Smart Camera Event Handling

Category Type	Application Note
Camera Model	All ACM-series, TCM-series
Firmware Version	3.11.04, 4.07.xx
Publish Date	2009/08/31
Last Review	2009/08/31
Knowledge Type	Device Function – Event Handler
Function Type	Firmware – Event Handler

Contents

Introduction

Traditional CCTV Cameras are passive devices. They see, but cannot act. Whether all's quiet or something's afoot, they remain hapless observers. ACTi's Event Handler system turns our IP cameras into active partners in your security solution.

Event Handler is a software package that is integrated to camera firmware. Our customers do not have to replace existing cameras in order to make them smarter – they simply need to download and install a new firmware, for free.

Some of the ACTi Event Handler funtions are very innovative - no other IP-camera manufacturer has them yet.

What is Event Handler

When something happens at the camera site, such as people walk by, door opens or closes, fire breaks out, or day and night changes – these are all **events**. If we want to detect those events automatically by a certain trigger, and respond to them properly then we need a special software called **event handler**. The combination of a trigger and a response is a **rule**. There can be many rules set in event handler.

The Main Benefits of Event Handler

Active and Intelligent Response

With a comprehensive rule-based Event Handler engine, ACTi provides a convenient one-stop user interface for managing all possible events. Unlike some other manufacturers' IP cameras, there is no longer any need to go back and forth between multiple confusing pages in order to complete the setup of desired action for each event. With ACTi Event Handler, you can simply pick any trigger and any response on same page. It is possible to let one single trigger initiate multiple responses.

With on-camera decision making, there is no need to wait for commands from recording servers, gaining critical time when most needed.

Fully Automatic Day/Night Trigger

Most IP-cameras in the world have specific profiles for day mode and night mode. **The profile** is a set of optimal settings for the best video quality under a certain environment and lighting conditions.

For the cameras that need to use more than one profile in their installed location, there has to be a procedure of switching profiles. Some manufacturers can only offer a solution for manual switching between profiles either by manually re-adjusting settings one by one or selecting pre-saved profiles (time wasting), while some more advanced manufacturers have the option to make time-scheduled switches between pre-saved profiles. However, due to the varying length of daylight time in most countries of the world depending on the season, the time-scheduled profile switches would have to be re-adjusted frequently (not reliable).

Having the wrong profile set in camera does not only worsen the video quality, but it has also a serious impact on security – the detection of criminal activity may easily fail because of low sensitivity of automatic motion detection due to profile and actual environment mismatch, whereas high sensitivity can lead to countless false alarms which is a nightmare for every security officer.

Today, ACTi is the only manufacturer providing a fully-automatic day/night profile switch – it is triggered by a special day/night detector. Such trigger can analyze lighting conditions and respond accordingly regardless of the time of the day or the season. It works perfectly even during unexpected light changes, such as solar eclipse.

As a result of this perfectly timed trigger, the night time images become brighter and less grainy, without affecting day time sharpness. Intruders at night will be much better identified now. Besides, camera intelligence, such as motion detection, will work flawlessly.

Customized Motion Detection Settings

As mentioned above, proper Motion Detection (MD) is a very important part of security system. If a camera supports only one profile for MD, there will be a problem – we cannot automatically re-locate MD areas on screen and we cannot re-adjust the sensitivity of MD when they day and night switch. As a result, we either miss a criminal activity or get too many false alarms.

Since ACTi Event Handler provides automatic Day/Night trigger, it is possible to set several Motion Detection profiles that are ideal match for specific lighting conditions.

Image 1: Motion Detection area for day time

For example, a typical day time MD area is shown on Image 1. The MD serves mostly the purpose of notification about incoming/outgoing people through door. At the same time, we do not want to get MD events from the moving objects outside the window to avoid false alarms.

As the night comes, there is an increased risk for criminal activity due to darkness, therefore it is necessary to switch to MD mode that can covers all the windows and doors.

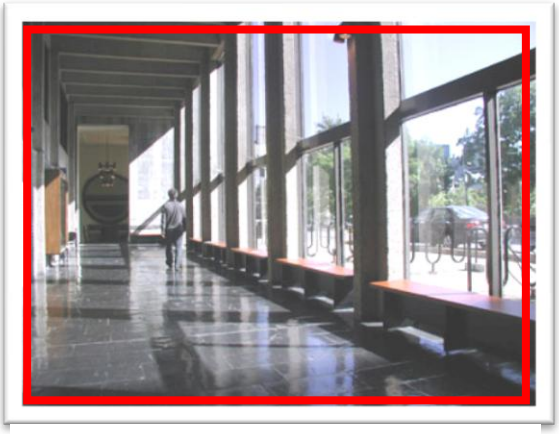


Image 2: Motion Detection area for night time

The intelligent ACTi Event Handler system dynamically changes MD setting by actual lighting condition, plus flexible scheduling for weekend surveillance needs.

Automatic upload and notification

In the past, keeping video evidence of what happened used to rely entirely upon the recording servers. In other words, the cameras were designed to send the video stream only to recording server, and if there was a failure of a recorder then the precious video material was lost.

With active cameras, that is no longer the case. ACTi cameras are capable of uploading to FTP servers, storing images locally, sending emails and URL messages to wherever you choose. Losing video connection to recording server can now trigger video clip upload to off-site FTP storage, protected against on-site damage.

When the criminal activity is detected by ACTi smart camera, it can automatically send an e-mail to proper authorities together with photos of the suspect as evidence. At the same time, the smart camera will ensure that video evidence is either properly streamed to original recorder or uploaded as a backup to FTP site upon errors.

PTZ on event saves crucial split-second

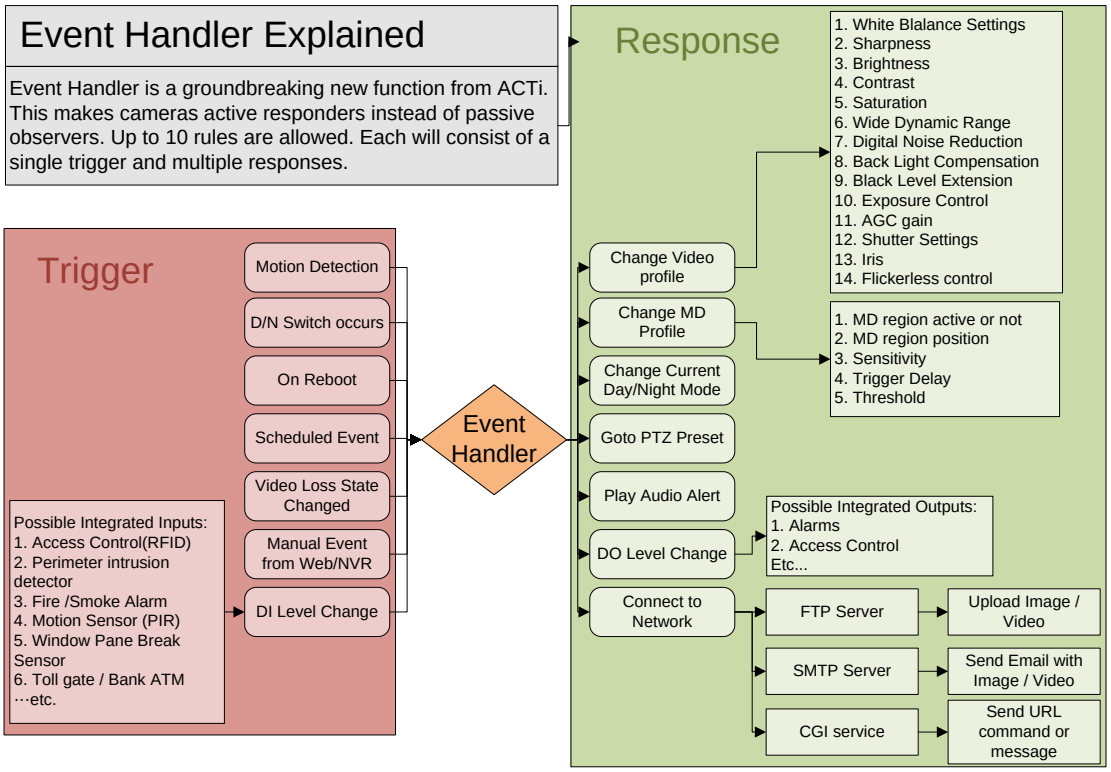
By their very nature, PTZ cameras have a wide area to take care of. If something happens and the PTZ camera is looking the other way, there goes a golden opportunity to identify the suspect.

ACTi smart PTZ cameras can be triggered by a Motion Detection of other cameras in the same network or a Digital Input (such as doorbell or door alarm). They would then instantly swoop back and zoom in right at the hall entrance, then take a snapshot and upload it for safekeeping. When the trigger is switched off, it can go back to autopan mode to survey the whole scene. Even when the servers are down, the cameras know what they are doing.

Hundreds of Combinations of Triggers and Responses

With the rich selection of Triggers and Responses, you can create hundreds of smart rules for your ACTi camera. For better understanding of those combinations, please refer to the Event Handler Flow Chart on the next page.

Event Handler Flow Chart

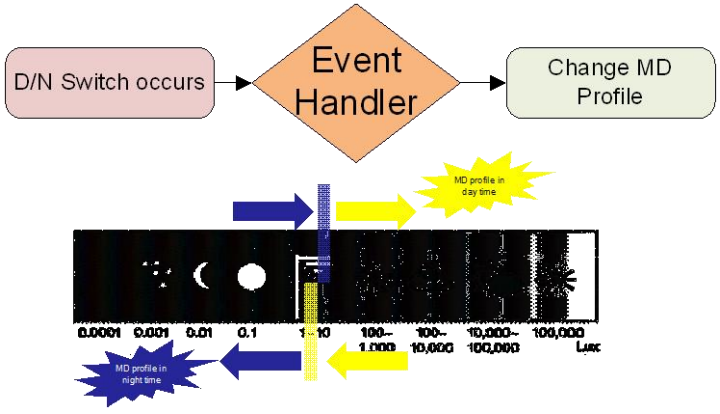


Example Applications

Example 1

Motion Detection settings at night has always been a headache for installers. When optimized for day, the high sensitivities create false alarms at night. When adjusted to work at night time, the low sensitivities means lost movements at day.

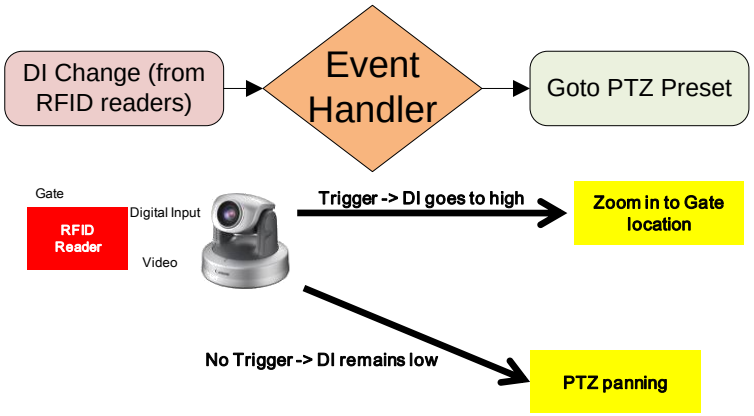
Other suppliers have tried to change MD profile on schedule, but this has to be adjusted seasonally, which is not a real solution.



Only the ACTi dynamic switching solution fully addresses the issue.

Example 2

PTZ Cameras can survey a very wide scene easily. But without a controller on duty, the PTZ camera will most likely be looking in the wrong direction when something happens. With properly arranged settings, PTZ cameras can move to pre-identified hotspot when it received DI signal from entry choke points, and return to auto pan when there is no activity at the gate.



Example 3

In most surveillance system designs, the role of safeguarding the recordings and images rely solely upon the recording servers. Yet when the server unexpectedly shuts down, the cameras can be programmed to automatically redirect snapshots or video segments to offsite FTP servers. This guarantees that critical information will be preserved when they are most needed.