ImCam Demo Application Manual

(API Version 1.4.3)

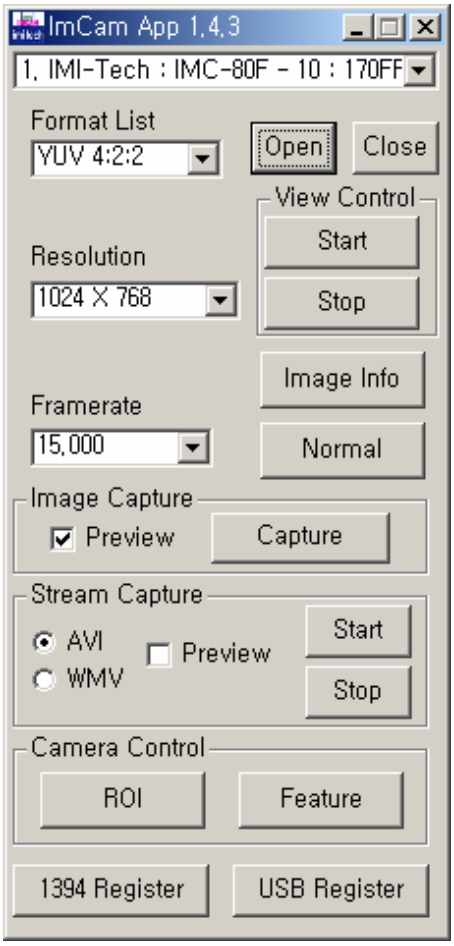
1stVision Inc

Index

1. Demo Application

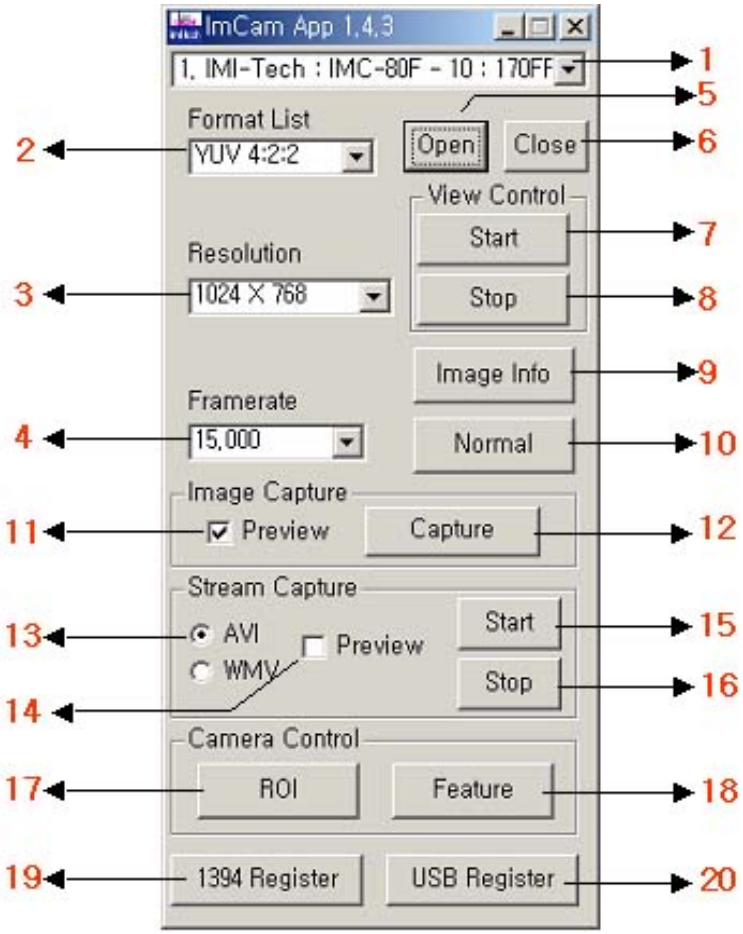
The shape of Demo Application is shown below and its version is 1.4.3.

You can find it in App version of Title Bar in Application Window. When version of API Library is updated, this will be changed accordingly.



< Figure 1 >

2. The function of each part in Main Dialog



< Figure 2 >

2.1 A Description of Camera Information

2.1.1 Camera List

It indicates the no.1 button of Figure 2 and describes the list of camera connected to computer. You can it among them. Please refer to the “Camera Manual” for the detailed format and mode camera supports.

2.1.2 Camera Format List

It indicates the no. 2 button of Figure 2 button and outputs List of the Data Format supported by the Camera which you selected and chooses it. The Data Format supported is shown below.

Camera Model	Data Format supported	Remark
MC-F433	RGB24 YUV444 YUV422 YUV411 Y800(Grey Scale)	1394

2.1.3 Camera Mode List

It indicates the no.3 button of Figure 2 and describes the list of image size supported by Data Format. Its size depends on Data Format. Once you adopted the Data Format, you can select the Mode among Lists. The image size supported by a Camera is also different according to the Camera.

The image size by an each Camera is shown below.

Model	Image Size supported
MC-F433	160x120 (YUV444) 320x240 (YUV422) 640x480 (YUV411, YUV422, RGB24, Y800)

2.1.4 Camera Frame Rate List (fps : frame per second)

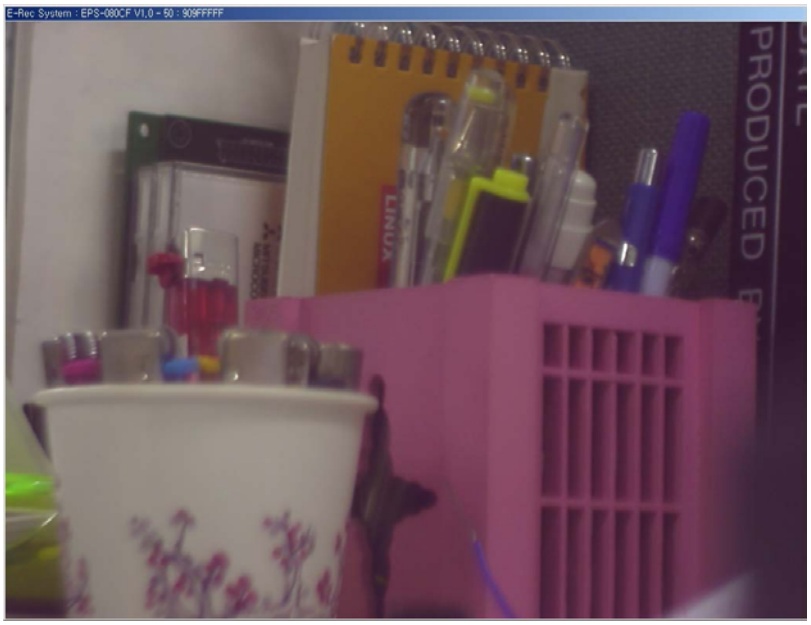
It indicates no.4 button of Figure 2 and describes the List of Frame Rate supported by the Format Mode of the Camera which you selected. You can choose the Frame Rate which you want. The Frame Rate of MC-F433 camera varies according to the Mode

Model	Frame-Rate supported
MC-F433	RGB24, 640x480 : 3.75, 7.5, 15fps Y800, 640x480 : 3.75, 7.5, 15, 30fps YUV411, 640x480 : 3.75, 7.5, 15, 30fps YUV422, 640x480 : 3.75, 7.5, 15fps YUV422, 320x240 : 3.75, 7.5, 15, 30fps YUV444, 160x120 : 7.5, 15, 30fps

2.2 Screen Display and View Control

2.2.1 Open Button

Indicates no. 5 button of Figure 2. It creates the Viewer Window of a Camera and outputs an Image transmitted from the Camera. It displays the Camera Model and Serial Number in the Title Bar.



< Figure 3 >

2.2.2 Close Button

It indicates no. 6 button of Figure 2 and closes the Viewer Window created in 2.2.1.

2.2.3 Start Button (View Control)

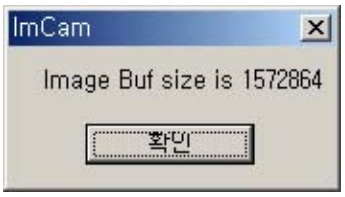
Indicates no.7 button of Figure 2. It functions to let the Camera stop or play under which Viewer Window pops up. It lets the stopped Camera to play.

2.2.4 Stop Button (View Control)

It indicates no.8 button of Figure 2. It functions to let the Camera stop or play under which Viewer Window pops up. It makes the Camera stop.

2.2.5 Image Info Button

It indicates no. 9 button of Figure 2. It displays the Data Size of Data Format which is currently transmitted in the Dialog format. The Raw Data of this Format is saved in "Image.Raw" file. For example, if the current Data Format transmitted is YUV422 and the Image Size is 1024 X 768, the total Data Size for 1 frame is '1024x768x2 = 1572864' and its value is displayed in Dialog created as shown below.



< Figure 4 >

2.2.6 Normal Button

It indicates the no.10 button of Figure 2. It supports the Camera with External Trigger only. When push the Button, the contents written on the Button are changed into "Trigger" to display that the Trigger mode is on. In this state, one frame data will be transferred when use push the trigger switch. Changing modes between normal mode and trigger mode should be done while the display window opened.

2.3 Image Capture Control Button

It is used to control the function which saves the Data transmitted from the Camera in one piece or more into Image File format. The way to control Image Capture and the description in detail are made in Chapter 3.

2.3.1 Preview Check Button

It indicates the no.11 of Figure 2. It creates the Image Capture Dialog to save Image transmitted from the Camera. And when carrying out an Image Capture, it controls whether it creates a Viewer Window or not. Under making Still Capture, whether under which Viewer Window is popped up or under which Viewer Window is not popped up, Object-capturing is the same. But Under making capturing in continuous mode, the amount of Image is different depending on Viewer Window's creation.

2.3.2 Capture Button

It indicates the no.12 of Figure 2. It creates the Capture Dialog to control Image Capture. The description of a Capture Dialog in detail is made in Chapter 3.

2.4 Stream Capture Control Button

It can save the Data transmitted from a Camera into moving image and includes Buttons to set them.

2.4.1 AVI Radio Button

It indicates the no.13 of Figure 2 and it can save a Data transmitted from a Camera in AVI or WMV(Window Media Video) format. AVI Radio Button chooses in which format the moving image save and it can save in one format only at a time. In order to save a Moving Object in WMV format, you should set install Window Media Encorder provided by Micro Software co. in your PC.

2.4.2 Preview Check Button (Stream Capture)

It indicates no.14 button of Figure 2. As with Image Capture, when it captures a moving image, it controls whether it will create a Viewer Window or not.

2.4.3 Start Button (Stream Capture)

It indicates a no.15 button and begins to capture a Moving Image.

2.4.4 Stop Button (Stream Capture)

It indicates a no.16 button of Figure 2 and stops capturing a Moving Image.

2.5 ROI Button

It indicates a no.17 button of Figure 2 and is a button to carry out a function of ROI(Region of Interest) or Format(IEEE1394 Standard). This function features to receive the data from the maximum image size supported by a Camera to a lower image size. When push this button, the Dialog to control ROI comes and its description in detail is shown in Chapter 4.

2.6 Feature Button

It indicates a no.18 button of Figure 2 and a Dialog to control the Features supported from a Camera comes. Its description in detail is shown in Chapter 5.

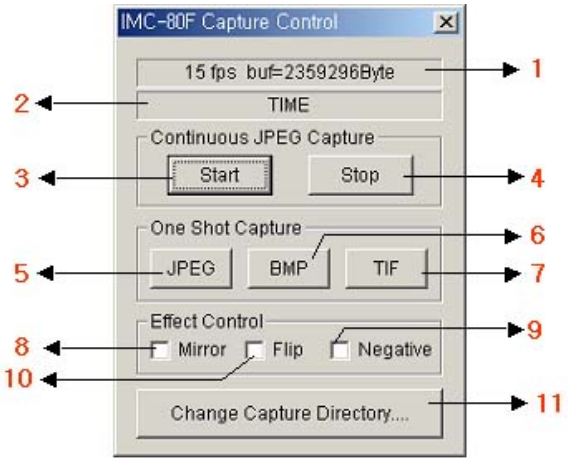
2.7 Debug Button

It indicates a no.19 button of Figure. The Dialog to carry out the function of Read and Write of 1394 Register supported from a standard 1394 specification comes. Its description in detail is shown in Chapter 6.

3. The Function of each part of Image Capture Dialog

3.1 Capture Dialog

Capture Dialog is shown below and it comes when push Capture Button of Main Dialog.



< Figure 5 >

3.2 The Display of Capture Information

It displays the information of Image Capture and both frame-Rate transmitted at real-time and the lasting time period after creating Capture Dialog.

3.2.1 Frame Rate Information

It indicates a no. 1 button of Figure 5. It displays the actual Frame Rate transmitted to Application.

3.2.2 Information of Capture Time

Indicates a no.2 of Figure 5 and displays the elapsed time period after creating Capture Dialog.

3.3 The continuous saving of JPEG Image

It can continuously save JPEG Image in Demo Application and at this time, the file name is automatically saved as time shown in no.2 of Figure 5.

3.3.1 Start Button

I indicates no. 3 button of Figure 5 and saves continuously Image in JPEG format.

3.3.2 Stop Button

Indicates no. 4 button of Figure 5 and stops a continuous Image saving in JPEG format.

3.4 Saving One Shot Image

In contrast to a continuous saving described in above 3.3., it saves only Image pushed at the same time when you push the Button.

3.4.1 JPEG Button

It indicates the no. 5 button and it saves the Image in JPEG format.

3.4.2 BMP Button

It indicates the no.6 button and it saves the Image in BMP format.

3.4.3 TIF Button

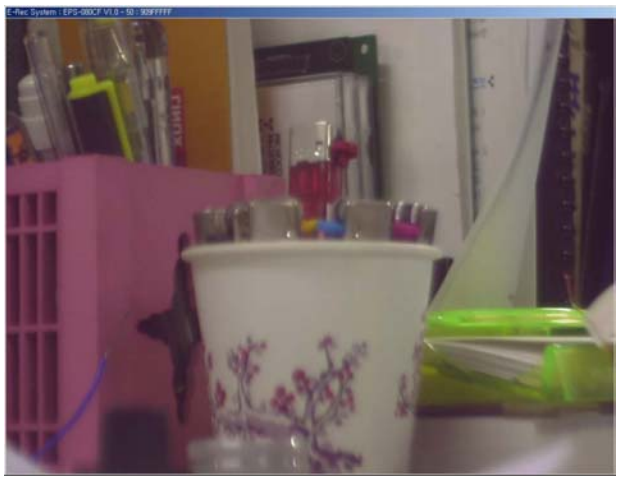
It indicates the no.7 button and saves the Image in TIFF format.

3.5 Image Effect Control

It carries out the Effect of Image displayed in Viewer Window. When it applies for several Effects at the same time, Real Frame can not be appeared depending on the performance of the System. If sets the Effect and saves the Image, Effect is applied and saved in Image.

3.5.1 Mirror Check Button

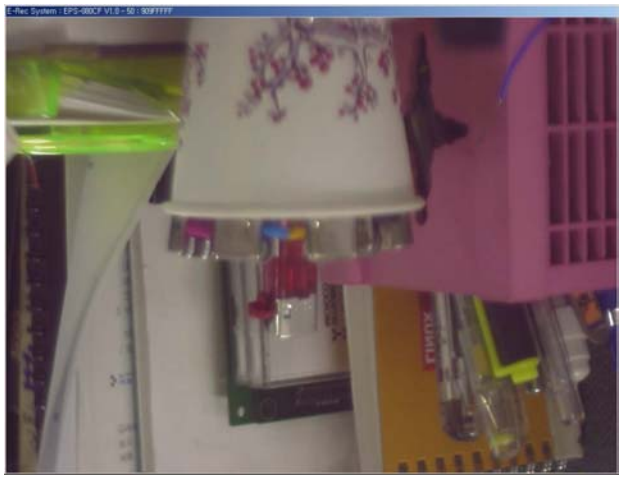
It indicates no.8 of Figure 5 and displays an Image of Viewer Window as you see the mirror as shown below. The figure is what you put the button of Mirror Effect for Figure 3.



< Figure 6 >

3.5.2 Flip Check Button

It indicates no. 9 button of Figure 5. It displays an Image of Viewer Window as reversed up-down form as shown below. The picture is what you put the Button of Flip Check Button for Figure 3.



< Figure 7 >

3.5.3 Negative Check Button

It indicates a no.9 button of Figure 5. It displays an Image of Viewer Window as a negative form as shown below. The picture what you put the Negative Effect button for Figure 3.

< Figure 8 >

3.6 Changing the destination directory for saving capture data

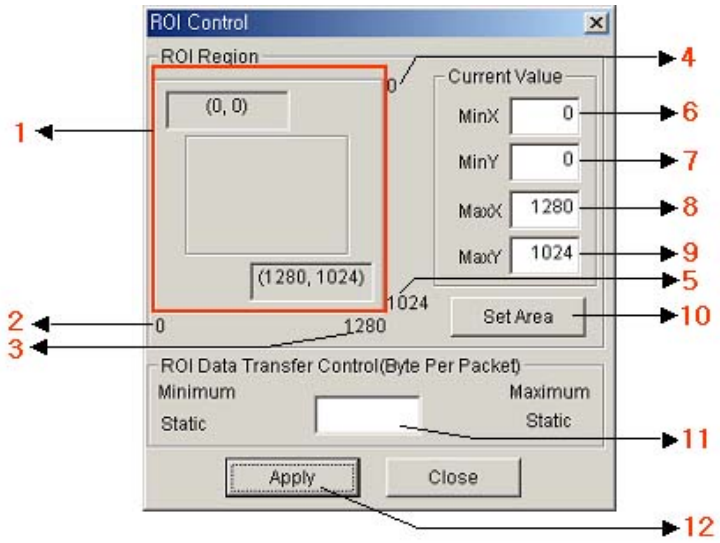
Indicates no. 10 button of Figure 5 and it can change the destination directory for saving captured data. Default directory is the ‘‘Data’’ directory where the application located.

4. ROI(Region Of Interest)

This function features a display of a selectable Image size besides a given Mode Date of a Camera. The size of Data scope relies on a total amount of data which a CCD Sensor of a Camera can acquire. Some cameras does not support ROI mode please check the camera manual if the camera supports this mode.

4.1 ROI Control Dialog

The Control Dialog of ROI is shown in Figure 9 and it appears when you put the ROI button of Main Dialog. To transfer the Camera in ROI mode, you should select the Mode beginning with "Format 7" in Resolution List of Application Main Dialog. If you put the ROI Button without selecting a Format 7 Mode, it displays an Error Dialog as shown in Figure 10.



<Figure 9 >

<Figure 10 >

4.1.1 Status View

It indicates the no. 1 of Figure 9 and it displays the scope of a selected ROI. When it activates for the first time, it displays the scope of ROI selected previously. However, when you connect the Camera and let the Dialog activated, it displays the maximum size of scope supported in ROI Mode.

The position of Viewer Scope displays the (Left, Top), (Right, Bottom) of selected Scope, respectively. When you put the No. 10 button of Figure, it updates a Status View accordingly.

4.1.2 The Max/Min scope supported in ROI Mode

The Max/Min scope supported in ROI Mode indicates the no. 2, 3, 4 and 5 button of Figure 9 and represents the Width and Height supported in the Camera each.

4.1.3 The Selection of ROI Scope

It indicates the scope of no. 6,7, 8 9, all corresponding to Edit box of Figure 9 and it is used for setting the scope needed in ROI Mode. The minimum size of the ROI scope which currently supported is 160 X 120 and the maximum size is one defined on the Camera's model each.

When you select the scope, you should set size of the Scope as a multiple of button no.10

< Figure 11 >

4.1.4 The Setting of ROI Scope

It indicates the no.10 button of Figure 9. When you select the Scope of ROI wanted, you should put this button without fail. AS the scope selected in above 4.1.3 is a just information which Application only has, you should put this Button to transfer it to a Camera. At this time, the information displayed in Status View and that of Data delivered are altered. Also If Viewer Window is activated when you put this Button, Viewer Window is automatically closed.

4.1.5 The Setting of Size of Data Transmission

I indicates the no. 11 Button of Figure 9. When the Camera runs in Format 7 mode in IEEE1394 specification, the Frame rate is altered. As a result of it, it can selectively control the Size of Data between a PC and a Camera.

At this time, it automatically calculates the value of the maximum and minimum of the scope selected and displays them on the left and right each

4.1.6 The Activation of ROI Mode

It indicates the no.12 button of Figure 9. When you this button, Data actually is being transferred between a Camera and PC and Viewer Window for the ROI Scope defined automatically is created. The picture below is a Viewer Window for a total scope and a selected scope.

Figure 12 is a picture which is shown when you set the scope of (0,0) ~ 400,600) of a Figure 11 by selecting a ROI function and push the button View.

< Figure 12 >

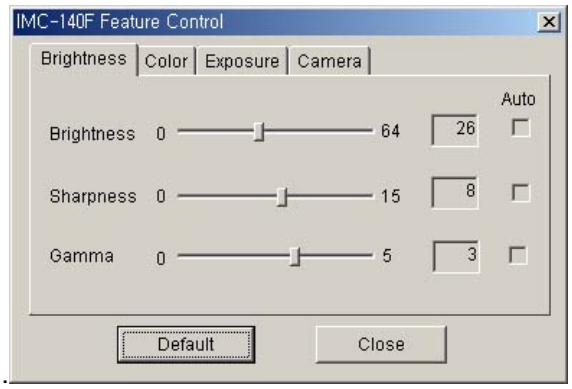
< Figure 13 >

5. Feature Control

It indicates the no. 18 button of Figure 12 and you can control the Features supported by the Camera

5.1 Feature Control Dialog

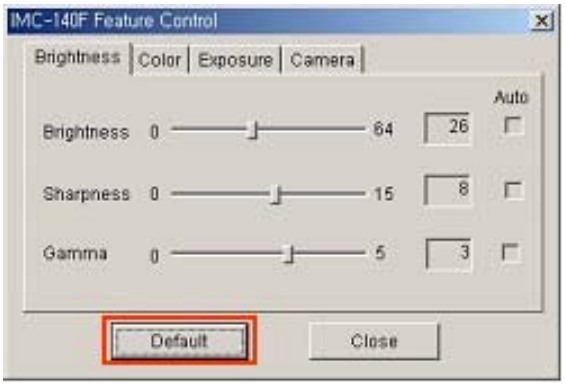
When you push the No. 18 button of Figure 2, the Feature Dialog as shown below is activated.



< Figure 14 >

5.2 The Setting of an Initial Value when shipped at a factory

When you push the "Default Button" in the figure below, all the value set so far is ignored and they are initialized as Factory Default Value set when shipped at a Factory. Because the default feature values can be different with this manual, please refer to the "Camera Manual".



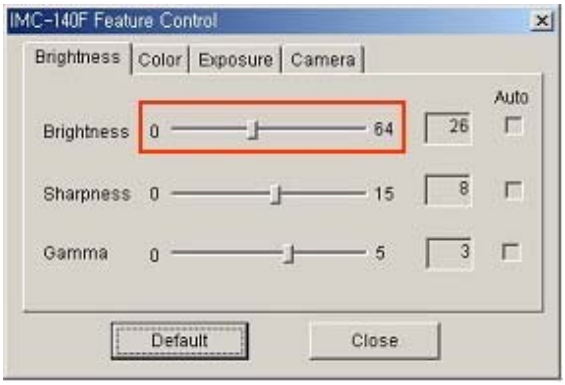
< Figure 15 >

5.3 Brightness Tab

When you select the Brightness Tab among the Tabs in the upper of Figure 13, this figure is displayed and the Brightness Tab is not activated the time when shipped at a factory.

5.3.1 Brightness Control

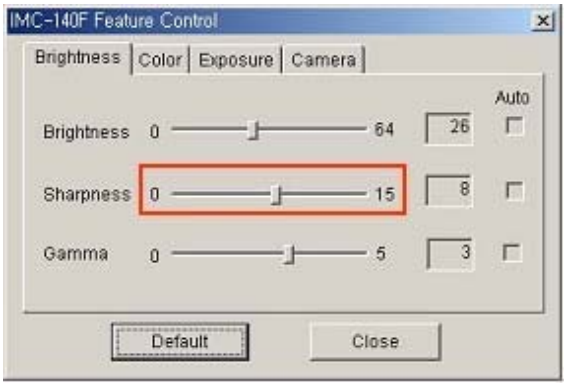
It adjusts the Brightness with a Slider lever. When you moves the Slider lever to the right, the Brightness becomes the lighter and when you move the Slider lever to the left, the Brightness becomes the darker. The value of the Factory Default is “26”.



<Figure 16 >

5.3.2 Sharpness Control

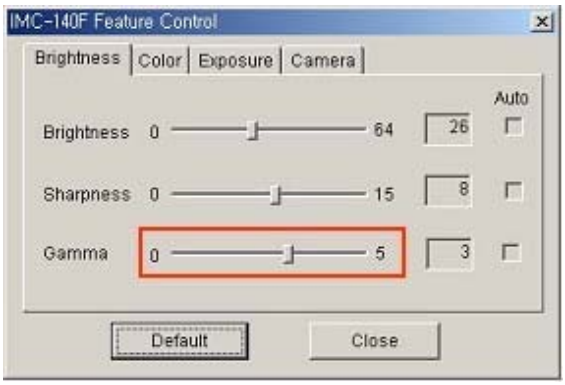
It adjusts the Sharpness of the Camera and controls sharpness of the edge. The Sharpness becomes the more clear when you move the slider lever to the right. When you move the slider lever to the left, it becomes the less clear. The value of Factory Default is “8”.



< Figure 17 >

5.3.3 Gamma Control

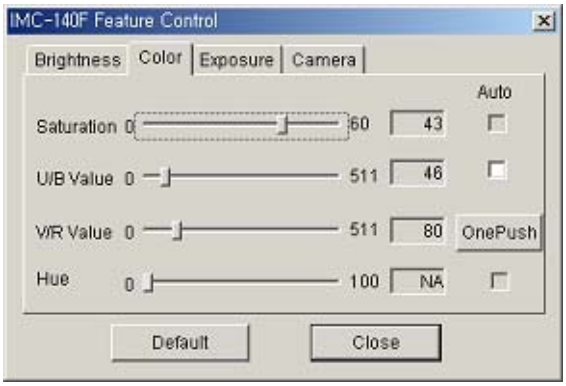
It adjusts the Gamma of the Camera .The larger the value of the Gamma becomes, the brighter the screen is getting.. The smaller the value of the Gamma becomes, the darker the screen is getting. But when the value of the Gamma is “0”, the brightness is lighter more than When the value of “1. The value of Factory Default is “3”.



< Figure 18 >

5.4 Color Control Tab

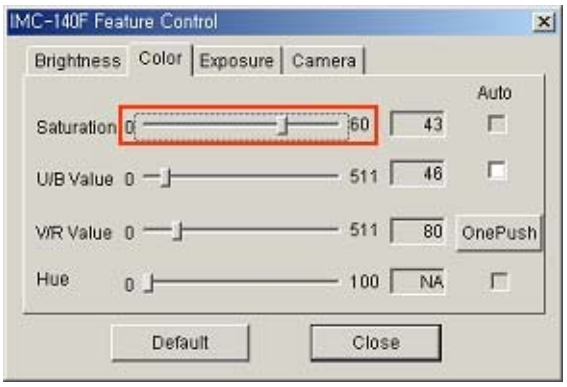
When you select the Color Tab among the upper parts of Figure 13 as shown, you can control the Color in the Dialog as shown



< Figure 19 >

5.4.1 Saturation Control

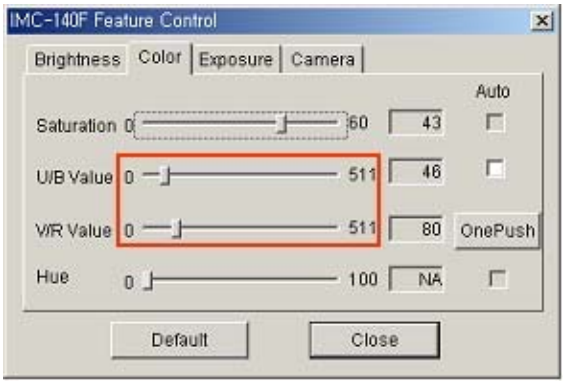
It adjusts the value of Saturation of the Camera. The smaller the value becomes, the lighter the density of the color is getting. But when the value is “0”, it appears as Grey Scale. The larger the value is getting, the more the density of the color. The value of Factory Default is “43”.



< Figure 20 >

5.4.2 White Balance Control

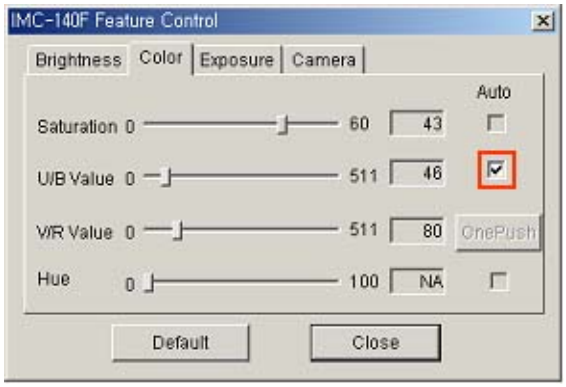
It adjusts the value of color, blue, red of the Camera. If you move the U/B Slider lever to the right, the blue color will be more emphasized on the screen. If you move the V/R Slider lever to the right, the red color will be more emphasized. The value of a Factory Default for White Balance is that "B" is "46" and "R" is "80", respectively.



< Figure 21 >

There are two ways to support Auto Mode of White Balance. One is to transfer to a complete Auto Mode and the other is to transfer to Auto Mode only when you put the Button.

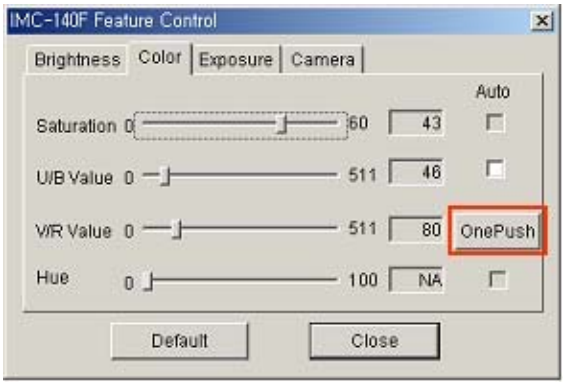
First, when you click the Auto, White Balance functions to move in Auto Mode. The way to verify the Auto Mode is that after you select the value of B and R and put the Check Button, you have to check the screen appeared on Viewer Window. When you select Auto Button this way, "OnePush' Button will be non-active.



< Figure 22 >

The other way for transferring to Auto Mode is click the "OnePush Button".

When you put the OnePush Button, the Camera executes the function of White Balance in Auto Mode. To return to Manual Mode, you have to click the OnePush Button again. Then, the Button will be inactive and immediately after the completion of Auto algorithm, the Button will be active.



< Figure 23 >

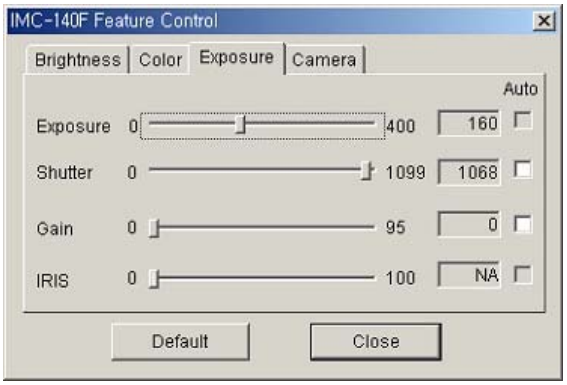
No matter which Auto Mode you select , when the mode is transformed to Manual Mode from Auto Mode, the changed value of the B and R inside the Camera will be reflected in the Dialog. The Slider lever of B and R in the Dialog is positioned at an appropriate point and the new value is appeared on the right rectangular .

5.4.3 Hue Control

In adjusts the value of the Hue. Currently there is no Camera to support the Hue function.

5.5 Exposure Control Tab

When you click the Exposure Tab in the upper area of Figure 13, the Dialog to control Exposure as shown below appears.

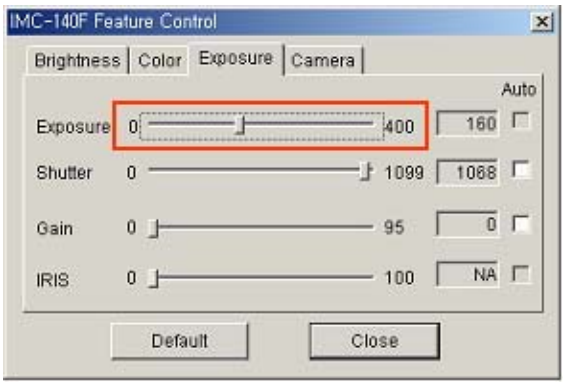


< Figure 24 >

5.5.1 Exposure Control

It adjusts the value of Exposure of the Camera. As the value is the criterion for Auto algorithm, even though the Slider lever moves to the left –or right-hand, there is no change on the screen. For example, when you set Auto Mode for Shutter and Gain , after setting the Exposure at lower rate, the screen is getting darker and Auto Mode functions accordingly.

When you set Auto Mode after setting the Exposure at higher rate, Auto Mode functions in a bright side. The value of Factory Default in Exposure is “160”.

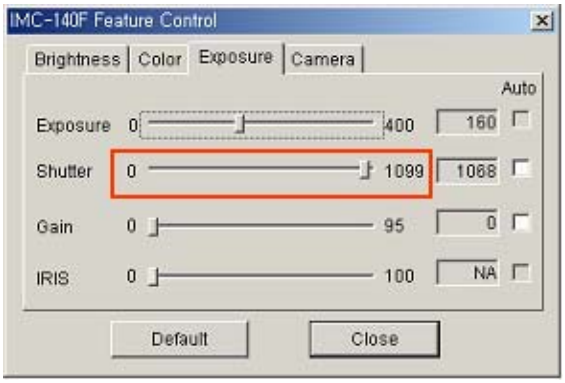


<Figure 25 >

5.5.2 Shutter Control

It adjusts the value of the Shutter of the Camera. When you move the Slider lever to the left,

the screen becomes darker and darker. At 0, the Shutter is 1/20,000 and the screen is becoming totally black. When you move the Slider lever to end on the right, the value is 1068 and the Shutter is 1/7.5. The value of Factory Default in Shutter is "1068.



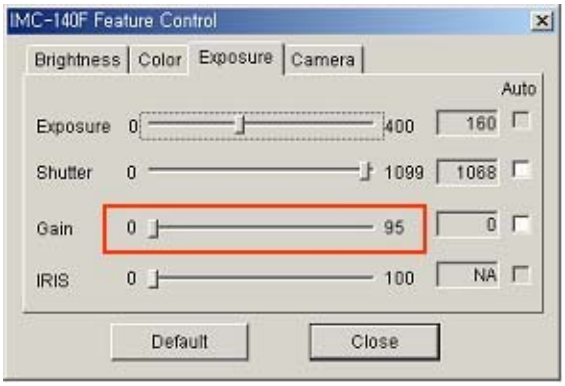
< Figure 26 >

Just as in White Balance, the Auto Mode of Shutter functions as Auto Mode when you click the Button on your right hand. According to the value of Exposure, the screen becomes darker or lighter.

The following figure is what the value of the Shutter appearing on the Slider is converted into a second. The relation between real exposure time and the register value is described in the "Camera Manual".

5.5.3 Gain Control

It adjusts the value of the Shutter of the Camera. The smaller the value of the Gain is getting, the lighter the screen becomes. The value of the Factory Default at Gain is "0".



< Figure 27 >

The Auto Mode functions when you click the Button on the right- hand. Just as in Shutter, it

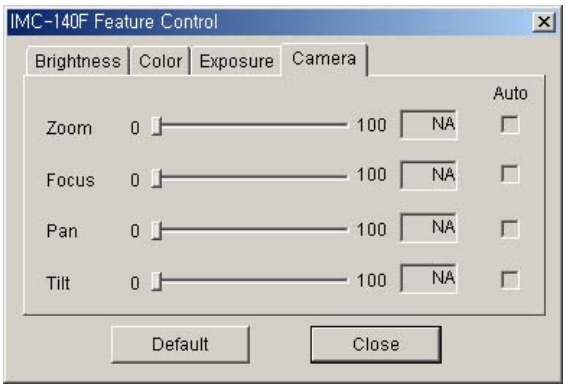
becomes lighter or darker according the value of the Exposure.

5.5.4 IRIS Control

It controls the IRIS but at present, there is no camera to control IRIS

5.6 Camera Control Tab

It is activating only for Camera which supports Zoom Lens. Among the current 1STVISION TECH cameras, there is no camera to support this function.

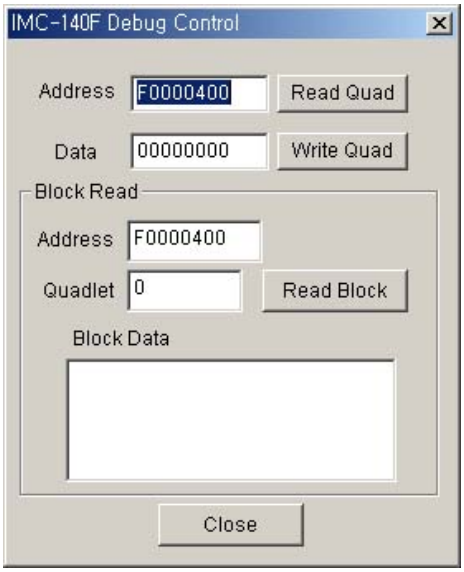


< Figure 28 >

6. Debug 1394 Register

6.1 Debug Dialog

It indicates No.19 of the Figure 2. It makes access to the Register area defined in the IEEE1394 specification. When you put the button no.19 of Figure 2, the Dialog below appears.



< Figure 29 >

6.2 Debugging 1394 Register

Debug is the Dialog Interface which read and write scope of ConfigRom and Camera Control and Status Register in the IEEE1394 specification. As IEEE1394 standard defines the accessibility and scope to write, you have to refer to it for more information in detail.

The accessibility to the scope of writing and reading of IEEE 1394 specification is consisting of quadlet (32 bit) and it makes possible to access by one quadlet or several quadlets at a time.

The lower area carries the operation of Block Read. In case of operation for an unit of Quadlet, you input the Address to access to Address Edit Box and put the Read Quad Button. Then, the results reading from Data Edit Box are appearing on under side. In case of Writing, you input the value in Data Edit Box and put the Write Quad Button.

In operation of a unit of Block, you input the Address to access to the Address Edit Box and the number of Quadlet to read in Quadlet Edit Box and put the Read Block Button. Then, Data Blocks resulting from it appear on Block Data Edit Box.