

TRINITY

USER MANUAL

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Imprint

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Scope

This document describes the components and the setup of the TRINITY camera stabilizer systems and its components.

Disclaimer

Before using the products described in this manual, be sure to read and understand all the respective instructions.

Otherwise the customer must contact ARRI before using the product.

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ARRI or its subsidiaries do not assume any responsibility for losses incurred due to improper handling or configuration of the TRINITY or other system components.

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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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Table of Contents

1 For your safety	4
2 Functions	5
3 Video Lines	8
4 On-Board Interface	9
5 1.8" Center Post	10
6 1.8" Gimbal	11
7 Joystick Monitor Mount	14
8 Top Stage	16
9 Battery Hanger	19
10 Docking Bracket	22
11 Balance Strategy	24
12 Camera Preparation	25
13 Symmetry of the Batteries	26
14 Set Up	27
15 Camera Preperation	30
16 Balancing	32
17 On-Board Interface	37
18 Factory Presets	40
19 Troubleshooting	41
20 Pin Out	42
21 CE / FCC	43

1 For your safety

⚠ CAUTION

The TRINITY system should only be used by experienced and trained operators. This product is not designed for inexperienced beginners and must not be used at all without proper training.

⚠ Warning

ARRI recommends that all users of the TRINITY 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 TRINITY specifications, connector pin-out diagram.

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

1.1 Risk Levels and Alert Symbols

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

⚠ DANGER

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

⚠ Warning

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

⚠ CAUTION

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

NOTICE

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

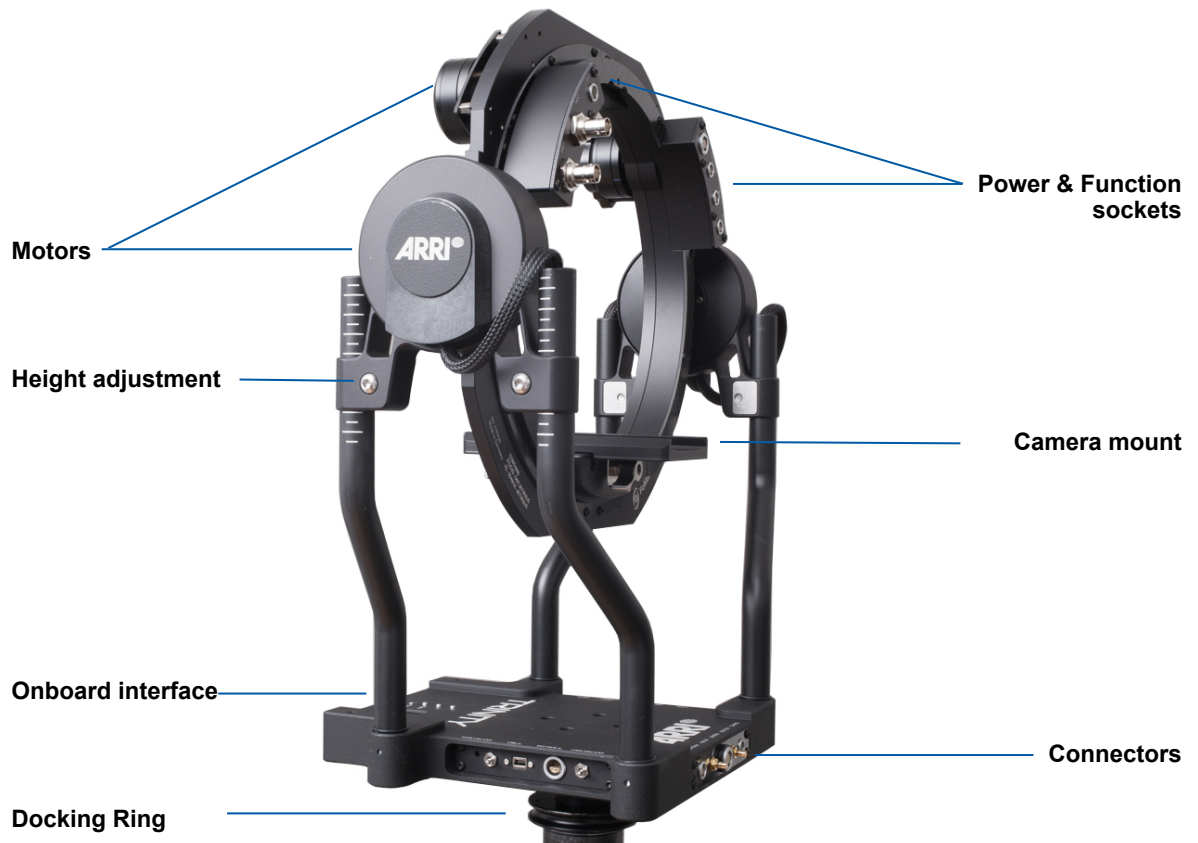
NOTE

Provides additional information to clarify or simplify a procedure.

2 TRINITY Rig Overview



2.1 TRINITY Head

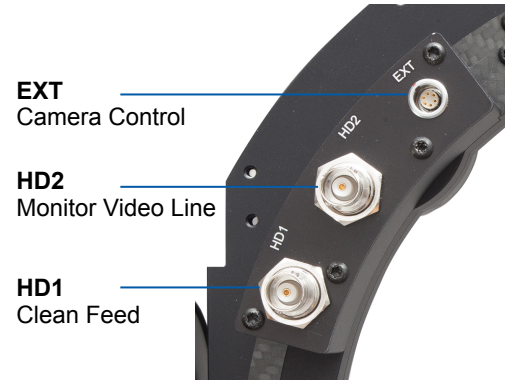


2.2 Connectors at the ring - left side

HD 1 is the so called **Clean Feed Video** line.
This HD video signal goes directly down through the Center Post to the **HD1** BNC connector at the Top Stage.
This video signal is ideal for Video Transmitters.

HD2 is indented to be use for the Starlight monitor, which is mounted on the Gimbal handle.

EXT The EXT connector is a multi-pin accessory connector that carries signals for communication with various accessories.

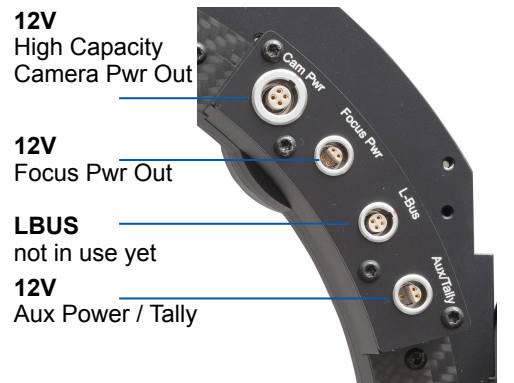


2.3 Connectors at the ring - right side

Cam Pwr Out
High Capacity 12V power out for camera

Focus Power Out
12V power out to supply Focus Receivers

LBUS
LBUS is a bus standard designed to allow multiple lens motors and control devices to communicate with each other.



Warning

The LBUS NOT functioning at this time!

Do NOT connect any Video Power cables to this socket.
Do NOT connect any L-BUS motors, or other LBUS products to this connector, until your TRINITY had been updated to LBUS.

Aux / Tally Out
12V power to supply accessories.
Or to connect the artemis external TALLY system.

2. 4 TRINITY connectors / base plate front



Can/Tally

Provides a Can Bus or the Tally Trigger Signal.

⚠ Warning

The LBUS NOT functioning at this time!

Do NOT connect any Video Power cables to this socket.
Do NOT connect any L-BUS motors, or other LBUS products to this connector, until your TRINITY had been updated to LBUS.

Vid Out

Video out of the HD2 video signal from the HD2 Video In BNC socket at the ring.

Joystick

Socket for the Joystick Main Cable

Loop Out

Provides the **HD1** video signal when it is looped back through the Top Stage **HD2**.

Control

Provides the EXT Data looped through the ring

2.3 TRINITY connectors / Base Plate right side**STAB ON/OFF**

Power On/ Off switch for the TRINITY stabilizer system.

USB IN

Allows you to connect a PC via USB cable for software interface.

EXT PWR IN

When the TRINITY head is used as a handheld device, it can be externally powered through this input with the included External Power cable that has been supplied.

CAM PWR ON/OFF

The Power On/ Off switch is the **Master Switch** for camera power and all other units which are powered by the TRINITY head.

⚠ Warning

Ensure that Cam Pwr and STAB Pwr are switched OFF during mounting the camera.

2. 4 TRINITY connectors / Base Plate right side



NOTE

This area is reserved for later customization and future upgrades.

3 Video Lines

There are 3 ways to connect the monitor:

3.1. The standard way

Video Out of the camera connects to **HD2**.
The monitor Mini BNC plug connects to the **Video Out** on the base plate.

3.2. Adding a video transmitter

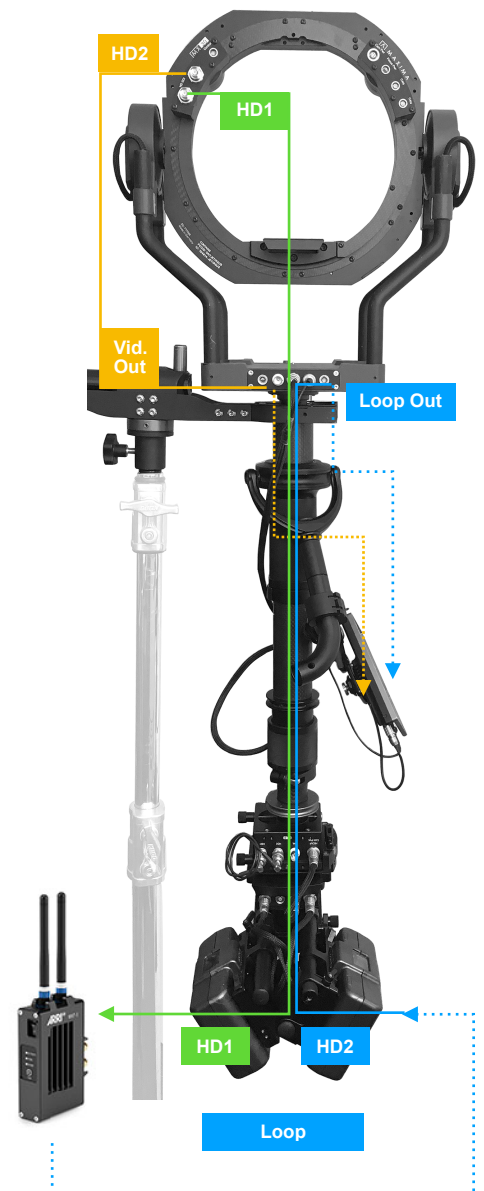
One **Video Out** of the camera connects to **HD1**.
The SDI signal will go down the post and will be available at **HD1** at the Top Stage.
Connect the Transmitter to **HD1**.
The other Video Out of the camera connects to **HD2**.
The monitor Mini BNC plug connects to the **Video Out** on the base plate.

3.3 Creating a Loop

If the camera provides only one Video out, or if the same kind of image is required on the monitor and the wireless transmitter, you need to **loop** the signal.
The Video Out of the camera connects to **HD1**.
The SDI signal will go down the post and will be available at **HD1** on the Top Stage.
Connect the transmitter to **HD1**.
Connect a second BNC cable to the Video Out of the transmitter and plug it into **HD2** of the top stage.

NOTE

The signal will be send back up to **LOOP Out** at the TRINITY head.



4 On-Board Interface

UP

After pressing the MODE button, you can move the cursor upwards by pressing the UP button.

OK

Press OK to confirm or to go to into the Menu

DOWN

After pressing the MODE button, you can move the cursor downwards by pressing the DOWN button.

MODE

By pressing MODE, you can recall one of your five personal profiles.

ROLL

The blue turn knob ROLL allows you to adjust the horizontal position of the camera.

NOTE

Make sure the camera is levelled horizontal before you balance the rig.

Use a bubble and the ROLL turn knob to bring the roll axis into a proper horizontal level.

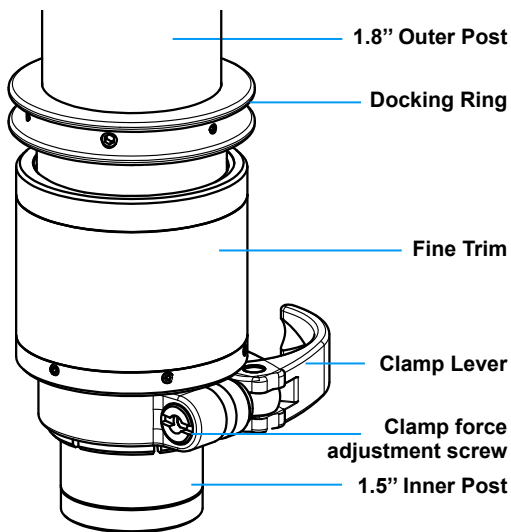


4.1 The following functions can be operated directly on the TRINITY

- Adjusting horizon
- Mode selection (1-5)
- Changing joystick direction
- Adding a wireless remote
- Restoring setting
- Restoring sensors
- Angle information
- Temperature information
- Voltage information



5 1.8" Center Post



The two stage artemis 1.8" carbon Post offers a no-tool post clamp and a guided 1.5" inner telescopic post.

Therefore, monitor brackets and existing accessories based on a 1.5" diameter can be used on with the 1.8" post.

Only the artemis 1.8" Post offers the unique no-tool Fine Trim mechanism for a precise length adjustment of the 1.5" inner telescopic post.

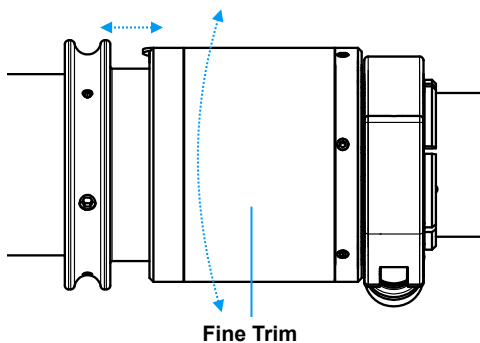
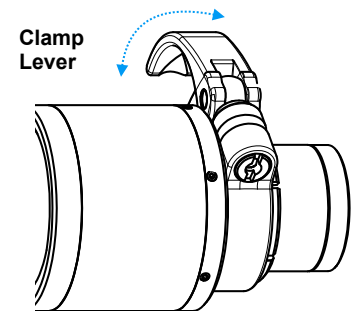
Finding the perfect Drop Down time is more than easy with the Fine Trim mechanism. There is no need any more to open the post or gimbal clamp to readjust the drop down after changing a filter or a lens.

5.1 Extending the Center Post

The Post can be extended from 43 cm to 72 cm (16.9" - 28.3")
Lift and open the clamp Lever, then pull out the inner post slowly.

NOTE

To extend the inner post fully, you need to open the Gimbal clamp Lever too.



5.2 Fine Trim Mechanism

This Fine Trim allows you to adjust the length of the inner post and the resulting Drop Down time is extremely accurate.

The Fine Trim allows 22mm (0,86") overall movement in both directions.

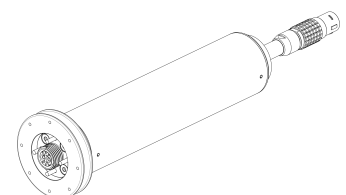
NOTE

Adjust the Fine Trim **halfway** before balancing. Using This method you can add more drop down if needed, or you can get the rig very quickly into a „Dirty Low Mode“ balance.

5.3 Available Upgrades

Post Extension 8.5" / \varnothing 1.8" **K2.0014264**

In addition to the standard post, you can add the modular Center Post extension. This is a fast and simple to use plug and play solution that allowing you to lengthen the Center Post by 216 mm / 8.5".

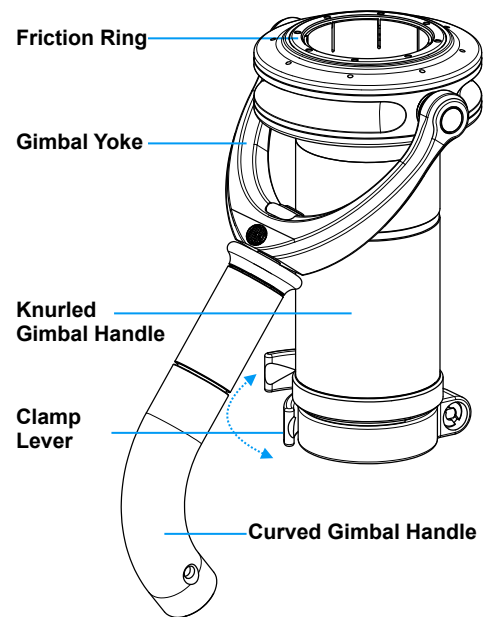


6 1.8" Gimbal

The 1.8" artemis Gimbal offers high precision, extremely low friction bearings, a no-tool clamp mechanism and an ergonomic and functional design.

The knurled handle diameter is 57 mm / 2.24", which gives precise torque and more control, even when heavy cameras are used. The Diameter of the curved Gimbal handle (25 mm / 0,984") allows to mount zoom device.

The yoke shape is optimized for a payload up to 50 kg / 110 lbs..



6.1 Positioning the Gimbal

To modify the position of the 1.8" Gimbal at the Center Post, you must open the **Clamp Lever**.

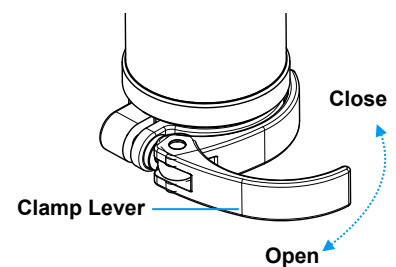
⚠ CAUTION

Only open the Clamp Lever when the system is parked in the Docking Bracket, or when the system is at a horizontal position.

NOTE

It is better and more precise to move the Gimbal up and down the Center Post, by turning the gimbal clock and counter clockwise, than moving the Gimbal on the Center Post just by pushing it.

Choose your new position and close the lock lever.



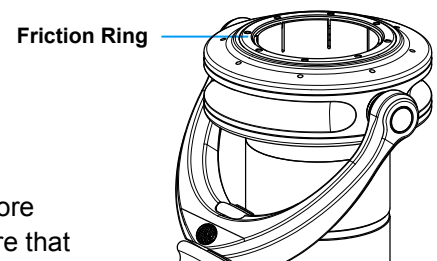
6.2 Gimbal Friction Ring

Another unique feature of the artemis 1.8" Gimbal is the Friction Ring at the top end of the Gimbal. The adjustable ring ensures that the Gimbal sits and fits perfectly onto the Center Post. This way the Gimbal is guided at both ends, which will ensure that main bearing is 100% positioned and in a line with the Center Post.

Adding a little friction to the Gimbal, will allow a much more precise positioning of the Gimbal. Further on it will ensure that the post cannot slip freely through the Gimbal, in the event of the Gimbal clamp being opened by mistake.

NOTE

Use the Post Tool to adjust the correct amount of friction.



6.3 Adjusting the Gimbal Friction Ring

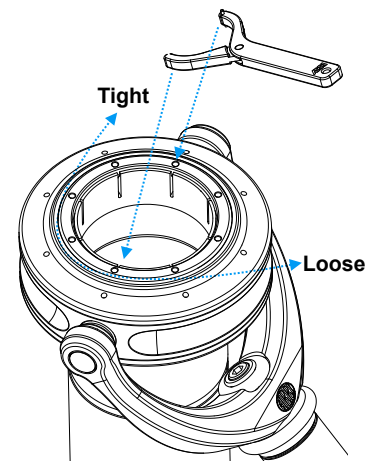
⚠ CAUTION

This is not a Clamp! Do not over tighten the Ring!

- **Open the Clamp Lever first.**
- Use the Post Tool and tighten the ring until you can feel the bushing inside the Gimbal touching the Center Post and a little friction becomes noticeable.

⚠ CAUTION

Before removing the Gimbal from the Center Post, you need to loosen the Gimbal Friction Ring!



6.4 Handle Extension

The 1.8" Gimbal can be upgraded with the Knurled Handle Extension 1.8" **K2.0014280**.

This extension will add a knurled handle to the top of the 1.8" Gimbal.

This way the Gimbal will have knurled handles on both ends.

The length of the **Knurled Handle Extension** is 52 mm / 2".

NOTE

Before you can add the **Knurled Handle Extension**, you need to remove the **Top Stage and the Friction Ring** of the 1.8" Gimbal.

Use the **Post Tool** to open the **Docking Ring** and the **Friction Ring**.

Place the **Knurled Handle Extension** on top of the Gimbal.

NOTE

Keep the with Delrin ring inside the Gimbal.
Do not remove the ring.

NOTE

Ensure that no dirt or sand can reach the inside of the Gimbal.

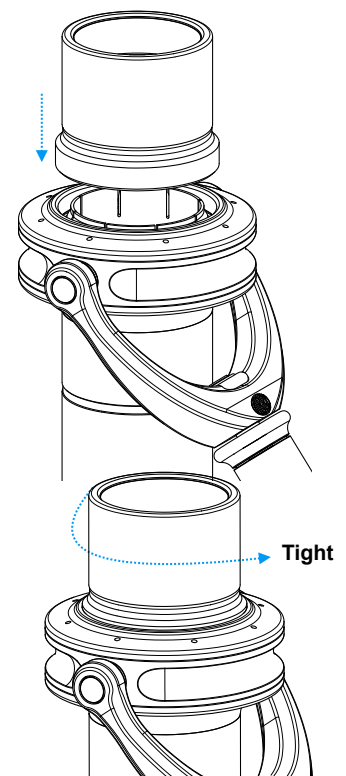
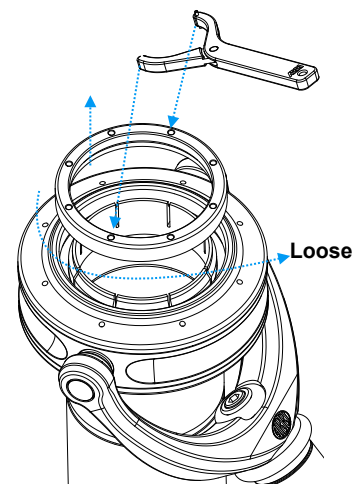
Turn the **Knurled Handle Extension** just two turns.

NOTE

Do not over-tighten the **Knurled Handle Extension**.

Place the gimbal onto the Post, bring it into the needed position and close the Gimbal Clamp.

Bring back the Top Stage onto the post and make sure that the Docking ring is fully tightened.



6.5 Handle Extension

The TRINITY and the Joystick / Monitor Mount require more clearance than a standard Gimbal offers.

Every TRINITY System for artemis rigs are supplied with an extension for the Gimbal Handle. The Gimbal extension should be added between the curved part and the straight part of the Gimbal handle.

⚠ CAUTION

Thread locker was used during the assembly of the Gimbal.
To unscrew the curved part from the straight part of the handle, a heat gun should be used to warm up and to release the thread locker.
Please use a low strength thread locker, like **LOCTITE 222** when you mount the handle extension.



⚠ CAUTION

Make sure that the threaded axle is not too deep inside the section which contains the bearing for Yoke axes.
If the axle is forced in too deep a position, the axle will block the Yoke axes.

7 Joystick Monitor Mount



7.1 Joystick

The TRINITY Joystick is the human interface, which controls the Tilt axes and the custom software presets.

NOTE

Speed, direction and sensitivity can only be adjusted with a Windows PC or Tablet running the TRINITY software.

7.2 MODE Button

The grey Mode button at the front recalls one of your five preprogrammed user presets.

NOTE

Pressing it once, will recall preset **ONE**.
Pressing it twice, will recall preset **TWO**
and so on up to preset **FIVE**.



7.3 Joystick Clamp Screw

The clamp screw on the side of the bracket is used to clamp the Joystick housing. It is also possible to remove the joystick housing and flip it over to mount the joystick on the underside of the bracket.

NOTE

This optional position places the Joystick at the Button of the bracket depending on operator preference and allows you to use a Zoom device at the top of the Gimbal handle.

7.4 Button

There are two LEMO sockets on the Button of the Joystick housing:

The **7 pin socket** is for the Joystick Main Cable.

The **5 pin socket** will power the Monitor and provides 12Volt power and data for the ARRI Starlight monitor.

⚠ CAUTION

Ensure that the right plug connects to the right socket!
Do not use any force while connecting the plugs!

NOTE

A second monitor cable with a 2 pin power cable for the standard Transvideo Starlight monitor is included in the TRINITY set.



7.5 Preparing the Monitor Mount

NOTE

To mount the ARRI Starlight or the Transvideo Starlight to the Joystick Monitor Mount, this Transvideo mounting bracket is required. You will find this Bracket mounted at the 3D swing arm, which is supplied with the monitor.

NOTE

Use a heat gun to warm up the thread, before you unscrew the 3D swing arm.

Use the **1/4" screw** to mount the TRINITY Monitor bracket to the Transvideo mounting bracket.

Mount the bracket on the back of the ARRI Starlight or the Transvideo Starlight monitor.

NOTE

Ensure that the bracket rod is mounted and is facing in the opposite direction to the BNC and power connectors of the monitor.

Place the rod mounted on the monitor bracket into the bushes of the TRINITY Joystick Monitor Mount.

NOTE

The photos show the setup for „regular“ usage.

NOTE

If you are a “regular” operator you will need to flip the image in the monitor software on both axes.
You will find the more information on this procedure later in this manual.

NOTE

Goofy operators will have to attach the monitor to the other side of the TRINITY Joystick Monitor Mount.

NOTE

Make sure that the connectors are always pointing away from the TRINITY Joystick Monitor Mount.



8 Top Stage

8.1 Connectors on the front

Aux Pwr

Provides 12V for any kind of accessories.
LEMO 3pin 0S

NOTE

Max 3 Amp

Tally

The external Tally system can be connected here.

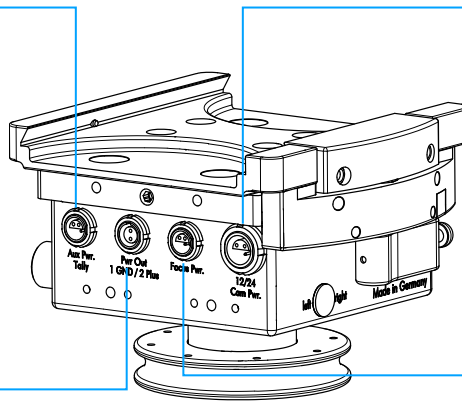
Tally Set **K2.0010553**

12V Pwr

LEMO 2pin 0B

NOTE

Max 3 Amp



12V / 24V Camera Pwr out
Use this socket for regular 12V Video cameras and all kinds of 24V Film and digital Cinematography cameras.

Lemo 3pin 1S
Cam Power / 12V XLR **K2.0010469**
Cam Power / 24V ARRI **K2.0010471**

12V Focus Pwr
All kind of remote focus devices can be powered by the socket.

LEMO 4pin 0B

NOTE

Max 3 Amp

Focus Power Cable for ARRI and C-Motion 3pin Fischer **K2.0010548**

8.2 Connectors on the rear

12V HiCap Camera Pwr out

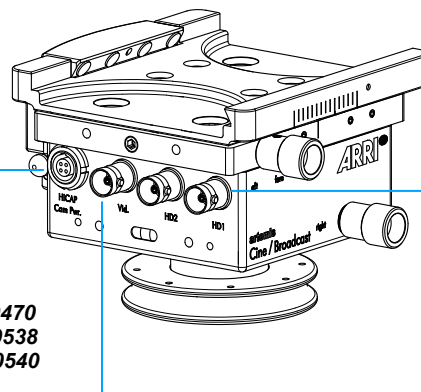
This high capacity power out is made for 12V cameras with high power consumption. Use this socket for digital Cinematography, wireless OB Van cameras or any other kind of cameras that require higher current.

Cam Pwr Cables

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

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

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



4.5GHz HD SDI Video In

NOTE

Use only dedicated HD SDI BNC cables!

NOTE

Can be used also for SD Video.

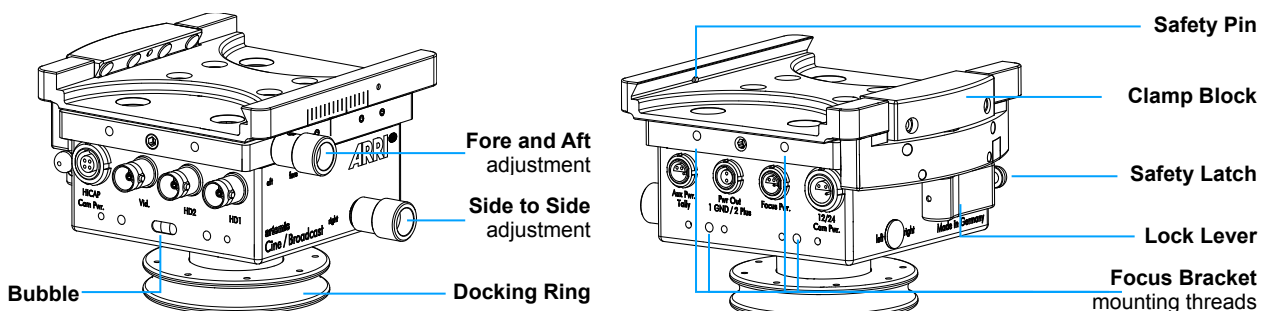
HD SDI / Video Cable / BNC **K2.0010476**

Video In
SD Video

Warning

Only use original ARRI made power and data cables.

8.3 Functions



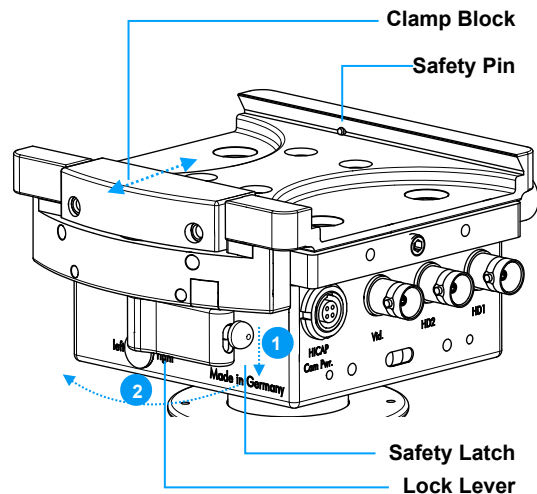
8.4 Quick Lock clamp mechanism

To open the clamp block, pull down the Safety Latch at the end of the Lock Lever first. Swing the Lever fully to the left, by moving it over the engaging positions.

Insert the **Battery Hanger** into the mounting platform.

NOTICE

The groove at the right side of the camera dovetail plate have to be lined up with the right side of the camera.



Swing back the Lock Lever into the first engaging position. The **Battery Hanger** is now already secured and can be still be moved fore and aft, until the **Battery Hanger** is positioned at the center of gravity.

After determining the final position of the **Battery Hanger**, push the quick lock Lever fully to the right, until the safety latch engages.

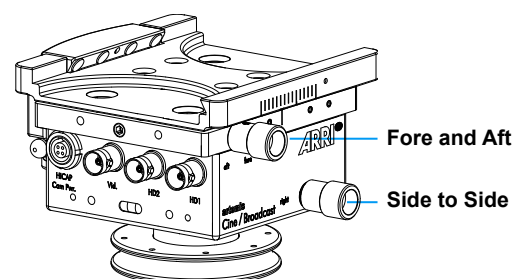
NOTICE

Do not block the safety latch while you push back the lock Lever in its final position.

8.5 Fore and aft / Side to Side adjustments

Clockwise rotation of the knurled knob marked **Fore / Aft** moves the camera dovetail plate forwards.
Counter-clockwise rotation moves it backwards.

Clockwise rotation of the knurled knob marked **Left / Right** moves the camera dovetail plate to the right.
Counter-clockwise rotation moves it to the left.



NOTE

You can move the camera dovetail plate approximately 30 mm / 1,8" in both directions.

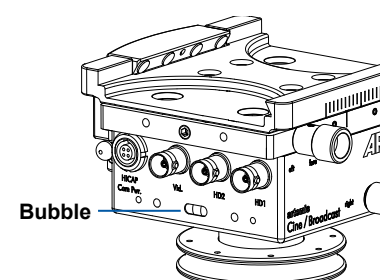
NOTE

Before mounting the camera dovetail plate, you should center the **Fore / Aft** and **Left / Right** position.
This gives you the same adjustability in all directions later.

8.6 Spirit Bubble

Adding batteries to the TRINITY rig, will illuminate the built-in spirit bubble.

The spirit bubble serves to facilitate the later balancing of the system and as reference during adjustment of an external electronic bubble.



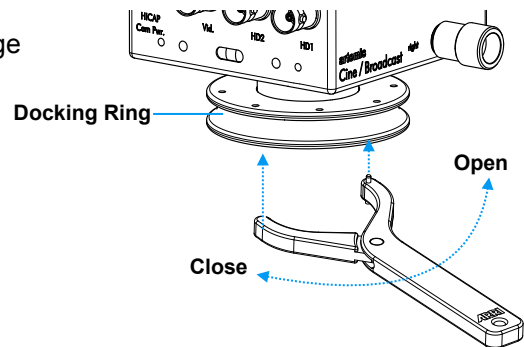
8.6 Detaching the Top Stage

The Docking Ring is located below the Top Stage housing.

It serves to place the system on the docking stand and as an interface between the Top Stage and the Center Post at the same time.

NOTE

To detach the Top Stage from the Center Post, the artemis Post Tool 1.8" / 1.5" **K2.0010461** is required.



⚠ Warning

Please be careful when carrying out the operation, as the connection is very delicate.

- Place the pins of post tool into the pinholes of the docking ring.
- By slowly turning the post tool to the left, you can loosen the Docking Ring.
- Remove the Post Tool and finally loosen the Docking Rings using your fingers.
- Lift the Top Stage carefully and unplug the LEMO Connector.

8.7 Post Connector

There are 3 different Post connectors used for the TRINITY systems:

1. LEMO **3B** with a 2.5" Docking Ring
2. LEMO **2B** with a 2.5" Docking Ring
3. **GPI Pro** with a 2.5" Docking Ring

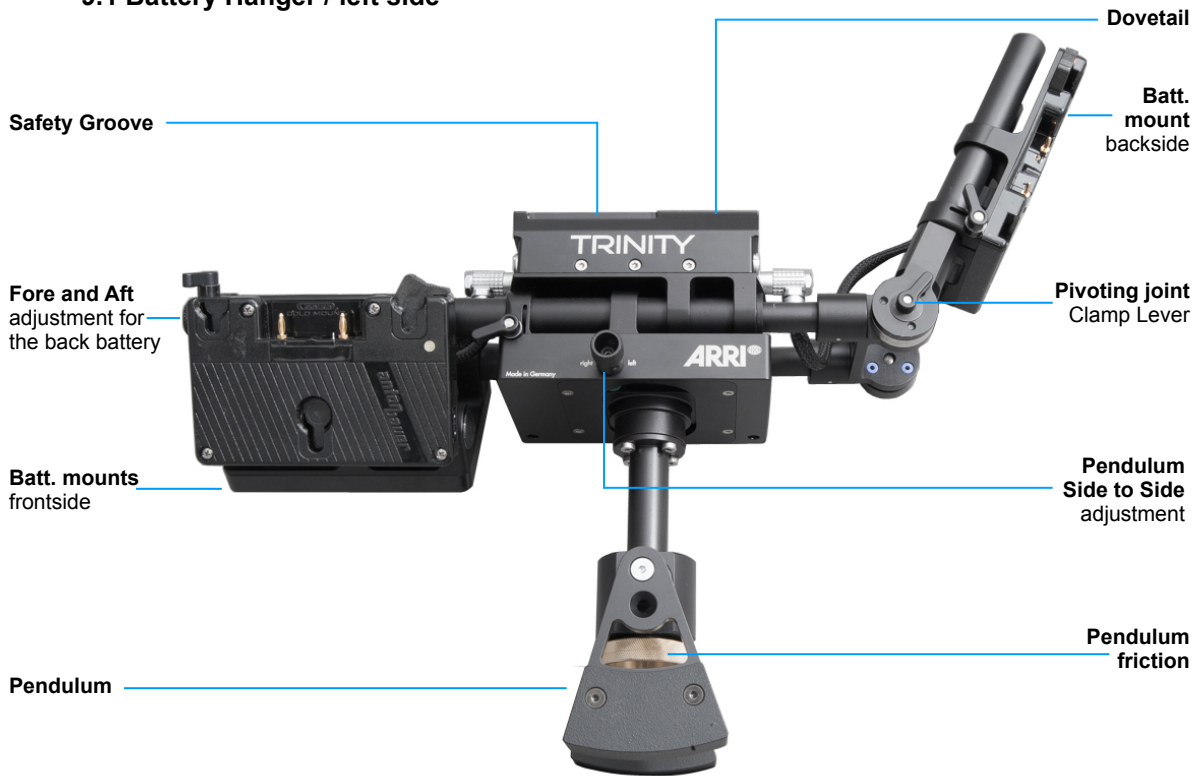


NOTE

All three versions will require the artemis Docking Bracket **K2.0010319**

9 TRINITY Battery Hanger

9.1 Battery Hanger / left side



The top of the TRINITY Battery Hanger is shaped like a camera dovetail plate. The shape is the same as the regular artemis camera dovetail plate. Therefore the TRINITY Battery Hanger will be mounted to the artemis Top Stage or the Pro Top Stage.

The rods at the Button and the back will take the TRINITY Battery Mounts and existing artemis C-Bat mounts with a LEMO 1B 2 pin plug.

The rod section at the back of the TRINITY Battery Hanger pivots which will provide a perfect Dynamic Balance.

NOTE

The TRINITY Battery Hanger supplies only **12V High Capacity power** to the entire system.

NOTE

All battery inputs are permanent **HOT swappable** with each other. The Hot Swap will provide maximum power and run time to the camera. The Hot Swap will ensure that the single batteries will be discharged evenly.

⚠ DANGER

**Make sure only batteries with the same chemistry are used.
Do not mix different batteries or chemistry!
Only use batteries that are the same model from the same manufacturer.**

9.2 Battery Hanger / front & back



Pwr Out

This socket will provide **12V High Capacity** to power the system reversed through the Top Stage.

Battery In

These four sockets will take the power cables to the front and back Battery Mounts.

Video Pwr

This socket provides 12V power to Video Transmitters or other recording accessories.

Monitor Pwr

This socket provides 12V power to any monitor. Different monitor power cables are available.

9.3 TRINITY Pendulum

The Pendulum is the Drop Down generator of the TRINITY. It provides a smooth transition from High Mode to Low Mode. The Pendulum will also assist in the vertical alignment of the post for High Mode to Low Mode transitions. The knurled brass **Friction adjustment knob** allows you to add or subtract friction to the Pendulum.

NOTE

While executing fast moving shots such as running shots, there should be more friction applied to ensure that the Pendulum does not swing excessively.

The Pendulum has a separate **side to side adjustment** allowing the operator to position the Pendulum always inline with Center Post.

NOTE

Ensure that the Pendulum is centered to the post before you start with the balancing procedure.



9.4 TRINITY Battery Mounts

There are two kind of Battery Mounts available for the TRINITY. One for Gold Mound and one for V-Mount batteries.

Additional battery mounts can be also ordered separately:

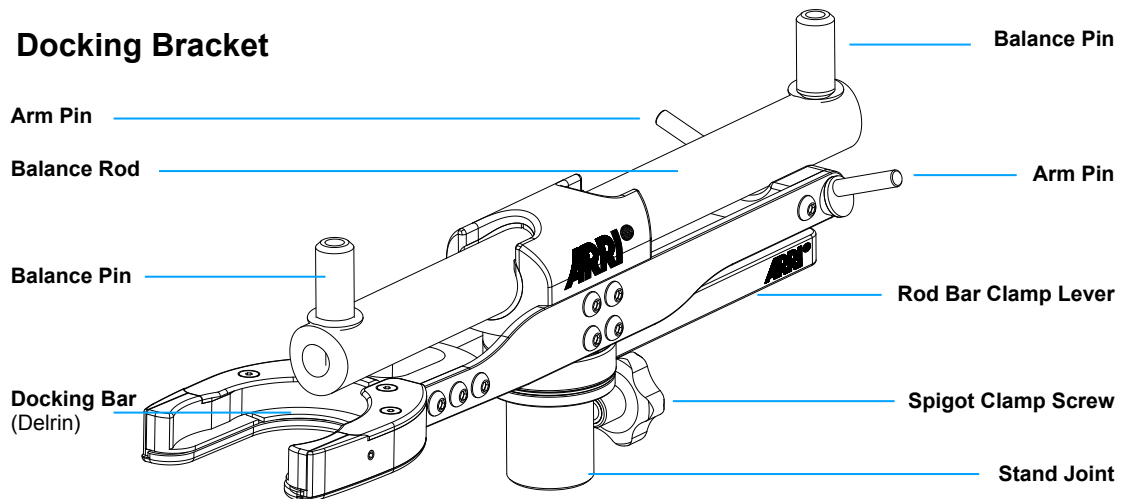
TRINITY Battery Mount / **Gold Mount** **K2.0010288**

or

TRINITY Battery Mount / **V-Mount** **K2.0010289**



10 Docking Bracket



10.1 Stand Assembly

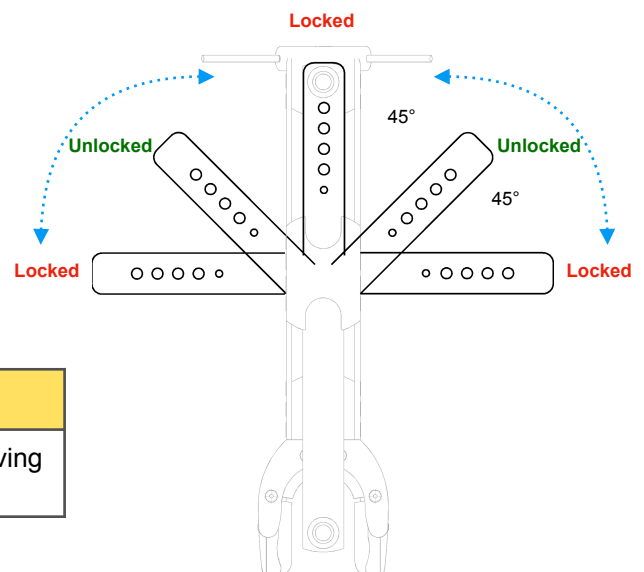
The stand joint is designed for stands with \varnothing 15,9 mm spigot. Put the docking bracket on the stand pin and tighten the lateral stand lock screw accurately.

⚠ CAUTION

- Use only appropriate steel stands, such as a C-Stand or Low Boy and prevent the stand from tipping by using a sandbag.
- Make sure the stand is flush with the surface.
- Make sure that that the spigot clamp screw is fully tightened.

10.2 Moving the Balance Rod

To move the Balance Rod fore and aft, or to bring Balance Rod into the right position, or to lock the Balance Rod finally, the blue **Rod Bar Clamp Lever** has to be in the correct position.



⚠ CAUTION

Make sure you lock the Balance Rod after moving it into the correct position.

10.3 The three positions of the Tool Bar

There are three positions where the Balance Rod is locked and two positions where the Balance Rod can be moved freely. Just turn the Tool Bar to lock or to move the Balance Rod.

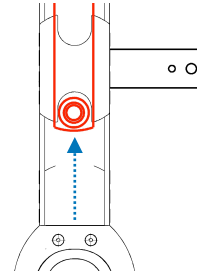
10.4 The different positions of the Balance Rod

10.5 Park Position

To park the rig, the Balance Rod has to be fully moved to the back.

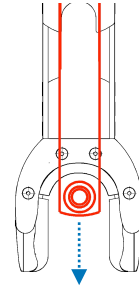
⚠ CAUTION

If you ignore this, the balance pin might cause damage to the top stage and side to side adjustment knob.



10.6 Balance Position

There is no need to turn the docking bracket 180° around to balance the system. Just open the Lock Lever, pull the rod forward in the position indicated, lock the balance rod and place the Gimbal on the top of the Balance Pin

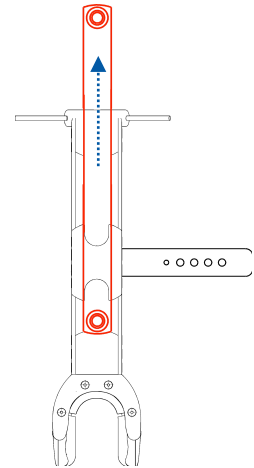


10.7 Spin Position

To do the so called spin test, you can use the Balance Pin you are already on, or you turn the Docking Bracket 180° and use the Balance Pin on the others side.

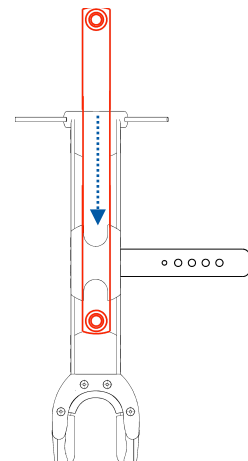
NOTE

Please make sure that you do not pull out the Balance Rod any longer that is required. Also make sure your rig is still inside the „foot print“ of the stand!



10.8 Transport Position

For transport, it is the best to centre the Balance Rod as shown. Also move the locking lever to the center position, this will keep the bracket as compact as possible.



11 Balance Strategy

11.1 General Balancing Strategy

The entire balancing procedure of the TRINITY system is based on **SYMMETRY** and **NEUTRAL BALANCE**.

NOTE

Only a precisely executed camera preparation will enable you to get the TRINITY system in perfect **SYMMETRY** and **NEUTRAL BALANCE**.

Any inaccuracy will affect the performance of the system.

11.2 Camera

The camera preparation must meet the following requirements:

11.3 Compact length

NOTE

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

NOTE

If the camera length is unnecessarily long, the COG of the TRINITY head could be quite high, which will force you to extend the Center Post to compensate for top weight. As the Center Post lengthens the more extreme the degree of inertia will be and will reduce the agility of the TRINITY.

NOTE

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

NOTE

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

NOTE

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

11.4 Low COG (center of gravity)

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

NOTE

Video Transmitters should be mounted to the rear Battery Hanger. This uses the weight of the transmitter as a counterweight and the total weight of the system can be kept low.



12 Camera Preparation

NOTE

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

For example:

If two Focus Motors are needed, use two 15mm rods (equal length and same material) and mount them on the base of the camera. Now place one Focus Motor on each rod. Make sure that the gears are facing the front of the lens and the motor housing of the camera body.

If only one Focus Motor is required then two rods are also required. Place the Focus Motors vertical below the lens. This way you can achieve the need for a low COG and symmetry.



Setup with two motors

12.1 Secure Component / Accessory Attachment

⚠ CAUTION

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

NOTE

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

⚠ CAUTION

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



Setup with one motor

12.2 Camera Dovetail Plate

The TRINITY comes with a symmetric camera dovetail plate, the so called Quick Lock plate.

⚠ CAUTION

Always use two 3/8" or 1/4" screws to ensure a solid fit. Use always two 3/8" or 1/4" screw to ensure a solid fit. Using only one screw or a short distance between the screws will force sidewise rotation of the camera, and also vibration of the entire system. Try to maximize the distance in between the camera screws.

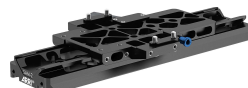


12.3 SAM Dovetail Plates

Using the SAM1, SAM2 and the SAM3 plates will speed up the later balancing process and guarantee the best performance of the TRINITY. The plates will lift the camera and fit into the center of the ring. This way a perfect COG of the camera is guaranteed.



SAM-1 Stabilizer Adapter Mount for ALEXA
K2.0014022



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



SAM-3 Stabilizer Adapter Mount for AMIRA
K2.0014630

13 Symmetry of the Batteries

Beside the symmetrical set of the camera, the compact and symmetrical weight distribution of the counter weight is crucial for the all over balance of the TRINITY rig.

There are many different shapes and sizes of batteries available and each kind of the battery required a different setup.

NOTE

The correct positioning of the batteries is key for a good balance.



13.1 Battery Setup for V-Mount batteries

3 x light batteries



1 x heavy and 1 x light battery



2 x heavy batteries

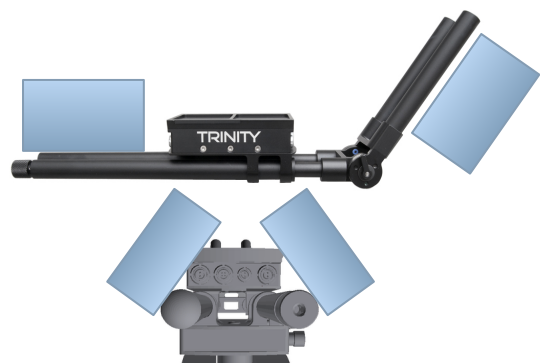


13.2 Battery Setup for Gold Mount batteries

3 x medium heavy batteries



3 x light batteries mounted high



14 Set Up

Safety Advice

⚠ CAUTION

Always ensure that you are using a proper C-Stand, Steel Low Boy Stand or another suitable stand made of steel.

Make sure the stand is placed on even ground.

Make sure you are not exposed to strong wind or heavy rain.

Make sure that the yoke of the Docking Bracket is over the longest leg of the stand.

Securing the stand with sand bags greatly reduces the risk of the stand falling over.



14.1 Top Stage / Center Post

NOTE

You will need assistance for the following procedure!

1. If you convert a regular artemis Cine Broadcast or artemis EFP HD into the TRINITY, unplug all cables from the lower sled and remove the entire Monitor Bracket from the Center Post.

Use the Post Tool for the following steps:

- Open the docking ring of the Lower Sled and unplug carefully the main cable.
- Remove the Sled from the Center Post.
- Open the docking ring of the Top Stage and unplug carefully the main cable.
- Remove the Top Stage from the Center Post

2. Mount the Top Stage to the lower end of the Center Post.



⚠ CAUTION

Plug in the main cable connector carefully into the socket of the Top Stage when placing it on the Button of the Center Post.

Use the Post Tool to ensure that the Docking Ring is fully tightened.

3. Neutralize the Side to Side and also the Fore and Aft position of the Top Stage
4. Neutralize the Center Post Fine Trim
5. Place the Gimbal onto the Center Post, if you have not already done so

14.2 TRINITY Head

6. Place the Top Stage on an even surface.
7. Bring the TRINITY head right above the Center Post.



NOTE

The Bubble is aligned to the back, or in other words pointing to the pivoting battery mount

8. Ensure that the back of the TRINITY head is lined up with the BNC sockets of the back of the Top Stage.
9. Let your assistant plug in the LEMO connector carefully.
10. Tighten carefully the Docking Ring. First by hand, than with the Post Tool.
11. Place the TRINITY into the Docking Bracket



14.3 Battery Hanger

12. Mount the Battery Hanger

NOTE

Ensure that the Battery Hanger is centred on the Top Stage

14.4 Pendulum

13. Mount the Pendulum
Slide the Pendulum assembly onto the rods of the Battery Hanger and centre it under the Center Post and clamp tight.



NOTE

The Clamp Lever of the Pendulum has to be aligned to the front.

NOTE

Ensure that the friction is loose

14. Connect the Pwr Out of the Battery Hanger to the Cam Pwr Out of your Top Stage at the Button of the Trinity.

⚠ CAUTION

There are different Power cables in the package. Always ensure you are using the correct plug fitting to the correct Camera Power Out sockets on the Top Stage.



14.5 Battery Mounts

15.
Slide the 3 Battery Mounts onto the rods of the Battery Hanger.
Up to two mounts in the front and one in the back as shown.

If two batteries mounted on the front, use the extra rod to mount the two batteries onto the rods in the front **V shaped** as shown.

NOTE

The clamp lever of the right battery mount has to be close to the knurled fore and aft adjustment knob without touching the knob.



14.6 Pendulum

NOTE

After mounting the front batteries, you have to check if the Pendulum has enough clearance to pass on the right front Battery.
If the Pendulum cannot clear the batteries move both front batteries to the front ends of the rods using the knurled adjustment Knob at the back of the battery hanger.

NOTE

Make sure that the front left battery mount is NOT clamped onto the knurled knob before adjusting.
If there is still insufficient clearance you can open the clamp of the Pendulum carrier and move the pendulum carrier slightly to the back.

16.
Connect the batteries to the **Battery In** Power sockets at both sides of the Battery Hanger.



14.7 Joystick / Monitor Bracket

17.
Mount the Joystick / Monitor Bracket

NOTE

Due to the fact that there are small differences and tolerances in the Gimbal handle diameter, you may need to place some tape around the Gimbal handle to secure the mount.

NOTE

The shown position is the best starting point. Keep the clamp section close to the curved part of the handle, this will give enough clearance to ensure that the base of the TRINITY will not hit the monitor accidentally.

18.
Mount the Monitor

19.
Connect the Joystick BNC Cable

NOTE

Make sure that the connectors are always pointing away from the TRINITY Joystick / Monitor Mount.
Connect the straight 5pin LEMO 0B with the ARRI Starlight Power connector.



20.
Connect the Joystick Cable

CAUTION

Ensure that Cam Pwr and STAB Pwr are switched OFF.



21.
Connect the Monitor Power Cable
22.
Secure the cables with the Velcro strap

14.8 Height adjustment TRINITY Head

23.
Check the height of the Ring
23.
If needed, open all 4 screws on both sides
25.
Secure one side while loosening the screws at the opposite side
26.
Move the Ring carefully up or down
27.
NOTE
For the MINI the lowest position is the correct one



15 Camera Preparation

28.
Mount the one of the **SAM** plates or one of the standard plates to the camera.
29.
Ensure you got the right lens.
30.
Ensure you got the requires accessories
31.
Mount the 15 or 19 mm rods
32.
The Motors maybe be mounted later



SAM-1 Stabilizer Adapter Mount for ALEXA



SAM-2 Stabilizer Adapter Mount for ALEXA Mini



SAM-3 Stabilizer Adapter Mount for AMIRA

15.1 Preparing the Quick Lock Camera Mount

33.
The TRINITY comes with a Quick Lock mounting mechanism. It offers one clamp mechanism for the Camera Dovetail Plate located at the right back of the mount and a side to side adjustment located at the front of the mount.

⚠ CAUTION

Ensure that Cam Pwr and STAB Pwr are switched OFF.

⚠ DANGER

Under no circumstances push fingers or other limbs in between the TRINITY Yoke and the inner ring, as this can result in injury.

NOTE

Check that the Side to Side is **centred** and the clamp is **locked**.

15.2 Mounting the Camera

34.
To open the fore and aft Quick Lock Camera Mount clamp mechanism, loosen the Clamp Lever on the right side at the back of the Quick Lock Camera Mount. After you have opened the clamp mechanism you can slide in the camera dovetail plate inside the ring.

35.
Place the camera carefully into the Ring

NOTE

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

15.3 Balancing the Camera

36.
Move the camera fore and aft, until it reaches its **COG** (center of gravity)

NOTE

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

NOTE

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

NOTE

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

NOTE

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



37.
Lock the Fore and Aft clamp

NOTE

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

38.
Secure the ring before proceeding to the next steps

39.
Add all cables, Motors and accessories

40.
Open the Fore and Aft clamp

41.
Move the camera again Fore or Aft, until the camera reaches again its COG



42.
Lock the Fore and Aft clamp

NOTE

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

16 Balancing

43.
Ensure that all screws are tight!

- 44.

NOTICE

Ensure that the Top Stage and the Pendulum are in neutral position.

If the counterweight is offset then the following balance procedure will NOT deliver the required results.

45.
Switch **ON** Cam Power and Stab Pwr.



46.
Check that the System is in **Profile 1**

NOTE

If not, press the **Mode Button** once to confirm you are in **Profile 1**

```
Profile 1
Battery 15.20 V
R-Tilt Off
R-Pan Off
Roll -185
```

47.
Adjust the Horizon of the camera using the blue Roll Knob.

CAUTION

Ensure that the Camera is horizontal.

If the camera / roll axis is offset then the following balance procedure will NOT deliver the required results.



48.
Place the Gimbal onto the Balance pin.

NOTE

Do not extend the balance rod too far out!



16.1 Neutral Drop Down

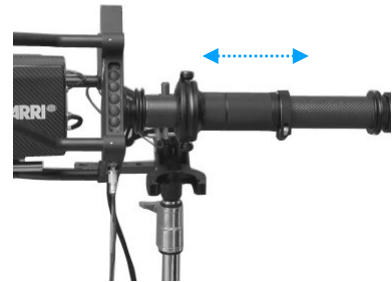
49.
Bring the TRINITY Rig into the horizontal position

CAUTION

Check that the power and video cables have enough clearance to pass the yoke of the TRINITY.
If needed tape or strap the cable to the camera body.



50.
Telescope the Center Post and move the Gimbal, to reach Neutral Dropdown.



NOTE

Turn the Fine Trim adjustment on the post to the middle position



51.
Use the **Fine Trim** for the final adjustment, until the Rig achieves perfectly horizontal alignment

NOTE

Try to keep the Center Post as short as possible. A short Center Post will give the TRINITY maximum of agility.



16.2 Rough Fore and Aft adjustment

52.
Bring the TRINITY Rig back into the vertical position

53.
A fore and aft movement of the rig becomes visible

54.
Use the Fore / Aft adjustment of the Battery Hanger to move the **back** battery mount, until the TRINITY rig becomes vertically straight.



16.3 Rough Side to Side adjustment

55.
Bring the TRINITY Rig into the vertical position

56.
A sideways movement becomes visible

57.
The Camera needs a little Side to Side adjustment

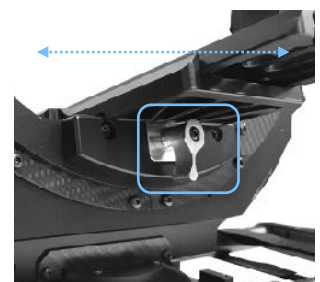
58.
Side to Side adjustment.
At the front of the QL mount, you will find the clamp mechanism for the Side to Side adjustment.
You should always try to keep the camera setup as symmetrical as possible.
But if the camera is still too heavy on any side, you should use the side to side adjustment, to get the camera sidewise in perfect COG.



⚠ CAUTION

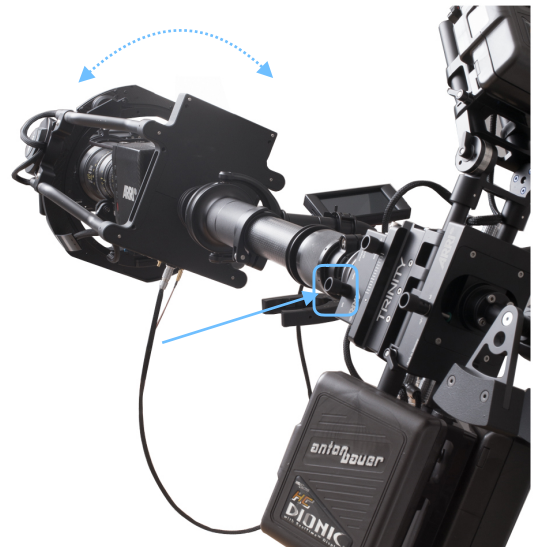
Make sure that the clamp mechanism is fully tighten after the fore and aft adjustment. A slightly loose clamp will produce vibrations.

59.
Open the **Side to Side clamp**
Move the camera carefully sidewise, until the system becomes straight.



16.4 Rotation adjustment

60.
Bring the TRINITY Rig back into the horizontal position
61.
Check one more time that there is **no Drop Down**
62.
A sideways rotation of the head will becomes visible.
You will see that the rig will now have a tendency to roll to one side or the other while in a horizontal position.



63.
Now use the **Left and Right adjustment** of the **Top Stage** and bring the base of the TRINITY into a horizontal position and to remove the sideways rotation.

64.
When the TRINITY head stays in the horizontal position, roll the Center Post 5° to any side and let it roll back into the horizontal position.
Do the same starting from the other side.
Observe any difference in the speed of the correction from the right to the left.



16.5 Fine adjustment Left and Right

65.
Bring the TRINITY Rig again into the vertical position
66.
A slight sidewise movement of the rig becomes visible



67.
Use the **Side to Side adjustment** of the **Pendulum only** to bring the TRINITY rig into a straight position

16.6 Fine adjustment Rotation

68. Bring the TRINITY Rig back into the horizontal position

69. Maybe a sideways rotation of the head becomes visible

70. Use again the Side to Side adjustment of the Top Stage to remove of the sideways rotation

71. When the TRINITY head stays in the horizontal position, roll the Center Post 5° to any side and let it roll back in the horizontal position



16.7 Checking Fore and Aft adjustment

72. Bring the TRINITY Rig back into the vertical position

73. Maybe a fore and aft movement of the rig becomes visible

74. Use the **Fore / Aft adjustment** of the **Battery Hanger** to move the back battery mount, until the TRINITY rig becomes vertical straight.



16.8 Final Check

75. Bring the TRINITY Rig one more time into the horizontal position

76. Maybe a sideways rotation of the head becomes visible

77. Use again the Side to Side adjustment of the Top Stage to remove of the sideways rotation

78. Bring the TRINITY Rig again into the vertical position

79. Maybe a slight sidewise movement of the rig becomes visible

80. Use the **Side to Side adjustment** of the **Pendulum only** to bring the TRINITY rig into a straight position



17 On-Board Interface TRINITY

The following functions can be operated directly on the TRINITY:

- Adjusting horizon
- Mode selection (1-5)
- Changing joystick direction
- Adding a wireless remote
- Restoring setting
- Restoring sensors
- Angle information
- Temperature information
- Voltage information

17.1 Changing Profiles

Operated directly on the TRINITY

By pressing **MODE** one time, you will recall profile number ONE.

By pressing **MODE** twice, you will recall profile number TWO.

And so on...

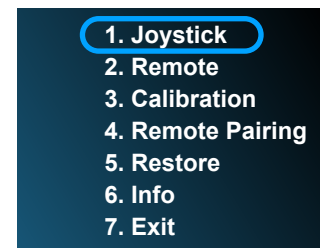
NOTE

You can do the same profile changes with the **Mode Knob** at the **Joystick**.

17.2 Changing the Joystick Direction

Operated directly on the TRINITY

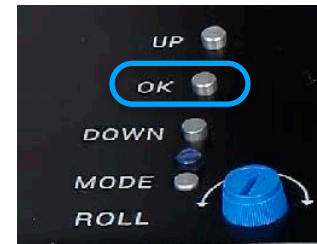
- Press **OK** until Joystick is displayed
- Press **OK**
- Select: Normal - Inverted - Off by pressing **UP** or **DOWN**
- Press **OK** to confirm your selection



17.3 Pairing the Wireless Remote Control

Operated directly on the TRINITY

- First switch Off the Remote Control!
- Press **OK**
- Press Down until you see **Remote Pairing**
- Press **OK**
- Now the MAXIMA will start a 10 sec. count down.
- **After 5 sec.** the MAXIMA will beep.
- **Switch ON** the wireless Remote Control.
- Now the Remote will be paired



1. Joystick
2. Remote
3. Calibration
4. Remote Pairing
5. Restore
6. Info
7. Exit

17.4 Restore Settings

NOTE

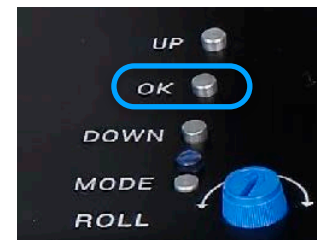
This could be helpful when you will work with a rented TRINITY, or if you want to restore the system to the factory settings.

- Press the **OK** key
- Press DOWN until **Restore** is displayed
- Press **OK** to confirm
- Press DOWN until **Setting** is displayed
- Press **OK** to confirm

⚠ CAUTION

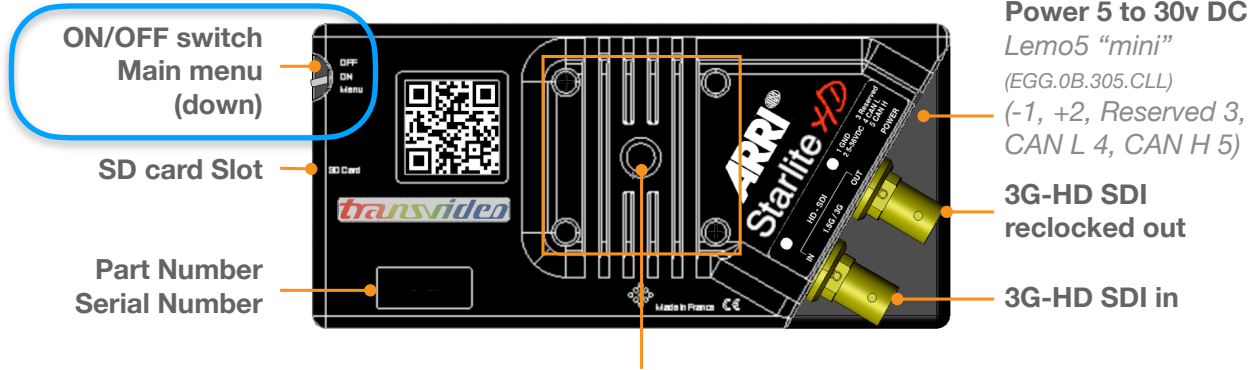
Do not touch or move the TRINITY while you restore the Setting!

Wait until the TRINITY is back in operation.



1. Joystick
2. Remote
3. Calibration
4. Remote Pairing
5. Restore
6. Info
7. Exit

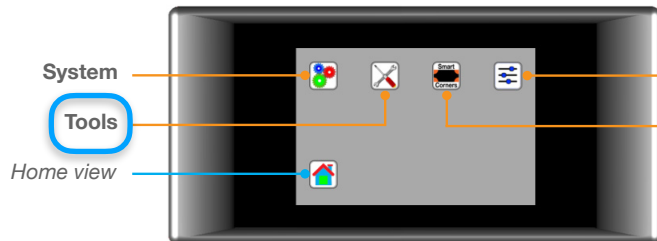
17.5 ARRI Starlight Monitor



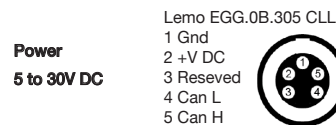
Transvideo mounting system with 1/4-20 thread
To attach the monitor from the back - To mount a battery adapter

17.6 Flipping the image both axes

- Switch the monitor **ON**
- Press down on the on/off switch to reach the menu
- Touch the Tool icon to reach the next level of menus.
- Touch the Reversed Mode button to flip the image on both axes



17.7 Power In connector pin out



18 Factory Presets

Profile	Motor Power	Tilt	Pan	Feels	Good for
1	35	Fully Stabilized	regular		TRINITY Mode
2	35	<i>Follow</i>	regular	Very direct	Classic Steadicam™ feel
3	35	Fully Stabilized	goofy		TRINITY Mode
4	35	<i>Follow</i>	goofy	Very direct	Classic Steadicam™ feel
5	35	Follow	regular	Very direct	Roll and Tilt is in Follow Mode

The 5 Default User Presets (factory settings)

The TRINITY is supplied with five Default User Presets, which are programmed for camera setups up to 10 Kg / 22 lb.

⚠ CAUTION

To be able to change any of this adjustment, you need to install the FoMa Control software and you need to read the additional GUI User Manual.

NOTE

The manuals is available on the USB stick and on the ARRI CSS web page in the download area.

19 Trouble shooting

20.1 Service

For Service and Remote Access we will need to know the firmware version and serial number.

Firmware version and serial number can be find here:

- Press the **OK**
- Press **OK**
- Press **DOWN** until **Info** is displayed
- Press **OK** to confirm
- Now you can see the required information

20.2 Restore Settings

NOTE

This could be helpful when you will work with a rented TRINITY, or if you want to restore the system to the factory settings.

- Press the **OK** key
- Press **DOWN** until **Restore** is displayed
- Press **OK** to confirm
- Press **DOWN** until **Setting** is displayed
- Press **OK** to confirm

⚠ CAUTION

Do not touch or move the TRINITY while you restore the Setting! Wait until the TRINITY is back in operation.

20.3 Restore Sensors

If the TRINITY is hard to control or having trouble holding its position, it could be helpful to reset the sensors.

- Press the **OK** key
- Press **DOWN** until **Restore** is displayed
- Press **OK** to confirm
- Press **DOWN** until **Sensors** is displayed
- Press **OK** to confirm

⚠ CAUTION

Do not touch or move the TRINITY while you restore the Setting! Wait until the TRINITY is back in operation.

20.4 Remote access

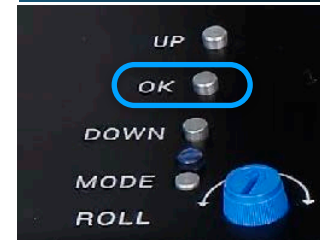
The service team can remotely access the TRINITY. To enable us to access your TRINITY, you need to install the **TeamViewer** software on your PC first. <https://www.teamviewer.com>

Then you need to contact the ARRI service

NOTE

You will need a stable internet connection.

1. Joystick
2. Remote
3. Calibration
4. Remote Pairing
5. Restore
6. Info
7. Exit



1. Joystick
2. Remote
3. Calibration
4. Remote Pairing
5. Restore
6. Info
7. Exit



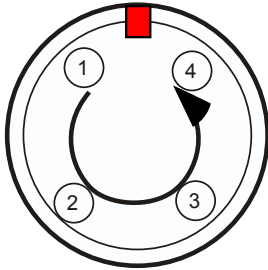
1. Joystick
2. Remote
3. Calibration
4. Remote Pairing
5. Restore
6. Info
7. Exit



TeamViewer

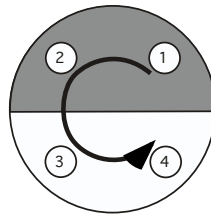
20 Pin Out

Camera Power Out



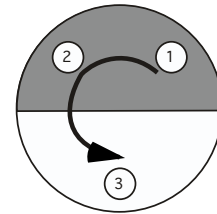
Lemo 1B 304
 Pin 1 12V plus
 Pin 2 Ground
 Pin 3 Ground
 Pin 4 12V plus

Focus Power Out



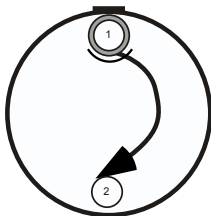
Lemo 0S 304
 Pin 1 12V plus
 Pin 2 NC
 Pin 3 Ground
 Pin 4 NC

Aux Power / Tally Out



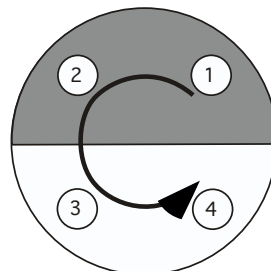
Lemo 0S 303
 Pin 1 12V plus
 Pin 2 Ground
 Pin 3 Tally

Power Out



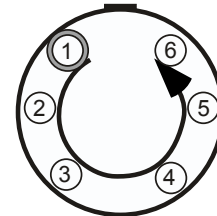
Lemo 0B 304
 Pin 1 Ground
 Pin 2 12V plus

Ext. Power In



Lemo 1S 304
 Pin 1 12V plus
 Pin 2 Ground
 Pin 3 Ground
 Pin 4 12V plus

Ext / Control



Lemo 0B 306
 Pin 1 Can Low ARRI
 Pin 2 Can High ARRI
 Pin 3 Can Low
 Pin 4 Can High
 Pin 5 12V plus
 Pin 6 Ground

ISO 9001:2009

Hard- und Software Entwicklung

Foltyn Industriesystemelektronik GmbH

Foltyn Industriesystemelektronik GmbH • Strengenbergstraße 24 • D-90607 Rückersdorf



Declaration of Conformity

Product Type	Camera Stabilizer Systems
Brand Name	MAXIMA
Product Name	SMX20 / SMX30 (maybe followed by suffixes)
Address	Foltyn Industriesystemelektronik GmbH Strengenbergstraße 24 D-90607 Rückersdorf

The product complies with the requirements of the following European directives:

2004/108/EG

Directive of the European Parliament and of the council on the approximation of the Laws of the Member States relating to electromagnetic compatibility.

Compliance was proved by the application of the following standards:

EN 55011 : 2009 +A1 : 2010
EN 55022 : 2010 +AC : 2011
EN 61000-6-2 : 2005 +AC : 2005

2011/65/EU

Directive of the European Parliament and of the council on the restriction of the use certain hazardous substances in electrical and electronic equipment.

Compliance was proved by the application of the following standards:

EN 50581 : 2012

Year of the first marking: **2015**

Rückersdorf, 2015-04-20

Roman Foltyn
CEO



Certification Test Report

**FCC ID: ONTJETIR5US
IC: 10491A-JETIR5US**

**FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-210**

ACS Report Number: 13.2001.W06.1B

**Manufacturer: Esprit Model
Model: JETIR5LUS**

**Test Begin Date: January 3, 2013
Test End Date: February 9, 2013**

Report Issue Date: May 2, 2013



FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER AT-1533

This report must not be used by the client to claim product certification, approval, or endorsement by ACLASS, ANSI, or any agency of the Federal Government.

Project Manager:

A handwritten signature in black ink, appearing to read 'Thierry Jean-Charles'.

**Thierry Jean-Charles
EMC Engineer
Advanced Compliance Solutions, Inc.**

Reviewed by:

A handwritten signature in black ink, appearing to read 'Kirby Munroe'.

**Kirby Munroe
Director, Wireless Certifications
Advanced Compliance Solutions, Inc.**

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