

MallinCam Video CCD Observational System

An Explanation of the Function of The Camera's Various Menu Items

Revised July 23, 2006



<MENU>

TITLE	>OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

This is the main menu on all Mallicam Video Observational Systems. Simply press the middle button on the On Screen Display (OSD) on the rear of the camera for 2 seconds to access this page. The arrow next to a function indicates which SUB MENU will be accessed. Simply press the middle button again to access the SUB MENU of the function by the arrow. In the case of TITLE, pressing the left or right button will turn the TITLE feature ON or OFF. If TITLE is ON, one that you create will be displayed on the live video screen.

<< TITLE >>

ABCDEFGHIJKLM
NOPQRSTUVWXYZ
0123456789.;;
x-/<>

SP-> <-SP
LOCATION
Return

.....

Using the above characters, a TITLE containing up to 12 can be created and positioned onto the live viewing window. If only live viewing is planned, then the TITLE can be left on. However, it may obscure some of the object being viewed. In addition, if frames are to be stacked to make an image, it is best to turn the TITLE OFF since its position relative to the target or stars may change and it will be blurred during frame stacking.

<MENU>

TITLE	OFF
SENSE UP	>X2
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

"SENSE UP" will activate the extended shutter or FRAME INTERGRATION. By pressing the right button, the SENSE is adjusted in defined increments to increase the sensitivity – 2X, 4X, 6X, 8X, 12X, 16X, 24X, 32X, 48X, 64X, 96X, and 128X. Examples of SENSITIVITY are as follows. 16X=1/4 sec. integration, 32X=1/2 sec. integration, 64X=1.1 sec. integration, and 128X=2.2 sec. integration. These figures are ideal for DEEP SKY OBSERVING or imaging with a frame grabber or video adapter for the computer.

When using the HYPER Mode, "SENSE UP" must be set to 128X.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	> ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

This function allows the user to choose between the ALC and ELC function, by pressing the right or left button on the OSD. ALC is for automatic level control and ELC is for electronic level control. In the ALC mode, pressing the middle button calls up a SUB MENU with a variety of fixed shutter speeds and "OFF". There is a LEVEL bar for selecting the amount of ALC automatic control. This mode is ideal for Planetary and Lunar viewing or Imaging. In the ELC mode, the same SUB MENU is displayed with a variable level of the shutter adjustments to suit individual preferences.

When the camera is in the ALC mode, it automatically adjusts the output for variations in sky brightness and background lighting levels.

When using the HYPER Mode, ALC/ELC must be set to ALC, the SHUTTER must be OFF, and the LEVEL function must be set to FULL RIGHT.

ALC

SHUTTER 12000
LEVEL >|---.----<
RETURN

This is an example of the use of ALC to set the shutter speed to 1/12,000th of a second. A variety of fixed shutter speeds can be selected to accommodate the best Lunar and Planetary observing and imaging. The LEVEL function does not work in this mode unless the camera is connected to a lens with a electric shutter built into it. These lenses come with a wire and plug that is connected to the AUTO IRIS socket on the side of the camera.

NOTE: The Auto Iris sockets were eliminated in the MallinCam ULTRA and HYPER cameras. Owners of older MallinCam cameras that have the auto-iris socket can continue to use the LEVEL function while in ALC mode.

In addition, when using the HYPER mode, the camera must use ALC, the SHUTTER must be OFF, and the LEVER must be to FULL RIGHT.

ELC

LEVEL >----|----<
RETURN

This is an example of the use of the variable shutter adjustment in the ELC mode. By adjusting the LEVEL bar in ELC Mode, the user chooses the shutter speed and image brightness for the specific target to be viewed. In lunar or planetary observing and imaging, the bar would be adjusted to the left to reduce image brightness. In deep sky observing, the level bar would be set full right to open the shutter to maximum to allow more light to be captured by the CCD sensor, thus increasing sensitivity.

ELC should only be used on a MallinCam HYPER when observing and imaging up to the 2.1 second maximum exposure time. Do not use ELC when 6 or 12 second exposure times are to be used on a MallinCam HYPER.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	>ON
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

One feature which can be important to some is BLC (Back Light Compensation). This feature allows the user to predetermine an area on the CCD sensor to augment or reduce the gain. A total of 48 zones can be set on the ccd sensor. This feature can be used to reduce AMP glow found on the older MallinCam II Color Camera – glow which is caused by the internal amplifier on board the CCD sensor.

<BLC>

AREA SET

PRESET OFF

RETURN

In the BLC menu, pressing the center button accesses the SUB MENU shown above. AREA SET is a setting done by the user to choose which area of the CCD sensor is to be affected by this feature. The PRESET menu is a group of blocks centered in the middle of the CCD sensor which can be used to augment the sensitivity of the center of the CCD sensor - thus reducing the background gain.

W	B	B	B	B	B	B	B
B	B	G	G	G	G	B	B
B	B	G	G	G	G	B	B
B	B	G	G	G	G	B	B
B	B	G	G	G	G	B	B
B	B	B	B	B	B	B	B

W - White
 B - Black
 G - Gray

This is an example of the use of PRESET zoning. The background surrounding the middle blocks will be reduced in gain while the area of all blocks will be more visible.

G	G	B	B	B	B	B	B
G	G	B	B	B	B	B	B
G	G	B	B	B	B	B	B
G	G	B	B	B	B	B	B
G	G	B	B	B	B	B	B
G	G	B	B	B	B	B	B

G – Gray
 B – Black

In this example, the author chose the blocking feature where a total of 48 zones may be chosen. The 36 blocks to the right have reduced gain to compensate for AMP glow in the left 12 blocks. Experimentation is required when using this feature. It is possible to either increase or reduce gain on any area of the CCD sensor.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	>MAN
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

AGC is one of the most important functions for successful live observing or imaging. For planetary and lunar observations, this function should be set to OFF by pressing the right or left button until OFF appears. For deep sky observing and imaging, this function should be set to MAN for manual. Careful adjustment in MAN mode should be observed. This is the final output signal strength and gain of the CCD sensor. Too high will result in a washed out, white image on the monitor. Too low will result in a darker image. AGC stands for Automatic Gain Control.

In summary:

AGC MAN – The Gain is adjusted to a Fixed Value. This is best for deep sky objects at all integration modes including the 6 and 12 second HYPER modes

AGC OFF – The Gain is turned OFF. This is best for CCD-like image quality capture of multiple frames and for planetary and lunar viewing and imaging.

AGC ON – The Gain is automatic with the LEVEL controlling the amount of Gain. This is best for daytime viewing of terrestrial objects.

AGC

FIX MIN MAX
LEVEL >----|----<
RETURN

This is the AGC setting in the MAN position. Increasing the LEVEL will make the image brighter. Decreasing the LEVEL will result in a darker image. In deep sky observing, many favor the gain set to the max to obtain the maximum power available from the CCD sensor. This setting is for live viewing only of faint objects. Setting in the middle position will result in good imaging gain. This setting is dependent on the aperture of telescope used.

When using the HYPER Mode, the AGC must be set to MAN for use of the 6 or 12 second exposure limits. It is recommended that the LEVEL be set $1/3$ to $1/2$ from the left initially and then adjusted to suit the sky conditions and the telescope being used.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MAN.
W/B	>ATW
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

This setting is not active on black and white MallinCam cameras, such as the Pro, B&W ULTRA, and B&W Hyper. This setting is active in the MallinCam II Color, Color ULTRA, and Color HYPER, and proper setting is important to achieve good live views and images. W/B stands for White Balance. In ATW (Auto Total White Control), colors are adjusted automatically for proper white balance. This is ideal for average live viewing and some imaging.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	>AWC
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

AWC (Auto White Control) is a feature on the Mallincam II Color, Color ULTRA, and Color HYPER cameras which allows the user to set the White Balance based on the image seen live on the screen. In this mode, press the middle button for a few seconds until the AWC flashes. Then press the middle button again to "lock in" the best white level available for the specific object being viewed live. Once the AWC stop flashing, the white control has been balanced for the best color balance based on the object being viewed.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	>MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

The MAN (manual) setting of W/B is the most important adjustment for all MallinCam Color cameras. By pressing the button, a variety of SUB MENU items become available.

<W/B>

PRESET 3200K

RETURN

In the W/B menu, MAN (manual) mode Sub-Menu, press the right or left button to select 3200K. This allows the user to view object in near infrared. It will see up to 80% more into infrared, allowing a variety of object to be seen with various form and detail.

<W/B>

PRESET

5600K

RETURN

In the W/B menu, MAN Sub Menu, press the button to the right to select 5600K. This allows the user to see more into the visual range with some degree of infrared. This range setting can be useful in viewing live or imaging. Scientific work can be obtained in this mode. Nebula and other gas object can have a different effect and detail in this mode. This feature is active in all Mallincam II Color, Color ULTRA and Color HYPER models.

<W/B>

PRESET OFF <USER>

RED >--|.-----<

BLUE >-----|.---<

RETURN

In the W/B menu with the MAN sub menu active, this feature allows the user to choose the amount of color to be reduced or augmented. For astrophotography, this is the best setting for many object including planetary, Lunar and deep sky. Green is fixed while red and blue can be adjusted to the desired color blending of any given object. This mode will allow the user to reject light and sky pollution. Careful adjustment must be observed. This function is active in all MallinCam II Color, Color ULTRA, and Color HYPER cameras.

For the MallinCam Color HYPER, start with the Red set 1/2 from the Left, and the Blue set 1 to the Right of Center.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	>INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

The SYNC is fixed in all MallinCam Video Cameras. It is adjusted at the factory to allow the proper viewing with the appropriate NTSC or PAL system monitors.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	>SET
ZOOM	OFF
MOTION DET	OFF
EXIT	SAVE

The OPTION menu has a lot to offer in all MallinCam Video Cameras. Masking features, MIRROR effects, POSITIVE/NEGATIVE effects, and image PRIORITY sensitivity settings are many of the features that can be used for various situations with any given telescope. Press the center button to enter the OPTIONS sub-menu.

One OPTION is PRIORITY and its two Sub-Menu items are AGC and SENS. This switches the signal detection from the AGC section (the amplifier) to the SENS section (CCD input). Once a bright object is detected, either the CCD sensor (SENS) detects it or the amplifier does (AGC).

<< OPTION >>

MASK A	OFF
MASK B	OFF
MASK C	OFF
MASK D	OFF
POSI/NEGA	POSI
H-REV	OFF
V-REV	OFF
FREEZE	FIELD
PRIORITY	AGC
GAMMA	0.45
NEXT	

<< OPTION2 >>

APC	SET
HIGH LIGHT	SET
COLOR BAR	OFF
Return	

<< APC >>

PRESET OFF

H-GAIN >----|----<

V=GAIN >----|----<

Return

By sliding the two adjustment bars to the LEFT, sharpening and digital anti-blooming are held to an absolute minimum. When the two adjustments are to the RIGHT position, maximum sharpening and digital ant-blooming occurs. The default position is with both sliders to the CENTER position.

If both AGC is turned OFF and the APC sliders are to the LEFT, then there is NO GAIN – the camera is converted into a straight through CCD imager.

< HIGH LIGHT SET >

LEVEL >|----.-----<

Return

< MENU >

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	>ON
MOTION DET	OFF
EXIT	SAVE

The ZOOM feature can be very useful in planetary and lunar observing. It allows the user to electronically change the focal length of any given telescope. For example, at maximum Zoom, an f/10 telescopes behaves like an f/20. It is also possible to achieve f/ratios between 10 and 20 simply by adjusting the Zoom Slider Bar. This allows zooming in on features of interest on the object being observed. Press the right or the left button to activate Zoom, and then press the middle button to select the SUB MENU. Moving the slider bar Left and Right changes the Zoom Level from 1X to 2X, with numerous steps in between.

<ZOOM>

ZOOM >----|----<

RETURN

This example shows a 1.5X ZOOM settings in the SUB MENU. Setting the slider to far left results in No Zoom (1X). Setting the slider to the far right results in Maximum Zoom (2X). Setting the slider to the center results in a 1.5X Zoom factor.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	>ON
EXIT	SAVE

< MOTION DETECT >

AREA SET .

PRESET OFF

LEVEL >----|----<

TIMER 30SEG

Return

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	>SAVE

Saving all settings is done by pressing the SAVE menu with the center button. Even if the camera power is turned off, the settings remain in the memory until changed through future menu adjustments.

<MENU>

TITLE	OFF
SENSE UP	OFF
ALC/ELC	ALC
BLC	OFF
AGC	MANU
W/B	MANU
SYNC	INT
OPTION	SET
ZOOM	OFF
MOTION DET	OFF
EXIT	>PRESET

If any mistakes are made, the camera can be reset to Factory Settings in the EXIT menu. Simply press the right or left button to access the PRESET function. Press the center button to initiate. All values and settings will return to factory default allowing the user to start over again.

Note: The Factory default settings do not coincide with Rock Mallin's recommended camera settings; however, they provide a good starting point.