antelope
CAMERA SYSTEMS

Operating Guide

Version 7/25/2019

Antelope Pico HD Camera

Operating Guide

Version 7/25/2019

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Foreword

Thank you for becoming the owner of Antelope Camera Systems equipment. As a manufacturer focused on building high-quality, we are dedicated to providing you with a customer service experience that exceeds your expectations.

Antelope Camera Systems is a German manufacturer of premium quality high speed miniature and ultraslowmotion cameras. Founded in 2015, but backed by the experience of over 20 years in the broadcast industry, Antelope Camera Systems' pursuit of innovation and its deep technology expertise pushed the limits of size and frame rates in broadcast camera engineering to new standards. Coming from a practical background, we understand the need for the ease of use of broadcast equipment and the importance for its reliability. Antelope Cameras are designed to stand up to the most rigorous demands on location.

The company was named after the Antelope, the fabulous African deer animal. We feel the Antelope analogy fits perfectly, because these animals are not only noted for their keen eyesight, beauty and grace, but their extraordinary speed in running. High speed is also the strength of our cameras providing speeds of up to 5000 fps. Like the Antelope, being a sentinel and always on guard, our high speed cameras record permanently into ring buffer and provide, with a push of the post trigger button, slow-motion live playback. Never miss any special moment again!

All information contained in this Owner's Manual is accurate at the time of publication. However, Antelope Camera Systems reserves the right to make changes at any time so that our policy of continual product improvement can be carried out. This manual applies to all Antelope Camera Systems equipment and includes descriptions and explanations of optional as well as standard equipment. As a result, you may encounter material in this manual that is not applicable to your specific Antelope Camera Systems equipment.

Made in Germany, used worldwide.

Part I

1 Important Safety Instructions

In these safety instructions the word 'apparatus' refers to the Antelope Pico camera, the Antelope Compact MKII camera, the Colibri Defilcker and the Cobra Link System and an its accessories, including OCP and RCP.

1. *Read and understand these instructions.*
2. *Keep these instructions.*
3. *Heed all warnings.*
4. *Follow all instructions.*
5. *Do not use this apparatus near water.*
6. *Clean only with a dry cloth.*
7. *Be careful about the possibility of theft or loss of the unit, and be careful not to leave the unit unattended. Please note that Antelope Camera Systems does not accept any responsibility for the compromise, manipulation, and loss of information caused by these events.*
8. *Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.*
9. *Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.*
10. *Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.*
11. *Only use attachments/accessories specified by Antelope Camera Systems.*
12. *Unplug this apparatus during lightning storms or when unused for long periods of time.*
13. *Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in anyway, 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.*
14. *Condensation occurs when there is a change in temperature or humidity, such as when the apparatus is taken from outside or a cold room to a warm room. Please be careful, as it may cause the apparatus to become soiled, moldy, or damaged. When taking the unit to a place which has a different temperature, if the unit is accustomed to the room temperature of the destination for about one hour, condensation can be prevented. (When the difference in temperature is severe, place the unit in a plastic bag or the like, remove air from the bag, and seal the bag.) When condensation has occurred, remove the battery and/or the AC adapter and leave the unit like that for about one hour. When the unit becomes accustomed to the surrounding temperature, fogginess will disappear naturally.*
15. *Caution regarding laser beams! The camera sensor may suffer damage if struck by a laser beam. Make sure that laser beams do not strike the lens when shooting in an environment where laser devices are used.*

Part

II

2   Antelope Pico Camera

2.1   Introduction

The Antelope PICO Extreme Slow Motion + Live Camera System is designed to offer spectacular extreme slow motion and previously unrevealed details from vantage points where no other camera has gone before. The Antelope PICO records with up to 525 frames per second in native HD. The system is based on a 2/3" CMOS 2K image sensor and guarantees high detail and unsurpassed light sensitivity. The unique deflickering technology (optional) eliminates lighting related flicker in real-time.

<div align="center">

WARNING!!!!!

Do not connect or disconnect the camera head from the CCU when the system is powered.

</div>

The product warranty could easily be invalidated if you don't read the manual thoroughly.

2.2   Pico Camera Interfaces

2.2.1   Back - Pico Camera Head
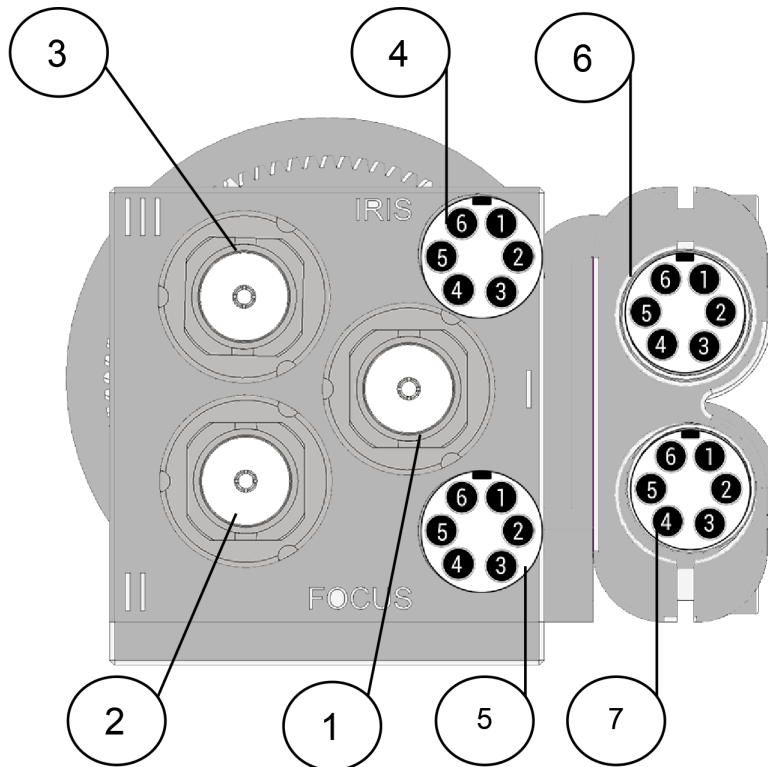
1.   **Connector I**
2.   **Connector II**
3.   **Connector III**
4.   **Camera Iris Motor Connector**
5.   **Camera Focus Motor Connector**
6.   **Iris Motor Connector**
7.   **Focus Motor Connector**

2.3 Pico Camera Connection Chart

422 SETUP
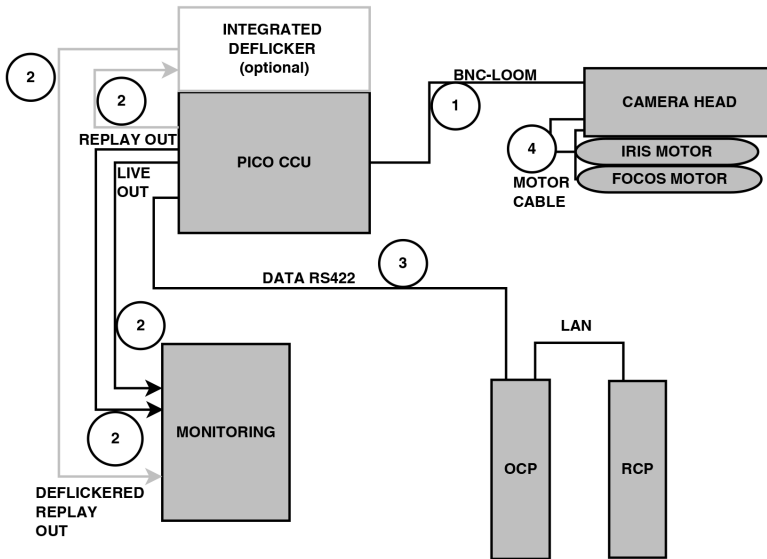
LAN SETUP
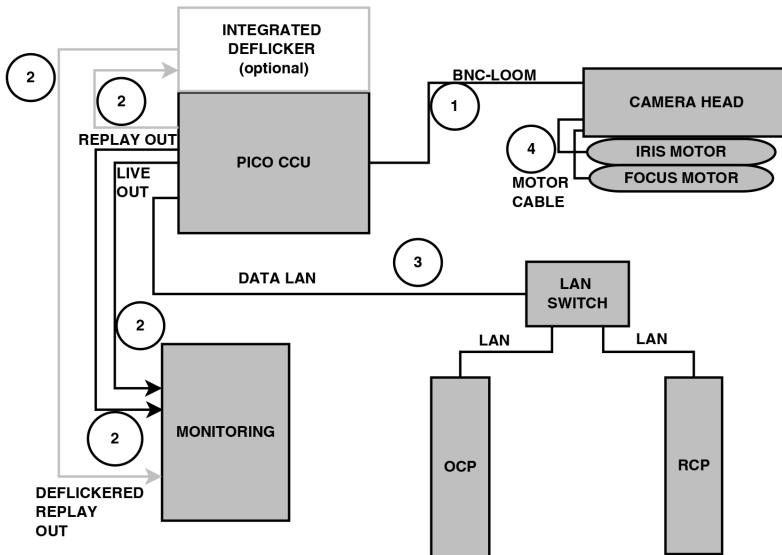
cable description:

1 3channel BNC cable 1,2,3 head to 1,2,3 CCU

2 BNC to BNC

3 CAT5 cable

4 HRS6PIN m to HRS6Pin m

2.4   Setup Procedure

1. Connect the multi colored COAXPress cables to the camera head and the CCU 18 **according to the connector numbering and color**. Make sure you connect the camera head connector I to connector I/R on the CCU, camera head connector II to connector II/G and connector III to connector III/B on the CCU.
2. Connect the OCP 24 via RS-422 cable / DATA LAN to Remote Port 13 on CCU 18
3. Connect the OCP via LAN to the OCP Port on the RCP 64
4. Connect motors to camera head
5. Turn on the CCU using the **On/Off Switch (46)** 19
6. Remotes start and are ready to use

NOTE: The port addresses of the other connected controllers must be set to the values shown in the CCU touchscreen display (44) 19*.*

2.5   Attaching a Lens

1. Remove the mount cover from the lens mount by turning the lens mount frame counterclockwise.
2. Align the lens with the lens mount of the camera, and turn it clockwise until it is secured.

2.6   Specifications

Image Sensor	2/3 CMOS
Number of pixels	1920x1080
Maximum Frame Rate	350fps at 1080p 525fps at 720p
Shutter Global Shutter	1/25-1/10000sec
Signal System	1080i 50/59.94/60 1080p 23.98/24/25/29.97/30/50 720p 50/59.94/60
Signal to Noise Ratio	58dB (Y) nominal gain
Light Sensitivity	ISO 640 ASA
Light Sensitivity LUX	1500@f8.0 / 0dB gain
Iris operation	Options available
Lens mount	C-Mount
Memory	8 GB
Controls	OCP / RCP
Video Output	2xHD-SDI Live Out 2xHD-SDI Replay Out
Audio Output	No
Control Ports	LAN RS-422 - RJ-45
Power Requirements	15-18 VDC
Power Consumption	Max 15W
Operating Temperature	-20 – 40°C
Dimensions Camera Head	176 x 40 x 44mm
Dimensions CCU	288 x 222 x 89mm
Weight Antelope Pico Camera Head	380g
Weight CCU	1200g

Part

III
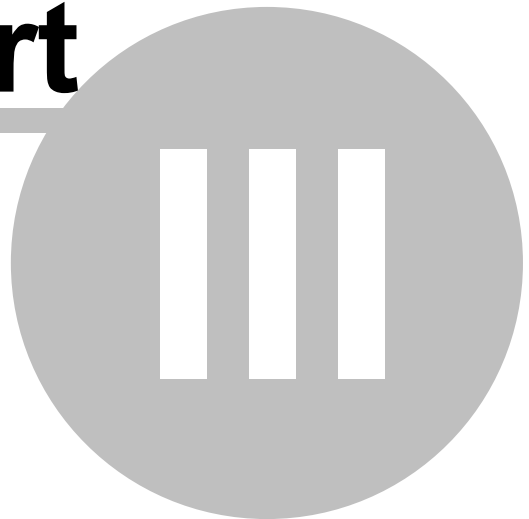
3   CCU (Camera Control Unit)

The CCU connects to the camera head. It performs signal processing, provides interfaces to the OCP, RCP and other external equipment and supplies power to the camera. The CCU also offers HDSDI outputs for live streams and slow-motion clips.

3.1   Front - CCU Interfaces
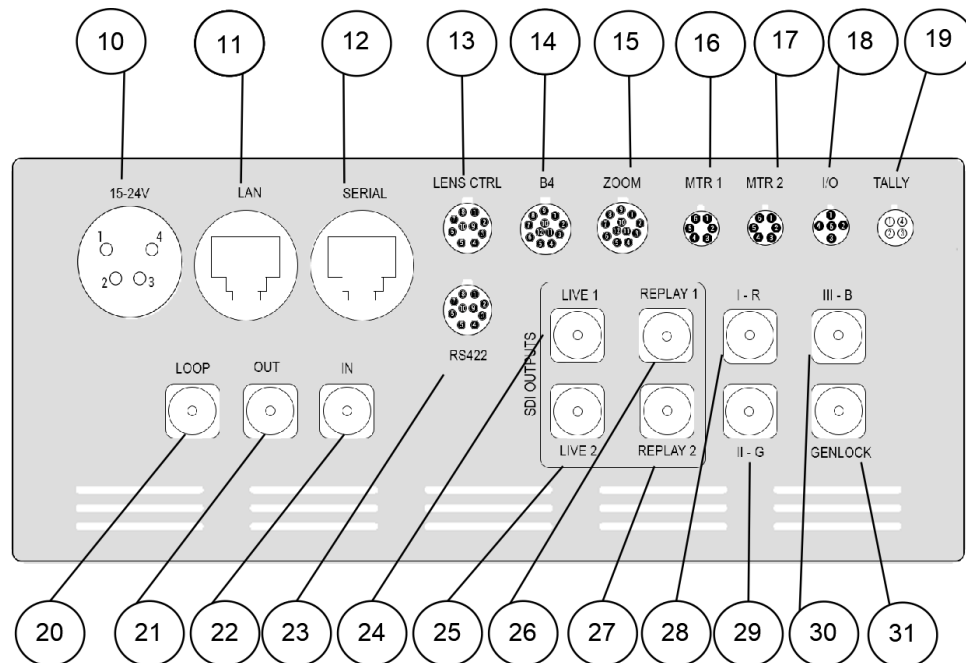
10. **Power In Connector (15-24V)**
11. **Data LAN Remote Control Port** [15]
12. **RS-422 Remote Control Port I (TO OCP)** [15]
13. **Lens Remote Control Port**
14. **B4 Remote Control Port**
15. **Zoom Lens Connector**
16. **Motor 1 Connector**
17. **Motor 2 Connector**
18. **I/O for External Trigger**
19. **Tally Light Connector** [89]
20. **Loop BNC SDI out 2 - Original HDSDI (same as SDI IN -22-)**
21. **BNC SDI out 1 - Deflickered HDSDI**
22. **BNC SDI IN**
23. **RS-422 Remote Control Port II (to Panasonic ROP)**
24, **HDSDI Live Signal Output 1**
25. **HDSDI Live Signal Output 2**
26. **HDSDI Slow-Motion Replay Output 1**
27. **HDSDI Slow-Motion Replay Output 2**
28. **HS-Link Connection to Camera Head I-RED** [15]
29. **HS-Link Connection to Camera Head II-BLUE** [15]
30. **HS-Link Connection to Camera Head III-GREEN** [15]
31. **Genlock Interface Output** [33]

3.2   Back - CCU Interfaces

40. **USB Mini Service Port – For major updates only!**
41. **Power Indicator LED**
42. **CCU Status Indicator LED**
43. **Deflicker Status Indicator LED**
44. **CCU Touchscreen**
45. **USB Firmware Update Port** 20
46. **On/Off Switch**

3.3 Touchscreen CCU

The **CCU touchscreen display (44)** [19] provides information about the actual status of the CCU and its network connection. Beside the Mac address of the CCU you can find the port numbers of the respective devices in the lower lines.

```
Pico CCU


Software Version v2.05
SERIAL:  00240022
SPL BR:  115 -- R:0


MAC: 19:99:A0:54:49:49


DEV:  PORT:  CON.STATUS:
OCP  715  IP
RCP  725  SLAVE
ROP  735  D/C
```

NOTE: The port addresses of the other connected controllers must be set to the values shown here in the display.

3.4 USB Firmware Update

Antelope Camera System provides firmware updates for its devices to help address any known issues and to add new features.

Update the CCU firmware using a USB flash drive:

USB memory device requirements:
- USB specification 2.0 (or higher) and should not have more in capacity than 4GB.
- Should be Fat32 formatted and blank (should not contain any files)

1. Download the update file to your PC.
2. Rename file to **"picoccu.bin"**.
3. Insert the USB storage device into your PC. Copy or drag and drop the firmware update file to the root directory of your USB device.

Note! "The root directory" is the first or top-most directory of the device, which contains all the other folders.

4. Make sure the CCU is powered off, then insert the USB flash drive into the **USB Firmware Update Port (45)** [19] on the CCU.

5. Now power on the CCU using the **On/Off Switch (46)** 19.

WARNING: During the software installation process, please do not remove the USB device or turn off the CCU!

6. When the software update is complete, the **CCU display (44)** 19 indicates the new software version:

```
Pico CCU


Software Version v2.05
SERIAL:  00240022
SPL BR:  115 -- R:0


MAC: 19:99:A0:54:49:49


DEV:  PORT:  CON.STATUS:
OCP  715  IP
RCP  725  SLAVE
ROP  735  D/C
```

7. Remove the USB flash drive.

NOTE: If you have any difficulty carrying out these instructions, please contact Antelope Camera System.

3.5   Baudrate Setup

It is possible to change the data rate in bits per second (baud) for serial data transmission between the control units.

To setup the baud rate for the CCU

1. Remove the 2 screws on each side of the CCU case.
2. Open the CCU case by removing the top cover.
3. Now press blue button on the corner of the white electronics board to open the expert mode menu on the **CCU touchscreen (44)** 19. Options are 9.6K 56K and 115K.
4. Now choose the new baud rate on the CCU touchscreen.
5. Put the lid back on the housing and put the 4 screws back accordingly.

```
Expert MODE


SPL BR: 9.6K 56K 115K
Motor: IRIS FOC. ZOOM
STATUS:


56K
```

3.6   IP Setup

The IP properties (IP, Subnetmask and Gateway) of the CCU can be changed.

To enter the IP setup menu press the IP button in bottom right corner of the **CCU touch screen (44)** 19.

IP SETUP

ADD 192.160.001.050
MASK 255.255.255.000
GWAY 192.160.001.001
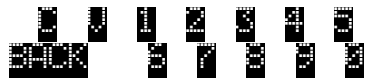
Press ADD next to the IP address to change the IP of the CCU. To enter the new IP address use the on screen keyboard on the bottom on the screen. Use the back button to navigate back and the C button to clear your entry. The mask and gateway settings can be changed accordingly.

Part

IV

antelope
CAMERA SYSTEMS

4 Operational Control Panel (OCP)

The Antelope Operational Control Panel is designed to give instant access to all functions with regards to image processing. It is compatible with the Antelope Pico 12 and Compact cameras.

4.1 Back - OCP Interfaces
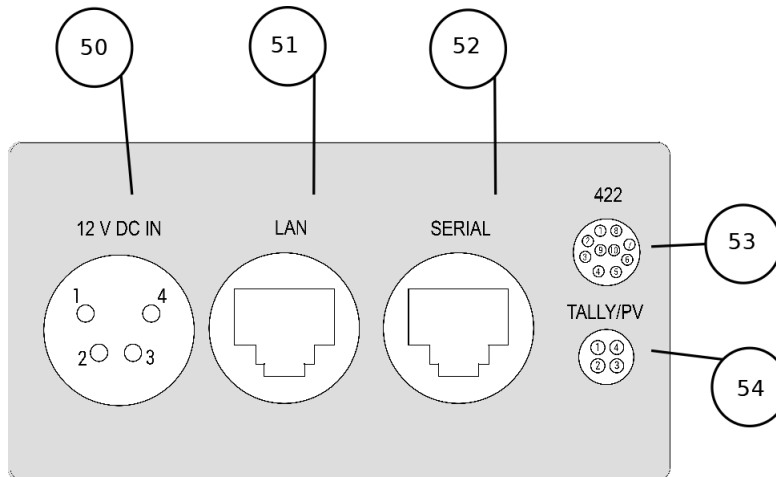
50. **Power In Connector (12V)**
51. **LAN Remote Control Port**
52. **RS-422 Remote Control Port I (To CCU or RCP)** 15
53. **RS-422 Remote Control Port**
54. **Tally / Preview Connector**

4.2 Front - OCP Interfaces
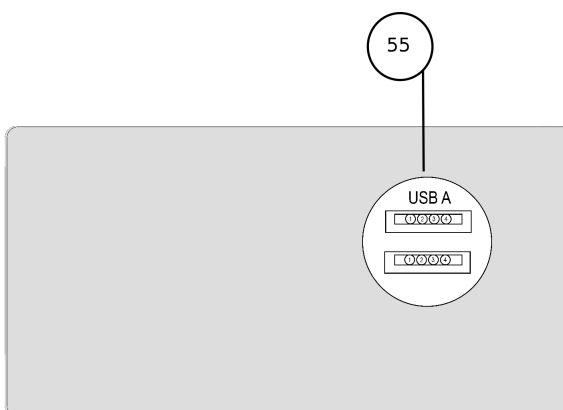
55. **USB Firmware Update Port (upper USB Port)**

4.3   Overview
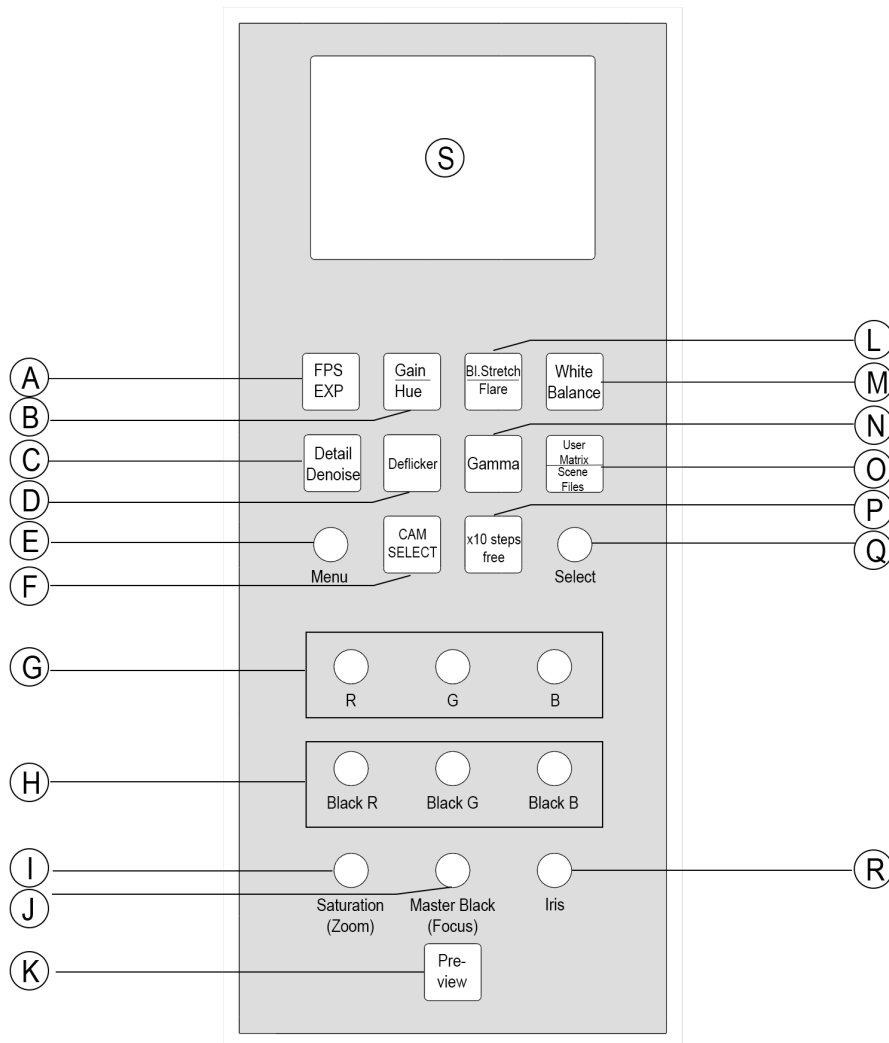
A. FPS/Exposure Button 40
B. Gain/Hue Button 41
C. Detail / Denoise Button 44
D. Deflicker Options Button 44
E. Menu Dial 32
F. Cam Select Button 29
G. RGB Color Matrix Dials 54
H. RGB BLACK Color Matrix Dials 54
I. Saturation / Zoom Control Dial 30
J. Master Black 48 **/ Focus Dial** 30
K. Preview Button
L. Black Stretch / Flare Button 41
M. White Balance Button 43
N. Gamma Adjustment Button 46
O. User Matrix / Scene Files Button 26
P. X-10 Steps Button 26
Q. Selecting Dial
R. Iris Dial 30 **/ Minimotor Adjust Dial**
S. OCP Display 67

4.4 OCP Display

4.4.1 Status Bar

The green status bar on the bottom of the **OCP display (S)** ⌐24⌐ gives you a quick overview of the the actual shutter speed, resolution, frame rate and gain settings.

```
0%    -  1080i50  -   283fps  -      0,00db
```

F-Stop	**Resolution**	**Frame Rate**	**Gain**

left	- the F-Stop of the lens is indicated in %. 100% stands for a wide open F-Stop, 0% means the F-Stop is closed all the way
middle left	- the actual resolution is shown
middle right	- the actual frame rate is shown
right	- the gain setting is indicated in db

4.5 X-10 Button

Pressing the **X-10 Steps Button (P)** increases or reduces the step size in all parameter selecting menus by an increment of 10 (instead of 1). Using this option is useful to quickly change menu parameters with bigger increments.

4.6 User Matrix Scene Files Button

Pressing and holding the **User Matrix / Scene Files Button (O)** enters the Multi Matrix Correction Presets (MCC) menu ⌐28⌐.

Briefly pressing and releasing the **User Matrix / Scene Files Button (O)** enters the Scene File Settings menu ⌐27⌐.

The actual values of all settings are stored automatically in the camera head five seconds after they have been changed. Additionally you have the option to store frequent used settings in the OCP for future use. A total of ten User Matrix memory slots are available, four for custom Matrix settings and six with preloaded presets to match the color response qualities of different widely used TV camera systems. This feature is very useful to keep settings for different light situations or operating environments.

There are additionally four Scene File memory slots available. They allow to store the actual camera setup (values of all settings). This feature is very useful to keep custom settings for different operating environments.

4.6.1   Scene File Settings Menu

Briefly pressing and releasing the **User Matrix / Scene Files Button (O)** enters the Scene File settings menu.

```
SCENE FILES


SC File 1-> Empty      <=
SC File 2-> Empty
SC File 3-> Empty
SC File 4-> Empty
MULTIMATRIX PRESETS...
```

All values and user settings set on the Operational Control Panel can be stored in the OCP. To save or load the customs settings press and hold the **User Matrix / Scene Files Button (O),** then select the respective memory slot (SC File 1-4) by turning the **Select dial (Q).** The arrow indicates the active item. Briefly pressing the **Select dial (Q) button** brings up the options menu which allows you to load,save ore erase the actual settings in the selected memory slot.

```
CHOOSE OPTION
LOAD <=
SAVE
DELETE
```

Once you choose a menu item use the **Select dial (Q)** to select.

Selecting *MULTIMATRIX PRESETS* enters the Multi Matrix Correction Presets (MCC) menu[28].

4.6.2 Multi Matrix Correction Presets (MCC) Menu

Pressing and holding the **User Matrix / Scene Files Button (O)** enters the Multi Matrix Correction Presets (MCC) menu.

The active scene file is marked in red color. The arrow indicates the active menu item. By turning the **Select dial (Q)** you select a preset and by pressing the **Select dial (Q)** once you load the respective preset. *LOADED* flashes once in the display to indicate that the white balance has been successfully set.

```
Multimatrix Presets
[RED = ACTIVE]
No Matrix <=
Sony Matrix
Grass Valley Matrix
Panasonic Matrix


USER MCC 1-> Empty
USER MCC 2-> Empty
USER MCC 3-> Empty
USER MCC 4-> Empty
```

All Color Matrix values set on the Operational Control Panel can be stored in the OCP. To save or load the customs settings press and hold the **User Matrix / Scene Files Button (O),** then select the respective memory slot (USER MCC 1-4) by turning the **Select dial (Q).** The arrow indicates the active item. Briefly pressing the **Select dial (Q) button** allows you to save the actual settings to the selected memory slot.

```
CONFIRM
LOAD Presets
=> NO   YES
```

By turning the **Select dial (Q)** you select YES or NO. Confirm your choice by pressing the **Select dial (Q)** once.

To delete all the settings for the selected memory slot, just press and hold the **Select dial (Q).**

```
CONFIRM
DELETE Presets
=> NO   YES
```

By turning the **Select dial (Q)** you select YES or NO. Confirm your choice by pressing the **Select dial (Q)** once.

4.7 Cam Select

Pressing and holding the **Cam Select Button (F)** 25 enters the camera selection menu 28.

Note! This an optional feature. Only available with Muxbox Duocam mode.

4.8 RGB Settings

Allows you to adjust the RGB colors per channel.

Red Gain
Values range from   -500-500

Green Gain
Values range from   -500-500

Blue Gain
Values range from   -500-500

Red Pedestal
Values range from   -500-500

Green Pedestal
Values range from   -500-500

Blue Pedestal
Values range from   -500-500

4.9   Iris Button / Motor Control

Briefly pressing and releasing the **Iris Dial (R)** opens the Motor Control menu. While being in this menu, the focus, zoom and iris can be adjusted, if lens motors are attached and calibrated.

Turn the **Zoom Control Dial (I)**, **Focus Dial (J)** and **Iris Dial (R)** to adjust the respective item.

Note! The adjustment of zoom and focus motors is only operative while being in this menu.

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Iris

Activate - Switches the iris motor control on. Values are on/off.
Reverse - Allows to change the rotation direction of the applied iris motor. Values are on/off.
Speed - This parameter defines the speed of the iris motor. Values are 0.1-3.0
Ref.-Calibrate Iris - Use to calibrate the iris motor to the actual lens

Focus

Activate - Switches the focus motor control on. Values are on/off.
Reverse - Allows to change the rotation direction of the applied focus motor. Values are on/off.
Speed - This parameter defines the speed of the focus motor. Values are 0.1-3.0
Ref.-Calibrate Focus - Use to calibrate the focus motor to the actual lens

Zoom

Activate - Switches the zoom motor control on. Values are on/off.
Reverse - Allows to change the rotation direction of the applied zoom motor. Values are on/off.
Speed - This parameter defines the speed of the zoom motor. Values are 0.1-3.0
Ref.-Calibrate Zoom - Use to calibrate the zoom motor to the actual lens

Mini Motor Control

ZOOM	FOCUS	IRIS

ZOOM

A
R

STEPS
1.0

REF.
TODO

XXX

FOCUS

A
R

STEPS
1.0

REF.
TODO

XXX

IRIS

A
R

STEPS
1.0

REF.
DONE

100%
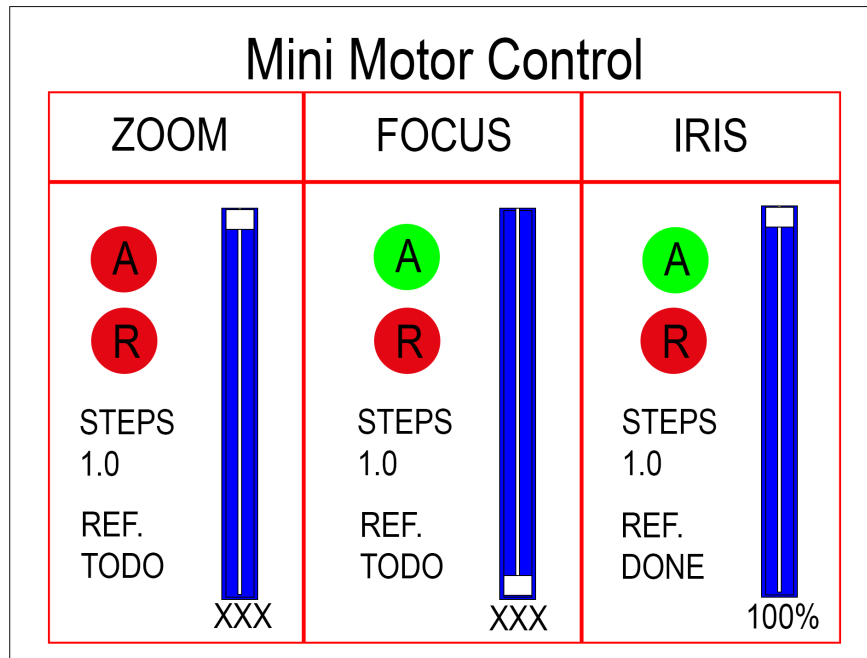
If you have mini motors attached to the lens:

- A red **A** indicates an deactivated and a green **A** an activated motor.

- A green **R** indicates a motor being in reverse mode.

- Steps allows to fine tune the step size of the motor.

Values range from 0.1-3.0

By turning the **Select dial (Q)** you can scroll and select between *Reference, Steps, R* and *A* settings for all motors. The arrow indicates the chosen item. Press the **Select dial (Q)** to change the respective item.

Note! *If Reference (REF.) indicates **TODO**, you have to calibrate the respective motor* 51: *This is done by Selecting **REF.** with the **Select Dial (Q).** Then start the calibration by pressing the **Select Dial (Q).** After the calibration is finished correctly, the display switches from **TODO** to **Done.***

4.10 Global Menu

Push the **MENU Dial (E)** to switch to the global settings menu. It allows access to these parameters:

Format...
Genlock
Multimatrix...
Blacksun...
Invert Image
Reboot Camera
Sleep Mode...
Factory Reset
Sys Info...

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

4.10.1 Format...

4.10.1.1 Video Mode

In the video settings menu the video HD format can be set. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Format

Values are

> *1080i 50*
> *1080i 60*
> *1080i/59.94*
>
> *1080p 23.98*
> *1080p 24*
> *1080p 25*
> *1080p 29.97*
> *1080p 30*
> *1080p 50*
> *1080p 59*
> *1080p 60*
>
> *720p 50*
> *720p 59.94*
> *720p 60*

4.10.1.2 Video Level

Sets the white point (white clip level) beyond 100% in units of 1%. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Values are 100-107%

4.10.2 Genlock

The Genlock feature allows the camera to synchronize to a reference signal provided at the **Genlock Input (22)** ⌐18⌐ at CCU ⌐18⌐.

4.10.2.1 Genlock

Values are ON / OFF

Select On or OFF with **Select dial (Q)** to lock the camera to a reference sync signal. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once. Before switching on this feature make sure the cable providing the Genlock signal is connected to the CCU or camera. (Depending on camera type). After switching this feature on, the camera automatically searches the genlock signal for 15 seconds. In case no valid signal can be detected the Genlock function is automatically switched off.

4.10.2.2 Resync

Use this function to start the Genlock syncing procedure again. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once.

Values are ON / OFF

Select On or OFF with **Select dial (Q).**

4.10.2.3 Input

Set Genlock reference input standard. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Values are

***Tri-Level** -* Tri-Level Sync
***Crosslock** -* Crosslock Sync - Make sure you set the right crosslog video format in the **Crosslog Signal menu** ⌐34⌐
***Pal BB** -* Black Burst PAL Standard
***NTSC BB** -* Black Burst NTSC Standard

4.10.2.4 Crosslog Sig.

Set the video format input standard for the **crosslock synchronization** 33. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Format

Values are

> *1080i50*
> *1080p50*
> *1080p25*

4.10.2.5 H. Offset

Use this function to compensate possible horizontal phase shifts of the genlock signal.

Values range from -2000 to +2000

Select the menu item by turning the **Select dial (Q)**, then press the **Select dial (Q)** once. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

4.10.2.6 V. Offset

Use this function to compensate possible vertical phase shifts of the genlock signal.

Values range from -2000 to +2000

Select the menu item by turning the **Select dial (Q)**, then press the **Select dial (Q)** once. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

4.10.2.7 Check Status

Shows the status of the genlock synchronization.

Values are

> *disabled* - genlock synchronization is turned off 33
> *failed* - genlock synchronization timing error
> *synced* - camera is in genlock

4.10.3 Multi Matrix

Multi Matrix has been developed for further creative control in color adjustments. Unlike conventional color correction or matrix control, in which all color control parameters interact with each other, the Multi Matrix function allows color adjustments to be applied only over the color range designated by the operator. The color spectrum is divided into 16 areas of adjustment, where the hue and/or saturation of each area can be modified. For example, the hue and saturation of a shirts red petal can be changed, while keeping other colors unchanged. In addition to such special effects work, this function is also useful for matching color among multiple cameras, or for reproducing the color characteristics of another camera

4.10.3.1 Status

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Status

Values are ON / OFF

4.10.3.2 Multimatrix Page 1

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

```
Multimatrix P.1

0       BLUE      SAT:1.00      HUE:0.0

15      B+        SAT:1.00      HUE:0.0

30      B++       SAT:1.00      HUE:0.0

45      MG-       SAT:1.00      HUE:0.0

60      MG        SAT:1.00      HUE:0.0

75      MG        SAT:1.00      HUE:0.0

90      MG+       SAT:1.00      HUE:0.0

105     R-        SAT:1.00      HUE:0.0

120     R         SAT:1.00      HUE:0.0

135     R+        SAT:1.00      HUE:0.0

150     R/YL      SAT:1.00      HUE:0.0

165     YL-       SAT:1.00      HUE:0.0
```

Color abbreviations:

Blue, B+, B++	blue
MG-, MG, MG+	magenta
R-, R, R+	red
R/YL, YL-	yellow

4.10.3.3 Multimatrix Page 2

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

```
Multimatrix  P.2

100     YL          SAT:1.00        HUE:0.0

145     YL+         SAT:1.00        HUE:0.0

210     YL/G        SAT:1.00        HUE:0.0

225     G-          SAT:1.00        HUE:0.0

240     G           SAT:1.00        HUE:0.0

255     G           SAT:1.00        HUE:0.0

270     G+          SAT:1.00        HUE:0.0

285     CY-         SAT:1.00        HUE:0.0

300     CY          SAT:1.00        HUE:0.0

315     CY+         SAT:1.00        HUE:0.0

330     CY/B        SAT:1.00        HUE:0.0

345     B-          SAT:1.00        HUE:0.0
```

Color abbreviations:

B, B+, B+   blue
CY-, CY, CY+   cyan
G-, G, G+   magenta
YL, YL-   yellow

4.10.3.4 Load Default

The default function returns all Multi Matrix values to their defaults.

Select *YES or NO* with Select **dial (Q)**. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once.

```
CONFIRM

LOAD DEFAULT DEFAULT:

NO          =>YES
```

4.10.4 Black Sun

Under special circumstances (bright sun or floodlight) there is a camera artifact where overexposed areas are displayed as black instead of white pixels, also referred to as "black sun" or "black hole" phenomenon. By switching on this option, the chance of producing "black sun" artifacts is reduced.

*Values are **ON / OFF***

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Note! The Black Sun feature cannot be used in a general dark environment or with an increased gain value. In case you might experience white stripe artifacts in the picture, it is recommend to turn this feature off.

4.10.5 Invert Image

This function allows to mirror the image horizontally and vertically. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings.

*Values are **ON / OFF***

Select On or OFF with **Select dial (Q).**

4.10.6 Reboot Camera

Reboots the camera. In rare cases rebooting might be necessary to recover from an error or to re-initialize the camera.

Select *YES or NO* with Select **dial (Q)**. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once.

```
CONFIRM

REBOOT  CAMERA:

NO        =>YES
```

The process to reset the camera will take approximately 20 seconds.

4.10.7 Sleep Mode

The sleep or standby mode is reducing the wear on the camera head and saves power. By activating this mode the camera head is put to standby mode and the sensor and image processing electronics are completely switched off. Antelope Camera Systems recommends to use this option, when the mounted cameras will not be in use for more than one hour.

Select *YES or NO* with Select **dial (Q)**. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once.

```
CONFIRM

SLEEP MODE

NO   =>YES
```

When the sleep mode is active the camera does not provide a HDSDI signal and the display shows:

```
     SLEEP MODE

       ACTIVE

PRESS MENU TO EXIT
```

Press the **Menu Dial (E)** once to stop the sleep mode.

4.10.8 Reset to Factory Defaults

The reset to factory defaults function resets the Antelope PICO back to its manufacturer default settings. .

Select *YES or NO* with Select **dial (Q)**. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once.

```
CONFIRM

FACTORY RESET:
NO        =>YES
```

The process to reset the camera will take approximately 5 seconds.

The OCP returns to the global menu again after the reset is finished.

Note! After performing a reset to factory defaults, make sure you switch the Fixed Pattern 55 ***on again. Also check the Playmode*** 71 ***and Multimatrix*** 34 ***settings!***

Note! Performing a reset to factory defaults does not erase the stored User presets.

4.10.9 System Info

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Cam Info

Displays the hardware info about the attached camera.

```
Model:
xxxxxx-xxxxxx


device id:
xxxxxxxxxx
```

Version

Displays the hardware and firmware info about the CCU.

```
system id:
xxxxxxxxxxx-xxxxxxx-xxxxxxxx


hw revision:
00000000
xx xxx-xx


software release id:
000000:000000
00 0000 00
```

Controllers

Displays the hardware and firmware info about the connected controllers, like RCP, OCP, Splitter and Motors.

```
OCP:      v.3.98
RCP:      v.3.89
Splitter: v.3.91
M. Box:   v.3.91
```

4.11 Frame Rate and Exposure Menu

Push the **FPS / EXP** button (A) to switch to the frame rate and exposure menu.

In the fps menu the recording frame rate in frames per second (fps) and the exposure time expressed in percent are defined. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

FPS

In the FPS menu the recording frame rate in frames per second (fps) is defined.
1-350 fps in 8 bit mode
1-283 fps in 10 bit mode

Please note that it is necessary to set the camera to 8 bit mode in order to set higher rates than 283 fps.

Shutter

In the Shutter menu the exposure time expressed in percent is defined
1-100%

A shutter at 100% uses maximum possible exposure time - A shutter value of 100% at 350fps results in an exposure of 1/350s per frame.

Bit Depth

8 bits (for frame rates up to 350 fps)
10 bits (for frame rates up to 283 fps)

Play Mode

In the Play Mode menu the Video Out signal is set. Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.

Values are

> *Interlaced (50i) - plays out video sequence at doubled speed*
> *Full Frame (25psf) - full slow motion playback at "normal" speed*
> *Full Frame EXT (extended) - plays out video sequence at half speed*

By choosing the Full Frame EXT setting it is possible to simulate a virtual slow motion playback at up to 700fps.

4.12   Gain/Hue Menu

Push the **Gain/Hue button (B)** to switch to the gain and hue settings menu.

In the gain and hue settings menu the gain and the hue parameters are defined. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Gain

In the gain menu the gain value is set. Gain is an electronic amplification of the video signal. This means that the signal is boosted electronically to amplify the sensitivity and therefore brighten your image. This increase is measured in decibels (dB).

Values range from 0-23.82 db

  +6dB = equals one additional f-stop of light
+12dB = equals two additional f-stop of light
+18dB = equals three additional s-stop of light
+24dB = equals four additional f-stop of light

Hue

The hue menu lets you adjust the hue of the camera image to reduce unwanted color casts.

Values range from -128 - +128

4.13   Black Stretch / Flare Menu

4.13.1   Black Stretch

Push the **Black Stretch button (C)** to switch to the black stretch settings menu.

In the black stretch menu you can increase or decrease contrast in the shadow areas. Select the respective item by turning the Select dial (Q), then press the Select dial (Q) once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Black Stretch

Increasing the black stretch brings out details and better definition in the shadows, but keeps the absolute black to stay black. Adding some black stretch helps also to lift dark areas up in order to put off possible noise in the black.

Values range from -20 -+127

4.13.2 Flare

The Anti-Flare feature compensates for light that spreads from exposure highlights and leads to a milky looking picture by decreasing the black level for all or each of the R G and B channels whenever the camera shoots bright scenes.

Flare RGB -   Anti-Flare feature compensates for white flares

Values are 0-100%

Flare RED - Anti-Flare feature compensates for red flares

Values are 0-100%

Flare Green - Anti-Flare feature compensates for green flares

Values are 0-100%

Flare Blue - Anti-Flare feature compensates for blue flares

Values are 0-100%

4.14   Automatic White Balance Button

Push the **White Balance button (D)** to enter white balance menu. Select the respective item by turning the **Select dial (Q)**, then press the **Select dial (Q)** once. The arrow indicates the active item.

Automatic white balance procedure

1. Point your camera to a pure white subject, so that most of the frame is white. The subject should be fairly matte, that is, non-reflective.
2. Set exposure and focus.
3. Push the **White Balance button (D)** to enter white balance menu
4. Activate the automatic white balance by selecting the *Auto White* menu item with the **Select dial (Q)**, then press the **Select dial (Q)** once.
5. The camera will analyze the image and set the white balance automatically. *DONE!* flashes once in the display to indicate that the white balance has been successfully set.

Preset white balance

Presets are:
3200K Tungsten
4800K Fluorescent
5600K Daylight
6300K Daylight
7500K Daylight
Variable

Select the predefined preset by turning the **Select dial (Q)**, then press the **Select dial (Q)** once to set the white balance. *LOADED!* flashes once in the display to indicate that the white balance has been successfully set.

Variable Mode
In custom mode it is possible to preset any custom color temperature between 2800K and 10.000K in steps of 50 Kelvin manually.

Select the *Custom* menu item by turning the **Select dial (Q)**, then press the **Select dial (Q)** once. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

4.15   Detail / Denoise menu

Push the **Detail / Denoise Button (E)** to switch to the detail / denoise settings menu.

In the detail / denoise settings menu the image detail and denoise parameters are defined. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once. If the detail or denoise function is enabled the **Detail / Denoise Button (E)** will be lit.

Enable

Values are ON/OFF

Detail LVL

The image detail menu allows you to adjust the detail level of the image.

Values range from 0-63

Denoise LVL

The denoise function removes distracting visible image noise. Use the denoise menu to adjusts the denoise level of the image.

Values range from 0-63

4.16   Deflicker menu

The deflicker engine is an optional feature and only available if your camera is equipped with a deflicker board or you are using the Colibri deflicker ! Deflickering of 50/60 P is only available with Colibri Deflicker Deflicker V2.

Any slow motion cameras show flickering artifacts in the slow motion playback just because of the interference between the flickering of the light sources and the frame rate of the camera. This physical effect cannot be avoided when using regular lighting (not flicker free), like in most football stadiums for example. The integrated deflicker engine uses a complex signal processing algorithm to output a "clean" HD-SDI signal without these artifacts.

Push the **Deflicker Button (D)** to switch to the Deflicker menu.

In the Deflicker menu all parameters of the deflicker engine can be set. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Deflicker Menu Settings

Strength - sets the degree of the deflicker effect

Values range from   0-12

The higher this value is set, the less flicker is visible and the cleaner the processed image looks.

Please note, that using high deflicker strength values also cause stronger motion blur effects in the processed image.The recommended starting value is 9.

Status - switch the deflicker function on or off.

Values are

off - *Deflicker switched off*
Replay only - *in replay only mode the deflicker function is only active on slow-motion replays. (Recommended setting)*

Note! Turn the deflicker engine off for camera recording speeds of 50 FPS or less.

Freq. Shift - Allows to fine tune the deflicker signal processing results. *Values range from -233 - +517 (Recommended value is 0)*

Different conditions and scenes require different settings. Please test the best settings for your shots. If you have a scene with special lights and there are only poor results, please do not hesitate to contact us and send us a sample clip and we will improve our algorithm.

Note! When working daylight conditions with no artificial light the deflicker engine must be disabled!

4.17 Gamma Presets Button

Gamma correction function is used to correct image's luminance. It is a nonlinear operation used by the camera to convert the brightness values in imagery. This non-linearity must be compensated in order to achieve a correct reproduction of luminance.

Push the **Gamma button (G)** to switch to the gamma presets menu.

*Note! - If you keep the **Gamma button (G)** pressed a graphic of the currently set gamma curve is shown on the display.*

In the gamma selection menu you can change the camera`s gamma curve. Select the respective item by turning the **Select dial (Q)**, then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Mode

Values are

Off - *no gamma correction is applied. -> linear gamma*

REC709 - *Choose REC709 mode if the camera is used in a standard HDTV environment.*

HLG - *Choose hybrid log-gamma if the camera is used in a high dynamic range (HDR) environment.*

Gamma

Gamma correction function is used to correct image's luminance.

Values range from 0,75 - 0,25

Note! - the Gamma values are only changeable in REC 709 mode, in HLG mode the gamma value is fixed to 0.5. The use of gamma values lower than 0.45 and higher than 0.5 is not recommend.

Knee

The knee function is used to control the highlights of the image. By the activation of Knee correction, the quality of the picture will be improved, with more details in the white areas, fluid contrast and less overexposed, "white-burnt" parts of image. Knee correction is necessary to keep the images within the signal level provided as standard and influences contrast in areas with high brightness.

The knee helps to prevent over-exposure by limiting signals in high intensity areas of the subject to the dynamic range of your camera.

Values are

off - Knee function switched off
on - Knee function switched on

Knee Point

Sets the position of the knee point output level.

Values range from 60-100%

Knee Slope

Determines the inclination of the knee slope.

Values range from 0-200

Black Gamma

This function improves the gradations in dark image areas.

Values are

off - Black Gamma function switched off
on - Black Gamma function switched on

Black Gamma

Increasing this value brightens dark image areas, whereas decreasing the value makes the image darker.

Values range from -40 - 30

The camera system allows to store up to five different user changeable gamma presets.

Default

User 1

User 2

User 3

User 4

All Gamma values can be stored in the OCP as user changeable gamma presets. To save or load the customs settings**,** select the respective memory slot (USER 1-4) by turning the **Select dial (Q).** The arrow indicates the active item. Briefly pressing the **Select dial (Q) button** brings up the options menu which allows you to load,save ore erase the actual settings in the selected memory slot.

```
CHOOSE  OPTION
LOAD  <=
SAVE
DELETE
```

Once you choose a menu item use the **Select dial (Q)** to select.

4.18   Preview Button

Pressing the **Preview Button (K)** provides live camera signal on the reference monitor.

4.19   Saturation and Master Black Function

Color Saturation

The saturation control sets color intensity level of the image. Press the **Saturation Dial (I)** once and adjust the saturation setting by turning the **Saturation Dial (I) .**

Values range from -128 - +127

Please note! *While being in the motor menu* ⌐51⌐ *the **Saturation Dial (I)** adjusts the actual zoom position.*

Master Black Function (Pedestal)

The master black or pedestal sets the minimum black level for the camera. The master black can be adjusted as an offset to the set-up level. Since pedestal represents the lowest signal level available, it is used as the base reference for all other signal levels
Press the **Master Black Dial (J)** once and adjust the master black setting by turning the **Master Black Dial (J) .**

Values range from -2047 - +2048

Please note! *While being in the motor menu* ⌐51⌐ *the **Master Black Dial (J)** adjusts the focus.*

4.20   USB Firmware Update

Antelope Camera System provides firmware updates for its devices to help address any known issues and to add new features.

Update the OCP firmware using a USB flash drive:

USB memory device requirements:
- USB specification 2.0 (or higher) and should not have more in capacity than 4GB.
- Should be Fat32 formatted and blank (should not contain any files)

1. Download the update file to your PC.
2. Rename file to "**ocppico.bin**".
3. Insert the USB storage device into your PC. Copy or drag and drop the firmware update file to the root directory of your USB device.

Note! "The root directory" is the first or top-most directory of the device, which contains all the other folders.

4. Make sure the OCP is powered off, then insert the USB flash drive into the upper **USB Firmware Update Port (55)** 24 on the OCP.
5. Keep the **Saturation DIal (I)** 25 pressed, while powering on the OCP to boot the unit into flash mode.
6. The OCP display shows:

```
OCP Bootloader v.1.01e
Entering Flash Mode
USB Init Done
USB Key Dectected
Press (1) OCP Mini
Press (2) OCP Pico




NB: If Key not found
Turn Red White Pot
```

6. Press the **Gain/Hue Button (B)** 25 to start the update.

WARNING: During the software installation process, please do not remove the USB device or turn off the OCP!
6. When the software update is complete, a message appears on the display indicating the software update was successful.

NOTE: If you have any difficulty carrying out these instructions, please contact Antelope Camera System.

4.21   IP Setup

The IP properties (IP, Subnetmask and Gateway) of the OCP can be changed.

To enter the IP setup menu on the OCP press and hold the **Gain/Hue Button (B)** [25] and the **Bl.Stretch/Flare (L)** [25] button simultaneously, while powering (booting) up the OCP. Select *Config Mode...* by turning the **Select dial (Q),** then press the **Select dial (Q)** once. This load loads the current settings.

```
IP SETUP

CONFIG MODE...
LOCAL IP ADDRESS:
192 168 001   155
SUBNET:
255 255 255 000
GATEWAY
192 168 001   001
LOCAL PORT 23
CAM IP ADDRESS:
192 168 001   050
SERVER PORT:23

SEND:  IP SN GW SIP REBOOT
```

By turning the **Select dial (Q)** you can choose the value to be changed. The arrow indicates the active item. Press the **Select dial (Q)** once and change the value by turning the **Select dial (Q)**. To save the settings select and press SEND on the bottom left. A successful saving of the new settings is indicated by a SUCCESS message behind CONFIG MODE on the top if the display.

It is necessary to reboot the OCP in order for new settings to take effect. This can be done by selecting and pressing *REBOOT* on the bottom right of the menu.

Note! The port address is factory set to 715 and should always match the values indicated in the CCU touchscreen display (44).

4.22   Engineer Menu

Accessing this service menu enables you to set advanced and experimental camera parameters. Be aware that making changes in the menu may void the warranty of your camera and may severely damage you equipment.

WARNING! You can damage your camera by changing these settings!

To enter the Engineer Menu press and hold the **X-10 Steps / Free Button (K)** and additionally press and release the **Cam Select Button (F).** It allows access to these parameters:

```
Deflicker Expert... <=
Motor Adjust...
Matrix...
RAW...
TFLT Live:          OFF
TFLT Replay:        OFF
D/C Check:          OFF
Fixed Pattern:        ON
Cam Eng Reset...
Gamma Adv...
Mem Test
```

Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

4.22.1   Motor Adjust

If lens motors are attached, all motor parameters are set in this menu. It is possible to remote control up to three motors per camera via the Operational Control Panel (OCP) .

The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once.

Motors Loc - Chooses the control location for the attached motors.

Values are

> *Cam Head*
> *CCU*

Mode

Values are

> *Encoder* - choose this setting for fixed focal lenses without integrated motors
> *Freerun* - choose this setting for motors without encoder (e.g. Fishface)
> *DC* - choose this setting for zoom lenses with integrated motors

Iris Speed

This parameter defines the speed of the iris motor in percent. The recommended default values are 40% for the encoder setting and 100% for the DC setting.

Values range from 0 - 100%

Iris Ct. Loc. - Here you can select whether to control the iris motor via OCP or via external hand rocker (connected to CCU).

Values are

> *CCU*
> *OCP*

Note! If no motor is attached the Iris Ct. Loc. is - NO -

Focus Speed

This parameter defines the speed of the focus motor in percent. The recommended default values are 40% for the encoder setting and 100% for the DC setting.

Values range from 0 - 100%

Focus Ct. Loc. - Here you can select whether to control the focus motor via OCP or via external hand rocker (connected to CCU).

Values are

> *CCU*
> *OCP*

Note! If no motor is attached the Focus Ct. Loc. is - NO -

Zoom Speed

This parameter defines the speed of the zoom motor in percent. The recommended default values are 40% for the encoder setting and 100% for the DC setting.

Values range from 0 - 100%

Zoom Ct. Loc. - Here you can select whether to control the zoom motor via OCP or via external hand rocker (connected to CCU).

Values are

> *CCU*
> *OCP*

Note! If no motor is attached the Zoom Ct. Loc. is - NO -

DC Zoom Rel

Here you select how the connected external hand rocker operates.

Values are

> *Absolute*

Relative

4.22.2 Expert Deflicker Menu

Status - switch the deflicker function on or off.

Values are

off - Deflicker switched off

replay only - in auto mode the Deflicker is only active on slow-motion replays. (Recommended setting)

Frequency - Allows to set frequency of your light source in relation to the used the power line frequency in Herz. *Values range from 50-100*

V-Boost - Switch the V-Boost function on or off. This optimizes the deflicker results for vertical camera pans and for objects moving vertically through picture. Values are on/off.

Module - Select if your use an integrated deflicker board or the standalone Colibri deflicker
 Values are Integrated / Standalone (Colibri deflicker connected via RS485)

Reboot - Select to reboot the deflicker electronics.

Video Mode

Note! In order to operate correctly the HD format setting of the deflicker module has to be set to the same value as the camera.

The video HD format for the Deflicker is automatically set by the camera and should be only changed, if it is really necessary. Select the respective item by turning the **Select dial (Q),** then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

Format

Values are

> *1080i 50*
> *1080i 60*
> *1080i/59.94*
>
> *1080p 23.98*
> *1080p 24*
> *1080p 25*
> *1080p 29.97*
> *1080p 30*
> *1080p 50*
> *1080p 60*
>
> *720p 50*
> *720p 59.94*
> *720p 60*

Freq. Shift - Allows to fine tune the deflicker signal processing results. *Values range from -233 - +517 (Recommended value is 0)*

4.22.3   Matrix

In the Matrix menu the color correction matrix settings can be adjusted. These are advanced settings to control the palette of colors generated by the camera. The 3x3 color matrix describes the balancing of different parts of the color spectrum in order to achieve optimum color reproduction for capture. It describes not only the three primary colors, but their relationships to one another. Adjust the color matrix settings with the **Color Matrix Dials (G)** and **(I)** for color adjustment of the blacks.

```
                 R              G              B

    Y:         +0054          +0183          +0018

    Cb:        -0030          -0099          +0128

    Cr         +0128          -0117          -0012




         Press Select for defaults
```

Reset your matrix settings to default values by pressing the **Select dial (Q)** once.

4.22.4   RAW

SDI range - Switches between legal and extended signal mapping. A 10-bit digital signal can theoretically carry code values from 0 to 1023. A legal range signal only uses code values 64 to 940 (for the Y channel) while an extended range signal uses code values 4 to 1019 (for the Y channel)**.**

Values are 0/1

0 = Legal SDI Range
1 = Extended SDI Range

RAW - Switches the uncompressed RAW data output over HD-SDI on. Because the RAW HD-SDI output is not a standardized HD-SDI format, special recording equipment is required to correctly interpret and display the RAW data.

Values are 0/1

0 *= RAW data output over HD-SDI **OFF***
1 *= RAW data output over HD-SDI **ON***

4.22.5   TFLT Live

TFLT is an enhanced denoise filter to reduce the very disturbing line flicker, that occurs in rare cases.

TFLT LIVE - reduces the line flicker in the live output

Values are ON / OFF

Note! It is recommended to keep this setting always off.

4.22.6 TFLT Replay

TFLT is an enhanced denoise filter to reduce the very disturbing line flicker, that occurs in rare cases.

TFLT REPLAY - reduces the line flicker in the replay

Values are ON / OFF

Note! It is recommended to keep this setting always off.

4.22.7 D/C Check

Allows you to turn off the connection check between the controllers and the camera head.

Values are

> **On (default)**
> **OFF**

When this value is switched to off a green or red C in the top left corner of the OCP display indicates if the camera headed is connected.

- A red **C** indicates the controller does not receive a feedback from the camera head, though the camera might normally respond to all commands from the controller.

- A green **C** indicates the camera head is connected and the controller receives constant feedback.

Note! Turning on the feature might be useful in wireless environments, where no return channel from the camera is available.

4.22.8 Fixed Pattern

Fixed Pattern Noise (FPN) - activates fixed pattern noise (FPN) correction to further reduce camera artifacts

Values are ON / OFF

Note! This setting should be always ON. Since each sensor receives its own individual noise pattern file, which is stored in the CCU, it is not possible to mix different camera heads and CCUs.

4.22.9 Cam Eng Reset

The Camera Engineer Reset function has to be used very carefully. It deep resets the camera by clearing memory completely. The process to reset the camera will take 10 seconds.

Select *YES or NO* with Select **dial (Q)**. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings, then press the **Select dial (Q)** once.

```
CONFIRM
FACTORY RESET:
NO        =>YES
```

The process to reset the camera will take approximately 10 seconds.

The OCP displays

```
DEEP RESET COMPLETE
```

and returns to the menu again after the reset is finished.

Note! After performing a deep reset, make sure you switch the Fixed Pattern 55 ***on again. Also check the Playmode*** 71 ***and Multimatrix*** 34 ***settings!***

4.22.10 Gamma Adv

Gamma correction function is used to correct image's luminance. It is a nonlinear operation used by the camera to convert the brightness values in imagery. This non-linearity must be compensated in order to achieve a correct reproduction of luminance.

The Gamma Curve shows the relationship between the input signal level and the output signal level. In this menu it is possible to create a custom gamma curve based on sample 24 points.

To set the X and Y values of the respective sample point turn the **Select dial (Q)**, then press the **Select dial (Q)** once. The arrow indicates the active item. By turning the **Select dial (Q)** you change the settings. Confirm your settings by pressing the **Select dial (Q)** once.

```
GAMMA  INTERPLOATION


Reset  <=                    INTERPOLATE

01       X: 0000   Y: 0000   13       X: 1921   Y: 0737

02       X: 0178   Y: 0150   14       X: 2136   Y: 0777

03       X: 0250   Y: 0210   15       X: 2500   Y: 0797

04       X: 0320   Y: 0299   16       X: 2670   Y: 0826

05       X: 0498   Y: 0309   17       X: 2888   Y: 0853

06       X: 0674   Y: 0450   18       X: 3026   Y: 0905

07       X: 0851   Y: 0521   19       X: 2304   Y: 0930

08       X: 1001   Y: 0612   20       X: 3382   Y: 0954

09       X: 1150   Y: 0650   21       X: 3560   Y: 0977

10       X: 1356   Y: 0675   22       X: 3783   Y: 1000

11       X: 1550   Y: 0689   23       X: 3916   Y: 1010

12       X: 1700   Y: 0705   24       X: 4095   Y: 1023
```

Choose *RESET* to reset all changed values or *INTERPOLATE* to apply all changes made in this menu. This calculates the new look up tables (LUTs) for the changed parameters.

Note! - This has always to be done to apply the samples point changes!

4.22.11 Mem Test

When startung and booting the camera an EEPROM test is performed automatically. To start this function manually select *MEM TEST* with the Select **dial (Q)**. The arrow indicates the active item Then press the **Select dial (Q)** once to start the EEPROM test.

The camera returns

```
MEM  TEST        <=   SUCCESS
```

 or

```
MEM  TEST        <=   FAIL
```

The display should show SUCCESS. FAIL indicates a defective EEPROM module.

Note! In case this test indicates FAIL, get in touch with Antelope Camera System GmbH 98 ***have your unit serviced.***

4.23 OCP Menu Overview

Menu	Submenu	Item	Values /Function
GLOBAL/MAIN MENU			
	FORMAT		
		VIDEO MODE	*[720p60, 720p50, 720p59, 1080p23, 1080p24, 1080p25, 1080p29, 1080p30, 1080p50, 1080p59, 1080p60, 1080i50, 1080i59, 1080i60]*
		VIDEO LEVEL	*[100% - 107%]*
	GENLOCK		
		GENLOCK	*[OFF, ON]*
		RESYNC	*resync of genlock signal*
		INPUT	*[TRI-LEVEL, CROSSLOCK, PAL BB, NTSC BB]*
		CLOSSLOCK	*[1080i50, 1080p50, 1080p25]*
		H. OFFSET	*[-2000 - 2000]*
		V. OFFSET	*[-2000 - 2000]*
		CHECK STATUS	*checks status --> disabled, failed, synced*
	MULTIMATRIX		
		STATUS	*[ON, OFF]*
		PAGE 1	*MM VALUES 1-12*
		PAGE 2	*MM VALUES 13-24*
		LOAD DEF.	*loads defaults*
	BLACK SUN		
		MODE	*[ON, OFF]*
	INVERT IMAGE		*flip image 180°*
	REBOOT CAMERA		*reboot camera*
	SLEEP MODE		*camera is powered off and can be woken up via OCP*
	FACTORY RESET		*loads factory defaults*
	SYS INFO		
		CAM INFO	*fw ver of camera head*
		VERSION	*fw ver of CCU*
		CONTR.	*fw of controllers and motor board*
	EXT. SWITCH		*only for Compact*
FPS/EXP			
	FPS		*[50-350]*
	SHUTTER		*[0% - 100%]*
	BIT DEPTH		*[8,10]*
	PLAY MODE		*[interlaced, full frame psf, fullframe extended]*
GAIN/HUE			
	GAIN		*[0db - 24db]*
	HUE		*[-128 - 127]*
BL. STRETCH/FLARE			
	B. STRETCH		*[-20 - 127]*
	FLARE RGB		*[0% - 100%]*
	FLARE RED		*[0% - 100%]*

Menu	Submenu	Item	Values /Function
	FLARE GREEN		*[0% - 100%]*
	FLARE BLUE		*[0% - 100%]*
WHITE BALANCE			
	AUTO WHITE		*performs auto white balance*
	3200K TUNGSTEN		*loads white balance preset*
	4200K FLOUROSCENT		*loads white balance preset*
	5600K DAYLIGHT		*loads white balance preset*
	6300K DAYLIGHT		*loads white balance preset*
	7500K DAYLIGHT		*loads white balance preset*
	VARIABLE		*custom white balance [2800K-10000K]*
DETAIL/DENOSIE			
	ENABLE		*[ON, OFF]*
	DETAIL LVL		*[0 - 63]*
	DENOISE LVL		*[0 -63]*
DEFLICKER			
	STRENGTH		*[0 - 12]*
	STATUS		*[OFF, Replay only]*
	FREQ. SHIFT		*[-233 - 517]*
GAMMA PRESETS	*ADDITIONAL GAMMA SETU*		
	MODE		*[OFF,REC709, HLG]*
	GAMMA		*[0.75-0.25] only changeable in REC 709 mode --> H*
	KNEE		*[OFF,ON]*
	KNEE POINT		*[60%-100%]*
	KNEE SLOPE		*[0-200]*
	BLACK GAMMA		*[OFF,ON]*
	DEFAULT		*loads default values --> rename to "LOAD DEFAUL*
	USER 1		*EMPTY --> saves gamma values* *LOAD--> loads gamma values*
	USER 2		*EMPTY --> saves gamma values* *LOAD--> loads gamma values*
	USER 3		*EMPTY --> saves gamma values* *LOAD--> loads gamma values*
	USER 4		*EMPTY --> saves gamma values* *LOAD--> loads gamma values*
SCENE FILES			
	SCENE FILE 1		*loads user preset 1*
	SCENE FILE 2		*loads user preset 2*
	SCENE FILE 3		*loads user preset 3*
	SCENE FILE 4		*loads user preset 4*
	MULTIMATRIX PRESETS		
		NO MATRIX	*no MM preset*
		SONY MATRIX	*Sony MM preset*
		GRASS VALLEY	*Grass MM preset*
		PANASONIC	*Panasonic MM preset*

Menu	Submenu	Item	Values /Function
		USER MCC 1	*user MM preset*
		USER MCC 2	*user MM preset*
		USER MCC 3	*user MM preset*
		USER MCC 4	*user MM preset*
RGB SETTINGS			
	RED GAIN		*[-500 - 500]*
	GREEN GAIN		*[-500 - 500]*
	BLUE GAIN		*[-500 - 500]*
	RED PEDESTAL		*[-2047 - 2048]*
	GREEN PEDESTAL		*[-2047 - 2048]*
	BLUE PEDESTAL		*[-2047 - 2048]*
SATURATION and MAS			
	SATURATION		*[-128 - 127]*
	MASTER BLACK		*[-2047 - 2048]*
MINI MOTOR CONTRO			
	IRIS		*ACTIVATE: [ON, OFF] REVERSE: [ON, OFF], SPEED:[0.1 - 3], Ref. - CALIBRATE IRIS*
	FOCUS		*ACTIVATE: [ON, OFF] REVERSE: [ON, OFF], SPEED:[0.1 - 3], Ref. - CALIBRATE FOCUS*
	ZOOM		*ACTIVATE: [ON, OFF] REVERSE: [ON, OFF], SPEED:[0.1 - 3], Ref. - CALIBRATE ZOOM*
ENGINEER MENU			
	DEFLICKER EXPERT		
		STATUS	*[ON, OFF]*
		FREQUENCY	*[50 - 100]*
		VBOOST	*[ON, OFF]*
		MODULE	*[Standalone, Integrated]*
		REBOOT	*reboots Deflicker*
		VIDEO MODE	*[720p60, 720p50, 720p59, 1080p23, 1080p24, 1080p25, 1080p29, 1080p30, 1080p50, 1080p59, 1080p60, 1080i50, 1080i59, 1080i60]*
		FRQ. SHIFT	*[-233 - 517]*
	MOTOR ADJUST		
		MOTORS LOC	*[CAM HEAD, CCU]*
		MODE	*[Encoder, FREE RUN, DC]*
		IRIS SPEED	*[0%-100%]*
		IRIS CT. LOC	*[CCU, OCP]*
		FOCUS SPEED	*[0%-100%]*
		FOC. CT. LOC	*[CCU, OCP]*
		ZOOM SPEED	*[0%-100%]*
		ZOOM CT. LOC	*[CCU, OCP]*
		DC ZOOM REL	*[ABSOLUTE, RELATIVE]*
	MATRIX		
		YR	*[-512 - 512]*
		YG	*[-512 - 512]*

Menu	Submenu	Item	Values /Function
		YB	*[-512 - 512]*
		CbR	*[-512 - 512]*
		CbG	*[-512 - 512]*
		CbB	*[-512 - 512]*
		CrR	*[-512 - 512]*
		CRG	*[-512 - 512]*
		CRB	*[-512 - 512]*
	RAW		
		SDI RANGE	*[0, 1]*
		RAW	*[0, 1]*
	TFLT LIVE		*[ON, OFF] --> always off*
	TFLT REPLAY		*[ON, OFF] --> always off*
	D/C CHECK		*[ON, OFF]*
	FIXED PATTERN		*[ON, OFF]*
	CAM ENG RESET		*deep reset - loads eng factory defaults*
	GAMMA ADV		*opens 24 point gamma interpolation*
	MEM TEST		*check EEPROM --> success if ok --> fail if not ok*

Part

V

5   Remote Control Panel (RCP)

5.1   Important Note

IMPORTANT NOTE !!!!!

SET NUMBER OF RECORDING BANKS RCP

Its important to set the number of recording banks after switching or rebooting the camera:

- press the **Menue Dial (D)** ⌷66⌷
- select the menu item „BANK NUMBER" by turning the **Menue Dial (D)** ⌷66⌷
- press the **Select dial (K)** ⌷66⌷ *to activate the selection*
- select the number of the banks with turning the **Select dial (K)** ⌷66⌷
- confirm with pressing the **Select dial (K)** ⌷66⌷
- go back to the operating menu by pressing the **Menue Dial (D)** ⌷66⌷ *twice*

5.2   Back - RCP Interfaces
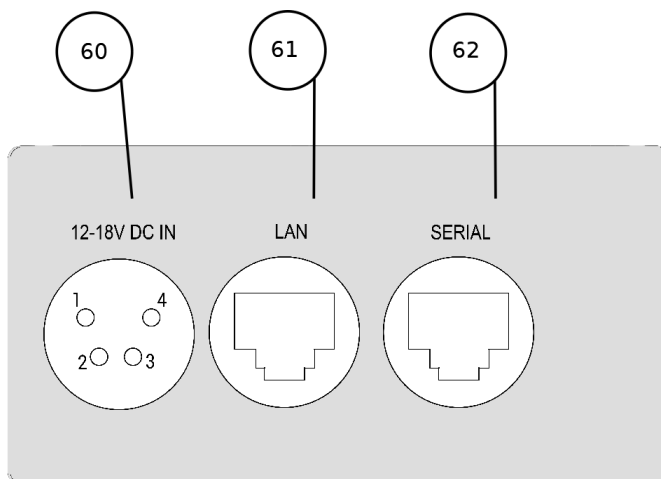
60. Power In Connector (12V-18V)
61. Data LAN Remote Control Port (to OCP) ⌷15⌷
62. RS-422 Remote Control Port (to CCU) ⌷15⌷
63. USB Firmware Update Port (upper USB Port)

5.3   Front - RCP Interfaces

63

USB A
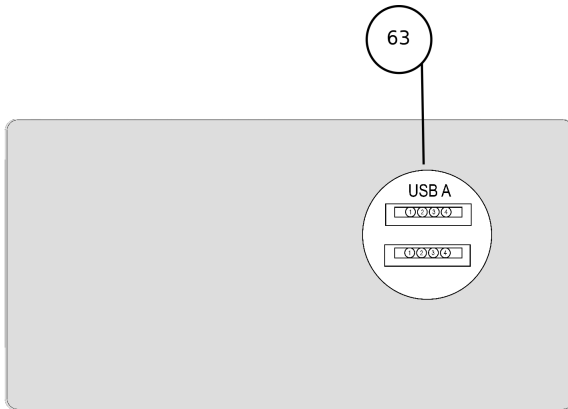
63. USB Firmware Update Port (upper USB Port)

5.4   Overview

The Antelope **Remote Control Panel (RCP)** is designed to give instant access to all functions with regards to video recording and fast access slow-motion back. It is compatible with the Antelope Pico 12 and Compact Mark II cameras.
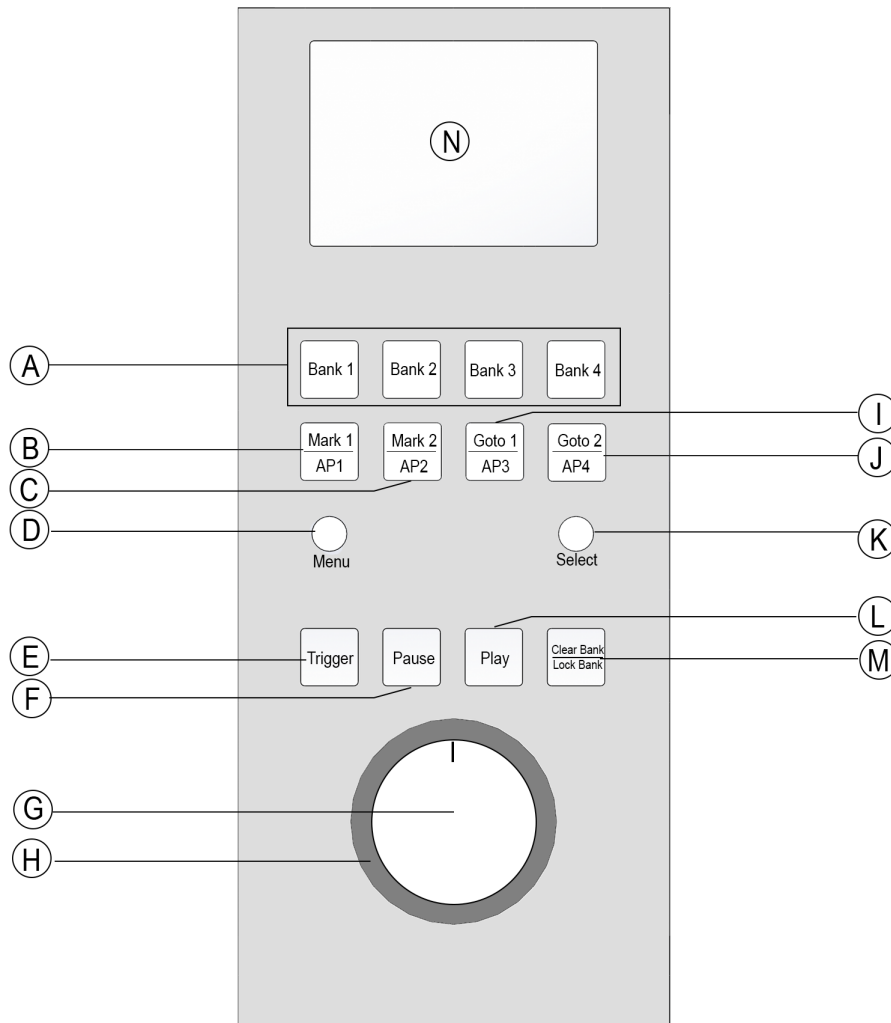
A. **Select Memory Banks 1-4**
B. **Mark 1 Button**
C. **Mark 2 Button**
D. **Menu Dial** 32
E. **Trigger Button** 79
F. **Pause Playout Button**
G. **Inner Jog Dial**
H. **Outer Jog Dial**
I. **Goto 1 Button**
J. **Goto 2 Button**
K. **Selecting Dial**
L. **Playout Button**
M. **Clear Bank / Lock Bank Button**
N. **RCP Display**

5.5   RCP Display

The **RCP Display (N)**
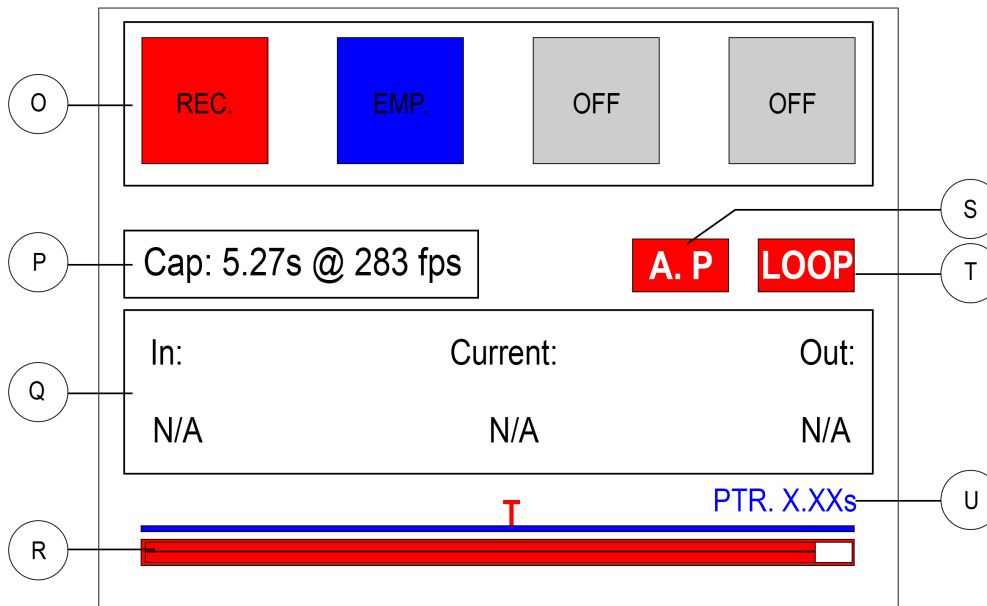
O. **Squares representing the 4 memory banks** 78
P. **Memory capacity indicator** 67
Q. **Sequence In and Out Point indicator** 68
R. **Timleline** 68
S. **Autoplay Mode indicator** 67
T. **Loop Mode indicator** 67
U. **Pre-Trigger indicator** 76

In the top line of display four squares representing the four video **memory banks (O)** 78 are shown. These squares change their color 78 depending on the state in which they are.

5.5.1   Memory Capacity Indicator

The **memory capacity indicator (P)** displays the maximal recording time in seconds at the chosen frame rate.

5.5.2   Loop Mode Indicator

The **Loop Mode Indicator (T)** displays the loop mode status.

If the **Loop Mode Indicator (T)** is displayed with a transparent background it indicates that Loop Mode is switched off.
If the **Loop Mode Indicator (T)** is displayed with a red background it indicates that Loop Mode is switched on.

5.5.3   Autoplay Mode Indicator

The **Autoplay Mode Indicator (S)** 72 displays the loop mode status.

If the **Autoplay Mode Indicator (S)** 72 is displayed with a transparent background it indicates that Loop Mode is switched off.

If the **Autoplay Mode Indicator (S)** ⌐72⌐ is displayed with a red background it indicates that Loop Mode is switched on.

5.5.4 In / Out Point

The **In / Current / Out Indicator (Q)** displays the starting frame, the currently displayed frame and the end frame of the actual video clip.

```
Mark 1:          Current:        Mark 2:
XX               XX              XX
```

Mark1:

Indicates the starting frame as set with the **Mark Buttons (B+C).**

Mark2:

Indicates the last frame of the sequence**.**

5.5.5 Current Frame

The middle of the **In / Current / Out Indicator (Q)** the current frame as dialed with the **jog dial** ⌐69⌐ on the timeline ⌐68⌐ and shown on the replay channel is displayed.

5.5.6 Timeline

The timeline is a graphical representation of the actual video sequence. The red bars position controls the display of the video preview. The actual position is shown over the red bar below 'Current' in frames.

5.5.7 Pre-Trigger Indicator

While being in **Pre-Trigger mode** ⌐76⌐**,** a red T above the **timeline (R)** ⌐68⌐ in the **RCP Display (N)** ⌐67⌐ indicates the activated Pre-Trigger mode **(Pre-Trigger Indicator (U))**. The remaining recording time (in Seconds) after pushing the **Trigger Button (E)** ⌐79⌐ is indicated above the **timeline (R)** ⌐68⌐ behind the letters PTR.   It counts down the remaining recording time until this clip is saved and available for playback.

5.6   Jog Dial

The **Jog and Shuttle Dial (G/H)** allows scrolling through the video sequence. The Jog/Shuttle mechanism has two parts, the inner jog dial **(G)**, which performs jog functions and an outer shuttle dial **(H)**, which performs, shuttle operations.The inner wheel or 'jog' rotates **(G)** through 360 degrees and provides precision frame-by-frame control. The outer black ring or 'shuttle' **(H)** is rubberised and spring-loaded. It facilitates fast-forward and rewind.

In the center position the inner wheel **(G)** places the device into Shuttle Still or Pause mode. As the ring is turned clockwise, the device will start shuttling forward. Conversely, as the ring turned counterclockwise, the device will start shuttling in the reverse direction.

The inner wheel **(G)** allows scrolling frame by frame, the wheel **(H)** does a faster scrolling.

Turn the shuttle dial to the desired angle corresponding to the desired playback speed. *See also jog shuttle play/ pause setup.* 75

5.7   Global Menu (RCP)

The **MENU Dial (D)** allows access to the Global RCP menu. Push the **MENU Dial (D)** to switch to the global settings menu. It allows access to these parameters:

ADVANCED...
FRAMERATE
WORKFLOW
BANK NUMBER
AUTOPLAY
AUTOPLAY FRAME
AUTOPLAY PST...
SLEEP MODE
SHUTTLE PAUSE
SHUTTLE PLAY
JOG SPEED
PRE-TRIGGER

The **MENU Dial (D)** allows access to the Global RCP menu. To select the respective item turn the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your changed settings by pressing the **Select dial (K)** once

5.7.1   Advanced Menu

This menu allows access to the advanced settings RCP menu. To enter the advanced menu select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you can change the settings. Confirm your changed settings by pressing the **Select dial (K)** once

FPS <= 350
PLAY MODE :
F:AUTO DEL.:
REBOOT...
D/C CHECK
BIT DEPTH

5.7.1.1 Add Auto Del.

The menu item **Add Auto Del.** allows to set a delay after the clip playback to delay automatically erasing the actual clip in auto trigger recording mode. This is useful if you want to preserve to the clip to show it again.

Values are 0-99 Seconds

Use the **Pause Button (F)** or **Jog and Shuttle Dial (G/H)** to hold the actual clip in pause mode and prevent it from being erased.

5.7.1.2 D/C Check

Allows you to turn off the connection check between the controllers and the camera head.

Values are

> ***On (default)***
> ***OFF***

When this value is switched to off a green or red C in the top left corner of the RCP display indicates if the camera headed is connected.

- A red **C** indicates the controller does not receive a feedback from the camera head, though the camera might normally respond to all commands from the controller.

- A green **C** indicates the camera head is connected and the controller receives constant feedback.

Note! Turning on the feature might be useful in wireless environments, where no return channel from the camera is available.

5.7.1.3 Reboot Camera

Reboots the camera. In rare cases rebooting might be necessary to recover from an error or to re-initialize the camera.

Select *YES or NO* with Select **dial (K)**. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings, then press the **Select dial (K)** once.

```
CONFIRM

REBOOT  CAMERA:

NO        =>YES
```

The process to reset the camera will take approximately 20 seconds.

5.7.1.4 Bit Depth

The bit depth relates to how many different brightness levels are available in each of the three red, green and blue color channels. This menu item indicates the current bit depth, depending on the selected frame rate. For frame rates higher than 283 frames per second, only 8 bit depth can be used.

024 - 283 fps = 10 bit depth
284 - 350 fps = 8 bit depth

5.7.2 Framerate / Camera Speed

5.7.2.1 FPS

In the fps menu the camera recording frame rate (in frames per second) is defined. Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.

FPS

In the FPS menu the selection of the frames per second is defined.
1-350 fps in 8 bit mode
1-283 fps in 10 bit mode

Please note that it is necessary to use the OCP⌐40⌐ ***to set the camera to 8 bit mode in order to set higher frame rates than 283 fps.***

5.7.2.2 Play Mode

In the Play Mode menu the Video Out signal is set. Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.
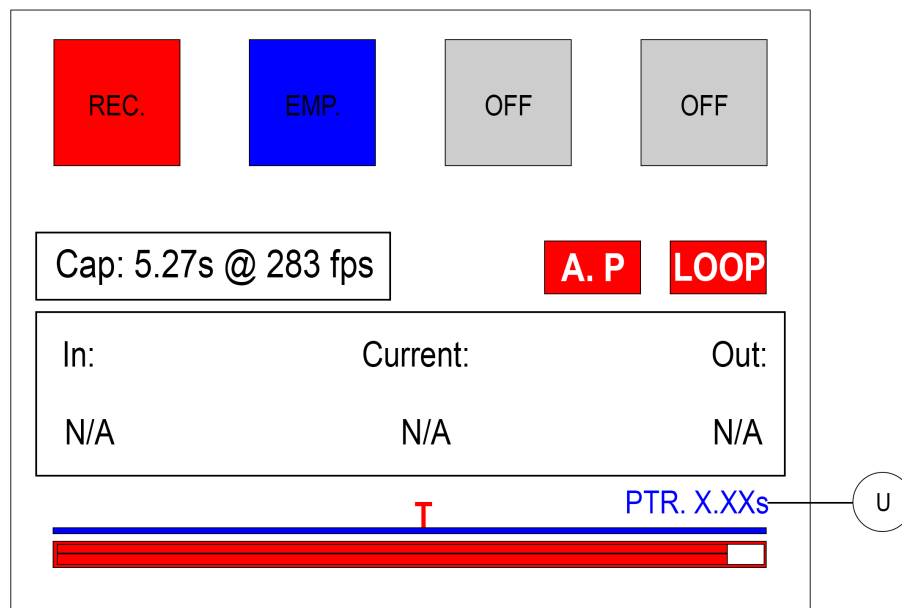
Play Mode

Values are

> *Interlaced (50i)*
> *Full Frame (25psf)*
> *Full Frame EXT (extended) - plays out video sequence in half speed*

5.7.3   Workflow Setup

The menu item **WORKFLOW** allows to set the preferred trigger mode. There are three triggering modes available:

Values are

STANDARD - In standard trigger mode activated banks are recorded to by pushing the **Trigger Button (E)**. After triggering the filled banks have to be cleared in   order to be used again. To clear the memory banks simultaneously push the **Clear Bank/Lock Bank button (M)** and the corresponding **Bank Number Button (A).**

LOOP -   In Loop trigger mode activated banks are recorded to by pressing the **Trigger Button (E).** Pressing the **Trigger Button (E)** again overwrites the next   available bank. Banks can be locked by simultaneously pushing the **Clear Bank/Lock Bank button (M)** and the corresponding **Bank Number Button (A)**.

FULL AUTO - In this advanced mode, after pushing the **Trigger Button (E)** the playout starts automatically at a predefined number of frames back. (see also A.PI. and PST) After the playback is finished the according bank is automatically erased, the buffer recording starts again and the memory bank is ready to be triggered again. *This feature can only be used with one memory bank.*

Note! Banks which are in use and therefor have the status *Play* cannot be deleted!

5.7.4   Setting Active Memory Banks

The menu item **BANK NUMBER** allows to set the number of active memory banks.

Values range from 1-4

Pleas note! The total available capture time is split equal between the number of your banks, f.e. available capture time at 280FPS is 10.65s real time, if 2 banks are selected both banks have an available capture time of 5.32s real time, 3 banks 3.55s, 4 banks 2.66s.

5.7.5   Autoplay Setup

The menu item **Autoplay** allows to switch the automatic playback mode on. With autoplay switched ON the replay starts immediately after triggering.

Values are On / Off

Select On or OfFf with Select **dial (K)**. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings, then press the **Select dial (K)** once.

5.7.5.1 Autoplay Starting Frame Setup

In the **A. PL. Frame (Autoplay Frame)** menu is defined how much earlier the autoplay playback starts in relation to the end point set with the **Trigger Button (E).** This is achieved by specifying a number of frames for the replay to start before the end point. For example setting this value to 75 causes the replay to start 75 frames before the end of the replay.

Values are 0-9999

Please note! *This Menu item is only available if **Autoplay Setup** ⌐72⌐ is switched on otherwise it is grayed out!*

5.7.5.2 Autoplay Button Setup

In the **A. PL. PST. (Autoplay Presets Setup)** menu is defined how much earlier the autoplay playback in Full Auto Mode ⌐67⌐ starts in relation to the end point set with the **Trigger Button (E).** This is achieved by assigning different buttons a number frames for the replay to start before the end point. Select the respective Key by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.

```
Key1:     <=      0100
Key2:             0150
Key3:             0200
Key4:             1000
```

For example setting this value to 75 causes the replay to start 75 frames before the end of the replay.

Values are 0-9999

The Key 1-4 are assigned to these buttons on the RCP:

Key 1 – Mark 1 Button (B) ⌐66⌐
Key 2 – Mark 1 Button (C) ⌐66⌐
Key 3 – Goto 1 Button (I) ⌐66⌐
Key 4 – Goto 2 Button (J) ⌐66⌐

Please note! *This Menu item is only available in **Full Auto Mode** ⌐72⌐ and otherwise it is grayed out!*

5.7.6 Sleep Mode

The sleep or standby mode is reducing the wear on the camera head and saves power. By activating this mode the camera head is put to standby mode and the sensor and image processing electronics are completely switched off. Antelope Camera Systems recommends to use this option, when the mounted cameras will not be in use for more than one hour.

Select *YES or NO* with **Select dial (K)**. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings, then press the **Select dial (K)** once.

```
CONFIRM

SLEEP MODE

NO  =>YES
```

When the sleep mode is active the camera does not provide a HDSDI signal and the display shows:

```
     SLEEP MODE

       ACTIVE

PRESS MENU TO EXIT
```

Press the **Menu Dial (DS)** once to stop the sleep mode.

5.7.7 Shuttle Pause Setup

The Shuttle Pause setup menu item sets the sensitivity of the outer **jog dial (h)** ⌐69⌐ in pause mode. Increase the value for faster jog shuttle scrolling.

Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.

Values are 1-99

5.7.8 Shuttle Play Setup

The Shuttle Pause setup menu item sets the sensitivity of the outer **jog dial (h)** ⌐69⌐ in play mode. Increase the value for faster jog shuttle scrolling.

Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.

Values are 1-99

5.7.9 Jog Shuttle Speed Setup

The Jog Shuttle Speed setup menu item sets the sensitivity of the inner **shuttle dial (g).** 69
Increase the value for faster jog shuttle scrolling.

Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you change the settings. Confirm your settings by pressing the **Select dial (K)** once.

Values are 0-99

5.7.10 Pre-Trigger Mode

If a Pre-Trigger value is set, after pushing the **Trigger Button (E)** the clip keeps on recording for a defined time. Then this clip is saved and immediately available for playback. Setting a pre-trigger value allows you to trigger a recording in the middle of a sequence.

Select the respective item by turning the **Select dial (K),** then press the **Select dial (K)** once. The arrow indicates the active item. By turning the **Select dial (K)** you can switch the Pre-Trigger function on. Confirm your settings by pressing the **Select dial (K)** once.

Values are   *ON / OFF*

REC.	EMP.	OFF	OFF

Cap: 5.27s @ 283 fps   A. P   LOOP

In:	Current:	Out:
N/A	N/A	N/A

T   PTR. X.XXs   (U)

A red T above the timeline **(R)** in the **RCP Display (N)** [67] indicates the activated Pre-Trigger mode. The ratio between the duration of the sequence to be recorded before and after pushing the **Trigger Button (E)** is selected in increments of 25% by pressing the **Select dial (K)**. This ratio is indicated by the **Pre-Trigger indicator (U)** [67] with the letters PTR in the **RCP Display (N).** [67] The remaining recording time (in Seconds) after pushing the **Trigger Button (E)** [79] is indicated above the **timeline (R)** [68] behind the letters PTR (Pre-Trigger). It counts down the remaining recording time until this clip is saved and available for playback.

PTR 0
In this mode, after pushing the **Trigger Button (E)** a sequence of the last seconds is captured (end trigger). This clip is then saved and immediately available for playback

PTR 25
In this mode, when pushing the **Trigger Button (E)** 75% of the previous buffered video sequence (duration depends on the available capture time) in the actual memory bank are stored and an additional 25% will be recorded before this clip is then saved and available for playback.

PTR 50
In this mode, when pushing the **Trigger Button (E)** 50% of the previous buffered video sequence (duration depends on the available capture time) in the actual memory bank are stored and an additional 50% will be recorded before this clip is then saved and available for playback.

PTR 75

In this mode, when pushing the **Trigger Button (E)** 25% of the previous buffered video sequence (duration depends on the available capture time) in the actual memory bank are stored and an additional 75% will be recorded before this clip is then saved and available for playback.

PTR 100

This sets the camera to start trigger mode. The camera will start acquiring a high-framerate clip (duration depends on the available capture time) as soon as the trigger button is hit and will then save the sequence, as soon as the memory buffer is fully used.

Note! While recording a high-framerate sequence in Pre-Trigger mode you can shift the trigger point to a later trigger point by pushing the **Trigger Button (E)**. *With each push of the* **Trigger Button (E)** *the the trigger point is newly set.*

5.8   Operating the RCP

5.8.1   Memory Bank

The Antelope Pico has a user configurable number of memory partitions, they are referred to as "banks", from 1 up to 4. These banks are represented in the top row of the ⌐67⌐ **display (N)** ⌐67⌐ by **4 squares (O)**. These squares change their color depending on their state.
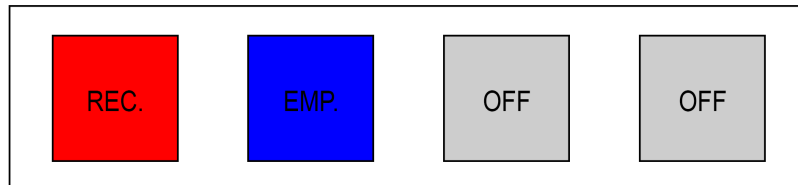
Memory Bank States

Blue indicates an empty memory bank, ready for recording.

Green indicates the currently selected bank with a captured clip ready for playback.

Yellow indicates a captured clip ready for playback.To play it back, select the corresponding memory bank and push play.

Red indicates live recording, until triggered or until the current recording bank has changed. After pushing the trigger button this bank is ready for playback

Gray indicates that this bank is not activated or not capturing or there is no playback available on this bank.

5.8.2   Bank Selection

To select a bank, press the **Select Memory Bank button (A)** with the corresponding number (1,2,3 or 4).

If a triggered (green) bank is selected, it will become "browsing" (yellow).
If a recording (red) bank is selected, it will reset the recording of this bank and display the live output to the replay channel.
If an empty (blue) bank is selected, it will become the current recording (red) bank. If there are no browsing (yellow) bank and there is a recording (red) bank, the user will see the live output on the replay channel.

5.8.3 Trigger Recording

Video is continuously recorded (buffered) into one of the memory banks 78 . Triggering a recording bank stops the recording in this memory bank, meaning the captured video sequence of this bank is saved and ready for playout . To capture clips on the banks it is necessary to have empty banks on the RCP. If all banks are in use, it is not possible to trigger anything. With at least one empty bank the RCP automatically goes into record mode (red status). After pushing the **Trigger Button (E)** a sequence of the last seconds is captured (duration depends on the available capture time). This clip is then saved and immediately available for playback. Pushing the trigger button saves the sequence to the bank which is in record mode and does not effect the simultaneous playout of an active bank. You have to clear memory banks manually if all banks are full..

There are three triggering modes 72 available: **Standard**, **Loop** and **Full Auto** mode, which can be set in the workflow menu. 72

Standard Trigger
First select a memory bank by pressing the **Select Memory Bank button (A)** with the corresponding number (1,2,3 or 4). In standard trigger mode activated banks are captured by pushing the **Trigger Button (E)**.The video clip in this bank is then saved and available for playback 80 . After triggering the filled banks have to be cleared in   order to be used again. To clear the memory banks push the **Clear Bank/Lock Bank button (M)** and the corresponding **Bank Number Button (A)** simultaneously.

Loop Trigger
First select a memory bank by pressing the **Select Memory Bank button (A)** with the corresponding number (1,2,3 or 4). In Loop Mode pushing the **Trigger Button (E)** saves always the clip to the bank which is in record mode and switches to the next bank automatically. The video clip in this bank is then saved and available for playback 80 . The banks are not protected like in standard mode. Pressing the **Trigger Button (E)** causes the following bank to be automatically deleted. In order to protect a memory bank it has to be manually locked. Memory banks can be locked by simultaneously pushing the **Clear Bank/Lock Bank button (M)** and the corresponding **Bank Number Button (A)**.

Full Auto Trigger
In this advanced mode, after pushing the **Trigger Button (E),** the clip is saved to the bank which is in record mode and the playout starts automatically at a predefined number of frames back. (see also A.Pl. and PST) After the playback is finished the according bank is automatically erased, the buffer recording starts again and the memory bank is ready to be triggered again. *This feature can only be used with one memory bank.*

Note! TheTrigger Button (E) is lit red while the camera is recording.

Note! Banks which are in use and therefor have the status Play cannot be deleted!

5.8.4 Playback

The **Playout button (L)** initiates a playback from the current frame until the mark out point (by default the last frame of the bank) of the selected memory bank. To select a bank, press the **Select Memory Bank button (A)** with the corresponding number (1,2,3 or 4). For playouts a bank with a captured clip has to be selected. Scroll back or forth with the **Jog dial (G/H)** [69] (use the inner jog wheel (G) to slow shuttle and the outer shuttle wheel (H) to fast shuttle) to the desired part and push the **Playout button (L)** for the playout. With the **Pause button (F)** the playback can be stopped at the current position. The timeline [68] on the bottom of the display indicates the actual shuttle position and the length of the captured clip. Mark the timeline with buttons Mark 1 or Mark 2 and jump straight to them with buttons Goto 1 or Goto 2.

Pressing and holding **Playout button (L)** initiates a playback in loop mode. In loop mode the selected video sequence is repeatedly played.   Use the **Mark1 button (B)** to set the in and **Mark 2 button (C)** to set the out point for the playout in loop mode.

Note! *After triggering, the playout position is always at end of the clip, so you have to rewind, if you like to jump straight to the beginning of the clip push two times play button. This also works when the playout is finished and on its end point.*

Note! *Banks which are in use and therefor have the status Play cannot be deleted!*

5.8.5 Pause Recording

The **Pause Button (F)** stops the actual playback at the current frame.To continue the playback press the **Play button (L)** [80].

5.8.6 Mark 1/2 Buttons

After finding the start point of your desired playback using the **Jog and Shuttle Dial (G/H)** this in point can be marked. By pressing the **Mark Button (B/C)** once the actual in point is set at current frame. The RCP offers you the possibility to set (mark) two different in points, each can be set with the **Mark 1 Button (B)** or the **Mark 2 Button (C),** respectively.

The **In / Current / Out Indicator (O)** [68] displays the starting frame, the currently displayed frame and the end frame of the actual video clip.

5.8.7 Goto 1/2 Buttons

After setting the starting point of your desired playback by using the **Mark Button (B/C)** you can jump to this stored point by using the **Goto Button (I/J).** Pressing the **Goto Button (I/J)** jumps to the in point stored previously with the **Mark Button (B/C)**. The **Playout button (L)** initiates a playback from this point until the mark out point (by default the last frame of the bank).

The **In / Current / Out Indicator (O)** [68] displays the starting frame, the currently displayed frame and the end frame of the actual video clip.

5.8.8 Clear Bank / Lock Bank

In standard trigger mode ⌊72⌋ activated banks are recorded to by pushing the **Trigger Button (E)**. After triggering the filled banks have to be cleared in order to be used again. To clear the memory banks simultaneously push the **Clear Bank/Lock Bank button (M)** and the corresponding **Bank Number Button (A).**

In Loop trigger mode ⌊72⌋ activated banks are recorded to by pressing the **Trigger Button (E).** Pressing the **Trigger Button (E)** again overwrites the next available bank.

Note! Banks which are in use and therefor have the status Play cannot be deleted!

Banks can be protected against erasure (locked) by simultaneously pushing the **Clear Bank/Lock Bank button (M)** and the corresponding **Bank Number Button (A)**. **Bank Number Button (A)**.

5.8.9 IP Setup

The IP properties (IP, Subnetmask and Gateway) of the RCP can be changed.

To enter the IP setup menu on the RCP press and hold the **Pause Button (F)** 66, while powering (booting) up the RCP. Select *Config Mode...* by turning the **Select dial (Q),** then press the **Select dial (Q)** once. This load loads the current settings.

```
IP SETUP
CONFIG MODE...
LOCAL IP ADDRESS:
192 168 001   155
SUBNET:
255 255 255 000
GATEWAY
192 168 001   001
LOCAL PORT 23
CAM IP ADDRESS:
192 168 001   050
SERVER PORT:23

SEND:  IP SN GW SIP REBOOT
```

By turning the **Select dial (Q)** you can choose the value to be changed. The arrow indicates the active item. Press the **Select dial (Q)** once and change the value by turning the **Select dial (Q)**. To save the settings select and press SEND on the bottom left. A successful saving of the new settings is indicated by a SUCCESS message behind CONFIG MODE on the top if the display.

It is necessary to reboot the OCP in order for new settings to take effect. This can be done by selecting and pressing *REBOOT* on the bottom right of the menu.

Note! The port address is factory set to 725 and should always match the values indicated in the CCU touchscreen display (44).

5.8.10 USB Firmware Update

Antelope Camera System provides firmware updates for its devices to help address any known issues and to add new features.

Update the RCP firmware using a USB flash drive:

USB memory device requirements:
- USB specification 2.0 (or higher) and should not have more in capacity than 4GB.
- Should be Fat32 formatted and blank (should not contain any files)

1. Download the update file to your PC.
2. Rename file to "**rcppico.bin**".
3. Insert the USB storage device into your PC. Copy or drag and drop the firmware update file to the root directory of your USB device.

Note! "The root directory" is the first or top-most directory of the device, which contains all the other folders.

4. Make sure the RCP is powered off, then insert the USB flash drive into the upper **USB Firmware Update Port (63)** [64] on the RCP.
5. Keep the **Trigger Button (E)** [66] pressed, while powering on the RCP to boot the unit into flash mode.
6. The RCP display shows:

```
RCP Bootloader v.1.01e
Entering Flash Mode
USB Init Done
USB Key Dectected
Press (3) RCP Pico
```

6. Press the **Bank 3 Button** [66] to start the update.

WARNING: During the software installation process, please do not remove the USB device or turn off the RCP!

6. When the software update is complete, a message appears on the display indicating the software update was successful.

NOTE: If you have any difficulty carrying out these instructions, please contact Antelope Camera System.

Part

VI

6 Connectors

6.1 Pico Camera Head Connectors

6.1.1 Camera Iris Motor Connector - Hirose 6pin f
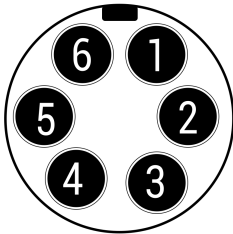
Pin 1: M -
Pin 2: M +
Pin 3: E1
Pin 4: 5V
Pin 5: GND
Pin 6: E2

6.1.2 Camera Focus Motor Connector - Hirose 6pin f
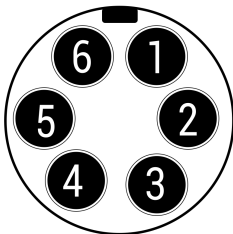
Pin 1: M -
Pin 2: M +
Pin 3: E1
Pin 4: 5V
Pin 5: GND
Pin 6: E2

6.1.3 Iris Motor Connector - Hirose 6pin f
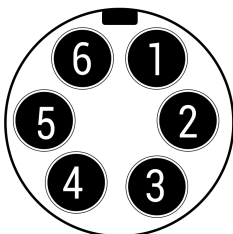
Pin 1: M -
Pin 2: M +
Pin 3: E1
Pin 4: 5V
Pin 5: GND
Pin 6: E2

6.1.4 Focus Motor Connector - Hirose 6pin f
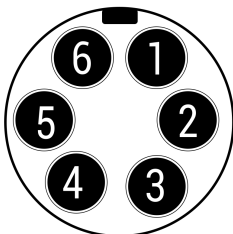
Pin 1: M -
Pin 2: M +
Pin 3: E1
Pin 4: 5V
Pin 5: GND
Pin 6: E2:

6.2 CCU Connectors

6.2.1 Power Connector - 4Pin XLR Male
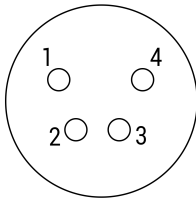
Pin 1: GND
Pin 2:
Pin 3:
Pin 4: +12V DC

6.2.2 LAN Remote Control Port – CAT5 - RJ 455
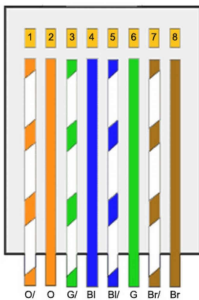
Pin 1	TX(+)	white/orange
Pin 2	TX(-)	orange solid
Pin 3	RX(+)	white/green stripe
Pin 4	NC	blue solid
Pin 5	NC	white/blue stripe
Pin 6	RX(-)	green solid
Pin 7	NC	white/brown stripe
Pin 8	NC	brown solid

6.2.3 Data RS 422 – CAT5 RJ45
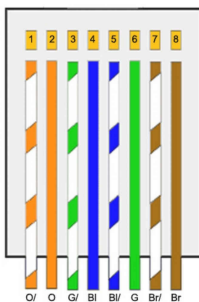
Pin 1	RX(+)	white/orange
Pin 2	NC	orange solid
Pin 3	NC	white/green stripe
Pin 4	RX(-)	blue solid
Pin 5	TX(+)	white/blue stripe
Pin 6	NC	green solid
Pin 7	GND	white/brown stripe
Pin 8	TX(-)	brown solid

6.2.4　RS-422 Remote Control Port II - Hirose 10pin f
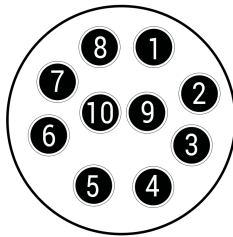
Pin 1:　RX (+) or A
Pin 2:　RX (-) or B
Pin 3:　TX (+) or Y
Pin 4:　TX (-) or Z
Pin 5:　NC
Pin 6:　NC
Pin 7:　NC
Pin 8:　NC
Pin 9:　NC
Pin10: GND

6.2.5　Lens Remote Control Port - Hirose 10pin f
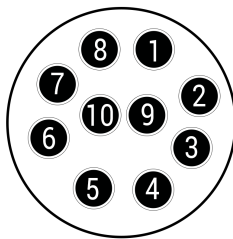
Pin 1: Middle Pot Focus
Pin 2: Middle Pot Iris
Pin 3: Middle Pot Zoom
Pin 4: NC
Pin 5: NC
Pin 6: NC
Pin 7: NC
Pin 8: NC
Pin 9: GND
Pin10: 3.3V

6.2.6　Zoom Lens Connector - Hirose 12pin f
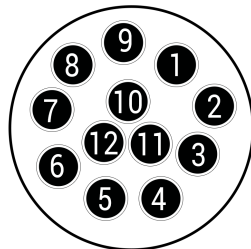
Pin 1: + Iris
Pin 2: - Iris
Pin 3: + Focus
Pin 4: - Focus
Pin 5: + Zoom
Pin 6:   - Zoom
Pin 7: Mid Pot Zoom
Pin 8: Mid Pot Iris
Pin 9: Mid Pot Focus
Pin10: NC
Pin11: GND
Pin12: 3.3V

6.2.7　Motor Connector - Hirose 6pin f
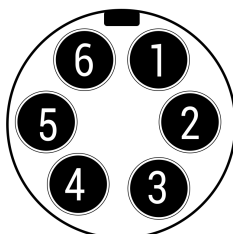
Pin 1: M -
Pin 2: M +
Pin 3: E1
Pin 4: 5V
Pin 5: GND
Pin 6: E2

6.2.8   I/O Connector - Hirose 5pin f
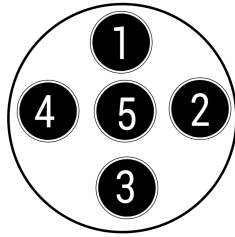
Pin 1: Remote Port D
Pin 2: GND
Pin 3: Remote Port A
Pin 4: Remote Port B
Pin 5: Remote Port C

6.2.9   Tally Connector
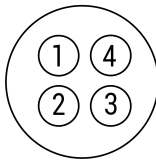
Pin 1: NC
Pin 2: Tally IN
Pin 3: Tally OUT
Pin 4: NC

6.2.10   USB Firmware Update Port
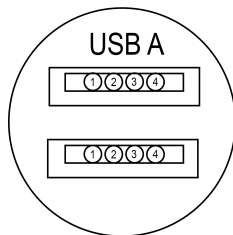
USB A

Pin 1: Vcc
Pin 2: Data -
Pin 3: Data +
Pin 4: GND
Pin 5: Housing

Note! The USB-Port is a maintenance port only. This port is NOT used for general operation.

6.3 OCP Connectors

6.3.1 Power Connector 4 Pin XLR Male
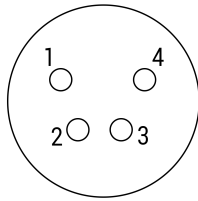
Pin 1: GND
Pin 2:
Pin 3:
Pin 4: +12V DC

6.3.2 LAN Remote Control Port – CAT5 - RJ 455
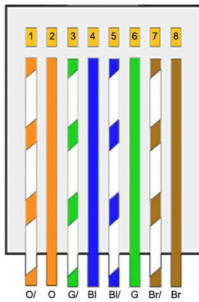
Pin 1	TX(+)	white/orange
Pin 2	TX(-)	orange solid
Pin 3	RX(+)	white/green stripe
Pin 4	NC	blue solid
Pin 5	NC	white/blue stripe
Pin 6	RX(-)	green solid
Pin 7	NC	white/brown stripe
Pin 8	NC	brown solid

6.3.3 Data RS 422 – CAT5 RJ45
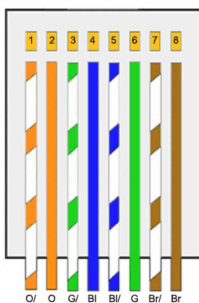
Pin 1	**TX(+)**	white/orange
Pin 2	**NC**	orange solid
Pin 3	NC	white/green stripe
Pin 4	**TX(-)**	blue solid
Pin 5	**RX(+)**	white/blue stripe
Pin 6	NC	green solid
Pin 7	**NC**	white/brown stripe
Pin 8	**RX(-)**	brown solid

6.3.4 Data RS422 – Hirose 10 Pin m
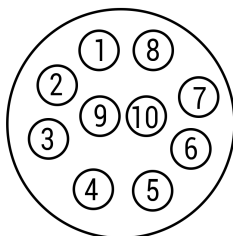
Pin 1: RX (+) or A
Pin 2: RX (-) or B
Pin 3: TX (+) or Y
Pin 4: TX (-) or Z
Pin 5: NC
Pin 6: NC
Pin 7: NC
Pin 8: NC
Pin 9: NC
Pin10: NC

6.3.5   Tally / Preview Connector- Hirose 4pin m
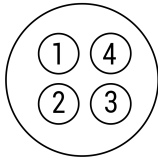
Pin 1: Preview +
Pin 2: Preview GND
Pin 3: Tally +
Pin 4: Tally GND

6.3.6   USB Firmware Update Port
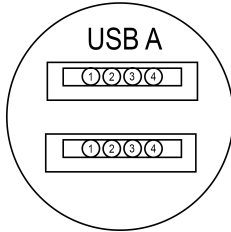
USB A

Pin 1: Vcc
Pin 2: Data -
Pin 3: Data +
Pin 4: GND
Pin 5: Housing

Note! The USB-Port is a maintenance port only. This port is NOT used for general operation.

6.4 RCP Connectors

6.4.1 Power Connector 4Pin XLR Male
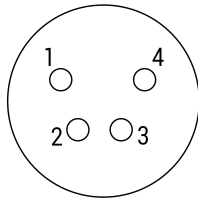
Pin 1: GND
Pin 2:
Pin 3:
Pin 4: +12V DC

6.4.2 LAN Remote Control Port – CAT5 - RJ45
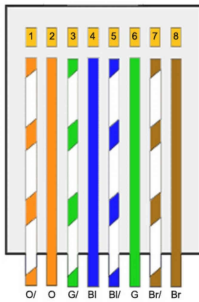
Pin 1	TX(+)	white/orange
Pin 2	TX(-)	orange solid
Pin 3	RX(+)	white/green stripe
Pin 4	NC	blue solid
Pin 5	NC	white/blue stripe
Pin 6	RX(-)	green solid
Pin 7	NC	white/brown stripe
Pin 8	NC	brown solid

6.4.3 Data RS 422 – CAT5 RJ45
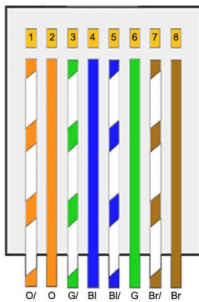
Pin 1	RX(+)	white/orange
Pin 2	NC	orange solid
Pin 3	NC	white/green stripe
Pin 4	RX(-)	blue solid
Pin 5	TX(+)	white/blue stripe
Pin 6	NC	green solid
Pin 7	NC	white/brown stripe
Pin 8	TX(-)	brown solid

6.4.4 USB Firmware Update Port
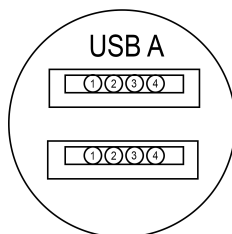
USB A

Pin 1: Vcc
Pin 2: Data -
Pin 3: Data +
Pin 4: GND
Pin 5: Housing

Note! The USB-Port is a maintenance port only. This port is NOT used for general operation.

Part

VII

antelope
CAMERA SYSTEMS

7   Limited Warranties

Antelope Camera Systems GmbH (hereafter AntelopeCS) warrants this product free from defects in material and workmanship under the following terms.
Labor and parts are warranted for two years from the date of the first customer purchase. Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:
1. Any product which is not distributed by AntelopeCS, or which is not purchased from an authorized AntelopeCS dealer. If you are uncertain as to whether a dealer is authorized, please contact AntelopeCS at one of the agents listed in the Web site:
www.antelope-cs.de
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
I) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
II) Product modifications or failure to follow instructions supplied with the product
III) Repair or attempted repair by anyone not authorized by AntelopeCS
IV) Any shipment of the product (claims must be presented to the carrier)
V) Removal or installation of the product
VI) Any other cause, which does not relate to a product defect
VII) Cartons, equipment enclosures, cables or accessories used in conjunction with the product.

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:
1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the AntelopeCS dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to the headquarter Germany or contact us for special assist
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.
EXCLUSION OF DAMAGES
The liability of AntelopeCS for any effective products is limited to the repair or replacement of the product at our option. AntelopeCS shall not be liable for:
1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:

2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or

limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place. NOTE: All products returned to Antelope Camera Systems for service must have prior approval. This may be obtained from your dealer. This equipment complies the requirements of:

EN-50081: "Electromagnetic compatibility (EMC); generic emission standard.
Part 1: Residential, commercial and light industry"
EN-50082: "Electromagnetic compatibility (EMC) generic immunity standard.
Part 1: Residential, commercial and light industry environment".
CFR-47: FCC* Rules and Regulations:
Part 15: "Radio frequency devices
Subpart B Unintentional radiators"

CAUTION!
Servicing the machines can only be done by an authorized AntelopeCS technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
Please use recommended interconnection cables to connect the machine to other components.
* FCC and CE approved using STP cable (for twisted pair products)

Part

VIII

8 Contact

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CAMERA SYSTEMS

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