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The best solution of Video Surveillance

Introduction

With the advance of machinery automation in industrial automation applications, the capability of machine control and the efficiency of production have both improved significantly. Although technology brings efficiency and improvement, operators are still responsible for monitoring the operational status of machines anytime and anywhere in case of any accidents that might occur to those machines.

However, industrial environments are complex and always in harsh conditions. Not only operators cannot monitor the operations and processes next to those machines all the time, but also have difficulty in watching HMI screen and the operational status of machines simultaneously due to viewing angle restrictions and safety regulations. Therefore, operators often use the event/alarm log to track the past records then analyze the cause of the problem. Nevertheless, the information is recorded in text description without images. As a result, the operators cannot accurately but only roughly assume the cause of malfunction.

Thus, Weintek is now offering a video surveillance solution to help operators to effectively monitor the operational status of machines. By connecting a USB camera, the HMI can display live images on the same screen with live data, animation, trends, and control elements. With the new feature「Picture view」, the HMI can show the machine error images that occurred in the past. Those video images provide direct information and allow operators to respond faster and make better judgments. Moreover, VNC remote control enables the capability of remotely monitor images and greatly saves time and manpower. Operators can now remotely operate one or multiple HMIs at the same time and view the operational status of machines from off-site.

This application note describes the steps to enable the video monitoring function with MT8150XE connected to an USB camera. You will clearly understand how to implement this function to your application.

Features

Capture error images for troubleshooting

Any error events are recorded in both text descriptions and images that can effectively help operators to analyze the cause of the malfunction for troubleshooting. Furthermore, the size of captured image is very small, around 50K. The most common capacity of SD card is at least 4G, so more than 70,000 captured images can be saved.

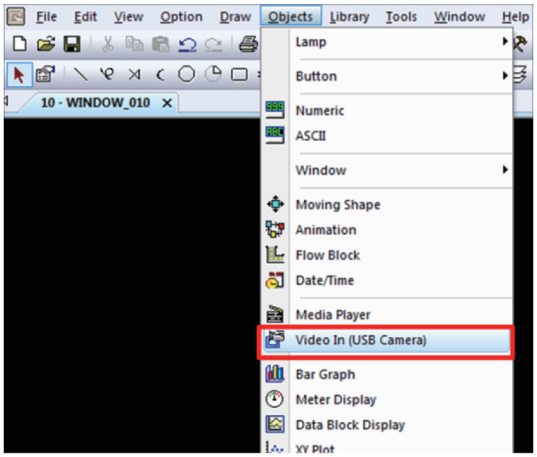
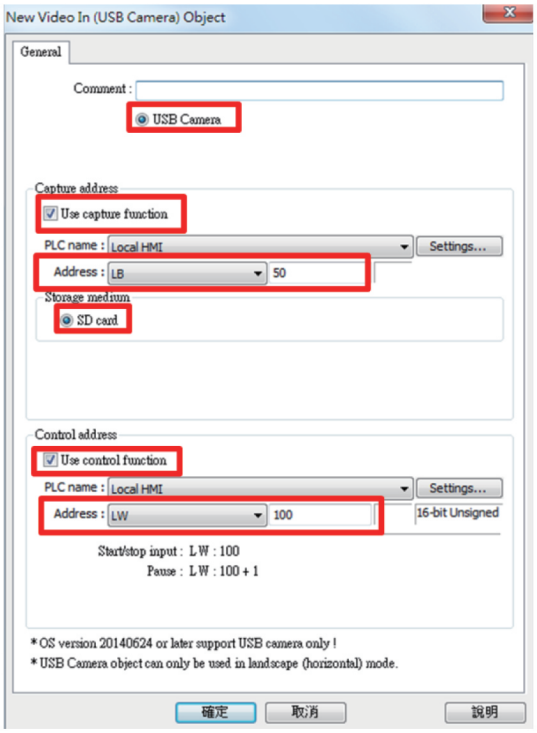
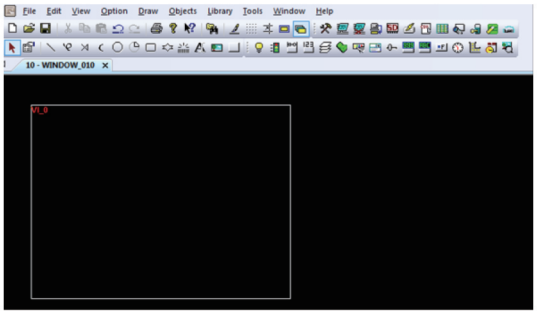
VNC remote control saves time and manpower

Remotely operate one or multiple HMIs then instantly monitor the operational status of onsite machines and view the machine's error images from anywhere at the same time without sending technicians to the field site. This way greatly reduces the cost of time and manpower.

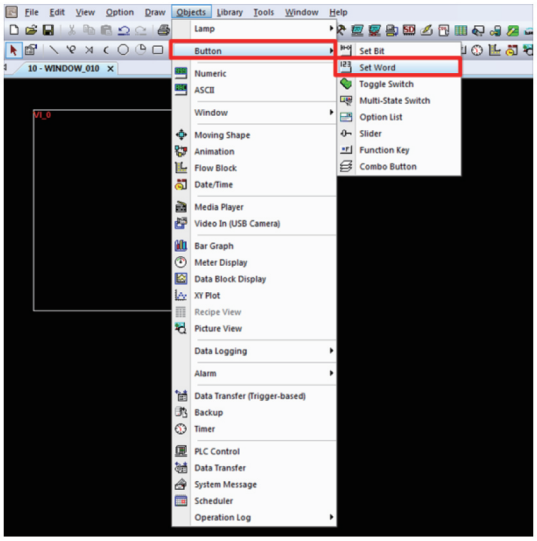
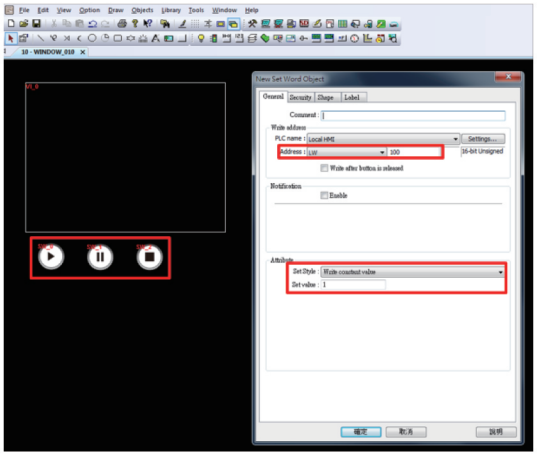
Installation Requirements	
Applied models	**OS versions**
eMT3070A	20140116 or later versions
eMT3105P、eMT3120A、eMT3150A	20140701 or later versions
MT8121XE、MT8150XE	20140624 or later versions
Configuration Software: EasyBuilder Pro versions	
V.4.10.04 or later versions	
Supported USB camera models	
Logitech C170、Logitech C310、Logitech C910、LifeCam VX-2000	

Bibliographic References	
	Title
Video In (USB camera)	User Manual: Chapter 13-31 - Video In and Video In (USB camera)
	eNews：Viewing the machine's operational status with USB camera
Picture View	User Manual: Chapter 13-38 - Picture View
	Demo project: Picture View

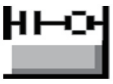
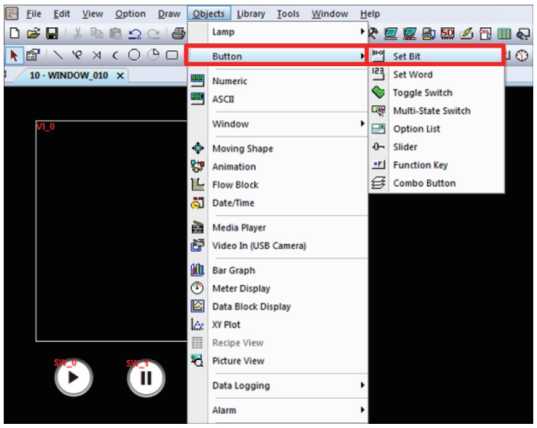
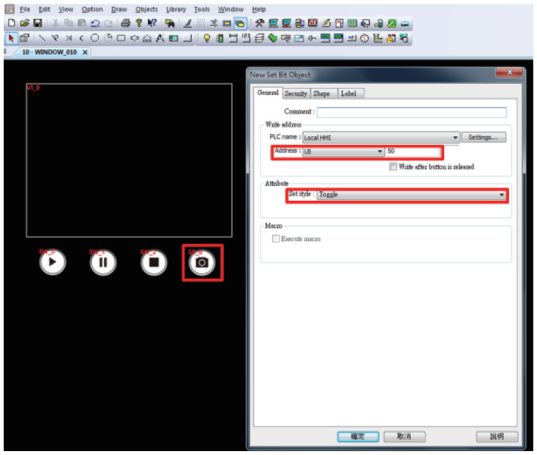
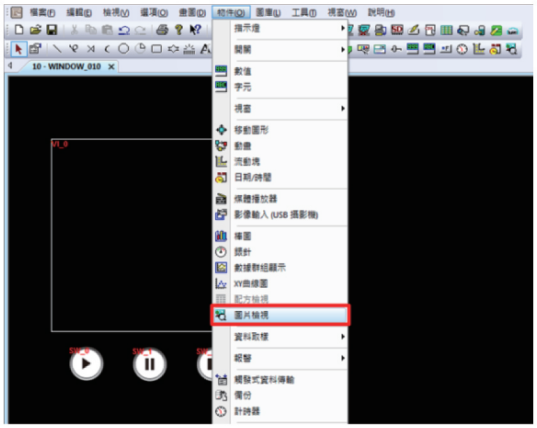
■ Configuration Steps

Steps	Figures
 **Video In (USB Camera)** icon 1. Select **Objects** > Click on **Video In (USB Camera)**	
2. Select **USB Camera** Note1 3. Capture address: Check **Use capture function** > configure the **address**: LB = 50 Note2 4. Storage medium: Check **SD card** Note3 5. Control address: Check **Use control function** > configure the **address**: LW = 100 Note4 6. Press **OK** **Notes:** Note1: This example connects with a USB camera. Note2: Designate the address that triggers image capturing, ex: LB = 50. Note3: Because the USB port is used to connecting to a USB camera, the captured images are saved to the SD card. Note4: Enter certain value to the control address to control Video Input object, ex: LW = 100.	
A new **Video In** object is created as shown on the right figure.	

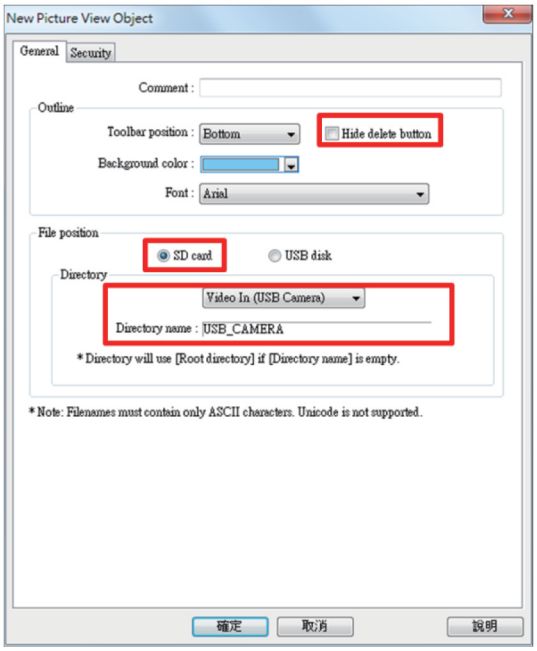
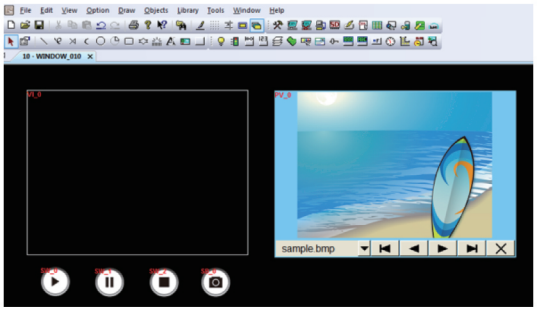
■ Configuration Steps

Steps	Figures
 **Set Word** icon 7. Select **Objects** > **Button** > Click on **Set Word**	
8. Add three **Set Word** buttons and configure the settings as follows: **(1) Start displaying image** **Write address**: LW = 100 **Set style** = Write constant value **Set value** = 1 **(2) Pause/resume the video** **Write address**: LW = 101 **Set style** = Write constant value **Set value** = 1 **(3) Stop displaying image** **Write address**: LW = 100 **Set style** = Write constant value **Set value** = 0 9. Press **OK** **Notes:** Users can design their own button icons.	

■ Configuration Steps

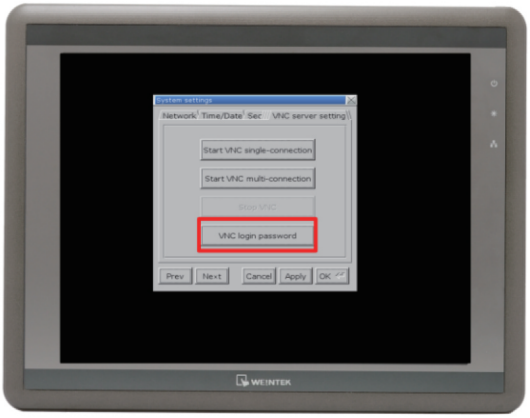
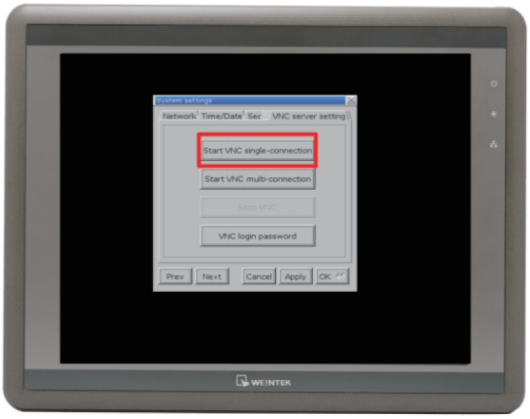
Steps	Figures
 **Set Bit** icon 10. Select **Objects** > **Button** > Click on **Set Bit**	
11. Add a **Set Bit** button and configure the settings as follows: **Write address**: LB = 50 **Set style** = toggle 12. Press **OK** **Notes:** Users can design their own button icons.	
 **Picture View** icon 13. Select **Objects** > Click on **Picture View**	

■ Configuration Steps

Steps	Figures
14. Uncheck **Hide delete button** Note1 15. File position: Select **SD Card** 16. Directory: Select **Video In (USB Camera)** Note2 17. Press **OK** **Notes:** Note1: You can decide to Show/Hide the delete button. Note2: The name of the directory is corresponding to which directory you select, ex: the corresponding Directory name of Video In (USB Camera) is USB_CAMERA.	
A new **Picture View** object is created as shown on the right blue picture	

■ Application case：

Use VNC on PC to remotely operate the HMI for monitoring operational status of machines.

Steps	Figures
1. Go to HMI toolbar and select **System Setting** icon **Notes:** Enter HMI password to enter the system setting.	
2. Go to **VNC server setting** tab 3. Click **VNC login password** to set up the VNC password.	
4. Click **Start VNC single-connection** **Notes:** Allow one VNC client device to connect this HMI.	

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Use VNC on PC to remotely operate the HMI for monitoring operational status of machines.

Steps	Figures
5. Install **VNC viewer** on PC 6. Open **VNC viewer** and enter the remote HMI's **IP address** and **password** 7. Start to remotely operate the HMI **Notes:** 1. A client user will be automatically logged out if there is no operation on HMI for over an hour. 2. Internet browser can be used to remotely operate the HMI under Java Runtime Environment (JRE).