SkyPanel X

Disclaimer

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

The product is available for commercial customers only.

For product specification changes since this document 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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Original version.

Initial Language

The initial language of this user manual is English. User manuals in other languages are translations from English.

In the event of conflict between the respective languages (i.e. if any translation(s) of present document has/have been prepared for convenience or any other purpose), with regards to the meaning or interpretation of a word or an instruction etc., the contents and provisions of the English language version shall prevail.

For Further Assistance

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Content

1 About this Document

This operating manual is aimed at everyone involved in using the device. It 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 device for the first time.

This operating manual is an essential part of the device. It must be easily accessible and in close proximity to the device so that users can use it as a reference anytime.

The separate user manual contains more detailed information about the features and functionalities of the device. Please visit the website www.arri.com to download the user manual.

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

For useful information in addition to these manuals please have a look at the ARRI learn & help section on the ARRI website.

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

Our advanced service training courses are designed to transfer detailed knowledge about how to service and repair all types of ARRI products and give you permanent access to detailed service instructions, special tools and service parts. To learn more, please visit ARRI academy or contact academy@arri.de.

For more details about the product, please refer to the ARRI website at:	Searchkeys: SkyPanel X, L1.0048487, L1.0048488
SkyPanel X product page	ARRI documentation portal

Document Revision History

Document ID: L5.0049708

Version	Release	Date	Note
1.0		November 2023	First release
1.1	L04144	February 2024	Certifications added
			Minor changes and additions
1.2	L04239	June 2024	Black version added, LiOS features updated

2 About this Product

2.1 Introduction to SkyPanel X

The SkyPanel X represents the next generation of high-end panel lights – max connectivity and best color/brightness setup. It enables maximum usability for users and rentals while keeping the high-end parameters of ARRI in terms of quality, innovation and reliability.

The SkyPanel X is conceived as a state of the art modular design able to deliver soft and hard lighting. It is optimized for fast, safe and intuitive operation.

The SkyPanel X is an IP 66-rated device. It is protected against powerful water jets (100 liters per minute at 3 m distance with a 12.5 mm nozzle from all directions). This must be clear cold water to avoid corrosion and other material degradation, and never related to high-pressure jet or steam cleaning, which corresponds to a different rating.

ARRI did not only test the SkyPanel X in its facilities and on the field, but also by an independent lab, the TÜV Süd. The test includes a dust-tight test (IP 6x), a waterproof test (IP x6), an electrical safety check after both tests, plus an overall overview on searching for any trace of water inside of the fixture after all testing is performed.

2.2 Technical Data (Single Device)

Physical

Wide x height x depth (without yoke)	738 x 339 x 154 mm / 29.1 x 13.3 x 6.1 in
Weight (without yoke and accessories)	15 kg / 33 lbs

Construction

Color	blue / silver
	black
Housing	Composite and aluminum
Protection glass	3 mm, IK06
Protection rating	IP 66
Protection Class	I

Installation

Mounting	28 mm Spigot
Approved inclination	+/- 90°
Minimum clearance around device	20 in / 0.5 m
Minimum distance from light aperture to persons, objects or surfaces	1.0 m / 40 in

Thermal

Cooling	passive and active cooling
Number of fans	2
Noise level (High CRI Vari Fan)	<= 30 dB(A)
Noise level (Standard)	<= 20 dB(A)
Noise level (High Output)	<= 38 dB(A)

Electrical

Power supply range	100 - 240 V ~, 50 / 60 Hz
Battery power range	48 V - 52 V =
Typical power draw	800 W
Power factor	> 0.98 (Full load, 230 V / 50 Hz)
THD (Voltage)	< 0.1% (Full load, 230 V / 50 Hz)

Control and Programming

DMX channels	12 - 156, depending on mode
Setting and addressing	User menu and remote via control network, web portal, Bluetooth 5.0
DMX compliance	ESTA DMX512A
	LumenRadio CRMX, CRMX-2, W-DMX (all generations)
RDM compliance	ANSI E1.31
Art-Net	Version 4
sACN	ANSI E1.31
HTTP	Web, mDNS Bonjour, PTP, NTP
Firmware update	Via USB port, network and ALSM

Connectors

MAINS IN/THRU	powerCON TRUE1 TOP
BATTERY 48V DC	3-pin XLR connector, male
DMX IN / DMX OUT	5-pin XLR
LAN 1/2	RJ-45 connector (EtherCON compatible), IP 65
Control Panel	PoE socket, LEMO, IP 69

Light Source

Type	Soft or hard light
Number of light engines	4
Calibrated white light range	1.500 K - 20.000 K
Colored light	RGBACL color mixing
Color rendition index CRI	90 min. / 99 max. (High CRI VariFan mode)
TLCI	93 (typical, High CRI VariFan mode)
Green – Magenta point	-1 / +1

Optical Path

Type	Soft or hard light
Open face, beam angle	120°
X21 Dome, beam angle	106°
HyPer optic, beam angle	11°

Dynamic Functions

Dimmer	electronic, 0 - 100%
Color mixing	CCT, HSI, RGBW, RGBACL, Effect, XY, Gel, Source Matching

User Interface

Device menu	Detachable ALL-WEATHER control panel with display and buttons
USB-C port	USB 2.0
	5 V / 3.0 A

Note: Technical data is subject to change without notice.

2.3 Intended Use

> **NOTICE**
>
> The SkyPanel X and its accessories are intended to illuminate persons and objects in a dry or wet environment. The device meets protection class IP 66. Although it is protected against the ingress of dust and moisture, it must not be permanently installed outdoors.
>
> Always follow the safety information. Any usage other than described in this operating manual is not permitted and can damage the device. It can lead to associated risks such as short-circuit, fire hazard, electric shock, etc. You are not allowed to modify the device or its accessories.

2.4 Identification

The SkyPanel X serial number is located on a label on the back of the SkyPanel X underneath the climate membrane.

The serial number consists of the last 4 digits of the product number L1.0048474-1234 (here: 1234).
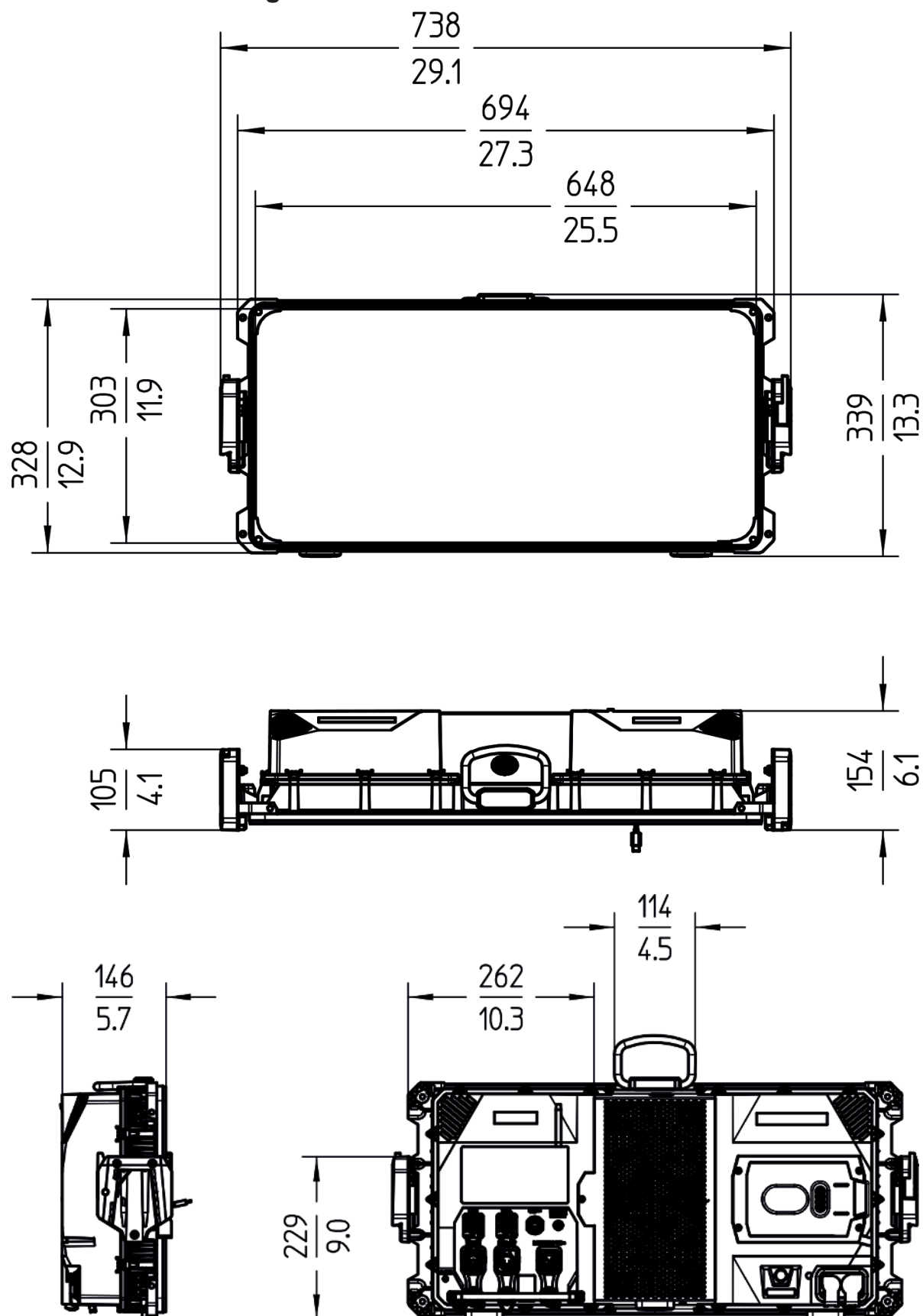
2.5 Environmental Conditions

The SkyPanel X should only be used and stored under certain environmental conditions.

Check the following conditions before commissioning and operation:

Permissible Operating Temperature	-20° C to +40° C / -4° F to +104° F
Permissible Storage Temperature	-20° C to +60° C / -4° F to +140° F
Permissible Humidity	0 - 95% RH from -20° C to +40° C / -4° F to +104° F
	Non condensing

2.6 Dimensional Drawings

738
29.1

694
27.3

648
25.5

303
11.9

328
12.9

339
13.3

105
4.1

154
6.1

114
4.5

146
5.7

262
10.3

229
9.0

All dimensions in mm (above line) and in (below line).

2.7 Scope of Delivery and Warranty

NOTICE

The packaging consists of recyclable materials. For the sake of the environment, dispose 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 content are intact. Never accept a damaged or incomplete delivery.

Delivery

ARRI offers different SkyPanel X sets for different applications. Please visit the ARRI website and check the product catalog if you received a complete delivery.

Warranty

For scope of warranty, please ask your local ARRI service center. ARRI is not liable for consequences from inadequate shipment, improper use or use of third-party products.

2.8 To Replace the Light Source

NOTICE

To Replace the Light Source

The light source contained in this luminaire is replaceable. If the light source has reached the end of its operational life or if the light source fails before it reached the end of its specified operational life, please contact the manufacturer or his service agent or a similar qualified person.

2.9 Certifications and Safety Standards

EU Declaration of Conformity

Brand Name:	ARRI
Product Name:	SkyPanel X
Product Description:	Luminaire for stage lighting, television and film studios (outdoor and indoor). LED luminaire for professional use.

The product conforms to the specifications of the following European directives:

- Directive 2014/53/EU of the European Parliament and 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
- Directive 2011/65/EU of the European Parliament and the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and the Commission Delegated Directive (EU) 2015/863 of March 31, 2015.

The compliance with the requirements of the European Directives has been verified by applying the following standards:

- Art. 3.1 a nach 2014/35/EU –following 2014/35/EU
  - EN 60598-1:2021/A11:2022, EN IEC 60598-2-17:2018, EN 62471:2008, EN 62493:2015;
- Art. 3.1 b nach 2014/30/EU –following 2014/30/EU

     – EN IEC 55015:2019 + A11:2020, EN 61547:2009, EN IEC 61000-3-2:2019, EN
      61000-3-3:2013 + A1:2019 + A2:2021 + A22021/AC2022,
      ETSI EN 301 489-1 V1.9.2, ETSI EN 301 489-1 V2.1.1, ETSI EN 301 489-17 V3.1.1;

- Art. 3.2
  - ETSI EN 300 328 V2.2.2 (partly);
- EN IEC 63000:2018;

Year of affixed CE-marking: 2023

The manufacturer bears sole responsibility for issuing this declaration of conformity.

FCC

This device complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Contains FCC ID: XRSTIMOMWAN201, O79-BT501

Industry Canada Compliance Statement

Complies with CAN ICES-003(A)/NMB-003(A).

Thailand

เครื่องโทรคมนาคมและอุปกรณ์นี้มีความสอดคล้องตามมาตรฐานหรือข้อกำหนดทางเทคนิค ของ กสทช

Telecommunication equipment and this device comply with the standards or technical requirements of NBTC.

United Arab Emirates

Mexico

Radio Test Report

NYCE CERTIFICADO DE CONFORMIDAD DE PRODUCTO

IFT CERTIFICADO DE HOMOLOGACIÓN TIPO A

Note: La operación de este equipo está sujeta a las siguientes dos condiciones:

(1) Es posible que este equipo o dispositivo no cause interferencia perjudicial y

(2) Este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

3 Safety Instructions

This safety information is in addition to the 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 device. 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 device or other objects.

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

3.1 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:

DANGER

DANGER indicates an imminent danger. If not avoided, death or serious injury will result.

Always follow the recommended measures to avoid this hazardous situation.

WARNING

WARNING indicates a possibly imminent danger. If not avoided death or serious injury may result.

Always follow the recommended measures to avoid this potentially hazardous situation.

CAUTION

CAUTION indicates a potentially imminent danger. If not avoided, slight or minor injuries may result.

Always follow the recommended measures to avoid this potentially hazardous situation.

NOTICE

NOTICE indicates a potentially harmful situation. If not avoided, the equipment or something in its surrounding may be damaged.

Always follow the recommended measures to avoid this situation.

HINT

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

3.2 Warning Symbols and Product Labels

READ THE INSTRUCTIONS

Read all instructions carefully before installing, using or servicing the device. Refer to the ARRI website www.arri.com for the latest documentation.

CAUTION – GENERAL RISK!

General warning sign. Obey the general and local safety regulations.

CAUTION – HIGH BEAM INTENSITY! RISK OF EYE INJURY!

Do not stare into the operating light source of the device.

CAUTION – MOVING PARTS! RISK OF CRUSHING!

Do not crush your fingers or hands when moving the device or components of the device.

CAUTION – SHARP ELEMENT! RISK OF CUTTING AND STITCHING!

Wear protective gloves when handling the element.

DISCONNECT ELECTRICALLY

Disconnect electrically before re-lamping or carrying out any service or maintenance work or when the device is not in use.

Direct Current symbol found on electronics requiring or producing DC power.

NOT FOR RESIDENTIAL USE

Not to be used in residential areas. The device is intended for professional use only.

The device may only be operated by qualified persons.

DANGER OF LIFE! CAUTION – RISK OF ELECTRICAL SHOCK

Do not open the housing of the device. For safe operation, the housing must be completely closed at all times.

CAUTION – OPTICAL RADIATION!

The device emits optical radiation such as UV, visible radiation, IR during operation. Always obey the minimum distance to persons and objects.

Obey the information about the photobiological hazards and risk group.

CAUTION – HOT SURFACE! RISK OF BURNING!

The device or parts of the device become hot during operation. Touch hot parts only with protective gloves.

CAUTION – OBSTACLES! RISK OF STUMBLING AND FALLING!

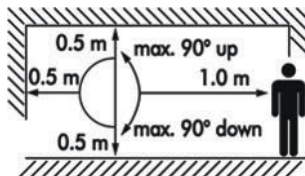Warning of obstacles on the ground.

REPLACE DAMAGED COMPONENTS

Replace any cracked or scratched protective shields such as lenses, UV-screens, diffusions or housing parts immediately. Do not use a device with broken parts.

The device shall only be used complete with its protective shield.

Mandatory Safety Distances

Always observe the minimum distances to persons and flammable objects given on the type plate. Always observe the maximum tilt angle.

3.3 General Safety Instructions

DANGER

High voltage!

Risk of electric shock and fire hazard.

▶ Read and understand all safety information and operating instructions before you operate or install the device or the system.

▶ Not to observe the safety information or general rules of reason may cause injury or death to yourself and others or damage to equipment.

▶ Use the device solely and exclusively as described in the instructions.

▶ Always check that the local AC power matches the voltage and frequency range printed on the type label of the device before use.

▶ Always earth the fixture electrically.

▶ Use only TN- or TT one phase power supplies and a power plug according to IEC 60309-1 or a similar national standard.

▶ Use only a power and connection cable designed for the device.

▶ Never use a cable for transportation.

▶ Never hang the device on its cables.

▶ Do not open the device. There are no user serviceable parts inside.

▶ Isolate the device from the power source when working on it or when it is not in use.

▶ In case of visible damage to cables or housings, the device must not be operated any longer.

▶ Never attempt to repair any part of the device on your own. Maintenance and repair work is only to be carried out by an authorized ARRI service center.

▶ Do not bypass or remove any safety feature of the device.

WARNING

Operation of the SkyPanel X in Case of Obvious Damage

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

▶ Never use the device if electrical lines or housing are visibly damaged.

▶ Only use the type of power source indicated in the manual.

▶ Always grip the power plug to unplug the power cable.

▶ 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 device (incl. warning stickers or paint marked screws).

▶ Do not try to repair the device. Repairs may only be carried out by an authorized ARRI service center.

WARNING

Humidity and Condensation

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

▶ Never expose the device to rain or moisture in a fixed installation for a long time.

▶ Do not immerse the device in any liquid.

▶ Do not use the device for 2 h when it was exposed to big temperature differences as condensed moisture may damage the device electrically when switched on.

▶ Do not bend the power cable directly after the connector. Water could immerse and cause short circuits and damage the connector.

WARNING

Overheating

Risk of skin burns and fire hazard.

▶ Do not operate the device if the ambient temperature exceeds +40° C / 104° F.

▶ Intensive use can cause the surface to become hot. Let the device cool down completely before you handle it.

▶ Never cover air vents during operation. Keep a minimum clearance around the air vents of 20 in / 0.5 m.

▶ Never point an intense light beam from light source to the device.

▶ Do not place the device on or nearby heat sources. Intense heat cause damage to the device or automatic power off during operation.

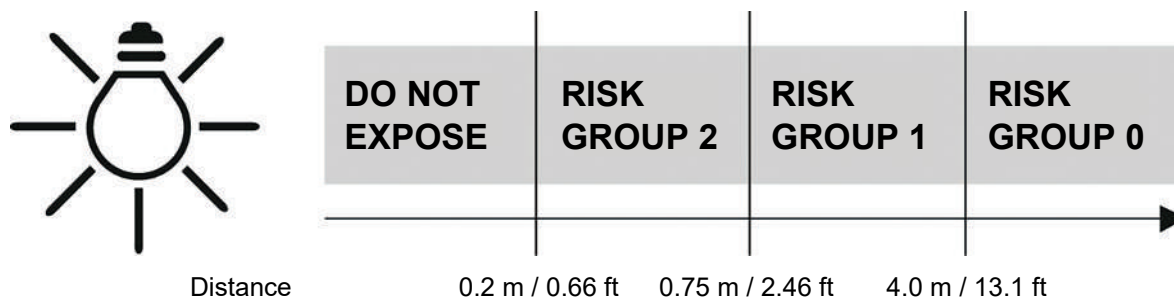## WARNING

Intense light

Risk of injury and fire hazard.

▶ Do not stare at an operating light source.

▶ Do not stare at the light output aperture. Risk of irreversible eye injury. Wear safety glasses. Keep a minimum distance to an illuminated surface, objects or persons of 1.0 m / 40 in .

▶ The device must not be used without a diffuser or intensifier installed.

Photobiological Safety

Risk Group 1[*] product according to EN 62471 and IEC/TR 62778.

The SkyPanel X device falls into the following risk groups according to EN 62471 and IEC/TR 62778 at the distances indicated below.

No photobiological hazard under normal behavioral limitation.

	DO NOT EXPOSE	RISK GROUP 2	RISK GROUP 1	RISK GROUP 0
Distance		0.2 m / 0.66 ft	0.75 m / 2.46 ft	4.0 m / 13.1 ft

[*]The risk group listed here applies to the minimum distance specified. Further information regarding hazards due to optical radiation are present and can be requested from your dealer if necessary.

WARNING

Heavy weight

Risk of injury and damage.

▶ Always observe the load capacity of the yoke. This is indicated on the yoke.

▶ The yoke must be mounted hanging or standing vertically. Lateral load can cause deformation or breaking the spigot, its fixing screw and the yoke.

▶ Devices and accessories must be secured against fall when mounted above floor level. Always observe common and local safety regulations.

▶ Secure the device against tipping when standing on the floor. Always observe common and local safety regulations.

▶ Disconnect all cables prior to transport.

WARNING

Falling System Parts

Risk of injury and damage.

Do not built up or assemble the device in a wrong way. It can fall down and cause serious injuries and damage to the device or property.

▶ Installation and operation must only be carried out by approved persons who know the device. Obey the accident prevention regulations.

▶ Never put the device on a not stable trolley or hand truck, stand, tripod, bracket, table or any other not stable support device.

▶ Always place the device on dedicated support devices.

▶ Secure the device and its accessories against falling and tipping over. Obey the general and local safety regulations.

WARNING

Falling System Parts due to Wind Load

Risk of injury and damage.

▶ Check prior to work whether relevant natural or artificial wind loads can be expected in the working environment.

▶ Always secure the lighting system and its accessories against falling, when installed above head.

▶ Always secure stands and tripods for the lighting system with sandbags against tipping over.

▶ Never continue the work when the wind load is too strong.

▶ Obey the general and local safety regulations regarding wind load, where available.

WARNING

Connected Cable on the Floor

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

▶ Always properly secure cables connected to the device and accessories.

▶ Always install cables that they cannot be tripped over.

▶ If necessary, use a cable duct or secure the cables with adhesive tape.

▶ Always disconnect the cables from the device and accessories before moving.

CAUTION

Deformation Caused by External Force

Risk of damage to the SkyPanel X.

▶ Do not use the quick mount adapters to carry the device.

▶ Do not apply lateral force to the quick mount adapters.

▶ Do not rest the device on the quick mount adapters.

CAUTION

Broken Cover Glass

Risk of cutting fingers.

▶ Do not hit the cover glass.

▶ Use protective gear in case of broken cover glass.

CAUTION

Unintentional or Unexpected movement

Risk of crushing body parts. Narrow gaps and heavy weight.

▶ Crushing of fingers or hand between yoke and housing. Always wear protective gloves and keep your fingers out of the space between yoke and housing.

▶ Always wear protective gloves when mounting accessories.

▶ Never rest the device on your hand or foot. Risk of crushing fingers, hand or foot.

NOTICE

Parts Loosening Caused by External Vibration

Risk of damage to the SkyPanel X.

▶ Do not use in places where the device is subject to vibration.

▶ Do not store in places where the device is subject to vibration.

NOTICE

Use of Unauthorized Accessories and Service Parts

Risk of damage to the SkyPanel X

▶ Do not use any accessories and service parts that are not recommended by ARRI. They may damage any connected devices and invalidate the warranty.

4 Product Overview

The light source of the SkyPanel X is located behind a sealed protective glass. The device is equipped with accessory mounts on all four corners on the front.

There are two yoke brackets with quick-release levers on the left and right side of the device.

The large heat sink is located between the housing of the light source and the housing for the integrated power supply unit, fan and power electronics.

The device is waterproof according to IP 66. A climate membrane is located at the back to equalize the pressure when the device heats up and cools down. The fans between the electronics housings comply with protection class IP 66. A perforated sheet metal protects the fans from damage.

On the back of the device is the control panel recess and the connector panel.

The control panel connects automatically to the SkyPanel X when inserted into the recess. It is held in place magnetically.

All connections are provided with protective rubber caps or correspond to protection class IP 69 (LEMO connector). The protective caps must be mounted if a connection is not used to comply with protection class IP 66.
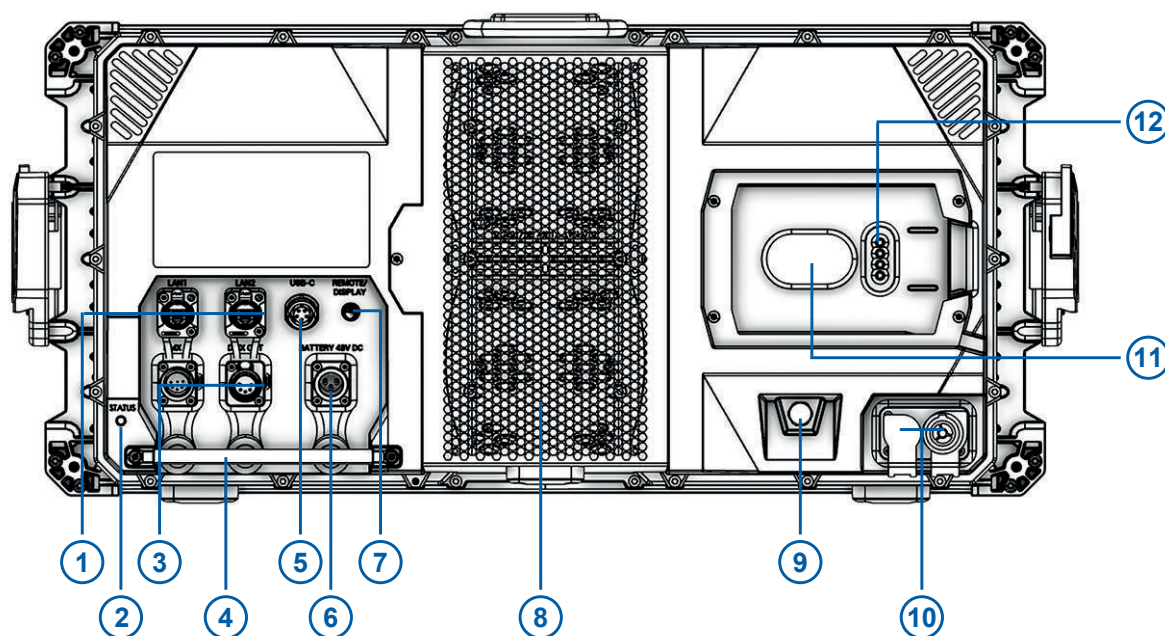
Back View

Illustration 1: Back View

1	LAN 1 / 2 (with rubber caps)	7	Remote / display connector
2	Status LED	8	Fan cover
3	DMX in / thru / out (with rubber caps)	9	Climate membrane
4	Focus handle (not for rigging / safety wiring)	10	Mains in / thru (with rubber caps)
5	USB-C connector (with protective cap)	11	Control panel holding magnet
6	Battery in (with rubber cap)	12	Control panel connector pins

Left View

Illustration 2: Left View (as seen from the front)
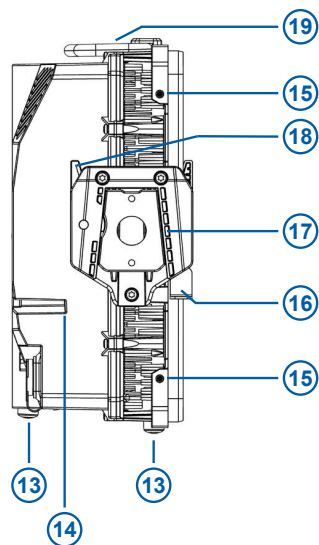
13   Rubber foot (3x)

14   Drain for control panel recess

15   Accessories holder (4x)

16   Retaining clip for accessories (left and right side)

17   Yoke bracket (left and right side)

18   Quick release lever

19   Handle and safety rope attachment for single device

4.1 Accessory Layout

ALL-WEATHER Control Panel

Illustration 3: ALL-WEATHER Control Panel Layout

1   Connectors to SkyPanel X

2   4 pin Lemo connector

3   Neodym magnet

4   Thread for D ring

5   Sensor for display brightness

Manual Yoke

1   Cable sling (NOT safety rope!)
2   Yoke adapter (2x)
3   Tilt brake with angle indicator
4   28 mm spigot

Illustration 4: Manual Yoke

PO Yoke

1   Yoke adapter (2x)
2   Tilt drive (white)
3   Pan drive (blue)
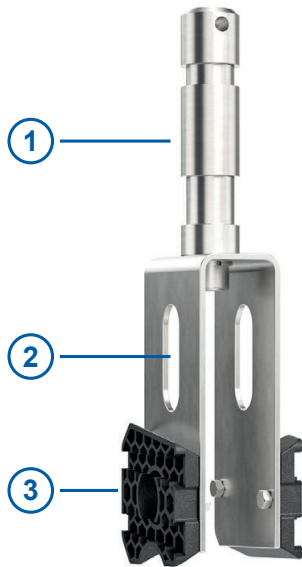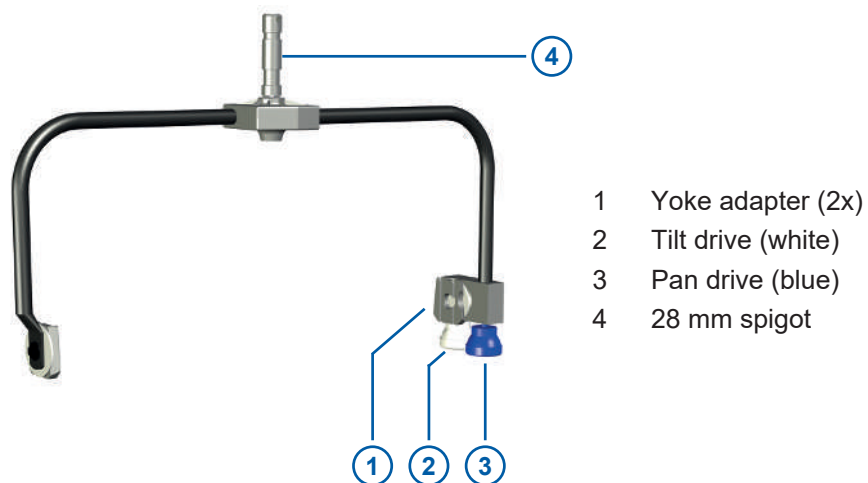4   28 mm spigot

Illustration 5: PO yoke

Twin Quick Lock

1   28 mm spigot or half coupler

2   Safety rope attachment (2x)

3   Yoke adapter (2x)

Illustration 6: Twin Quick Lock (shown with 28 mm spigot)

Modular Yoke

1   Handle (2x)

2   Tilt brake with angle indicator (2x)

3   Quick-Lock mounting brackets (X22: 2 pairs, X23: 3 pairs)

4   Screw, pin and needle (2x)

5   Safety rope anchor

6   28 mm spigot

Illustration 7: X23 Modular Frame (Shown without daisy chain cabling)

The X Modular Yoke is a silver aluminum yoke designed to work together with either the X22 Modular Frames or the X23 Modular Frames. It includes a 28 mm spigot and it can be disassembled for storage. The whole process of connecting the frames to the yoke or installing the SkyPanel X to this rigging system is completely toolless. The X Modular Yoke and the Frames for X22 and X23 include all the daisy chain power and data cables.

The X23 (X22) Modular Frame includes three (two) Quick-Lock mounting brackets, a set of tilt-lock handles, and a heavy-duty handle for carrying. The Modular Frame can be installed onto the X Modular Yoke for a seamless stirrup format, or you can rig the Modular Frame directly via standard 28mm spigots with C-clamps or pipe clamps for a low-profile install. The X23 (X22) Modular Frame allows for the mounting of three (two) X21 lampheads, and the distance between them is optimized to create an X23 (X22) native hard light with three (two) HyPer Optics, a native soft light with three (two) X21 Domes, or a combination of both. These Modular Frames can also fit three (two) lampheads with S60 adapters, after adjusting the distance between each Quick-Lock Bracket with a tool.

4.2 Optical Accessories

Attachment and Detachment of Optical Accessories

> ## WARNING
>
> **Risk of finger crushing**
>
> Wear suitable protective gloves when you attach or detach an optical accessory.

Optical accessories for the SkyPanel X are simply put on the front side guided by the aluminum front frame and held in place by two retaining clips.

The two retaining clips are located under the yoke brackets on the left and right side of the device.

To attach an optical accessory:

Pan and Tilt is blocked to avoid unintended movement of the device. The device is isolated from the power source.

1) Move the two retaining clips on the left and right side downwards.
2) Place the optical accessory on the aluminum front frame.
3) Move the two retaining clips on the left and right side upwards.
4) Check the proper attachment of the optical accessory.
5) Secure the optical accessory with a safety rope. Lead the safety rope through the safety rope attachment of the accessory and the upper handle of the device.

⇨ Connect the device to the power source.

To detach an optical accessory:

Pan and Tilt is blocked to avoid unintended movement of the device. The device is isolated from the power source.

1) Detach the safety rope.
2) Move the two retaining clips on the left and right side downwards.
3) Detach the optical accessory from the aluminum front frame.
4) Move the two retaining clips on the left and right side upwards.

⇨ Connect the device to the power source.

HyPer Optic

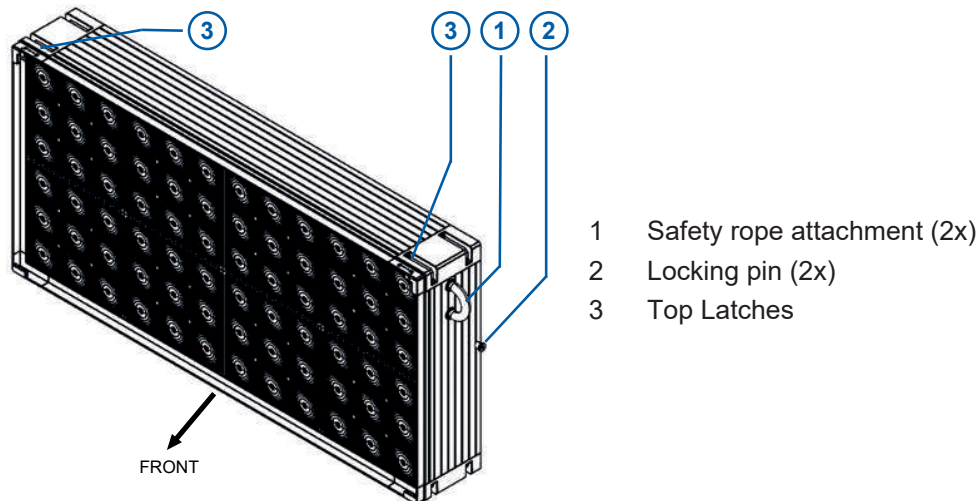|	
1	Safety rope attachment (2x)
2	Locking pin (2x)
3	Top Latches

Illustration 8: HyPer Optic

Use of beam shaping accessories with the HyPer Optic

You can attach a Beam Enhancer or a SkyPanel S60-C diffusion or the intensifier panel in front of the HyPer Optic:

Pan and Tilt is blocked to avoid unintended movement of the device. The device is isolated from the power source. The HyPer Optic is attached properly to the device.

1) *See illustration 8:* Un-lock both top latches (3) by sliding both levers completely outwards.

2) Place the accessory behind the latches at the bottom of the Hyper optic. Tilt the top of the accessory to the Hyper Optic.

3) Lock both top latches (3) by sliding both levers completely inwards.

4) Check the proper seat of the accessory.

⇨ Connect the device to the power source.

To detach the accessory, follow the steps in reverse order.

S60 Adapter

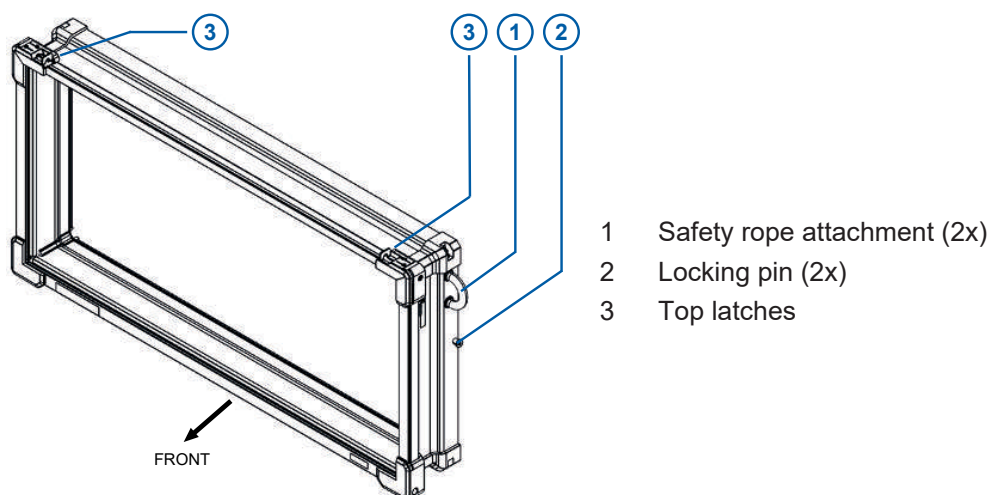|	
1	Safety rope attachment (2x)
2	Locking pin (2x)
3	Top latches

Illustration 9: S60 Adapter

Use of Accessories for Beam Shaping with the S60 Adapter

You can attach accessories like snoots, honey combs or egg crates by using the guiding rails on the front side of the S60 Adapter:

Pan and Tilt is blocked to avoid unintended movement of the device. The device is isolated from the power source. The S60 Adapter is attached properly to the device.

1) *See illustration 9*: Un-lock both top latches (3) by sliding both levers completely inwards and open the cover strip.

2) Insert the accessory from the top completely into the guiding rails.

3) Close the cover strip.

4) Lock both top latches (3) by sliding both levers completely outwards.

⇨ Connect the device to the power source.

To detach an accessory, follow the steps in reverse order.

Use of a Barndoor

A barndoor is mounted using the outer guiding rails (see Figure 9). To mount a barndoor on the S60 adapter:

Pan and Tilt is blocked to avoid unintended movement of the device. The device is isolated from the power source. The S60 Adapter is attached properly to the device.

1) Close the cover strip. Lock both top latches (3) by sliding both levers completely outwards.

2) Insert the barndoor completely into the outer guiding rails until both safety catches snap in.

3) Connect the device to the power source.

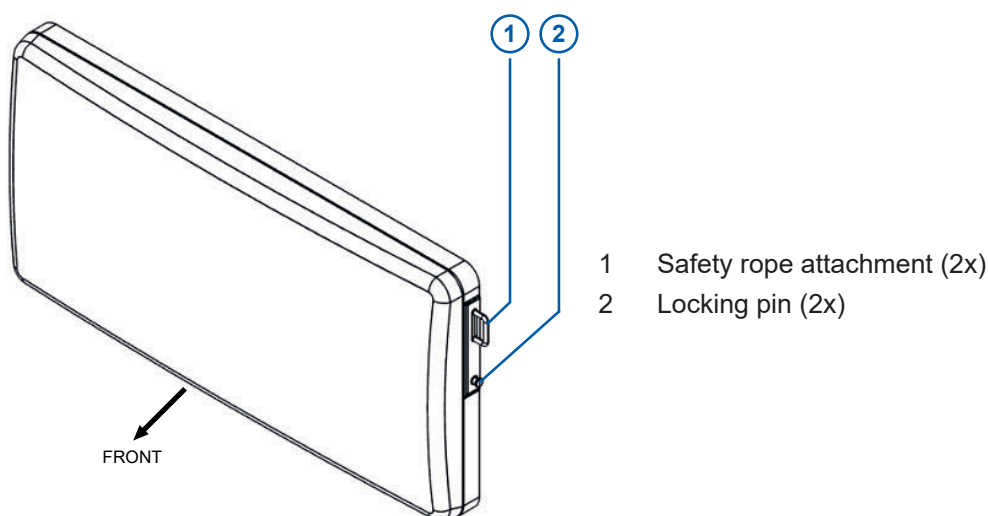To detach a barndoor, follow the steps in reverse order.

X21 Dome

1   Safety rope attachment (2x)

2   Locking pin (2x)

FRONT

Illustration 10: X21 Dome

5 Mounting and Assembly

> **WARNING**
>
> **Risk of falling**
>
> Always attach an approved safety rope to secure the device and accessories against clamp or bracket failure when the device is mounted above floor.
>
> The safety rope needs to be approved for at least 10 times the weight of the product including all accessories mounted to the product. The safety rope must comply with EN 60598-2-17 Section 17.6.6. It must be approved by an official body such as TÜV.
>
> The rigging structure needs to be approved for the weight of all devices, equipment and cables installed on it.
>
> Lead the safety rope through the safety rope attachment and the structure the device is mounted to.
>
> Keep the safety rope as short as possible, but as long as necessary.
>
> Block access below the work area and work from a stable platform whenever installing, servicing or moving the device or accessories.

5.1 Yoke Attachment and Detachment

> **WARNING**
>
> **Risk of finger crushing**
>
> Wear suitable protective gloves when you attach or detach the yoke.

The yoke features a quick release system to attach or detach the yoke without a tool.

To attach the yoke:

1) Place the device on a smooth, stable surface.
2) Align the yoke adapters of the yoke. The short side must face up.
3) Position the yoke adapters under the two yoke brackets of the device.
4) Slide both yoke adapters into the yoke brackets of the device until both latches engage.
   ⇨ When pushed in, the levers fold out and back again. The yoke is locked properly, when both levers are fully retracted and the red markings are not visible.

To detach the yoke:

1) Flip out one lever and press the yoke slightly downwards until the yoke adapter slides out of the yoke bracket.
2) Repeat the procedure for the other side and detach the yoke from the device.

5.2 Twin Quick Lock Attachment and Detachment

> **WARNING**
>
> **Risk of finger crushing**
>
> Wear suitable protective gloves when you attach or detach the Twin Quick Lock.

The Twin Quick Lock is used to connect one device or two or more SkyPanel X in a row. The Twin Quick Lock features a quick release system to attach or detach it without a tool.

When using the Twin Quick Lock please follow these guide lines:

Each device must be mounted with two Twin Quick Locks: When connecting 2 devices you must use 3 Twin Quick Locks, when connecting 3 devices you must use 4 Twin Quick Locks and so on.
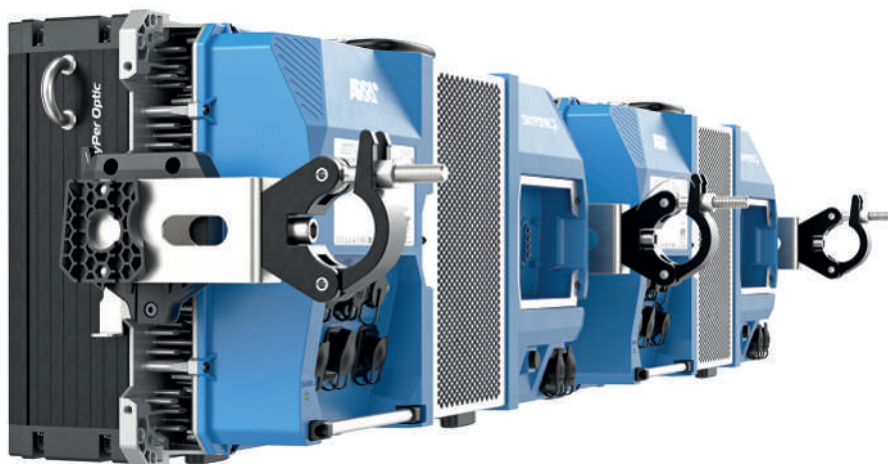
Illustration 11: Twin Quick Lock with half coupler

Each device must be secured from falling with a suitable safety rope.

When using the Twin Quick Lock with the 28 mm spigot the devices must be mounted hanging or standing vertically. Lateral load can cause deformation or breaking the spigot, its fixing screw and the Twin Quick Lock.

To attach a 28 mm spigot or a half coupler:

You need a torque wrench, a M12 bolt (minimum grade 8.8) and a self-locking nut.

1) Loosen and remove the bolt of the spigot or the half coupler.

2) Mount a spigot or a half coupler using M12 bolt and self-locking nut. Fasten the nut with 50 Nm / 37 ft-lbs torque.

To attach the Twin Quick Lock:

1) Place the device(s) on a smooth, stable surface.

2) Align the device(s) in a row.

3) Slide both yoke adapters into the yoke brackets of the device or two adjacent devices until both latches engage.

⇨ When pushed in, the levers fold out and back again. The Twin Quick Lock is locked properly, when both levers are fully retracted and the red markings are not visible.

To detach the Twin Quick Lock:

1) Flip out one lever and press the Twin Quick Lock slightly downwards until the yoke adapter slides out of the yoke bracket.

2) Repeat the procedure for the other side.

5.3 To Assemble the X Modular Frame

WARNING

Risk of falling

Always attach an approved safety rope to secure the X Modular Yoke against clamp or bracket failure when it is mounted above floor.

The safety rope needs to be approved for at least 10 times the weight of the assembly. The safety rope must comply with EN 60598-2-17 Section 17.6.6. It must be approved by an official body such as TÜV.

The rigging structure needs to be approved for the weight of all devices, equipment and cables installed on it.

Lead the safety rope around the yoke and the structure the assembly is mounted to.

Keep the safety rope as short as possible, but as long as necessary.

Block access below the work area and work from a stable platform whenever installing, servicing or moving the assembly.

CAUTION

Damage Due to Incorrect Transportation

Do not subject the X22 / X23 assembly to dynamic loads during transportation or storage.

▶ Never transport or store the X22 / X23 assembly suspended if dynamic loads are applied during transportation (e.g. transportation in a truck) or storage.

▶ Never use the handle of the upper device of the X22 / X23 assembly for transportation.

▶ The X22 / X23 assembly may be transported lying down.

The X Modular Frame can be installed onto the X Modular Yoke for a seamless stirrup format, or you can rig the Modular Frame directly via standard 28mm spigots with C-clamps or pipe clamps for a low-profile install.

The X Modular Frame is compatible to Global Truss F34 pins and cotter pins.

To connect the X Modular Frame to the Yoke:

Lay the X Modular Frame on an even, stable surface. The upper side of the frame is the side where the borings for the pins are placed.

1) Slide the yoke into the frame.

2) Secure the yoke with two pins. Secure both pins with cotter pins.

⇨ The assembly is now ready for mounting two or three SkyPanel X .

To mount the devices to the X Modular Frame:

1) Slide the lower device into the lower Quick Lock Mounts of the X Modular Yoke.

2) Secure the device by leading a safety rope through the handle and the lower safety rope bushing of the X Modular Yoke.

3) Keep the safety rope as short as possible and as long as necessary.

4) Mount the middle device the same way as the lower device.

5) Mount the upper device the same way as the lower and the middle device.

6) Check, if all Quick Lock Mounts are in their locked position.

⇨ The assembly is now ready for use.
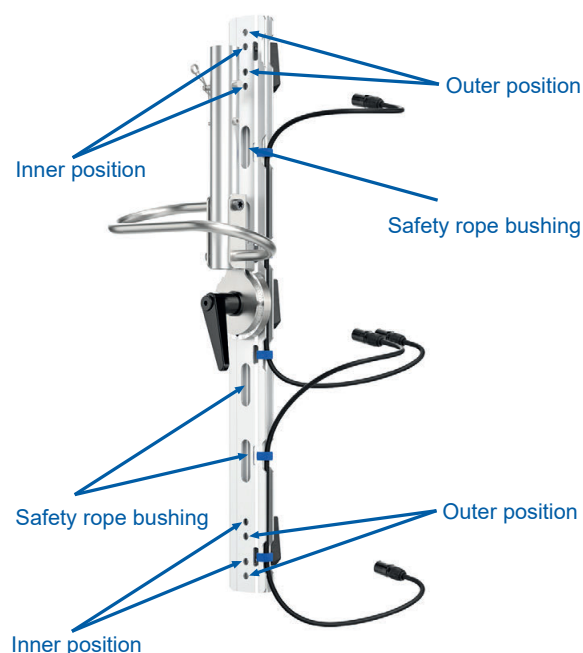
5.4 Overview Quick Lock Mount

When using the S60 Adapter with devices mounted to an X22 or X23 Modular Frame you need to adjust the top and bottom Quick Lock Mounts. The S60 Adapter is larger than the HyPer Optic or X21 Dome and requires a greater distance between devices. The X Modular Frame is shipped with the Quick Lock Mounts mounted at the inner position.

Note the position of the Quick Lock Mounts for the upper and lower device. The Quick Lock Mounts must be mounted in the outer position (marked) to use the S60 Adapter. To adjust the Quick Lock Mounts:

Lay the X Modular Frame on an even, stable surface. The upper side of the frame is the side where the borings for the pins are placed.

1) Remove the fixing screws of the Quick Lock Mounts for the upper and lower device using a T25 Torx screwdriver. Take care of the nuts as they are not secured.

2) Move the Quick Lock Mounts to the outer position.

3) Attach the Quick Lock Mounts with the T25 screws. Do not overtighten the screws.

4) Check, if all four Quick Lock Mounts are attached on the outer position before attaching devices to the X Modular Frame.

⇨ The assembly is now ready for use.

Illustration 12: Quick Lock Mount Adjustment

5.5 Power Supply

⚠ WARNING

Intense light

Risk of eye injury. The high intensity light beam of the device can cause eye irritation or injury when not respecting the safety distance.

▶ Always use an eye protection.

▶ Ensure that persons do not look at the light output aperture without eye protection when the device is connected to AC power or a battery pack. The device can light up suddenly.

NOTICE

Always connect the device directly to AC or battery power. Do not connect it to a dimmer system. Doing so will damage the device.

5.5.1 AC Power

The SkyPanel X is equipped with an auto-sensing switch-mode power supply that adapts automatically to 100 V - 240 V~, 50 / 60 Hz (nom.).

Make sure that no person stares at the light output aperture and the device is isolated from the control signal (DMX or Ethernet) before you connect it to AC power.

You can hard-wire the device to a building electrical installation. Power outlets or external power switches that supply the device with power must be located near the device and easily accessible so that it can easily be disconnected from power.

The SkyPanel X is shipped with different mains cables depending on the set, your application and the local power supply specification. Please ask you local ARRI dealer for details.

To Loop Through the Mains Power

The SkyPanel X is equipped with a mains voltage output for supplying other devices with mains voltage. The voltage at the mains output corresponds to the voltage at the mains input. The load on the mains voltage output must not exceed 20 A. Therefore, connect no more than

- 5 (five) SkyPanel X at 240 V~ mains voltage, or
- 3 (three) SkyPanel X at 120 V~ mains voltage

with each other.

The ARRI X Modular System, as well as the X22 modular frame and the X23 modular frame are shipped with suitable loop-through cables.

The loop-through cable is available as an accessory. We recommend the use of original ARRI loop-through cables. The use of other loop-through cables is at your own risk.

To Insert and Remove the PowerCON® TRUE1 TOP Cable Connector

CAUTION! Please check the condition of your powerCON TRUE1 TOP connector system (cable plug & device socket) regularly for signs of heavy use and extreme wear. Improper use and excessive force can cause the coding lugs and guide grooves in the connector system to become so worn or damaged that it is possible to insert the cable connector in the wrong orientation. Worn or damaged cable connectors should be replaced immediately.

1) Line up the coding lugs of the connector and the guide grooves of the input socket. Insert the cable connector without force in the power input socket.
2) Turn the cable connector a full quarter-turn clockwise to lock the cable connector.
3) To unlock the cable connector, push the connector lock backwards and turn the cable connector counterclockwise.
4) Pull the cable connector out of the power input socket.

5.5.2 Battery Pack

The SkyPanel X can be used with a battery pack independent of AC power. The battery pack must meet the following specifications:

Output voltage	48 V - 52 V =
Permitted temperature range	-20° C to +45° C / -4° F to +113° F
Recommended minimum capacity	10 Ah
Connector type	3-pin XLR connector, male

The connection cable must be rated for a load of at least 15 A. Always observe the following specifications.

WARNING

Risk of electric shock, fire and damage.

Only use connector cables which meet the specifications given above to connect a battery pack. Cables that are too long can cause device malfunction due to excessive voltage drop in the cable.

Battery Connector Cable Specification

The battery connector cable must meet the following specifications:

Wire diameter	12 AWG / 2 mm²

Maximum length of connector cable	5 m / 16 ft
Connector IP rating when connected	IP 66

Battery Connector Pin Out

Pin	Description
1	- (negative)
2	+ (48 V - 52 V =)
3	Not connected
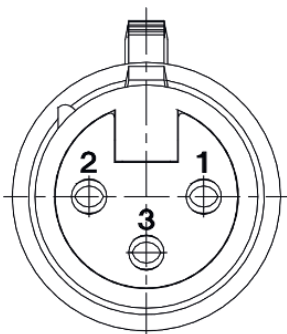
Illustration 13: Battery connector, bush

NOTICE

The pin out of the battery pack must correspond to the pin out shown above. Connectors with different pin out may cause damage to the device and the battery pack.

The SkyPanel X switches off below the minimum voltage of 44 V and above 55 V.

If the device switches off due to under voltage, you must disconnect the battery pack before connecting the device to an AC power source.

When using a battery pack, follow all safety instructions of the manufacturer. Only use battery packs that meet all the specifications listed. Use of unsuitable battery packs can damage both the device and the battery pack.

To Insert the 3-pin XLR connector

The mains switch of the battery pack, if present, must be turned off.

1) Insert the XLR connector into the battery pack connector without force. Note the position of the locking latch.
2) The connector must snap into place. Repair or replace the connector if it does not click into place.

To Remove the 3-pin XLR connector

The mains switch of the battery pack, if present, must be turned off.

1) Press the locking latch and pull the XLR connector out from the battery pack connector without force.
2) Repair or replace the connector if it can't be removed easily.

Tips for using battery packs

It is not possible to give a reliable indication of the operating time with a battery pack. The actual operating time depends strongly on age, state of charge, type of battery pack and brightness setting of the device.

We recommend to check the power consumption via the All-Weather control panel menu *Fixture Info*. Please note that the USB-C port draws up to 15 W power when connected. The *High Output Mode* is the operational mode that draws most power.

If the battery pack does not have a switch for switching on and off, the brightness of the device should be set to zero before disconnecting the connector cable to the battery pack. This will reduce the load on the connectors and increase the lifetime of the connectors.

5.6 Control Network

To control the SkyPanel X remotely you need to set up a wired or wireless data link.

The device supports several control methods:

- Wired DMX / RDM
- Wireless DMX / RDM (CRMX, CRMX2, W-DMX)
- Wired Ethernet (Art-Net, sACN, HTTP)
- Wireless Ethernet (Art-Net, sACN, HTTP)
- Bluetooth (TimoTwo Bluetooth BLE, native Bluetooth 5.0 adapter)

5.6.1 Wired DMX / RDM

The SkyPanel X has 5-pin locking XLR sockets for DMX / RDM data input and output. The default pin-out of both sockets is:
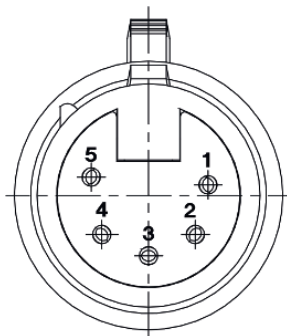

Pin 1 = Shield

Pin 2 = DMX Data - (cold)

Pin 3 = DMX Data + (hot)

Pin 4 = DMX Data - (cold)

Pin 5 = DMX Data + (hot)

Illustration 14: DMX / RDM connector, bush

Pins 4 and 5 are not used by the device but are bridged between input and output sockets. These pins can therefore be used as a pass-through connection for an additional data signal if required.

Do not overload the DMX data link. You must not connect more than 32 devices per DMX data link. Depending on the channel requirements the address space of one DMX data link (512 channels) may not be enough to control all devices of the installation. You may set more than one identical device to identical DMX addresses to obtain identical behavior. For independent control every device needs to be assigned an individual address range.

If the address space of one DMX data link is occupied and you need to control more SkyPanel X individually, you need to set up additional DMX data links.

Tips for a reliable DMX Data Transmission

Use shielded twisted-pair cable designed for RS-485 devices or CAT 6 network cables. Standard microphone cable cannot transmit control data reliably over long runs. 24 AWG cable is suitable for runs up to 300 meters (1000 ft.). Heavier gauge cable and/or an amplifier is recommended for longer runs.

The XLR connectors and DMX cables must fulfill protection rate IP 65 and pass protection rate IP 66 when connected to the device.

To split the data link, use a DMX splitter. Use an RDM compatible splitter when you use the RDM functionality.

Install a DMX termination plug on the last device of every DMX data link. Terminate the DMX data link on both ends, when you use the RDM functionality. Ask your system specialist for details.

To Connect the DMX Data Link

Connect the DMX data output from the controller to the data input (male XLR) of the first device on the data link.

Run the data link from the data output (female XLR) to the data input of the next device.

Terminate the data link by connecting a 120 Ohm, 0.25 Watt resistor between the data 1 hot (+) and cold (-) conductors (and between data 2 hot and cold if used) at the data output of the last device on the link.

The SkyPanel X provides an internal DMX data link termination. Activate the termination (*Menu > DMX > Termination > On*) on the SkyPanel X.

5.6.2 Wireless DMX / RDM

The SkyPanel X is equipped with a wireless DMX transmitter supporting the LumenRadio CRMX, CRMX2 protocol and DMX via Bluetooth in a BLE format.

If there is no DMX traffic received via a wired interface (DMX-512A, ArtNet or sACN) and wireless DMX is activated via the menu, the device can be linked to a wireless DMX transmitter via an RDM discovery command. Once linked successfully, the device processes wireless DMX data and respond to RDM requests only via the wireless link.

The DATA LED on the rear side of the device fades from blue to green followed by a 2 second fade from green to blue as soon as CRMX is active AND CRMX data is received and processed by the device.

If the CRMX Data State is set to *Off*, no wireless DMX and no wireless RDM traffic will be processed.

To Link and Unlink a Wireless DMX Transmitter

Please find more information about linking and unlinking the SkyPanel X with a CRMX transmitter in the SkyPanel X user manual.

5.6.3 Ethernet

The SkyPanel X supports Art-Net, sACN and HTTP. Art-Net and sACN are network protocols to control devices.

Here is a brief explanation of some basic terms being used by Art-Net. For more detailed information, please visit the web site of the Art-Net developers: www.artisticlicence.com.

The SkyPanel X is capable of processing Art-Net for up to ten universes with one sender and three universes with two senders.

Generals rules of thumb:

- Use a maximum of 4 universes of Art-Net Art-DMX unless you really have to, or
- all universes of sACN.

Please find more information about sACN in the standard ANSI E1.31. Please obey all information given there to set up a proper network.

Tips for a reliable Etnernet Data Transmission

In lighting technology, twisted pair Ethernet is primarily used to set up networks. The network is built using active or passive hubs and switches. Please note:

- Always follow the 5-4-3 rule. The rule states that the network between any two nodes may consist of a maximum of five segments, may be connected via a maximum of four repeaters and only three of these segments may contain end devices.
- Only use CAT 6 quality network cables or higher. The maximum cable length is 100 m.
- Indoors, network cables with standard RJ-45 connectors can be used to set up the data link.
- Outdoors, always use network cables which fulfill protection rate IP 66 when connected. The ethernet connectors of the device are EtherCON compatible.
- Use only unmanaged switches to minimize signal delay.

Ask your system specialist for details.

To Connect the Ethernet Data Link

To connect the Ethernet data link, please follow the common rules for setting up an Ethernet network.

The SkyPanel X can be daisy chained. It acts as a switch.

5.6.4 Wireless Ethernet

The SkyPanel X can be implemented in a wireless Ethernet network using a standard USB-C wireless adapter.

Please note that a device with an USB-C wireless adapter does not fulfill protection class IP 65 any more.

5.6.5 Bluetooth

The SkyPanel X can be controlled via Bluetooth using the internal Bluetooth 5.0 adapter.

Please find more information about controlling the SkyPanel X via Bluetooth in the user manual.

6 Basic Operation

6.1 Pan and Tilt

Loose the mounting screw of the tripod or the appropriate fixing screw of the mounting clamp to pan the device. Tighten the screw to avoid unintended movement.

Hold the focus handle (4) and loose the tilt lock lever. Tilt the device to the desired angle.

CAUTION! Tighten the tilt lock lever to avoid unintended movement.

6.2 Interfaces and Control Data

> ### CAUTION
>
> **Ingress of moisture to the device through connectors**
>
> Risk of damage.
>
> ▶ Always seal unused connectors with a protective cap to prevent ingress of moisture.
>
> ▶ The LEMO connector passes protection class IP 69 without a protective cap.
>
> ▶ Only use cable connectors with protection class IP 65 or higher that pass IP 66 rating or better when connected to the device.

DMX / RDM Interface

The device is equipped with a wired and a wireless DMX / RDM interface. The wired interface has locking 5-pin XLR connectors for DMX / RDM data input, throughput and output.

The wireless DMX / RDM interface is compatible to the LumenRadio CRMX protocol. Please find more detailed information how to establish a DMX / RDM data-link in the section Control Network [▶ 32].

The antenna for the wireless DMX / RDM interface is mounted on the right side of the device.

Ethernet Interface

The device is equipped with two RJ45 Ethernet connectors. The Ethernet signal can be daisy chained as the device acts like a switch in an Ethernet network. The interface can be used for control, uploading new firmware, setting parameters and service purpose using the ARRI lighting service manager ALSM.

Download the ALSM free of charge from the ARRI web site www.arri.com/lightingsoftware.

Please find more detailed information to work with the ALSM in the user manual of the software. The manual is included in the download package.

USB Port

The SkyPanel X is equipped with a USB-C port.

The USB-C port is located on the backside of the device in the connector panel. It is protected with a screw-on cap. The USB-C port can be used to connect:

- A USB flash disk for data transfer
- A WLAN dongle for wireless control via Art-Net, sACN or the ARRI web portal
- Optical accessories which need data or power supply
- Service tools.

Bluetooth

The SkyPanel X supports the LumenRadio Bluetooth Smart (BLE) Technology and our native Bluetooth 5.0. These are two independent interfaces which do not affect each other.

You can control the device via the ARRI LiCo app. The app is available free of charge in the App store and the Play store.

Please find more information about LiCo in the SkyPanel X user manual.

6.3 ALL-WEATHER Control Panel

The optional control panel for the SkyPanel X can be used directly at the device or via a connecting cable remote from the device. When used directly on the device, the control panel is held magnetically in the recess at the rear of the housing (see figure below). The control panel automatically connects to the device when it is inserted into the recess.

CAUTION

Strong Neodym Magnet

Risk of injuries. Neodym Magnets are extremely powerful.

▶ Keep the magnet in a safe distance to devices and objects that can be damaged.

▶ Fingers, skin and other parts of the body can be trapped between two magnets. This can cause injuries up to broken bones.

▶ Magnets can affect the operation of pacemakers or other implanted medical devices. Defibrillators can be affected.

To Attach and Detach the Control Panel

The control panel may be detached and attached with the device powered. The last setting of the device is retained when the control panel is detached.

To attach the control panel:

1) Push the control panel diagonally to the left into the recess.
2) Press the right side of the panel into the recess. Push it to the right until it locks in place.
3) The control panel is magnetically fixed in the recess. When the device is powered while you attach the control panel, it is ready for operation after a short time.

To detach the control panel:

1) Push the control panel slightly to the left.
2) Lift the control panel out of the recess on the right.
3) Pull the control panel to the right out of the recess.

To Connect and Disconnect the Control Panel Cable

• Plug the 4-pin Lemo connector of the weatherproof connector cable into the connector (7) of the device and the control panel. The connector locks automatically.

• Pull back the ring of the Lemo connector to unlock the connector and pull out the connector.

NOTICE

The control panel can be used directly at the device or via a weatherproof connecting cable remote from the device. When two control panels are used, the control panel on the connecting cable has priority.

6.4 Switching On and Off

The SkyPanel X has no mains switch.

To switch the device on or off:

- Use an external mains switch, or
- Use the powerCON TRUE1 TOP connector as a mains switch:
  - Connect the mains cable with the power source.
  - Insert the powerCON TRUE1 TOP connector without force in the power input socket.
  - Turn the connector clockwise to switch the device on, or
- Dim the intensity to zero (no light output) and turn the powerCON TRUE1 TOP mains in connector counterclockwise to switch the device off.

After connecting the device to the power source or switching it on via an external mains switch the device initializes and is ready for operation.

The device will operate with the settings made on the control panel or received by DMX / RDM, Art-Net or sACN.
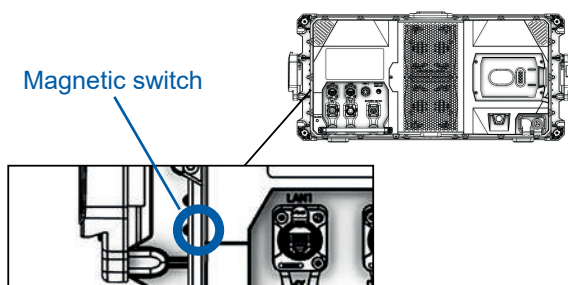
6.5 Reset Procedure

Soft Reset

If the device no longer responds to control signals, you can perform a soft reset. The soft reset is carried out when you activate the magnetic switch (see adjacent picture) for at least 5 s.

To perform a soft reset:

- Hold the control panel magnet over the spot marked in the picture for at least 5 sec.
- How to position the magnet on the control panel to activate the magnetic switch:
  - Slide the control panel with the magnet towards the device and the encoder facing downwards into the gap between the left yoke bracket (seen from the back) and the device.
  - Push the control panel up and forward as far as it will go.
- Remove the magnet or control panel once the status LED turns red. The soft reset will be executed.
- The soft reset is completed after a short time and the device is ready for operation.
- If the device does not work after a soft reset, do a hard reset.

Magnetic switch

Illustration 15: Position of magnetic reset switch

Hard Reset

Power cycle the device to perform a hard reset.

7 Menu Operation

Layout of the Display

Illustration 16: Control panel display layout

The **status bar** (1) gives information about the mode and status messages (symbols and text).

The area **beam parameters** (2) contains information about the recent lighting parameters (e.g. brightness, color temperature, lighting effects).

The area **quick / user button labels** (3) shows the recent function of the corresponding quick / user button. The upper row shows the function linked to a short press, while the lower row shows the function linked to a long press of the of the quick / user button.

Function and Behavior of the Control Elements

Illustration 17: Control elements of the control panel

Element	Input	Result
Encoder	Turn	Change the value of the selected parameter.
		Scroll through a list or icons on the display.
	Single press	• Select element, confirm or change value.
		• Jump one level up.
		When Intensity is selected:
		Toggle between recent intensity and blackout.
	Double press	No function.
		Extended Color Control (ECC):
		Set the selected parameter on its default value.
	Triple press	No function.
		Extended Color Control (ECC):
		Set all parameters to their default values.
Mode	Short press	Open the **Mode** menu.
	Long press	Save the recent settings as a favorite.
Menu	Short press	Open the **Menu**.
	Long press	Lock and unlock (> 3 seconds) control panel.
User	Short press	Open the **User** menu.
	Long press	Open programmer view of user buttons.
Quick Buttons	Short press	Calls up the assigned function of the upper row.
	Long press	Calls up the assigned function of the lower row.

8 Maintenance, Cleaning and Repair

8.1 Maintenance

WARNING

Read the safety information before maintaining the device.

WARNING

Intense Light

Risk of injury. The device can light up suddenly when connected to power.

▶ Disconnect the device from mains power before handling.

▶ Do not stare into the light output aperture. Wear safety glasses.

WARNING

Hot surface

Risk of burning. The device becomes hot during operation.

▶ Disconnect the device from mains power before handling.

▶ Let the device cool down completely before handling.

WARNING

High Voltage

Risk of injury. The device contains components that are accessible and live at high voltage while the device is connected to power.

▶ Disconnect the device from mains power before handling.

▶ Some components can remain under tension for 30 min. after power is disconnected.

▶ Only a certified ARRI service center is permitted to open the device.

NOTICE

Excessive dust, smoke fluid and particle buildup degrades performance. It causes overheating and will damage the device. Damage caused by inadequate cleaning or maintenance is not covered by the product warranty.

You can carry out external cleaning as described in this section. Follow the warnings and instructions provided. Any service operation not described in this operating manual or in the user manual must be referred to a certified ARRI service center.

Clean the device periodically. You may also upload firmware to the device via the Ethernet connector or the USB port using firmware and instructions from ARRI. All other service operations on the device must be carried out by a certified ARRI service center.

The global ARRI service organization and its approved agents can provide on-site service and maintenance. They give you access to ARRIs expertise and product knowledge in a partnership that will ensure the highest level of performance throughout the product's lifetime. Please contact ARRI for details.

ARRI applies the strictest possible calibration procedures. ARRI uses the best quality materials available to ensure optimum performance and the longest possible component lifetimes. However, optical components are subject to wear and tear over the life of the product. They result in gradual changes in color over many thousands of hours of use. The extent of wear and tear depends heavily on operating conditions and environment. It is impossible to specify precisely whether and to what extent performance will be affected.

However, you may eventually need to replace optical components if their characteristics are affected by wear and tear after an extended period of use and if you require luminaires to perform within very precise optical and color parameters.

8.2 Cleaning

Regular cleaning is very important for device life and performance. Buildup of dust, dirt, smoke particles, fog fluid residues, etc. degrades the light output and cooling ability.

Cleaning schedules vary greatly. They depend on the operating environment. It is therefore impossible to specify precise cleaning intervals for the device.

Cooling fans suck in airborne dust and smoke particles.

Use in aggressive operation environment (e.g. at the seaside, on ships, near salt water, on industrial plants) may cause corrosion and degrade optical components if not kept clean.

In extreme cases the device needs cleaning after surprisingly few hours of operation.

Environmental factors that may require frequent cleaning include:

- Use of smoke or fog machines.
- High airflow rates (near air conditioning vents, for example).
- Airborne dust (from stage effects, building structures and fittings or the natural environment at outdoor locations, for example).

If one or more of these factors is present, inspect the device within its first few hours of operation to see whether cleaning is necessary. Check again at frequent intervals. This procedure will allow you to assess cleaning requirements in your particular situation. If in doubt, consult a certified ARRI service center about a suitable maintenance schedule.

ARRI IP 66 rated devices are designed to resist water and moisture in environments with widely varying climate, temperature and humidity conditions. If devices are not managed correctly during installation and service, water and moisture can enter. This causes humidity and condensation inside the device. Follow the precautions below to avoid this problem.

General

Air, and even water, can be sucked through connectors into the device. A cracked or porous protective cap or connected cable can allow water into the device. Replace any protective cap or cable that is not in perfect condition. Make sure that connected cables from the device open into dry areas (e.g. junction boxes in dry locations).

Cleaning

Do not clean the device with high-pressure water jets. Do not immerse the device. Do not use cleaning agents that contain solvents, abrasives or caustic agents for cleaning, as they can cause surface damage to the device. The aluminum housing and front glass can be cleaned with mild detergents such as those for washing cars.

To clean the housing and front glass:

1. Visually check that the silicone seals and the protective caps for the data and power connectors are in good condition and in place (except the LEMO connector which does not need a protective cap as it is IP 69 rated). If any seal or cap shows signs of damage, cracking or loss of water resistance, stop cleaning the device and contact a certified ARRI service center.

2. If seals are in good condition, rinse off loose dirt with a hose or low-pressure water spray. The IP 66 rating allows clear, cold water jets up to 100 l per minute with a 12.5 mm nozzle in any direction.

3. Wash the aluminum housing and front glass using warm water with a little mild detergent and a soft brush or sponge. Do not use abrasive cleaners.

4. Rinse with clean water and wipe dry.

Climate Membrane

A climate membrane on the back of the SkyPanel X equalizes pressure by allowing air to pass through it when the device heats up and cools down. At the same time it acts as a barrier to water in liquid form. The expulsion of warm air (with a slightly higher water vapor content) and intake of cool air (with a slightly lower water vapor content) prevents humidity buildup over time. To do this, the membrane must work correctly and the device must be sealed correctly.

Climate membranes have a limited service life. They become blocked over time as the micropores in the membrane fill with particles. When a membrane becomes blocked, excess pressure can damage seals or cause air and even water to be sucked into the device along cables or protective caps. A blocked membrane cannot be cleaned and must be replaced if it shows any signs of contamination or is not in perfect condition.

For maximum device service life, the climate membrane must be replaced after an extended period of use. Intervals for membrane replacement depend on the installation environment. Please consult your ARRI dealer about a suitable replacement schedule. To ensure optimum humidity control, membrane replacement must be carried out by a certified ARRI service center.

8.3 To Maintain the Spigot

> ### WARNING
>
> **Falling System Parts by Loose Screw**
>
> Risk of injury and damage. Screw torque may decrease due to vibration or settling.
>
> ▶ Always tighten the screw to the specified torque.
>
> ▶ Use a torque wrench to regularly check whether the screw is still tightened to the specified torque,

The 28 mm spigot is mounted on the yoke on delivery.

To check the torque of the spigot screw you need:

- a torque wrench with 10 mm allen socket (manual version)
- a torque wrench with an 8 mm allen socket (PO version)

Check if the torque is 50 Nm / 37 ft-lbs (manual version) or 30 Nm / 22 ft-lbs (PO version).

8.4 Tilt Brake

> ### CAUTION
>
> **Unintentional or Unexpected Movement**
>
> Risk of crushing body parts due to failing tilt brake.
>
> ▶ The tilt brake is a wearing part. Check the correct function of the tilt brake regularly.
>
> ▶ Never use a device with a defective tilt brake.

If the tilt brake is defective:

- Replace the yoke with a yoke that has a working tilt brake.
- Have the tilt brake repaired by a certified ARRI service center.

8.5 Repair

⚠	**WARNING**
	Repairs carried out by untrained persons
	Risk of electric shock and fire hazard caused by short circuit.
	▶ Do not try to repair the device yourself. Repairs may only be carried out by a certified ARRI service center.

The SkyPanel X is an IP 66 rated device. It is sealed and equipped with a climate membrane for pressure equalization.

The repair of an IP 66 rated device must be carried out according to certain guidelines in order to maintain or restore IP 66 protection. Special tools are required for the repair and the subsequent leak test. Do not attempt repairs unless you have current ARRI service documentation or the special tools.

Damage caused by improper repairs is excluded from the warranty.

Only carry out the maintenance and repair work described in this manual.

For any further repairs and maintenance work on the device, please contact a certified ARRI service center or service-lighting@arri.de.

9 Transportation, Storage and Disposal

> **NOTICE**
>
> **Improper Packing and Transportation of the Device**
>
> Risk of damage to the device.
>
> ▶ Follow the specified environmental conditions.
>
> ▶ Only transport the device and accessories in suitable cases.
>
> ▶ Follow the instructions for transport and storage in this section.

Please take note of the following guidelines.

Transportation Guidelines:

- Remove all accessories and cables from the device.
- Always attach the protective caps, where present.
- Always transport the device in a suitable case.
- Do not subject the device to severe shocks.

Storage Guidelines:

- Disconnect all cables and power sources from the device.
- Do not pack a damp device. The device must be dry before you put it in a case.
- Always store the device in a suitable case.
- Do not store the device outside of the specified ambient temperature range.
- Do not store the device in places where it may be subject to extreme temperatures, direct sunlight, high humidity, severe vibration, dust or strong magnetic fields.
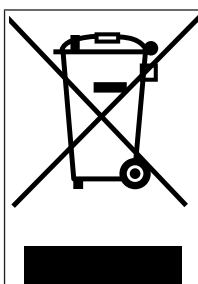
Disposal

> **NOTICE**
>
> You can return the product to the manufacturer Arnold & Richter Cine Technik GmbH & Co. Betriebs KG for disposal.
>
> When you dispose third party accessories, please observe the instructions of the relevant manufacturer.

	This product falls within the scope of Directive 2012/19 / EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of June 4, 2012 on waste electrical and electronic equipment (WEEE II).
	Accordingly, this product must not be disposed of with household waste. There are the respective country-specific disposal rules that must be observed.

10 ARRI Service Contacts

Please see the current list of service partners at service contacts.

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