Merit LILIN Application Note
Control4 & LILIN Integration

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Subject: This document describes Control4 and LILIN integration including:
(1) Control4 remote control for LILIN NVR or LILIN video decoder over HDMI output,
(2) VD022 for HDMI extension of NVR/DVR,
(3) Event notification via Control4

Requirements:
LILIN NVR Touch firmware requirement: version: 1.0.48 or above
DVR7 or 8 series firmware requirement: version: 1.1.04 or above
ExtraVegetable driver requirement: 0.2.0

Product Supported with SDDP Protocol:
NVR104, NVR109, NVR116, NVR404c,
VD022,
DVR 7, DVR 8 series

Brief Instructions
Set the LILIN NVR to a static IP address or ensure it always receives the same IP address from the DHCP server via a MAC based reservation. Ensure the NVR is powered on and connected to the network. The NVR should be discovered by Composer using SSDP if you added the driver via discovery you do not need to set up the IP address.

Otherwise enter the IP address of the NVR using Connections – Network. Set the Username to the admin username set up on the NVR - the default is ' admin'. Set the Password to the password you have set for the login above - the default is '1111'.

If you have set the IP address, username, and password correctly and the NVR is powered on, the Name, MAC, Channels, and Software boxes will populate. Set the functions you require from the 'spare' buttons on the UIs.

Custom Programming
Additional commands are available as Device Specific Commands in custom programming. You can choose a camera to display full screen by using the Set Channel command or via the custom CAMERA command.

NVR Live Control

In NVR live mode, change to a specific camera in full screen—press "*" and "number of the camera".

- Sequence through cameras—"CH+" and "CH-" if a camera is in full screen.
- Matrix view—press "#" and "4, 8, 9, 13, or 16".

NVR Menu Control

Bring up menu of the NVR, press "Menu" button.

- Operating menu—Within "menu", press "Left", "Right", "Up", or "Down" buttons.
- Select a menu item—Within menu, press "Select" to return to live mode.
- "CNCL"—Escape from a menu.

NVR Play Control

The DVR key will bring up the Search dialog and is used to enter the Search Date/Time box in playback mode.

- "Play"—"Play" button for video playback.
- Change hours—In playback menu, press "Left", "Right", "Down", and "Up" for navigating the date and time.
- "Stop"—"Stop" button for stopping video play
- Change between units of time—"Up" and "Down" buttons in switching in between date unit.
- Playing Mode—"FF", "FR", and "Pause" buttons for video playing control and "Left", "Right", "Down", and "Up" for switching date/time control for NVR.
- The Skip Back and Forward buttons are used as Step Back and Step Forward in playback.

NVR PTZ Control

In NVR live mode and PTZ control modes, press "Left", "Right", "Down", and "Up" buttons for PTZ operations.

- Change to a PTZ preset—"Prev/Recall" and the "preset number"
- "Select" button is auto pan and stop auto pan.
- Zoom in—press "Page Up" button for zoom in.
- Zoom out—press "Page Down" button for zoom out.

Video Decoder

LILIN VD022 video decoder product is a low power-consumption H.264 decoding products for display video from LILIN's IP cameras, NVRs, and/or DVRs over network. A user can use VD022 for remote live monitoring and remote playback for LILIN IP products. Now, with the new ExtraVegetable NVR driver, you can use either Control4 remote control or LILIN remote control for operating the recording system.
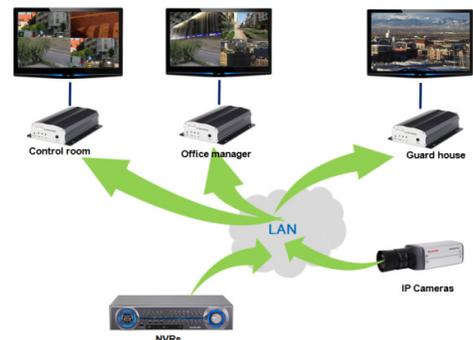
Playback on VD022

VD022 can manage many DVRs/NVRs for remote playback.   For choosing one of the DVRs/NVRs for live display or remote playback, please follow the instruction below:

1. Press "Menu" button and select "SETUP" icon.
2. Use Up or Down button for choosing Virtual Matrix menu.
3. Select DVR/NVR Table at Virtual Matrix menu.
4. Press "||" pause button for importing all the DVRs/NVRs for the first time.
5. Use Up or Down for choosing the DVR/NVR in DVR/NVR Table.
6. For playback, press ">" play button.
7. For live video, press "Rec" button.
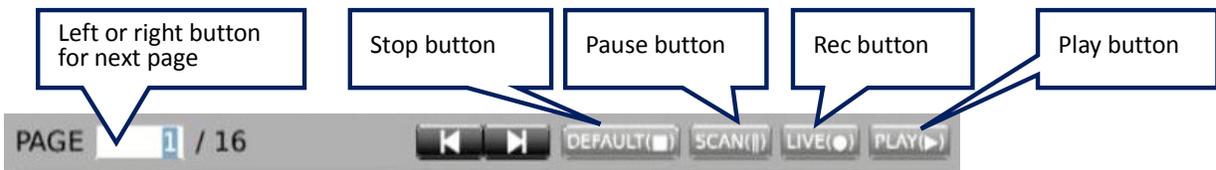8. During playback prompt, use numeric buttons for entering date and time.

Figure #1: Menu for Virtual Matrix

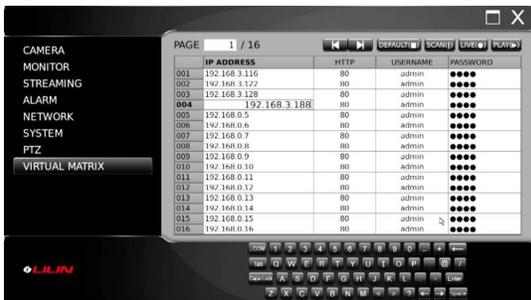**Figure #2: Use Up or Down key for choosing a DVR/NVR**

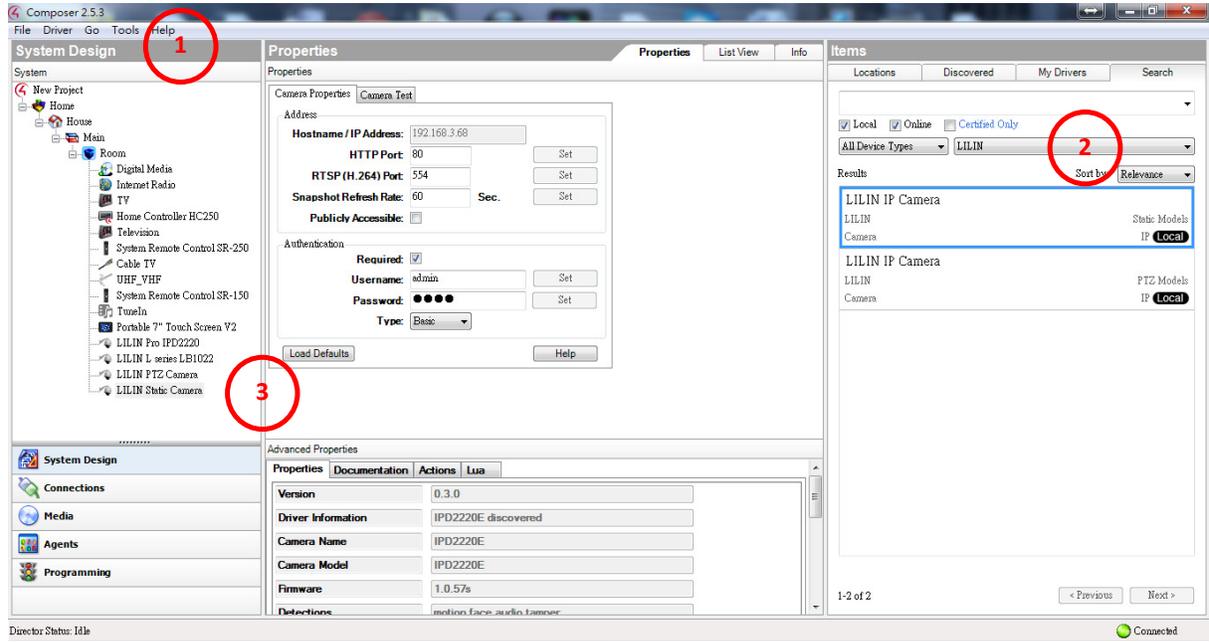**Figure #3: Use numeric buttons for entering date and time for playback**

How to Setup LILIN Device in Composer 2.5.3
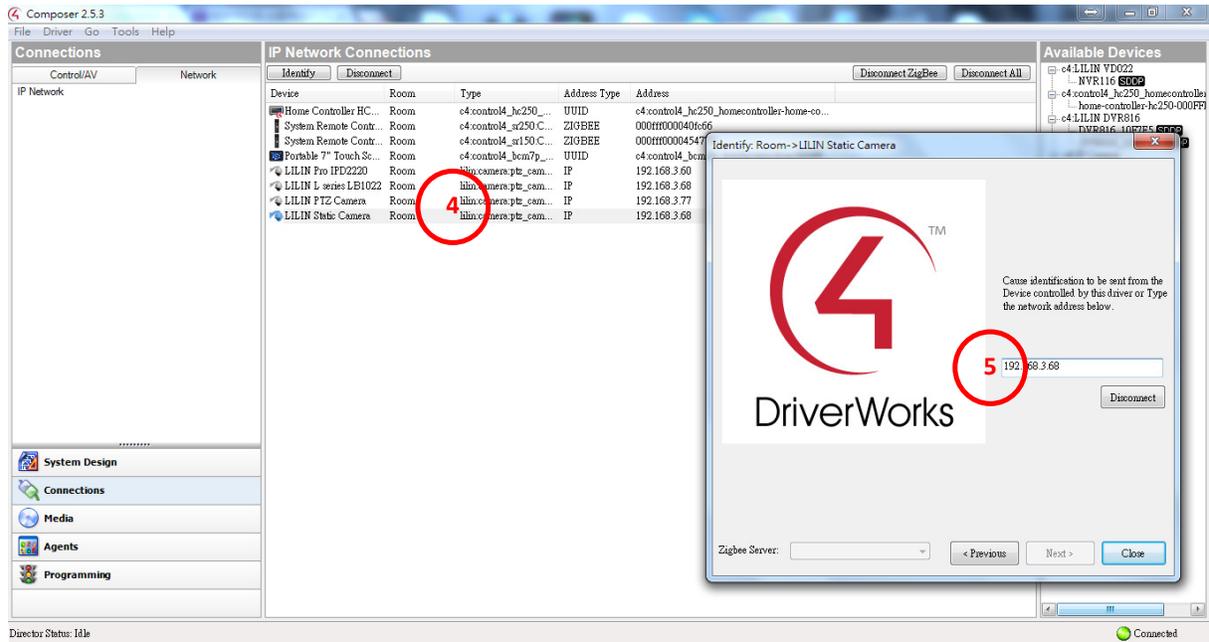Step #1: Select System Design tab
Step #2: Select LILIN driver from All Device Types at Search tab.
Step #3: Double click on Static Models or PTZ Models to add the device in System Design tab.

Step #4: Click on Connections tab and double click on camera just added.
Step #5: Enter the IP address of the device for connecting the camera.

Event Notification

LILIN IP PTZ or static camera can now support Composer 2.5.3 or above.
LILIN Pro series firmware requirement: 1.0.57p or above
LILIN L series firmware requirement: 1.1.13p or above

LILIN motion detection, face detection, audio detection (baby monitor), tampering detection, and alarm detection (panic button) built-in on cameras can be supported by Control4.

Setup Motion Sensor

Double click on Motion Sensor to setup motion sensor for a room. Check on "Invert Sensor" and "Debounce Timer".
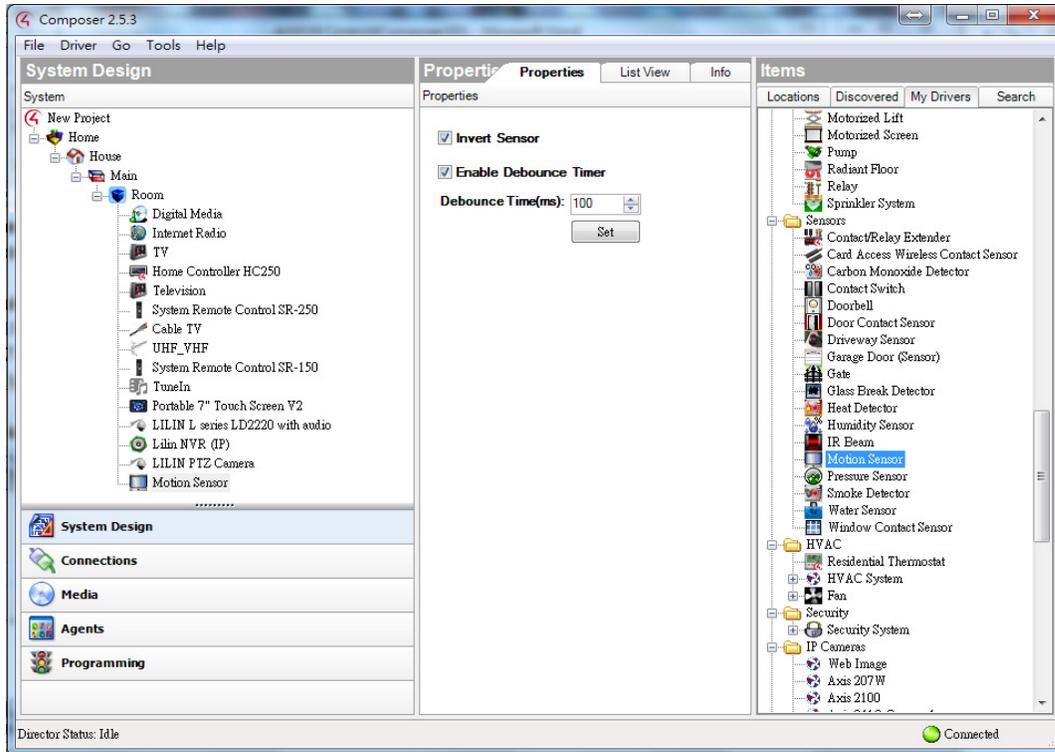
Map the Sensor

Drag the motion sensor output to contact sensor below.

Set Actions

Select Programming tab for defining the Actions.

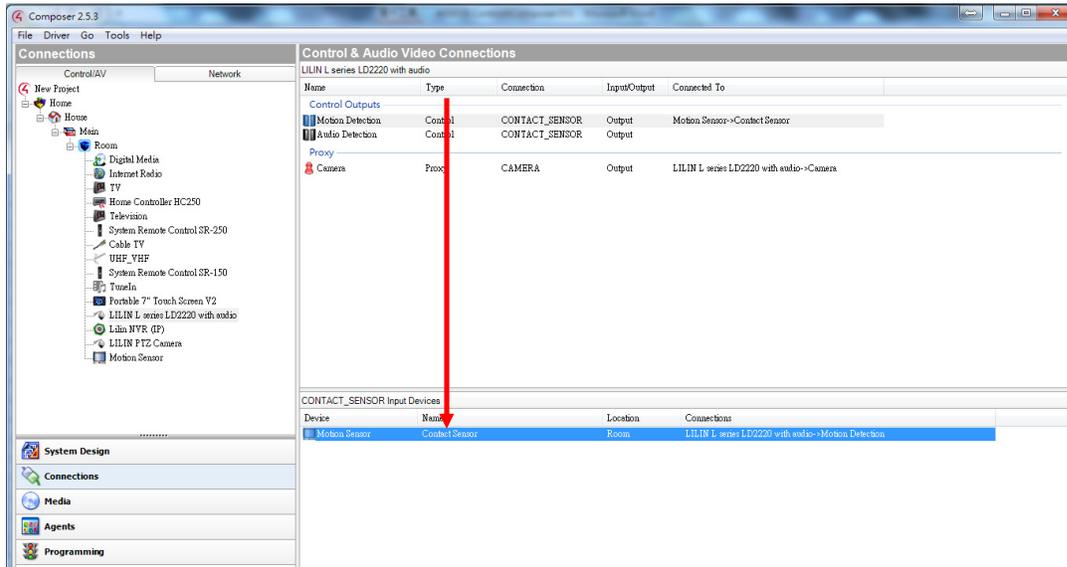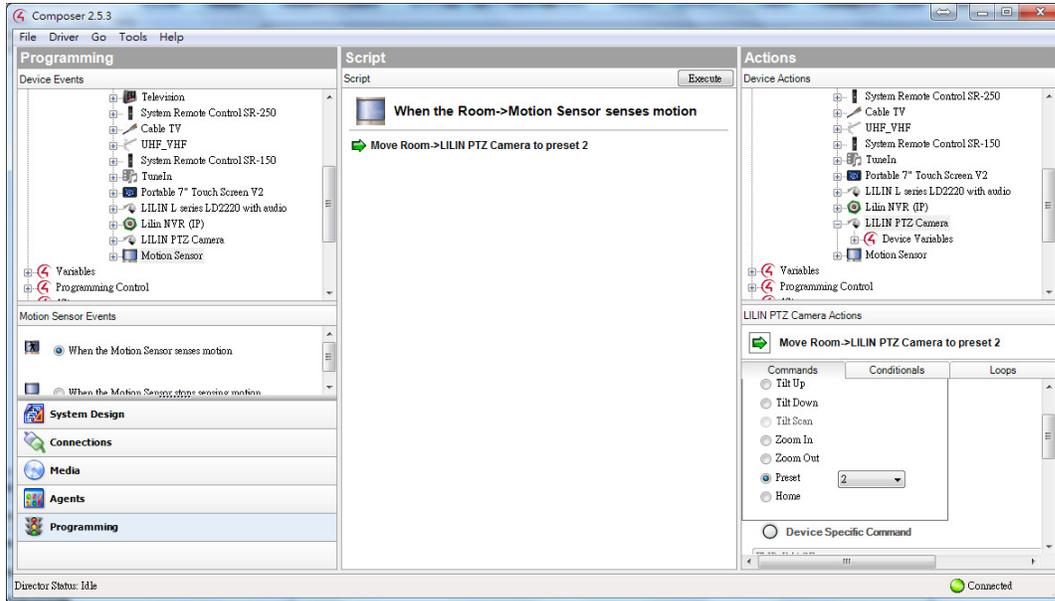The action might trigger recall a Preset.   Select on LILIN PTZ Camera under Actions and select Preset.   This example shows that motion detection from one camera can trigger a PTZ's preset for looking at an area via Control4 controller.

Event Triggering via LILIN IP Camera's Email System

To setup IP camera's email system, please visit the Properties page of the camera.   Type email information and click Set button in Composer.   This is to set IP camera's email system.

For triggering via Control4, program is required for the actions:

SEND_SNAPSHOT - Sends a snapshot to the defined email address with the defined Subject and Message.
SET_EMAIL - Updates the email address that the snapshot will be sent to.
SET_SUBJECT - Updates the subject of the snapshot email.
SET_MESSAGE - Updates the message of the snapshot email.
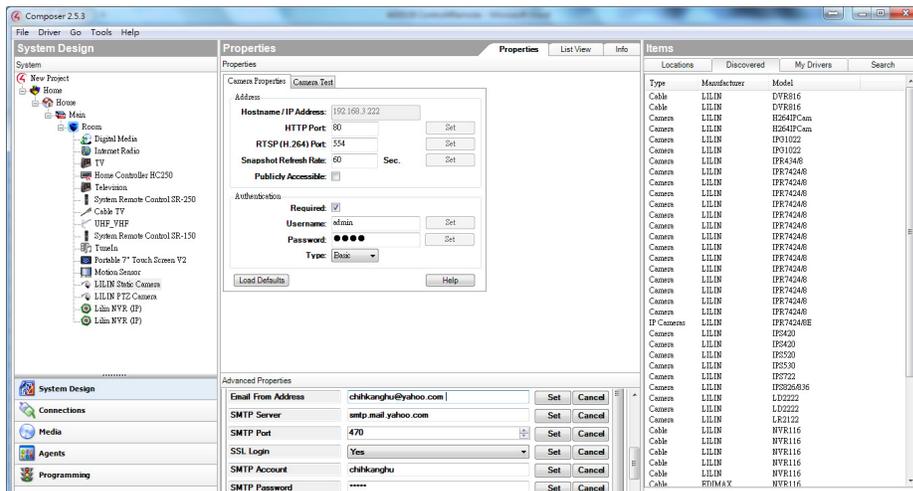
After typing in the email information, you can verify the email information at Advance->Event->SMTP Server via Internet browser.

| System | Video / Audio | Network | Event | Notification | Maintenance |

FTP Service
SMTP Service
HTTP POST Service
SD Card Service
SD Card Backup File

Advance >> Event >> SMTP Service

E-mail Receiver Setting

E-mail Address1   chihkanghu@yahoo.com

E-mail Address2

E-mail Address3

E-mail Address4

E-mail Address5

E-mail Sender Setting

E-mail Address   chihkanghu@yahoo.com

SMTP Server   smtp.mail.yahoo.com

SMTP Authentication   ○ AUTH LOGIN ● AUTH SSL

SMTP Port   465

Authentication   ○ Enable ● Disable

Auth Account   chihkanghu

Auth Password   ••••

[Submit]

Features of LILIN Cameras Supported by Control4 Composer 2.5.3

- Automatic detection of cameras on network and download of correct driver into project.
- Ability for the driver to query the capabilities of the camera and automatically set the driver parameters.   This will save the dealer time and will avoid common set-up errors.
- The driver will now be able to support motion detection and trigger events in Control4 via HTTP Post functions.
- Display settings such as mirroring and changing the orientation of the image can be done from within the Control4   driver
- Jump to Preset now available so PTZ cameras can be triggered on an event (such as a doorbell) to move to a preset position.
- H264 can be displayed in the Control4 iOS and Android Apps.   The native Control4 touch panels will still only display MJPEG.
- Additional display adjustments such as brightness and contrast now available in Custom Programming.

Appendix

Best Video Setting

Please make sure that the D1/VGA JPEG streaming is set to 10~13FPS on cameras.   This can give smooth video on Control4 system.

Firmware and Feature List

All firmware can be found at https://www.dropbox.com/sh/wv3qd3k1xoj4w6q/AAD1y2M42egktrVqdXCgbO--a?dl=0.

LILIN NVR Firmware: https://www.dropbox.com/sh/rxcmqiakuw4hy74/AAAF4p8N0pSJr6o64grhxonKa?dl=0

Product Code	Firmware Name	Version	SDDP	Remote Control	HDMI Playback	PTZ
NVR104	FlashNVR104.bin	1.0.48	Yes	Yes	Yes	Yes
NVR109	FlashNVR109.bin	1.0.48	Yes	Yes	Yes	Yes
NVR116	FlashNVR116.bin	1.0.48	Yes	Yes	Yes	Yes
NVR404C	FlashNVR404c.bin	1.0.48	Yes	Yes	Yes	Yes
VD022	Flashvd022.bin	1.0.49	Yes	Yes	Yes	Yes

LILIN DVR Firmware: https://www.dropbox.com/sh/q3yq8htrztvd8dk/AABUNOX8OzBDKHZ7O4HSL2ofa?dl=0

Product Code	Firmware Name	Version	SDDP	Remote Control	HDMI Playback	PTZ
DVR708	FlashDVR708.bin	1.2.0	Yes	Yes	Yes	Yes
DVR716	FlashDVR716.bin	1.2.0	Yes	Yes	Yes	Yes
DVR816	FlashDVR816.bin	1.2.0	Yes	Yes	Yes	Yes

LILIN PTZ Firmware: https://www.dropbox.com/sh/7s6kn6n73n2g08i/AADGR8wD-XSlQzQHWMNoW5_ia?dl=0

Product Code	Firmware Name	Version	SDDP	Email	Motion / DI	Event Notification	PTZ
IPS 210	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 310	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 4 Series	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 5 Series	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 6 Series	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 7 Series	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 8 Series	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes
IPS 9 Seres	flasham.bin	1.2.6	Yes	Yes	Yes	Yes	Yes

LILIN Pro Series 2MP & FD2452: https://www.dropbox.com/sh/w6gai5pu6wq7w66/AADaZtll67loGRmewsI5P9Hma?dl=0

Product Code	Firmware Name	Version	SDDP	Email	Motion / DI	Event Notification
IPD Series	flasham.bin	1.0.67f	Yes	Yes	Yes	Yes
IPG Series	flasham.bin	1.0.67f	Yes	Yes	Yes	Yes
IPR Series	flasham.bin	1.0.67f	Yes	Yes	Yes	Yes
FD2452	flasham.bin	1.0.67f	Yes	Yes	Yes	Yes

LILIN Pro Series 3MP & 5MP: https://www.dropbox.com/sh/7zpr84slmvz0mm2/AAC4b6X67WlDsDxYe7fZobmea?dl=0

Product Code	Firmware Name	Version	SDDP	Email	Motion / DI	Event Notification
IPD Series	flasham32.bin	1.1.23f	Yes	Yes	Yes	Yes
IPG Series	flasham32.bin	1.1.23f	Yes	Yes	Yes	Yes
IPR Series	flasham32.bin	1.1.23f	Yes	Yes	Yes	Yes

LILIN L Series: https://www.dropbox.com/sh/7zpr84slmvz0mm2/AAC4b6X67WlDsDxYe7fZobmea?dl=0

Product Code	Firmware Name	Version	SDDP	Email	Motion / DI	Event Notification
LB Series	flasham32.bin	1.1.23f	Yes	Yes	Yes	Yes
LD Series	flasham32.bin	1.1.23f	Yes	Yes	Yes	Yes
LR Series	flasham32.bin	1.1.23f	Yes	Yes	Yes	Yes

LILIN Z Series: https://www.dropbox.com/sh/w6gai5pu6wq7w66/AADaZtll67loGRmewsI5P9Hma?dl=0

Product Code	Firmware Name	Version	SDDP	Email	Motion / DI	Event Notification	Auto Focus
ZD Series	flasham.bin	1.0.67f	Yes	Yes	Yes	Yes	Yes

| ZR Series | flasham.bin | 1.0.67f | Yes | Yes | Yes | Yes | Yes |
| ZG Series | flasham32 | 1.2.23f | Yes | Yes | Yes | Yes | Yes |