

MedeaWiz® Sprite

High Definition Video Player

User Manual

FW version 20160509

Manual version 1.05



Note that this manual may change periodically

Please go to www.MedeaWiz.com for the latest version

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Introduction

The MedeaWiz Sprite is a High Definition digital video repeater capable of HD 1080p HDMI output. It has a direct trigger input and a 2-way communications serial port. The Sprite will loop a video when power is applied, play a different video on a trigger or serial command, and then go back to the looping video.

The Sprite has no black space when looping or changing files. It will hold the last frame of video until the first frame displays.

In the trigger input mode, you can use a pushbutton, other dry contact, or voltage level change, with your choice of a High or a Low transition trigger. You can also choose to allow an interrupt from a new trigger event, or not to allow an interrupt.

In the Serial Control Mode you can have a looping video and control other videos to play on command. Once the commanded video ends, the looping video will play again until a new command is received.

The Sprite is one of the most energy efficient “green” video repeaters available today. Using only 5 Volt DC power at an average of 400 mA, it takes only about 2 Watts to run.

What's in the box



The Sprite comes with

- 1) IR remote control
- 2) AC adaptor, universal 100 to 240 Volt AC input, regulated 5 Volt DC output
- 3) AV cable, 3.5mm 4 pole to RCA red, white and yellow
- 4) I/O plug, 3.5mm 4 pole to screw terminals



Sprite Quick Start Guide

The MedeaWiz® Sprite ships with the Video Output set to HDMI at 720p and the Control Mode set to “Trigger Low No Interrupt” Mode to use a pushbutton trigger.

Most users can simply connect their HDMI monitor and install their SD memory card, with files named in the same way as the earlier model MedeaWiz players.

Example 1: You have one file that you need to run in a loop when power is turned on:

Name the file 000.xxx (where xxx is the proper file extension such as mpg, wmv, mp4, mt2s or etc.)

Example 2: You have a looping file and also want to use the Trigger with a push button:

Name the looping file 000.xxx as above. Then name the trigger file 001.xxx

Example 3: You have a looping file and also want to use the Serial Port control:

Name the looping file 000.xxx as above. Then name the other files 001.xxx, 002.xxx, 003.xxx and etc. in order.

Using the IR remote control, go into the on screen menu and set the Control Mode to Serial Control, and set the Baud Rate to match your external controller.

You should always have a 000.xxx looping file if using the trigger input or serial control.

It can be a black file if no video is wanted until a trigger or command. We suggest the looping file be at least 30 seconds long.

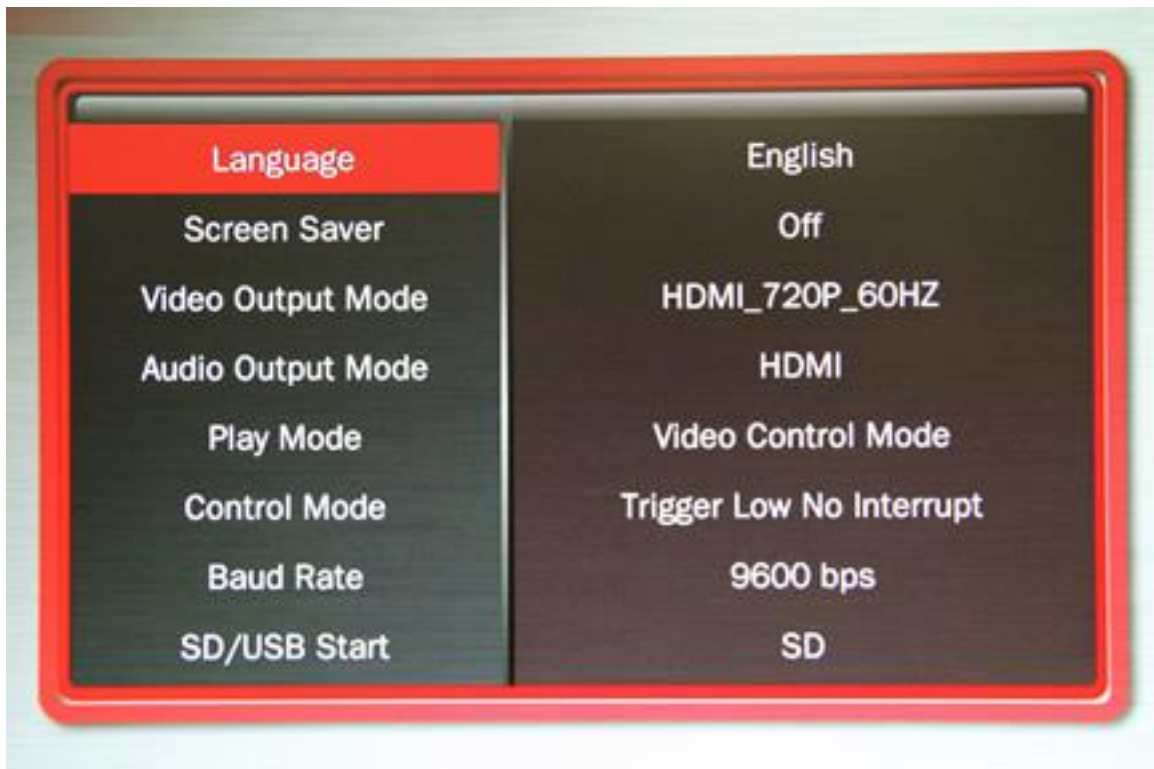
Make sure you are using ZEROS and not the letter O in the file name. Do not put the files in a folder. Only put media files on the SD card.

You can download HD test files at <http://www.highdefforum.com/high-definition-movies-video-clips/6537-official-hd-video-clip-list.html>

On-Screen Menu for Setup

Press the “Setup” button on the remote control to enter the on-screen menu. Use the orange “Arrow” keys to navigate, the green “Enter” key to make a selection, and the yellow “Return” key to go back one level. Pressing the “Return” key twice will exit the menu and begin file play.

Top Menu page showing current settings



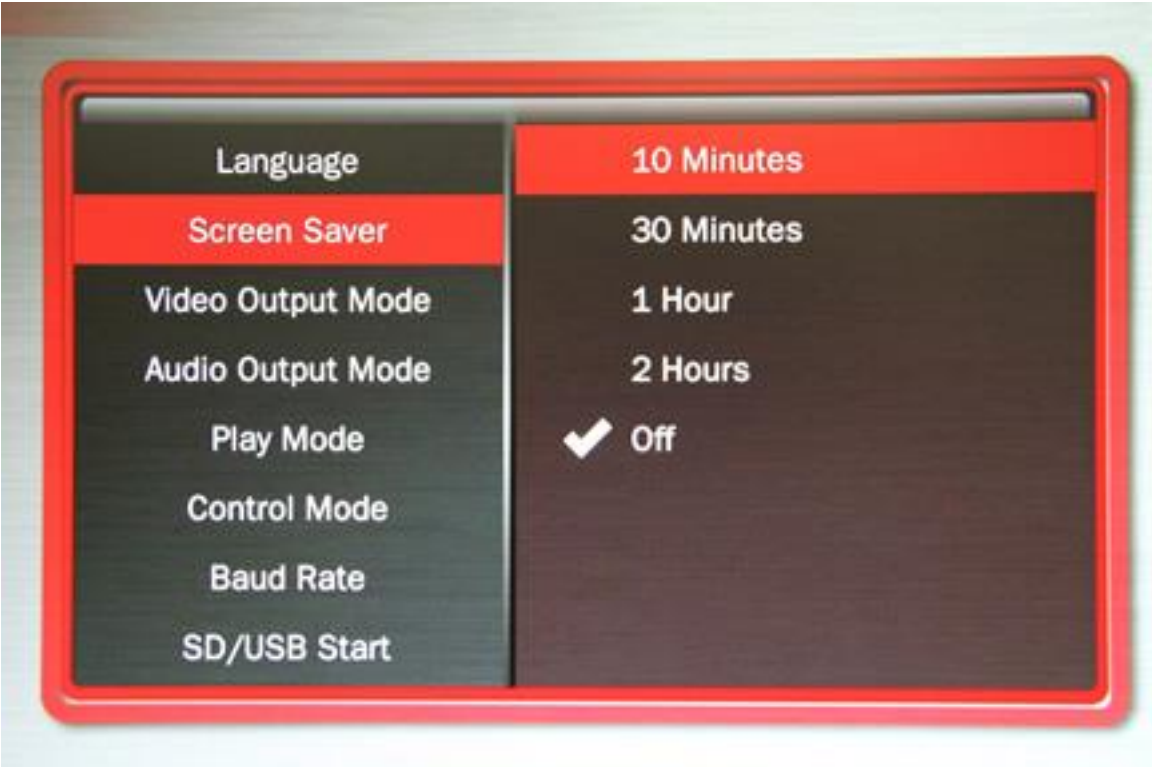
Menu Language

Select the language.



Screen Saver

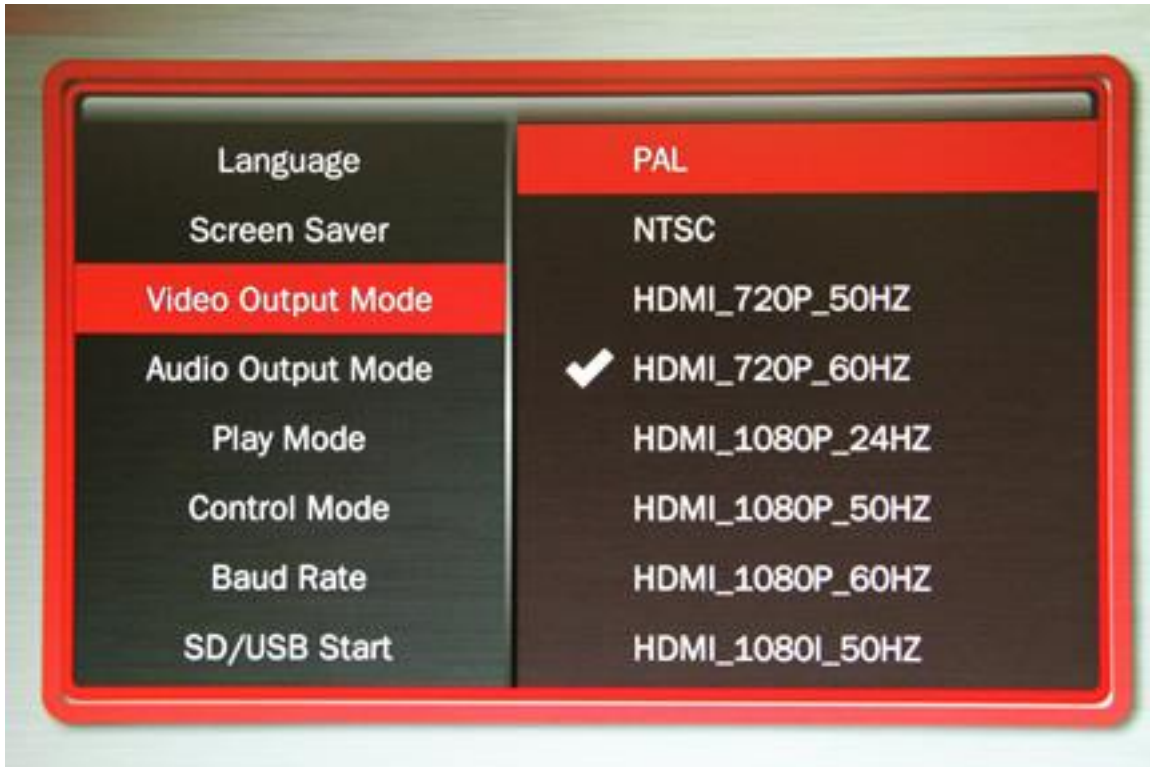
Select the time delay for the screen saver.



The Screen Saver is only active in the “Off” manual play mode. It is not active in other control modes.

Video Output Mode

Select the video output needed to match your monitor.



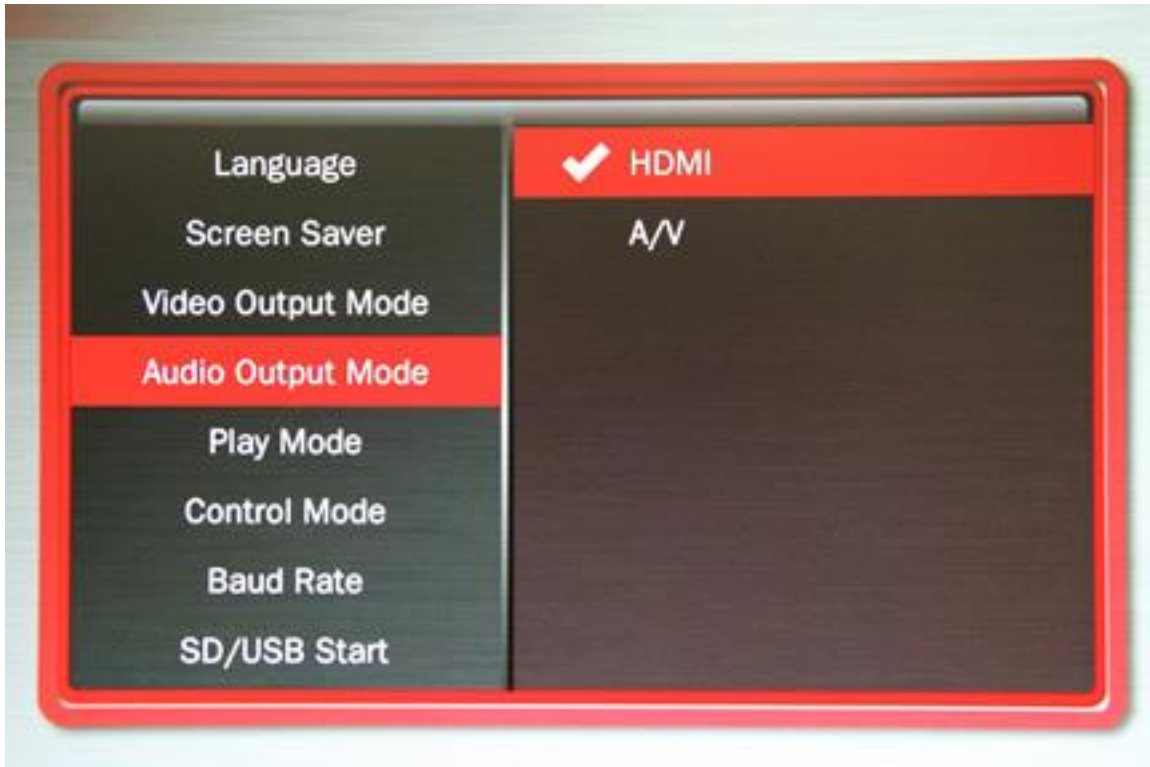
Select **NTSC** to use the Composite video output from the 3.5 mm AV jack using the yellow RCA plug from the included A/V cable.

Select **PAL** for Composite video for some areas other than the Americas that use PAL video files and monitors.

The **HDMI** selections will route the video to the HDMI connector only.

Audio Output Mode

Select the audio output needed.



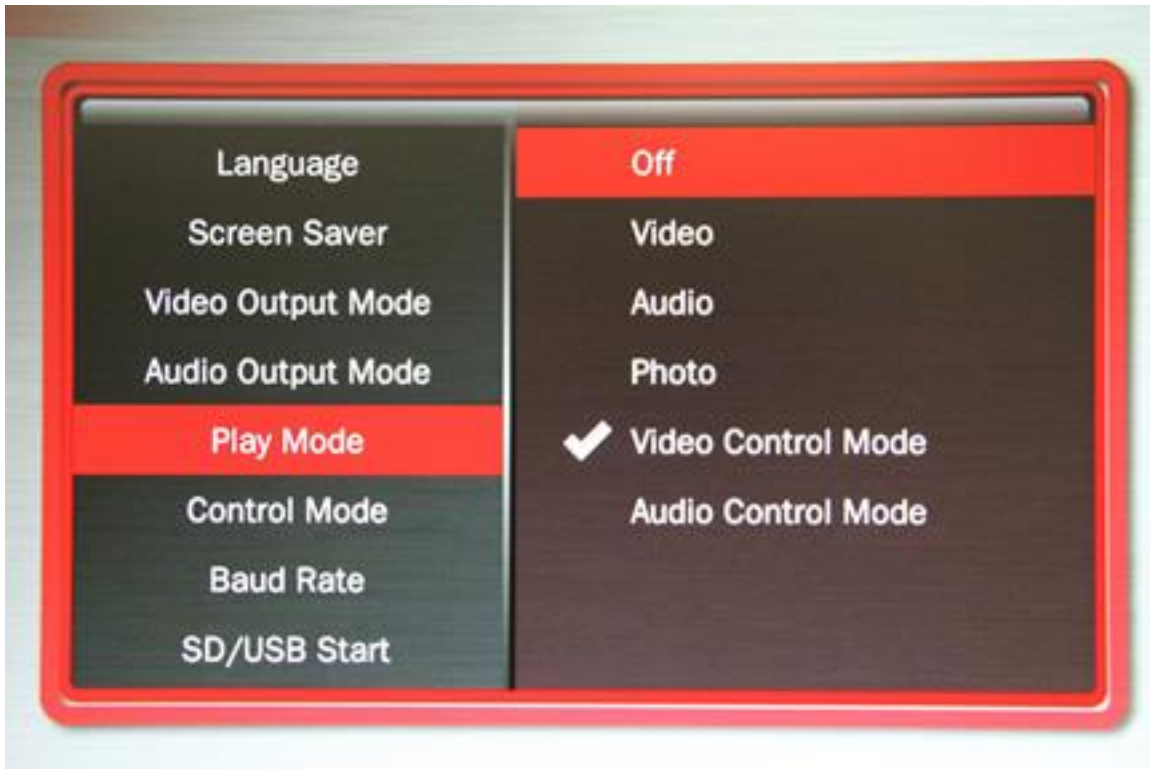
Select **HDMI** to route the audio through the HDMI cable to your monitor or amplifier with HDMI input.

Select **A/V** to route the audio to the 3.5mm 4 pole AV jack and use the red and white RCA plugs from the included A/V cable.

The audio output will require an amplifier or amplified speakers. It can't directly drive speakers.

Play Mode

Select the play mode needed for your application



Selections with no external input control:

Select **Off** to manually play files using the IR remote control.

Select **Video** to play all video files in a circular loop.

Select **Audio** to play all audio files in a circular loop.

Select **Photo** to play all photo files in a circular loop.

Selections with external input control:

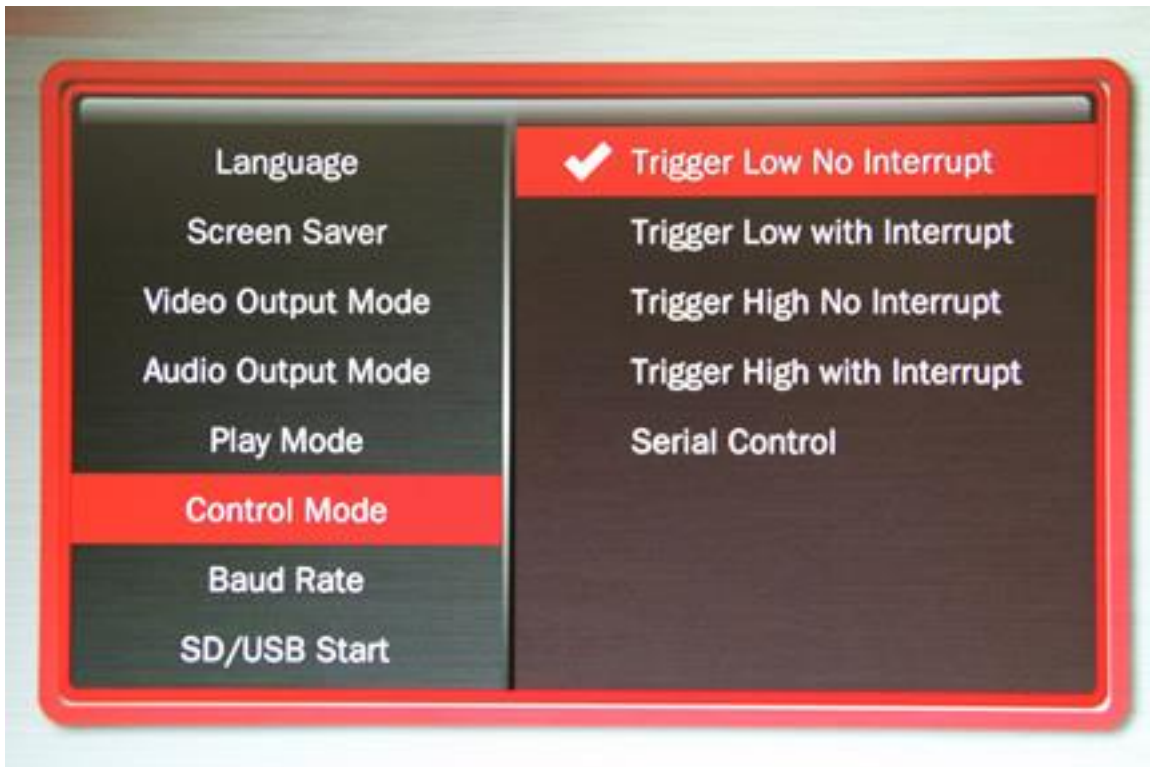
Select **Video Control Mode** to loop video file 000.xxx and trigger / command other video files to play.

Select **Audio Control Mode** to loop audio file 000.xxx and trigger / command other audio files to play. If you need to mix video and audio files, convert the audio files to video files and use the Video Control Mode.

Do not use JPEG / photo files in control modes. Please convert them to video files.

Control Mode

Select the external Control Mode for your application



Select **Trigger Low No Interrupt** to use a pushbutton or other contact closure event. When triggered, the file 001.xxx will play to the end with no interruption.

Select **Trigger Low with Interrupt** to use a pushbutton or other contact closure. When triggered, the file 001.xxx will play and will re-start if re-triggered.

Select **Trigger High No Interrupt** to use a contact opening event. When triggered, the file 001.xxx will play to the end with no interruption.

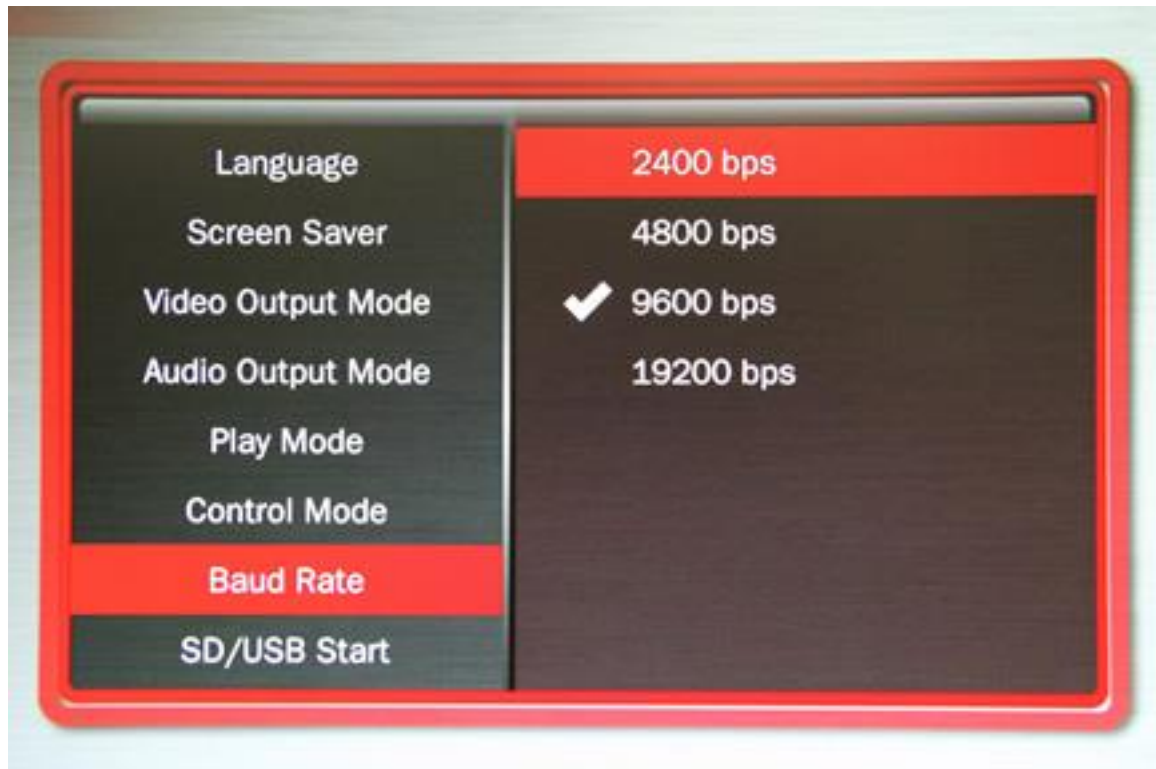
Select **Trigger High with Interrupt** to use a contact opening event. When triggered, the file 001.xxx will play and will re-start if re-triggered.

Select **Serial Control** to use an external show control device or micro controller like a Basic Stamp, PIC, Atmel, Arduino, Raspberry Pi, or etc. using serial communications.

After the triggered / commanded file ends, file 000.xxx will loop again.

Baud Rate

Select the baud rate for the serial port



The baud rate is the speed of the serial communication and should match the settings on your external controller.

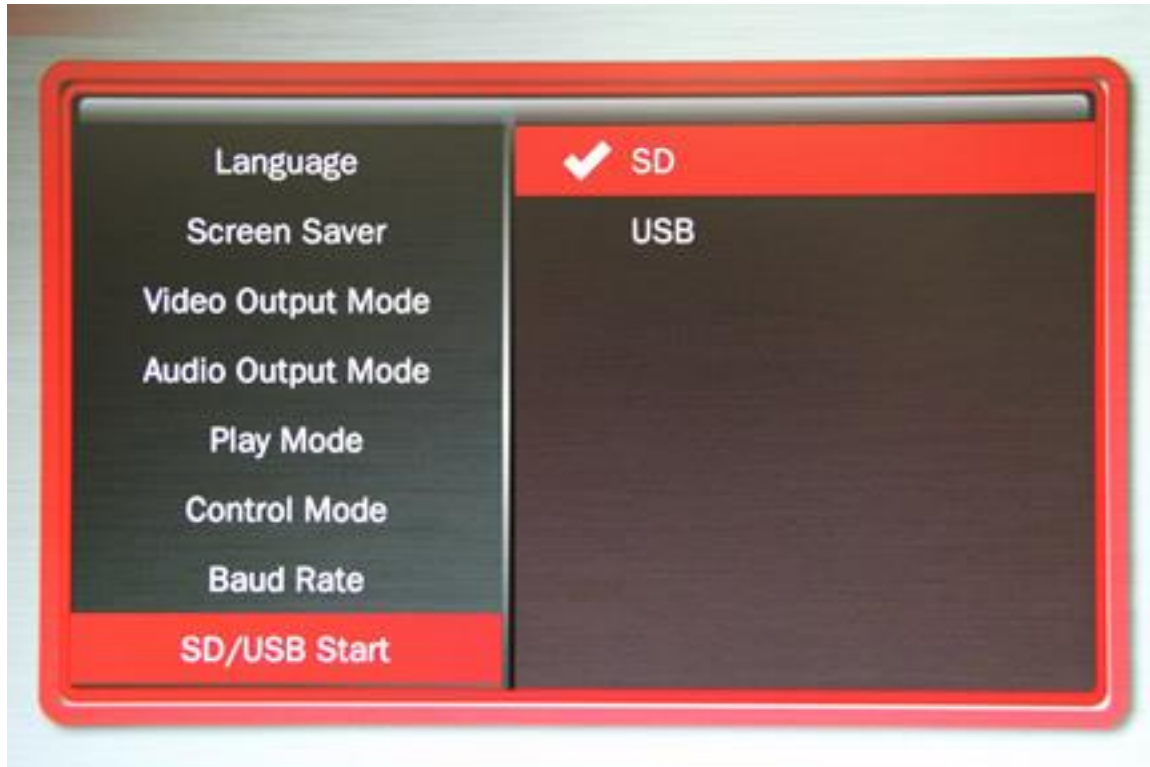
The default is 9600 bps.

To use the legacy MedeaWiz DV-68K pushbutton control interface with the Sprite, set the baud rate to 4800. You will also need to fabricate or purchase an interface cable to adapt to the 4p4c modular connector on the DV-68K.

The TK-68K and TK-69K series controllers can be re-programmed to 9600 baud rate, and must be re-programmed for the end of file marker of the Sprite.

SD/ USB Start Mode

Select the memory device to start from

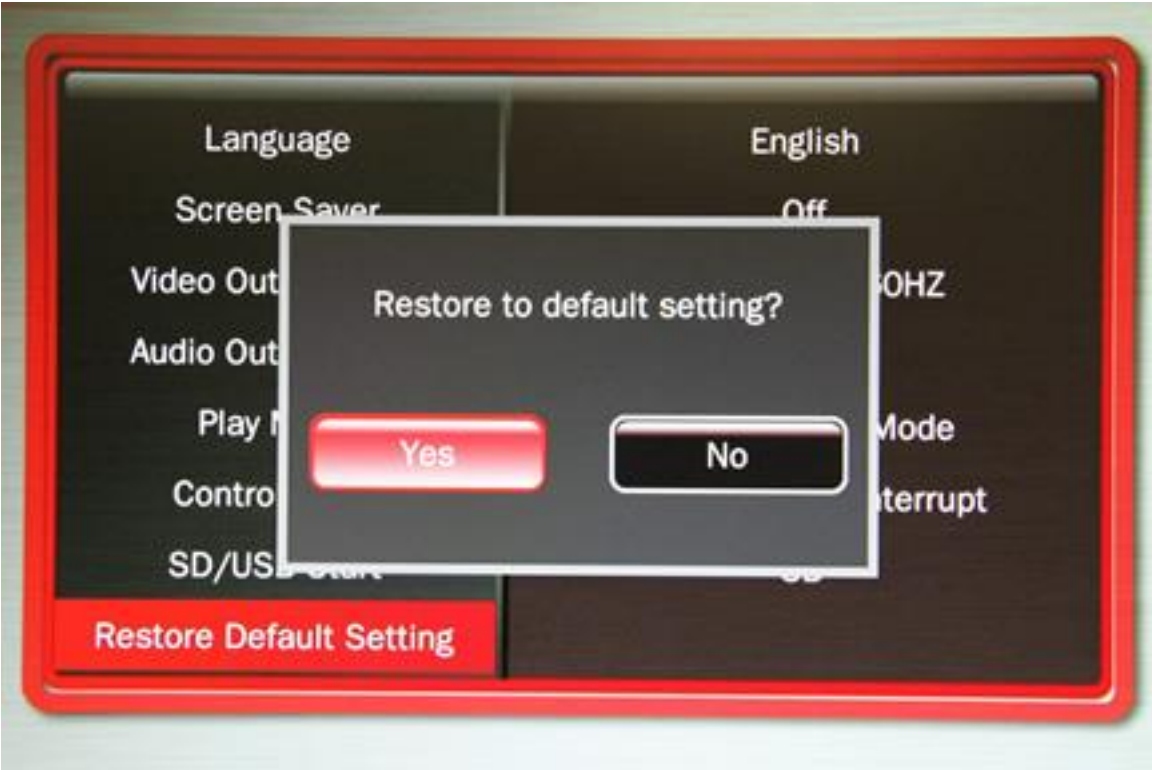


While files will play from the USB port from a USB drive, some HD video may not play well from some USB drives. For high bit rate files we recommend using the SD port with an SD card of sufficient speed to match your video file's bit rate. For some HD video files a Class 4 may be ok, while others may need a faster Class 6 or Class 10. Test your video.

Many SD cards are formatted FAT32 and will allow up to a 4GB file size. You may re-format to exFAT to use larger files on an 8, 16 or 32GB SD card.

Restore Default Settings

Reset the Sprite back to the factory settings



Select "Yes" and press "Enter" on the remote control to reset the Sprite to the factory settings

Firmware Version

Displays the currently installed firmware version



We may provide other versions of the firmware in the future.

Check at www.MedeaWiz.com or www.TeamKingsley.com for updates.

Firmware Upgrade

How to upgrade the firmware

We may release upgraded firmware in the future. Please check <http://www.medeawiz.com/> for updates.

- 1) Use a blank USB drive or one with your video files on it. Do not use one that contains items not meant for the Sprite. Copy the new .img firmware file to the drive.
- 2) Unplug the power to the Sprite. Insert the USB drive into the Sprite. Plug in the power.
- 3) Using the IR remote control, press “File”
- 4) Select the USB drive and navigate to the .img firmware file.
- 5) Select the .img firmware file and press “Enter”
- 6) Select “Yes” and “Enter”

The power LED will go off. After a while the power LED will come on and the Sprite will begin playing a video file, if present.

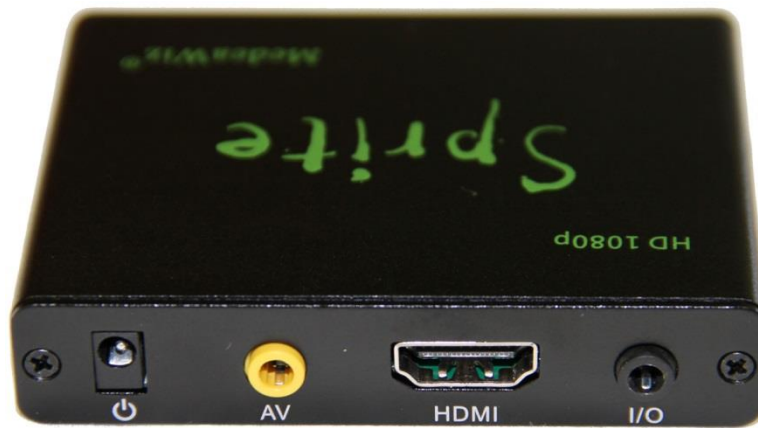
This process will take a few minutes. Be patient.

We recommend that you leave your video files on the USB drive. In this case the Sprite will begin playing file 000.xxx confirming the update is completed.

Do not remove power or remove the USB drive until the update is completed. Interrupting the process may result in a non-functional player. It is highly recommended to use a UPS battery-backup power supply.

You may also use a SD memory card instead of a USB drive to update the firmware.

Wiring Connections Rear Panel

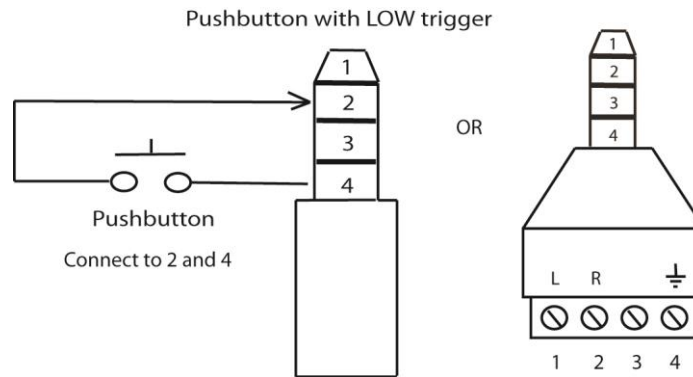


Left to right

- 1) Power input. Regulated 5 Volts DC only. Center positive.
- 2) AV output. Composite video, stereo audio left and right
- 3) HDMI high definition video with audio
- 4) Control Input / Output. Pushbutton / trigger / serial input and serial output

External Control – Wiring a Pushbutton to the I/O Port

Using a pushbutton or other dry contacts



The Control Mode should be set to Trigger Low No Interrupt or Trigger Low with Interrupt.

The screw terminal adaptor shown above on the right is now included with the Sprite. Note that the numbers near the screws match to the numbers on the plug at the left, which is used in examples later in this manual.

You can trigger multiple Sprites from one pushbutton. Wire as above to all Sprites' RX (2) and Ground (4). Do not wire the power (1) or TX (3) pins together between multiple units.

You can also use the included A/V cable in the I/O port. Use the Red RCA to connect to your pushbutton or contacts. We suggest you cover the unused RCA plugs with electrical tape to avoid shorting the power supply and burning the internal fuse.



If you get a cable elsewhere, check to see that the wiring is the same. We have seen some cables where the red, yellow and white RCA are wired to different poles on the 3.5mm plug.

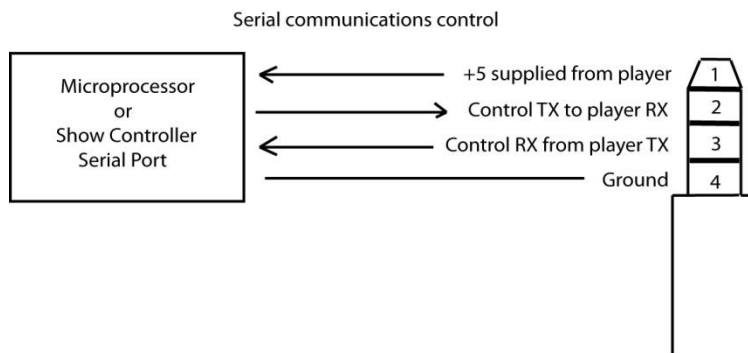
External Control - Wiring for Serial Communications to the I/O Port

The Sprite can be controlled by a Show Control or micro controller like a Basic Stamp, PIC, Atmel, Arduino, Raspberry Pi, Prop-1 or etc. using serial communications at 3.3V or 5V levels.

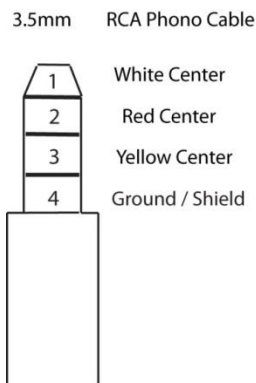
Note that RS232 levels from a PC or PLC serial port will require a level translator like the MAX3232 series. Do not allow negative voltage below ground to be applied to the Sprite.

The Sprite can supply 5V DC at up to 100 mA to power your micro controller.

Alternately, you can power the Sprite from your controller. You must have a 5 volt DC regulated supply at 500mA. Use 26AWG wire or larger. The supplied A/V cable is not suitable. Do not use the Sprite’s included power supply together with an external power supply.



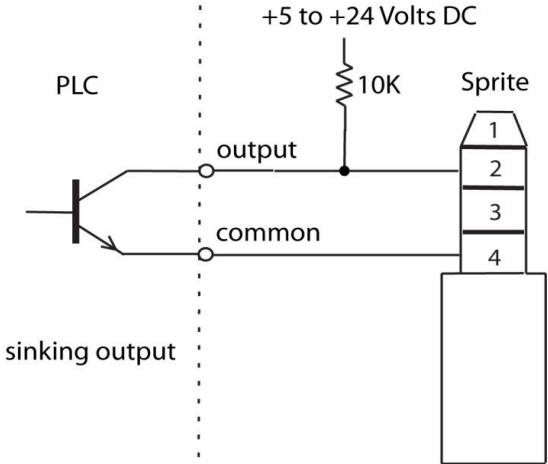
You can also use the included A/V cable in the I/O port. Use the Red RCA to send commands to the Sprite, the yellow RCA for the Sprite to report back to your control, and the white RCA for 5V power from the Sprite. We suggest you cover the unused RCA plugs with electrical tape to avoid shorting the power supply and burning the internal fuse.



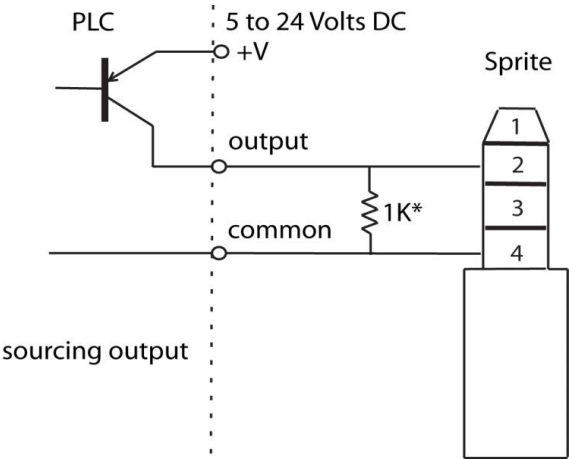
If you get a cable elsewhere, check to see that the wiring is the same. We have seen some cables where the red, yellow and white RCA are wired to different poles on the 3.5mm plug.

PLC Output Interfacing

The Sprite can be controlled from a Programmable Logic Controller using “dry contacts” like a push button, or voltage output.



The sinking output is the preferred method if dry contacts are not available.



The Sprite has an internal 10K pullup so the Sourcing output requires a low resistance from Output to Common to pull the Sprite’s internal voltage down to a “LOW”. The 1K* shown is an example and can vary depending on the +V voltage. Consider the Watt rating of the resistor.

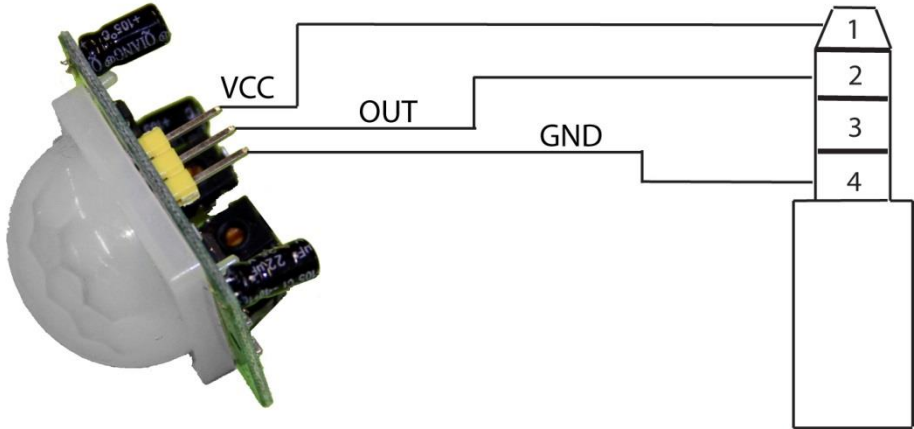
Do not allow a negative voltage to be applied to the Sprite. Do not share PLC outputs with relays, motors or solenoids /valves. These devices can produce negative voltage spikes. Keep them on separate isolated outputs away from the Sprite.

Motion Sensor Wiring

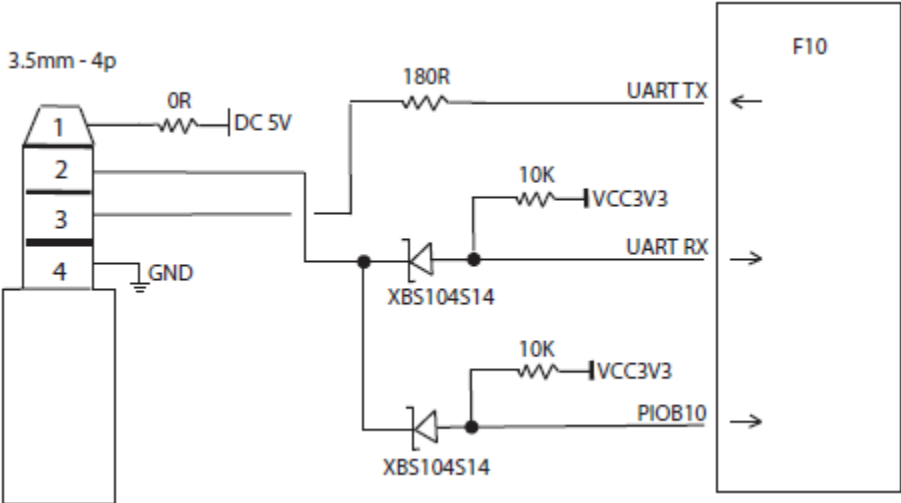
There are many possibilities to add a motion sensor to the Sprite.

One way is to use a common burglar alarm sensor with normally closed contacts. Wire the contacts like the pushbutton example and set the Sprite’s Control Mode to “Trigger High No Interrupt” The alarm sensors are normally 12 Volt so you will need a separate power supply for them.

There are also small PIR motion sensors available that use 5 Volt power and have a TTL voltage output. These can be powered directly from the Sprite’s I/O port.



Schematic of I/O on the Sprite circuit board



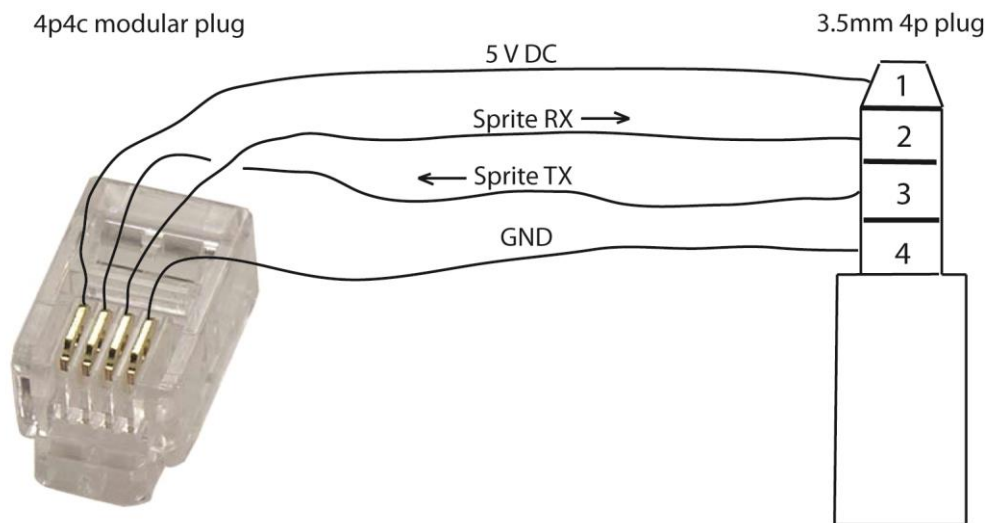
Using legacy DV-68K and TK series interfaces with the Sprite

The Sprite can work with the older DV-68K and TK-68K or TK-69K series of pushbutton controllers.

For the DV-68K you will need to set the baud rate of the Sprite to 4800.

For the TK series, depending on the settings and installed program in the TK circuit board, you will most likely need to update the program in the TK to 9600 baud and the Sprite “End Of File” marker byte, 0xEE.

In any case you will need to purchase or fabricate the adaptor cable shown below.



Adaptor cable wiring for Sprite to legacy DV-68K, TK-68K, TK-69K controllers

Serial Port Control from your Show Controller or Micro-processor

For simple file playing, the serial codes are the same as the codes for the earlier MedeaWiz models.

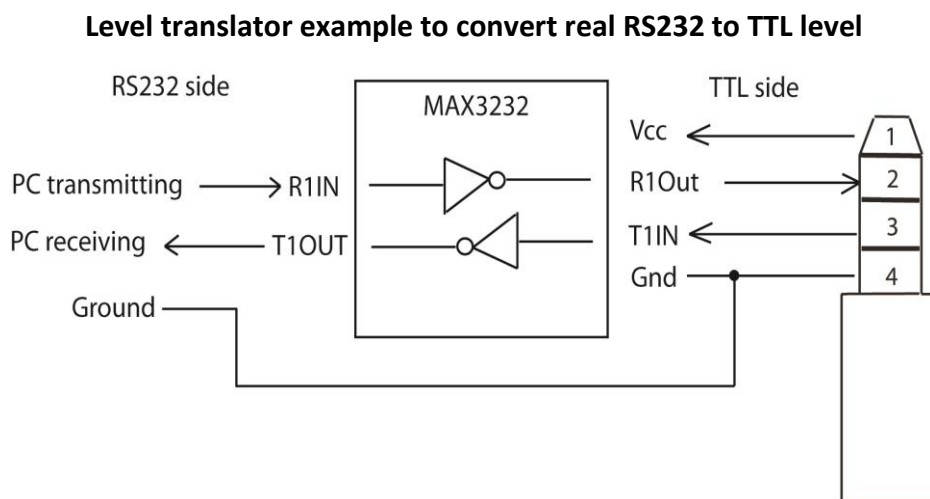
The serial communications is on the 3.5mm 4 pole jack at 2400, 4800, 9600 or 19200, 8N1 at 3.3 to 5 Volt TTL levels. The factory default is 9600.

Send one byte, Decimal 1 (Binary 0000 0001, Hex 01) to play file 001.xxx. Send Decimal 2 (Binary 0000 0010, Hex 02) to play file 002.xxx and etc. Do not send any other bytes such as a line-feed or a carriage return. Send only one byte. Make sure your program is sending the NUMERICAL value, not the character (CHAR) value. Many programs default to sending the character unless you specify otherwise. The number 1 sent as a CHAR is actually Decimal 49 and will play file 049.xxx if available.

The Sprite will report back to the Show Control or micro-processor. Every 500 ms, a single Hex byte is sent representing the file number currently playing. When the end of a file is reached, a single Hex byte 0xEE is sent.

The Sprite can supply 5 Volts DC on the I/O port for your micro-controller at up to 100 mA. A short on this supply may result in the internal fuse burning and will void the warranty

Note that real RS232 levels from computers, some PLC's and some other devices use negative voltages and will require a level translator like the MAX3232 series. Do not allow negative voltage below ground to be applied to the Sprite. This will void the warranty.



The MAX3232 can be powered from the Sprite. Connect all Grounds together.

Serial Port Control Commands

For Sprite FW version 20160509

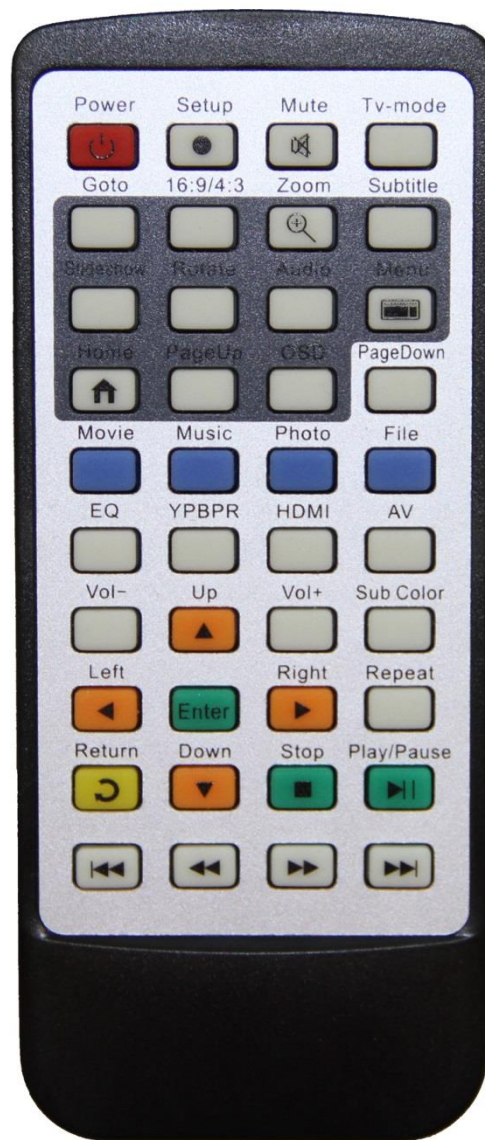
Code	Definition	Remarks
0x00	Play file 000.xxx	Play files 000.xxx up to
0x01	Play file 001.xxx	file 200.xxx by sending a
\\	\\	single hex byte.
0xC8	Play file 200.xxx	Use numerical values, not CHAR values.
0xC9		
0xCA		
0xCB		
0xCC		
0xCD		
0xCE		
0xCF		
0xD0		
0xD1		
0xD2		
0xD3		
0xD4		
0xD5		
0xD6		
0xD7		
0xD8		
0xD9		
0xDA		
0xDB		
0xDC		
0xDD		
0xDE		
0xDF		
0xE0		
0xE1		
0xE2		

0xE3		
0xE4		
0xE5		
0xE6		
0xE7		
0xE8	Mute KEY	Mute the audio
0xE9	VOLUME Up Key	Volume Increase
0xEA	VOLUME Down Key	Volume Decrease
0xEB		
0xEC		
0xED		
0xEE		
0xEF		
0xF0	PAUSE Key	Pause / Play
0xF1	FB Key	Fast Rewind
0xF2	FF Key	Fast Forward
0xF3	PREVIOUS Key	Back to Previous file
0xF4	NEXT Key	Go to Next file
0xF5		
0xF6		
0xF7		
0xF8		
0xF9		
0xFA		
0xFB		
0xFC		
0xFD		
0xFE		
0xFF		

We may add other functions in the future. Let us know if there something you think would be useful.

IR Remote Control

We use a generic remote control that is used for various models of video repeaters and DVD players. Not all buttons / functions will respond, and some are only valid in certain modes. Most of our Customers will only use the remote for initial setup of the repeater. This is an IR control, and needs to be pointed directly at the front of the Sprite. The Sprite may respond to some other device's IR remote in unwanted ways.



Power Supply

The Sprite is one of the most energy efficient “green” video repeaters available today. Using only 5 Volt DC power at an average of 400 mA, it takes only about 2 Watts to run.

The Sprite requires a regulated 5 Volt DC power supply, which is included. The power connection takes a barrel plug with 1.35mm ID and 3.5mm OD, center Positive.

Use of a wrong power supply will void the warranty.

The Sprite can supply 5 Volts DC on the I/O port for your micro-controller at up to 100 mA. A short on this supply may result in the internal fuse burning and will void the warranty.

Alternately, you can power the Sprite from your controller. You must have a 5 Volt DC regulated supply with 500 mA available. Use 26 AWG wire or larger. The supplied A/V cable is not suitable. Do not use the Sprite’s included power supply together with an external power supply.

Multiple Sprites can be powered from a single regulated 5 Volt supply that has ample current capacity.

Supported Video Formats

	MedeaWiz® DV-S1 Sprite
Specification	
CPU	F10
Card Reader	SD / MMC up to 32GB
USB Host	1x USB2.0 ; supports external hard disk up to 2TB
Audio	Mp3(all max bitrate:320kbps) wma(standard/pro max bitrate:384kbps) Ogg(Q1-Q10 500kbs) flac(lever0-8 max bitrate:1.60mbps) APE(max bitrate: 950kbps) AAC(max bitrate 448kbps) AC3 (AC3 only 640kbps) DTS(Dts only 3.84Mbps)
Video	WMV(VC-1,WMV7, WMV8 max bitrate: 40Mbs)) VOB(MPG2 max bitrate: 45Mbps) PMP(Xvid, H.264 max bitrate:50Mbps) RM/RMVB(RV8/9 max bitrate:30Mbps) MPG(Mpeg1,Mpeg2 max bitrate:45Mbps) M2TS(Mpeg2 H.264 max bitrate:40Mbps) FLV(H.263,H.264 max bitrate:50Mpbs) AVI(Xvid, H.264 max bitrate:50Mbps) TS/TP(Mpeg2,H.264,VC-1 max bitrate:40Mbps) MP4/M4V(Xvid,H.264 max bitrate: 50Mbps) MOV(Xvid, H.264 max bitrate: 50Mbps) MKV(Mpeg2,RMVB,WMV9,Xvid,H.264 max bitrate: 50Mbps)
Picture	JPG/JPEG.BMP,PNG,GIF
Subtitle	SSA/ASS/ACSII/SUB/UTF8

Most SD cards are formatted FAT32 and will allow up to a 4GB file size. You may re-format to exFAT to use larger files on an 8, 16 or 32GB SD card.

Trouble FAQ

My video has a glitch or green area when looping or triggered

This can happen if your video pixel size and frame rate are not matched to the settings on the Sprite.

The file's pixel size should be 1920 x 1080 for the 1080p or 1080i settings, and 1280 x 720 for the 720 settings. It may also be helpful to keep all files the same format and encoding. Do not compress the files. Let the bit rate be high at the normal setting.

1) Try other Video Output Modes, 720p 50, 720p 60, 1080p 24 and etc. Often this will solve the issue without altering the file.

2) You may need to alter your file with video editing software. Set the file's pixel size and frame rate to match one of the Video Output Modes listed in the on-screen setup menu. For example, make your video file at 1080p 60 and also set the Sprite to 1080p 60.

There are numerous video editing software programs available. We use Power Director from www.cyberlink.com It does a good job and is not expensive.

My Sprite feels warm to the touch

The Sprite's aluminum housing is designed to be part of the heat management system. The internal microprocessor has a solid copper heatsink that transfers heat to the outside air through the housing.

While it is normal for the Sprite to feel warm, if the ambient temperature is well over 100F (40C), extra heat management may be desired. Simply placing the Sprite flat on a metal surface can reduce the temperature. A clean, unpainted aluminum plate, at least 12 x 12 inches (30 x 30 CM) works well.

Do I have to name the files with those numbers or can I use names?

The Sprite searches for the 000 to use as the looping file, and searches for 001 to use as the trigger. However, you can name them this way:

000.myfilename.xxx

001.someeverylongnamefile.xxx

Do not use spaces, underscores or other special characters. Use 32 or less characters including the 2 periods. We explain the operation using only numbers to keep it simple. We suggest you use numbers only to test your files as a starting point, then add the longer names.

Support

We do our very best to answer your calls and emails in a timely manner. We generally return calls and emails within 2 hours or less during business hours. We do monitor emails in the evenings and weekends and will try to respond outside of business hours.

Please read the entire manual. If we have a good manual then we will get fewer calls. Let us know where we can improve it to help others in the future.

If you are still having trouble, or need technical support for some other application, please email or call us. We are here to help when you need it.

World-wide

support@MedeaWiz.com

In USA

Team Kingsley LLC

support@TeamKingsley.com

618-797-9951 x300

Custom Orders

For large quantity orders we can offer:

Custom firmware

Sprite player without some or all accessories

Sprite circuit board only to enclose in your OEM design

Please email sales@MedeaWiz.com for a quote.