

# Operator Control Unit OCU-1

USER MANUAL

17th December 2018



## **Imprint**

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## Scope

This User Manual applies to the following products:

K2.0020002 Operator Control Unit OCU-1 with SUP 2.0

## **Revision History**

Version	ID	Order#	Release	Date
01	10003598	K5.0020751	F06881	17.12.2018

### Disclaimer

Before using the products described in this manual, be sure to read and understand all the respective instructions.

The ARRI Operator Control Unit OCU-1 is/are only available to commercial customers. By utilization, the customer agrees that the Operator Control Unit OCU-1 or other components of the system are deployed for commercial use only. Otherwise the customer must contact ARRI before utilization.

While ARRI endeavors to enhance the quality, reliability and safety of their products, customers agree and acknowledge that the possibility of defects thereof cannot be eliminated entirely. To minimize the risk of damage to property or injury (including death) to persons arising from defects in the products, customers must incorporate sufficient safety measures in their work with the system and heed the stated canonic use.

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# 1 For Your Safety

Before use, please ensure that all users read, understand, and follow the instructions comprehensively in this document.

## **Risk Levels and Alert Symbols**

Safety warnings, safety alert symbols, and signal words in these instructions indicate different risk levels:

## **▲** DANGER!

DANGER indicates an imminent hazardous situation, which, if not avoided, will result in death or serious injury.

## **▲ WARNING!**

WARNING indicates a potentially hazardous situation, which, if not avoided, may result in death or serious injury.

## A CAUTION!

CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

## NOTICE

*NOTICE* explains practices not related to physical injury. No safety alert symbol appears with this signal word.

Note: Provides additional information to clarify or simplify a procedure.

#### Vital Precautions

## **▲** DANGER!

#### Risk of electric shock and fire!

Short-circuits may entail lethal damage!

Before use, read and follow all valid instructions.

Use solely and exclusively as described in the instructions.

Never open. Never insert objects.

For operation, always use a power source as indicated in the instructions.

Always unplug the cable by gripping the plug, not the cable.

Never try to repair. All repair work should be done by a qualified ARRI Service Center

Never remove or deactivate any safety equipment (incl. warning stickers or paint marked screws).

Always protect from moisture, cold, heat, dirt, vibration, shock, or aggressive substances.

## **▲** DANGER!

#### Risk of fire!

Short-circuits and back currents to power supplies/batteries may entail lethal damage!

Always use original ARRI/cmotion LBUS cables to external power sources (D-Tap, XLR)! ARRI/cmotion LBUS cables to external power sources provide a protection circuit to prevent back currents to power supplies/batteries.

## 2 Audience and Intended Use

#### NOTICE

The product is solely and exclusively available for commercial costumers and shall be used by skilled personnel only. Every user should be trained according to ARRI guidelines. Use the product only for the purpose described in this document. Always follow the valid instructions and system requirements for all equipment involved.

The Operator Control Unit OCU-1 is solely and exclusively for use on professional camera setups.

# 3 Scope of Delivery and Warranty

#### NOTICE

Product and packaging contain recyclable materials. Always store, ship, and dispose of according to local regulations. ARRI is not liable for consequences from inadequate storage, shipment or disposal.

# Warranty

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

## **Delivery**

On delivery, please check that the package and content are intact. Never accept a damaged or incomplete delivery. A complete delivery includes:

## Operator Control Unit OCU-1 Basic Set

- Operator Control Unit OCU-1
- OCU-1 Dovetail Mounting Interface
- User manual
- Original packaging

## Operator Control Unit OCU-1 Extended Set

- Operator Control Unit OCU-1
- OCU-1 Dovetail Mounting Interface
- OCU-1 Rosette Bracket
- CLM-5/cforce mini Clamp Console 19/15mm
- CLM-5/cforce mini Clamp Insert 19/15mm
- User manual
- Original packaging

12 Introduction

## 4 Introduction



The ARRI Operator Control Unit OCU-1 is an addition to the WCU-4 lens control system and enables operators to over-ride and return focus, zoom and iris controls at the touch of a button. Additional user buttons can be configured for any camera control.

The OCU-1 also enables control of EF lenses mounted on ALEXA Mini and AMIRA cameras without any additional external motors.

The wheel can also be used to control the roll axis of the ARRI Stabilized Remote Head SRH-3

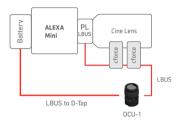
The device fits into a long ARRI tradition of innovation to improve on-set efficiency and control. Small, lightweight, and easy to use, it has the same control wheel, display and LBUS integration as ARRI Master Grips, and can be easily mounted onto common 15 mm or 19 mm rods, ARRI Rosette, or 3/8" mounts.

### **Main Features**

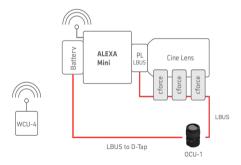
- Override Function: Prioritizes OCU-1 wheel over wireless control with WCU-4
- Versatile Controls: Full lens control, advanced camera control
- Flexible Design: Can be mounted in various ways.
- Easy to Use: three assignable user buttons, multi-lingual touch display

# 5 Sample Setups

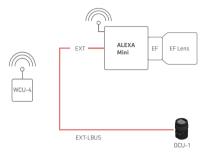
#### ALEXA Mini / Cine lens



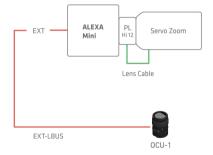
#### ALEXA Mini / Cine lens / Wireless



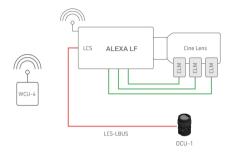
## ALEXA Mini / EF lens



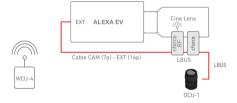
#### ALEXA Mini / Servo zoom lens



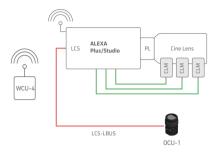
## ALEXA LF / Cine Lens



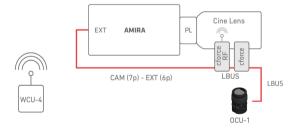
## ALEXA EV / Cine Lens



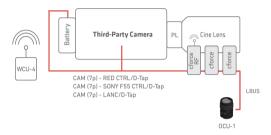
## ALEXA Plus / Cine lens / Wireless



## AMIRA / Cine lens



## 3rd Party Camera / Cine lens / Wireless



**Note:** See "Compatibility" for information about required software versions.

18 LBUS

# 6 LBUS

LBUS is an ARRI/cmotion bus standard designed to allow multiple lens motors and control devices to communicate with each other.

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# 7 Layout

- Dovetail mounting point
- <sup>2</sup> Screws
- 3 Soft buttons
- 4 3/8" mounting point
- LBUS connectors
- 6 Touch screen
- 7 Control wheel



# 7.1 Mounting Interfaces



Use a 2.5 mm allen key to loosen the two screws and adjust the dovetail mounting interface or to remove the screws and exchange the dovetail mounting interface with the Operator Control Unit OCU-1 Rosette Bracket (K2.0020003).





**Dovetail Mounting Interface** 

OCU-1 Rosette Bracket

20 Layout

# 7.2 Status LEDs

The status LED (background illumination) of the three user buttons indicates the current control status:

LED	Status
ON	override mode active
OFF	override mode inactive

Operation 21

# 8 Operation

The main user interface of the Operator Control Unit OCU-1 is the touchscreen. Use the touch gestures below for navigating through the menus. It is also possible to use the buttons for navigation. This feature is disabled by default and needs to be enabled in the SYSTEM menu (See "System screen").

Input:		Action:
Gesture: Swipe left/right		Top-level screen: Navigate between the top level screens
Gesture: Swipe up/down		Top-level screen: Perform or skip the motor calibration (if displayed). Menu: Scroll up and down.
Gesture: Long touch	1 sec	Top-level screen: Enter setup menu.
Gesture: Short tap	Тар	Top-level screen: Display information about tapped-on element (if available). Menu: Select a menu item

22 Operation

Input:	Action:
Gesture: Swipe right	Menu: Navigate one menu-level up.

# 9 Menu Overview

## **Top-level Menus**

The Operator Control Unit OCU-1 has 3 different top-level screens. To navigate between them, swipe left/right.



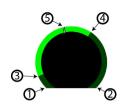
- "Motor screen"
- "Button screen"
- "System screen"

## **Indicator Gauge**

The indicator gauge is displayed on all top-level screens. It indicates the motor position, the motor limits set by the user and the camera status. For setting user-defined limits, assign the LIM function to one of the soft button ("Button screen").

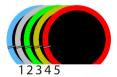
## Gauge limits:

- 1 Lower motor calibration limit
- 2 Upper motor calibration limit
- 3 Lower limit
- 4 Upper limit
- 5 Current motor position



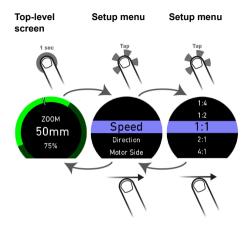
## Gauge colors:

- 1 Blue: No camera
- Grey: Camera not ready to record (insert media)
- 3 Green: Standby ready to record
- 4 Orange: Pre-Recording
- 5 Red: Recording



## **Setup Menus:**

Every top-level screen has its own setup menu. To enter the setup menu, perform a long touch on the top-level screen or, in case of the button screen, on one of its segments.



To navigate the sub-menus scroll up or down and tap for selection. To navigate one menu level up, swipe right.

# **User Buttons and Button Mapping**

The top-level screen reflects the physical layout of the Operator Control Unit OCU-1:



## 10 Motor Screen

The motor screen is the default start-up screen.

#### Example 1:

Operator Control Unit OCU-1 is assigned to focus axis, speed set to 1:1. Motor limits are set. Camera is in standby mode.



## Example 2:

Operator Control Unit OCU-1 is assigned to iris axis, ratio is set 1:4. Motor limits are set. Camera is recording.



## Calibration

If a new motor is connected or the motor axis has been changed, a motor calibration is necessary. The Operator Control Unit OCU-1 will display a calibration request on the motor screen. Swipe up to calibrate the motor. If the calibration request is skippable, swipe down to skip.



# 10.1 Speed

Set the motor speed from minimum to maximum. If the Operator Control Unit OCU-1 has a control wheel, the speed is set as the ratio between lens range and wheel range (1:4, 1:2, 1:1, 2:1, 4:1).

Motor Screen 27

## 10.2 Direction

This option sets the operation direction of the Operator Control Unit OCU-1.

## 10.3 Motor Side

The motor side is referring to mounting the motor to rods below the lens. If you mount the rods above the lens, select the opposite side in the setup menu.

# 10.4 Motor Torque

Set the motor torque level from 1 (lowest) to 4 (highest).

## NOTICE

Ensure that the motor torque level matches the lens to avoid lens damage. Stiff, hard-to-move lenses require a higher torque level.

## 10.5 Axis

Allows you to select the main axis which is controlled by the Operator Control Unit OCU-1: Focus, iris or zoom.

**Note:** The focus/iris toggle function ("Button screen") requires at least one of both axis set as main axis.

**Button Screen** 

# 11 Button Screen



Fig. 4: Button top-level screen



Fig. 5: Button setup menu

Each button can be assigned to several functions (See "Assignable functions" for available options).

To assign a function, perform a long touch on the button top-level screen (Fig. 4). Scroll up/down to highlight the function. Perform a short tap to select the highlighted function (Fig. 5).

If a camera user button is assigned, perform a short tap in the main screen and the respectively assigned user button function will be displayed.

It is possible to control up to 3 camera user buttons per Operator Control Unit OCU-1. The corresponding function of a user button can be set on the camera. Please check the designated camera user manual on how to set the user buttons. See "Cameras and lenses" for compatible cameras.

# 11.1 Assignable Functions

The following functions can be assigned to the buttons:

FIZ	User can assign the OCU-1 wheel to focus, iris or zoom control.		
OVR	Focus, iris, zoom override function: prioritizes OCU-1 control over wireless control (WCU-4)		
REC	Start/stop recording		
LIM	Set and reset motor limits as follows:		
	1 Move the motor to the first limit position.		
	2 Press the button the LIM function is assigned to.		
	The first limit is set.		
	3 Move the wheel.		
	4 Press the button again. The second limit is set.		
	The motor now only operates in the defined range		
	between both limits.		
	5 For resetting the limits press LIM again.		
MAX SPD	Press and hold the button assigned to MAX SPD to operate the lens motor at maximum speed (4:1 for 100%).		
SPD+	Increase speed		
SPD-	Decrease speed		
F/I	Toggle between controlling focus or iris. To use this function, the motor axis has to be set to either focus or iris.		
SET TO F	User can assign the OCU-1 wheel to focus control.		

SET TO I	User can assign the OCU-1 wheel to iris control.
SET TO Z	User can assign the OCU-1 wheel to zoom control.
UB112	Activate/deactivate camera user button functions."Button Screen"
CTRL LCK	Locks the wheel. A control element is indicated by a red colored lock icon indicator. Using a locked wheel, a short info "Control is Locked" pops up. A factory reset unlocks the controls.
TCH LCK	Locks the touchscreen. A locked touchscreen is indicated by short info "Touch Lock".
FOC TRK	Activate/ focus tracking functions. Motor remains on the tracked focus distance after button release.
OFF	No function is mapped to this button.

## 11.2 Override Function

The override function (OVR) enables operators to override and return focus, iris and zoom controls of the WCU-4 hand unit:

#### Workflow:



Assign the three User Buttons with the function of your choice. Assign FIZ, F/I, SET TO F, SET TO I or/and SET TO Z to one or two of the buttons.

Example: put the camera user button 1 (UB 1) to the soft button 1. The toggle between focus, iris, zoom (FIZ) to soft button 2 and the Override function (OVR) to soft button 3.



Select the lens axis (focus, iris, zoom) which shall be taken from the WCU-4.

Example: choose the focus axis.

As the WCU-4 now has control over that axis, the OCU-1 shows "FOCUS No Control"



Press the OVR button to gain control over the selected lens axis. The operator can now change the focus distance.

The WCU-4 hand unit cannot control axis overtaken by the OCU-1 anymore (see WCU-4 manual for further details on the override behavior of the WCU-4).

The OCU-1 buttons are illuminated during override mode.



To return axis control to the WCU-4 press the OVR button on the OCU-1 again.

The OCU-1 LEDs are now OFF.

## **Override Indications**

- OVR appears on display (Fig. 6)
- Lens data appears on display (Fig. 7)
- User button LEDs ON (Fig. 7)



Fig. 6: Motor screen



Fig. 7: Override mode

# 12 System Screen



Fig. 6: System top-level screen



Fig. 7: System setup menu

The System top-level screen provides access to system-related settings. To enter the system setup menu, perform a long touch on the System top-level screen (Fig. 6). Scroll up/down to highlight the function. Perform a short tap to select the highlighted function (Fig. 7).

Language	Set the system language.	Available languages are
----------	--------------------------	-------------------------

English, Spanish, Chinese, German

Flip Display Flips the display in case OCU-1 is mounted upside

down.

Display Set the display illumination from 1 (lowest) to 5

(brightest)

Button Set the button illumination from 1 (lowest) to 5

(brightest)

OVR Mode Set Override mode: override works always (AL-

WAYS) or only in Standby mode (STBY ONLY)

era recording status.

Menu Control Control the menu via touch screen (TOUCH ON-

LY) or touch screen and buttons (MULTI).

Disp. Timeout Set timeout of the display illumination. Options

are: NEVER (=always on), 3 SEC, 10 SEC, 30

SEC

Status Displays the serial number of the control device

and software update package.

Presets Save and load up to 5 presets. For a factory reset,

select "Load" and then "Reset".

# 13 Software Update

Always update the Operator Control Unit OCU-1 with the latest firmware. The latest firmware and release notes can be downloaded at www.arri.com/ecs/ocu-1. Please read the release notes for detailed update instructions.

The following devices are capable of updating the Operator Control Unit OCU-1 firmware:

- UMC-4
- AMC-1
- WCU-4

## **▲ WARNING!**

Do not switch power off during the update as this may damage the Operator Control Unit OCU-1.

## 14 Power Disconnection

## A CAUTION!

To disconnect the device safely from the power source, pull both plugs. Mount and operate the device in an orientation that guarantees easily accessible plugs.

# 15 Appendix

### 15.1 Part Numbers

# 15.1.1 Operator Control Unit OCU-1

K2.0020002 Operator Control Unit OCU-1



### 15.1.2 OCU-1 Sets

The Operator Control Unit OCU-1 is available in following sets.

**Note:** cforce motors, respective LBUS cables, ENG lens cable and rods/ supporting hardware are not included!

K2.0020002	Operator Control Unit OCU-1 Basic Set	
contains		-0
K2.0020002	Operator Control Unit OCU-1	(a.
K2.0022269	OCU-1 Dovetail Mounting Interface	

KK.0022270	Operator Control Unit OCU-1 Extended Set
contains	
K2.0020002	Operator Control Unit OCU-1
K2.0020003	OCU-1 Rosette Bracket
K2.0006176	CLM-5/cforce mini Clamp Console 19/15mm



K2.0006175 CLM-5/cforce mini Clamp Insert 19/15mm

# 15.1.3 LBUS Cables

K2.0006749	Cable LBUS 0,2 m/8" LCB-3	
K2.0006750	Cable LBUS 0,3 m/1 ft LCB-4	
K2.0006751	Cable LBUS 0,5 m/1.6 ft LCB-A	
K2.0006752	Cable LBUS 0,8 m/2.6 ft LCB-1	
K2.0006753	Cable LBUS 1,5 m/5 ft LCB-5	
K2.0006754	Cable LBUS 3 m/10 ft LCB-1-01	
K2.0006755	Cable LBUS 6 m/20 ft LCB-2	
K2.0006756	Cable LBUS 15 m/49 ft LCB-1-15	
K2.0007318	Cable LBUS to LCS 0,8 m/2.6 ft	
K2.0006757	Cable LBUS to D-Tap 1,2 m/4 ft LPS-7-01	
K2.0006758	Cable LBUS to D-Tap 0,8 m/2.6 ft LPS-7	
K2.0006759	Cable LBUS to RS 0,8 m/2.6 ft LPS-1	
K2.0006760	Cable LBUS to XLR-4 0,8 m/2.6 ft LPS-6	
K2.0012630	Cable LBUS (2x angled), 0,8 m/2.6 ft	
K2.0013042	Cable LBUS (angled, straight), 0,35 m/1.15 ft	
K2.0013041	Cable LBUS (angled, straight), 1 m/3.3 ft	
K2.0013040	Cable LBUS (2x angled), 0,6 m/2 ft	
K2.0013043	Cable LBUS (angled, straight), 0,8 m/2.6 ft	
K2.0013044	Cable LBUS (angled) to LCS 0,8 m/2.6 ft	
K2.0012785	Cable LBUS (2x angled), 0,2 m/8"	
K2.0009643	Cable AMIRA/ALEXA MINI EXT to LBUS (straight) 0,8 m/2.6 ft	

	Cable AMIRA/ALEXA MINI EXT to LBUS (angled) 0,8 m/2.6 ft	

### **▲** DANGER!

#### Risk of fire!

Short-circuits and back currents to power supplies/batteries may entail lethal damage!

Always use original ARRI/cmotion LBUS cables to external power sources (D-Tap, XLR)! ARRI/cmotion LBUS cables to external power sources provide a protection circuit to prevent back currents to power supplies/batteries.

### 15.1.4 OCU-1 Mechanical Accessories

K2.66275.0	Lightweight Bridge Support LBS-2
K2.0013320	Lightweight Bridge Support UBS-3
K2.65020.0	Universal Mounting Arm UMA-120





K2.41100.0	Universal Mounting Arm UMA-240	
K2.0012920	Handgrip Pan Bar Clamp Universal	F
K2.47648.0	Handgrip Extension, short	
K2.47863.0	Handgrip Extension, long	
K2.47136.0	Extension Tube for Handgrip	Q C
K2.0013615	Extension Spacer 50mm	

<b>KK.0013223</b> (equals K0.0012991)	Handgrip extension 80 mm with cable clip	<b>1</b>
K2.0012913	Handgrip Extension 80 mm	
K2.0012921	Cable Clip 15 mm	
<b>KK.0013224</b> (equals K0.0012992)	Handgrip extension 160 mm with cable clip	
contains		9 -
K2.0012911	Handgrip Extension 160 mm	
K2.0012921	Cable Clip 15 mm	
<b>KK.0013220</b> (equals K0.0012993)	Handgrip extension 240 mm with cable clip	10 H. H.
contains		
K2.0012917	Handgrip Extension 240 mm	

Cable Clip 15 mm

K2.0012921

# 15.2 Pinouts

## **LBUS Connector**



# 15.3 Compatibility

# **Cameras and Lenses**

	ALEXA Plus	ALEXA LF	AMIRA	ALEXA MINI	RED EPIC/ WEAPON	SONY F5/F55	ENG Cam- era
REC start/stop and tally	SUP 11 A	SUP 4	SUP 4 C	SUP 4 B/C	via CUB-1 SUP 2	via CUB-1 SUP 2	
User Buttons	SUP 11 <b>A</b>	SUP 4	SUP 4 C	B/C	YES		
OVR (Override)	via UMC-4 SUP 2.1 via cforce mini RF SUP 1.1	SUP 4 A	via UMC-4 SUP 2.1 via cforce mini RF SUP 1.1	SUP 5.4 <b>B</b> /C	via UMC-4 SUP 2.1 via cforce mini RF SUP 1.1	via UMC-4 SUP 2.1 via cforce mini RF SUP 1.1	
F/I/Z cforce Motors	YES	YES	YES	YES	YES	YES	YES
F/I/Z CLM Motors	YES A	YES A					
F/I/Z ENG Lenses	via CUB-2		SUP 5	SUP 5	via CUB-2	via CUB-2	via CUB-2
Iris EF Lenses			SUP 5	SUP 5 C			
Lens Data Display on OCU-1	YES A	YES A	YES	SUP 4 B/C	via CUB-2	via CUB-2	via CUB-2

A: LCS Interface

B: LBUS Interface

• C: EXT Interface

## **Motor Controllers and Lenses**

	cforce mini RF	UMC-4	SMC-1	EMC-1	AMC-1	Servo- Zoom
REC start/ stop and tally *	SUP 1.0	SUP 1.42	SUP 1.29	SUP 1.3	SUP 1.44	via CUB-2
ALEXA User Buttons *	SUP 1.1	with ALEXA EV				
LBUS Device User Buttons *		SUP 1.42				
F/I/Z cforce Motors	SUP 1.0	SUP 1.42			SUP 1.44	
F/I/Z CLM Motors	SUP 1.0	SUP 1.42	SUP 1.29			
F/I/Z ENG Lenses	SUP 1.0			SUP 1.3		via CUB-2
Lens Data Dis- play on OCU-1	SUP 1.0	SUP 1.42				via CUB-2
OVR (Override)	SUP 1.1	SUP 2.1				

<sup>\*</sup> With connected camera

# 15.4 Software Update Devices

Device	Software Update Package			
ALEXA MINI	SUP 5.4			
UMC-4	SUP 2.1			
AMC-1	SUP 2.0			
WCU-4	SUP 3.2			

# 15.5 Specifications

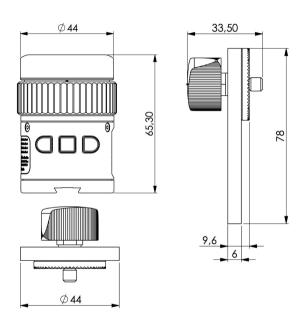
Temperature range: -20 to +50° C (-4 to +122° F)

Supply voltage: 10.5 - 34 V

Current consumption: 55mA @ 24V

# 15.6 Dimensions and Weight

### Dimensions:



# Weight:

OCU-1: 165.5 g / 5.84 oz
OCU-1 Rosette Bracket: 47.3g / 1.67 oz

### 15.7 Service Contacts

#### Munich, Germany

Arnold & Richter Cine Technik +49 89 3809 2121 service@arri.de Business hours:

Mo. - Fr. 9:00 - 17:00 (CET)

London, Great Britain

ARRI CT Limited +44 1895 457 051 service@arri-ct.com Business hours:

Mo. - Thu. 9:00 - 17:30 Fr. 9:00 - 17:00 (GMT)

#### Burbank, USA

ARRI Inc. West Coast +1 877 565 2774 service@arri.com Business hours: Mo. - Fr. 8:15 - 17:00 (PST)

# Mississauga, Canada

ARRI Canada Limited +1 416 255 3335 service@arri.com Business hours: Mo. - Fr. 8:30 - 17:00 (EDT)

### Beijing, China

ARRI China Co. Limited +86 10 5900 9680 service@arrichina.com Business hours: Mo. - Fr. 9:00 - 18:00 (CST)

#### Vienna, Austria

ARRI Cine + Video Geräte Ges.m.b.H. +43 1 8920107 30 service@arri.at Business hours: Mo. - Fr. 9:00 - 17:00 (CET)

### Milan, Italy

ARRI Italia S.r.I. +39 (02) 262 271 75 info@arri.it Business hours: Mo. - Fr. 9:00 - 18:00 (CET)

#### New York, USA

ARRI Inc. East Coast +1 877 565 2774 service@arri.com Business hours: Mo. - Fr. 8:00 - 17:30 (EST)

### Hong Kong, China ARRI Asia Limited

+852 2537 4266 service@arriasia.hk Business hours: Mo. - Fr. 10:00 - 18:30 (HKT)

#### Sydney, Australia

ARRI Australia Pty Ltd +61 2 9855 4305 service@arri.com.au Business hours: Mo. - Fr. 8:00 - 18:00 (AEST)

# 15.8 International Declarations

### **EC Declaration of Conformity**

The designated product conform to the specification of the following European directives:

- Directive 2014/30/EU of the European Parliament and the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility OJ L 96, 29.3.2014, p. 79-106
- Directive 2011/65/EU of the European Parliament and 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

EN 55032: 2015; EN 55103-2: 2009

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: 2018



Munich, 16th October 2018

Walter Trauninger Dr. Sebastian Lange
Managing Director Head of Quality Management

#### FCC Class A Statement

Note: 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. 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.

## **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 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 Réglement sur le matériel brouilleur du Canada.