

AMIRA Live

USER GUIDE

May 3, 2022



1 Disclaimer

Before using the products, be sure to read and understand all respective instructions.

The products are available for commercial customers only.

For product specification changes since this manual was published, refer to the latest publications of ARRI data sheets or data books, etc., for the most up-to-date specifications. Not all products and/or types are available in every country. Please check with an ARRI sales representative for availability and additional information.

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Imprint

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Original version.

For further Assistance

Arnold & Richter Cine Technik GmbH & Co. Betriebs KG
Herbert-Beyer-Strasse 10
D-80807 Munich
Germany

E-mail: service@arri.com
www.arri.com/service

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2 About This Document

This document is aimed at everyone involved in using the AMIRA Live system and provides directions on how to operate it safely and as intended. To ensure safe and correct use, all users must read the operating manual before using the system for the first time.

This document does not replace the AMIRA camera user manual and the technical manuals for the 1800 fibre system, the VMM-1 and the Skaarhoj RCP. The AMIRA camera user manual contains more detailed information about the features and functionalities of the camera itself and can be downloaded from the downloads section of the [AMIRA website](#). It is essential that you acquaint yourself with the AMIRA camera user manual before operating the system.

Additional information such as white papers can be found on the

Keep this document, the AMIRA user manual and all other operating and assembly instructions belonging to the system in a safe place for future reference and possible subsequent owners.

Even though all efforts have been made to ensure the accuracy of this guide, changes and upgrades to the products described can result in different hardware behavior. In other words, technical data are subject to change without notice.

Document Revision History

Document ID: D45 10006702

Version	Release	Date	Description
1.0	K10947	May 3, 2022	First Release

Strengthen Your Knowledge and Get Trained

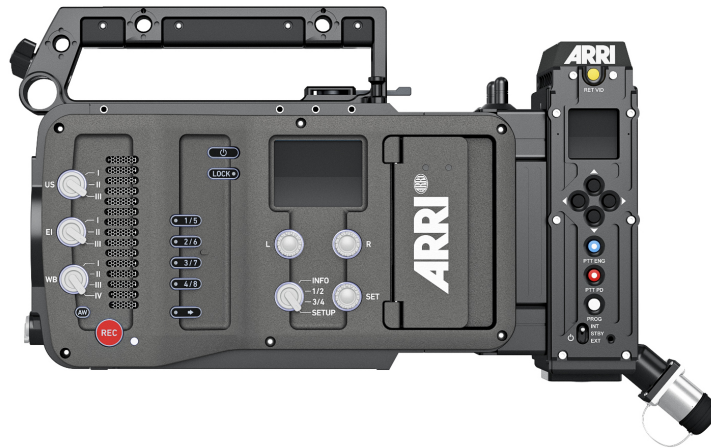
The ARRI Academy courses provide unrivalled insights into the full possibilities of working with ARRI camera systems, lenses, lights and accessories.

To learn more, please visit <http://arri.com/academy>.

3 About the System

3.1 Introduction to the AMIRA Live System

AMIRA Live is a new camera system designed for live, multi-camera applications. It features internal cabling between the camera body and the 1820 Fiber Camera Adapter. The resulting camera configuration is clean, uncluttered, reliable and perfect for live broadcast environments.



With its integrated design, AMIRA Live has more in common with the system cameras typically used for multi-camera broadcasts, but unlike those cameras, AMIRA Live features a Super 35 format ARRI sensor. This unique combination of system camera efficiencies and truly cinematic images, with shallow depth of field, high dynamic range, rich textures and natural colors, puts AMIRA Live in a class of its own.

AMIRA Live shares the general camera functionality with the classic AMIRA combined with the 1800 fiber system and it does not replace this. AMIRA Live nevertheless introduces great benefits for productions where typically system cameras are being used:

- Elimination of external cables between AMIRA camera body and fiber back end
- Ideally suited to multi-camera live broadcasts
- Faster setup of the camera system
- Reduced risk of accidental cable disconnection or damage
- Cleaner camera configuration easier to work with for camera operators

AMIRA Live is the product most relevant in the ARRI Multicam System, and includes not only the camera body and the fiber system, but also the Video Monitor Multicam VMM-1:



The versatile 10" VMM-1 onboard monitor connects directly to the camera viewfinder interface or can be daisy-chained with the Camera Control Panel CCP-1. It includes controls for contrast, color, backlight and peaking (including peaking on/off switch), a physical on/off switch for the front tally, and two camera user buttons. Accompanying the monitor is ARRI's adjustable, quick-release Monitor Yoke Support MYS-1 bracket, designed specifically for the VMM-1 and for multicam setups.

3.2 Intended Use

INFO

All versions of the product are intended exclusively for professional use and may only be used by skilled personnel. Every user should read and understand the operating instructions and the user manual. Use the product only for the purpose described in this document. Always follow the instructions and system requirements for all equipment involved.

The ARRI AMIRA Live is a 35mm digital camera to be used solely and exclusively for live broadcast images, record in-camera for post, finishing, or slow motion effects while simultaneously transmitting live HD or UHD signals.

- UHD, 2K and HD recording resolutions
- ARRIRAW and Apple ProRes codecs
- Log C or ARRIRAW encoding
- CFast 2.0 card recording
- Up to 200 fps

Only use the AMIRA Live as described in this document and the AMIRA user manual. Any other use is considered improper and can result in personal injury and/or property damage. ARRI assumes no liability for damages or changes that are caused by improper use.

The entire product may not be changed or converted.

3.3 Technical Data Camera

Sensor Type	Super 35 format ARRI ALEV III CMOS sensor with Bayer pattern color filter array	
Sensor Maximum Number of Photosites and Size	3200 x 1800 26.40 x 14.85 mm / 1.039 x 0.585" Ø 30.29 mm / 1.193"	
Sensor Frame Rates	0.75 - 200 fps	
Weight	#5.2 kg / #11.5 lbs (camera body with 1820 Fiber Adapter and PL lens mount)	
Photosite Pitch	8.25 µm	
Sensor Active Image Area (Photosites)	S16 HD	1600 x 900
	HD	2880 x 1620
	2K	2868 x 1612
	3.2K	3200 x 1800
	4K UHD	3200 x 1800
	ARRIRAW 16:9 2.8K	2880 x 1620
Sensor Active Image Area (Dimensions)	S16 HD	13.20 x 7.43 mm / 0.520 x 0.292"
	HD	23.76 x 13.37 mm / 0.935 x 0.526"
	2K	23.66 x 13.30 mm / 0.932 x 0.524"
	3.2K	26.40 x 14.85 mm / 1.039 x 0.585"
	4K UHD	26.40 x 14.85 mm / 1.039 x 0.585"
	ARRIRAW 16:9 2.8K	23.76 x 13.37 mm / 0.935 x 0.526"
Recording File Container Size (Pixel)	S16 HD	1920 x 1080
	HD	1920 x 1080
	2K	2048 x 1152
	3.2K	3200 x 1800
	4K UHD	3840 x 2160
	ARRIRAW 16:9 2.8K	2880 x 1620

Recording File Image Content (Pixel)	S16 HD	1920 x 1080
	HD	1920 x 1080
	2K	2048 x 1152
	3.2K	3200 x 1800
	4K UHD	3840 x 2160
	ARRIRAW 16:9 2.8K	2880 x 1620
Exposure Latitude	14+ stops over the entire sensitivity range from EI 160 to EI 3200 as measured with the ARRI Dynamic Range Test Chart (DRTC-1)	
Exposure Index	Adjustable from EI 160-3200 in 1/3 stops, EI 800 base sensitivity	
Shutter	Electronic shutter, 5.0° - 356° or 1s - 1/8000s	
Recording Formats	MXF/ARRIRAW, Apple ProRes 4444 XQ, Apple ProRes 4444, Apple ProRes 422 (HQ), Apple ProRes 422, Apple ProRes 422 (LT), MPEG-2 HD	
Recording Media	CFast 2.0 Cards	
Recording Frame Rates	S16 HD	0.75 - 200 fps
	HD	0.75 - 200 fps
	2K	0.75 - 200 fps
	3.2K	0.75 - 60 fps
	4K UHD	0.75 - 60 fps
	ARRIRAW 16:9 2.8K	0.75 - 48 fps
	MPEG-2 HD	23.976 - 59.94 fps
Recording Modes	Standard real-time recording, Pre-recording, Intervalometer, Stop Motion	
Viewfinder Type	Multi Viewfinder MVF-1 with 3,2" flip-out monitor Camera Control Panel (CCP-1) with option to daisy-chain MVF-1	
Viewfinder Technology	OLED viewfinder display LCD flip-out monitor	
Viewfinder Resolution (Pixel)	1280 x 720	
Viewfinder Diopter	Adjustable from -5 to +5 diopters	
Color Output	Rec 709, Rec 2020, Log C, Custom Look (ARRI Look File ALF-2)	
Look Control	Import of custom 3D LUT ASC CDL parameters (slope, offset, power, saturation) Knee, gamma, saturation, black gamma, saturation by hue Support of ARRI Look Library	
White Balance	Manual and auto white balance, adjustable from 2000K to 11000K in 10K steps Color correction adjustable range from -16 to +16 CC 1 CC corresponds to 035 Kodak CC values or 1/8 Rosco values	
Filters	Built-in motorized FSND filters 0.6, 1.2, 2.1 Fixed optical low pass, UV, IR filter	
Image Outputs	1x proprietary signal output for MVF-2 viewfinder on VF CoaXPress connector 2x SDI outputs via D-SUB 24W/ on camera rear: 1.5G (SMPTE ST292-1), 3G (SMPTE ST425-1, ST425-3), 6G & DL 6G (SMPTE ST2081-10, ST2081-11) uncompressed video with embedded audio and metadata	
Lens Squeeze Factors	1.30	
Exposure and Focus Tools	False Color, Zebra, Waveform, Zoom, Aperture and Color Peaking	

Audio Input	2x XLR 3pin Mic/Line Input with 48V Phantom Power, switchable to AES3 1x XLR 5pin Mic/Line Input with 48V Phantom Power (Line input max. level +24dBu correlating to 0dBFS) Bluetooth whisper track
Audio Output	3,5mm stereo headphone jack Bluetooth audio SDI (embedded)
Audio Recording	4 channel linear PCM (24 bit, 48 kHz) 1 channel Bluetooth whisper track
Remote Control Options	Web-based remote control from phones, tablets and laptops via WiFi & Ethernet Camera Access Protocol via Ethernet & WiFi GPIO interface for integration with custom control interfaces
Interfaces	1x D-SUB 24W7 (LTC Timecode, Ret/Sync In, Genlock, Ethernet, Power In) 1x LEMO 6pin EXT multi purpose accessory interface 1x Hirose 12pin (on PL lens mount) 2x USB 2.0 in media bay (for user setups, look files etc)
Wireless Interfaces	Built-in WiFi module (IEEE 802.11b/g) Built-in White Radio for ARRI lens and camera remote control
Lens Mounts	PL lens mount with Hirose connector and LDS EF lens mount B4 lens mount with Hirose connector LPL lens mount with LBUS connector Leitz Cine Wetzlar M mount
Flange Focal Depth	PL mount: 52 mm LPL Mount: 44 mm
Power Input	10.5-34 V DC via D-SUB 24W7 on camera rear
Power Consumption	min. 52W max. 84W (Camera body with MVF-1)
Power Outputs	1x Fischer 3pin 24V RS 1x LEMO 2pin 12V 1x Hirose 4pin 12V 1x LEMO 6pin EXT 24V
Measurements (HxWxL)	182 x 147 x 374 mm / 7.2 x 5.8 x 14.7" (camera body with LPL lens mount and 1820 Fibre Adapter)
Operating Temperature	-20° C to +45° C / -4° F to +113° F @ 95% relative humidity max, non condensing, splash and dust proof through sealed electronics
Storage Temperature	-30° C to +70° C / -22° F to +158° F
Sound Level	< 20 dB(A) at 24fps
Software Licenses	AMIRA Advanced License Key AMIRA Premium License Key AMIRA 4K UHD License Key AMIRA ARRIRAW License Key ARRI Look Library License Key

3.4 Technical Data 1810 Fibre Base Station

I/O	LTC Timecode In/Out	1x BNC
	RS232 Accessories	1x 9W-D
	RS422 Control Data	1x 9W-D
	RS485 Lens Control	1x 15W-D
	Ethernet Cam Control	2x RJ45
	Intercom PD/ENG (2 Channels) & Call	1x 15W-D
	Intercom Headset	1x XLR5-F
	Red & Green Tally	1x 9W-D
	Video Outputs	QL3G 4K@60P, DL3G, 2x SL3G
2x SL12G, DL6G, 2x SL6G & 2x SL3G		2x BNC
2x 1.5G Monitor Out		2x BNC
2x Composite Video Out		2x BNC
Video Inputs	1.5G Ret Video & Sync	1x BNC
	Composite Return for QTV / Teleprompter	1x BNC
	Analogue Genlock Black/Burst, Tri Level (Active Loophthrough)	2x BNC
Audio Outputs	Audio on all Program Video Outputs	Embedded, 6x BNC
	Analogue Audio	1x XLR5 Male
	AES Audio	2x BNC
Mechanics / Power	SMPTE 311M Cable Length	2 km
	Base Station Weight	2.1 kg
	Base Station Dimensions (HxWxL)	43 x 429 x 275 mm
	Camera Power	100 W Camera Power (150 W total internal power)

3.5 Technical Data 1820 Fibre Camera Adapter

1820 Fibre Adaptor I/O	LTC Timecode	internal
	Ethernet Camera Control	internal
	RS232 Accessories	1x 10W HR-30 or 2x 12W HR-30
	RS422 Cam	1x 12W HR-30
	RS485 Lens Control	1x 6W HR-30
	Intercom PD & ENG (2 Channels)	2x 6W HR-30
1820 Fibre Adaptor Inputs	DL 6G, 1 x SL 6G, DL 3G, 2 x SL 3G & 2 x 1.5G	internal
	Composite Video Monitor Channel	12W HR-30
	External 12-17V IN	2-pin Lemo
1820 Fibre Adaptor Outputs	2x Red & Green Tally	12W HR-30 & 10W HR-30
	Composite Video QTV / Teleprompt Out	1x 12W HR-30
	1.5G Return Video / Sync Out	Internal
	Analogue GL Black & Burst / Tri Level	Internal
	SDI Monitor Out	1x BNC
	+12V VF Power 12V / 24W Viewfinder Power Out	1x 12W HR-30
	Program Audio AES Out	1x 10W HR-30

Mechanics / Power	SMPTE 311M Cable Length	2000 m
	Fibre Adaptor Weight	1.1 kg
	Fibre Adaptor Dimensions (HxWxL)	190 x 100 x 88 mm (including interface)
	Camera Power	100 W Camera Power (150 W total internal power)

3.6 Technical Data Skaarhoj RCP

Dimensions (HxWxL)	72 x 355 x 102 mm
Weight	1.152 kg
Power Consumption	6.19 W
Ethernet Control	1x RJ45 LAN 100 mbps
Power Input	External Power Supply or PoE (48V/IEEE 802.3af)
Programming Port	Micro USB
Tally In / PV Out	1x Sub-D 9P, female

3.7 Technical Data Video Monitor Multicam VMM-1

LCD Type	Active Matrix Liquid Crystal Display (AM-LCD) Amorphous silicon TFT (Thin Film Transistor) LED Backlight
Aspect Ratio	16:9
Active Screen Size	220.32 x 123.93 mm / 16.063 x 12.047" Ø 508 mm / 20.1"
Screen Resolution	1920 x 1080 pixel
Pixel Arrangement	B+G+R vertical stripe
Pixel Pitch	0.11475 x 0.11475 mm / 0.0045" x 0.0045"
Pixel Density	221 ppi
Screen Luminance	300 cd/m ² (max.) Backlight Dimming: 100 to 0%
Luminance Uniformity	White non-uniformity <= 30%
Color Depth	16 Mio. colors
Response Time	T _{on} + T _{off} (10% to 90% to 10%) 25 ms (typical)
Viewing Angle	Typical viewing angle CR >= 10:1 Horizontal ±85° Vertical ±85°
Contrast Ratio	1000:1 (typical) in dark environment (at optimum viewing angle)
Power Input	1x LEMO 2-pin (9.0 - 32.0 V DC)
Measurements (HxWxL)	200 x 255 x 144 mm / 7.87 x 10.04 x 5.67" (without Parasol)
Weight	~ 2.2 kg / ~ 4.85 lbs (without Parasol)

Operating Temperature	-20° C to +50° C / -4° F to +122° F @ 5% to 95% relative humidity, non condensing at 38° C wet bulb temperature
Vibration	MIL-STD 810 10-57Hz / 0.076mm 57-500Hz / 9.8m/s ² (BTM)
Shock	MIL-STD 810 ± 10G/11ms half sine (BTM)
EMI / EMC	CE / FCC

3.8 Scope of Delivery

INFO

The packaging consists of recyclable materials. For the sake of the environment, dispose of the packaging material at a suitable disposal site.

Always store, ship and dispose according to local regulations. ARRI is not liable for consequences from inadequate storage, shipment or disposal.

On delivery, please check if package and contents are intact. Never accept a damaged/incomplete delivery. A complete delivery includes:

AMIRA Live Camera Set Advanced (K0.0039136) including

- AMIRA Live camera body (KK.0038511)
- AMIRA Advanced license (10.0001093)
- AMIRA UHD license (10.0003723)
- ARRI Look Library license (10.0014641)
- Camera handle with viewfinder adapter
- WiFi and Bluetooth antenna
- USB memory stick
- 3.0 mm Allen key
- 2.5 mm Allen key
- Three XLR connector caps

AMIRA Live Camera Set Premium (K0.0040150) including

- AMIRA Live camera body (KK.0038511)
- AMIRA Premium license (KK.0038511)
- AMIRA UHD license (10.0003723)
- ARRI Look Library license (10.0014641)
- AMIRA PL LDS Mount (K2.0001107)
- Camera handle with viewfinder adapter
- WiFi and Bluetooth antenna
- USB memory stick
- 3.0 mm Allen key
- 2.5 mm Allen key
- Three XLR connector caps

AMIRA Live 1800 Camera Chain Set (K0.0039163) including

- 1820 12G Fiber Camera Adapter Live Set (K2.0039137)
- 1800 AMIRA Live Frame Mount (K2.0038531)
- 1810 1U Fibre Base Station FBS 4x3G & SL12G (K2.0021233)
- 1810 1U FBS Cable Set (K2.0022570)
- 1820 Cord Control Pod with XLR5S connector (K2.0016149)
- 1830 Mounting Bracket for 1820 Cord Control Pod (K2.0021324)

Multicam Monitor bundle VMM-1 & MYS-1 (K0.0039106) including

- VMM-1 Video Monitor Multicam (K2.0023813)
- Monitor sunshade

- AMIRA to CCP-1 cable 0,75m / 29" (K2.0012223)
- ALEXA Mini to CCP-1 cable 0,75m / 29 inch (K2.0009336)
- VMM-1 Power Cable 0.4m / 16 inch (K4.0034001)
- Monitor Yoke Support MYS-1 (K2.0037636)

Optional products part of the delivery:

Camera Control Panel CCP-1 for AMIRA (K0.0039106) including

- Camera Control Panel CCP-1 (K2.0008151)
- L-Bracket (K2.0001967)
- ALEXA Mini to MVF-1 cable 0,5m (19") (K2.0009367)
- ALEXA Mini to MVF-1 cable 0,75m (29") (K2.0008135)
- ALEXA Mini to MVF-1 cable 1,5m (59") (K2.0009169)

SKAARHOJ RCPv2 ARRI Edition (K2.0024328)

MVF-1 Viewfinder (K2.75004.0)

PL LDS Lens Mount with Hirose Connector (K2.0001107)

EF Lens Mount (K2.0001103)

B4 Lens Mount (K2.0001237)

PL to B4 Lens Adapter (K2.0001238)

Wedge Plate Adapter WPA-1 (K2.75000.0)

or other accessories according to order.

ARRI offers an increasing variety of product bundles and additional accessories.

For details, please consult our website or your local ARRI Service Partner.

3.9 Declarations of Conformity

EU Declaration of Conformity

Brand Name: ARRI

Product Description: Digital Camera System

- **ARRI AMIRA + Viewfinder MVF1 + Camera Control Panel CCP-1**
- + Europe Setting for Software 5.4 or later, Primes following Appendix I and Antenna following Appendix II

The designated products conform to the specifications of the following European directives:

For cameras delivered before 13 June 2016:

- 1 DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity
- 2 DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

For cameras delivered from 13 June 2016:

- 1 DIRECTIVE 2014/53/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment - OJ L 153, 22 May 2014, p. 62–106
- 2 DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment - OJ L 174, 1 July 2011, p. 88–110

The compliance with the requirements of the European Directives was proved by the application of the following standards:

Essential Requirements regarding No 1:

Following 2014/35/EU	EN 62368-1:2014 AC:2015-05 AC:2015-11
Following 2014/30/EU	EN 301 489-1 V1.9.2 EN 301 489-17 V2.2.1 EN 55032:2015 EN 55103-2:2009 EN 300 328 V2.1.1

Essential Requirements regarding No 2:
EN 50581:2012

To evaluate the respective information, we used: http://ec.europa.eu/growth/single-market/european-standards/harmonised-standards/index_en.htm

Year of affixed CE-marking: 2015

APPENDIX I - List of Primes

Item	Model Name
1	PL-LDS Mount + ARRI Lenses with Lens Data System 1
2	ARRI LPL Mount ALEXA Mini/AMIRA + ARRI - Signatures Primes with Lens Data System 2 with focal length 18-125mm

APPENDIX II - List of Antennas

Item	Manufacturer	Model Name	Gain (dBi)	Radiation Pattern	Type	Connector
1	Proant	333 (Ex-it 2400 Foldable)	2.0	Omni-directional	Dipole	Reverse SMA

FCC Compliance Statement

Class A Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Note: This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- **WIFI:** FCC ID: PD962205ANH or PPD-AR5B22

- **Bluetooth:** FCC ID: QQQWT32AE

Industry Canada Compliance Statement

Complies with the Canadian ICES-003 Class A specifications.

Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

This device complies with RSS-210 of Industry Canada.

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

This Class A device meets all the requirements of the Canadian interference-causing equipment regulations

Cet appareil numérique de la Classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

- **WiFi:** IC ID: 1000M-62205ANH or 4104A-AR5B22
- **Bluetooth:** IC ID: 5123A-BGTWT32AE

China

- **WiFi Module:** 本设备包含型号核准代码（分别）为：
CMIIT ID: 2012AJ0219 (M)
... 的无线电发射模块。
- **AMIRA:**

South Korea

Statement for
2.4 GHz Devices:

"해당무선설비는 운용 중 전파혼신 가능성이 있음"
Translation for reference only: This radio device has
the possibility of radio interference.

- **AMIRA:** Certification No: MSIP-REM-AXP-K1717000
- **WiFi Module:** Certification No: KCC-CRM-ATH-AR5B22



4 Safety Instructions

This safety information is in addition to the product specific operating instructions in general and must be strictly observed for safety reasons. Read and understand all safety and operating instructions before you operate or install the system. Retain all safety and operating instructions for future reference. Always follow the instructions in this and all documents supplied with the device to avoid injury to yourself or others and damage to the system or other objects.

Assembly and operation should only be carried out by trained staff familiar with the system. Only use the tools, materials and procedures recommended in this document. For the correct use of other equipment, see the manufacturer's instructions.

4.1 Safety Conventions and Product Labels

Structure of Safety and Warning Messages

These instructions use safety instructions, warning symbols and signal words to draw your attention to different levels of risk:

⚠ WARNING!
WARNING indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.
▶ Always follow the recommended measures to avoid this hazardous situation.

⚠ CAUTION!
CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
▶ Always follow the recommended measures to avoid this hazardous situation.

NOTICE
NOTICE signifies a potentially hazardous situation which can result in damage to property.
▶ Always follow the recommended measures to avoid this hazardous situation.

INFO
Not relevant to safety, INFO provides additional information to clarify or simplify a procedure.

Warning Symbols and Product Labels



General warning sign



Warning of electrical voltage



Warning of hot surfaces



Warning of hand injuries



Warning of the risk of crushing



Warning of obstacles on the ground



Please read all instructions carefully before using the product for the first time.



Direct Current symbol found on electronics requiring or producing DC power

4.2 General Safety Instructions

WARNING!



Operation of the Camera System in Case of Obvious Damage

Risk of electric shock and fire hazard caused by short circuit.

- ▶ Do not use the system if electrical lines or housing are visibly damaged.
- ▶ Operate the system using only the type of power source indicated in the manual.
- ▶ Unplug the power cable by gripping the power plug, not the cable.
- ▶ Do not operate the system in areas with humidity above operating levels or expose it to water or moisture.
- ▶ Do not get the system wet.
- ▶ Do not lay cables over sharp edges (e.g. sheet metal, profile or other cut edges). Damaged cables can cause electric shock, short circuit or fire.
- ▶ Do not remove or deactivate any safety measures from the system (incl. warning stickers or paint marked screws).
- ▶ Repairs may only be carried out by authorized ARRI service partners.

WARNING!



Falling System Parts

If the system is inadequately built up or assembled, it can fall down and cause serious injuries and damage to the system or property.

- ▶ Installation and operation may only be carried out by trained personnel who are familiar with the system. Observe accident prevention regulations.
- ▶ Do not place the camera system on an unstable trolley or hand truck, stand, tripod, bracket, table or any other unstable support device.
- ▶ Always place the camera on dedicated support devices.
- ▶ Secure the camera system and its accessories against falling and tipping over. Observe the general and local safety regulations.
- ▶ When using the camera system on camera cranes, a suitable safety rope must be used.

WARNING!



Positioning the Camera System on an Inclined or Unsafe Plane

Risk of injury caused by the camera system tipping over.

- ▶ Observe the accident prevention regulations.
- ▶ Put the camera system on level and stable ground
- ▶ Do not place the system on an unstable trolley or hand truck, stand, tripod, bracket, table or any other unstable support device.
- ▶ Always place the camera on dedicated support devices.
- ▶ Use only accessories approved by ARRI. The use of accessories not approved by ARRI is at your own risk. Please observe all relevant safety guidelines

⚠ WARNING!**Overloading the Camera System by Persons or Objects**

Risk of injury caused by the camera system tipping over.

- ▶ Do not lean on the camera system.
- ▶ Do not place any unauthorized objects on the camera system.
- ▶ Do not hang any unauthorized objects on the camera system.
- ▶ Use only accessories approved by ARRI. The use of accessories not approved by ARRI is at your own risk. Please observe all relevant safety guidelines

⚠ WARNING!**Changing the Lens Mount while the Camera is Powered**

Risk of electric shock and permanent damage to the camera and lens mount.

- ▶ Always switch off the camera and disconnect all power supplies before changing the lens mount.

⚠ CAUTION!**Using the Camera or Camera Accessories in a Humid Environment and with Condensation**

When moving the camera and the camera accessories from a cool to a warm location or when the camera is used in a damp environment, condensation may form inside the camera, on the sensor, and on internal or external electrical connections. Operating the camera while condensation is present bears risk of electric shock and/or fire caused by a short circuit.

- ▶ Never operate the camera and camera accessories when condensation occurs.
- ▶ After moving the camera and camera accessories from a cool to a warm environment, wait for some time for the system to warm up.
- ▶ To reduce the risk of condensation, find a warmer storage location.

⚠ CAUTION!**Hot Surfaces on Camera Body and Camera Accessories**

During extended operation, high data rates and/or operation at high ambient temperatures, the camera's surface and the area around the fan outlet can get hot. Direct sunlight can result in camera housing temperatures above 60° C (140° F).

- ▶ Never cover, obstruct or block the fan in- or outlets while the camera is powered.
- ▶ Do not place the camera system near any heat sources during operation.
- ▶ At ambient temperatures above 25° C (77° F), protect the camera and camera accessories from direct sunlight.

⚠ CAUTION!

Hot Surfaces on Recording Media



During extended operation, high data rates and/or operation at high ambient temperatures, the recording media in the camera can get hot to the touch and can cause pain or even burns if held for too long directly after removal.

- ▶ Do not handle the recording media for longer than three seconds and remove it quickly but carefully.
- ▶ Consider to wear protective gloves when removing the recording media or allow it to cool down beforehand.
- ▶ Do not put any labels or adhesive tape on the recording media (especially the side facing the camera body). The recording media must have full contact to the thermal surface to ensure proper heat conduction.

⚠ CAUTION!

Rotating Lens Motor



Risk of crushing fingers and capturing and unraveling long hair, jewelry and/or clothing.

- ▶ Make sure that the lens motor is properly attached to the lens.
- ▶ Do not touch the lens motor gears while they are moving.
- ▶ Keep hair and loose clothing away from the motor gear teeth.
- ▶ Keep cables connected to the camera away from the motor gear teeth.

⚠ CAUTION!

Connected Cable on the Floor



Risk of injury caused by tripping, falling or slipping over connected cables.

- ▶ Always properly secure cables connected to the camera and camera accessories.
- ▶ Install cables in a way that they cannot be tripped over.
- ▶ If necessary, use a cable duct or secure the cables with adhesive tape.
- ▶ Disconnect the cables from the camera and camera accessories before moving.

⚠ CAUTION!

Unhealthy Posture or Excessive Physical Exertion During Camera Operation



Using the camera in shoulder mode, on portable stabilizer systems, etc., as well carrying for transport in general bears risk of permanent long term physical damage.

- ▶ Ensure an ergonomic posture when operating and carrying the camera.

NOTICE


High Energy Light Sources



Permanent damage to the camera sensor and/or the viewfinder display.


- ▶ Do not point the camera sensor into direct sunlight, very bright light sources or high energy light sources (e.g. laser beams).
- ▶ Do not point the viewfinder eyepiece into direct sunlight, very bright light sources or high energy light sources (e.g. laser beams).

NOTICE

 **Open Lens Mount**
When no lens or lens cap is attached to the camera, dirt and dust particles may enter the camera and settle on the sensor cover glass. Particles on the sensor cover glass can later be visible in the recordings made by the camera.

- ▶ Place the protective cap on the lens mount, when no lens is attached to the camera
- ▶ Contact ARRI Service to inspect the camera if undefined spots appear in the image.

NOTICE

 **Connection of Onboard Monitor**
Damage to the SDI driver chip caused by power surge.

- ▶ Always make sure to plug in the power cable first and then connect the BNC cable. As soon as the power and BNC cables are connected, you can switch the camera or the accessories on or off.
- ▶ Always make sure to disconnect the BNC cable first and then disconnect the power cable.
- ▶ Only use shielded power cables to power accessories that connect to the camera with a BNC cable. When only the plus pin connects on a shielded power cable, the shield will act as the power return and therefore not damage the SDI output.

4.3 1810 Fibre Base Station & 1820 Fibre Camera Adapter Safety Instructions



This Product contains Class 1 Lasers. A Class 1 Laser is eye-safe under all operating conditions.

Although lasers in this product are classified as eye safe, the user should avoid looking into the 'Transporter' composite copper/fibre connectors whilst the equipment is powered on. When unmated the connector protection caps should be fitted as soon as possible to prevent the ingress of dirt and dust.

Laser product Class 1 according to IEC60825-1 and EN 60825-1:2007 Class 1 Laser product conforms to 21 CFR 1040.10 & 1040.11

This product has been tested and found to comply with the limits for a class A ITE device according to: EN-60950-1:2006 Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

The laser devices included within this equipment are from the following FDA list:

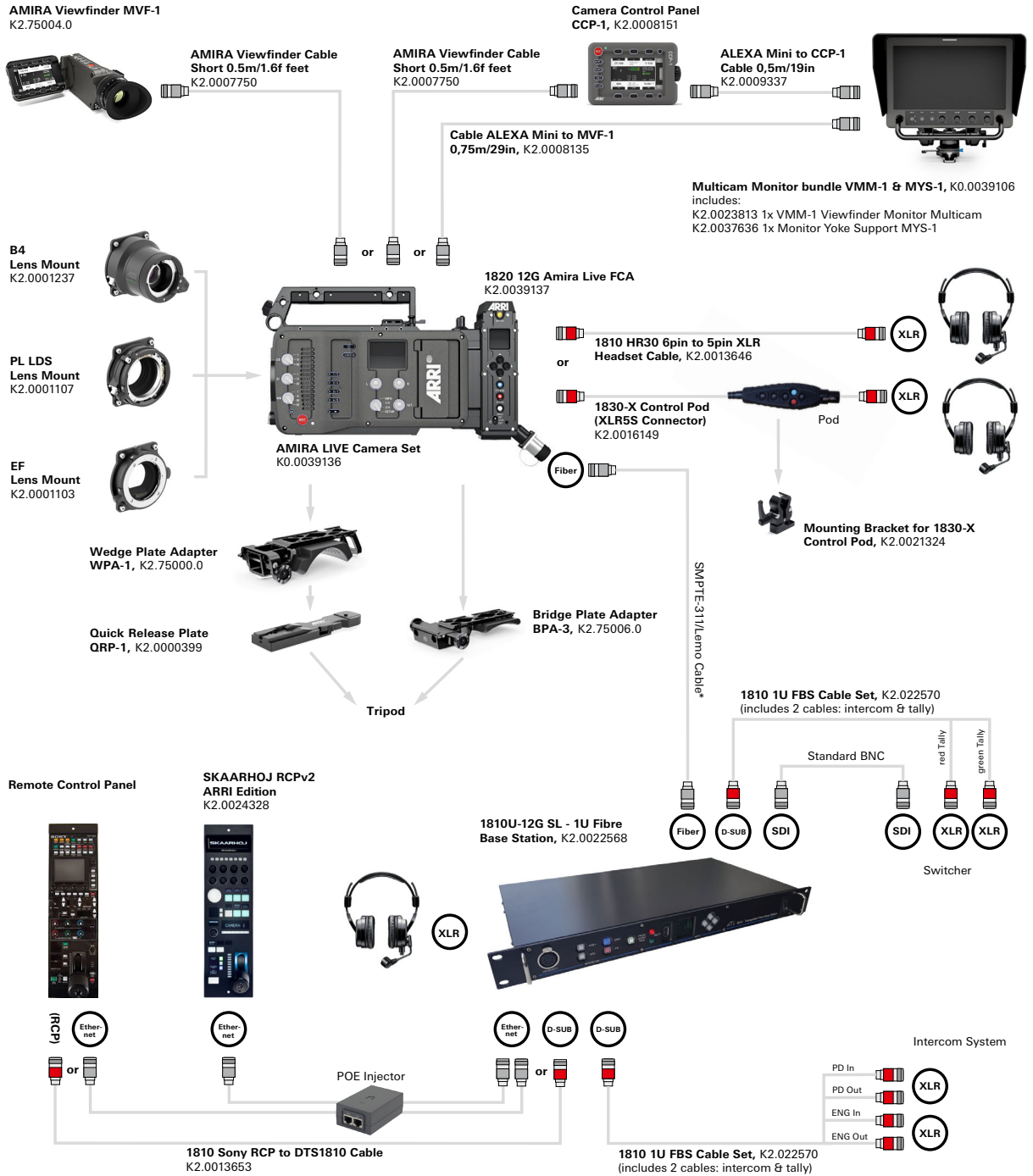
1520832-000 Embrionix

1631693-000 Eoptolink

⚠ WARNING!**Risk of electric shock and fire hazard caused by short circuit.**

- ▶ Do not use the system if electrical lines or housing are visibly damaged.
- ▶ Do not operate the system in areas with humidity above operating levels or expose it to water or moisture.
- ▶ Do not lay cables over sharp edges (e.g. sheet metal, profile or other cut edges). Damaged cables can cause electric shock, short circuit or fire.
- ▶ Do not remove or deactivate any safety measures from the system (incl. warning stickers or paint marked screws).
- ▶ Do not remove any cover. Do not open the system.
- ▶ Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as liquid has been spilled or objects have fallen into the system, the system has been exposed to rain or moisture, does not operate normally, or has been dropped.

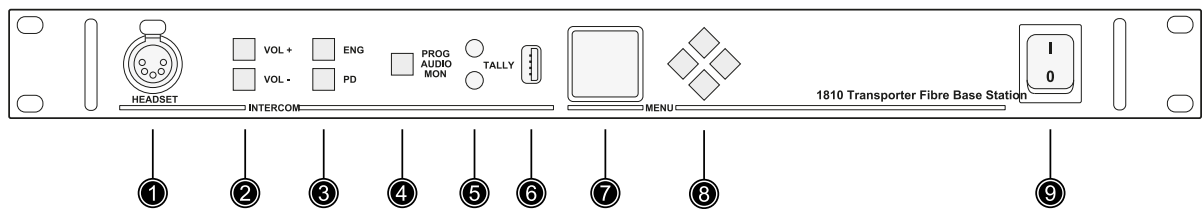
5 Configuration Overview



6 1810 Fibre Base Station

The 1810 Fibre Base Station incorporates all the features and functions required to operate the AMIRA Live in a live studio or outside broadcast multi-camera scenario. Using a composite fibre/copper SMPTE311 cable, the system can reach an operational distance up to 2km with power for the AMIRA Live being supplied from the Fibre Base Station through the cable. The system can operate over a fibre cable length of 10km with local power for the AMIRA Live camera location.

With native, uncompressed video reception up to 4K UHD resolution (12Gb/S), the 1810 Fibre Base Station transmits/receives program audio, camera control data, tally, CVBS and SDI monitor video, CVBS and SDI return video, Genlock, intercom, Ethernet, timecode, AES Audio, RS232, RS422, RS485.



- | | | | | | |
|---|--------------------|---|-----------------------|---|-------------------------|
| 1 | Headset Connector | 4 | Prog Audio Mon Button | 7 | Display |
| 2 | Volume Buttons | 5 | Tally LEDs | 8 | Menu Navigation Buttons |
| 3 | ENG and PD Buttons | 6 | USB Port | 9 | Power Switch |

Headset Connector & Volume +/- Buttons

A headset connected to the Fibre Base Station can be used to monitor and communicate on the engineering intercom channel. The program audio (embedded on the Return HD-SDI Video input to the FBS) can also be monitored. The volume buttons are used to adjust the master volume level for the headset.

ENG and PD Buttons

The ENG (blue) and PD (red) intercom buttons allow access to the intercom system from the Fibre Base Station front panel. With a headset plugged into the headset connector, communication can be made to two headsets of the Amira Live connected to Incom 1 and Incom 2 and the two intercom channels (Engineering & Production) connected to the INTERCOM / CALL I/O connector on the rear of the FBS that are typically connected to the facility's intercom system.

An incoming call flashes the appropriate key. To make/return a call press the appropriate key. A short press of less than 0.5S will latch the microphone on. A further press will turn off. A longer press will keep the microphone on for as long as the key is pressed. When released it will turn the microphone off. Whilst the microphone is on the key will be solidly illuminated.

Prog Audio Mon Button

Press to monitor the program audio channel embedded on the SDI Return Video signal that is input to the FBS for transmission to the Amira Live camera location.

Tally LEDs

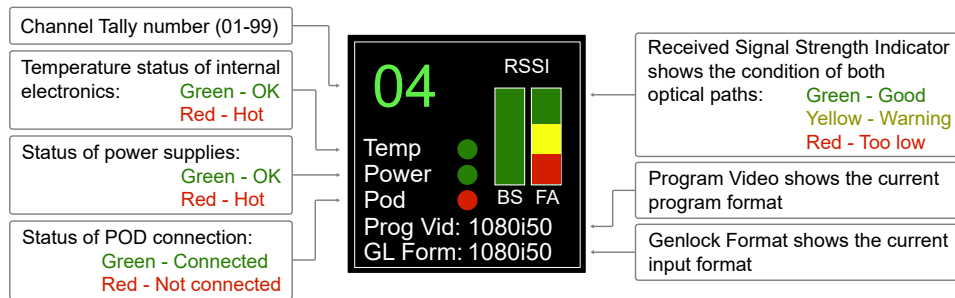
The FBS front panel has indications for Red and Green Tally that are illuminated when the camera channel is selected by the video switcher. The video switcher connection is made to the 9 way D-Sub connector on the rear of the FBS.

USB Port

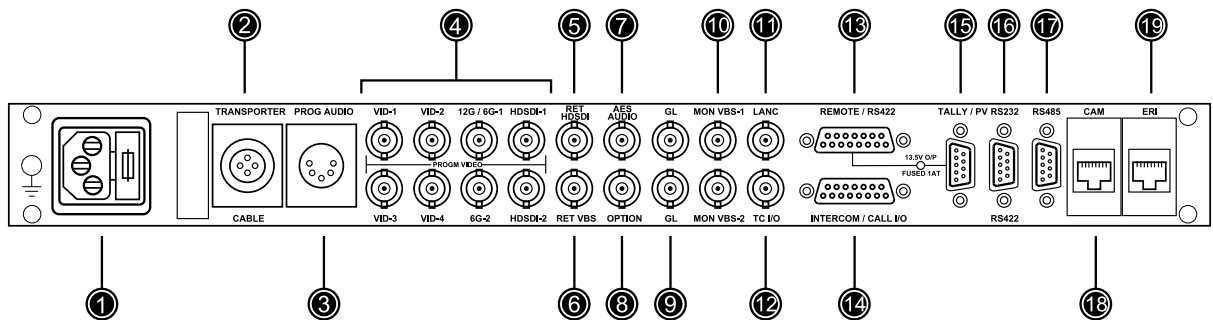
For future expansion.

Display & Menu Navigation Buttons

The front panel display shows system status:



6.1 1810 Connectors

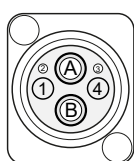


- | | | |
|------------------------------|----------------------------------|------------------------|
| 1 Mains Power Input & Fuse | 8 Option O/P (AES Output 2) | 14 Intercom / Call I/O |
| 2 LEMO Fibre Cable Connector | 9 Genlock Input and loop through | 15 Tally + Preview |
| 3 Program Audio Output | 10 Monitor VBS | 16 RS232 + RS422 I/O |
| 4 Program Video SDI Outputs | 11 LANC I/O | 17 RS485 I/O |
| 5 Return HDSDI | 12 Timecode I/O | 18 Camera Ethernet |
| 6 Return VBS | 13 Remote / RS422 | 19 ERI Ethernet |
| 7 AES Audio | | |

Transporter Cable

The Fibre Base Station system can provide 100W of power over a distance of 2Km when using a SMPTE 311 Fibre Cable. The SMPTE 311 Fibre cable has fibres and copper conductors making this provision possible as well as allowing power monitoring functions.

Typically, a Lemo connector is used. However, the system can also be used with 'Tactical' fibre cables. 'Tactical' fibre cables can be similar in appearance and construction but have only the fibre elements and so there is no power connection. When using a 'Tactical' fibre cable the Amira Live can be powered from an external PSU.



- | | |
|-----------------|-----------|
| 1 Black Power - | A Fibre A |
| 2 Red Data + | B Fibre B |
| 3 Grey Data - | |
| 4 White Power + | |

PROG AUDIO (XLR-5S)

Analogue Audio Output de-embedded from camera SDI outputs.



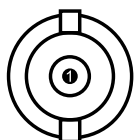
- 1 Left -
- 2 Left +
- 3 GND
- 4 Right -
- 5 Right +

Program Video SDI Outputs VID 1 to VID 4 (BNC)

Video outputs 1 to 4 can be used for the Live program outputs. The video signals output from the Base Station will depend on the resolution, frame rate and format set for SDI 1 & 2 outputs in the Amira Live menu. The video is transmitted uncompressed and there is no format or frame rate processing taking place.

When the Amira Live SDI 1 output is set to Single Link 6G UHD a Dual Link 3G 2Si Video signal will be present on VID 1 and VID 2 output. When operating in Dual Link 6G for UHD then four 2Si 3G signals are output for 12G 4K video. The video outputs from VID 1 to VID 4 can be used simultaneously with the 12/6G Video outputs.

Camera SDI Video Format Setting	FBS Output Scan & Frame Rate	FBS VID1 Output Video Format	FBS VID2 Output Video Format	FBS VID3 Output Video Format	FBS VID4 Output Video Format
422 1.5G HD	As set in camera	422 1.5G HD (SDI1)	No video present	422 1.5G HD (SDI2)	No video present
422 3G HD	As set in camera	422 3G HD (SDI1)	No video present	422 3G HD (SDI2)	No video present
444 3G HD	As set in camera	444 3G HD (SDI1)	No video present	444 3G HD (SDI2)	No video present
DL 422 3G UHD	As set in camera	DL 3G - CH1	No video present	DL 3G - CH2	No video present
422 6G UHD	As set in camera	DL 3G - CH1	DL 3G - CH2	No video present	No video present
DL 422 6G UHD	As set in camera	3G 2Si - CH1	3G 2Si - CH2	3G 2Si - CH3	3G 2Si - CH4



- 1 Serial Digital Program Video 75 Ω

Program Video SDI Outputs 12/6G 1 & 2 (BNC)

The two 12/6G Video outputs are typically used for program video and can be used simultaneously with the VID 1 to VID 4 program outputs. The format and frame rate of these outputs will be dependent on the SDI 1 & SDI 2 video output settings of the Amira Live. The menu options allow both outputs to be set for 4K UHD or they can also be configured as additional outputs for 3G HD operation.

To configure the outputs to be used simultaneously with the VID 1 to VID 4 program outputs set the Gearbox setting in the Fibre Base Station's ["Set-up Menu"](#) to *Bypass*.

Camera SDI Video Format Setting	FBS Output Scan & Frame Rate	FBS 12/6G-1 Output Video Format	FBS 12/6G-2 Output Video Format
422 1.5G HD	As set in camera	422 1.5G HD (SDI1)	422 1.5G HD (SDI2)
422 3G HD	As set in camera	422 3G HD (SDI1)	422 3G HD (SDI2)
444 3G HD	As set in camera	444 3G HD (SDI1)	444 3G HD (SDI2)
DL 422 3G UHD	As set in camera	DL 3G - CH1	DL 3G - CH2
422 6G UHD	As set in camera	DL 3G - CH1	DL 3G - CH2
DL 422 6G UHD	As set in camera	3G 2Si - CH1	3G 2Si - CH3

SL 6G (Single Link 6G) Operation

The outputs can be set for single link 6G operation. The Single Link 6G outputs are available simultaneously to the DL 3G 2Si outputs on VID 1 & VID 3. Please note that the structure of the Single Link 6G SDI video is different to that of the DL 6G SDI Video. Two Single Link 6G outputs are not the same as the two 6G outputs that are available when operating the camera in DL 6G.

To configure the outputs to be used simultaneously with the VID 1 to VID 4 program outputs set the *Gearbox* setting in the Fibre Base Station's ["Set-up Menu"](#) to *SL6G*.

Camera SDI Video Format Setting	FBS Output Scan & Frame Rate	FBS 12/6G-1 Output Video Format	FBS 12/6G-2 Output Video Format
422 1.5G HD	No video present	No video present	No video present
422 3G HD	No video present	No video present	No video present
444 3G HD	No video present	No video present	No video present
DL 422 3G UHD	No video present	No video present	No video present
422 6G UHD	As set in camera	SL 6G (SDI 1)	SL 6G (SDI 1)
DL 422 6G UHD	No video present	No video present	No video present

DL 6G (Dual Link 6G) Operation

DL 6G 4K UHD outputs up to 60p can be achieved when setting the camera SDI outputs to DL 6G. The Dual Link 6G outputs are available simultaneously to the QL 3G 2Si outputs on VID 1 to 4.

To configure the outputs to be used simultaneously with the VID 1 to VID 4 program outputs set the *Gearbox* setting in the Fibre Base Station's ["Set-up Menu"](#) to *DL6G*.

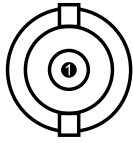
Camera SDI Video Format Setting	FBS Output Scan & Frame Rate	FBS 12/6G-1 Output Video Format	FBS 12/6G-2 Output Video Format
422 1.5G HD	No video present	No video present	No video present
422 3G HD	No video present	No video present	No video present
444 3G HD	No video present	No video present	No video present
DL 422 3G UHD	No video present	No video present	No video present
422 6G UHD	No video present	No video present	No video present
DL 422 6G UHD	As set in camera	DL 6G - CH1	DL 6G - CH2

SL 12G (Single Link 12G) Operation

With the camera SDI output set at DL 6G the FBS can output SL 12G on 12/6G-1 & 6G-2 outputs simultaneously to the QL 3G 2Si outputs on VID 1 to VID 4.

To configure the outputs to be used simultaneously with the VID 1 to VID 4 program outputs set the *Gearbox* setting in the Fibre Base Station's ["Set-up Menu"](#) to *SL12G*.

Camera SDI Video Format Setting	FBS Output Scan & Frame Rate	FBS 12/6G-1 Output Video Format	FBS 12/6G-2 Output Video Format
422 1.5G HD	No video present	No video present	No video present
422 3G HD	No video present	No video present	No video present
444 3G HD	No video present	No video present	No video present
DL 422 3G UHD	No video present	No video present	No video present
422 6G UHD	No video present	No video present	No video present
DL 422 6G UHD	As set in camera	SL 12G	SL 12G



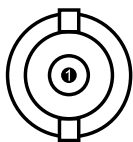
1 Serial Digital Program Video 75 Ω

Program Video SDI Outputs HD-SDI 1 & 2

The HD-SDI 1 & 2 outputs provide additional video outputs for monitoring purposes. These 1.5G video channels are down converted versions of the video from the SDI 1 output of the Amira Live and so the format and frame rates are dependent on what is set in the Amira Live menu.

When operating with SDI 1 set to HD-SDI (1.5G) no down conversion takes place and the output frame rate and format will be as set in the Amira Live menu. When operating in 3G HD or 12G UHD the down converter will produce an interlaced 1.5G Video output at the frame rate set in the menu. When operating in 6G UHD the down converter will produce a video signal in the Progressive format at the frame rate set in the menu.

Camera SDI 1 Video Format Setting	SDI 1 Output Scan	Down Converter Active	FBS HD-SDI Outputs 1 & 2 Scan	FBS HD-SDI Outputs 1 & 2 Frame Rate
422 1.5G HD	Interlaced	No	As set in camera	As set in camera
422 1.5G HD	Progressive	No	As set in camera	As set in camera
422 3G HD	Progressive	Yes	Interlaced	As set in camera
444 3G HD	Progressive	Yes	Progressive	As set in camera
DL 422 3G UHD	Progressive	Yes	Interlaced	As set in camera
422 6G UHD	Progressive	Yes	Progressive	As set in camera
DL 422 6G UHD	Progressive	Yes	Interlaced	As set in camera

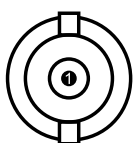


1 Serial Digital Program Video 75 Ω

RET HDSDI (BNC)

A Return HD-SDI (1.5G) signal can be connected to the Fibre Base Station for transmission to the Amira Live. This Return HD-SDI signal can also be used simultaneously as a sync. Format detection is automatic or can be manually set in the FBS menu.

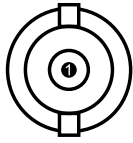
NOTE: The frame rate of the Return HD-SDI should match the frame rate of the Program video. It can also be divisions of this frame rate in the same 'domain'. For example, it can be 1080/25P when the program video is 1080/50P.



1 Serial Digital HDSDI Video 75 Ω

RET VBS (BNC)

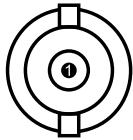
Composite Video Input for transmission to the Amira Live to provide a video output to a floor monitor or teleprompt (not usable for Tri Level Sync).



1 VBS Return Video 75 Ω

AES AUDIO (BNC)

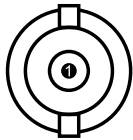
The AES Audio output provides a program audio output. This program Audio is de-embedded from the program video transmitted down to the Fibre Base System from the Amira Live.



1 AES Program Audio 75 Ω

OPTION (BNC)

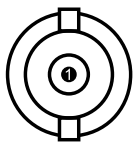
The Option BNC provides an additional duplicate AES Output.



1 AES Program Audio 75 Ω

GL (Genlock) (BNC)

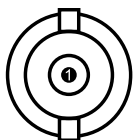
This connector provides an BNC for an analogue Genlock reference signal that can be Black Burst or Tri-level. The format detection is automatic but can also be set manually in the FBS menu. An additional BNC is provided for an active loop through. When 'daisy chaining' the GL or reference signal the last connection in the chain should be terminated with 75R.



1 Genlock I/P Video Signal 10K Ω

MON VBS 1 & 2 (BNC)

The Monitor VBS 1 & 2 BNCs can be used for monitoring of the CVBS video channel transmitted down from the Amira Live.



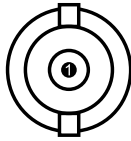
1 CVBS Video 75 Ω

LANC (BNC)

Not used in Amira Live system.

TC I/O (BNC)

The TC I/O connector allows the input of Time code. A menu in the FBS allows this to be set to an input to provide an LTC time code input to the Amira Live.

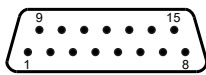


1 Time Code I/O Signal I/P 10K / O/P 100R

REMOTE / RS422 (D15 male)

Connects to a remote control panel using serial RS422. Provides 13.5V power with internal 1A fuse for the panel. Tally Red and Green output signals can be connected to the RCP to illuminate the panel indicators and the preview connections allow the RCP to trigger the GPIO of a switcher input via the Tally/Preview connection.

When using the RCP with an Ethernet connection the signals on this port can be use for other facilities/ equipment. The RS422 data will be available on the Remote port of the Fibre Camera Adapter. Tally signals are available on the VF port and AUX port of the Fibre Camera Adapter.

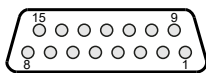


1	GND	6	RS422 RX -	11	GND
2	Preview In2	7	RS422 TX +	12	Green Tally Out
3	Preview In1	8	GND	13	RS422 RX+
4	+12V Supply Out	9	not used	14	RS422 TX-
5	Remote Enable In	10	LANC I/O	15	Red Tally Out

INTERCOM / CALL I/O (D15 female)

The Intercom connector provides 4 wire inputs/outputs for the Engineering and Production analogue audio intercom signals as well as their corresponding call logic signals.

When triggered the Call signals will flash the corresponding Intercom buttons on the Fibre Camera Adapter and Fibre Base Station to indicate a request for communication.



1	GND	6	Intercom Pd Out+	11	Call Eng In
2	Intercom Eng In-	7	Call Pd In	12	GND
3	Intercom Eng Out+	8	GND	13	Intercom Pd In-
4	Call Eng Out	9	Intercom Eng In+	14	Intercom Pd Out-
5	Intercom Pd In+	10	Intercom Eng Out+	15	Call Pd Out

TALLY / PREVIEW (PV) (D9 male)

The Tally/Preview connector provides connections to a video switcher.

The Tally Green and Red inputs react to a contact closure when the camera channel is selected by the switcher for preselection or Live use respectively.

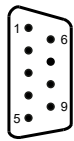
When selected, the Tally indicators on the Fibre Base Station front panel will illuminate accordingly. The Tally outputs of the Remote/RS422 connector will also react to illuminate the indicators on the RCP panel when a suitable cable is used.

Tally outputs on the VF and Aux ports of the Amira Live Fibre Camera Adapter can be used for external indicators.

When the system is configured for use with a Sony RCP connected to the Remote/RS422 port, then the Ethernet Remote Interface performing the conversion of the protocol to Ethernet will issue the Tally command to illuminate the Amira Live over the Ethernet connection.

However, when the Skaarhoj or Sony RCPs are connected over Ethernet, the RCPs themselves can issue the camera tally commands when a suitable cable connects the FBS Tally outputs from the Remote/RS422 port to the RCP.

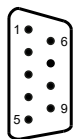
The Preview connections are outputs to the switcher. These are looped through from the Remote/RS422 port. An RCP with Preview outputs can be connected to the preview input pins 2 & 3 of the Remote/RS422 port. Since these connections are connected to the switcher through the Tally/Preview port, activating the preview function on the RCP will also set the preview state of the switcher.



1	GND	6	+12V Power Out
2	Preview Out 1	7	+12V Power Out
3	Preview Out 2	8	Tally Green In
4	GND	9	Tally Red In
5	GND		

RS 232 & RS 422 (D9 male)

The RS232 & RS422 connection to the Fibre Base Station provides data paths for control or data transfer. The RS232 data is accessible at the Fibre Camera Adapter on the VF, Remote or Aux connectors.



1	GND	6	RS422 RX -
2	RS232 RX	7	RS422 RX +
3	RS232 TX	8	RS422 TX -
4	Select RS422	9	RS422 TX +
5	GND		

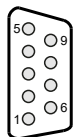
RS 485 (D9 female)

The RS485 connection is an interface to a data channel that is capable of switching between RS485/422 & RS232 data types by sensing the data voltage levels.

Initially the data channel is in RS422 mode with differential input signals on pins 4 & 5 and pin 2 open. By connecting pin 2 with an appropriate signal the channel output at the Fibre Camera Adapter can be RS485.

When an RS232 source is input to pin 5 with pin 2 open the channel becomes RS232.

A dedicated RS485 connector is provided at the Fibre Camera Adapter for this data channel.



1	GND	6	not used
2	RS485 TX Enable	7	not used
3	not used	8	RS422/RS485 TX +
4	RS422/RS485 RX +	9	RS422/RS485 TX -
5	RS422/RS485 RX - RS 232 RX		RS232 TX

Camera Ethernet (RJ45)

The Camera Ethernet (RJ45) provides an Ethernet channel that can be used to connect the Remote Control Panel from Skaarhoj to perform shading and control of the Amira Live Camera.

The Ethernet channel can also be used to simultaneously access the Amira Live Web Browser interface when connected via a network switch.



1	TX +	5	not used
2	TX -	6	RX -
3	RX +	7	not used
4	not used	8	not used

ERI Ethernet (RJ45)

The 1810 Fibre Base Station has the facility to convert serial RS422 data to Ethernet data and translate it to a protocol recognized by the Amira. This is known as the Ethernet Remote Interface (ERI) and allows a Sony RCP to be used with the Amira Live.

A Sony RCP can be connected over a Serial RS422 data cable or an Ethernet cable. When connecting over a serial cable the CAM and ERI RJ45 Ethernet ports should be connected together. When connecting over an Ethernet cable the CAM and ERI RJ45 ports are connected via a network switch.

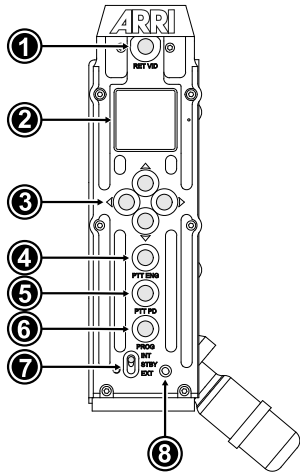
Configuration options in the ERI Menu (accessible from the front panel of the Fibre Base Station) configures the ERI for the connection type. For more details, please download the Arri Multicam White Paper from the [ARRI Multicam System](http://www.arri.com) website.

The Amira Live Web Browser can also be used simultaneously when connected via a network switch.



- | | | | |
|---|----------|---|----------|
| 1 | TX + | 5 | not used |
| 2 | TX - | 6 | RX - |
| 3 | RX + | 7 | not used |
| 4 | not used | 8 | not used |

7 1820 Fibre Camera Adapter



- 1 RET VID Return Video Button
- 2 Display
- 3 Navigation Buttons
- 4 PTT ENG Intercom Engineer Button
- 5 PTT PD Intercom Production Button
- 6 PROG Intercom Program Audio Button
- 7 Power Switch
- 8 Power LED

Power Switch & Power LED

The power switch (7) has three positions and the LED shows the power status.

INT Internal Power

The internal FCA power control signal is sent to the FBS, initializing the high voltage power-up. The LED momentarily shows AMBER and then shows GREEN when the FCA power run-up sequence is complete and correct.

STBY Standby

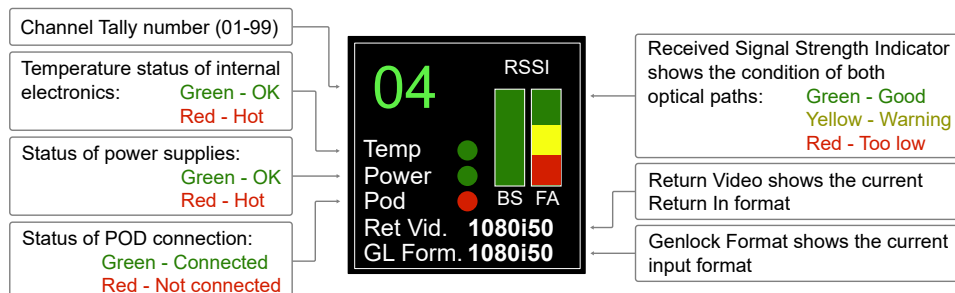
Camera / monitor and most of the FCA are switched off. A part of the FCA monitors the low voltage start-up supply from the FBS and flashes the LED RED to show it is connected. No control signal is sent to the FBS and therefore no high voltage is present at the FCA.

EXT External Power

In this position, the external power input, if connected, is switched to power the FCA and the camera / monitor. No control signal is sent to the FBS and therefore no high voltage is present at the FCA. LED shows green.

Display

The display shows the system status:



RET VID Return Video Button

The function of the RET VID Button can be set in the Fibre Camera Adapter menu. Please see setting *Ret SW* in the Fibre Camera Adapter's [Set-up Menu](#) for more information.

Intercom Buttons (PTT ENG, PT PD, PROG)

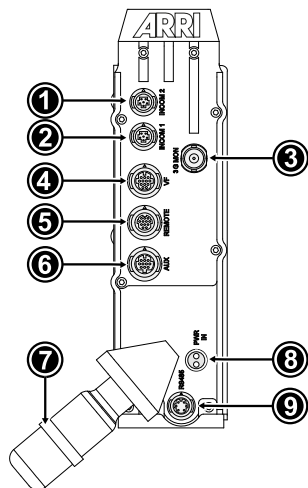
The FCA intercom buttons only operate Intercom 1. Intercom 2 is operated with a 1830 CordControl Pod in line with the headset.

- PTT ENG** Press to talk on the engineering channel – including both the 1810 Fibre Base Station front panel headset and the ENG intercom channel connected to the Fibre Base Station's rear Intercom / Call I/O connector.
- PTT PD** Press to talk on the production channel – the FBS intercom channel connected to the FBS rear intercom I/O port and it's 'CALL' O/P
- PROG** Press to monitor the program audio channel embedded in the SDI Return Video signal that is connected to the RET HD-SDI Input of the Fibre Base Station.

An incoming intercom call flashes the appropriate key. To make/return a call press the appropriate button. A short press of less than 0.5 s will latch the microphone on, a further press will turn it off. A longer press will be momentary and keep the microphone on for as long as the button is pressed. When released it will turn it off again. Whilst the microphone is on, the button will be solidly illuminated.

When the FCA Production or Engineering Mic channels are turned on the buttons will illuminate. The corresponding Incom button on the front panel of the Fibre Base Station will flash to indicate that the camera operator is communicating. Additionally, a call signal is output from the connector on the rear of the Base Station.

7.1 1820 Connectors



- 1 INCOM 2 Connector
- 2 INCOM 1 Connector
- 3 SDI MON Connector
- 4 VF Viewfinder Connector
- 5 RS 422 Connector
- 6 AUX Connector
- 7 PWR IN Connector
- 8 RS 485 Connector
- 9 SMPTE 311 Fibre Connector

INCOM 1 & INCOM 2 Connectors (HR30-6R-6S)

The Intercom system lets multiple people communicate with each other during a production. The system includes 2 channels (Production and Engineering). The production channel serves as a way for the director or video engineer to talk to the camera operators, while the Engineering channel is often used to communicate with the engineering team if a technical issue arises.

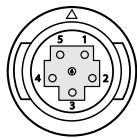
The Intercom 1 and Intercom 2 can both be set to communicate on the production or engineering channels, but they can be used by 2 operators located close to the camera. The camera operator could for example use the Intercom 1, while a floor director uses Intercom 2.

The Intercom connectors are for headsets with one or two ear cups and a dynamic microphone. When using a headset with a single earpiece, the levels of the Production and Engineering intercom audio can be adjusted in the FCA menu to mix the two together according to the user's preference. The earpieces can have a minimum impedance of 50 Ω, with a microphone level of -60 dBm.

INCOM 1: Please note that the FCA side panel incom buttons only act on Intercom 1. An 1830 Cord Control Pod (CCP) may be used in line with the headset to provide the same functionality as the FCA buttons, and offers more convenience for the camera operator.

INCOM 2: For full control of INCOM 2, an 1830 Cord Control Pod in line with the headset will be required to provide the same functionality as INCOM 1.

Please also note that the Production and Engineering MIC channels from FCA to FBS cannot be used simultaneously on both INCOM connections.



- 1 GND (Mic)
- 2 Mic I/P
- 3 GND (Headset)
- 4 Headset Left O/P
- 5 Headset Right O/P
- 6 CCP Control I/P

SDI MON Connector (BNC)

The SDI MON connector provides a monitor output from the Fibre Adapter that may be used, for example, to connect an additional floor or stage monitor. The output is derived from the SDI 1 output of the Amira Live and so the video format will follow the camera settings for that output.

When the SDI 1 output is set to 1.5G or 3G then the video output on the SDI MON BNC will be an exact duplicate of the program video output.

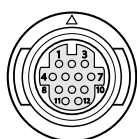
When the SDI 1 output is set to 6G the output will be 3G channel one of the Dual Link 2Si 6G video transmitted to the Fibre Base Station.

Setting the outputs to Dual Link 6G will result in the output being channel one of the four 2Si 3G channels transmitted to create a 12G video signal output at the Fibre Base Station.

Camera SDI Video Format Setting	SDI MON Scan and Frame Rate	SDI MON Output Video Format
422 1.5G HD	As set in camera	422 1.5G HD (SDI 1)
422 3G HD	As set in camera	422 3G HD (SDI 1)
444 3G HD	As set in camera	444 3G HD (SDI 1)
DL 422 3G UHD	As set in camera	3G Channel 1 of DL 3G
422 6G UHD	As set in camera	3G Channel 1 of SL 6G 2Si
DL 422 6G UHD	As set in camera	3G Channel 1 of four 3G 2Si

VF Connector (HR30-7R-12PD)

The Viewfinder connector provides a CVBS video output (see RET/QTV below), RS-232 Serial Data, Red/Green Tally and 12V power output. These may be used for an external viewfinder, teleprompt or script board, lens data/controller or remote head.



- 1 RXD
- 2 Tally Red O/P
- 3 GND (VBS Ret)
- 4 TXD
- 5 Tally Green O/P
- 6 GND (12V)
- 7 VBS Return O/P
- 8 +12V O/P (VF)
- 9 GND (12V)
- 10 GND (12V)
- 11 +12V O/P (VF)
- 12 Return Switch I/P

RS422 Connector (HR30-8R-12SD)

The RS422 connection carries RS422 serial data tunneling to the Fibre Base Station RS-422/232 I/O port. The RS422/232 interface automatically switches to RS232 when the two RX lines are connected together and have a RS232 level input. The connector provides an interface for lens data or perhaps a lens controller.

The Amira Live can also transmit a 625/525 Composite video signal connected to the Remote Port. Input termination is 75Ω.

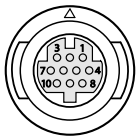


- | | | | |
|---|--------------------------|----|--------------------------|
| 1 | GND | 7 | RS422 RX+ (or RS232 RX*) |
| 2 | RS422 TX- (or RS232 TX) | 8 | GND (Rem) |
| 3 | RS422 TX+ | 9 | LANC I/o |
| 4 | VBS Monitor I/P | 10 | GND (Rem) |
| 5 | GND (Mon) | 11 | Not used |
| 6 | RS422 RX- (or RS232 RX*) | 12 | Not used |

AUX Connector (HR30-7R-10PC)

The AUX connector provides a CVBS video output (see RET/QTV below), RS232 Serial Data, 12V power output and two GPIO connections that follow the VF Connector Tally status.

The Aux connector can then be used in a similar way to the VF connector.

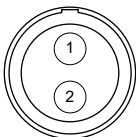


- | | | | |
|---|---------------------------|----|-----------|
| 1 | AES TX- / Cam Control TX- | 6 | +12V (VF) |
| 2 | AES RX+ / Cam Control RX+ | 7 | RS232 TX |
| 3 | GND (Aux) | 8 | GPIO1 |
| 4 | AES TX+ / Cam Control TX+ | 9 | GPIO2 |
| 5 | AES RX- / Cam Control RX- | 10 | RS232 RX |

PWR IN Connector (LEMO EGG.1B.302.CLL)

The two pin Lemo Power Input connector allows for the Amira Live to be powered from an external mains AC/DC Power Adapter or battery pack supplying a maximum of 17V. This is useful when using the system with tactical fibre that does not include power conductors. When operating on Tactical Fibre the system is capable of working over a 10Km length of cable.

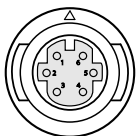
Use the External Power Input Adapter Cable (XLR5M-Lemo) to supply power.



- | | |
|---|-------------------------------|
| 1 | GND |
| 2 | +11-17 V Input (10 Amps max.) |

RS485 Connector (HR30-6R-6P)

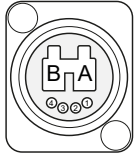
The RS-485 connection carries RS-485 Serial data tunneling to the FBS RS-485 I/O port and provides an interface for accessories such as a remote head, lens data or controller.



- | | | | |
|---|-----------|---|-----------|
| 1 | RS485 RX- | 4 | RS485 TX+ |
| 2 | RS485 RX+ | 5 | RS485 TX- |
| 3 | GND | 6 | GND |

SMPTE 311 Fibre Connector (Neutrik Opticon Duo)

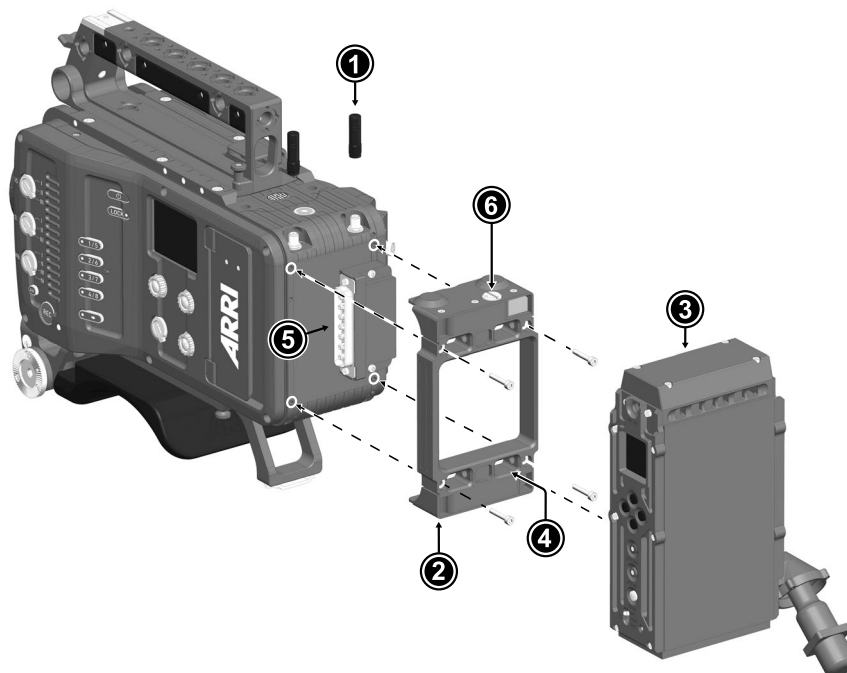
The 1820 Fibre Camera Adapter connects to the 1810 Fibre Base Station via a SMPTE 311 composite fibre/copper (or other) cable. The connection provides all the system I/O and power for the Fibre Camera Adapter and the camera.



- | | |
|---|---------|
| 1 | Power - |
| 2 | Data + |
| 3 | Data - |
| 4 | Power + |

- | | |
|----------|---------|
| A | Fibre A |
| B | Fibre B |

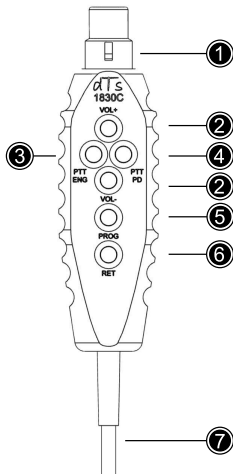
7.2 1820 Attachment to Camera



1. Switch off the camera and unplug the power supply.
2. Unscrew Bluetooth and WiFi antennas (1).
3. Using a 3.0 mm Allen key, attach the 1800 AMIRA Live Frame Mount (2) with four screws to the camera back. Hand-tighten screws crosswise.
4. Put the 1820 Fibre Camera Adapter (3) onto the frame mount, aligning the FCA guides left side with the guiding holes on the frame mount (4).
5. With the module sitting on the frame mount, slide the fibre module to the right to lock it in place and establish connection with the camera rear connector (5).
6. Turn the locking screw to secure the fibre module to the frame mount.
7. Screw Bluetooth and WiFi antennas back on.

8 1830 Cord Control Pod

The 1830 Cord Control Pod (K2.0016149) provides convenient access to intercom control for the camera operator. It is equipped with controls for Intercom (PD & ENG), volume, program audio monitor and return video switching. The controls mirror the functions available on the side panel of the 1820 Fibre Camera Adapter.



- 1 XLR5S Headphones Connector
- 2 Volume Control Buttons
- 3 PTT ENG Button
- 4 PTT PD Button
- 5 Program Button
- 6 Return Button
- 7 1,5 m Cable with Hirose Connector

Headphones Connector and Volume Buttons

The XLR5S Headphones Connector is for headsets with two ear cups and a dynamic microphone. The earpieces can have a minimum impedance of 50 Ω , with a microphone level of -60 dBm. Use the Volume buttons to control headphone volume.

Intercom Buttons (PTT ENG, PT PD, PROG)

PTT ENG Press to talk to the engineering channel – including both the 1810 Fibre Base Station front panel headset and the ENG intercom channel connected to the Fibre Base Station's rear Intercom / Call I/O connector.

PTT PD Press to talk to the production channel – the FBS intercom channel connected to the FBS rear intercom I/O port and it's 'CALL' O/P

PROG Press to monitor the program audio channel embedded in the serial data stream from the camera.

The buttons on the 1830 Control Pod are not illuminated but when connected to Incom 1, the buttons on the side of the Fibre Camera Adapter will illuminate to reflect the control pod button pressed.

When the Control Pod is connected the 'Pod' status in the Fibre Camera Adapter display will change to green to demonstrate that connection is established.

To make/return a call press the appropriate button. A short press of less than 0.5 s will latch the microphone on, a further press will turn it off. A longer press will be momentary and keep the microphone on for as long as the button is pressed. When released it will turn it off again. Whilst the microphone is on, the button will be solidly illuminated.

Return Button

When pressed it switches the program video displayed in the EVF or VMM-1 to the return video channel input of the Fibre Base Station Return HD-SDI input (depending on the RET SW Menu setting.)

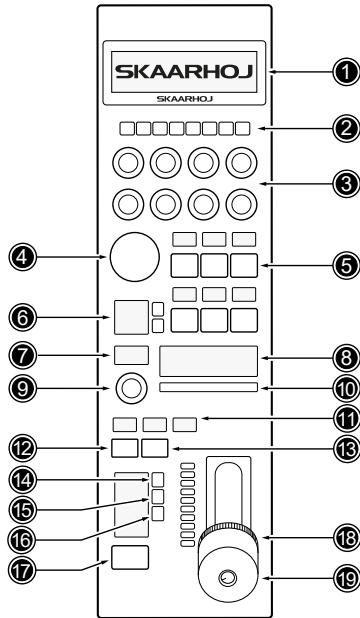
Connection of the Cord Control Pod

1. Connect the Hirose connector of the Cord Control Pod to either INCOM 1 or INCOM 2 connector of the 1820 Fibre Camera Adapter.
2. Connect your headphones to the XLR5S Headphones Connector of the 1830 Cord Control Pod
Note: For headphones with a HR30 6pin connector, please use the optional HR30 6pin to 5pin XLR Headset Adapter Cable (K2.0013646).
3. Check that the 'POD' status indicator on the Fibre Camera Adapter display goes green.

The Mounting Bracket for Cord Control Pod (K2.0021324) allows the 1830 Cord Control Pod to be attached to a pan bar up to diameter 35mm.

9 Skaarhoj RCP

The Skaarhoj RCP is a user configurable RCP, it supports the Sony Simple Protocol (SSCP) as well as the ARRI Camera Access Protocol (CAP) at the same time. All buttons are assignable. The description below explains the preset of the factory configuration.



- 1 Display
- 2 Utility Buttons
- 3 Push Dials
- 4 Not configured
- 5 Menu Buttons
- 6 White Balance Control
- 7 Master Black Display
- 8 Camera ID Display
- 9 Multi Function Dial
- 10 Tally Light
- 11 Iris Display
- 12 Mode Select Button
- 13 Start/Stop Recording
- 14 Active Panel Indication
- 15 Auto Iris
- 16 Playback Mode Button
- 17 AUX Preview Button
- 18 Master Black Control Ring
- 19 Iris Control Lever

Display

The OLED display shows the values of the different parameters assigned to the push dials (3) and utility buttons (2).

Menu Buttons, Utility Buttons & Push Dials

The six menu buttons (5) allow for switching between different parameter sets. The assignment of the utility buttons and push dials depend on the selected parameter set. Values for each parameter are displayed on the upper display (1). Following parameter sets are available:

- 1 SSCP1: R/G/B White, R/G/B, Black Master Knee Point, Master Gamma
SSCP2: R/G/B Gamma, Saturation Enable, Saturation
- 2 Sensor/CAM: Exposure Index, Exposure Unit, Shutter, Color Temperature, ND Filter, Sensor frame rate, Detail
- 3 CDL Gain: R/G/B Offset, R/G/B Slope, Master Kneepoint, Master Gamma
CDL Lift: R/G/B Power, R/G/B Slope, Saturation, Tint
- 4 Color Bars: On/Off
- 5 Scene selection / Look selection
- 6 Setup: Load Setup, Load Look up file, Record Mode, Illumination Intensity Panel Buttons

A short press on the push dial toggles between small and large steps of parameter change, a long press resets the value to the default setting.

White Balance Control

The upper button is used to perform an automatic white balance. The lower button toggles between the white balance currently set in the camera and a fixed value of 5600 Kelvin.

Camera ID Display

The camera ID display shows the camera number assigned to the RCP as set with the rotary switch on the front panel.

Tally Light

The tally light lights up when the contact (pin 8 and 9) on the EXT I/O connector is closed (dry contact).

Iris Display

The Iris display shows the current value of the iris from the lens as an F number.

Mode Select Button, Multi Function Dial and Master Black Display

The Mode Select Button (12) allows switching the assignment of the Multi Function Dial (9). Push the Mode Select button to switch between three modes:

- Master Black: allows adjusting the master black in very small steps.
- Iris Limit: set the iris limit of the Iris Control Lever (19).
- Iris Scale: adjust the iris scale of the Iris Control Lever (19).

Use the Multi Function Dial to change parameters, corresponding values are shown on the Master Black display (7).

Start/Stop Recording

The Start/Stop Recording button allows starting and stopping the camera's internal recording (provided there is a storage medium in the camera). During recording, the button lights up in red.

Active Panel Indication

The active panel indicator lights green when the panel is active and flashes red when the panel is blocked.

Auto Iris

The auto iris button toggles between automatic iris mode and manual iris control with the iris control lever (19). When automatic iris mode is activated, manual control with the iris lever is not possible.

Playback Mode Button

Press the Playback Mode button to toggle between camera live mode and in-camera playback mode. If playback mode is activated, the menu buttons (5) and Push Dials (3) are assigned with the following functions:

- Camera Mode
- Start Stop Playback
- Playback Pause
- Start/Stop Record
- Select Medium A
- Select Medium B
- Playback Speed 1x, 4x, 8x, 16x
- Jog 1x, Jog 10x, Jog 30x

AUX Preview Button

Pressing the AUX Preview button activates the GPI Out at the EXT I/O connector for preview.

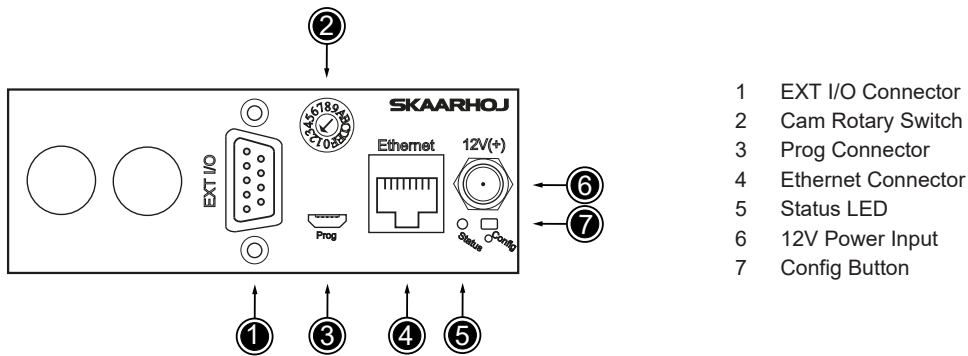
Master Black Control Ring

Use the Master black control ring to manually adjust the master black value. The value is shown in the Master Black Display (7).

Iris Control Lever

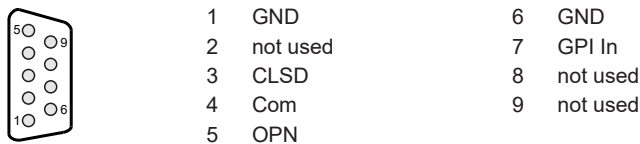
Use the Iris control lever to manually adjust the iris of the lens. The value is shown in the Iris display (11).

9.1 RCP Connectors



EXT I/O (D9 female)

The pin out of the RCP Connector EXT I/O shows the exact assignment. When the joystick top button or the “Prev” button is pressed, a relay is shorting pin 4 and 5 of the connector. That can be used to switch a crosspoint of an external router to display the camera to the shader monitor. If pin 7 is shorted to GND (pin 1 or 6) the display backlight will change from white to red, the Tally bar will light red and the camera receives the red tally command.



Cam Rotary Switch

Set the camera number 1-15 (1-F) to be displayed in the Camera ID Display.

Prog (Mirco USB)

Used for service monitoring and firmware updates.

Ethernet (RJ-45)

Connect this to your Ethernet switch. This connector may also support PoE (Power over Ethernet). When connected to a network switch, the yellow LED (lower left) will be on. When data is sent to/from the controller, the green LED (lower right) will blink. If the device in the other end supports TX/RX auto detection you may be able to connect the SKAARHOJ controller directly to your device, otherwise use a crossed cable or a network switch.

Status LED

When the controller is just powered up, you will see the status LED blink purple during the boot process. In this process, the hardware is initialized. Eventually the LED should end up blinking slowly (2 sec period) steady green (or blue or white if in config modes). If the LED blinks yellow quickly it indicates that connection to one or more devices is not established. This is perfectly normal for a few seconds between the boot up process (purple blinks) and the operational state (green blinks) when the

controller connects to all devices. The status LED should never be permanently on or off, this indicates a potential freeze in the system. In fact, in normal healthy operation the LED should blink with a steady 2 sec period, otherwise it could indicate trouble with connections or hardware. The LED will also light up red for a split second whenever an analog hardware component (such as a T-bar) is operated (this feature is helpful to determine if calibration is needed).

Purple blinking	The RCP is booting up
Yellow blinking	The RCP has not established necessary connection to one or more devices. At the end of the boot process this is natural for a few seconds as the RCP connects to devices for the first time. If you unplug the network cable or turn off an external device which the RCP is connected to, you will also see this state.
Green blinking	Normal operation, devices are connected and working properly.
Blue or White blinking	Configuration mode
Red blinking	This happens when you move an analog hardware interface component like a T-bar or knob and is totally normal in that case. If such blinking happens without touching any controls it indicates the need for calibration.
Red blinking quick	A problem with the preset memory checksum indicates that the preset memory may be corrupt. However, in most cases a "cold start" by removing the power supply, waiting 10 seconds and connecting the power supply will solve the problem. If after 2-3 attempts with this solution it still remains a problem, you must clear the preset memory. This is done by holding the config button pressed, then apply power to the controller and wait for around 15 seconds until the status LED becomes solid red (before that state, the LED should be first purple, then blue, then white for 8 seconds and finally solid red). When the LED is red, release the button and the status LED should start blinking again and the controller should boot up. Notice that your controller will be reset to factory settings in this case and you may need to reload or recreate your configuration.

12V Power Input

This is the RCPs DC input. Use a standard 2.1mm center pin plug (center = "+"). Allowed voltage range is 7-18V. The device uses max. 1A at 12V.

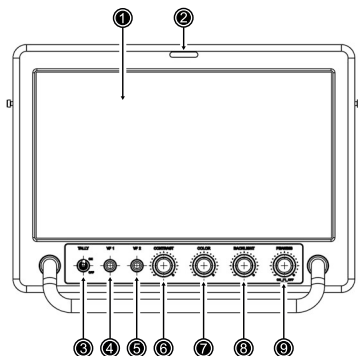
Config Button

Use a pencil or tooth pick to press the button. When you press the button shortly, the controller will reset (same as pulling the power plug). If you press and hold the button, you can reset the controller into configuration mode (as pressing "Local Configuration" in Firmware Application):

1. Press and hold the button until the status LED becomes blue after a few seconds. Release the button and the controller is in config mode. You can access the controller web interface with a web browser on "http://[CONTROLLER IP]" where CONTROLLER IP is the IP address used for the currently loaded preset. The controller will run a diagnostics mode after 2 minutes where displays and buttons will light up.
2. Press and hold the button longer until the status LED becomes white (which is 2 seconds after becoming blue). Release the button and the controller is in config default mode. You can access the controller web interface with a web browser on "http://192.168.10.99". The controller will immediately run a diagnostics mode where displays and buttons will light up.
3. Press and hold the button even longer until the status LED becomes red (which is 10 seconds after becoming blue and 8 seconds after becoming white). This will clear all presets in memory thereby resetting all configuration made in the controllers own web interface (this corresponds to the serial monitor command "clearpresets" and should only be necessary in case a firmware update requires it or if there is another tricky error state present). In rare cases you cannot rely on the reset button but have to turn off the power to the controller instead ("cold start").

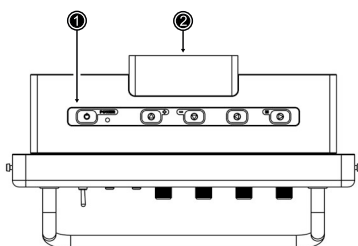
10 Video Monitor Multicam VMM-1

Monitor Front



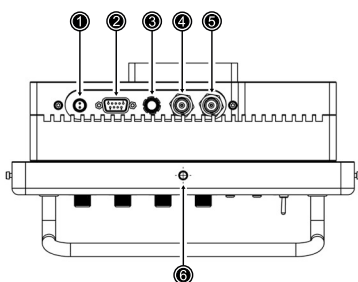
- 1 10" Display
- 2 Operator Tally LED
- 3 Tally Switch
- 4 VF 1 User Button
- 5 VF 2 User Button
- 6 CONTRAST Dial
- 7 COLOR Dial
- 8 BACKLIGHT Dial
- 9 PEAKING Dial

Monitor Top



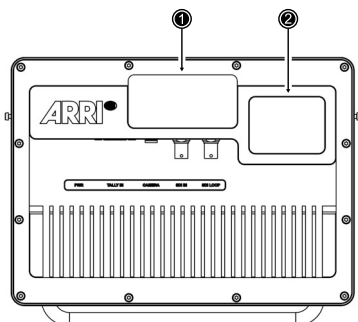
- 1 OSD Keypad
- 2 Moderator Tally LED

Monitor Bottom



- 1 PWR Power Connector
- 2 TALLY In Connector
- 3 CAMERA Connector
- 4 SDI In Connector
- 5 SDI Loop Connector
- 6 1/4"-20 UNC camera threaded hole

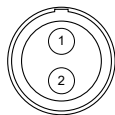
Monitor Rear



- 1 Moderator Tally LED
- 2 Camera No. Display

PWR Connector (2-pin LEMO)

The PWR connector is the main power input of the VMM-1 and accepts an input voltage range from 9.0 to 32.0 V DC. Using the VMM-1 Power Cable (K4.0034001), connect the monitor to the 12 V 2-pin LEMO power output of the ARRI AMIRA.



- | | |
|---|-------|
| 1 | GND |
| 2 | Power |

TALLY IN Connector (DE9 Female)

Use the Tally In connector in order to activate and deactivate the red and green tally lights built into the monitor.



- | | | | |
|---|---------------|---|-------------|
| 1 | Tally RED | 6 | GND |
| 2 | RxD (Service) | 7 | Tally GREEN |
| 3 | TxD (Service) | 8 | GND |
| 4 | not used | 9 | not used |
| 5 | GND | | |

CAMERA Connector (16-pin ODU)

The 16-pin ODU connector transmits images as well as control data. Connect the monitor to the camera using the AMIRA to CCP-1 cable (K2.0012223).

Alternatively, the monitor can be daisy-chained to the ARRI Camera Control Panel CCP-1 (K2.0008151) using the supplied ALEXA Mini to CCP-1 cable (K2.0009336).

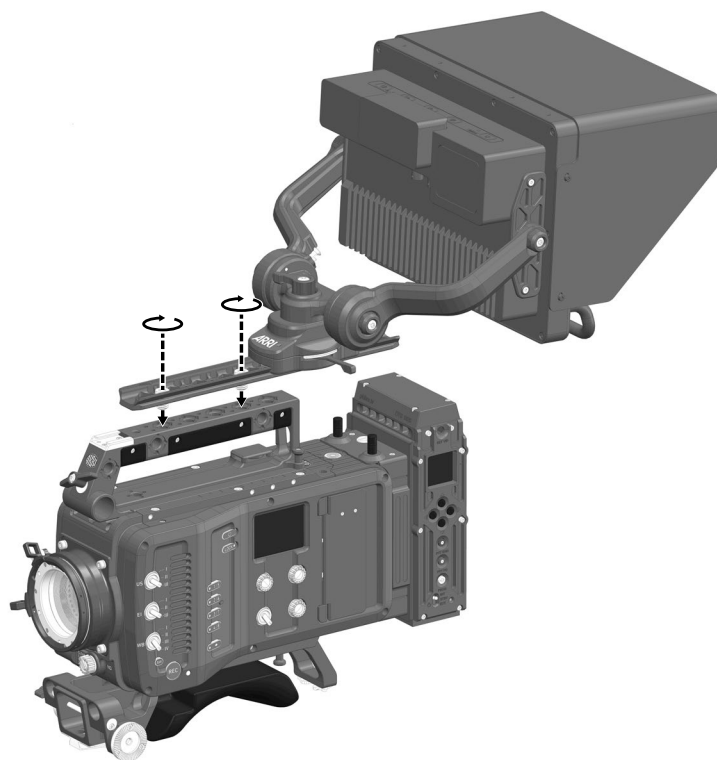
SDI IN Connector (BNC)

The SDI In connector accepts SDI signals according to SMPTE ST 292-1:2012 and SMPTE ST 425-1:2014 (3G up to 60fps).

SDI LOOP Connector (BNC)

The SDI LOOP connector is an active SDI throughput output port that outputs the signal that is present at the SDI In connector.

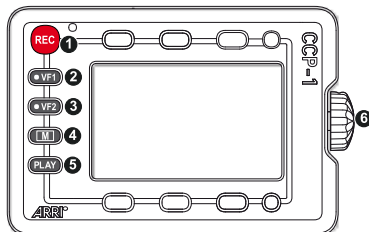
Attachment of Monitor Yoke Support MYS-1



To attach the monitor yoke to the camera handle, slide off the yoke from the rail and mount the rail using a 3.0 mm Allen Key. Then slide on the yoke again.

11 Camera Control Panel CCP-1

The Camera Control Panel 1 (CCP-1) is a standalone control panel, containing the display and a subset of the buttons of the MVF-1 viewfinder. Like the MVF-1, it can display the camera's live image or the main user interface, and the buttons reflect the behavior of the equivalent buttons of the MVF-1. It can be used as the only control panel or with a MVF-1 daisy-chained to it.



- 1 REC Recording Button
- 2 VF-1 User Button
- 3 VF-2 User Button
- 4 M Monitor Button
- 5 PLAY Button
- 6 Jogwheel

When it is used alone with the camera, the CCP-1 always shows an image.

When a MVF-1 is daisy-chained to the CCP-1, the MVF-1 will show an image in the EVF, but only one of the two monitors, either of the MVF-1 or the CCP-1 is active.

If the monitor of the MVF-1 is closed, the CCP-1 is activated.

If the monitor of the MVF-1 is opened, the monitor will be activated.

- Activate the MVF-1 by pressing a screen button on the MVF-1.
- Activate the CCP-1 by pressing any button except the *REC* button on the CCP-1.

Connecting the CCP-1 to the Camera



1. Unlock the camera handle by opening the clamp (1).
2. Pull the camera handle safety pin (2) and slide the handle off the camera.
3. Using a 2.5 mm Allen key, unscrew the viewfinder port cap (3).
4. Unplug existing viewfinder cable, plug in new cable (4) (Alexa Mini MVF-1 cable)
5. Screw on the viewfinder port cap.
6. Slide on camera handle again.
7. Connect the other end of the cable to CCP-1s CAM connector.
8. If you want to daisy chain MVF-1, connect MVF-1 to CCP-1 MVF connector.

12 System Configuration

12.1 Camera Settings

SDI Configuration

Through the 1820 fiber adapter, the AMIRA cameras output SDI signals in 1920 x 1080 (422 1.5G, 422 3G, 444 3G) or 3840 x 2160 (422 6G and Dual Link 6G) according to SMPTE standards 292M, ST 424:2012 and ST 2081.

1. To configure the SDI output of the camera, select
MENU > Monitoring > SDI
2. Configure SDI outputs 1 and 2 according to your needs.
3. To configure the SDI output color space, select

HOME > LOOK > Config > SDI 1 color space

HOME > LOOK > Config > SDI 2 color space

Following options are available:

Rec 709

Material recorded in Rec 709 (short for ITU Recommendation BT.709) has a display specific encoding. The purpose of a display specific encoding is to immediately provide a visually correct representation of the camera material, when it is screened on a certain display device. This is achieved by mapping the actual contrast range of the scene into the contrast range that a display device can reproduce. Examples of display specific encodings are Rec 709 for HDTV screens or DCI P3 for Digital Cinema Projectors. On the downside, a display specific encoding puts some limits on the options for a colorist.

Rec 2020

Rec 2020 is a wider color space than Rec 709, which is the current industry standard for HD. Rec 2020 promises more brilliant images, though only new display technology is able to show these. Traditional Rec 709 displays (like TVs or ordinary computer displays) can not display Rec 2020.

While Rec 709 is the encoding color space for HDTV, Rec 2020 is the encoding color space for UHD. The primary colors lie on the spectral locus and it is thus possible to have more saturated colors in images. It does not mean, however, that all colors look more saturated. When properly converted, Rec 709 images will look exactly the same when displayed on a Rec 2020 display. Rec 2020 is an encoding standard. A TV or display may not support the full gamut. Nevertheless, it will correctly display the colors within its physical gamut. To get the "Premium" logo of the UHD Alliance, for example, a TV needs to support a minimum of 90% of the P3 gamut.

4. Configure SDI 1 / SDI 2 color space according to your workflow.

Look Settings

In multicam mode, the look functions are part of the image parameter remote control of the RCP. You can select any look including HDR looks for multicam remote control.

1. Select HOME > LOOK and select the desired look

NOTE: Please make sure you have a look loaded which is editable (e.g. ARRI 709 Multicam), some default looks included in the camera are write protected, these looks cannot be edited. Duplicate a look (in the LOOK screen of the camera menu) or use an individual look, and set this as active

look. Otherwise the RCP controls affecting the look (all color or gamma related) will not change the parameters.

Image Processing

1. To configure image processing for each image path, select

HOME > LOOK > Config > Recording processing

HOME > LOOK > Config > EVF/Mon processing

HOME > LOOK > Config > SDI 1 processing

HOME > LOOK > Config > SDI 2 processing

Following options are available:

<i>Log C</i>	Based on the Cineon format for output to film print or digital intermediate, this logarithmic processing requires color grading in postproduction. On standard broadcast monitors, Log C images appear flat and desaturated. Proper display, dailies and editing proxies require a conversion look-up table (LUT).
<i>Look</i>	Select to apply the look set in HOME > LOOK to the output path. Applies a video display processing to camera images. The default ARRI 709 look complies with the ITU.R-BT709 standard for display on standard broadcast monitors.
<i>ALEXA Classic 709</i>	Creates a Rec 709 equivalent image in the same way that it is processed in the ALEXA Classic product line. This setting may be used when the selected Look file alters the image too drastically, but a Log C image would be too flat for monitoring.

2. Configure *SDI 1 / SDI 2 processing*:

Set *SDI 1 / SDI 2 processing* to *Look* for the color adjustments by the RCP being baked in into the SDI output signals

Set *SDI 1 / SDI 2 processing* to *Log C* for not having the look / color adjustments baked into the signal, instead the look parameters being carried in the SDI metadata.

3. Configure *Recording processing*:

Set *Recording processing* to *Look* if you want the color adjustments by the RCP to be baked in into the internal recordings on the CFast card.

Set *Recording processing* to *Log C* for not having the look / color adjustments baked into the internal recordings, instead the look parameters being carried in the clip metadata.

4. Configure *EVF/Mon processing*:

Set *EVF/Mon processing* to *Look* for the color adjustments by the RCP being applied to the EVF/ Mon output.

Set *EVF/Mon processing* to *Log C* for not having the look / color adjustments applied to the EVF/ Mon output but instead view a Log C image.

Note: This setting affects the VMM-1 Multicam Monitor (if connected to the camera viewfinder connector)

Frame Rate and Shutter

1. Select *HOME > FPS* to set the desired sensor frame rate
2. Select *HOME > SHUTTER* to set the desired shutter angle or exposure time.

Note: Ensure that the SDI frame rates are set accordingly.

Synchronization

- To synchronize the SDI outputs to the studio clock, select *MENU > System > Sensor > Genlock sync*

Following options are available:

<i>Off</i>	Genlock Sync is disabled
<i>SYNC IN</i>	The camera uses the Return In PGM signal for synchronization
<i>TC IN</i>	The camera uses an external timecode signal for synchronization
<i>REF IN / Analog</i>	The camera uses an external genlock signal (Black Burst / Tri-Level) for synchronization

- Set Genlock sync to your preference.

Use *MENU > System Sensor > Genlock Shift* to compensate for a phase shift between the studio clock and the SDI outputs.

Power Warning Level

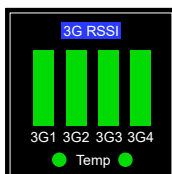
- To configure the power warning level, select *MENU > System > Power > BAT in (BAT2) warning*
- Set the warning level according to the power level of the transmission system.

Web Remote

It may be useful to have a computer connected to the ethernet network. This allows using the web remote interface (with a web browser) of each camera to check and modify camera parameters, and to e.g. trigger internal recording on cameras. The web remote can be accessed with a web browser by entering the IP address of the camera.

12.2 1810 Fibre Base Station Settings

- Press the left or right navigation button to display the 3G RSSI screen.



The 3G Received Signal Signal Strength Indicators are shown for the 3G Fibre Optic Receiver levels. These level bars will be Green for good, Yellow for moderate and Red for poor.

The temperature of the optical receivers is monitored with an indication for each pair and will turn red in an overtemperature situation.

- Press the left or right navigation button to access the main menu.
- Use the up and down navigation buttons to navigate in the menu, press the right navigation button to access items. Following options are available:

Intercom Menu		
<i>Volume</i>		Adjust headset master volume from 0 to 15.
<i>Mic Level (dBm)</i>		Adjust headset microphone level from -60dBm to -10dBm (default: -60dBm).
<i>Sidetone</i>	<i>Headset</i>	Turning the sidetone on mixes the audio from the microphone to the earpiece (default: off).
	<i>ENG Line</i>	Engineering line input audio can be looped to the output (default: off).
	<i>Prod Line</i>	Production line input audio can be looped to the output (default: off).

Intercom Menu		
<i>Incom Right</i>	<i>PD Vol.</i>	Volume level of the production channel in the right earpiece (0 to 15).
	<i>Eng Vol.</i>	Volume level of the engineering channel in the right earpiece (0 to 15).
<i>Incom Left</i>	<i>PD Vol.</i>	Volume level of the production channel in the left earpiece (0 to 15).
	<i>Eng Vol.</i>	Volume level of the engineering channel in the left earpiece (0 to 15).
<i>Prog Vol.</i>	<i>Source</i>	De-embedded program audio from left, right channels or both (Stereo).
	<i>Volume</i>	Master volume control for the de-embedded program audio (0 to 15).

Diagnostics Menu		
<i>Test Tone</i>		Turns on a 1Khz audio test tone on all Intercom Channels (default: off).
<i>Test Pattern</i>	<i>Source</i>	For diagnostics, the test pattern can be generated in the Fibre Camera Adaptor to test transmission to the Fibre Base Station or in the Fibre Base Station to test outputs (default: off).
	<i>Type</i>	If the source option is set to Fibre Camera Adaptor or Fibre Base Station then 9 different test patterns can be selected.
	<i>Format</i>	If the source option is set to Fibre Camera Adaptor or Fibre Base Station then the format of the test pattern can be selected.
<i>Versions</i>	<i>Proc.</i>	Displays the Processor software version of the main board (1812#B#.#).
	<i>FPGA</i>	Displays the FPGA firmware version of the main board (1812#A#.#).
	<i>Display</i>	Displays the Processor software version of the display board (1881#C#.#).
	<i>Option</i>	Displays the Processor software version of the SL12G option board (1807###.#).
<i>Cab Length</i>		The system performs a test on a fiber channel to estimate fiber cable length.

Set-up Menu		
<i>Genlock</i>	<i>Format</i>	The Genlock format can be automatically detected (Auto) or set manually.
	<i>Source</i>	The source of the Genlock input can be set to be GL (Analogue), HD-SDI or Composite Video (Black & Burst only).
	<i>H Adjust</i>	Adjust the Genlock horizontal offset (0±5000)
	<i>V Adjust</i>	Adjust the Genlock vertical offset (0±5000)
<i>Tally</i>	<i>ID</i>	The Tally ID can be set to display the camera channel on the Fibre Base Station and Fibre Camera Adaptor from 1 to 99.
	<i>Threshold</i>	Set the voltage level at which the Tally is triggered (default: 2V2)
	<i>Sense</i>	Set if Tally is triggered by a contact closure to logic low V or logic high voltage.

Set-up Menu		
<i>Prog Audio</i>	<i>AES</i>	Set the group and pair for audio de-embedded from HD-SDI return video for AES audio output from the Fibre Camera Adaptor.
	<i>Analog</i>	Set the group and pair for audio de-embedded from HD-SDI monitor video for analogue audio output from the Fibre Base Station (see note 1)
	<i>Incom</i>	Set the group and pair for audio de-embedded from HD-SDI return video for Intercom program audio monitoring.
<i>Timecode</i>		Setting Fibre Base Station timecode to input automatically sets the Fibre Camera Adaptor to output timecode and vice versa. Please note that Amira Live supports timecode input only.
<i>Option</i>	<i>Gearbox</i>	Configures the Program Video SDI Outputs 12/6G 1 & 2 Bypass: Output signals as on the VID 1 to VID 4 program outputs. SL6G: Outputs are set for single link 6G operation. DL6G: Outputs are set for dual link 6G operation. SL12G: Outputs are set for single link 12G operation. Please see Program Video SDI Outputs 12/6G 1 & 2 (BNC) for more information.

ERI Menu

1. Press the up or down navigation button to display the ERI status screen.



The set Tally number and IP address are displayed.

2. Press the left navigation button to enter the ERI Tally menu and use the up and down navigation buttons to increase/decrease the Tally number. Press the right navigation button to exit.
3. Press the right navigation button to enter the ERI Main menu. Use the up and down navigation buttons to navigate in the menu, press the right navigation button to access items. Following options are available:

<i>IP Adjust</i>	<i>Address</i>	Set the IP address of the Ethernet Remote Interface.
	<i>Submask</i>	Set the Sub-Net Mask for the IP address of the Ethernet Remote Interface.
	<i>Gateway</i>	Set the IP address of the router or network gateway if used to connect to an external network.
<i>Tally Adjust</i>	<i>Tally Sense</i>	Sets whether Tally is triggered by a logic low or high sense in configurations where the ERI is used to 'inject' the Tally command.
	<i>Threshold</i>	Changes the threshold at which a Tally input triggers the Tally function.

<i>RCP Ctrl</i>	<i>Serial:</i> Set RCP Control to Serial when using a Sony RCP connected with a serial RS422 data cable. <i>Ethernet:</i> Set RCP Control to Ethernet when using a Sony RCP connected with an ethernet cable. <i>Bypass:</i> Set to Bypass when passing RS422 data through without conversion or protocol conversion.
<i>Restore Default</i>	Restore default settings to the ERI including default IP addresses (reboot initiated).
<i>ERI</i>	Displays the ERI software version 1841###.###.

12.3 1820 Fibre Camera Adapter Settings

1. Press the left or right navigation button to access the menu.
2. Use the up and down navigation buttons to navigate in the menu, press the right navigation button to access items. Following options are available:

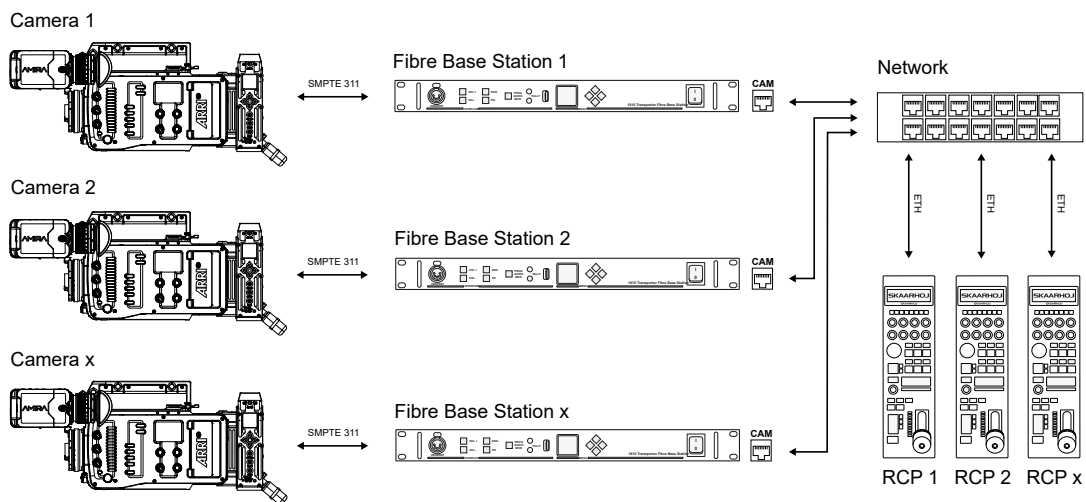
Intercom Menu		
<i>Volume</i>		Adjust headset master volume from 0 to 15.
<i>Mic Levels</i>	<i>H/S 1 (dBm)</i>	Adjust headset 1 microphone level from -60dBm to -10dBm (default: -60dBm).
	<i>H/S 2 (dBm)</i>	Adjust headset 2 microphone level from -60dBm to -10dBm (default: -60dBm).
<i>Sidetone</i>		Mix the microphone audio from Incom 1, Incom 2 or both to the headset (default: off).
<i>Incom Right</i>	<i>PD Vol.</i>	Volume level of the production channel in the right earpiece (0 to 15).
	<i>Eng Vol.</i>	Volume level of the engineering channel in the right earpiece (0 to 15).
<i>Incom Left</i>	<i>PD Vol.</i>	Volume level of the production channel in the left earpiece (0 to 15).
	<i>Eng Vol.</i>	Volume level of the engineering channel in the left earpiece (0 to 15).
<i>Prog Audio</i>	<i>Volume</i>	Master volume control for the de-embedded intercom program audio monitor channel (0 to 15).
	<i>Output</i>	Select to output to program monitor to left, right or both (stereo) headset earpiece.

Diagnostics Menu		
<i>HP Tone</i>		Turn on 1Khz audio tone to test intercom channels to headsets (default: off).
<i>Firmware</i>	<i>Proc.</i>	Software version of the Fibre Camera Adaptor main board processor – 1821#B#.#
	<i>FPGA</i>	Firmware version of the Fibre Camera Adaptor main board FPGA – 1821#A#.#
	<i>Display</i>	Software version of the Fibre Camera Adaptor display board processor – 1832#A#.#

Set-up Menu		
<i>RS232 I/O</i>		Set the RS232 I/O data path to be available on the 10W HR-30 AUX connector or 12W HR-30 VF connector.
<i>MON I/P</i>		The composite video input can be switched from the Camera Monitor BNC or RS422 Remote Port (Default: Remote (VBS)) Please note: Monitor Input BNC not available on Amira Live
<i>Ret SW</i>	<i>Disabled</i>	The internal down converter of the Fibre Camera Adapter no longer switches between the camera's live image and the Return Video image input at the Fibre Base Station. This is the default setting when using the Amira Live VMM-1 Monitor since the video switching is performed with this unit combined with the Amira Live Camera head.

Set-up Menu		
	<i>HDSDI</i>	The internal down converter performs the video switching between the camera live image and the Return Video image input at the Fibre Base Station. This function may be used when a different monitor solution is required. However, please note that for correct operation of this function additional adjustments and configuration must be considered.
	<i>Comp</i>	The composite video input signal connected to the remote port input can be switched to the composite video Return signal input at the Fibre Base Station. This function may be used when a different monitor solution is required. However, please note that for correct operation of this function additional adjustments and configuration must be considered.
<i>Tally</i>	<i>Red Bright</i>	Set the brightness of the Fibre Camera Adaptor top red Tally indicator (Default: 0)
	<i>Green Bright</i>	Set the brightness of the Fibre Camera Adaptor top green Tally indicator (Default: 0)
	<i>Polarity</i>	Sets whether the Tally outputs from the VF or AUX ports is high for ON or LOW for ON.

12.4 Skaarhoj RCP Setup



Network Settings of Skaarhoj RCP

1. Download and install the latest version of the Skaarhoj Firmware Updater: <https://www.skaarhoj.com/support/firmware-updater>
2. Connect the RCP to your Computer using a Mini USB to USB cable.
3. Start the Skaarhoj Firmware Updater.
4. Navigate to *IP Config*.
5. Enter IP settings and click on *Save Settings*.

Camera Settings

Network Settings

To establish communication between the camera and the Skaarhoj RCP the camera's LAN needs to be configured to use a static IP address within the same range as the RCP.

1. Select *MENU > System > Network/WiFi > LAN IP mode* and set LAN IP mode to *Static*.
2. Select *MENU > System > Network/WiFi > LAN static IP*

and set the desired LAN Static IP address.

3. Select *MENU > System > Network/WiFi > LAN static subnet* and set the desired LAN Static subnet.

Camera Access Protocol (CAP) Settings

The Camera Access Protocol (CAP) is the communication protocol for camera and Skaarhoj RCP. The protocol incorporates functions to perform color grading, query and set values like exposure index or sensor frame rate, start and stop recording and many more.

1. Select *MENU > System > Camera Access Protocol (CAP) > CAP server enabled* and set remote access to the camera via the Camera Access Protocol to on by checking the box.
2. Select *MENU > System > Camera Access Protocol (CAP) > Cap Server Password*.
3. Use the on-screen keyboard to enter a password used for Camera Access Protocol connections. Default password for the CAP interface is "skaarri".

Multicam Settings

1. Connect the camera to the RCP via ethernet.
2. Select *MENU > System > Multicam > SSCP device IP*. and enter the IP address of the Skaarhoj RCP.
3. Select *MENU > System > Multicam > SSCP device port*. and enter the port number of the Skaarhoj RCP.
4. Activate *Multicam* by checking the box.

1810 Fibre Base Station Setting

Set the RCP Control in the menu of the Fibre Base Station to *Bypass*:

1. Press the up or down navigation button.
The ERI status screen is displayed.
2. Press the right navigation button to enter the ERI main menu.
3. Set *RCP Ctrl* to *Bypass*.

12.5 Iris Control with cforce mini RF motor

As of Sup 6.1, the camera supports to operate the iris of cine lenses without an integrated servo directly with the cforce mini RF motor (K2.0016802) in conjunction with the PL-Hirose Mount of AMIRA.

No additional C-Motion Broadcast Camin is required.

Mounting the Lens Motor to Rods

1. Open the clamp console by turning the thumbscrew counterclockwise.
2. Attach the clamp console on the rod, with the motor gear engaged to the lens barrel.
3. Close the clamp console by turning the thumbscrew clockwise.

Motor Setup

4. Using Cable CAM (7p) - ENG (12p) (K2.001575), connect the cforce mini RF motor to the Hirose connector of the camera mount.
5. Press the upper control button on the lens motor to set the lens motor axis to *IRIS*.

6. Press and hold the upper button for three seconds to start the automatic calibration of the motor.
7. Press the lower control button on the lens motor to select the radio channel.

Connecting to WCU-4 Hand Unit

8. Set the hand unit to the same radio channel as the cforce mini RF (refer to user manual of the hand unit).
9. Set the motor side, torque and direction of the lens motor (refer to user manual of the hand unit).

How To create Lens Table

1.

please see [ARRI Tech Tip: How to program a lens file](#)

Uploading Lens Table to Lens Motor

- ▶ Use the WCU-4 hand unit to create and/or upload the lens table file of the used lens to the lens motor

The lens table file must be loaded onto the cforce mini RF lens motor.

The lens table file can be created with the WCU-4 hand unit and then be transferred to the cforce mini RF lens motor.

If there is no lens table file loaded on the motor, a indication is shown on the camera viewfinder. Software version **XXXX** must be installed on the cforce mini RF lens motor.

⚠ CAUTION!



Risk of injury! Do not touch motor gear while motor is powered up!

This device is not intended for use by children. Keep body parts out of the motion path.

13 List of Supported Commands

13.1 Sony Simple Camera Protocol (SSCP) Commands

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description	Used in current programing
ARRI Amira: Iris			Iris		Controls the iris of the lens	✓
ARRI Amira: Auto Iris			Auto Iris	On/Off	Enables the auto iris function	✓
ARRI Amira: Iris Limiter			Iris Limit	F1.0 to F29.0	Limits the iris opening position of the lens	✓
ARRI Amira: Iris Scaler			Iris Scale	100% to 0%	Limits the lever travel of the iris lever	✓
ARRI Amira: Shutter / ECS			ECS	On/Off	Switching between standard and ECS shutter	×
ARRI Amira: Shutter Speed			Shutter / ECS	variable	Variates the shutter	×
ARRI Amira: Master Black			M.Black	Default 0 (-2.000 to +2.000)	Black Level adjustment	✓
ARRI Amira: Master Black Gamma			M.BGamma	Default 0 (-0.500 to +0.500)	Adjust the gamma correction of the dark sections for R/G/B at the same time	✓
ARRI Amira: Master Gamma			M.Gamma	Default 1.000 (0.500 to 1.500)	Adjust the gamma level or R/ G/B at the same time	✓
ARRI Amira: White Balance			W.Balance	Default 3200K (2000K to 11000K)	Setting the color temperature	✓
ARRI Amira: 5600K Override			5600K	On/Off	Set the color temperature to 5600K	✓
ARRI Amira: Auto White Balance Execute			Auto WB		Performs an Auto White Balance	×
ARRI Amira: Color	Black	Red	R.Black	Default 0 (-0.500 to +0.500)	Adjustment of the red balance in black	✓
		Green		Default 0 (-0.500 to +0.500)	Adjustment of the green balance in black	✓
		Blue		Default 0 (-0.500 to +0.500)	Adjustment of the blue balance in black	✓
	White	Red	R.White	Default 0 (-0.500 to +0.500)	Adjustment of the red balance in white	✓
		Green		Default 0 (-0.500 to +0.500)	Adjustment of the green balance in white	✓
		Blue		Default 0 (-0.500 to +0.500)	Adjustment of the blue balance in white	✓
	Gamma	Red	R.Gamma	Default 0.500 (0 to 1.000)	Adjust the red gamma level	✓
		Green		Default 0.500 (0 to 1.000)	Adjust the green gamma level	✓
		Blue		Default 0.500 (0 to 1.000)	Adjust the blue gamma level	✓

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description	Used in current programming
ARRI Amira: ND Filter			ND Filter	Default 0 = clear (1 = 0.6 / 2 = 1.2 / 3 = 2.1)	Selection of the available ND Filters	×
ARRI Amira: Knee Point			M.KnPoint	Default 0.500 (0 to 1.000)	Adjust the level for R/G/B simultaneously	✓
ARRI Amira: Gain			Gain	Default 0dB (- 6dB/-3dB/0dB/3dB/6dB/9dB/12dB)	Set the Exposure Index related dB	×
ARRI Amira: Detail			Detail	Default 0.500 (0 to 1.000)	Set the Detail level	✓
ARRI Amira: Detail Enable			Detail En	On/Off	Enables the Detail adjustment	×
ARRI Amira: Saturation			Saturation	Default 1.000 (0.000 to 1.999)	Set the level of color saturation	✓
ARRI Amira: Saturation Enable			SatEn	On/Off	Enables the color saturation adjustment	✓
ARRI Amira: Color Bars			ColorBars	On/Off	Activates the color bars on SDI output of the camera head.	✓
ARRI Amira: Tally	Red		Tally R	On/Off	Execute Red Tally at the camera	×
	Green		Tally G	On/Off	Execute Red Tally at the camera	×
ARRI Amira: Call			Call	Trigger (Red Tally)		×
ARRI Amira: Scene File				Scene File 1 - 8	Selection 8 memory locations available	✓

13.2 Camera Access Protocol (CAP) Commands

The Camera Access Protocol (CAP) is an IP based API used to control and monitor ARRI cameras via a network connection. The protocol incorporates functions to perform color grading, query and set values like exposure index or sensor frame rate, start and stop recording and many more.

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description
ARRI Amira CAP: CDL	Slope	Red	SLOP.R	Default 1.000 (0.500 to 2.000)	Adjust the red slope level (CDL parameter)
		Green	SLOP.G	Default 1.000 (0.500 to 2.000)	Adjust the green slope level (CDL parameter)
		Blue	SLOP.B	Default 1.000 (0.500 to 2.000)	Adjust the blue slope level (CDL parameter)
	Offset	Red	OFF.R	Default 0.000 (-0.50 to 0.500)	Adjust the red offset (CDL parameter)
		Green	OFF.G	Default 0.000 (-0.50 to 0.500)	Adjust the green offset (CDL parameter)
		Blue	OFF.B	Default 0.000 (-0.50 to 0.500)	Adjust the blue offset (CDL parameter)
	Power	Red	POW.R	Default 1.000 (0.500 to 2.000)	Adjust the red power level (CDL parameter)

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description
		Green	POW.G	Default 1.000 (0.500 to 2.000)	Adjust the green power level (CDL parameter)
		Blue	POW.B	Default 1.000 (0.500 to 2.000)	Adjust the blue power level (CDL parameter)
ARRI Amira CAP: CDL Saturation			C.SAT	Default 1.000 (0.500 to 2.000)	Set the level of CDL color saturation
ARRI Amira CAP: White Balance			C.TEMP	Default 5600K (2000K to 11000K)	Setting the color temperature
ARRI Amira CAP: Tint			TINT	Default 0.0 -16.0 bis +15.0	Set the level of Tint (CDL parameter)
ARRI Amira CAP: Auto White Balance			AWB		Performs an Auto White Balance
ARRI Amira CAP: Exposure Index	ISO		EI	Default 800 (160 to 3200)	Set the Exposure Index related to ISO
	dB		EI	0.0db (-14.00 to +12bB)	Set the Exposure Index related dB
ARRI Amira CAP: Sensor FPS			FPS	23,97 to 60	Set the sensor frame rate
ARRI Amira CAP: Shutter Angle			SHUTTER	Variable (depending on used FPS)	Set the shutter related to angle
ARRI Amira CAP: Exposure Time			SHUTTER	Variable (depending on used FPS)	Set the shutter related to time
ARRI Amira CAP: ND Filter			NDFILTER	Default 0.0 = clear (0.6, 1.2, 2.1)	Selection of the available ND Filters
ARRI Amira CAP: Exposure Unit			E.UNIT	Time / Angle	Selection of the shutter unit
ARRI Amira CAP: Look File	Slot 1-10		L.Slot	Load / Save / Save / Load	Saving the current look as a look file in the camera memory
ARRI Amira CAP: Look File by Name			Look		Loading and activating a look file from the camera memory
ARRI Amira CAP: User Setup			LoadSetup		Loading and activating a setup file from the camera memory
ARRI Amira CAP: Recording Mode			R.MOD	Default: Normal Recording (Norm, Pre, Inter, StoMo)	Selecting a recording mode for internal camera recording
ARRI Amira CAP: Record			REC	STBY/REC	Start/Stop of the internal camera recording
ARRI Amira CAP: Playback Mode			Mode	Normal/Play	Normal: switch the SDI output of the camera to the live image. Play: switch the SDI output of the camera to the play back mode of clips stored on the CF Card
ARRI Amira CAP: Play			PLAY	Play	Start the playback of the selected clip stored on CF card.
ARRI Amira CAP: Clip Change			C.CHANGE	Next/Prev	Selecting a clip to play back
ARRI Amira CAP: Jog	Frames 1-200		J.JOG <1> ... <200>	Forward / Reverse	Jog forward and backward in the currently loaded clip at predefined speeds
ARRI Amira CAP:	x1		P.SPEED 1x		Changing playback speed and direction while the clip is running

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description
Playback Speed	x4		P.SPEED 4x		Changing playback speed and direction while the clip is running Fastforward x4
	x8		P.SPEED 8x		Changing playback speed and direction while the clip is running Fastforward x8
	x16		P.SPEED 16x		Changing playback speed and direction while the clip is running Fastforward x16

13.3 Skaarhoj System Commands

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description	Used in current programing
System: Shift Level					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: State					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Memory					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Memory Group					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Memory Group Prests					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Cycle Memory					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Flag					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Flag Condition					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Camera Select					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Set Tally					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Auto Shift Level					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Auto Shift Register					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Local Shift Register					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Local State Register					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Local Color					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Local Graphic					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Local Label					Please refer to the Skaarhoj UniSketch documentation: System Actions	
System: Local Display Color					Please refer to the Skaarhoj UniSketch documentation: System Actions	

Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description	Used in current programming
System: Local Display Font	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Transform 4-way Behavior	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Force HWC Type	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Tie to HWC#	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Range Limiter	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Value Scaler	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Custom Handler	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Synthesized Trigger	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Wall x/10s second	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Inactivate	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Panel Brightness	LEDs		Buttons	Default LEDs	Brightness adjustment of the buttons over all	✓
	OLEDs		Display		Brightness adjustment of the displays over all	×
	All		Brightness		Brightness adjustment of the buttons and displays over all	×
System: Panel Force Global Color	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Panel Sleep Time	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Alternative Display	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Flash Light	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Web Config			Webconfig	On/Off	Enables the local WebInterface	×
System: System Info			SysInfo	OK Connection /Disconnected	Info status of the network connection to the camera	×
System: IP Setup	Panel - Static/DHCP+IP +Subnet		D/S IP+Sub	Static/DHCP / Panel IP / Subnet Mask	Switching between Static and DHCP Mode. Entering the Panel IP and Subnet Mask	×
	Panel - IP		IP		Entering the Panel IP address	×
	Panel - Subnet		Subnet		Entering the Subnet Mask	×
	Panel - Gateway		Gateway		Entering the Gateway address	×
	Panel - DNS		DNS		Entering the DNS address	×

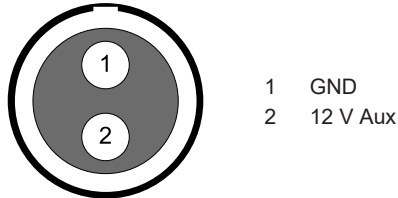
Command	1st Sub Command	2nd Sub Command	Display Indication	Possible Selection	Description	Used in current programing
	Panel - Static/DHCP		Dyn/Stat		Switching between DHCP and Static IP Mode	×
	Panel - All		IPcfg(All)	Static/DHCP / Panel IP / Subnet Mask / Gateway / DNS/DC#1 Enable / DC#1 IP setting / DC#2 Enable / DC#2 IP setting	Setting and configuration of all individual parameters	×
	Device Core - All		DC ALL	DC#1 Enable / DC#1 IP setting / DC#2 Enable / DC#2 IP setting	Setting and configuration of all device core parameters	×
	Device Core #1 En/IP		DC#1	DC#1 Enable /DC#1 IP setting	Enabling device core 1 and setting of the IP address	×
	Device Core #2 En/IP		DC#2	DC#2 Enable /DC#2 IP setting	Enabling device core 2 and setting of the IP address	×
System: Live IP Change	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Device Core enable	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Output Transformation	Please refer to the Skaarhoj UniSketch documentation: System Actions					
System: Command	Reboot		Reset		Initiated a Panel Reboot	×
	Clear Pre-sets		Preset		Reset the local panel configuration to the last online panel Configuration	×
System: No Action					Assignment of no function	✓
System: BP Mode	Please refer to the Skaarhoj UniSketch documentation: System Actions					

14 Appendix

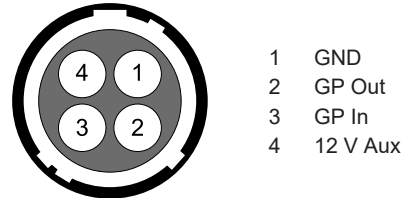
14.1 Connector Pin-Outs (Camera)

Note: All pin-outs for camera interfaces appear as seen by the user.

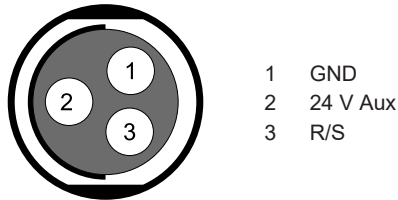
12 V (LEMO EEG.0B.302.CLN.A365)



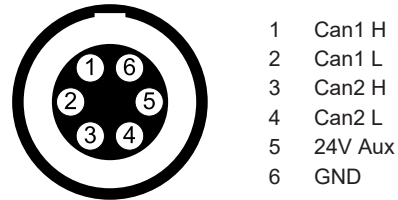
12 V Hirose (Hirose HR10-7R-4S)



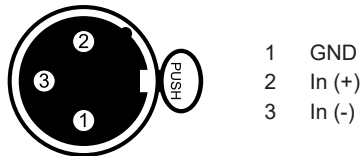
RS (Fischer DPB102A052-130)



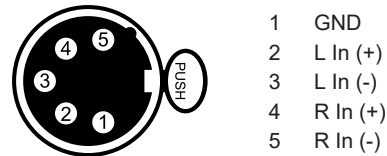
EXT (LEMO EEG.1B.306.CLN)



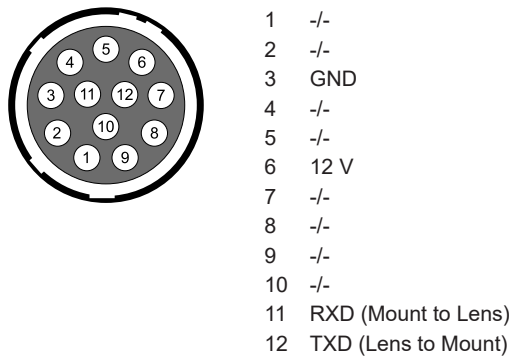
XLR 3pin



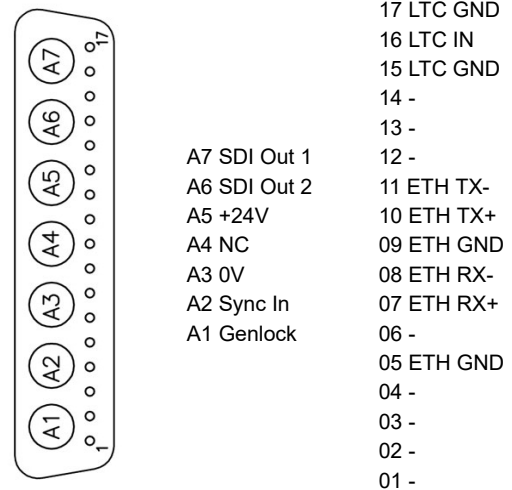
XLR 5pin



ENG (Hirose HR10-10R-12S(73))



D-SUB 24W7



14.2 ARRI Service Contacts

**Arnold & Richter Cine Technik
GmbH & Co. Betriebs KG**
Herbert-Bayer-Str. 10
80807 Munich
Germany
+49 89 3809 2121
Business hours:
Mo. - Fr. 09:00 - 17:00 (CET)
service@arri.de

ARRI Inc. / West Coast
3700 Vanowen Street
CA 91505 Burbank
USA
+1 818 841 7070
Business hours:
Mo. - Fr. 09:00 am - 05:00 pm (PT)
service@arri.com

ARRI Canada Limited
1200 Aerowood Drive, Unit 29
ON L4W 2S7 Mississauga
Canada
+1 416 255 3335
Business hours:
Mo. - Fr. 08:30 am - 05:00 pm (EDT)
service@arri.com

ARRI China (Beijing) Co. Ltd.
Chaowai SOHO Tower C, 6/F, 0628/0656
Chaowai Dajie Yi 6
Beijing
China
+86 10 5900 9680
Business hours:
Mo. - Fr. 09:00 am - 06:00 pm (CST)
service@arri.cn

ARRI Brasil Ltda
Avenida Ibirapuera 2907 – Cj. 421, Indianópolis
04029-200 São Paulo
Brazil
+55 1150419450
Business hours:
Mo. - Fr. 09:00 am - 05:30 pm (BRT)
arribrasil@arri.com

ARRI CT Limited / London
2 Highbridge, Oxford Road
UB8 1LX Uxbridge
United Kingdom
+44 1895 457 000
Business hours:
Mo. - Thu. 09:00 - 17:30
Fr. 09:00 am - 5:00 pm (GMT)
service@arri-ct.com

ARRI Inc. / East Coast
617 Route 303
NY 10913 Blauvelt
USA
+1 845 353 1400
Business hours:
Mo. - Fr. 08:00 am - 05:30 pm (EST)
service@arri.com

ARRI Australia Pty Ltd
Suite 2, 12B Julius Ave
NSW 2113 North Ryde
Australia
+61 2 9855 4305
Business hours:
Mo. - Fr. 08:00 am - 05:00 pm (AEST)
service@arri.com.au

ARRI ASIA Limited
41/F One Kowloon, 1 Wang
Yuen Street Kowloon Bay
Hong Kong
P. R. China
+852 2537 4266
Business hours:
Mo. - Fr. 09:00 am - 06:00 pm (HKT)
service@arri.asia

LINKA İthalat İhracat ve Dış Tic.
Distributor
Halide Edip Adivar Mah. Darülaceze Cad.
No:3 Akın Plaza Kat:5 95-96
34381 Şişli, İstanbul
Turkey
+90 2123584520
Business hours:
Mo. - Fr. 09:00 - 18:00 (EET)
service@linkgroup.com.tr

CINEOM Broadcast DMCC.

Unit No. 2109, Jumeirah Bay Tower X2 Cluster X
Jumeirah Lakes Towers
P.O Box 414659
Dubai, UAE
+971 (0) 45570477
Business hours:
Sa. - Th. 10:00 am- 06:00 pm
arriservice.me@cineom.com

CINEOM Broadcast India Pvt. Ltd.

C-4, Goldline Business Centre
Link Rd. Malad West
400 064 Mumbai
India
+91 (0)22 42 10 9000
Business hours:
Mo. - Sat. 10:00 am - 06:00 pm (IST)
arrisupportindia@cineom.com

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