

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 Day & Night 1080P HD IP Camera described shall be a LILIN model number IPG1022X 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 compliant) and/or can be directly powered using DC12V $\pm 10\%$.

3.0 General Specifications

- 3.1 The Day & Night Day & Night 1080P HD IP Camera shall incorporate a 1/2.8" Progressive scan CMOS image sensor with 1984 (H) x 1105 (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 0.02 lux at F1.2 (Low Light Mode). The video output level shall be CVBS 1.0Vp-p, 75 ohm, BNC connector.
- 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 composite video BNC output.
- 3.8 The camera shall provide Micro SD/SDHC for circular local recording.
- 3.9 User and Administrator password protection levels are provided.
- 3.10 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).
- 3.11 The camera is able to specify its shutter speed for min and max range for various environments. (1/30s ~ 1/8000s)
- 3.12 The camera shall provide 3D noise reduction feature.
- 3.13 The camera shall provide WDR and BLC features.
- 3.14 The camera shall provide privacy mask features.
- 3.15 The camera shall provide alarm, motion, tampering, and/or face detection features.
- 3.16 The camera shall provide PoE (IEEE 802.3af compatible) input.
- 3.17 The camera shall provide video mirror and flip features.
- 3.18 A recessed mechanical reset 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 IPv4, IPv6, TCP, UDP, HTTP, SMTP, NTP, DDNS, UPnP, FTP, ARP, DHCP, PPPoE, DNS, RTSP, RTCP, Telnet, ICMP, IGMP, ONVIF Profile S, SNMP, SIP, Bonjour.
- 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 (Navigator software). Cameras can be grouped in the Navigator software. Camera groupings in Navigator 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 Micro 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: 70mm(W) x 50mm(H) x 110mm(D), and weigh no more than 380g. Power requirement for the network camera shall be DC12V±10% / PoE (IRRR 802.3af compliant). The operating temperature for video camera shall be -25°C – +50°C (-13°F – 122°F). The camera manufacturer shall be ISO 9001 certified and Camera shall comply with CE.

5.0 Minimum Performance Specifications

Day & Night 1080P HD IP Camera			
Model		IPG1022ESX3	
Lens	Focal length		3 – 10.5 mm (CS mount)
	Iris		F1.4
	Angle of view	H	105.6° – 28.4°
		V	79.2° – 21.3°
		D	132° – 35.5°
Pick up element		1/2.8" CMOS image sensor	
Effective pixels		1984 (H) x 1105 (V) = 2,192,320 (pixel)	
Scanning system		Progressive scan	
Infrared cut filter		Auto / schedule / day (color) / night (mono) / external control	
Min. illumination		0.02 Lux at F1.4 (Low Light Mode)	
White balance		Auto / tungsten / indoor / fluorescents1 / fluorescents2 / outdoor1 / outdoor2	
Back light compensation		Off / on	
Electrical shutter		1/30(1/25)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 / Auto / x2 / x3 / x4	
Privacy masking		Off / on (4 zones)	
Image effects		Brightness, Contrast, Hue, Saturation, Sharpness, Mirror, Flip	
Live Video output		CVBS 1.0Vp-p, 75 ohm, BNC connector	
Audio in / output		Mono, 1.4 Vp-p , 50 KΩ , 3.5mm phone jack	
Operating temperature		-25°C – +50°C (-13°F – 122°F)	
Dimension		70mm(W) x 50mm(H) x 110mm(D)	
Weight		380g	
Power supply		DC12V ±10% / PoE (IEEE 802.3af compliant)	
Power consumption		DC12V, 6W / PoE, 7.5W	
Network			
Video compression		H.264 , Motion JPEG	
Resolution		1080P(1920 x 1080), 720P(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	
	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		128Kbps – 8Mbps	

Architect & Engineering Specifications

	Frame rate and bit rate controllable on-the-fly
	VBR / CBR / GOP supported
Security	Base64 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 functions	Alarm / motion / tampering / face / alarm detection triggering recording into SD card
	Image upload over FTP and E-mail 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 web site
Network interface	10Mbps / 100Mbps Base-T, RJ-45
PC requirement	OS : Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8
	Browser : Windows Internet Explorer 6.0 or above
	CPU : intel pentium 4 1.8GHz or above
	RAM : 1GB or above, independent display card
Network protocols	IPv4, IPv6, TCP, UDP, HTTP, SMTP, NTP, DDNS, UPnP, FTP, ARP, DHCP, PPPoE, DNS, RTSP, RTCP, Telnet, ICMP, IGMP, ONVIF Profile S, SNMP, SIP, Bonjour
Mobile phone	iPhone, iPad, and Android support
System integration	ONVIF & LILIN HTTP API
Central management system	NAV 1.0 support
Video display	LILIN Universal ActiveX & LILIN Java Applet
OS	Embedded Linux 2.6.32
Two-way audio	G.711 / PCM
SD card recording	Support Micro SD/SDHC card for circular recording (card is not included)
Alarm input / output	Digital 1 input (TTL, +3 – 5VDC) / 1 Output (MOS Relay contact N.O., Load max. 40VDC/300mA)

*Please submit ISO 9001, CE 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.