SRH-3

Trouble Shooting 1.0

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Imprint

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Scope

This document describes the components and the setup and programming of the **SRH-3** Remote Control.

Disclaimer

Before using the products described in this manual, be sure to read and understand all the respective instructions.
Otherwise the customer must contact ARRI before using the product.
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For your safety

⚠ Warning
The SRH-3 system and products should only be used by experienced and trained operators. This product is NOT designed for inexperienced users and must not be used without proper training. **ARRI recommends that all users of the SRH-3 system read the manual in its entirety prior to use.**

All directions are given from a camera operator's point of view. For example, camera-right side refers to the right side of the camera when standing behind the camera and operating it in a normal fashion.

The appendix at the back of the manual contains useful reference material including specifications, connector pin-out diagram.

Before use, please ensure that all users comprehensively read, understand, and follow the instructions in this document.

1.1 **Risk Levels and Alert Symbols**

Safety warnings, safety alert symbols, and signal words in these instructions indicate different risk levels:

⚠ DANGER
DANGER indicates an imminent hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ Warning
WARNING indicates a potentially hazardous situation which, if not avoided, **may result in** death or serious injury.

⚠ CAUTION
CAUTION indicates a potentially hazardous situation which, if not avoided, **may result in** minor or moderate injury.

NOTICE
NOTICE explains practices not related to physical injury. No safety alert symbol appears with this signal word.

NOTE
Provides additional information to clarify or simplify a procedure.

User Advisory / Application Requirements

The SRH-3 system and products should only be used by experienced and trained operators. This product is NOT designed for inexperienced users, and must not be used without proper training.

Stabilization of Remote Heads is an extremely complex and at times difficult task and therefore stabilized remote heads do have their limitations. For example, the SRH-3 will only correct for angular movement and not parallel movement. This means that when the SRH-3 is attached directly to a lift, or to a pole, or structure that is subjected to vertical movement, it cannot compensate for lift as it moves up and down (because that movement is parallel). In order to absorb vertical and parallel movements, the SRH-3 must be mounted on a suitable shock absorber.

Stabilization systems are limited by engine power, as well as their bandwidth or frequency response. Very fast movements required to correct the camera position may not be within system capabilities. This can be seen when using longer lenses.
The use of suitable Iso Dampers devices improves the application.
Mounting a suitable Iso Dampers device between the SRH-3 and the mounting point of the head, will soak up the fast, unwanted movements, leaving the stabilization with unwanted movements that are slower and within the bandwidth of the system.
There are many Iso Damper devices that follow different designs and qualities. Choosing the right Iso Damper is as important as the stabilized head itself.
Another purpose of Iso Dampers is that they decouple the stabilized remote head from some resonance and flexing of the mounting point.

All gimbal-based stabilized remote heads will always face some kind of drift.
Drift is unwanted movement of the system usually caused by the gyros and the earth’s rotation, which can’t be measured by the MEN sensors.
Drift is normally measured in degrees per hour.
The SRH-3 has a very small amount of drift that would only be noticed while the head is stationary over a long period of time. The average drift can be up to approximately 10° in 30 minutes.
Drift can also be caused by a non-calibrated joystick or a loose camera setup, or an Iso Damper that is too soft.

Reduction of flexing or bending of the camera and lens package, and flexing of the remote head attachment are critical. The overall setup needs be as rigid as possible because any flexing can cause the head to vibrate or oscillate. Every attempt to improve the stiffness of the camera setup and the head attachment, and to reduce or eliminate any flexing should be made.

Many different camera and lens packages can be used with the SRH-3, and there are also many different ways to mount the SRH-3. As a result, it is not always possible or practical to obtain perfect conditions regarding rigidity and balance. This may cause the load to become unstable and it will then shake and oscillate when the stabilization is active. In these situations, adjustment of the PID parameters will be required. The correct setting of these PID values is crucial for the proper working of the system.

An unbalanced camera setup will place more strain on the motors of the SRH-3. The system will need more force to move the load and this will sometimes increase the possibility of the load becoming unstable, and that the SRH-3 may over compensate or shake and oscillate.

Please remember that what the SRH-3 is mounted on, and the manner in which it is mounted, will directly impact on its performance. The total mass of the head and its load are an important consideration when choosing how and where to mount it. This torque will change in direction and amplitude in varying amounts. The more solid the mount, the easier it is for the system to perform well. Sometimes even the levelling linkage on a camera crane will have play or backlash that allows the mounting point to move slightly when loads are reversed. If there is mechanical play between the components in the shock absorber, vibrations of the overall system may occur. Iso Dampers with the appropriate dimensions and hardness should always be used - the system may become too elastic if the Iso Damper used is too soft, causing vibration.

Wiggle in framed picture

NOTE
Any loose part, like loose clamps, or accessories, or part which can move because of wind force or pressure cycle can cause vibrations.

NOTE
If a long or heavy lens is mounted a lens support is recommended.

- Test the stiffness of the camera by pushing the back of the camera package against the ring.
  If you can see a slight movement / flexing use a top support bracket to get the camera setup solid.

K2.0019727

HINT
A fast quick fix can be a small wooden wedge placed between the camera top and the ring.

- Check the setup where the SRH-3 is mounted at.
  (Damper, Mitchell Mount, Dolly and so on)
- Hold the base of the pan axle with both hands and try to twist or move the base.
- If you can feel a small play, check the attachment, like the castle nut of the Mitchell Mount.
  Check if all other screws are tighten too, like the Mitchell Mount thread mounted to the base of the SRH-3.
- Also control all following mechanical and support parts and products, like:
  Iso Damper, Spring Arm and Speed Rails.

NOTICE
Any play in the connections and attachments will generate vibrations.

NOTE
The SRH-3 can compensate circular movements in three axes, but all linear movements need to be covered by an Iso Damper and Spring Arm.

⚠ CAUTION
Each of these aspects can lead to the motor power of single axis having to be lowered, which will limit the effectiveness of the overall stabilization.

Vibrations / Oscillations

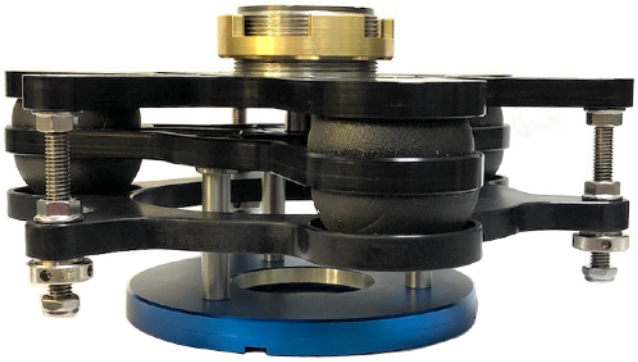
NOTICE
A vibration or oscillation can have different causes.

ISO Damper
NOTE
Important is to use an Isolator to reduce force transitions.
The resistance of the Isolator must be strong enough to handle heavy or long camera packages.

The Isolator also must have a circular lock to reduce oscillations.

NOTICE
If that is not the case the SRH-3 can start to oscillate.

Recommended ISO Damper



K2.0033562	SRH-3 Iso Damper, metric
K2.0033563	SRH-3 Iso Damper, imperial

Hard Mounted
With no isolator, or using the SRH hard mounted, you may try to reduce the motor power and raise the D value in the PID settings.

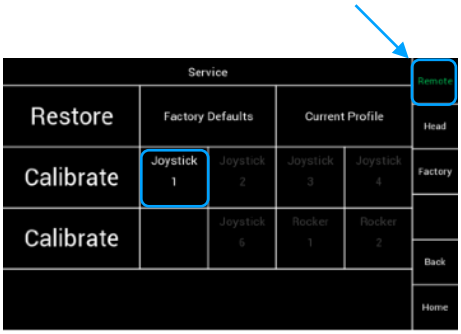
This will bring the head to reduce the power of position correction before the head reaches the desired framing.

NOTICE
BY REDUCING MOTOR POWER YOU WILL LOOSE DYNAMIC!

HINT
Please refer the SRH-3 SUP 2.2 manual page 16 / PID / Quick Setup

Drift

NOTICE
Before you playing around with any setting, it is important to find the source / reason causing the drift.

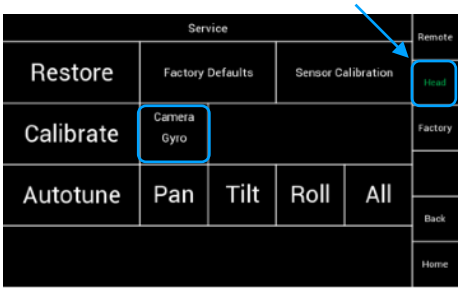


1. Joystick Calibration

Turn the PAN Speed to 0, if the drift doesn't stop, the head gets a speed value from an input device like a Joystick.

Press Menu -> Service -> Calibrate Joystick
Selecting **Calibrate Joystick 1** opens a new submenu in which the internal joystick can be calibrated.

NOTICE
DONT MOVE THE JOYSTICK WHILE CALIBRATING !
HINT
Using a Deadband higher then 1 is recommended for the Joystick.



2. Gyro Calibration

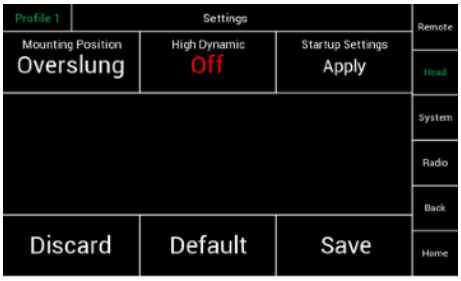
NOTE
If the head is still drifting after turning the PAN Speed to **0**, the Gyro needs to be calibrated.
Press Menu -> Service -> Head
-> Calibrate Camera Gyro

NOTICE
DONT MOVE THE HEAD WHILE CALIBRATING THE GYRO!
THE HEAD SWICHT OFF MOTORS WHILE CALIBRATING !

3. High Dynamic Mode

NOTE
If a long focal length is used, the High Dynamic Mode can be used to improve the overall performance and results.

To activate High Dynamic Mode press **first** the **Emergency Switch** at the **Remote Control** (not at the Remote Head) to switch **off** the **motors**.



Press Menu -> Settings -> Head -> High Dynamic Mode -> **ON**

NOTICE
DONT MOVE THE HEAD WHILE CALIBRATING

After the calibration switch back on the motors by releasing the Emergency Switch.

NOTE
Wait 10 to 20 Seconds.
This gives the High Dynamic Modul time to calculate the needed correction.

Power Issues

⚠ CAUTION

To perform in the desired way, the stabilized remote head requires at least min. **24V / 5A** over the **3pin XLR** plug and min. **12V / 5A** via the **4pin XLR** plug.

NOTICE
If the head or the camera shuts off accidentally, the head is not getting enough power.

This can be caused by:
- too weak battery
- too weak power supply
- too small cable gauge
- too long total cable length

HINT
To check if the complete setup Camera, accessories, remote head) works well, switch on all connected devices and push Pan and Tilt at the same time.
The camera and head should stay on. **If not, check the points listed above.**

NOTE
In High Dynamic Mode, the head can pull up to 8Amp of peak, plus to 2 up to 7 Amps camera including accessories.

NOTICE
Only use the recommended batteries, power supplies and power cables.

Batteries (Recommended)

BEBOB CUBE 1200	www.bebob.de
Anton Bauer CINE VCLX	www.antonbauer.com
Block Battery	www.blockbattery.com
Cinepower Magnum 60	www.cinepower.com

Recommended power cables

K2.0019306	SRH-3, Battery Power Cable, 12V/24V, 0.5m/1.64ft
K2.0021427	SRH-3 High Capacity Battery Power Cable 24V, 3pin XLR, 10m/33ft
K2.0021428	SRH-3 High Capacity Battery Power Cable 12V, 4pin XLR, 10m/33ft
K2.0021429	SRH-3 High Capacity Battery Power Cable 24V, 3pin XLR, 20m/66ft
K2.0021430	SRH-3 High Capacity Battery Power Cable 12V, 4pin XLR, 20m/66ft
K2.0010470	Cam Power, Cine, 12V, XLR, HiCap
K2.0010538	Cam Power, Cine, 12V, HiCap, ALEXA
K2.0010540	Cam Power, Cine, 12V, HiCap, ALEXA Mini
K2.0010471	Cam Power, Cine, 24V, Fischer 2pin
K2.0020467	Cam Power, Cine, 24V, ALEXA Mini