

## 1.0 Manufacturer

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Manufacturer shall warrant the camera to be free from defects in material and workmanship for two years from the purchase date.

## 2.0 Camera Network Description

The Day & Night 1080P HD Vari-Focal Dome IP Camera described shall be a LILIN model number IPD2322ESX3.6 or equivalent. The camera described shall be a high sensitivity megapixel camera using multiple-profile video streaming of H.264 and Motion JPEG technologies, built-in IR cut filter mechanism, auto color & mono switching, back light compensation, day & night applications for 24-hr surveillance, effective low light performance, and is PoE (IEEE 802.3af compatible) and/or can be directly powered using DC12V±10%.

## 3.0 General Specifications

- 3.1 The Day & Night 1080P HD Vari-Focal Dome IP Camera shall incorporate a 1/2.7" Progressive scan CMOS image sensor with 1920 (H) x 1080 (V) effective pixels. The network camera shall be able to produce images in 1080P, 720P, D1 or CIF resolution. The camera shall have a minimum light requirement of 0.1 lux at F1.4 (Low Light Mode).
- 3.2 The camera shall support 2-way audio function.
- 3.3 The camera shall produce 30 frames per second at 1080P resolution with H.264 video compression or produce 15 frames per second at 1080P resolution with Motion JPEG video compression.
- 3.4 The camera shall provide three streaming at same time for various Internet or Intranet applications.
- 3.5 The camera shall have at least 256MB of RAM.
- 3.6 The camera shall provide a TCP/IP protocol video output via a RJ-45 Ethernet connection.
- 3.7 The camera shall provide Micro SD/SDHC for circular local recording.
- 3.8 User and Administrator password protection levels are provided.
- 3.9 The camera shall provide two sets of sensors or video quality for day and night that the setting can be programmed based on individual schedule(s).
- 3.10 The camera is able to specify its shutter speed for min and max range for various environments. (1/30(25)s ~ 1/8000s)
- 3.11 The camera shall provide 3D noise reduction feature.
- 3.12 The camera shall provide WDR and BLC features.
- 3.13 The camera shall provide privacy mask feature.
- 3.14 The camera shall provide motion / tampering / face detection features.
- 3.15 The camera shall provide PoE (IEEE 802.3af compatible) input.
- 3.16 The camera shall provide video mirror and flip features.
- 3.17 A recessed mechanical rest button shall be provided to return the camera to factory default settings.

#### 4.0 Camera Networking Requirements

- 4.1 The camera shall incorporate a built-in web server.
- 4.2 The camera shall provide integrated support for IP, TCP, UDP, HTTP, SMTP, NTP, DDNS, UPnP, FTP, ARP, DHCP, PPPoE, DNS, RTCP, RTSP, Telnet, ICMP, IGMP, and ONIVF protocols.
- 4.3 The camera shall provide FTP services for sending JPEG snapshots based on scheduling and/or continuously sent with various time pattern, prefix, and postfix for JPEG file names that it can achieve better FTP system integration.
- 4.4 The camera shall provide email service for sending JPEG snapshots for at least 5 different recipients.
- 4.5 No unique or proprietary client software shall be required for viewing or controlling the camera.
- 4.6 The camera shall be user configurable and the administrator may functionally or aesthetically modify the camera’s web pages.
- 4.7 The camera shall provide 3G mobile remote live monitoring capability – Alarm PushVideo on smartphone devices (LILINViewer).
- 4.8 Multiple cameras installed shall be connected and managed by Center Management Software (CMX Software). Cameras can be grouped in the CMX Software. Camera groupings in CMX Software can be assigned for certain user(s) for user management purpose.
- 4.9 The camera shall provide IP filter to isolate a particular IP address for safety and related possible conditions.
- 4.10 The camera shall provide NTP (Network Time Protocol) feature so that the camera is able to connect to NTP network.
- 4.11 The camera shall provide OSD (on-screen display) feature which includes time display and device name display.
- 4.12 The Web server of the camera shall provide system log information for administrator(s) to view videos and operation details.
- 4.13 The camera shall provide alarm event notification via external alarm outputs on detections on audio, motion, and network lost.
- 4.14 The camera shall have Micro SD/SDHC card video playback function so that users can store designated videos into the SD/SDHC card without using an extra media player to support.
- 4.15 The camera shall provide various alarm event outputs: i.e. GPIO (general purpose input/output), FTP (file transfer protocol) and email notification services to notify the users.

The camera shall not exceed a dimension of body:  $\Phi 150\text{mm} \times 134\text{mm}$  and weigh no more than 600g. Power requirement for the network camera shall be  $\text{DC}12\text{V} \pm 10\%$  or PoE. The operating temperature for video camera shall be  $-25^{\circ}\text{C} \sim +50^{\circ}\text{C}$  ( $-13^{\circ}\text{F} \sim 122^{\circ}\text{F}$ ). The camera manufacturer shall be ISO 9001 certified and Camera shall comply with CE.

#### 5.0 Minimum Performance Specifications

<b>IP CAMERA SERIES</b>		
<b>1080P HD Vandal Resistant Dome IP Camera</b>		
Model	IPD6220ES	IPD6222ES

Lens	Focal Length		4.3mm
	Iris		F1.6
	Angles of View	H	70°
		V	51°
	D	89°	
Pick Up Element			1/2.7" CMOS image sensor
Effective Pixels			1920 (H) x 1080 (V) = 2,073,600 (pixel)
Chip Size			5.856mmn (H) x 3.276mm (V)
Scanning System			Progressive Scan
Infrared Cut Filter			Auto / Schedule / Day (Color) / Night (Mono)
Min. illumination			0.1 lux at F1.4 (Low Light Mode)
White Balance			Auto / Tungsten / Indoor / Fluorescents 1 / Fluorescents 2 / Outdoor 1 / Outdoor 2
Back Light Compensation			Off / On
Electronic Shutter			1/30(25)s~1/8000s
Sense Up			Off / 1 Frame / 2 Frames / 3 Frames / 7 Frames
Sense Up+			Yes
Auto Gain Control			36 dB Variable Gain
3D Noise Reduction			Off / 1 ~32 Selectable
2D WDR			Off / On
Privacy Masking			Off / On (4 zones)
Image Effects			Brightness, Contrast, Hue, Saturation, Sharpness, Mirror, Flip
IP Rating			IP67
Regulatory Approvals			Rolling Stock, EN50155: 2007 compliance (shock, vibration, temperature and EMC)
Operating Temperature			-25°C ~ +55°C (-13°F ~ 131°F)
Dimension			Ø115mm x 40mm
Weight			310g
Power Supply			PoE (IEEE 802.3af compliant) DC12V±10% / PoE (IEEE 802.3af compliant)
Power Consumption			5W DC12V, 5W / PoE, 5W
<b>NETWORK</b>			
Video Compression			H.264, Motion JPEG
Resolution			1080P (1920 x 1080), 720 (1280 x 720), D1 (720 x 480), CIF (352 x 240)
Multiple profile	Profile #1	H.264: up to 30 fps @1920 x 1080, MJPEG: up to 30 fps @ 720 x 480	
	Profile #2	H.264: up to 30 fps @1280 x 720, MJPEG: up to 30 fps @ 352 x 240	

## Architect & Engineering Specifications

	Profile #3	H.264: up to 30 fps @ 1920 x 1080, MJPEG: up to 30 fps @ 1280 x 720	
	Profile #4	H.264: up to 30 fps @ 720 x 480, MJPEG: up to 15 fps @ 1920 x 1080	
Video Streaming	RTP/HTTP, RTP/TCP, RTP/UDP, Multicast		
Video Bitrate	128 Kbps ~ 5Mbps		
	Frame rate and bit rate controllable on-the-fly		
	VBR / CBR / GOP supported		
Security	Base 64 HTTP encryption		
	Multiple user access levels with password protection		
	10 user accounts available		
Users	8 simultaneous users		
ePTZ & Digital Zoom	Yes, ROI is supported		
OSD	Text overlay for date, time, and camera name		
Alarm Function	Motion / tampering / face detection triggering recording into SD card		
	image upload over FTP and email by face / tampering / audio / motion detection		
CPU, Memory	Embedded SoC ARM11, 528MHz, 256MB DDR2, 256MB flash memory		
Maintenance	Firmware update via HTTP		
	Firmware available at website		
Network Interface	10Mbps / 100Mbps Base-T, M12 connector	10Mbps / 100Mbps Base-T, RJ-45	
PC Requirement	OS: Windows 2000, Windows XP, Windows Vista, Windows 7		
	Browser: Windows Internet Explore 6,7, 8		
	CPU: Intel Pentium 4 1.8GHz or above		
	RAM: 1GB or above, Independent Display Card		
Network Protocols	IP, TCP, UDP, HTTP, SMTP, NTP, DDNS, UPnP, FTP, ARP, DHCP, PPPoE, DNS, RTSP, RTCP, Telnet, ICMP, IGMP, ONVIF		
Mobile phone	iPhone, iPad, and Android support		
System Integration	ONVIF & LILIN HTTP API		
CMX	CMX HD 3.6 support		
Video Display	LILIN Universal ActiveX & LILIN Java Applet		
OSD	Embedded Linux 2.6.32		
Two-way Audio	G.711 / PCM		
SD Card Recording	Support Micro SD/SDHC card for circular recording		

\*Please submit ISO 9001, CE, IP67 certificates.

\*This specification is intended for use by the design/construction professional and any user of LILIN products to assist in developing project specifications for security and video surveillance systems.