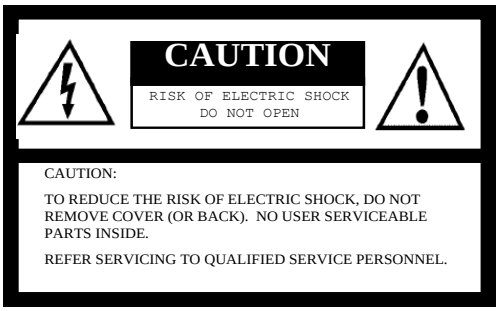
SENTECH

STC-HD133 Series
Control Software Manual

Safety Precautions



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For U.S.A.

Warning:

This equipment generates and uses radio frequency energy and if not installed and used properly, I.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

For Canada

Warning:

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Product Precautions

- Handle the camera with care. Do not abuse the camera. Avoid striking or shaking it. Improper handling or storage could damage the camera.
- Do not pull or damage the camera cable.
- During camera use, do not wrap he unit in any material. This will cause the internal temperature of the unit to increase.
- Do not expose the camera to moisture, or do not try to operate it in wet areas.
- Do not operate the camera beyond its temperature, humidity and power source ratings.
- While the camera is not being used, keep the lens or lens cap on the camera to prevent dust or contamination from getting in the CCD or filter area and scratching or damaging this area.
- Do not keep the camera under the following conditions:
    - In wet, moist, and high humidity areas
    - Under hot direct sunlight
    - In high temperature areas
    - Near an object that releases a strong magnetic or electric field
    - Areas with strong vibrations
- Use a soft cloth to clean the camera. Use pressured air spray to clean the surface of the glass. DO not scratch the surface of the glass.

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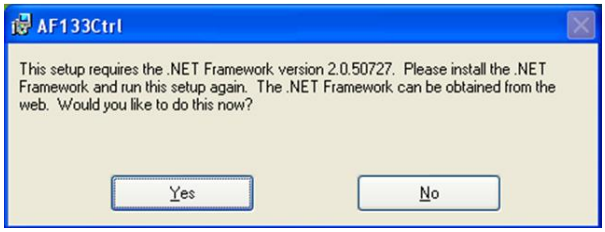
I. Installation Process

A. System Requirements

1. Operating System: Windows 2000, XP (x86/x64), Vista (x86/x64), Windows 7 (x86/x64).
   The software can operate with either 32bit (x86) or 64bit (x64) systems.

2. The .Net Framework 2.0 runtime is needed for installing HD133Ctrl software. Prior to installing the HD133Ctrl software the .Net Framework 2.0 runtime must be installed.

   If the .Net Framework 2.0 runtime is not install prior to the software installation, the following window will appear and the installation process will be cancelled (see Figure 1).



   The .Net Framework 2.0 runtime can be downloaded from the following link. This is installed in advance for Vista systems [Microsoft .NET Framework 2.0 Service Pack2]

   http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=5b2c0358-915b-4eb5-9b1d-10e506da9d0f

B. Software Installation

1. Double-click the “Setup.msi” from the HD133Ctrl folder to install software, then select the “Next” button.

2. If necessary, change the installation folder. Then select the “Next” button.

3. When the “Confirm Installation” window appears, select the “Next” button to confirm and proceed with the installation.

4. Finally, complete the software installation by selecting the “Close” button.

C. Hardware Settings

1. Video Cable: The video output cable is a Mini HDMI(camera) – HDMI(monitor) or a Mini HDMI(camera) – DVI(monitor)

2. Power Cable Connector:

   Connector Model Number of the camera: S2B-ZR-SM4A (Manufactured by JST)
   Suggested Mating Connector Model Number: ZHR-02 (Manufactured by JST)

3. Software Communication Cable Connector:

   Connector Model Number of the camera: S4B-ZR-SM4A (Manufactured by JST)
   Suggested Mating Connector Model Number: ZHR-04 (Manufactured by JST)

4. Hardware Communication Cable Connector

   Connector Model Number of the camera: SM06B-SRSS (Manufactured by JST)
   Suggested Mating Connector Model Number: SHR-06 (Manufactured by JST)

Important Note: Please refer to the specification manual for the STC-HD133 for the connector pin assignments.

II. General Operation of the HD133Ctrl Software

A. Important Operating Principles to Successfully Use the Software and Avoid Problems

Notes:

- This software has very strong features that are important to understand in order to successfully utilize the capabilities of this program.
- This camera has an uCOM processor, DSP device and EEPROM device on board. This combination of devices provides exceptional power and co0ntrol over the camera when used properly with the Sentech software (see Diagram below).

1. Users should store a copy of the camera's default settings first. Do this for the "uCOM" and each "DSP picture mode".

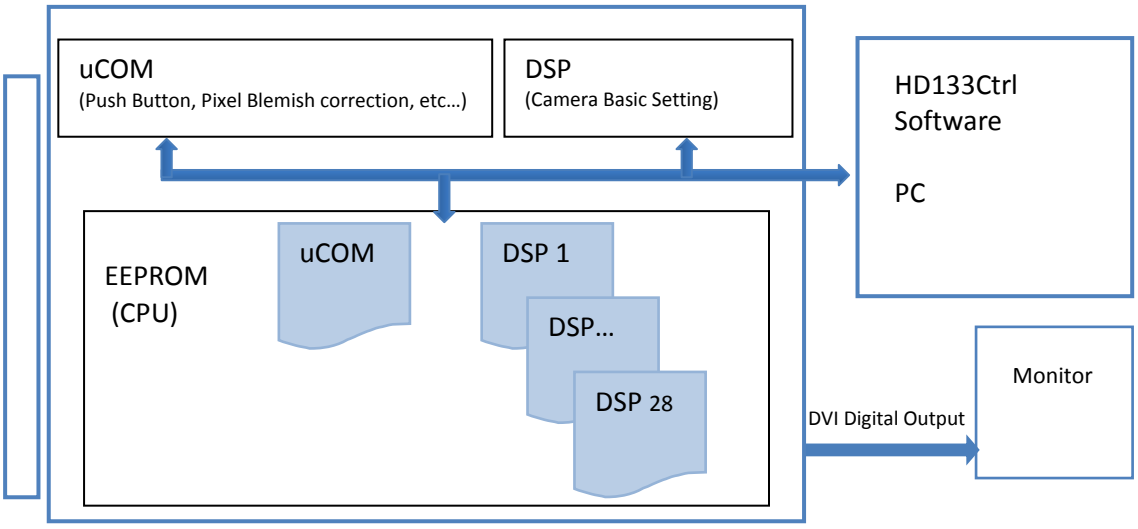
2. Select the "Read All" button in order to retrieve all stored EEPROM settings after connecting to the camera. Select "EEPROM→DSP" or "EEPROM→uCOM" to individually retrieve either the EEPROM's "DSP" or "uCOM's" settings.

3. To upload saved EEPROM files from disk, you must select the "OPEN DSP's EEPROM' or "OPEN uCOM's EEPROM".

4. The user can store 3 unique picture modes (Picture Mode, Bright Mode and Pseudo Mode), as well as 1 universal uCOM configuration, on the EEPROM of the camera.

5. If you desire to retain any adjustment of the "uCOM" or "DSP" you must execute the "uCOM→EEPROM" and/or "DSP→EEPROM".

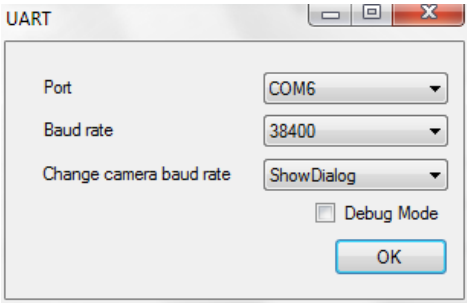
Sentech STC-HD133 Diagram



B. Changing the Camera Settings

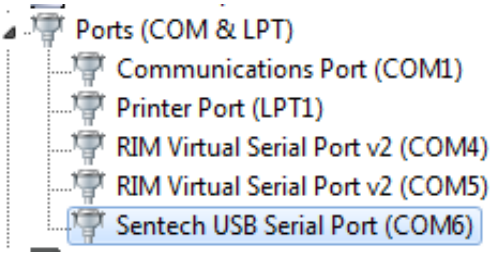
1. Execute the HD133Ctrl Software.

2. The following UART communication window opens the “COMM” menu then “Port Setting” is selected (see figure below).



3. Select the port number.

   Notes:
   - To determine the correct port number, the user may need to open their computer’s “Device Manager” and then open the “Ports” section. Identify the “Sentech USB Serial Port”.



   Once identified, set the appropriate port value in the “UART” dialog box.

4. The BPS (Baud Rate) automatically adjusts to the fastest available baud rate.

5. Select the “OK” button to close the UART window.

6. To retrieve the camera’s current setting, select the “Read All” button in the lower-left corner of the screen.

7. To change the camera settings, select the pre-set value buttons, use the slide bars, or enter the values directly.
   Please Note: After inputting new values into the fields, hit your “Enter” key to maintain the changes.

C. Saving the Settings to the EEPROM

When the settings are saved to the EEPROM, the camera will maintain its settings even after it is powered-off.

Notes:

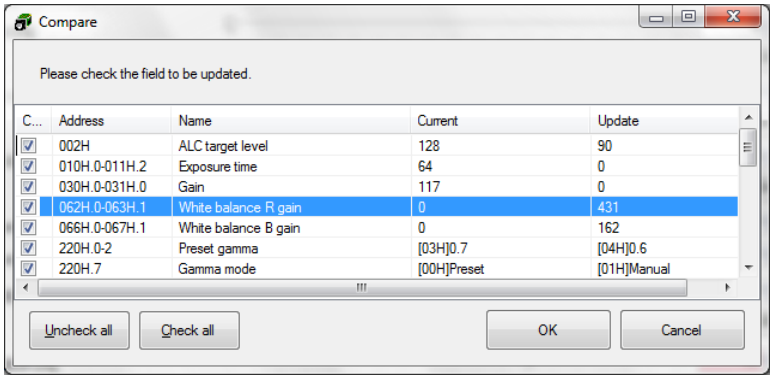
- It is highly recommended that the operator save the camera's default EEPROM settings onto the computer's hard drive for future reference.
- This camera provides three different color modes (Picture, Bright, or Pseudo color). When you save DSP paramenters, you must save each color mode parameter set individually. Conversely, there is only one parameter setting for uCOM. Therefore, only one uCOM profile set is required to be saved.

1. Select the color mode you want to adjust to and then change to the desired value.

2. After manipulating the settings, select the "DSP→EEPROM" button in the lower-left corner of the screen to save the DSP settings of eth current color mode to the EEPROM. The "Compare" dialog box below will appear. This shows all parameters which have been changed from the EEPROM data. Remove the check mark if you do not want to update, then click the "OK" button. By doing this, you can save all parameters that have a check mark.

3. Select the "uCOM→EEPROM" button in the lower-left corner of the screen to save the microprocessor settings to the EEPROM. As described previously, the "Compare" dialog box below appears. This shows all parameters which have been changed from the EEPROM data. Remove the check mark if you do not want to update, then click "OK". By doing this, you can save all parameters that have a check mark.

4. Now, if you would like to change to a different picture mode, go to the "uCOM Picture Mode" tab and select a desired "Picture Mode". The dialog box below will appear after changing the "Picture Mode". Please click "OK" to confirm the change.



D. Loading Settings from the EEPROM to the Camera

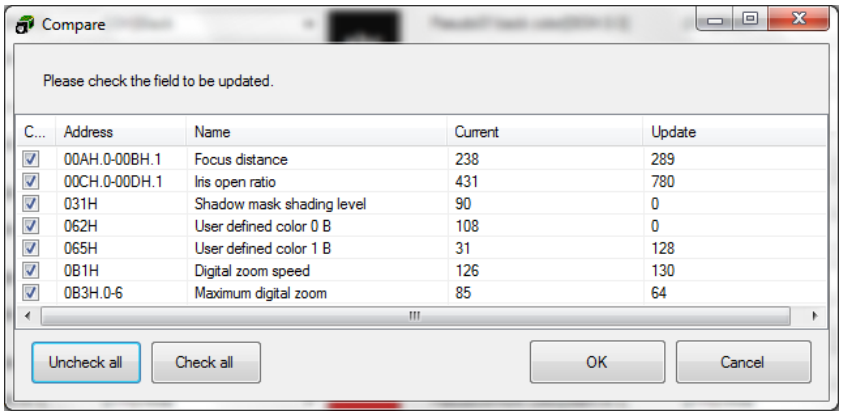
The settings will load from the EEPROM to the camera and then the camera will revert to the EEPROM default settings.

1. Select the “EEPROM→DSP” button in the lower-left corner of the screen to load the previously saved DSP settings of the current color mode from the EEPROM.

   Select the “EEPROM→uCOM” button in the lower-left corner of the screen to load the previously saved microprocessor settings from the EERPOM.

2. In the following window, verify the settings that are to be loaded.

   Uncheck the settings that are not to be loaded from the EEPROM. Then select the “OK” button to load the remaining “Checked” settings from the EEPROM.



E. Creating an EEPROM Settings File

1. Select “Save As[DSP’s EEPROM]” under the “File” menu to save the DSP settings of the current color mode to a file. Enter the file name then select the “OK” button to create the file.

2. Select “Save As[uCOM’s EEPROM]” under the “File” menu to save the microprocessor settings to a file. Enter the file name, then select the “OK” button to create the file.

Note:

- If you have adjusted both a “DSP” and a “uCOM” value and want to retain and reload these values, you must save both a “DSP” and a “uCOM” profile.

F. Loading an EEPROM Settings File

1. Select “Open[DSP’s EEPROM]” under the “File” menu to load the DSP settings of current color mode from file to the EEPROM.

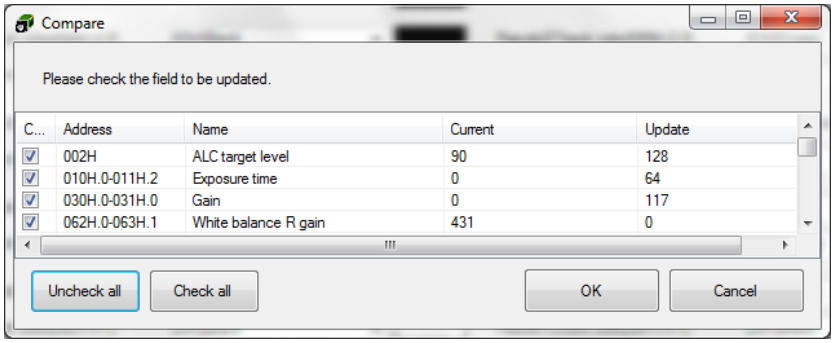
2. Select “Open [uCOM’s EEPROM]” under “File” in menu to load the microprocessor settings form file to the “EEPROM”.

Note:

- If you intend to use previously saved “DSP” and “uCOM” data, then you must load both setting files individually.

3. Select the file you wish to load and then select the “OK” button to load the file.

4. In the following window, verify the settings that are to be loaded.



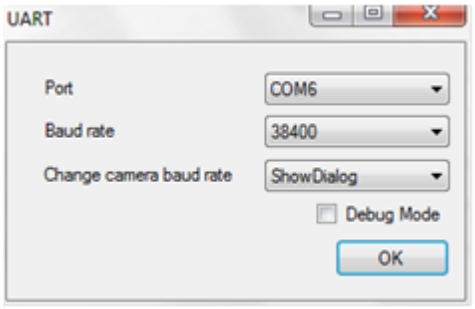
Uncheck the settings that are not to be loaded from the EEPROM. Then select the “OK” button to load the remaining “Checked” settings from the EEPROM.

G. Debug Mode

The command details between the camera and the PC can be verified with separate software (Debug View) by selecting “Debug Mode” in the menu. The separate Debug View software can be downloaded from the following link:

http://technet.microsoft.com/en-us/sysinternals/bb896647.aspx

1. Execute the HD133Ctrl software.
2. The following UART dialog window will open by selecting “Port Setting” under “Comm” in the menu.



3. Select the “Debug Mode” checkbox and then select the “OK” to close the UART communication window.
4. Execute the Debug View software.
5. The commands between the camera and the PC displays in the debug view.

Command Display	Command Descriptions
Debug:\\ .\COM2	COM2 was opened
Set 38400 bps	The baud rate of the PC is set to 38,400 bps
SND: XX, XX, XX	The PC sent the data XX, XX, XX (Hex) to the camera
RCV: XX, XX, XX	The PC received the data XX, XX, XX (Hex) from the camera
Close	The serial port was closed

Note:

- In the Debug View, the read command of 000H address for the uCOM may display multiple times, this is caused by the baud rate adjusting between the PC and the camera.

III. Instructions on Using the Software

Software Function Note:

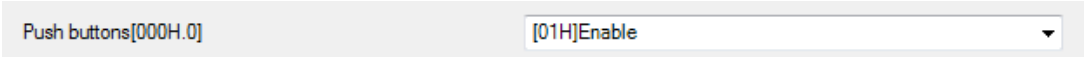
- All functionality with “Pre-set Value Buttons”, “Scroll Bars”, “Input Values”, “Drop Down List” and “Check Boxes” are consistent throughout the software. Once defined, they will operate within a consistent nomenclature.

A. Push Button Control – “uCOM: Push Button” tab

Note:

- The “uCOM Push Button” tab gives the user the ability to control the camera via 3 ways: the board switch, the primary switch, and the external switch.

1. Push Button Settings: Select enable to activate the “Push Button” functionality.



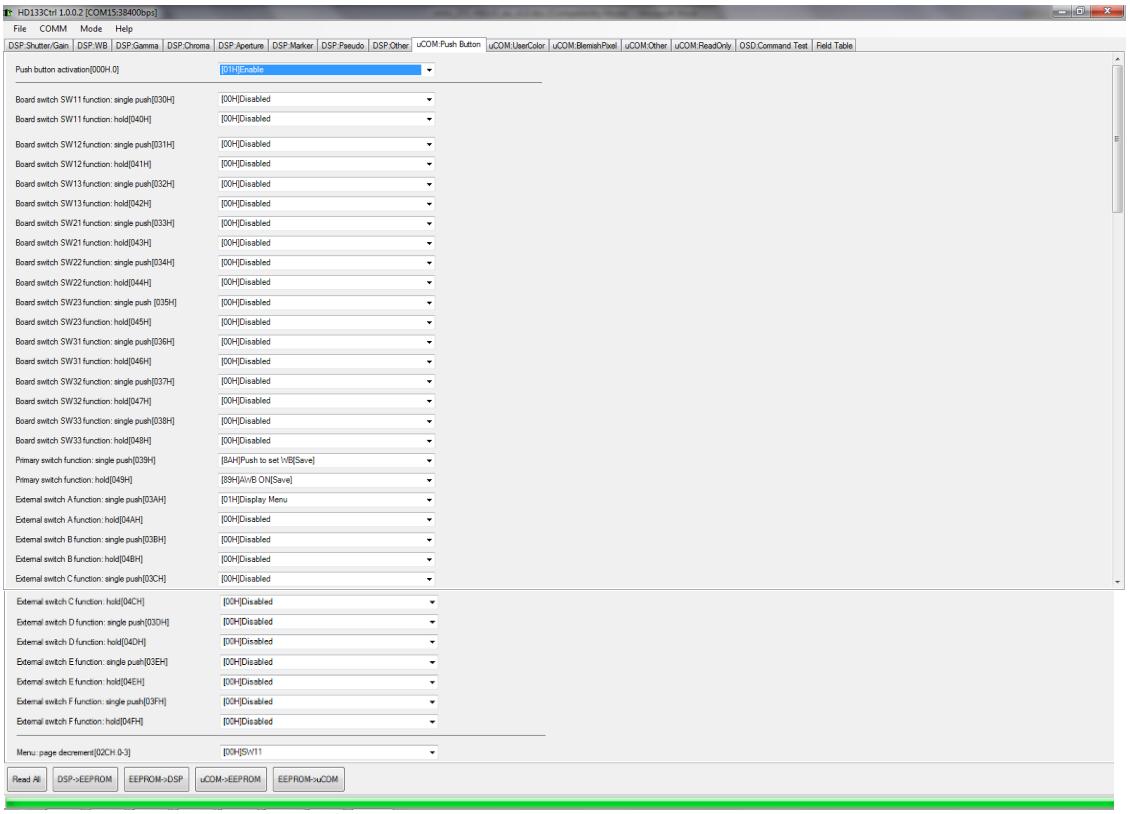
2. Push Button Initial Functions Settings: Set the initial operation mode for the push buttons and external push buttons.

The following are selectable operation modes for the camera’s external push buttons:

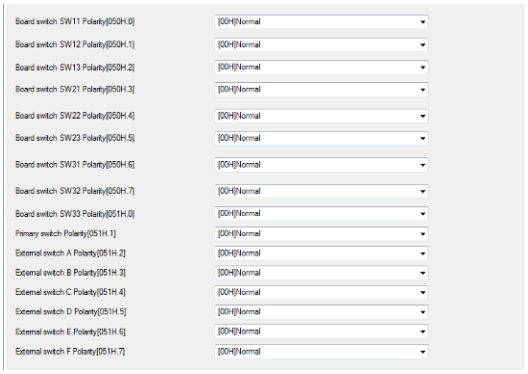
	Function
1	Display Menu
2	DSP preset (+)
3	DSP preset (-)
4	Contrast (+)
5	Contrast (-)
6	Shadow mask shading level (+)
7	Shadow mask shading level (-)
8	Shadow mask top (+)
9	Shadow mask top (-)
10	Shadow mask bottom (+)
11	Shadow mask bottom (-)
12	Shadow mask top / bottom (+)
13	Shadow mask top / bottom (-)
14	Shadow mask left (+)
15	Shadow mask left (-)
16	Shadow mask right (+)
17	Shadow mask right (-)
18	Shadow mask left / right (+)
19	Shadow mask left / right (-)
20	Horizontal line maker color (+)
21	Horizontal line maker color (-)
22	Horizontal line maker size (+)
23	Horizontal line maker size (-)
24	Horizontal line maker position (+)
25	Horizontal line maker position (-)
26	Vertical line maker color (+)
27	Vertical line maker color (-)
28	Vertical line maker size (+)
29	Vertical line maker size (-)
30	Vertical line maker position (+)
31	Vertical line maker position (-)
32	Horizontal mirror OFF
33	Horizontal mirror ON
34	Horizontal mirror ON/OFF change
35	Manual white balance
36	Auto white balance
37	Push to set white balance
38	Auto/manual white balance change
39	ALC OFF
40	ALC ON
41	ALC ON/OFF change
42	Fixed shutter
43	Auto shutter
44	Auto/fixed shutter change
45	Fixed gain
46	AGC ON
47	Fixed gain/AGC change

	Function
48	Conceal maker (line maker and shadow mask)
49	Display maker (line maker and shadow mask)
50	Display/Conceal maker (line maker and shadow mask)
51	Conceal line maker
52	Display line maker
53	Display/Conceal line maker
54	Conceal shadow mask
55	Display shadow mask
56	Display/Conceal shadow mask
57	Save to EEPROM (Horizontal mirror OFF)
58	Save to EEPROM (Horizontal mirror ON)
59	Save to EEPROM (Horizontal mirror ON/OFF change)
60	Save to EEPROM (Manual white balance)
61	Save to EEPROM (Auto white balance)
62	Save to EEPROM (Push to set white balance)
63	Save to EEPROM (Auto/manual white balance change)
64	Save to EEPROM (Undisplay maker (line maker and shadow mask))
65	Save to EEPROM (Display maker (line maker and shadow mask))
66	Save to EEPROM (Display/Undisplay maker (line maker and shadow mas
67	Save to EEPROM (Conceal line maker)
68	Save to EEPROM (Display line maker)
69	Save to EEPROM (Display/Conceal line maker)
70	Save to EEPROM (Conceal shadow mask)
71	Save to EEPROM (Display shadow mask)
72	Save to EEPROM (Display/Conceal shadow mask)
73	Horizontal mirror ON/OFF change (Select: ON, unselect: OFF)
74	Auto/manual white balance change (Select: Auto, unselect: manual)
75	Display/Undisplay maker (line maker and shadow mask (Select: Display, unselect: Conceal)
76	Display/Undisplay line maker (Select: Display, unselect: Conceal)
77	Display/Undisplay shadow mask (Select: Display, unselect: Conceal)

Push button initial function SW11[0C0H]	[03H]Zoom(WIDE)
Push button initial function SW12[0C1H]	[02H]Zoom(TELE)
Push button initial function SW13[0C2H]	[0EH]Picture Mode(+)
Push button initial function SW21[0C3H]	[0FH]Picture Mode(-)
Push button initial function SW22[0C4H]	[10H]Contrast(+)
Push button initial function SW23[0C5H]	[11H]Contrast(-)
Push button initial function SW31[0C6H]	[30H]Still image OFF
Push button initial function SW32[0C7H]	[31H]Still image ON
Push button initial function SW33[0C8H]	[00H]Disabled

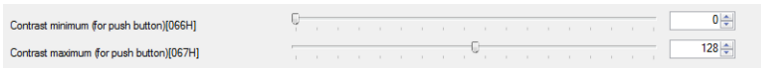


3. Push Button Polarity Settings: Choose the type of individual push button functions.
   a) Normal: The camera default setting. This is a momentary switch function.
   b) Invert: This is a reverse or alternate switch function.

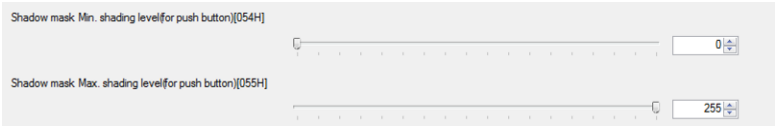


4. Number of DSP Profile Settings: Allows the use to set the minimum and maximum DSP profile for the push buttons.

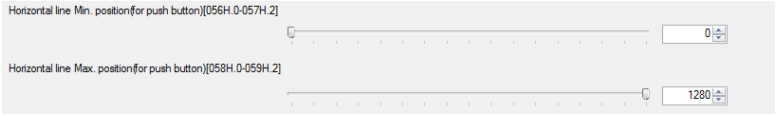
5. Contrast Limiter Settings: Allows the user to set the minimum and maximum position of contrast for the push buttons.



6. Shadow Mask Settings: Allows the user to set the minimum and maximum shadow masking for the push buttons.

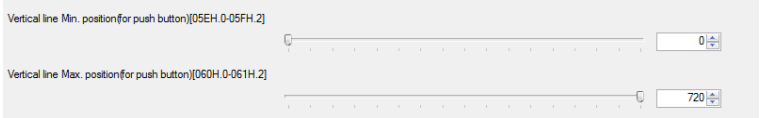


7. Horizontal line position settings: Allows the user to set the minimum and maximum marker horizontal position for the push buttons

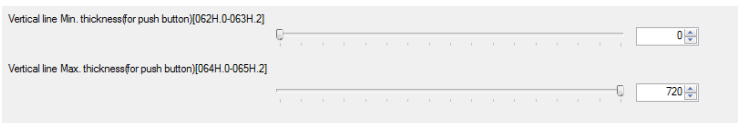


8. Horizontal line size settings: Allows the use to set the minimum and maximum marker horizontal size for the push buttons.

9. Vertical line position settings: Allows the user to set the minimum and maximum marker vertical position for the push buttons.



10. Vertical line size settings: Allows users to set the minimum and maximum marker vertical size for the push buttons.



B. Picture Mode Control – "DSP pseudo" tab

Note:

- There are 28 preset DSP settings available. Within these DSPs the user can select either a normal image or a pseudo color image. This means that up to 28 normal images or pseudo color images can be selected and set at once.

1. Picture Mode Setting

a) Picture: A normal picture image is output from the camera when "Picture" is selected at "Picture mode".
b) Pseudo: The pseudo mode image is output from the camera when "Pseudo (xx)" is selected at "Picture mode".

2. Pseudo Mode Color Combination Settings

The user can define each of the individual pseudo colors. The text and background of the current pseudo colors are interchangeable.

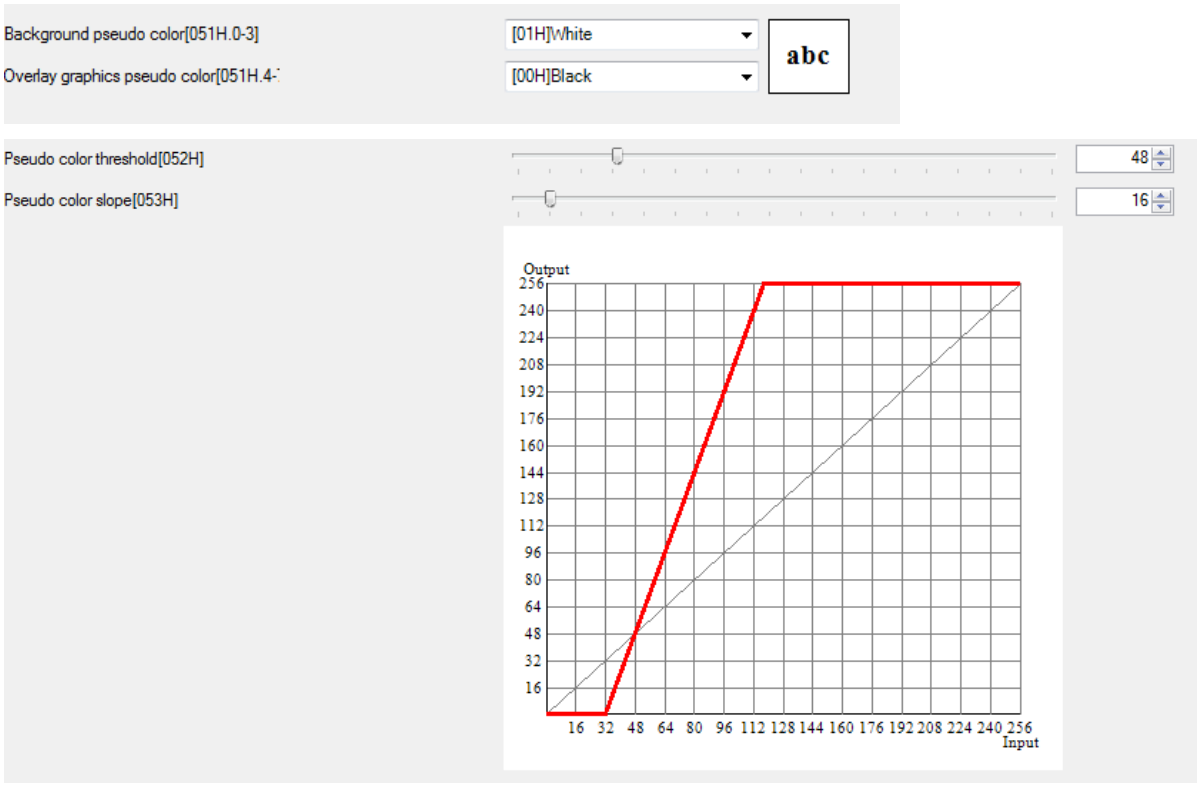
3. Pseudo Threshold and Slope Settings

Note:

- These settings will affect all of the pseudo modes,

a) Pseudo Color Threshold Settings
Set the threshold of the brightness for the text and background color. The threshold range is from 0 to 255.

b) Pseudo Color Slope Setting
Set the slope of the brightness for the text and background color. The threshold range is from 0 to 255.



C. Shadow Mask & Line Marker Control – "DSP: Marker" tab

1. Within this software, if the Marker function is "Enabled" then this will allow the user to create line and shadow overlay the image.

2. Within this software, if the Line marker is "Enabled" then this will allow the user to create a line to overlay the image.

3. Horizontal Line Marker Settings
   This function set the horizontal line marker's color, position and thickness.
   The horizontal line marker's position range is 0 to 720.

4. Vertical Line Marker Setting
   This function sets the vertical line marker's color, position and thickness.
   The vertical line marker's position range is from 0 to 2047.

5. Within this software, if the Shadow Mask is "Enabled" then this will allow the user to create a shadow to overlay the image.

6. Shadow Mask Shading Level Settings
   This function sets the darkness of the shadow mask for the entire image.
   The darkness range is from 0 (lightest) to 255 (darkest).
   When 0 is selected, only a black line appears at the border of the shadow mask.

7. Horizontal Shadow Mask Position Settings (top of bottom)
   This function set the horizontal shadow mask from the top and/or bottom of the screen.
   The horizontal shadow mask position range is 0 to 720.

8. Vertical Shadow Mask Position Settings (left or right)
   This function sets the horizontal shadow mask from the right and/or of the screen.
   The horizontal shadow mask position range is 0 to 2047.

Note:

- A required color and thickness value is necessary to view the horizontal or vertical line markers. These markers can be shown in 16 available colors noted below:

  Black
  White
  Red
  Green
  Blue
  Cyan
  Magenta
  Yellow
  User define color 0
  User define color 1
  User define color 2
  User define color 3
  User define color 4
  User define color 5
  User define color 6
  User define color 7

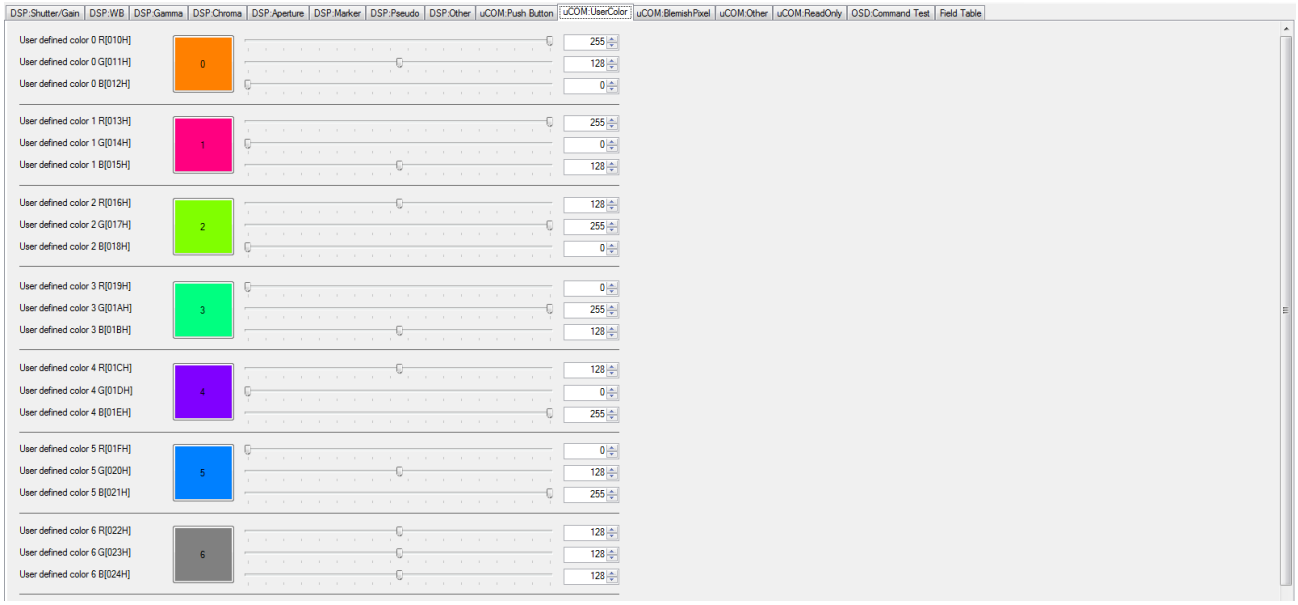
D. User Color Control – “uCOM: UserColor” tab

1. Eight User-Definable Color Settings

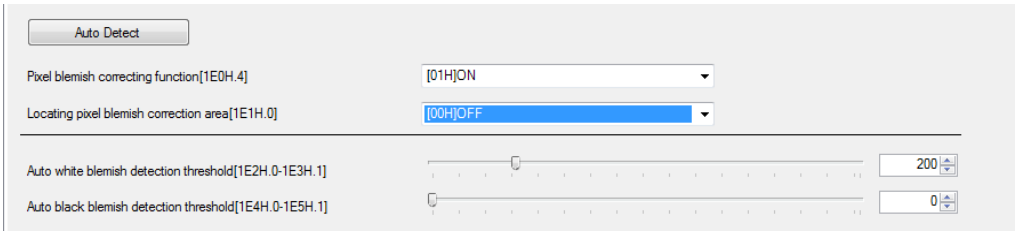
a) The user can define 8 custom colors by adjusting the levels of red, green and blue.

Note:

- User-defined colors can be used in the “uCOM: Picture Mode” and the “cCOM:Marker” tabs wherever the user has the option of defining a color.



E. uCOM: BlemishPixel



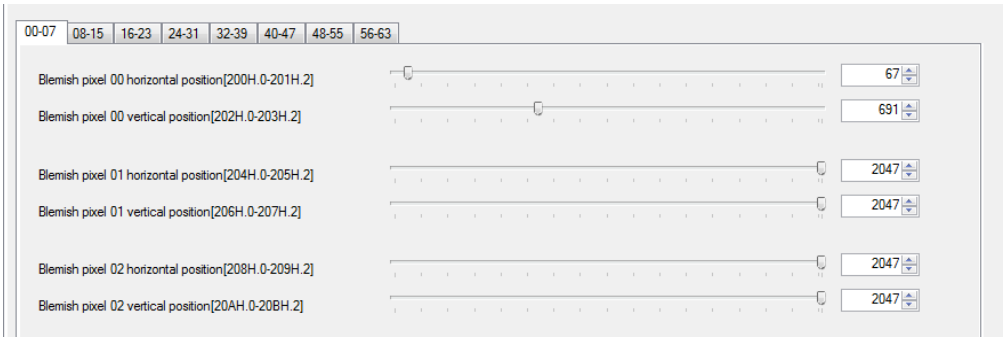
1. Auto Detect: The user must first cover the camera with the provided lens cap to create a completely dark environment to perform the “Auto Detect” function. When it is a completely dark environment, select the “Auto Detect” button to correct the pixel blemish automatically.

2. Pixel Blemish Correcting Function: Users can use this function to turn the pixel blemish correction “ON” or “OFF”.

3. Locating the Pixel Blemish Correction Area: This allows the user to identify the location that the pixel blemish correction took place.

4. Auto White Blemish Detection Threshold: The purpose of this function is to allow the user to set the threshold to detect white pixel blemish levels on the screen. If the cursor is moved to the right-side, this will enable the user to detect only extremely bright pixel blemishes. Whereas, if the cursor is moved to the left, it will detect any lower brightness levels of pixel blemish.

5. Auto Black Blemish Detection Threshold: The purpose of this function is to allow the user to set the threshold to detect black pixel blemish levels on the screen. If the cursor is moved to the right-side, this will enable the user to detect only extremely dark pixel blemishes. Whereas, if the cursor is moved to the left, it will detect any lower darkness levels of pixel blemish.



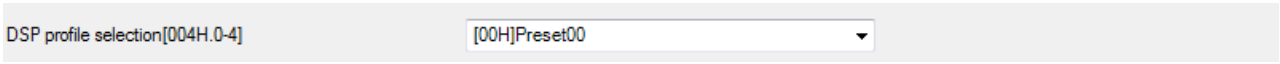
6. This section allows the user to select 8 tab sections to manually control the horizontal and vertical position of eth pixel blemish correction (please see the image above).

Note:

- The camera can detect up to 64 pixel blemishes. Therefore, the user can manipulate the vertical/horizontal position of 64 pixel blemish corrections.

F. Software Communication Control – "uCOM: Other" tab

DSP Profile Selection



1. UART Baud Rate Setting
   This function sets the UART communication baud rate.
   9600, 19200, and 38400 bps are available for selection for the UART communication baud rate.

   Note:
   - If a communication error occurs, please select a slower baud rate.

2. UART Short Reply for Write Setting
   a) Disable (default): The reply data from the camera includes the written data.
   b) Enable: The reply data from the camera does NOT include the written data.

3. UART Check Sum Setting
   a) Enable (default): The camera DOES NOT accept or process the command if the check sum does not match.
   b) Disable: The camera accepts and processes the command without checking the sum.

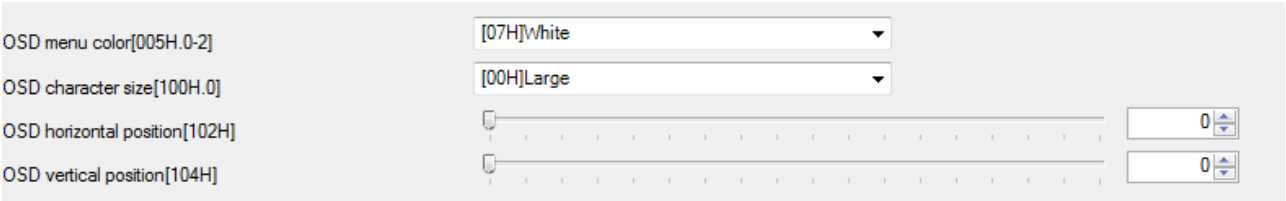
G. Blemish Pixel Control – "uCOM: BlemishPixel" tab

1. Blemish Pixel Settings
   Important: Please do NOT adjust this setting. This tab is for factory use only.

H. Other Control – "uCOM: Other" tab

1. DSP Profile Selection:

2. OSD (On Screen Display) Settings
   a) OSD Menu Color: This allows the user to set the color of the on screen display menu.
   b) OSD Character Size: Set the character size for on screen display (2 options):
      - Large (default)
      - Small
   c) OSD Horizontal Position: Set the horizontal position for the on screen display (Range 0 to 255).
   d) OSD Vertical Position: Set the vertical position for the on screen display (Range 0 to 255).



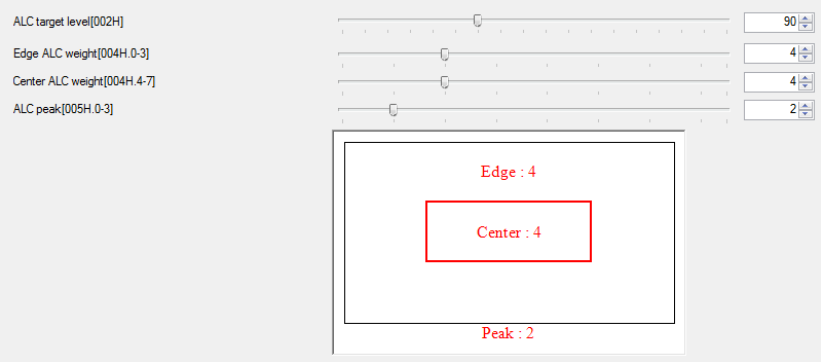
3. 50/59.94/60Hz Selection Settings:
   a) 60Hz (default): Sets the video output frame rate to 60Hz.
   b) 59.94Hz: Sets the video output frame rate to 59.94Hz
   c) 50Hz: Sets the video output frame rate to 50Hz.

4. Test Patter (Grey Scale) Settings: Sets the test pattern gray scale display On or Off (default).

I. Shutter and Gain Control – "DSP: Shutter/Gain" tab

1. ALC (Automatic Light Compensation) Level and Weight Settings

a) ALC Target Level: The user can adjust the ALC target brightness level for the application with this function.
b) Edge ALC Weight: This function sets the importance or weight of the "Edge" section (indicated below) of the image sensor during the ALC calculation.
c) Center ALC Weight: This function sets the importance or weight of the "Center" section (indicated below) of the image sensor during the ALC calculation.
d) ALC Peak: Set the importance of the "Peak" brightness value for the "ALC" function. The "ALC Peak" function has a range of 0 to 15. If set to 0, it will affect the ALC function the least whenever a bright object is introduced. Setting it to 15 will affect it the most.



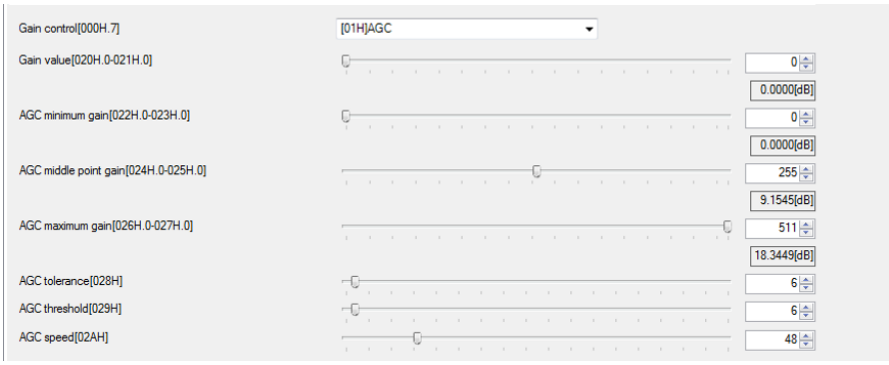
2. ALC Frame Settings

a) ALC Average Integration Frames: Choose the number of frames to be used during the calculation of the ALC. There are 16 preset frame values to choose from.
b) ALC Single-Frame Quantity: Choose the number of frames used to calculate the ALC after power-up. There are 16 preset frame values to choose from. If the value is 0, the ALC will use the "Auto Single-Frame Quantity" value.

3. ALC Exposure Settings

a) Exposure Control: Sets the exposure operating mode to "Fixed EE" or "Auto EE".
b) Exposure Time: Manually sets the "Fixed EE" exposure (8 preset buttons available).
c) AEE Minimum Exposure Time: Set the level of priority for this value in the calculation of ALC.
d) AEE Middle Point Exposure Time (Minimum Side): Set the level of priority for this value in the calculation of ALC.
e) AEE Middle Exposure Time (Maximum Side): Set the level of priority for this value in the calculation of ALC.
f) AEE Maximum Exposure Time: Set the level of priority for this value in the calculation of ALC.
g) AEE Tolerance: This allows the user to set a tolerance for the deviation from the ALC target brightness level.
The AEE stops when the difference of the target brightness and current brightness is less than this tolerance. The AEE tolerance range is from 0 to 255.
h) AEE Threshold: This allows the users to set a threshold value at which the camera must adjust the AEE.
The AEE stops when the difference of the target brightness and current brightness is less than this threshold. The AEE threshold range is from 0 to 255.
i) AEE Speed: Set the value for the speed at which the AEE compensates for changes in light.

4. Gain Settings
   a) Gain Control: Select “Fixed” or “AGC (Automatic Gain Control)”
   b) Gain Value: Select a “Fixed” gain value from 0 to 511.
   c) AGC Minimum Gain: Set the level of priority for this value in the calculation of ALC.
   d) AGC Middle Port Gain: Set the level of priority fro this value in the calculation of ALC.
   e) AGC Maximum Gain: Set the level of priority for this value in the calculation of ALC.
   f) AGC Tolerance: This allows the user to set a tolerance for the deviation from the ALC target brightness level.
      The AGC stops when the difference of the target brightness and current brightness is less than this tolerance. The AGC tolerance rang s from 0 to 255.
   g)AGC Threshold: This allows the user to set a threshold value at which the camera must adjust the AEE.
      The AGC stops when the difference of the target brightness and current brightness is less than this threshold. The AGC threshold range is from 0 to 255.
   h) AGC Speed: Set the value of the speed at which AGC compensates for changes in light.

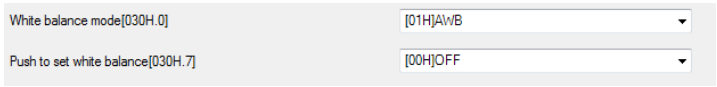


5. Digital Gain: Select a digital “Fixed” gain value from 0 to 255.

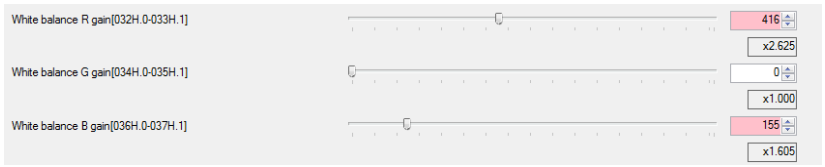
J. White Balance Control – "DSP:WB" tab

1. White Balance Settings
   a) White Balance Mode: Set the White Balance to "Manual" (default) or "AWB" (Auto White Balance).
   b) Push-to-set White Balance: Set the White Balance to "OFF" (manual) or "ON"

   Note:
   - The camera adjusts the White Balance once automatically when "ON" is selected.



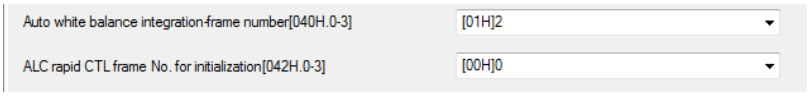
2. White Balance Red, Green, Blue Settings
   a) White Balance Red Gain: Set the Red pixel value for white balance; the range is from 0 to 1023.
   b) White Balance Green Gain: Set the Green pixel value for the white balance; the range is from 0 to 1023.
   c) White Balance Blue Gain: Set the Blue pixel value for the white balance; the range is from 0 to 1023.



3. Auto White Balance Tolerance/Threshold
   a) Auto White Balance Tolerance: This allows the user to set a tolerance for deviation from the target white balance level. The AWB stops when the difference of the target white balance and current white balance is less than this tolerance. The AWB tolerance range is from 0 to 255.
   b) Auto White Balance Threshold: This allows the users to set a threshold value at which the camera must adjust the white balance. The AWB stops whenever the difference of the target white balance and current white balance is less than this threshold. The AWB threshold range is from 0 to 255.

   c) Auto White Balance Integration-Frames: Choose the amount of frames to be used during the calculation of Auto White Balance. There are 16 preset frame values to choose from.

   d) ALC rapid CTL frame No. for initialization: Choose the number of frame s used to calculate the auto white balance after power-up. There are 16 preset frame values to choose from. If the value is 0, the AWB will use the "Auto white balance integration-frame number" value.



4. Auto White Balance R/B Change Limit

   a) Auto White Balance R Change Limit: Set the response speed of Red during the auto white balance calculation process. The Auto white balance R change limit range is 0 to 255.
   b) Auto White Balance B Change Limit: Set the response speed of Blue during the auto white balance calculation process. The Auto white balance B change limit range is 0 to 255.

K. Gamma Control – "DSP: Gamma" tab

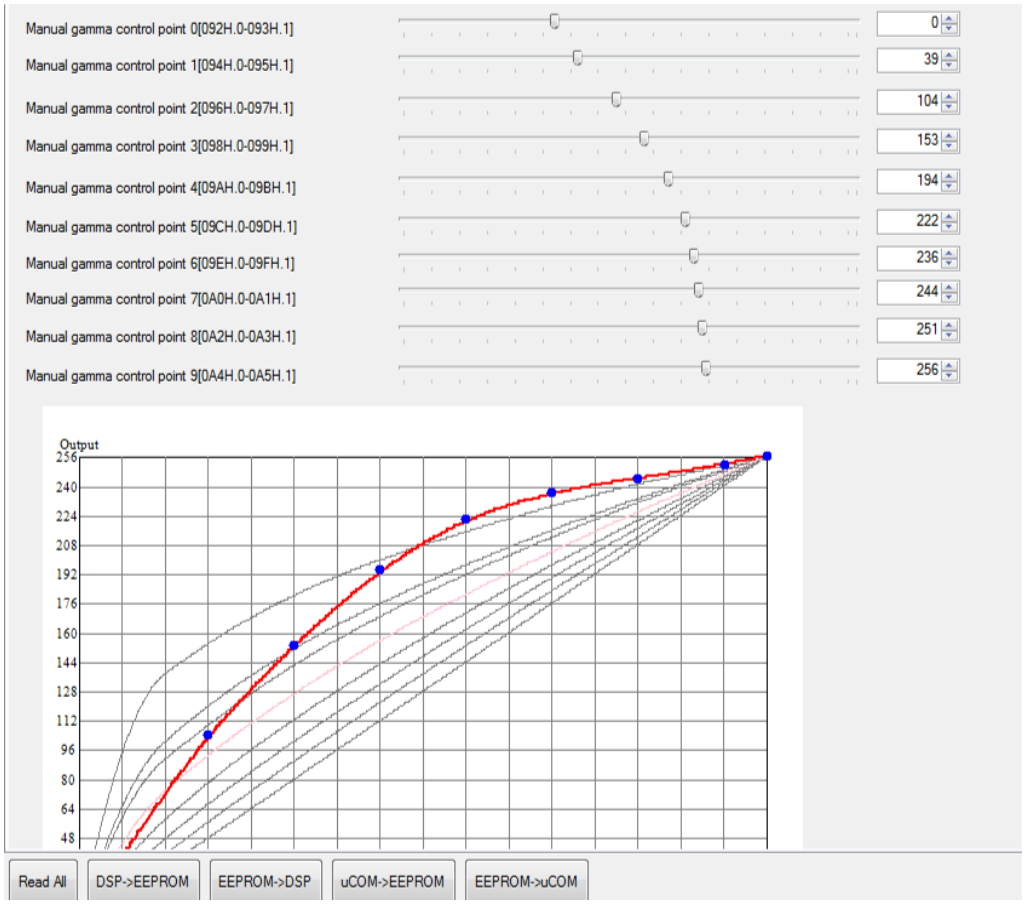
1. Gamma Mode Settings: Set the "Gamma Mode" to "Manual" (default) or "Preset"

2. Preset Gamma Settings: Set the gamma to 1 of 9 preset values. This function operates only when the "Preset" is chosen under "Gamma mode".

3. Manual Gamma Control Point Settings: Set the gamma control point for 1 or each of ten value locations.

Note:

- This adjustment can also be made by dragging the blue control points as seen in the figure below. The value ranges are from -256 to 511.



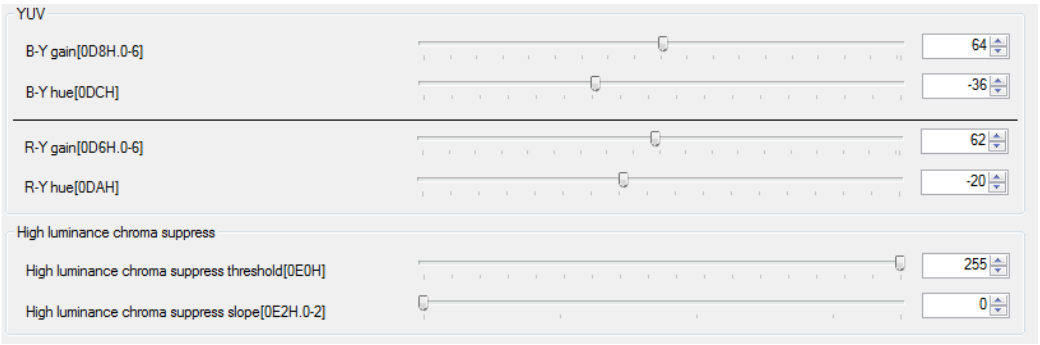
L. Chroma Control – "DSP: Chroma" tab

1. YUV Blue Settings

   a) B-Y Gain: Set the B-Y Gain value (0 to 127)
   b) B-Y Hue: Set the B-Y Hue value (-128 to 127)

2. YUV Red Settings

   a) R-Y Gain: Set the R-Y Gain value (0 to 127)
   b) R-Y Hue: Set the R-Y Hue value (-128 to 127)



3. High Luminance Chroma Suppress Settings

Note:

- This function controls the chroma vales in an image with high luminance values and reduce4s potential for chroma noise.

a) High Luminance Chroma Suppress Threshold: Set the threshold value to which point the high luminance chroma suppress activates (0 to 255).
b) High Luminance Chroma Suppress Slope: Set the slope value to which the high luminance chroma suppress reacts (0 to 7).

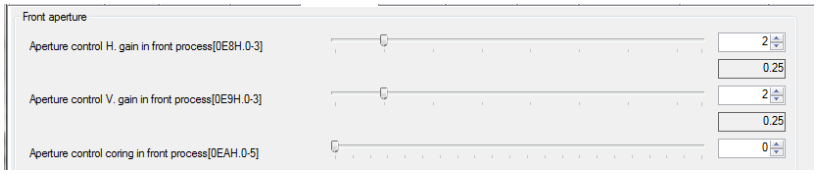
M. Aperture Control – "DSP: Aperture" tab

Notes:

- There are 2 stages provided to adjust aperture (Front Aperture and Back Aperture). When "Frront Aperture Settings" are adjusted, the aperture correction is achieved on the video signal before digital zoom processing. When "Back Aperture Settings" are adjusted, the aperture correction is achieved on the video signal after digital zoom processing.
- Aperture correction can increase the clarity and sharpness of an image. However, it can also create video artifacts. After applying digital zoom, these artifacts are magnified. Users should consider and choose the proper stage for aperture adjustment.

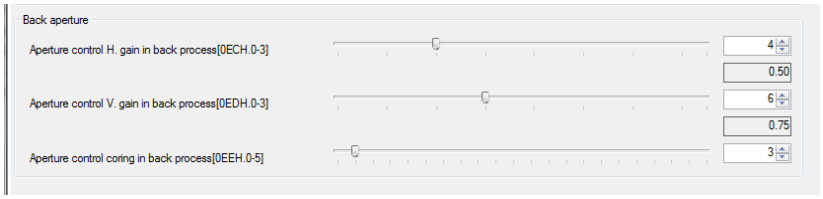
1. Front Aperture Settings: Aperture correction of the RGB signal.

a) Front Aperture Control Horizontal Gain: Adjust the "Front" Aperture control for Horizontal pixels (0 to 15).
b) Front Aperture Control Vertical Gain: Adjust the "Front" Aperture control for Vertical pixels (0 to 15)
c) Front Aperture Control Coring: Adjust the detection range of sharpness enhancement for "Front Aperture Control" (0 to 63).



2. Back Aperture Settings: Aperture correction of the Y signal

a) Back Aperture Horizontal Gain: Adjust the "Back" Aperture control for Horizontal pixels (0 to 15).
b) Back Aperture Vertical Gain: Adjust the "Back" Aperture control for Vertical pixels (0 to 15).
c) Back Aperture Coring: Adjust the detection range of sharpness enhancement for "Back Aperture control" (0 to 63).



N. Flip and Contrast Control – "DSP: Other" tab

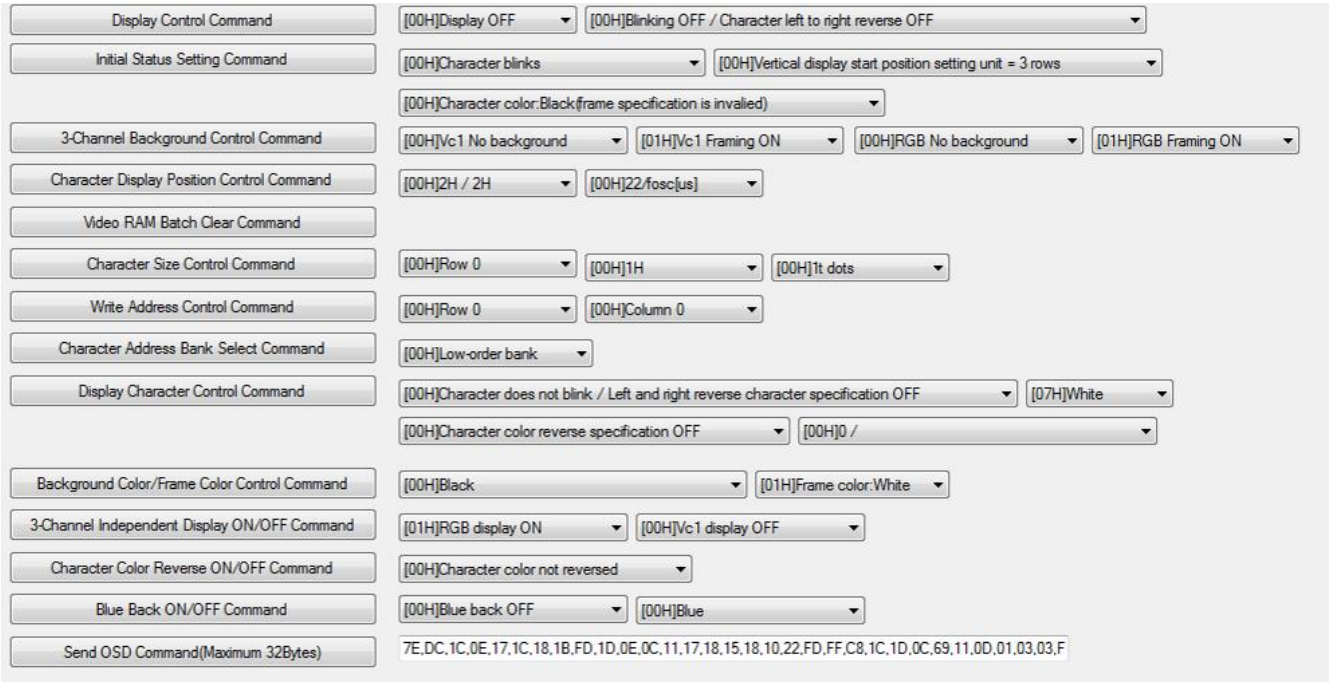
1. Horizontal / Vertical Flip Settings:
   a) Horizontal Flip: Activate or turn off the Horizontal Flip of the image.

2. Contrast Settings:
   a) Contrast: Set the "Contrast" level for the video signal (0 to 255)
   b) RGB Offset: Set the "RGB offset" level for the color (0t to 127)

O. OSD Control – "OSD: Command Test" tab

The OSD functionality can be evaluated in the "OSD: Command Test" tab.

Select the "Send OSD Command" button to send the OSD command. When you activate the "OSD: Command Test" function the default OSD ("Sensor Technology STC-HD133") will be displayed.



1. Display Control Command (2 Controls)
   a) Display OFF (default) or Display ON
   b) Blinking OFF / Character left or right reverse OFF (default)
      Blinking Frequency Approx. 2Hx / Character left or right reverse ON
      Blinking Frequency Approx. 1 Hz/ Character left or right reverse OFF
      Blinking Frequency Approx. 0.5 Hz/ Character left or right reverse ON

2. Initial Status Setting Command (2 Controls)
   a) Character blinks (default) or Character left to right reverse
   b) Vertical display start position setting unit = 3 rows (default) or = 9 rows

3. Channel Background Control Command (3 Controls)
   a) Vc1 No background (default)
      Blank background
      Must not be specified
      Filled background
   b) Vc1 Framing ON (default) or Frame OFF
   c) RGB No background (default)
      Blank background
      Must not be specified
      Filled background
   d) RGB Framing ON (default) or Frame OFF

4. Character Display Position Control Command (2 Controls)
   a) 2H / 2H (default) or (5H / 11H ~ 95H/281)
   b) 22/fosc[us] (default) or (25/fosc[us] ~ 115/fosc[us])

5. Video RAM Batch Clear Command
   Clear all character data (12 rows, 28 columns) from the video RAM bt 0xFE.
   When using this command, set the Display control to OFF and set the address of the Video Ram (0,0).

6. Character Size Control Command (3 Controls)
   a) Row 0 (default) ~ Row 11; Prohibited (4)
   b) H1 (default) ~ H4
   c) 1t dots (default) ~ 4t dost

7. White Address Control Command (2 Controls)
   a) Row 0 (default) ~ Row 11
   b) Column 0 (default) ~ Column 27

8. Character Address Band Select Command (1 Control)
   a) Low-order bank (default) or high-order bank

9. Display Character Control Command (2 Controls)
   a) Character does not blink / Left and right reverse character specification OFF
      Character blinks / Left and right reverse character specification ON
   b) 0/ (default) ~ extended list

10. 3-Channel Independent Display ON/OFF Command
    Do NOT use, for factory testing purposes only.

11. Character Color Reverse ON/OFF Command
    Do NOT use, for factory testing purposes only.

12. Blue Back ON/OFF Command
    Do NOT use, for factory testing purposes only.

13. Send OSD Command (Maximum 32bits) – This is the actual code that is sent to the camera to create the OSD text.

Revisions

Revision	Date (D/M/Y)	Changes	Notes
1.0	5/3/2011	New Document	

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