

**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 3MP HD IP Camera described shall be a LILIN model number IPG1032X 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 3MP HD IP Camera shall incorporate a 1/2.8" Progressive scan CMOS image sensor with 2096 (H) x 1561 (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 F1.2 (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 30 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 IP, 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 3MP HD IP Camera |               |                                                                                       |                       |
|------------------------------|---------------|---------------------------------------------------------------------------------------|-----------------------|
| Model                        |               | IPG1032ESX3                                                                           |                       |
| Lens                         | Focal length  |                                                                                       | 2.8 – 8 mm (CS mount) |
|                              | Iris          |                                                                                       | F1.2                  |
|                              | Angle of view | H                                                                                     | 100.1° – 35.8°        |
|                              |               | V                                                                                     | 72.9° – 26.9°         |
| D                            |               | 123.8° – 44.8°                                                                        |                       |
| Pick up element              |               | 1/2.8" CMOS image sensor                                                              |                       |
| Effective pixels             |               | 2096 (H) x 1561 (V) = 3,271,856 (pixel)                                               |                       |
| Scanning system              |               | Progressive scan                                                                      |                       |
| Infrared cut filter          |               | Auto / schedule / day (color) / night (mono) / external control                       |                       |
| Min. illumination            |               | 0.1 Lux at F1.2 (Low light mode)                                                      |                       |
| White balance                |               | Auto / tungsten / indoor / fluorescents1 / fluorescents2 / outdoor1 / outdoor2        |                       |
| Back light compensation      |               | Off / on                                                                              |                       |
| Electronic 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                   |               | 3MP(2048 x 1536), 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                  |                       |

## Architect & Engineering Specifications

|                           |            |                                                                                                                                            |
|---------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Profile #5 | H.264 : up to 15 FPS @ 2048 x 1536, MJPEG : up to 15 FPS @ 720 x 480                                                                       |
| 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                                                                                                                 |
| Users                     |            | 8 simultaneous users                                                                                                                       |
| ePTZ & digital zoom       |            | Yes, ROI is supported                                                                                                                      |
| OSD                       |            | Text overlay for date, time, and camera name                                                                                               |
| Alarm function            |            | 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         |            | IP, 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.