

indieASSIST 416

HD video assist for Arri 416



User Manual with Mk3 software

17.04.2022

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Important Safety Instructions



Note: Operational Error possible!

- Read all of these instructions carefully.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Avoid operational errors!
- Assembly and initial operation should be carried out only by persons who are familiar with the equipment!
- Install in accordance with the manufacturer's instructions.
- Only install this unit on the film-camera model it is intended for.
- Closely follow the safety instructions for the film-camera model this unit is intended for.
- In wet weather the normal safety precautions for handling electrical equipment should be taken.
- Do not use this apparatus near water.
- Clean optical surfaces only with a lens brush or a clean lens cloth! In cases of solid dirt moisten a lens cloth with pure alcohol or an adequate, professional lens cleaning solution.
- Clean only with dry cloth.
- Do not cover surfaces with cloth or other insulating material.
- Do not install near any heat sources as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Protect all cables from being walked on or pinched.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Repairs should be carried out only by authorized service personnel!
- Operate the unit only in the advised temperature range from 0° to +40° Celsius / 32°-104° Fahrenheit

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

Disclaimer



Be aware that the indieASSIST 416 is a system of assistance. indieASSIST 416 records the image of the ground glass. Indiecam is not responsible for any errors on film stock like wrong colours, focus, focal depth, ground glass settings etc.

Introduction

This manual gives an overview of the indieASSIST 416.

indieASSIST 416 is a new standard HD video assist for Arri 416 Super16mm 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: 162 x 102 x 130mm (6.37" x 4.01" x 5.12")
- Weight: Approx. 1100g (2.42 lb)

Mounting

The system easily mounts with three captive screws onto the original mounting positions of the Arri 416 and is powered from the Arri 416 internally.

Image Sensor

- Size: 1/1.2"
- Resolution: 1920 x 1080
- Readout: progressive
- Shutter: global
- Pixel size: 5.86 μ m
- 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
 - o 1080p23.98
 - o 1080p24
 - o 1080p25
 - o 1080p29.97
 - o 1080p30

System Functions

- Auto start with last settings

- Store and recall settings
- Embedded time code
- Factory settings

Software Mk3 has the following functions:

REC indicator - Changes colour of frame lines
Timecode Trigger - Starts external recorder
TC footage counter - Generates a TC counter
Auto FPS - slaves the IA416 to the Arri416 FPS
Shutter compensation
Auto exposure



There is no overlay function of internal camera information, such as:

FPS, shutter angle, remain footage. This is only possible with the additional Overlay box that will be ready for delivery in November 2021.

Connectors

indieASSIST 416 has 4 connectors at the bottom side.



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.

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.

Control connector

The control connector is a Female Lemo 9 pin connector.



indieASSIST 416 has these features at the right hand side.

Focus

The focus of the indieASSIST 416 can be mechanically adjusted by turning the focus screw, using a hex key.

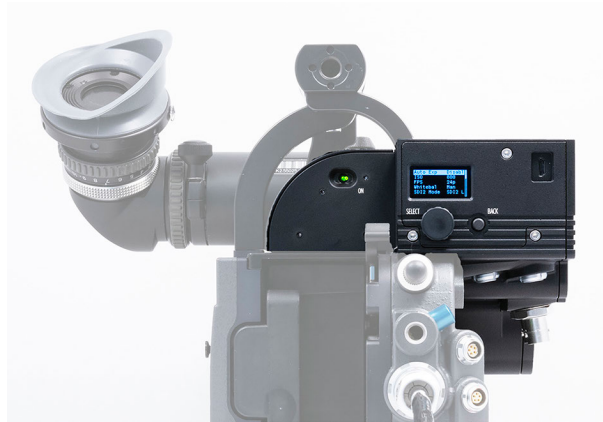
Iris

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 X position

←□→ moves the video image on the monitor horizontally

indieASSIST 416 has the menu display at the rear side.



On/Off switch

The indieASSIST 416 can be switched on and off independently from the film camera, as long as the film camera has power. Turning off the Arri 416 will also shut down the video assist.

Navigation

Navigate the menus by turning the SELECT knob.
Enter a menu item or confirm your selection by pressing the SELECT knob.
Change values by turning the SELECT knob.
Return to previous menu by pressing the BACK button.

USB-Connector


The USB-Connector is a type USB2.0 Micro-B socket. It can be used to update the internal control unit.


Optical System





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 hex key. 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.

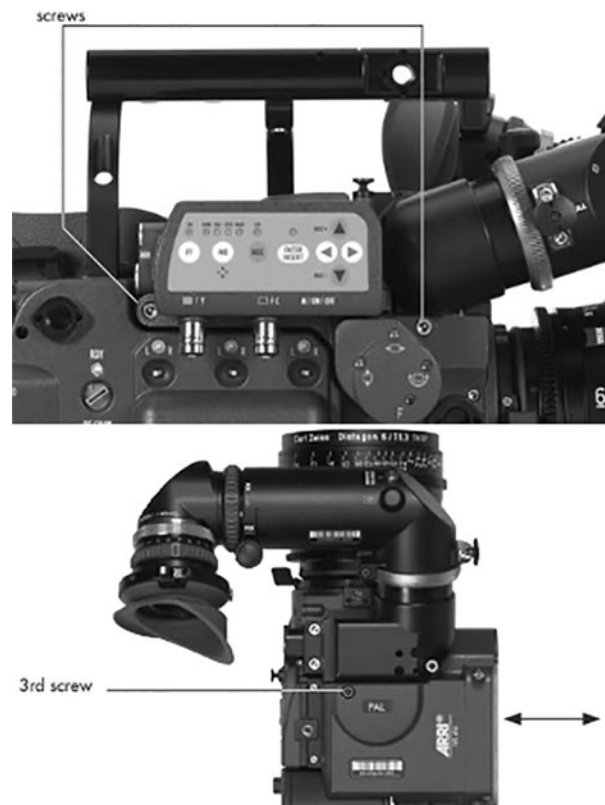
Screw  shifts the right side of the image up and down and rotates the image around a point, which is located in the middle of the left image border.

Therefore, screw  and  work as a Y adjustment as well as an adjustment for rotation.

Operation

Setting up the HD video assist

To install the indieASSIST 416 onto the Arri 416, first remove the handle, any accessories like the LWS-5 and the original IVS or any cover plate, after loosening the three captive screws with a 3mm hex key. One on the top of the IVS and two on the side.



When the three captive screws are loosened, the IVS can be slid away from the camera body in the direction of the arrow. The indieASSIST 416 can be slid into position on the same original IVS mounting points.

Then, mount the indieASSIST 416 on the original mounting points of the Arri 416, using a 3mm 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.

The LWS-5 at the top side is wider than the 3/8 mounting point on the side, it interferes with the IA416 and should be adjusted before fitting back on the 416 body.





For operation, only the power must be on and one SDI output connected. The indieASSIST 416 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.

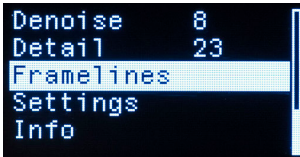
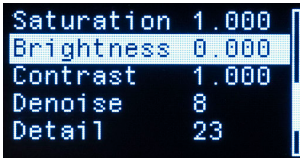
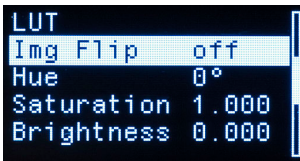
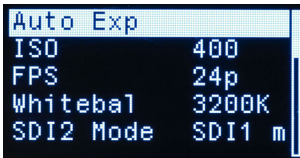
Please note that when using the Low Mode bracket you need an additional bracket that physically moves the Low Mode bracket higher.

Menu navigation

Navigate the menus by turning the SELECT knob.
Enter a menu item or confirm your selection by pressing the SELECT knob.
Change values by turning the SELECT knob.
Confirm the selected values by pressing the SELECT knob.
Return to previous menu by pressing the BACK button.

1.1 HOME Menu

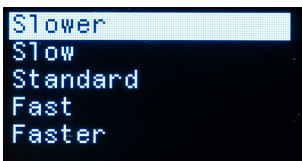
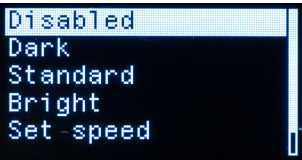
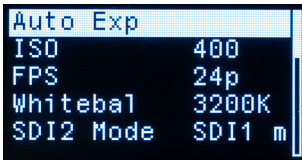
In the home-menu you can select the following settings:



- Auto Exposure
- ISO
- FPS
- White balance
- SDI2 Mode
- LUT
- Image Flip
- Hue
- Saturation
- Brightness
- Contrast
- Denoise
- Detail
- Framelines
- Settings
- Info

1.1 Auto-Exposure

Select *Auto Exp* with the SELECT knob and confirm by pressing the SELECT knob. Choose between disable (Disabl), standard (Std), dark (Dark) or bright (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.



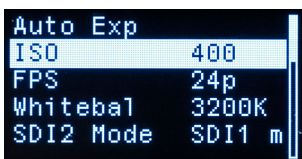
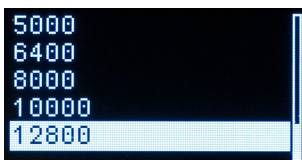
The auto exposure can be tweaked further.

You have the choice of:

- Setting the max ISO that the auto algorithm will use as maximum.
- Setting the attack speed, how fast auto exposure will adjust values

1.2 ISO

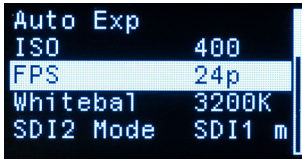
Select *ISO* with the SELECT knob and confirm by pressing the SELECT knob. You can choose from the following options:



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.

1.3 FPS



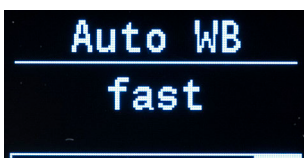
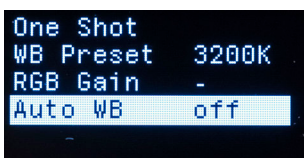
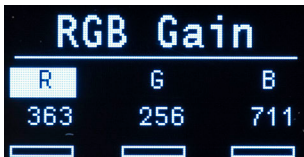
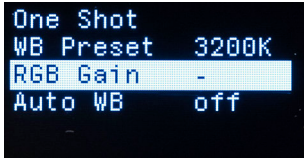
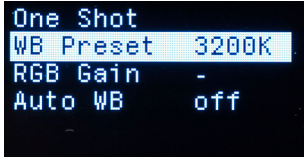
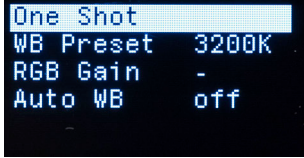
Select *FPS* with the SELECT knob and confirm by pressing the SELECT knob. You can choose from the following options:

23.98p 24p 25p 29.97p 30p

Adjust the fps of the indieASSIST 416 to the fps of the Arri 416.

1.3.1 Auto-FPS

when you select „Auto“ in the FPS menu, the indieASSIST 416 will slave to the FPS setting of the indieASSIST 416. When setting off-values in the ARRI 416, the indieASSIST 416 will fall back to the closest standard value (23.98, 24, 25, 29,97 or 30).



White Balance

Select *Whitebal* with the SELECT knob and confirm by pressing the SELECT knob. You can choose from the following options:

One shot: One time auto white balance

WB Preset: Select a white balance preset ranging from 2200K to 6500 K

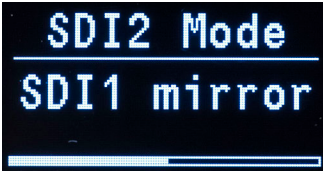
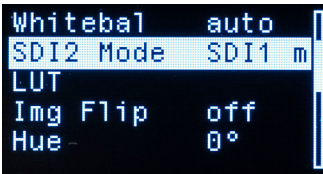
RGB Gain: Select RGB Gain manually

Auto WB: Turn the Auto white balance off or change the speed to slow, medium or fast

One shot	2200K	2700K	3200K	3700K	4000 K	4300K
	5000K	5600K	6200K	6500K	R/G/B gain	Auto white balance

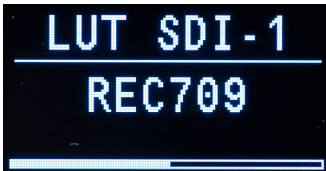
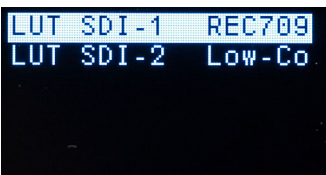
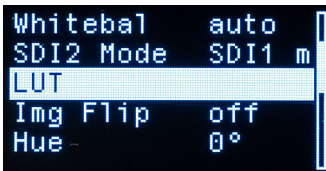
1.4 SDI2 Mode

Select *SDI2 Mode* with the SELECT knob and confirm by pressing the SELECT knob. You can choose between SDI-1 (mirror) and SDI-2 LUT.



1.5 LUT

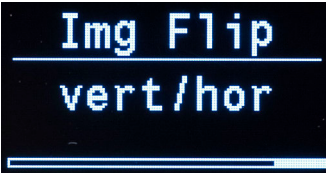
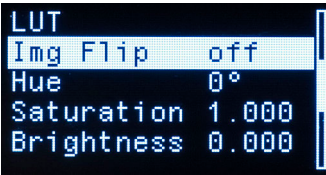
Select a *LUT* with the SELECT knob and confirm by pressing the SELECT knob. You can choose between 2 different LUTs. LUT 1 is REC709 and LUT 2 is a low contrast LUT with higher latitude that displays the entire dynamic range of the sensor. Different LUTs can be selected for the two SDI outputs.



1.6 Image Flip

Select *Img Flip* with the SELECT knob and confirm by pressing the SELECT knob. You can flip the image in the following ways:

- Flip off (off)
- Flip vertical (vert.)
- Flip horizontal (hor.)
- Flip vertical & horizontal (vert./hor.)



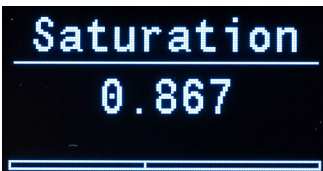
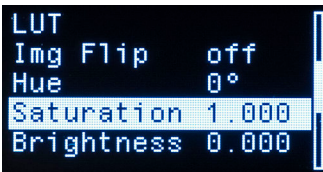
Hue

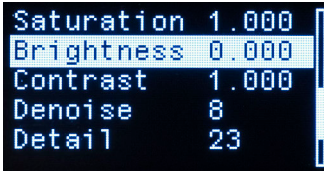
Select *Hue* with the SELECT knob and confirm by pressing the SELECT knob. The white mark on the horizontal bar is what you want to select. Adjust from -90 to 90 degrees.



Saturation

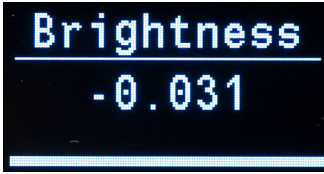
Select *Saturation* with the SELECT knob and confirm by pressing the SELECT knob. The white mark on the horizontal bar is what you want to select. Saturation can be set in steps of 0.008 from 0.000 to 1.992.





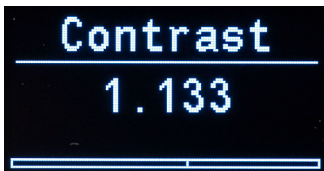
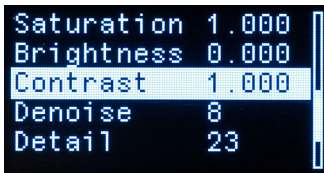
Brightness

Select *Brightness* with the SELECT knob and confirm by pressing the SELECT knob. The white mark on the horizontal bar is what you want to select. Brightness can be set in steps of 0.008 from -1.000 to 0.992.



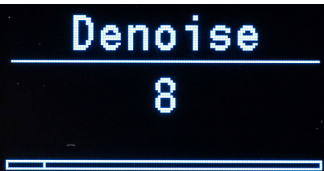
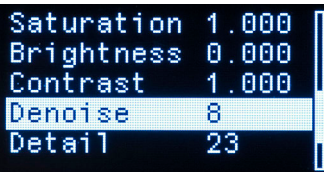
Contrast

Select *Contrast* with the SELECT knob and confirm by pressing the SELECT knob. The white mark on the horizontal bar is what you want to select. Contrast can be set in steps of 0.008 from 0.000 to 1.992.



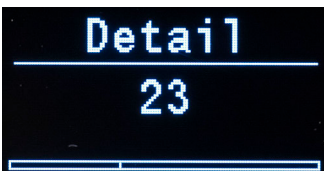
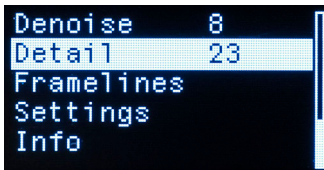
Denoise

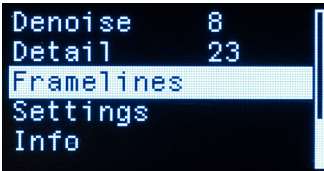
Select *Denoise* with the SELECT knob and confirm by pressing the SELECT knob. The white mark on the horizontal bar is what you want to select. Denoise can be set from 0 to 65.



Detail

Select *Detail* with the SELECT knob and confirm by pressing the SELECT knob. The white mark on the horizontal bar is what you want to select. Detail can be set from 0 to 65.

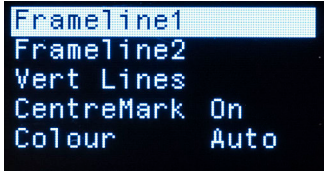




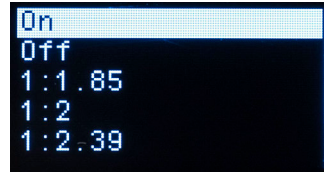
Framelines

Select *Framelines* with the SELECT knob and confirm my pressing SELECT knob.

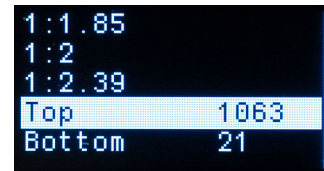
In the Framelines menu you have the following options:



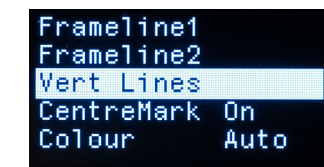
- Frameline1
- Frameline2
- Vert Lines
- Center Mark
- Color



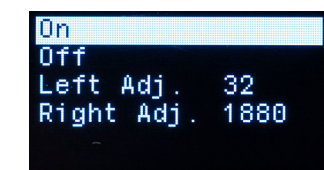
In the *Frameline 1* and *Frameline 2* sub menu you have the following options:



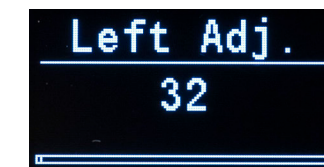
- On
- Off
- 1:1.85 (3 Perf.)
- 1:2 (3 Perf.)
- 1:2.39 (2 Perf.)
- Top (adjust from 0 to 1080 pixel)
- Bottom (adjust from 0 to 1080 pixel)



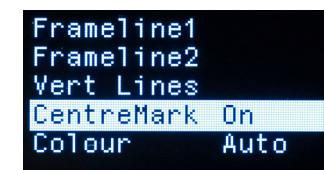
In the *Vertical Lines* sub menu you have the following options:

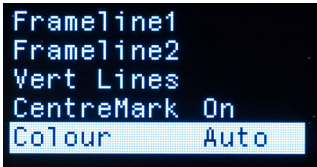


- On
- Off
- Left Adj. (adjust from 0 to 1920 pixel)
- Right Adj. (adjust from 0 to 1920 pixel)



The *CenterMark* can be disabled (Off) and enabled (On).





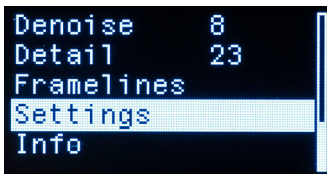
The color of the framelines can be changed. In the *Color* menu you have the following options:

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

1.7 REC-Indicator

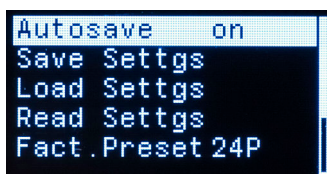
works by changing frameline colour: There is a setting in the frameline-color menu now, which is called „AUTO“. When you select Auto as colour setting, the colour of the frameslines will change from green to red once the Arri416 starts to run.

The „tally“ function of the framelines needs to be activated by setting frameline-colour to „Auto“ in the frameline menu. It will then switch from green to red as the 416 starts to roll.

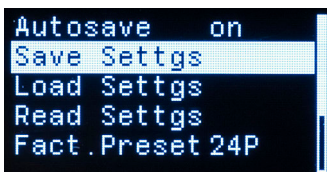


Settings

In the *Settings* menu you have the following options:



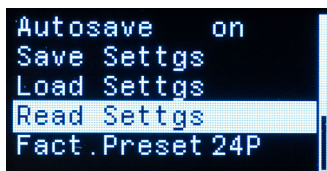
- Autosave
 - o Auto save can be enabled (On) and disabled (Off). If it's enabled every change in the settings is saved automatically.



- Save Settg
 - o If auto save is disabled and you want to save your settings click on "Save Settg".



- Load Settg
 - o Loads the settings that were last saved with "Save Settg".

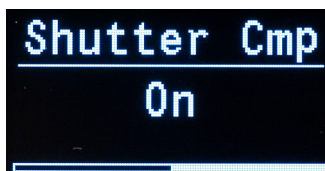
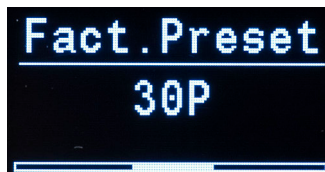
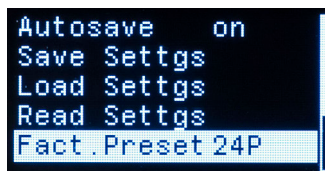
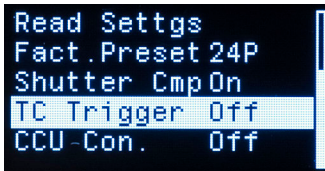


- Load preset
 - o You can load up to 5 different presets.

1.8 Read Settings

This function reads out the current settings of the indieASSIST 416 and displays them on the screen. This function

is mainly used to resync the internal controller when settings have been changed with the external remote control unit and you want to be up to date on the integrated screen.



1.9 Timecode Trigger

In the settings menu you can activate „timecode trigger“. Now, SDI timecode from the indieASSIST 416 will only run when the Arri416 starts to run. This way, you can automatically start and stop the recording of a compatible recorder, which has the option of triggering recording by timecode. Most current SDI recorders have this option

Timecode Footage Counter (SDI)

When the Timecode Trigger function is enabled the indieASSIST 416 will output timecode values via SDI that correspond to the internal frame counter of the Arri416. These timecode values are reset to the current frame counter of the Arri416 every time the camera is run. The timecode base corresponds to the selected framerate of the Arri416.

1.10 Exposure Shutter-Compensation

In the settings menu you can activate „shutter compensation“ which compensates for a 1 stop of brightness loss in the indieASSIST 416 when the Arri 416 starts to run.

```
Denoise      8
Detail      23
Framelines
Settings
Info
```

```
Version: 1.0.7
Name:
ID0: 410026
ID1: 32375111
ID2: 34363730
```

1.11 Info

The Info-Menu displays

- Firmware version
- Serial number
- HW-ID (needed for unlocking FW-upgrades)