

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 2-Megapixel 1080P HD Vari-focal IR IP Camera described shall be a LILIN model number LR7224EX3.6/LR7228EX3.6 or equivalent. The camera described shall be an industrial IP66 grade, 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 802.3at compatible) and/or can be directly powered using AC24V ($\pm 10\%$) or AC100~240V ($\pm 10\%$).

3.0 General Specifications

- 3.1 The Day & Night 2-Megapixel 1080P HD Vari-focal IR IP Camera shall incorporate a 1/2.7" Progressive scan CMOS 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 0.05 Lux at F1.4 in color mode (Low Light Mode) or 0 lux if IR LED on. The video output level shall be 1.0Vp-p (75 Ω , BNC).
- 3.2 The camera shall support 2-way audio function.
- 3.3 The camera shall produce 15 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 compliant with IP66 Weather and Dust resistance rating.
- 3.6 The camera shall provide Infrared LED for ultra low lux night vision.
- 3.7 The camera's projection beam of infrared LED shall reach 55M with IR wavelength at 850nm.
- 3.8 The camera shall have at least 256MB of RAM.
- 3.9 The camera shall provide a TCP/IP protocol video output via a RJ-45 Ethernet connection.
- 3.10 The camera shall provide composite video BNC output.
- 3.11 The camera shall provide Micro SD/SDHC for circular local recording.
- 3.12 User and Administrator password protection levels are provided.
- 3.13 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).
- 3.14 The camera is able to specify its shutter speed for min and max range for various environments. (1/30s ~ 1/8000s)
- 3.15 The camera shall provide 3D noise reduction feature.
- 3.16 The camera shall provide WDR and BLC features.
- 3.17 The camera shall provide privacy mask features.

- 3.18 The camera shall provide motion, audio, and network detection features.
- 3.19 The camera shall provide PoE+ (IEEE 802.3at compatible) input.
- 3.20 The camera shall provide video mirror and flip features.
- 3.21 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, SNMP, SIP, Bonjour, and ONVIF Profile S 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.
- 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: 124mm (W) x 113mm (H) x 310mm (D), bracket: 211.5mm (L) and weigh no more than 2,200g. Power requirement for the network camera shall be 17W or 20W (PoE+). The operating temperature for video camera shall be -40°C – +50°C (-40°F – 122°F). The camera manufacturer shall be ISO 9001 certified and Camera shall comply with CE.

5.0 Minimum Performance Specifications

6.0 Day & Night 1080P HD Vari-focal IR IP Camera

Model No.	LR7224EX3.6	LR7228EX3.6
Power Input Voltage	AC24V (±10%)	AC100~240V (±10%)
	PoE+ (IEEE 802.3at compliant)	
Focal Length	3.3 – 12mm	
Iris	F1.4	
Angle of view	79.3° – 29.8°(H), 59.4° – 22.4°(V), 99° – 37.3°(D)	
Pick Up Element	1/2.7" CMOS image sensor	
Effective Pixels	1920 (H) x 1080 (V) = 2,073,600 (pixel)	
Scanning System	Progressive Scan	
Infrared Cut Filter	Auto / Schedule / Day (Color) / Night (Mono)	
Minimum Illumination	0.05 Lux at F1.4 (Low Light Mode) / 0 Lux with IR LED ON	
Auto Gain Control	36 dB Variable Gain	
White Balance	Auto / Tungsten / Indoor / Fluorescents 1 / Fluorescents 2 / Outdoor 1 / Outdoor 2	
Electronic Shutter	1/30(25)s – 1/8000s	
Sense Up	Off / 1 Frame / 2 Frames / 3 Frames / 7 Frames	
Sense Up +	Yes	
Back Light Compensation	Off / On	
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	
IP Rating	IP66	
Window	Ø78 Heat Resistant Glass	
IR Peak Wavelength	850nm	
Beam Spread	30°	
Radiant Distance	55M	
Operation Temperature	-40°C – +50°C (-40°F – 122°F)	
Power Consumption	17W (PoE+, 20W)	
Dimension	Body: 124mm (W) x 113mm (H) x 310mm (D), Bracket: 211.5mm (L)	
Weight	2,200g	
Video Compression	H.264, Motion JPEG	
Resolution	1080P (1920 x 1080), 720P (1280 x 720), D1 (720 x 480), CIF (352 x 240)	
Maximum frame rate	H.264 : up to 15 fps @ 1920 x 1080 , 30fps @ 1280 x 720 , 30fps @ 720 x 480	
	Motion JPEG : up to 15 fps @ 1920 x 1080 , 30 fps @ 720 x 480 , 30 fps @ 352 x 240	
Video Streaming	RTP / HTTP, RTP / TCP, RTP / UDP, Multicast	

Video Bitrate	128Kbps–8Mbps 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
Digital Zoom	Yes
OSD	Text overlay for date, time, and camera name
Users	8 simultaneous users
Alarm Function	Motion, audio, and/or network detection triggering recording into Micro SD/SDHC card Image upload over FTP and E-mail by motion, audio, and/or network 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, 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, SNMP, SIP, Bonjour, ONVIF Profile S protocols.
Mobile Phone	Support iPhone, iPad & Android devices
Central management system	NAV 1.0 support
Video Display	LILIN Universal ActiveX and LILIN Java Applet
System Integration	ONVIF and LILIN HTTP API
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, IP66 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.