TRINITY

USER MANUAL

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Imprint

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<tr>
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Scope

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

Disclaimer

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respective instructions.
Otherwise the customer must contact ARRI before using the product.
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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

- TRINITY Head
- Human Interface
- Adaptive Counterweight
- Motors
- Height adjustment
- Onboard interface
- Docking Ring
- Power & Function sockets
- Camera mount
- Connectors
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 intended to be used 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 has 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.

<table>
<thead>
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<th>Warning</th>
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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.

<table>
<thead>
<tr>
<th>Warning</th>
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<tbody>
<tr>
<td>Ensure that Cam Pwr and STAB Pwr are switched OFF during mounting the camera.</td>
</tr>
</tbody>
</table>
2. 4 TRINITY connectors / Base Plate right side

![TRINITY connectors / Base Plate right side](image)

**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.
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” / ø 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

- 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.

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

**Tally**
The external Tally system can be connected here.

**12V Pwr**
LEMO 2pin 0B

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

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

**Cam Power / Cine / 12V HiCap / XLR** K2.0010469
**Cam Power / 24V ARRI** K2.0010471

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8.2 Connectors on the rear

**12V HiCap Camera Pwr out**
This high capacity power out is 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**
Use only dedicated HD SDI BNC cables!

**Video In**
SD Video

---

8.3 Functions

**Safety Pin**

**Clamp Block**

**Safety Latch**

**Lock Lever**

**Focus Bracket mounting threads**

**Docking Ring**

**Bubble**

**Fore and Aft adjustment**

**Side to Side adjustment**

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⚠️ **Warning**

Only use original ARRI made power and data cables.
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.

<table>
<thead>
<tr>
<th>Warning</th>
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<tbody>
<tr>
<td>Please be careful when carrying out the operation, as the connection is very delicate.</td>
</tr>
<tr>
<td>• Place the pins of post tool into the pinholes of the docking ring.</td>
</tr>
<tr>
<td>• By slowly turning the post tool to the left, you can loosen the Docking Ring.</td>
</tr>
<tr>
<td>• Remove the Post Tool and finally loosen the Docking Rings using your fingers.</td>
</tr>
<tr>
<td>• Lift the Top Stage carefully and unplug the LEMO Connector.</td>
</tr>
</tbody>
</table>

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 ø 15,9 mm spigot. Put the docking bracket on the stand pin and tighten the lateral stand lock screw accurately.

<table>
<thead>
<tr>
<th>CAUTION</th>
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<tbody>
<tr>
<td>• Use only appropriate steel stands, such as a C-Stand or Low Boy and prevent the stand from tipping by using a sandbag.</td>
</tr>
<tr>
<td>• Make sure the stand is flush with the surface.</td>
</tr>
<tr>
<td>• Make sure that the spigot clamp screw is fully tightened.</td>
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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.

<table>
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<tr>
<th>CAUTION</th>
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<tr>
<td>Make sure you lock the Balance Rod after moving it into the correct position.</td>
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</table>

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.

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.

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
K2.0014215

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

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
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 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.

⚠️ 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.
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**

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

<table>
<thead>
<tr>
<th><strong>CAUTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

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 Paring 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

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.
17.5 ARRI Starlight Monitor

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**

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

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 Troubleshooting

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 found 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](https://www.teamviewer.com)

Then you need to contact the ARRI service

**NOTE**
You will need a stable internet connection.
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
Declaration of Conformity

Product Type: Camera Stabilizer Systems
Brand Name: MAXIMA
Product Name: SMX20 / SMX30
Address: Foltyn Industriesystemelektronik GmbH
Strengenbergstraße 24
D-90607 Rückersdorf

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

2004/108/EG

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

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, ANSB, or any agency of the Federal Government.

Project Manager:  Reviewed by:

Thierry Jean-Charles                 Kirby Munroe
EMC Engineer                      Director, Wireless Certifications
Advanced Compliance Solutions, Inc.  Advanced Compliance Solutions, Inc.

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This report contains 43 pages

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