MARK ROBERTS MOTION CONTROL

MRMC SR-1 PAN/TILT HEAD

QUICK START GUIDE

QSG Product code: MRMC-2274-00
Products Covered: MRMC-8122-00, MRMC-8123-00, MRMC-8124-00, MRMC-8125-00, MRMC-8126-00

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Document Version: v28102024

Although every care has been taken to ensure that the information in this document is accurate and up to date, Mark Roberts Motion Control continuously strives to improve their products and may make changes to the hardware, firmware, and software described in this document. Mark Roberts Motion Control therefore cannot be held responsible for any error or omission in this document.

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Contents

Chapter 1 **Quick Start**

Important safety instructions

To ensure the best from the product, please read this manual carefully. Keep it in a safe place for future reference.

To reduce the risk of electric shock, do not remove the cover from the unit. No user serviceable parts inside. Refer servicing to qualified personnel.

Power and connections

- This unit must be connected to a mains socket outlet with a protective earth connection.
- This unit should not be disconnected from the AC power source as long as it is connected to the wall outlet.
- When not using the unit for a long period of time, ensure that the AC power cord is disconnected from the wall outlet.
- The AC wall outlet should be located near to the unit and be easily accessible.
- Do not plug in or attempt to operate an obviously damaged unit.

General care

- Do not force switches or external connections.
- When moving the unit, disconnect the mains cable and then disconnect the long umbilical cable.
- Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Use a clean dry cloth.
- Do not use around flammable gas. All electrical equipment can generate sparks that can ignite flammable gas.
- Keep away from pets and children. The head has powerful motors that can pinch, so take care not to get your hands trapped in the head or cabling.
- Keep cables tidy. Use cable ties to keep them out of harm's way.

Location

Installation of this unit should be away from sources of excessive heat, vibration, and dust.

Intellectual property

This product includes confidential and/or trade secret property. Therefore, you may not copy, modify, adapt, translate, distribute, reverse engineer, or decompile contents thereof.

Overview

Thank you for using the MRMC SR-1 Pan/Tilt Head from Mark Roberts Motion Control (MRMC). The MRMC SR-1 Pan/Tilt Head with an optional Roll axis is designed for reliable day-in, day-out use in outside and Studio Broadcast environments. The versatility of the MRMC SR-1 Pan/Tilt Head makes it suitable for live action, stills, time-lapse and many other applications.

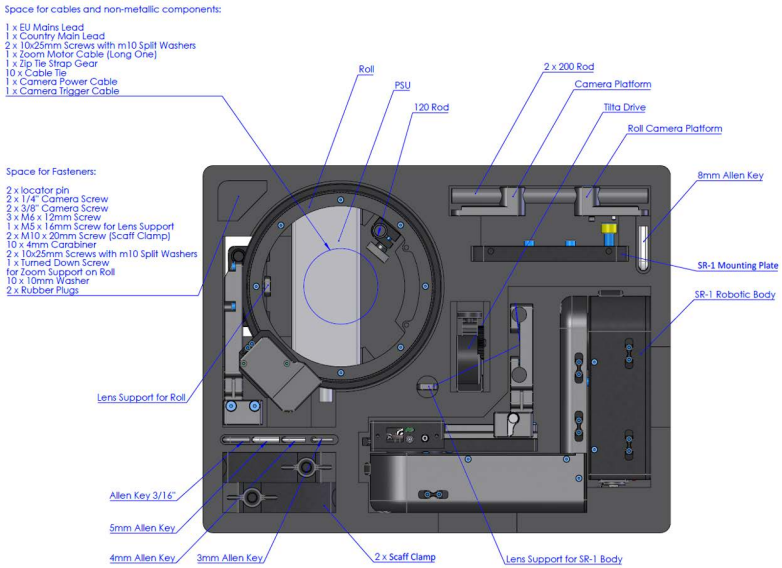
The SR-1 head can be controlled using our MHC software or Polymotion Chat software for automated tracking. It can be mounted overslung or underslung.

SR-1 head Overslung mounted on a truss using the mounting plate

SR-1 head Underslung mounted on a truss using the mounting plate

Setting up the hardware

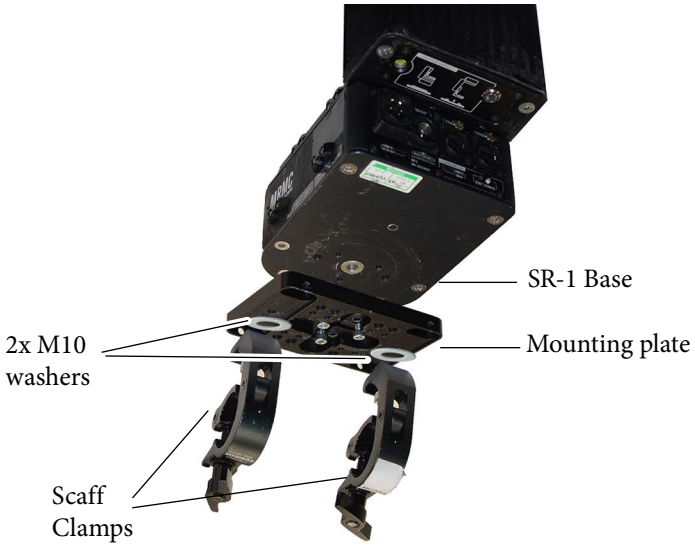
Parts in Carry Case



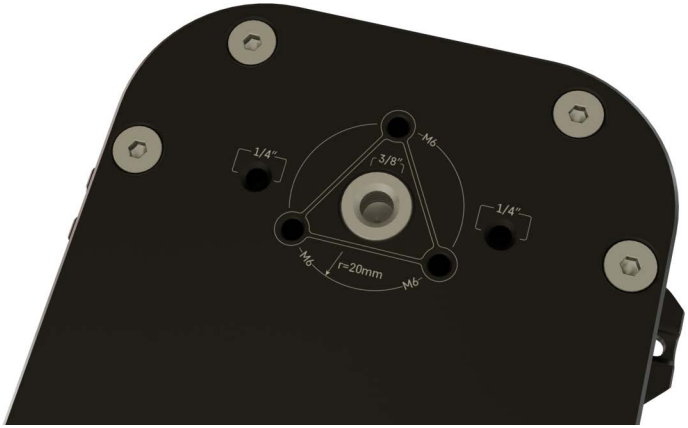
Mounting the Head

Carefully rest the head upside down on a flat surface and secure the plate on to the head using the 3x M6 screws.

Add the 2x M10 washers between the scaffolding clamps and the mounting plate before securing the clamps using the 2x M10x20 screws.



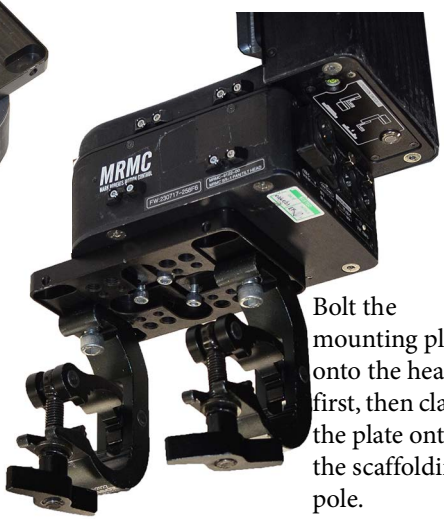
Use the supplied M6 screws to mount the head on to the plate.



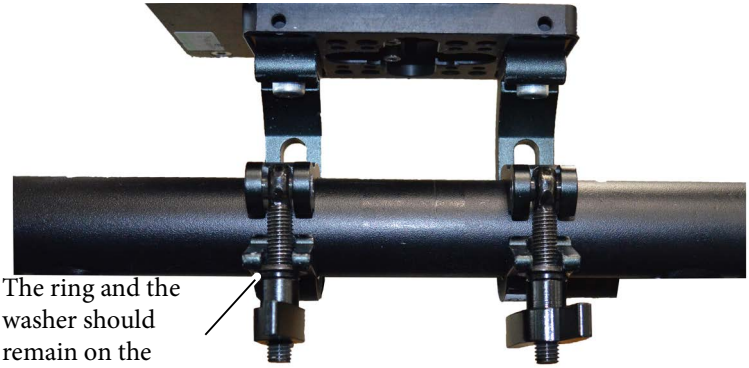
If required, replacement M6 screws can be secured from local/online stores (such as Speciality Fasteners or Amazon).

Depending on the direction of the mounting bar, the mounting plate can be rotated 90° with respect to the head.

Align the 3xscrew cavities in the head base and mounting plate and add 3x M6x12 screws



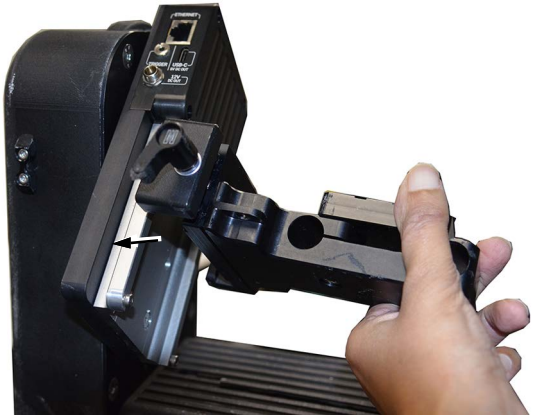
Bolt the mounting plate onto the head first, then clamp the plate onto the scaffolding pole.



The ring and the washer should remain on the outside when tightening the clamp screw

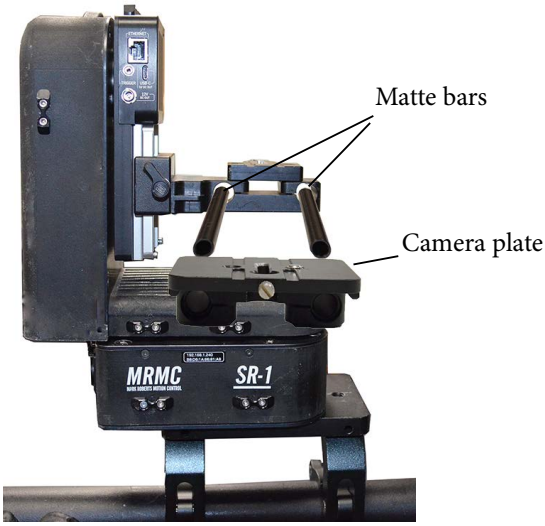
Mounting the Tilt Platform

Loosen the bracket on the tilt platform using the knob screw and simply add it to the tilt.



Once in position, tighten the knob screw to secure the tilt platform.

Mounting the Camera Plate



Adding the Roll Assembly

SR-1 head comes with a default tilt platform which can be replaced with a Roll.

1. Place the head on a firm platform. Detach the camera platform by loosening the knob and remove it.

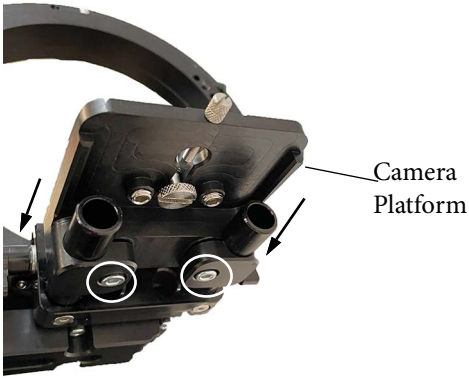
2. Loosen the knob in the roll assembly and add the roll assembly to tilt. Secure the roll assembly on tilt by tightening the knob.

Note

The 2x screws on the tilt prevent the camera platform/roll from accidentally sliding off and should never be removed.

Adding the Camera Plate

To add the camera platform to roll, loosen 2x screws on the platform and slide the platform on the matt bars and tighten the 2x screws.



Adding the Camera

The SR-1 camera plate comes with **anti-rotation boss** which prevents the camera from rotating. This can be added to one of the two cavities next to the camera screw or can be removed if the camera you are using doesn't have a compatible camera body.

If using the Nikon Z9 camera, using the anti-rotation boss on the camera plate as a guide, mount Z9 on the camera plate and use the camera screw to secure it.

Note

When using a short lens without using roll, ensure that the anti -rotation boss is used to secure the camera in place and to avoid zoom motor coming loose during movements.

Use the camera screw securing bolt to prevent the camera screw from falling out of the slot when not being used to secure the camera.

Adding the Lens Motor

Prepare the lens motor by adding the lens motor bracket on the vertical mount on the motor casing. (The Nucleus-M motor also allows for the horizontal mounting of the lens motor bracket. However for more stability always use the vertical mount on the motor casing.)

Add the lens motor bracket, as shown, to provide maximum room for tilt motion. (The lens motor bracket can be mounted on any one of the four locations on the roll ring. Mounting it at the top-right will give maximum space during roll motion.)

To add the lens control motor (zoom or focus), loosen the knob on the motor and that on the lens motor bracket. Slide the motor clamps on to the rod such that the motor gear meshes with that on the focus or zoom ring as intended.

You can daisy-chain up to three Tilta motors. You can use any software, such as NXField or MHC, to control manual lenses and keyframe.

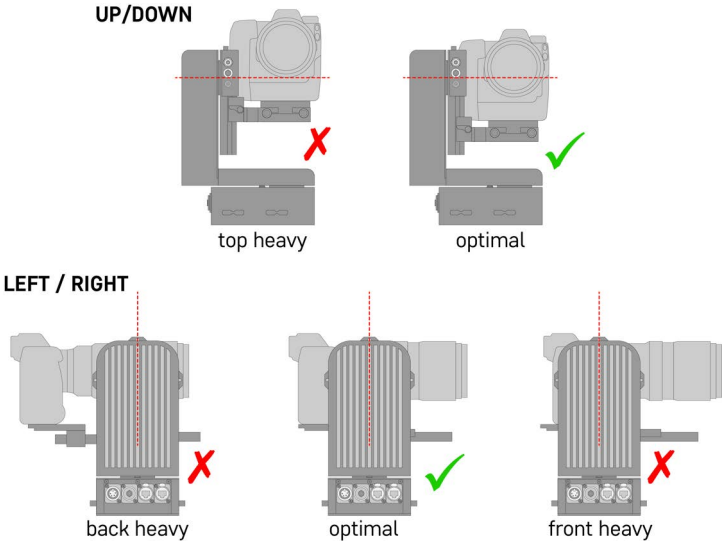
Note that adding multiple lens drives will increase the payload, so be careful with balancing the rig.

Balancing the Camera

Balancing the camera is always crucial and necessary for SR-1 to work correctly.

The SR-1 head is not a stabilized gimbal, and it does not need to be balanced perfectly, but the camera should be placed roughly in the centre to enable the motors to rotate and avoid excessive torque. This also will help to keep the frame when motors are not powered. If a camera is, for example, back-heavy (is moved significantly backwards), when you turn the head off, the frame will move up due to gravity.

Note that when the camera is unbalanced, the motor can lose steps. After that, the head will not "know" its real position, but simple homing will fix this.



Shifting the camera plate

When working with smaller lenses, sometimes you need to move your camera forward. The baseplate of SR-1 is modular and is designed to provide a high margin of adjustment.

Remove the lens support bracket (it won't be necessary for a short lens). Unscrew the camera baseplate and rotate it. In order to place it above the TILT arm, you may have to remove the position pins.

Mount the camera to the baseplate and attach it to the rods. Now, you can move the camera back and forth to find the best spot for mounting your lens motor and maintain the camera balance.

Note that the Z9 on the third image is moved too much forward (it won't be balanced properly) - it's just for reference to show available adjustment.

Using the Zoom Lens Support

1. To use the zoom lens support, the tilt plate needs mounted inverted, simply by turning it over so the clamp is on the other side.

2. Fix the rods first before mounting the camera.
3. Mount the plate to the camera bottom.

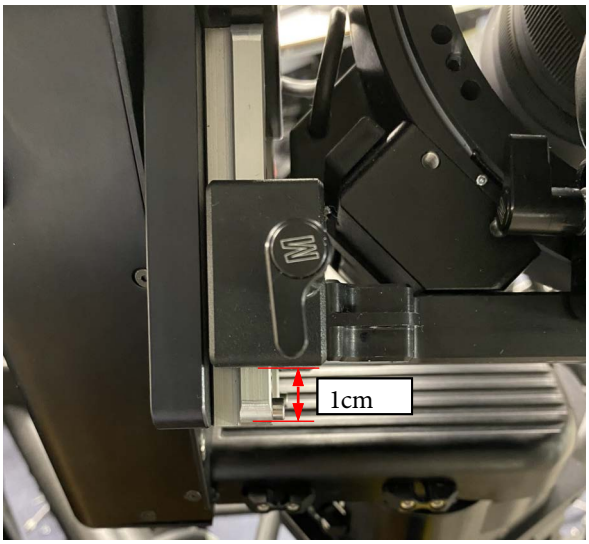
4. Slide the camera on the fixed rods, adjust for balance and fix the zoom lens foot and camera plate on rods.

5. Using a screw, secure the zoom lens foot to the support and tighten the camera plate on the rods.

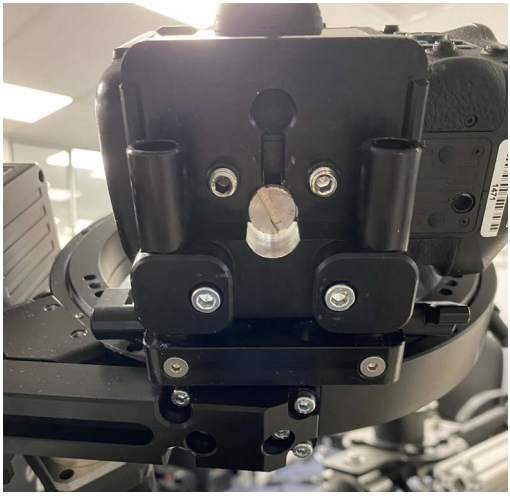

MRMC
SR-1

Notes Regarding Camera Platform Position

It is recommended that the camera platform or the roll assembly should be added to the tilt platform at a height of about 1cmso the camera does not hit the head during tilt and roll movements.This position is ideal even for longer lenses when the head is mounted overslung or underslung.



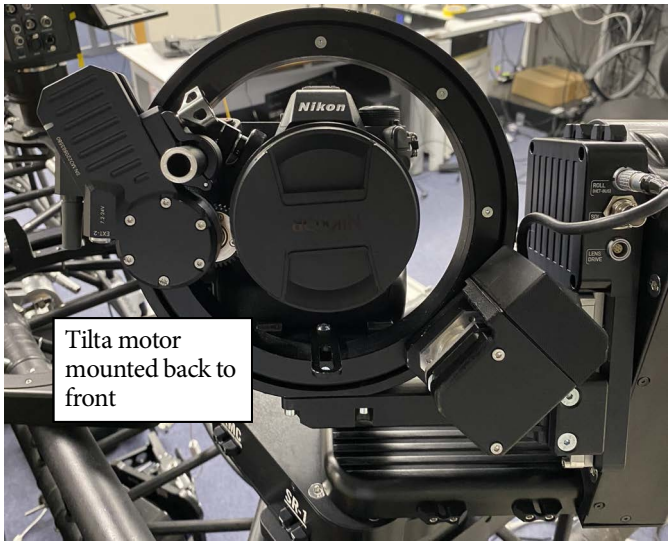
The recommended camera position is when the camera plate is moved all the way in and the camera screw in the following position:



Note

When using a short lens without using roll, ensure that the anti -rotation boss is used to secure the camera in place and to avoid zoom motor coming loose during movements.

For shorter lenses, mount the Tilta lens motor back to front for the lens gears to align and mesh, as shown.

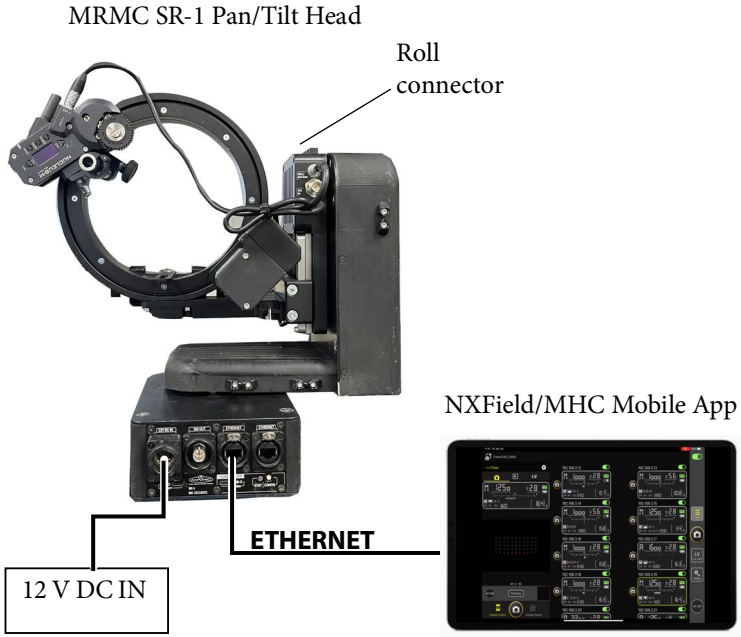


Position Switch

The position switch is designed to physically set the direction of mounting (overslung or underslung) for proper operation without further configuration.

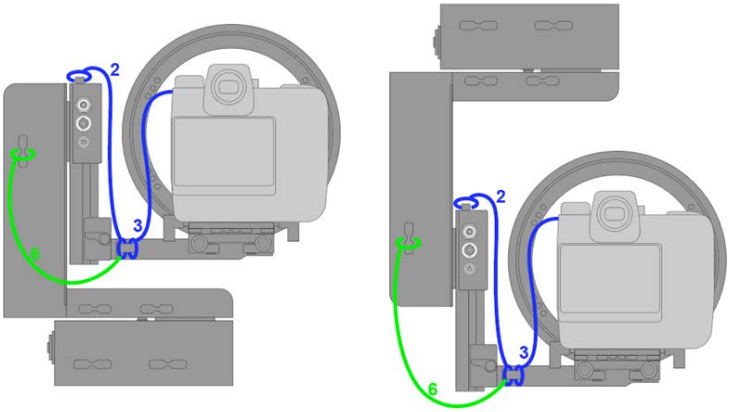
The correct position setting is crucial for homing the axes in the right direction. Position setting may be overwritten by a setting on the config page.

Connecting the Cables



SR-1 Camera Connections

Using the Safety Cabling



Example of safety cabling to be with SR-1

WARNING!

The warranty on the SR-1 may be void if the screws in the head assembly are unscrewed and put back. MRMC will not take responsibility for the eyelet to hold the weight/impact during a potential fall.

Network/Slidelink Communication Module

Slidelink v3.0 communication module connects the head to the network and allows the control of the individual axes, if needed.

Slidelink works in a few modes, indicated by the STAT LED colour:

LED colour	Function
RED	Off
BLUE	Ethernet

To change the connection modes, double-press the CONFIG key to cycle through the modes.

To restart the Slidelink v3.0 device, hold the CONFIG key for 5 seconds, until the STAT LED turns off.

To connect SR-1 to MHC/MHC Mobile, switch it to Ethernet mode and plug a network cable to any of the Ethernet ports on the head.

Setting up IP Address of the Head

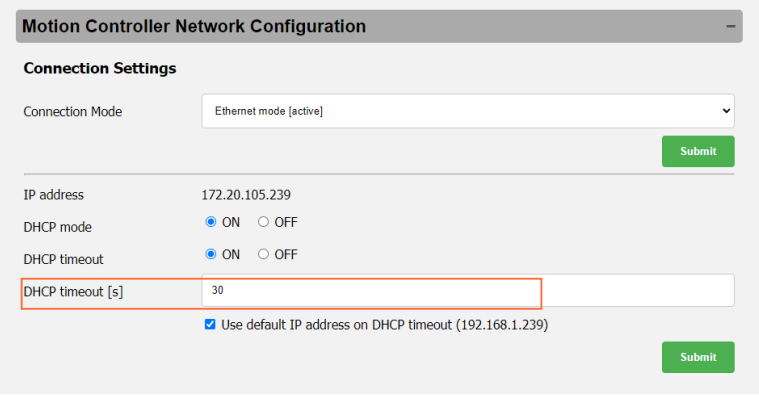
By default, the head uses DHCP protocol, so if your network uses DHCP, the IP address will be assigned automatically. If it does not receive a valid IP address in 30 seconds, temporarily (until next reboot) the IP is set to **default 192.168.1.239**. By using this address, you can open the config webpage of the device (http:\\192.168.1.239).

DHCP mode (on/off) – Default value is on. This is the same as it was before to turn DHCP on or off.

DHCP timeout (on/off) – Default value is on. This turns on and off the DHCP timeout feature. If it is off, then it will continue to try and get an IP address from the DHCP server and never revert to the default IP address of 192.168.1.239. If it is on, then it will revert to the default IP address of 192.168.1.239 after the defined DHCP timeout time if unable to connect to the DHCP server.

DHCP timeout[s] – Default value is 30 seconds. The timeout time for reverting to the default IP address if unable to connect to the DHCP server.

Use default IP address on DHCP timeout (192.168.1.239) – Default value is checked. If checked it will use the default IP address of 192.168.1.239 when DHCP timeout is reached. If unchecked, then user can define an IP address, subnet mask and default gateway to set when DHCP timeout is reached.

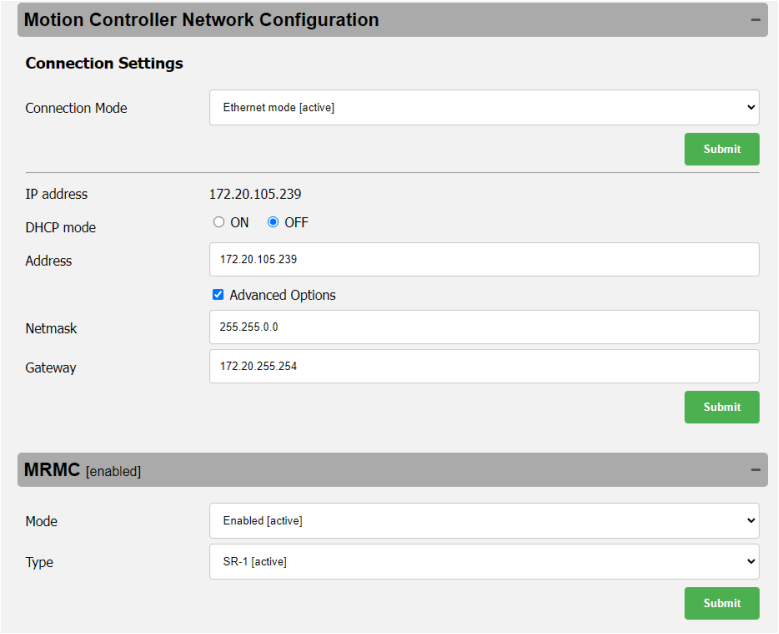


To set a static IP address:

1. In the “Motion controller IP Configuration” tab, for DHCP mode, select ‘OFF’.
2. Type the static IP address and clicking the Submit button.

Reboot the device after applying new settings to refresh the IP address assignment.

To use the SR-1 with MRP protocol (required for MHC), enable it in the MRMC tab and choose ‘SR-1’ mode. The ‘Connection Status’ in the Slidelink module will change to ‘Online’.



The device is ready to operate using MHC/MHC Mobile.

Restoring to Default Settings

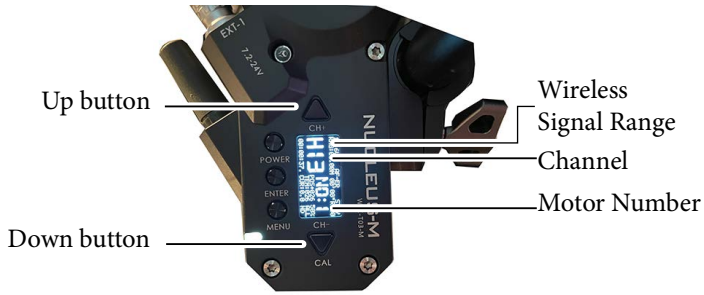
To reset to default settings, hold the CONFIG key for 10 seconds, until the STAT LED starts flashing.

Setting the Channel on the Lens Motor

The SR-1 remote head supports up to 3 TILTA Nucleus-M motors connected in series. To be correctly recognized by the controller (e.g. MHC software), the motor requires a channel assignment. The standard channel order is:

1. FOCUS
2. ZOOM
3. IRIS

To use the full manual lens on the head, the lens motor's channel should be set correctly. Otherwise, the motor will respond to commands sent to another axis.



To do this:

1. Power the TILTA lens motor on.
2. From the Home screen, double-press the **MENU** button to open the menu system.
3. Continue pressing **ENTER** until 'M' is selected. This value represents the '2.4G' or Long Range Value:
    - **H MAX**: Farthest Wireless Distance, High Power Consumption
    - **M Medium**: Recommended Wireless Distance, Average Power Consumption
    - **L MIN**: Short Wireless Distance. Low Power Consumption
    - **OFF**: No Wireless Signal Transmitted; Used when hardwiring to motor.

4. Navigate using 'Up' and 'Down' buttons to highlight '**WIRELESS**' and double-press **ENTER** to confirm.
5. Press **MENU** to return to the Home screen.
6. Double-press 'Up' and 'Down' buttons to change the channel. Set the Channel to '**01**' then press **MENU** to return to the Home screen.

Setting the Motor's Motor Number

If the motor you are configuring is, say the Focus motor, it should be assigned to Motor No. 1.

1. Form the Home screen, double-press the **MENU** button to open the menu system.
2. Use 'Up' and 'Down' buttons to assign the Motor a number between 1 and 4. Motor numbers can be set for motors as follows:
    - Focus → Motor No 1
    - Zoom → Motor No 2
    - Iris → Motor No 3
3. Use 'Up' and 'Down' buttons to highlight 'Motor No.' and double-press **ENTER** to confirm.
4. Press **MENU** to return to the Home screen. On the Home screen, check that the Motor number has been set correctly.
5. Repeat the steps above to match the corresponding Motor No. 2 and with Zoom and Iris motors, respectively.

Using the SR-1 System

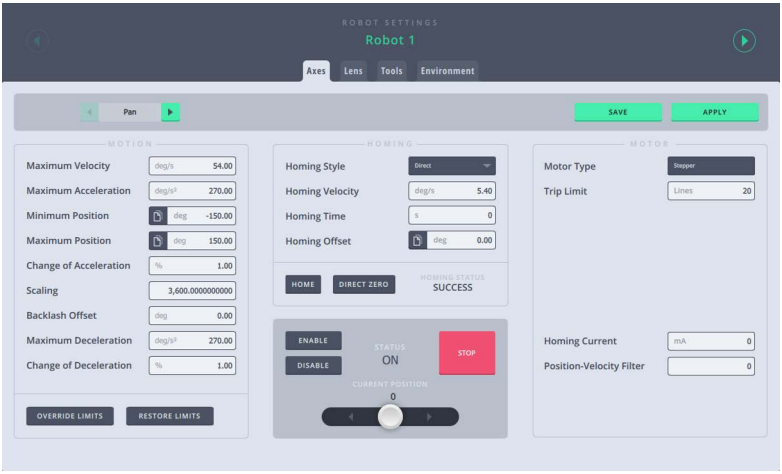
SR-1 Pan/Tilt Head can be controlled by MRMC MHC software application. Refer to *MHC Quick Start Guide* for detailed instruction on using the software.

Power up the system by connecting the 12V DC in power supply. The lens motor will have power once the cable is connected.

Homing the head

To ensure that the presets are repeatable and position values are accurate, SR-1 needs to be homed after every power up.

1. To home each axis, launch MHC.
2. Log in as a User – Operator, Engineer or Supervisor.
3. Click/press  →**Robot**→**Axes**. Select **Pan** axis. Click the **Home** button.



4. Similarly, home **Tilt**, **Roll** and **Focus**/**Zoom** axis.
5. Use the MHC main screen to operate the head.

Automatic homing after every power up can be turned on using the Slidelink Config page.

Notes

Appendix 1 **Specifications**

Physical Specifications

Power 12V; Max Current 11.5A

Payload 4Kg (Z9 + lenses is up to 3kg, Tilta lens drive – 0.22kg) (requires the SR-1 to be balanced more or less); you could get away with a heavier SR-1 but with better balancing or limiting the speed/accelerations.

Weight– 4.7 kg, 6.1 kg with roll axis

PAN – Max Speed: 30°/s +/-5%

PAN – Max Acceleration: 150 °/s² +/-5%

PAN – Range: -150°/+150°

PAN – Repeatability (Preset) possible error <0.05°

PAN – Home Tolerance: +/-5% Forward / Upright / Level

TILT – Max Speed: 30°/s +/-5%

TILT – Max Accel.: 150 °/s² +/-5%

TILT – Range (Normal): -170°/+60° +/-5%

TILT – Range (Inverted): -130°/+170° +/-5%

TILT – Home Tolerance: +/-5% Forward / Upright / Level

TILT – Repeatability (Preset) possible error <0.05°

ROLL – Max Speed: 18°/s +/-5%

ROLL – Max Accel.: 90°/s² +/-5%

ROLL - Range: -165°/+165° +/-5%

ROLL Repeatability (Preset): +/-1%

ROLL – Home: +/-5% Forward / Upright / Level

Video Stream: 3G-SDI

Operating Env Temp: -10°C/+50°C

Operating Env Humidity: < 60%

Storage Env Temp: -15°C/+60°C

Power LED Blue

Connections

Ethernet:

All RJ-45 ports are connected to the Ethernet switch inside.

The double port at the base is for cases when you have only one cable to connect to an external network, but you need to connect the PC or iPad with SR-1. Then, you can use the internal switch. Alternatively, you can use it to daisy-chain a few SR-1s to the network.

The tilt cradle port is for the camera and goes to the same internal switch.

USB ports:

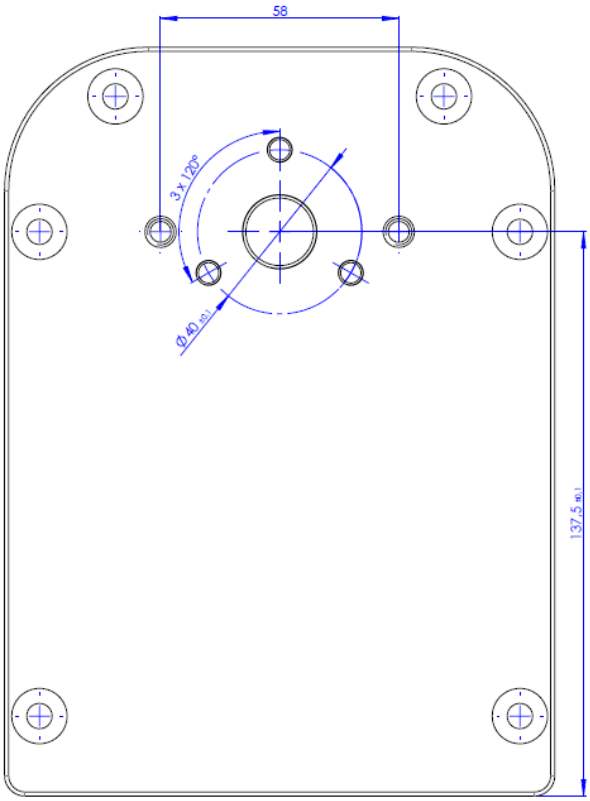
- Slidelink - for firmware update and connection

- 5V out on the base - as stated, power output, no data (e.g. for SDI-HDMI converter);
- 5V out on the tilt cradle - power out
- There are two hidden USB ports underneath the position switch cover for firmware updates of the motor drivers.

Nikon 10-pin: Only shutter release/focus is supported.

SDI pass-through: This is a pass-through connection

SR-1 Base Plate

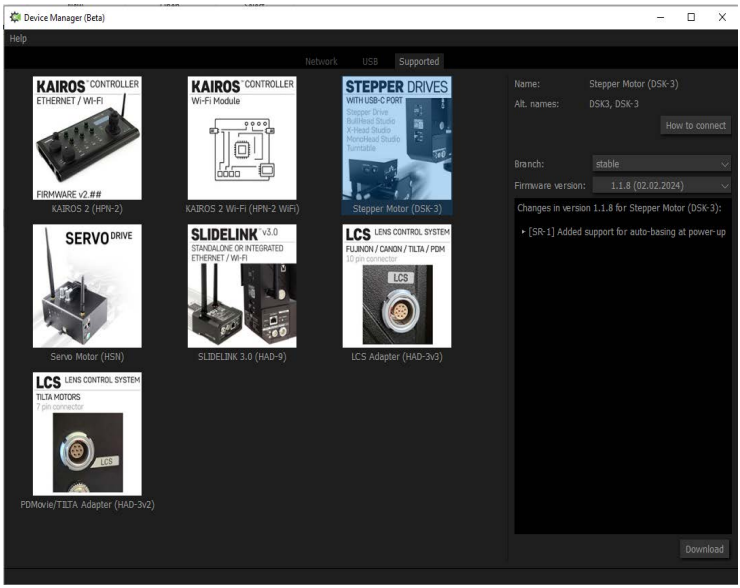


Notes

Appendix 2 **Service and Maintenance**

Device Manager Overview

Device Manager is the software required for firmware updates. Download the most recent version of 'SlideKamera Device Manager' from here. There are two versions available: for Windows and macOS operating systems. The software automatically checks the current version online and prompts you if there's a new version available for download.



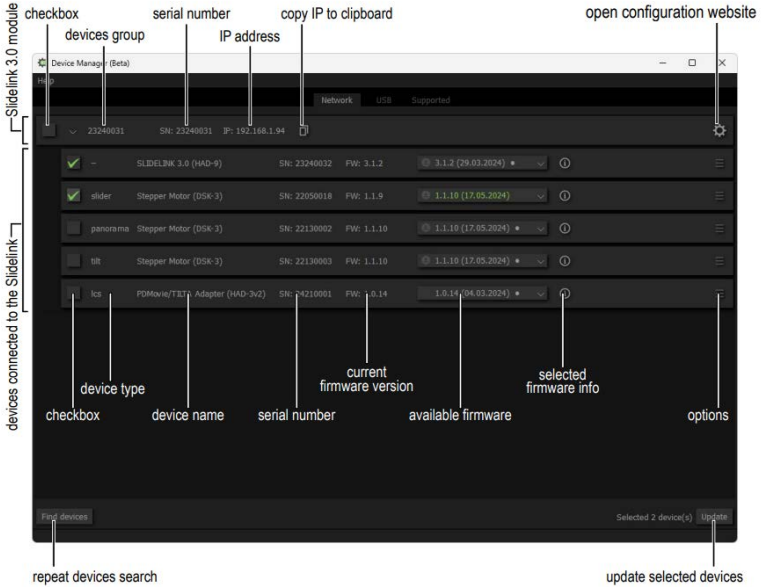
User Interface

The NETWORK tab

The NETWORK tab is used to detect devices over Ethernet (Slidelink v3.0 communication modules and other devices connected directly to the Slidelinks). The devices form a tree structure, with the Slidelink bar on the top and connected devices bars below.

From this tab, you can remotely update the device firmware, if the current firmware supports this feature. Only devices, that are upgradeable over the network will appear below their Slidelinks. Therefore, if you want to

check the complete list of the elements of a particular group, open its config page using the cogwheel button.

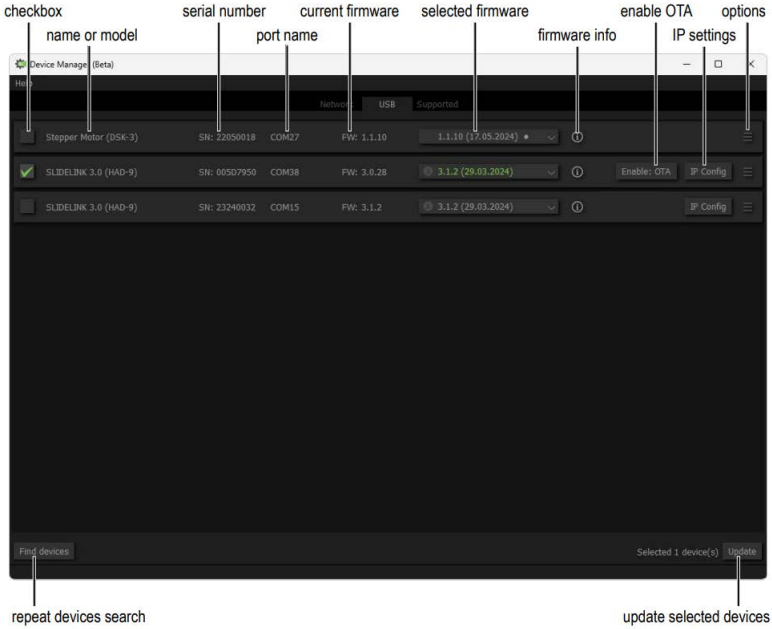


The USB tab

The USB tab is used to manage devices connected directly to the computer using a USB cable.

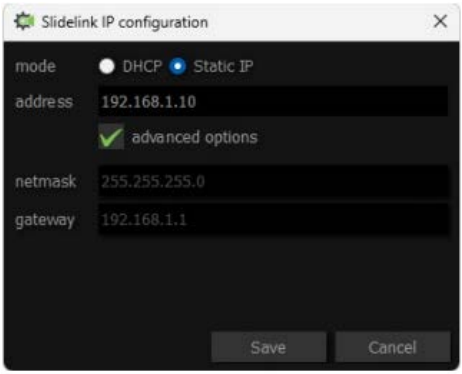
Features specific to the Slidelink modules:

Enable: OTA (Over The Air) - this feature enables you to update the Slidelink. For details about enabling OTA, *Enabling OTA* on page 44.



IP Config - if you want to work with your Slidelink over Ethernet, you need to configure its IP address. By default, the IP is obtained automatically, using the DHCP protocol. If you need to set up a static IP address, you can use the config page of the Slidelink, or use this IP Config window. To set the IP address:

1. Press the **IP Config** button on your Slidelink's bar, located on the USB tab. A pop-up window will appear with additional settings.
2. Select **Advanced** options to edit netmask and gateway.



They're set automatically if the Advanced options checkbox is unselected.

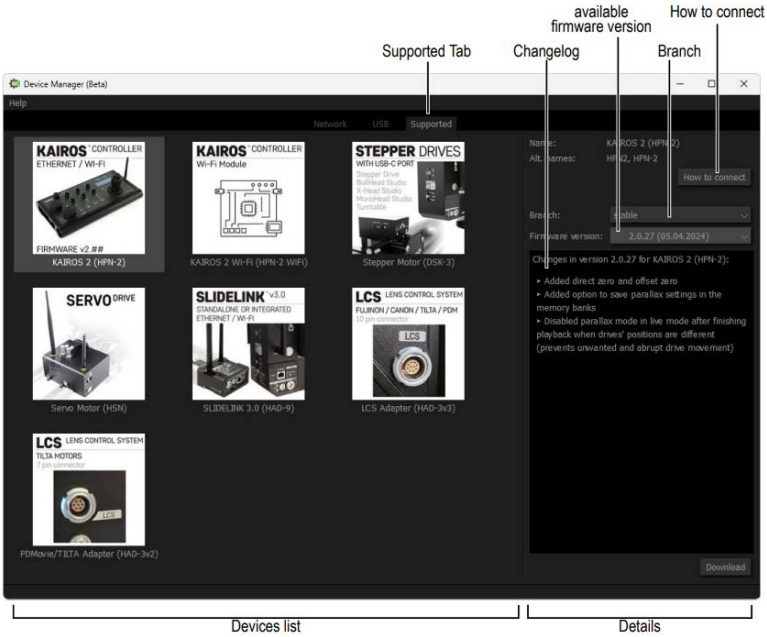
3. You need to reset the Slidelink module for the changes to take effect. A corresponding window will appear after you press the [Save] button. Select [Reset] and wait a few seconds for the device to reboot.

4. If your computer is connected to the same subnet as you set up for the Slidelink; It will be available under the new address in the Network tab.

The SUPPORTED tab

The SUPPORTED tab includes the list of products supported by the Device Manager. This list is loaded after each software startup and shows the most recent devices list and their firmware versions.

- **Devices list** - it includes name and the image of the device
- **Details** - alternative product names and partcodes
- **How to connect** - instructions for connecting selected device over USB Branch - type of the software for update; stable is recommended for all users, as it's tested and guarantees the most stable workflow; use beta versions if you're instructed by Slidekamera support to do so or you're OK with the risk of unstable performance in exchange for new features;
- **Firmware version** - available releases to install on a particular device;
- **Changelog** - details for the selected firmware
- **Download** - stores selected firmware for use in the OFFLINE mode



Updating devices

Update over USB

To Update over USB, follow these steps:

1. Switch to the USB tab.
2. Connect the USB cable to the computer.
3. Connect the USB cable to the Slidekamera device.
4. Press the [Find devices] button (bottom left corner) to repeat devices search.
5. Wait for the detection to finish (it may take a few seconds).
6. The device will appear on the list.
7. Check the device(s) you wish to update using the checkboxes on the left side of the window.

8. Choose the firmware version (the most recent stable version is recommended, it's selected by default and highlighted in green).
9. Press the [Update] button, the progress bar will appear at the bottom of the window.
10. After the finished update, the "Upload process has been successful" message will appear. In case of an error, you'll be notified about details.
11. Press the [Finish] button.

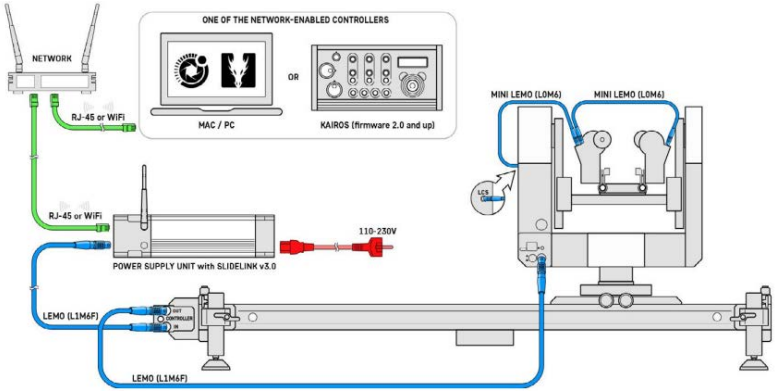
The devices list will be automatically refreshed.

Network update

This procedure requires using a Slidelink v3.0 (HAD-9) network adapter with firmware version 3.0.34 or above and OTA feature activated.

For activating OTA feature, refer to *Enabling OTA* on page 44.

The Slidelink v3.0 module is integrated into the SR-1 base.



Example of a network-connected group of devices.

TIP

All devices you wish to update should be connected to the Slidelink v3.0 via the HET-BUS connection and have the firmware version that allows you to use this feature (more info about the firmware versions is available in the "Supported" tab in the changelogs).

To update over the Ethernet, follow these steps:

1. Connect devices to the Slidelink (SlideLink v3.0 is part of SR-1)
2. Power on the devices (the Slidelink and the drives)
3. Ensure that the Slidelink is connected to the same network as your computer; you can use your existing network, a direct Ethernet connection between your computer and the slidelink, or use Slidelink's Wi-Fi access point (refer to the Slidelink manual for details).
4. Open the Device Manager and go to the Network tab.
5. Press the [Find devices] button (bottom left corner).

   Wait for the detection to finish (it may take a few seconds). The devices will appear on the list.
6. Check the device(s) you wish to update. Selecting the group bar will select all included drives. If you wish to update only the Slidelink module, it's listed as a separate item on the list below.
7. Choose the firmware version (the most recent stable version is recommended, it's selected by default and highlighted in green).
8. Press the [Update] button, the progress bar will appear at the bottom of the window.
9. After the finished update, the "Upload process has been successful" message will appear. In case of an error, you'll be notified about details.
10. Press the [Finish] button.
11. The devices list will be automatically refreshed.

Enabling OTA

OTA update (Over The Air) is a feature of the Slidelink v3.0 module to receive the firmware update using the network connection.

Enabling OTA will allow future updates of the Slidelink v3.0 without the need for a USB-C cable. This is convenient if you control the devices over Ethernet on a daily basis.

OTA is enabled by default in current units, but it was not available when the Slidelink v3.0 was initially released, so not all devices have this activated.

To verify, if your Slidelink has OTA enabled, you can use two ways:

A:

1. Connect the Slidelink via USB-C to the computer
2. Go to the USB tab and refresh the list
3. The [Enable: OTA] button will appear next to the Slidelinks without this feature.
4. Alternatively, in the Options menu [?], choose “Device details”, find the “OTA enabled” line and check the value.

B:

1. Connect the Slidelink via Ethernet.
2. Go to the Network tab and refresh the list.
3. Locate the devices group on the list.
4. If the Slidelink is visible as an element in the group, OTA is active and you can update it.

To enable OTA on your Slidelink v3.0, follow these steps:

1. Switch to the USB tab.
2. Connect the USB cable to the computer.
3. Connect the USB cable to the Slidelink.
4. Press the [Find devices] button (lower right corner).
5. Wait a few seconds for the detection.
6. The device will appear on the list.
7. Press the [Enable: OTA] button on the right-hand side of your Slidelink’s tab.
8. The progress bar will appear at the bottom of the window.
9. The device will be automatically updated to the latest available firmware version.
10. After the finished update, the “Upload process has been successful” message will appear. In case of an error, you’ll be notified about details.
11. Press the [Finish] button.

Your device is ready for update using the network connection.

Firmware Updates

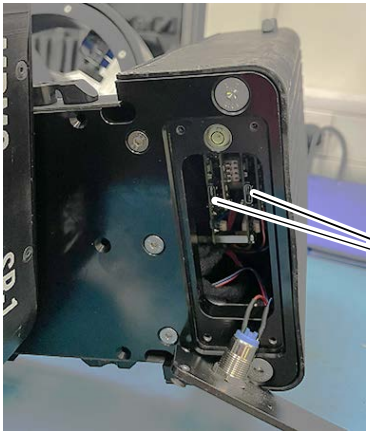
Follow the below sequence to update SR-1 firmware via USB:

1. Update motor drive firmware for PAN, TILT and ROLL
2. Update SlideLink firmware
3. Update Lens Control System firmware
4. Configure IP and MRMC settings in Web server interface

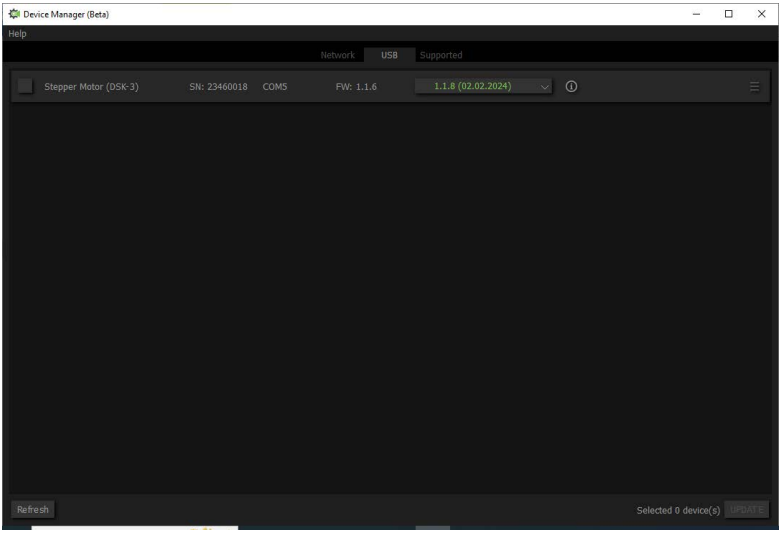
Updating the PAN, TILT and ROLL motor drive firmware via USB

1. In Device Manager, select the option for **Stepper Drives**.
2. Remove all cables from the head.
3. Remove 4x small screws from SR-1 arm to access the PAN and TILT motor drive USB ports.

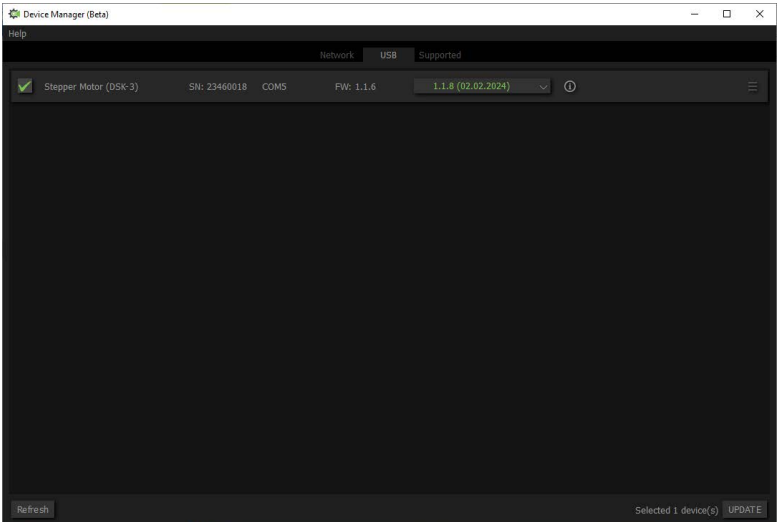
4. Connect the USB cable from PC to one of the motor drive USB C ports.



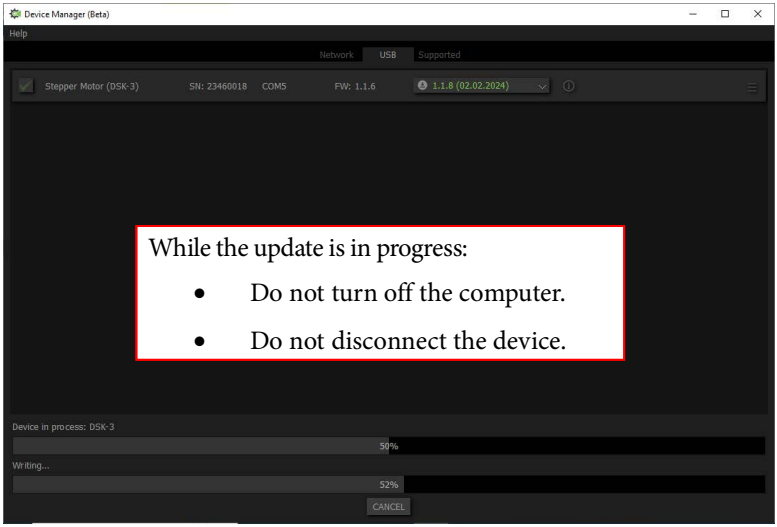
5. Click the USB tab at the top. The updater software should detect the new firmware. If not, click the REFRESH button at the bottom..



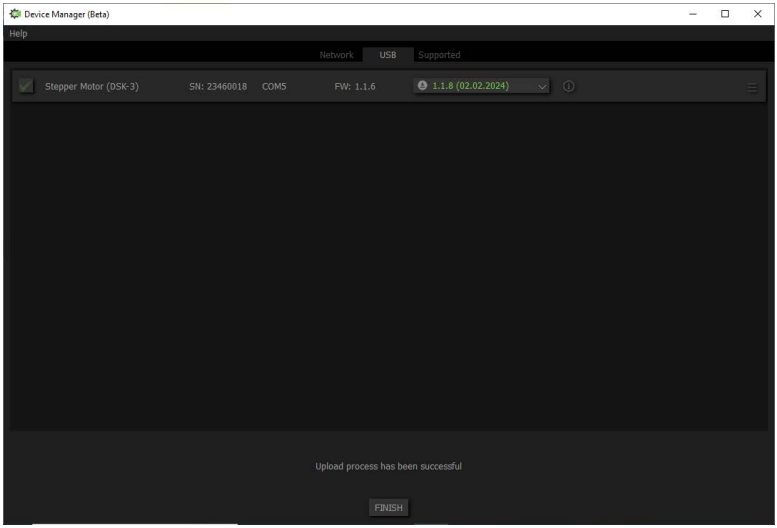
6. Select the ‘Stepper Motor DSK-3’ and ensure that the latest version is selected in the drop-down list.



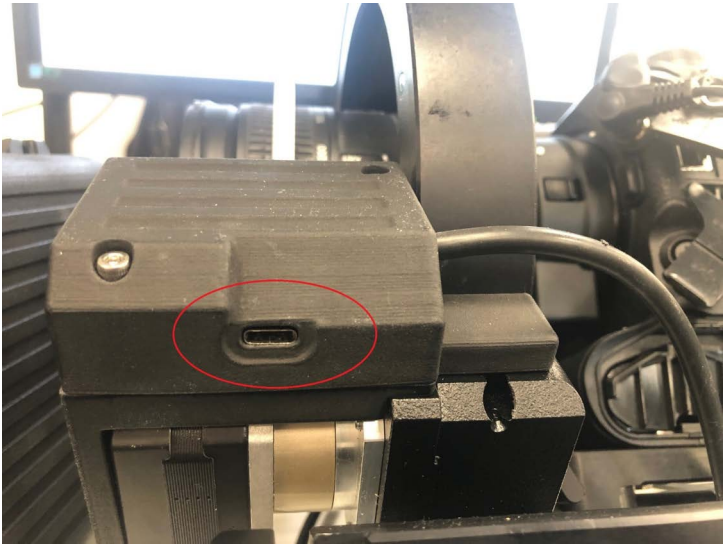
7. Click UPDATE. The firmware update process starts..



8. At the last screen of the updater, click FINISH.

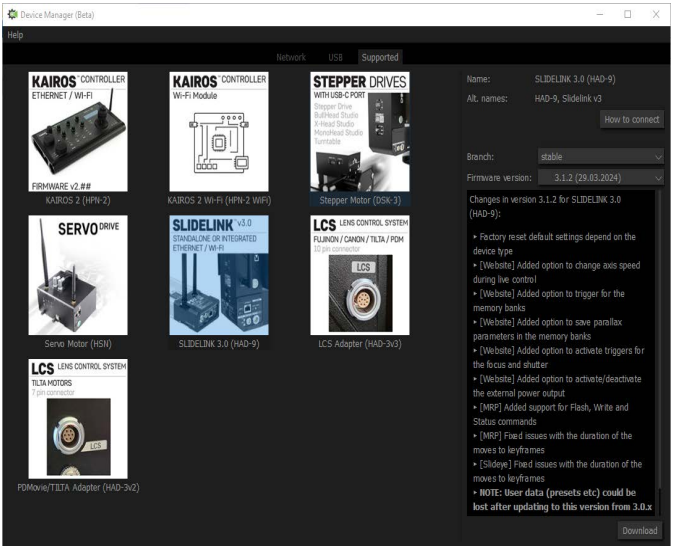


9. Now repeat the process for other USB port in the arm and then for the roll. Image below shows the ROLL USB port which is accessible externally.

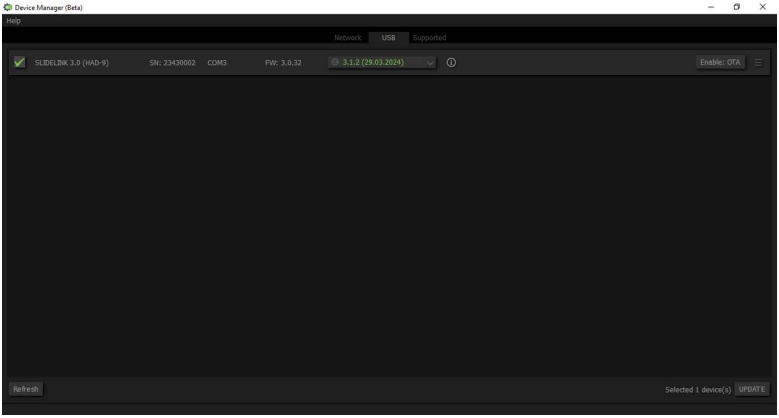


Updating SR-1 SlideLink with released firmware

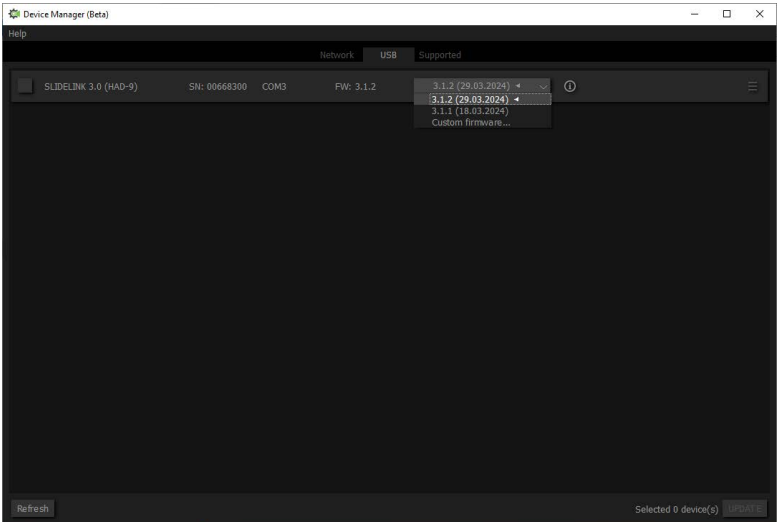
1. Remove ALL cables from the SR-1.
2. Connect only the USB cable between PC and SR-1 (connect to the ‘SlideLink 3.0’ USB-C data port which can be found just below the Ethernet port).
3. Start the ‘SlideKamera Firmware Updater’ on the PC.
4. Select the SLIDELINK v3.0 icon.



5. Click the USB tab at the top. The updater software should detect the new firmware. If not, click the REFRESH button at the bottom. Select 'SLIDELINK3.0 (HAD-9)'.

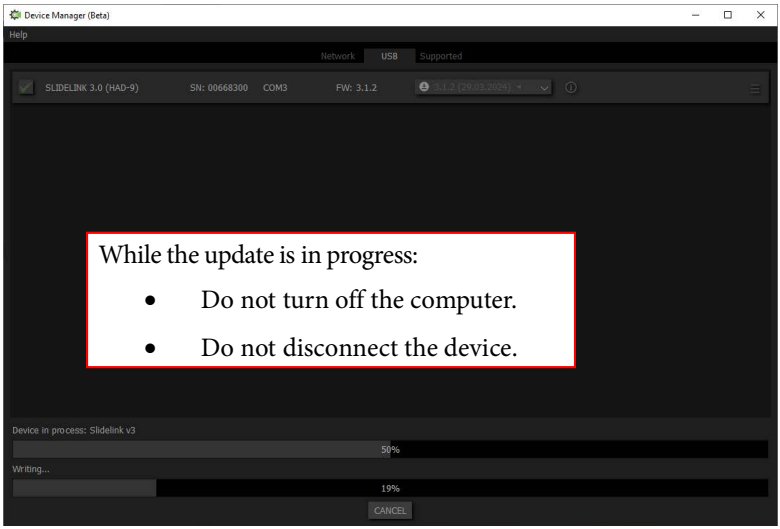


6. A drop down list shows all available firmware versions including unreleased beta versions.

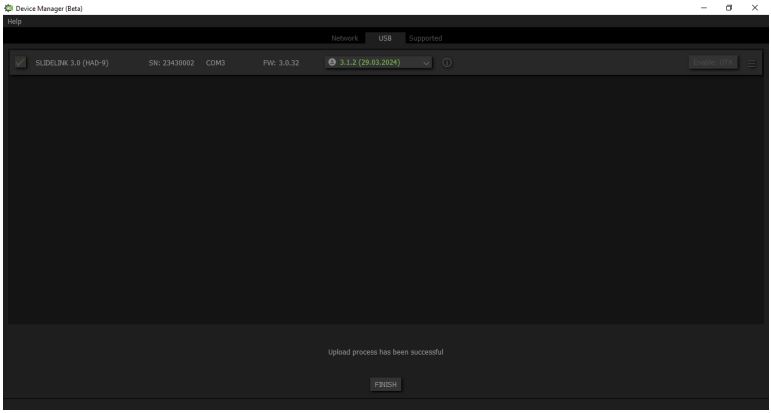


7. Select the latest firmware version and then click the UPDATE button.

8. While updating the screen above will show the progress of the update.



9. Once update is complete, the 'UPDATE SUCCESSFUL' message appears. Click FINISH.

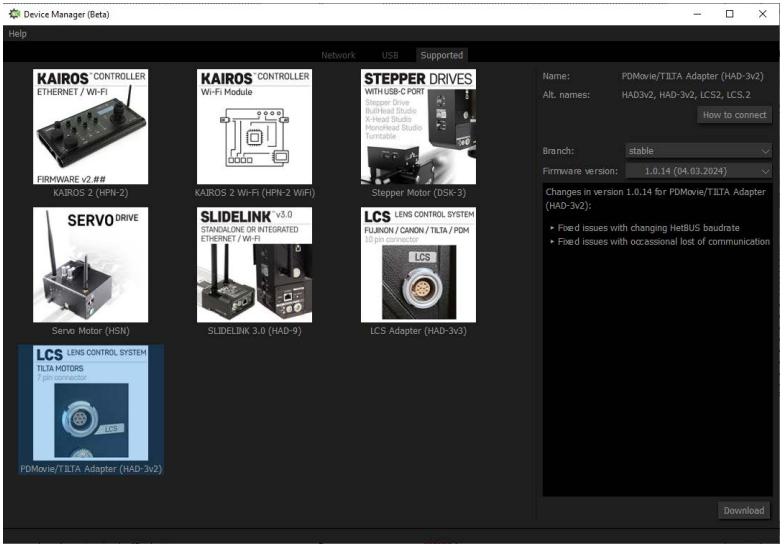


11. Disconnect the USB cable.

12. Now restart the SR-1 and reconnect the cables to start using the new firmware.

Updating SR-1 Lens Control System firmware

1. Remove all cables from the SR-1.
2. Connect only the USB cable between PC and SR-1 (connect to the 'Lens Control Adapter' USB-C data port which can be found next to the 7-pin connector for lens control motor).
3. Start the 'SlideKamera Firmware Updater' on the PC.
4. Select the Lens Control System (LCS) icon.



5. Follow on screen instructions and select the latest version of firmware and start the update.
6. Once update is complete you should see the 'UPDATE SUCCESSFUL' message.
7. Disconnect the USB cable.
8. Now restart the SR-1 and reconnect the cables to start using the new firmware.

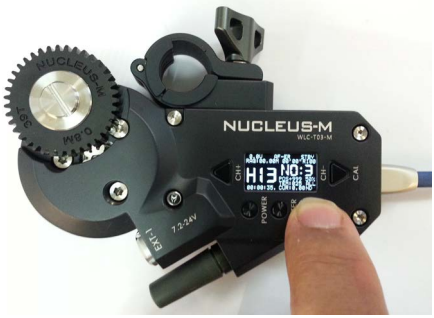
Updating Firmware Tilta Nucleus-M Lens Motor

To upgrade to a new version of firmware on the Tilta Nucleus-M Lens motor:

1. Check the current firmware version by following the steps below:

   1.1 Insert the USB cable into the side of the motor and the other end into the PC.

   1.2 When the display appears, double-press the MENU button.



1.3 Press the 'CH+' button to scroll until the arrow on the display points to the "Information" tab.

1.4 Press the ENTER button. The display should read as below. The line in the red box should be **V:23.07.18**.

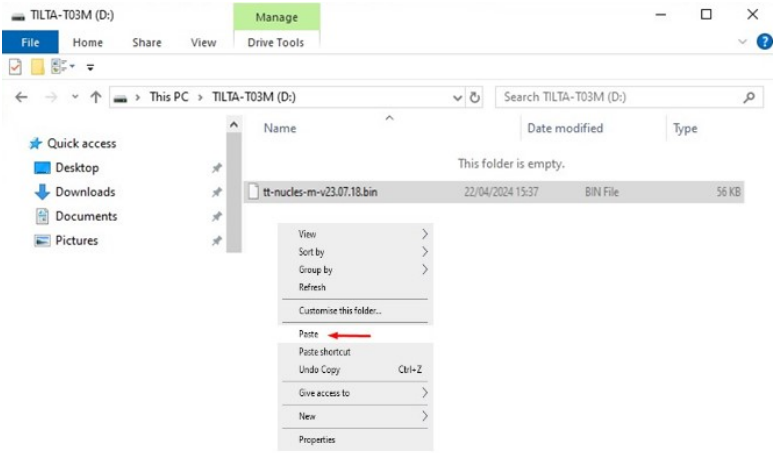
2. If not, follow the steps below to update the firmware:

2.1 Unplug the USB cable from the motor.

2.2 Press and hold down the CH+ and the CH-/CAL buttons simultaneously with one hand, as shown below.

2.3 While still holding the two buttons down, plug in the USB cable to the side of the motor. Keep holding the buttons down until the empty Tilta folder appears on the PC and the display on the motor changes as shown..

2.4 Download the new firmware file from https://download.mrmoco.com/tt-nucles-m-v23.07.18.bin and paste it into the folder, **TILTA – T03M(x)**.



After the update, the motors will need to be calibrated. Press the 'Calibrate' button for 3 seconds and the motor will find both end stops.

Configuring the IP address and axis port numbering of the SR-1 for the first time

This section applies only to **selected heads equipped with the Wi-Fi** feature (e.g. existing prototypes). To configure IP address for SR-1 v3 (newer prototypes), follow the procedure detailed in *Network/Slidelink Communication Module* on page 27.

You can access the web interface for the SR-1 by first connecting to its Wi-fi connection point (password: slidekamera). If there are multiple options, check the serial number of the SR-1 unit you are connecting to (this can be found on the base of the SR-1 below the SDI OUT port).

Example:

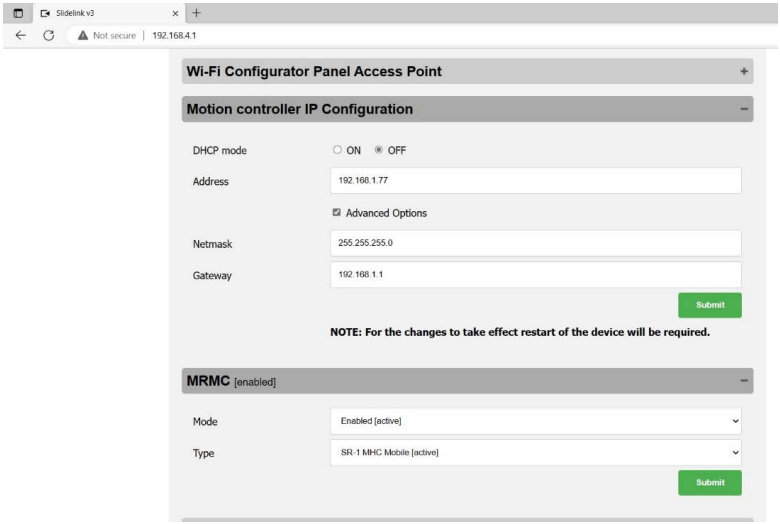
- Serial Number: 23110012
- Wi-fi connection point name: SR-1_23110012

Then open a web page with address 192.168.4.1.

Open 'Motion controller IP Configuration' from the web interface menu.

Set the required network settings and press the submit button.

NOTE: Restart of the SR-1 is required for the changes to IP settings to take effect. (This can be done remotely using the Tools section of the web interface menu)



Ensure that the setting under MRMC section are as follows:

- Mode: Enabled
- Type: SR-1 (for use with MHC on PC)
- Type: SR-1 MHC Mobile (for use with MHC Mobile on IPad/ IPhone)

You will now be able to find and connect to the head through MHC or MHC Mobile.

Notes

CE

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