



The Blackmagic Design Portable Production Unit (PPU) is designed to produce outstanding live and recorded programming. Supplied fully configured and tested, it is a highly flexible system which represents exceptional value. The PPU supports broadcast standards including 1080 50i, 50p, Ultra HD and even Standard Definition PAL.

The PPU is based around the highly creative **ATEM 1 ME switcher**. The switcher can be controlled by a compatible Windows or Mac laptop, or by an optional **ATEM Control Panel**.

The internal cabling allows for input and output connections to be made to and from the rear panels. If you need to reroute signals, the **Smart Video Hub** can be used to do this without having to move any internal cables. For flexibility, the two **Hyperdeck Studio Pro recorders** can be used for record or play back.

The PPU is enclosed in tough SKB flight cases. They are designed to be stacked and enable the PPU to be wheeled into any suitable studio space.



4K Studio Cameras

Three studio cameras are supplied as part of the package. They are connected to the main unit using single mode, dual link **FieldCast** cables and accessories. The **reels** allow connections to cameras up to 100m away but can be extended if required. These fibre connections carry video and two way communication signals and are connected to the **ATEM Studio Converter** within the PPU. High quality headsets are supplied for crew intercoms.

Camera Control

The same fibre system also supports the **ATEM 1ME's Camera Control** system. This allows the **Studio cameras** to be configured remotely from the PPU for exposure, gain, lift and colour balance. Any incoming or outgoing video signal can be routed to the **Smart Scope Duo** for live analysis and signal legalisation. In this way the cameras can be balanced against one another or a set reference level. Any studio camera or ATEM changes can be saved to a settings file using the Windows or Apple control interface.



Warnings and Precautions

Built in trolley wheels

These PPU rolling racks are **HEAVY** – the main 8U rack is around 36 Kg and the smaller 6U monitor rack is around 18 Kg. Always use the rolling rack wheels and the latching telescopic handles to safely trolley the unit to its onsite operating location. To avoid injury two people are required to lift the units into position.

Do not place this unit on a weak or unstable cart, stand, or table. The unit may fall, causing serious damage and/or injury.

Two man lift

The crates should be always moved and placed in an upright position; do not place or try to move the unit in any other position as damage or injury could result. There are lifting handles on either side of the case, please use these handles to safely share the weight between the two people lifting the unit onto a strong, stable, flat surface.

Protective Covers

Only remove the crates protective latching end covers once the units are in their final operating location.

Fans and Ventilation Grills

Fans and grills on the rear of each unit are provided for ventilation and heat dissipation. To ensure safe and reliable operation of these crates, and to protect the units within from overheating, do not block or cover the rear of the units. The fans are fitted to the main crate only and are designed to extract hot air from the case and produce minimal noise. They are powered from within the crate but the DC lead needs to be plugged in externally into the fan panel.

AC Power only

These crates should only be powered from a regulated, stable, AC power source, such as a normal consumer 15A rated wall outlet. Do not locate these units where the supplied power cords can be walked on, rolled over, stressed or damaged by other objects or traffic. If the power cord becomes damaged do not power on or operate the equipment until the cable is repaired or replaced by a qualified technician.

Power off at the wall socket[s] before cleaning, opening or removing any covers that may expose you to dangerous voltage points or other risks. Refer all service type issues and enquiries to our support staff first. Proceeding with your own repairs without prior consultation and agreement may place you or the operator at risk of injury and also invalidate the units warranty.

Liquids & Cleaning

Never spill liquid of any kind directly onto or into these units. These products are designed to be used indoors well away from liquids and weather.

Do not use liquid or aerosol cleaners. Use a slightly damp cloth for cleaning the casing. Use a dry soft cloth on screens.

General

Do not operate the equipment if the product is wet, smells of burning or has suffered damage.

Do not operate the equipment when the product shows a lowered change in performance, indicating the need for service or examination.

Except as explained elsewhere in this manual, do not attempt to service this product yourself.

Warranty

Each item included in the PPU kit is covered separately by the manufacturer's warranty for defects of manufacture. Some products only carry a 12 month warranty from date of purchase, other items 3 years or more.

If you believe the PPU may need service or repair under warranty please call our UK based support staff on **01457 851000** during normal office hours for advice on how to proceed. Alternatively email **tech@holdan.co.uk**

Front Panels

6U SKB Rolling Rack Case

SmartView 4K

8U SKB Rolling Rack Case

SmartScope Duo 4K

ATEM 1ME Production Studio 4K

Smart Videohub 12x12

ATEM Studio Converter

Hyperdeck Studio Pro

Hyperdeck Studio Pro



Connecting the rolling racks together

Connect two SDI cables between the rear panels of the 6U and 8U rolling rack cases. One SDI cable from the Switcher Multi-view output, and the other from Switcher's Program Output.

The **SmartView 4K** can then be toggled between the **ATEM 1ME** switcher's **Multi-view** and **Program outputs** by pressing the **Input button** on the front of the monitor. A computer or mac can also be connected to the SmartView 4K by USB or Ethernet on the rear panel.

The **SmartScope Duo** screens are wired to the **Smart Videohub's** outputs, destination numbers 11 and 12. In this way any input to the Videohub can be routed to either or both screens on the SmartScope Duo. The Scope or Video output can be set using the **setup utility**. A computer or mac can be connected to the SmartScope Duo by USB or Ethernet on the rear panel.

Smart Videohub output 11 is wired to the **Left hand** Smart Scope Duo **monitor**. The loop through from this monitor is then fed to the upper **Hyperdeck Studio Pro** input A. The upper **Hyperdeck Studio Pro** plays out to **Videohub** input 9.

Smart Videohub output 12 is wired to the **Right hand** Smart Scope Duo **monitor**. The loop through from this monitor is then fed to the lower **Hyperdeck Studio Pro** input A. The lower **Hyperdeck Studio Pro** plays out to **Videohub** input 10.

Rear Panels

6U SKB Rolling Rack Case

SmartView 4K

8U SKB Rolling Rack Case

RRCF4 Rack Cooling Fan

FieldCast FiberBrik Panel

RP-61 Connections Panel

RP-61 Connections Panel

8 way IEC Power Distribution Unit



Connecting the rolling racks together

Connect two SDI cables between the rear panels of the 6U and 8U rolling rack cases. One SDI cable from the Switcher Multi-view output, and the other from Switcher's Program Output.

Camera Inputs 1 to 4

Do not uncap these fibre connections until the Cameras are set up on their tripods and the cable reels are fed out ready to be connected to the FiberBrik Panel on the rear of the PPU. This will minimise the chance of dirt or moisture ingress into the fibre connections. The screw connections will only mate together properly if the cut outs inside each are carefully matched up. Do not force the connections as cross threading or damage to the fibre could result.

NOTE: Avoid running the fiber cables where they may be a trip hazard or damaged by heavy traffic. Your location manager or venue manager should be able to advise best practice.

The FiberBrik Panel connections are internally wired through the ATEM Studio Converter into the Smart Videohub also on inputs one to four.

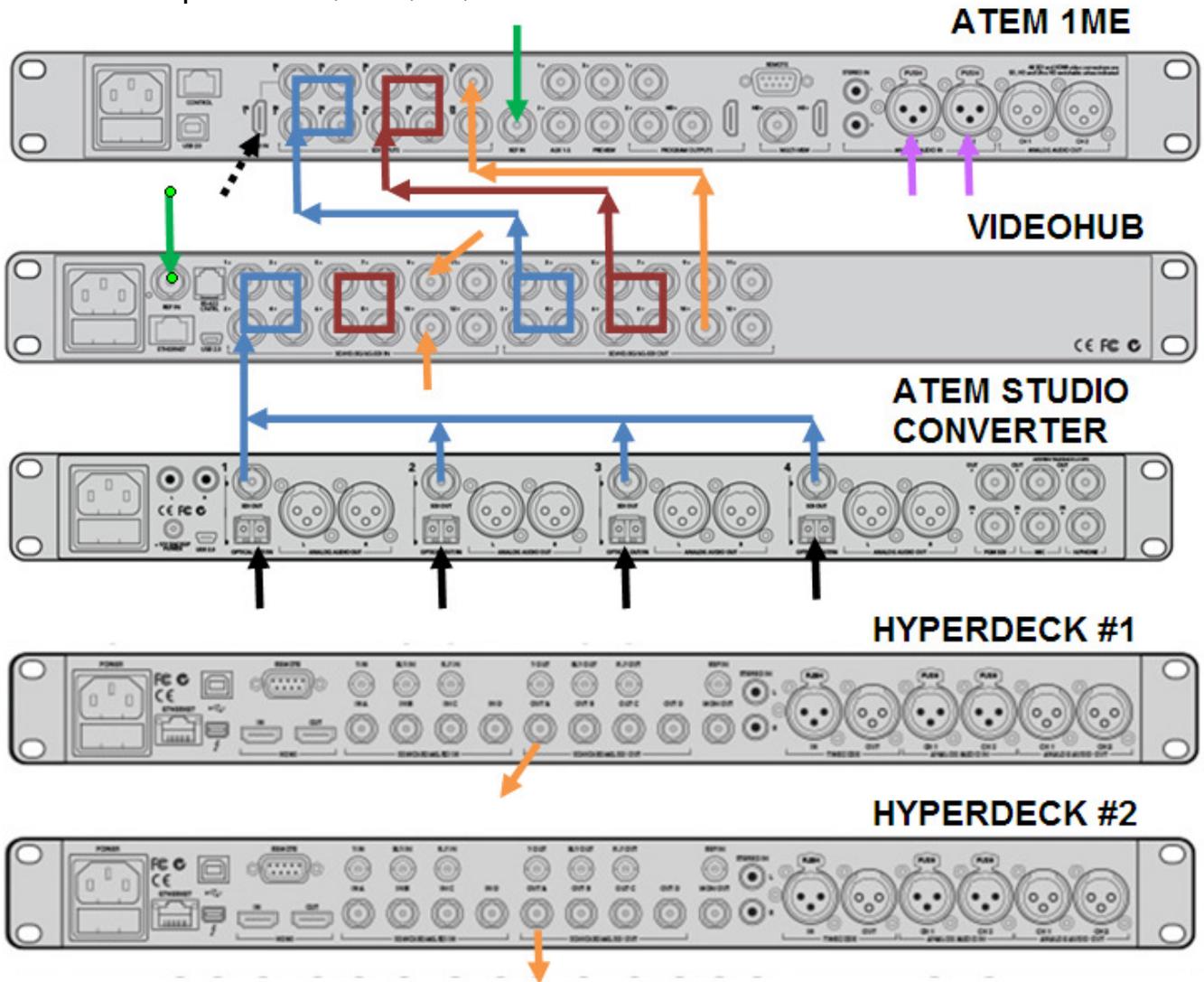
SDI Inputs 5 to 8

These rear panel SDI inputs are internally wired through the Smart Videohub to the ATEM 1ME switcher also on connections five to eight.

The key to getting the most out of the PPU system is how the switcher and Videohub work together.

Below diagrams will attempt to show how the inputs and outputs are wired and how they can be re-routed using the Videohub. In this way the sources can be 'piped' to the right place by the Videohub without having to rewire the cabling inside the PPU.

PPU source inputs – *Fibre, HDMI, SDI, Reference and XLR Audio*



Starting at the **ATEM Studio Converter**, each of the fibre inputs from the rear panel are converted to SDI BNC cables. These BNC cables feed into inputs one to four on the rear of the **12x12 Videohub**. Outputs one to four on the Videohub then feed into inputs one to four on **ATEM 1ME** switcher. **NOTE:** Channel 1 on the switcher has the option of being an HDMI input instead so this option is provided directly from the rear panel of the PPU.

Inputs five to eight on the **Videohub** are SDI BNC cables from the rear panel of the PPU. Outputs five to eight on the Videohub then feed into inputs five to eight on **ATEM 1ME** switcher.

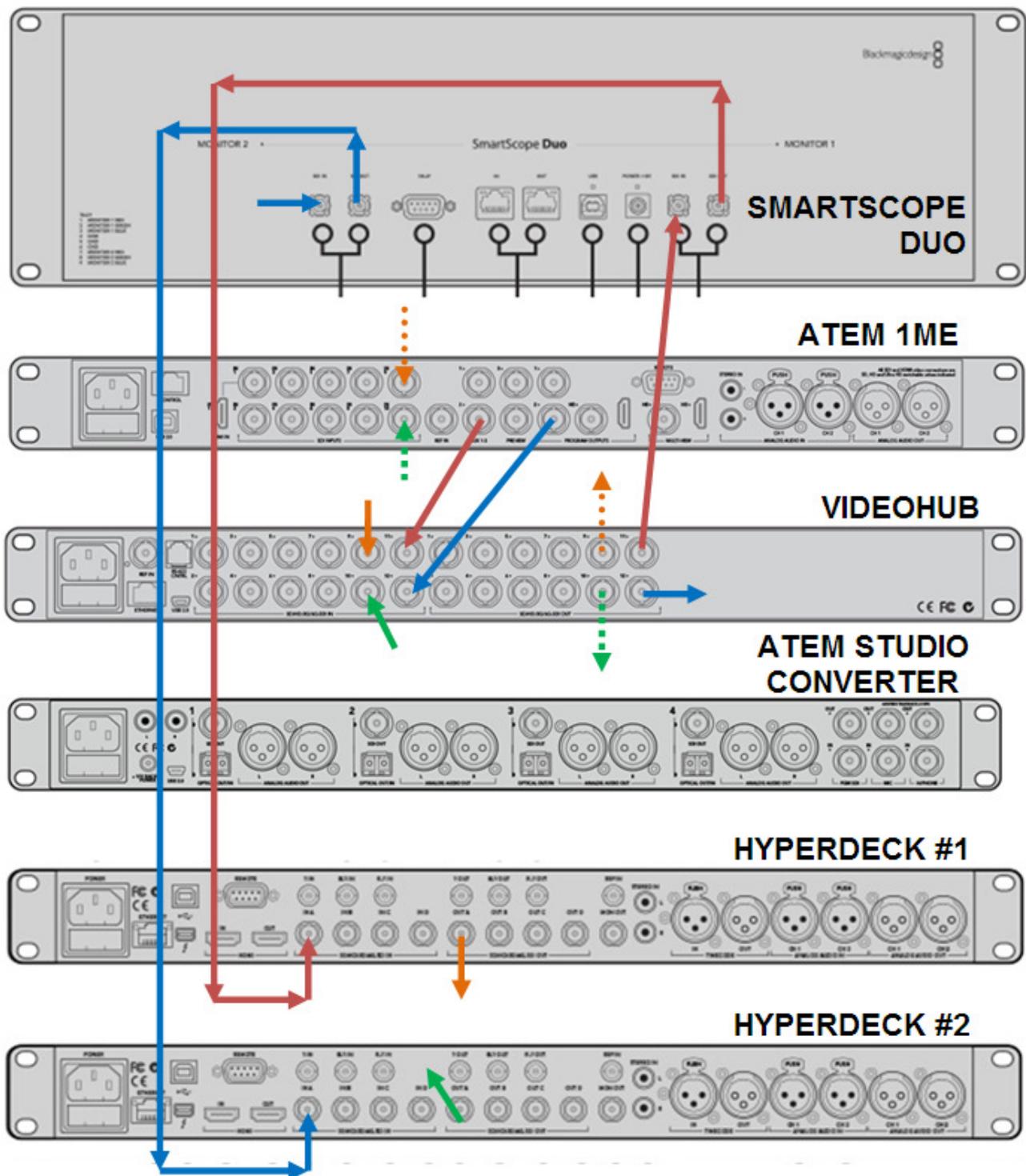
Hyperdeck #1 plays video into SDI input nine on the Videohub. **Hyperdeck #2** plays video into SDI input ten on the Videohub. These are passed onto inputs nine and ten on the switcher also.

Two BNC based Reference inputs are provided from the rear panel of the PPU to both the switcher and the Videohub.

Incoming XLR audio is wired directly to the switcher.

Power, USB and Ethernet inputs are also connected and shown later in this document.

SmartScope Duo & HyperDeck Studio Pro – *Monitoring, Metering, Record and Playback*



Videohub output 11 is wired to the **Left hand** Smart Scope Duo **monitor**. The loop through from this monitor is then fed to the upper **Hyperdeck Studio Pro** input A. The upper **Hyperdeck Studio Pro** plays out to **Videohub** input 9.

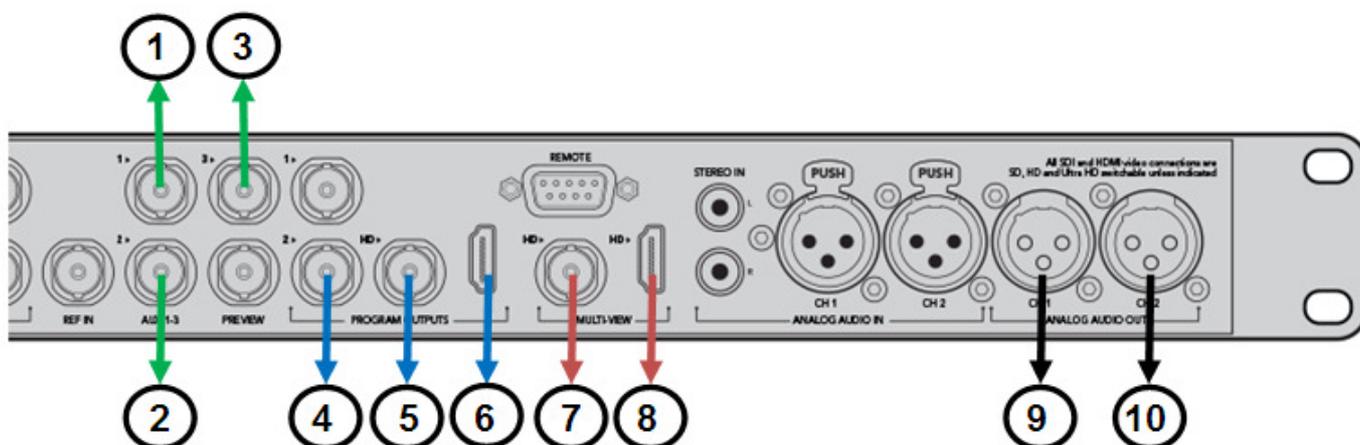
Smart Videohub output 12 is wired to the **Right hand** Smart Scope Duo **monitor**. The loop through from this monitor is then fed to the lower **Hyperdeck Studio Pro** input A. The lower **Hyperdeck Studio Pro** plays out to **Videohub** input 10.

The **SmartScope Duo** screens are wired to the **Smart Videohub's** outputs, 11 and 12. In this way **any input** to the Videohub, including switcher preview and program, can be routed to either or both screens on the SmartScope Duo. As the Hyperdecks are connected in the same chain whatever is routed to the SmartScope Duo can also be recorded. In the above diagram red represents switcher preview [Videohub input 11] and blue is switcher program [Videohub input 12].

PPU outputs – *Multi-view, Preview, Program, Aux and XLR Audio*

Outputs from the ATEM 1ME switcher to PPU's rear panel are:

- | | | |
|----|-----------------------------------|--|
| 1 | Aux 1 SDI output | Can be configured from front panel of ATEM 1ME / application |
| 2 | Aux 2 SDI output | Can be configured from front panel of ATEM 1ME / application |
| 3 | Aux 3 SDI output | Can be configured from front panel of ATEM 1ME / application |
| 4 | Program SDI output at 4K | There is another program SDI routed internally to the Videohub via the loop through on the ATEM Studio Converter |
| 5 | Program SDI output at 1080 | |
| 6 | Program HDMI output at 4K | Preview output from the ATEM can also be taken from AUX 1, 2 or 3 |
| 7 | Multi-view SDI output at 1080 | |
| 8 | Multi-view HDMI output at 1080 | |
| 9 | XLR Program audio CH1 | |
| 10 | XLR Program audio CH2 | |



How do I get both Hyperdecks recording the ATEM's Program output?

Set the Videohub so input source 12 is routed to destination outputs 11 and 12.

Note: Both **SmartScope Duo** screens will also show the same program output.

How do I get both Hyperdecks playing pre-recorded footage into the switcher?

Insert a prepared SSD drive into each Hyperdeck. Press play on each and the mini screen on the Hyperdeck should show the footage being played. If no footage is shown ensure the Hyperdeck's record settings match the type of recorded file already on the SSD.

To show the footage on the ATEM switcher's multi-view.

Set the Videohub so input source 9 [Hyperdeck #1] is routed destination output 9 [ATEM input 9].

Set the Videohub so input source 10 [Hyperdeck #2] is routed destination output 10 [ATEM input 10].

How do I set one Hyperdeck for record and the other playback?

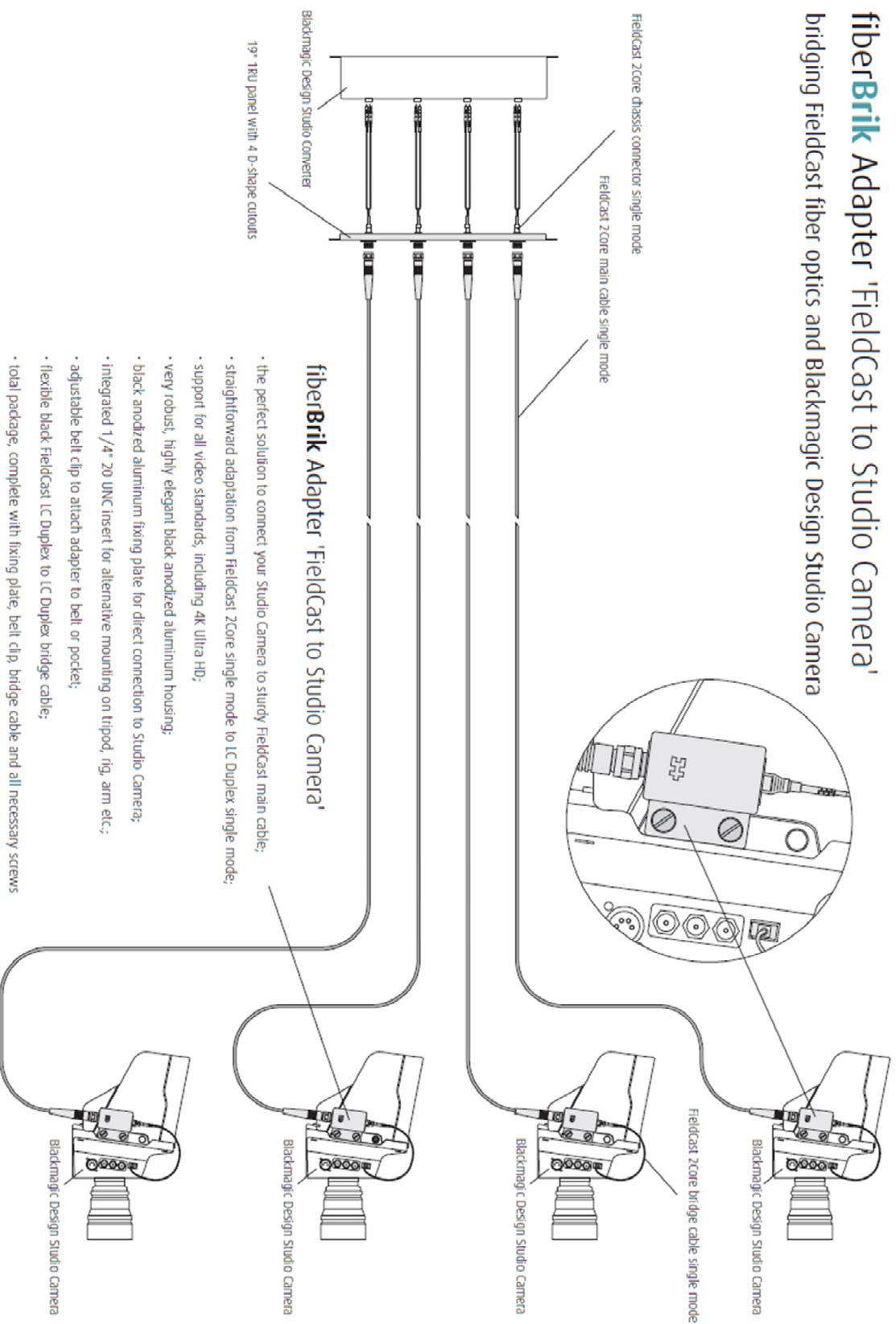
To use Hyperdeck #1 for playback and Hyperdeck #2 for recording program set the Videohub as follows.

Set the Videohub so input source 9 [Hyperdeck #1] is routed destination output 9 [ATEM input 9] – press play.

Set the Videohub so input source 12 is routed destination outputs 11 and 12 – press record on Hyperdeck #2.

fiberBrik Adapter 'FieldCast to Studio Camera'

bridging FieldCast fiber optics and Blackmagic Design Studio Camera



Camera Setup

Tally and Camera Control over fibre

In order for camera control and tally to operate correctly over the fibre connections each camera needs to be numbered correctly in its menu options. If the camera is connected to Camera input 1 on the rear of the PPU then the camera number in the menu also needs to show this number.

Video format

If the switcher cannot see pictures from the camera and the cabling appears to be correct check the video format that the camera is set to. Does this match the switchers video format?

Controlling the Equipment from a Laptop - *IP Addresses & applications*

In order to configure and control the features of **ATEM 1ME switcher**, **SmartScope Duo** and **Smart Videohub**, it is recommended to connect a laptop.

Ideally a small router and RJ45 cables could be used to connect these three devices to the laptop. In order for the laptop to see the three Blackmagic devices across a router all devices, including the router and laptop, need to be in the same subnet IP range. To be in the same IP range the first three numbers of each IP address will be same.

To save you time we have initially configured the Blackmagic items with below IP addresses.

ATEM 1ME Switcher	192.168.0.???
12x12 Smart VideoHub	192.168.0.???
SmartScope Duo	192.168.0.???

Windows and Apple based control software for these devices can be downloaded to the laptop from Blackmagic Design's website:

<https://www.blackmagicdesign.com/uk/support>

Please ensure the laptop to be used meets the recommended specifications for the software.

Firmware updates should not be required in the first few days of ownership, Holdan's support staff will have made sure the latest Blackmagic firmware is already installed. Firmware updates can be downloaded from the same website at later date and applied to the equipment from the laptop. Labelled USB connections are provided on the rear of each rack for this purpose.

Note: When a firmware update is applied then the settings and IP address for that equipment may change automatically to the manufacturer's defaults as part of the update process. Holdan's support team can help advise you how to change the IP addresses back to those quoted above using a USB connection. Restoring a saved set up file for the ATEM 1ME may also help to get you back to normal operation quickly with the switcher.

Blackmagic Design Manuals

Blackmagic have produced their own manuals for the equipment within the PPU. These can also be downloaded from their website:

<https://www.blackmagicdesign.com/uk/support>