Stabilized Remote Head
SRH-3

Quick Guide

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Imprint

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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.
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1 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 should not 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
NOTE 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.

1.2
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.

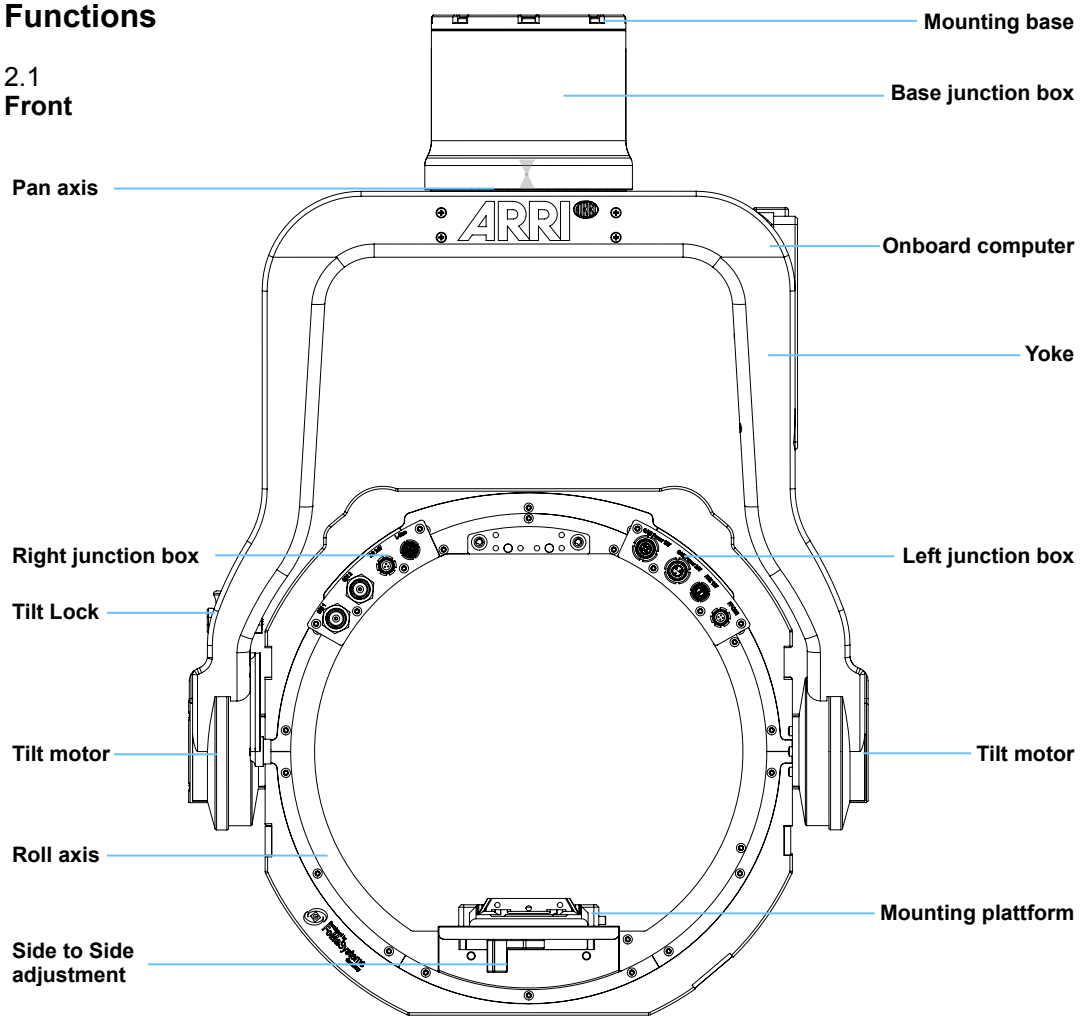
Please remember that what the SRH-3 is mounted on, and the manner in which it is mounted, will directly impact on its performance. The total mass of the head and its load are an important consideration when choosing how and where to mount it. This torque will change in direction and amplitude in varying amounts. The more solid the mount, the easier it is for the system to perform well. Sometimes even the leveling 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.

⚠ CAUTION

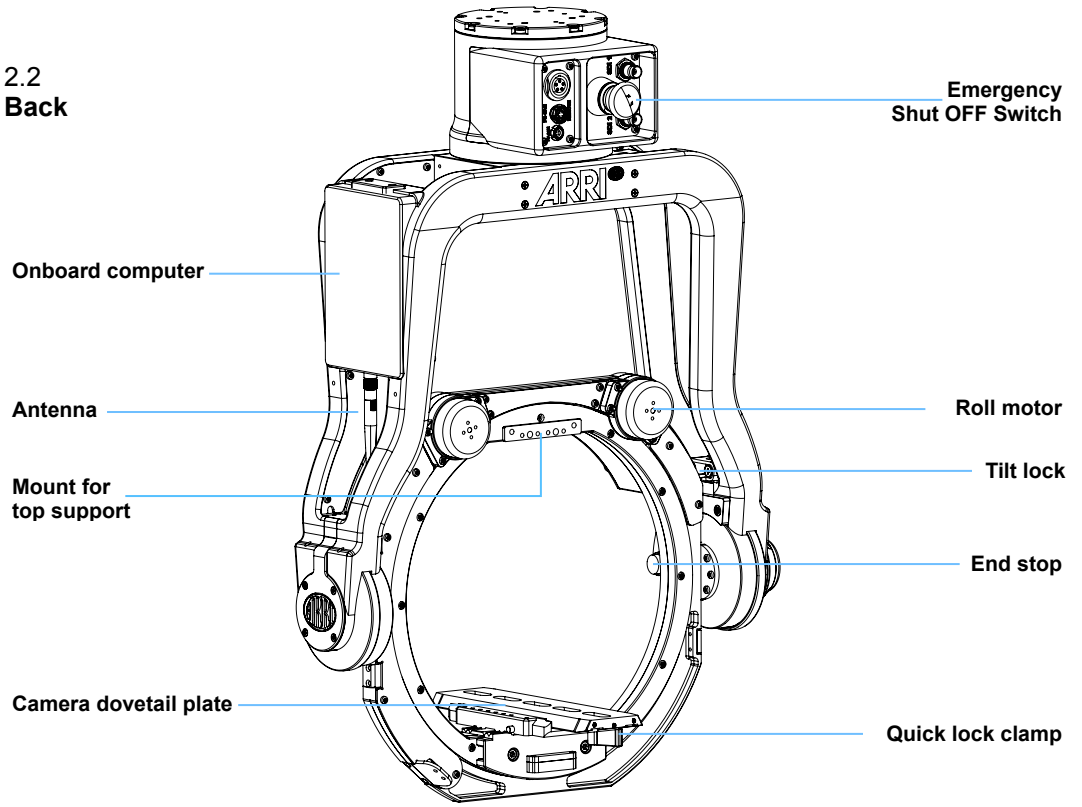
Each of these aspects can lead to the motor power of single axis having to be lowered, which will limit the effectiveness of the overall stabilization.

2 Functions

2.1 Front

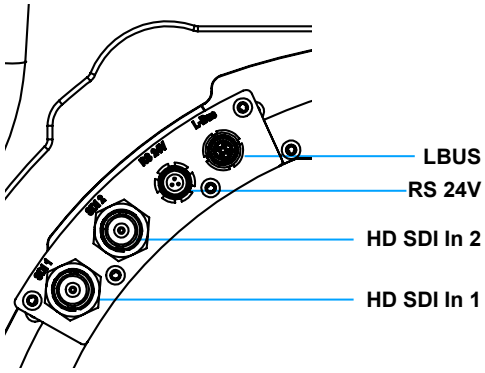


2.2 Back

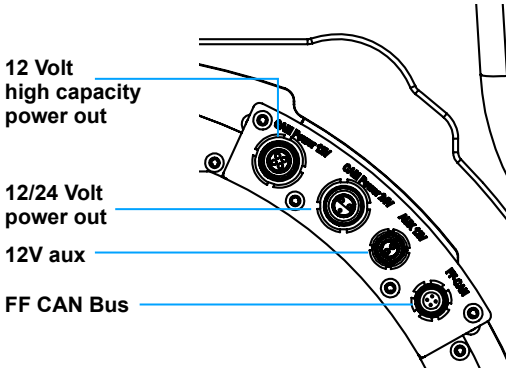


2.3
Connectors

2.4 Right junction box



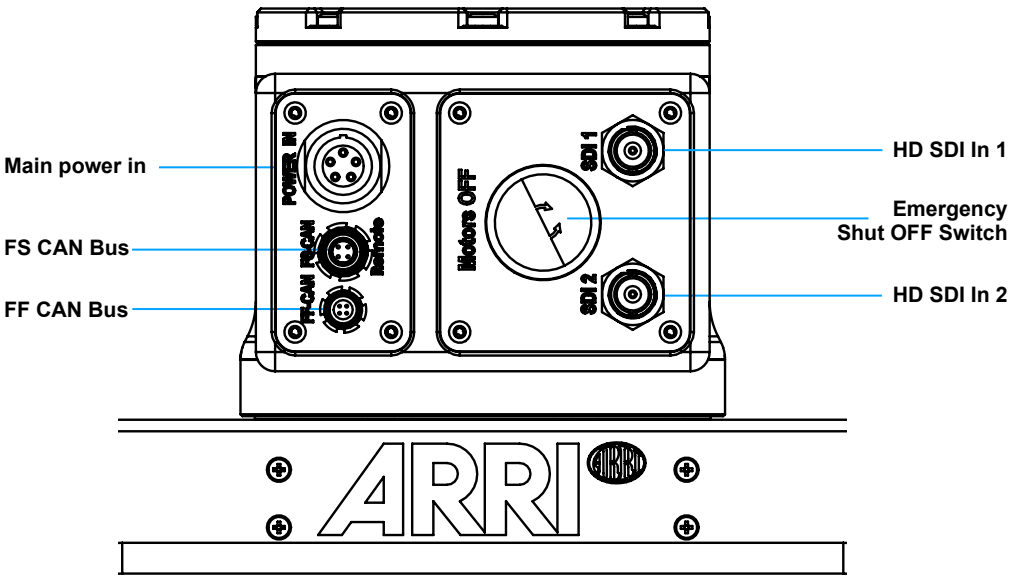
2.5 Left junction box



⚠ CAUTION

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

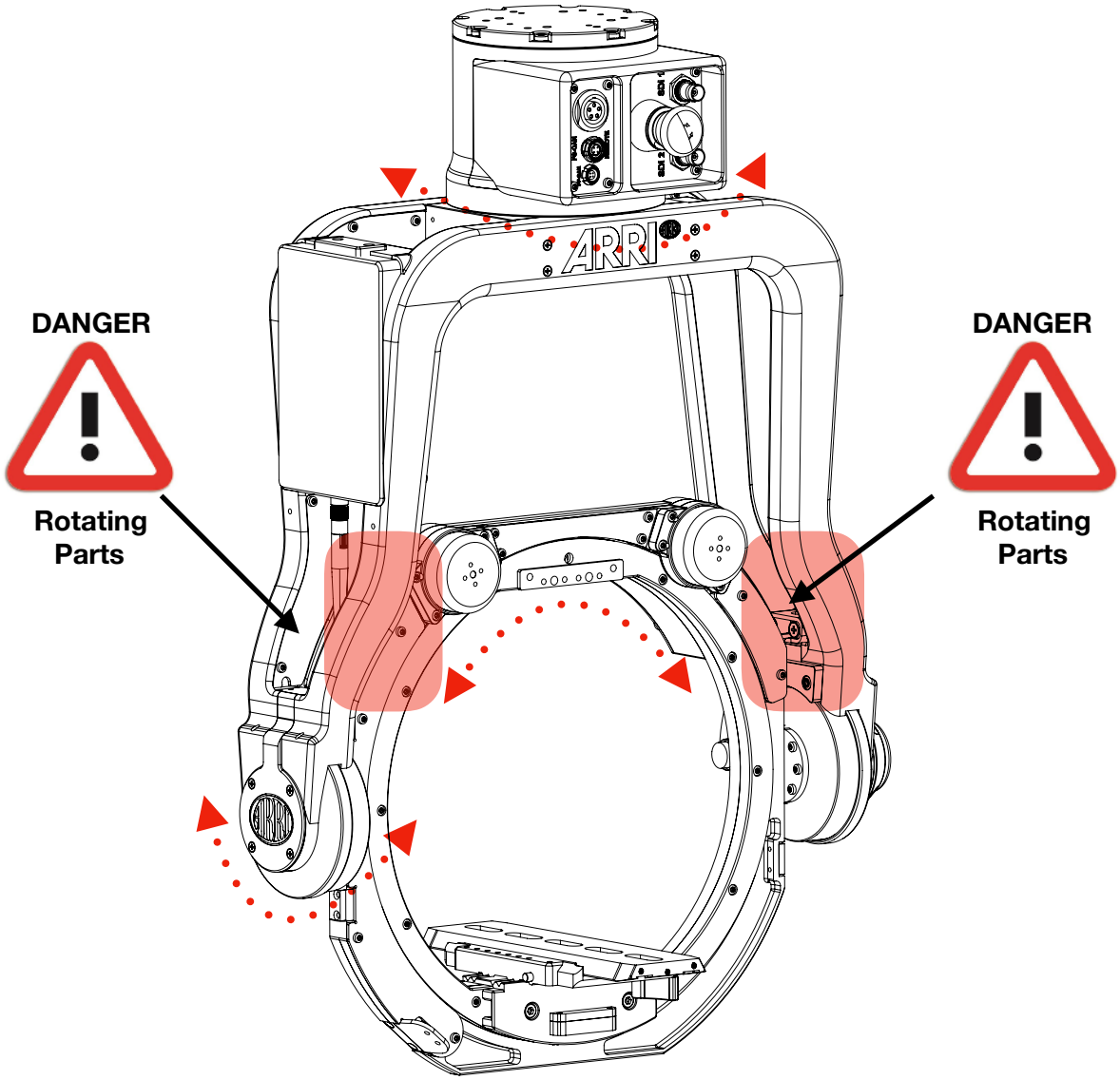
2.6
Base Junction Box / Rear



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.



⚠ 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.

4 Setup

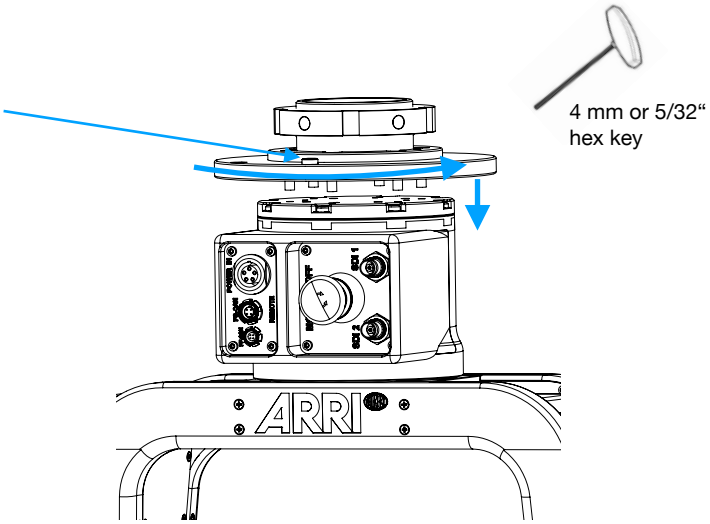
⚠ DANGER

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.

4.1 Attach the Mitchell Mount

NOTE
Ensure the location pin is facing the right direction



4.2 Alignment for Top down

NOTICE

To be able to do a 90° Top down shot, the camera needs to mounted in a certain way into the ring. The junction boxes of the ring needs to point in the same direction as the lens.

NOTE
Ensure that the camera setup is rigid. The top support bracket will also help to reduce unwanted vibrations.

NOTE
A higher **Drop Compensation** in the **PID** setup may be needed.

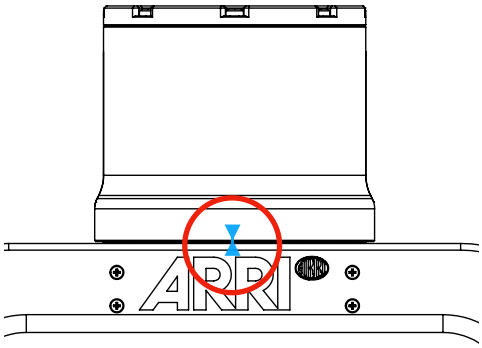
4.3
Home Position

⚠ CAUTION

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

⚠ CAUTION

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

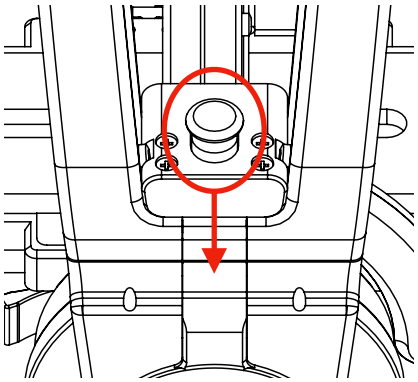


4.4
Tilt Lock

⚠ 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.



5 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.

Symmetry

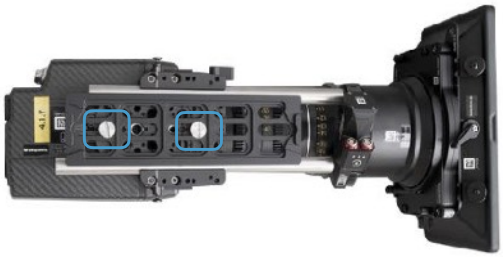
Camera components and accessories that are mounted on the camera have to be attached symmetrically and balanced.

5.1
Secure Component / Accessory Attachment

> **⚠ CAUTION**
>
> Make sure that all components of the camera, accessories and clamps 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.

5.2
Camera Dovetail Plates

> **⚠ CAUTION**
>
> Always use min. two 3/8'' screws to ensure a solid fit.
> Using only one screw or a to 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.

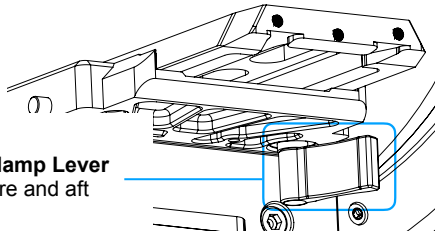
SAM-1 Stabilizer Adapter Mount for ALEXA
K2.0018851

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

SAM-3 Stabilizer Adapter Mount for AMIRA
K2.0014630

5.3
Opening the Quick Lock Camera Mount

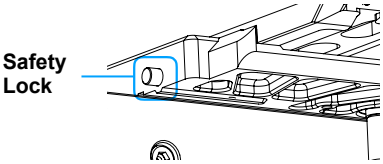
After you opened the clamp mechanism you can slide in the camera dovetail plate inside the ring.



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.



⚠ DANGER

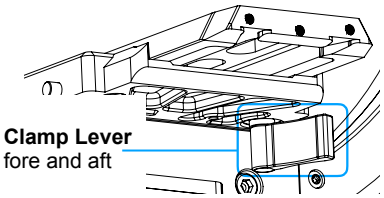
Ensure that the SRH-3 is switched OFF and that the Tilt Lock is locked.

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

5.4
Fore and Aft Balance

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.

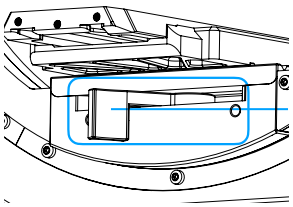
The Quick Lock Camera Mount clamp mechanism allows you to adjust the **fore** and **aft** adjustments to move the camera in into its COG (center of gravity).



5.5
Side to Side Balance

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**.



6 Powering the SRH-3

Introduction

NOTICE

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

⚠ CAUTION

The SRH-3 head itself 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.

6.1 Batteries

Currently we recommending the following batteries:

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




6.2 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**





6.3
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**

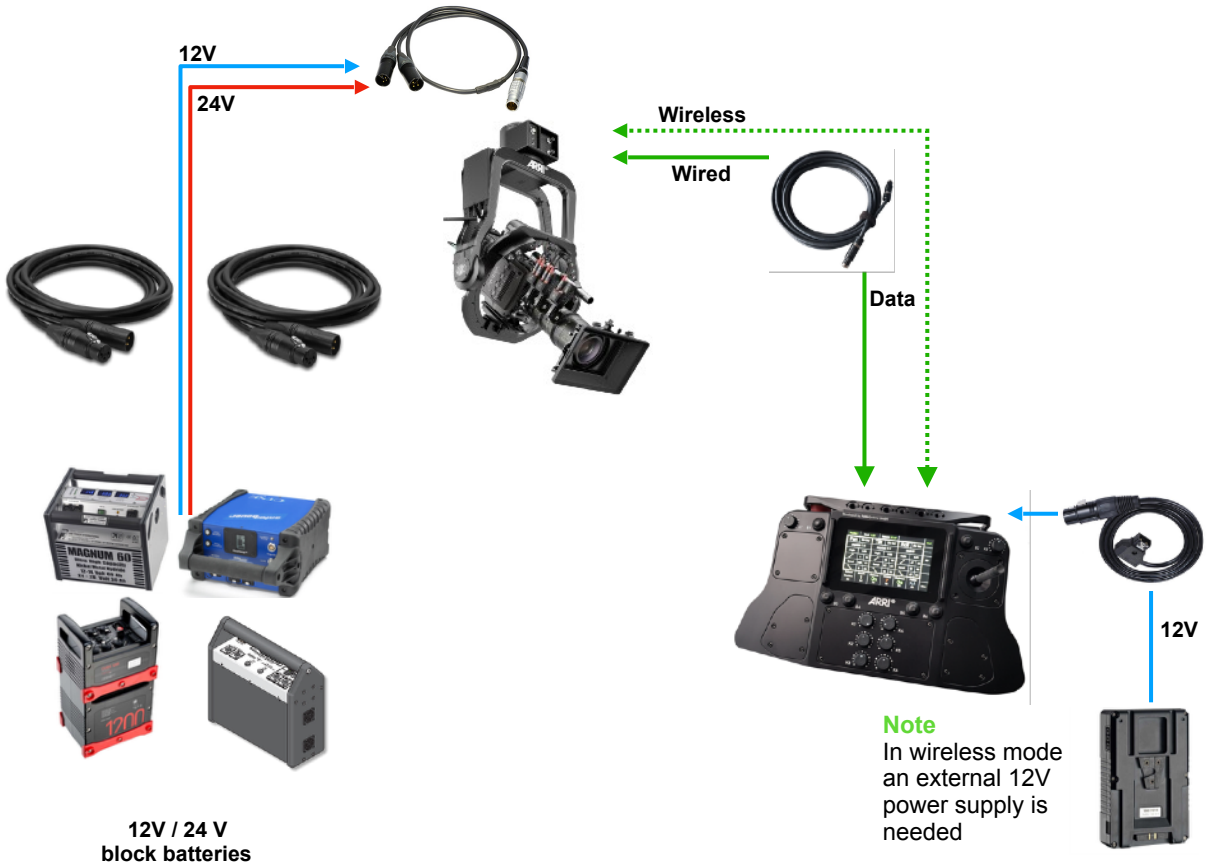
Can Bus Cables

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

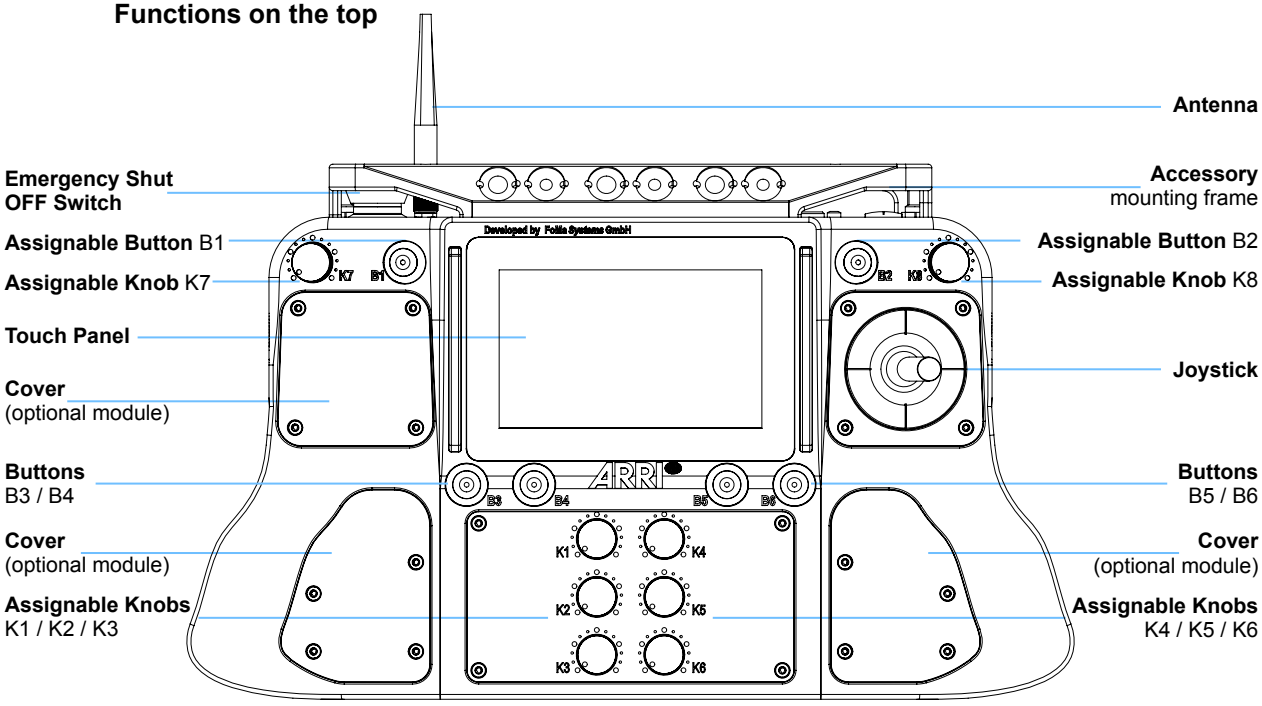
Focus Power, ARRI, 3pin Fischer RS	**K2.0010548**

6.4
Wiring Diagram

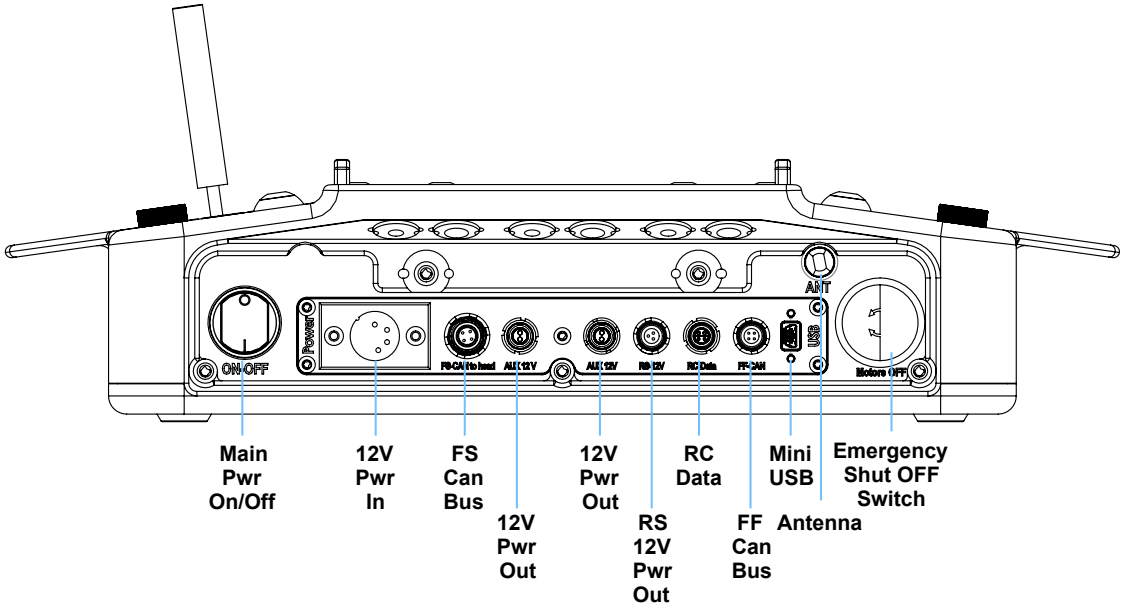


7 Remote Control SRH-3 Hardware

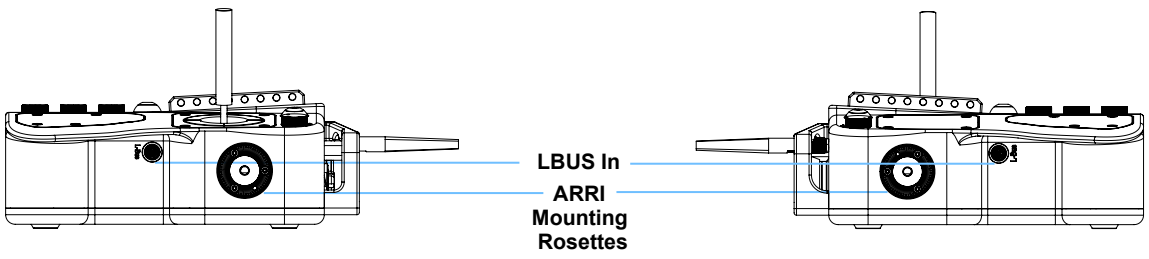
Functions on the top



Functions on the rear

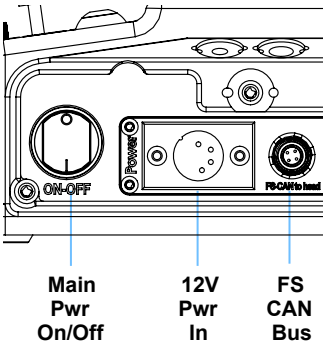


Functions on the right and left side



7.1
Powering the SRH-3 Control Panel

The remote control panel (RCP) will automatically be powered by the FS-CAB Bus cable, when the RCP is connected directly with the Remote Head.



7.2
Using the Remote Control hardwired

The SRH-3 can be hardwired with the RCP, using the **FS-CAN BUS** cable**.**

NOTE
Maximum cable length is 250 meter / 820 feet.

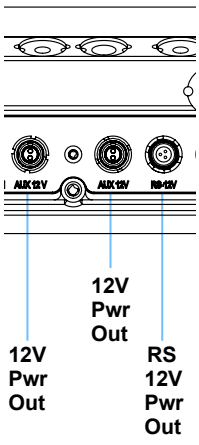
7.3
Powering the RCP in a wireless setup

Fore **wireless** use, you need to power the RCP with an external power supply (14.4 Volt min. 30W), or with a 14.4 Volt battery.

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

7.4
Powering Monitors and Accessories

The SRH-3 Control Panel offers one ARRI **RS** and two **Lemo 0B 2pin** power out sockets.



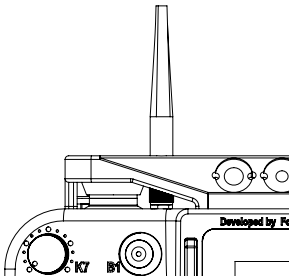
NOTICE
Ensure that the power cable in use follows the required pin out as per diagram in the appendix.

NOTE
The ARRI RS does not support the classic camera On/Off trigger signal.

7.5
Antenna

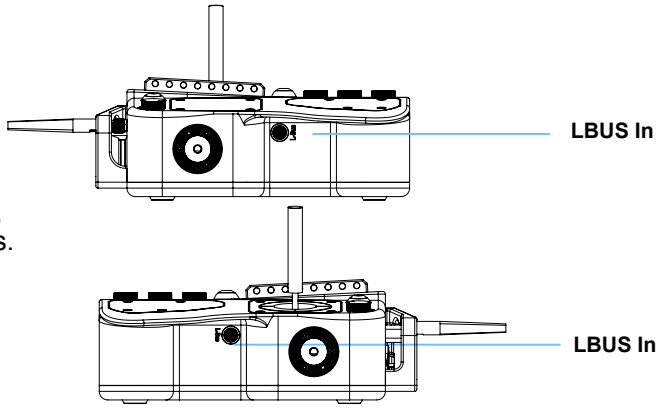
⚠ CAUTION

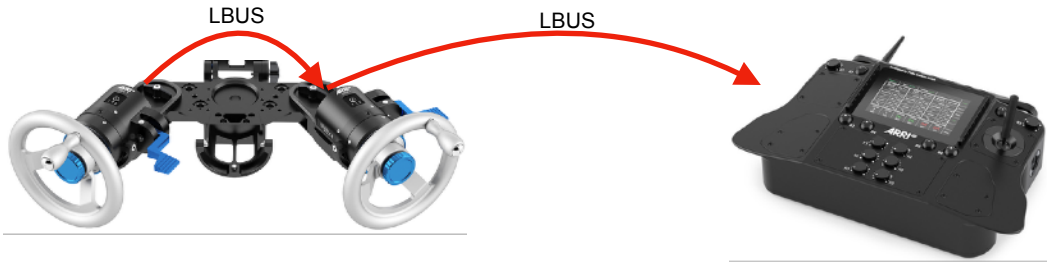
Never use the Remote Control Panel without an antenna mounted.
Otherwise you will risk damaging the radio amplifier.

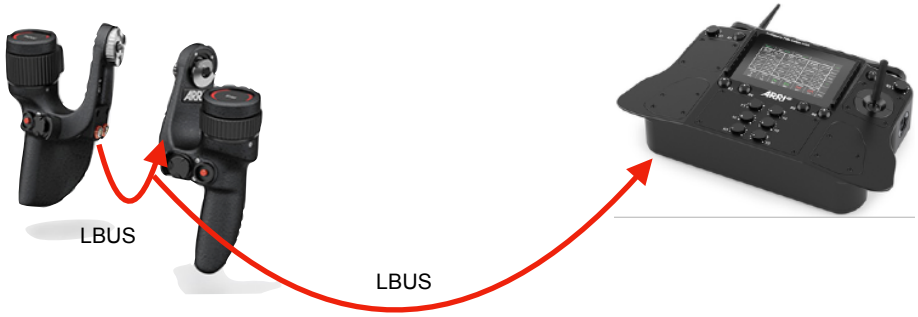


7.6
LBUS In

The SRH-3 Control Panel offers two LBUS In sockets.
Here you can connect the ARRI Wheels, Master Grips additional LBUS controllers.







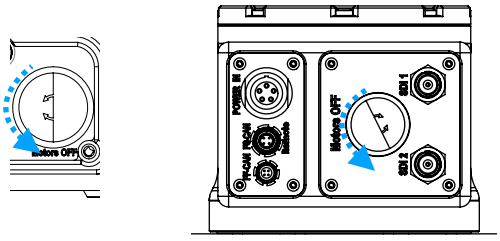
NOTICE

Check with the ARRI website that the Master Grips, DRW-1, OCU-1 and other LBUS controllers have the correct and **latest firmware.**

7.7
Emergency Shut Off

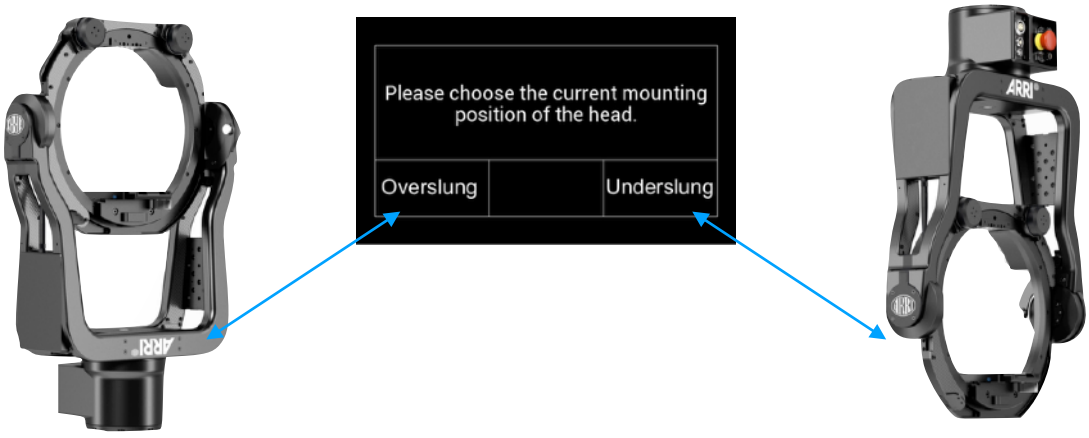
NOTICE
If the Remote Head does not react to the control panel, even the main power switch is on, check that the Emergency Shut Off Switch is pulled out.

NOTE
To release the **Emergency Shut Off Switch** turn the red knob to the left.



7.8
Mounting Position

⚠ CAUTION
Before using the SRH-3, the mounting position of the head needs to be set in the remote control.

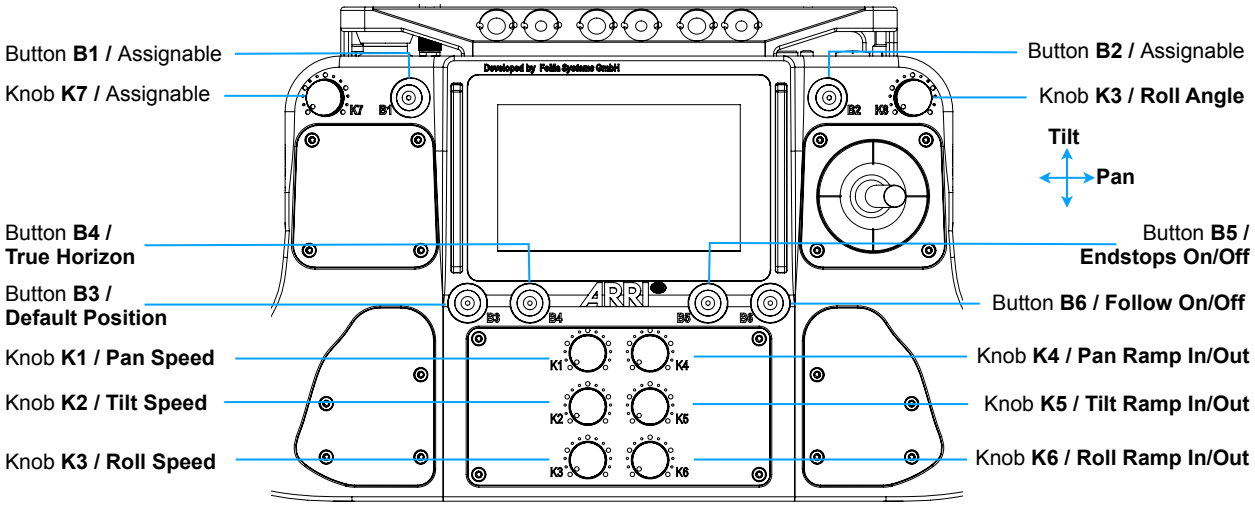


Standing
overslung

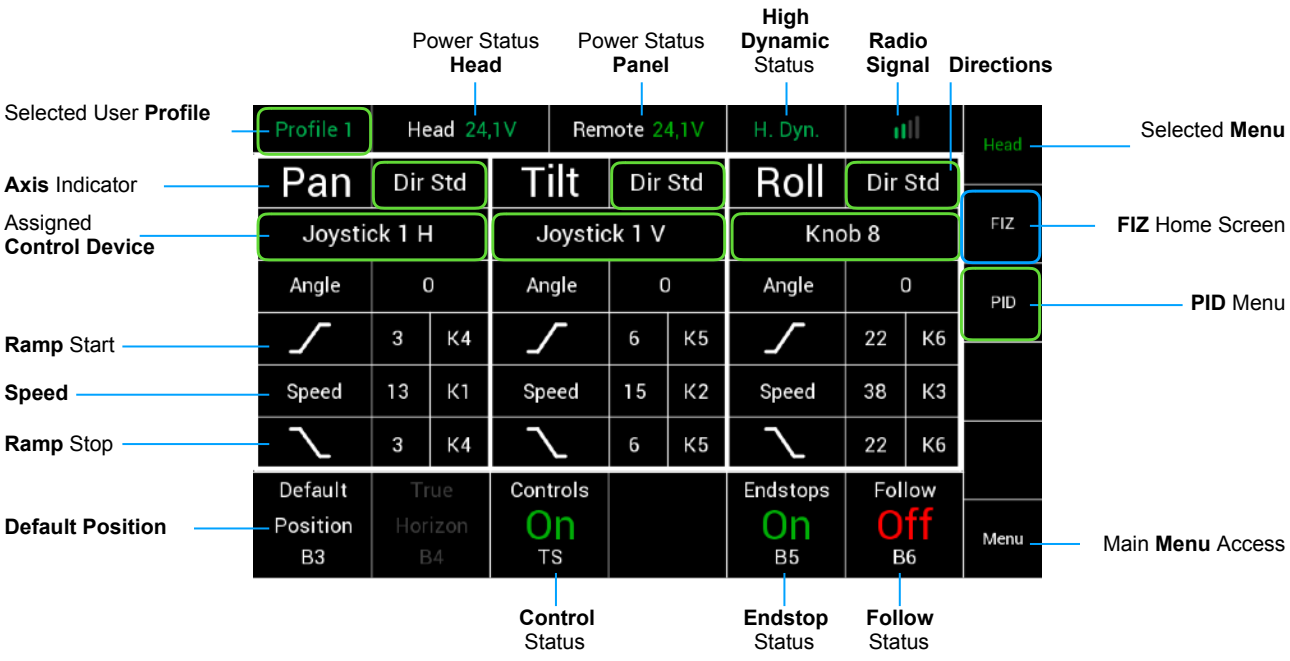
Hanging
Underslung

8 Remote Control SRH-3 Software

Factory pre assigned controls



Homescreen (factory pre assigned)



Basic Functions

8.1
Profiles

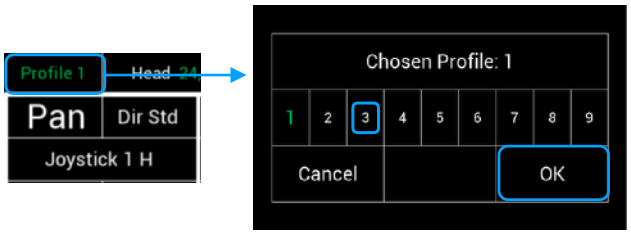
NOTE
In the default factory preset, **Profile 1** is selected.

During use, all values, assignments and settings are permanently written to the selected profile. In this case in **Profile 1**.

Each time changes are confirmed by **Save** or **OK**, the changes are saved in the selected profile.

Changing Profile

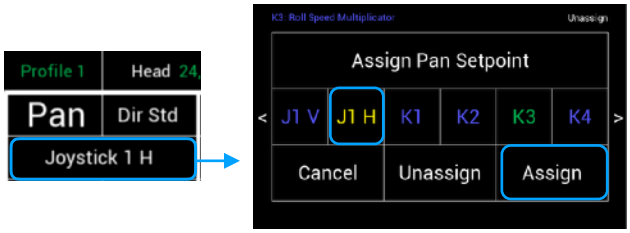
Touching Profile will open a new window.



8.2
Assigning Controllers

Indicates which control device is assigned to which axis.

In the preset, the Tilt and Pan axes are controlled by the built in Joystick. (J1 H & J1V)



Touching **PAN**
will open the assign menu.

Blue letters indicate that the controller is already in use.

Green letters indicate the current selection

Yellow letters indicate the controller which is assigned currently

White letters indicate that the controller is available

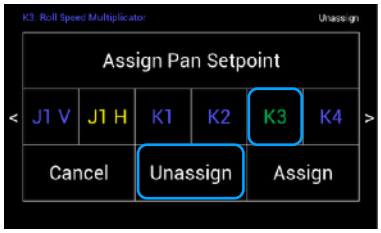
Available controllers:

J1 V	Joystick 1 **V**	Joystick 1, up/down
J1 H	Joystick 1 **H**	Joystick 1, left /right
J2 V	Joystick 2 **V**	Joystick 2, up/down
J2 H	Joystick 2 **H**	Joystick 2, left /right
DRWP	DRW **Pan**	DRW-1, ARRI Wheels, Pan
DRWT	DRW **Tilt**	DRW-1, ARRI Wheels, Tilt
DRWR	DRW **Roll**	DRW-1, ARRI Wheels, Roll
V R	VCW **Roll**	PLC VC Wheels, Roll
V T	VCW **Tilt**	PLC VC Wheels, Tilt
V P	VCW **Pan**	PLC VC Wheels, Pan

EHDP	EHD **Pan**	EHD-1, ARRI Encoder Head, Pan
EHDT	EHD **Tilt**	EHD-1, ARRI Encoder Head, Tilt
TS	Touchscreen	Control through RCP
K1 … K8	Knob **1** … Knob **8**	Knobs
B1 … B6	Button **1** … Button **6**	Buttons
V SR	VCW **Speed Roll**	PLC VCW, Speed Roll Poti
V ST	VCW **Speed Tilt**	PLC VCW, Speed Tilt Poti
V SP	VCW **Speed Pan**	PLC VCW, Speed Pan Poti
V DR	VCW **Direction Roll**	PLC VCW, Direction Roll Switch
V DT	VCW **Direction Tilt**	PLC VCW, Direction Tilt Switch
V DP	VCW **Direction Pan**	PLC VCW, Direction Pan Switch

Unassigning Controllers

To unassign a selected controller, touch **Unassign**.

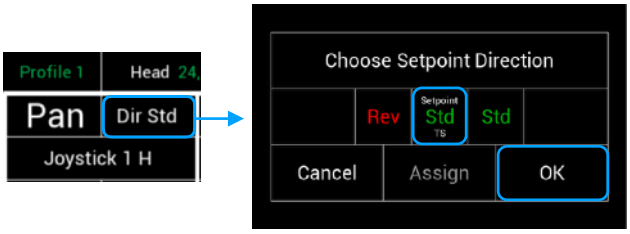


NOTE
After a function is unassigned, the function will be **only** available through the **touchscreen**.

8.3
Changing Axis & Direction

Indicates the selected controller and the selected direction.

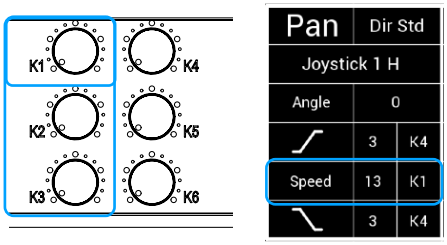
Touching **Dir** will open the direction selection menu.



8.4
Speed (K1, K2, K3)

Here you can adjust the speed value of the individual axis.

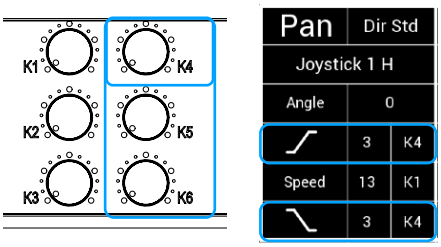
The selected **Speed** is indicated on the **home screen**.



8.5
Ramp (K4, K5, K6)

Here you can adjust the ramp value of the individual axis.

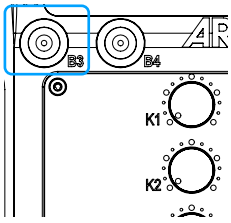
The selected **Ramp** is indicated on the **home screen**.



8.6
Default Position Button / Home

This function will move the head back to its predefined starting position. In the preset, this function is assigned to button **B3**.

NOTE
The pan and tilt axes will return to zero position and roll will remain where previously set. If the roll axis is assigned to a Joystick or wheels then it will return to zero.

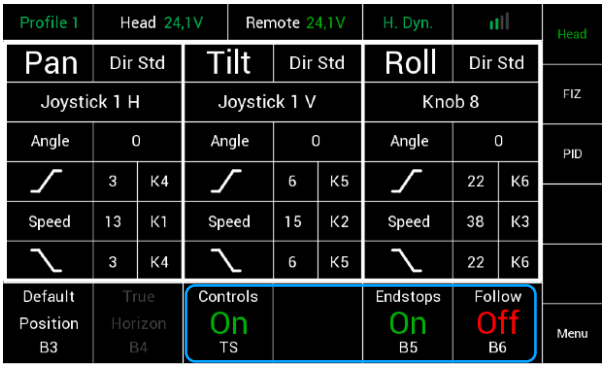


8.7
Controls On/Off

Switches **On/Off** all controllers including the joystick, the wheels, knobs and buttons.

Endstop On/Off
Switches and indicates if Endstop settings are **on/off**.

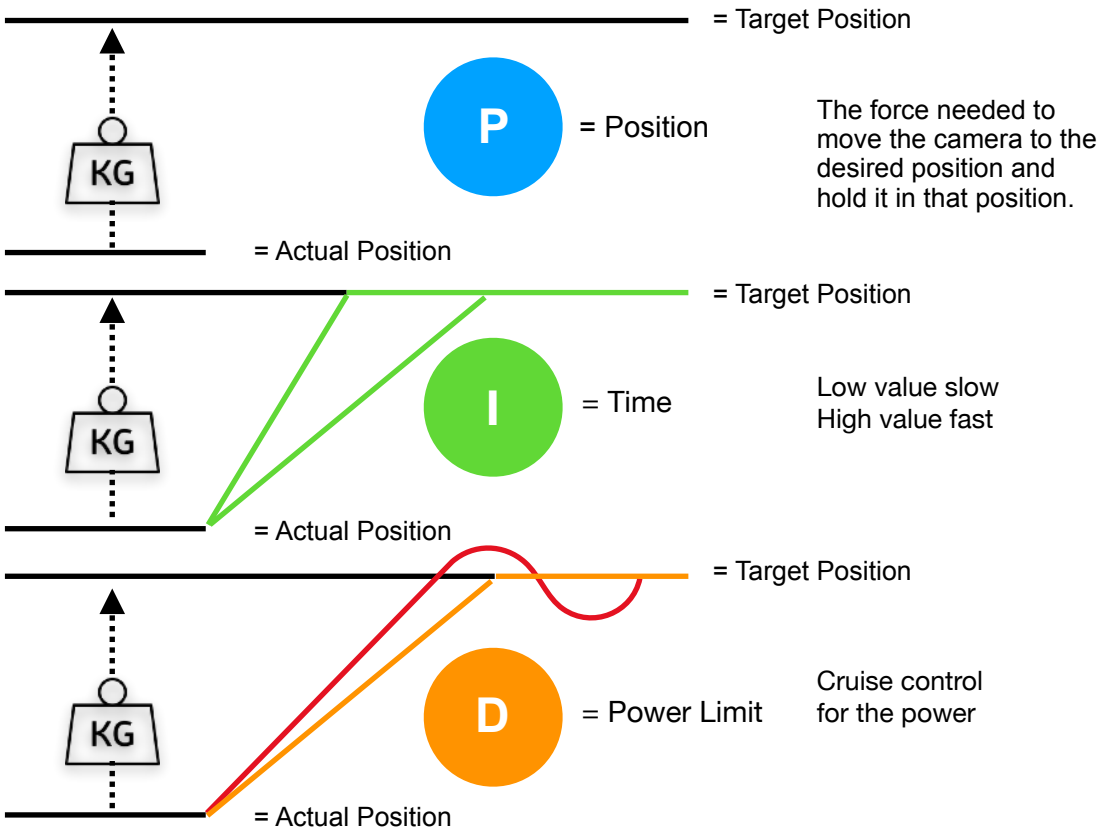
Follow On/Off
Switches and indicates if the Follow Mode is **on/off**.



9 Advanced Adjustments

PID

Proportional – **I**ntegral – **D**erivative controller (PID controller)

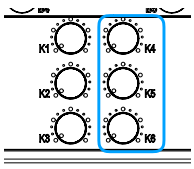


Proportional – **I**ntegral – **D**erivative controller (PID controller)
A PID controller continuously calculates an error value e (t) as the difference between a desired setpoint (SP) and a measured process variable (PV) and applies a correction based on proportional, integral, and derivative terms (denoted P, I, and D respectively) which give the controller its name.

Term **P** is proportional to the current value of the SP − PV error e(t). For example, if the error is large and positive, the control output will be proportionately large and positive, taking into account the gain factor "K". Using proportional control alone in a process with compensation such as temperature control, will result in an error between the set point and the actual process value, because it requires an error to generate the proportional response. If there is no error, there is no corrective response.

Term **I** accounts for past values of the SP − PV error and integrates them over time to produce the I term. For example, if there is a residual SP − PV error after the application of proportional control, the integral term seeks to eliminate the residual error by adding a control effect due to the historic cumulative value of the error. When the error is eliminated, the integral term will cease to grow. This will result in the proportional effect diminishing as the error decreases, but this is compensated for by the growing integral effect.
Term D is a best estimate of the future trend of the SP − PV error, based on its current rate of change. It is sometimes called "anticipatory control", as it is effectively seeking to reduce the effect of the SP − PV error by exerting a control influence generated by the rate of error change. The more rapid the change, the greater the controlling or dampening effect.

9.1
PID Quick Setup



NOTE Start with a solid camera setup

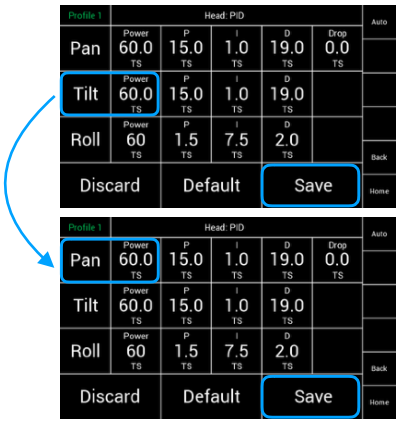
1 Set **Ramp** to **ZERO** on the Joystick (Pan & Tilt) (K4, K5, K6)

2 Physical testing of the head motor power:
Touch the **Tilt** axis and try move the camera down and check if the camera slipping.

3 If the tilt axis is slipping, you need to **increase motor power** for the tilt axis.

NOTE
If the head starts to **vibrate**, **reduce** the **Power** value!

4 After the value meets your expectations, the same **value** shall also be used in the **Pan** axis.
Press **Save**

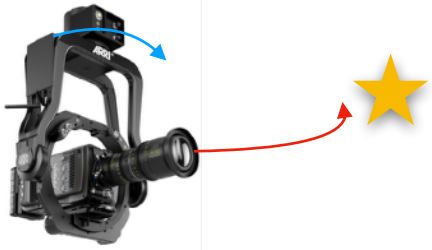


5 Adjusting the **PID** values:
NOTE
First you will need a camera picture

6 Select a point in the set.

7 Use the joystick to pan and stop the head at the selected point in the set.

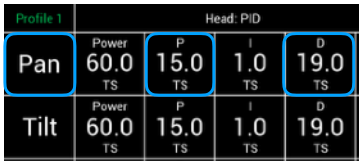
8 Check if the camera:
• stops at the selected point
• or if the camera is over driving the point
• or if the camera is bouncing left and right



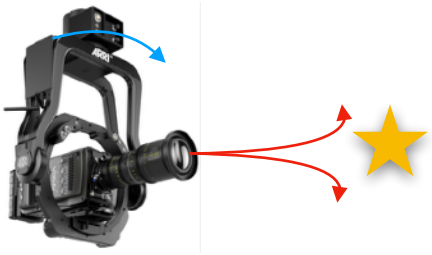
9 If the camera is **over driving** the desired point, you need to increase the **P** and **D** values by steps of five up or down.

NOTE
The **D** value is always 4 to 5 higher as the **P** value as shown.

NOTE
If the head starts to **vibrate**, please **reduce** the **P** value!

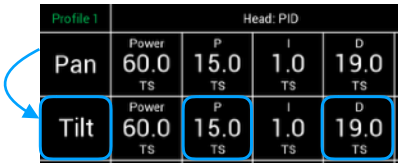


10 If the camera is bouncing, after reaching the desired point, you need to fine tune the **D** value of the **Pan** axis.



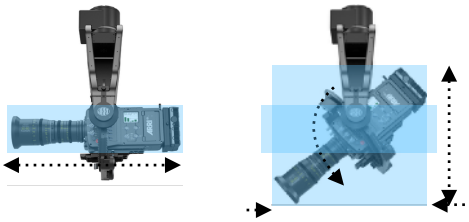
11 After the **PID values** meets your expectations, the same **values** shall also be used for the **Tilt** axis.

Press **Save**

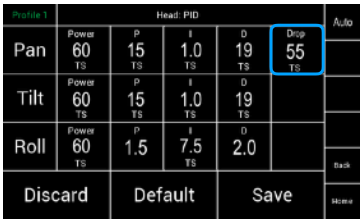


12 **Drop**
At very steep angles, the weight distribution of the camera setup changes extremely.

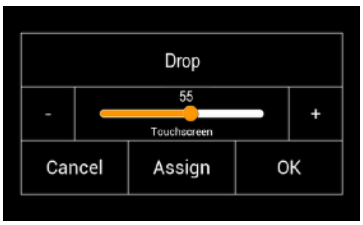
NOTE
Without **Drop** compensation, strong **vibrations** occur at these angles.



The **Drop** value permanently compensates Pan and Tilt, while the camera angle gets steeper and steeper.



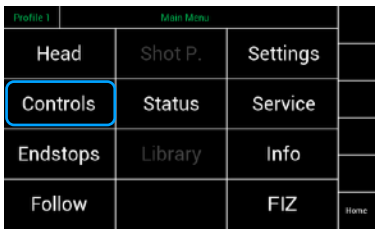
Move the camera into the 90° down position and increase the **Drop** value, till the head stops vibrating.

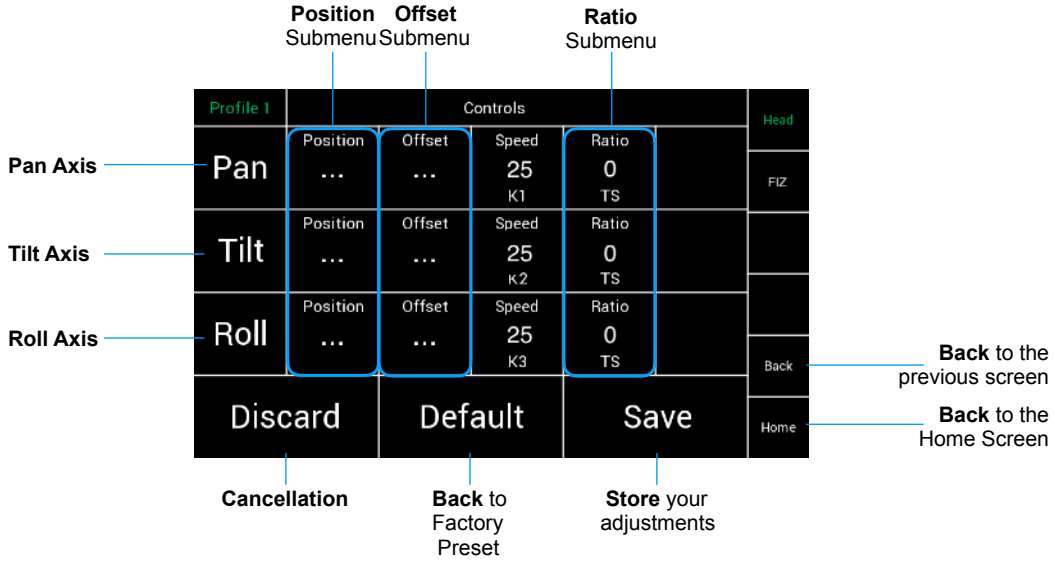


13 **Conclusion:**
It is important to understand that the entire system, such as camera setup, the attachment of the SRH-3 head to the crane and the overall quality of the crane itself must be considered.

10 Controls

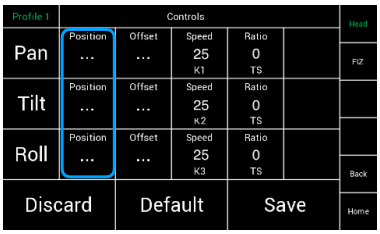
Selecting **Controls** on the **Main Menu** will open a new touchscreen display to allow the operator to assign the functions to each control device and set the characteristics and performance of the assigned control devices.

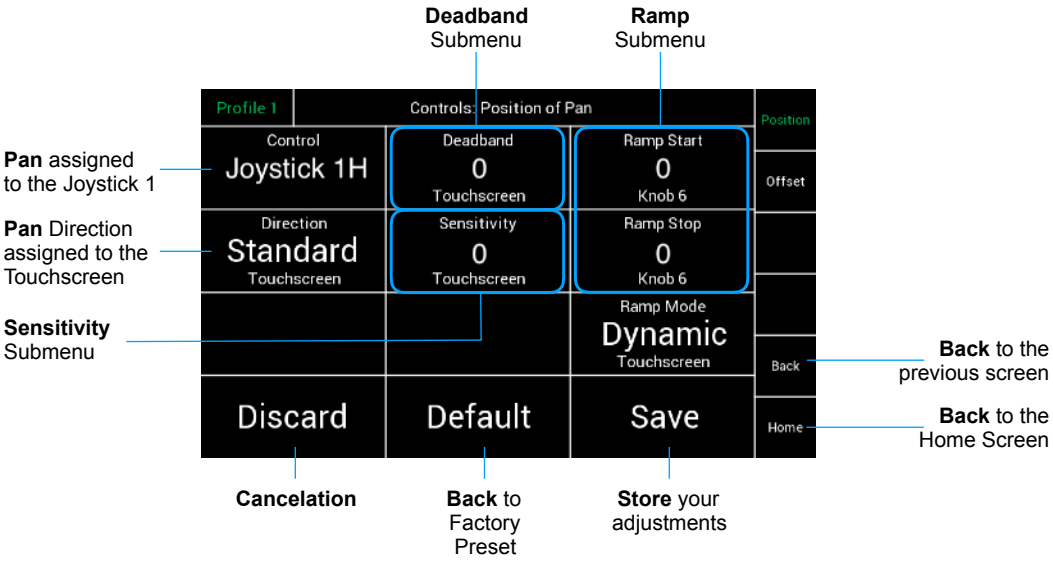




10.1 **Position** Submenu Pan/Tilt/Roll

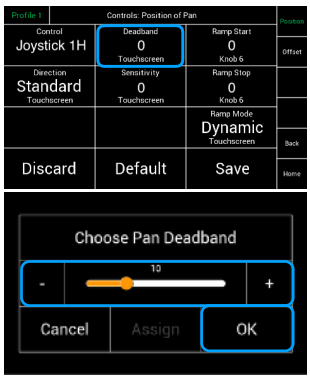
Selecting **Position** will open a new touchscreen display submenu named **Position.**
This submenu allows the operator to assign specific controls to each axis for example a joystick, knob, wheels or a button.





10.2
Deadband Submenu

This selection will open a new touchscreen slider that allows you to change the **Deadband** setting on the selected axis.



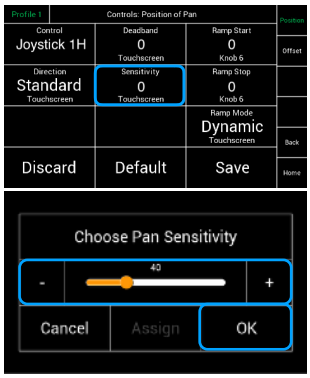
NOTE
Deadband is defined as delay before the control device activates the selected function.

Deadband sets the starting point of the Joystick.
This value controls when the Joystick will react after it was touched.

NOTE
The Deadband for this axis can only be changed, if the assigned controler is a Joystick for example, but not the touchscreen.

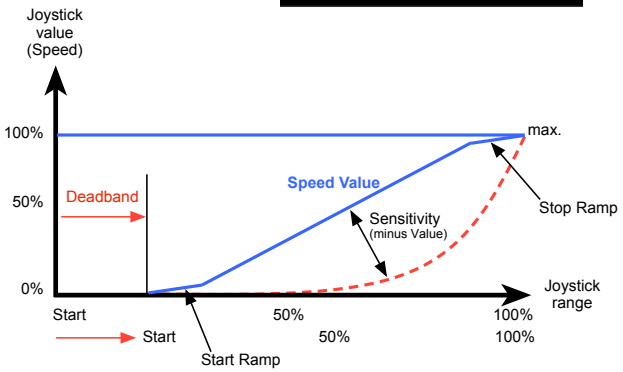
10.3
Sensitivity Submenu

This selection will open a new touchscreen slider that allows you to change the sensitivity of the control device for the selected axis.



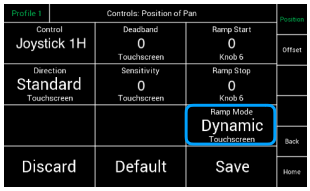
NOTE
All three parameters are related to each other. If the speed is adjusted to a value below 50, keep the ramp value as low as possible.

If the value is to high, there will be more or less **NO** movement in the end.



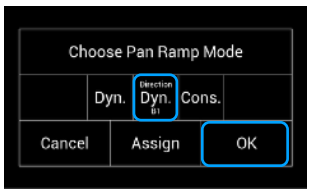
10.4
Ramp Mode Dynamic or Constant

Ramp Mode will open a new touchscreen that allows you to change between a dynamic ramp or a constant ramp.



Dynamic Ramp
The dynamic ramp **Dyn.** is directly related the selected tilt and pan speed.
Higher speed will produce a slower and more flat ramp.
Lower speed will produce a faster and steeper ramp.

NOTE
Dynamic Ramp is useful for wide-angle and standard lenses.

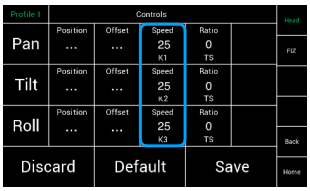


Constant Ramp
The constant ramp **Cons.** will keep the adjusted ramp, regardless of the speed values.

NOTE
Constant Ramp is very useful for tele lenses.

10.5
Speed

Selecting **Speed** will open a new touchscreen display with a slider to set the speed of the selected axis (Pan/Tilt/Roll).

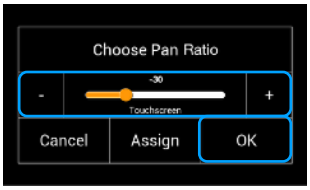


NOTE
In the default factory setup the speed adjustments of Pan, Tilt and Roll are assigned to **K1**, **K2** and **K3**

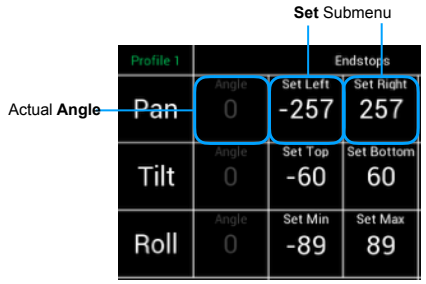
10.6
Ratio Controls Menu

Selecting **Ratio** will open a new touchscreen display where you can select the required **Speed Ratio** of the selected axis (Pan/Tilt/Roll).

NOTE
When shooting with a extreme tele lens, it can be very helpful to change the speed ratio from 0% (1:1) to 30%.
This will reduce the speed development to -30%.

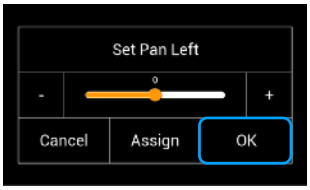


10.7
Endstops / Limits

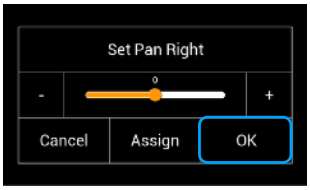


The Endstops menu will allow the operator to assign end positions for each axis and enable or disable them individually.

Angle Display
The Angle Column displays the current position of the head measured as an angle.

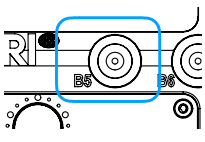


The **Set Left/Top/Min** selection will open a new touchscreen display with a slider to allow the operator to set the **left End Stop** position, measured as an angle, individually for each axis.

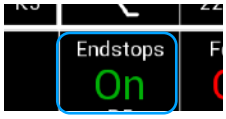


The **Set Right/Bottom/Max** selection will open a new touchscreen display with a slider to allow the operator to set the **right End Stop** position, measured as an angle, individually for each axis.

NOTE
In the default factory setup, the **Endstop On/Off** button is assigned to **B5**.



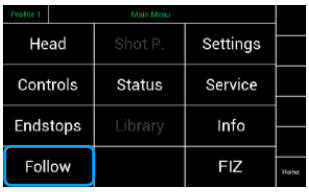
The **Endstop On/Off** button on the Home screen will turn **on**/**off** all programmed **Endstops**.



Unassigning will move the function to the touchscreen.

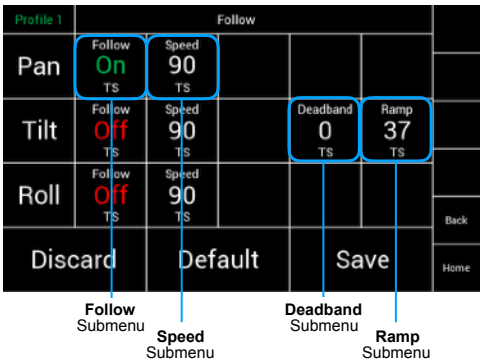
10.8

Follow Mode / Pan Lock



Follow mode allows the horizontal pan movement of the head to be synchronized with the horizontal pan movement of the crane. This function is also called Pan Lock.

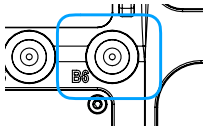
NOTE
In the default factory setup the **Follow** mode is deactivated.



Selecting **Follow** will open a new menu. The Follow menu will control the **Speed**, **Deadband** and **Ramp** of the Follow mode individually for each axis.

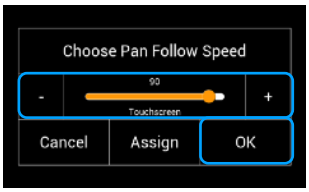
Follow On/Off

NOTE
In the default factory setup, the **Follow On/Off** button is assigned to **B6**.
The **Follow On/Off** button on the Home screen will turn **on**/**off** the **Follow Mode**..



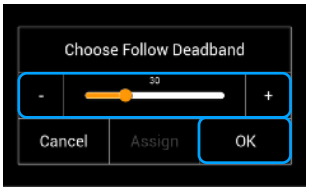
Follow Speed

The **Follow Speed** selection will open a new menu with a slider to allow the operator to set the speed of the follow function individually for each axis.
NOTE
The minimum speed should be **90** to reach the Pan Lock.



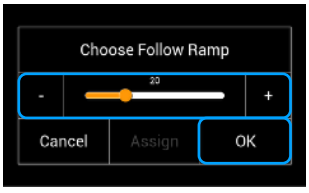
Follow Deadband

The **Follow Deadband** selection will open a new menu with a slider to allow the operator to set the **Deadband** of the follow function individually for each axis.
NOTE
The Deadband should be **0 to max 30** to reach the Pan Lock.



Follow Ramp

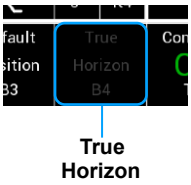
The **Follow Ramp** selection will open a new menu with a slider to allow the operator to set the ramp rate of the follow function individually for each axis.
NOTE
The Ramp should be **0** to reach the Pan Lock.



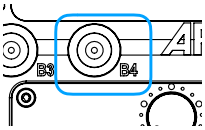
NOTE
In general, the **Follow** function can be used to **lock** a selected axis by turning on the follow function and setting the **Speed** slider for the selected axis at **100.**
The **Deadband** slider should be set at **0** and the Ramp slider set at **0**.

10.9

True Horizon

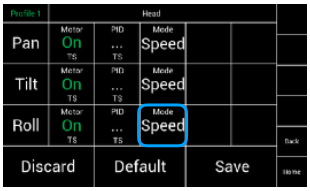


True Horizon



Sometimes the composition of the frame requires manually adjusted horizon and an easy way to get the Roll axis back to the physical Zero position.This is especially important when using wheels, or for fast movements.
The True Horizon function allows to move the head back into the Zero position just by touching the assigned button **B4**.

Precondition

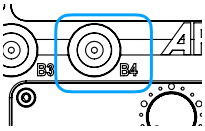


The used controller needs to be:
Wheels, Joystick, internal Zoom Rocker or the Master Grip Zoom rocker.

NOTE
The **Roll Axis** needs to be in **Speed Mode**.

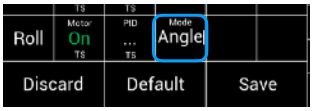
Usage

By using one of the listed controllers, the horizon can be adapted to the desired framing. That means of course that the horizon in the frame may be offset to the physical Zero position.



To reach the physical Zero position, press button **B4**.

NOTE
When this special feature is not needed anymore, set the Roll axis back to **Angle Mode**.



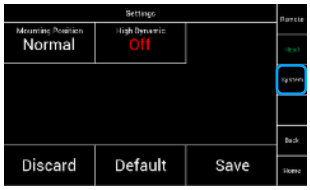
11 Wireless

Introduction:
The SRH-3 is using the white-radio module EMIP400.

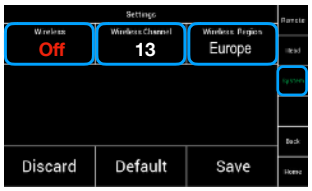
The SRH-3 offers 14 channels and will be delivered with an enabled radio connection on **channel 13.**

NOTE
The SRH-3 will be delivered into your region with the **required region settings** and the **Wireless is switched OFF**

11.1 Wireless Menu



Selecting **System** will open a new touchscreen display menu. Here you can access the **Wireless** menu.

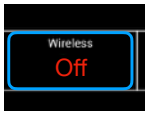


In this factory preset for Europe, the wireless is **Off** and the system is set to **Europe** and **Channel 13.**

11.2 Wireless On / Off

NOTICE
To **activate** or to **change** any radio module related **settings**, the remote control panel and the remote head **must be connected via the FS Can Bus cable**.

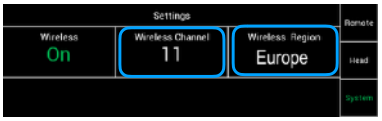
To enable or to disable the radio module, touch **Wireless** and toggle between **On** and **Off**.



11.3
Selecting Channels

NOTICE
The quality and range of the radio connection is extremely dependent on the general radio situation on the set. Make sure that you select the proper area you are operating the device in. 1. **Avoid multiple products using the same frequency or channel in the 2.4GHz bandwidth.** 2. WiFi transmitters, receivers or networks can strongly influence the quality of the 2.4 GHz connection. **Disable unnecessary, unused WiFi systems or set the WiFi region manually to Japan. This will lower the transmission power of the Wifi network.** 3. Especially non-certified or illegal radio systems, can affect the range of the wireless connection extremely. **Disable illegal radio systems.**

The EMIP400 white-radio- module offers 14 channels and will be delivered with enabled radio connection on **channel 13.**



The **blue** channels are the existing channels of the EMIP 300 radio module, **used** by the **WCU-4**.

The **green** channels are **new additional channels** of the EMIP 400.

The extra new channels are placed **in between** the existing EMIP 300 channels.

To avoid interferences between the SRH-3 and WCU-4, ensure that the used frequencies are not too close to each other.

To change the channel, touch the **Wireless Channel**, until you reached the required channel.

Channel	Frequency
0	2.410 GHz
1	2.415 GHz
8	2.420 GHz
9	2.425 GHz
2	2.430 GHz
3	2.435 GHz
10	2.440 GHz
11	2.445 GHz
4	2.450 GHz
5	2.455 GHz
12	2.460 GHz
13	2.465 GHz
6	2.470 GHz
7	2.475 GHz

For example:
To change to channel **four**, you need to touch **Wireless Channel four times**.

NOTICE
Make sure that you select the proper area you are operating the device in. All available region settings comply with Part 15 of the FCC rules.

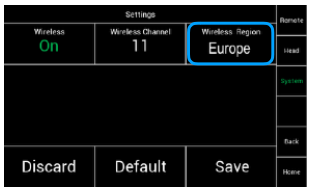
11.4

Changing the Region

NOTICE

Make sure that you select the proper area you are operating the device in.
All available region settings comply with Part 15 of the FCC rules.

To change the regional settings, touch **Wireless Region**.
To change the region, press **C** first, then enter the region code shown below.



0	**Japan**	**6**	**Canada**	**13**	**Philipines**
1	**Europe**	**7**	**China**	**14**	**Russia**
2	**USA**	**8**	**Egypt**	**15**	**Singapore**
3	**South Korea**	**9**	**Hong Kong**	**16**	**South Africa**
4	**World**	**10**	**India**	**17**	**Taiwan**
5	**Australia**	**11**	**Israel**	**18**	**Thailand**
		12	**New Zealand**	**19**	

NOTICE

Wireless region settings specify where the wireless function can be used in compliance with local regulations. It may be illegal to use the wireless function in a region other than specified in the setting. Please ensure that the region is configured correctly, e. g. when traveling.

NOTICE

This device complies with part 15 of the FCC Rules.

§15.19(a)
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Part 15 Clause 15.21
Changes or modifications not expressly approved by the party responsible for compliance could void the user's
authority to operate the equipment

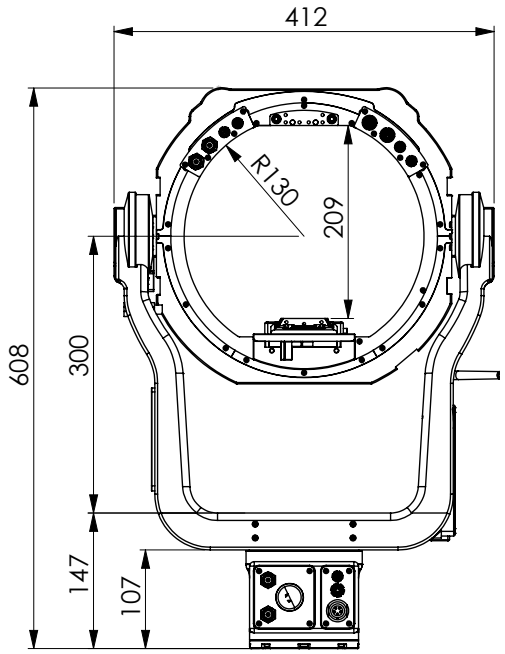
Canada:
Contains IC: 9482A-EMIP400
This device complies with Industry Canada’s licence-exempt RSSs.
Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d’Industrie Canada applicables aux appareils radio exempts de licence. L’exploitation est autorisée aux deux conditions suivantes :

1) l’appareil ne doit pas produire de brouillage;
2) l’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement

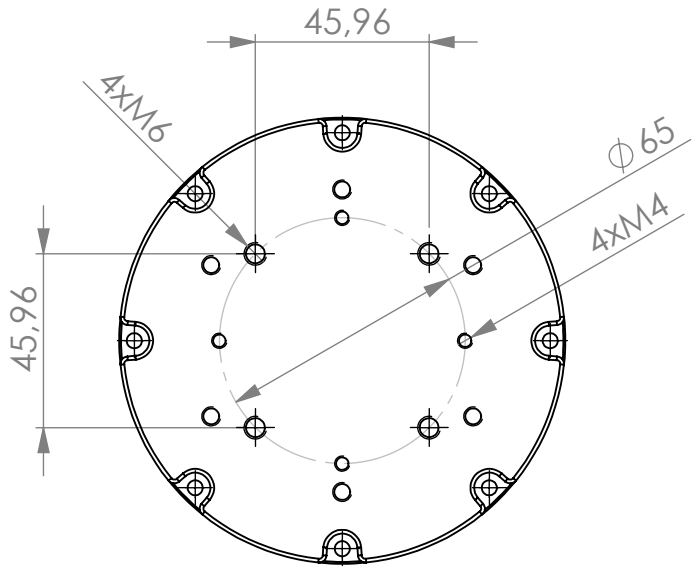
12 Dimensions

10.1 Head

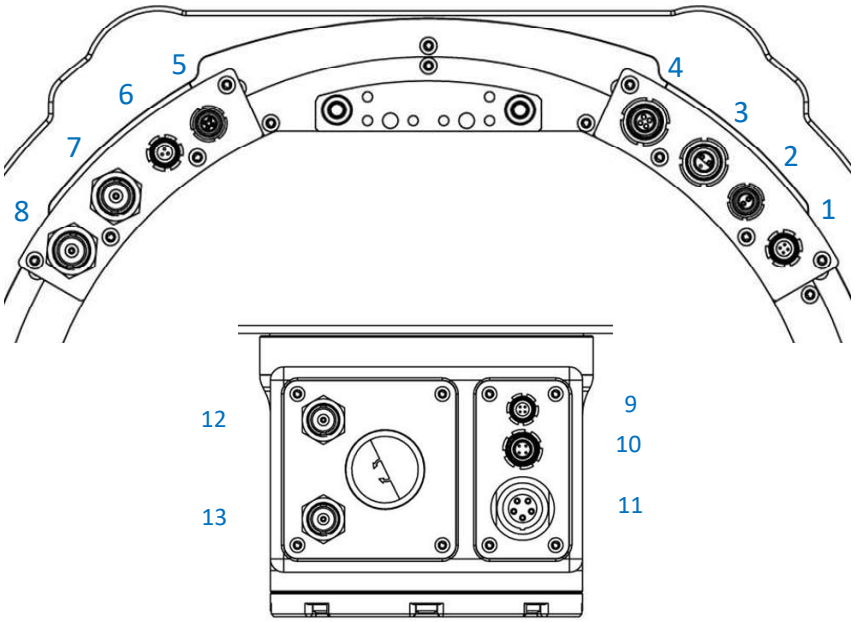
Stabilized Axis	3 (Pan, Tilt, Roll)
Max. Payload	up to 30 Kg / 66 lbs.
Height	60,8 cm / 23,93“
Width	41,2 cm / 16,22“
Depth Head	13 cm / 5.12“
Death Base	16,5 cm / 6,49“
Ring Diameter	26 cm / 10,23“
Ring Height centre	20,9 cm / 8,23“
Weight	9,0 Kg / 19.8 lbs.
Max. Tilt Range	+ 60° / -110°
Max. Roll Range	+/- 90°
Max. Pan Range	540° +/-270°
Max. Pan Rate	240° / Sec.
Max. Tilt Rate	240° / Sec.



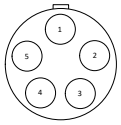
10.2 Dimensions Baseplate



13 Pinout



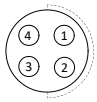
12V/ 24V / FS-CAN IN
Lötseite Buchse — LEMO ECG.3B.305.CLL



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

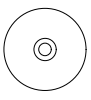
10

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

14

EU–Declaration of Conformity

Brand Name: ARRI
Product Description: Camera Stabilizer System:

- **ARRI Stabilized Remote Head SRH-3 Pro Set including ARRI Stabilized Remote Head – SRH-3 and ARRI Remote Control Panel – RCP-1**

+ Europe Setting for Software 01.14.00 or later and Antenna Proant 333 Ex-It 2400 Foldable, Accessories regarding Apendix I

The designated products conform to the specifications of the following European directives:

1. Directive 2014/53/EU of the European Parliament and the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment - OJ L 153, 22 May 2014, p. 62–106

2. Directive 2011/65/EU of the European Parliament and the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment - OJ L 174, 1 July 2011, p. 88–110

The compliance with the requirements of the European Directives was proved by the application of the following standards:

Essential Requirements regarding No 1

- Art. 3.1 a following 2014/35/EU
  o EN 62368-1: 2014 + AC:2015-05 + AC:2015-11; EN 60950-1: 2006+A11:2009+A1:2010+A12:2011+AC2011+A2:2013 ; EN 62479 :2010

- Art. 3.1 b following 2014/30/EU
  o EN 301 489-1 V2.1.1; EN 301 489-17 V3.1.1; EN 61000-4-2:2009; EN 61000-4-3:2006 A1:2009 A2:2010 ; EN 55032: 2012, EN 55035 :2017

- Art. 3.2
  o EN 300 328 V2.1.1;
  Essential Requirements regarding No 2
  • EN 50581: 2012;

To evaluate the respective information, we used:
http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/index_en.htm

Year of affixed CE-marking: 2018

Munich 13.12.2018

Sign	Sign
Walter Trauninger Managing Director	Dr. Sebastian Lange Head of Quality Management

APENDIX-I

List of additional accessories:

Item	Model name
1	**ARRI Digital Remote Wheels - DRW-1**

14 Declaration of Conformity

Note: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Compliance Statement

Class A Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Note: This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- **ECS transceiver module:** FCC ID: Y7N-EMIP400

Industry Canada Compliance Statement

Complies with the Canadian ICES-003 Class A specifications.

Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

This device complies with RSS-210 of Industry Canada.

Cet appareil est conforme à CNR-210 d' Industrie Canada.

This Class A device meets all the requirements of the Canadian interference-causing equipment regulations

Cet appareil numérique de la Classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

- **ECS transceiver module:** IC ID: 9482A-EMIP400

Australia / New Zealand

China

- **ECS transceiver module**:

本设备包含型号核准代码（分别）为：
CMIIT ID: 2017DJ7865 (M)
CMIIT ID: 2017DJ7863 (M)

- **SRH-3 Pro Set**

本设备包含型号核准代码（分别）为：
CMIIT ID: 2018DP6608

... 的无线电发射模块。

14 Declaration of Conformity

India

- **ECS transceiver module:** Certification no.: ETA-1386/2018/ERLO
  ETA-1385/2018/ERLO

Japan

- **ECS transceiver module**: MIC-ID: 020-180029
  020-180030

Taiwan

- **ECS transceiver module:** NCC: CCAH18LP0650TO
  CCAH18LP0660TO

低功率電波輻射性電機管理辦法

警語一

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

(即低功率電波輻射性電機管理辦法第十二條)

The low-power radio-frequency devices must not be altered by changing the frequency, enhancing emission power, adding external antenna, and modification of original design characteristic as well as function.

警語二

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

(即低功率電波輻射性電機管理辦法第十四條)

The operation of the low-power radio-frequency devices is subject to the conditions that no harmful interference is caused. The user must stop operating the device immediately should harmful interference is caused and shall not resume until the condition causing the harmful interference has been corrected.

Moreover, the interference must be accepted that may be caused by the operation of an authorized communications, or ISM equipment.

Regarding §10(10) of Radio equipment directive 2014/53/EU, the wireless video module has restrictions in the following markets: Non