VS/AR Demo Kit Setup

Setting up the Rails

When the Furio dolly moves along the rails, it will send tracking data to the UX Driver in order to drive the XPression virtual camera. We want the tracking value for the X-axis (axis parallel to the rails) to increase when the dolly is moving toward the right hand side when facing the set. To do this, the rails need to be installed with the wiredraw encoder box on the left hand side of the rails as shown in the pictures below.


To create optimal parallax (change in point of view) during moves, the rails should always be placed at an angle, and not parallel, to the set.

1. Rail Assembly

1. Insert the aluminum couplings into one end of each section of rails, alternating between ends.

2. Attach the open ends of the rails to the coupled ends of the preceding sections.

3. Attach and tighten the turnbuckles. Do not force the turnbuckles.

4. Attach the wiredraw encoder box and end bumpers to the left end (when facing the set) of the rails, using the aluminum coupling parts and the turnbuckles.


2. Rail Leveling

A studio floor is never perfectly flat. To create nice and smooth moves with the dolly on the rails, it is important to invest the necessary time to level the rails as perfect as possible. Non-level rails will result in an unstable picture when traveling. Rails must be levelled before installing the dolly.
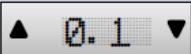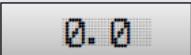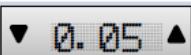
1. Find the highest point on the track. Begin levelling from the highest point, so that the lower points can be raised. Move along the track with the spirit level and analyze the profile of the track using the given digital information.

To determine the track profile using the digital information, start from the junction between the short piece of rail attached to the wiredraw box and the first rail of your track. This will be your *profile zero* point. From that zero point, move from rail center to rail center and add or remove the value given by the spirit level. Note that the black arrows on the digital screen of the spirit level indicate the direction to follow to correct the leveling.
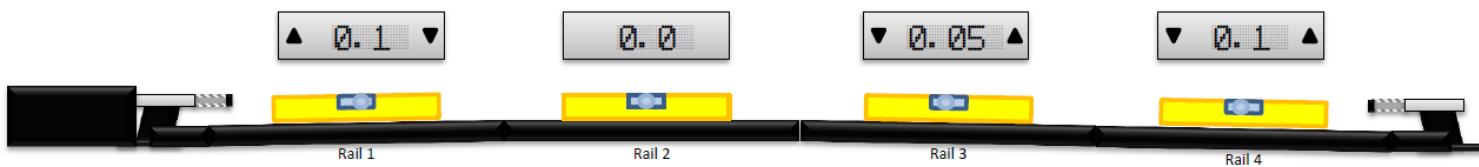
Example:

|	Spirit level	Explanation	Total from « zero »
Rail 1	▲ 0.1 ▼	The right side of this rail is 0.1 degree higher than the left side. To get it leveled we will have to raise the left part or lower the right part as shown by the arrows on the digital screen.	+ 0.1 (0 + 0.1)
Rail 2	0.0	This rail is leveled. If this rail is at the highest point it will stay like it is. If not, it will have to be raised at both end to reach the correct level.	+ 0.1 (no change)
Rail 3	▼ 0.05 ▲	This rail is going down 0.05 degree. To get it leveled, as the previous rail was higher, we can only raise the right side.	+ 0.05 (0.1 – 0.05)
Rail 4	▼ 0.1 ▲	This rail is going down 0.1 degree. To get it leveled, as the previous rail was higher, we can only raise the right side.	- 0.05 (0.05 – 0.1)

In this case, we have two high points, and the entire set of rails will have to be levelled from these two points.
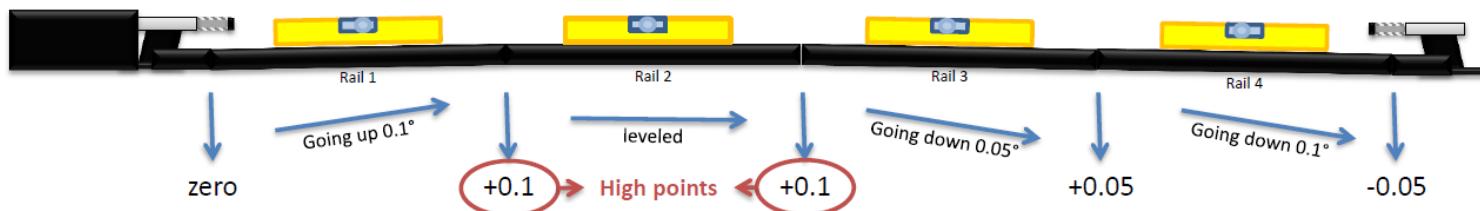
The leveling is done by turning the headless screws on the rails. There are four points of leveling per rail.

To correct the leveling, start with the highest point(s) and follow the rails in both directions. Remember that the rails must be leveled along both the length and width.

In the above example, here is the correct order to follow when levelling the rails.
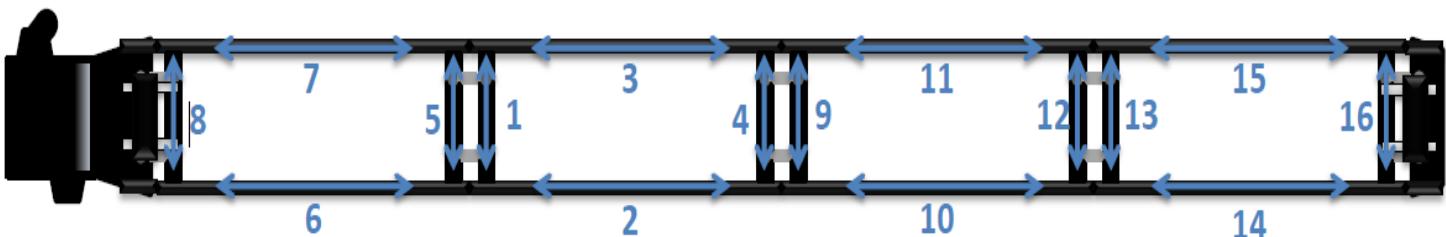
For best results, you should periodically check on previously levelled sections throughout the set-up process, to ensure that those sections haven't become uneven again as you level the other sections. Once you have verified that all of the rails are level, you can begin installing the Furio, being careful not to move or hit the rails as the levelling may need to be readjusted.

3. Furio Assembly

1. The dolly cannot be laid directly on the floor; it has to be on rails at all times. When removing the dolly from its flight case, place it directly on the rails with the motorized wheels on the right hand side of the dolly when facing the set (the motorized wheels should be on the opposite side of the rails as the wiredraw box), and ensure that all the wheels are correctly placed on the rails.
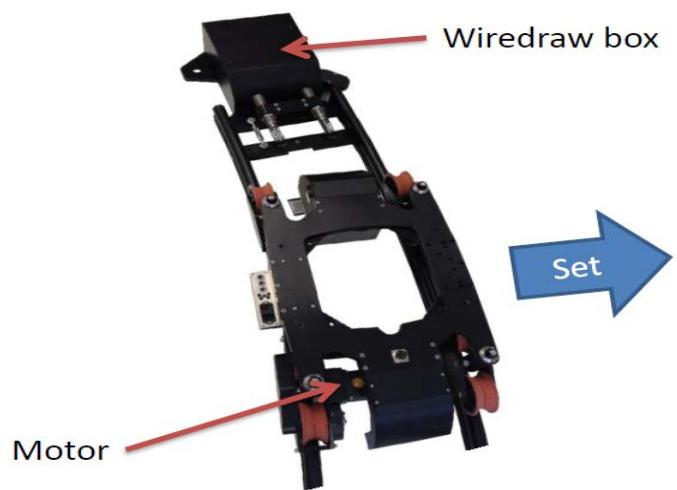
2. Once the dolly is placed on the rails, it is time to install the lift. Always hold the lift by the two handles located on the opposite sides of the lift motor. Lift up the column and engage the shaft of the motor first, then insert the rest of the lift base.
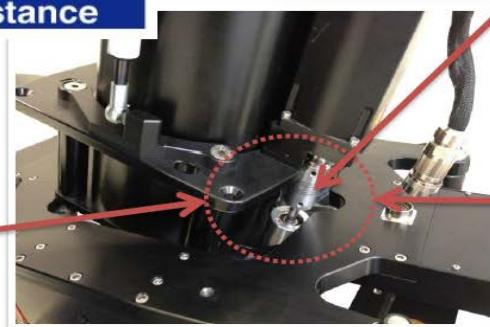
3. Once the lift is in place, fix it to the dolly using the V shaped screws (M10 DIN 7991) on the motor side. For the other side, the lift wiredraw encoder will be attached to the lift using the M10 DIN 912 screws. Note: In order to not lose the screws, please screw them back to the external holes of the dolly top plate as seen on the below pictures, when taking the kit apart.
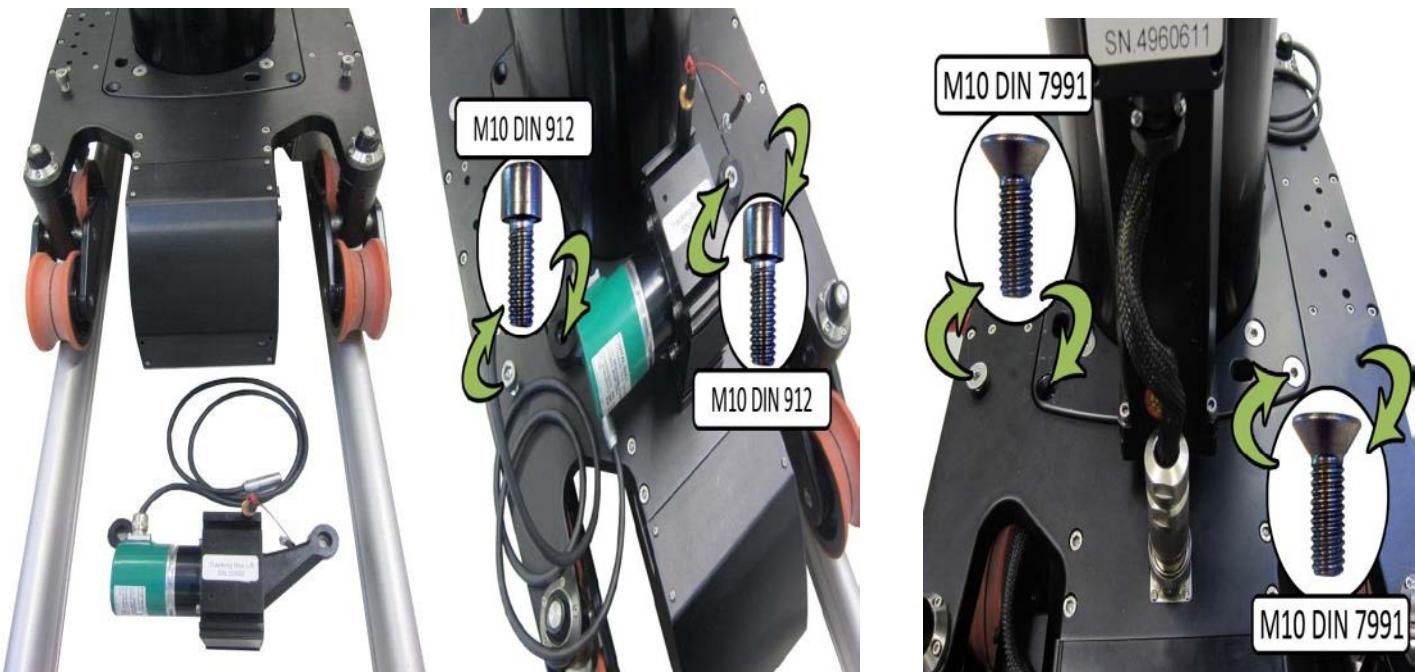
4. Plug the cable of the wiredraw encoder into the first CAN connector on the dolly.
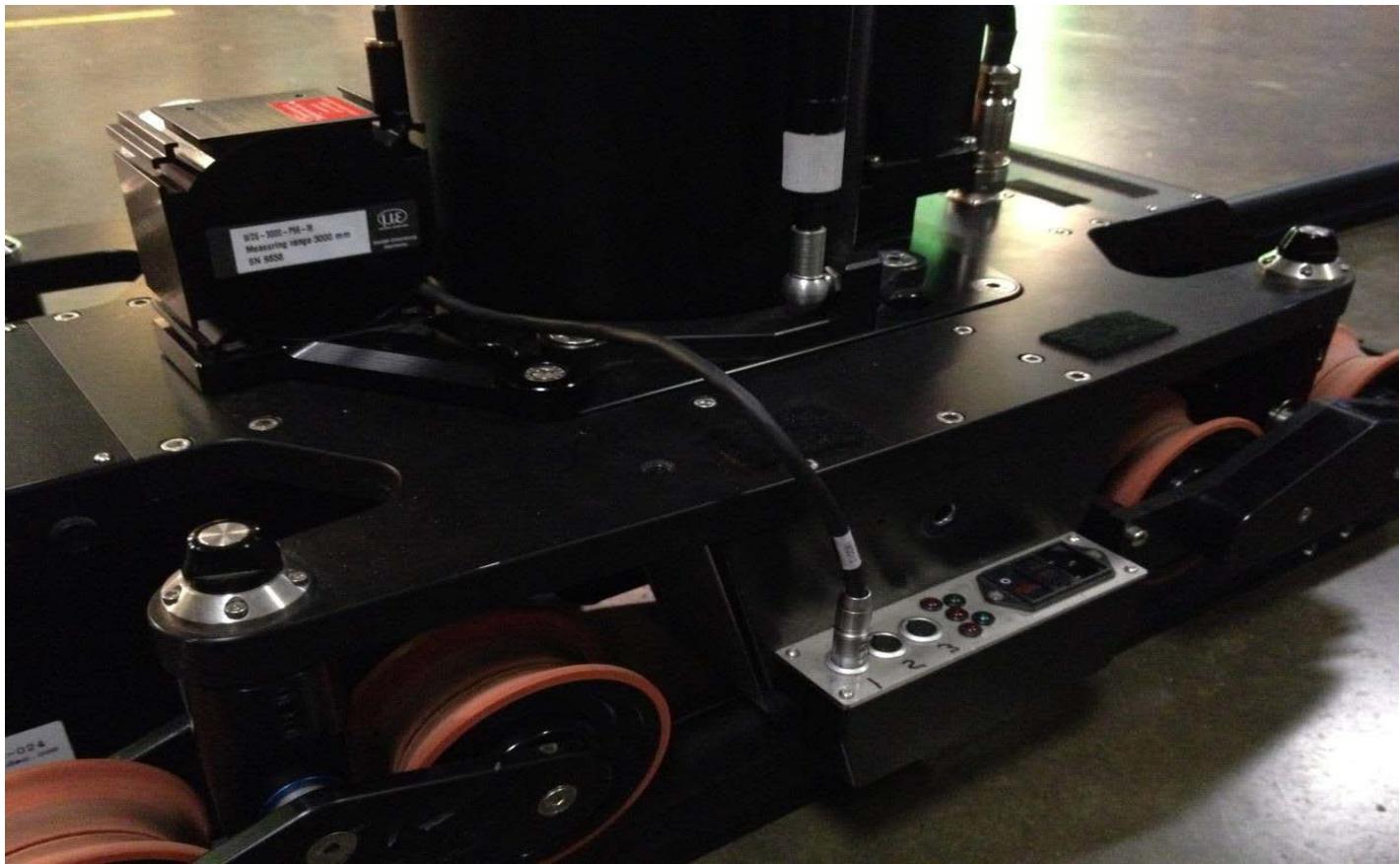
5. Plug the lift motor cable into the dolly and turn the ring to secure it.
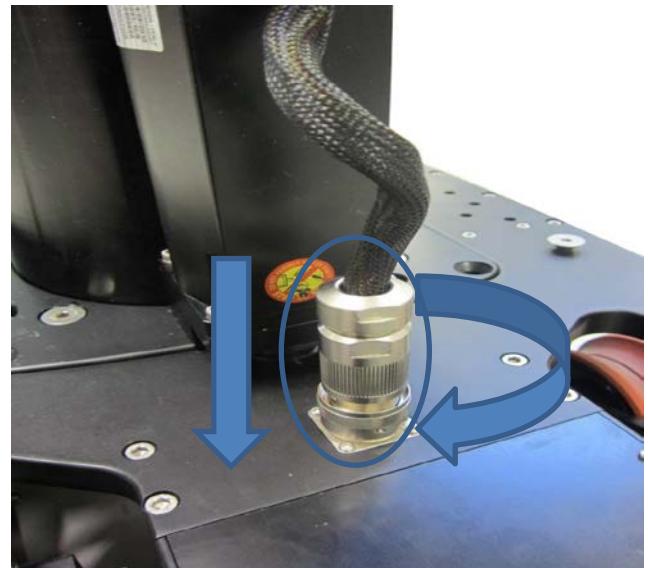
6. Unpack the VROne head and bracket. These are packed separately for easy storage in the flight case. Also in the head flight case is a plastic bag, which contains eight M6 screws and four washers. The head should be assembled before being placed on the dolly.

7. The four screws with washers will be used to attach the bracket to the Tilt axis, while the four screws without washers will attach the side arm to the side of the head. To position the bracket correctly, use the markings from previous assemblies as a guide.

Screws without washers

Screws with washers

8. Attach the head to the lift. The electronic box of the VROne head must be on the right side when facing the set. Align the wiredraw holder, attach the head and the wire.

Electronic box on the right side   Align wiredraw holder and cable   Tight the 3 mounting screws   Fix the wire to the holder
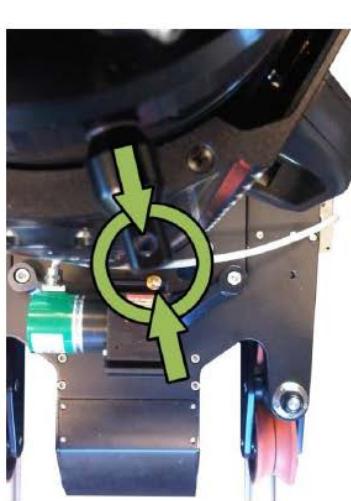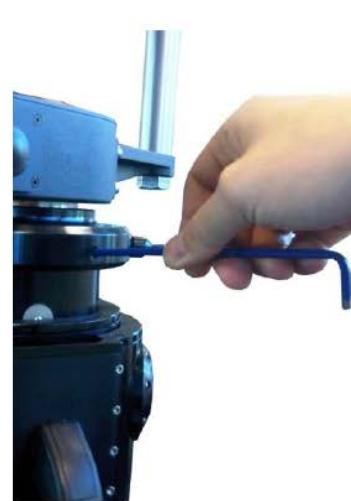
Wiredraw Cable Warning:

Be really careful when handling the wiredraw cables. Never let the cable snap back into the encoder!
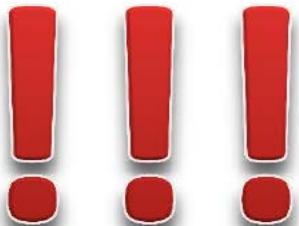
4. Adding the Camera

1. Add the camera using the two wing screws, attach the camera to the VROne head, then plug the lens power cable on the back of the camera into the *Iris* connection. **Note:** the lens should never be removed from the camera. If removed, you will have to adjust the calibration by editing the CCD centering in UX.


2. Connect the lens drive cable to the *Remote 1 / Virtual* plug on the lens handle and connect the VROne lens drive connector.

Lens Drive Connector Label
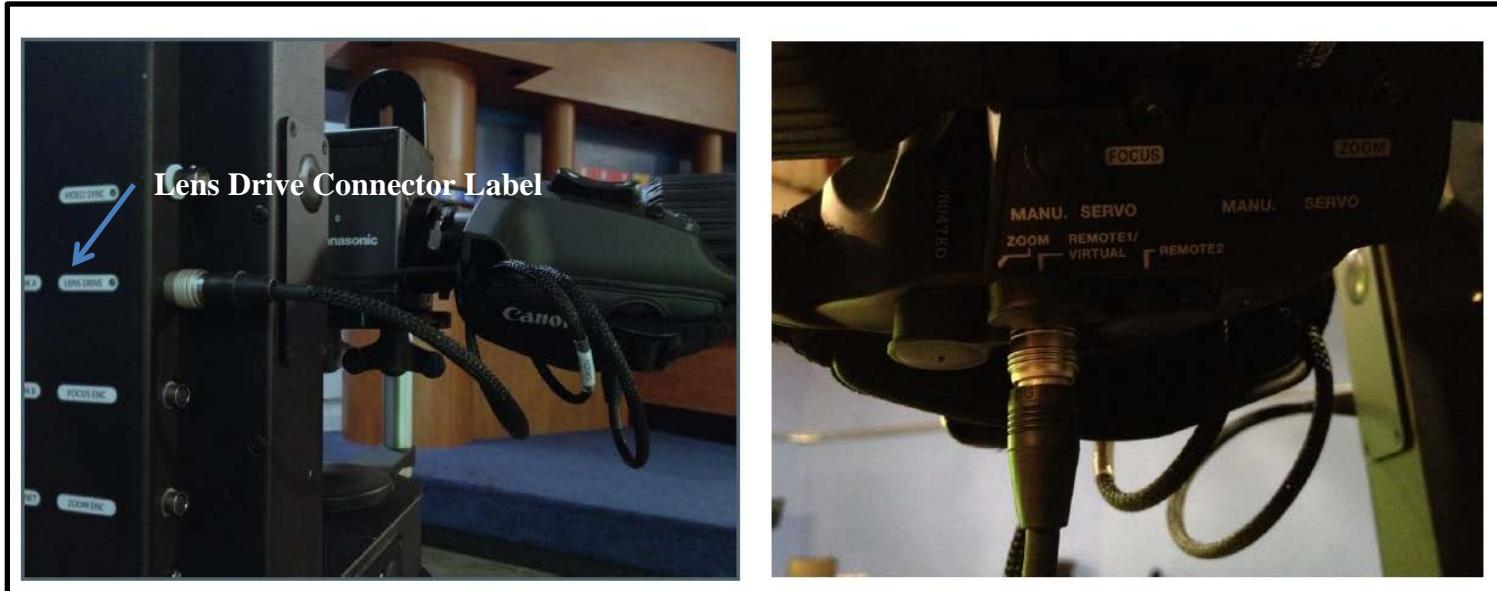
5. Attaching the Wiredraw Encoder Box

Carefully attach the cable from the wiredraw box to the side connector on the dolly. Pushing the dolly as close as possible to the wiredraw box makes this task easier.
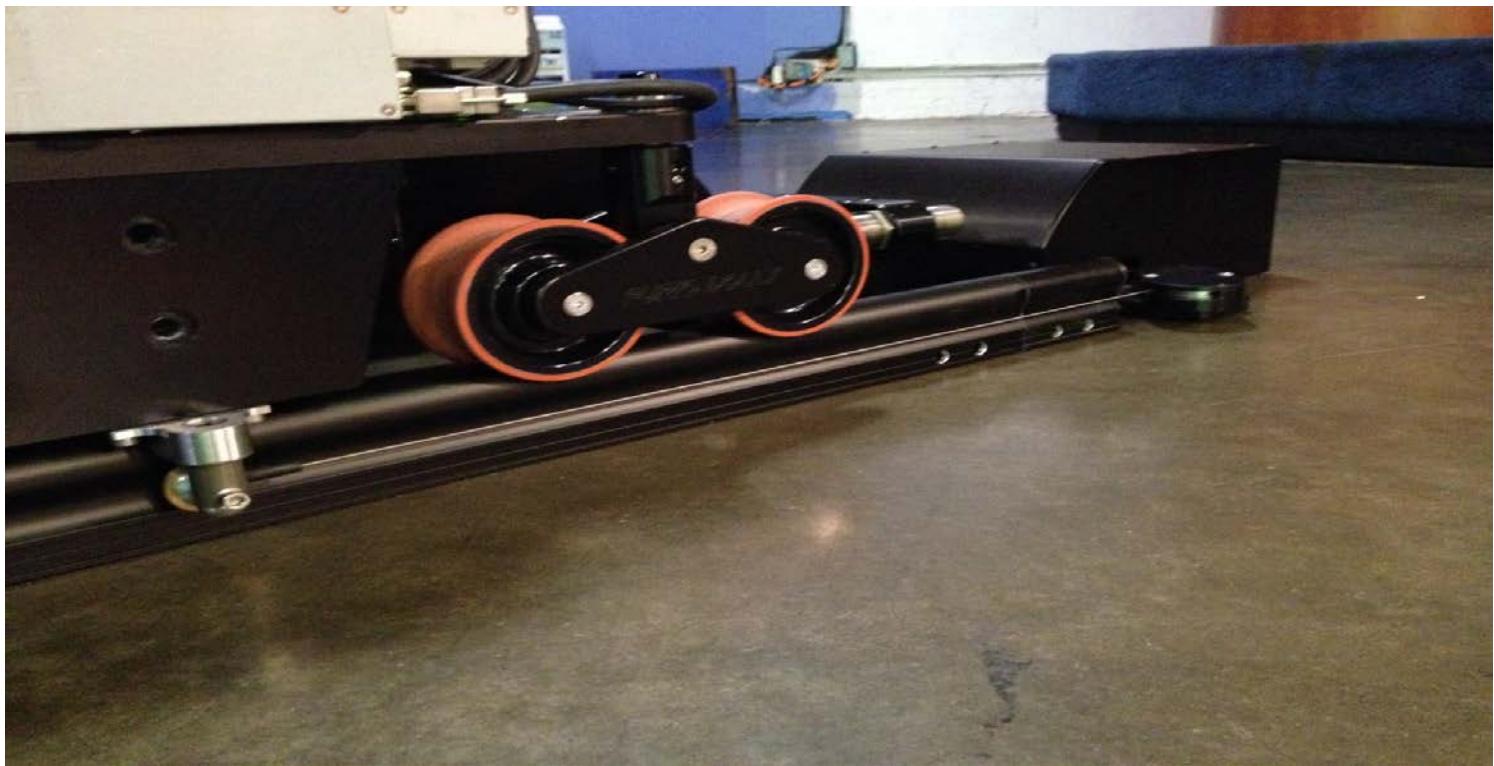

6. Cabling

The cables in this kit are pre-dressed for quick set-up. Please do not remove the dressing when breaking down the kit.

1. Remove the cable sock containing all of the cables from the flight case and spread it out on the floor, along the rails and on the opposite side of the rail wiredraw.

2. Connect the three cables going to the camera.

DB15 to I/F

BNC with label « Camera » to HD SDI OUT

BNC with label « Genlock » to G/L IN
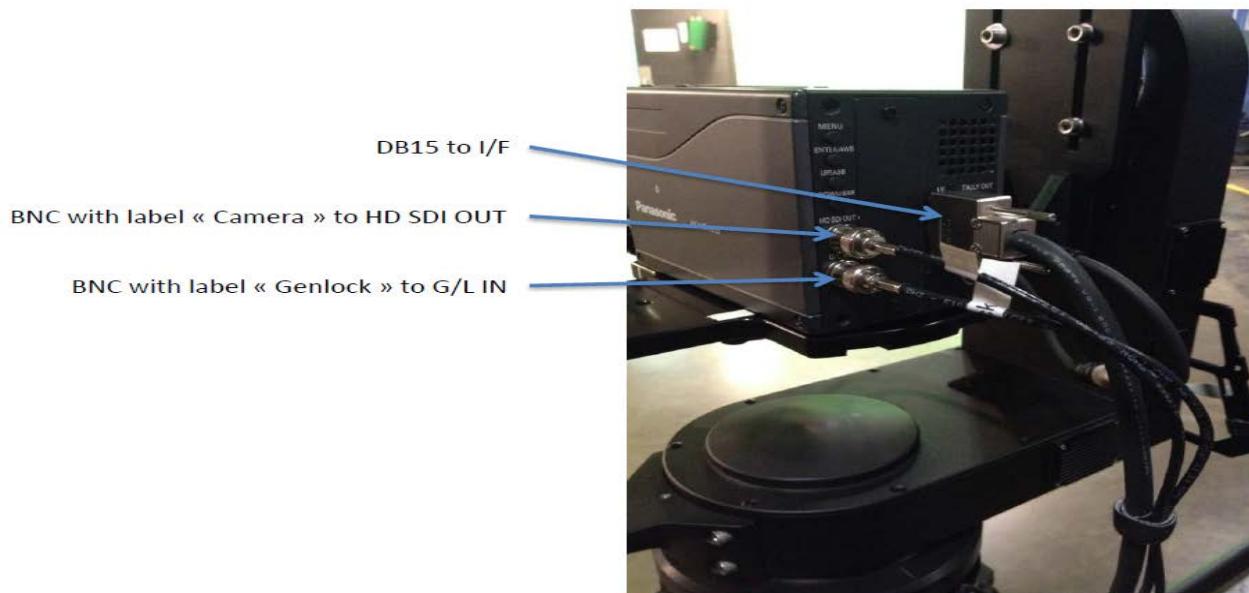
3. Attach the VROne power supply with the Velcro and connect the cables.

4. You will find two Velcro straps attached to the cable sock. Attach the straps to the lift handle just above the lift motor. Please do not remove these straps. They are set at the correct location to provide enough free cable to allow the lift to go all the way up and pan/tilt without breaking any cables.


BNC with label « Genlock » to VIDEO SYNC
(Pass the cable between the camera and the side panel of the bracket)

CAN cable to NETWORK A

Ethernet RJ45 cable to ETHERNET

XLR 3 to POWER 24V

IEC cable to VROne power supply

When all the cables are plugged, attach them all together to the head with the Velcro
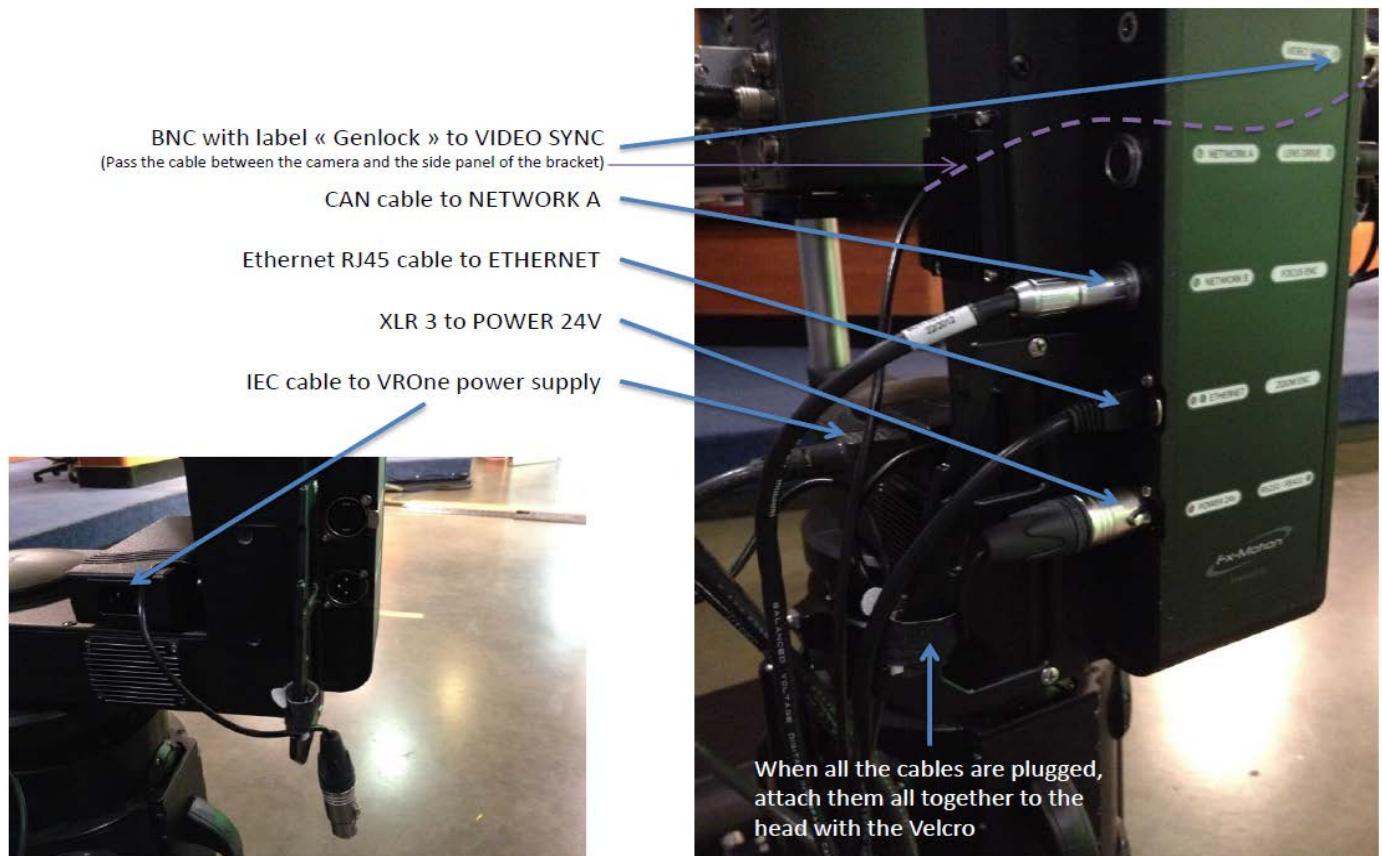
5. Use the Velcro on the back of the power strip to fix the strip to the top of the dolly. Plug the short IEC power cable into the dolly main power input, then attach and tighten the red connector for the cable sock. Try to keep the cabling as neat as possible. Plug the CAN connector coming from the braided cable sleeve into the second CAN connector on the dolly connection panel. The CAN cable coming from the soft cable sock will be connected on the third connector.
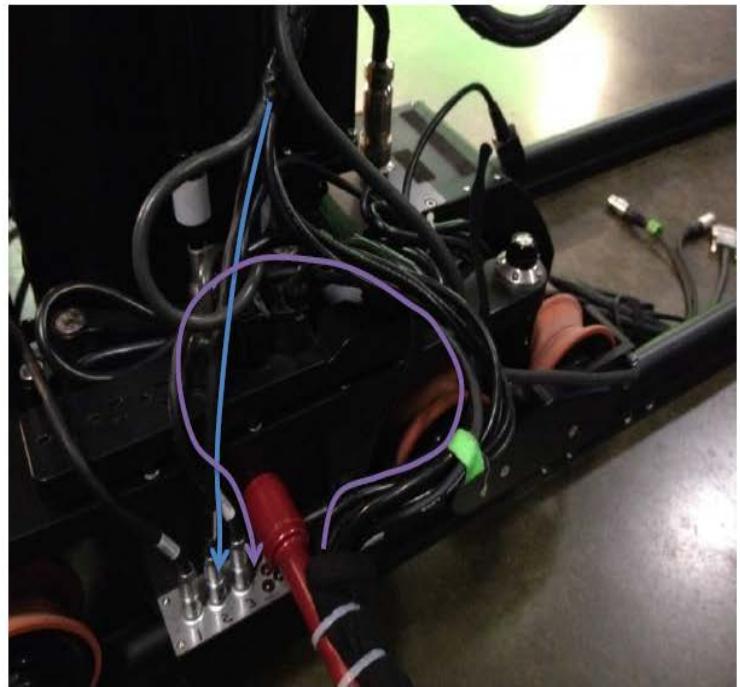
6. Use the Velcro on the back of the camera power supply and camera control unit (CCU), to attach these items to the top of the dolly. The power supply goes on the rear and the CCU goes on the wiredraw side. Plug the last IEC power cord coming from the cable sock and the male XLR connector into the camera power supply. The female XLR and DB15 connectors have to be plugged into the camera control unit
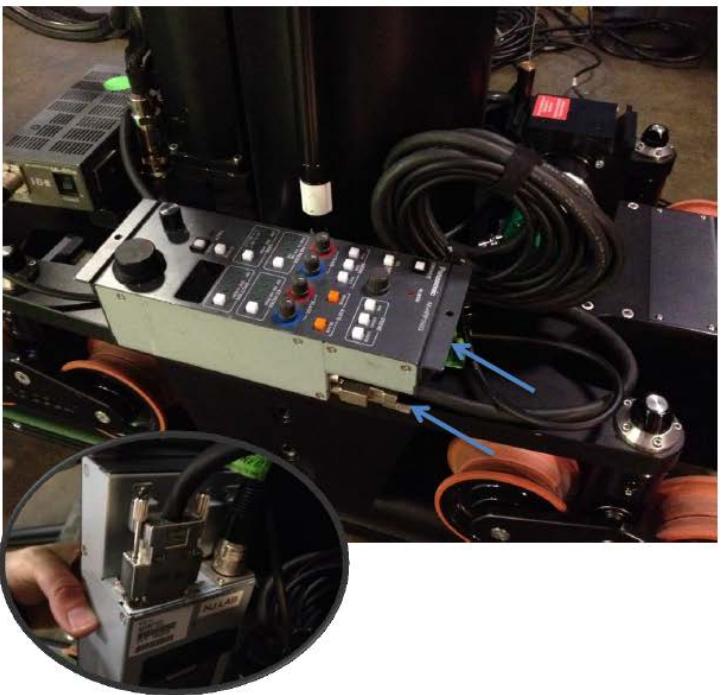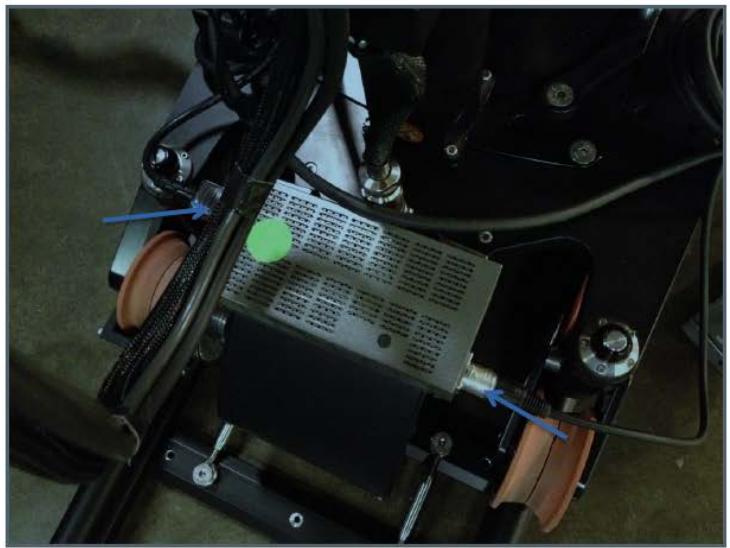
7. From the other end of the cable sock, find and connect the CAN cable in the left connector of the wiredraw box. Plug the network cable to the Ethernet switch and connect the power cord.


8. Open the black case containing the Unreel computer, Smartshell computer and XPression boxes. Plug the main power in. Place the CrossOver Solo switcher on top of the case and plug in its power supply. Connect the three BNC cables coming from the Furio cable sock and the 6 BNC cables to the switcher as per the diagram below.

Cables from Furio   Recorder   SDI Monitors   Customer live feed
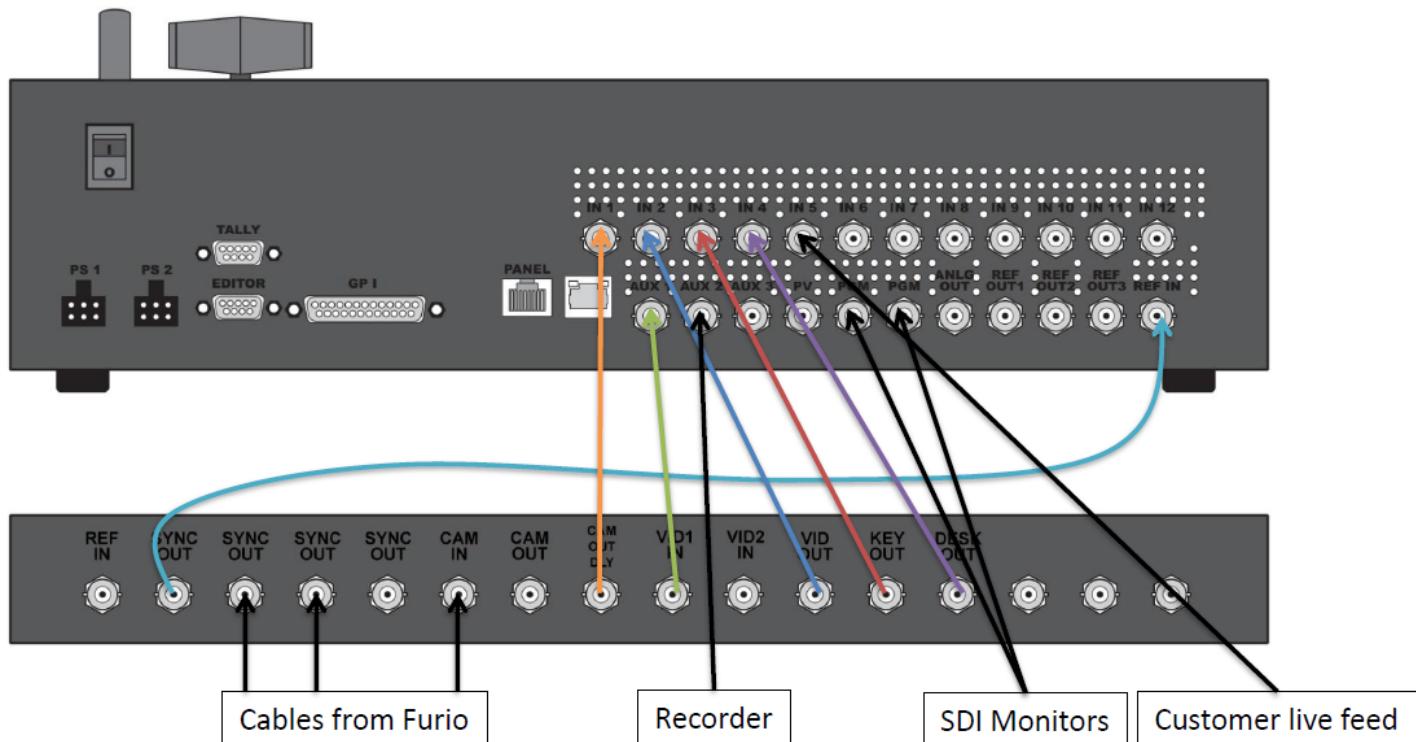
9. Connect the power supply to the Furio joystick and connect the joystick to the control PC using the USB cable.

10. Connect the keyboard, mouse and screen to the Unreel PC and the keyboard, mouse and screen to the Smartshell PC.

In the event that you are not able to use SDI monitors, you will need to use SDI to HDMI converters to send the PGM output to the monitors or HDMI TV.
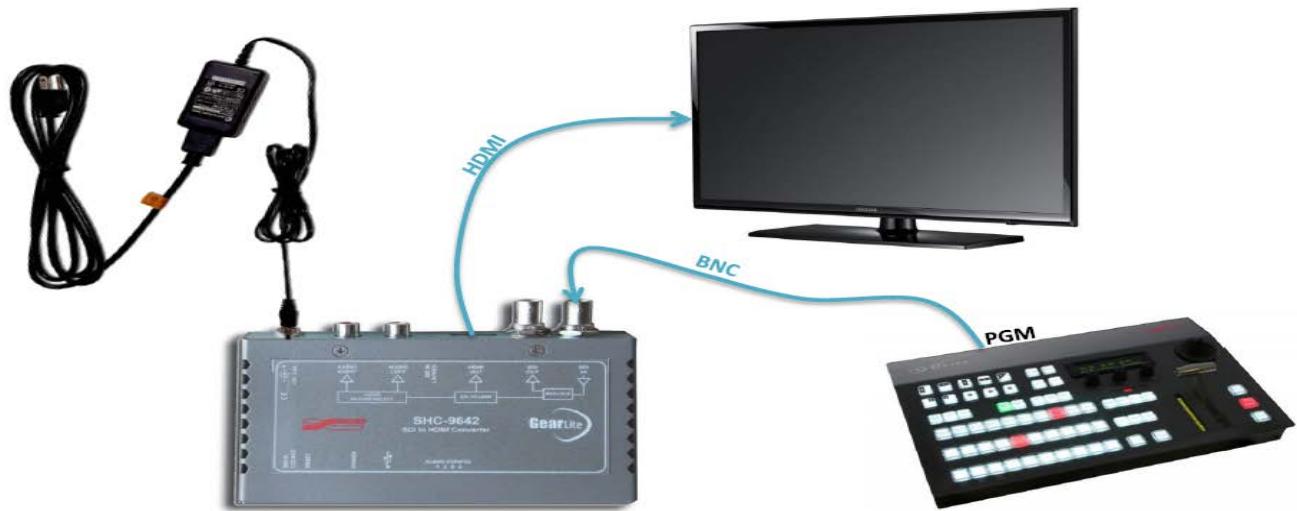
Switcher Setup

The switcher has to have different configurations for AR and VS demos.

For AR demos (demo contains virtual elements on a real set), the switcher needs to have only linear key configuration.

For VS demos (demo set is virtual and projected on a blue or green screen), the switcher needs to be configured for both linear and Chroma Key.

11. For AR demos:
1. Press **KEY 1 SEL** to select the first keyer of the switcher.
2. Press **AUTO SELECT** to assign the type AUTO to the selected keyer.
3. Select **input 2** as foreground (AR objects = XPression Fill output).
4. Select **input 1** as background (camera).
5. Press **KEY 1 TRANS** to enable the first keyer.
6. Press **BKGD** and **KEY 1** together to add the KEY 1 to the transition area.
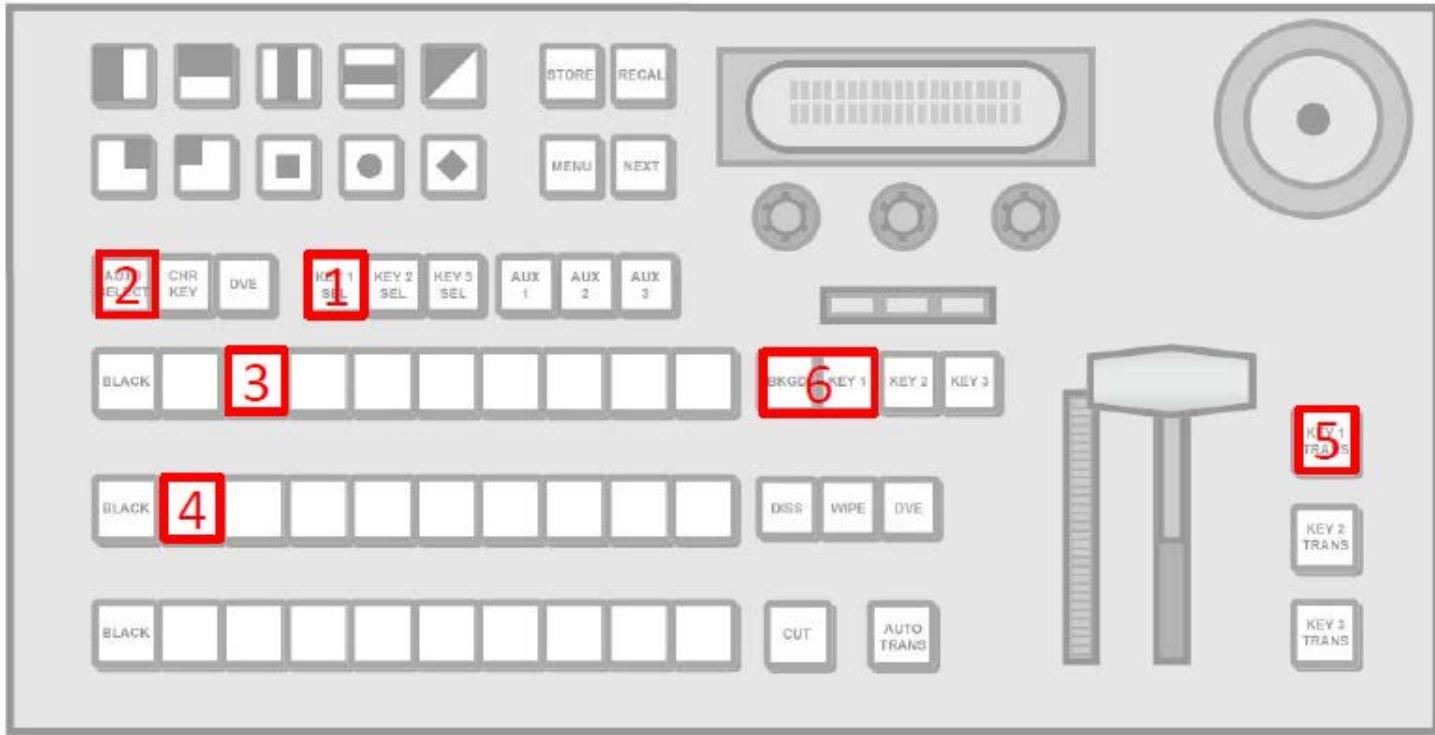
12. For VS Demos:
1. Press **KEY 1 SEL** to select the first keyer of the switcher.
2. Press **CHR KEY** to set the selected keyer as Chroma Key.
3. Select **input 1** as foreground (camera).
4. Select **input 2** as background (virtual objects = XPression Fill output).
5. Press **KEY 1 TRANS** to enable the first keyer.
6. Use the **Mode** knob to select the operating mode you want to use (*Basic* or *Advanced*).
7. Use the **Color** knob to select the color you want to key out. This is the background color of your Chroma Key that will be replaced (blue or green).
8. Press the **Init** knob to initialize the Chroma Key. Every time the Init knob is pressed, the switcher resets all the Chroma Key parameters to their default settings.
9. Press **KEY 2 SEL** to select the second keyer of the switcher.
10. Press **AUTO SELECT** to assign the type AUTO to the selected keyer.
11. Select **input** 2 as foreground (foreground objects = XPression Fill output).
12. Select **input 1** as background (camera).
13. Press **KEY 2 TRANS** to enable the second keyer.
14. Press **BKDG**, **KEY 1** and **KEY 2** together to add the two keys to the transition area.
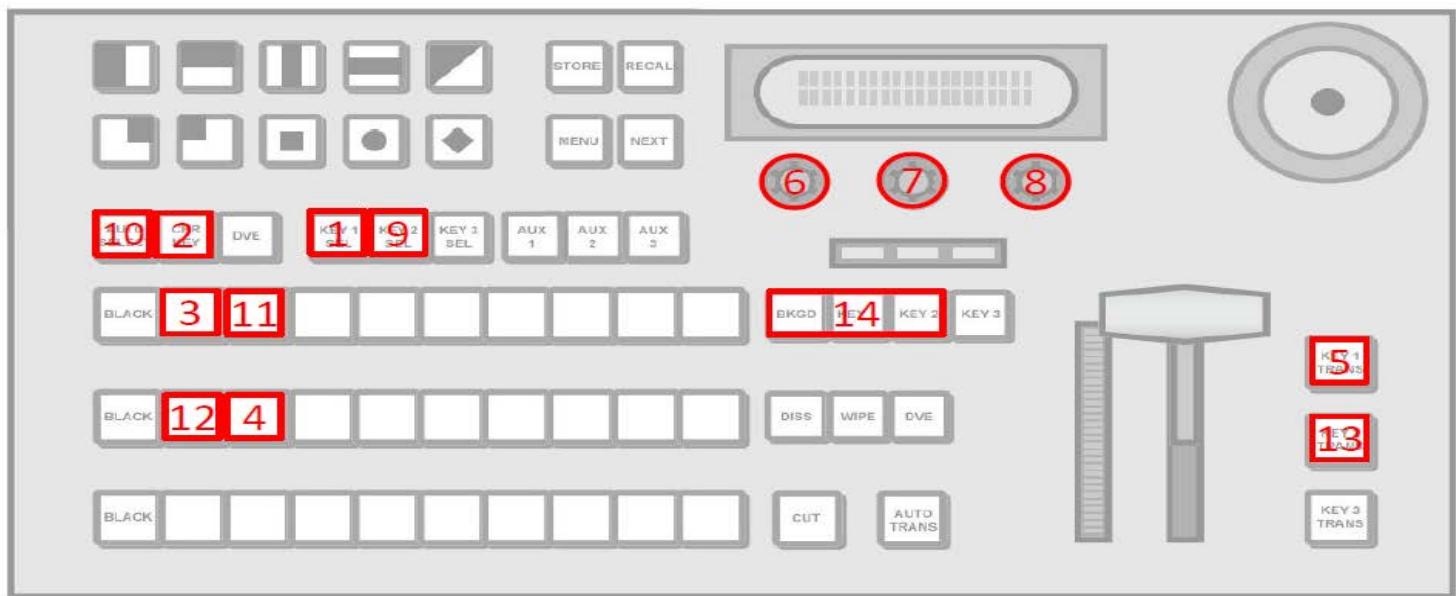
13. AUX bus settings for Live input:

1. Press **AUX 1** to select the first auxiliary output.
2. Select the switcher **input** depending of what you want to send to the Xpression Live Source input :

- Camera direct : input 1

- Xpression Fill output : input 2

- Xpression Key output : input 3

- Computer monitor output : input 4

- Customer live feed : input 5