dieASSIST

HD video assist for Arricam LT

User Manual

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INDIECAM GmbH
Seidengasse 26/4–5
1070 Vienna – Austria

www.indiecam.com

Introduction

This manual gives an overview of **indieASSIST**.

indieASSIST is a new standard HD video assist for Arricam LT 35mm film cameras. It provides exceptional image quality for all crew on set, allowing to judge images far better than before. The high-resolution images show true colours and have sharp, high contrast.

Technical Data

Overview

- Dimensions: 150 x 83 x 92mm (5.9" x 3.2" x 3.6")
- Weight: Approx. 800g (1.76lb)

Mounting

The system easily mounts with two captive screws onto the original mounting positions of the Arricam LT and is powered from the Arricam LT internally.

Image Sensor

- Size: 1/1.2"
- Resolution: 1920 x 1080
- Readout: progressive
- Shutter: global
- Pixel size: 5.86 μm
- Sensitivity: ISO 125–12800
- Dynamic range: 12 stops

Image Processing Features

- White balance presets
- Automatic and manual exposure control
- Flicker free

Video Output

- YUV 4:2:2, 10 bit
    - 1080p23.98
    - 1080p24
    - 1080p25
    - 1080p29.97
    - 1080p30

System Functions

- Auto start with last settings
- Store and recall settings
- Embedded time code
- Remote control RS485
- Factory settings

Connectors

indieASSIST has 3 connectors at the backside.

SDI BNC outputs

The output is HDSDI with 4:2:2 colour sampling. The HD link speed is selectable between 23.98, 24, 25, 29.97 and 30 fps. The mode is progressive.
The two HDBNC connectors can output different LUTs.

Control connector

The control connector is a Female Lemo 4 pin connector.

indieASSIST has 1 connector at the right side.

On/Off switch

The indieASSIST can be switched on and off independently from the film camera, as long as the film camera has power. Turning off the Arricam LT will also shut the video assist.

Power out connector

The power out connector is a Female Lemo 2 pin connector and outputs 12V 2A. It can be used for powering accessories like an external monitor.

Optical System

Focus

The focus of the indieASSIST can be mechanically adjusted by turning the focus screw, using a slot screwdriver.

Iris

Only a small portion of the light, which passes through the film camera's lens, reaches the CMOS chip of the video assist as the light is shared between the viewfinder, the chip and the film. Iris can be mechanically adjusted by turning the rotary knob.

Alignment of the image position: X, Y, front and back

The position of the image on the CMOS chip and its focus can vary slightly from film camera to film camera. The video image on the monitor may appear not centred, rotated or out of focus. Adjustment can be made, by using a slot screwdriver. Do not use force!

Screw ⊣▭⊢ moves the video image on the monitor horizontally (X axis).
Screw ⊟ shifts the left side of the image up and down and rotates the image around a point, which is located in the middle of the right image border.
Screw ⊟ shifts the right side of the image up and down and rotates the image around a point, which is located in the middle of the left image border. Therefore, screw ⊟ and ⊟ work as a Y adjustment as well as an adjustment for rotation.
Screw ◹ moves the sensor to the front and to the back.

Conversion to 4 perf

The modification from 2/3 to 4 perf has to be done by an experienced technician in an appropriate environment. Please be aware that the modification takes some time and should not be done on set. Please also make sure to use the correct ground glass when in 2/3 perf or 4 perf mode.

In order to convert the indieASSIST to use with Arricam LT cameras that are set up for 4 perf, a step ring that is inserted into the chassis of the unit is used.

Make sure to follow the steps below closely for best results and correct optical alignment.

Disassembly
– Make yourself familiar with all parts.
– Locate front and back of the step ring (C):
  o Front: alignment pins installed
  o Back: Sockets for alignment pins visible

step ring front

alignment pins installed

step ring back

sockets for alignment pin

- Place the indieASSIST on a stable ESD work surface that is suited for work with electronic components.
- Carefully remove screws A. Make sure not to scratch or damage any surfaces while you loosen screws A.
- Once all screws are removed, separate the back of the chassis (Section 1) from the front of the chassis (Section 2).
  - The fit of the parts can be very tight.
  - Try to apply force in such away, that you are not separating the parts over a large distance. There is internal cabling in place, which can be damaged, if the sections are separated more than 5-8cm.
- When Section 1 and Section 2 are separated, unplug the cable assembly in Section 1 and remove the cable carefully from the cable-retainer.

indieASSIST 2/3 perf
4x A = M3x10

Reassembly

–   Insert screws B into the corresponding holes in Section 2 (this needs to be done first).
–   Thread cable assembly through step ring (C).
–   Align step ring (C) to screws B and slide step ring (C) over screws fitting on Section 2 of the chassis. Make sure the alignment pins in the top part of Section 2 slide correctly into the sockets on the step ring (C).
–   Replug cable–assembly into the corresponding socket in Section 1. Make sure the alignment–pin of the plug is oriented correctly.
–   Apply a drop of mild thread locker onto the tip of each screw B.
–   Carefully mount Section 1 onto the step ring. Make sure that the alignment pins on the step ring (C) slide correctly into the sockets on Section 1.
–   Carefully tighten screws B. Make sure you insert them straight and not angled into the threads of Section 1.
–   Make sure there are no gaps between the step ring and Sections 1 and 2 left.
–   Adjust framing and focus accordingly.

indieASSIST 4 perf
4x B = M3x30

Operation

Setting up the HD video assist

To install the indieASSIST onto the Arricam LT, first remove the handle and the original IVS or any cover plate, after loosening the captive screws with a hex key. Then, mount the indieASSIST on the original mounting points of the Arricam LT, using a hex key. Now the handle can be mounted back on by securing the screws with a hex key. Be careful not to touch or scratch the cover glass.

For operation, only the power must be on and one SDI output connected. The remote control is optional. The indieASSIST will automatically start with its last configuration. If the status light at the back blinks green it's currently loading. If it's blinking blue it's ready and all settings are loaded. If the status light is blinking red there is a fault or a firmware update is running.

Please note that when using the Low Mode bracket you will need an additional bracket that physically moves the Low Mode bracket 5mm higher.

Remote control: getting started

For powering indieREMOTE either use a Mini USB cable or 3x AAA batteries 1,5V/1,2 V – check for correct polarity. Wrong polarity will damage the remote control. Connect the remote control cable to the connector on the remote control and to the indieASSIST. Switch the remote control ON by pressing the ENTER / POWER button. To switch OFF the remote control press the ENTER / POWER button longer than 3 seconds or click on SHUTDOWN at the bottom of the menu. Select "Auto detect" in the Connect CAM menu and then in the next menu "Start scan" if your indieASSIST was not found during power up.

Connector (RS485 to camera)

Wireless Antenna Socket (future use)

RED Rotary Button (future use)

GREEN Rotary Button (future use)

BLUE Rotary Button (future use)

USB-Socket (Mini-B)

OLED-Display

Enter / Power ON-OFF

Navigation Buttons

Function Buttons

Battery Compartment (on Backside) use 3x AAA 1.5 V
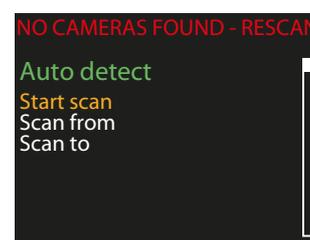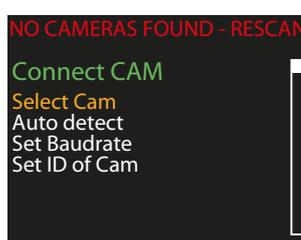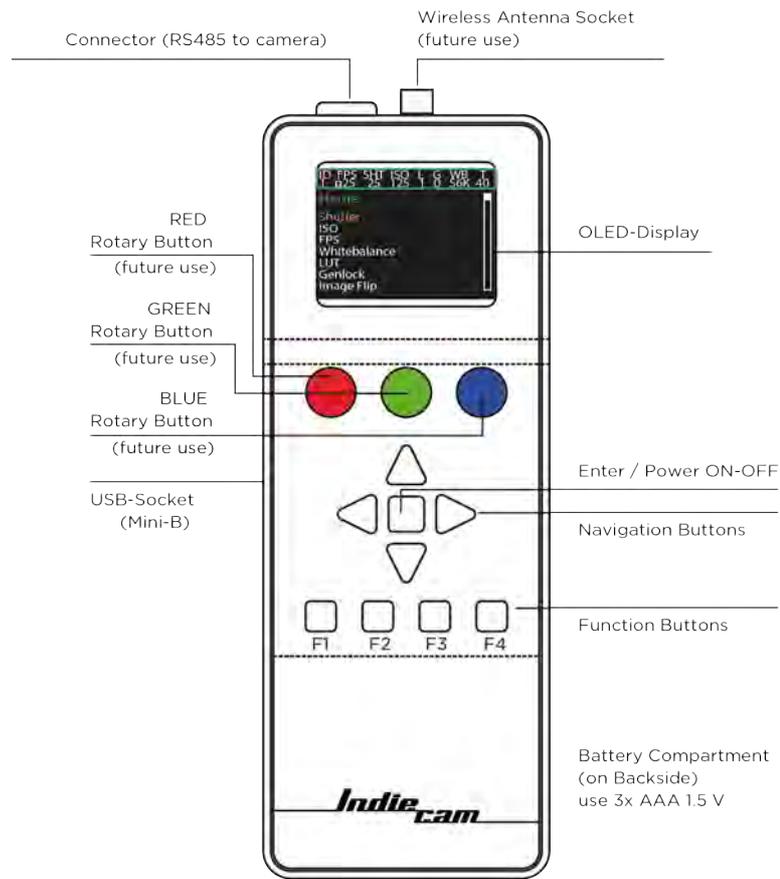
Navigation

Navigate the menus by pressing the navigation buttons.
Enter a menu item by pressing ENTER / POWER button.
Change values with navigation buttons.
Confirm your selection by pressing ENTER / POWER button.

Green frame = settings loaded
Orange frame = settings loading

Factory settings (function buttons)

- **F1:** 24p, 1/24, 3200K, auto exposure, auto save
- **F2:** 25p, 1/25, 3200K, auto exposure, auto save
- **F3:** 30p, 1/30, 3200K, auto exposure, auto save
- **F4:** 23.98p, 1/23.98, 3200K, auto exposure, auto save

Home

```
ID  FPS  SHT  ISO  L  WB  T
1   p30   30  125  1  56K  40
Home
Auto-Exposure
ISO
FPS
Whitebalance
SDI2 Mode
LUT
Image Flip
```

```
ID  FPS  SHT  ISO  L  WB  T
1   p30   30  125  1  56K  40
Home
Hue
Saturation
Brightness
Contrast
Denoise
Detail
Framelines
```

```
ID  FPS  SHT  ISO  L  WB  T
1   p30   30  125  1  56K  40
Home
Contrast
Denoise
Detail
Framelines
Save / Load
Info
Shutdown
```

With indieREMOTE you can control the following settings:
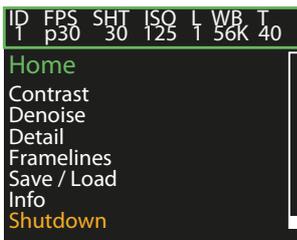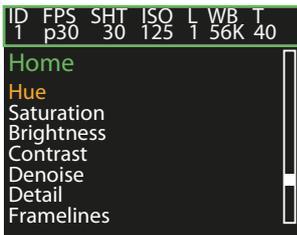
- Auto exposure
- ISO
- FPS
- White balance
- SDI2 Mode
- LUT
- Image Flip
- Hue
- Saturation
- Brightness
- Contrast
- Denoise
- Detail
- Framelines
- Save / Load
- Shutdown

Auto-Exposure

Select Auto-Exposure with navigation and ENTER button. Choose between disable, standard, dark or bright. Standard is for normal scenes, bright for light, high key scenes and dark for dark/night, low-key scenes. Auto-Exposure only changes the ISO, the shutter stays the same. Maximum ISO in Auto-Exposure is 3200.

ISO
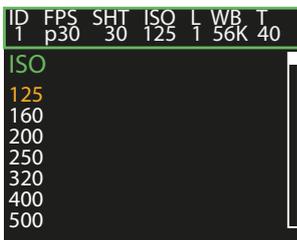
Select ISO with navigation and ENTER button. You can choose from the following options:

125	160	200	250	320	400	500
640	800	1000	1250	1600	2000	2500
3200	4000	5000	6400	8000	10000	12800

Be aware that the ISO can only be changed when Auto-Exposure is disabled.

FPS
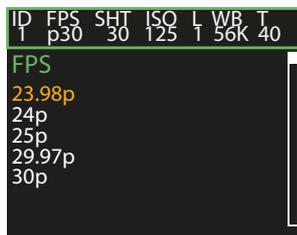
Select fps with navigation and ENTER button. You can choose from the following options:

23.98p	24p	25p	29.97p	30p

Adjust the fps of the indieASSIST to the fps of the Arricam LT. When changing the fps, the maximum shutter value is set automatically.

White balance

Set white balance with navigation and ENTER button. You can choose from the following options:

One shot	2200K	2700K	3200K	3700K	4000K	4300K

5000K	5600K	6200K	6500K	R/G/B gain	Auto white balance

One shot = one time auto white balance

SDI2 Mode

Select mode with navigation and ENTER button. You can choose between SDI–1 (mirror) and SDI–2 LUT.

LUT

Select a LUT with navigation and ENTER button. You can choose between 2 different LUTs. LUT 1 is REC709 and LUT 2 is a low contrast LUT with higher latitude, that displays the entire dynamic range of the sensor. Different LUTs can be selected for the two SDI outputs.

Image flip

Select with navigation and ENTER button. You can flip the image in the following ways:

- Flip off
- Flip horizontal
- Flip vertical
- Flip vertical & horizontal

Hue
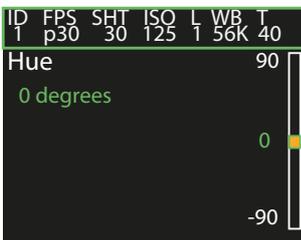
Set hue with navigation and ENTER button. The orange mark in the sidebar is what you want to select. Your previous setting is displayed in green. Adjust from –90 to 90 degrees.

Saturation
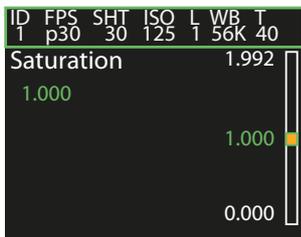
Set saturation with navigation and ENTER button. The orange mark in the sidebar is what you want to select. Your previous setting is displayed in green. Saturation can be set in steps of 0.008 from 0.000 to 1.992.

Brightness
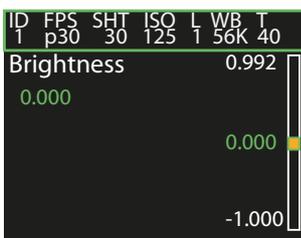
Set brightness with navigation and ENTER button. The orange mark in the sidebar is what you want to select. Your previous setting is displayed in green. Brightness can be set in steps of 0.008 from –1.000 to 0.992.

Contrast

```
ID FPS SHT ISO L WB T
1  p30  30  125 1 56K 40
Contrast              1.992
  1.000

                      1.000

                      0.000
```

Set contrast with navigation and ENTER button. The orange mark in the sidebar is what you want to select. Your previous setting is displayed in green. Contrast can be set in steps of 0.008 from 0.000 to 1.992.

Denoise

```
ID FPS SHT ISO L WB T
1  p30  30  125 1 56K 40
Denoise                 63
  8

                         8

                         0
```
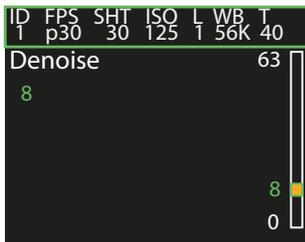
Set Denoise with navigation and ENTER button. The orange mark in the sidebar is what you want to select. Your previous setting is displayed in green. Denoise can be set from 0 to 63.

Detail

```
ID FPS SHT ISO L WB T
1  p30  30  125 1 56K 40
Detail                  63
  23

                        23

                         0
```
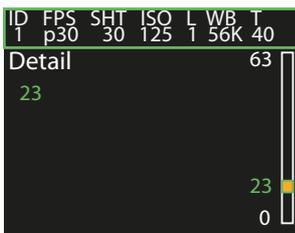
Set detail with navigation and ENTER button. The orange mark in the sidebar is what you want to select. Your previous setting is displayed in green. Detail can be set from 0 to 63.

Framelines

In the Framelines menu you have the following options:

- Frameline 1
- Frameline 2
- Vertical Lines
- Centre Mark
- Colour

In the Frameline 1 and Frameline 2 sub menu you have the following options:
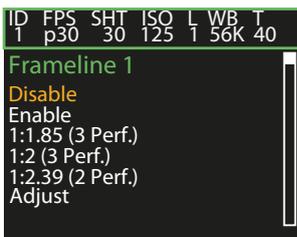
- Disable
- Enable
- 1:1.85 (3 Perf.)
- 1:2 (3 Perf.)
- 1:2.39 (2 Perf.)
- Adjust
  - You can adjust the top and the bottom horizontal line from 0 to 1080.
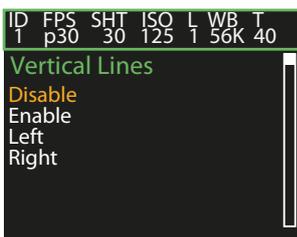
In the Vertical Lines sub menu you have the following options:

- Disable
- Enable
- Left
- Right

The left and right frameline can be adjusted from 0 to 1920.

```
ID  FPS  SHT  ISO  L  WB  T
1   p30   30  125  1  56K 40
Centre Mark
Disable
Enable
```
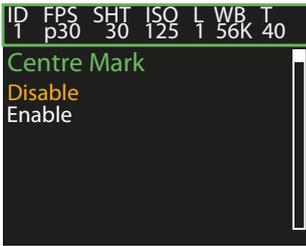
The Centre Mark can be disabled and enabled.

```
ID  FPS  SHT  ISO  L  WB  T
1   p30   30  125  1  56K 40
Colour
White
Red
Green
Blue
Yellow
Orange
Violet
```

The colour of the framelines can be changed. You have the following options:

- White
- Red
- Green
- Blue
- Yellow
- Orange
- Violet
- Pink

Save / Load

```
ID  FPS  SHT  ISO  L  WB  T
1   p30   30  125  1  56K 40
Save / Load
Autosave
Save settings
Load settings
Save preset
Load preset
```
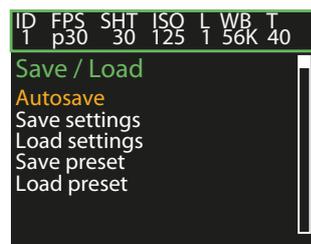
In the Save / Load menu you have the following options:

- Autosave
  - Auto save can be enabled and disabled. If it's enabled every change in the settings is saved automatically.
- Save settings
  - If auto save is disabled and you want to save your settings click on "Save settings".
- Load settings
  - Loads the settings that were last saved with "Save settings".
- Save preset
  - You can save up to 5 different presets.
- Load preset
  - You can load up to 5 different presets.

Info

In the Info menu you see the following information:

- – Software version indieREMOTE
- – indieASSIST ID
- – Software version indieASSIST
- – Serial number indieASSIST

Shutdown

Press Shutdown Now to turn off the indieREMOTE.

- – Auto shutdown
    - o Set an automated shutdown time for indieREMOTE between 0 and 120 minutes. If you select 0, auto shutdown is disabled. This will not affect the indieASSIST.
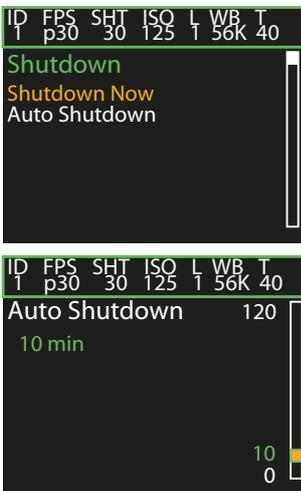
Troubleshooting

indieREMOTE does not find the indieASSIST or the indieASSIST is not responding to settings-changes in remote control!
Check all cables! Navigate to system screen and select "Rescan Cameras". The indieASSIST needs to be running and showing an image at the monitor. The connection screen will show the camera IDs it is scanning and lists all IDs it can find on the RS485 network. If it does not list any ID, go to Auto detect, set SCAN-Start to 1 and SCAN-End to 99, then try again. This is the maximum range of IDs and it will take longer to scan the entire range. Once your indieASSIST ID has been found, you can reduce the scan-range again.

I can see vertical stripes on the indieREMOTE display. Is it broken?
No, the batteries are almost empty. Please change the batteries!

How do I update my indieREMOTE?
You need a computer with Java Runtime Environment (JRE) installed. See https://www.java.com/de/download/
Be sure that your computer launches *.jar files with the JRE.

<u>Caution:</u> Only update the firmware of your indieREMOTE with a computer that is connected to a fixed power supply. Interrupting the update process can make your indieREMOTE unusable.
<u>Only</u> use the Indiecam USB cable!
Make sure that there are **no batteries** in the indieREMOTE when updating it!

1. Connect the indieREMOTE to a free USB port on your computer. Be sure that the Indiecam USB cable is firmly attached to your indieREMOTE.
2. Extract the .zip folder.
3. Launch the .jar file. (Note: the "lib" folder has to be in the same directory as the .jar file)
4. On the "1." dropdown menu select the COM port that your indieREMOTE is connected to. (Note: If you have

multiple USB devices connected something else might be auto selected)

5. Click on the "Select" button.
6. Click on the "Read Firmware Version" button.
7. Click on the "Flash and Verify Firmware" button.
8. Wait until the progress bar has reached 100%.
9. Click on the "Exit" button.

Safety instructions and legal disclaimer

Please always follow the instructions to help ensure against injury to yourself and damage to the system or other objects.

Do not operate the system in high humidity areas or expose it to water or moisture.

Operate the system using only the type of power source indicated in the manual.

Before using the indieASSIST be sure to read and understand all relevant instructions. If there are any questions please contact Indiecam for technical support at office@indiecam.com.

Be aware that the indieASSIST is a system of assistance. indieASSIST records the image of the ground glass. Indiecam is not responsible for any errors like wrong colours, focus, focal depth, ground glass settings etc.

The modification from 2/3 to 4 perf has to be done by an experienced technician in an appropriate environment. Please be aware that the modification takes some time and should not be done on set.