

# 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.



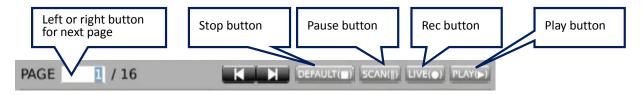


#### Playback on VD022



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

CAMERA MONITOR STREAMING ALARM NETWORK SYSTEM PTZ VIRTUAL MATRUX	DVR / NVR TABLE IP CAMERA TABLE	Enter Enter
<b>≬LILINI</b>		

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

AMERA	PAGE	1 / 16	K N	DEFAULT() SCAT	N() LIVE() PLAY
IONITOR		IP ADDRESS	HTTP	USERNAME	PASSWORD
	001	192.168.3.116	80	admin	
TREAMING	002	192.168.3.122	80	admin	
LARM	003	192.168.3.128	80	admin	
LARM	004	192.168.3.188	80	admin	
ETWORK	005	192.168.0.5	80	admin	
	006	192.168.0.6	80	admin	
YSTEM	007	192.168.0.7	80	admin	
TZ	008	192.168.0.8	80	admin	
	009	192.168.0.9	80	admin	
IRTUAL MATRIX	010	192.168.0.10	80	admin	
	011	192.168.0.11	80	admin	
	012	192.168.0.12	80	admin	
	013	192.168.0.13	80	admin	
	014	192.168.0.14	80	admin	
	015	192.168.0.15	80	admin p	
	016	192.168.0.16	80	admin	

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

CAMERA		PAGE	1 / 16	K N	DEFAULT() SCA	N(T) LIVE(O) PLAY
MONITOR			IP ADDRESS	нттр	USERNAME	PASSWORD
STREAMING		001	192.168.3.116	80	admin	
		nny	147 168 4 177	HIT	admin	
LARM					an ain	
ETWORK	START		2012/09/24 02:59	80	OK nin	
	END		2012/10/02 14:24	80	ingel oin	
YSTEM	END		2012/10/02 14:24	80 <b>. G</b>	and a second	
ΤZ	TIME S	EARCH	2012/10/02 14:21	8	ad hin	
IRTUAL MATRIX			102 Long and		adinin	
TRIUAL MATRIX					adinin	****
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		013	192.168.0.13	80	admin	
		014	192.168.0.14	80	admin	
		015	192.168.0.15	80	admin	
		016	192.168.0.16	80	admin	



## 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.

Composer 2.5.3	and the second second		0	-			100				
File Driver Go Tools Help											
System Design	Properties				Properties	List View	Info	Items			
System	Properties							Locations	Discovered	My Drivers	Search
K New Project	Camera Properties Camera Te	st									
🖨 😽 Home	Address									$\sim$	•
	Hostname / IP Address:	192.168.3.68	3	1					line 📄 Certified Only		
E-S Room	HTTP Port	80		Set				All Device Types	- LILIN	2	-
🚽 🔊 Digital Media	RTSP (H.264) Port	554	1	Set				Results		Sort by	Relevance 👻
	Snapshot Refresh Rate:		Sec.	Set				LILIN IP Car			
Home Controller HC250	Publicly Accessible:		566.					LILIN IF CAI	liela		Static Models
- Relevision								Camera			IP Local
System Remote Control SR-250	Authentication	-			1						n cocar
Cable TV	Required:							LILIN IP Car	nera		
UHF_VHF System Remote Control SR-150	Username:			Set				LILIN			PTZ Models
TuneIn	Password:		_	Set				Camera			
Portable 7" Touch Screen V2	Type:	Basic 🔻	•								
	Load Defaults			Help							
LILIN L series LB1022	Load Defaults			нер							
LILIN PTZ Camera											
San Contera											
	Advanced Properties										
🔯 System Design	Properties Documentation	Actions	Luz								
Connections	Version	0.3.0									
🕞 Media	Driver Information	IPD22	20E discove	ered			ш				
Agents	Camera Name	IPD22	20E								
Programming	Camera Model	IPD22	20E					-			
	Firmware	1.0.57	s					1-2 of 2		< Previou	s Next >
	Detections	motion	face audio	tamper			-				
Director Status: Idle											🚫 Connected

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.

Composer 2.5.3	and a second second			
File Driver Go Tools Help				
Connections	IP Network Connections			Available Devices
Control/AV Network	Identify Disconnect		Disconnect ZigBee Disconnect All	C4:LILIN VD022
ControlAV Network IP Network System Design System Design Connections Programming Programming	Device Room Room System Control In Control I	Type Address Type 44 control4 /nc250 UUID 44 control4 /nc250 210 BEE 44 control4210 C 210 BEE 44 control4210 BE	Address e4 control}_hc250_homecontroller-home-co 000ftr00004547 1dentify: Room->LILIN Static Camera e4 control}_bcas 192.169.3.60 192.169.3.60 192.169.3.60 192.169.3.60 TM	e de contol (A250) homecontrolle - de contol (A250) homecontrolle - de LILB VPR16 - DVR216 10775 sere - de LILB VPR16 - DVR216 10775 sere - DVR216 sere - D
Director Status: Idle				Connected



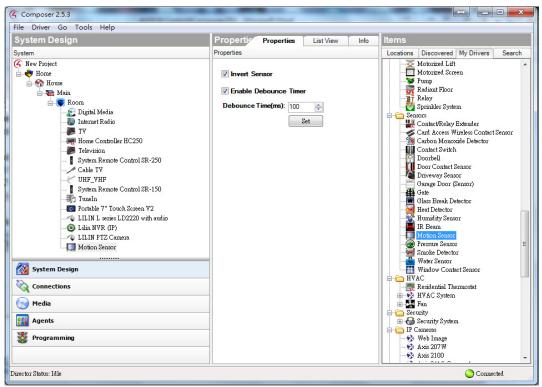
### **Event Notification**

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.

G Composer 2.5.3		100		Company of the	and the second		
File Driver Go Tools He	lp						
Connections		Control & Audio V	ideo Conr	nections			
Control/AV	Network	LILIN L series LD2220 with a					
A New Project	Network	Name	Туре	Connection	Input/Output	Connected To	
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House			C	CONTACT_SENSOR	<u></u>	Motion Sensor->Contect Sensor	
📋 🕁 Main		Motion Detection Audio Detection	Contol Contol	CONTACT_SENSOR	Output Output	Motion Sensor->Contect Sensor	
A Room			Contor	CONTRCI_SENSOR	Output		
Digital Med	ia	Proxy	122		10010-01	THE REPORT OF THE REPORT OF THE	
- 🐻 Internet Red	lio	amera 😫	Prox	CAMERA	Output	LILIN L series LD2220 with audio->Camera	
💯 TV							
	roller HC250						
- 🐻 Television							
System Ren Cable TV	note Control SR-250						
UHF_VHF							
	uote Control SR-150						
- System Ken	IDIE COMBOLSK-150						
	Touch Screen V2						
	ies LD2220 with audio						
💿 Lilin NVR (	IP)						
LILIN PTZ							
[]] Motion Sen:	100						
		CONTACT_SENSOR Input I					
		Device	Name		Location	Connections	
		Motion Sensor	Contact Sen:	201	Room	LILIN L series LD2220 with audio->Motion Detection	
System Design							
Connections							
💮 Media							
Agents							
🐉 Programming							



### **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.

Composer 2.5.3				×
File Driver Go Tools Help				
Programming	Script		Actions	
Device Events	Script	Execute	Device Actions	
Television     System Design     When the Motion Sensor senses motion     When the Motion Sensor senses motion	Script  When the Room->Motion Sensor senses mo  Move Room->LILIN PTZ Camera to preset 2		Device Actions       Cable TV       Cable TV       Cable TV       Cable TV       Cable TV       Cable TV       System Remote Control SR-150       Transh       Transh       Cable TV       Moton Sensor       Cable T2 Camera to preset 2       Commands       Loops       Till Dvn       Till Son       Coon In       Coon Out       Prest       Home	
Verogramming			O Device Specific Command	
				F
Director Status: Idle			Connected	.41

### 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.

Composer 2.5.3		-	Constituence 1						-		- 0 <b>- X</b>
File Driver Go Tools Help											
System Design	Properties			Properties	List	View	Info	Items			
System	Properties							Locations	Discovered	My Drivers	Search
(C) Liew Protect	Canen Proprier Canen Tes Address Hotsmanner /IP Address HITTP Port RTSP PIA 2640 Port Sangeshot Refeels Rade Publicly Accessible Authencion Required Username Passwoot Tyse Lond Defaults	192.168.3.222 80 554 60 Sec.	Set Set Set Help					Type Cable Cable Cantes	LUN LUN LUN LUN LUN LUN LUN LUN LUN LUN	Model OVF816 OVF816 OVF816 DVF816 DVF	
👰 System Design	Advanced Properties						-	Camera	LILIN LILIN	IP3826/836	
Connections	Email From Address	chihkanghu@yah			Set	Cancel	1	Camera Camera	LILIN LILIN	LD2222 LD2222	
Connections	SMTP Server	smtp.mail.yahoo.o	com		Set	Cancel		Comera	LILIN	LR2122	
💮 Media	SMTP Port	470		÷.	Set	Cancel		Cable	LILIN LILIN	NVR116 NVR116	
agents	SSL Login	Yes		-	Set	Cancel	In	Cable	LILIN	NVR116	
Sector Programming	SMTP Account	chihkanghu			Set	Cancel	E	Cable Cable	LILIN LILIN	NVR116 NVR116	
•	SMTP Password				Set	Cancel		Cable	RDIMAX	NVR116	

After typing in the email information, you can verify the email information at Advance->Event->SMTP Server via Internet browser.



System Vide	eo / Audio 🔰 Network	Event Notification Maintenance
FTP Service SMTP Service	Advance >> Event >>	SMTP Service
TTP POST Service	E-mail Receiver Setting	
SD Card Service	E-mail Address1	chihkanghu@yahoo.com
O Card Backup File	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

### 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.

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				

<b>VVR Firmware:</b> https://www.dropbox.com/sh/rxcmgiakuw4hy74/AAAF4p8N0pSJr6o64grhxonKa?dl=0
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#### 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-XSIQzQHWMNoW5\_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: <u>https://www.dropbox.com/sh/7zpr84slmvz0mm2/AAC4b6X67WIDsDxYe7fZobmea?dl=0</u>

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/AAC4b6X67WIDsDxYe7fZobmea?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