

**GIZ-InS Technical Assistance Unit funded by the EU for
Ethiopian Police University**

**CCTV Camera Design, Installation and configuration work
Technical Specification proposal**

Date, October 2024

Material Type, Technical Specification and Quantity for Ethiopia Police University

N o.	Item name	Technical specification	Quan tity	Mandator y	
				Yes	No
1.	4 MP AcuSen se Fixed Dome Networ k Camera	<ul style="list-style-type: none"> • High quality imaging with 4 MP resolution • Clear imaging against strong backlight due to 120 dB WDR technology • Efficient H.265+ compression technology • Water and dust resistant (IP67) and vandal resistant (IK10) • Focus on human and vehicle targets classification based on deep learning <ul style="list-style-type: none"> • Camera • Image Sensor1/3" Progressive Scan CMOS • Max. Resolution2688 × 1520 • Min. IlluminationColor: 0.005 Lux @ (F1.6, AGC ON), 0 Lux with IR on • Shutter Time1/3 s to 1/100,000 s • Day & NightIR cut filter • Angle AdjustmentPan: 0° to 355°, tilt: 0° to 75°, rotate: 0° to 355° <ul style="list-style-type: none"> • Lens • Lens TypeFixed focal length, 2.8 and 4 mm optional • Focal Length & FOV <hr/> <p>2.8 mm, horizontal FOV 103°, vertical FOV 55°, diagonal FOV 122°</p> <p>4 mm, horizontal FOV 84°, vertical FOV 45°, diagonal FOV 100°</p>	14	yes	

		<ul style="list-style-type: none"> • Lens MountM12 • Iris TypeFixed • ApertureF1.6 <hr/> <ul style="list-style-type: none"> • DORI • DORI <hr/> <p>2.8 mm: D: 67 m, O: 26 m, R: 13 m, I: 6 m 4 mm: D: 80 m, O: 31 m, R: 16 m, I: 8 m</p> <hr/> <ul style="list-style-type: none"> • Illuminator • Supplement Light TypeIR • Supplement Light RangeUp to 30 m • Smart Supplement LightYes • IR Wavelength850 nm <hr/> <ul style="list-style-type: none"> • Video • Main Stream <hr/> <p>50 Hz: 25 fps (2688 × 1520, 1920 × 1080, 1280 × 720) 60 Hz: 30 fps (2688 × 1520, 1920 × 1080, 1280 × 720)</p> <hr/> <ul style="list-style-type: none"> • Sub-Stream <hr/> <p>50 Hz: 25 fps (1280 × 720, 640 × 480, 640 × 360) 60 Hz: 30 fps (1280 × 720, 640 × 480, 640 × 360)</p> <hr/> <ul style="list-style-type: none"> • Third Stream <hr/> <p>50 Hz: 10 fps (1920 × 1080, 1280 × 720, 640 × 480, 640 × 360) 60 Hz: 10 fps (1920 × 1080, 1280 × 720, 640 × 480, 640 × 360)</p> <hr/> <ul style="list-style-type: none"> • Video Compression <hr/> <p>Main stream: H.265/H.264/H.264+/H.265+ Sub-stream: H.265/H.264/MJPEG Third stream: H.265/H.264</p>			
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		<ul style="list-style-type: none"> • Video Bit Rate32 Kbps to 8 Mbps • H.264 TypeBaseline Profile/Main Profile/High Profile • H.265 TypeMain Profile • Bit Rate ControlCBR/VBR • Scalable Video Coding (SVC)Yes • Region Of Interest (ROI)1 fixed region for main stream and sub-stream • Audio • Audio Compression-S: G.711ulaw/G.711alaw/G.722.1/G.726/MP2L2/PCM/ MP3/AAC-LC • Audio Bit Rate-S: 64Kbps(G.711ulaw/G.711alaw)/16Kbps(G.722.1)/16 Kbps(G.726)/16Kbps-64Kbps(AAC-LC)/32- 192Kbps(MP2L2)/8-320Kbps(MP3) • Audio Sampling Rate-S: 8 kHz/16 kHz/32 kHz/44.1 kHz/48 kHz • Environment Noise Filtering-S: Yes • Network • ProtocolsTCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, DDNS, RTP, RTSP, NTP, UPnP, SMTP, IGMP, 802.1X, QoS, IPv6, UDP, Bonjour, SSL/TLS, PPPoE, WebSocket, WebSockets • Simultaneous Live ViewUp to 6 channels • APIOpen Network Video Interface (Profile S, Profile G), ISAPI, SDK • User/HostUp to 32 users. 3 user levels: administrator, operator and user • Security Password protection, complicated password, HTTPS encryption, IP address filter, Security Audit Log, basic and digest authentication for HTTP/HTTPS, 			
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		<p>TLS 1.1/1.2, WSSE and digest authentication for Open Network Video Interface</p> <ul style="list-style-type: none"> • Network Storage NAS (NFS, SMB/CIFS), auto network replenishment (ANR) • ClientiVMS-4200, Hik-Connect, Hik-Central • Web Browser <hr/> <p>Plug-in required live view: IE 10, IE 11 Plug-in free live view : Chrome 57.0+, Firefox 52.0+ Local service: Chrome 57.0+, Firefox 52.0+</p> <hr/> <ul style="list-style-type: none"> • Image • Image Parameters Switch Yes • Image Settings Rotate, mirror, privacy mask, saturation, brightness, contrast, sharpness, gain, white balance adjustable by client software or web browser • Day/Night Switch Day, Night, Auto, Schedule • Wide Dynamic Range (WDR) 120 dB • SNR ≥ 52 dB • Image Enhancement BLC, HLC, 3D DNR • Interface • Ethernet Interface 1 RJ45 10M/100M self-adaptive Ethernet port • On-Board Storage Built-in micro SD, up to 512 GB • Audio-S: 1 input (line in), two-core terminal block , max. input amplitude: 3.3 vpp, input impedance: 4.7 KΩ, interface type: non-equilibrium; 1 output (line out), two-core terminal block , max. output amplitude: 3.3 vpp, output impedance: 100 Ω, interface type: non-equilibrium, mono sound • Alarm-S: 1 input, 1 output (max. 12 VDC, 30 mA) • Reset Key Yes • Event 			
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		<ul style="list-style-type: none"> • Basic Event Motion detection (human and vehicle targets classification), video tampering alarm, exception • Smart Event <hr/> Line crossing detection, intrusion detection (support alarm triggering by specified target types (human and vehicle)) Face detection <hr/> • Linkage Upload to FTP/memory card/NAS, notify surveillance centre, trigger record, trigger capture, Email • General • Power <hr/> 12 VDC \pm 25%, 0.4 A, max. 5 W, Ø5.5 mm coaxial power plug, reverse polarity protection POE: 802.3af, Class 3, 36 V to 57 V, 0.2 A to 0.15 A, max. 6.5 W <hr/> • Dimension Ø110.8 × 84.7 mm (Ø4.4" × 3.3") • Package Dimension 134 × 134 × 108 mm (5.3" × 5.3" × 4.3") • Weight Approx. 530 g (1.2 lb.) • With Package Weight Approx. 720 g (1.6 lb.) • Storage Conditions-30 °C to 60 °C (-22 °F to 140 °F). Humidity 95% or less (non-condensing) • Start up And Operating Conditions-30 °C to 60 °C (-22 °F to 140 °F). Humidity 95% or less (non-condensing) • Language <hr/> 33 languages English, Russian, Estonian, Bulgarian, Hungarian, Greek, German, Italian, Czech, Slovak, French, Polish, 			
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		<p>Dutch, Portuguese, Spanish, Romanian, Danish, Swedish, Norwegian, Finnish, Croatian, Slovenian, Serbian, Turkish, Korean, Traditional Chinese, Thai, Vietnamese, Japanese, Latvian, Lithuanian, Portuguese (Brazil), Ukrainian</p> <hr/> <ul style="list-style-type: none"> • General Function Anti-flicker, heartbeat, password reset via e-mail, pixel counter • Approval • EMCFCC (47 CFR Part 15, Subpart B); CE-EMC (EN 55032: 2015, EN 61000-3-2: 2014, EN 61000-3-3: 2013, EN 50130-4: 2011 +A1: 2014); RCM (AS/NZS CISPR 32: 2015); IC (ICES-003: Issue 6, 2016); KC (KN 32: 2015, KN 35: 2015) • Safety UL (UL 60950-1); CB (IEC 60950-1:2005 + Am 1:2009 + Am 2:2013); CE-LVD (EN 60950-1:2005 + Am 1:2009 + Am 2:2013); BIS (IS 13252(Part 1):2010+A1:2013+A2:2015) • Environment CE-ROHS (2011/65/EU); WEEE (2012/19/EU); Reach (Regulation (EC) No 1907/2006) • Protection IP67 (IEC 60529-2013), IK10 (IEC 62262: 2002) <hr/>			
2.	PTZ camera	<p>Tandem Vu 4-inch 4 MP 25X Colorful & IR Network Speed Dome</p> <ul style="list-style-type: none"> • Captures a large area and great details at the same time • High quality imaging with 4 MP resolution • Excellent low-light performance with powered-by-Dark Fighter technology and Color Vu technology 	1	yes	

		<ul style="list-style-type: none"> • Secures an expansive area with 25× optical zoom and 16× digital zoom • Supports WDR, HLC, BLC, 3D DNR, defog, regional exposure, regional focus • Expansive night view with up to 100 m IR distance & 30 m white light • Supports 12V DC & POE+ • Focuses on human and vehicle targets classification based on deep learning <p>Specification</p> <ul style="list-style-type: none"> • Camera • Image Sensor[Bullet channel]: 1/3" Progressive Scan CMOS; [PTZ channel]: 1/2.8" progressive scan CMOS • Max. Resolution[Bullet channel] 2560 × 1440, [PTZ channel] 2560 × 1440 • Min. Illumination [Bullet channel]: 0.0005 Lux @ (F1.0, AGC ON), 0 Lux with light; [PTZ channel]: Color: 0.005 Lux @ (F1.6, AGC ON), B/W: 0.001 Lux @ (F1.6, AGC ON), 0 Lux with IR • Shutter Speed1 s to 1/30,000 s • Day & Night ICR • Zoom[PTZ channel] 25 × optical, 16 × digital • Slow Shutter yes • Lens • Focal Length[Bullet channel]: 2.8 mm; [PTZ channel]: 4.8 to 120 mm, 25 × optical • FOV 			
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		<p>[Bullet channel]: Horizontal field of view: 96.1°, Vertical field of view: 52.1°, Diagonal field of view: 113.3°;</p> <p>[PTZ channel]:</p> <p>Horizontal field of view: 55° to 2.4° (wide-tele),</p> <p>Vertical field of view: 33° to 1.4° (wide-tele),</p> <p>Diagonal field of view: 61.5° to 2.8° (wide-tele)</p> <ul style="list-style-type: none"> • Focus semi-auto manual auto • Aperture[Bullet channel]: F1.0; [PTZ channel]: F1.6 • Zoom Speed[PTZ channel]: approx. 3.6 s • Illuminator • Supplement Light Type[PTZ channel]: IR; [Bullet channel]: White Light • Supplement Light Range[PTZ channel]: up to 100 m; [Bullet channel]: up to 30 m • Smart Supplement LightYes • PTZ • Movement Range (Pan)360° • Movement Range (Tilt)-15° to 90° (auto flip) • Pan Speed pan speed: configurable from 0.1° to 80°/s; preset speed: 80°/s • Tilt Speed tilt speed: configurable from 0.1° to 80°/s, preset speed 80°/s • Proportional Pan yes • Presets300 • Preset Freezing yes • Patrol Scan8 patrols, up to 32 presets for each patrol 			
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		<ul style="list-style-type: none"> • Pattern Scan 4 pattern scans • Park Action preset pattern scan patrol scan auto scan tilt scan random scan frame scan panorama scan • 3D Positioning yes • PTZ Status Display cc yes • Scheduled Task preset pattern scan patrol scan auto scan tilt scan random scan frame scan panorama scan dome reboot dome adjust aux output • Power-Off Memory yes • Video • Main Stream <p>[Bullet channel]:</p> <p>50 Hz: 25 fps (2560 × 1440, 1920 × 1080, 1280 × 960, 1280 × 720)</p> <p>60 Hz: 30 fps (2560 × 1440, 1920 × 1080, 1280 × 960, 1280 × 720)</p> <p>[PTZ channel]:</p> <p>50 Hz: 25 fps (2560 × 1440, 1920 × 1080, 1280 × 960, 1280 × 720)</p> <p>60 Hz: 30 fps (2560 × 1440, 1920 × 1080, 1280 × 960, 1280 × 720)</p> <ul style="list-style-type: none"> • Sub-Stream <p>[Bullet channel]:</p> <p>50 Hz: 25 fps (704 × 576, 640 × 480, 352 × 288)</p> <p>60 Hz: 30 fps (704 × 480, 640 × 480, 352 × 240)</p> <p>[PTZ channel]:</p> <p>50 Hz: 25 fps (704 × 576, 640 × 480, 352 × 288)</p> <p>60 Hz: 30 fps (704 × 480, 640 × 480, 352 × 240)</p>			
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		<ul style="list-style-type: none"> • Third Stream [Bullet channel]: 50 Hz: 25 fps (1920 × 1080, 1280 × 960, 1280 × 720, 704 × 576, 640 × 480, 352 × 288) 60 Hz: 30 fps (1920 × 1080, 1280 × 960, 1280 × 720, 704 × 480, 640 × 480, 352 × 240) [PTZ channel]: 50 Hz: 25 fps (1920 × 1080, 1280 × 960, 1280 × 720, 704 × 576, 640 × 480, 352 × 288) 60 Hz: 30 fps (1920 × 1080, 1280 × 960, 1280 × 720, 704 × 480, 640 × 480, 352 × 240) • Video CompressionH.265 H.264 MJPEG • Video Bit Rate32 kbps to 16384 kbps • H.264 Type base line profile main profile high profile • H.265 Type main profile • Scalable Video Coding (SVC)yes • Region Of Interest (ROI)8 fixed regions for each stream • Audio • Audio CompressionG.711,G.722.1,G.726,MP2L2,PCM,AA C-LC • Audio Bit Rate32 to 192 Kbps (MP2L2),16 to 64Kbps (AAC-LC) • Audio Sampling Rate8 kHz,16 kHz,32 kHz,48 kHz • Environment Noise Filteringyes • Network • ProtocolsIPv4/IPv6 HTTP HTTPS 802.1x Qos FTP SMTP UPnP SNMP DNS DDNS NTP RTSP RTC 			
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		<p>P RTP TCP/IP UDP IGMP ICMP DHCP PPPoE Bonjour WebSocket WebSockets</p> <ul style="list-style-type: none"> • Simultaneous Live View20 • API Open Network Video Interface (Profile S, Profile G, Profile T),ISAPI,SDK,ISUP • User/Host32 • Security Authenticated username and password MAC address binding HTTPS encryption 802.1X authenticated access IP address filter • Network Storage NAS (NFS, SMB/ CIFS) ANR • ClientiVMS-4200 Hik-Connect • Web Browser IE 10+, Chrome 57+, Firefox 52+, Safari 12+ • Image • Image Parameters Switch Yes • Image Setting sharpness, saturation, brightness, contrast • Day/Night Switch day, night, auto, scheduled-switch • Wide Dynamic Range (WDR)120 dB • SNR≥ 52 dB • Defog Digital defog • Image Stabilization EIS • Image EnhancementBLC,HLC,3D DNR • Privacy Mask[Bullet channel] 8 programmable polygon privacy masks, [PTZ channel] 24 programmable polygon privacy masks; mask color or mosaic configurable • Regional Focus Yes • Regional Exposure Yes • Interface • Ethernet InterfaceRJ45, self-adaptive 10M/100M Ethernet port 			
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		<ul style="list-style-type: none"> • On-Board Storage Built-in memory card slot, support Micro SD/Micro SDHC/Micro SDXC, up to 256 GB • Audio1 audio input, 2.0 to 2.4Vp-p, 1k Ohm±10%, 1 audio output, line level, impedance: 600 Ω • Alarm1 alarm input, 1 alarm output • Reset yes • Event • Basic Event[PTZ channel] motion detection, video tampering alarm,[PTZ channel & bullet channel] alarm input and output, exception (IP address conflict, HDD full, illegal login, HDD error, network disconnected, Abnormal Reboot) • Smart Event[PTZ channel & bullet channel] audio exception detection,[PTZ channel] line crossing detection, intrusion detection, region entrance detection, region exiting detection,[Bullet channel] line crossing detection, intrusion detection, region entrance detection, region exiting detection • Linkage[Bullet channel] Upload to FTP/NAS/memory card, notify surveillance center, send email, trigger alarm output, and trigger recording, [PTZ channel] Upload to FTP/NAS/memory card, notify surveillance center, send email, trigger alarm output, trigger recording, and PTZ actions (such as preset, patrol scan, pattern scan) • Deep Learning Function • Face Capture[Bullet channel] no,[PTZ channel] yes • General • Power12VDC, PoE+ • Dimension Ø 166 mm × 375 mm (Ø 6.5" × 14.7") • Weight Approx. 2.4 kg (13.2 lb.) 			
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3.	NVR AcuSense 4K	32-ch POE 1U K Series ACUSENSE 4K NVR <ul style="list-style-type: none"> • Up to 32-ch IP camera inputs, plug & play with 16 Power-over-Ethernet (POE) interfaces • H.265+/H.265/H.264+/H.264 video formats • Up to 2-ch@12 MP or 3-ch@8 MP or 6-ch@4 MP or 12-ch@1080p decoding capacity • Up to 256 Mbps incoming bandwidth • Adopt Hikvision Acusense technology to minimize manual effort and security Specification • Intelligent Analytics • AI By Device Facial recognition, perimeter protection, motion detection 2.0 • AI By Camera Facial recognition, perimeter protection, throwing objects from building, motion detection2.0, ANPR, VCA • Facial Recognition • Facial Detection And Analytics Face picture comparison, human face capture, face picture search • Face Picture Library Up to 16 face picture libraries, with up to 20,000 face pictures in total (each picture ≤ 4 MB, total capacity ≤ 1 GB) • Facial Detection And Analytics Performance1-ch, 8 MP • Face Picture Comparison4-ch 	1	yes	

		<ul style="list-style-type: none"> • Motion Detection 2.0 • By Device All channels, 4 MP (when enhanced SVC mode is enabled, up to 8 MP) video analysis for human and vehicle recognition to reduce false alarm • By Camera All channels • Perimeter Protection • By Device 2-ch, 4 MP (HD network camera, H.264/H.265) video analysis for human and vehicle recognition to reduce false alarm • By Camera All channels • Video And Audio • IP Video Input 32-ch • Incoming Bandwidth 256 Mbps • Outgoing Bandwidth 160 Mbps • HDMI Output 1-ch, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1920 × 1080/60 Hz, 1600 × 1200/60 Hz, 1280 × 1024/60 Hz, 1280 × 720/60 Hz, 1024 × 768/60 Hz • VGA Output 1-ch, 1920 × 1080/60 Hz, 1280 × 1024/60 Hz, 1280 × 720/60 Hz • Video Output Mode HDMI/VGA independent output • CVBS Output N/A • Audio Output 1-ch, RCA (2.0 Vp-p, 1 KΩ, using the audio input) • Two-Way Audio 1-ch, RCA (Linear, 1 KΩ) • Decoding • Decoding Format H.265/H.265+/H.264+/H.264 • Recording Resolution 12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA/4CIF/DCIF/2CIF/CIF/QCIF • Synchronous Playback 16-ch • Decoding Capability AI on: 1-ch@12 MP (30 fps)/2-ch@8 MP (30 fps)/4-ch@4 MP (30 fps)/8-ch@1080p (30 fps) AI off: 2-ch@12 MP (30 fps)/3-ch@8 MP (30 fps)/6-ch@4 MP (30 fps)/12-ch@1080p (30 fps) • Stream Type Video, Video & Audio • Audio • Compression G.711ulaw/G.711alaw/G.722/G.726/AAC • Network • Remote Connection 128 • API ONVIF (profile S/G); SDK; ISAPI • Compatible Browser IE11, Chrome V57, Firefox V52, Safari V12, Edge V89, or above version 			
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		<ul style="list-style-type: none"> • Network Protocol TCP/IP, DHCP, IPv4, IPv6, DNS, DDNS, NTP, RTSP, SADP, SMTP, SNMP, NFS, iSCSI, ISUP, UPnP™, HTTP, HTTPS • Network Interface 1 RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface • PoE • Interface 16, RJ-45 10/100 Mbps self-adaptive Ethernet interface • Power ≤ 200 W • Standard IEEE 802.3af/at • Auxiliary Interface • SATA2 SATA interfaces • Capacity Up to 10 TB capacity for each HDD • USB Interface Front panel: 1 × USB 2.0; Rear panel: 1 × USB 2.0 • Alarm In/Out 4/1 • General • GUI Language English, Russian, Bulgarian, Hungarian, Greek, German, Italian, Czech, Slovak, French, Polish, Dutch, Portuguese, Spanish, Romanian, Turkish, Japanese, Danish, Swedish Language, Norwegian, Finnish, Korean, Traditional Chinese, Thai, Estonian, Vietnamese, Croatian, Slovenian, Serbian, Latvian, Lithuanian, Uzbek, Kazakh, Arabic, Ukrainian, Kyrgyz, Brazilian Portuguese, Indonesian • Power Supply 100 to 240 VAC, 50 to 60 Hz • Consumption ≤ 15 W (without HDD and PoE off) • Working Temperature -10 °C to 55 °C (14 °F to 131 °F) • Working Humidity 10% to 90% • Dimension (W × D × H) 385 mm × 315 mm × 52 mm (15.2" × 12.4" × 2.0") • Weight ≤ 3 kg (without HDD, 6.6 lb.) • Certification • FCC Part 15 Subpart B, ANSI C63.4-2014 • CEEN 55032: 2015, EN 61000-3-2, EN 61000-3-3, EN 50130-4, EN 55035: 2017 • Obtained Certification CE, FCC, IC, CB, KC, UL, Rohs, Reach, WEEE, RCM, UKCA, LOA, BIS 			
4.	NAS Hard Drive 3.5"	Capacity 8 TB FOR surveillance Interface SATA	6	yes	

	8 TB	Cache Size 256 MB Transfer Rate up to 150MB/s Compatibility			
5.	1KV INVERTER	Smart Power Backup 1KVA inverter with Battery 1000watt Pure Sine Wave Solar Hybrid Inverter With 100a Mppt Charge Controller With High Pv Voltage Range (120-500vdc), 230vac It Can Work With Or Without Battery, With Wifi Function Optional Output Power Factor 1.0 , Smart battery Charger And Management For Optimized Battery Performance Cold Start Function & Auto Start While Ac Is Recovering	2	yes	
6.	86 inch 120Hz HDR10 4K UHD Smart TV	PICTURE (DISPLAY) <ul style="list-style-type: none"> • Display Type 4K UHD • Display Resolution 4K Ultra HD (3,840 x 2,160) • Backlight Type Direct • Refresh Rate 120Hz Native PICTURE (PROCESSING) <ul style="list-style-type: none"> • Picture Processor α7 AI Processor 4K Gen6 • AI Picture AI Picture Pro • AI Upscaling AI Super Upscaling 4K • AI Genre Selection Yes (SDR/HDR) • AI Brightness Control Yes • HDR (High Dynamic Range) HDR10 / HLG • FILMMAKER MODE™ Yes HFR (High Frame Rate) 4K 120 fps (HDMI) • Dynamic Tone Mapping Yes • Picture Mode 10 modes (Personalized Picture Wizard, Vivid, Standard, Eco, Cinema, Sports, Game, Filmmaker, (ISF)Expert(Bright Room), (ISF)Expert(Dark Room)) GAMING <ul style="list-style-type: none"> • HGIG Mode Yes • Game Optimizer Yes (Game Dashboard) • ALLM (Auto Low Latency Mode) Yes SMART TV <ul style="list-style-type: none"> • Operating System (OS) webOS 23 • ThinQ Yes • Intelligent Voice Recognition Yes • Magic Remote Control Built-In • Works with Apple Airplay2 Yes • Smartphone Remote App Yes (LG ThinQ) • Art Gallery Yes • Full Web Browser Yes 	yes	1	

		<ul style="list-style-type: none"> • Sports Alert Yes Multi View Yes • Room to Room Share Yes (Receiver) Family Settings Yes • USB Camera Compatible Yes AUDIO • Audio Output 20W Speaker System 2.0 Channel • Speaker Direction Down Firing AI Sound AI Sound Pro (Virtual 5.1.2 Up-mix) • Clear Voice Pro Yes AI Acoustic Tuning Yes • WiSA Ready Yes (Up to 2.1 Channel) LG Sound Sync Yes • Sound Mode Share Yes Simultaneous Audio Output Yes • Bluetooth Surround Ready Yes (2 Way Playback) Audio Codec AC4, AC3(Dolby Digital), EAC3, HE-AAC, AAC, MP2, MP3, PCM, WMA, apt-X (Refer to manual) CONNECTIVITY • Simplink (HDMI CEC) Yes HDMI Audio Return Channel eARC (HDMI 3) • USB Input 2ea (v 2.0) Wi-Fi Yes (Wi-Fi 5) • Bluetooth Support Yes (v 5.0) Ethernet Input 1ea • RF Input (Antenna/Cable) 1ea SPDIF (Optical Digital Audio Out) 1ea ACCESSIBILITY • High Contrast Yes Gray Scale Yes • Invert Colors Yes 			
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		<p>DIMENSIONS AND WEIGHTS</p> <ul style="list-style-type: none"> • TV Dimensions without Stand (WxHxD) 1927x1104x59.9 • TV Dimensions with Stand (WxHxD) 1927x1164x362 • Packaging Dimensions (WxHxD) 2115x1215x228 • TV Stand (WxD) 1532x362 • TV Weight without Stand 45.2 • TV Weight with Stand 45.9 • Packaging Weight 58.4 • VESA Mounting (WxH) 600x400 <p>POWER</p> <ul style="list-style-type: none"> • Power Supply (Voltage, Hz) AC 100~240V 50-60Hz • Standby Power Consumption Under 0.5W <p>ACCESSORIES INCLUDED</p> <ul style="list-style-type: none"> • Remote Magic Remote • Remote Control Batteries Yes (AA x 2EA) • Power Cable Yes (Attached)<u>5.0 (1)</u> • Vivid color and remarkable detail with 4K HDR10 Pro • A smarter viewing experience with the α7 AI Processor 4K Gen6 • Smart Functionality, including ThinQ AI and WebOS • Show More Sustainability Greener for Better *Content on box may vary by model or country. • Tone Mapping Yes • Picture Mode 10 modes (Personalized Picture Wizard, Vivid, Standard, Eco, Cinema, Sports, Game, Filmmaker, (ISF)Expert(Bright Room), (ISF)Expert(Dark Room)) • GAMING • HGIG Mode Yes • Game Optimizer Yes (Game Dashboard) • ALLM (Auto Low Latency Mode) Yes • SMART TV 			
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		<ul style="list-style-type: none"> • Operating System (OS) webOS 23 ThinQ Yes • Intelligent Voice Recognition Yes Magic Remote Control Built-In • Works with Apple Airplay2 Yes Smartphone Remote App Yes (LG ThinQ) • Art Gallery Yes Full Web Browser Yes • Sports Alert POWER • Power Supply (Voltage, Hz) AC 100~240V 50-60Hz Standby Power Consumption Under 0.5W ACCESSORIES INCLUDED • Remote Magic Remote Remote Control Batteries Yes (AA x 2EA) • Power Cable Yes (Attached) 			
7.	16 Port Fast Ethernet Full Managed POE Switch	16 Port Fast Ethernet Smart POE Switch <ul style="list-style-type: none"> • 16 × 100 Mbps PoE RJ45 ports, 2 × gigabit combos. • IEEE 802.3at/af standard for PoE ports. • Network topology management, alarm push, network health monitor. • 6 KV surge protection for PoE ports. • AF/AT camera can reach up to 300 m in extend mode. <ul style="list-style-type: none"> • General 	2	yes	

		<ul style="list-style-type: none"> • ShellMetal material • Net Weight2.59 kg (5.71 lb) • Gross Weight3.68 kg (8.11 lb) • Dimensions (W × H × D)440.00 mm × 44.00 mm × 220.80 mm (17.32" × 1.73" × 8.69") • Operating Temperature0 °C to 45 °C (0 °F to 113 °F) • Storage Temperature-40 °C to 85 °C (-40 °F to 185 °F) • Operating Humidity5% to 95% (no condensation) • Relative Humidity5% to 95% (no condensation) • Power Supply100-240 VAC, 50/60 Hz, Max. 2.5 A • Installation ModeRack (equipped with mounting ears) • Max. Power Consumption250 W • Power Consumption In Idle10 W • Surge Protection6 KV <ul style="list-style-type: none"> • Network Parameters • Ports16 × 10/100 Mbps PoE port, 2 × Gigabit combo • MAC Address Table16 K • Switching Capacity9.2 Gbps • Packet Forwarding Rate6.84 Mpps • Internal Cache4 Mbits <ul style="list-style-type: none"> • PoE Power Supply • PoE StandardIEEE 802.3af, IEEE 802.3at • PoE Power Pin8-pin power: 1/2(-), 3/6(+), 4/5(+), 7/8(-) • PoE PortPoE: Ports 1 to 16 • Max. Port Power30 W • PoE Power Budget230 W <ul style="list-style-type: none"> • Software Function • Long Range <hr/> <p>Ports 1 to 16: up to 300 m.</p> <p>Long range performance may vary depend on camera model or cable condition.</p> <hr/> <ul style="list-style-type: none"> • VIP PortPorts 1 to 8: data on VIP ports is preferentially forwarded when bandwidth resources are insufficient. • Link Aggregation <hr/>			
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		<p>Link aggregation is used to aggregate multiple physical ports to form a logical port for load balancing, bandwidth expansion, and port protection.</p> <p>Support static link aggregation.</p> <p>Support 1 aggregation groups.</p> <hr/> <ul style="list-style-type: none"> • HPP <p>Support one-click activation and remote management via Hik-Partner Pro. Functions supported:</p> <ol style="list-style-type: none"> 1. Display the port rate. 2. Display the port bandwidth utilization rate. 3. Display the PoE power usage. 4. Display topology information. 5. Display the alarm status. 6. Restart ports and devices. 7. Enable port long-range mode. 8. Remotely upgrade the device. <hr/> <ul style="list-style-type: none"> • System MaintenanceSupport remote upgrade, recovering default parameters, viewing logs, configuring basic network parameters. • Approval • EMCFCC (47 CFR Part 15, Subpart B),CE-EMC (EN 55032: 2015+A11: 2020, EN IEC 61000-3-2: 2019, EN 61000-3-3: 2013+A1: 2019, EN 50130-4: 2011+A1: 2014, EN 55035: 2017+A11: 2020),IC (ICES-003: Issue 7:2020),RCM (AS/NZS CISPR 32: 2015) • SafetyUL (UL 60950-1),CB (AMD1:2009, AMD2:2013, IEC 62368-1: 2014 (Second Edition), CE-LVD (EN 62368-1: 2014+A11: 2017) • ChemistryCE-RoHS (2011/65/EU),WEEE (2012/19/EU),Reach (Regulation (EC) No.1907/2006) <hr/>			
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8.	CAT6 UTP Network Cable full Copper	<p>305 m CAT6 UTP Network Cable (Solid Copper, 0.55 mm, Orange)</p> <ul style="list-style-type: none"> • Stable electrical performance, compliant with ANSI/TIA-568-C.2, IEC61156, ISO/IEC11801 • Compliant with RoHS 2.0 • Sheath with strong mechanical properties, and high tensile and compressive strength, reducing damage during the project • Excellent performance in the Fluke 90-meter permanent link test while working continuously at 50°C high temperature • Excellent performance in the Fluke 100-meter channel test while being continuously loaded with 57 V/1 A DC power (PoE) • Solid-Bare Copper conductor with less resistance, and better electrical properties and transmission performance • General • Rip-CordYes • CategoryCat.6 • Sheath PrintingHIKVISION 4PR 23AWG 75°C U/UTP CAT6 VERIFIED TO ANSI/TIA-568-C.2 PVC *****m mm/dd/yyyy Tracing Code-HS • Reference StandardISO/IEC11801, ANSI/TIA-568-C.2, RoHS 2.0 • Fire ResistanceNo • SeparatorYes • Conductor • MaterialSolid-Bare Copper (99.95%) • Diameter0.55 ± 0.005 mm, 23 AWG • Insulation • MaterialHDPE • Diameter0.98 ± 0.05 mm • Sheath Physical Properties • Before Aging <hr/> <p>Tensile strength ≥ 13.5 Mpa</p> <p>Elongation ≥ 150%</p> <hr/> <ul style="list-style-type: none"> • Aging Period100°C × 24h × 10d 	4	yes	
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9.	6U Wall Mount Rack	<p>OPTIMAL TECHNOLOGY LIMITED has provided Server Racks, Server Cabinets, Wall Mount Rack, Cooling Solutions, Outdoor Enclosures, Accessories, Networking Equipment, and Power, along with installation and maintenance services for the Data Center and Telecom industries. Standard Wall Mount Rack / Cabinet / Enclosure – 6U, 19" (W600 x D450 x H368mm) SWM6406.</p> <p>Standard Scope of Supply</p> <p>2 x 4-inch Fan (Low Noise) on Vented Top Flush Panel</p> <p>2 x Side Door with Cam Lock</p> <p>Front Door – Tempered Glass with Cam Lock</p> <p>4 x Panel Mount with Unit Indication</p> <p>1 x Integrated Wall Mounting Panel</p> <p>1 x Power Distribution Unit (6 Way PDU)</p> <p>1 packet of M6 Cage Nuts Assembly</p> <p>Description</p> <p>OPTIMAL TECHNOLOGY LIMITED has provided Server Racks, Server Cabinets, Wall Mount Rack, Cooling Solutions,</p>	2	yes	

		<p>Outdoor Enclosures, Accessories, Networking Equipment, and Power, along with installation and maintenance services for the Data Center and Telecom industries. TOTEN Standard Wall Mount Rack / Cabinet / Enclosure – 6U, 19" (W600 x D450 x H368mm) SWM6406.</p> <p>Standard Scope of Supply</p> <p>2 x 4-inch Fan (Low Noise) on Vented Top Flush Panel</p> <p>2 x Side Door with Cam Lock</p> <p>Front Door – Tempered Glass with Cam Lock</p> <p>4 x Panel Mount with Unit Indication</p> <p>1 x Integrated Wall Mounting Panel</p> <p>1 x Power Distribution Unit (6 Way PDU)</p> <p>1 packet of M6 Cage Nuts Assembly</p>			
10.	Installation material	<ul style="list-style-type: none"> • Trunk 40x 25mm and 30x15m • Breaker 25A • Mini Power Box • RJ 45 Connector 100pc • Electric cable 3x4 100 meter • All fixing materials fisher screws 	50	yes	
11.	Electric divider	Electric divider single phase 6 holes	3	yes	
12.	HDMI	20 meter	1		
13.	Design, installation and configuration works				
14.					