



# ZEISS eXtended Data workflow with Transvideo StarliteHD-m Metadator

Version04

## Table of contents

Introduction .....	1
Pre-requisites.....	1
Overview of the workflow.....	1
Record ZEISS eXtended Data using Transvideo StarliteHD-m Metadator.....	2
What does the Transvideo StarliteHD-m Metadator do? .....	2
Setup camera and Transvideo Starlite HD-m Metadator .....	2
Record ZEISS eXtended Data with Transvideo StarliteHD-m Metadator.....	3
Prepare recorded media for post-production.....	3
Any video file format with ZEISS eXtended Data as side car files.....	3
EXR file sequences with embedded ZEISS eXtended Data .....	5
Use ZEISS eXtended Data in post-production .....	5
Appendix A - Setup ARRI Alexa Mini or AMIRA .....	6
Appendix B - Setup Transvideo StarliteHD-m Metadator .....	9
Appendix C – Cables needed for different cameras.....	12
Appendix D – Short presentation of zeiss-xdcp software.....	13

## Introduction

ZEISS eXtended Data technology provides frame accurate lens characteristics (distortion and vignetting) for use in VFX. Lens characteristics can be recorded in the video files and passed to the post-production – this replaces the standard grids and grey card workflow that are both time consuming and inaccurate.

In this guide, you will learn how to record ZEISS eXtended Data on a Transvideo StarliteHD-m Metadator attached to an ARRI camera and how to prepare the recorded footage for using ZEISS eXtended Data in post-production.

### Note

The following guide is not a user manual, but an optional support document 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 ARRI (<https://www.arri.com/en/>) and Transvideo (<https://www.transvideo.eu/StarliteHD-m>).

ZEISS is not the manufacturer of the ARRI cameras and Transvideo StarliteHD-m Metadator. If you have any questions, please contact the manufacturer of your respective technical equipment and components.

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 following equipment is needed:

- A ZEISS cinema lens featuring ZEISS eXtended Data (Supreme Prime or CP.3 XD).
- An ARRI camera.
- A Transvideo StarliteHD-m Metadator with SD-card and following cables:
  - Ethernet cable
  - Lens data cable
  - HD-SDI BNC cable
  - Power cable
- Optional: ZEISS eXtended Data injection software (`zeiss-xdcp`).

## Overview of the workflow

Using Transvideo StarliteHD-m Metadator, the workflow is simple:

1. **Record** ZEISS eXtended Data with Starlite HD-m and video files on the camera.
2. **Prepare** video files and ZEISS eXtended Data for use in post-production.
3. **Use** ZEISS eXtended Data in post-production.



# Record ZEISS eXtended Data using Transvideo StarliteHD-m Metadator

## What does the Transvideo StarliteHD-m Metadator do?

The StarliteHD-m is an electronic toolbox. The power of the StarliteHD-m resides in its ability to gather information from the different smart devices. Metadata are transmitted through the SDI signal, camera information through the Ethernet link and lens data through the serial link.

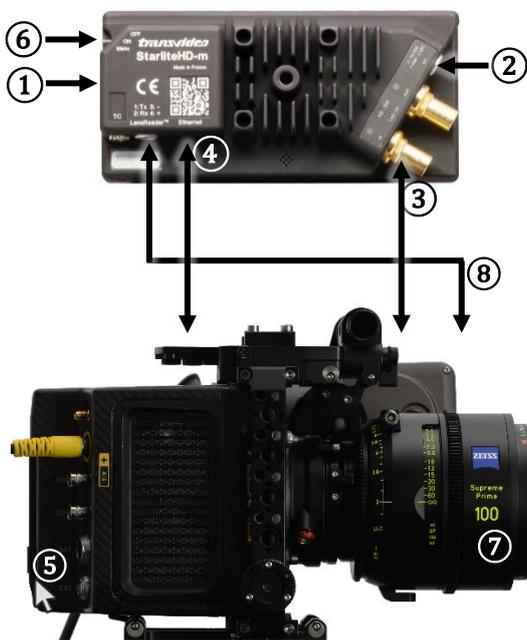
In combination with an appropriate camera and a ZEISS eXtended Data lens, it will record the ZEISS eXtended Data and all information needed by VFX into ZEISS Lens Correction Files (.z1cf) on the inserted SD-card. There is no need to use an additional software when using the StarliteHD-m.

Detailed information about Transvideo StarliteHD-m Metadator features and user guide:

<https://www.transvideo.eu/StarliteHD-m>

## Setup camera and Transvideo Starlite HD-m Metadator

Special adjustments are needed. See Appendix for detailed step-by-step setup description: **Appendix A - Setup ARRI Alexa Mini or AMIRA** and **Appendix B - Setup Transvideo StarliteHD-m Metadator**.



## Prepare the camera and Transvideo StarliteHD-m Metadator

The general setup is simple:

- ① Insert SD-card into the StarliteHD-m.
- ② Connect StarliteHD-m power cable.
- ③ Connect StarliteHD-m to the camera using HD-SDI cable.
- ④ Optional, depending of the camera model: Connect Ethernet cable.
- ⑤ Switch on the camera.
- ⑥ Switch on the StarliteHD-m.

## Attach lens and verify that the lens is recognized

- ⑦ Attach the lens to the camera.
- ⑧ Connect the lens eXtended Data port to the StarliteHD-m.

## Exchange the lens

- Do not switch off the camera or the StarliteHD-m.
- Disconnect the lens from the StarliteHD-m.
- Detach the lens from the camera and attach the other lens to the camera.
- Connect the other lens to the StarliteHD-m.

## Warning

If you do not proceed in the order described above (eg. connect the lens to StarliteHD-m before attaching the lens), the lens might not be recognized by the StarliteHD-m or by the camera. In this case, unplug the lens from the StarliteHD-m and plug it to the StarliteHD-m again.

## Record ZEISS eXtended Data with Transvideo StarliteHD-m Metadata

ZEISS eXtended Data will be recorded whenever video files are recorded.

## Prepare recorded media for post-production

There are two ways to provide recorded ZEISS eXtended Data to VFX:

- Provide video files of any format with ZEISS eXtended Data side car files.
- Provide EXR file sequences with embedded ZEISS eXtended Data.

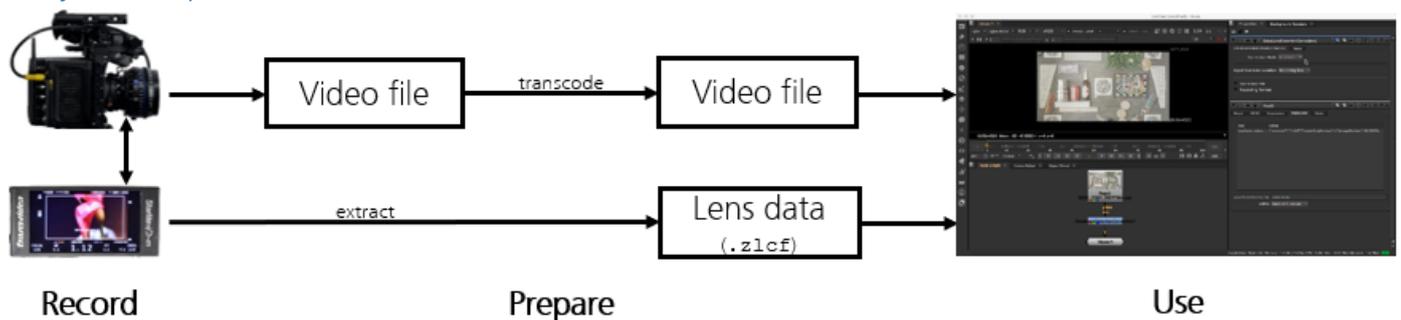
The choice of the video file format is made by VFX department.

## Any video file format with ZEISS eXtended Data as side car files

In case the VFX department works with other file formats than EXR, they will need for each video clip one side car file with the recorded ZEISS eXtended Data.

Side car files with extension `.z1cf` (ZEISS Lens Correction File) will be generated using StarliteHD-m. These files contain recorded ZEISS eXtended Data and all information needed by VFX.

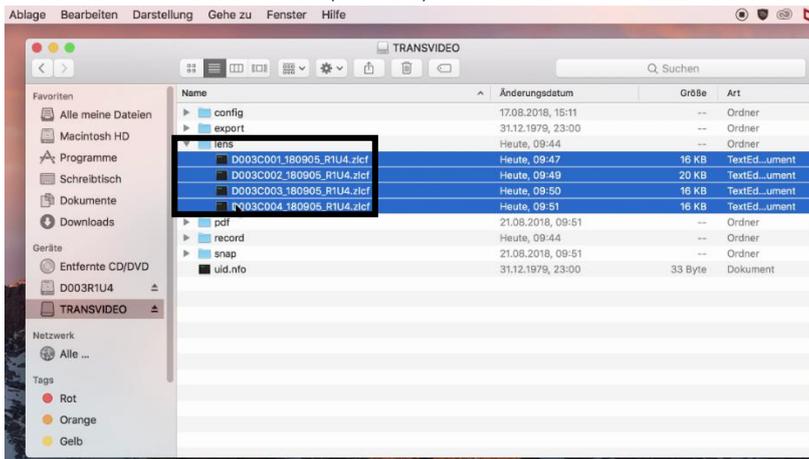
### Workflow description



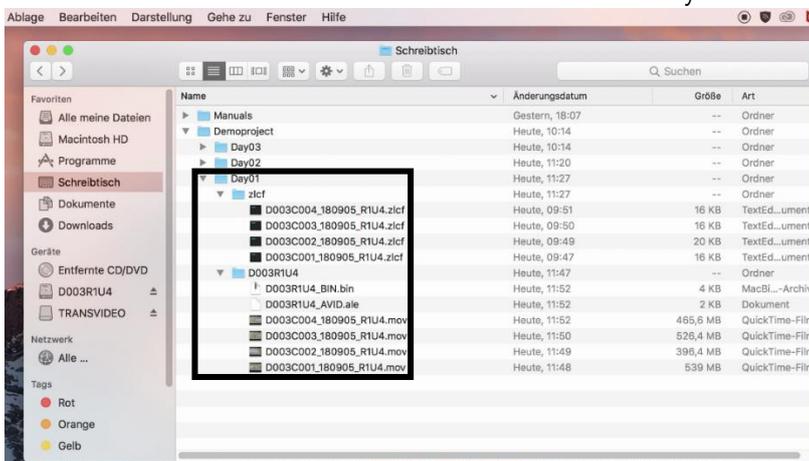
Following two steps are needed:

- Optional: **Transcode** video files into desired file format.
- **Extract** `.z1cf` files from the Starlite-HD m and transfer them to the post-production.

Extract ZEISS eXtended Data from the Transvideo Starlite HD-m Metadator  
ZEISS Lens Correction Files (.z1cƒ) are stored in the lens folder on the SD-card.



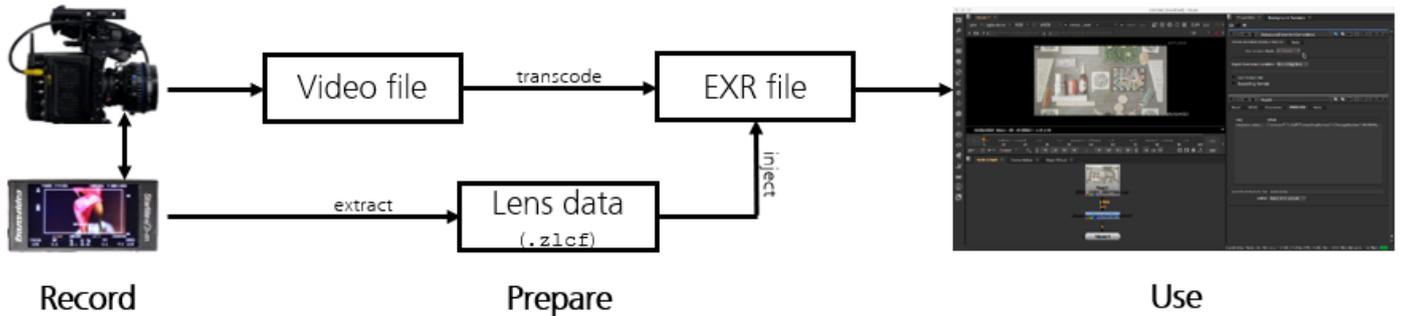
Send the ZEISS Lens Correction Files together with the video files to the post-production  
Save the .z1cƒ files in a folder within the same directory that contains the video files folder.



## EXR file sequences with embedded ZEISS eXtended Data

In case the VFX department works with EXR file sequences, it is possible to read the ZEISS eXtended Data out of the `.z1cf` files and inject them into the EXR file sequences.

As of today, none of the EXR transcoders (BlackMagic DaVinci Resolve, Colorfront, etc ...) will automatically inject ZEISS eXtended Data into the EXR file sequences. This must be done manually using ZEISS provided injection software: `zeiss-xdcp`.



Following three steps are needed:

- **Transcode** recorded video files into EXR file sequences as usual.
- **Extract** `.z1cf` files from the StarliteHD-m and copy them into the EXR directory.
- Use `zeiss-xdcp` software to **inject** ZEISS eXtended Data into the EXR file sequences.

### Example

One MXF file has been transcoded into an EXR file sequence:

- MXF file is `example_TRANSVIDEO/example.mxf`
- EXR file sequence is: `example_EXR/example_001.exr example_EXR/example_002.exr ...`
- ZLCF file is `example_EXR/example.zlcf`

Data extraction and injection happens using following command:

```
zeiss-xdcp -s example_EXR/example.zlcf -d example_EXR/example_*.exr
```

For more information about the different options of `zeiss-xdcp` software:

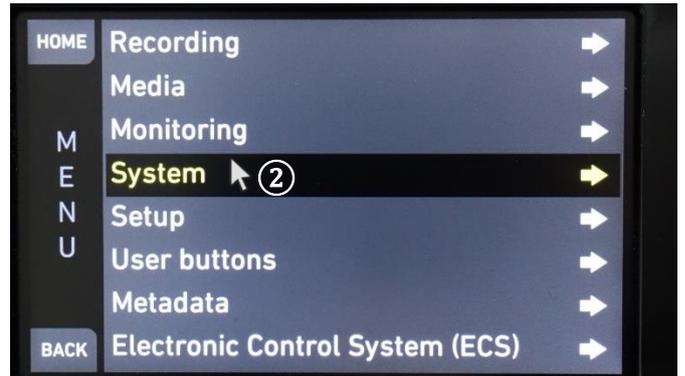
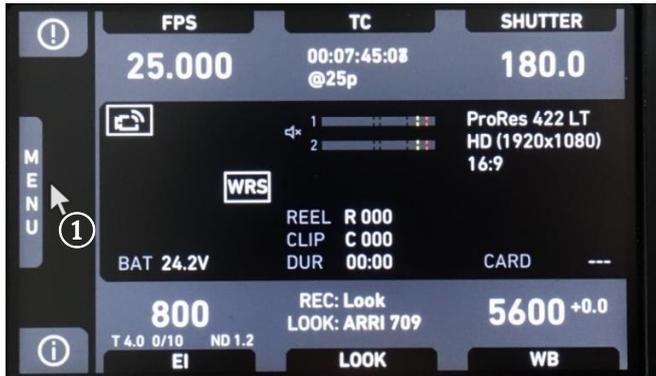
```
zeiss-xdcp --help
```

## Use ZEISS eXtended Data in post-production

For introductions how to use ZEISS eXtended Data in post-production, please read the ZEISS eXtended Data plug-in Quick Guide. It can be found on the ZEISS website <https://www.zeiss.com/cine/xd>.

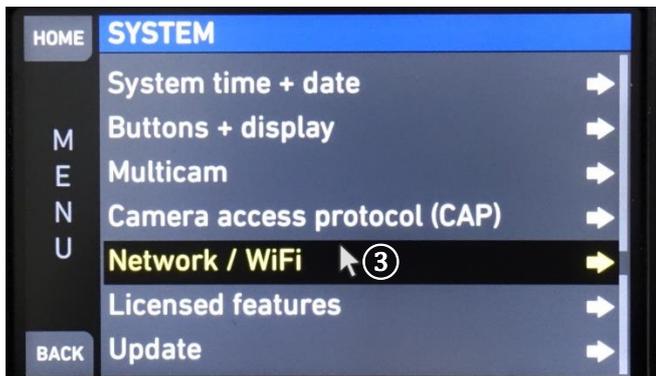
# Appendix A - Setup ARRI Alexa Mini or AMIRA

## Setup camera



①+② Enter System menu.

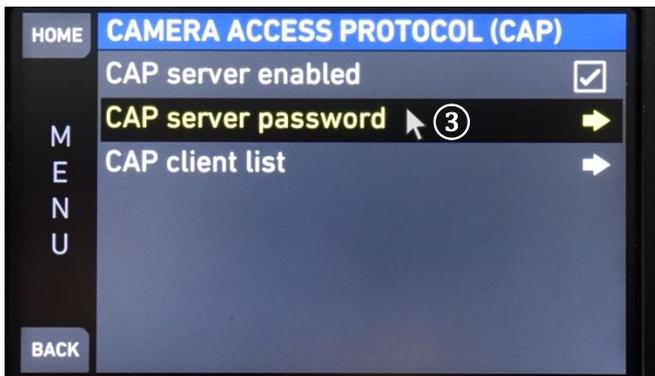
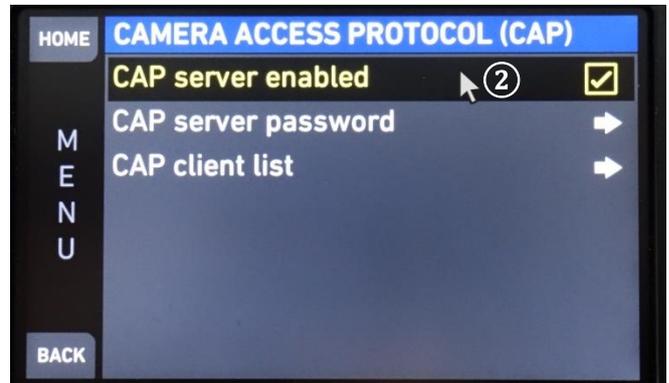
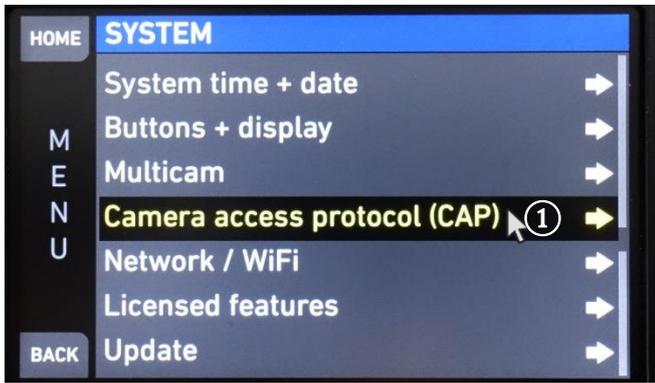
For connecting the StarliteHD-m with the ARRI camera, choose the right CAP setup in the camera:



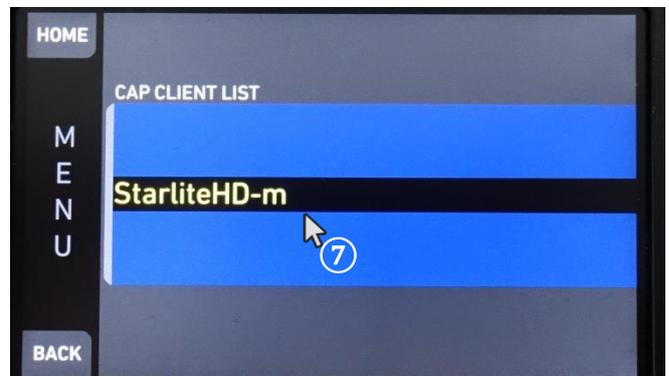
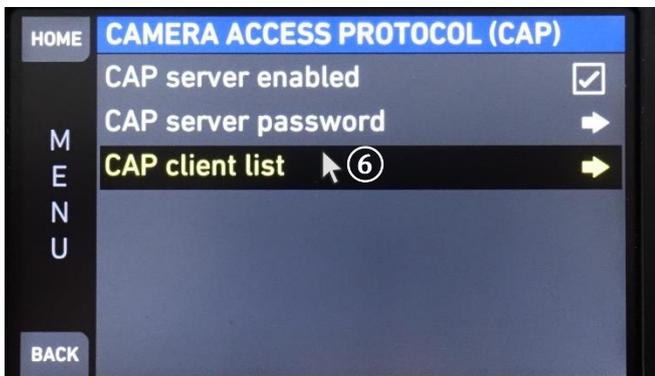
① Choose Network / WiFi menu.

② LAN IP mode should be set to Static.

③ LAN static IP address should be in the 192.168.001.xxx range.

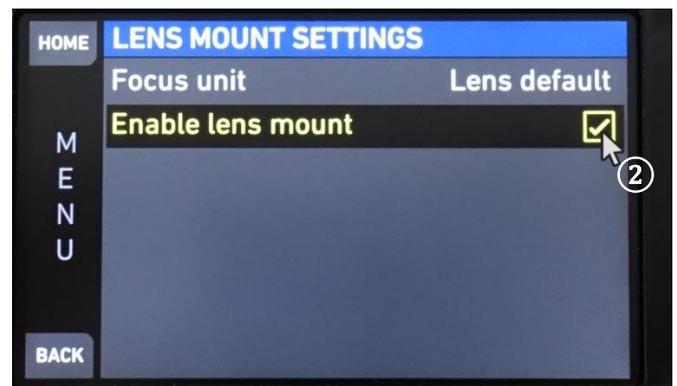
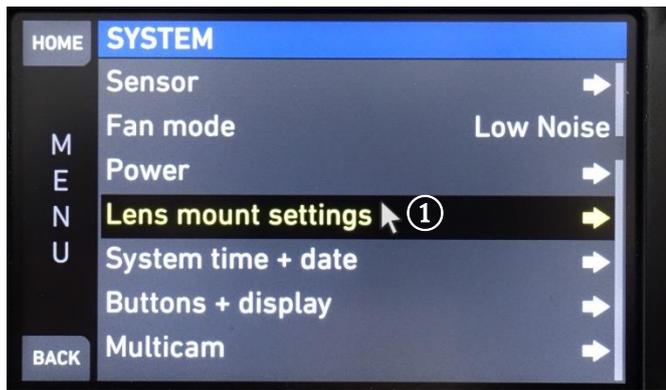


- ① Choose Camera access protocol (CAP) menu.
- ② Activate CAP server enabled.
- ③+④+⑤ Go to CAP server password. → Fill in a password you want use. → Done



- ⑥+⑦ Open CAP client list.  
If the StarliteHD-m is connected successfully, the product's name appears. If it is not displayed, check the settings of the StarliteHD-m according to **Appendix B - Setup Transvideo StarliteHD-m Metadator**.

In order that camera will recognize the lenses, following setup must be made:



- ① Choose Lens mount settings.
- ② Activate Enable lens mount.

### Attach lens and verify that the lens is recognized by the camera

- Attach the lens to the camera.
- Lens information are displayed on camera screen (①).



## Appendix B - Setup Transvideo StarliteHD-m Metadator

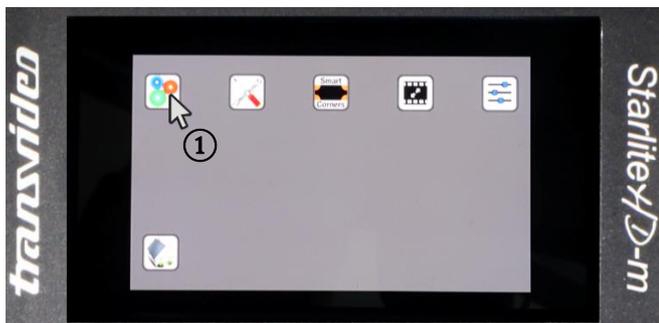
For recording ZEISS Lens Correction Files (.z1cf) on the StarliteHD-m, a config file saved on the SD-card from the StarliteHD-m is needed.

For getting the config file, go to the Transvideo website: <https://www.transvideo.eu/form/starlitehd-m-configuration-file>.

- Login to your account.
- Filling in the right camera manufacturer, the camera IP and camera CAP server password depending on your camera setup.
- Generate your product configuration file.

Please save this configuration file on the top of the directory of the SD-card in the folder named **config**.

### Setup Transvideo StarliteHD-m Metadator

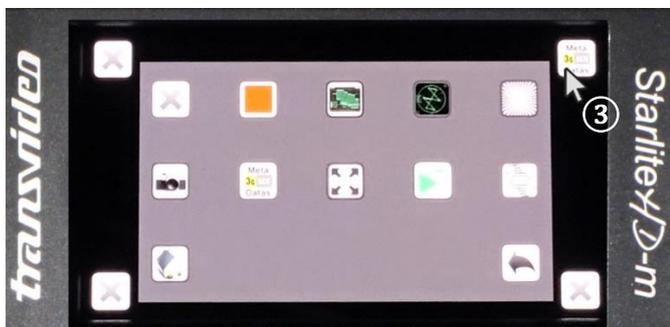
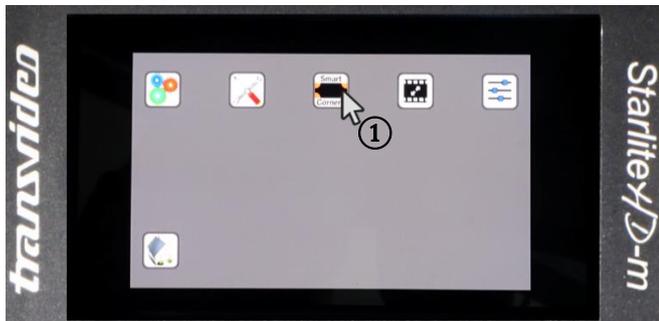


- ①+② Open the **IP address** setting application.
- ③+④+⑤ Select the **ARRI** tap and adjust the camera IP address of the camera.

## Verify that Transvideo StarliteHD-m Metadator gets timecode from the camera

For recording .z1cf files on the StarliteHD-m, it is important, that the monitor gets timecode over the cameras SDI output. Without TC, the file will be empty as no measurement will be triggered.

For getting sure if timecode is present on the monitor, check the metadata page:



- ①+② Open the **Smart Corners** menu.
- ② Select the **Metadata View** ("Meta 3G SDI Datas").
- ③ Choose one of the corners and assign it. → Go out of the menu settings.
- ④+⑤ Timecode information will be displays by tapping on the corner where the Metadata View is assigned.

## Verify that recording is triggered by HD-SDI

It is also necessary, that the recording on the StarliteHD-m is triggered by HD-SDI record information.



①+② Switch Auto REC ON in the Tools menu.

## Verify that lens is recognized by Transvideo StarliteHD-m Metadator

A ZEISS logo appears at the top left side of the monitors UI if the lens is recognized. (①). If you do not see icons at the display, tap on it.



## Appendix C – Cables needed for different cameras

To recover the lens data, you need the following set of cables:

- HD-SDI BNC cable  
Basic lens information provided by Cooke /i, LDS (Arri)  
Camera information from RDD18 (Sony) or ARRI protocol.
- Lens Reader™  
Cooke /i3, /i2, /i and ZEISS eXtended basic and advanced metadata.
- Ethernet cable  
More information gathered to the metadata file.
- TC in  
Gather's precise Time Code (LTC type) from the camera.

Different cables are needed for specific camera setups:

Brand	Model	Cables Part Numbers			
		SDI	Ethernet cable	Lens cable	TC cable
ARRI	Alexa Mini	906TS0144	Arri K2.72021.0 or 906TS0215	906TS0214	906TS0216
ARRI	Amira	906TS0144	Standard RJ45 cable	906TS0214	906TS0217

More information can be found on Transvideo website <https://www.transvideo.eu/StarliteHD-m> and <https://www.transvideo.eu/User-guides>.

## Appendix D – Short presentation of zeiss-xdcp software

ZEISS eXtended Data injection software (`zeiss-xdcp`) is a command line tool used for injecting ZEIS eXtended Data into EXR files.

It can be downloaded from the ZEISS website <https://www.zeiss.com/cine/xd> and runs on Mac, Windows or Linux. You only need a terminal. For detailed list of options: `zeiss-xdcp --help`

### Usage:

```
zeiss-xdcp [OPTION]... -s SOURCE... -d DESTINATION...
```

### Options:

```
-h [ --help ]           Display help text and exit.
--version              Output version information and exit.
-s [ --source ] arg    Path to one or more files where the
                       metadata shall be copied from.
-d [ --destination ] arg Path to one or more files where the
                       metadata shall be copied to.
--ask-before-overwriting-metadata Prompt before overwriting existing
                       metadata.
--do-not-overwrite-metadata Do not overwrite existing metadata.
--abort-on-first-error  Abort copying on the first error occurred.
```

### Description:

A command-line tool used for timecode-based copying of ZEISS eXtended Metadata from a given container into the metadata section of the given image file(s).

After copying the metadata, the image files (e.g. of type `exr`) can then be used directly by the ZEISS eXtended Data Plug-ins to perform different kinds of lens corrections just on the basis of the embedded metadata. An additional metadata description file (e.g. of type `zlcfc`) will no longer be needed and this will simplify the workflow with the ZEISS eXtended Data technology.

### Supported File Formats:

```
zlcfc: Path to a single file of this format can be used as SOURCE.
r3d:   Path to a single file of this format can be used as SOURCE. If the
       footage is split into multiple files, please select only one of them
       because the other parts will be found and used automatically.
exr:   Path to one or more files of this format can be used as DESTINATION.
```

### Examples:

```
Copy from "clip.zlcfc" to "clip-0000.exr".
$ zeiss-xdcp -s clip.zlcfc -d clip-0000.exr

Copy from "clip.zlcfc" to "clip-0000.exr", "clip-0001.exr" and "clip-0002.exr".
$ zeiss-xdcp -s clip.zlcfc -d clip-0000.exr clip-0001.exr clip-0002.exr

Copy from "clip.zlfc" to files which start with "clip-" and end with ".exr".
$ zeiss-xdcp -s clip.zlfc -d clip-*.exr

Copy from "clip-001.r3d" and all the other r3d files contained in the same
directory which belong to the same footage to files which start with "clip-"
and end with ".exr".
$ zeiss-xdcp -s clip-001.r3d -d clip-*.exr
```

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