

MedeaWiz® Sprite® 4K

UHD 4K@60 Video Player Model DV-S4

User Manual

For firmware version 20240620

Manual version 3.00



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

Please go to <https://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 up to 4k @60 fps HDMI output with high quality stereo audio and Dolby and DTS surround sound with firmware version 20240620 or later.

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 & USB2. A flash drive or USB hard drive holding your files may be inserted here. Other USB devices may be used as specified later in this manual.
- 2) LED power indicator.
- 3) IR receiver for the remote control.
- 4) 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 and the Control Mode set to “Trigger Low No Interrupt” to use a pushbutton trigger for video files.

Most users can simply connect their HDMI monitor and install their SD memory card or USB drive, 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, 002, 003. 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 TTL Serial Port to control multiple files:

You must have a looping / ambient file named 000 and name the other files 001, 002, 003 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.

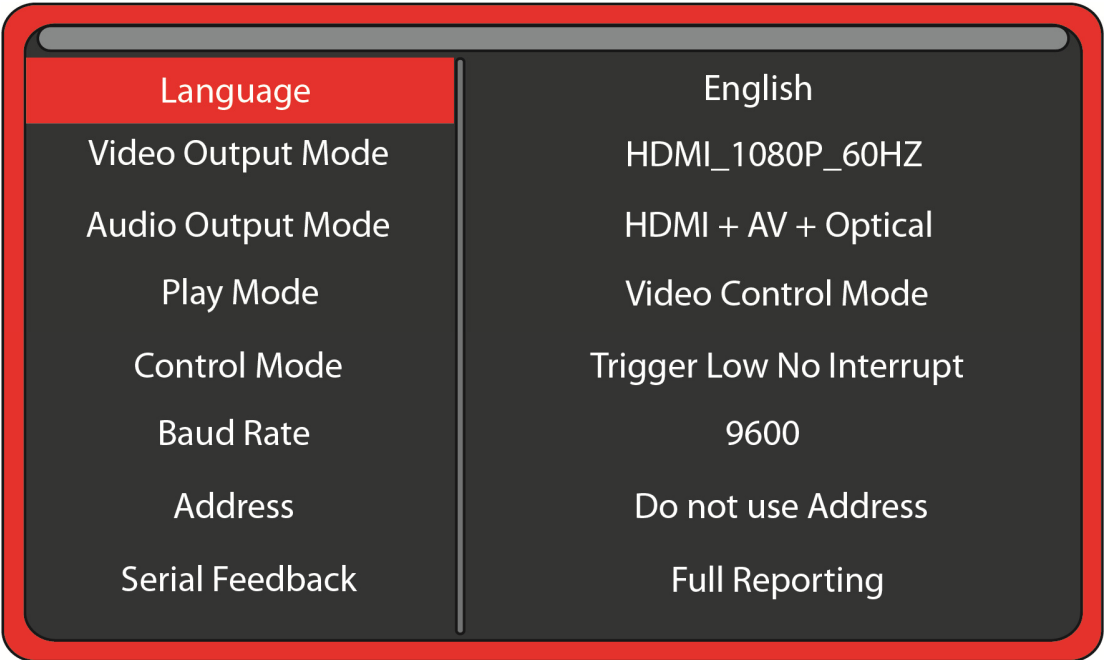
Please read the Trouble / FAQ section on page 38 for helpful information.

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.

You can also use a USB computer mouse with the Sprite 4K to enter the Setup Menu and make changes without the remote control. Right click to enter and exit the menu. Point and left click to make selections.

The Top Menu page will show your current settings.



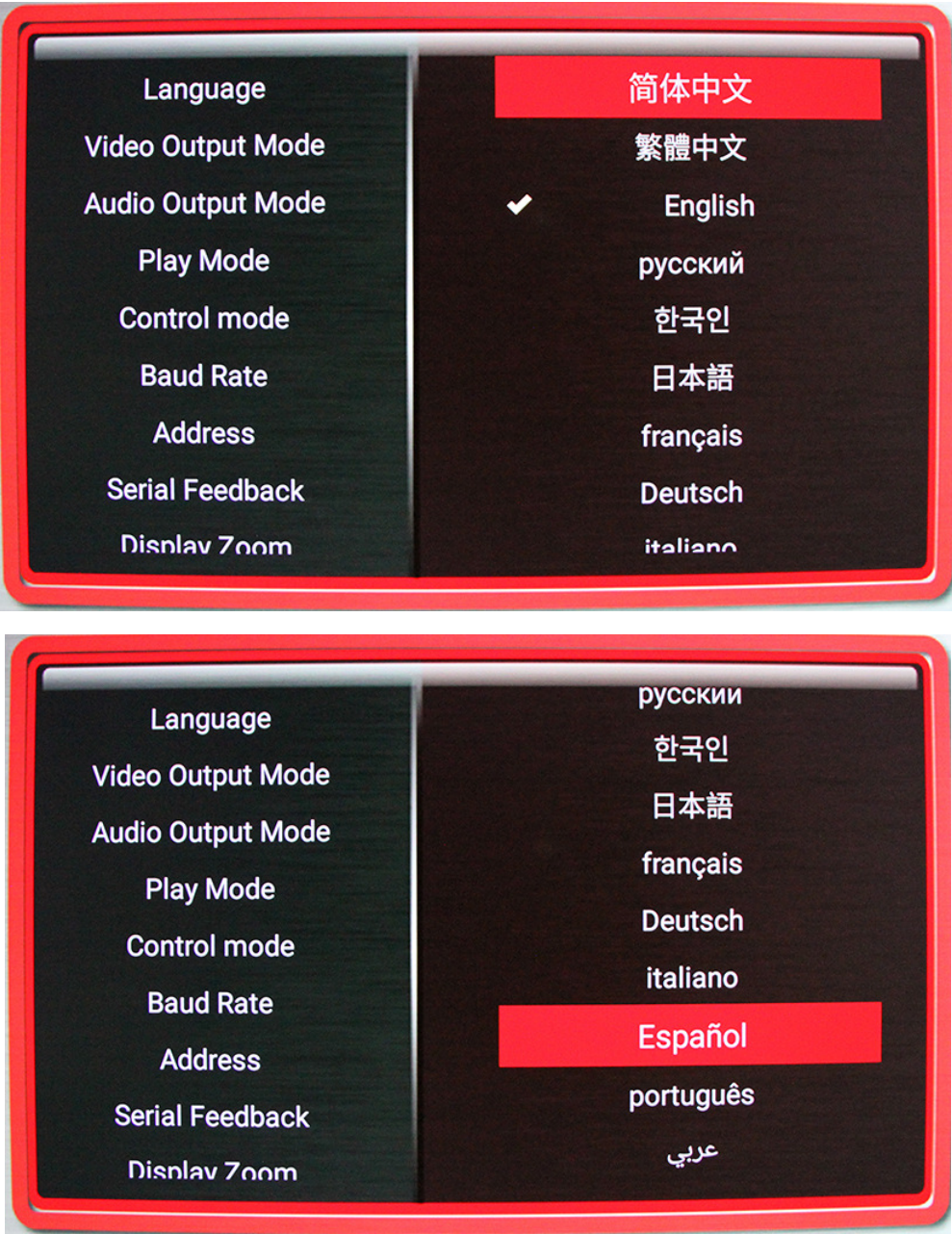
Note the above menu picture is showing the factory default settings for firmware 20240620.

The HDMI setting shown may vary as the Sprite 4K will auto-set to your monitor.

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

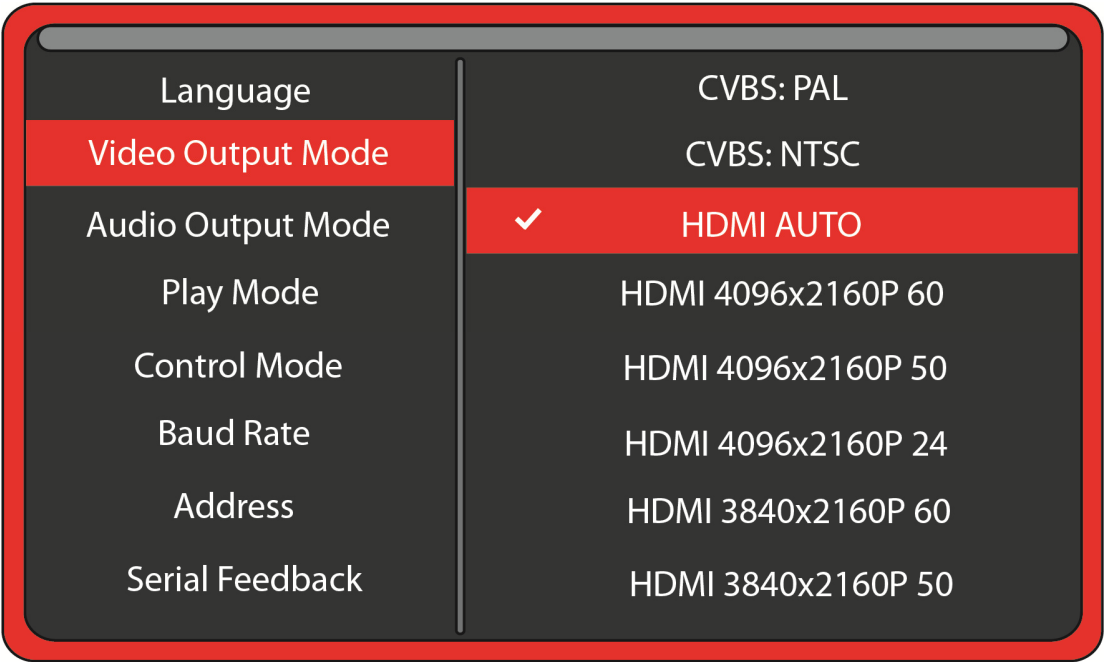
Menu Language

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.

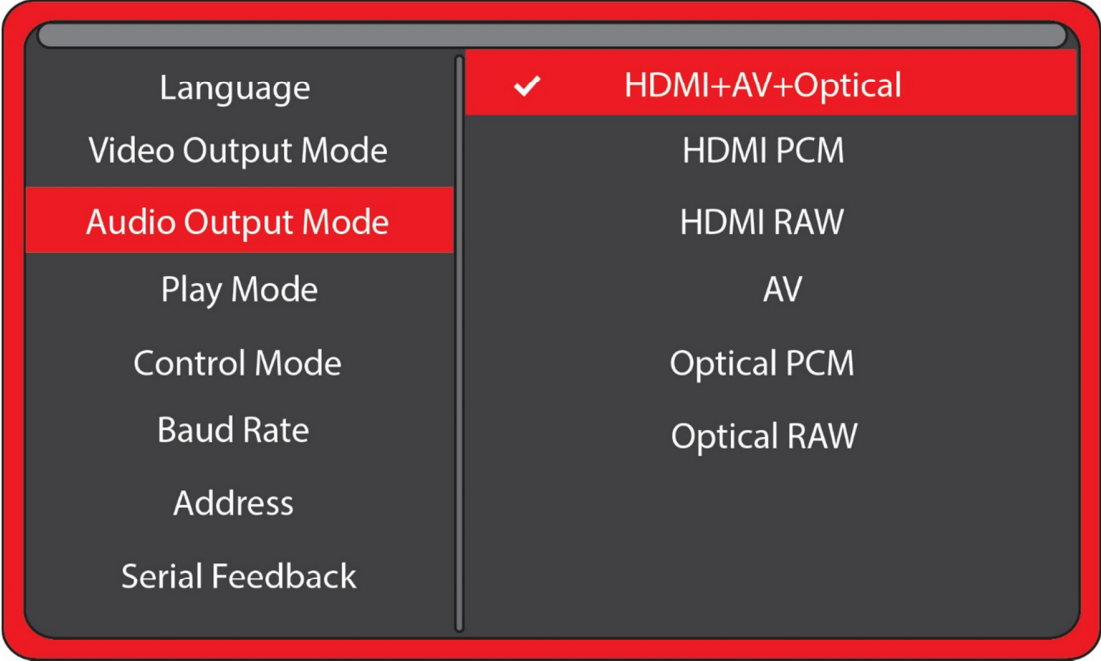
HDMI selections include:
4096x2160p60 4096x2160p50 4096x2160p24
3840x2160p60 3840x2160p50 3840x2160p30 3840x2160p25 3840x2160p24
1920x1080p60 1920x1080p50 1920x1080p30 1920x1080p24
1920x1080i60 1920x1080i50
1280x720p60 1280x720p50 1280x720p30 1280x720p24

HDMI Auto communicates with your monitor to find the best setting. The Menu will only list the resolutions that your monitor is capable of, by its EDID report.

You can use the 16:9 / 4:3 button on the remote control to help fit 4:3 video monitors.

Audio Output Mode

Select the audio output needed.



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

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

Select **HDMI RAW** to route Dolby or DTS surround audio through the HDMI cable to your monitor or AV receiver or Sound Bar with surround decoding capability.

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 PCM** to route stereo audio through the Optical output. Optical is capable to pass stereo audio to a monitor or amplifier with optical input.

Select **Optical RAW** to route Dolby or DTS surround audio through the Optical cable to your monitor or AV receiver or Sound Bar with surround decoding capability.

The A/V 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:

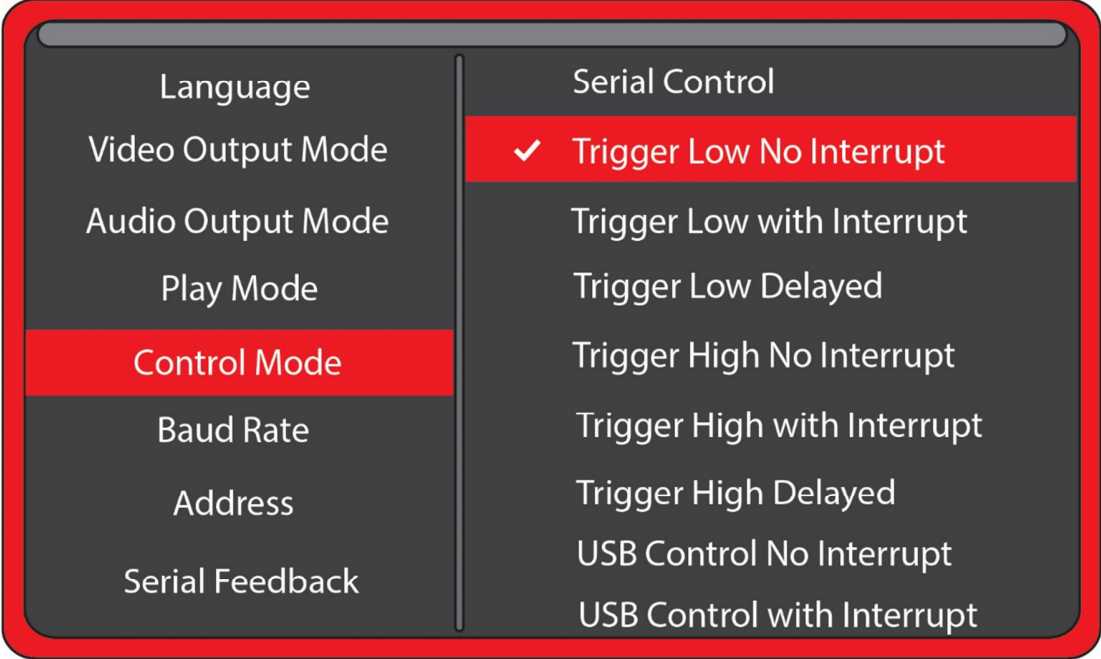
- Video – Repeat all in order** will play all video files in order, in a circular loop.
 - Video – Repeat all random** will play all video files randomly.
 - Audio – Repeat all in order** will play all audio files in order, in a circular loop.
 - Audio – Repeat all random** will play all audio files 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.



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.

USB Control No Interrupt: A triggered file will play to the end with no interruption.

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

USB Control is with a barcode scanner, a PC keyboard, or RFID reader that emulates keyboard.

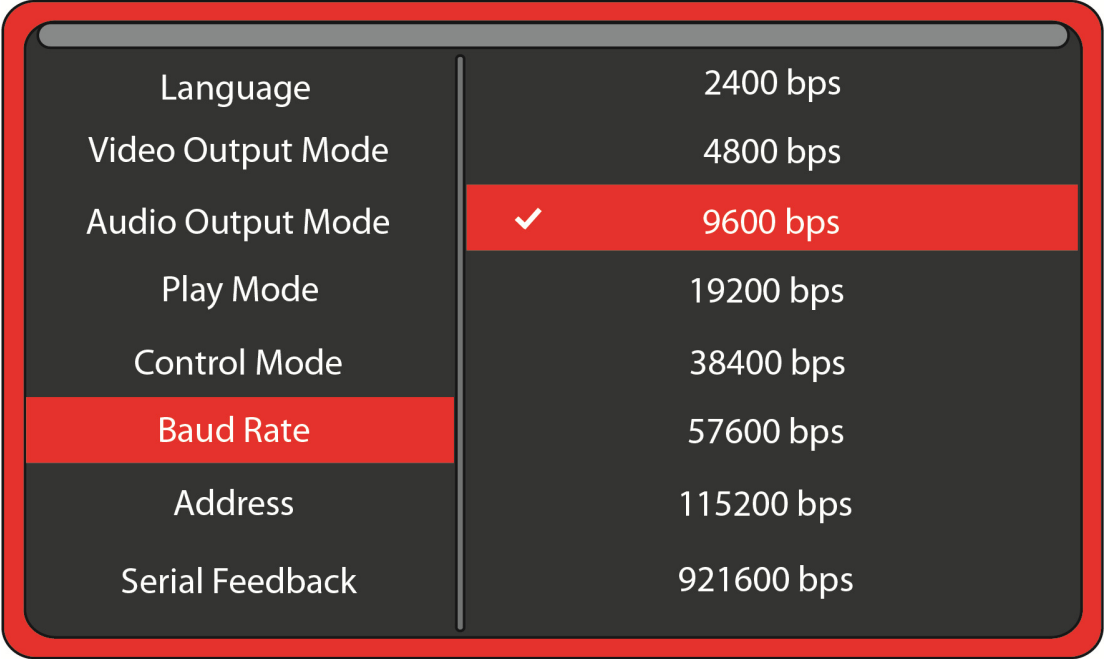
NOTICE: For any Control Mode above, you must have at least 2 files. The ambient / loop file named 000 and a trigger file named 001. Do NOT put files in a folder.

See more about Control Modes on pages 23 - 24.

Baud Rate

Select the baud rate for the serial port.

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



The image shows a screenshot of the MedeaWiz Sprite 4K settings menu. The menu is displayed in a dark grey/black theme with a red border. The 'Baud Rate' option is highlighted in red, and a white checkmark is visible next to the '9600 bps' value. The menu items and their corresponding baud rates are as follows:

| | |
|-------------------|------------|
| 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.

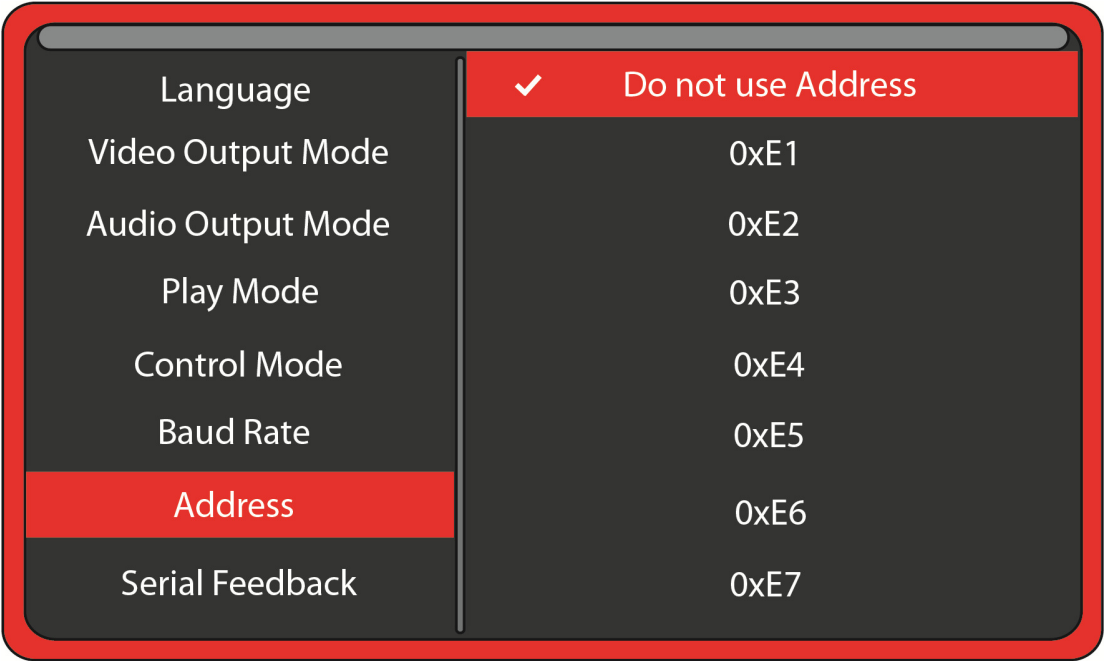
The default is 9600 bps.

The Hydra® input expander accessory is 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.



The image shows a settings menu for the MedeaWiz Sprite 4K. The menu is divided into two columns. The left column lists settings: Language, Video Output Mode, Audio Output Mode, Play Mode, Control Mode, Baud Rate, Address, and Serial Feedback. The right column shows the selected value for each setting. A red checkmark is visible next to the 'Do not use Address' option, which is highlighted in red. The 'Address' setting is also highlighted in red.

| | |
|-------------------|----------------------|
| 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, it 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. All players set to any address will also respond to the Broadcast Address 0xE0.

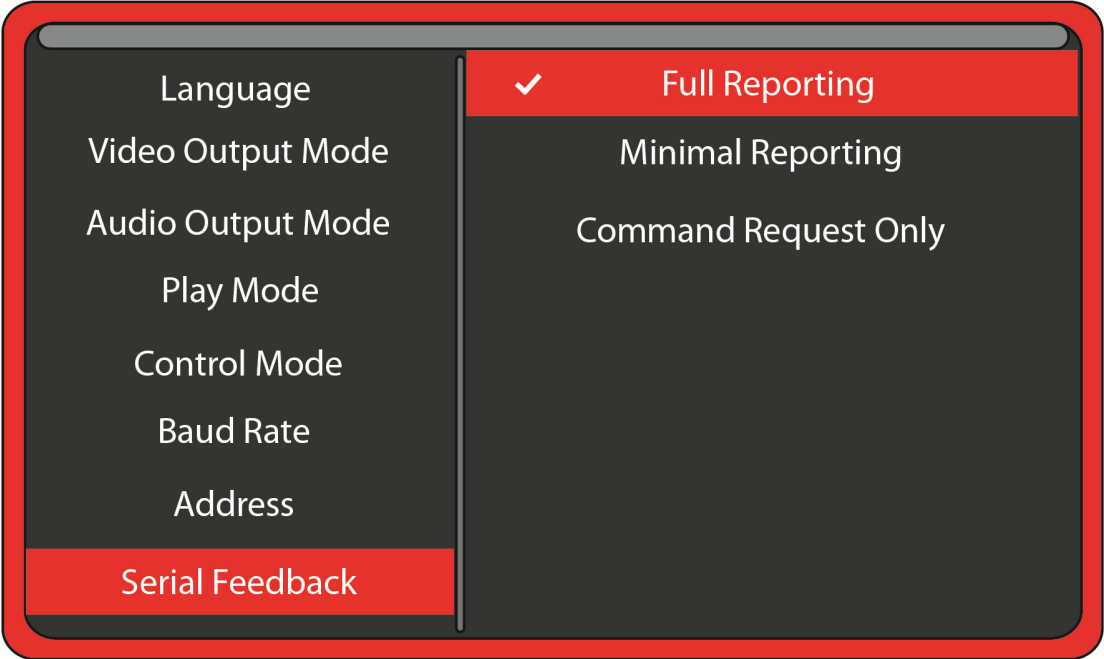
You should only use 1 Sprite® for the feedback to the Host to avoid data collisions. You should only connect the RX inputs and Grounds of multiple Sprites together. See page 30 for a wiring example.

The **MedeaWiz SS-38 serial splitter** is available to connect several Sprites using the standard 3.5mm 4 pole cables to one controller without signal loss.

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

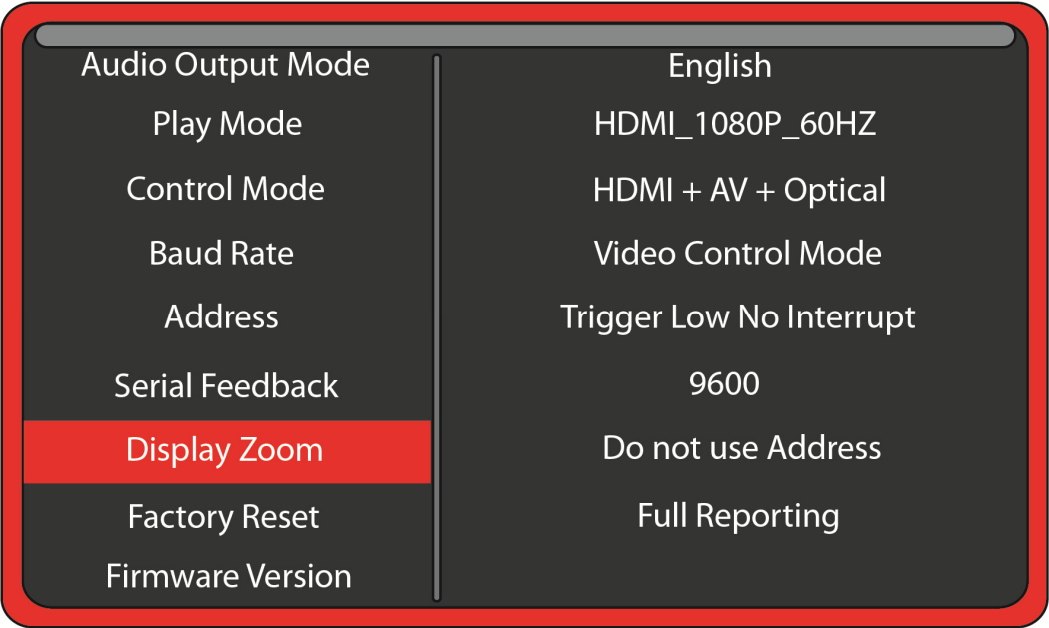
The Sprite® 4K will only report the file number playing once at the start of the file. It will report 0xEE at the end of a file. It will return data from a command request.

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

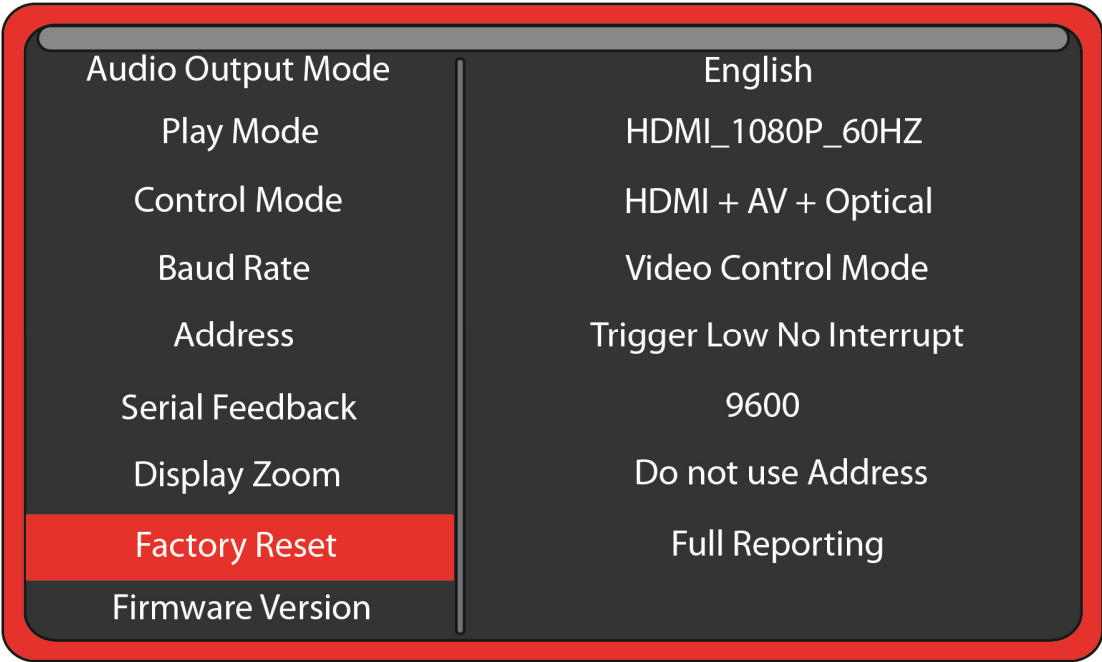
Use Display Zoom to increase or decrease the video horizontal or vertical size to best fit your monitor.



You can also use the 16:9 / 4:3 button on the remote control to help fit 4:3 video monitors.

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.

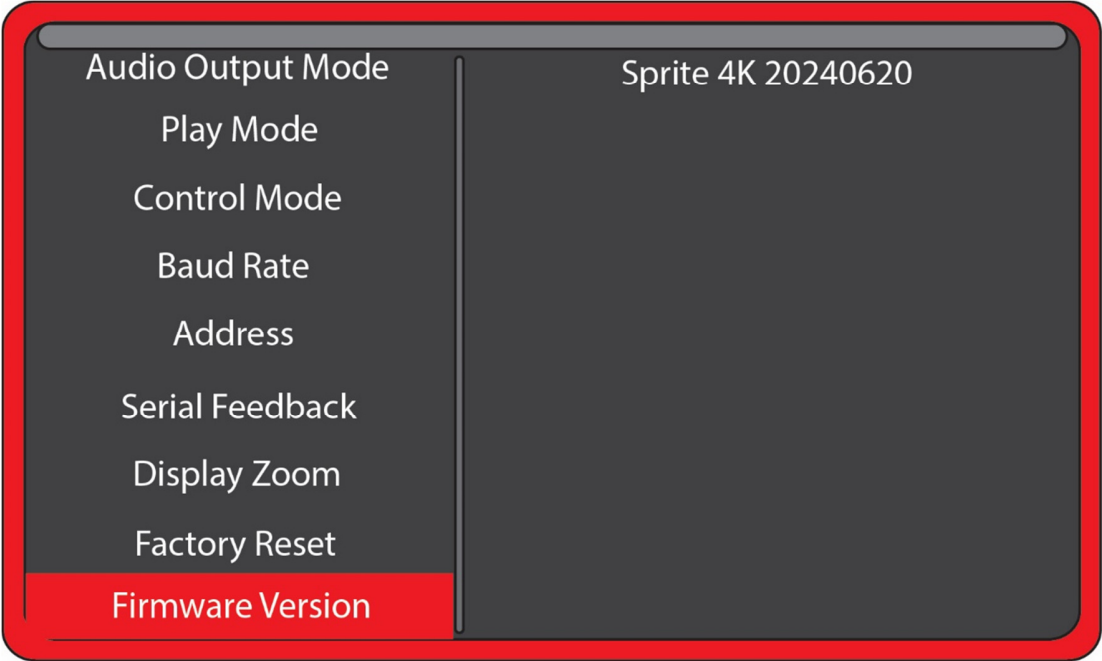
Factory default language is English.

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 20 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 20240620 is the third public release.

The number 2024 06 20 represents the build date as year, month, day.

We may provide other versions of the firmware in the future.
Check at www.MedeaWiz.com for updates.

Firmware Revisions History

We recommend that you do not update the firmware unless you require one of the new features or bug fixes. There is a risk, due to a few reasons, that the firmware does not install properly and renders your Sprite useless. We do not cover this under warranty.

Version 20230728 First public release.

Known bugs:

Surround Sound output not available.

When power is first applied, sometimes the Setup Menu shows for a second before the file plays.

New out of the box and after restoring default settings, and only in Audio Control Mode and using Trigger Low no Interrupt, triggers will not respond correctly. You can change to another setting and then back to correct the issue.

Serial Control commands 0xCA and 0xC9 will not echo back the command. Command 0xCB will echo back 2x whereas it should only be once.

Version 20231120 Second public release.

Added code to allow installing a custom boot-screen animation.

Known bugs:

Surround Sound output not available.

New out of the box and after restoring default settings, and only in Audio Control Mode and using Trigger Low no Interrupt, triggers will not respond correctly. You can change to another setting and then back, to correct the issue.

Serial Control commands 0xCA and 0xC9 will not echo back the command. Command 0xCB will echo back 2x whereas it should only be one.

Version 20240620 Third public release.

Included code and menu settings for surround sound pass-through.

Added USB control triggers.

Fixed listed bugs in earlier editions.

Firmware Upgrade

Do not upgrade the FW unless you absolutely need something in a newer version.

If you have a power glitch or a corrupted file, a bad USB drive or etc., you risk “bricking” the Sprite making it useless. We do not cover this under warranty.

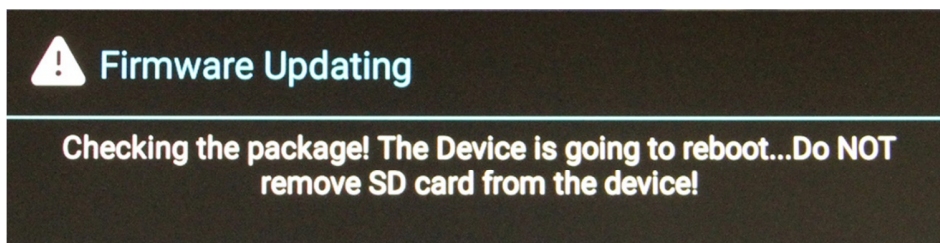
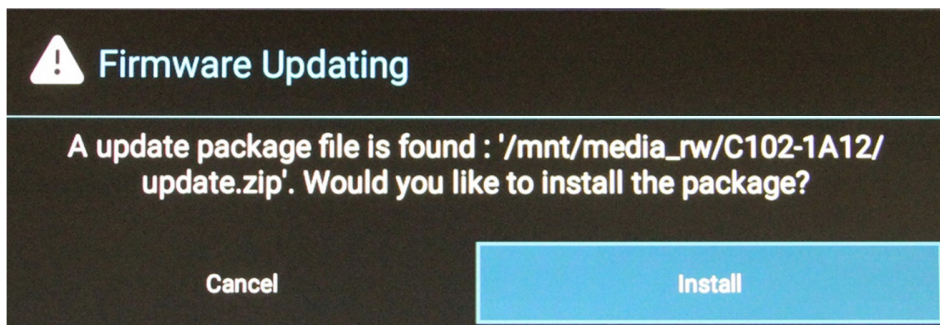
The firmware will be in a compressed zip folder and should be named update.zip

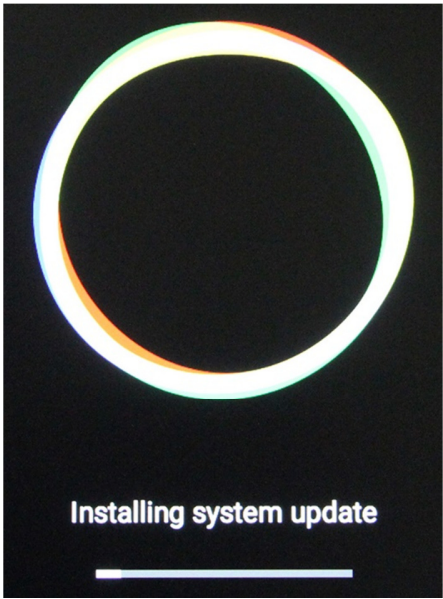
Place the update.zip folder on an SD or USB drive along with other video files.

Do not “Extract” the files from the update.zip folder.

Insert the SD card or USB drive into the Sprite 4K and plug in the power.

The update can take several minutes. It is recommended to use a battery backup uninterruptable power source when performing an update. During the update you will see the images below. Do not stop the update until after the last image “Upgrade Completed Successfully” appears.

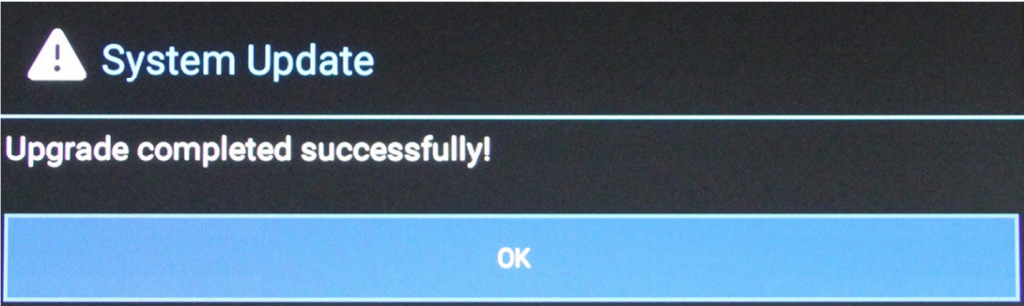




The boot image "Sprite 4K" may appear more than once and may appear for a very long time.



Be patient and wait at least 5 minutes for the message below to appear, then click on OK to complete.



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 or USB 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.

USB Control

Currently, the USB control will work with a USB barcode scanner, a USB PC keypad or numbers only pad, or any USB device such as an RFID reader that can emulate a PC keyboard.

For a USB barcode scanner, you can play files 000 to 999. Leading zeros are ignored and you can have up to 12 digits total. For example, barcodes 002 and 000000000002 would both play file 002. The settings in the barcode scanner should transmit the “Enter” or “Return” key code after the barcode.

For PC keyboards, pressing 1, followed by the “Enter” key, or 01, Enter Key, or 001, Enter Key, would all play file 001. Leading zeros are ignored. You can play files 000 up to 999. When the first number key is pressed, you must press the next in under 3 seconds, and the next in under 3 seconds from the last key. If you press a key and walk away, the entries are discarded after approximately 3 seconds. Valid keyboard entries are digits 0 – 9 and the ENTER key.

Any other USB input device, such as an RFID reader, should follow the rules of the USB scanner above. It must be capable and set to emulate a PC keyboard and tags should be 000 to 999. You may have extra leading zeros up to 12 digits total. Leading zeros are ignored.

USB Control No Interrupt

Once a commanded file is playing, it will play to the end, even if new USB input occurs. The new USB input is ignored and discarded.

USB Control with Interrupt

After a commanded file begins playing, and after a short delay, a new USB command will execute and play the new file.

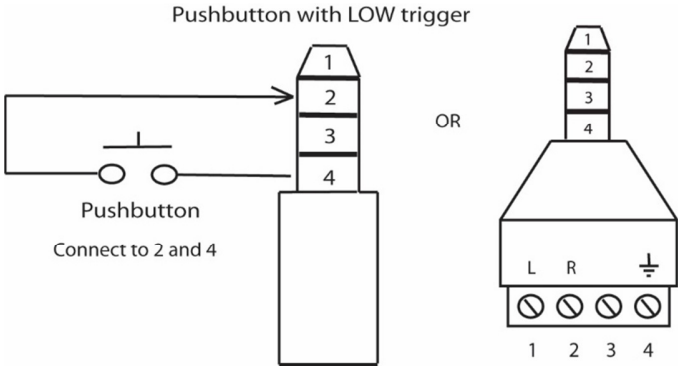
For all Control Modes above

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.

Push Button Wiring to the I/O Port

Using a pushbutton or other dry contacts

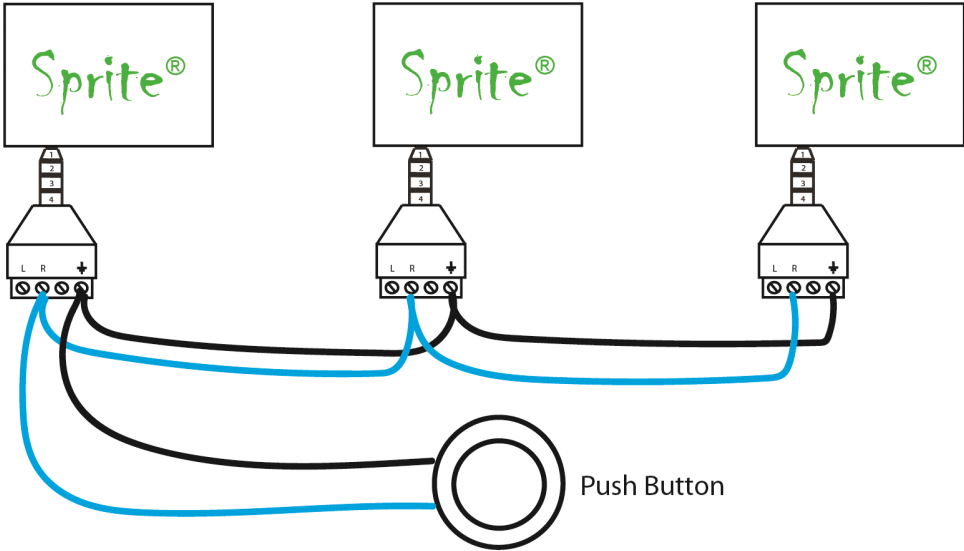


The Control Mode should be set to Trigger Low No Interrupt or Trigger Low with Interrupt or Trigger Low Delayed.

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. The **MedeaWiz SS-38 Serial Splitter** is available to connect several Sprites using the standard 3.5mm 4 pole cables to one push button.

Connecting a Push Button to Multiple Sprites
Set all Sprites to a Trigger Low setting for this arrangement.



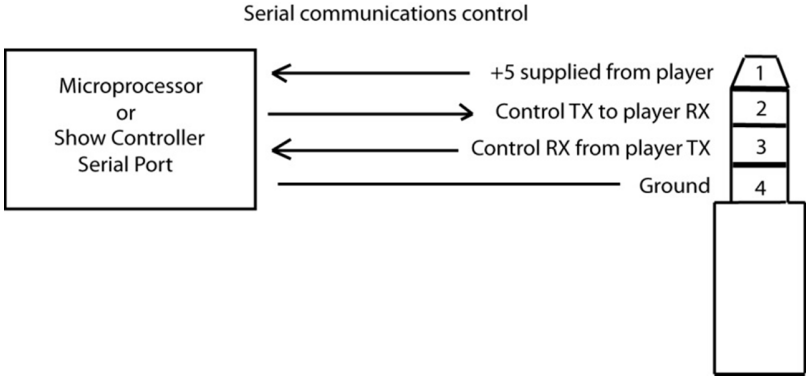
Serial Communications Wiring to the I/O Port

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.



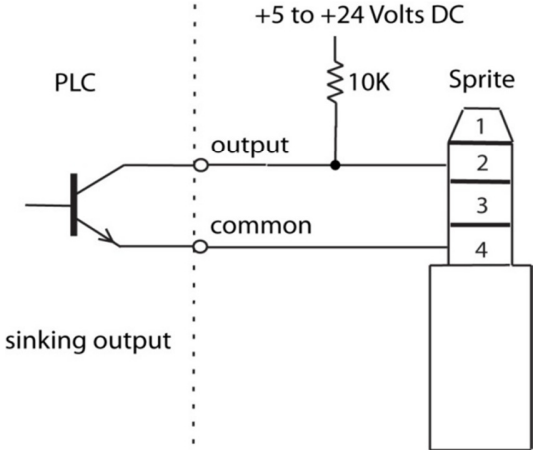
You can also use the included AV cable in the I/O port. Use the red RCA to send commands to the Sprite®, the yellow RCA for the Sprite® to report back to your control, and the white RCA for 5V power from the Sprite®. We suggest you cover the unused RCA plugs with electrical tape to avoid shorting the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



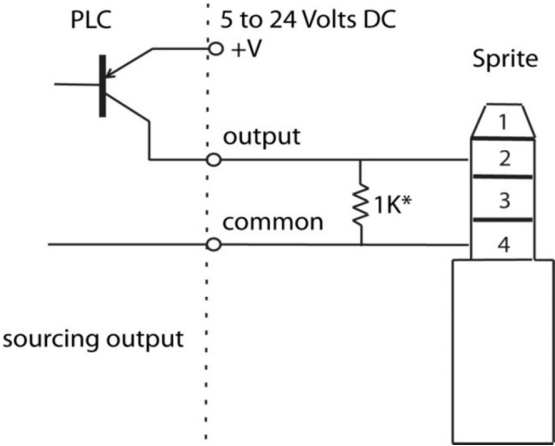
If you get a cable elsewhere, check to see that the wiring is the same. We have seen some cables where the red, yellow and white RCA are wired to different poles on the 3.5mm plug.

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.



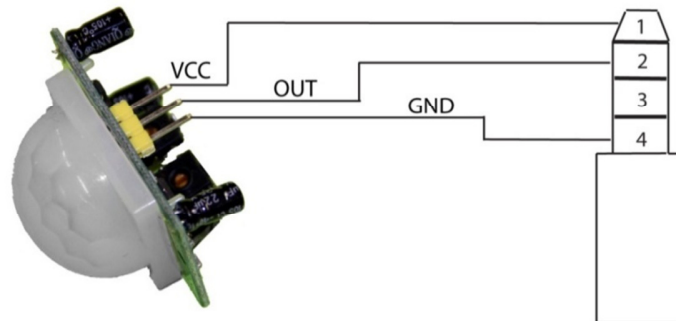
The Sprite® 4K has an internal 22K pullup so the Sourcing output requires a low resistance from Output to Common to pull the Sprite’s internal voltage down to a “LOW”. The 1K* shown is an example and can vary depending on the +V voltage. Consider the Watt rating of the resistor.

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 the **MedeaWiz SS-38 Serial Splitter** or 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



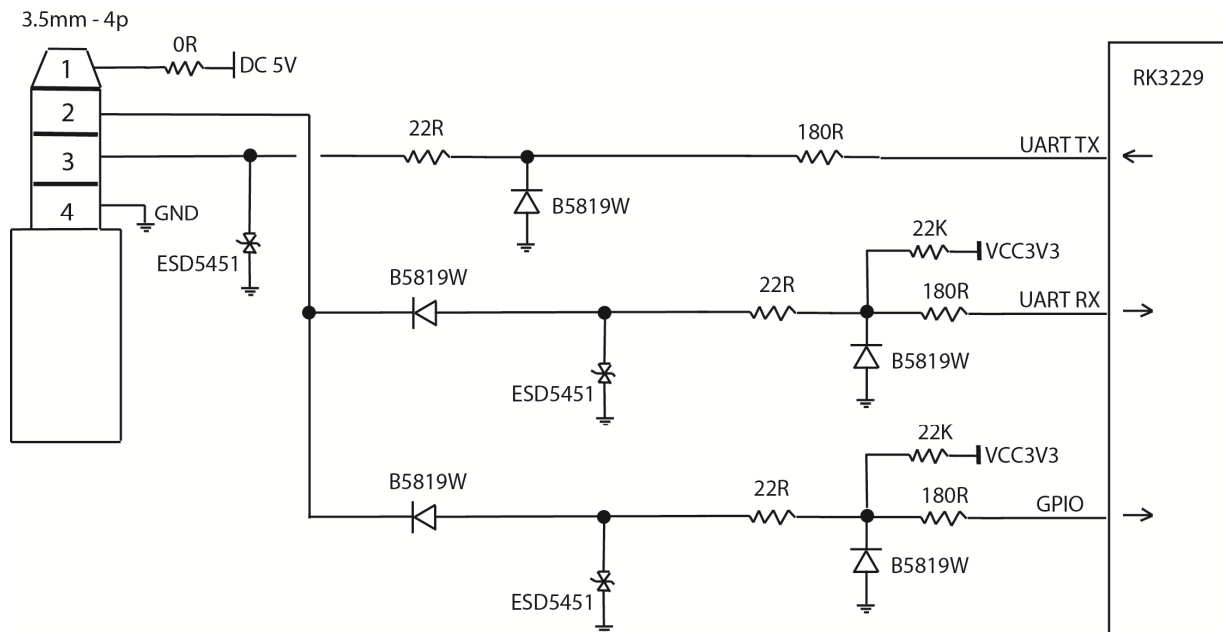
We offer the **MSA-B Stealth** motion sensor for a plug-and-play solution.

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

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

The **MedeaWiz SS-38 Serial Splitter** is available to connect the MSA-B to several Sprites using the standard 3.5mm 4 pole cables without signal loss.

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 converter 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:

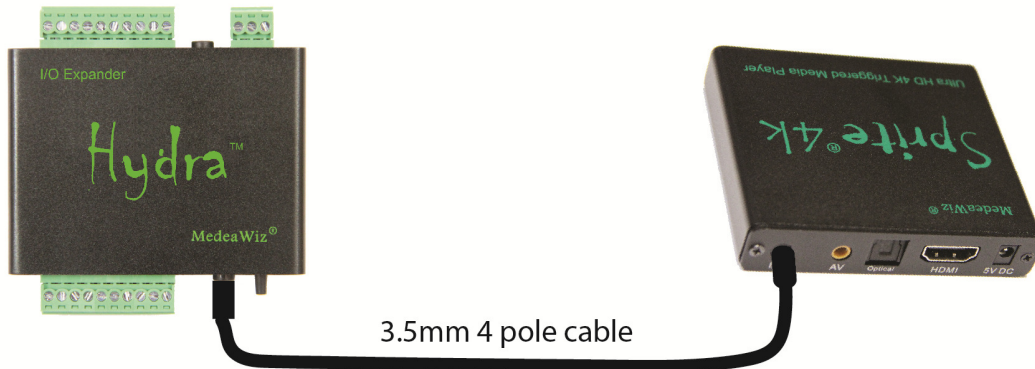
Play Mode to Video Control Mode (Audio Control Mode for audio files)

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
- Works with the MedeaWiz SS-38 serial splitter to drive several Sprites
- 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.

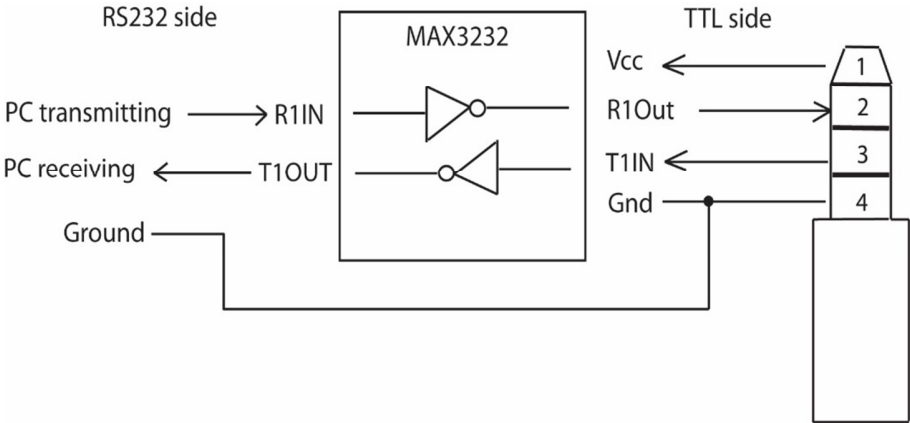
Send one byte, Decimal 1 (Binary 0000 0001, Hex 01) to play file 001. Send Decimal 2 (Binary 0000 0010, Hex 02) to play file 002 and etc. Do not send any other bytes such as a line-feed or a carriage return. Send only one byte. Make sure your program is sending the NUMERICAL value, not the character (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 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

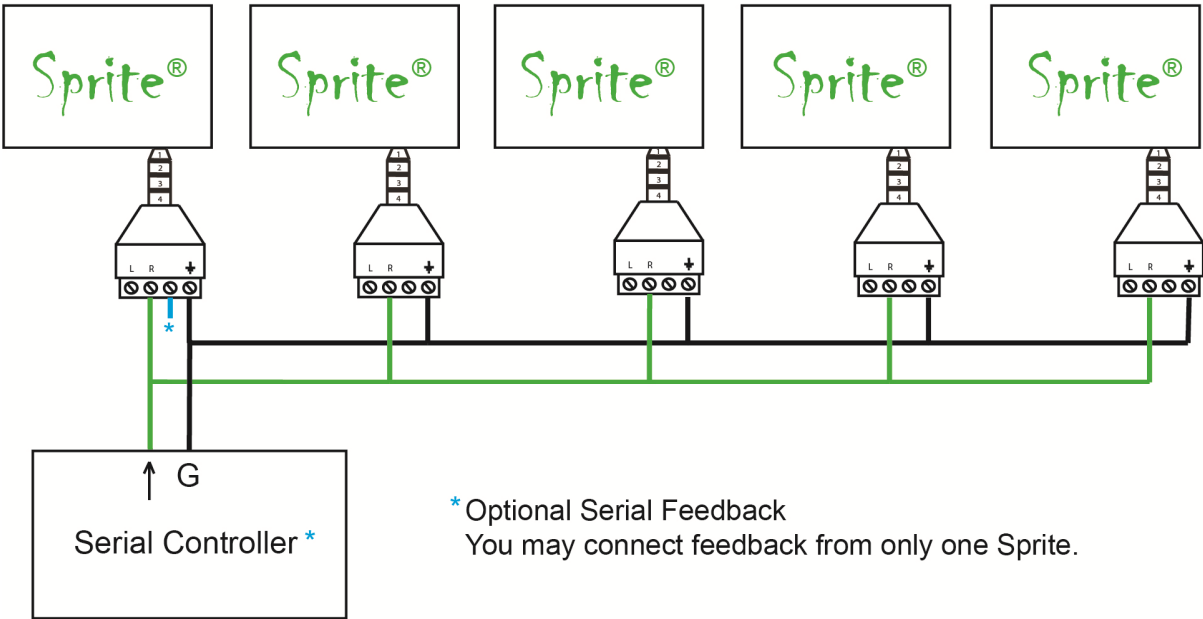
Multiple Sprites may be connected to a single serial control bus.

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.

The **MedeaWiz SS-38 Serial Splitter** is available to connect several Sprites using the standard 3.5mm 4 pole cables to one controller without signal loss. It has a buffer / driver for each output and may be chained to add 8, 15, 22, 29, etc. Sprites.

Serial Port Control Commands

For firmware versions 20230728, 20231122, 20240620

| 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 | Power off / Sleep | Low power Sleep mode, no video or audio output |
| 0xCA | Power on / Wake | Wakes and begins play at last point before Sleep |
| 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

0xC9 Puts the Sprite 4K in low-power sleep mode. No video output and no audio output. This allows your monitor or projector to sleep since no video is signal is present.

0xCA Wakes the Sprite 4K and begins file play at the point of the file where it went to sleep. Note that later firmware version 20240620 will start playing file 000 at the beginning.

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.

The **MedeaWiz SS-38 Serial Splitter** is available to connect several Sprites using the standard 3.5mm 4 pole cables to one controller without signal loss. It has a buffer / driver for each output and may be chained to add 8, 15, 22, 29, etc. Sprites.

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.

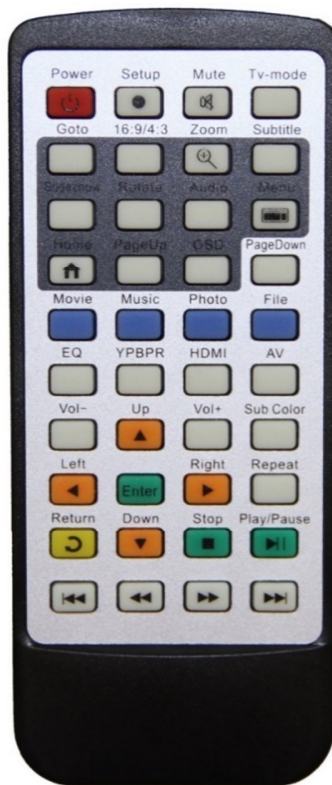
0xFC Select Loop Command can make any valid file on the SD or USB the looping file.
Valid file numbers are 0x00 up to 0xC8 (files named 000 up to 200)
Send 2 bytes, 0xFC, 0XX where XX is the new file number to loop. This file will be the looping file until a new 0xFC command is received or a power cycle. 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.



You can also use a USB computer mouse with the Sprite 4K to enter the Setup Menu and make changes without the remote control. Right click to enter and exit the menu. Point and left click to make selections.

If you have no video output, use the HDMI or AV button to set the Sprite video accordingly.

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 and 3.5mm OD, 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 24 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 Quad-Core 32-bit ARM Cortex A7 |
| Card Reader | SD up to 512GB |
| USB Host | 2x USB2.0 supports external hard disk up to no limit, USB mouse, other USB devices as listed in this manual. |
| Audio | <p>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</p> <p>AV out is 2 channels stereo. HDMI and Optical outputs can support Dolby and DTS surround-sound with firmware version 20240620 or later, and an A/V receiver – decoder.</p> |
| Video | <p>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</p> |
| Picture | JPG, JPEG, BMP, PNG, GIF, WEBP, 48 x 48 up to 8176 x 8176 |
| Subtitle | SRT/ASS/TXT/SUB/PGS etc. |

Most SD cards are formatted FAT32 and will allow up to a 4GB file size. You may re-format to exFAT or NTFS to use larger files. Maximum file size supported on SD is 512GB. USB has no size limit.

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

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 may play on your PC but may not on the Sprite® 4K. Refer to the chart on page 37 for maximum bit rates and CODEC’s supported. Some other pixel sizes will play with various results. For smooth transitions between files, they should all be made the same pixel size, frame rate, bit rate, CODEC, and etc..

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.

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 or lower 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 30 CM) 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 20 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

We suggest you use the numbers 000, 001, 002, 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 alpha-numeric sort order.

To keep it simple you can 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, however they sync quite well for many applications. You can start trigger files on 2 or more Sprites with a single pushbutton or serial control. There can be a few frames difference between players at the start of the file and this difference maintains well as the file progresses with little to no drift. This is much better than the original Sprite model DV-S1. There are sync demonstrations on our youtube channel at https://www.youtube.com/channel/UCMD_juQRnrgKJL3o2XZAo1A

Depending on your application and video files, the frame rate difference may be acceptable and un-noticed, or may not be acceptable. You should use the same encoding parameters, CODEC, pixel size, frame rate, bit rate and etc. for all files for best results.

The MedeaWiz SS-38 Serial Splitter is available to connect several Sprites using the standard 3.5mm 4 pole cables to one controller without signal loss.

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 4K is 512GB.

The USB port will support a USB drive or SSD 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

In USA

Team Kingsley LLC

support@TeamKingsley.com

618-797-9951 x300

In the UK

Garland Digital Ltd.

support@garlanddigital.co.uk

Custom Orders

For large quantity orders we can offer:

Custom firmware

Sprite® 4K player without accessories

Sprite® 4K circuit board only to enclose in your OEM design

Please email sales@MedeaWiz.com for a quote.

We would be grateful if you would give us an honest review at your place of purchase or on social media to help other customers!