.

LOOP (instant, no black screen in between) the file based on playtime:

endtime=ss where SS is in second (lower case only) .
Autoplay.txt example:
endtime=30……… After playing 30 seconds loops back to beginning **(lower case only)**.

RS485 port:

The RS485 port is a bi-directional port. It uses RJ12 cable to communicate with the MV720p-HD and other external controller.
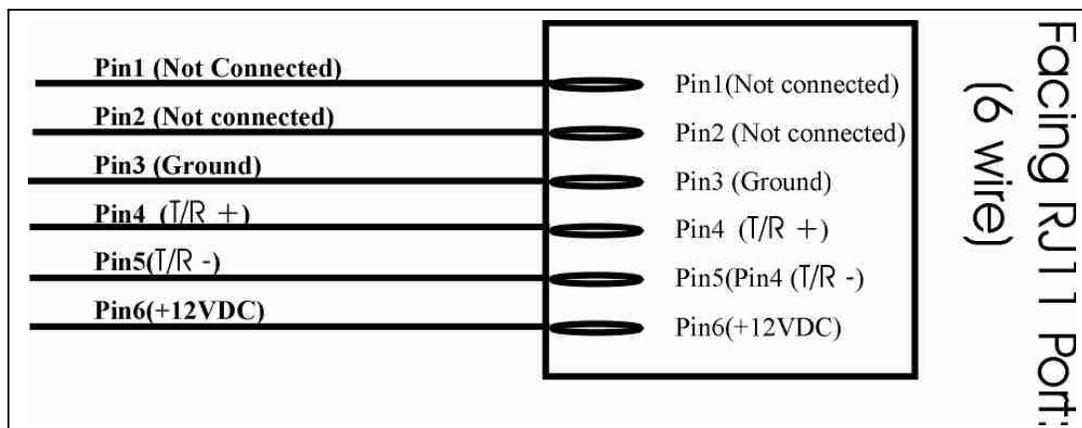**RJ12 cable is a 6 conductor (wire), 2 station telephone OR Modem cable. This cable has 6 wires (NOT 4 wires) with 2 telephone plugs, one on each end. The RJ12 cable is a crossed wire cable, similar to a modem cable.**
This means that one of the telephone plug is a reversed image of the other telephone plug. Pin 1 on one of the plug is pin 6 on the other plug. To test that the wires are crossed, do the following:
Place each plug facing each other and look at the color of the wires. If the colors of the wires match, then the wires are crossed.

RS485 Communication protocol:

The MV720p-HD can play through the RS485 port and the setting is 9600 baud, 8 bit, N, 1 stop bit. Here is the wiring diagram for the RJ12 port (6 wire):

Using the RS485 port, you can control the playback from a PC or other micro controller, The basic command structure is #<address><function>:<value>
♦ Where address is the MV720p address. 00 is a global address (broadcast).

- ♦ Function is one of the MV720p special functions for the IR mode and Timer mode.
- ♦ Value is the actual value of the function expressed in number between 1 to 20. If value is 0, function is disabled.

Here is the list of the RS485 commands:
Set board address:
#00ADDR:5
Board is now set to 5.
Remember: 00 is global address, all MV720p in the RS485 network will react to this.
Play an input:
#00:1
Global, all MV720p's play input 1.
Input 1 is line 01=xxx in the autoplay.txt

Another example:
#04:12
MV720p address 4 plays input 12.
Input 12 is line 12=xxx in the autoplay.txt
PAUSE/PLAY:
#00:PAUSE
#00:PLAY
Global, all MV720p's pause and play.

STOP:
#01:STOP
MV720p address #1 stops.

VOL +:
#03:VOL+
MV720p address #3 increase volume.

VOL -:
#05:VOL+
MV720p address #5 lower volume.

The following commands are used only in the IR mode and TIMER mode.
Set number of files, IR mode :
Set number of files to sequentially play in IR mode using NEXT/PREV built in input of the MV720p. The files are lines 60=xxx to 79=xxx in the autoplay.txt
If the number is 1 to 20, MV720p will enter the IR mode.
If number of files is 0, MV720p will exit IR mode.
#01LOOP:4
MV720p address #1 set 4 files to sequentially play using Next/Prev.
The files are lines 60=xxx, 61=xxx,62=xxx and 63=xxx in the autoplay.txt.
Another example:
#01LOOP:0
MV720p address #1 will exit IR mode.
Set number of files, TIMER mode :
Set number of files to sequentially autoplay in TIMER mode. The files are lines 80=xxx to 99=xxx in the autoplay.txt
If the number is 1 to 20, MV720p will enter the TIMER mode.
If number of files is 0, MV720p will exit TIMER mode.

#00POLL:3
Global, all MV720p set number of files to play in time delay to 3.
The files are 80=xxx,81=xxx and 82=xxx in the autoplay.txt
Another example:
#02POLL:0
MV720p address 2 exits timer mode.

Set the time delay in minutes for the TIMER mode.
If the number of minutes is NOT 0, MV720p is in TIMER mode.
If number of minute is 0, MV720p will exit TIMER mode.
#02DELAY:15
Board #2 set time delay to 15 minutes.
#02DELAY:0
Board #2 exit timer mode:
At power up MV720p will transmit (through RS485 port) the following info:
1: "IR Loop Invalid! " or "Ir Loop No:60to64"
2: "Delay No invalid" or "Delay No:80to 84"
3: "Delay Time(minute):5"
4: "address:05"

IN6 INPUT BOARD (Std mode, IR mode and Sync mode):
IN6 input board's dipswitch has 4 switches: JP1, JP2, JP3 and JP4. The dipswitch is located at the rear next to the input terminals. Use these switches to set the IN6 into these 3 different modes: Standard, IR and Sync mode.
The IN6 input board does not require power supply. The power comes from the RS485 port. If you are using a single IN6 board, use the RJ12 cable to connect the IN side of the RS485 port of the IN6 board into the MV720p-HD's RS485 port.
If you are using 2 or more IN6 input boards OR using the Sync board:
Using the RJ12 cable, connect one end into the MV720P-HD and the other end into the IN port of the IN6. To connect the second IN6 board, use the RJ12 to connect the OUT port of the first IN6
board into the IN port of the second IN6 board. Make sure to set the IN6 board address correctly.
To connect the third IN6 board, use the RJ12 to connect the OUT port of the second IN6 board into the IN port of the third IN6 board. Make sure to set the IN6 board address correctly.
To connect the fourth IN6 board, use the RJ12 to connect the OUT port of the third IN6 board into the IN port of the fourth IN6 board. Make sure to set the IN6 board address correctly.

IN6 INPUT BOARD SETTING:
Use the dipswitch located at the rear panel. The dipswitch has 4 switches:JP1,JP2,JP3 and JP4.
IN6 board has 3 settings, Standard, IR mode and Sync mode settings.
The setting is as followed:
- If JP3 and JP4 are OFF (Up), IN6 is in standard input mode.
- If JP3 is ON (down), IN6 is in IR mode.
- If JP4 is ON (Down), IN6 is in Sync mode.
- JP1 and JP2 are for board address OR sync delay function.

IN6 board is in standard mode.
IN6 is in standard mode if JP1,2,3,and 4 are all OFF (up position).
- Input 1 to 12 triggers lines 01 to 12 in the autoplay.txt
- To trigger inputs 1 to 6 short input momentarily to ground.
- To trigger inputs 7 to 12 short input, UP terminal momentarily to ground.

In this mode: When input is triggered the IN6 board will send a command to the MV720p-HD to play the same input as listed in the autoplay.txt.
To trigger an input, short it momentarily to GND (ground).
Use JP1 and JP2 for the IN6 board address.
Example:
If input 1 is triggered, the IN6 will send an instruction to the MV720p-HD to play line 1 in autoplay.txt.
If input 3 is triggered, then In6 will send a command to the MV720p-HD to play line 3 in autoplay.txt.
If input 12 is triggered, then In6 will send a command to the MV720p-HD to play line 12 in autoplay.txt.

IN6 BOARD ADDRESS:
Use JP1 and JP2 to set the board address.
Each board can be set for a board address 0,1,2 and 3. Use JP1 and JP2 for the board address.
If JP1 and JP2 are OFF (UP), the board address is 0. Board address 0 is for inputs 1 to 12.
If only JP1 is ON (DOWN) board address is 1. Board address 1 is for input 13 to 24.
If only JP2 is ON (DOWN) board address is 2. Board address 2 is for input 25 to 36.
If JP1 and JP2 ares ON (DOWN) board address is 3. Board address 3 is for input 37 to 48.

HOW TO CONNECT PUSH BUTTONS INTO THE IN6 BOARD:
For wiring diagram please visit out web site and download the IN6 wiring diagram.
The input board has 1 ground terminal, 6 input terminals and 1 UP terminal. There are a total of 8 terminals. Facing the green terminals from left to right:

The first terminal is GROUND.
IN1 is the **second terminal**.
To trigger input #1, momentarily short IN1 to ground. 01 in the autoplay.txt will play.
IN2 is the **third terminal**.
To trigger input #2, momentarily short IN2 to ground. 02 in the autoplay.txt will play.
IN3 is the **fourth terminal**.
To trigger input #3, momentarily short IN3 to ground. 03 in the autoplay.txt will play.
IN4 is the **fifth terminal**.
To trigger input #4, momentarily short IN4 to ground. 04 in the autoplay.txt will play.
IN5 is the **sixth terminal**.
To trigger input #5, momentarily short IN5 to ground. 05 in the autoplay.txt will play.
IN6 is the **seventh terminal**.
To trigger input #6, momentarily short IN6 to ground. 06 in the autoplay.txt will play.
The last terminal is UP. Use this input to trigger IN7 to IN12 as follows:
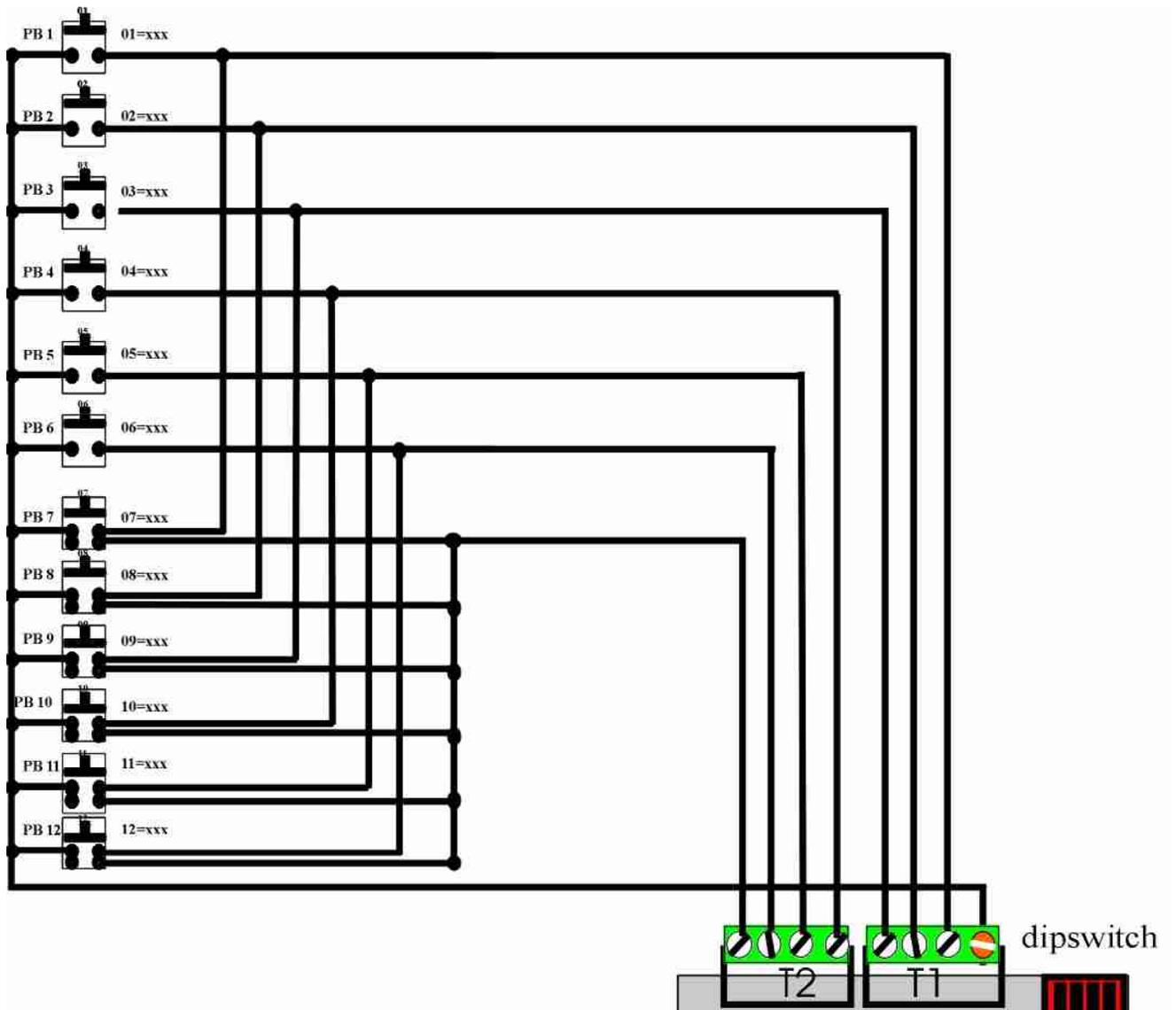To trigger input #7, momentarily short IN1 and UP together to ground. 07 in the autoplay.txt will play.
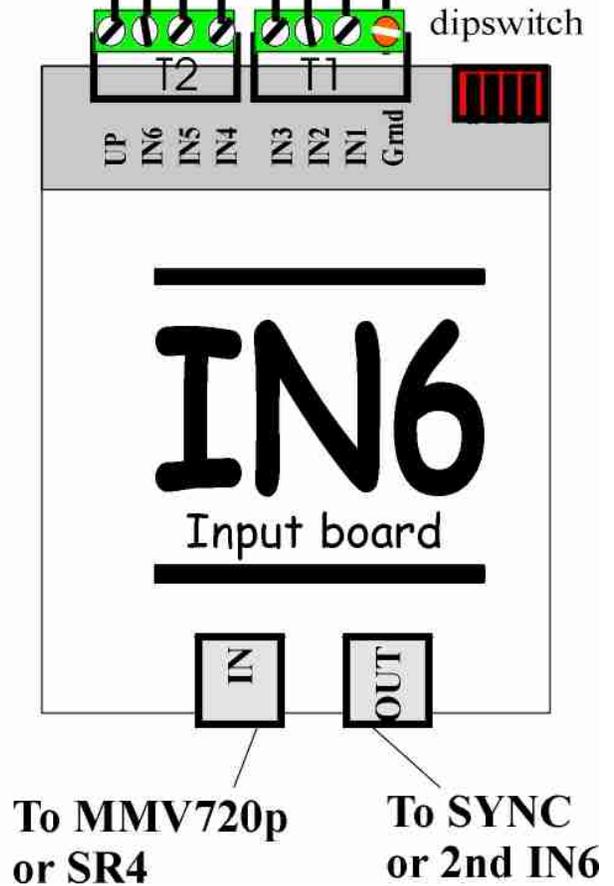To trigger input #8, momentarily short IN2 and UP together to ground. 8 in the autoplay.txt will play.
Etc,etc….
To trigger input #11, momentarily short IN5 and UP together to ground. 11 in the autoplay.txt will play.
To trigger input #12, momentarily short IN6 and UP together to ground. 12 in the autoplay.txt will play.

PB 1   01=xxx
PB 2   02=xxx
PB 3   03=xxx
PB 4   04=xxx
PB 5   05=xxx
PB 6   06=xxx
PB 7   07=xxx
PB 8   08=xxx
PB 9   09=xxx
PB 10   10=xxx
PB 11   11=xxx
PB 12   12=xxx

12 PB wiring
for IN6

dipswitch

T2   T1

UP   IN6   IN5   IN4   IN3   IN2   IN1   Gnd

IN6
Input board

IN   OUT

To MMV720p
or SR4

To SYNC
or 2nd IN6

IN6 is in SYNC mode.
The IN6 is in sync mode if JP3 is ON (switch is in down position).
- IN6 will automatically send SYNC command 90 seconds after powering up.
- Set JP1 and JP2 to automatically re-sync the players.
- Use UP and Ground terminal to manually re-sync the players.

IN6 will automatically send SYNC command 90 seconds after powering up and will maintain the sync as long as it is playing the loop file(s). While playing the loop file, it will maintain the sync periodically. Once an input (IN6 or MV720p) is triggered, the sync will be OFF! To return to sync mode again, manually send the sync command by momentarily shorting the UP and Ground terminal (IN6). Additionally JP1 and JP2 can be set as follows:

JP1and JP2 are OFF ……… Sync command will be issued every 30 minutes.
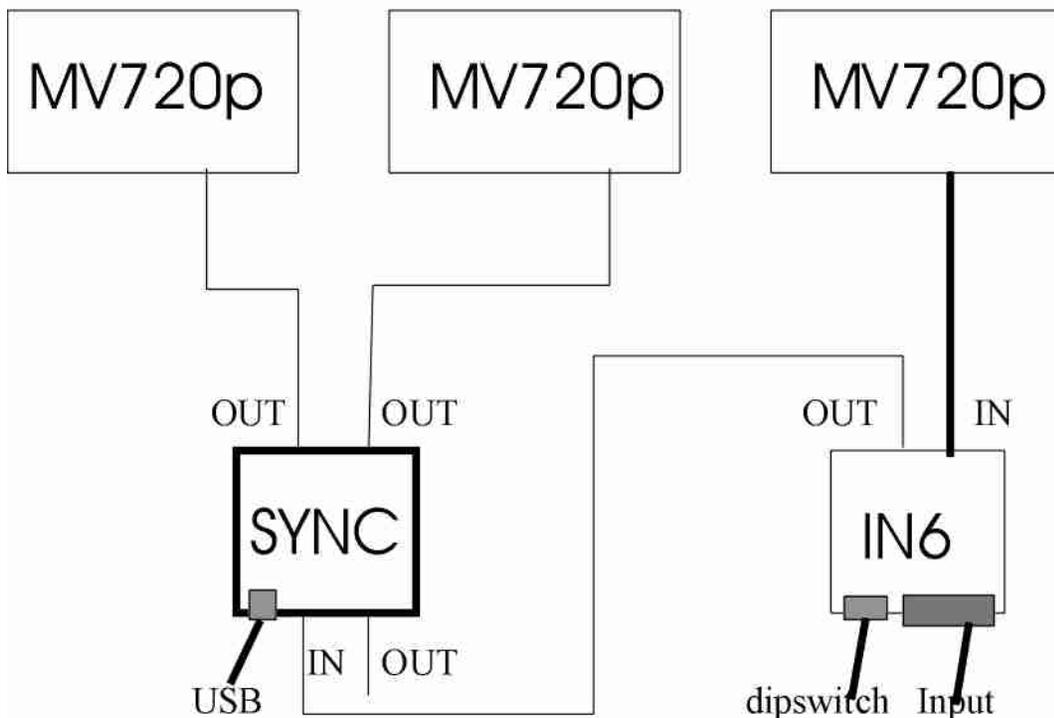JP1 is ON, JP2 is OFF ……… Sync command will be issued every 1 hour.
JP1 is OFF, JP2 is ON ……… Sync command will be issued every 2 hours.
JP1 is ON, JP2 is ON ……… Sync command will be issued every 3 hours.
The sync board itself does not have any switches or settings.
In SYNC mode, the UP terminal is used to manually re-sync the players. Momentarily shorting the UP to ground terminal will manually sync the players and reset the time delay (for the sync).

SYNC 3 MV720p-HD

Follow the wiring connection above and turn on power to all MV720p-HD. After 90 seconds, all MV720p will reset and re-sync by itself. If one of the players does not sync, check the RJ12 cable. After checking the RJ12 cable, use the UP and Ground terminal to manually re-sync the MV720ps. All MV720p's should reset instantly. If one of the players still does not sync, check or replace the RJ12 cable.

IN6 is in IR mode (JP4 is ON).
IN6 is in IR mode if JP4 ON.
In this IR mode, the IN6 input will become an IR input and send the following IR commands to MV720p-HD when triggered:
To trigger an input, short it momentarily to GND (ground).
IN1 is now NEXT.
IN2 is now Prev. (Previous).
IN3 is now STOP.
IN4 is now Pause/Play.
IN5 is now VOL+.
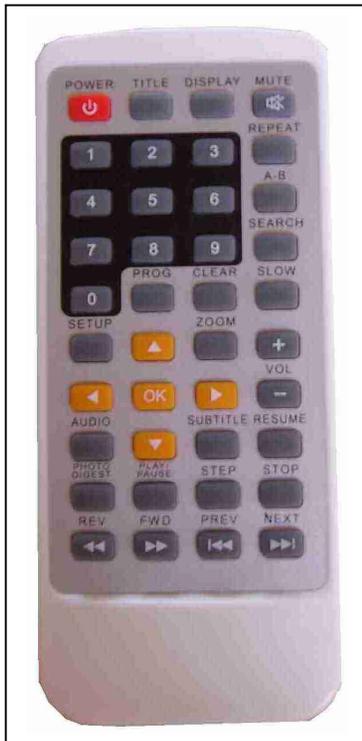IN6 is now VOL-
UP is now Mute.

NOTES:
Do not confuse the IN6 IR mode with the MV720p-HD IR mode. The MV720p-HD IR mode applies to the MV720p-HD built in digital input only. **The IN6 IR mode applies to the IN6 digital input only.**

IR REMOTE CONTROL:
Use the IR remote control to enter the MANUAL mode and also to enter MV720p-HD setting such as Video resolution output, Slide show mode etc. You can also use the manual mode to explore the memory storage and play it manually. In autoplay, you can use the IR remote to test the autoplay.txt.
Example: Pressing key 1 will trigger input 1 in the autoplay.txt
Pressing key 2 will trigger input 2 in the autoplay.txt etc.

IR Remote keys:
PROG: Use this key to enter and exit the main menu screen.
STEP: Use this key to return to previous menu.
ARROW KEYS: Use to navigate the menu.
OK: Enter selection.
Numerical keys: use to trigger input in autoplay.txt
PREV: Play previous file.
NEXT: Play the next file.
FWD: Fast forward.
REV: Play reverse.
PAUSE/PLAY: Toggle between Pause and Play the file.
STOP: Stop file.
Vol+: Increase volume, Maximum setting is 32.
Vol –: Lower volume, minimum setting is 0.
MUTE: Mute audio.
REPEAT: This will toggle between title repeat and Folder repeat.

CLEAR: To set IR mode.
A-B: To set Timer mode.
SEARCH: Toggle video output from 480p to 1080i

HOWS TO ENTER MANUAL MODE:

NOTE: You are already in manual mode if after finish booting up a set up menu screen shows up.
If you want to enter manual mode do the following:
After finish booting up and while MV720p-HD is playing, press STOP to stop the playback and then press PROG. The MV720p will boot up again and enter manual mode. SETUP MENU screen will appear.

To return back to autoplay mode:

In manual mode, go to BROWSER. Select the drive (USB or HDD) and then select any video folder. The video will automatically play inside a small window. While video is playing inside the window, press PROG again. The MV720p will boot up and return back to auto play mode.
NOTE: While navigating the menu screen, use STEP to return to previous screen.

VIDEO IN

This feature is currently disabled.

FILE COPY

Use this feature to copy files from PC into the MV720p-HD. Press OK to enter. Under SOURCE window select your file source. If you are copying through the LAN (or WIFI), select NET. Go to Destination and select the memory storage.
Press OK to execute the file copy.

BROWSER

Press OK to enter. The selections are: USB, CARD, HDD, NET and Playlist. Currently CARD and Playlist are DISABLED.
Select USB if you are using USB port for the memory storage.
Select HDD if you are using internal Hard disk drive.
Select NET if you want to play file through the network (wifi).
If you select USB or HDD, a file folder menu of the drive will show. Use the arrow up/down to navigate the menu and press OK to select. The video file will be playing on a small window. Press PROG if you want to exit the manual mode OR press **OK to play full screen.**
NOTE: Use STEP key to go to previous menu.
If you select NET, the MV720p-HD will automatically search for an active network. If a LAN is detected, it will automatically connect into the network. All shared drives and files will be shown on screen.
Select the files that you want to play and press OK. This will play the file full screen. While playing full screen press REPEAT and select REPEAT TITLE or REPEAT ALL. If you select repeat title, the current video will loop. If repeat all, the entire folder will loop.

SET UP

Press OK to enter the MV720p-HD setup.

AUDIO:

Night mode: OFF. Leave this OFF for normal operation.

VIDEO:

NOTE: The MV720p-HD will simultaneously output from HDMI and YPbPr (at all setting) and Composite (CVBS at 480p/NTSC/576p only). Audio is ON at all setting.
Aspect ratio: Select 16:9 if you are playing from HDMI.
Select 4:3 if you need to use the Composite video out (CVBS).
Brightness: Adjust it to suit. Default is 28, maximum is 50.
Contrast: Adjust to suit. Default is 28, maximum is 50.

TV System: Set to HDMI auto or select to suit your monitor.
If possible choose the highest setting possible. If you are playing CC (closed caption, line 21), set this to NTSC.

REC:
This feature is currently disabled.

NETWORK:
Wired LAN setup. Use this to read the IP address of the MV720p. You can also manually enter the IP address using IR remote key.

SYSTEM:
This feature is currently disabled.

PHOTO:
Use this to setup the slide show. Slide show timing: set the time of the picture you want to show on screen.
Transition effect: Select the transition effect to suit.

Background Music: This feature is currently disabled.

Timer REC This feature is currently disabled.

PLAY VIDEO THROUGH NETWORK

To play video from network, connect the RJ45 port into the network and power up the MV720p-HD. You do not need to use any memory storage. The MV720p-HD will boot up without any memory storage. After finish booting up, use the IR remote and press STOP and PROG to enter MANUAL mode. From the menu go to BROWSER and select NET. You will see the shared file folder in the net. If you do not see anything in the NET content, then use STEP key to exit BROWSER, go to SETUP, go to NETWORK and choose wired LAN. Select wired LAN and try to connect automatically. If you need to type in the IP address, the MV720p-HD will bring up a virtual keyboard on screen. Use the IR remote control to type the IP address etc as required.

After connected to the NETWORK, exit this setting using STEP key. Go back to BROWSER, Go to file folder and select a video to play. After video is playing inside the small window press OK.

While video is playing full screen press REPEAT and select REPEAT TITLE or REPEAT ALL. If you select repeat title, the current video will loop. If repeat all, the entire folder will loop. The MV720p-HD will play continuously until power is turn OFF or until network is disconnected.

MV720P-HD Technical specification:

HD VIDEO FORMAT:
HD Video format at 720p and 1080p is:
- Mpeg2 raw transport stream – XXX.ts .
- Mpeg2 transport stream - XXX.m2t (rename to xxx.ts)
- Divx-HD – XXX.avi

Use SEARCH key to adjust/toggle video resolution.

HD BIT RATE:
HD video bit rate is 25mbps.
Use SEARCH key to adjust/toggle video resolution.

HD VIDEO OUTPUT:
Std HDMI video out using HDMI cable.
Note: You can use HDMI to DVI cable converter to connect into a DVI monitor. However due to the HDCP design restrictions, the DVI monitor might not be able to show the picture.
Component (YPbPr) video is available on triple mini jack into 3 RCA jacks.
Composite plus stereo audio is available on triple mini jack into 3 RCA jacks .
You can use a std stereo mini jack into 2 RCA for audio out.
Note: Composite video is not available at 720p and 1080i.
Use SEARCH key to adjust/toggle video resolution.

SD VIDEO FORMAT:
SD Video format at 480p and 576p is:
- Mpeg2 program stream – XXX.mpg.
- DVD video files – VTS_X_XX.vob.
Use SEARCH key to adjust/toggle video resolution.

SD BIT RATE:
Maximum SD video bit rate is 4.5 mbps VBR, 9 Mbps max.

MEMORY STORAGE INTERNAL HARD DRIVE:
- Use notebook (laptop) Hard Drive, SATA (Serial ATA) 2.5" 5400rpm (min) notebook hard drive.
CAUTION:
- **Due to heat generated by the hard drive, place the MV720p-HD (with internal hard drive) in a air conditioned and well ventilated area.**

MEMORY STORAGE using USB2.0 port:
Using built in USB 2.0 port:
- USB Flash drive, Stick drive etc using USB 2.0 port.
- SD card, Memory stick, CF card etc using CF card reader with USB 2.0.
- USB Hard Drive storage using USB 2.0 such as passport drive etc.

MEMORY STORAGE FORMAT:
Format disk HD with NTFS.
Format USB Flash drive, CF card etc with DOS (fat 32). MV720p will not operate with other disk format.
You can use MAC to copy files into memory storage.

LAN Port:
LAN (Local Area Network) port is std RJ45. Protocol is TCP/IP.
Auto detect LAN or set IP address manually using IR remote.

WIFI (optional) through USB2.0 Port:
Use Akman Inc's USB2.0 802.11g wifi adapter. Plug in this adapter into the USB2.0 port. Use internal SATA HD only when using this adapter.

AUDIO OUTPUT:
Audio line out is 2 V p/p stereo (adjustable) on triple mini jack to 2 RCA jacks. Audio is always ON at any setting.

PUSH BUTTON INPUT:
Built in 3 digital input, IN1,IN2 and IN4. For more input use IN6 input board through RS485 port. Each IN6 board has 12 input. Maximum is 4 boards for a total of 48 digital inputs.

SERIAL PORT:
Serial port is RS485 bi-directional for connection to optional IN6 board, Sync function and external micro controller.

ENCLOSURE:
Aluminum enclosure (desktop), 6.5" W X 4.25" D X 1.2" H.
Shipping weight complete with power supply and cord is approximately 2.1 lbs.

Power supply:
120 – 240VAC Universal switching power supply complete with a detachable PC style power cord. Power output is 12VDC, 25 watt. When using custom power supply, maximum power input is 16 VDC. Use switching power supply or 12VDC Car battery.

Please consult us before using any custom power supply.

For technical support contact:
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