



ZEISS eXtended Data workflow with Ambient MasterLockitPlus

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Table of contents

Introduction	1
Pre-requisites	1
Overview of the workflow.....	1
Record ZEISS eXtended Data using MasterLockitPlus.....	2
Import lens data from the MasterLockitPlus into Pomfort Silverstack.....	4
Generate ZEISS Lens Correction Files using Pomfort Silverstack	6
Send the ZEISS Lens Correction Files together with the video clips to your post-production.	7
Appendix A – Cables needed for different cameras	8
Appendix B – Setup for ARRI cameras	10
Appendix C – Setup for RED DSMC2 cameras	12
Appendix D – Setup for Sony Cinema Cameras	13
Appendix E – Connect MasterLockitPlus to a Mac.....	14
Appendix F – Synchronize MasterLockitPlus with camera	15
Appendix G - Verify that the lens is connected to the MasterLockitPlus.....	17
Appendix I – Troubleshooting	18
Appendix J - Cables.....	19

Introduction

ZEISS eXtended Data technology provides frame accurate lens characteristics (distortion and vignetting) for use in VFX. Lens characteristics can be recorded along the video clips and passed to the post-production – this replaces the standard grids and grey card workflow that is more time consuming and less accurate. The way to transfer the lens characteristics to the post-production is to generate a ZEISS Lens Correction File for each video clip and send them to the post-production / VFX along with the video material.

In this guide, you will learn how to record ZEISS eXtended Data using Ambient MasterLockit*Plus*. This way works with almost any camera as the only requirement is that the camera and the MasterLockit*Plus* can synchronize their timecodes.

Note

The following guide is not a user manual, but an optional support from ZEISS to improve your user experience and to show you possible uses and combinations of our product and ZEISS eXtended Data technology. Please always observe the separate specific user manual for equipment from Ambient Recording (<http://ambient.de/downloads/>) and software from Pomfort (<https://pomfort.com/>).

ZEISS is not the manufacturer of the Ambient MasterLockit*Plus* and Pomfort Silverstack. If you have any questions, please contact the manufacturer of your respective technical equipment, components and software.

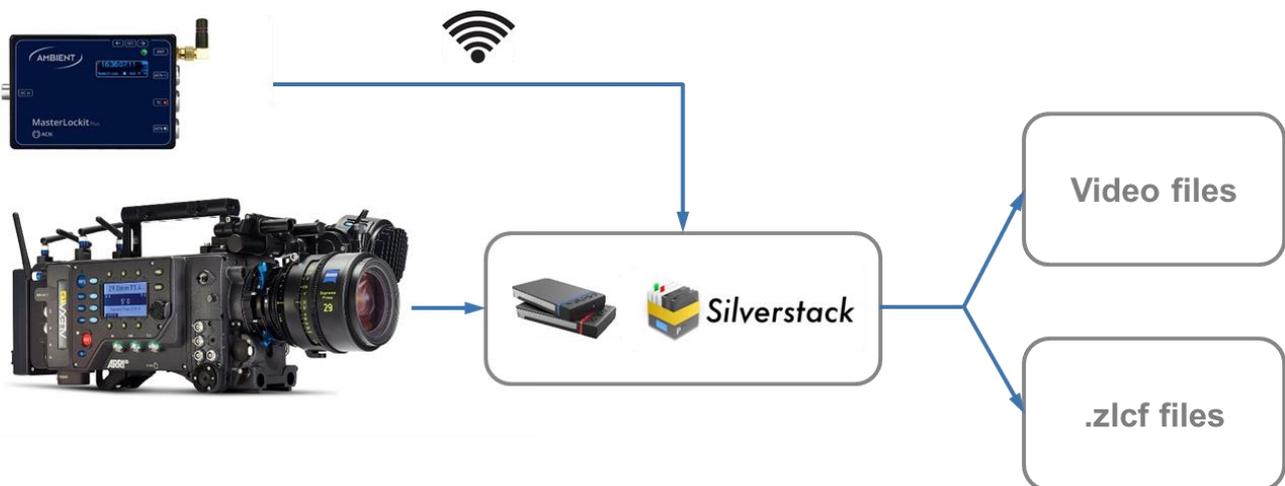
We do not claim to declare the use of third party equipment (third party means all companies except ZEISS), nor do we accept any liability for damage resulting from misuse contrary to the instructions of the respective manufacturer.

Pre-requisites

In order to use this workflow, you will need the following equipment:

- A ZEISS cinema lens featuring ZEISS eXtended Data (Supreme Prime or CP.3 XD).
- A cinema camera with a timecode synchronization connector.
- An Ambient MasterLockit*Plus*.
- An Apple iMac, MacBook or MacBook Pro (is called Mac in the following pages) with Pomfort Silverstack.

Overview of the workflow



Using Ambient MasterLockit*Plus* in the workflow is simple:

- Synchronize time code of Ambient MasterLockit*Plus* and the camera.
- Ensure connection of Ambient MasterLockit*Plus* and the lens with cable.
- Record video clips on the camera and the lens data on the MasterLockit*Plus*.
- Import lens data from the MasterLockit*Plus* using Pomfort Silverstack.
- Generate ZEISS Lens Correction Files (.zlcf files) using Pomfort Silverstack.
- Send ZEISS Lens Correction Files together with video clips to post-production.

Record ZEISS eXtended Data using MasterLockitPlus

What does the MasterLockitPlus do?

- Ambient MasterLockitPlus is a device that generates timecode and helps to synchronize time code of different set devices.
- Ambient MasterLockitPlus can also continuously read ZEISS eXtended Data through the external lens connector and tag each data set with the timecode: this allows to synchronize recorded lens data with video frames.
- Ambient MasterLockitPlus can also send ZEISS eXtended Data to other devices using its WIFI interface. This allows realtime usage of the ZEISS eXtended Data for on-set live image correction using Pomfort LiveGrade for example.

Detailed information about MasterLockitPlus features and user guide:

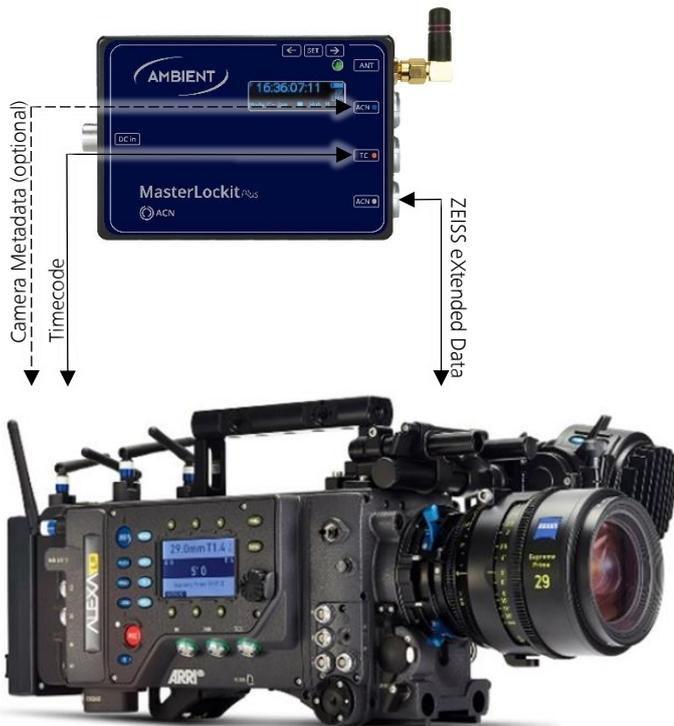
<https://ambient.de/product/mlp/>

Setting up camera and MasterLockitPlus for ZEISS eXtended Data

The general setup is very simple:

- MasterLockitPlus DC in port is connected to a power source.
- Lens eXtended Data port is plugged to grey ACN port.
- Camera timecode port is plugged to red TC port.
- Optional: Camera metadata port is plugged to blue ACN port.

See Appendix for detailed step-by-step setup description with ARRI cameras, RED cameras or SONY Venice.



Setup procedures

Prepare the camera and MasterLockit*Plus* setup

- Connect the MasterLockit*Plus* to the camera using timecode and camera metadata cable.
- Connect the MasterLockit*Plus* power cable.
- Switch on the camera.
- Switch on the MasterLockit*Plus*.
- Ensure that camera and MasterLockit*Plus* are synchronized (see '**Appendix F – Synchronize MasterLockit*Plus* with camera**').

Attach the lens

Always attach the lens when the camera is switched on.

- Attach the lens to the camera.
- Connect the lens to the MasterLockit*Plus*.

Note

When the lens is attached in the right order to the camera and MasterLockit*Plus*, eXtended Data lenses are detected automatically and lens data recording will happen automatically when recording video clip - there is no need to use any other equipment. In case you want to verify that the lens is recognized by the MasterLockit*Plus*, please refer to **Appendix G - Verify that the lens is connected to the MasterLockit*Plus***.

Changing lenses

Do not switch off the camera or the MasterLockit*Plus*.

- Disconnect the lens from the MasterLockit*Plus*.
- Detach the lens from the camera and attach the new lens to the camera.
- Connect the new lens to the MasterLockit*Plus*.

Warning

If you do not proceed in the order described above (eg. connect the lens to MasterLockit*Plus* before attaching the lens), the lens might not be recognized by the MasterLockit*Plus* or by the camera.

In such case, unplug and then plug in again the lens cable from the MasterLockit*Plus* – this will “wake up” the MasterLockit*Plus* and recognize the lens.

Import lens data from the MasterLockitPlus into Pomfort Silverstack

What is Pomfort Silverstack?

Silverstack is a Mac software, developed by Pomfort GmbH, for on-set data management in all kinds of professional film productions. A broad set of features including copying, playback and reporting enables the user to backup, preview and prepare movie data right on the film set.

Silverstack XT or Silverstack Lab also allows you to transfer recorded ZEISS eXtended Data from the MasterLockitPlus and generate ZEISS Lens Correction Files (.zlc) for each corresponding video clips.

Prepare Pomfort Silverstack

- Download Silverstack from Pomfort website and follow installation instructions (<http://pomfort.com/silverstack/download/>).
- Choose a license and install it using instructions from Pomfort web site.
- Connect your Mac to MasterLockitPlus via WIFI connection.

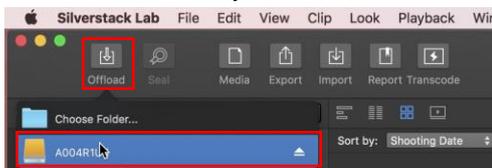
Load video clips in the Silverstack Library

Register all your video clips into the Silverstack Library. In order to do so, you may either offload the clips or add them into the Library.

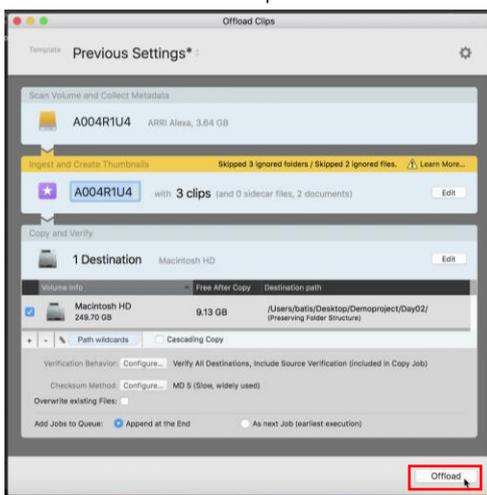
Please note

If you use **Add to Library...**, the clips are not saved on your Mac. You must save your clips on the Mac using the **Offload** function in Silverstack (Option 1) or in another way.

- Option 1: Offload video clips
 - **Offload** → choose your media (SD, SxS Card, Compact Flash Card, ...)



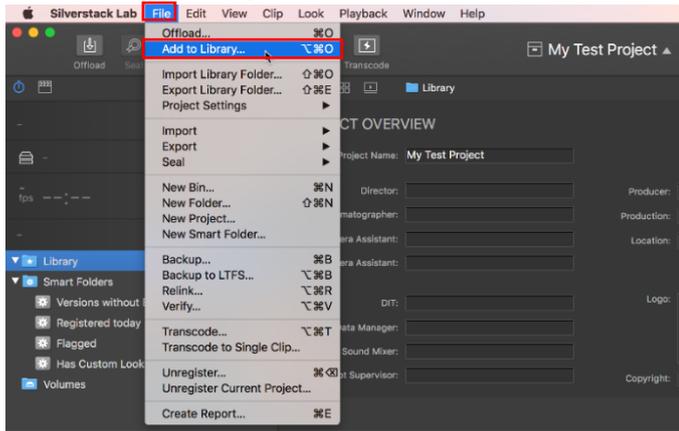
- Choose a destination path where the video clips will be saved then **Offload**.



- All clips are then listed in the 'Library' (left panel) and saved under the destination path which you have chosen.

- Option 2: Add video clips to Silverstack library

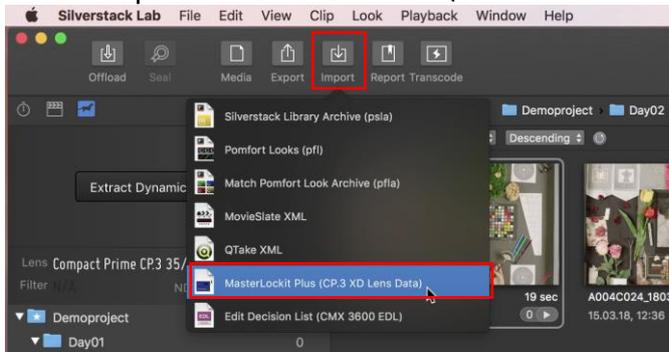
- File → Add to Library...



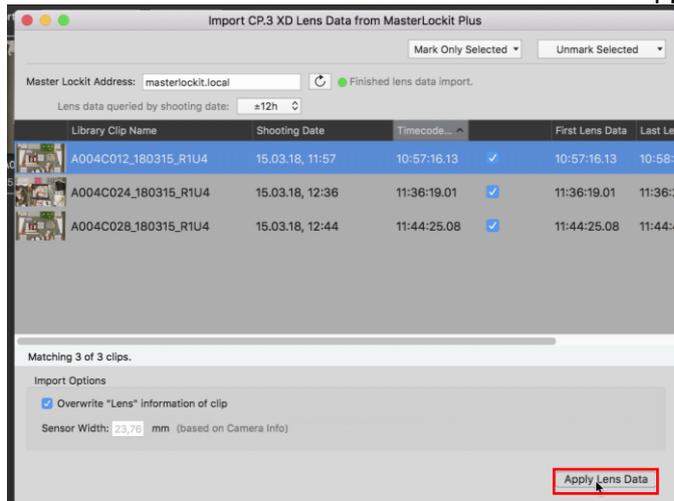
- Choose your media (SSD, SD, SxS Card, Compact Flash Card, ...).
 - All clips are then listed in the 'Library' (left panel).

Transfer ZEISS eXtended Data from the MasterLockitPlus

- Choose Import → MasterLockit Plus (CP.3 XD Lens Data)



- All data sets corresponding to clips in the library are listed in 'black'. Data set that do not match with any clip are greyed out. Choose all data sets that need to transfer. If the Sensor Width field is empty, please fill in the Sensor Width information based on camera Info. → Apply Lens Data

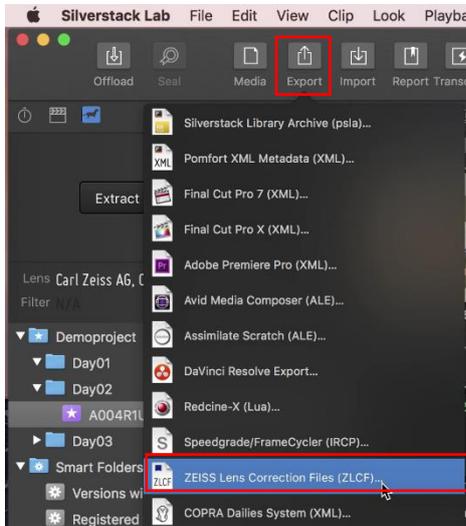


Generate ZEISS Lens Correction Files using Pomfort Silverstack

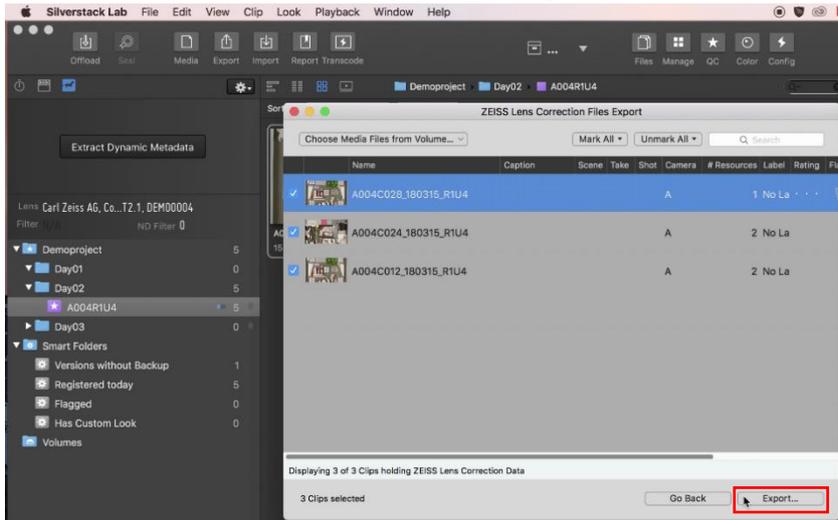
Now that ZEISS eXtended Data have been extracted from video clips, ZEISS Lens Correction Files (zlcF) can be generated.

For this use the **Export** function:

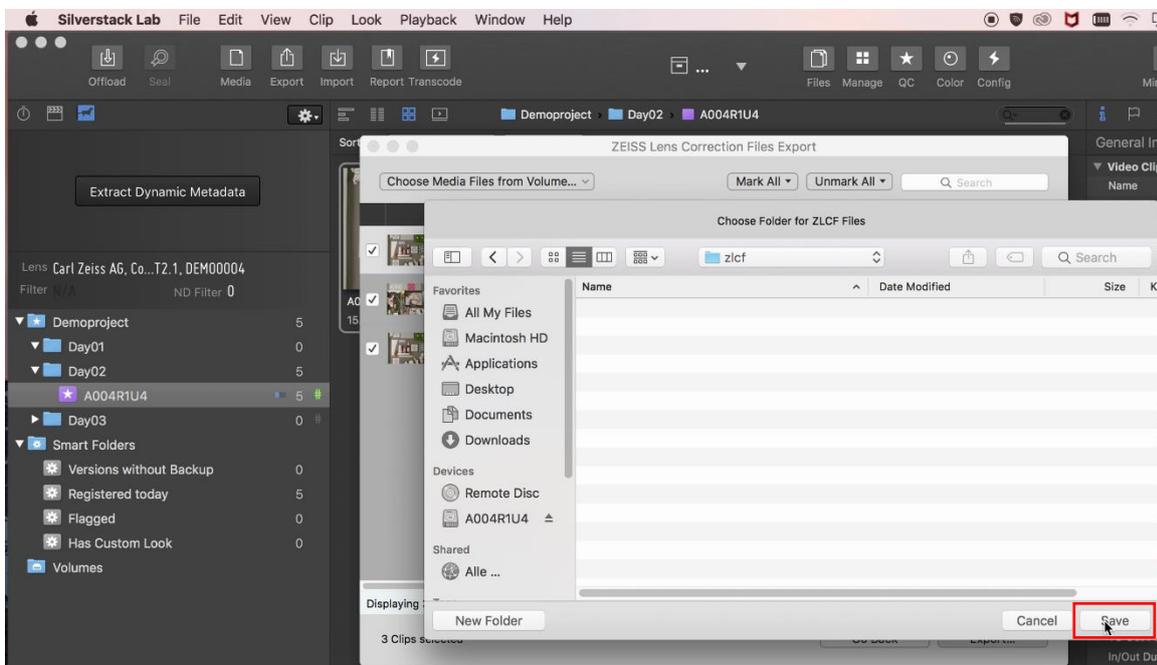
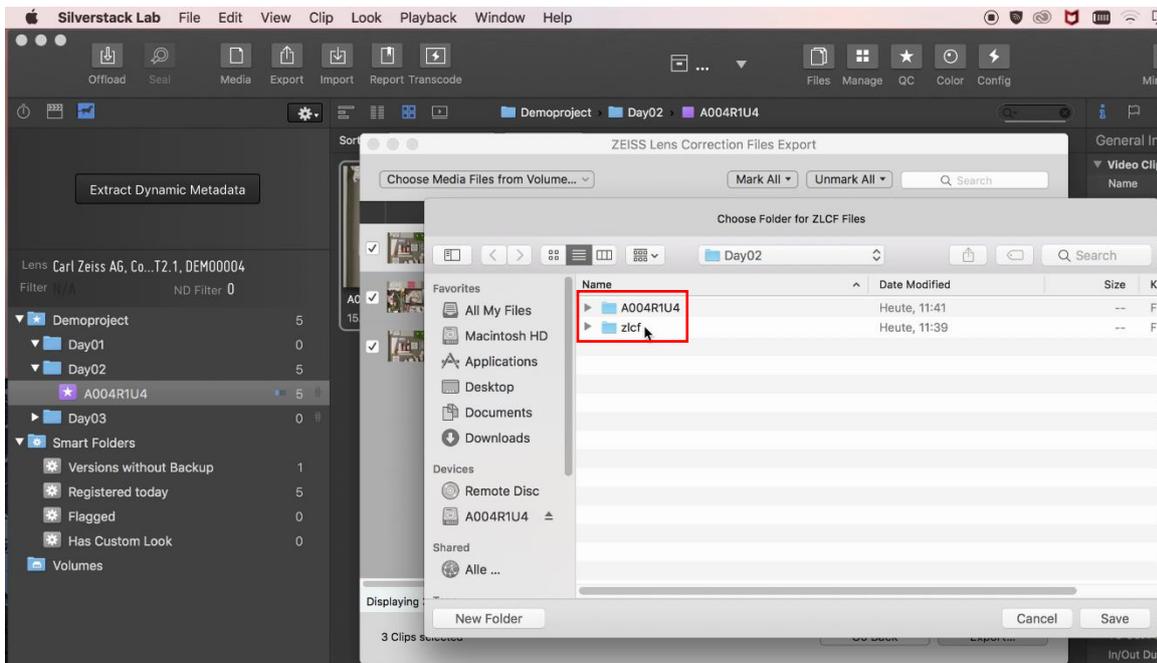
- **Export → ZEISS Lens Correction Files (ZLCF)**



- Choose all video clips for which you want to generate a zlcF file. → **Export**



- Choose a directory in which the zlcF files will be saved. → **Save**



Tip
If your VFX department uses Nuke, it is helpful to keep the directory with zlcfc files in a folder near to the directory in which video clips are saved.

Send the ZEISS Lens Correction Files together with the video clips to your post-production.

Appendix A – Cables needed for different cameras

The following table shows which cables are needed for specific camera setup.

You can find a detailed view of every cable in the **Appendix J - Cables**.

More information can be found on Ambient web site http://ambient.de/product_custom_cat/timecode-kabel/.

Brand	Model	Lens data cable	Timecode cable	Camera metadata cable ¹	Power cable ²
ARRI	ALEXA Classic	MLC-CP	TC-IO	MLC-L1B10P	included with camera metadata cable
ARRI	ALEXA Classic	MLC-CP	TC-IO	MLC-L1B10	AK-L0B2-HS4
ARRI	ALEXA Mini	MLC-CP	TC-IO (optional TC-IO-RA)	MLC-L1B10P	included with camera metadata cable
ARRI	ALEXA LF	MLC-CP	TC-IO	-	AK-L0B2-HS4
ARRI	SXT	MLC-CP	TC-IO	-	AK-L0B2-HS4
ARRI	Amira	MLC-CP	LTC-OUT	-	AK-HS4
Blackmagic Design	Ursa/Mini/Mini Pro	MLC-CP	LTC-Out	-	AK-XLR4M
Canon	C700	MLC-CP	LTC-Out	-	AK-HS4-PC2M (AK-L0B2-HS4 optional)
Canon	C500	MLC-CP	LTC-Out	-	-
Canon	C300 II	MLC-CP	LTC-Out	-	-
Canon	C100 II	MLC-CP	TC-OUT	-	-
Panasonic	Varicam LT/35/HS	MLC-CP	LTC-Out	-	AK-HS4 (AK-L0B2-HS4 optional for 35/HS)
Panasonic	Varicam Pure	MLC-CP	LTC-Out	-	AK-L0B2-HS4
Panavision	Milenium DXL	MLC-CP	over ACN	over ACN	AK-L0B2-HS4

¹ The camera metadata cable is not necessary to get the ZEISS eXTended Data but is part of a correct metadata setup with the MasterLockitPlus. Using this cable, the MasterLockitPlus receives metadata from the camera in addition to the ZEISS eXTended Data. The MasterLockitPlus does not support all cameras.

² Cameras with no or not supported power outlet require additional 6-28V power source to power the MasterLockitPlus / lens connection. Different solutions are possible.

RED	DSMC1	MLC-CP	LTC-Out / EPIC	ACN-RCP	-
RED	DSMC2 w Base Expander	MLC-CP	LTC-Out / EPIC	ACN-RCP	-
RED	DSMC2 w V-LOCK I/O Expander	MLC-CP	LTC-Out / EPIC	ACN-RCP	AK-HS4-PC2M
RED	DSMC2 w JETPACK Expander	MLC-CP	LTC-Out / EPIC	ACN-RCP	-
RED	DSMC2 w JETPACK-SDI Expander	MLC-CP	LTC-Out / EPIC	ACN-RCP	AK-L0B2-HS4
RED	DSMC2 with REDVOLT Expander	MLC-CP	TC-IO	ACN-RCP	AK-L0B2-HS4
RED	DSMC2 w OMOD	MLC-CP	over ACN	over ACN	AK-L0B2-HS4
Sony	F65	MLC-CP	LTC-Out	-	-
Sony	F5/F55	MLC-CP	LTC-Out	-	AK-HS4
Sony	FS7II (requires XDCA-FS7 for timecode and DC out)	MLC-CP	LTC-Out	-	AK-HS4
Sony	Venice	MLC-CP	LTC-OUT	-	AK-HS4

Appendix B – Setup for ARRI cameras

Equipment

- ARRI Alexa Classic, Alexa SXT / LF or Alexa Mini
- ZEISS cinema lens featuring ZEISS eXtended Data (Supreme Prime or CP.3 XD)
- MasterLockitPlus
- Lens data cable MLC-CP
- Timecode cable TC I/O
- Camera metadata & power cable MLC-L1B10P

Connection diagram

Camera / Lens		Cable		MasterLockitPlus
Timecode connector	←	TC-IO	→	TC (red)
Ethernet connector	←	MLC-L1B10P	→	Ethernet port + DC in
Lens eXtended Data socket	←	MLC-CP	→	ACN (grey)



cable connections with Alexa Classic / SXT or LF



cable connections with Alexa Mini

Verify that lens is recognized by camera

ARRI Alexa Mini

On the camera's viewfinder:

- Press the **M** button
- Choose **Info** → Use the selection wheel and got to **Lens info**

If your camera does see your lens, you should see the lens information in the display.



ARRI Alexa Classic / SXT or LF

- Press the **WRS** button
- Choose **Lens Data**

If your camera does see your lens, you should see the lens information in the display.



Appendix C – Setup for RED DSMC2 cameras

Equipment

- RED DSMC2 camera
- ZEISS cinema lens featuring ZEISS eXtended Data (Supreme Prime or CP.3 XD)
- MasterLockitPlus
- Lens data cable MLC-CP
- Timecode cable LTC-Out/EPIC
- Camera metadata cable ACN-RCP (optional)
- Power cable AK-HS4-PC2M

Connection diagram

Camera / Lens		Cable		MasterLockitPlus
Power TAP	←	AK-HS4-PC2M	→	DC in
Sync	←	LTC-Out/EPIC	→	TC (red)
Ctrl	←	ACN-RCP (optional)	→	ACN (blue)
Lens eXtended Data socket	←	MLC-CP	→	ACN (grey)



cable connections with RED DSMC2 camera

Verify that lens is recognized by the camera

- Go to MENU → Settings → Setup → Lens
- Switch to Info or Metadata tab: lens info should be visible.



Appendix D – Setup for Sony Cinema Cameras

Equipment

- SONY cinema camera (Venice)
- ZEISS cinema lens featuring ZEISS eXtended Data (Supreme Prime or CP.3 XD)
- MasterLockitPlus
- Lens data cable MLC-CP
- Timecode cable LTC-OUT
- Power cable AK-HS4

Connection diagram

Camera / Lens		Cable		MasterLockitPlus
12V Out	←	AK-HS4	→	DC in
Sync	←	LTC-OUT	→	TC (red)
Lens eXtended Data socket	←	MLC-CP	→	ACN (grey)



cable connections with SONY Venice camera

Verify that lens is recognized by the camera

- Press **MENU** → go to the **Info** tab number **6** called 'Lens' → you should see lens information in the display.

Appendix E – Connect MasterLockit*Plus* to a Mac

WIFI connection

The MasterLockit*Plus* has built-in WIFI router functionality. A supplied WIFI dongle must be plugged in to the USB port.

- Open your network settings and search for WIFI Access Points.
- Connect to the access point which name (SSID) begins with “mlp-”.
- Type in the password. The password is identical to the name of the access point (mlp-...).

Access the MasterLockit*Plus* web interface

- Open a web browser (we recommend Google Chrome).
- Type in 10.0.0.1 OR masterlockit.local in the address bar.

In case the web interface does not appear, verify that the MasterLockit*Plus* is properly connected to your Mac via WIFI.

Appendix F – Synchronize MasterLockit*Plus* with camera

While the MasterLockit*Plus* records ZEISS eXtended Data continuously, it is important to ensure that the Frame Rate and timecode are setup correctly and synchronized with the camera. Pre-requisite is that cable connections are correct.

Following setups are mandatory to ensure that ZEISS eXtended Data will match frames of video clips:

- Verify system date and time of camera and Mac.
- Choose the right timecode settings in your camera.
- Choose the same Frame Rate (FPS) value for the MasterLockit*Plus* as for the camera.
- Sync your camera with the MasterLockit*Plus*.

Verify system date and time of camera and Mac

- Setup right date, time and time zone on the camera.
- Setup right date, time and time zone on the Mac.

Choose the right timecode settings in your camera

Camera must be setup correctly to accept external timecode.

ARRI camera

- **TC → Options**
Source: Ext LTC
Mode: Free Run
Generator: Regen

RED camera

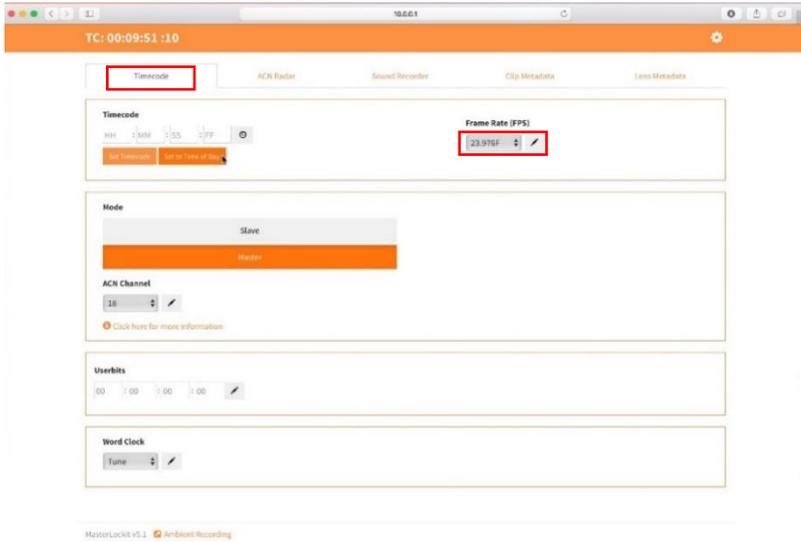
- **Menu → Settings → Project → Timecode**
TC Display Mode: TOD
Source: External

SONY Venice camera

- **Menu → TC/Media-tap → TC Mode → Preset F-Run (Ext-Lk)**

Choose the same Frame Rate (FPS) value for the MasterLockitPlus as for the camera

- Connect to web interface
- On the **Timecode** tab choose the right **Frame Rate (FPS)**



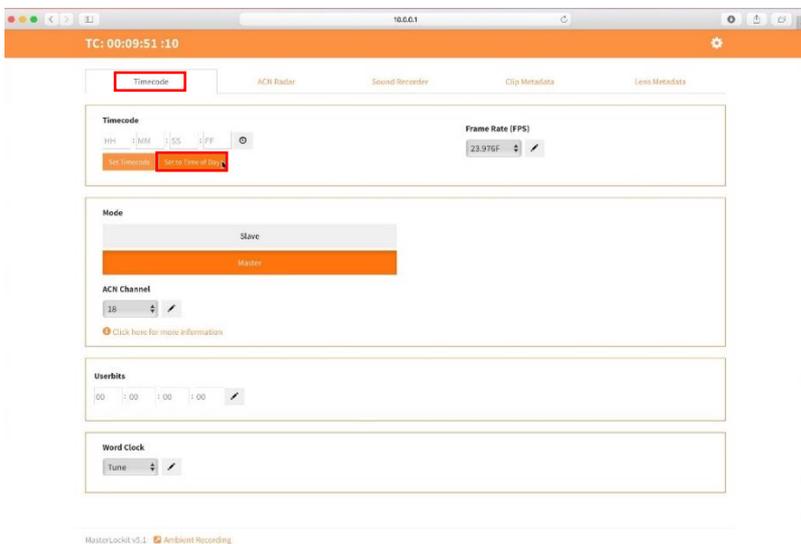
Note

On RED DSMC2 cameras use the 'Project Frame Rate' value.

On SONY Venice camera use the 'Menu → Project-tap → Project Frame Rate' value.

Sync your camera with the MasterLockitPlus

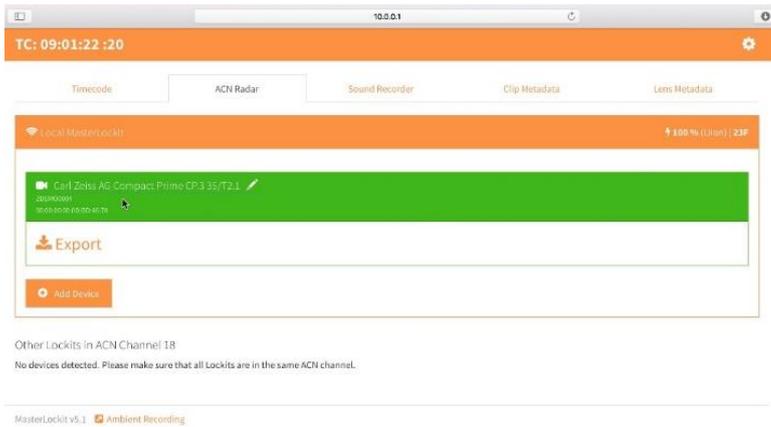
- Connect to MasterLockitPlus web interface.
- On the **Timecode** tab press **Set Time of Day**.



Verify that the timecode value on the web browser (TC) corresponds to the timecode value on the camera. The camera gets the timecode from the MasterLockitPlus now.

Appendix G - Verify that the lens is connected to the MasterLockit*Plus*

- Connect to MasterLockit*Plus* web interface.
- Click on the **ACN Radar** tab.



Elements with green background are recognized by the MasterLockit*Plus*. The MasterLockit*Plus* will automatically detect CP.3 XD and Supreme Prime lenses.

Appendix I – Troubleshooting

The camera does not detect the lens

In case the lens data is not shown on the screen, in the viewfinder or in the camera menu:

- Disconnect the lens from the MasterLockit*Plus*.
- Detach the lens from the camera.
- Attach the lens to the camera.
- Wait until the lens data is shown on the monitor of the camera.
- Connect the lens data cable to the MasterLockit*Plus*.

Check if the lens is powered through the camera

If your camera does not recognize your lens, please check if the lens getting power through the camera:

Alexa Mini

- Go to **SETTINGS** → **Enable lens mount** should be on

ARRI Alexa SXT / Alexa Plus

- Go to **OPTIONS** → **LDS mount** should be on

RED DSMC2 cameras

- Go to **MENU** → **Settings** → **Setup** → **Lens**
- Ensure that following options are selected:
 - **Enable Power to Lens**
 - **Auto-Detect PL Lens**

SONY Venice

- Press the **MENU** button while turning the dial wheel → go to **Technical** → **System Configuration** → **Lens Interface** should be **Type C**.

What to do if the MasterLockit*Plus* does not detect the lens

In case the lens is not recognized by the MasterLockit*Plus*:

- Verify that the MLP-CP cable is plugged in correctly.
- Un-plug and re-plug the MLP-CP cable.
- Verify that the whole connections have been done correctly.

Appendix J - Cables

- Lens data cable
 - MLC-CP



- Power cables
 - AK-XLR4M



- AK-HS4-PC2M



- AK-L0B2-HS4

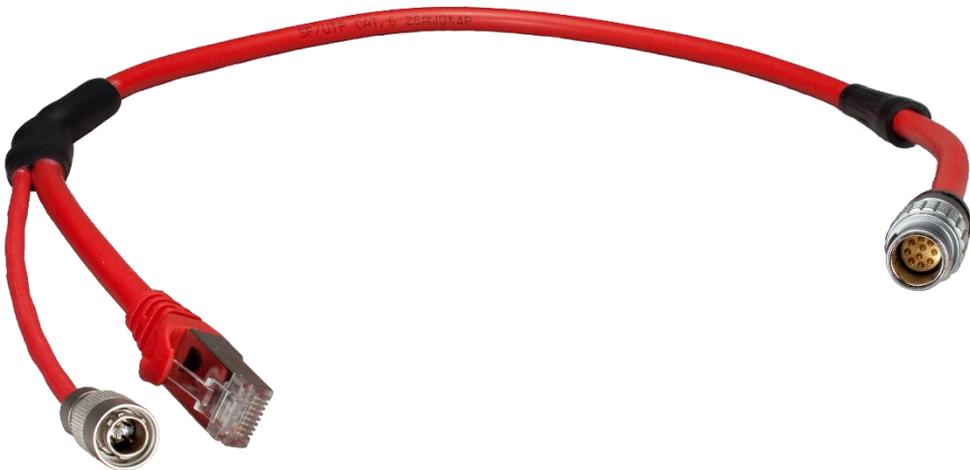


- AK-HS4



- Camera metadata cables

- MLC-L1B10P



- ACN-RCP



- Timecode cables
 - TC-I/O & TC-I/O RA (Right Angle)



- LTC-Out/EPIC



- LTC-OUT



- TC-OUT



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www.zeiss.com/cine