

MedeaWiz® Sprite® 4K

UHD 4K@60 Video Player Model

MPDV-S4 User Manual

For firmware version 20230728

Manual version 1.00



Find your Sprite's FW version in the on-screen Setup Menu.

Please go to www.MedeaWiz.com for other manual versions.

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Introduction

The MedeaWiz® model DV-S4 Sprite® 4K is an Ultra High Definition digital video repeater capable of 4k @60 fps HDMI output with high quality stereo audio and surround sound using an external AV receiver.

It has a direct trigger input and a 2-way communications serial port. The Sprite® 4K will play a video or audio file in a circular loop, repeating, when power is applied. It will play different video or audio files by a trigger input or serial command, and then return to the looping file.

The Sprite® 4K has no black space when looping or changing files. It will hold the last frame of video until the first frame quickly displays.

It is simple to set-up with an on-screen menu. No programming required. It has multiple operating mode options to fit many needs.

In the trigger input modes, you can use a push button, other dry contact, motion sensor or a 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 to not allow an interruption of the file playing. You can trigger a single file, or trigger multiple files in order. Each new trigger plays the next file. After a triggered file ends, the looping video will play again until a new trigger occurs.

In the Serial Control Mode you can have a looping video file and control up to 200 other video files to play on command. Once the commanded video ends, the looping video will play again until a new command is received. Serial Control can also be used with audio files.

The Hydra® accessory is available to use with the Sprite® 4K in Serial Control Mode. It adds several additional modes of operation with multiple trigger inputs, DMX 512 control, MIDI control, and 8 sinking outputs to control lamps, relays and more.

The Sprite® 4K also has basic “play all” file modes to play all files on the SD card or USB drive in order or randomly when power is applied. Files will continue to play until power is removed.

A remote control is included for initial set up of the Sprite. Your settings are retained in memory. Anytime power is applied the Sprite will automatically play according to the settings you made.

The Sprite® 4K is one of the most energy efficient “green” video repeaters available today. Using only 5 Volt DC power at an average of 500 mA, it takes only about 2.5 Watts to run.

FCC, CE, UKCA and RoHS certified.

What's in the box



The Sprite® comes with

- 1) IR remote control
- 2) AC adaptor*, USA plug, 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



*Countries other than USA may not include a power supply. Contact your local distributor to verify.

Front Panel Features



Left to right

- 1) USB1. A flash drive or USB hard drive holding your files may be inserted here.
- 2) USB2. A flash drive or USB hard drive holding your files may be inserted here.
- 3) LED power indicator.
- 4) IR receiver for the remote control.
- 5) Micro SD slot. A micro SD memory card holding your files may be inserted here.

Rear Panel Features



Left to right

- 1) Control Input / Output. Pushbutton / Trigger / Motion / Serial input and serial output.
- 2) AV output with Composite video, stereo audio, left and right.
- 3) Optical fiber audio output.
- 4) HDMI Ultra High Definition video with audio.
- 5) Power input. Use only a regulated 5 Volt DC power supply.

The power connection takes a barrel plug with 1.35mm ID and 3.5mm OD, center Positive.

Sprite® 4K Quick Start Guide

The MedeaWiz® Sprite® 4K ships with the Video Output set to HDMI at 1080p 60fps and the Control Mode set to “Trigger Low No Interrupt” 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 file(s) that you need to run in a loop when power is applied:

Using the IR remote control, enter the on-screen menu by pressing the Setup key, and set the Play Mode. For Video files use Video Repeat All, for Audio use Audio Repeat All, for photos use Photo repeat all. Do not put the files in a folder.

Example 2: You want to trigger a file with a push button or motion sensor:

You must have a looping / ambient file named 000.xxx and a trigger file named 001.xxx. If using multiple trigger files, name them in numerical order 001.xxx, 002.xxx, 003.xxx and etc.

Using the IR remote control, enter the on-screen menu by pressing the Setup key, and set the Control Mode to one of the Trigger Low choices for a push button, or one of the Trigger High choices for our motion sensor.

Example 3: You want to use the Serial Port to control multiple files:

You must have a looping / ambient file named 000.xxx and name the other files 001.xxx, 002.xxx, 003.xxx and etc. in order, up to 200.

Using the IR remote control, enter the on-screen menu by pressing the Setup key, and set the Control Mode to Serial Control, and set the Baud Rate to match your external controller.

For any external Trigger type or Serial Control Mode:

Set the Play Mode = Video Control Mode for video files, OR Audio Control Mode for audio files.

Always have a looping / ambient file named 000 if using any Trigger choice or Serial Control.

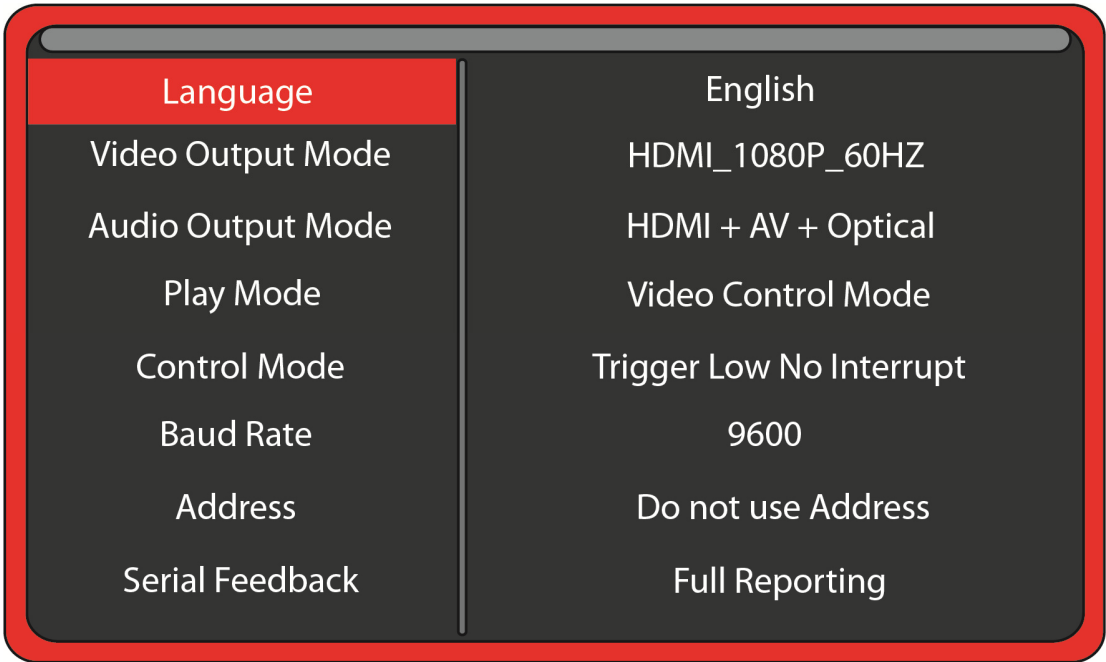
The 000 looping file can be a black video file if no video is wanted until a trigger or command. For Audio files you can use a silent audio file.

We suggest the looping file be at least 30 seconds long and may be much longer. Do not put the files in a folder. Only put media files on the SD card or USB drive.

On-Screen Menu for Setup

Point the included remote control directly at the front of the Sprite and press the “Setup” button 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.

The Top Menu page will show your current settings.

A screenshot of the MedeaWiz Sprite 4K on-screen menu. The menu is displayed on a dark grey background with a red border. It is divided into two columns by a vertical line. The left column lists settings, and the right column shows the current values. The 'Language' setting is highlighted with a red background.

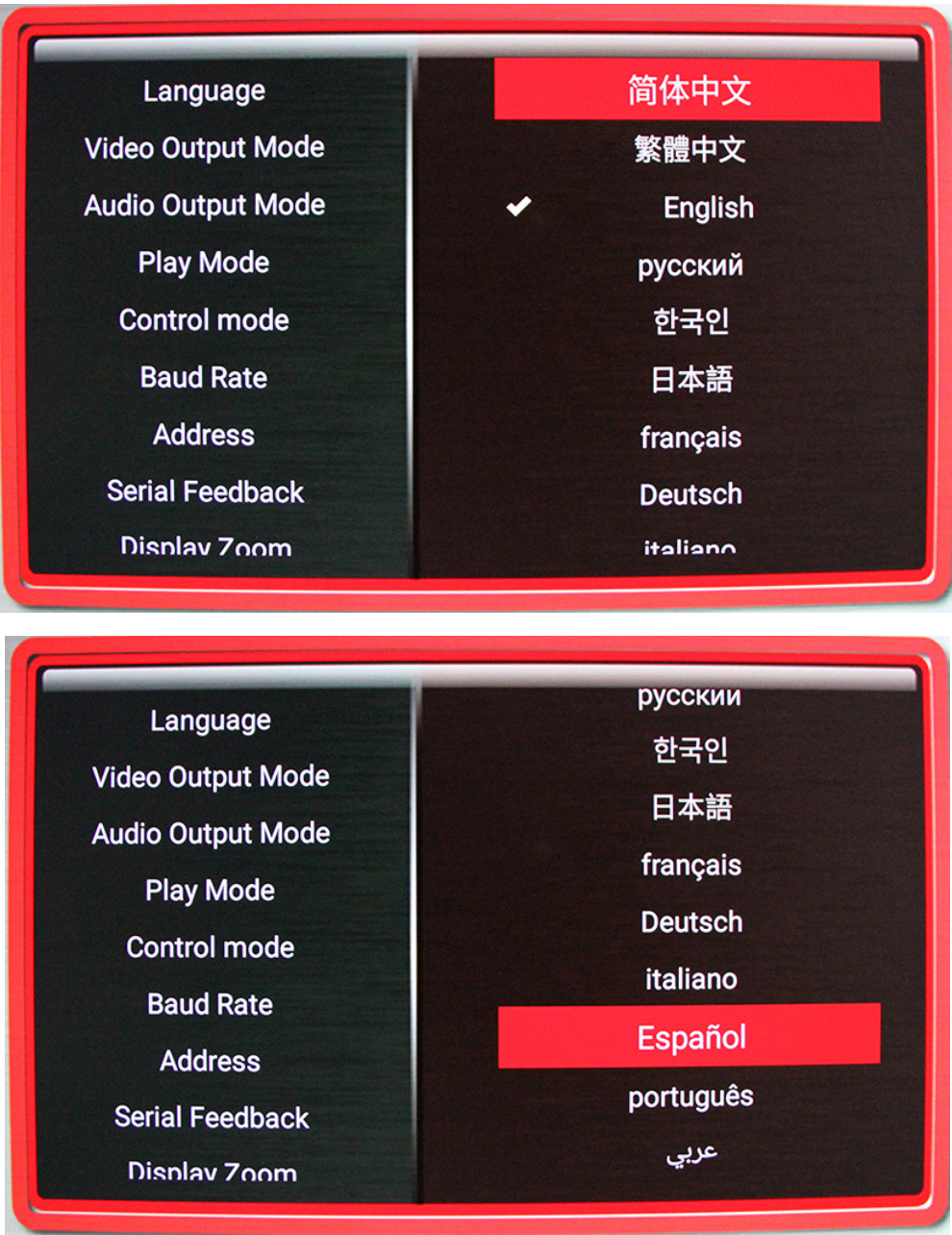
Language	English
Video Output Mode	HDMI_1080P_60HZ
Audio Output Mode	HDMI + AV + Optical
Play Mode	Video Control Mode
Control Mode	Trigger Low No Interrupt
Baud Rate	9600
Address	Do not use Address
Serial Feedback	Full Reporting

Note the above menu picture is showing the factory default settings for firmware 20230728.

Other manuals for different versions of firmware may be found at www.medeawiz.com

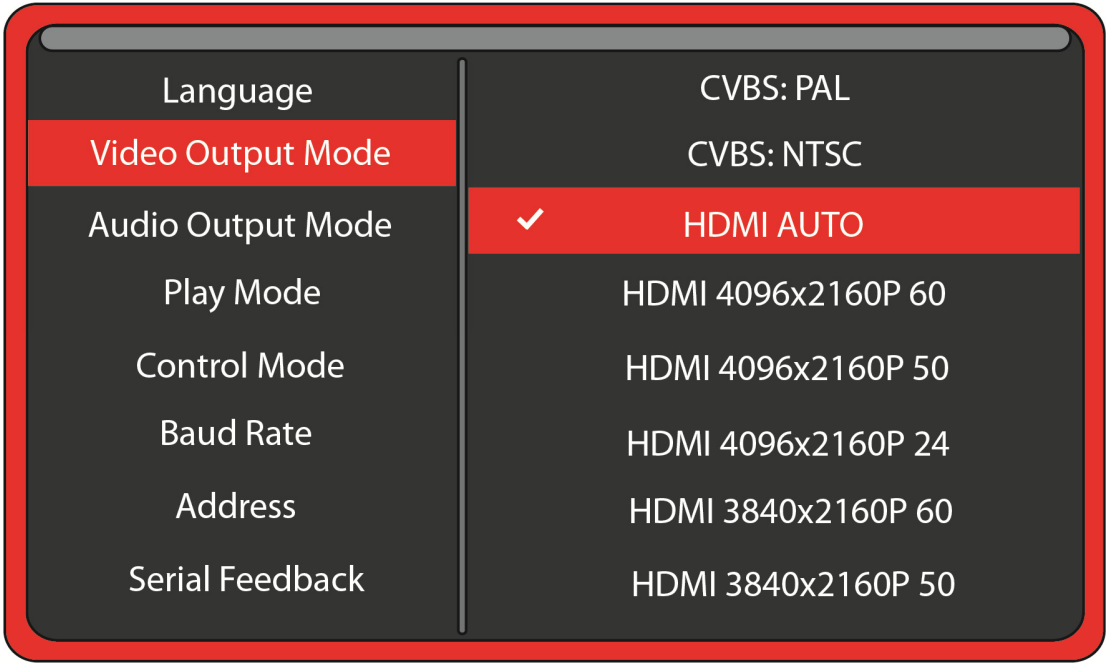
Menu Language

Select the language for the on-screen menu.



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 yellow AV jack. Use the yellow RCA plug from the included AV cable.

Select **PAL** for Composite video output from the 3.5 mm yellow AV jack for some areas other than the Americas that use PAL video files and monitors.

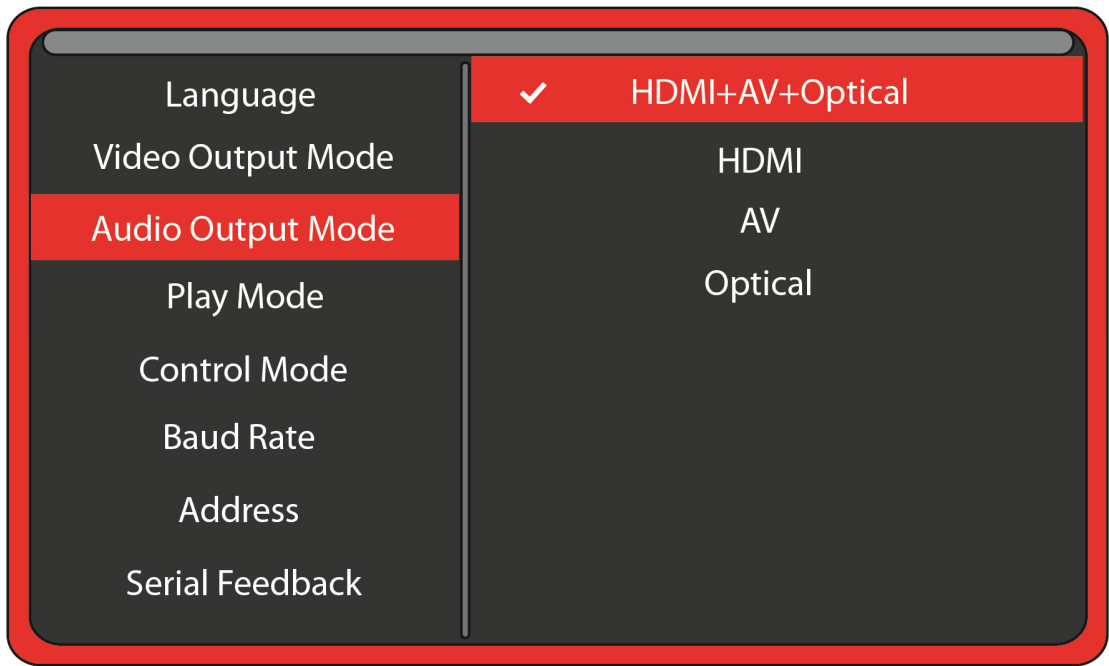
The **HDMI** selections will route the video to the HDMI connector only.

HDMI selections include:
4096x2160p60 4096x2160p50 4096x2160p24
3840x2160p60 3840x2160p50 3840x2160p30 3840x2160p25 3840x2160p24
1920x1080p60 1920x1080p50 1920x1080p30 1920x1080p24
1920x1080i60 1920x1080i50
1280x720p60 1280x720p50 1280x720p30 1280x720p24

HDMI Auto will communicate with your monitor to find the best setting.

Audio Output Mode

Select the audio output needed.



Select **HDMI + AV + Optical** to route the audio to all audio outputs.

Select **HDMI** to route the audio only through the HDMI cable to your monitor or amplifier with HDMI input. HDMI is capable to pass stereo or surround audio to an AV receiver or Sound Bar.

Select **A/V** to route the audio only to the 3.5mm 4 pole AV jack. Use the red and white RCA plugs from the included AV cable. AV is capable of high quality stereo output.

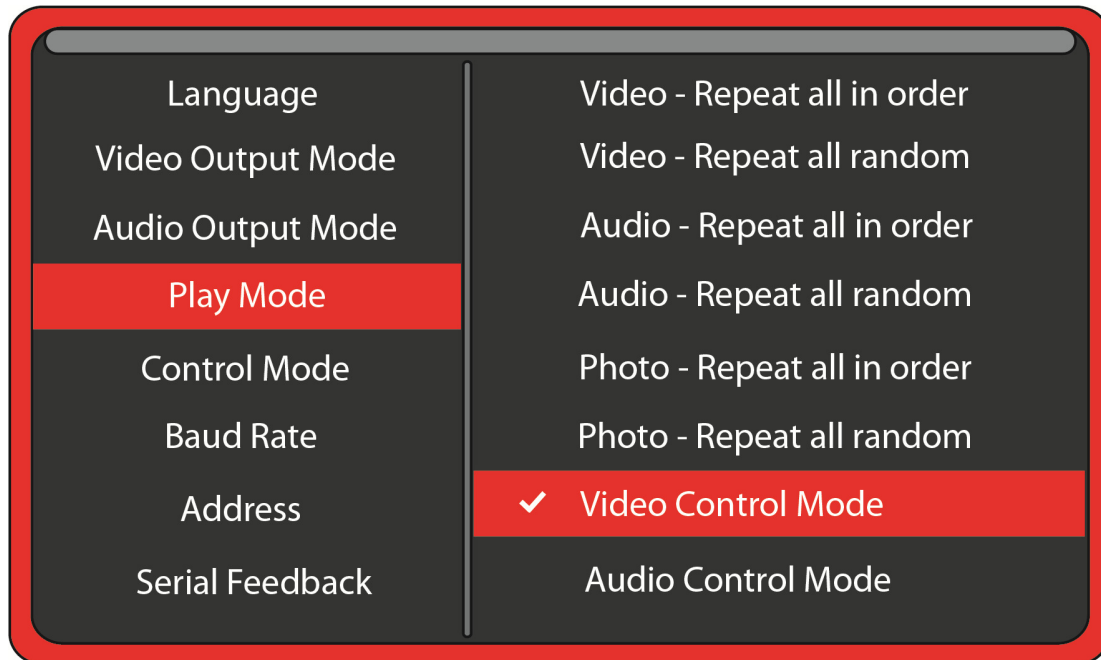
Select **Optical** to route the audio only through the Optical output. Optical is capable to pass stereo or surround audio to an AV receiver or Sound Bar with optical input.

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

Surround sound can be available at the HDMI or Optical outputs and requires an external A/V receiver, sound bar, or other surround decoder / amplifier.

Play Mode

Select the play mode needed for your application.



Selections with no external input control:

Video – Repeat all in order will play all video files in order in a circular loop.

Video – Repeat all random will play all video files randomly.

Audio – Repeat all in order will play all audio files in order in a circular loop.

Audio – Repeat all random will play all audio files randomly.

Photo – Repeat all in order will play all photo files in order in a circular loop.

Photo – Repeat all random will play all photo files randomly.

You may play audio files along with photos. Just add audio files to the SD / USB.

Selections with external input control:

Video Control Mode will continuously loop the video file named 000 and accept a trigger or serial command to play other video files.

Audio Control Mode will continuously loop the audio file named 000 and accept a trigger or serial command to play other audio files.

If you need to mix video, photo and audio files, convert all files to video files and use the Video Control Mode.

Control Mode

Select the external Control Mode for your application.

Language	Serial Control
Video Output Mode	✓ Trigger Low No Interrupt
Audio Output Mode	Trigger Low with Interrupt
Play Mode	Trigger Low Delayed
Control Mode	Trigger High No Interrupt
Baud Rate	Trigger High with Interrupt
Address	Trigger High Delayed
Serial Feedback	

Serial Control is to use a Hydra® input expander or external show control device or micro controller like a PIC, Atmel, Arduino, Raspberry Pi, or etc. using serial communications.

To use a pushbutton, motion sensor, or other trigger input to play files, select from below:

Trigger Low No Interrupt: A triggered file will play to the end with no interruption.

Trigger Low with Interrupt: A triggered file will play and can be interrupted by a new trigger.

Trigger Low Delayed: Triggered file will begin play at the end of file 000, with no interruption.

Trigger High No Interrupt: A triggered file will play to the end with no interruption.

Trigger High with Interrupt: A triggered file will play and can be interrupted by a new trigger.

Trigger High Delayed: Triggered file will begin play at the end of file 000, with no interruption.

If using Video Control Mode or Audio Control Mode

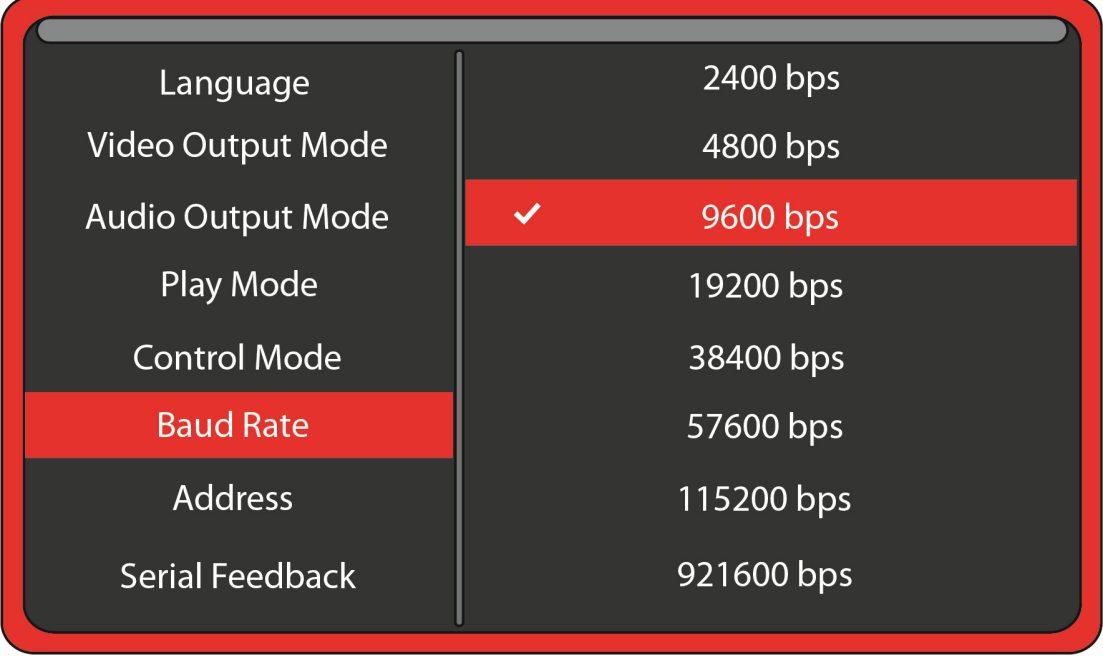
You must have at least 2 files. The loop file named 000 and a trigger file named 001.

The loop file 000 will play continuously until a trigger is received, then the trigger file will play. After the trigger file finishes, the loop file will play again until a new trigger occurs. If using multiple trigger files, name them in order 001, 002, 003 and etc. Each new trigger event will play the next trigger file in order. After the last trigger file, the sequence will start again at file 001 on the next trigger event.

Baud Rate

Select the baud rate for the serial port.

Only applies if the setting Control Mode is set to Serial Control.



Language	2400 bps
Video Output Mode	4800 bps
Audio Output Mode	✓ 9600 bps
Play Mode	19200 bps
Control Mode	38400 bps
Baud Rate	57600 bps
Address	115200 bps
Serial Feedback	921600 bps

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

The default is 9600 bps.

The Hydra® input / output expander and the 8X78 input expander accessories are programmed to work with the Sprite at 9600 baud.

Address Mode

Select an address, if desired, for serial communications to multiple Sprites from one control.

Only applies if the setting Control Mode is set to Serial Control.

Language	✓ Do not use Address
Video Output Mode	0xE1
Audio Output Mode	0xE2
Play Mode	0xE3
Control Mode	0xE4
Baud Rate	0xE5
Address	0xE6
Serial Feedback	0xE7

Address is set to Do not use Address

If you are using a single Sprite® on the serial communications line, or using a Hydra® input expander, in most cases you should choose the Do not use Address option.

Address is set to 0xE1 through EF

If the Sprite® 4K is set to an Address, then the Sprite® 4K will only follow commands preceded by the correct address byte.

The Host can transmit commands to many Sprites on the same serial line.

This requires a 2 byte transmission: Address, Command. i.e. 0xE1, 0x03 will play the file named 003 on any player with an address that is set to 0xE1.

You should only use 1 Sprite® for the feedback to the Host to avoid data collisions.

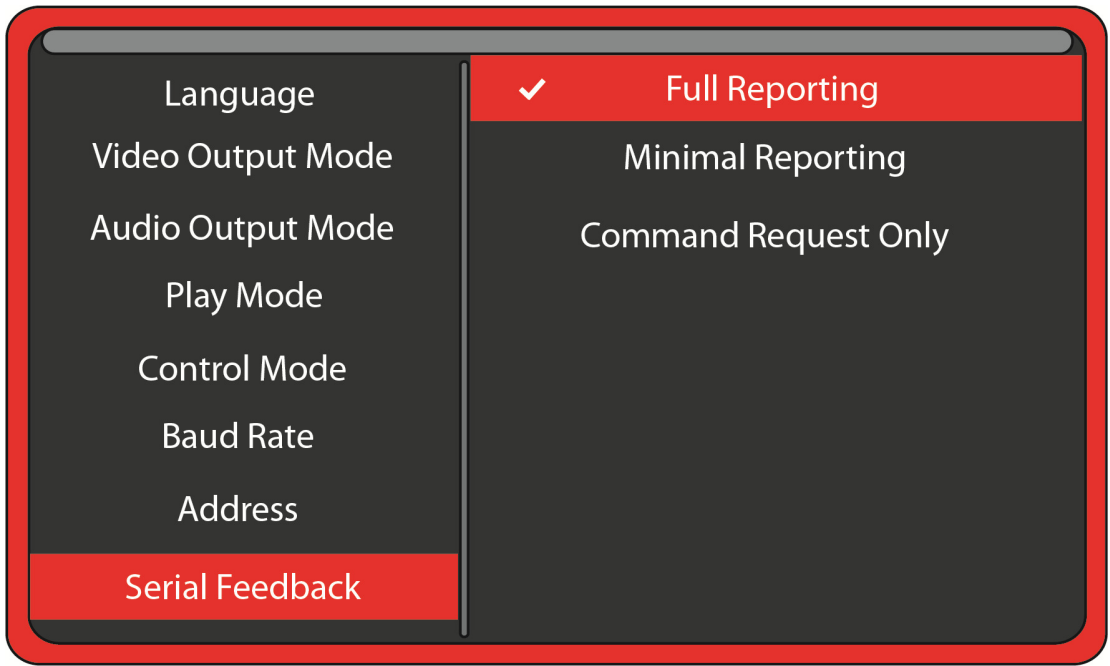
You should only connect the RX inputs and Grounds of multiple Sprites together. See page 28 for wiring example.

All players set to any address will also respond to the Broadcast Address 0xE0.

Serial Feedback

Select one of the serial feedback types to report status to your serial control device.

Only applies if the setting Control Mode is set to Serial Control.



Full Reporting

The Sprite® 4K will echo any command received. A single hex byte is sent several times per second representing the file number currently playing. When the end of a file is reached, a single Hex byte 0xEE is sent.

Minimal Reporting

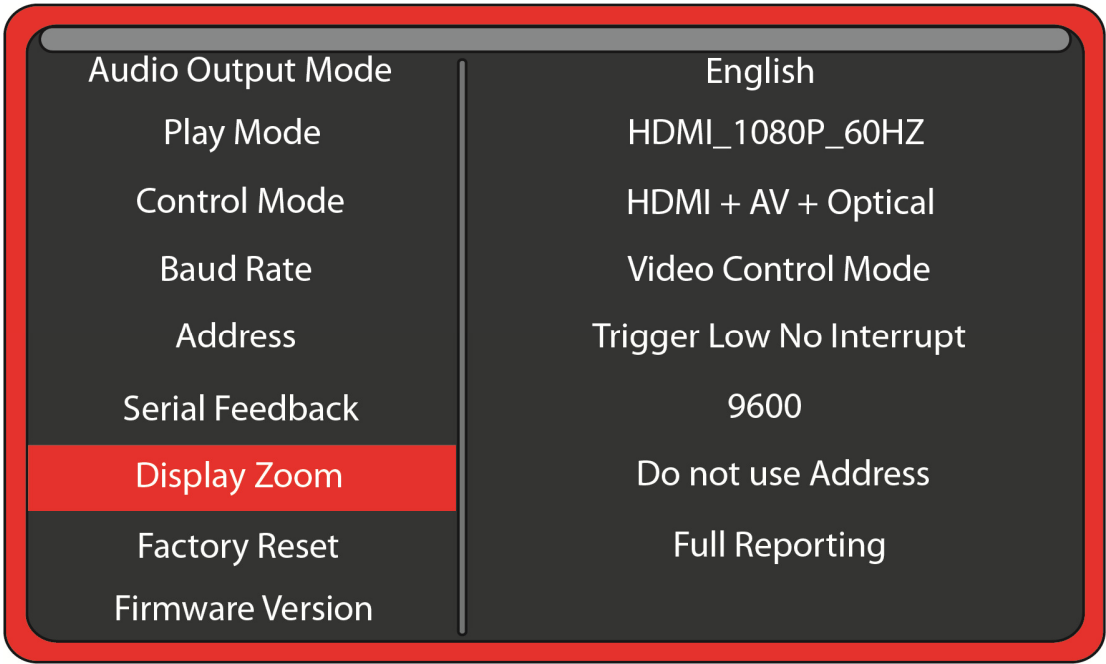
The Sprite® 4K will only report the file number playing once at the start of the file.
It will report 0xEE at the end of a file.
It will return data from a command request.

Command Request Only

The Sprite® 4K will only report data when a request command is received.
This can be useful if multiple Sprites or other devices using Addressing are sharing a serial bus.

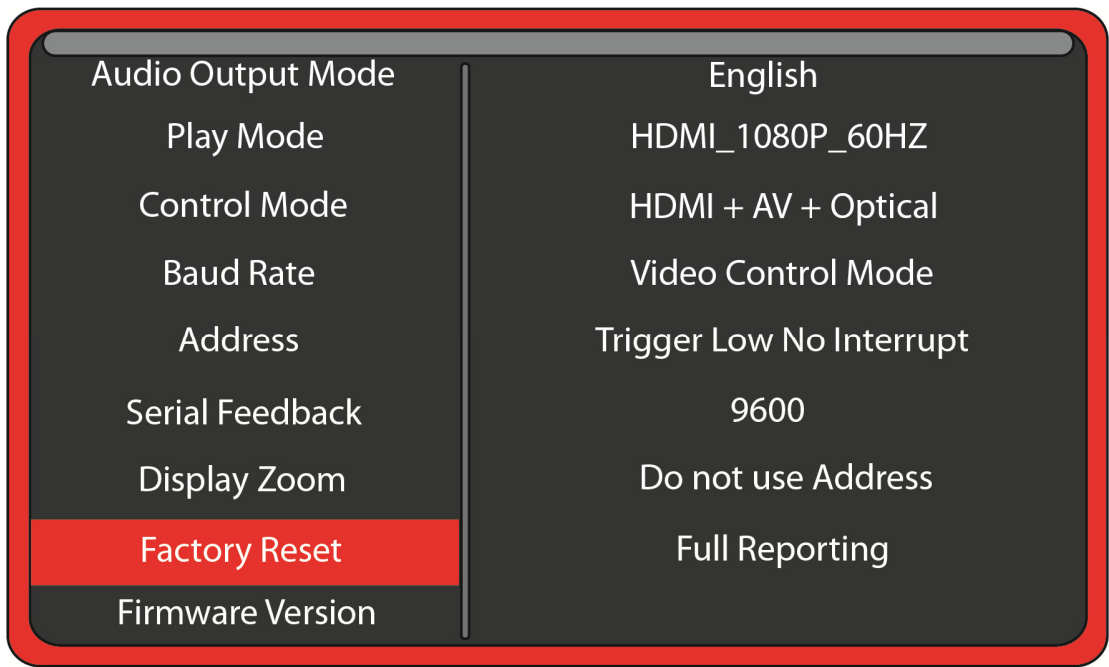
Display Zoom

Use Display Zoom to increase or decrease the video horizontal or vertical size to best fit your monitor.



Restore Default Settings

Reset the Sprite® 4K back to the factory settings.



Select Factory Reset and press the green Enter key on the remote control. Then when the pop-up window appears, select “Yes” and press “Enter” to reset the Sprite® to the factory settings.

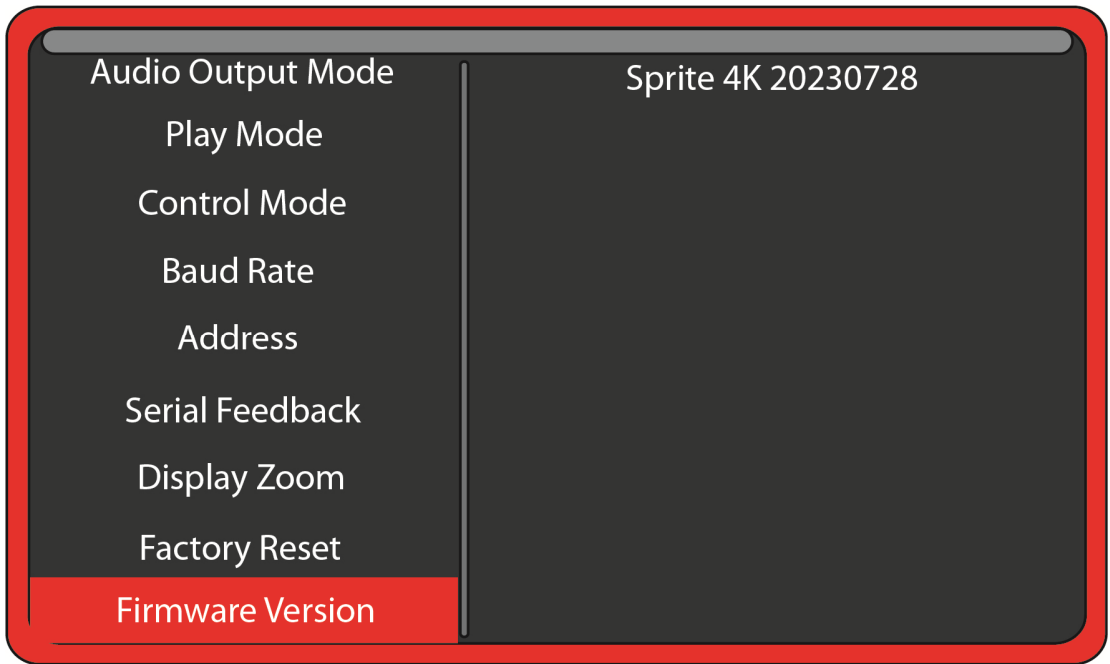
Factory default language is English.

You can reset the Sprite® to factory defaults without viewing the monitor by these steps:

- 1) Remove the power plug for 10 seconds and then restore power.
- 2) Wait 10 seconds or longer for start-up to complete.
- 3) Press the Setup key on the remote control.
- 4) Press the down arrow key 9 times.
- 5) Press Enter 2 times.

Firmware Version

Firmware Version displays the currently installed version.



Sprite 4K 20230728 is the first public release.

The number 2023 07 28 represents the build date as year, month, day.

We may provide other versions of the firmware in the future.
Check at <http://www.MedeaWiz.com> for updates.

Firmware Revisions History

Version 20230728

This is the first public release.

Firmware Upgrade

When we release a new version of firmware in the future we will have the upgrade instructions here.

Trigger Choices Explained

Trigger Low requires a transition from a positive voltage down to ground.

Since the Sprite has an internal resistor holding the input at positive 3.3 Volts, you only need to provide a ground to trigger. For example if you are using a push button wired from the input terminal 2 to ground terminal 4 as shown on the following page, pressing the button applies the ground to the input causing the transition and a valid trigger event.

Trigger High requires a transition from ground up to a positive voltage. Using the example above, if the push button was held down normally, then released, the trigger would occur on the release.

The Sprite requires a transition to occur on the input to cause a trigger. Holding the button down or up will not cause another trigger because there must be a transition. Trigger Low requires button up to down, and Trigger High requires button down to up.

Trigger with interrupt will allow a new valid trigger event to interrupt a triggered file currently playing. If there is only one trigger file 001 on the SD, it will re-start file 001 at the beginning. If there are more trigger files on the SD, it will start the next file playing*. There is an approximately 1 second delay built in to prevent rapid re-starting of files.

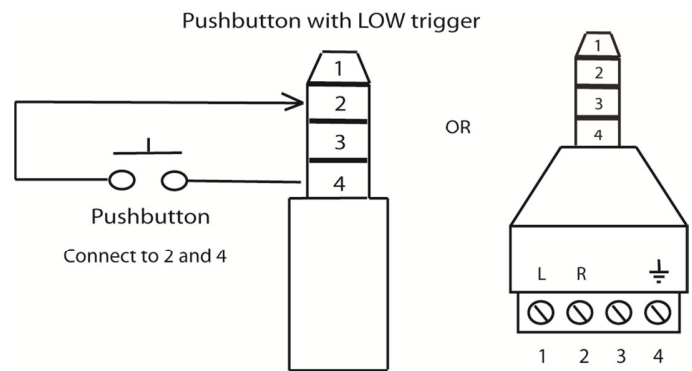
Trigger No Interrupt will NOT allow a new valid trigger event to interrupt a triggered file currently playing. The currently playing triggered file will play completely to the end before any new trigger is allowed.

Trigger Delayed will delay playing the triggered file until the looping file 000 has completed. When a valid trigger event occurs while file 000 is playing, the Sprite will wait until the end of the 000 file to proceed with the triggered file. Once the triggered file is playing, there is no interruption. It will play to the end. The Sprite will only allow a trigger event while the looping file 000 is playing.

*This allows multiple trigger files to be used. Each new valid trigger by the rules above will cause the next file on the SD to play. After the last file has played, the next valid trigger will play file 001. The looping file 000 is not considered a trigger file. For ease of use trigger files should be named in order 001, 002, 003, and etc. up to 200. If you desire a random distribution of play, you may place multiple copies of the files on the SD and randomly assign them to the sequenced number names.

Push Button Wiring to the I/O Port

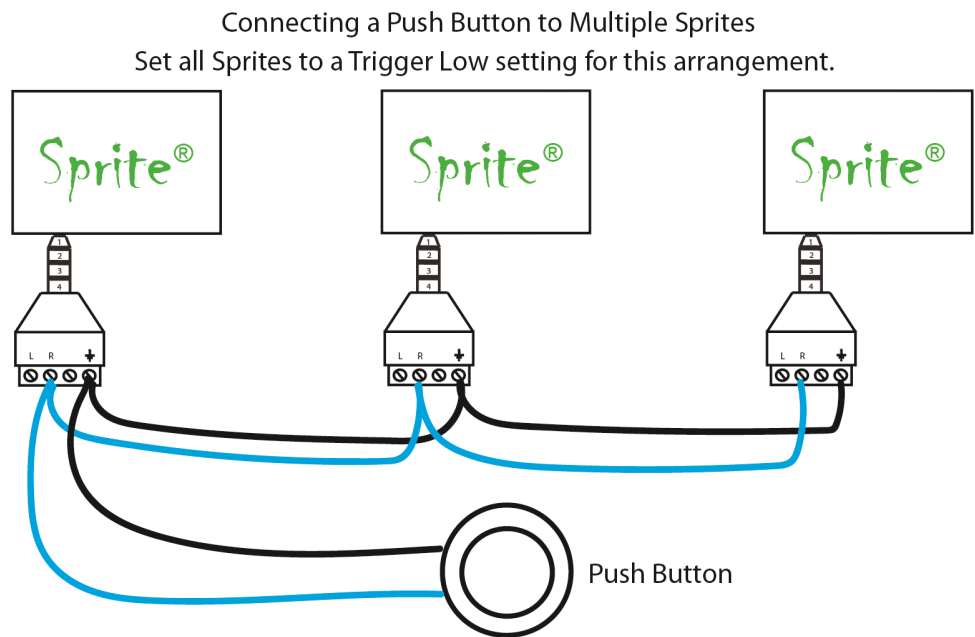
Using a pushbutton or other dry contacts



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

The screw terminal adaptor shown above on the right is included with the Sprite® 4K. 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. Do not wire the power (1) or TX (3) pins together between multiple units.



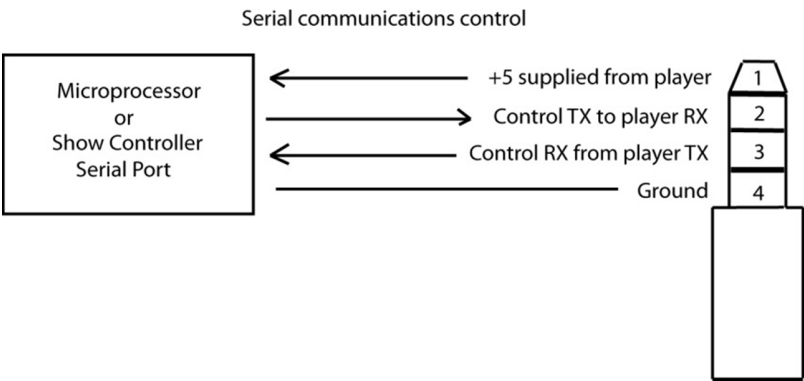
Serial Communications Wiring to the I/O Port

The Sprite® 4K can be controlled by a Show Control or micro controller like a Basic Stamp, PIC, Atmel, Arduino, Raspberry Pi, 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®.

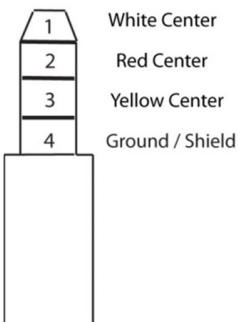
The Sprite® 4K can supply 5V DC at up to 100 mA to power your micro controller.

Alternately, you can power the Sprite® 4K from your controller. You must have a 5 volt DC regulated supply at 600mA. Use 24 AWG wire or larger. Do not use the Sprite’s included power supply together with an external power supply.



You can also use the included AV 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.

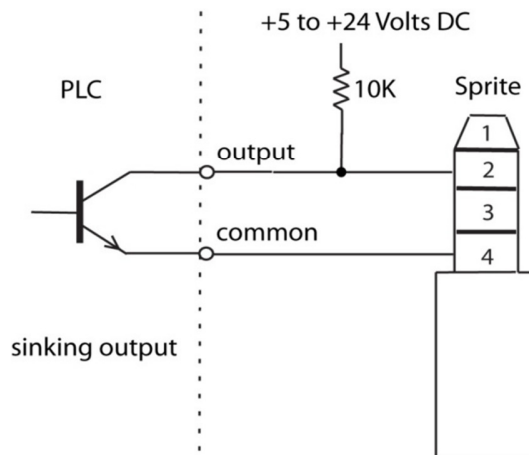
3.5mm RCA Phono Cable



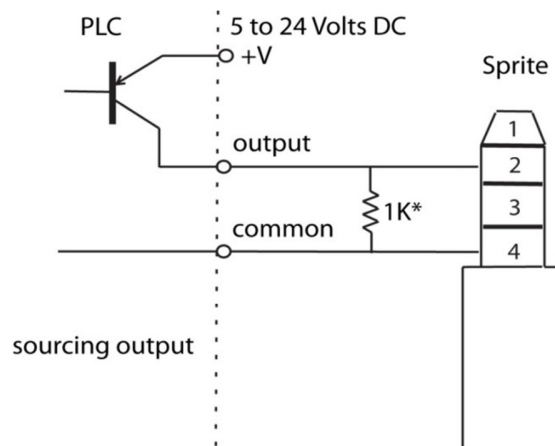
If you get a cable elsewhere, check to see that the wiring is the same. We have seen some cables where the red, yellow and white RCA are wired to different poles on the 3.5mm plug.

PLC Wiring to the I/O Port

The Sprite® 4K can be triggered from a Programmable Logic Controller using relay “dry contacts” or a transistor output.



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



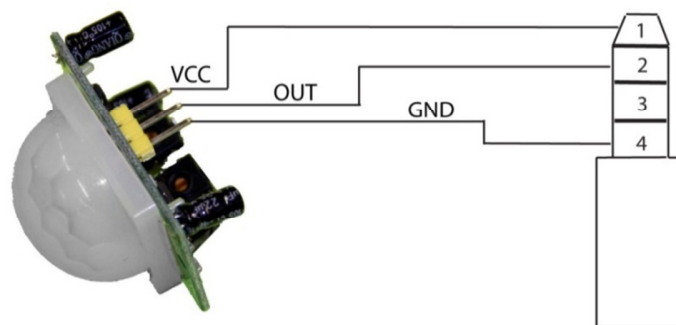
The Sprite® 4K has an internal 22K pullup so the Sourcing output requires a low resistance from Output to Common to pull the Sprite’s internal voltage down to a “LOW”. The 1K* shown is an example and can vary depending on the +V voltage. Consider the Watt rating of the resistor.

Do not allow a negative voltage to be applied to the Sprite® 4K. 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® 4K.

Motion Sensor Wiring to the I/O Port

There are many possibilities to add a motion sensor to the Sprite® 4K.

Small PIR motion sensors are available that use 5 Volt power and have a TTL voltage output. These can be powered directly from the Sprite's I/O port. Set the Sprite's Control Mode to Trigger High No Interrupt or Trigger High Delayed. Note that you can't wire multiple Sprites to one motion sensor due to the voltage drops of the added Sprites. Use a relay or a sensor with dry contacts to trigger multiple Sprites. A relay example is in the [MSA-B manual](#).



Wiring a 5 Volt motion sensor

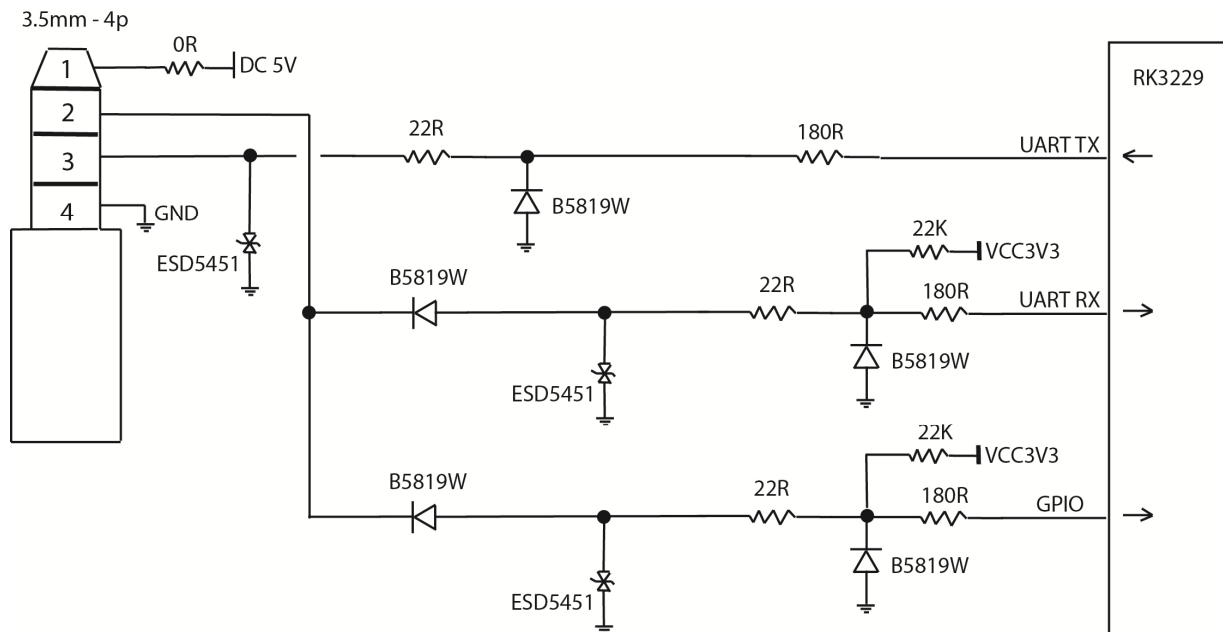


We offer the MSA-B Stealth motion sensor for a plug-and-play solution.

Set the Sprite's Control Mode to Trigger High No Interrupt or Trigger High Delayed.

See the [MSA-B manual](#) for complete details.

Schematic of I/O on the Sprite® 4K Circuit Board



The Sprite is designed to work with serial data at 3 to 5 Volt TTL levels.

Trigger input can tolerate industrial 24 VDC sensors that have NPN transistor or relay outputs.

Do not allow negative voltage to be applied to the inputs. Do not apply an AC voltage.

A negative voltage applied at the input / output may damage the Sprite and void the warranty. Many serial devices including computers, PLC controls, building lighting controls like AMX and Crestron and etc. have standard RS232 that will drive the output up to negative 12 volts. You must use a level convertor with these standard RS232 devices. The MAX3232 or similar will convert them to the 5 Volt TTL levels for the Sprite.

Micro controllers such as Arduino, Basic Stamp, PIC, Atmel or etc. are using serial communications at 3.3V or 5V levels. These can be directly connected to the Sprite. Pre-made controller boards like the Arduino and Raspberry Pi may have both TTL level at output pins and also standard RS232 levels on a port designed to connect to a computer. Don't connect the RS232 port without a level translator. Direct connection to the processor pins is fine.

The Sprite® 4K trigger input can tolerate up to +24 VDC. The input blocks positive voltage and requires a low / ground to trigger. Negative voltage will be shunted to ground through a 22 Ω resistor / fuse and may damage the Sprite.

Using the Hydra® with the Sprite® 4K

The Hydra® input / output expander adds more trigger inputs *and* outputs to the Sprite®

The Hydra® was designed specifically for the Sprite® and is Plug-and-Play.

Set the Sprite:

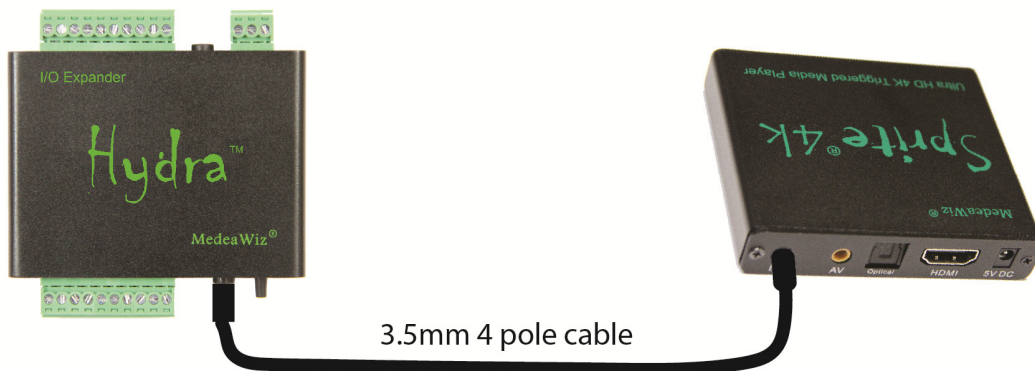
Play Mode to Video Control Mode (Audio Control Mode for audio files)

Control Mode to Serial Control

Baud Rate to 9600

Wire your pushbuttons to the Hydra screw terminals.

Plug the Hydra® into the Sprite® with the included cable.



Hydra® Features:

- 9 trigger inputs and 8 sinking outputs
- 5 x 5 matrix input to play up to 25 files
- 3 x 4 keypad input to play up to 99 files
- DMX 512 control to play up to 200 files and control 8 outputs
- MIDI control to play up to 128 files
- Puzzle and game modes
- Motion sensor input
- Random or incremented file triggers
- Queued file triggers
- Set alternate looping files paired with alternate trigger files
- Multiple User-selectable modes of operation
- Re-programmable for custom needs
- Inputs can be buttons, 3 to 24 Volts DC, open collector / open drain transistor
- FCC, CE and RoHS certified

Find the complete [Hydra manual](#) here.

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. You must have a file named 000. Name others 001, 002, etc.. Set the Play Mode to Video Control Mode for video files, or Audio Control Mode for audio files. Set the Control Mode to Serial Control. Set the Baud Rate to match your external controller.

Serial communications is on the 3.5mm 4 pole jack at 2400, 4800, 9600, 19200, 38400, 57600, 115200, 921600, or 1500000, 8N1 at 3.3 to 5 Volt TTL levels. The factory default is 9600 baud. Lower baud rates can be more reliable if you are using relatively long serial cables.

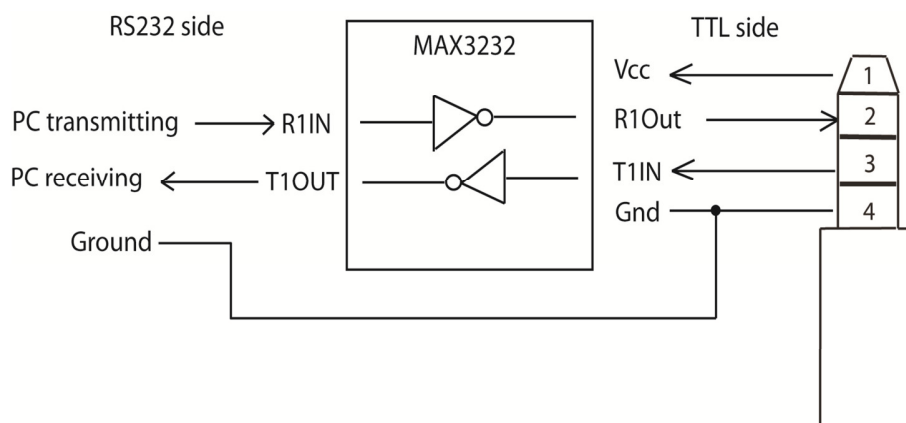
Send one byte, Decimal 1 (Binary 0000 0001, Hex 01) to play file 001.xxx. Send Decimal 2 (Binary 0000 0010, Hex 02) to play file 002.xxx and etc. Do not send any other bytes such as a line-feed or a carriage return. Send only one byte. Make sure your program is sending the NUMERICAL value, not the character (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® 4K will report back to the Host controller according to your “Serial Feedback” setting in the Setup Menu.

The Sprite® 4K 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 true 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® 4K. This will void the warranty.

Level translator example to convert real RS232 to TTL level



The MAX3232 can be powered from the Sprite® 4K. Connect all Grounds together.

Serial Port Control Multi-Drop Addressing Wiring

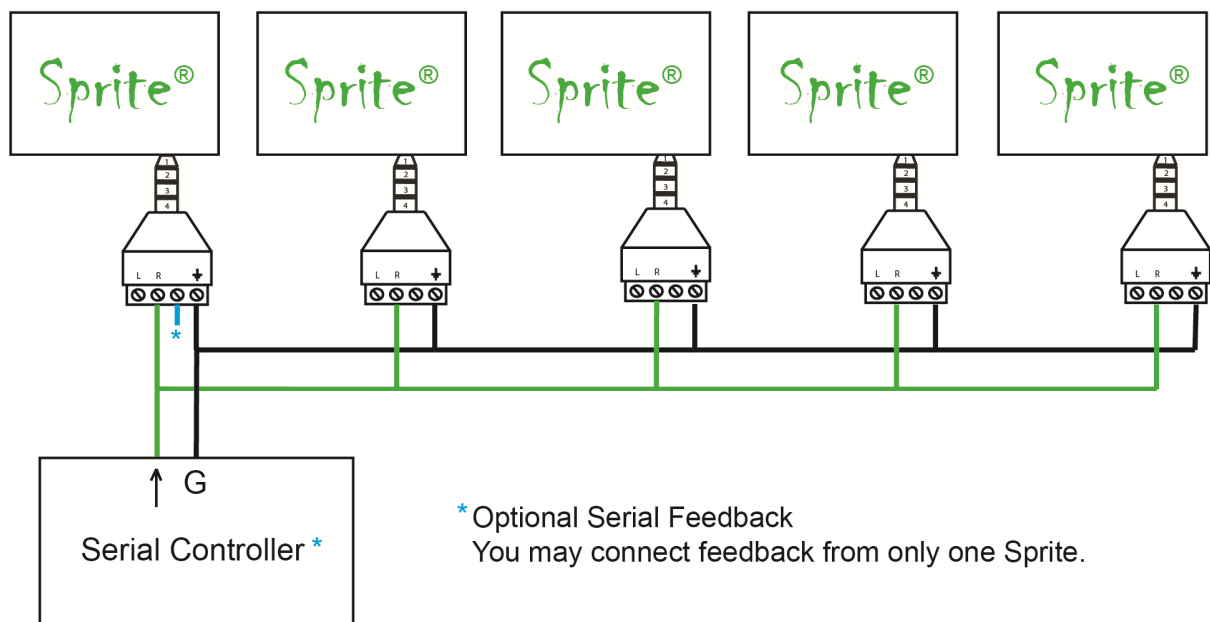
Multiple Sprites may be connected to a single serial control bus.

You can use one serial output from your controller to control multiple Sprites.

Connect all of the Grounds together and connect all of the RX Inputs together, and to your controller's TX output.

Set an address on each Sprite® 4K and it will only respond to commands from your controller preceded by that same address. More than one Sprite can have the same address if you want them to respond to the same commands. All Sprites that are set to any address will also respond to the Broadcast Address 0xE0.

Multi-Drop Bus Connections using Address Mode



Limitations on the number of Sprites on the bus include length of wire, type of wire and baud rate. Low capacitance wire and lower baud rates will allow longer distances and / or more Sprites on the bus.

Serial Port Control Commands

For firmware version 20180704 or later

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 byte
0xC8	Play file 200.xxx	
0xC9		
0xCA		
0xCB	Request number of files	Reports the total number of files on the SD card
0xCC	Request file playing	Report the number of the current file playing
0xCD		
0xCE		
0xCF		
0xD0		
0xD1		
0xD2		
0xD3		
0xD4		
0xD5		
0xD6		
0xD7		
0xD8		
0xD9		
0xDA		
0xDB		
0xDC		
0xDD		
0xDE		
0xDF		
0xE0	Address E0	Broadcast to all addresses, 2 bytes*: 0xE0, command

0xE1	Address E1	Multi-Drop, 2 bytes*: address, command
0xE2	Address E2	Multi-Drop, 2 bytes*: address, command
0xE3	Address E3	Multi-Drop, 2 bytes*: address, command
0xE4	Address E4	Multi-Drop, 2 bytes*: address, command
0xE5	Address E5	Multi-Drop, 2 bytes*: address, command
NOTE	E6 through EF	In Address Mode you may use address E0 through EF
0xE7	Full Volume	Set the volume to maximum
0xE8	Mute KEY	Mute the audio -does not toggle - Mute only
0xE9	VOLUME Up	Volume Increase, first will un-Mute
0xEA	VOLUME Down	Volume Decrease first will un-Mute
0xEB		
0xEC		
0xED		
0xEE		
0xEF	Play	Use after Pause, FF or FB commands
0xF0	PAUSE	Pause only – Does not toggle - Use Play to resume
0xF1	FB	Fast Rewind -cancel by Play or Pause command
0xF2	FF	Fast Forward -cancel by Play or Pause command
0xF3	PREVIOUS	Back to Previous file
0xF4	NEXT	Go to Next file
0xF5	Request Position	Returns file time position
0xF6	Seek Position	Will begin file play at position specified
0xF7	Get Duration	Returns total file time
0xF8		
0xF9		
0xFA		
0xFB		
0xFC	Select Loop File	2 bytes, 0XFC followed by file # to loop new file #
0xFD		
0xFE		
0xFF		

*Some will be more than 2 bytes

Further explanation of some serial commands

0xCB Request the total number of files on the SD card. The Sprite® will send a feedback byte telling the total number of files on the SD card. The Sprite® feedback will be CB, CB, xx where xx is the number of files in Hexadecimal.

0xCC Request the file number currently playing.

0xE0 to 0xEF Address numbers for the Sprite®. If the Sprite® is set to an Address E1 to EF in the Setup Menu, then the Sprite® will only follow commands preceded by the correct address. All players set to an address will also respond to the Broadcast Address E0. The Host can transmit commands to many Sprites on the same serial line. You should only use 1 Sprite® for feedback to the Host to avoid data collisions. Note that some addresses are also used as commands. If the Sprite is set to Do not use Address, you can use these commands normally. If Sprites are set to an address, you can still use these commands following the Address byte. As example, with a Sprite set to address E9, you can still use the Volume up command E9. Transmit 2 bytes: Address, Command as E9, E9. It is not recommended to mix Sprites set to Do not use Address with those using an address on the same serial line as unintended results may occur.

0xE8 Mute the audio. Mute only. Mute command does not toggle on / off.

0xE9 Increase volume one step for each command received. If the Sprite® was Mute, the first 0xE9 command will cancel Mute and return to the previous volume level.

0xEA Decrease volume one step for each command. If the Sprite® was Mute, the first 0xEA command will cancel Mute and return to the previous volume level.

0xEF Play - Resume play after a Pause. Play command does not toggle Play / Pause. A Play command will Cancel FF>> or FB<< in progress.

0xF0 Pause - Does not toggle Play / Pause. You must send 0xEF Play command to resume. A Pause command will Cancel FF>> or FB<< in progress

0xF5 Returns the current position in the file playing as the number of milliseconds. The return will be 0xF5 followed by 4 bytes representing the position. Low Byte is first.

0xF6 Seek to your specified position in the file and begin playing.
Example: Send 0xF6, xx, xx, xx, xx. It is not necessary to send zero-value high bytes.

0xF7 Returns the total length of the file in milliseconds.

0xFC Select Loop Command can make any valid file on the SD or USB the looping file.

Valid file numbers are 0x00 up to 0xC8 (files named 000 up to 200)

Send 2 bytes, 0xFC, 0XX where XX is the new file number to loop. This file will be the looping file until a new 0xFC command is received or a power cycle. After a power cycle, the default file 0x00 (the file named 000) will be the looping file.

It can also be combined with an address as 3 bytes when the Sprite® 4K is set to an Address.

For example 0xE3, 0xFC, 0x05 will instruct any Sprite® 4K with address set to E3 to loop the file named 005. Or you could use the Broadcast address 0xE0 to cause any Sprite set to any address to follow the command.

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 Sprite® 4K. 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.

You can use the blue FILE button along with orange Arrows and green ENTER keys to manually view or play files for testing.

Using the remote to manually play a file will take the Sprite out of automatic play modes. Remove power or go into the Setup Menu and then exit it using the yellow Return button to resume automatic play modes.



Power Supply

The Sprite® 4K is one of the most energy efficient “green” video repeaters available today. Using only 5 Volt DC power at an average of 500 mA, it takes only about 2.5 Watts to run.

The Sprite® 4K requires a regulated 5 Volt DC power supply, which is included in the US.

Sprites sold in other countries may instead include a USB power cable to use with a customer-supplied USB power source. Verify with your local MedeaWiz® distributor.

The power connection takes a barrel plug with 1.35mm ID x 3.5mm OD x 8mm barrel length, center Positive.

Use of a wrong power supply will void the warranty.

The Sprite® 4K 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®4K from your controller. You must have a 5 Volt DC regulated supply with 600 mA available. Use 26 AWG wire or larger. 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 / Audio / Photo Formats

	MedeaWiz® DV-S4 Sprite® 4K
Specification	
CPU	RK3229
Card Reader	microSD up to 512GB*
USB Host	2x USB2.0 ; supports external hard disk up to no limit
Audio	MPEG 8kbps – 320kbps, 8khz- 48khz, layer 1, 2, 3, MP1, MP2, MP3 WAV 8khz – 48khz, MS-ADPCM, IMA-ADPCM, PCM WMA 8kbps – 320kbps, 8khz – 48 khz, version 4, 4.1, 7, 8, 9 OGG Q1 – Q10, 8khz – 48khz, OGG, OGA FLAC 8khz – 48khz, compress level 0 - 8 AAC 5.1 channel, 8khz – 48khz, ADIF, ATDS Header AAC-LC, AAC-HE, AAC-ELD AMR NB 4.75 – 12.2kbps@8khz, WB 6.60 – 23.85@16khz MIDI type 0, 1, DLS version 1, 2, XMF, RTTTL/RTX, OTA, iMELODY AV out is 2 channel stereo. HDMI and Optical can support surround-sound.
Video	MPEG 1, 2, up to 1920 x 1088, 30fps, 80Mbps, DAT, MPG, VOB, TS MPEG 4, up to 1920 x 1088, 30fps, 38.4Mbps, AVI, MKV, MP4 v1, v2, v3 H.264 up to 4096 x 2304, 60fps, 150Mbps, AVI, MKV, MP4, MOV, 3GP, TS, FLV H.264 MVC up to 4096 x 2304, 60fps, 150Mbps, MKV, TS H.265 HEVC up to 4096 x 2304, 60fps, 150Mbps, MKV, MP4, MOV, TS Google VP8 up to 1920 x 1088, 30 fps, 38.4Mbps, WEBM, MKV Google VP9 up to 4096 x 2304, 60fps, 150Mbps, WEBM, MKV VC-1, up to 1920 x 1088, 30 fps, 45Mbps, WMV, ASF, TS, MKV, AVI MJPEG, Motion JPEG up to 1920 x 1088, 30fps, 38.4Mbps, AVI
Picture	JPG, JPEG, BMP, PNG, GIF, WEBP, 48 x 48 up to 8176 x 8176
Subtitle	SRT/ASS/TXT/SUB/PGS etc.

***Most microSD cards are formatted to FAT32 and will allow up to a 4GB file size. You may re-format to exFAT or NTFS to use files larger than 4GB. Maximum size SD supported is 128GB. USB is 2TB.**

Trouble FAQ

My File will not play or will not trigger

Do not use folders. Put files directly on the root of the SD or USB.

Try to play the file using the remote control. Press the blue File button, and then navigate to the file using the green Enter key and the orange Arrow keys. Select the file and press the Enter key.

If the file plays, it may not be named properly or the Sprite® is not in the correct Control Mode. If using video files, the Sprite® must have the Play Mode set to Video or Video Control Mode. If using audio files, set to the Audio or Audio Control Mode. Control Modes require at least 2 files. The looping file must be named 000 and the first trigger file named 001.

If the file will not play by using the remote control, then it may be corrupt or made with parameters not supported by the Sprite® 4K. Make sure the pixel size is a “television” size, 4096 x 2160, 3840 x 2160, 1920 x 1080, 1280 x 720, 720 x 480 or 640 x 480 etc. Videos made for websites at odd pixel sizes will play on your PC but may not play on the Sprite® 4K. Refer to the chart on page 36 for maximum bit rates and CODEC’s supported. Some other pixel sizes will play with various results.

No video output on my monitor

If you do not see any video or the Setup Menu displayed, verify the blue power LED is on.

Users often switch the video output by accidentally pressing a button on the remote control. Try pressing the HDMI or AV keys on the remote to switch the outputs. Point the IR remote directly at the front of the Sprite® 4K. Verify your monitor is set to the input used. Verify the monitor and HDMI cable are good by swapping or trying another device on the input.

The HDMI button on the remote sets the Sprite to HDMI Auto and adjusts to your monitor.

Many computer monitors and older televisions are not capable of playing 4K video. If unsure about your monitor / TV, find another that is rated for 4K video. Then set the Sprite® 4K video output to a lower HDMI setting of 1920x1080 and try again with your other monitor.

My Sprite® 4K 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 heatsink that transfers heat to the outside air through the housing.

While it is normal for the Sprite® 4K to feel warm, if the ambient temperature is well over 100F (40C), extra heat management may be desired. Simply placing the Sprite on a metal surface can reduce the temperature. A clean, unpainted aluminum plate, at least 12 x 12 inches (30 x 30cm) works well.

Should I use an SD card or USB drive to hold the video files?

While files will play from the USB port from a USB drive, some UHD 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 UHD 4K files may need a faster Class 10 at minimum. Test your video.

I accidentally changed the language and now I can't read the Setup Menu

You can reset the Sprite® to factory defaults to display in the English language without viewing the monitor by these steps:

- 1) Remove the power plug for 10 seconds and then restore power
- 2) Wait 10 seconds or longer for start-up to finish
- 3) Press the Setup key on the remote control
- 4) Press the down arrow key 9 times
- 5) Press the Enter key 2 times

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

A) For Play Mode = Video Control Mode or Audio Control Mode (any Trigger or Serial Control use):

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 or 001.someverylongnamefile.xxx

Do not use spaces, underscores or other special characters. Use 32 or less characters including the 2 periods. We explain the operation in this manual using only numbers to keep it simple.

We suggest you use the numbers 000, 001, etc. to test your files as a starting point, and then add the longer names if you want them.

B) For Play Mode = Video Repeat All, Audio Repeat All, Photo Repeat All (Not Trigger or Serial Control)

File play order will follow ASCII code sort order

Order of precedence:

Space
Numbers
Capitols
Underscore
Lower case

Each file name is analyzed at each character position left to right for the sort order priority to determine the order the files will play in. To learn more about this, search for “ASCII sort order” in a web browser.

To keep it simple you can use the naming method in section A above, or just use the numbering system 001, 002, 003, etc. to play files in order.

Can I synchronize 2 or more Sprites to play together?

The Sprite® 4K has no way to Genlock or synchronize with any external device or another Sprite at frame accuracy. You can start trigger files on 2 or more Sprites with a single pushbutton or serial control. However there are very slight differences in the internal oscillator components that allow Sprites to run at slightly different frame rates.

Depending on your application and video files, the frame rate difference may be acceptable and unnoticed, or may not be acceptable. The longer the video in time, the more out of step the players will become until the next trigger. You should use the same encoding parameters, CODEC, pixel size, frame rate, bit rate and etc. for all files for best results.

If you want, you can get better results by comparing a few Sprites to get a better match, or altering the video on the “fast” Sprite. Adding a few duplicate frames in the video file at regular intervals will “slow-down” the progression of the scene to better match the slower Sprite.

How short or how long can my files be?

For all video and audio files:

Any file under approximately 3 to 5 seconds may be a problem. If they are too short, there may be unwanted results in some control modes.

The 000 loop / ambient file should in most cases be longer. A longer loop file will allow your SD card to last longer. A short file looping continuously reads a small area on the SD card. A long file stored across more bytes of the SD results in less reads per byte over time. All SD and USB have a MTBF rated average number of reads. This number is very large, but in an application that runs all day, every day, this will add up. If you make the 000 loop file 10 times longer, your SD card should last 10 times longer as well. Keep in mind that if you are using one of the Trigger Delay settings, your trigger file will not play until the end of your 000 loop file.

Most users will never have an issue with a file that is too long. The time limit for the length of any file depends on the file encoding and bits used per second. Lower bitrates, lower frame rates and reduced pixel size can increase the time allowed. The file size is normally limited to 4 GB. Larger files may be stored on the SD card or USB drive if it is formatted to exFAT or NTFS.

The maximum SD card size for the Sprite is 512GB.

The USB port will support a USB hard drive with no limit on size.

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 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.

Word-wide

support@MedeaWiz.com