Organization for Security and Co-operation in Europe
Mission to Bosnia and Herzegovina

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INVITATION TO BID

Supply and installation of the Intruder Detection System and Street Lights in Ammunition Storage Site Kula 2 Mrkonjic Grad

Questions and Answers Batch 1

In accordance with paragraph 21 "Questions" of the OSCE ITB, we would like to notify potential bidders of the Batch 1 of questions and answers.

Question 1: What kind of IDS system is installed on KULA 1 site and which functionality is required from the new system in relation to the existing one? What is the meaning of „fully compatible and related to the already installed IDS system" and is that a mandatory request or only a recommendation (specified equipment in the tender does not connect with the existing system in any segment)?
Answer 1*: The IDS system that should be installed in ASS KULA 2 must be compatible with already installed system in ASS KULA 1 in relation to the hardware and software. Still, the new IDS system to be installed to ASS KULA 2 will be practically independent from IDS system ASS KULA 1 (and hardware and software). The power supply system for both IDS systems shall be integrated in reference to the generator and UPS back up.*

The detailed software/hardware need to be installed is as following:

SOFTWARE DETAILS

NVMS (Network Video Management System) 48ch license

- NVMS needs to be able to record to the cameras with up to 30MP resolution
- Possibility to view the image on iOS, Android devices with the use of digital zooming, primary and secondary stream.
- The ability to record up to 50fps
- The system can withstand the shift time back or forward in changing summer and winter time
- NVMS shall secure video and audio data by securely transmitting all command and control data via TCP/IP using cryptographic keys based on SSL to prevent eavesdropping or tampering (min. standard TLS1.2 AES256)
- NVMS shall support storage and processing of video and audio.
- NVMS shall support recording on DAS (Direct Attached Storage) and/or iSCSI
- NVMS shall support archiving for achieving longer retention times using any of following methods: networked drives, storage servers or direct attached storage
- Audio and video must be recorded natively from the camera with no transcoding.
- Audio and video must be synchronized regardless of frame-rate, resolution or bitrate.
- Support for MJPEG, MPEG4, H.264 standard video compression formats
- NVMS needs to be able to connect through a client-server architecture of more than 5000 cameras
- The possibility of recording the maximum resolution of the camera on user specific time period while the camera CIF resolution will be recorded for longer time
- NVMS needs to be ONVIF and has available SDK (open platform for any ONVIF cameras)

- NVMS needs to support cameras from different vendors using Native drivers, ONVIF Profile S driver or generic RTSP driver.
- NVMS needs easily to upgrade the firmware of the cameras and client PCs, once the server is upgraded
- NVMS should have ability to connect unlimited simultaneous clients
- Possibility to apply settings to all cameras of the same type, no need to set up each camera image settings separately
- Dynamic video stream management (Live and Playback) shall reduce the system bandwidth and storage usage by only transmitting video to the client as required. It should ensure automatic switching of the streams by the size of the window in which they appear no matter of the number of monitored streams neither their type (Live and/or Playback)
- NVMS server needs to be able send just part of the stream from the camera while digitally zoomed in, the data which are not visible on the client computer should not be sent
- The NVMS Client shall communicate/represent connected monitor resolution to the server and the server shall act as a video proxy and stream the required video resolution
- The NVMS shall tile multi-megapixel videos streams and only transmit the requested portion of the video stream to the client
- Replication of 'Live' and 'Playback' streams have to be done on NVMS recorder side avoiding multicasting in case when multiple operators retrieving the same camera stream
- The NVMS schedule shall include but not limited to the following recording options:
    - Continuous recording
    - Event based recording that is triggered by any of the following:
    - Pixel or classified object motion (intelligent classification of humans and vehicles)
    - Digital inputs
    - Alarms
    - Customized daily and weekly schedule
- NVMS need to have possibility to restrict access to the archive and export recordings to individual users
- NVMS needs to be able intelligently to recognize moving objects (humans from vehicles) and mark them with different colours
- The NVMS shall support the following video analytic event types when captured by supported cameras:
    - Objects in Area (humans and vehicles move into the region of interest),
    - Object Loitering (humans and vehicles stay within the region of interest for an extended amount of time),
    - Objects Crossing Beam (humans and vehicles have crossed the directional beam that is configured over the camera's field of view),
    - Object Stops in Area (humans and vehicles in a region of interest stops moving for the specified threshold time),
    - Objects not present in the area (humans and vehicles are not present area of interest)
    - Direction Violated (humans and vehicles moves in the prohibited direction of travel),
    - Tamper Detection (scene unexpectedly changes)
- The NVMS shall be capable for continuous learning of typical activity in a cameras scenes, and then detects and records not typical motion behavior/anomalies
- The NVMS shall have integrated alarm management features. Including but not limited to:
    - Sending an alarms in sequence.
    - Prioritizing the alarms
    - Alarm Escalation (2^{nd} hierarchy security rank recipient receiving an alarm after predefined amount of time of not having a reaction from the 1^{st} operator rank)
- NVMS shall provide the ability to rotate the image 90°, 180° or 270° for a video source
- The NVMS shall provide a Video Wall application module:

- Supporting remote control of multiple monitor displays, including video walls.
- Connected monitor displays shall be able to simultaneously display video streams from multiple sites.

Software (NVMS Client application)

• Operator needs to be able to see on one screen live and playback
• Ability to export records in the following formats: AVI and native format
• Operator should be able to export just part of the image from more megapixel cameras, changing the region of interest
• Operator should have the possibility search the recordings based on a change in pixels
• NVMS Client shall provide a system tree of video sources, maps, saved views and web pages in the video monitoring tab.
• Support monitoring live and recorded video and audio streams simultaneously on the same monitor.
• Support viewing the same live or recorded video stream at different zoom levels and areas of interest.
• Support the ability to switch from live to recorded video on demand for an instant replay of recently recorded video.
• Support the creation of unlimited views with unique layouts of video streams.
• Support the ability to cycle through views (guard tour) based on a specified interval.
• Support live or recorded video monitoring of 1 to 64 video streams simultaneously on a single monitor.
• The NVMS Client shall ensure receiving of alarms in real time:
  - Interface shall support sequential viewing of alarms.
  - Receiving Alarm Escalation on the PC or any Android or iOS platform (2nd hierarchy security rank recipient receiving an alarm after predefined amount of time of not having a reaction from the 1st operator rank)
  - Support the ability to assign alarms to users.
  - Support the ability to acknowledge alarms.
  - Support the ability to bookmark alarms
• The NVMS Client shall support recorded video search.
  - Video search shall support the following selectable parameters:
  - Time
  - Date
  - Video source
  - Event type
  - Visual search based on a pre-defined image area, or image thumbnail
    - Thumbnails can be based on the entire image region or a pre-selected area.
    - Thumbnails can be stacked to support an automatic secondary search when looking at a large timespan of video.
  - Pixel motion in user defined areas
  - Classified object motion detection on supported video analytics sources (search for person or vehicle in region of interest)
  - Bookmarks
  - Alarm search
  - Quick locating of a specific person or vehicle of interest across entire site / across all cameras simultaneously
• The NVMS Client shall support 4-Eye principle for Recording Reviews:
  - Dual Authentication for Recording Reviews
  - Defining class of user who will be required to ask for a secondary login by a supervisor or an authorized user to temporarily access recorded video functions
  - Permission is removed on logout
• The NVMS Client shall support Password Strength Indication:
  - Provides weak to strong feedback for user password strength
  - Pre-defined Group's minimum password strength setting defined by administrator
• The NVMS Client shall support Audit operator access:

- Audit any access to live and recorded video including username, camera viewed, the start and end time of video viewed
- Operator actions logged: username, login/logout time, opening camera view or switching tabs to camera view displaying live/recorded video

• NVMS Client's native format exports of video shall:

- Digitally sign recorded video and audio using 256-bit encryption so video can be authenticated for evidentiary purposes.
  Be able to export video from one or multiple camera streams simultaneously

HARDWARE DETAILS

HD Network Video Recorder with 24TB storage

- Operating System: min. Microsoft Windows 10 Enterprise
- Optimized recording and streaming and compatible with Network Video Management System (NVMS vendor proof)
- Network Video Streaming Performance:
  - Recording Data Rate min. 450 Mbps
  - Min. 900 Mbps of total throughput for simultaneous recording, playback and live streaming
  - Number of Cameras min. 128
- Recording Storage Capacity: 36TB raw, 24TB effective (RAID 6)
- Hard Disk Drive Configuration:
  - Video data — min. 6x 6TB enterprise large form factor near-line SAS hard disk drives, hot-swappable, RAID 6
  - Operating system — min. 2x 250GB small form factor SATA hard disk drives, hot-swappable, RAID 1
- Network Interface:
  - min. 4 x 1 GbE RJ-45 ports (1000Base-T)
- Memory: 16GB DDR4
- Processor: 1x Intel Xeon Processor E5-2609 v3, 1.9GHz, 15M Cache
- Video outputs: 2x VGA
- Graphic card: NVIDIA Quadro M2000, 4GB GDDR5, NVIDIA CUDA Cores 768 (for deep learning analytics purposes)
- Integrated controller for server remote access
- 2U form factor - rack mount chassis
- Included sliding rail system with cable management arm.
- Power Supply: 750 W redundant, hot-swappable
- Power Consumption: max. 750W
- Operating temperature 10° C to 35° C (50° F to 95° F)
- Certifications/Directives: CE

5Mpix Outdoor Fixed IP Camera with IR and analytics:

- Resolution: min. 5 Megapixel (2048x1536)
- Sensor: min. 1/2" progressive scan CMOS
- Imaging Rate: min. 25fps@5MP
- Included Lens options to cover focal range of min. 4.5mm – 22mm
- Field of View (FoV) and objects adaptive IR technology (build-in IR LED) with min distance of 50m at 0 lux
- Minimum Illumination: 0.1 lux in colour mode; 0 lux in monochrome mode with IR ON or more sensitive
- Dynamic Range min. 80dB
- Bandwidth Management:
  - Advanced H.264 for intelligent dynamic compressing of the image where static background is more compressed than moving objects
  - When there are no movements at all lowering down bandwidth to 384Kbps

- Image Compression Method: H.264
- Motion Detection: Pixel and Analytics classified objects
- Day/Night Control: Automatic, Manual
- ONVIF Profile S compliant
- Intelligent video analytics:
    - Classification of object by shape (objects: humans and vehicles)
    - Auto-configuration and auto-calibration (self-learning analytics)
    - Analytics in Full HD before compression
- Security: HTTPS encryption and 802.1x port based authentication
- Device Management Protocols: SNMP v2c, SNMP v3
- Housing: 'Vandal resistant' min. IK10 and IP66 Protection
- Power Source: PoE: IEEE802.3af Class 3 compliant, 13W max
- Operating Temperature - 40°C to +55°C
- Mounting: Wall junction box mount included
- Certifications/Directives: CE, IEC 62471

<u>2MP Outdoor PTZ 30x IP Camera with IR and analytics:</u>

- Resolution: min.2 Megapixel (1920x1080)
- Sensor: min. 1/3" progressive scan CMOS
- Imaging Rate: min. 50fps@2MP
- Lens: 4.3 - 129 mm, min. 30x optical zoom
- Pan/Tilt limits: Limitless pan, 90 degree down, 20 degrees above horizon tilt
- IR illumination min distance of 250m
- Minimum Illumination: 0.5 lux in colour mode; 0 lux in monochrome mode with IR ON or more sensitive
- Wide Dynamic Range min. 120dB
- Electronic Image Stabilization and Digital Defog function
- Bandwidth Management:
    - Advanced H.264 for intelligent dynamic compressing of the image where static background is more compressed than moving objects
    - When there are no movements at all lowering down bandwidth to 384Kbps
- Image Compression Method: H.264
- Motion Detection: Pixel and Analytics classified objects
- Day/Night Control: Automatic, Manual
- ONVIF Profile S compliant
- Intelligent video analytics:
    - Classification of object by shape (objects: humans and vehicles)
    - Auto-configuration and auto-calibration (self-learning analytics)
    - Analytics in FullHD before compression
- Security: HTTPS encryption and 802.1x port based authentication
- Device Management Protocols: SNMP v2c, SNMP v3
- Housing: 'Vandal resistant' min. IK10 and IP66 Protection
- Power Source: PoE Power over Ethernet, 95W max
- Operating Temperature - 40°C to +55°C
- Wiper included for easy cleaning of the front glass
- Mounting: Pendant wall arm included
- Certifications/Directives: CE, EN 62368-1
- Warranty min. 3 years

<u>USB joystick keyboard</u>

- Complete control of all the NVMS (Network Video Management System) Client functionality for live, playback and alarms management
- Preconfigured with NVMS Client software commands
- Custom configuration for right-hand or left-hand use

- Power: USB powered
- Power Consumption: 350mA max
- Certifications/Directives: CE
- Operating Temperature: 0° C to 45° C

Hardware (Workstation PC)

- Remote Monitoring Workstation as NVMS Client
- Viewing Streams: Up to 72
- Operating System: Microsoft Windows 10 Enterprise
- Procesor: 6th Gen Intel Core i5-6600
- RAM: 8GB DDR4 RAM
- 250GB HDD
- Video outputs: (1 DisplayPort and 1 DVI-I); support for 4K display
- Network Interface Controllers: 2 Gigabit Ethernet RJ-45 ports (1000Base-T)
- Form Factor: Desktop
    - USB Keyboard
    - USB Mouse
    - Power cord
    - 2 DVI to HDMI adapters
    - 1 DisplayPort to DVI adapter
- Operating Temperature: 5°C do +35°C

Certifications/Directives: CE

Question 2: Is described central unit at the Annex C - ITB-BAH-489394-2018 (LOT 1, Terms of Reference, pg. 10, Fire Alarm Control Cabinet Data) really a fire alarm control panel according to its characteristics?
Please can you give us an explanation for 12V output voltage from Fire Alarm control panel mentioned in the Terms of Reference (because standard Ex barriers are supplied with 24V and optical smoke detectors in hazardous areas works on 24V and standard Fire Alarm control panel has 24V on its output too)?
Answer 2*: The fire alarm system proposed to be installed to ASS KULA 2 is fire alarm system with control cabinet that contain option for intruder detection extension (motion detection inside of storage – EX version) and fire detection at the same time ("protivprovalna centrala"). This type of control cabinet could supply system elements with 12V and 24V.*

Question 3: Please can you give us an explanation for EU NORM BS 57-4 standard, what is it about? Does your fire alarm central system need to satisfy the British standard EU BS 54-1 (visible warning of any faults, e.g. short circuit, line breakage, or fault in the power supply)? Does your fire alarm central system need to satisfy the British EU BS 54-2 (fault warning condition and test condition)?
Have special working conditions required for works in Ex zone (during asphalt cutting, laying installations from camera steel poles to ammunition storages, works in ammunition storages)?
Answer 3*: EU NORM BS 57-4 is general EU standard ref. the fire fighting. EU BS 54-1 and EN BS 54-2 are dedicated specifically to the fire alarm system control. It is correct that intruder detection control cabinet cannot control some fault status (fault warning in the power supply) but it is solved (at ASS KULA 1) with wireless communicator installed in each control cabinet. This is specific requirement from final IDS system user. The vendor must propose control panel that satisfy power supply of the fire detection elements.*
The ammunition storage is Ex zone and requires specific working conditions in reference the asphalt cutting, laying installations and work inside of ammunition storage. BiH MOD responsible staff shall determine these working conditions. Camera steel poles are out of explosion zones.
Question 4: Which tools is required for installation passing within the ammunition storages from the outside and how it could be done: drilling of concrete (80 cm) or through the metal frame of the window?
Answer 4*: The ammunition storage is Ex zone and requires specific working conditions in reference the asphalt cutting, laying installations and work inside of ammunition storage.*

Working technology shall be determined in coordination with BiH MOD security officer, site commander and supervisor.

Question 5: In witch way will be performed installation and laying the installations inside the ammunition storages?
Answer 5*: The ammunition storage is Ex zone and requires specific working conditions in reference the asphalt cutting, laying installations and work inside of ammunition storage. Working technology shall be determined in coordination with BiH MOD security officer, site commander and supervisor.*

Question 6: What about cables for fire alarm system because they are not defined in the Bill of Quantities? What quantity and what type of cables and installations will be used for the fire alarm system? Can the price for these installations and works be calculated as additional works?
Answer 6*: The fire alarm system cables shall be adequate to the Ex zone and EN BS 54 norms. The fire alarm cables must be included in price of fire alarm system (ref. the proposed typical shelter-storage layout drawing).*

Question 7: In Annex C there is 24ports switch and in Annex E there is 8ports switch. Is the switch with 24ports or 8ports?
Answer 7*: The correct requirement is 8 ports switch*

Question 8: Is it really necessary one more Main standalone 19" communication cabinet 42U in the monitoring room?
Answer 8*: The proposed 19" communication rack drawing show that KULA 2 equipment shall be installed inside of the existing 42U communication 19" cabinet in the existing monitoring room. No need for another one.*

Question 9: Is it really necessary one more UPS for the monitoring room?
Answer 9*: Yes, the potential bidder shall offer additional UPS unit in accordance to technical specification.*

Question 10: UPS Type 1 in Annex C Pg.4 is about 15kVA and about 600VA. What value is correct?
Answer 10*: The main UPS unit (type 1) shall be size 15 kVA in parallel with existing one. The 600 VA Ups (type 2) is proposed for each communication cabinet as support to switches.*

Question 11: Is it planned relocation of the Ex shelters contents before the beginning of works and is it obligation of Investor?
Answer 11*: Relocation of the contents of the storages is not planned.*

Question 12: Is Ex classification for smoke detector IIC or IID? (In Annex C pg10. it is IIC and in Annex D pg.9 it is IID)?
Answer 12: *Classification is Ex IIC T5.*

Question 13: In Design Draft block scheme for Air conditioned metal housing there is GSM Wireless alarm communicator in Alarm control panel, why it is not mentions in Annex D and E (Pricing format)?
Answer 13: *In the project execution phase there is no need to offer GSM wireless alarm communicator.*

Question 14: At the visit meeting, we were told that the contracting company would perform the splicing and sealing of the optics on the existing equipment. Can the price of these works be calculated as additional works?
Answer 14: *This work shall be subject of additional work requirement once we determine what fiber optic cable lines (we have installed 12 pairs of single mode optic cable) are jointed to the KULA 1 switches. We have to use other optic cables pairs for the KULA 2 IDS system in purpose to respect new block scheme with no harassment of the existing system at KULA1.*

Question 15: In the Annex D - ITB-BAH-489394-2018, LOT 1, Pg. 8, Active equipment, enclosure is described as „wall mounting enclosure dimensions 1200mm x 1000mm x 350mm". This dimensions and wall mounting enclosures are not suitable for pole mounting. How it would be done to satisfy technical requirements and is there a possibility of a different kind of enclosures mounting?
Answer 15: *The switch cabinet proposed size must be installed on the separate steel pole as shown in attached drawing (manhole details). Horizontal support should be designed to support proposed sized of cabinet. The contractor must find correct way to fix cabinets in coordination with site supervisor. Same steel pole is proposed to support fixed cameras.*

Question 16: Who will provide an external firm for issuing the first Report about functionality of the fire alarm system?
Answer 16: *The report about functionality must be issued by contractor only. No external firms required to be involved.*

Question 17: If the firewall system is implemented according to the required tender specifications, and the external firm does not want to issue a positive the first Report about functionality of the fire alarm system, which is responsible for this possible situation?
Answer 16: *Refer to answer 16.*

Question 17: In Annex D, pages 9. and 10., there are Comments on compliance for confirming or indicating deviations with technical specifications. In the documentation we received (Annex D and at Terms of reference) there are no technical specifications for some of items so there are no possibility to confirming or indicating deviations.
Could you please send us full technical specifications for following items:

Storage building SH (Annex D, page 9.)
3. Ethernet communication module
4. Fire safety barrier
5. Manual call point for hazardous areas-EC class IID
7. Safety Barrier/Zener Barrier
8. Outside siren
9. UPS Type 1

Monitoring centre (Annex D, page 10.)
2. Video monitoring workstation
3. Alarm monitoring workstation
6. Single line IP alarm receiver
7. UPS Type 2 (6000KVA smart line)
8. Ethernet switch-Type 2
9. Keyboard for control of PTZ
10. IP input/output module for configuration of hardware synoptic map
11. Alarm monitoring software

Answer 16:
Storage building SH (Annex D, page 9.)
3. Ethernet communication module
2-way, always-on IP communication
Works over local LAN/WAN network or the Internet
128-bit AES encryption (NIST approved)
Supports DHCP (dynamic IP addresses)
Reports events to 2 different receiver IP addresses
Polling and hardware substitution protection
Programmable heartbeat timer allows you to adjust the interval that the heartbeat signal is sent from the module to the central station IP receiver
Low network bandwidth requirements
Compatible with 10/100BaseT networks
2 programmable voltage outputs
Programmable through the panel keypad or Console software
Software upgrades via network

Input Voltage: 12 VDC
Current Draw: 250 mA

4.Fire safety barrier
Allows to create intrinsically safe circuits
Galvanic isolation of the detector line voltage
Connection of intrinsically safe detectors
Industrial plastic surface-mount case
ATEX certified
Ignition protection: intrinsically safe
Ex classification: EEx ia llC
Operating voltage: Supply through the detector line voltage
Quiescent curent: approx. 5mA
Ambient temperature: -20°C to +60°C

5. Manual call point for hazardous areas-EC class IID
Addressable conventional technology
Robust die-cast aluminium case
LED indicates activation
Operating instructions by means of standardized symbols
Increase of protection class to IP54 by using optional protection kit
Operating voltage: Supply through the detector line voltage
Ambient temperature: -20°C to +60°C (continuous operation)
Protection class: IP43
Approvals: VdS, CPD
Colour: Red

7. Safety Barrier/Zener Barrier
This item shall not be offered (part of system extension for motion detection).

8. Outside siren
Addressable conventional technology
Robust die-cast aluminium case
LED indicates activation
Operating instructions by means of standardized symbols
Increase of protection class to IP54 by using optional protection kit
Operating voltage: Supply through the detector line voltage
Ambient temperature: -20°C to +60°C (continuous operation)
Protection class: IP43
Approvals: VdS, CPD
Colour: Red

9. UPS Type 1
Item described in previous questioning – Answer 10.

Monitoring centre (Annex D, page 10.)
2. Video monitoring workstation
Described in previous questioning – line hardware details

3. Alarm monitoring workstation
Alarm monitoring workstation is the same PC unit that control video monitoring graphic (described in item "HARDWARE-WORKSTATION PC").

6. Single line IP alarm receiver
Supports up to 1536 IP Communicators (Cellular or Ethernet) of those accounts, 512 can be supervised
TCP/IP, USB or serial outputs to automation software
Menu-driven, 40-character, 2-line LCD display with blue backlighting provides instruction when in manual mode
Universal power supply compatible with 110/220 VAC, 50 Hz/60 Hz

CE listed
UL, ULC, CSFM, NIST, CE, and CNC approved
Secure Network Alarm Monitoring
System II features leading security measures such as 128bit AES encryption and an anti-hack design that isolates internal communications from external data transmissions.
Self-Diagnostics Detect Automation & Component Problems Instantly
System II provides continual supervision of automation software. For example, if the automation system goes offline, the receiver switches from the primary Ethernet port, to an USB port and finally to a serial port, before going into manual mode.
Input Voltage: 110-230 VAC, 50-60 Hz
Power Consumption: 25 W
Outputs: 24 VDC (Open Collector)
Battery Backup: External UPS
Operating Environment: 32° to 122° F / (0° to 50° C)
Relative Humidity: 90%, Non-condensing

7. UPS Type 2 (6000KVA smart line)
Item described in previous questioning – Answer 10.

8. Ethernet switch-Type 2
8 x 10/100/1000T ports
2 x SFP combo ports
Non-blocking architecture
Auto MDI/MDI-X
Web-based management
IEEE 802.1x packet pass-through
Up to 4K MAC addresses
Link aggregation
Port setting (speed, availability, flow cont
Port trucking
Port mirroring
IEEE 802.1p QoS
IEEE 802.1Q tagged VLANs
Statistics and diagnostics
Rack-mount kit
No fan (quiet operation)
RoHS compliant
14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Ethernet
1,488,000pps for 1000Mbps Ethernet
MAC addresses: 4K
Packet buffer: 128KB
DRAM: 16MB
Flash: 4MB
Jumbo frame: 9728 byte
Switching capacity: 8Gbps
Throughput: 16Gbps
Voltage: 100-240V AC
Frequency: 50/60Hz
Current: 0.3A
Interface Connections: 10/100/1000T - RJ-45, 1000FX (SFP), 1000SX or 1000LX
Operating temp. 0°C to 40°C (32°F to 104°F) Non-operating temp. -25°C to 70°C (-13°F to 158°F) Operating humidity 5% to 90% non-condensing Storage humidity 5% to 95% non-condensing
Standards and Compliance
IEEE 802.3 CSMA/CD
IEEE 802.3u 100TX
IEEE 802.3z 1000SX
IEEE 802.3z/ab 100T
IEEE 802.3x Flow control

IEEE 802.1Q Tagged VLAN
Electrical/Mechanical Approvals
UL 1950
FCC/EN55022 Class B VCCI Class B C-Tick
EN60950 (TUV) EN55024 CE

9. Keyboard for control of PTZ
Described in previous questioning – hardware details

10. IP input/output module for configuration of hardware synoptic map
I/O Controller for monitoring of binary inputs as well as control of outputs and the serial line remotely over TCP/IP and Ethernet USB
Serial port, inputs and outputs are controlled with a TELNET-like (RFC2217) M2M protocol
Serial RS-232/RS-485 port
TCP/IP: RJ 45 - 10BASE-T / 10 Mbps
Number of digital inputs: min. 4
Number of digital outputs: min 24
Power supply: 8-24 VDC

11. Alarm monitoring software
Described in detail in SOFTWARE DETAILS previous questioning