



A354KTC-HDM13 Touch Control Video System

Safety

Before using your OMAX product, please read the following safety precautions carefully to avoid causing damage to your AmScope product, or injury to yourself or others.

Turn off power if the instrument exhibits unusual or dangerous behavior such as emitting smoke or unusual odors. These can be indications of electrical problems, in which case the instrument should be disconnected from any power source if safe to do so. Other indicators can be a loud buzzing sound or crackling. Contact OMAX to report such behavior.

Do not use around flammable liquids or gases. Electric instruments can ignite flammable substances which could result in an explosion or fire.

Do not use in a wet environment. Electrical components of the instrument can discharge when exposed to water, potentially resulting in damage to the instrument, or injury to yourself or others.

Only use the provided power adapter or authorized replacement. Incompatible power sources can cause damage to the instrument. If you should lose the included power adapter, please contact OMAX for information about a replacement.

Do not dismantle. Dismantling can result in damage to the instrument, and potential exposure to dangerous materials or electric current.

Notices

OMAX reserves the right to change specifications of the hardware and software at any time without notice. Continuous efforts are made to improve performance and reliability, which can result in changes to design and compatibility. Please contact OMAX for any concerns regarding such changes.



Proposition 65 Notice for California Residents

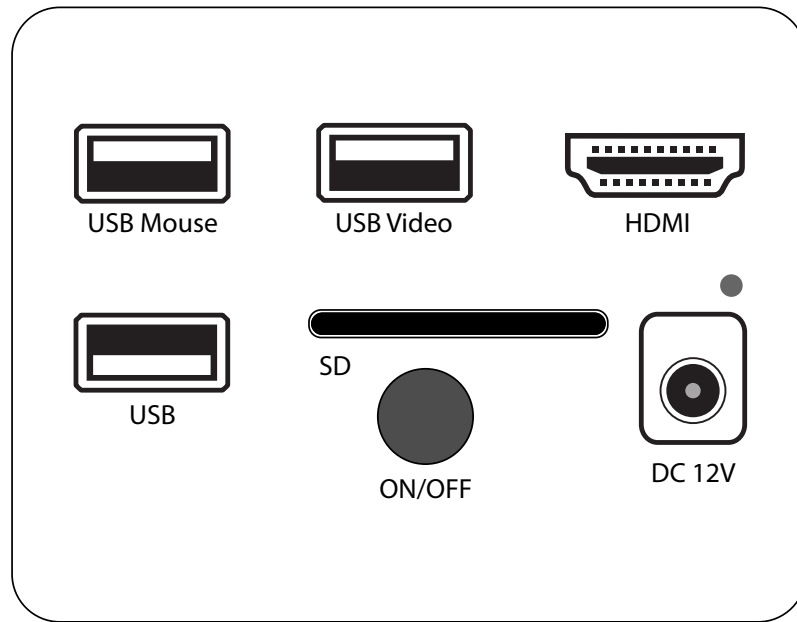
Cables and other items included with the products described in this manual can expose you to chemicals including lead, which is known by the state of California to cause cancer, birth defects or other reproductive harm. Visit www.P65Warnings.ca.gov for more information.

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Specifications

| Camera Model | Sensor | Pixel Size | Sensitivity | Framerate/Resolution | Binning | Exposure Time |
|--------------|---------------------|---------------|--------------|---|---------|---------------|
| A354KTC | Sony IMX334 (color) | 2.0µm x 2.0µm | 505mV @1/30s | 30fps @ 3840x2160 (HDMI) 20fps @ 3840x2160 (USB) | 1x1 | 0.04ms - 1s |



Camera I/O Interface

| Interface | Function |
|-----------|---|
| USB Mouse | Can be used for connecting a USB mouse. Cannot be used simultaneously with touch control. |
| USB Video | For connecting the camera to a computer using USB. |
| HDMI | For connecting to a HDMI display. HDMI 1.4 standard with 4K or 1080p output. |
| DC12V | Power adapter connection (12V/1A or 12V/2A) |
| SD | Secure Digital reader/writer. SDIO 3.0 standard. |
| USB | Connects to touchscreen monitor, allowing touch control of camera. |
| LED | Power and status indicator. |
| ON/OFF | Power switch |

| Feature | Description |
|---------------------------|---|
| HDMI Output | HDMI 1.4 standard, 30fps @ 3840x2160, 30fps @ 1920x1080 |
| Internal Video Recording | 30fps @ 3840x2160, H264/H265 encoded MP4 file |
| Internal Photo Capture | 8MP (3840x2160) JPEG/TIFF file |
| Measurement Saving | Measurement information saved in layer mode with image content Measurement information is saved together with image content in burn in mode |
| ISP Function | Exposure(Automatic / Manual Exposure) / Gain, White Balance(Manual / Automatic / ROI Mode), Sharpening, 3D Denoise, Saturation Adjustment, Contrast Adjustment, Brightness Adjustment, Gamma Adjustment, 50HZ/60HZ Anti-flicker |
| Image Operations | Zoom In/Zoom Out, Mirror/Flip, Freeze, Embedded Files Browser, Video Playback, Measurement Function |
| Restore Factory Settings | Restore camera parameters to its factory default |
| Multiple Language Support | English / Simplified Chinese / Traditional Chinese / Korean / Thai / French / German / Japanese / Italian / Russian |

Dimensions



Camera Configurations

Standalone Operation



For this application, apart from the microscope, the user only needs a TXCAMLITE4K series camera, a touch screen, a HDMI cable, a USB Type A to Type C data cable, a SD card, a power adapter . The steps to start the camera are listed as below:

- Connect the HDMI output on the camera to the touch screen using the HDMI cable
- Connect the USB interface of the camera to the touch screen with the USB Type-A to Type-C cable
- Insert SD card into the SD card slot
- Conect the AC power adapter, then press the power button
- After the camera fully boots, a live image will be displayed. Touch the left side of the screen to display the control panel

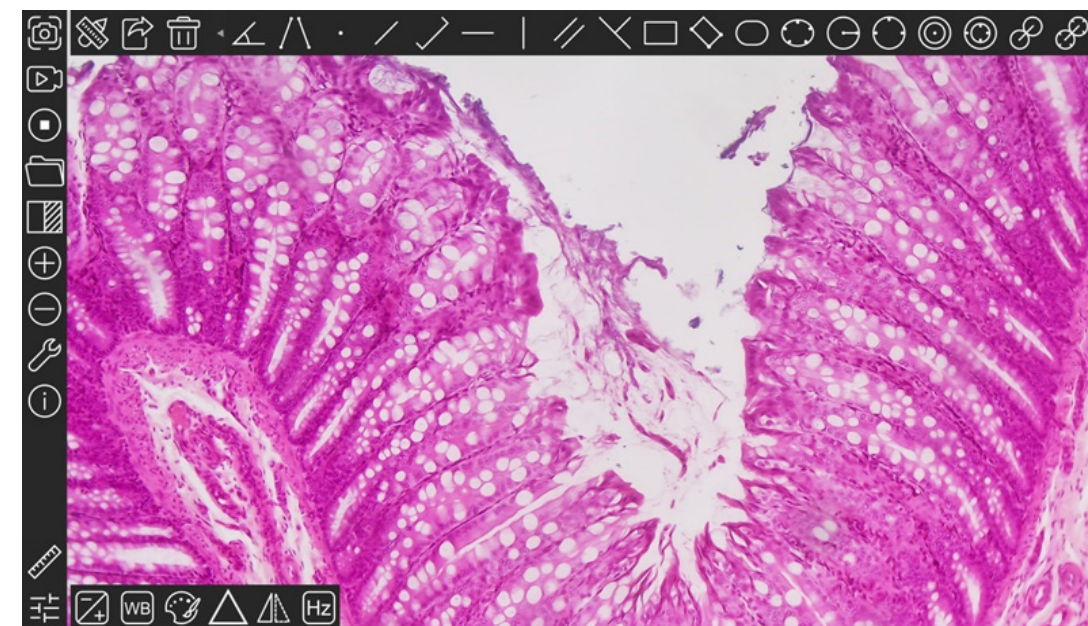
Using with a Computer

Install the included software or download the Touptview software (Windows) or Touplite software (Mac/Linux) from the OMAX website.

- Conect the AC power adapter, then press the power button
- Connect one end of the included USB cable to the camera's USB Video port, and the other end to the computer's USB 2.0 or USB 3.0 port.
- Open the software. The A35HDTTC will be displayed in the camera list in the top-left corner of the software. Clicking on the camera model will initialize the live video. Follow the software's instructions for other functions.


Note: The video output function of the USB Video interface and the touch function of the USB interface cannot be used at the same time. When the USB 2.0 A male to A male cable (see Item I in Figure 4 in Section 3) and USB Type-A to Type-C data cable are inserted into the camera at the same time, the USB Video function is preferred, and the touch function is not available; When the USB cable is unplugged, the touch function can be used normally.

The Camera's User Interface



Notes

When the user touches the left side of the video window, the Camera Control Panel will pop up automatically


When the user touches the button  on the bottom-left of the Camera Control Panel, a Measurement Toolbar will be displayed above the video window for measurement and calibration.



Click anywhere else in the video window to exit the measurement mode. During the measurement process, the user can slide left and right on the Measurement Toolbar to select the required measurement tool. When the user selects a single measurement object, the Object Position & Attribute Control Bar



will automatically pop up at the bottom of the video window to modify the position and attribute of the measurement object.

When user touches the  button on the bottom-left of the Camera Control Panel, the Image Adjustment Toolbar



Camera Control Panel

Camera control panel is used to control the camera to obtain the best video according to the specific situation. When touching the left side of the Video Window, it will be displayed automatically.

| Control Panel | Function | Description |
|---------------|--------------------------|--|
| | Snap | Capture image and save it to the SD card |
| | Video Record | Record video and save it to the SD card |
| | Video Freeze | Freeze live video preview |
| | Browse Files | Browse images and videos in the SD Card |
| | Image Comparison | Compare image with the current video |
| | Digital Zoom In | Zoom In the Video Window |
| | Digital Zoom Out | Zoom out the Video Window |
| | Settings | Camera's settings |
| | Software Information | Current software version |
| | Measurement Toolbar | Display measurement tools |
| | Image Adjustment Toolbar | Display image processing controls |
| | | |

Measurement Toolbar









| Icon | Function |
|------|--|
| | Execute Calibration to determine the corresponding relation between magnification and resolution, which will establish the corresponding relationship between Measurement Unit and the sensor pixel size. Calibration needs to be done with the help of a micrometer. |
| | Export the Measurement information to CSV file (*.csv) |
| | Delete all the measurement objects from the Video Window |
| | Angle |
| | 4 Points Angle |
| | Point |
| | Arbitrary Line |
| | 3 Points Line |
| | Horizontal Line |
| | Vertical Line |
| | Parallel |
| | 3 Points Vertical Line |
| | Rectangle |
| | 3 Points Parallel |
| | Ellipse |
| | 5 Points Ellipse |
| | Circle |
| | 3 Points Circle |
| | Annulus |
| | 3 Points Annulus |
| | Two Circles and Its Center Distance |
| | 3 Points Two Circles and Its Center Distance |
| | Arc |
| | Text |
| | Polygon |
| | Curve |
| | Scale Bar |
| | Arrow |
| | When the measurement ends, left-click on a single measurement object and the Object Location & Properties Control Bar will show up. User could move the object by dragging the object with hand or mouse. But more accurate movement could be done with the buttons. The icons on the control bar mean Move Up, Move Down, Move Left, Move Right, Color Adjustment and Delete. |

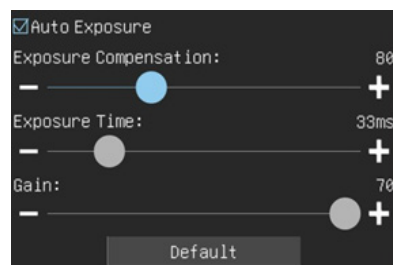
Image Adjustment Toolbar

When the  button on the bottom-left of the Camera Control Panel, the Image Adjustment Toolbar will be displayed.



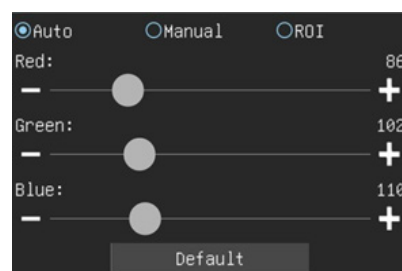
| Icon | Function | Icon | Function |
|---|-------------------|---|---------------------------------------|
|  | Exposure and Gain |  | White Balance |
|  | Color Adjustment |  | Sharpness and Denoise |
|  | Flip |  | Light Source Frequency (Anti Flicker) |

Exposure and Gain



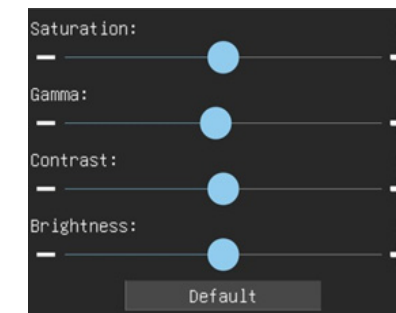
| | |
|-----------------------|---|
| Auto Exposure | When Auto Exposure is checked, the system will automatically adjust exposure time and gain according to the value of exposure compensation. |
| Exposure Compensation | Available when Auto Exposure is checked. Slide to left or right to adjust Exposure Compensation according to the current video brightness to achieve proper brightness value. |
| Exposure Time | Available when Auto Exposure is unchecked. Slide to left or right to reduce or increase exposure time, adjusting brightness of the video. |
| Gain | Adjust Gain to reduce or increase brightness of video. The noise will be reduced or increased accordingly. |
| Default | Restore the Exposure Time and Gain settings to the default values |

White Balance



| | |
|---------|---|
| Auto | White Balance adjustment according to the window video every time the button is clicked |
| Manual | Use Red, Green, Blue controls to manually adjust white balance |
| ROI | Check the ROI item will display a red ROI rectangle on the video window, drag it to the interested area will perform the White Balance according to the area video data |
| Red | Slide to left or right to decrease or increase the proportion of Red |
| Green | Slide to left or right to decrease or increase the proportion of Green |
| Blue | Slide to left or right to decrease or increase the proportion of Blue |
| Default | Restore the default white balance settings |

Color Adjustment



| | |
|------------|--------------------------------------|
| Saturation | Adjust Saturation level of the video |
| Gamma | Adjust Gamma level of the video |
| Contrast | Adjust Contrast level of the video |
| Brightness | Adjust Brightness of the video |
| Default | Restore the default color settings |

Sharpness and Denoise



| | |
|-----------|--|
| Sharpness | Adjust Sharpness of the video |
| Denoise | Adjust noise reduction filtering of the video |
| Default | Restore the default sharpness/denoise settings |

Flip



| | |
|------------|-----------------------------------|
| Horizontal | Flip the video image horizontally |
| Vertical | Flip the video image vertically |

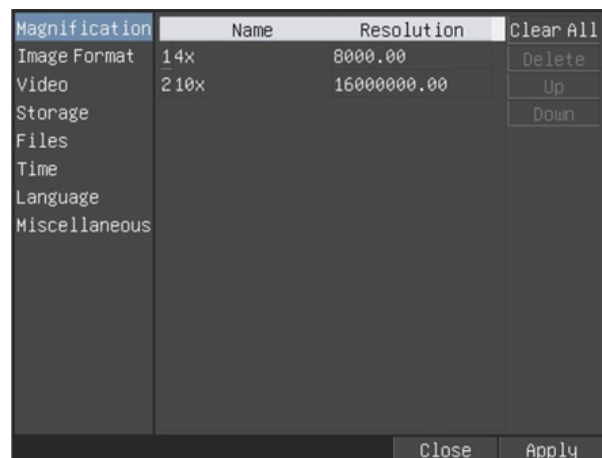
Light Source Frequency



| | |
|-----------|--|
| AC (50Hz) | Compensates for 50Hz AC powered illumination |
| AC (60Hz) | Compensates for 60Hz AC powered illumination |
| DC | Disables compensation since DC power does not exhibit fluctuations |

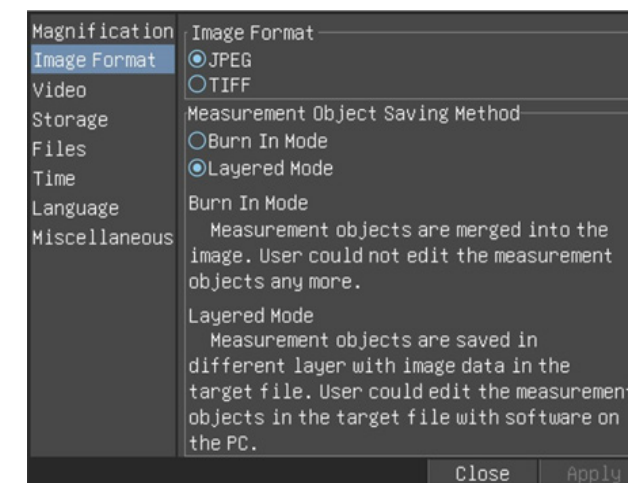
Settings

Magnification



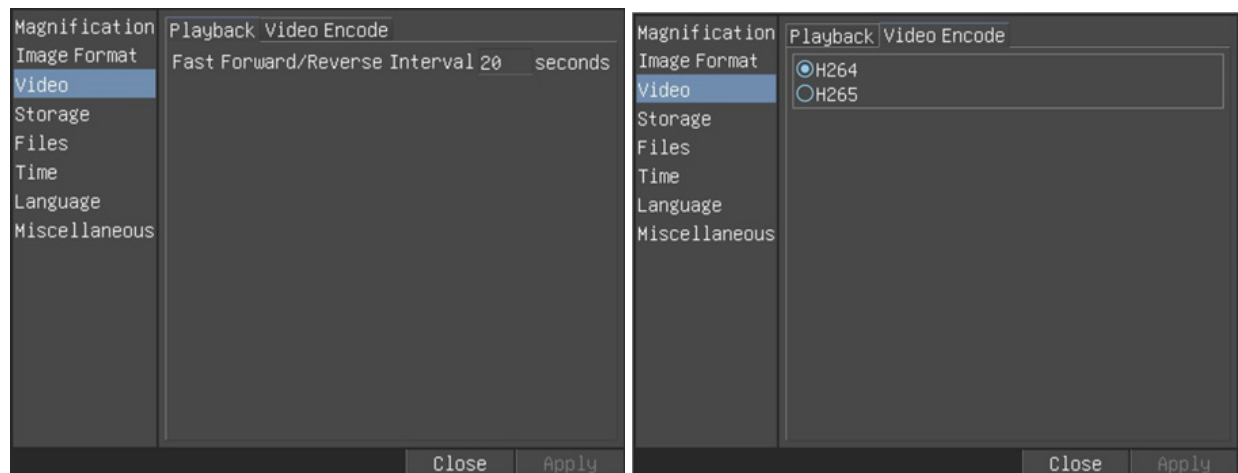
| | |
|------------|--|
| Name | The name of the Magnification, usually the Magnification of the objective of the microscope is used as the Magnification name when calibration, such as 4X, 10X, 40X,100X, etc. Besides, other user-defined information could be added into the Magnification name too, for example, microscope model, operator name, etc. |
| Resolution | Pixels per meter. Image device like microscopes have high resolution value |
| Clear All | Click the Clear All button will clear the calibrated Magnification |
| Delete | Click Delete to delete the selected Magnification |
| Up | Click Up to move up the selected Magnification |
| Down | Click Down to move the selected Magnification down |

Image Format



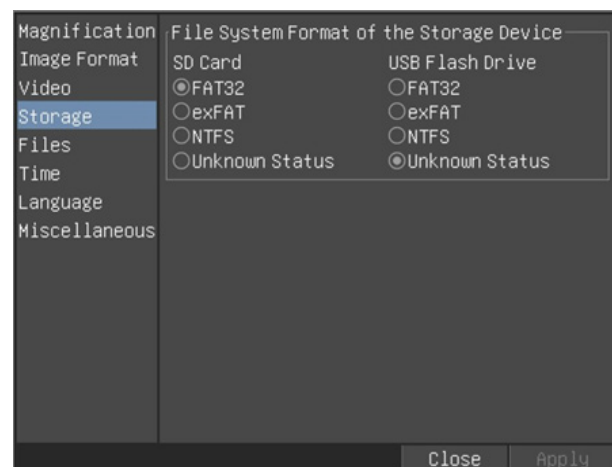
| | |
|----------------------------------|---|
| Image Format | JPEG: The extension of JPEG file can get very high compression rate and display very rich and vivid images by removing redundant images and color data. In other words, it can get better image quality with the least disk space. If Measurement Objects are available, the Measurement Objects will be burned into the image and the Measurement Objects cannot be edited. TIFF: Tag Image File Format(TIFF) is a flexible bitmap format that is mainly used to store images including photos and artistic images. |
| Measurement Object Saving Method | Burn in Mode: The Measurement Objects are merged into the current image. User could not edit the Measurement Objects anymore. This mode is not reversable. Layered Mode: The Measurement Objects are saved in different layer with current image data in the target file. User could edit the Measurement Objects in the target file with some software on the PC. This mode is reversible. |

Video



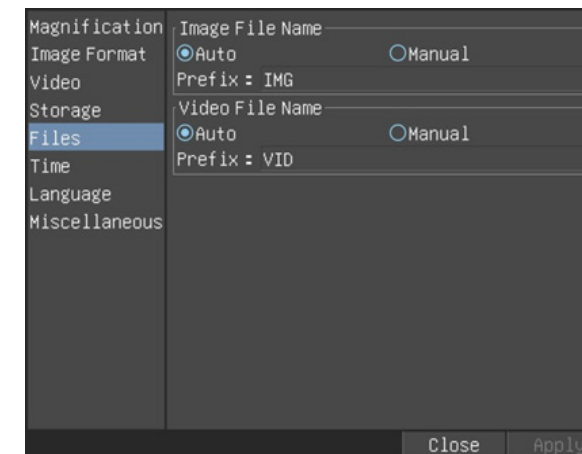
| | |
|--------------|--|
| Playback | Fast Forward/Reverse Interval: The time interval of the playback of video files |
| Video Encode | You can choose H264 or H265 encoding. H265 encoding can significantly reduce encoding bandwidth and save storage space under the same encoding quality |

Storage



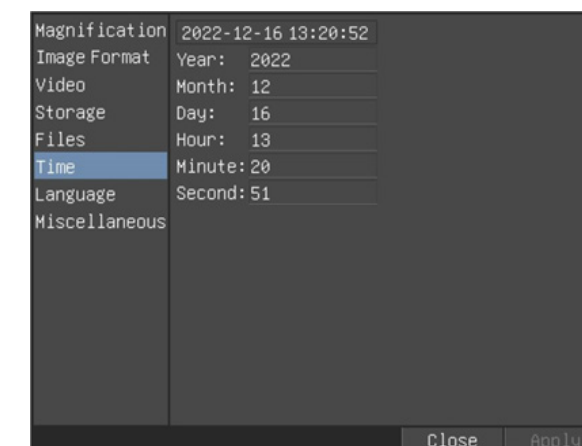
| | |
|--|--|
| File System Format of the Storage Device | <p>List the file system format of the current storage device</p> <p>FAT32: The file system of SD Card is FAT32. The maximum file size of single file in FAT32 file system is 4GB.</p> <p>exFAT: The file system of SD Card is exFAT.</p> <p>NTFS: The file system of SD Card is NTFS.</p> <p>Unknown Status: SD Card not detected or the file system is not identified</p> |
|--|--|

Files



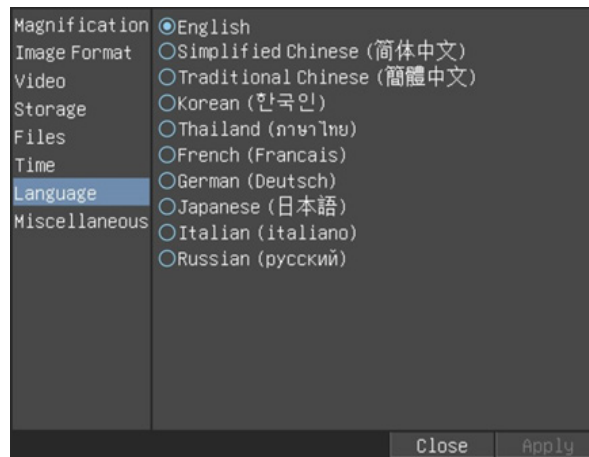
| | |
|-----------------|--|
| Image File Name | <p>Auto: The image files will be saved automatically with the specified prefix.</p> <p>Manual: Users has to specify the file name before image saving.</p> |
| Video File Name | <p>Auto: The video file will be saved automatically with the specified prefix.</p> <p>Manual: Users has to specify the Video File Name before video recording.</p> |

Time



| | |
|------|---|
| Time | Set the Year, Month, Day, Hour, Minute, and Seconds |
|------|---|

Language



Use this menu to set the preferred language.

Miscellaneous

| | |
|---------------------------|--|
| ROI Color | Choosing the ROI rectangle line color |
| Mode | Mouse mode or touch mode can be selected |
| Auto Exposure | The maximum exposure time during auto exposure process could be specified. Setting this item to a lower value could guarantee a faster frame rate during Auto Exposure |
| Camera Parameters: Import | Import the Camera Parameters from the SD card to use the previously exported Camera Parameters |
| Camera Parameters: Export | Export the Camera Parameters to the SD card to use the previously exported Camera Parameters |
| Reset to factory defaults | Reset camera settings to factory defaults |