

一寶實達有限公司

FlyCapture 2.4.X.X 軟體操作說明文件

初始化選單

FlyCapture2 Camera Selection 2.4.3.10

Camera List (1 cameras detected)

Serial #	Model	Interface	IP Address
12071150	Flea3 FL3-U3-13S2C	USB 3.0	N/A

Camera Information

Serial Number:

Model: Flea3 FL3-U3-13S2C

Vendor: Point Grey Research

Sensor:

Resolution: 1328x1048

Interface: USB 3.0

Bus Speed: 55000

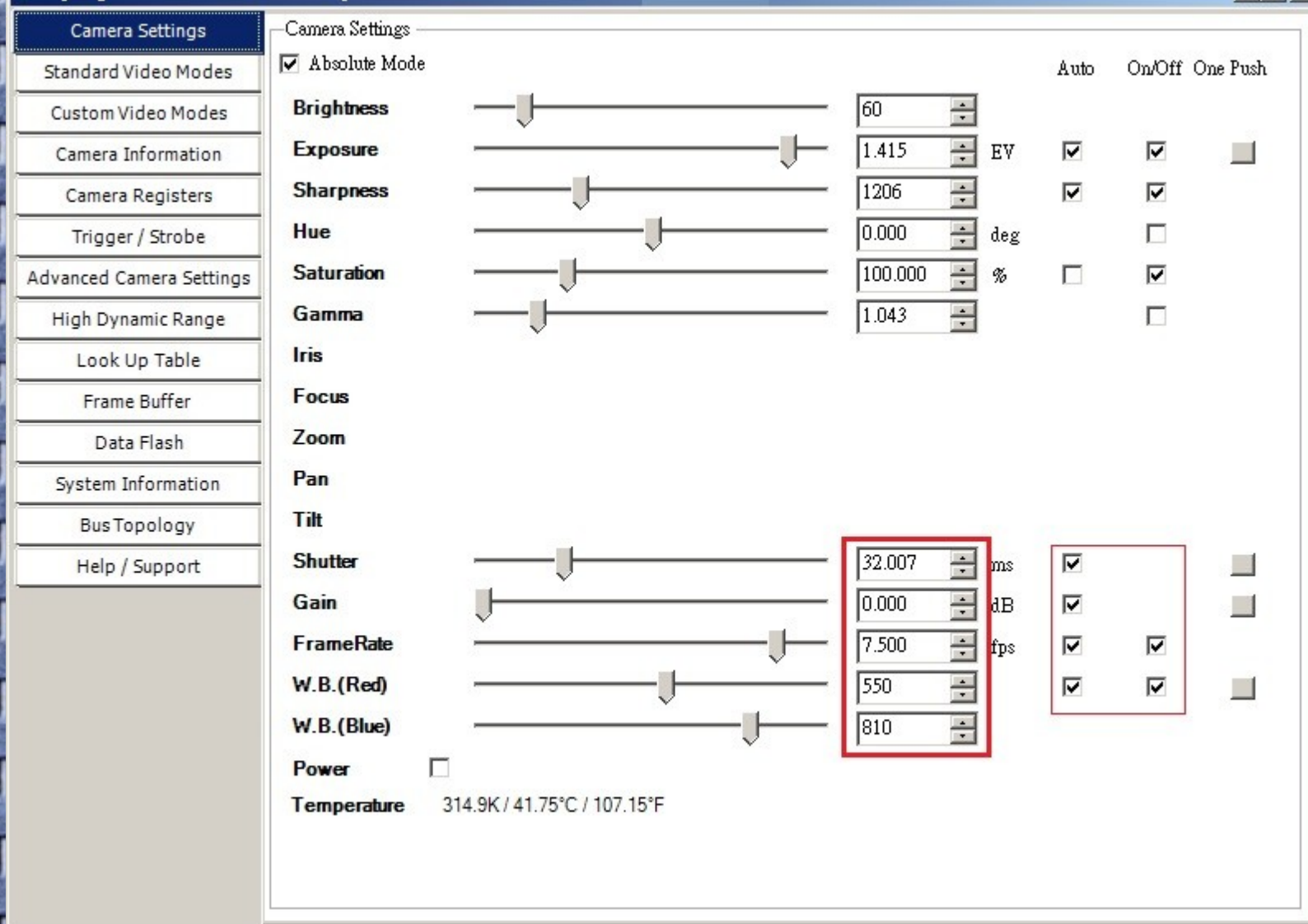
PCIe Bus Speed: Unknown PCIe bus speed

IIDC Version: 1.32

Firmware Version: 1.34.3.0

Firmware Build Time: Thu Sep 20 16:38:52 2012

Driver: USB Camera Driver
(PGRUsbCam.sys) - 2.3.3.48



- 曝光時間、增益、白平衡預設為自動調整，個別取消 Auto，就可以寫入特定值設定影像與像素比例。
- 環境若比較亮，通常建議將 Exposure 的 Auto 關閉，並寫入 -1.0 EV，若是較暗的環境，設定 Exposure 為 2.0 EV。
- 可透過 One Push 功能達到適當的設定值。

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Custom Video Modes

Start: (24,44) End:(1304,1004)
Dimensions: 1280 x 960
Cursor: (1147, 1040)

Mode: 0

Pixel Format: Raw 8

Image

Left: 24 Width: 1280
Top: 44 Height: 960

Center ROI Max Image Size

Binning (GigE Only)
1 by 1
Horizontal Vertical

Format 7 Packet Size
308 18788
Packet Size: 18788

Packet Delay
Min Max
Packet Delay: 0

Apply

Image Information

Maximum image size: 1328x1048
Image size units: 16(H), 2(V)
Image offset units: 4(H), 2(V)
Pre color processing subsampling: N/A
Post color processing subsampling: N/A
Standard binning: Unknown
Bayer binning: Unknown
Cols: N/A Rows: N/A

Bandwidth Information

Image Size: 1228 KB
Estimated Bandwidth: -- MB/s

計算傳送影像封包，將游標拉至最右邊將設定最大影像封包值為"18788"，按下 Apply 將計算目前封包值所佔用的頻寬，顯示在 Estimated Bandwidth，並且依主機的硬體配備呈現傳輸影像的品質，在不同的標準介面協定所使用的頻寬，所得的臨限值將視主機的資源所得。

- Custom Video Mode 預設為 Mode 0，彩色相機像素格式預設為 Raw 8，灰階相機的像素格式為 Mono 8，如上圖說明，按 Apply 運行。
- 相機介面協定的預設最大 PacketSize 可設定相機幀率至最快，但是可能主機硬體配備並沒有很高的資源可以分配，所以必要將 PacketSize 縮減，確定 Flycapture 2 可以正確顯示攝影機目前的影像。

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Camera Information

Basic

Serial Number:
Model: Flea3 FL3-U3-13S2C
Vendor: Point Grey Research
Sensor: Sony IMX035 (1/3" 1280x1024 CMOS)
Resolution: 1328x1048
Interface: USB 3.0
Bus Speed: S5000
PCIe Bus Speed: Unknown PCIe bus speed
I2C Version: 1.32
Firmware Version: 1.34.3.0
Firmware Build Time: Thu Sep 20 16:38:52 2012
Driver: USB Camera Driver (PGRUsbcam.sys) - 2.3.3.48

Copy to Clipboard

← 可複製以上的攝影機驅動資訊，儲存為文字檔(.txt)，將來若攝影機韌體有問題，可傳回本公司技術工程師相關業務。

Advanced

Time since initialization: 0h 32m 8s
Time since last bus reset: 0h 32m 8s
Transmit failures: 0
Pixel clock frequency: 216.00000 MHz
Horizontal line frequency: 121076.3 Hz

Reset

感測器每個像素的更新頻率，視目前設定的影像模式而定，這是在Custom Video Modes的影像數據能力，軟體與系統同步化的時候將影響 Processed FPS 的最大更新率。

- 說明攝影機晶片組與介面傳輸速率，請預備一份攝影機韌體版本資訊，方便以後進一步確認更新韌體的步驟。

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Camera Register Manipulation

Read / Write Register

Register (Hex):

0

Name:

INITIALIZE

Value:

00 00 00 00 0.000000
 00000000 00000000 00000000 00000000 IEEE 754
 0 - 7 8 - 15 16 - 23 24 - 31

Write Register

Read Register

Read / Write Register Block

Register (Hex):

0

Number of quadlets to read:

1

Offset	Value	IEEE 754	Name

Write Register Block

Read Register Block

輸入控制命令，請翻閱 Point Grey Research Register Reference.pdf

輸入命令控制位元格式，以上文件有詳細格式說明二進位操作方法。

請先輸入Register，按下A取得目前命令的設定值，若已修改設定的Value，按下B設定相機狀態或是影像屬性值。

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Trigger / Strobe Control

Trigger Control

☐ Enable / disable trigger

Mode: 0

Parameter: 0

Trigger Source

☒ GPIO 0 ☐ GPIO 1

☐ GPIO 2 ☐ GPIO 3

☐ None

Trigger Polarity

☒ Low ☐ High

Trigger Delay

☐ Enable / disable delay

0.0000

Min trigger delay: 0.00000s

Max trigger delay: 0.00000s

Software Trigger

Fire Software Trigger

Pin Direction Control

This is usually only used to manually set pins as input without setting them as a trigger source.

GPIO 0: ☒ In ☐ Out

GPIO 1: ☐ In ☒ Out

GPIO 2: ☒ In ☐ Out

GPIO 3: ☒ In ☐ Out

Strobe Control

GPIO 0

☐ Enable strobe for this pin

Polarity ☐ High Delay: 0.00

☐ Low Duration: 0.00

GPIO 1

☒ Enable strobe for this pin

Polarity ☐ High Delay: 0.00

☒ Low Duration: 0.00

GPIO 2

☐ Enable strobe for this pin

Polarity ☒ High Delay: 0.00

☐ Low Duration: 0.00

GPIO 3

☐ Enable strobe for this pin

Polarity ☒ High Delay: 0.00

☐ Low Duration: 0.00

A. 設定觸發模式，請參閱攝影機技術文件，該表格說明攝影機支援的觸發模式。

B. 設定訊號輸入接腳，或按下 Software Trigger 測試取像為正常連線。

C. 設定輸入訊號在下降沿，或是上升沿的狀態進行觸發。

D. Strobe Control 可設定攝影機接受觸發訊號，同時輸出訊號驅動外部裝置，唯一需要設定的是輸出訊號的周期。

E. Trigger Delay 可設定特定時間後顯示觸發影像，通常不會特別設定此條件。

- 開啟 / 關閉 攝影機觸發，並可外接驅動裝置，比如光源，LED，或馬達等等。

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Advanced Camera Settings

- ☐ Raw Bayer output
(Only for Y8 and Y16)
- ☐ Mirror image (horizontal flip)

Y16 Endianness

- ☒ Big endian (IIDC 1394 DCAM Y16 mode)
- ☐ Little endian (PGR-specific Y16 mode)

Display Test Pattern

- ☐ Pattern 1
- ☐ Pattern 2
- ☒ None

Memory Channels

Channel: Default

Note: Saving to the default memory channel restores the camera to factory defaults.

Save Restore

Embedded Image Information

Select the frame-specific information to be embedded in the image.

- ☐ Timestamp
- ☐ Exposure
- ☐ Gain
- ☐ White balance
- ☐ Shutter
- ☐ Frame counter
- ☐ Brightness
- ☐ Strobe pattern

Select All

Unselect All

Auto Range Control

Property: Exposure

Min: N/A Max: N/A

Get Range

Set Range

Bus Speed Control

Async Speed: S3200

Isoch Speed: S3200

A、Y16 Endianness

預設16Y輸出影像格式，Point Grey 驅動程式的像素排列方法或是一般影像像素的排列方法。

B、影像樣版測試，可檢視影像正確性，沒有出線表示顯示驅動未支援。

C、攝影機內部儲存使用者設定，Default可回復出廠設定值，1,2使用者設定，可在不同的工作環境下讀取相同的設定值。

D、若能按下GetRange，可設定限制 Exposure，Shutter，Gain的工作值域。

E、攝影機介面的資料傳輸協定，若是 FireWire 相機可從 S800切換S400以下的傳輸協定。

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High Dynamic Range

☐ Enable high dynamic range

HDR Image 1

Gain:  N/AShutter:  N/A

HDR Image 2

Gain:  N/AShutter:  N/A

HDR Image 3

Gain:  N/AShutter:  N/A

HDR Image 4

Gain:  N/AShutter:  N/A

注意相機是否支援HDR。

啟動HDR，可依序儲存四張不同補光或減光的影像，或有支援觸發模式四，可設定parameter = 4，按下 Software Trigger 就可以重疊影像，做出高動態範圍的合成圖。

或透過第三方合成軟體可以讀取並重疊加強四張影像效果。

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Look Up Table

☒ Enable LUT
(IIDC 1.32 mode)

Bank

0

Channel

All

Line Style

☒ Linear☐ Spline☐ Free

Clear

Camera Operations

Load from camera

Set to camera

File Operations

Open

Save

啟動 Look Up Table

設定輸出影像像素資料對映的曲線圖，若需要有特殊效果的影像，可以儲存".lut"檔案，並且突顯目標的特色。

Output

511

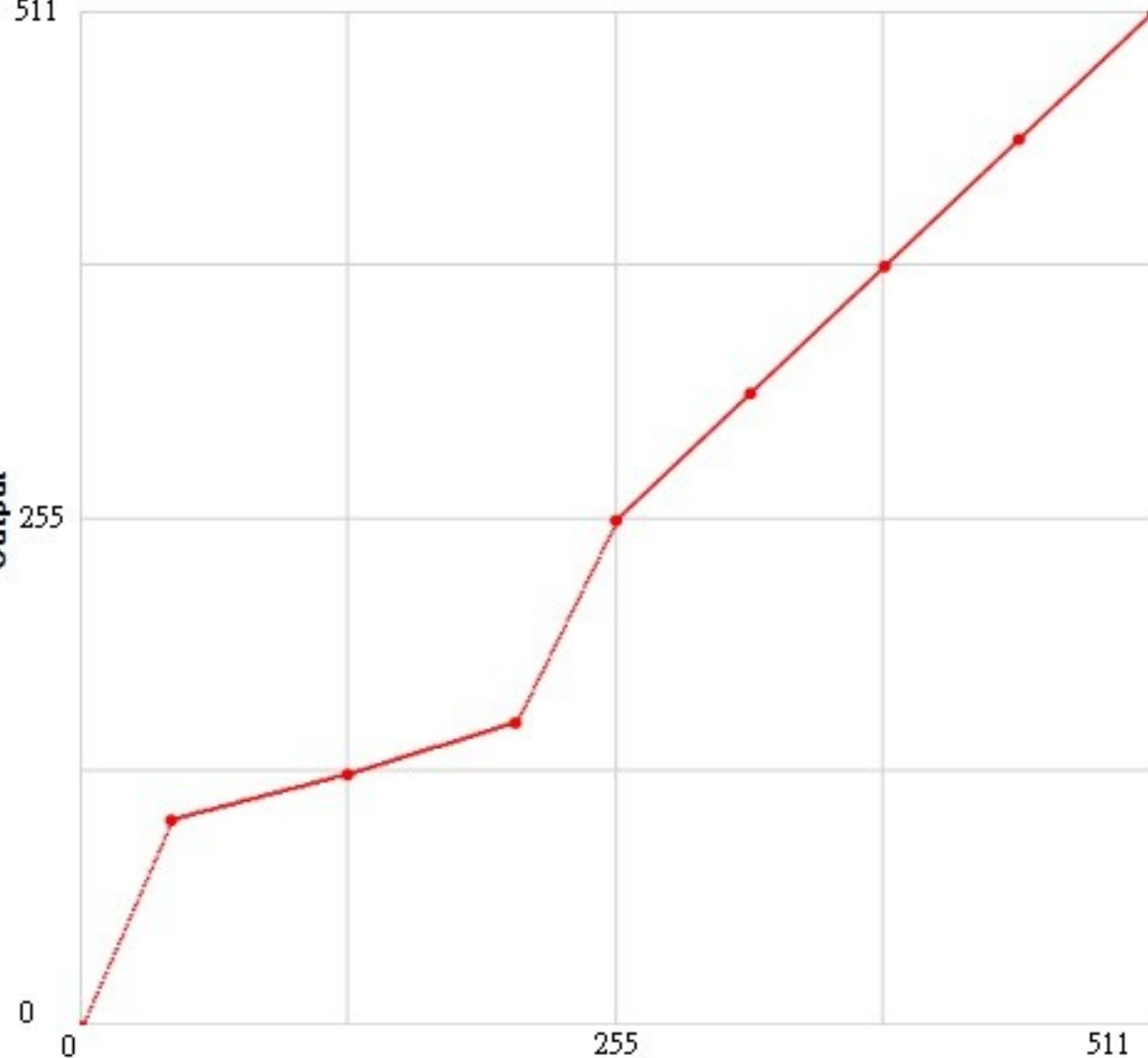
255

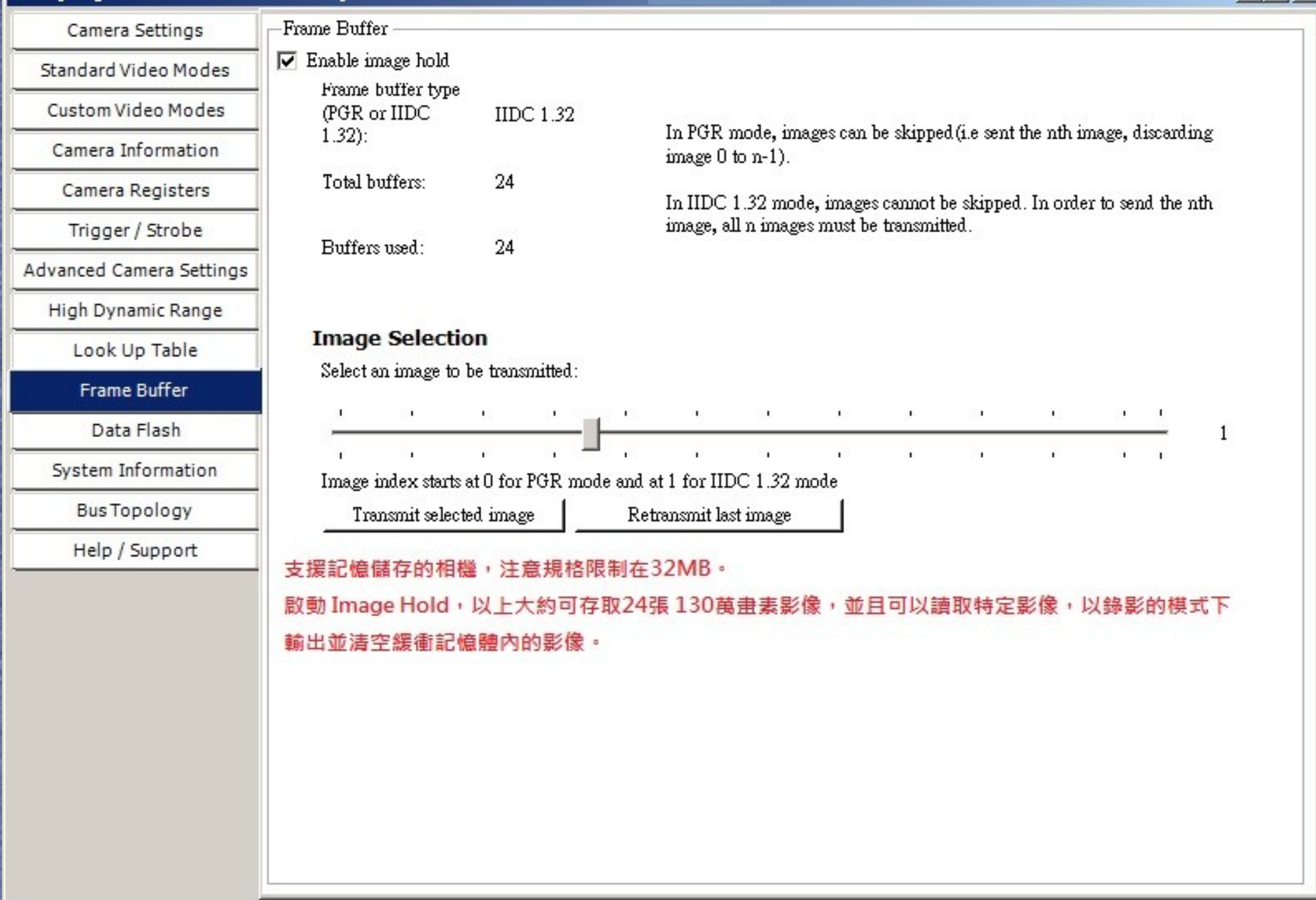
0

255

511

Input





支援記憶儲存的相機，注意規格限制在32MB。

啟動 Image Hold，以上大約可存取24張 130萬畫素影像，並且可以讀取特定影像，以錄影的模式下輸出並清空緩衝記憶體內的影像。

[Help / Support](#)

Refresh preview

C、清除記憶體內資料，以上操作，可參考範例程式 SaveImageToMemory

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System Information

CPU: Intel(R) Core(TM) i7 CPU M 620 @ 2.67GHz
Number of CPU cores: 4
Available memory: 3955 MB
Byte order: Little endian
Operating system: Windows 7 (64 bit) Service Pack 1 (Build 7601)
Graphic chipset: Unsupported
Screen resolution: Unknown

Copy to Clipboard

若有技術問題，請按 **Copy to Clipboard**，與Camera Information 頁面的資訊儲存為文字檔傳回本公司，我們將根據您的主機情況與繪圖晶片的效能了解您遭遇的影像問題。

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Bus Topology

```

graph TD
    PC[PC] --- Bus[USB 3.0 Bus]
    Bus --- Camera[ID: 0]
  
```

Zoom In Zoom Out Reset

Legend

PC:
 Bus:
 Node:
 Camera:
 * - Selectable node on a FirePro bus

Node Information

Model: Point Grey Research Flea3 FL3-U3-13S2C
 Product ID: N/A
Voltage: 4.570V
Currents: 0.187A

Refresh Hide Phy Registers

Phy Register Display

Node	Register	Value

- **Bus Topology** 圖式攝影機的連結架構，並回傳攝影機目前電子規格。

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Answers to commonly asked questions can often be found in our Knowledge Base.

[Click here to access the Knowledge Base](#)

[Support Tickets](#)

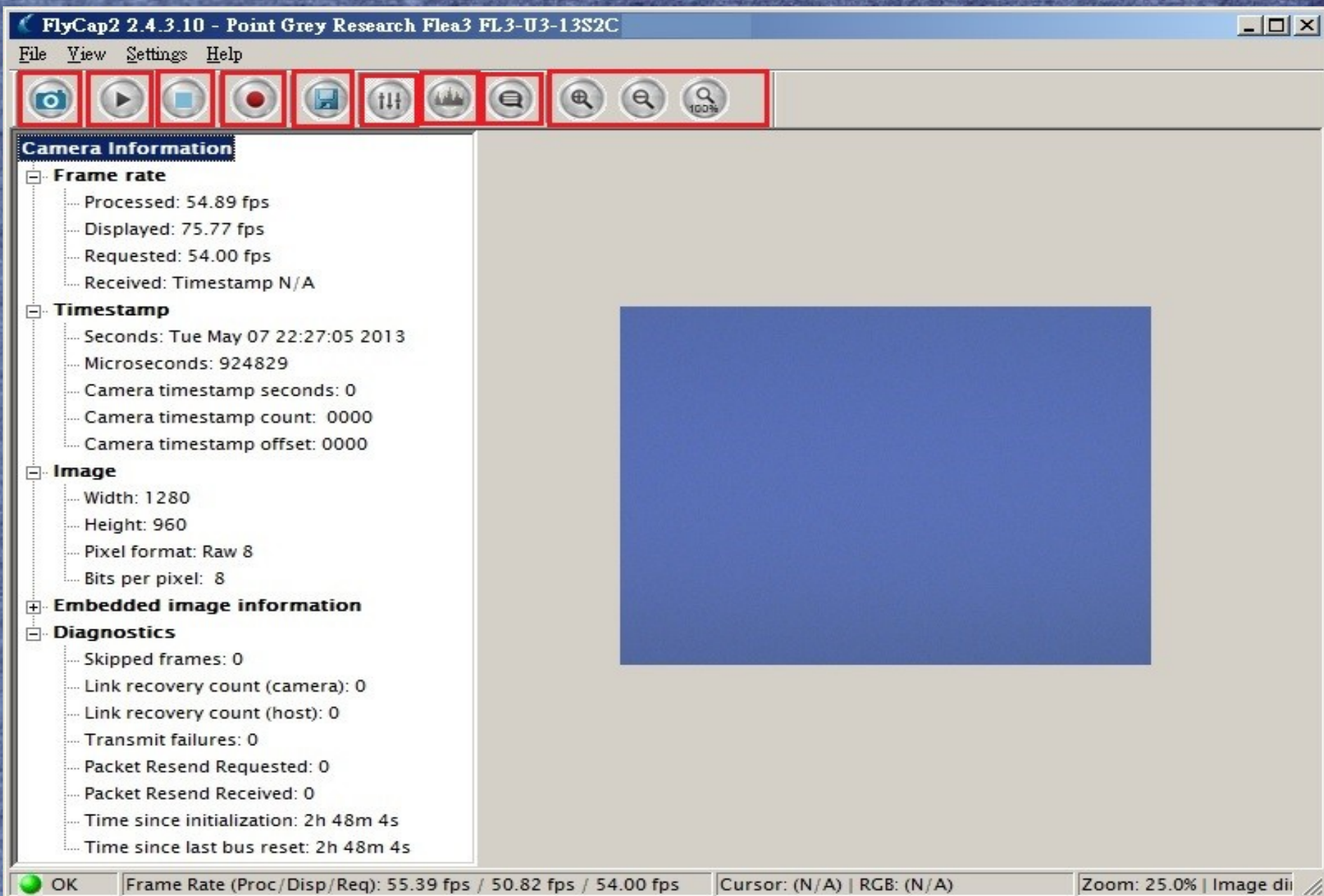
If your question cannot be answered by the Knowledge Base, please create a Support Ticket.

[Click here to create a Support Ticket](#)

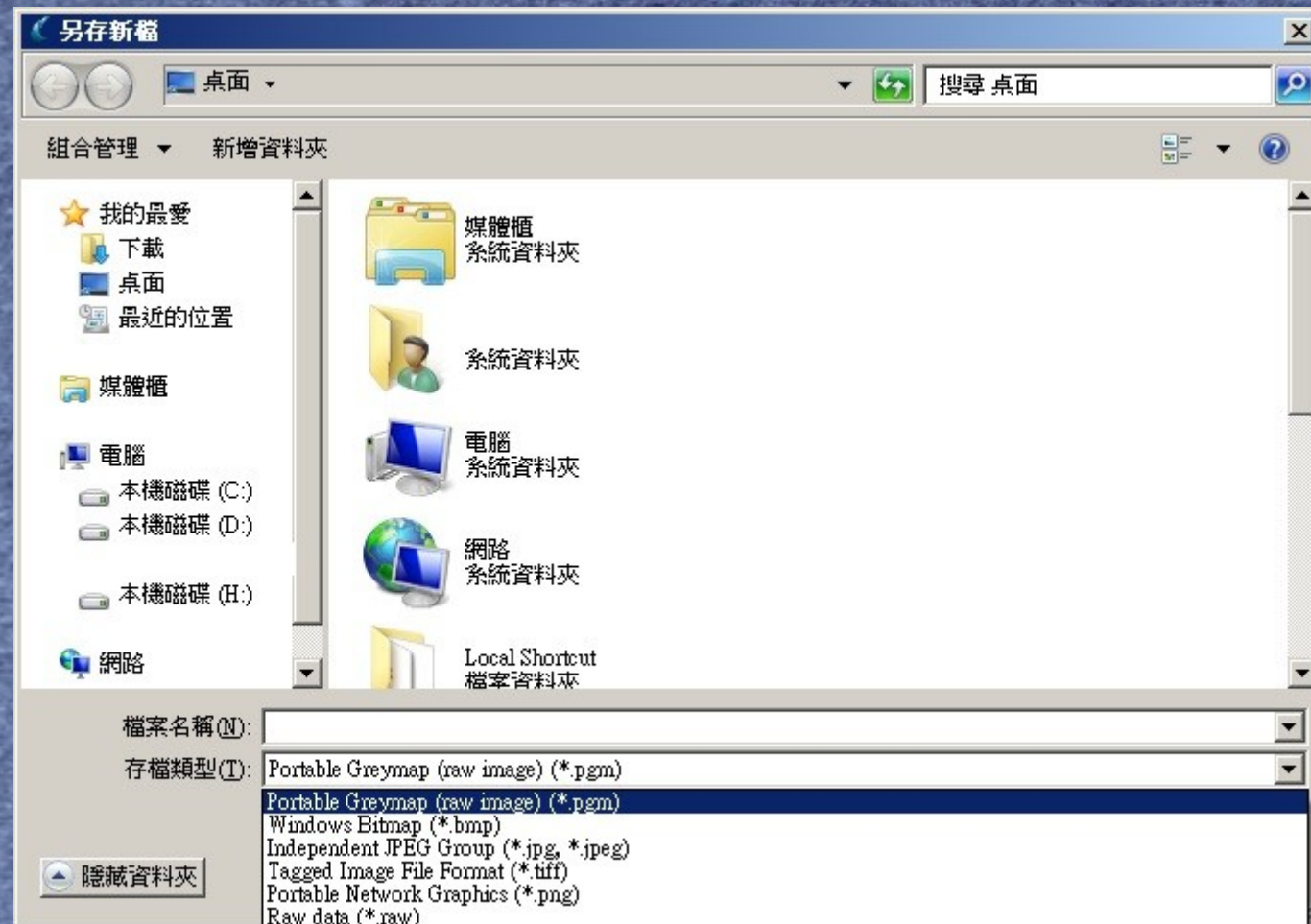
[Downloads / Updates](#)

Get the latest software and downloads for your camera from the Downloads page

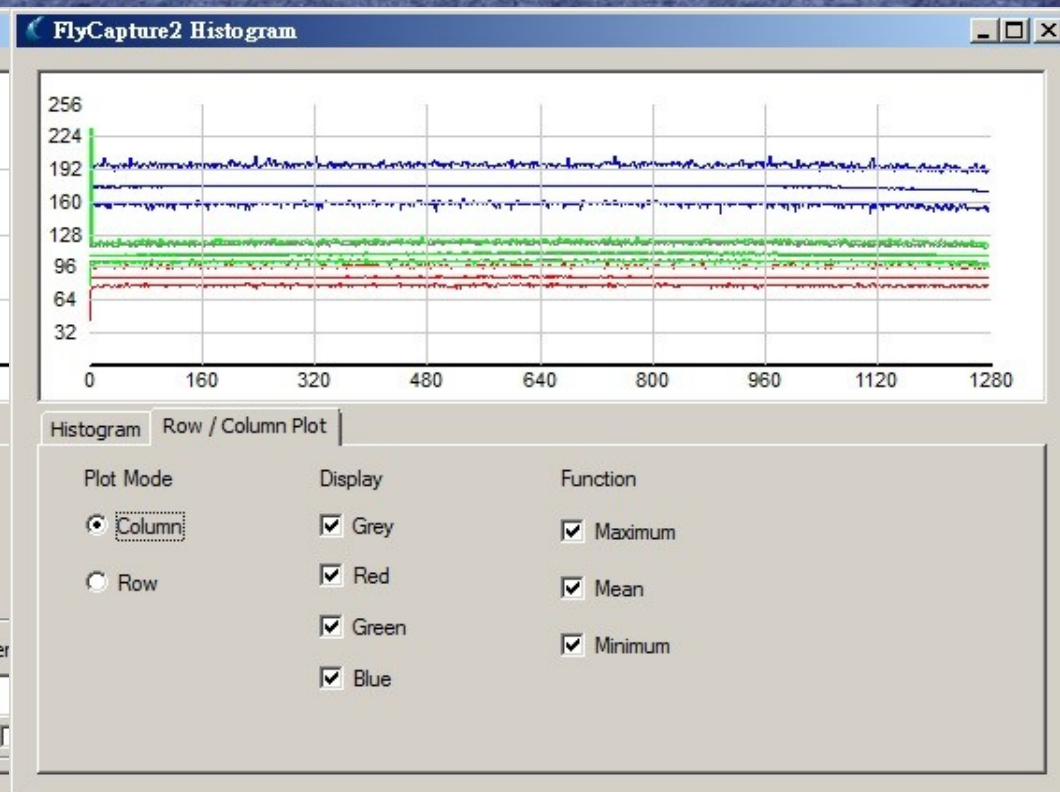
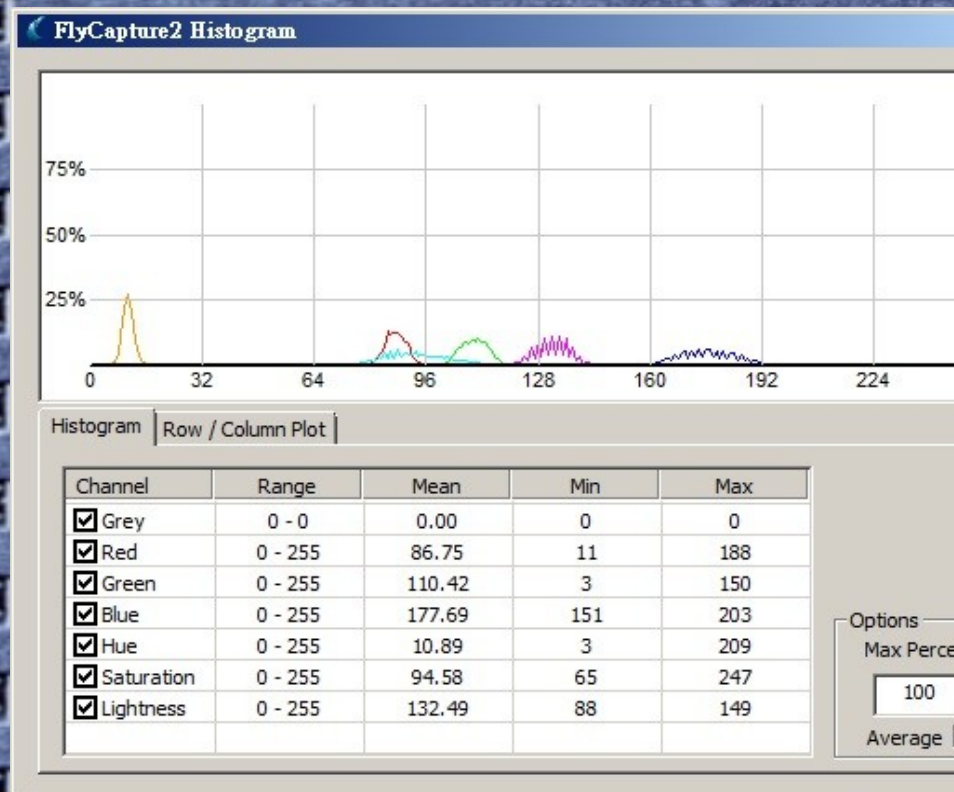
[Visit the Downloads page](#)



- 選擇新相機、開始取像、停止取像、錄影或建立影像集合、另存新檔、
- 顯示 / 隱藏 攝影機控制框，直方圖，攝影機取像事件統計表，
- 影像縮放功能。



- Point Grey 支援圖檔格式
 - **PGM, BMP, JPEG, TIFF, PNG, RAW**
- 若儲存格式為 **PGM, RAW**，建議安裝 IrFan 影像軟體開啟檔案。



- 顯示像素的分佈比例，分析像素值的**最小值、最大值，平均值**。
- 次頁為檢視平面橫向 / 垂直座標的像素分佈圖。

Event Statistics				
Event Type	Last 5 mins	Last 10 mins	Last 15 mins	Since start
Total number of frames	14673	30846	32137	32137
Image consistency errors	0	0	0	0
Image conversion errors	0	0	0	0
Transmit failures	0	0	0	0
Recovery count (camera)	0	0	0	0
Recovery count (host)	0	0	0	0
Skipped images	0	0	0	0
Number of bus resets	0	0	0	0
Number of bus arrivals	0	0	0	0
Number of bus removals	0	0	0	0
Number of packet resend r...	0	0	0	0
Number of packet resend r...	0	0	0	0

Time slice:

Last 5min / 10mins / 15mins / Since Start

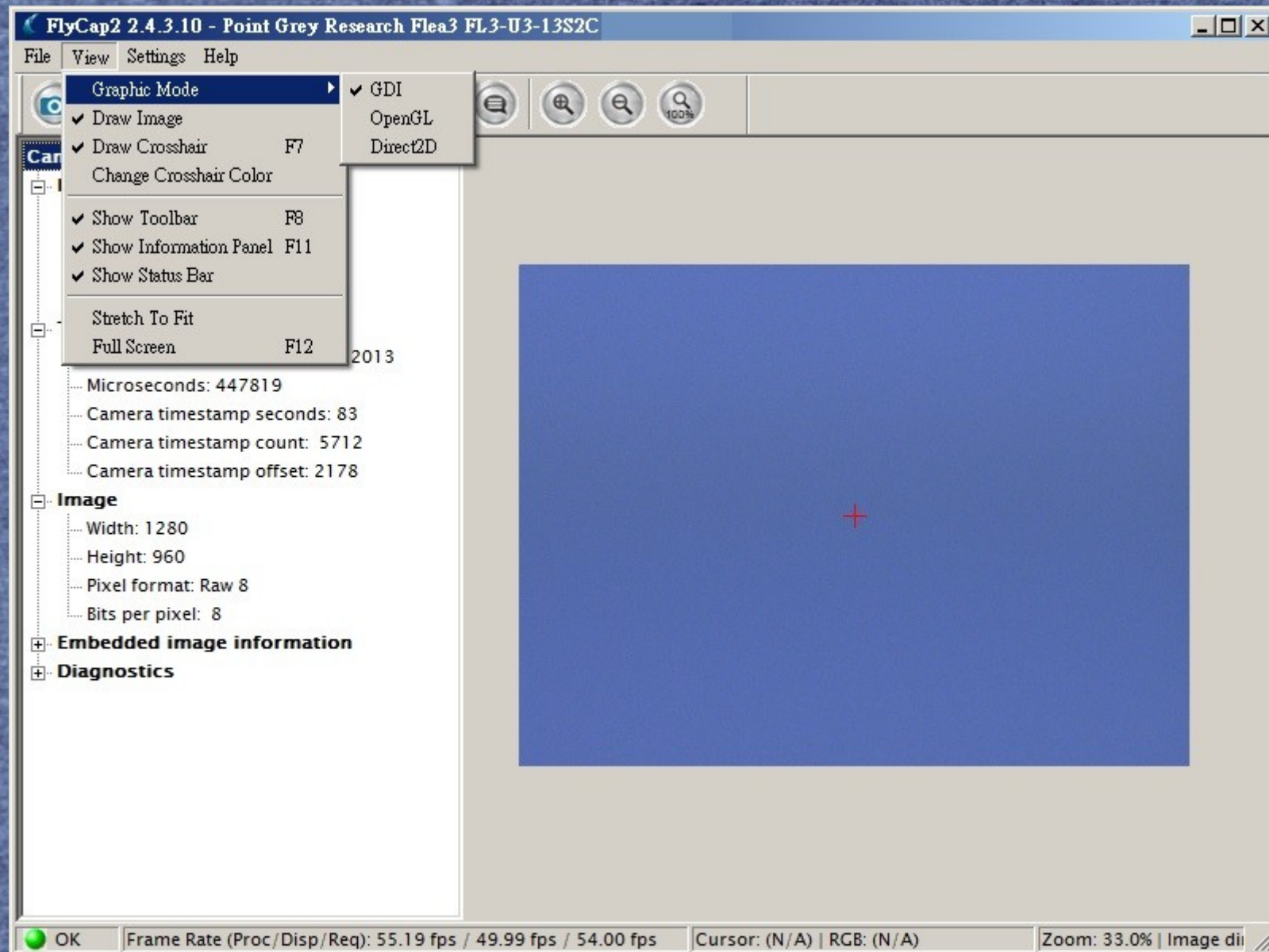
Last 10s / 30s / 1min / 5mins

Last 5min / 10mins / 15mins / Since Start

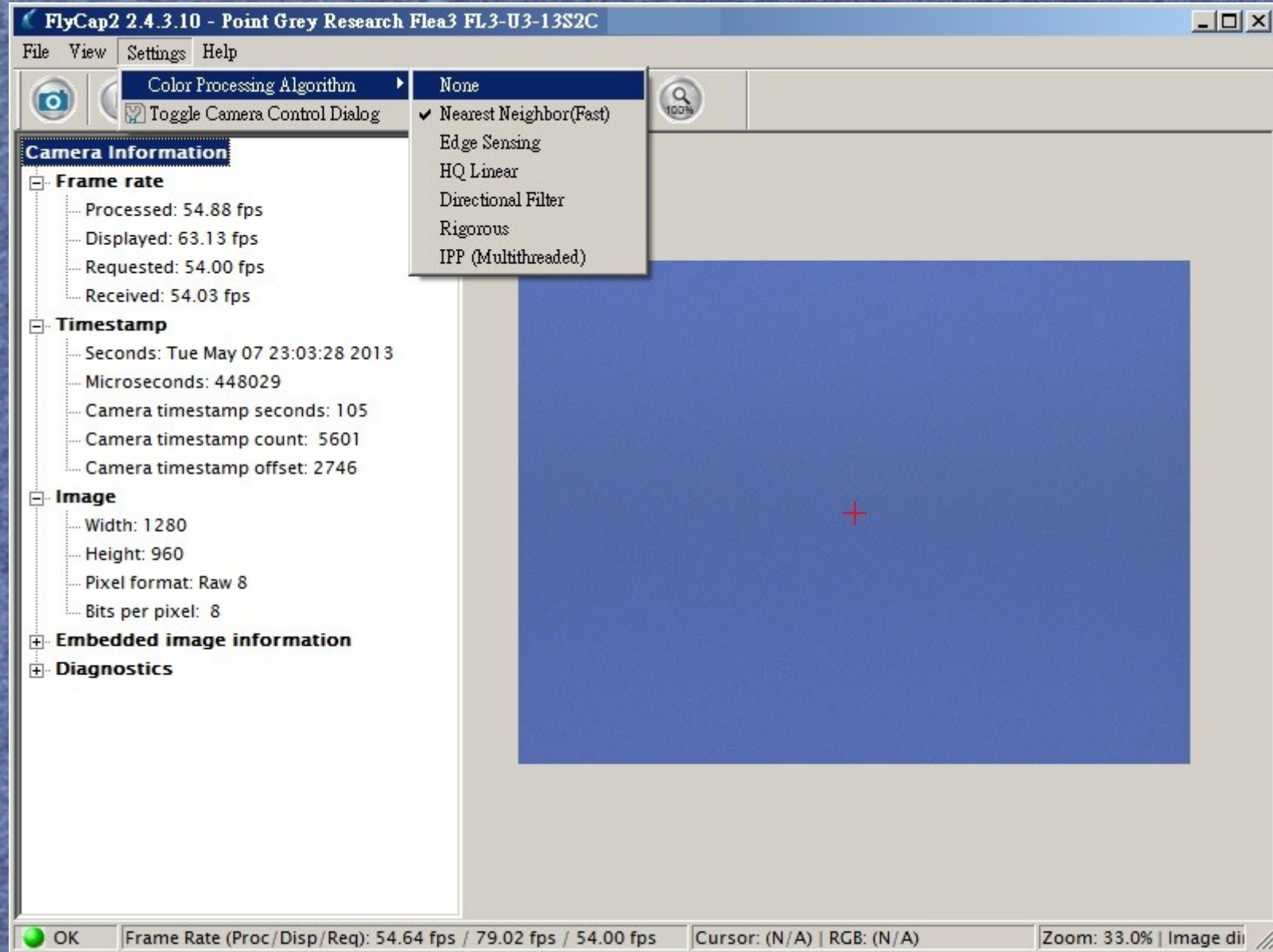
☒ Turn on event collection.

Close

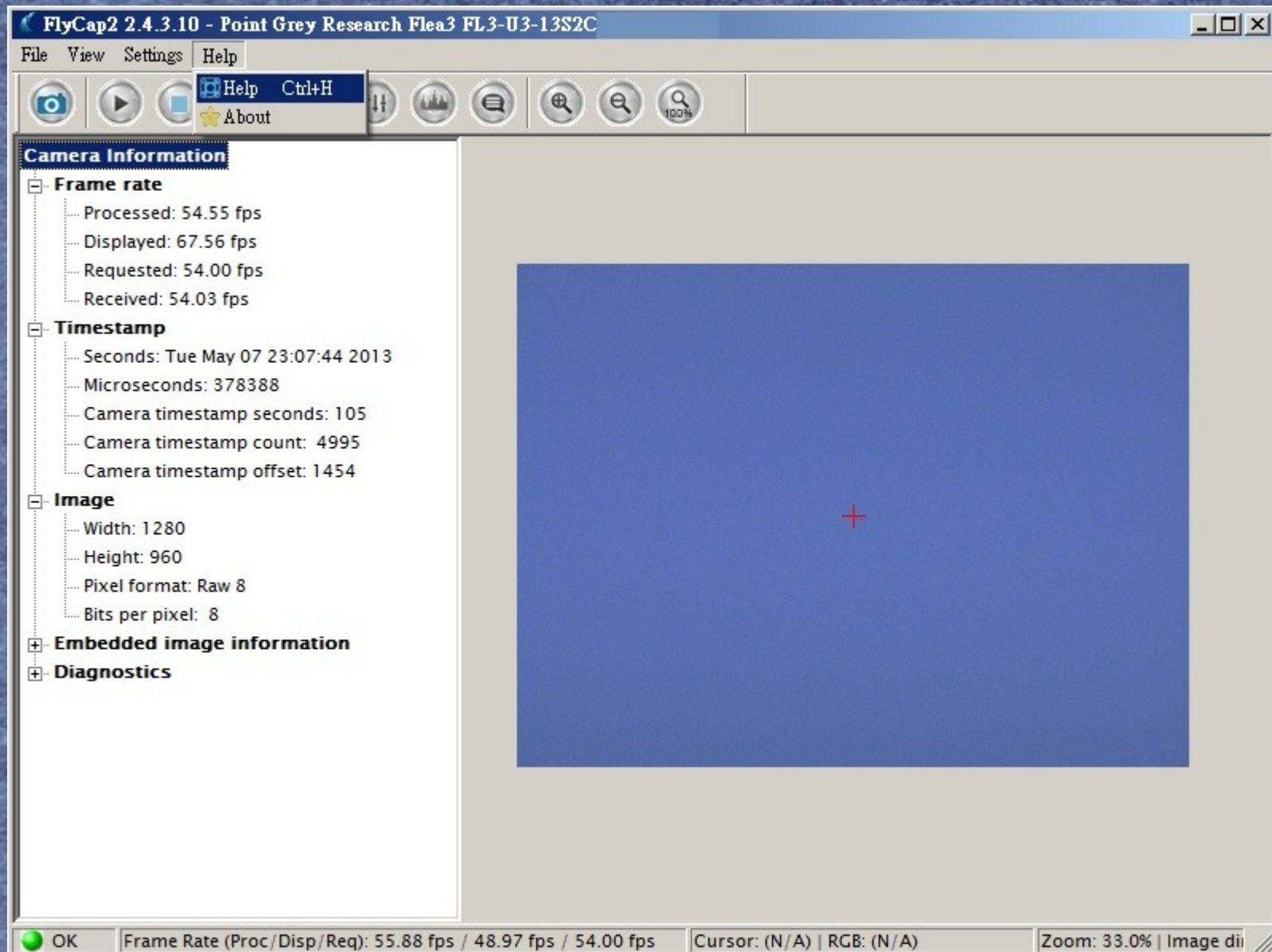
- 統計軟體的取像張數，可以分析介面數據傳輸的品質。
- 需要注意 IEEE1394(FireWire) ， USB 2.0 ， GigE ， 或 USB 3.0 的線材長度，本公司業務將另外說明線材的規格。



- 軟體支援的畫圖函式，可切換 **GDI**、**OpenGL**、**Direct2D**。
- 標明影像中心座標 (Crosshair)。
- Stretch To Fit 可將顯示影像完全顯示在視窗內。
- 按下 **F12** 以**全螢幕模式**操作



- 顯示或隱藏攝影機控制項目。
- 影像演算法預設為 **Nearest Neighbor (Fast)** ，建議為 **HQ Linear**
-



- 線上軟體幫助，提供技術文件服務，本公司將不時更新下載的驅動程式與影像軟體。

- 謝謝您的耐心與支持！



[Http://www.apostar.com.tw](http://www.apostar.com.tw)

[Http://ww2.ptgrey.com](http://ww2.ptgrey.com)