sinaCAM®

HDC1-D
Quick Start Guide

Rev.: 1.2 (A)

sinaCAM is a cooperation of solectrix systems and anadicon solutions

www.sinacam.eu

Content

FCC NOTE
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

1. About this Document

Document Revision History

Table 1: Revision History

Revision	Date	Description
1.0	April 18, 2012	First edition
1.1	May 29, 2012	Amendment of power terminal (figures), system battery description, technical specifications. Minor text corrections.
1.2 (A)	July 12, 2012	Alignment of contents in several chapters with the sinaCAM user manual, revision A.

Purpose

This document provides a basic description, safety and quick start information for the sinaCAM camera system. However, this document does not replace the detailed user manual, which can be downloaded from:

www.sinacam.eu

Copyright

Information

Due to continuous product development, the information within this document is subject to change without notice.
If you find any problems or inaccuracies in this document, please report them to us in writing.

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2. Safety Instructions

2.1 Warning Signs and Indications

⚠ CAUTION
Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE
Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

2.2 General Safety

- Read and follow all safety and operating instructions before installing and operating the camera system.

2.3 Specific Safety

- Only use the type of power source specified for this camera system. The use of a wrong power source could damage the camera system and/or cause fire or electric shock!
- Do not open the housing of the camera system. Risk of electric shock!
- Do not open the housing or attempt to repair or modify any part of the camera system. Repairs must only be carried out by authorized sinaCAM service centers.
- Do not store the camera system near a strong magnetic field, or in areas where it would be subjected to direct sunlight, extreme temperatures, high levels of humidity or severe vibrations.
- Do not use the camera system outside the specified operating temperature range.
- Keep all liquids away from the camera system. Do not place containers with liquids on top of the camera housing. Risk of fire, electric shock and/or damage!
- Do not use the camera system in places where it could come in contact with water, moisture, steam or dust. This could damage the camera system and/or cause fire or electric shock!
- Unplug the power cable by the plug, do not pull the cable.
- Unplug all cables before transporting the camera system or storing it inside a camera case.

- Always put the protection cap onto the lens mount when transporting the remote camera heads without lenses.
- Do not allow laser beams to enter the camera lens or the lens mount opening, as this could cause damage to the CCD sensor.

3. Regulatory Compliance

The sinaCAM base station and the sinaCAM remote heads comply with the following regulations:

- Low Voltage Directive (LVD), 2006/95/EC
- Electromagnetic compatibility (EMC):
  - 2004/108/EC
  - FCC 47 CFR Part 15 Subpart B Class B
- RoHS

4. Disposal

For European Union member states only:

The use of this symbol indicates that this product must not be disposed of with household waste. By ensuring this product is disposed of correctly, you will help prevent negative consequences for the environment and human health. At the end of its lifespan, take the product to an appropriate recycling station. For more information about correct disposal of electrical and electronic equipment please contact your local authorities or your supplier where you purchased the product.

5. Introduction to sinaCAM

- sinaCAM is a small remote head HD studio camera system for professional 2D/3D broadcast and cinema production.
- Two signals of two sinaCAM remote heads are processed by the same image processor. This enables:
  - Pixel synchronous 3D output
  - Identical image properties, like white balance, brightness and contrast
- C-mount threads and the option to adjust the back focus by changing the flange back distance make it possible to use C-mount lenses for professional production.
- A choice of professional accessories, such as different battery adaptors, lens adaptors, lens accessories, handles, mounting plates and a carrying case increases application possibilities.

6. Description

6.1 Remote Head HDC1-100

Figure 1: The Remote Head

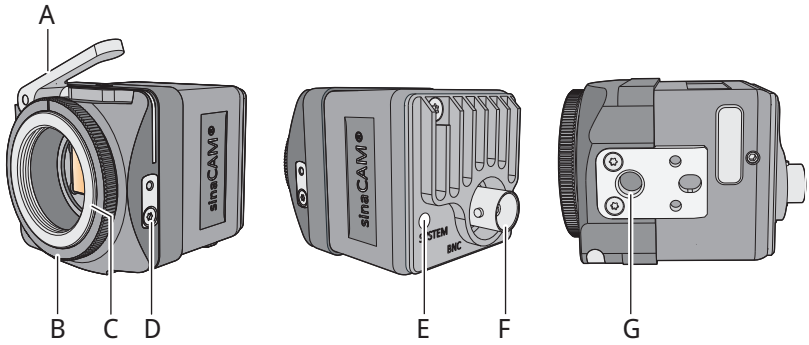


Table 2: Elements and Controls of the Remote Head

Item	Designation	Description
A	Locking lever	Locking/unlocking the adjustment ring
B	Flange back adjustment ring	Flange back distance adjustment ring rotates independently of C-mount and lens
C	Lens mount	Standard C-mount thread
D	Lens mount lock	Allows for lens scale position alignment in 30° steps
E	System LED	Glows continuously when on, flashes while link detection is in progress and in case of malfunction
F	CoaXPress interface	Remote head connection with base unit (via 75 ohms coaxial cable with BNC plug)
G	Bottom mount	¼" thread for attaching a tripod, handle, base-plate, holder, etc.

6.2 Base Unit HDC1-200

Figure 2: The Base Unit

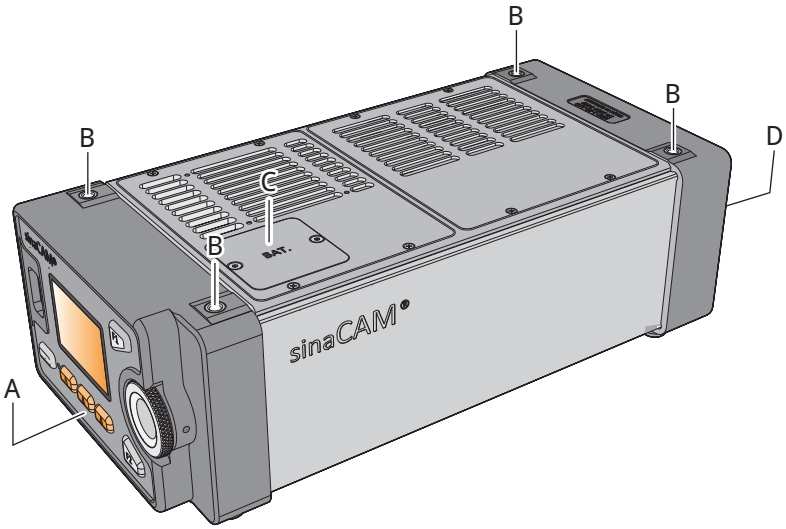


Table 3: Elements of the Base Unit

Item	Designation	Description
A	Control panel	Controls and graphical user interface display
B	Mounting points	M4 thread for attaching a handle or to fix the base unit to a mounting plate
C	System battery compartment	The system battery supplies power to the internal clock only. It does not supply the camera with power. Do not open the system battery compartment. Replacement of the system battery must only be carried out by authorized sinaCAM service centers.
D	Rear panel	Panel with all terminals to connect equipment

6.2.1 The Control Panel

Figure 3: The Control Panel

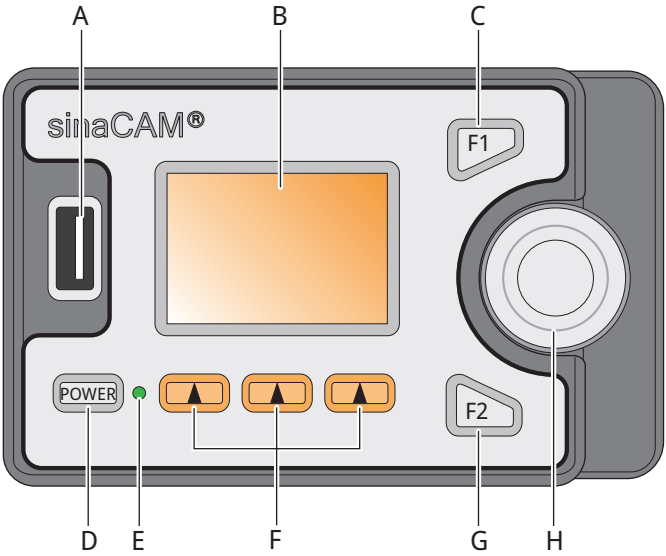


Table 4: Controls and their Functions

Item	Designation	Description
A	USB 2.0 port	Enables frame grabs to USB sticks
B	Display	Graphical user interface display
C	F1 button	To select a menu item as displayed
D	Power switch	Turns power ON or OFF
E	Power LED	Glows red when the unit is connected to the power supply, and glows green when the unit is powered on
F	Arrow buttons	To select a menu item as displayed
G	F2 button	To select a menu item as displayed
H	Scroll wheel	Scroll wheel and pushing button to navigate through the menus and select options

6.2.2 The Rear Panel

Figure 4: Arrangement of the Terminals

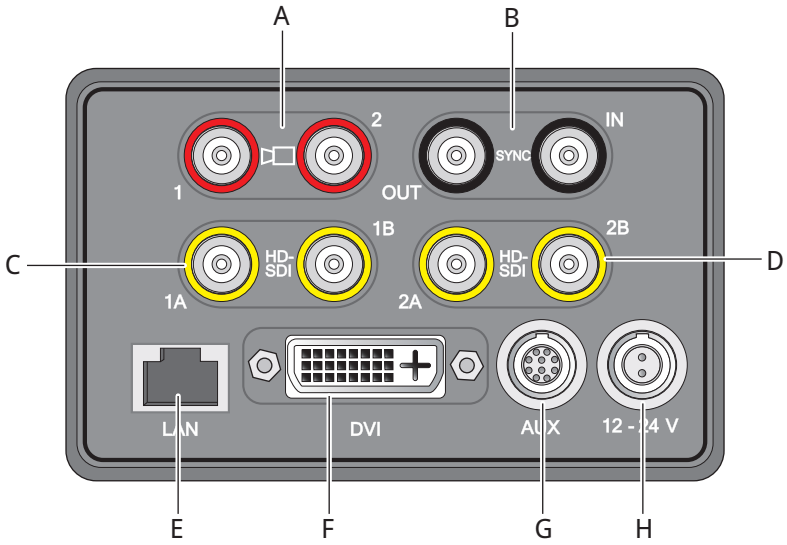


Table 5: Terminals on the Rear Panel

Item	Designation	Description
A	Remote head terminals (1, 2)	CoaXPress interface with 18 V power supply for the remote camera heads, connection via 75 ohms coaxial cable with BNC plug
B	SYNC (OUT, IN)	Terminals for, e.g. – an additional camera – an external sync generator
C	HD-SDI output (1A, 1B)	Terminals for, e.g., a HD-SDI monitor, a recording device or a 2D/3D converter; 1A/1B provides the image signal coming from remote head terminal 1
D	HD-SDI output (2A, 2B)	For the same equipment as listed next to item C; 2A/2B provides the image signal coming from remote head terminal 2
E	LAN	100 MBit Ethernet service communication port
F	DVI output	Connection of a digital HD monitor
G	AUX	10-pin terminal, auxiliary signals for remote control unit, timecode or exposure trigger
H	Power input 12 – 24 V	Connection of a power supply adapter, 12 – 24 V DC, minimum 30 W

7. Installation

7.1 Minimum System Requirements

Shooting with sinaCAM requires the below listed minimum equipment:

- A sinaCAM camera system, consisting of
  - sinaCAM base unit
  - one or two sinaCAM remote heads (depending on shooting in 2D or 3D)
- Further equipment, like
  - C-mount lens suitable for 2/3" CCD cameras
  - Remote head cable, 75 ohms coaxial cable with BNC plugs
  - Video output cable for DVI and/or HD-SDI
  - Digital HD monitor, able to display the desired output format and frame rate
  - Digital recording device
  - DC power supply for the sinaCAM base unit

7.2 Power Supply

It is recommended to only use official sinaCAM accessories as a power supply.

- For official sinaCAM accessories please refer to www.sinacam.eu

⚠ CAUTION

The use of a wrong power supply can cause fire or electric shock.

NOTICE

The use of a wrong power supply may cause damage to the camera system.

7.3 Remote Camera Head Connection

The base unit supplies 18 V power to the remote camera head terminals 1 and 2.

NOTICE

Connect only sinaCAM remote camera heads to terminals 1 and 2 of the base unit. Connection of any other equipment to terminal 1 or 2 may not only cause damage to the camera system, but also to the connected equipment.

7.4 Connecting the Hardware

- Make sure that all hardware to be installed is switched off.
- Connect all hardware to the base unit.
- Switch on all hardware and the base unit.

7.5 Connection Examples

Figure 5: Standard Single-Link Setup

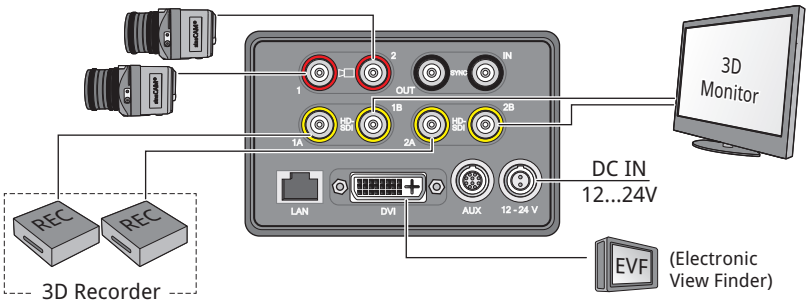


Figure 6: Advanced Dual-Link Setup

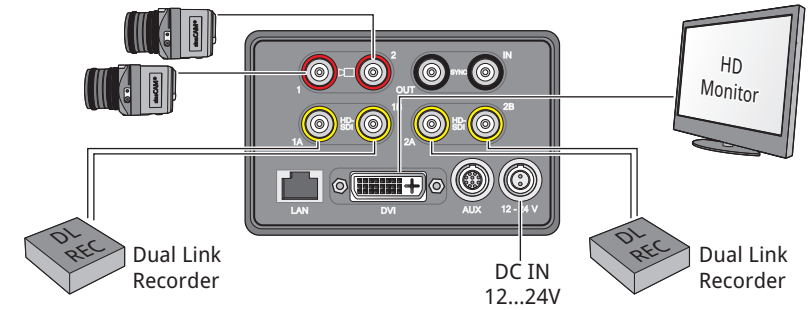
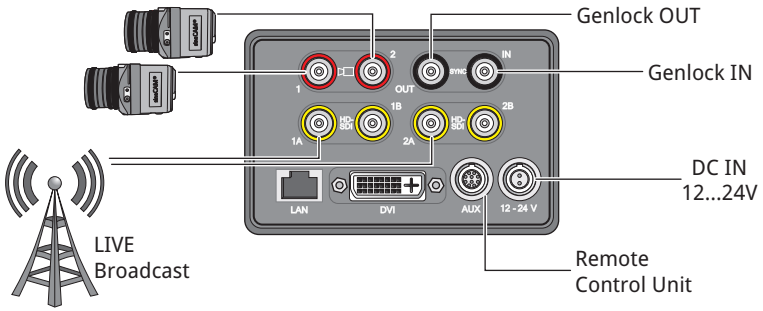
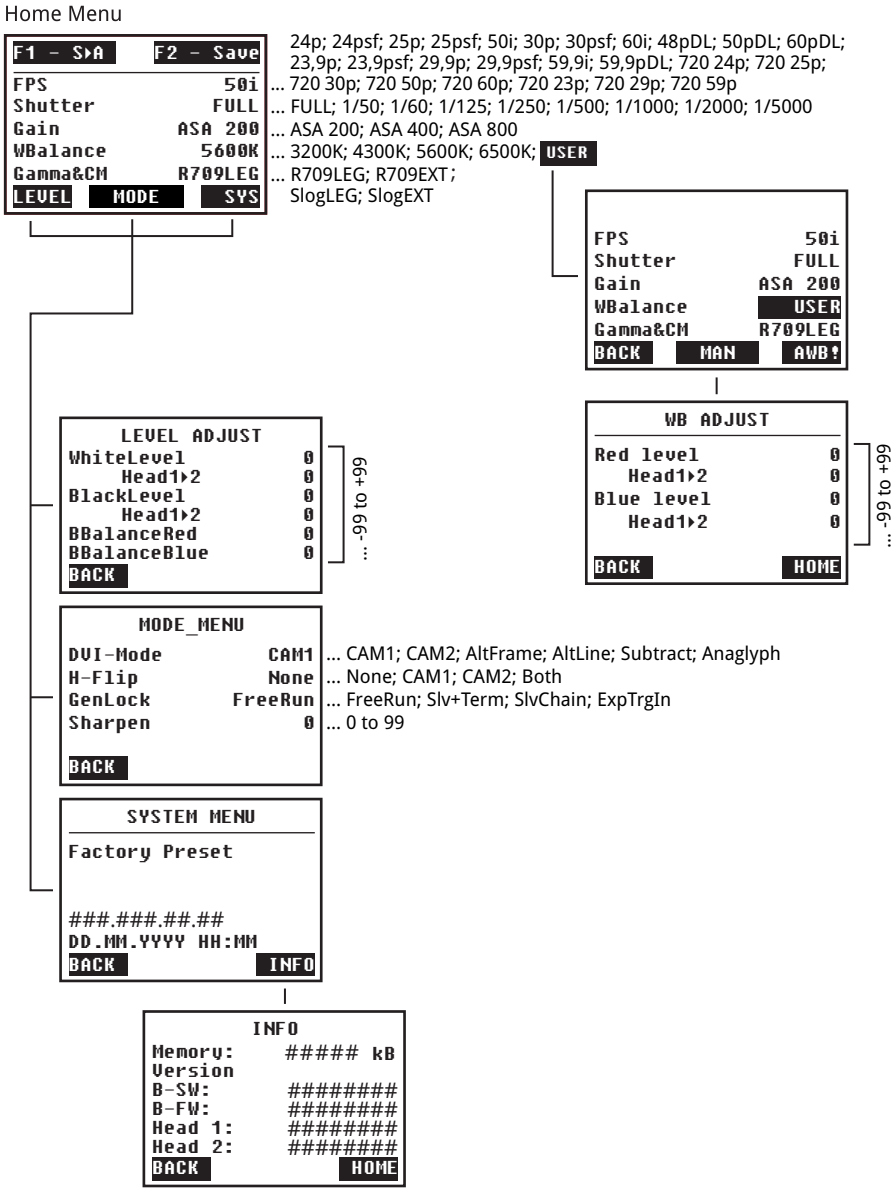


Figure 7: Broadcast Setup



8. The Menus at a Glance



Due to continuous product development, the content of the menus is subject to change without notice.

9. Operation

9.1 Switching ON and OFF

After the base unit is connected to the power supply, the power LED glows red.

Switching ON

- Push the power switch.
  - The power LED of the base unit changes from red to green.
  - The HOME menu screen comes on.
  - The system LED of the remote head lights up in orange, starts flashing green and finally glows green continuously.

Note: The system LED of the remote head can indicate additional status information. For more indications refer to sinaCAM's detailed user manual.

Switching OFF

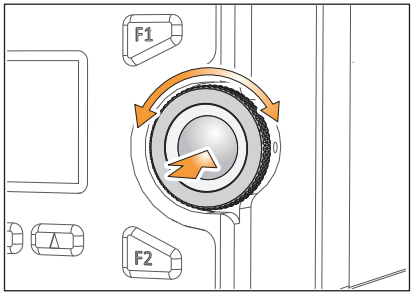
- Push and hold the power switch for about 4 seconds.
  - The power LED of the base unit changes from green to red.
  - The display goes off.
  - The system LED of the remote head goes off.

9.2 Using the Menus

- Use the arrow buttons and F1/F2 buttons to select menu items as displayed.

- Use the scroll wheel to select and to confirm settings.

Figure 8: Scroll Wheel



- Turn the scroll wheel to select.
- Push the scroll wheel to confirm.

10. Technical Specifications

Remote Head HDC1-100	
Image Sensor	2/3" Single Chip Kodak CCD Sensor (RGB) 2004x1144 Pixels, Progressive Scan
Sensitivity	2000 Lux @ f 8.0 / 0 dB Gain (100% video out) 160 Lux @ f 2.2 / 0 dB Gain (100% video out)
Resolution	1920x1080 Pixels
Dynamic Range	13.5 f-stops
Signal/Noise Ratio	64 dB @ 0 dB Gain
Interface	CoaXPress, 75 ohms BNC Cable
Max. Cable Lengths	80 m (260 ft) with Standard BNC Cable 180 m (590 ft) with Gepco VHD1100 Cable (Option)
Lens Mount	C-mount with Flange Back Distance adjustment
Power Consumption	4.6 W max.
Operating Temperature Range	0 to 45 °C (32 to 113 °F)

Base Unit HDC1-200	
Digital Signal Processing	Single Chip DSP (dual 14-Bit)
White Balance Modes	AWB: Automatic White Balance (Push to set White Balance) 3200 K, 4300 K, 5600 K, 6500 K MAN: Manual White Balance (red and blue adjust)
Black Level	adjustable
Exposure Control	200, 400, 800 ASA
Gamma	REC 709, S-Log, custom via web interface
Electronic Shutter	Full Frame, 1/50 s to 1/5000 s
Remote Head Connections	CoaXPress (via 75 ohms BNC Cable)
Output Signals	up to 4x HD-SDI (SMPTE 292M, 372M) DVI (Digital Monitor Output 1920x1080 @ 60Hz)

Base Unit HDC1-200	
HD-SDI Video Formats	YCbCr 4:2:2 / 10 Bit 1920x1080 / 24p, 24psf, 25p, 25psf, 50i, 30p, 30psf, 60i, 48pDL*, 50pDL*, 60pDL*, 23.98p, 23.98psf, 29.97p, 29.97psf, 59.94i, 59.94pDL* * = HD-SDI Dual-Link Mode With May 2012 firmware update: 1280x720 / 24p, 25p, 30p, 50p, 60p, 23.98p, 29.97p, 59.94p
3D Monitoring	CAM1, CAM2, Alternate Frame, Alternate Line, Subtract, Anaglyph
Synchronization	Internal or GenLock to Tri-Level Sync or Black Burst
Communication Ports	100 MBit Ethernet, USB 2.0, RS232 / 485
User Interface	Graphical User Interface, Web Interface
10-Pin AUX Terminal	RS232 / 485, Exposure Trigger I/O, Timecode I/O
2-Pin Power Terminal	12 to 24 V DC
Power Consumption	30 W max. (incl. two Remote Camera Heads)
Operating Temperature Range	0 to 45 °C (32 to 113 °F)

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Feedback/Questions

We appreciate your professional opinion and ideas for sinaCAM and we are happy to answer all your questions.

You can contact us:

www.sinacam.eu/contact/
Email: info@sinacam.eu
Twitter: @sinacam

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