



## Imprint

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## Document revision history

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2.0			01.09.2018
2.1			01.03.2019

## 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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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

### ⚠ 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.

## 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 to 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.

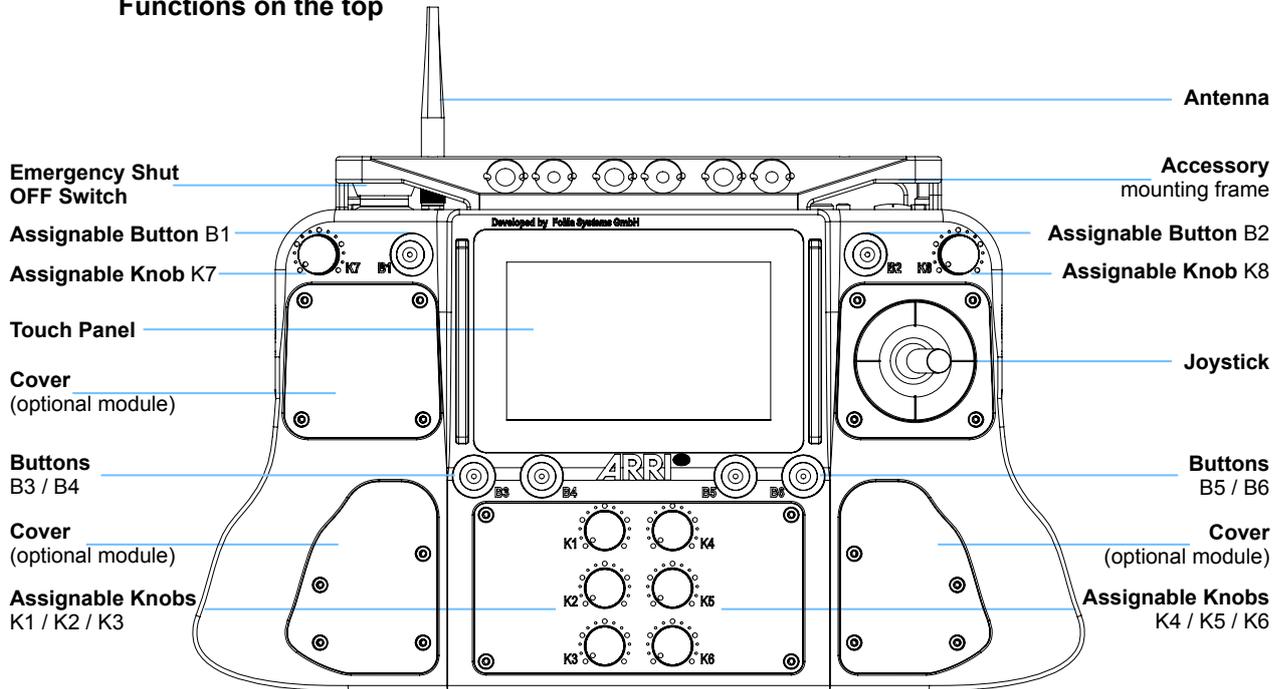
Please remember that what the SRH-3 is mounted on, and the manner in which it is mounted, will directly impact on its performance. The total mass of the head and its load are an important consideration when choosing how and where to mount it. This torque will change in direction and amplitude in varying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

### CAUTION

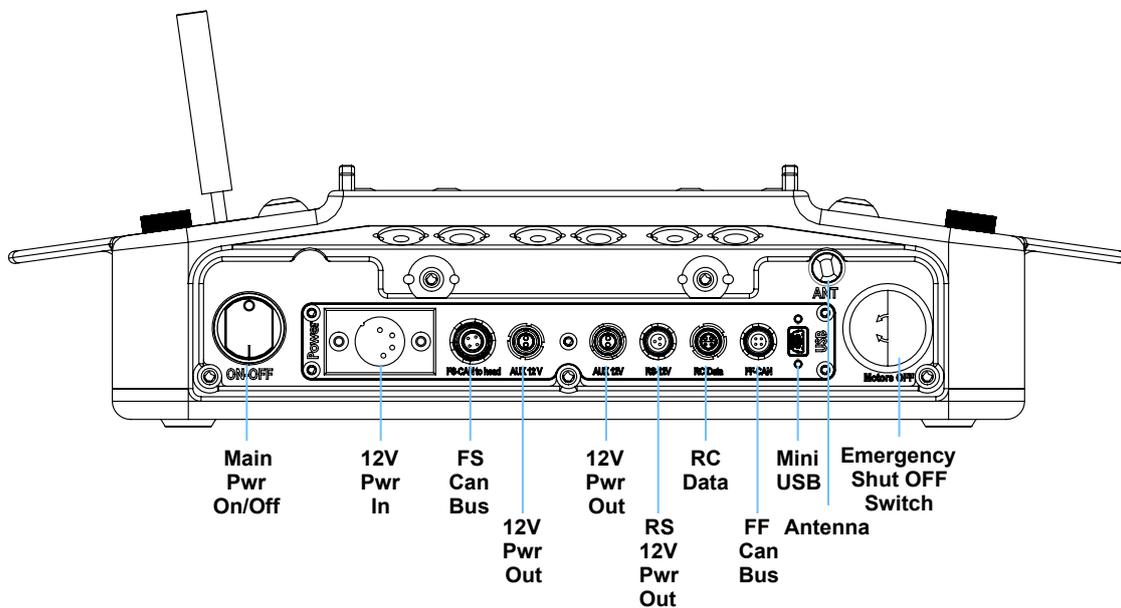
**Each of these aspects can lead to the motor power of single axis having to be lowered, which will limit the effectiveness of the overall stabilization.**

## 2 Functions

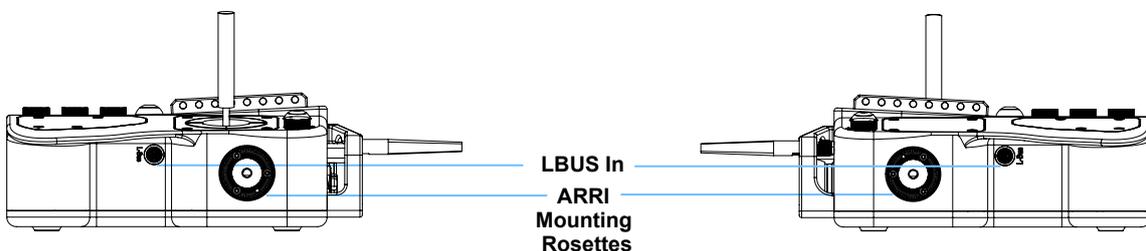
### 2.1 Functions on the top



### 2.2 Functions on the rear



### 2.3 Functions on the right and left side



### 3 Connectors

#### 3.1 Powering the SRH-3 Control Panel

You can use any 14.4 Volt min. 30W power supply or 14.4 Volt battery to power the SRH-3 Control Panel.

Any 4pin XLR conformed power cable can be used.

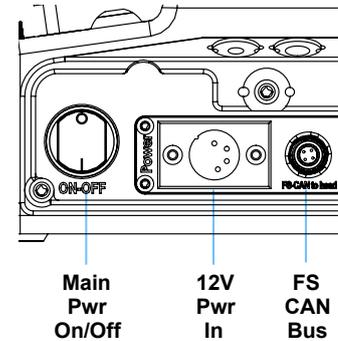
When using the ARRI SRH-3 Power Supply, the control panel will be powered through the FS-CAN Bus connector.

#### NOTE

If the Remote Head does not react to the control panel, when the main power switch is on check that the **SHUT OFF Switch** is pulled out.

#### NOTICE

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



#### 3.2 Hardwiring the SRH-3 Stabilized Remote Head

The SRH-3 can be hardwired with the Remote Panel using the **FS-CAN BUS** connector.

#### NOTE

Maximum cable length is 250 meter / 820 feet.



#### 3.3 Powering Monitors and Accessories

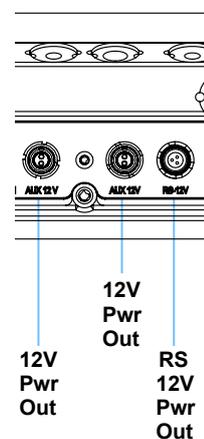
The SRH-3 Control Panel offers one ARRI **RS** and two Lemo 0B 2pin power out sockets.

#### NOTE

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

#### NOTICE

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



3.3  
**RC Data**

The RC Data port is used to connect the PLC Veracity Wheels.

NOTICE
<b>Check with the PLC website that the wheels have the correct firmware.</b>



3.4  
**FF CAN BUS**

Interface for future products and interfaces using a fast CAN Bus.



3.5  
**MINI USB In**

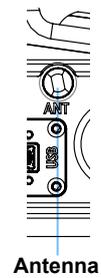
The SRH-3 Control Panel can be updated and serviced through the Mini USB socket.



3.6  
**Antenna**

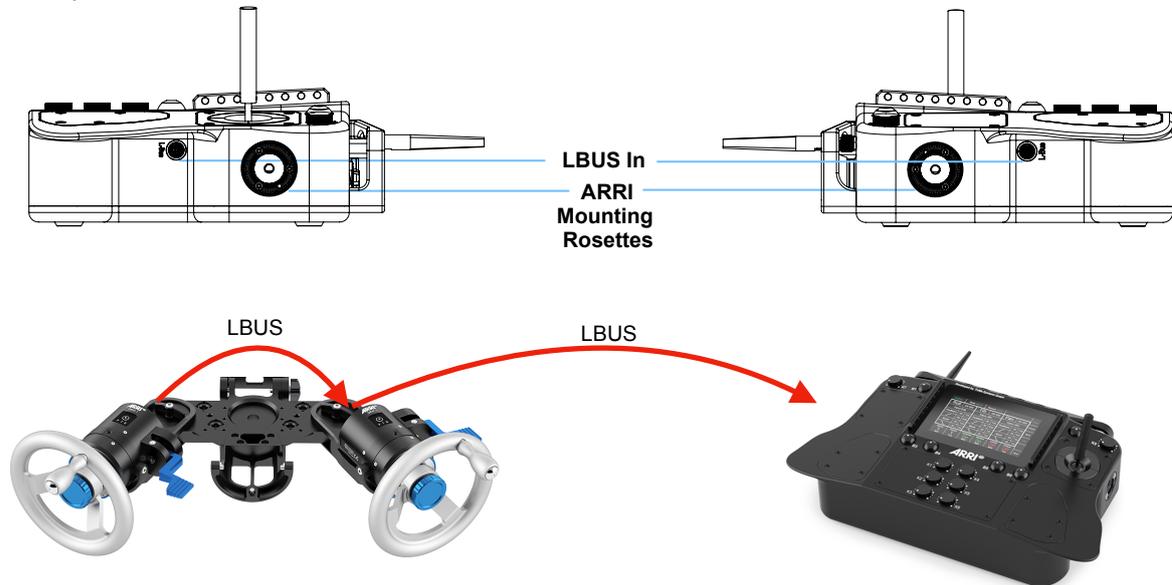
This is the connector for the SRH-3 antenna only.

NOTICE
<b>Never use the Remote Control Panel without an antenna mounted. Otherwise you will risk damaging the radio amplifier.</b>



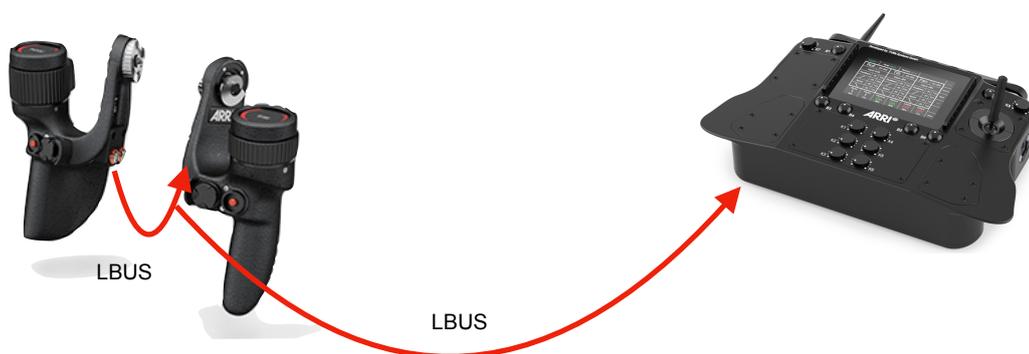
### 3.7 LBUS In

The SRH-3 Control Panel offers two LBUS In sockets. Here you can mount up to two ARRI Master Grips or Grips or other supported LBUS products.



#### NOTE

When using two ARRI Master Grips or other supported LBUS controllers, like the DRW-1, connect one controller directly to the second controller first. Then connect the two daisy chained controller to one of the **LBUS In** sockets.



#### NOTICE

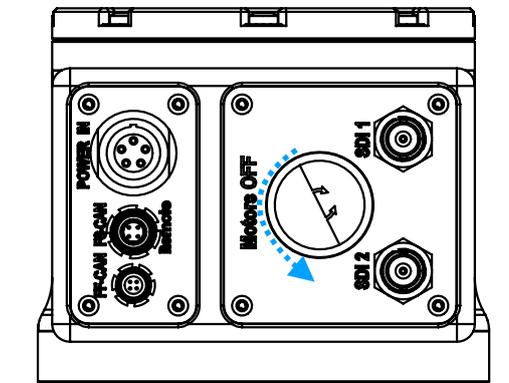
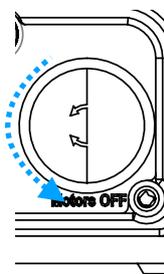
Check with the ARRI website that the Master Grips, DRW-1, OCU-1 and other LBUS controllers have the correct firmware.

### 3.8 Emergency Shut OFF Switch

The SRH-3 Control Panel offers an Emergency Shut OFF switch. Use the Emergency Shut OFF switch to switch off the **motors** of the remote head anytime. Camera power will remain on and only the motor power will be disconnected. If the **Emergency Shut Off** switch had been used, this message will appear in the control screen.

#### NOTICE

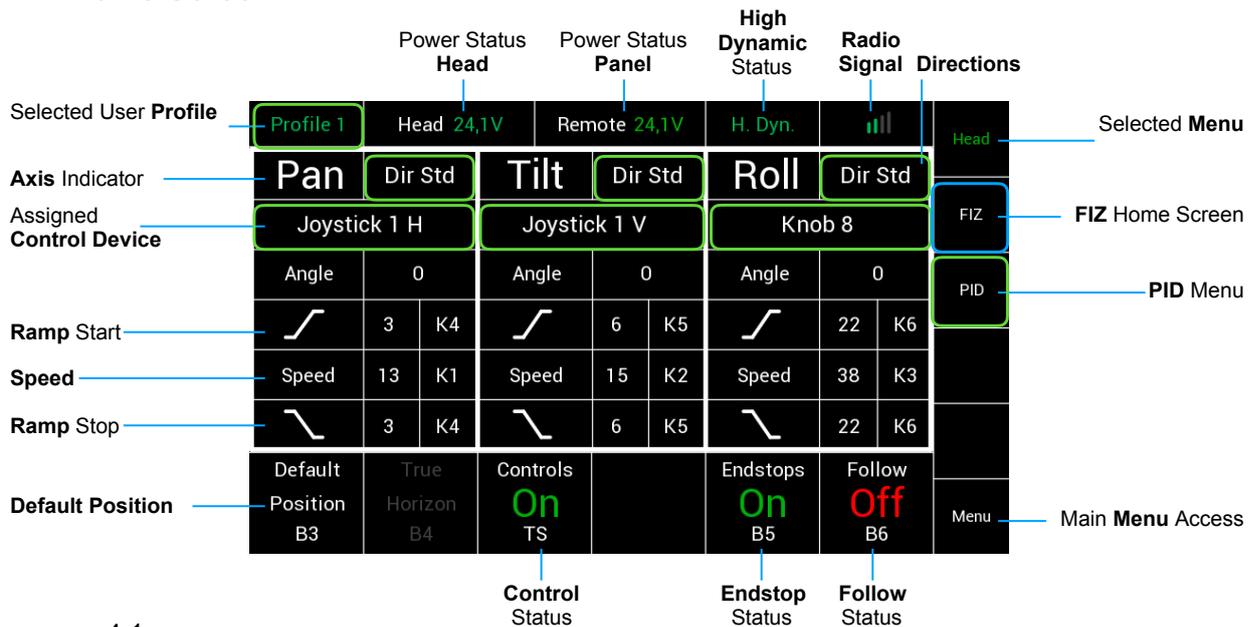
If the Remote Head does not react to the control panel, even the main power switch is on, check that the Emergency Shut Off Switch is pulled out.



#### NOTE

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

## 4 Home Screen



### 4.1 Functions

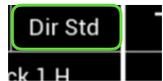
#### Profile

Indicates which User Profile is currently selected to operate the system.  
**Shortcut:** Touching **Profile** will open a new window. (see page 49)



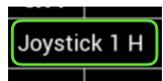
#### Axis & Direction Indicator

Indicates the selected controller and the selected direction.  
**Shortcut:** Touching **Dir.** will open a new window. (see page 22)



#### Assigned Control Device (Joystick1 H & V)

Indicates which control device is assigned to which axis.  
 In this case the Tilt and Pan axes are controlled by the built in Joystick.  
**Shortcut:** Touching **Profile** will open a new window. (see page 22)



#### Speed (K1, K2, K3)

Here you can adjust the maximum speed of the individual axis.  
 (see page 26)

#### Ramp Start / Stop (K4, K5, K6)

Indicates the ramp value, or how smooth the axis movement starts and stops.  
 (see page 22)

#### Default Position Button

This function will move the head back to its predefined starting position.  
 In this case 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.

#### True Horizon B4

Sets the Roll axis back to the physical Zero position, when the controller is in speed mode  
 (see page 31)

#### 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**.

**Head**

Indicates that the head menu is the active menu on the screen.

**FIZ**

When selected a touchscreen menu opens to setup the controllers for Focus, Iris and Zoom.

**PID Quick Menu**

When selected a touchscreen menu opens to allow changes to increase/decrease **PID** and motor power settings.

**Main Menu**

Selecting **Menu** will return the display to the Main Menu and selection screen.

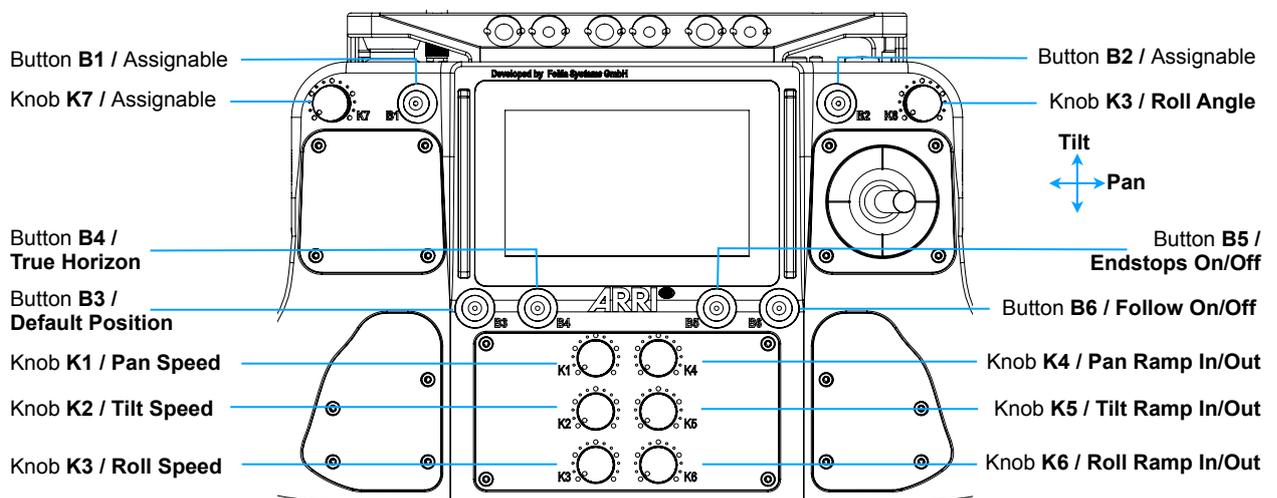
Profile 1	Head 24.1V		Remote 24.1V		H. Dyn.	all	Head
<b>Pan</b>	Dir Std		<b>Tilt</b>	Dir Std		<b>Roll</b>	Dir Std
	Joystick 1 H			Joystick 1 V			Knob 8
Angle	0	K4	Angle	0	K2	Angle	0
↘	3		↘	6		↘	22
Speed	13	K1	Speed	15	K2	Speed	38
↘	3		↘	6		↘	22
Default Position B3	True Horizon B4	Controls On TS	Endstops On B5	Follow Off B6			Menu

Profile 1	Head 24.1V		Remote 24.1V		H. Dyn.	all	Head
<b>Focus</b>	Dir Std		<b>Iris</b>	Dir Std		<b>Zoom</b>	Dir Std
	Touchscreen			Touchscreen			Touchscreen
Position	0.0		Position	0.0		Position	0.0
↘	0	TS	↘	0	TS	↘	0
↘	0	TS	↘	0	TS	↘	0
		Controls On TS	Motors On TS	NA TS	NA TS		Menu

Profile 1	Head: PID					Auto
<b>Pan</b>	Power 60.0 TS	P 15.0 TS	I 1.0 TS	D 19.0 TS	Drop 0.0 TS	
<b>Tilt</b>	Power 60.0 TS	P 15.0 TS	I 1.0 TS	D 19.0 TS		
<b>Roll</b>	Power 60 TS	P 1.5 TS	I 7.5 TS	D 2.0 TS		
Discard	Default	Save				Home

Profile 1	Main Menu		Home
Head	Shot P.	Settings	
Controls	Status	Service	
Endstops	Library	Info	
Follow		FIZ	Home

**5 Factory pre assigned controls**



5.1

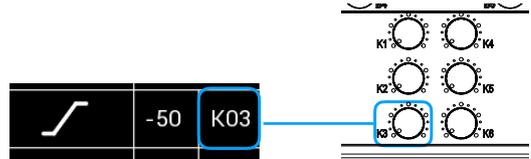
**Functions**

You can assign controls or functions to matching knobs, buttons, joysticks or other external controllers.

The control assigned to each parameter is displayed on the Home Screen. Functions can be assigned to controls on the unit in the controls page in the Main Menu.

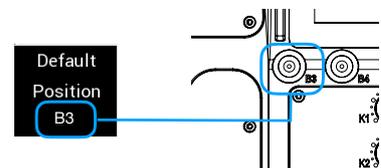
**K1 - K6**

The display will indicate that a **Knob** is in use and the function it has been assigned to control. By example the Ramp Start is controlled by Knob K3 which is located here.



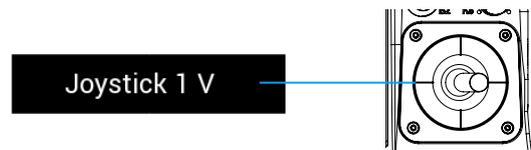
**B1 - B6**

The display will indicate that a **Button** is in use and the function it has been assigned to control. By example **B3** will move the head back to its pre defined default position. The button **B3** is located here.



**Joystick**

Indicates that the built in Joystick (1) is assigned for use with Tilt and Pan.



**TS**

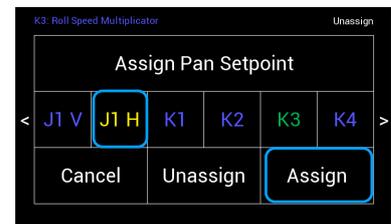
Indicates that the function is assigned to the touchscreen.



**Assigning Controls**

Select one of the available controllers and confirm by touching Assign.

**J1H = Joystick 1 horizontal / Pan axis**

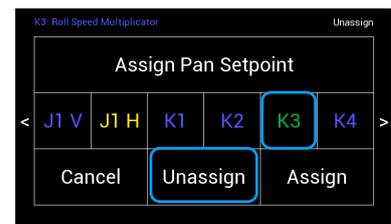


**Unassigning Controls**

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

**NOTE:**

After a function was unassigned, the function will be only available through the touchscreen.



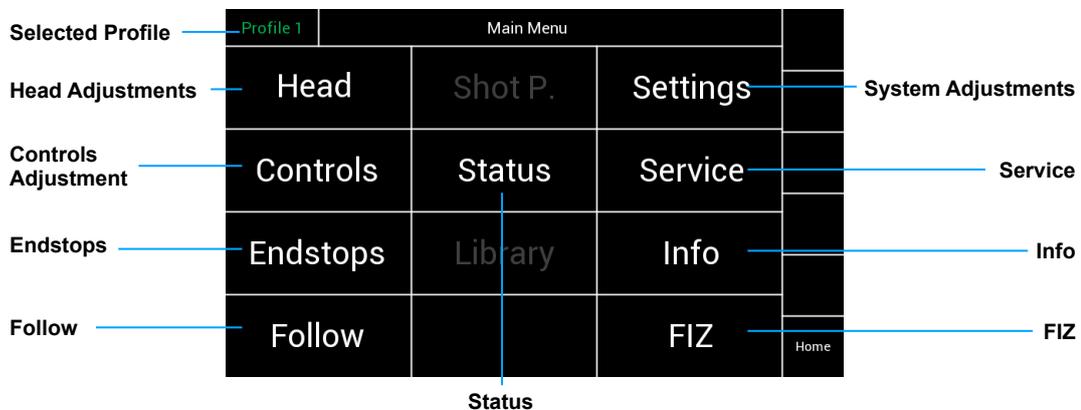
**Submenu**

Selecting any menu field with three points, will open a submenu for that function.



## 6 Main Menu Overview

Selecting **Menu** on the Home Screen will display the **Main Menu** page on the display.



### 6.1

#### Head

Selecting **Head** will open a new touchscreen display to control the **motors** and **PID settings** for each axis.

Sensitivity, Speed, Ramp and Deadband of each control can be set in this menu.

#### Controls

Selecting **Controls** will open a new touchscreen display menu. The **Controls** menu will adjust the Joystick, Zoom, Focus and Wheels control where applicable.

#### Endstops

Selecting **Endstops** will open a new touchscreen display menu. The Endstops menu will allow the operator to assign end positions for each axis and enable or disable them individually.

#### NOTE

Note that the main Endstop **on/off** button on the Home screen will turn on/off **all** Endstops enabled.

#### Follow

Selecting **Follow** will open a new touchscreen display menu. The **Follow** menu will control the speed, Deadband and ramp of the optional follow mode for each axis. In normal remote head operation the follow mode will be turned off.

#### Shot Preset

Future feature

#### Status

Selecting **Status** will open a new touchscreen display menu. The **Status** menu will display the status of controller expanders, wireless status, and status of individual connections. (LBUS, FF-CAN Bus, wireless connection)

#### Library

Future feature

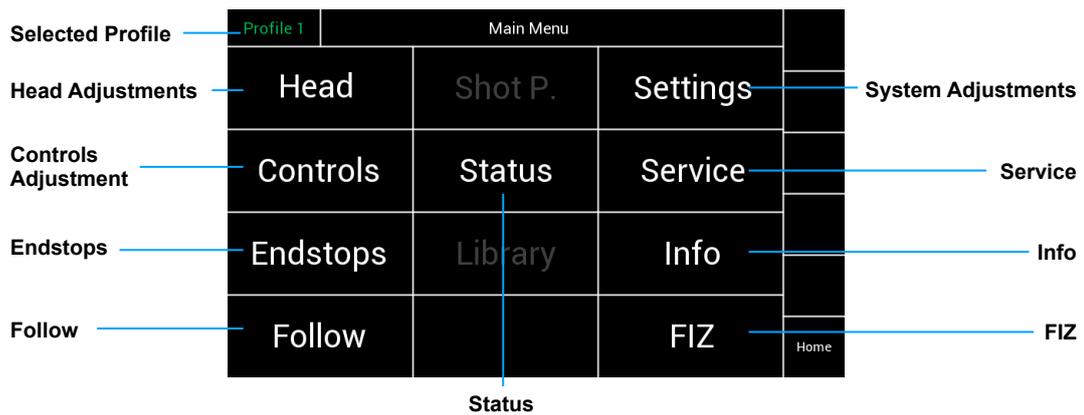
#### Settings

Selecting **Settings** will open a new touchscreen display menu. The **Settings** menu will display the adjustable control panel and wheel brightness and invert the controller display.

#### Service

Selecting **Service** will open a new touchscreen display menu.

The Service menu will allow the operator to restore the SRH-3 to Factory defaults and calibrate joystick and other controllers.

**Info**

Selecting **Info** will open a new touchscreen display menu.

The **Info** menu will display the serial number, hardware version, software version and firmware version of the RH3.

The LBUS and expander selection will provide additional information when activated.

**FIZ**

Selecting **FIZ** will open a new touchscreen display menu.

The **FIZ** menu uses the LBUS connector to control supported LBUS devices.

**Back**

Will bring you back to the previous menu window.

**Home**

Will bring you back to the Home Screen (page 10)

## 7 General Setup

### 7.1 Mounting Position

**NOTICE**

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

**NOTE**

Every time the Head will be switched on this screen will be shown in the RCP.



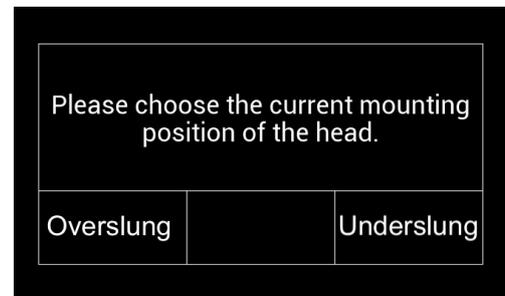
Standing (normal)



Hanging (underslung)

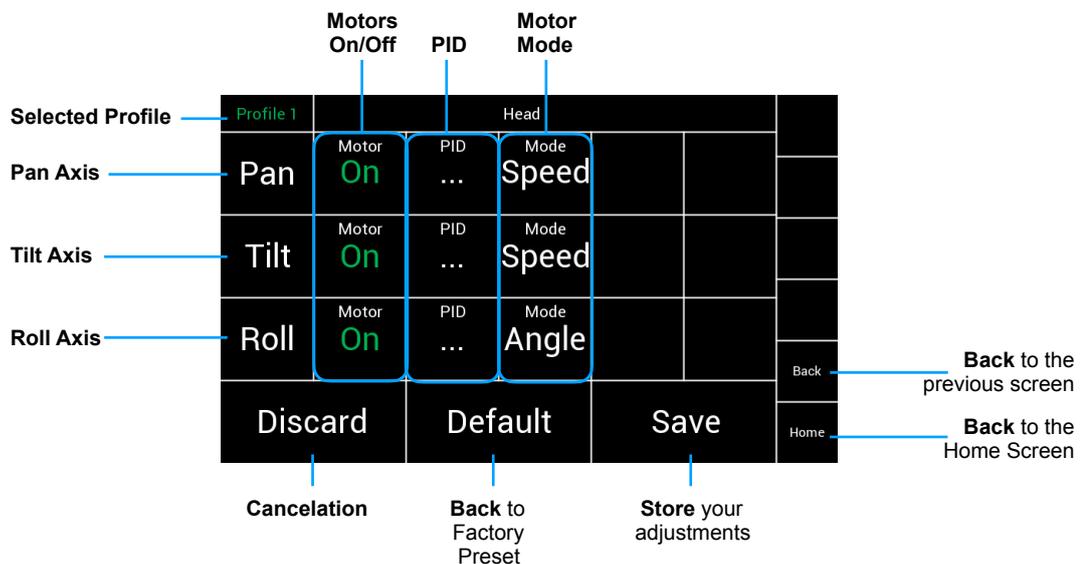
**NOTICE**

You need to tell the RCP the current mounting position of the head.



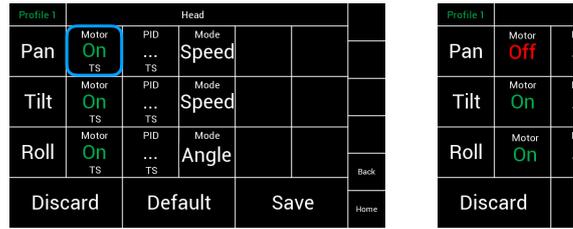
### 7.2 Head Menu

Selecting **Head** will open a new touchscreen display to control the motors and PID settings for each axis.



### Motors On/Off

These toggle switches allows to switch **On/Off** the motors for each axis individually.



**⚠ CAUTION**

**Switching off individual motor axis means that the camera is no longer held in position and may suddenly move. Make sure someone is taking care of the camera.**

**⚠ CAUTION**

**Touching Save can turn off all motors for a short moment. Thus, the camera might not be held in its position for a short moment even for axes whose motor mode is on. Make sure someone is taking care of the camera before Save is being pressed.**

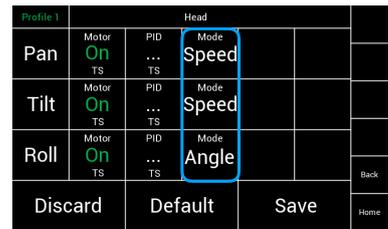
### Motor Mode

In the **Motor Mode** column the motors can be adjusted from speed to angle measurement.

**NOTE**

If you use a Joystick or the ARRI DRW-1 wheels the Motor Mode should be set on **Speed**.

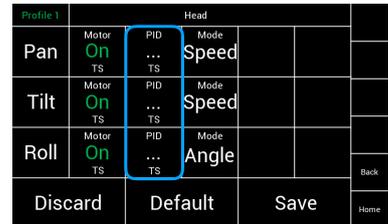
If you use PLC Wheels or rotary Knob, you need to switch head mode to **Angle**.



### PID Main Menu

Selecting **PID** in the **Head Menu** will open a new touchscreen display menu.

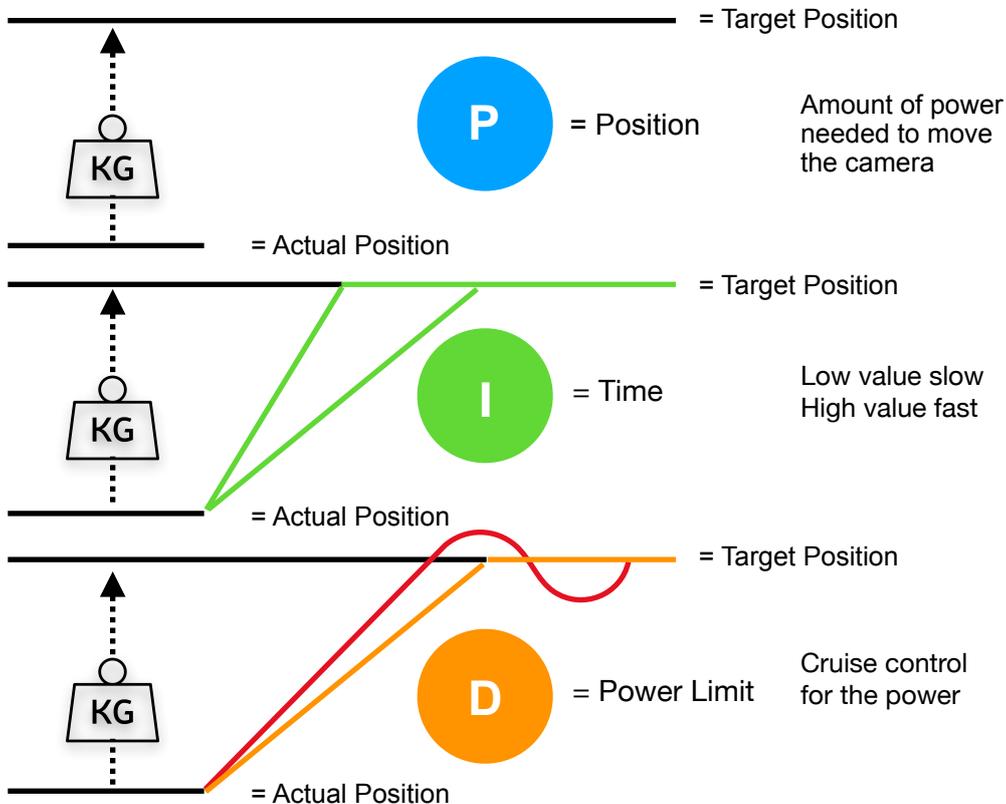
The **PID** window will allow the individual control of **PID** settings and motor power for each axis and save them as settings to the selected profile.



	Selected Profile	Motor Power	Position	Integral	Derivative	Drop Compensation	Autotune	
	Profile 1	Head: PID					Auto	
Pan Axis	Pan	60.0 TS	15.0 TS	1.0 TS	19.0 TS	0.0 TS		
Tilt Axis	Tilt	60.0 TS	15.0 TS	1.0 TS	19.0 TS			
Roll Axis	Roll	60 TS	1.5 TS	7.5 TS	2.0 TS			
	Discard	Default		Save		Back	Back to the previous screen	
						Home	Back to the Home Screen	
		Cancellation		Back to Factory Preset			Store your adjustments	

### 7.3 PID

#### Proportional – Integral – Derivative controller (PID controller)



#### Proportional – Integral – Derivative 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 setpoint 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.

## 7.4 PID Quick Setup

**NOTE** Start with a solid camera setup

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

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

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

2.3 Use the resulting **Tilt** value as starting value for the **Pan** axis.

2.4 Press **Save**

3.0 Adjusting the **PID** values:

**NOTE** First you will need a camera picture

3.1 Select a point in the set.

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

4.0 Check if the camera:

4.1 stops at the selected point

4.2 or if the camera is over driving the point

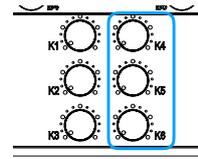
4.3 or if the camera is bouncing left and right

5.0 If the camera is over driving or bouncing, you need to work on the **P** and **D** value of the **Pan** axis.

Adjust the **P** and **D** values by steps of five up or down.

5.1 If the head is still bouncing because a too soft damper in between the Head and Crane, **increase** the **Ramp** on the Joystick to slow down the mass before the targeted end position.

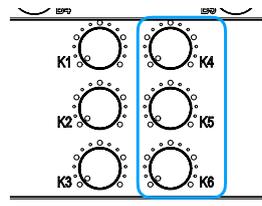
5.2 Same procedure for **Tilt**



Profile 1	Head: PID				Auto
Pan	Power 60.0 TS	P 15.0 TS	I 1.0 TS	D 19.0 TS	Drop 0.0 TS
Tilt	Power 60.0 TS	P 15.0 TS	I 1.0 TS	D 19.0 TS	
Roll	Power 60 TS	P 1.5 TS	I 7.5 TS	D 2.0 TS	
Discard	Default	Save	Home		



Profile 1	Head: PID			
Pan	Power 60.0 TS	P 15.0 TS	I 1.0 TS	D 19.0 TS
Tilt	Power 60.0 TS	P 15.0 TS	I 1.0 TS	D 19.0 TS
Roll	Power 60 TS	P 1.5 TS	I 7.5 TS	D 2.0 TS



### 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.

### ⚠ CAUTION

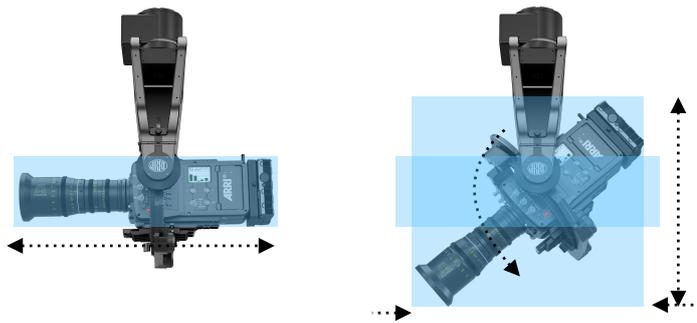
Read carefully the User Advice / Application Requirements on page 5 in this manual. Ignoring the described aspects inevitably leads to a deterioration in the overall performance of the system

7.5

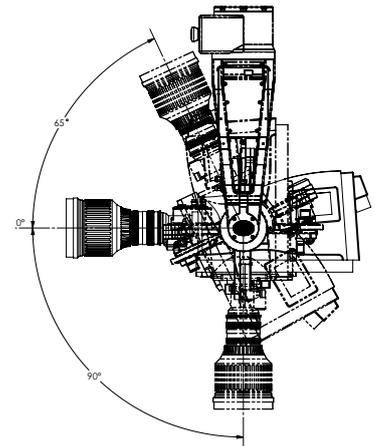
**Drop**

When extreme camera angles will be reached, such as 90° tilt down, the entire head and crane set up may start to vibrate

**Drop** permanently compensates of the Pan and Tilt for the changing lever and weight distribution of the camera, when the camera is facing down.



Profile 1	Head: PID				Auto
Pan	Power 60 TS	P 15 TS	I 1.0 TS	D 19 TS	Drop 55 TS
Tilt	Power 60 TS	P 15 TS	I 1.0 TS	D 19 TS	
Roll	Power 60 TS	P 1.5 TS	I 7.5 TS	D 2.0 TS	
Discard	Default	Save			Back Home



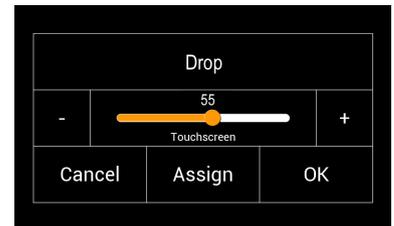
If the camera is tilted downwards on the tilt axis, the overall length of the camera will be shortened, as well as the weight distribution.

The compressed weight distribution can lead to overcompensation of the Pan axis.

The **Drop** function will help to prevent this.

The motor power of the Pan axis is regulated down in proportion to the tilt angle.

Depending of the length and weight of the camera, the proportional compensation value can be adjusted from 0% to 100%.



7.6

**Top Down**

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

**NOTE**

Ensure that the camera setup is rigid. The top support bracket will also help to reduce unwanted vibrations. Also a higher Drop compensation may be needed.



7.7  
**Autotune (Beta)**

The SRH-3 offers Autotune which will help to find the needed PID values. Autotune tries to calibrate strength and torque of the motors automatically.

<b>⚠ CAUTION</b>	
<b>This is a Beta Version!</b>	
With reference to the BETA END-USER LICENSE AGREEMENT, you must be aware that currently the expected performance may not be fully achieved.	

**NOTE**  
 Autotune can only be used with camera setups heavier than 8 Kg / 17.3 lbs. If the camera setup is below 8 Kg / 17.3 lbs, use the default values and set **Power** to **100**.

Touching **Auto** will open a new menu.

Profile 1	Head: PID					Auto
Pan	Power 60 <small>TS</small>	P 15 <small>TS</small>	I 1.0 <small>TS</small>	D 19 <small>TS</small>	Drop 55 <small>TS</small>	
Tilt	Power 60 <small>TS</small>	P 15 <small>TS</small>	I 1.0 <small>TS</small>	D 19 <small>TS</small>		
Roll	Power 60 <small>TS</small>	P 1.5 <small>TS</small>	I 7.5 <small>TS</small>	D 2.0 <small>TS</small>		
Discard	Default			Save		Back
						Home

7.8  
**Autotune procedure**

This menu allows you to autotune each axis on its own, or all three axes the same time.

Service				Remote
Restore	Factory Defaults		Sensor Calibration	
Calibrate	Camera	Gyro		
Autotune	Pan	Tilt	Roll	All
				Back
				Home

Touching **All PID Tune** for example, will open this screen.

Do you want to autotune all axes?

Cancel	OK
--------	----

**NOTE**  
 During autotune calibration, the head moves in all single axes, which can cause vibration and possibly noise. This is completely normal and there is no need to worry.

When the autotune has been completed, the PID menu will show up again and will present the actual PID values.

The autotune of all axes has been completed

Cancel	OK
--------	----

Here you can **accept** the **autotune PID** values, by pressing **Save**.

Or you **Discard** the autotune PID values, because they do not reach your needs.

Profile 1	Head: PID					Auto
Pan	Power 60 <small>TS</small>	P 15 <small>TS</small>	I 1.0 <small>TS</small>	D 19 <small>TS</small>	Drop 55 <small>TS</small>	
Tilt	Power 60 <small>TS</small>	P 15 <small>TS</small>	I 1.0 <small>TS</small>	D 19 <small>TS</small>		
Roll	Power 60 <small>TS</small>	P 1.5 <small>TS</small>	I 7.5 <small>TS</small>	D 2.0 <small>TS</small>		
Discard	Default			Save		Back
						Home

## 8 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.

Profile 1	Main Menu		
Head	Shot P.	Settings	
<b>Controls</b>	Status	Service	
Endstops	Library	Info	
Follow		FIZ	Home

The screenshot shows the 'Controls' menu for Profile 1. It is organized into a grid with columns for Position, Offset, Speed, and Ratio. The 'Pan' row is annotated with 'Pan Axis', 'Position Submenu', 'Offset Submenu', and 'Ratio Submenu'. The 'Tilt' row is annotated with 'Tilt Axis', and the 'Roll' row with 'Roll Axis'. At the bottom, there are three large buttons: 'Discard' (Cancellation), 'Default' (Back to Factory Preset), and 'Save' (Store your adjustments). On the right side, there are 'Back' and 'Home' buttons with labels: 'Back to the previous screen' and 'Back to the Home Screen'.

Profile 1	Controls				Head	
Pan Axis	Pan	Position ...	Offset ...	Speed 25 K1	Ratio 0 TS	FIZ
Tilt Axis	Tilt	Position ...	Offset ...	Speed 25 K2	Ratio 0 TS	
Roll Axis	Roll	Position ...	Offset ...	Speed 25 K3	Ratio 0 TS	Back
	Discard	Default	Save			Home

Annotations:

- Position Submenu
- Offset Submenu
- Ratio Submenu
- Back to the previous screen
- Back to the Home Screen
- Cancellation
- Back to Factory Preset
- Store your adjustments

### 8.1 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.

Profile 1	Controls				Head
Pan	Position ...	Offset ...	Speed 25 K1	Ratio 0 TS	FIZ
Tilt	Position ...	Offset ...	Speed 25 K2	Ratio 0 TS	
Roll	Position ...	Offset ...	Speed 25 K3	Ratio 0 TS	Back
	Discard	Default	Save		Home

The screenshot shows the 'Position' submenu for 'Pan'. It is titled 'Controls: Position of Pan'. The 'Control' is 'Joystick 1H'. The 'Direction' is 'Standard'. The 'Sensitivity' is '0'. The 'Deadband' is '0' (Touchscreen). The 'Ramp Start' is '0' (Knob 6). The 'Ramp Stop' is '0' (Knob 6). The 'Ramp Mode' is 'Dynamic' (Touchscreen). At the bottom, there are three large buttons: 'Discard' (Cancellation), 'Default' (Back to Factory Preset), and 'Save' (Store your adjustments). On the right side, there are 'Back' and 'Home' buttons with labels: 'Back to the previous screen' and 'Back to the Home Screen'.

Profile 1	Controls: Position of Pan			Position
Pan assigned to the Joystick 1	Control Joystick 1H	Deadband 0 Touchscreen	Ramp Start 0 Knob 6	Offset
Pan Direction assigned to the Touchscreen	Direction Standard Touchscreen	Sensitivity 0 Touchscreen	Ramp Stop 0 Knob 6	
Sensitivity Submenu			Ramp Mode Dynamic Touchscreen	Back
	Discard	Default	Save	Home

Annotations:

- Deadband Submenu
- Ramp Submenu
- Back to the previous screen
- Back to the Home Screen
- Cancellation
- Back to Factory Preset
- Store your adjustments

## 8.2 Assigning Controls

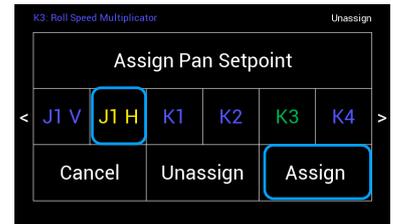
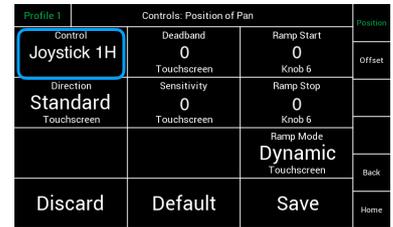
Touching Controls will open a new touchscreen display submenu named **Assign Pan/Tilt/Roll Setpoint** (Pan, Tilt, Roll)

Select one of the available controllers and confirm by touching Assign.

For example:  
**J1 H = Joystick 1 horizontal / Pan axis**

Available controllers:

<b>J1 V</b>	Joystick 1 V	Joystick 1, up/down
<b>J1 H</b>	Joystick 1 H	Joystick 1, left /right
<b>J2 V</b>	Joystick 2 V	Joystick 2, up/down
<b>J2 H</b>	Joystick 2 H	Joystick 2, left /right
<b>DRWP</b>	DRW Pan	DRW-1, ARRI Wheels, Pan
<b>DRWT</b>	DRW Tilt	DRW-1, ARRI Wheels, Tilt
<b>DRWR</b>	DRW Roll	DRW-1, ARRI Wheels, Roll
<b>V R</b>	VCW Roll	PLC VC Wheels, Roll
<b>V T</b>	VCW Tilt	PLC VC Wheels, Tilt
<b>V P</b>	VCW Pan	PLC VC Wheels, Pan
<b>EHDP</b>	EHD Pan	EHD-1, ARRI Encoder Head, Pan
<b>EHDT</b>	EHD Tilt	EHD-1, ARRI Encoder Head, Tilt
<b>TS</b>	Touchscreen	Control through RCP
<b>K1 ... K8</b>	Knob 1 ... Knob 8	Knobs
<b>B1 ... B6</b>	Button 1 ... Button 6	Buttons
<b>V SR</b>	VCW Speed Roll	PLC VCW, Speed Roll Poti
<b>V ST</b>	VCW Speed Tilt	PLC VCW, Speed Tilt Poti
<b>V SP</b>	VCW Speed Pan	PLC VCW, Speed Pan Poti
<b>V DR</b>	VCW Direction Roll	PLC VCW, Direction Roll Switch
<b>V DT</b>	VCW Direction Tilt	PLC VCW, Direction Tilt Switch
<b>V DP</b>	VCW Direction Pan	PLC VCW, Direction Pan Switch



### NOTE

**Blue letters** indicate that the controller is already in use.

**Green letters** indicate the current selection

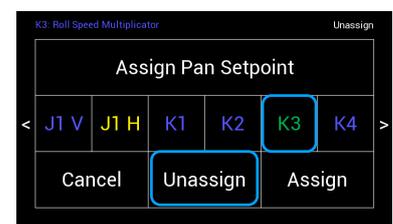
**Yellow letters** indicate the controller which is assigned currently

**White letters** indicate that the controller is available

## 8.3 Unassigning Controllers

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

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



### 8.4 Direction of the controllers

This selection will open a new touchscreen that allows to change the direction of the control device from standard to reverse.

**NOTE**  
The center position shows the actual selection. Touching Rev in this case will reverse the direction of the assigned controller.

### 8.5 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 controller is a Joystick for example, but not the touchscreen.

### 8.6 Ramp Start / Stop Submenu

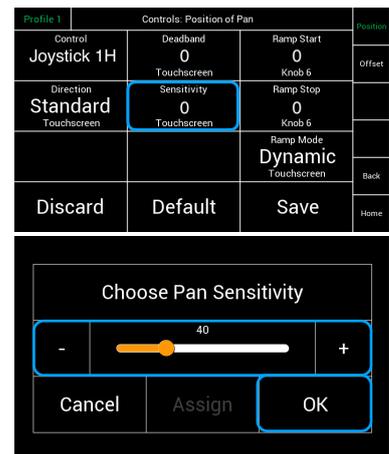
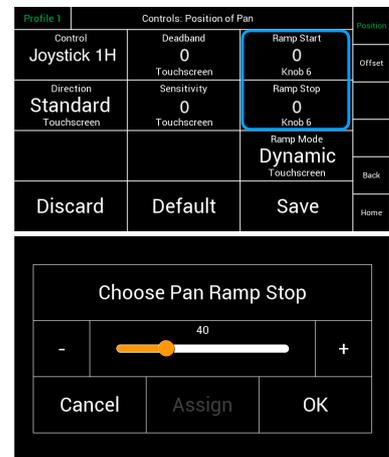
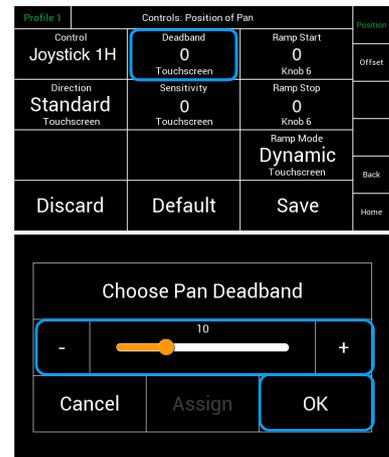
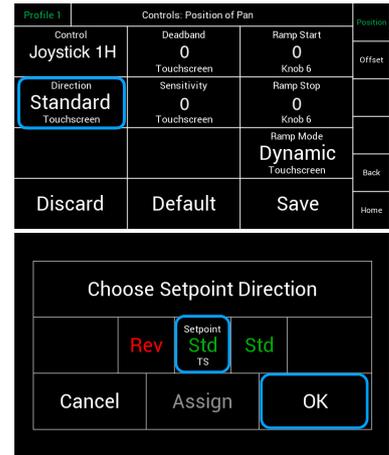
This selection will open a new touchscreen slider that allows you to change the Start Ramp and the Stop Ramp setting on the selected axis.

**NOTE**  
In the factory preset, the Start and Stop Ramps are assigned to the knobs **K4**, **K5** and **K6**. Turning the knobs will change the Values for the Start and Stop Ramps equally.

**NOTE**  
If different values for start and stop are needed, than the knobs **K4**, **K4** and **K6** have to be unsigned first. Now the values for start and stop cab be adjusted independently on the individual slider for start and stop.

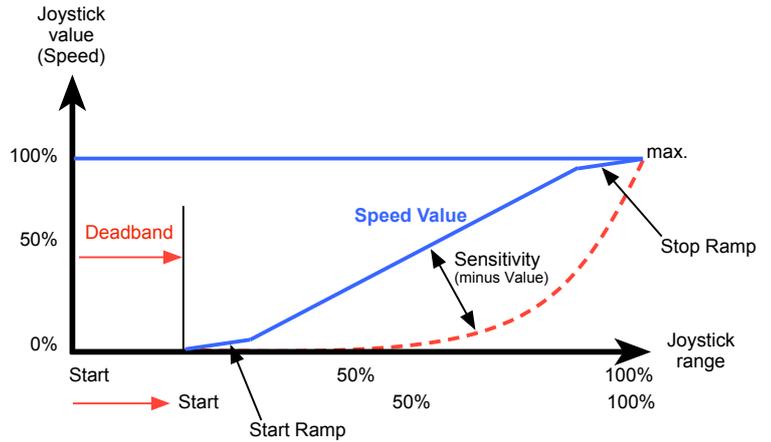
### 8.7 Sensitivity Submenu

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 too high, there will be more or less **NO** movement in the end.



8.7

**Ramp Mode Dynamic or Constant Submenu**

Selecting **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 to 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**

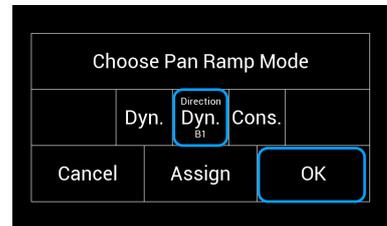
This is useful for wide-angle and standard lenses.

**Constant Ramp**

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

**NOTE**

This is very useful for tele lenses.



8.8

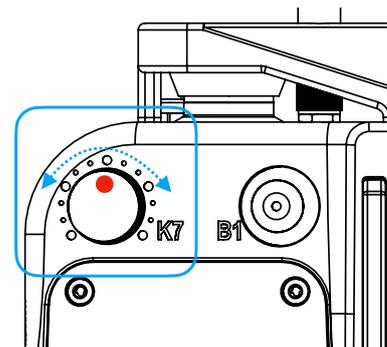
**Controls On/Off**

**NOTE**

By touching Controls On/Off, all input devices will be activated or deactivated. The head will remain in its last position.

Profile 1	Head 24,1V	Remote 24,1V	H. Dyn.		Head
<b>Pan</b>	Dir Std	<b>Tilt</b>	Dir Std	<b>Roll</b>	Dir Std
Joystick 1 H		Joystick 1 V		Knob 8	Camera
Angle	0	Angle	0	Angle	0
	3 K4		6 K5		22 K6
Speed	13 K1	Speed	15 K2	Speed	38 K3
	3 K4		6 K5		22 K6
Default Position	True Horizon	Controls		Endstops	Follow
B3	B4	On	TS	On	Off
				B4	B3

Control Status



## 9 Offset

Selecting **Offset** will open a new touchscreen display submenu named **Controls Offset of (Pan/Tilt/Roll)**.

Profile 1	Controls					Head
Pan	Position	Offset	Speed	Ratio		Head
	...	...	25 K1	0 TS		FIZ
Tilt	Position	Offset	Speed	Ratio		
	...	...	25 K2	0 TS		
Roll	Position	Offset	Speed	Ratio		
	...	...	25 K3	0 TS		Back
Discard		Default		Save		Home

**Offset** allows the operator to preset a constant rate of movement on a selected axis without any operator input from the controller.

**NOTE**

This adjustment can not be used to compensate for any unwanted drift of the Joystick or Wheels.

9.1

**Assigning a knob**

To be able to use the **Offset** function, a knob needs to be assigned first.

**NOTE**

In the default factory setup, the **Offset** is assigned to the **Touchscreen**.

Profile 1	Controls: Offset of Roll		Position
Control	Disabled	0	Offset
Touchscreen	Touchscreen	Touchscreen	
Direction	Standard	Sensitivity	
Touchscreen	Touchscreen	0	
			Back
Discard	Default	Save	Home

Knob 7, if it is available, will be a very good choice for the **Offset** function.

Touching the field **Control Touchscreen** will open the assignment submenu.

Select **K7** and touch **Assign**.

K3: Roll Speed Multiplier							
Assign Pan Pan Offset							
<	K3	K4	K5	K6	K7	K8	>
Cancel		Unassign			Assign		

Turning **Knob 7** off the center position, will move the selected axis of the head with the adjusted speed of the knob.

**NOTE**

If the **Offset** button is accidentally turned out of the zero position, **DRIFT** will result.

**NOTE**

To prevent unwanted movement or drift, unassign the **Offset** button, when the Offset function is not needed anymore!

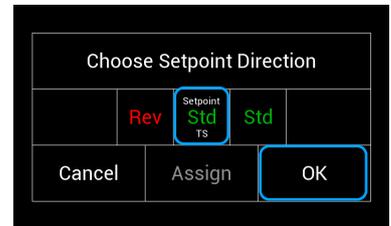
## 9.2

**Direction**

This selection will open a new touchscreen that allows you to change the direction of the control device from standard to reverse for offset rate.

**NOTE**

The center position shows the actual selection. Touching Rev in this case will reverse the direction of the assigned controller.



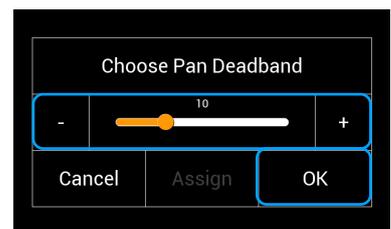
## 9.3

**Deadband**

This selection will open a new touchscreen slider that allows you to change the amount of Deadband for the selected offset rate on each axis.

**NOTE**

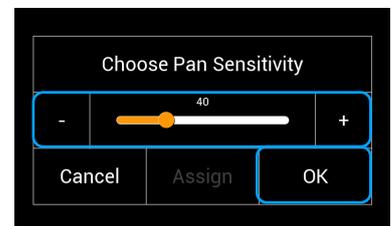
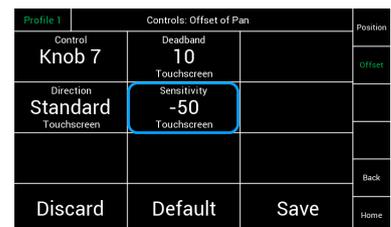
Deadband is defined as delay before the control device activates the selected function.



## 9.4

**Sensitivity**

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



## 10 Speed & Ratio

### 10.1 Speed

Profile 1	Controls					Head
Pan	Position	Offset	Speed	Ratio		FIZ
	...	...	25 K1	0 TS		
Tilt	Position	Offset	Speed	Ratio		
	...	...	25 K2	0 TS		
Roll	Position	Offset	Speed	Ratio		Back
	...	...	25 K3	0 TS		
Discard		Default		Save		Home

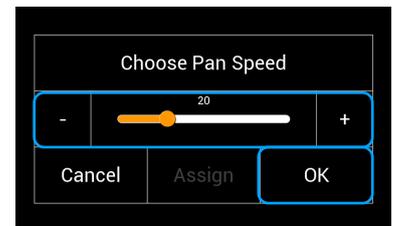
Selecting **Speed** will open a new touchscreen display with a slider to set the speed of the selected axis (Pan/Tilt/Roll).

**NOTE**

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

**NOTE**

The slider will be disabled when the speed function is assigned to a knob or to another controller. The Slider displays the adjusted value of the knobs **K1**, **K2** and **K3**.



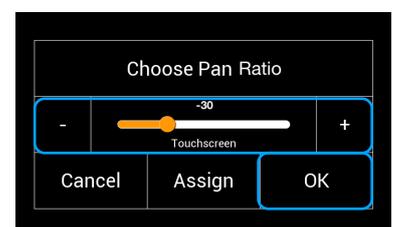
### 10.2 Ratio Controls Menu

Profile 1	Controls					Head
Pan	Position	Offset	Speed	Ratio		FIZ
	...	...	25 K1	0 TS		
Tilt	Position	Offset	Speed	Ratio		
	...	...	25 K2	0 TS		
Roll	Position	Offset	Speed	Ratio		Back
	...	...	25 K3	0 TS		
Discard		Default		Save		Home

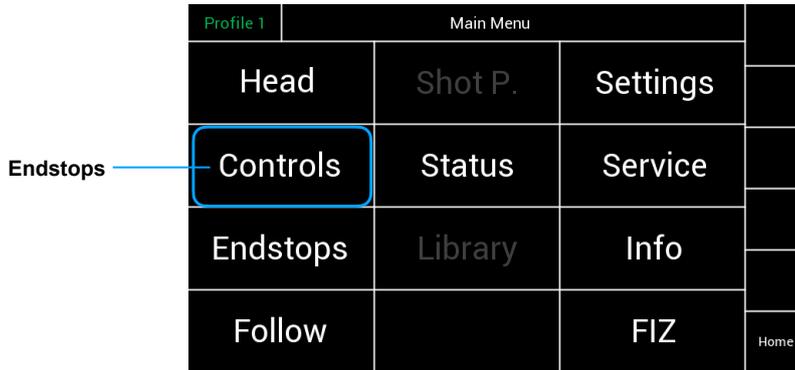
Selecting **Ratio** will open a new touchscreen display where you can select the required **Speed Ratio** of the selected axis (Pan/Tilt/Roll).

**NOTE**

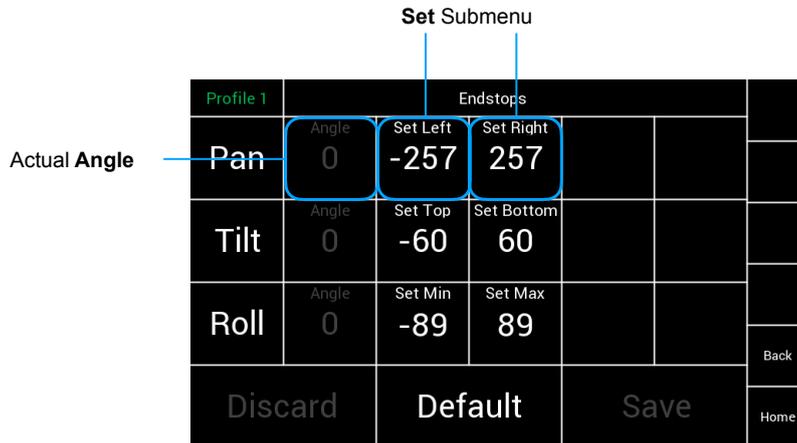
When shooting with a extreme tele lens, it can be very helpful to change the speed ratio from 0% (1:1) to 30%. This will reduce the speed development to -30%.



## 11 Endstops



Selecting **Endstops** will open a new touchscreen display menu. 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 endstop 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 Endstop position, measured as an angle, individually for each axis.

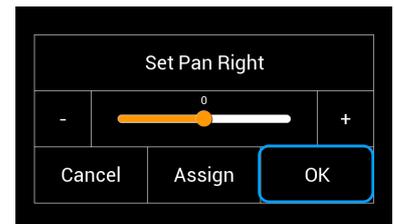
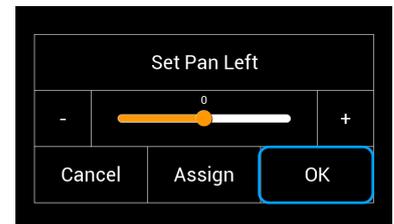
### For example:

Move the head to the desired position at the left.

**Angle** will display the actual angle.

Touching **Set Left**, will open the submenu.

The position will be confirmed as the **Left Endstop** when **OK** had been touched.



**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.

Profile 1	Head 24,1V	Remote 24,1V	H. Dyn.		Head
<b>Pan</b>	Dir Std	<b>Tilt</b>	Dir Std	<b>Roll</b>	Dir Std
Joystick 1 H		Joystick 1 V		Knob 8	
Angle	0	Angle	0	Angle	0
	3 K4		6 K5		22 K6
Speed	13 K1	Speed	15 K2	Speed	38 K3
	3 K4		6 K5		22 K6
Default Position B3	True Horizon B4	Controls <b>On</b> TS		Endstops <b>On</b> B5	Follow <b>Off</b> B6

Endstop Status

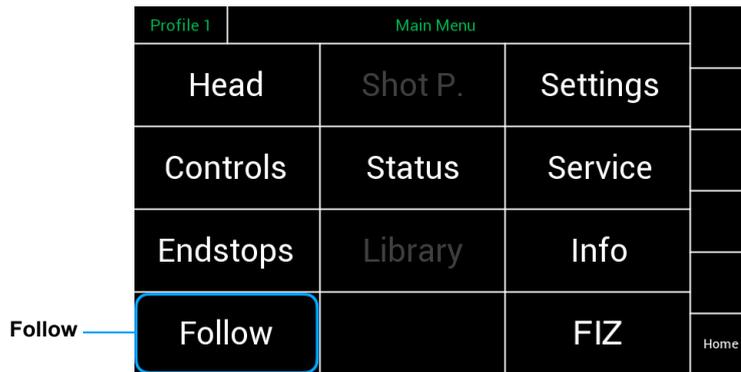
## 12 Follow Mode / Pan Lock

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.

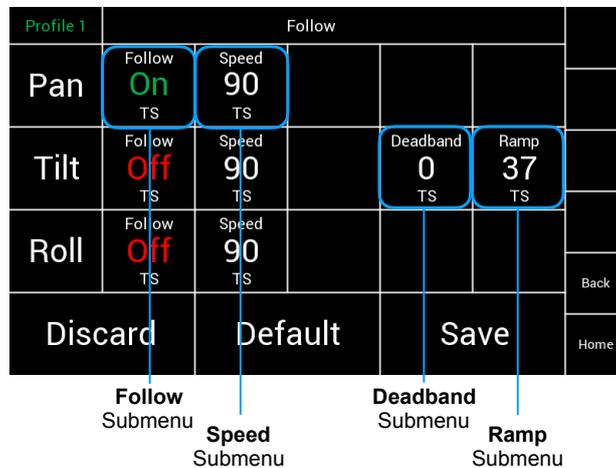
In addition to the Pan Lock, the SRH-3 allows ramps to be defined for the Pan Lock. This allows additional creative possibilities

**NOTE**

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

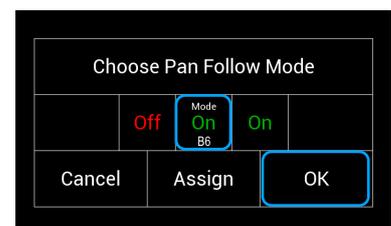


Selecting **Follow** will open a new touchscreen display menu. The Follow menu will control the **Speed**, **Deadband** and **Ramp** of the **Follow** mode individually for each axis.



### 12.1 Follow On/Off

The **Follow On/Off** selection will allow the operator to enable or disable the follow mode individually for each axis.



**NOTE**

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**.

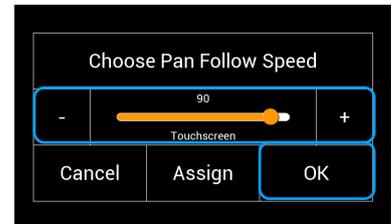
The **Deadband** slider should be set at **0** and the Ramp slider set at **0**.

**12.2 Follow Speed**

The **Follow Speed** selection will open a new touchscreen display 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 so called Pan Lock.

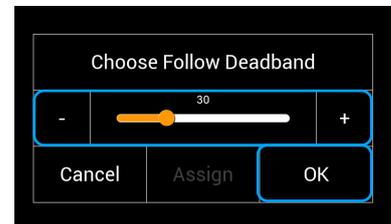


**12.3 Follow Deadband**

The **Follow Deadband** selection will open a new touchscreen display 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 so called Pan Lock.

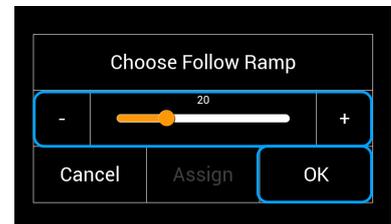


**12.4 Follow Ramp**

The **Follow Ramp** selection will open a new touchscreen display 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 so called Pan Lock.



**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**.

Unassigning will move the function to the touchscreen.

Profile 1	Head 24,1V	Remote 24,1V	H. Dyn.		Head
Pan	Dir Std	Tilt	Dir Std	Roll	Dir Std
Joystick 1 H		Joystick 1 V		Knob 8	
Angle	0	Angle	0	Angle	0
	3 K4		6 K5		22 K6
Speed	13 K1	Speed	15 K2	Speed	38 K3
	3 K4		6 K5		22 K6
Default Position	True Horizon B3	Controls	On TS	Endstops	Follow Off B6
	B4			B5	B6
					Menu

Follow Status

## 13 True Horizon

### 13.1 Introduction

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 for example, 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**.

Profile 1	Head 24,1V		Remote 24,1V		H. Dyn.	Signal		Head
<b>Pan</b>	Dir Std		<b>Tilt</b>		Dir Std		<b>Roll</b>	
Joystick 1 H			Joystick 1 V			Knob 8		
Angle	0		Angle	0		Angle	0	
	3	K4		6	K5		22	K6
Speed	13	K1	Speed	15	K2	Speed	38	K3
	3	K4		6	K5		22	K6
Default Position B3	True Horizon B4		Controls On TS		Endstops On B5		Follow Off B6	
								Menu

True Horizon

### 13.2 Precondition

#### NOTE

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

#### NOTE

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

Profile 1	Motor		PID		Mode		Head
<b>Pan</b>	On	TS	...	TS	Speed		
<b>Tilt</b>	On	TS	...	TS	Speed		
<b>Roll</b>	On	TS	...	TS	Speed		
Discard		Default		Save		Back	Home

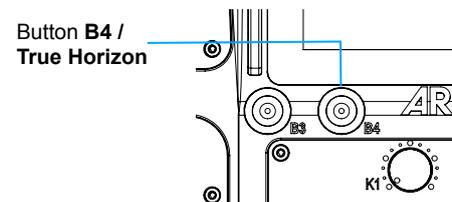
### 13.3 Usage

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**.

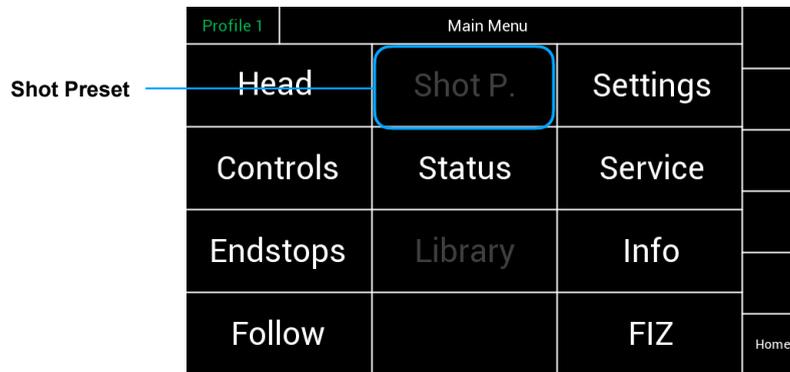
#### NOTE

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



## 14 Shot Preset

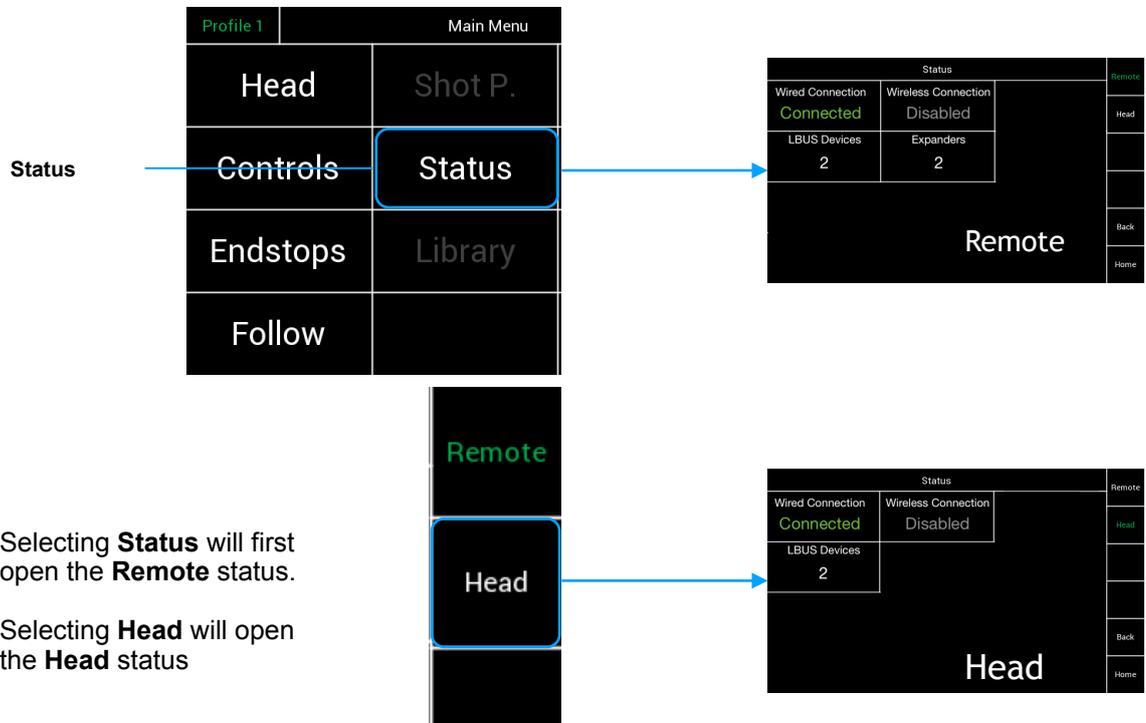
Selecting Shot Presets will open a new touchscreen display menu. The Shot Presets menu will allow you to program up to 12 shot presets for up to 6 parameters including roll, tilt, pan, focus, iris and zoom. These presets can be recalled using the touchscreen Shot Preset button on the home screen.



**NOTE**  
This function is currently disabled.

## 15 Status

Selecting Status will open a new touchscreen display menu. The **Status** menu will display the status of controller expanders, wireless status, and status of individual connections. (LBUS, FS-CAN Bus, wireless connection)



Selecting **Status** will first open the **Remote** status.

Selecting **Head** will open the **Head** status

### 15.1 Head & Remote Status Displays

The Remote and the Head Status screens indicates the status of the wired connection, the wireless connections LBUS and Expander controllers.

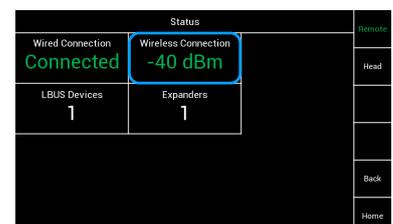
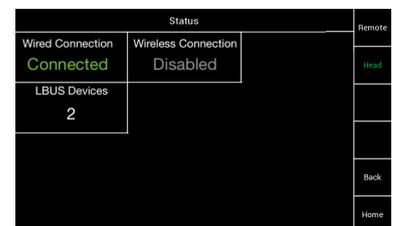
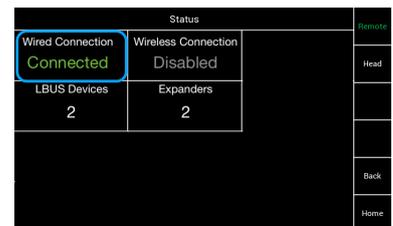
**Wired Connection** indicates that the FS Can Bus cable is connected.

**NOTE**  
Connecting the FS Can Bus cable, will overrule the wireless connection. The wireless connection will remain, but no data will be send as long the cable is plugged in.

**Wired NC** indicates that the connection is now **wireless**.

**NOTE**  
As soon the FS Can Bus cable gets **disconnected** and the radio module is switched enabled, all data will be transferred **wireless**.

**NOTE**  
The quality of the wireless connection will be indicated by the dBm value.



15.2  
**LBUS Status Display (Remote / Head)**

The LBUS status row indicates the number of LBUS devices active on the system.

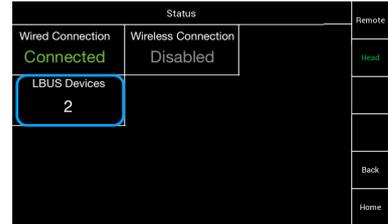
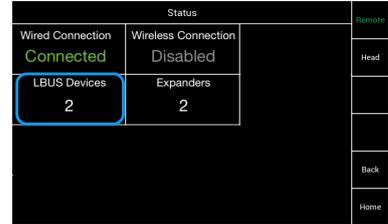
**Devices** indicates how many LBUS controllers are connected to the Remote Panel or the Head

**Remote**

Will show the amount of connected LBUS controllers, like the Master Grips, DRW-1 Wheels and future controllers.

**Head**

Will show the amount of connected LBUS Motors, like the cforce Mini.

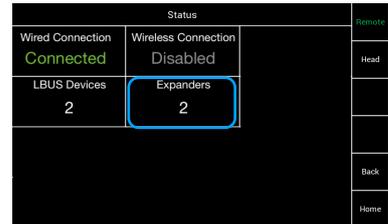


15.3  
**Expander Status Display**

The Expander status row indicates the number of expander modules or control devices active on the remote control.

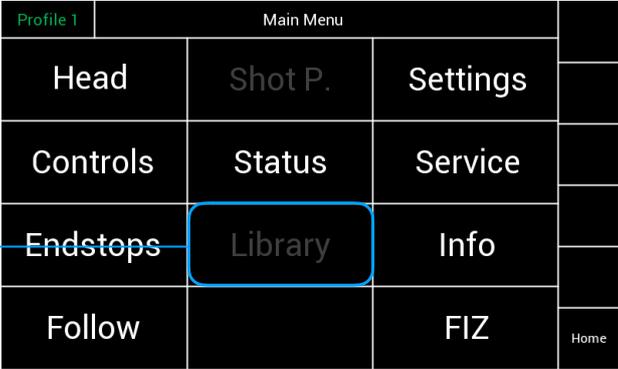
Following expanders are available:

Name	Function
<b>JOY-1</b>	Joystick 1 build in
<b>RCP-1</b>	Knobs and Buttons of the remote control
<b>IWF-1</b>	additional internal Focus Wheel
<b>IRZ-1</b>	additional internal Zoom Rocker
<b>JOY-2</b>	additional second Joystick
	Future controllers



## 16 Library

Selecting Library will open a new touchscreen display menu. The Library menu will store controller setup files, control assignments, motor settings and shot presets.

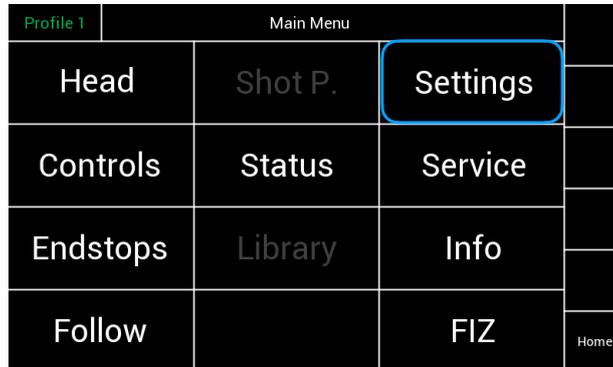


Profile 1	Main Menu		
Head	Shot P.	Settings	
Controls	Status	Service	
Endstops	Library	Info	
Follow		FIZ	Home

**NOTE**  
This function is currently disabled.

## 17 Settings

Selecting **Settings** will open a new touchscreen display menu.



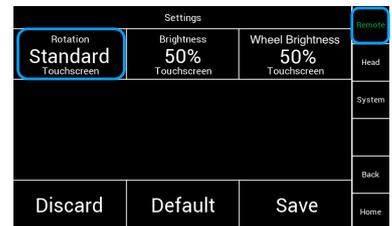
By touching **Remote**, **Head** and **System** a new screen for the **Remote**, **Head** and **System** will open up.

### 17.1 Settings Remote

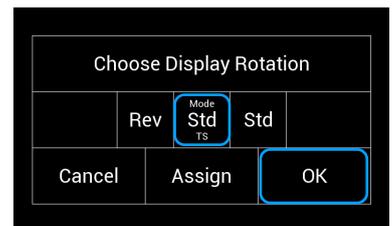


### 17.2 Display Rotation

Selecting **Rotation** will open a new window.

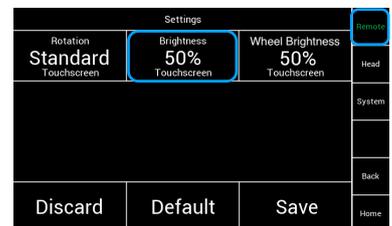


The **Settings** menu allows invert the controller display.

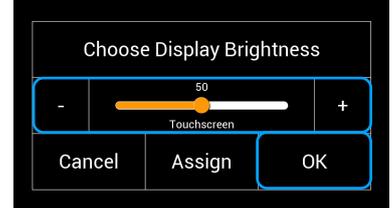


### 17.3 Brightness Display

Selecting **Brightness** will open a new window.

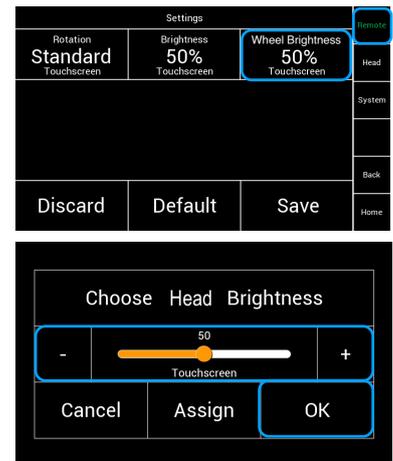


The **Settings** menu will display the adjustable control panel brightness.



#### 17.4 Brightness Wheel

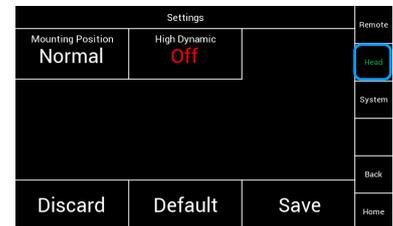
Selecting **Wheel Brightness** will open a new window.



#### 17.5 Settings Head

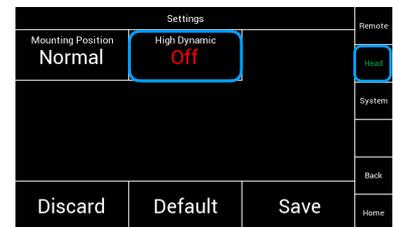
Touching Head will open this screen.

Here the status of the mounting position of the head will be displayed and the High Dynamic Mode can be accessed.



#### 17.6 High Dynamic Mode

If the head is used under extreme centrifugal circumstances, you can increase the overall stabilization by activating the **High Dynamic Mode**.



#### NOTICE

**The activation of the High Dynamic Mode will take up to 5 - 10 seconds.  
Do not move the head while the head is activating the High Dynamic Mode!**

**Each time the head and remote control are turned on again after a pause or battery change, the High Dynamic Mode is reactivated. This will take 5 - 10 seconds.**

**Do not move the head while the head it is activating the High Dynamic Mode!**

# 18.0 Wireless

### NOTE

The SRH-3 is using the **white-radio module** EMIP400. Make sure that you select the proper area you are operating the device in.

### NOTE

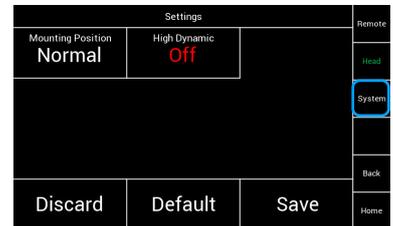
The SRH-3 will be delivered into your region with the required region settings.

### NOTE

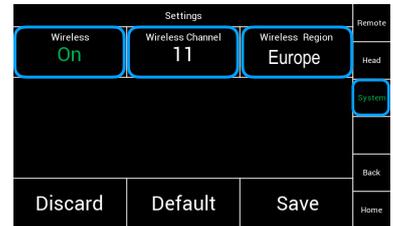
The SRH-3 offers 14 channels and will be delivered with an enabled radio connection on **channel 13**.



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



In this case the screen indicates, that the wireless is **On**, the system is on **Channel 11** and that the region is **Europe**.



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

## 18.1

### Wireless On / Off

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



## 18.2 Changing the Channels

The 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 in the WCU-4.

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

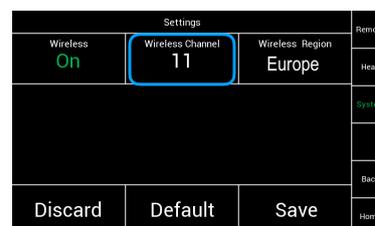
### NOTE

The extra new channels are placed in between the existing EMIP300 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.

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

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



## 18.3 Regions Settings

### NOTE

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

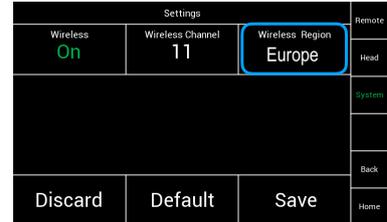
### NOTICE

**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.**

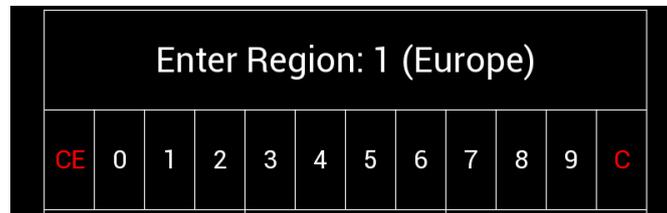
### NOTICE

**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.**

To change the regional settings, touch **Wireless Region**.



A new menu will appear, in which you can enter the required region settings.



#### NOTE

To change the region, press **C** first, then enter the region code shown below.

0	Japan	6	Canada	13	Philippines
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	

#### NOTE

Select **WORLD (4)** if your specific region is not listed.  
(The WORLD setting provides a radio output power of 10 dBm and complies with Part 15 of the FCC rules. Please make sure that this complies with the local radio laws.)

#### NOTE

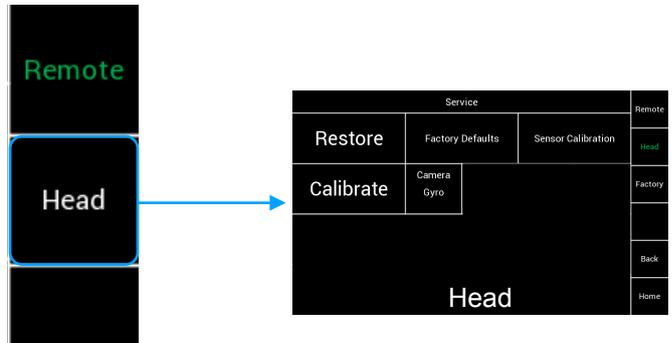
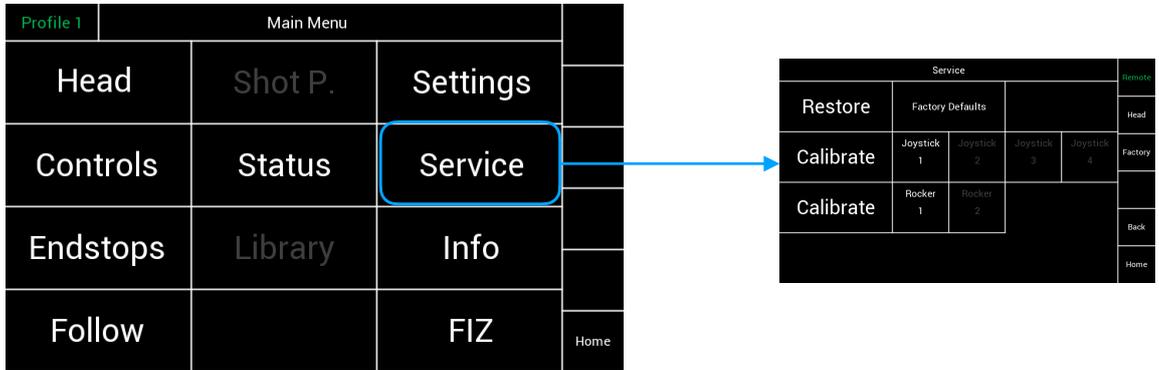
Connecting the FS Can Bus cable, will overrule the wireless connection.  
All data will now go through the FS Can Bus cable.  
The wireless connection will remain, but no telemetry data will be send as long the cable is plugged in.

#### NOTE

If you need a radio free, hardwired connection, you need to **switch off** the radio module and to connect head and remote via a FS Can Bus cable.

## 19 Service

Selecting **Service** will open a new touchscreen display menu. The **Service** menu will allow the operator to restore the SRH-3 to factory defaults and to calibrate controllers.



### 19.1 Service Remote

### 19.2 Restore

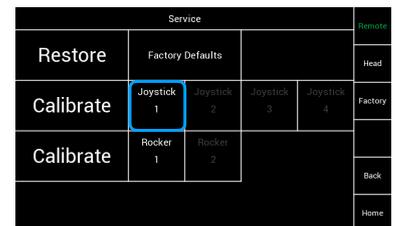
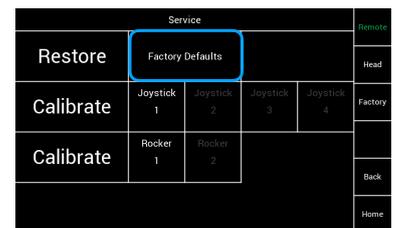
Selecting **Restore Factory Defaults** will open a new touchscreen display menu, here the remote control can be restored to the default factory settings.

**NOTE**  
Only the actual settings and values will be deleted by a restore!

**NOTE**  
After a restore, you need to restart the remote head and the remote control, by disconnect the power supply for a short while.

### 19.3 Calibrate Joystick

Selecting **Calibrate Joystick** opens a new touchscreen display menu, in which case the joystick will be recalibrated.



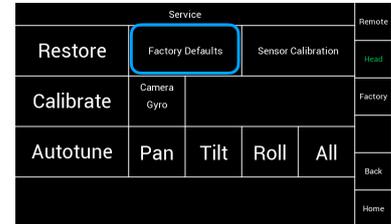
19.4  
Service Head

19.5  
Restore Factory Defaults

Selecting **Restore Factory Defaults** will open a new touchscreen display menu, here you can restore the head to the factory settings.

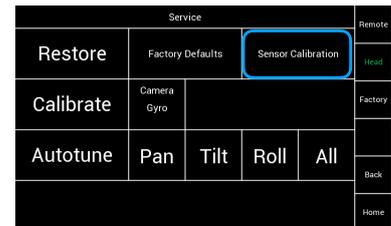
**NOTE**  
The actual settings and values are deleted by the restore!

**NOTE**  
After a restore, you need to restart the remote head and the remote control, by disconnect the power supply for a short while.



19.6  
Restore Sensor Calibration

Selecting **Restore Sensor Calibration** will open a new touchscreen display menu, here you can restore the head to the factory settings.

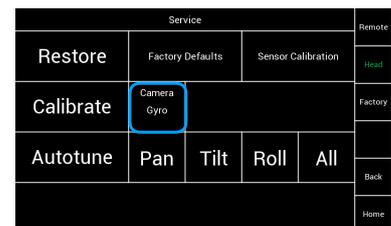


**NOTICE**

**Make sure someone is taking care of the camera, as it may move during the reboot of the system.**

19.7  
Calibrate Camera Gyro

Selecting **Camera Gyro** will open a new touchscreen display menu and the gyro will recalibrated automatically.

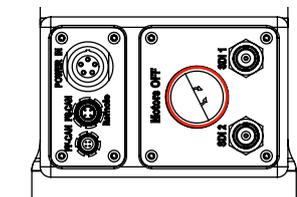


**NOTICE**

**The remote head needs to be placed on an even ground and should not be touched during the calibration process**

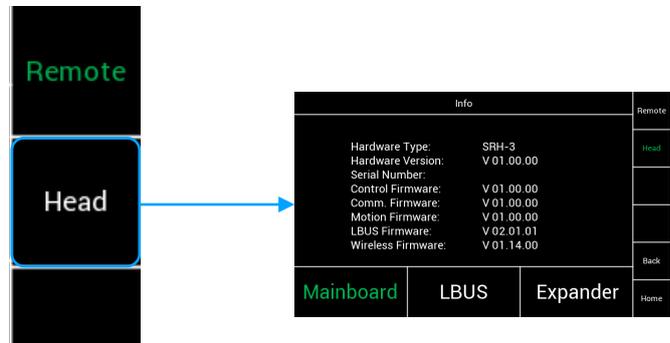
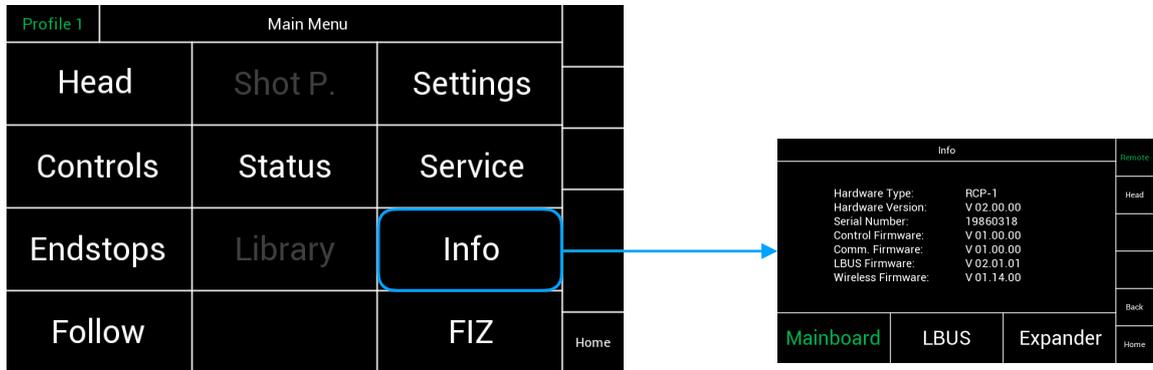
**NOTE**  
The calibration can be improved even more if the SRH-3's motors are switched off.

- Bring the Ring in a straight position
- Hold the ring by using the Tilt Lock
- Press the emergency stop button on the head site.
- Start the Camera Gyro calibration.



## 20 Info

Selecting **Info** will open a new touchscreen display menu.



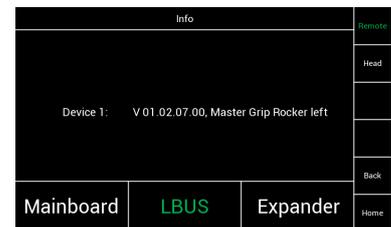
### 20.1 Info Remote Control Mainboard

Touching **Mainboard**, will show you the serial number and firmware version of the remote control.



### 20.2 Info Remote Control LBUS

Touching **LBUS**, will show you the serial number and firmware version of the supported LBUS controllers.



### 20.3 Info Remote Control Expanders

Touching **Expanders**, will show you the serial number and firmware version of the FS Can Bus compatible controllers.



## 20.4 Info **Head Mainboard**

Touching **Mainboard**, will show you the serial number and firmware version of the remote head.

Info		Remote
Hardware Type:	SRH-3	Head
Hardware Version:	V 01.00.00	
Serial Number:		
Control Firmware:	V 01.00.00	
Comm. Firmware:	V 01.00.00	
Motion Firmware:	V 01.00.00	
LBUS Firmware:	V 02.01.01	
Wireless Firmware:	V 01.14.00	Back
<b>Mainboard</b>	LBUS	Expander
		Home

## 20.5 Info **Head LBUS**

Touching **LBUS**, will show you the serial number and firmware version of the cforce motors.

Info		Remote
Device 1:	V 01.02.07.00, cforce mini, Zoom	Head
Device 2:	V 01.02.07.00, cforce mini, Iris	
Device 3:	V 01.02.07.00, cforce mini, Focus	
		Back
<b>Mainboard</b>	<b>LBUS</b>	
		Home

# 21 FIZ

Due that the SRH-3 remote control panel and head, supported LBUSe, controllers like the Master Grips, the optional internal Focus wheel and Zoom rocker and cforce lens motors can be used.

Adding the LCUBE 2-A, allows to use a selection of broadcast cameras and lenses.

**NOTE**

**Only supported LBUS products can be connected to the SRH-3 Remote Head.**

### 21.1

#### FIZ Configurations:

Master Grips:



Internal Focus & Zoom controllers:



WCU-4 wireless:



Broadcast Internal Focus & Zoom controllers:

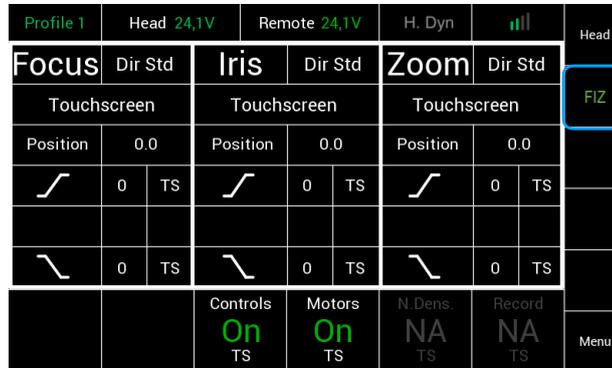


Broadcast Master Grips:



### 21.2 FIZ Controls

The FIZ home screen can be reached by touching **FIZ** in the Home Screen.



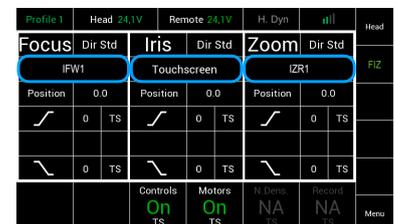
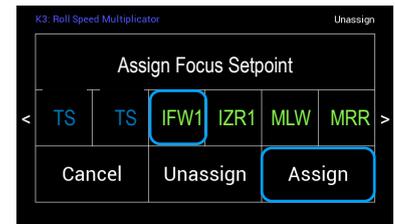
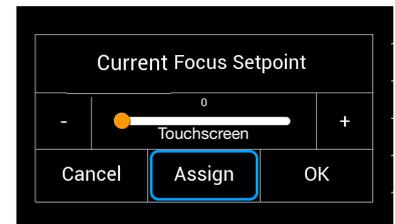
### 21.3 Assigning Controllers

The FIZ home screen allows to assign the wanted controllers by touching the marked areas.

Selecting the marked area will open a new touchscreen display menu, where the desired controllers can be selected and assigned.

The following controllers are available:

<b>IFW1</b>	<b>Focus Wheel 1</b>	Internal Focus Wheel 1
<b>IFW2</b>	<b>Focus Wheel 2</b>	Internal Focus Wheel 2
<b>IZR1</b>	<b>Zoom Rocker 1</b>	Internal Zoom Rocker 1
<b>IZR2</b>	<b>Zoom Rocker 2</b>	Internal Zoom Rocker 2
<b>MLW</b>	<b>Left Wheel</b>	Master Grip Left Focus Wheel
<b>MRW</b>	<b>Right Wheel</b>	Master Grip Right Focus Wheel
<b>MLR</b>	<b>Left Rocker</b>	Master Grip Left Zoom Rocker
<b>MRR</b>	<b>Right Rocker</b>	Master Grip Right Zoom Rocker
<b>MLRB</b>	<b>MLR Button</b>	Master Grip Left Rocker, Red Button
<b>MRRB</b>	<b>MRR Button</b>	Master Grip Right Rocker, Red Button
<b>MLWB</b>	<b>MLW Button</b>	Master Grip Left Wheel, Red Button
<b>MRWB</b>	<b>MRW Button</b>	Master Grip Right Wheel, Red Button
<b>OCUW</b>	<b>OCU Wheel</b>	OCU-1 Wheel
<b>V F</b>	<b>VCW Focus</b>	PLC VCW, Focus Knob
<b>V I</b>	<b>VCW Iris</b>	PLC VCW, Iris Knob
<b>V Z</b>	<b>VCW Zoom</b>	PLC VCW, Zoom Knob

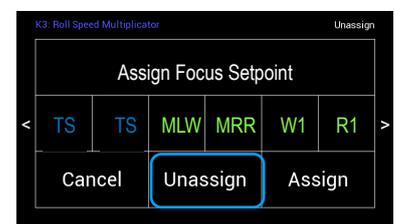


### 21.4 Unassigning Controllers

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

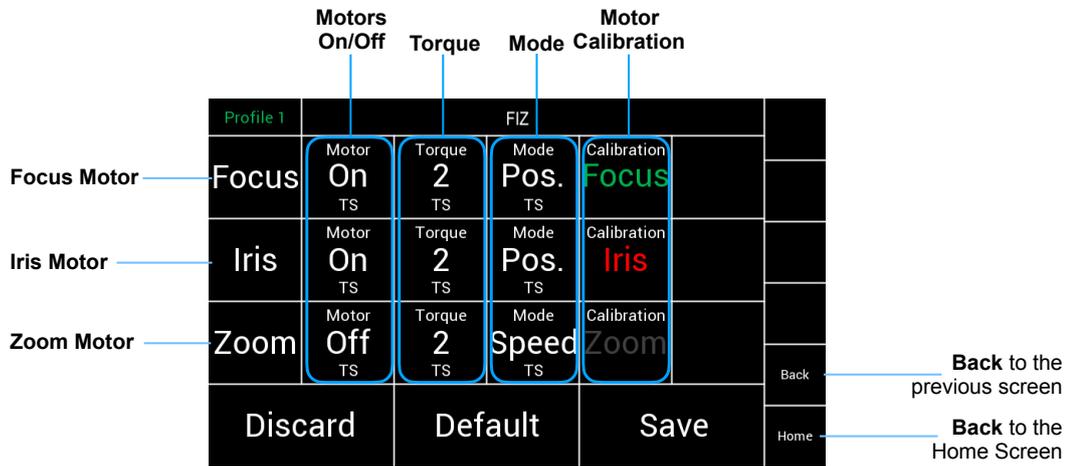
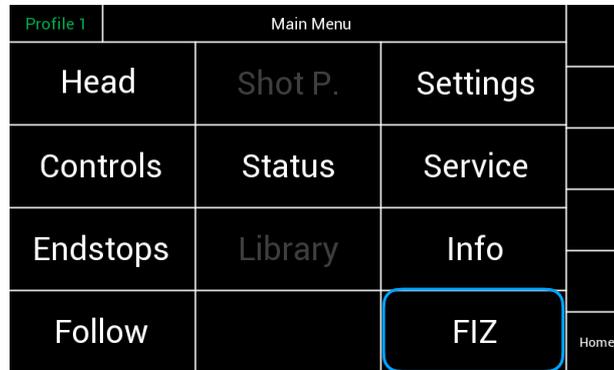
**NOTE**

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



21.5  
**FIZ Controllers Adjustments**

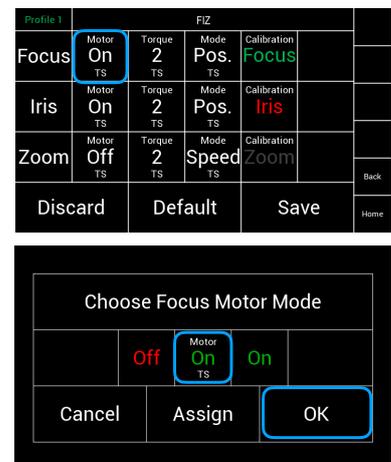
Selecting **FIZ** in the Main menu will open a new touchscreen display menu.



21.6  
**Motors On / Off**

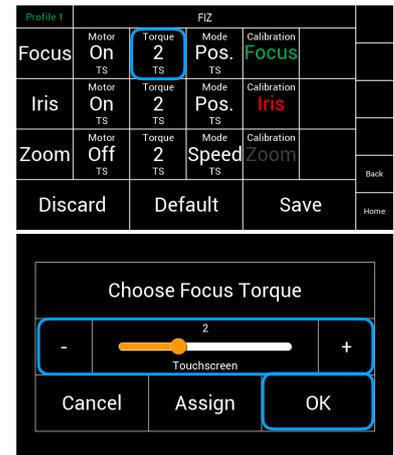
The **Motors On / Off** selection will open a new touchscreen display.

These toggle switches allow you to turn **On/Off** the motors for each axis individually.



### 21.7 Torque

The **Torque** selection will open a new touchscreen display with a slider to allow the operator to set the needed **Torque** for the selected lens motor.



### 21.8 Mode

In the Motor Mode column the motors can be adjusted from speed to angle measurement.

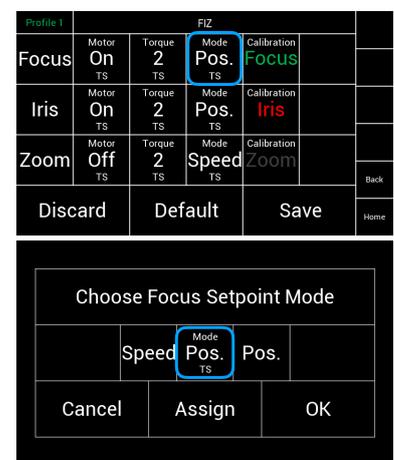
#### NOTE

If you use:

a **Focus Wheel**, the mode should be set on **Position**.

a **Iris Slider**, the mode should be set on **Position**.

a **Zoom Rocker** or the joystick for zoom, the mode should be set on **Speed**



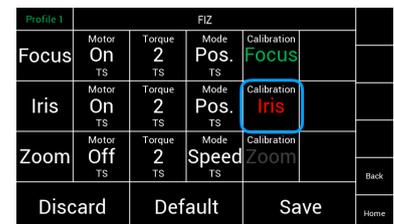
### 21.9 Calibration

By touching Calibrate, every single motor will be calibrated.

#### NOTE

**Green** indicate that the motor had been calibrated.

**Red** indicate that the motor needs to be calibrated.



### Quick setup procedure for cforce motors

- Mount the motors to the camera
- Connect each motor through LBUS cables
- Press the **FIZ** button at the motors to assign each motor to Focus, Iris or Zoom
- Touch **FIZ** in the Home Screen
- Touch the field below the desired FIZ function
- Assign the desired FIZ controllers to the wanted lens motors
- Enter the **Main Menu** and select **FIZ**
- Check if the lens motors are switched on
- Adjust the Torque. (minimum 2)
- Check the motor mode (Focus and Iris is **Position**, Zoom is **Speed**)
- Touch Calibration



## 22 User Profiles

The SRH-3 RCP allows to store 9 user profiles. The profiles contains all values, assignments and settings for the head, the remote, the used controllers and FIZ.

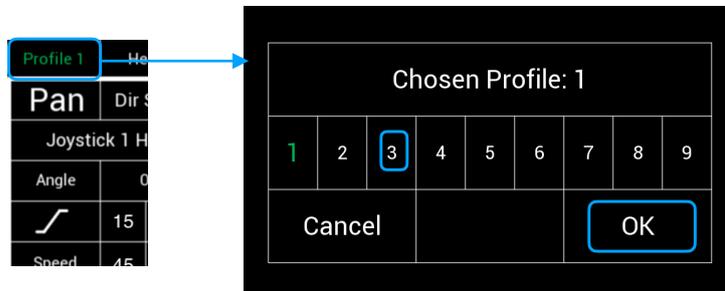
Selected User Profile

Profile 1	Head 24,1V	Remote 24,1V	H. Dyn.		Head
Pan	Dir Std	Tilt	Dir Std	Roll	Dir Std
Joystick 1 H		Joystick 1 V		Knob 8	
Angle	0	Angle	0	Angle	0
	3 K4		6 K5		22 K6
Speed	13 K1	Speed	15 K2	Speed	38 K3
	3 K4		6 K5		22 K6
Default Position B3	True Horizon B4	Controls On TS		Endstops On B5	Follow Off B6
					Menu

**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.

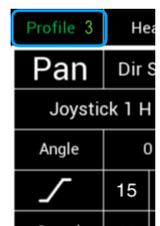
Each time changes are confirmed by **Save** or **OK**, the changes are saved in the selected profile.



### 22.1 Selecting User Profiles

The **Profile** selection will open a new touchscreen display with a selection of profiles.

**NOTE**  
Selecting another profile the **first time**, in this case Profile 3 will start with the **default factory presets**.



## 22.2

**Restore User Profiles**

To restore all profiles to their factory defaults, go to **Service** through the **Main Menu** and select **Remote**. Touching **Factory Default** will open a new window

Profile 1	Main Menu		
Head	Shot P.	Settings	
Controls	Status	<b>Service</b>	
Endstops	Library	Info	
Follow		FIZ	Home

Touching Factory Default will open a new window.

NOTICE
<p><b>Selecting OK will restore all user profiles to the default factory presets.</b></p> <p><b>All values and settings will be reseted!</b></p>

Service					Remote
Restore	Factory Defaults				Head
Calibrate	Joystick 1	Joystick 2	Rocker 1	Rocker 2	Factory
Calibrate	Rocker 1	Rocker 2			Back
					Home

## 23 Mounting Accessories

To mount one or two monitors and a WVR-1 receiver to the back of the SRH-3 Remote Control you need following parts:

- one or two RMB-2 **K2.66250.0** mounted at the back of the Remote Control
- one 19mm rod, like the **K2.0014954**

For the monitor and receiver following brackets are available:

- Monitor Adapter for Transvideo **K2.0014831**
- Monitor Adapter for Small HD **K2.0014832**
- Adjustable Monitor Mount AMM-1 **K2.0014829**
- Rod Mounting Bracket RMB-5 **K2.0014827**



To power the monitor with 4pin XLR, the Monitor Power, 12V, Lemo 0B 2pin **K2.0010546** is needed and to power the **K2.0010546**, the Cable RS - RS/PWR IN (0.5m/1.6ft) **K2.0001637** is needed.

### NOTE

If users would like a monitor, and the WVR-1 receiver is powered through the SRH-3 remote control, the remote control itself must be powered through the 4pin XLR power in with 12V from an external battery.

12V Bat Pwr Cable D-Tab 4p XLR

**K2.0020467**



## 24 Assignable controllers and functions

<b>J1 V</b>	Joystick 1 <b>V</b>	Joystick 1, up/down
<b>J1 H</b>	Joystick 1 <b>H</b>	Joystick 1, left /right
<b>J2 V</b>	Joystick 2 <b>V</b>	Joystick 2, up/down
<b>J2 H</b>	Joystick 2 <b>H</b>	Joystick 2, left /right
<b>DRWP</b>	<b>DRW Pan</b>	DRW-1, ARRI Wheels, Pan
<b>DRWT</b>	<b>DRW Tilt</b>	DRW-1, ARRI Wheels, Tilt
<b>DRWR</b>	<b>DRW Roll</b>	DRW-1, ARRI Wheels, Roll
<b>V R</b>	<b>VCW Roll</b>	PLC VC Wheels, Roll
<b>V T</b>	<b>VCW Tilt</b>	PLC VC Wheels, Tilt
<b>V P</b>	<b>VCW Pan</b>	PLC VC Wheels, Pan
<b>DEHP</b>	<b>DEH Pan</b>	DEH-1, ARRI Encoder Head, Pan
<b>DEHT</b>	<b>DEH Tilt</b>	DEH-1, ARRI Encoder Head, Tilt
<b>TS</b>	Touchscreen	Control through RCP
<b>K1 ... K8</b>	Knob 1 ... Knob 8	Knobs
<b>B1 ... B6</b>	Button 1 ... Button 6	Buttons
<b>V SR</b>	<b>VCW Speed Roll</b>	PLC VCW, Speed Roll Poti
<b>V ST</b>	<b>VCW Speed Tilt</b>	PLC VCW, Speed Tilt Poti
<b>V SP</b>	<b>VCW Speed Pan</b>	PLC VCW, Speed Pan Poti
<b>V DR</b>	<b>VCW Direction Roll</b>	PLC VCW, Direction Roll Switch
<b>V DT</b>	<b>VCW Direction Tilt</b>	PLC VCW, Direction Tilt Switch
<b>V DP</b>	<b>VCW Direction Pan</b>	PLC VCW, Direction Pan Switch
<b>V A1</b>	VCW Aux1	PLC VCW, Aux1 Switch
<b>V A2</b>	VCW Aux2	PLC VCW, Aux2 Switch
<b>V C</b>	VCW Camera	PLC VCW, Camera Switch
<b>IFW1</b>	<b>Focus Wheel 1</b>	Wheel 1
<b>IFW2</b>	<b>Focus Wheel 2</b>	Wheel 2
<b>IZR1</b>	<b>Zoom Rocker 1</b>	Rocker 1
<b>IZR2</b>	<b>Zoom Rocker 2</b>	Rocker 2
<b>MLW</b>	<b>Left Wheel</b>	Master Grip Left Focus Wheel
<b>MRW</b>	<b>Right Wheel</b>	Master Grip Right Focus Wheel
<b>MLR</b>	<b>Left Rocker</b>	Master Grip Left Zoom Rocker
<b>MRR</b>	<b>Right Rocker</b>	Master Grip Right Zoom Rocker
<b>MLRB</b>	<b>MLR Button</b>	Master Grip Left Rocker, Red Button
<b>MRRB</b>	<b>MRR Button</b>	Master Grip Right Rocker, Red Button
<b>MLWB</b>	<b>MLW Button</b>	Master Grip Left Wheel, Red Button
<b>MRWB</b>	<b>MRW Button</b>	Master Grip Right Wheel, Red Button
<b>OCUW</b>	<b>OCU Wheel</b>	OCU-1 Wheel
<b>OCUL</b>	<b>OCU Left</b>	OCU-1 Left Button
<b>OCUM</b>	<b>OCU Middle</b>	OCU-1 Middle Button
<b>OCUR</b>	<b>OCU Right</b>	OCU-1 Right Button
<b>V F</b>	<b>VCW Focus</b>	PLC VCW, Focus Knob
<b>V I</b>	<b>VCW Iris</b>	PLC VCW, Iris Knob
<b>V Z</b>	<b>VCW Zoom</b>	PLC VCW, Zoom Knob
<b>MLRJ</b>	<b>MLR Joystick center</b>	Master Grip Left Rocker Joystick center
<b>MLRL</b>	<b>MLR Joystick left</b>	Master Grip Left Rocker Joystick, left
<b>MLRR</b>	<b>MLR Joystick right</b>	Master Grip Left Rocker Joystick, right
<b>MLRU</b>	<b>MLR Joystick up</b>	Master Grip Left Rocker Joystick, up
<b>MLRD</b>	<b>MLR Joystick down</b>	Master Grip Left Rocker Joystick, down
<b>MLRH</b>	<b>MLR Joystick horizontal (left &amp; right)</b>	Master Grip Left Rocker Joystick, horizontal (left & right)
<b>MLRV</b>	<b>MLR Joystick vertical (up &amp; down)</b>	Master Grip Left Rocker Joystick, vertical (up & down)
<b>MRRJ</b>	<b>MRR Joystick center</b>	Master Grip Left Rocker Joystick center
<b>MRRL</b>	<b>MRR Joystick left</b>	Master Grip Left Rocker Joystick left
<b>MRRR</b>	<b>MRR Joystick right</b>	Master Grip Left Rocker Joystick right
<b>MRRU</b>	<b>MRR Joystick up</b>	Master Grip Left Rocker Joystick up
<b>MRRD</b>	<b>MRR Joystick down</b>	Master Grip Left Rocker Joystick down
<b>MRRH</b>	<b>MRR Joystick horizontal (left &amp; right)</b>	Master Grip Left Rocker Joystick horizontal (left & right)
<b>MRRV</b>	<b>MRR Joystick vertical (up &amp; down)</b>	Master Grip Left Rocker Joystick vertical (up & down)

## 25 Pin Out

FF-CAN

Lötseite Buchse

Fischer DGP102 A053 - 140



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

RC-Data ( PLC )

Lötseite Buchse

LEMO ECP.05.304.CLN



1 = RX ( DATA IN FROM WHEELS )  
 2 = N / C  
 3 = TX ( DATA OUT TO WHEELS )  
 4 = GND

RS 12V

Lötseite Buchse

FISCHER DBP 102 A052 - 130



1 = GND  
 2 = 12V

AUX Pwr 12V

Lötseite Buchse

LEMO ECG.0B.302.CLN



1 = GND  
 2 = 12V OUT

AUX Pwr 12V

Lötseite Buchse

LEMO ECG.0B.302.CLN

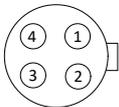


1 = GND  
 2 = 12V OUT

FS-CAN

Lötseite Buchse

Fischer DGP 103 A053 - 140

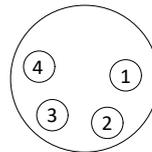


1 = GND  
 2 = CAN1 L  
 3 = CAN2 H  
 4 = 12V OUT

XLR Power IN 12V

Lötseite Buchse

Neutrik NC4MP-B



1 = GND  
 2 = N/C  
 3 = N/C  
 4 = 12V IN

LBUS

Lötseite Buchse

LEMO ECG.0B.304.CLN



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

LBUS

Lötseite Buchse

LEMO ECG.0B.304.CLN



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

## 26

**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 Appendix 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](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 Trauningger  
 Managing Director

Dr. Sebastian Lange  
 Head of Quality Management

#### APENDIX-I

List of additional accessories:

Item	Model name
1	<b>ARRI Digital Remote Wheels - DRW-1</b>

## 26 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.

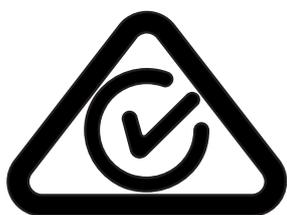
*Cet appareil est conforme à CNR-210 d' Industrie Canada.*

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 Règlement 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。

## 26 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  
CCA18LP0660TO

#### 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