sinaCAM®

Advanced Shooting Guide

Using sinaCAM with an RCP

Rev.: 1.2

sinaCAM is a cooperation of solectrix systems and anadicon solutions

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1. About This Document

Document Revision History

Table 1: Revision History

Revision	Date	Description
Rev. 1.0	2012-09-21	First release
Rev. 1.1	2012-11-12	Added list of supported Sony RCP models (chapter 2).
Rev. 1.2	2013-03-27	Added overviews of supported RCP features, ON/OFF menu buttons, operation panel buttons and knobs. Added information how to activate ATW mode. Adapted Gamma chapter to new Gamma presets (March 2013 update). Expanded Manual Iris/Shutter Control chapter to include different behavior introduced with March 2013 update.

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Information

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Solectrix Systems GmbH   **anadicon solutions GmbH**

Fuerther Str. 244b   Kammergasse 34
"Auf AEG"   85354 Freising
90429 Nuremberg   Germany
Germany

info@sinacam.eu
www.sinacam.eu

2.   Advanced Shooting Guide

This document details how to take advantage of sinaCAM's advanced image settings when using the camera with one of the Sony remote control panels that use 700 Protocol.
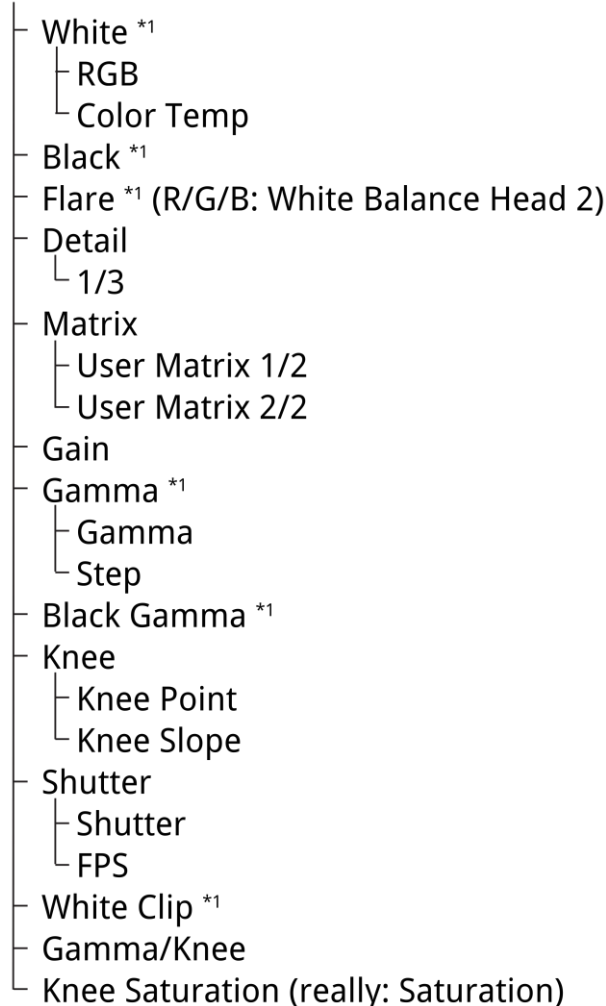
2.1   Supported Sony Remote Control Panels

sinaCAM supports Sony remote control panels that use 700 Protocol, for example:

- Sony MSU-700/700A/750/900/1000/1500
- Sony RCP-700/701/720/721/730/731/740/741/750/751/920/921/1000/1001/1500/1501/1530
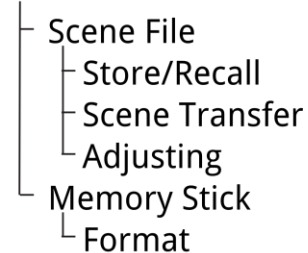- Sony RM-B150/B750

2.2   Supported RCP Menu Features

The following list only includes features used for camera control. Other features like general RCP configuration work independently from the connected camera.

Paint
- White *1
  - RGB
  - Color Temp
- Black *1
- Flare *1 (R/G/B: White Balance Head 2)
- Detail
  - 1/3
- Matrix
  - User Matrix 1/2
  - User Matrix 2/2
- Gain
- Gamma *1
  - Gamma
  - Step
- Black Gamma *1
- Knee
  - Knee Point
  - Knee Slope
- Shutter
  - Shutter
  - FPS
- White Clip *1
- Gamma/Knee
- Knee Saturation (really: Saturation)

File
- Scene File
  - Store/Recall
  - Scene Transfer
  - Adjusting
- Memory Stick
  - Format

Maintenance
- CCU
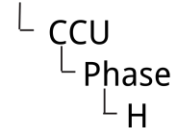 - Phase
    - H

*1: Master setting and separate RGB settings
Note. The Master Flare setting is only supported when just one remote camera head is connected!

2.2.1   Supported ON/OFF Buttons in Menus and on the Operation Panel

The effect of some settings can be enabled or disabled via a button within the RCP menu. In some cases the same function can also be accessed via a button on the RCP operation panel (e.g., Black Gamma). sinaCAM supports some but not all of these ON/OFF buttons. The following table gives an overview.

Table 2:   Supported ON/OFF buttons in menus and on the operation panel

Item	ON/OFF button supported?
User Matrix (Note: not just "Matrix"!)	Yes
Gamma	Yes
Black Gamma (also on operation panel)	Yes
Gamma Knee	Yes
Shutter (also on operation panel)	Yes
White Clip	Yes
Saturation (also on operation panel)	No
Knee Saturation	No
Detail	No

2.3   Supported RCP Operation Panel Buttons

The following list only includes buttons used for camera control. Other buttons like standard menu control buttons or general RCP configuration buttons work independently from the connected camera.

TEST (test pattern generated at camera heads, image processing with current settings is applied)
BARS (test pattern generated at base station, no image processing)
CLOSE (alternate function depends on **IrisMode** setting, see chapter 2.13, Manual Iris/Shutter Control)
STANDARD
WHITE
5600K (sets color temperature to 5600K, i.e. the sinaCAM default calibration values)
BLACK GAMMA
SCENE FILE 1..5
SCENE FILE EXPAND
SCENE FILE STORE
MASTER GAIN UP/DOWN
SHUTTER ON
SHUTTER UP/DOWN
ABSOLUTE
BLACK/FLARE
IRIS/MB ACTIVE
RELATIVE

2.4   Supported RCP Operation Panel Knobs

The following list only includes knobs used for camera control. Other knobs like standard menu control knobs or general RCP configuration knobs work independently from the connected camera.

WHITE R/G/B
BLACK/FLARE R/G/B
DETAIL
IRIS (see chapter 2.13, Manual Iris/Shutter Control)
SENS
COARSE
MASTER BLACK

2.5   User Matrix Settings

These are the sinaCAM's default User Matrix settings:

User 1/2:	R-G	G-B	B-R
	-55	-25	12

User 2/2:	R-B	G-R	B-G
	-7	-10	-49

2.6   Auto White Balance

sinaCAM supports two automatic white balance functions:

Auto White Balance (AWB), aka. One-Push White Balance

Pressing the **WHITE** button on the RCP adjusts the white balance once based on the current image. The settings are calculated via the "gray world" method.

Auto Tracing White Balance (ATW)

ATW mode is enabled via the RCP menu. While it is active, sinaCAM continuously adapts the white balance based on the current image. The settings are constantly re-calculated via the "gray world" method.

Figure 1:   Two very similar scenes, captured with Auto Tracing White Balance enabled

The example image above shows a combination of two very similar scenes captured with ATW enabled.

- The upper half shows a plate with just an apple. The colors appear warm and natural.
- The lower half shows the same scene with a banana added. The addition of a big yellow image element makes the camera adjust the white balance settings significantly, giving the image a bluish tint as a result.

2.6.1   White Balance Settings for Camera Head 2

The white balance parameters for camera head 2 are displayed and can be modified under **Flare**.

2.7 Auto Black Balance

sinaCAM does not support auto black balance. In other cameras, this feature is often used to manually mask defective pixels. This is not necessary with sinaCAM because the unit's dynamic dead-pixel correction already takes care of this issue.

2.8 Noise Suppression

sinaCAM does not support manually changing noise suppression settings. Instead, a dynamic noise suppression feature is active at all times.
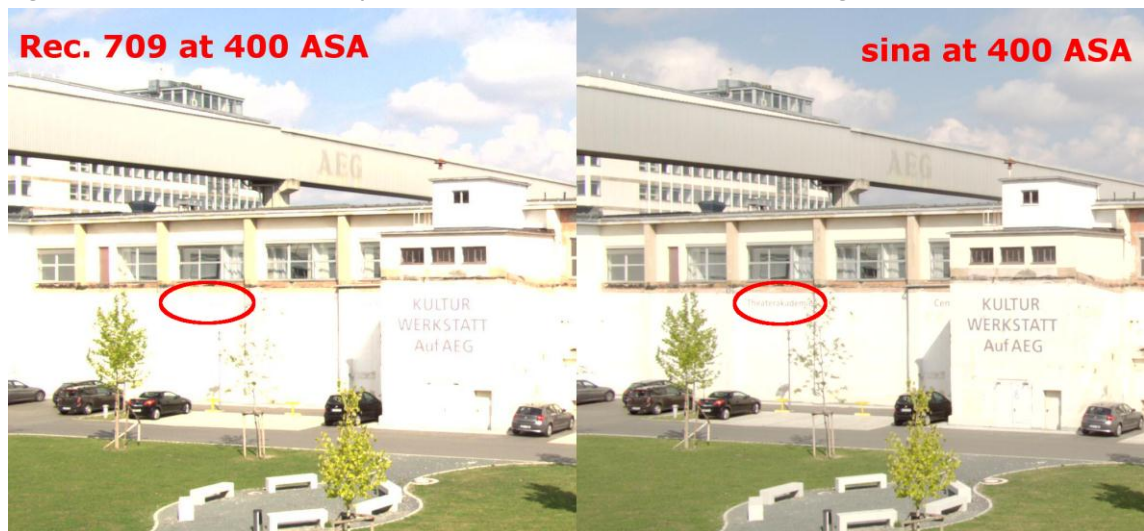
2.9 Saturation

Please note that the saturation settings for sinaCAM are adjusted via the **Knee Saturation** parameter. This is necessary because the Sony RCP's general **Saturation** setting is not sent to the camera head units, only to camera control units. It has no effect when a sinaCAM is connected to an RCP.
Note: As a side effect of this solution, the real knee saturation settings cannot be changed.

2.10 Gamma Correction Settings

Figure 2:   The same scene captured with two different Gamma settings

The gamma correction settings define how color intensity and brightness are interpreted. The wrong gamma setting can lead to overexposed bright areas, losing detail as a result. The example image above shows the same scene with sinaCAM's two gamma presets: "Rec. 709" and "sina". Note how the word "Theaterakademie" (circled in red) completely disappears when using the Rec. 709 gamma setting.

Using an RCP enables detailed control of the sinaCAM's gamma correction settings. For full RCP access to the gamma settings, set Gamma&CM at the sinaCAM base station to "Bcst.45" or "Bcst.40" for RCP settings with step gamma at 0.45 or 0.40 respectively. When Gamma&CM is set to the presets like "Rec. 709" or "sina" instead of "Bcst.", several of the RCP's settings have no effect.

Note: While gamma parameters are being changed, a "coarse mode" is used. It takes about one second for the exact new gamma settings to take effect. In the meantime, an approximation is used (first with 9-bit accuracy, then improving up to the full 14 bits of sinaCAM's internal processing). This can lead to color inaccuracies and other side effects during the second when the new settings are being applied.

2.10.1   Gamma

The **Gamma** correction setting defines how the original dynamic range of the image as perceived by the camera sensor is processed. This is important to maintain the desired level of detail even in extremely bright image areas.

2.10.2   Knee

The knee settings affect the handling of the upper part of the image signal's dynamic range.
Knee Point determines from which values on the signal is compressed.
Knee Slope determines the rate at which the compression is applied from the knee point on.

2.10.3   Black Gamma

The **Black Gamma** setting allows you to stretch or compress the lower part of the image signal's dynamic range. This can be used to extract a higher level of detail from dark areas of the picture. However, it also requires the appropriate post-production, as further processing with standard settings (i.e. without consideration for the unusual black gamma settings) will produce an overly bright picture lacking in contrast. If no particular processing is used afterwards, low black gamma settings can be used to enrich the colors in dark areas of the image. However, this comes at the expense of detail and with a risk of crushed blacks.

Figure 3:   The same scene captured with three vastly different Black Gamma settings

The example image above shows the same scene captured with vastly different Black Gamma settings.

- The upper third, captured with a **Black Gamma** setting of -96, exhibits crushed blacks (the upper row of keys practically disappears as a result). The pens' colors, however, appear much richer.
- The middle third shows the scene with a neutral **Black Gamma** setting.
- The lower third shows the scene with a **Black Gamma** setting of +96. This brings out more detail in the dark area (note the visible gaps between the keys). However, the pens' colors appear a bit washed out.

2.10.4   WhiteClip

WhiteClip sets the level from which on the image's highlights are clipped for the output signal. The correct setting depends on the requirements of the film project.

2.10.5   Step Gamma

In addition to these parameters, two general **Step Gamma** settings are available:

- 0.40 (BBC gamma)
- 0.45 (Rec. 709 gamma)

The 0.45 setting results in an image with slightly more contrast and saturation.

2.11   Detailing

As described in the sinaCAM User Manual, sinaCAM supports sharpening (positive detailing values). The current firmware also offers support for blurring (negative detailing values). The relevant setting is available via the RCP under **Detail 1**.

Note: H/V ratio settings are not supported.

Figure 4:   The same scene captured with three vastly different Detailing settings

The example image above shows the same scene captured with vastly different Detailing settings.

- The top-left part shows the scene with a **Detail 1** setting of -96. This gives the image a soft look. This can look pleasant when applied to elements like the grid pattern on the left, but makes the text on the right hard to read.
- The middle part shows the scene with a neutral **Detail 1** setting, looking reasonably sharp.
- The bottom-right part shows the scene with a **Detail 1** setting of +96. This increases the contrast near edges, obvious in the grid pattern on the left and the darker, sharper text on the right.

2.12   ECS (Extended Clear Scan)

sinaCAM supports **ECS** (Extended Clear Scan). With this, the shutter settings can be adjusted manually via the RCP to avoid white or black bars on filmed monitors (particularly CRTs). These bars become an issue when the monitor display frequency and the sinaCAM's shutter settings are not in sync.

The ECS setting enables exact control of the exposure time between 25 Hz and 29000 Hz. This way, the shutter can be adjusted to the frequency of the monitor to avoid the white or black bars.

2.13   Manual Iris/Shutter Control

The behavior of the Iris control knob has changed with the sinaCAM March 2013 update. For cameras running the March 2013 update or later, the following applies when the **IrisMode** option at the sinaCAM base station menu is set to **Shutter** or when it is set to **CloseBN** and the **CLOSE** button is active (lit):

sinaCAM enables manual iris control via the RCP's **IRIS** lever or adjustment knob. This feature is realized by simulating an iris via the shutter. Thus, it is not compatible with ECS!

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Feedback/Questions

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and ideas for sinaCAM and we are happy
to answer all your questions.

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Email: info@sinacam.eu
Twitter: @sinacam