

# Stabilized Remote Head **SRH-3**

USER MANUAL

**DRAFT**

Date 01.09 2018



## Imprint

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## Document revision history

Version	Order Nr	Release	Date
1.0	K4.0019245	W05018	01.04.2018
1.1			01.09.2018

## Scope

This document describes the components and the setup of the SRH-3 Stabilized Remote Head system and its components.

## 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.

While ARRI endeavors to enhance the quality, reliability and safety of their products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely. To minimize the risk of damage to property or injury (including death) to persons arising from defects in the products, customers must incorporate sufficient safety measures in their work with the system and heed the stated conditions of use.

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ARRI assumes no responsibility for any errors that may appear in this document. The information is subject to change without NOTICE.

For product specification changes after this manual was published, refer to the latest published ARRI data sheets or release notes, etc., for the most up-to-date specifications.

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## 1 For your safety

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

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:

<b>⚠ DANGER</b>
<i>DANGER</i> indicates an imminent hazardous situation which, if not avoided, <b>will result in death or serious injury.</b>
<b>⚠ Warning</b>
<i>WARNING</i> indicates a potentially hazardous situation which, if not avoided, <b>may result in death or serious injury.</b>
<b>⚠ CAUTION</b>
<i>CAUTION</i> indicates a potentially hazardous situation which, if not avoided, <b>may result in minor or moderate injury.</b>
<b>NOTICE</b>
<i>NOTE</i> explains practices not related to physical injury. No safety alert symbol appears with this signal word.
<b>NOTE</b>
Provides additional information to clarify or simplify a procedure.

## 2 Functions

### 2.1 Front

Pan axis

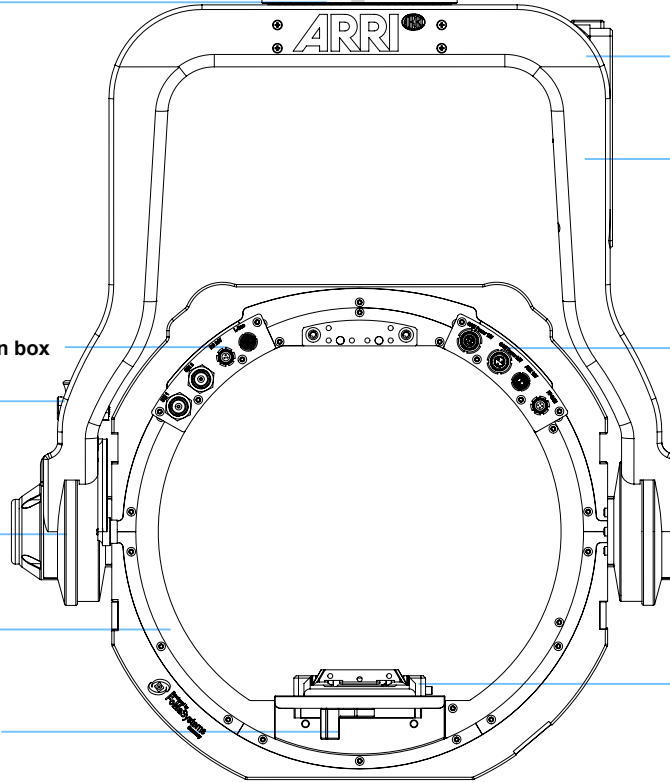
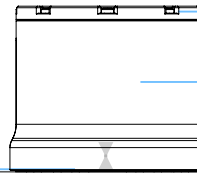
Right junction box

Tilt Lock

Tilt motor

Roll axis

Side to Side adjustment



Mounting base

Base junction box

Onboard computer

Yoke

Left junction box

Tilt motor

Mounting platform

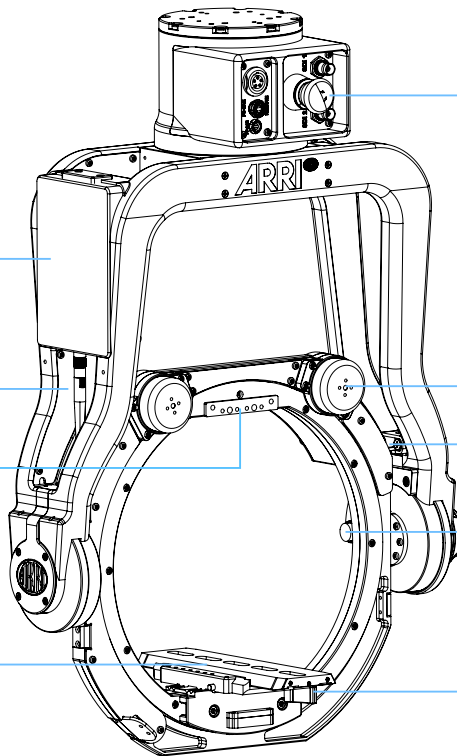
### 2.2 Back

Onboard computer

Antenna

Mount for top support

Camera dovetail plate



Emergency Shut OFF Switch

Roll motor

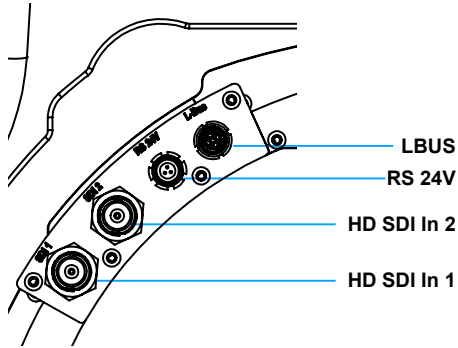
Tilt lock

End stop

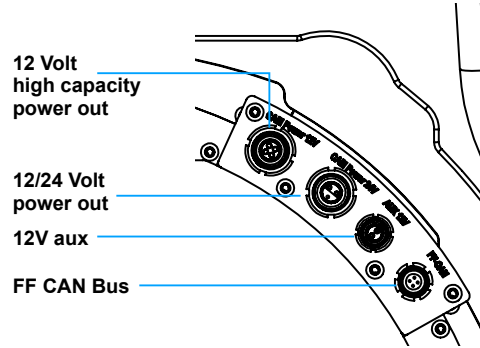
Quick lock clamp

2.3  
Connectors

2.4 Right junction box



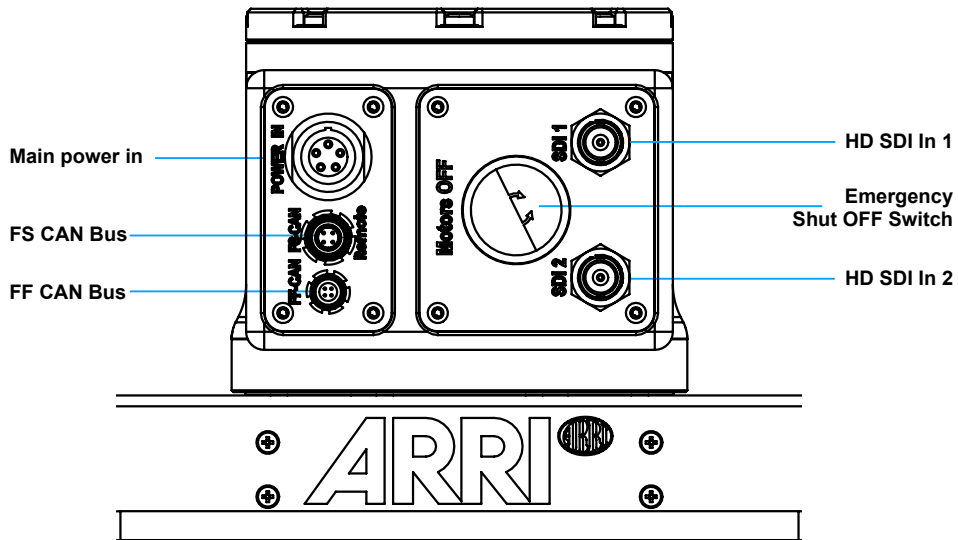
2.5 Left junction box



**⚠ CAUTION**

The 12V aux power consumption should not exceed 14,4V / 5 Amps.

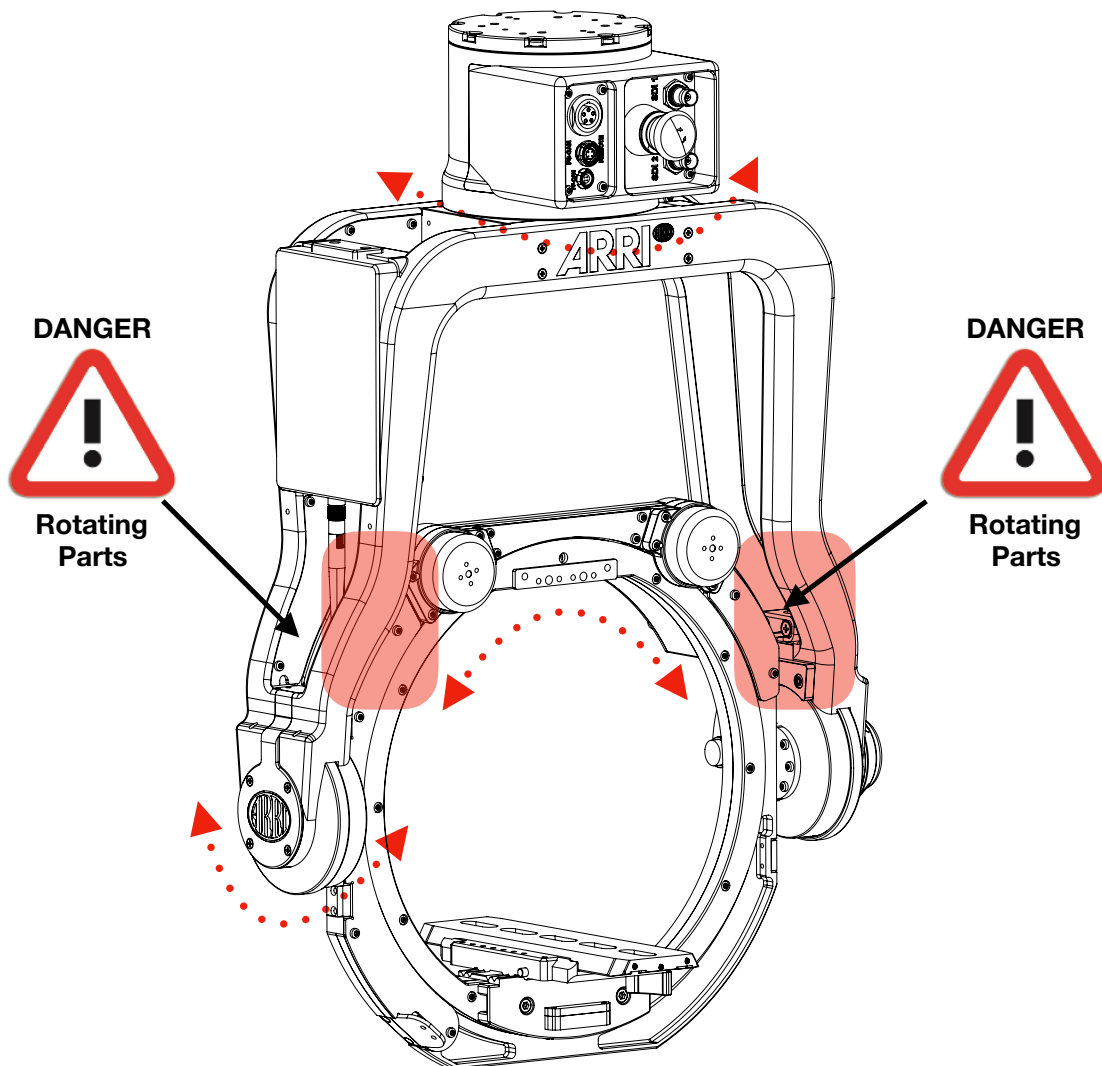
2.6  
Base Junction Box / Rear



### 3 Safety Instructions

#### ▲ DANGER

Pay attention during setup and the entire operation that no fingers or limbs end up between the outer yoke and inner ring.  
A high kinetic force can result between the outer and inner ring, depending on the weight and length of the camera.  
Serious injuries can result through negligence. If this does happen then, cut off the power supply straight away and seek medical attention if necessary.

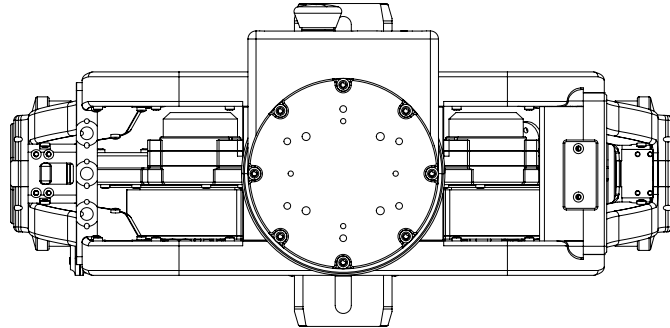


#### 4 Mounting the Mitchell Mount

**▲ DANGER**

Mounting the the SRH-3 to a crane, dolly, support arm or any other device, has to be done by experienced operator or grip personal.

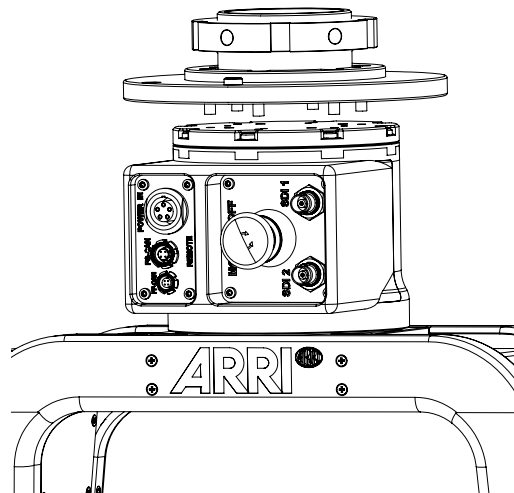
Make sure that all safety regulations have been considered.



The base of the SRH-3 is prepared to mount an ARRI Mitchell Mount 2. The SRH-3 has to be connected to ARRI Mitchell Mount 2 and will be used as stationary equipment. The SRH-3 Mitchell Mount is screwed on with 6 x M5 screws onto the mounting base of the SRH-3.

**NOTE**

To mount the Mitchell Mount, you will need a 4mm or 5/32" hex key.



**▲ CAUTION**

Make sure that all 6 screws are fully tightened.



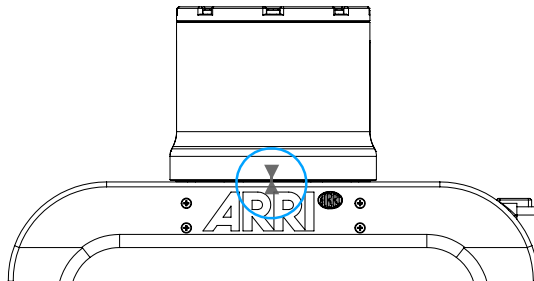
## 5 Home Position / Tilt Lock

### 5.1 Home Position

#### ⚠ CAUTION

Before powering the head, align the Home Position Indicator arrows.

When initially setting up the **SRH-3** on any camera support device, ensure that the home position indicator arrows on the yoke and on the base of the unit are aligned as shown.



#### ⚠ CAUTION

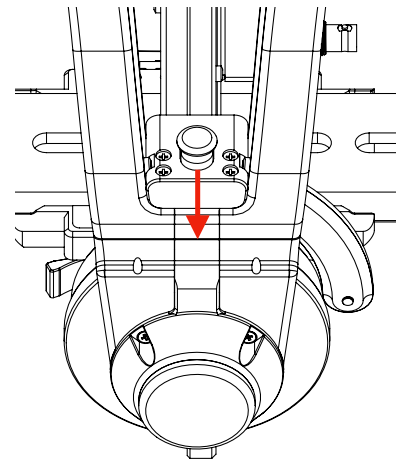
Failure to align the home position will affect the performance of the **SRH-3** and reduce pan range by more than 50%.

### 5.2 Tilt Lock

The remote head offers a locking mechanism for the tilt axis. This allows the tilt axis to be blocked during assembly of the head at the crane and during mounting of the camera.

To unlock the locking mechanism, pull out the locking pin.

To lock the mechanism, push in the locking pin



#### ⚠ DANGER

The locking mechanism must be **UNLOCKED** before powering and using the remote head.  
An active tilt lock will cause motor damage by overheating the tilt motors.

## 6 Camera Preparation

### Foreword

The entire balancing procedure of the **SRH-3** stabilized remote head is based on **SYMMETRY** and **NEUTRAL BALANCE**.



### NOTE

Only a precisely executed camera preparation will enable you to get the best performance out of the SRH-3.

The camera preparation must meet the following requirements:

### Compact length

You should keep the COG (center of gravity) of the SRH-3 as low as possible and the total length of the camera should be as compact as possible.

If an ALEXA Mini is being used, a Zoom Lens similar to the ARRI/ FUJINON Alura 15.5-45/T2.8 will keep the Camera setup at an optimum length.

If the ARRI ALEXA or AMIRA is being used a Prime Lens will be required.

Most box type cameras with a zoom lens are very close to the length of a full bodied camera with a prime lens.



Setup with two motors

### Low COG (center of gravity)

Any accessories mounted to the camera should be attached as low as possible.

### Symmetry

Camera components and accessories that are mounted on the camera have to be attached **symmetrically** and **balanced**.

For example:

If two Focus Motors are needed, use two 15mm rods (equal length and same material) and mount them on the base of the camera.

Now place one Focus Motor on each rod. Make sure that the gears are facing the front of the lens and the motor housing of the camera body.

If only one Focus Motor is required then two rods are also required. Place the Focus Motors vertical below the lens. This configuration optimizes COG and symmetry.



Setup with one motor

## 6.1 Secure Component / Accessory Attachment

### ⚠ CAUTION

Keep in mind the SRH-3 head is a fully stabilized Gimbal based device with a payload capacity of 30kg / 66 lb. The amount of available torque is very high.

### NOTE

Make sure that all components of the camera and accessories in the setup are fully tightened. Ensure that none of the components are loose or have any play to avoid vibration and costly performance issues.

### ⚠ CAUTION

Please double check all clamps are tight and that all components are fitted correctly.



## 6.2 Mounting the Camera Dovetail Plate

The SRH-3 comes with a symmetric camera dovetail plate, the so called Quick Lock plate.

### ⚠ CAUTION

Always use two 3/8" screws to ensure a solid fit. Using only one screw or a too short distance between the screws will force sidewise rotation of the camera, as also vibration of the entire system. Try to maximize the distance in between the camera screws.

### NOTE

Using the SAM1, SAM2 and the SAM3 plates will speed up the later balancing process and guarantee the best performance of the SRH-3.



SAM-1 Stabilizer Adapter Mount for  
ALEXA  
K2.0018851



SAM-2 Stabilizer Adapter Mount for  
ALEXA Mini  
K2.0014215



SAM-3 Stabilizer Adapter Mount for  
AMIRA  
K2.0014630

### NOTE

If the Head is mounted underslung to a crane, the overall balance of the camera setup should be a bit bottom heavy.

## 7 Preparing the Quick Lock Camera Mount

The SRH-3 comes with a Quick Lock mounting mechanism. It offers one clamp mechanism for the Camera Dovetail Plate located at the right back of the mount and a side to side adjustment located at the front of the mount.

### **▲ DANGER**

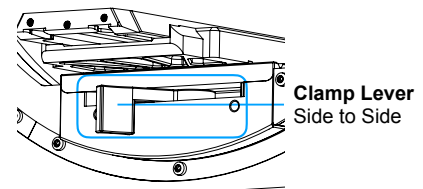
**Ensure that the SRH-3 is switched OFF and that the Tilt Lock is locked.**

**Under no circumstances push fingers or limbs in between the moving parts of the SRH-3 as this can result in injury.**

### 7.1 Centering the Quick Lock Camera Mount

#### **NOTE**

Make sure that the side to side adjustment is in a center position before you start with the balancing procedure. To move the Quick Lock Camera Mount left and right, the clamp lever at the front Quick Lock Camera Mount has to be open.

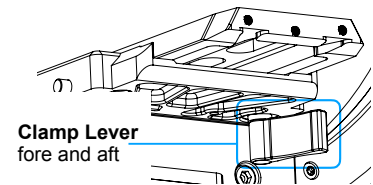


#### **NOTE**

Make sure that the clamp is tightened after the adjustment has been done.

### 7.2 Opening the Quick Lock Camera Mount

To open the Quick Lock Camera Mount clamp mechanism, open the clamp lever on the right side at the back of the Quick Lock Camera Mount.



After you opened the clamp mechanism you can slide in the camera dovetail plate inside the ring.

#### **NOTE**

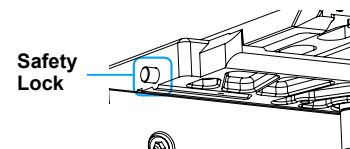
It may be necessary to detach some accessories to mount the camera inside the SRH-3 ring. These can be reattached after the camera is mounted.

#### **NOTE**

When adding or removing components from the camera, adjust the fore and aft to bring the camera into a neutral and horizontal position.

#### **NOTE**

To remove the camera dovetail plate, you will need to push the safety lock, to be able to release the plate.



#### **NOTE**

Make sure that the camera is always level front to back with the COG fully neutral when the camera is horizontally adjusting fore and aft.

#### **NOTE**

When adding or removing components from the camera adjust the fore and aft to bring the camera into a neutral and horizontal position.

## 8 Balancing the Camera

### ⚠ DANGER

Ensure that the SRH-3 is switched OFF and that the Tilt Lock is UNLOCKED.

Under no circumstances push fingers or limbs in between the moving parts of the SRH-3 as this can result in injury.

### 8.1 Fore and Aft

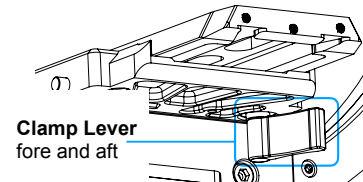
#### NOTE

Unlock the Tilt lock mechanism.

To get the entire system in a neutral balance, the **COG** of the camera has to be positioned right in the center of the main ring.



The Quick Lock Camera Mount clamp mechanism allows you to adjust the **fore** and **aft** adjustments to move the camera into its **COG** (center of gravity).



### ⚠ CAUTION

Make sure that the clamp mechanism is fully tighten after the fore and aft adjustment. A slightly loose screw will produce vibrations.

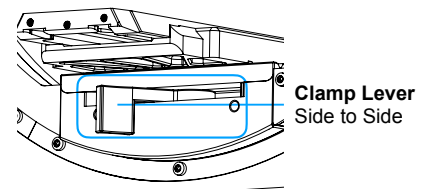
### 8.2 Side to Side

At the front of the QL mount, you will find the clamp mechanism for the **side to side** adjustment.

#### NOTE

You should always try to keep the camera setup as symmetrical as possible.

But if the camera is still too heavy on any side, you should use the **side to side** adjustment, to get the camera sidewise in perfect **COG**.



### ⚠ CAUTION

Make sure that the clamp mechanism is fully tightened after the fore and aft adjustment. A slightly loose screw will produce vibrations.

## 9 Powering the SRH-3

### 9.1

#### Introduction

The entire system will only perform in the desired way, if adequate and recommended power supply and batteries are used.

### 9.2

#### Batteries

Currently we recommending the following batteries:

Anton Bauer CINE VCLX [www.antonbauer.com](http://www.antonbauer.com)

Block Battery [www.blockbattery.com](http://www.blockbattery.com)

Cinepower Magnum 60 [www.cinepower.com](http://www.cinepower.com)

BEBOB CUBE 1200 [www.bebob.de](http://www.bebob.de)



### 9.3

#### Power Supply

SRH-3 Power Supply set **K0.0019478**

includes:

SRH-3 Power Supply, 600W, 220V/110V **K2.0019299**

SRH-3, Main Power, Data Cable, 12V/24V, 20 m/65.6ft **K2.0019303**



#### **⚠ CAUTION**

The SRH-3 head needs to be powered through the 3pin socket with min. 24 Volt / 5 Amps and with 12V through the 4 pin XLR.

The power supply for the EUT, has to provide "SELV" and a short-circuit-proof "limited power source", according to EN 60950-1.

## 9.4

**Power cables for the SRH-3 head:**

SRH-3, Battery Power Cable, 12V/24V, 0.5m/1.64ft **K2.0019306**



SRH-3 High Capacity Battery Power Cable 24V, 3pin XLR, 10m/33ft. **K2.0021427**



SRH-3 High Capacity Battery Power Cable 12V, 4pin XLR, 10m/33ft. **K2.0021428**

SRH-3 High Capacity Battery Power Cable 24V, 3pin XLR, 20m/66ft. **K2.0021429**



SRH-3 High Capacity Battery Power Cable 12V, 4pin XLR, 20m/66ft. **K2.0021430**

SRH-3, Main Power, Data Cable, 12V/24V, 20m/65.6ft **K2.0019303**

**Remote Control Power Cable:**

12V Battery Power Cable, D-Tab, 4pin XLR, 1,5m/5ft. **K2.0021422**

**Camera power cables**

Cam Power, Cine, 12V HiCap, XLR **K2.0010470**

Cam Power, Cine, 12V HiCap, ALEXA **K2.0010538**

Cam Power, Cine, 12V HiCap, MINI **K2.0010540**

Cam Power, 12V, XLR **K2.0010469**

Cam Power, 24V, ARRI **K2.0010471**

Cam Power, Cine, 24V, ALEXA Mini **K2.0020467**

**Video cables**

HD SDI, Video Cable, BNC **K2.0010476**

**Can Bus Cables**

SRH-3, FS CAN Bus Cable, 10m/32.8ft **K2.0019302**

SRH-3, FS CAN Bus Cable, 25m/82 ft **K2.0019301**

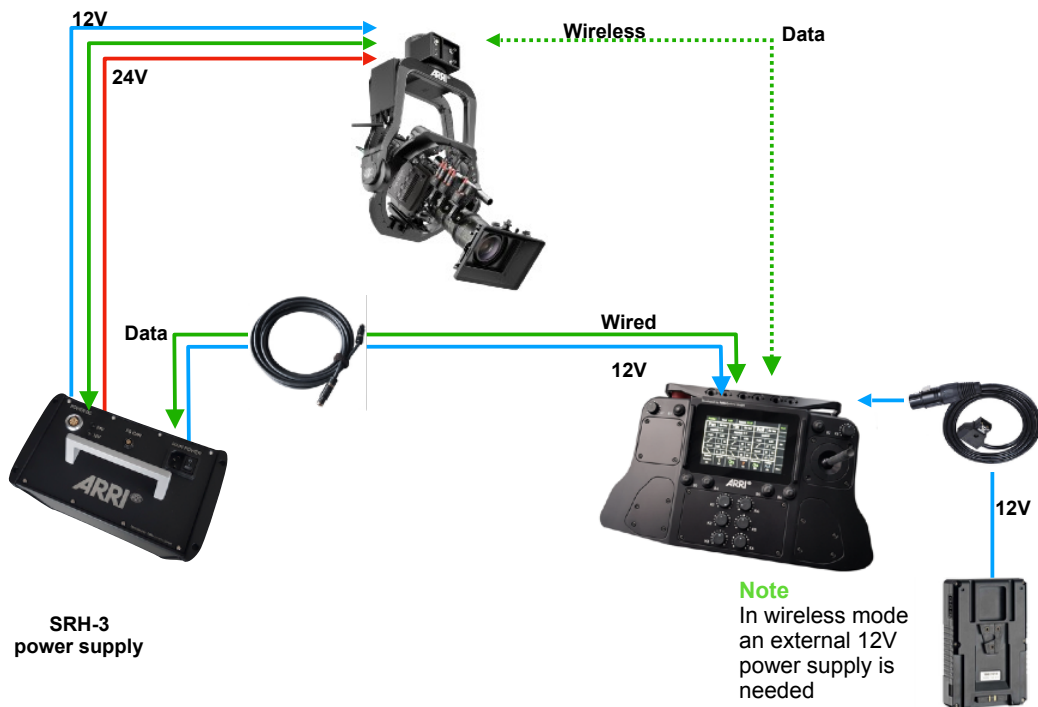
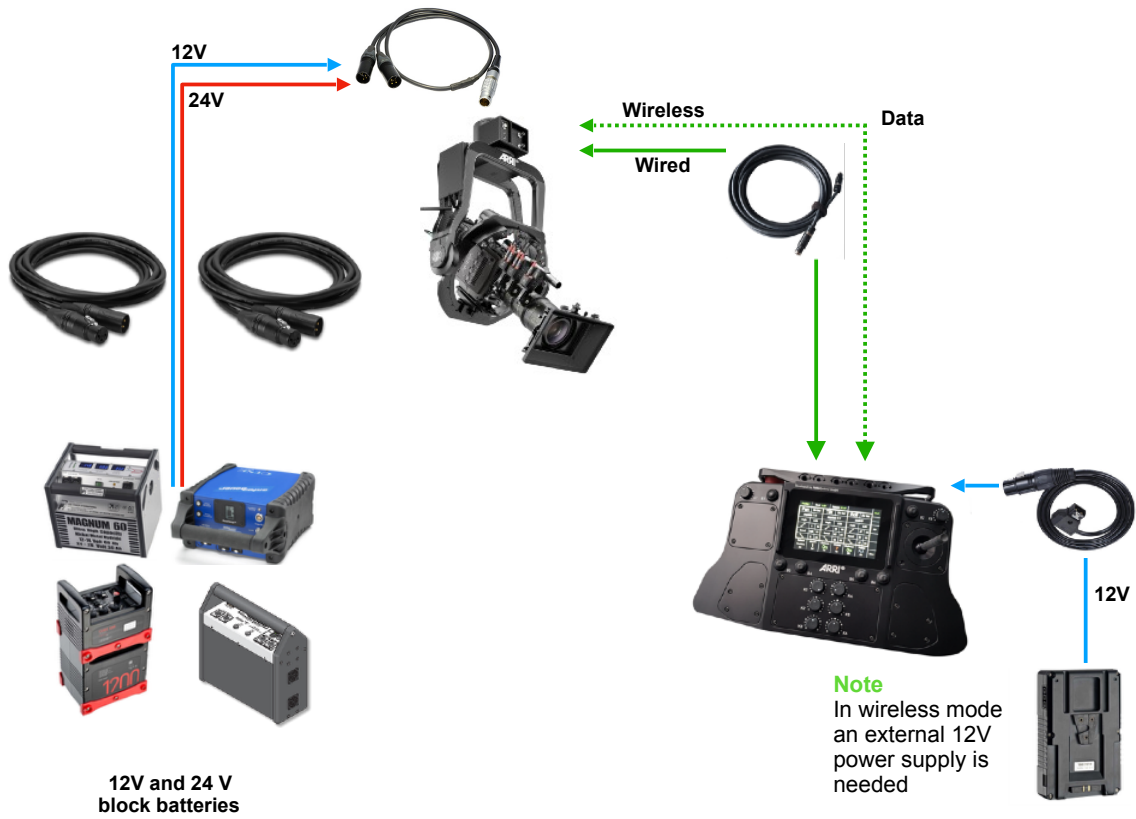
SRH-3, FS CAN Bus Coupler, 0.2m/0.65ft **K2.0019300**

**Focus Power**

Focus Power, ARRI, 3pin Fischer RS **K2.0010548**



### 9.5 Wiring Diagram





## 10 Dimensions

### 10.1

#### Head

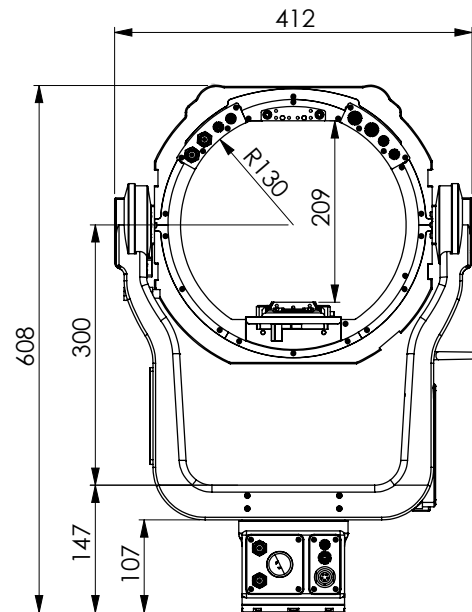
Stabilized Axis 3 (Pan, Tilt, Roll)  
Max. Payload up to 30 Kg / 66 lbs.

Height 60,8 cm / 23,93"  
Width 41,2 cm / 16,22"

Depth Head 13 cm / 5.12"  
Depth Base 16,5 cm / 6,49"  
Ring Diameter 26 cm / 10,23"  
Ring Height centre 20,9 cm / 8,23"

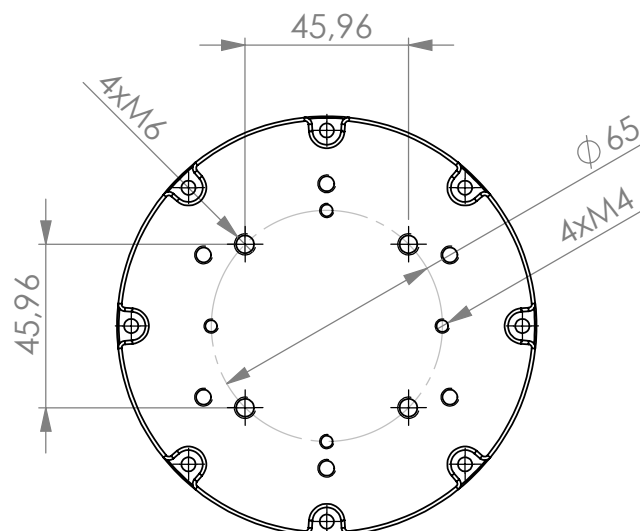
Weight 9,0 Kg / 19.8 lbs.

Max. Tilt Range + 60° / -110°  
Max. Roll Range +/- 90°  
Max. Pan Range 540° +/-270°  
Max. Pan Rate 240° / Sec.  
Max. Tilt Rate 240° / Sec.

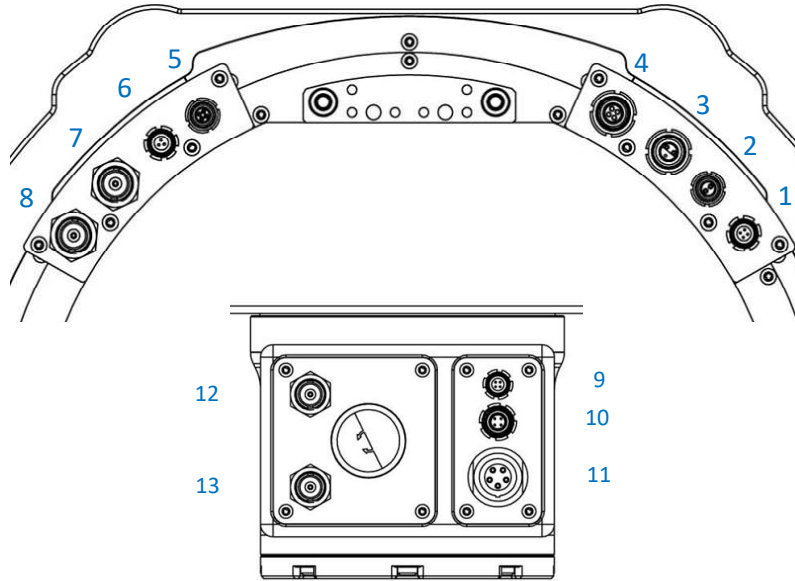


### 10.2

#### Dimensions Baseplate

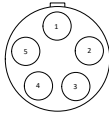


11 Pinout



12V/ 24V / FS-CAN IN  
Lötseite Buchse

LEMO ECG.3B.305.CLL



1 = GND  
2 = FOMA BUS Slow L  
3 = FOMA BUS Slow H  
4 = 12 V IN  
5 = 24 V IN

11

FS-CAN  
Lötseite Buchse

Fischer DBP 103 A053 - 140



1 = GND  
2 = CAN1 L  
3 = CAN2 H  
4 = 12V OUT

10

FF-CAN  
Lötseite Buchse

Fischer DBP 102 A053 - 140



1 = GND  
2 = CAN1 L  
3 = CAN2 H  
4 = 12V

9

HD BNC 6G-SDI

AMPHENOL 112522



6, 7, 12, 13

FF-CAN: 4 POL  
Lötseite Buchse

Fischer DBP 102 A053 - 140



1 = GND  
2 = CAN1 L  
3 = CAN2 H  
4 = 12V

1

AUX Pwr 12V  
Lötseite Buchse

LEMO ECG.0B.302.CLN



1 = GND  
2 = 12V OUT

2

CAM PWR 12V/ 24V  
Lötseite Buchse

LEMO ECP.1S.303.CLN



1 = 12V  
2 = GND  
3 = 24V

3

12V HiCap  
Lötseite Buchse

LEMO ECG.1B.304.CLN



1 = 12V  
2 = GND  
3 = GND  
4 = 12V

4

LBUS  
Lötseite Buchse

LEMO ECG.0B.304.CLN



1 = GND  
2 = CAN L  
3 = 12V  
4 = CAN H

5

RS 24V  
Lötseite Buchse

FISCHER DGP 102 A052 - 130



1 = GND  
2 = 12V/24V

6