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Gatineau, Québec K1A 0S5

Bid Fax: (819) 997-9776

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Electrical & Electronics Products Division

11 Laurier St./11, rue Laurier

7B3, Place du Portage, Phase III

Gatineau, Québec K1A 0S5

Title - Sujet Replace CCTV system at KCCC TORONTO	
Solicitation No. - N° de l'invitation 21120-187561/A	Amendment No. - N° modif. 005
Client Reference No. - N° de référence du client 21120-18-2807561	Date 2018-08-29
GETS Reference No. - N° de référence de SEAG PW-\$\$HN-445-75095	
File No. - N° de dossier hn445.21120-187561	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2018-09-12	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Ladouceur, Joanne M.	Buyer Id - Id de l'acheteur hn445
Telephone No. - N° de téléphone (819) 420-0340 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

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Client Ref. No. - N° de réf. du client
21120-187561

Amd. No. - N° de la modif.
005
File No. - N° du dossier
hn445.21120-187561

Buyer ID - Id de l'acheteur
hn445
CCC No. /N° CCC - FMS No. /N° VME

This amendment 005 is raised to provide responses to supplier questions as follows:

=====

Question: The power outlets were not specifically covered during the walk through. Can you please confirm the availability of the power outlets for each of the NVUS workstations?

Response: Power is available.

=====

Question: For the repair of any walls where equipment is relocated (i.e. Cameras C6 or C16) to assist with matching the existing finish, are you able to provide the colour code for the paint colours?

Response: Not available at this time. Will be provided to successful bidder.

=====

Question: Can you please provide us with the System ID of the existing Genetec system?

Response: Will be provided to successful bidder.

=====

Question: Can you please send the following standards as they were referred to in the tender bid documents. (ES/STD-0232), (ES/STD-0205), and (ES/STD-0229)?

Response: Attached.

=====

Question: Point Rated Support Proposal Criteria. Page 40 of Amendment 001 document. There seems to be a few pages missing after section 3.1.2. Can you please send these to us?

Response: Attached.

=====

Question: Section 4.7 of the STR calls for the network switch to be multi vendor capable and also utilize Shortest Path Bridging (SPB). Only a certain number of vendors support SPB. Given the relatively small size of this system is SPB actually required? If so, would Open Shortest Path First (OSPF) protocol be an acceptable alternative?

Response: OSPF would be acceptable.

=====

Question: Can you please confirm if CSC will require an electrical permit for this project?

Response: Only required if working on AC circuits covered under codes.

=====

Question: If the existing camera cabling is found to be CAT-5E but still in good condition, will it be acceptable to re-use this cabling?

Response: Cabling is to be replaced.

=====

Question: For the rooftop conduit, please confirm if this conduit needs to be Rigid Conduit or PVC Conduit?

Response: As discussed, same as existing is acceptable.

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=====
Question: For the rooftop conduit, please confirm if pieces of wood will be acceptable to support the new conduit or if rooftop pipe support blocks should be used as has been done for the other conduit already in place.

Response: As discussed, same as existing is acceptable.

=====
Question: Would you please confirm the new locations for cameras C6 & C16 that were discussed during the site meeting?

Response: Camera 6 is to be relocated from the loading dock at Rm141 to the loading dock at Rm 156. Exact location to be finalised during start-up meeting. Camera 16 is in the correct location in the opposite corner from the existing.

=====
Question: Please provide clarification regarding the request for a spare PTZ camera.

Response: If the contractor includes a PTZ in their bid, one is to be spared.

=====
Question: Please provide clarification regarding the request for a spare "Archiver Array Chassis." Is the intention to supply a spare fully loaded and swappable NVR unit, or just a spare NVR case/chassis without hard drives or processor inside?

Response: It is the intention to supply a spare fully loaded and swappable storage array.

=====
Question: Regarding camera types 1 & 2. Would it be possible for the camera operating temperature requirements to read "operate from -40°C to 50°C" (not -40°C to 55°C).

Response: Yes, the lower end of the scale is critical.

=====
Question: Camera Type 1 and 2 specification requirements are based on Axis Model P3364-VE (lens option 1 and 2) which is discontinued. The replacement model is the Axis P3375-VE which only offers one lens type 3-10mm (not 2.5-6 or 3.3-12). Will the P3375-VE be an acceptable replacement for both camera types 1 & 2?

Response: The proposed unit is acceptable.

=====
Question: Is the intent to have a 2 tier network with a dual core and edge solution as requirements heavily state redundancy and scalability? Or does CSC require interconnected switches to meet the port requirements?

Response: In this application network redundancy is not a requirement. The contractor will propose a switch configuration to suit the requirements.

=====
Question: Please indicate the room location of NODE #1.

Response: Room 261.

=====

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Question: Given the complexity of this project, would CSC please consider issuing a two week extension to better allow bidders to compare options and offer the best possible solution?

Response: The solicitation has been extended to September 12, 2018.

=====
Question: In regards to Sec 4.5.4.2: The specification notes "HDTV 760p" should that be "HDTV 720p"?

Response: Yes.

=====
Question: In regards to Sec 4.5.4.3: Panoramic cameras that employ a fisheye lens do not offer remote focus and zoom, but do offer digital zoom. Will you accept a fisheye lens camera without remote focus and/or will you accept a multi-imager camera that can provide quadrant views with individual streams?

Response: Remote focus is not a requirement, but the spec stands for the view requirements.

=====
Question: In regards to Sec 4.5.4.3: Additionally, can we recommend during installation cameras that would be better suited to the application, given they meet/exceed the basic standard requirements as outlined in the Statement of Technical Requirements?

Response: Contractors are free to recommend and bid units that meet or exceed the specs.

=====
Question: In regards to Sec 4.7.1.3: How many existing network switch's are currently deployed

Response: One

=====
Question: In regards to Sec 4.7.1.3: Are you able divulge the make and models of the existing network switch's?

Response: Not relevant.

=====
Question: In regards to Sec 4.7.1.3: Should we look at a like for like replacement of the network switch?

Response: Proposed replacement switch must meet POE requirements.

=====
Question: In regards to Sec 4.7.1.3: Should the new network switch's be VSP or ERS?

Response: ERS is sufficient.

=====
Question: In regards to Sec 4.8.2.6 : How many archivers will be required? As per SOW it looks like 2, but can you please confirm.

Response: Contractor will propose quantity based on their calculations.

=====
Question: In regards to Appendix C: Network Intercom Stations, Master station:

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a) Are either of the doors intended to have remote stations installed at them equipped with door strikes? b) If so are they currently integrated with the existing Ai phone? c) What is the make and model of the access control system?

Response: a) Front door has existing strike. Rear is a future consideration. b) Yes c) None existing.

=====
Question: Ref: Sec 4.8.2.1 "The provided NVR must be a Genetec certified storage solution" Please clarify if the "Genetec Certified" means that the selected hardware for directory and archive servers needs to meet the hardware requirements as specified by Genetec and STR, or it should be a product like the BCD Video Streamvault appliance which has been approved by Genetec.

Response: The hardware must meet Genetec requirements but the storage solution must be Genetec certified.

=====
Question: Ref: Sec 4.8.1.7 "Minimum 16x DVD+/-RW drive. Genetec Streamvault appliances do not have DVD, please confirm if it is acceptable to use an external USB DVD RW instead.

Response: DVD/RW must be internal.

=====
Question: Ref: Sec 4.8.1.4 "Minimum 2 x 256GB SATA3 SSD". The SSD drives of Genetec Streamvault appliances are either 200GB or 120GB. Please confirm if it is acceptable to use 200GB SSD for directory server and 120GB SSD for archiver.

Response: Requested HDD is not compliant.

=====
Question: Ref: Type 1 and Type 2 camera lens, STR sec 4.5.4.1 and 4.5.4.2. The required 2.5-6mm varifocal lens of type #1 camera and 3.3-12mm of type #2 camera as stated in the STR conforms with the specifications of a camera that is a discontinued product. Manufacturer recommends a replacement camera which has a 3-10mm lens. Please confirm if 3-10mm varifocal lens is acceptable for both type #1 and type #2 cameras.

Response: Manufacturers replacement is acceptable.

=====
Question: Ref: Type #3 Camera, STR sec 4.5.4.3. The required panoramic views as stated in the STR sec 4.5.4.3 conforms with the specifications of a fish-eye panoramic camera which comes with a lens in the range of 1.6mm instead of 2.8 mm as specified in the STR. Please confirm if 1.6mm lens is acceptable for type #3 camera.

Response: Manufacturers replacement which has 2.8mm is acceptable

=====
All other terms and conditions remain unchanged.



**CORRECTIONAL SERVICES CANADA
TECHNICAL SERVICES BRANCH
ELECTRONIC SECURITY SYSTEMS**



ES/STD-0205
Revision 3
February 2015

**ELECTRONIC ENGINEERING STANDARD
FIXED OUTDOOR CAMERA ENCLOSURE
FOR USE IN FEDERAL CORRECTIONAL INSTITUTIONS**

AUTHORITY

This Standard is approved by the Correctional Service Canada for the procurement and installation of this item in Canadian federal correctional institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address:

Director, Electronic Security Systems
Correctional Service of Canada
340 Laurier Avenue West,
Ottawa, Ontario
K1A 0P9

Approved by:


Director,
Electronics Security Systems

TABLE OF REVISIONS

Revision	Paragraph	Comment
0		Original issue
1	3.2	Condensing humidity from 95% to 100%
	7.1	Maximum maintained internal temperature from 40 to 50°C
2	All	Reformat and rationalization
3	Table of Definitions	Removed
	2.1	Added reference IEC EN 61000-4-3, Radiated RF immunity
	3.3.1	Interference now uses IEC EN 61000-4-3, Radiated RF immunity
	4.1.3	Changed humidity to non-condensing 20%-90%

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
CSC	Correctional Service Canada
FoV	Field of View
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers

1 INTRODUCTION

1.1 Overview

- .1 This standard defines the requirements of Correctional Service Canada (CSC) for an outdoor fixed camera enclosure for use at federal correctional institutions.

1.2 Purpose

- .1 These enclosures are for deployment in outdoor fixed camera locations such as:
 - .1 facility perimeter; and
 - .2 outdoor walkways.
- .2 These enclosures are for Fixed Network Colour Cameras for Enclosures (ES/STD-0221).

2 REFERENCES

2.1 Specifications, Standards, and Statements of Work

- .1 Access to non-government specifications is the responsibility of the contractor.
- IEC EN60529 – International Electrotechnical Commission Degrees of protection provided by enclosures (IP Code)
- IEC EN60950-1 – International Electrotechnical Commission Information technology equipment – Safety
- IEC EN61000-4-3 – International Electrotechnical Commission Electromagnetic Compatibility Part 4-3
- IEC EN62262 – International Electrotechnical Commission Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts
- IEEE 802.3at – IEEE Standard for Information Technology Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Amendment 3: Data Terminal Equipment (DTE) Power via the Media Dependent Interface (MDI) Enhancements
- IEEE 802.3u – IEEE Standards for Local and Metropolitan Area Networks: Supplement to Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Media Access Control (MAC) Parameters, Physical Layer, Medium Attachment Units, and Repeater for 100 Mb/s Operation, Type 100BASE-T
- ES/STD-0221 – Electronics Engineering Standards Fixed Network Colour Camera for Enclosures

3 PHYSICAL

3.1 Dimensions

- .1 The enclosure must:
 - .1 measure less than 300mm high;
 - .2 measure less than 300mm wide;
 - .3 measure less than 800mm long;
- .2 The enclosure window opening must:
 - .1 pass the camera's complete Field of View (FoV);
 - .2 include a wiper;
 - .3 include a sun shield (include in the enclosure measurements);
- .3 The enclosure camera mount must:
 - .1 include an adjustable camera mount;
 - .2 have ¼-20 threaded mounting holes;
 - .3 include elevation blocks for large lens/low optical centre-line cameras;

3.2 Environment

- .1 The enclosure must:
 - .1 have a permanently affixed label on the exterior of the unit which identifies the manufacturer, the model or assembly number, the serial number and the power requirement;
 - .2 have a permanently affixed label on the interior of the unit which identifies the manufacturer, the model or assembly number, the serial number and the power requirement;
 - .3 operate for external temperatures between -40°C to 50°C;
 - .4 meet or exceed IEC EN60529 IP66 dust and water resistance when mounted;

3.3 Interference

- .1 The enclosure must be certified compliant to IEC EN 61000-4-3, Radiated RF immunity.

3.4 Reliability

- .1 The enclosure must have an MTBF of at least 25,000 hours.

3.5 Safety

- .1 The enclosure must meet IEC 60950-1 or the CSA equivalent.

4 OPERATIONAL

4.1 Enclosure

- .1 The enclosure must:
 - .1 be capable of continuous operation;
 - .2 maintain an internal temperature between 5°C to 50°C for defined operational temperature range;
 - .3 start and operate from 20% to 90% non-condensing humidity;
 - .4 prevent ice, snow, and condensation on the enclosure window;

4.2 Wiper

- .1 The enclosure wiper must be remotely controllable;

5 INTERFACE

5.1 Ports

- .1 The enclosure does not require an output for camera power.

5.2 Power

- .1 The enclosure must use less than 150W excluding any camera power.

Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/STD-0229
Revision 3
19 April, 2010

ELECTRONICS ENGINEERING
STANDARDS

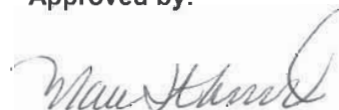
NETWORK VIDEO RECORDER
CLOSED CIRCUIT TELEVISION

Prepared by:



Manager,
Electronics Systems Research

Approved by:



Director,
Engineering Services

RECORD OF REVISIONS

Revision	Paragraph	Comment
0	N/A	Original issue.
1	6.4 Design Requirements	Delete requirement for local control
	6.14 Design Requirements	Delete requirement for directly attached computer
	7.4 Recording Frame Rate	Delete "minimum compression"
	7.5 Frame Storage Option	Delete
	7.6 Selectable Compression	Delete
	7.8 Primary Storage	"Hot Swappable" Hard Drives
	7.14 Failure Indication	Change to message to the FAAS on failure
	7.15 Disk Full	Delete
2	7.13	Added requirement for Fail-Over Archiving
	7.14	Added requirement for Fail-Over Directory
3	4.3 Power	Increase to 600 watts maximum
	5.3 Depth	Increase to 600 mm
	7.1 Video Format	Determined by cameras
	7.4 Recording Frame Rate	Increase to 20 maximum simultaneous inputs
	7.7 RAID 5	Added 4TB minimum
	7.15	Added requirement for RAID 1 OS solid state drives

1.0 SCOPE

This standard defines the requirements of a Network Video Recorder (NVR) in Closed Circuit Television (CCTV) systems used by Correctional Service of Canada (CSC).

2.0 GENERAL

NVRs are used in security surveillance and assessment applications in institutions. The NVR records real time video and audio streams transmitted from network video cameras or NTSC-IP Video Converters.

3.0 ENVIRONMENTAL CONDITIONS

The system shall meet all operational requirements over the following operating range:

- 3.1 Temperature: 5° C to 40° C; and
- 3.2 Humidity: 20 – 80% non-condensing.

4.0 POWER REQUIREMENTS

The equipment shall use standard commercial VAC power within the following range:

- 4.1 Voltage: 120 VAC \pm 10%;
- 4.2 Frequency: 60 Hz \pm 1.5%; and
- 4.3 Power: power consumption shall not exceed 600 watts.

5.0 MECHANICAL REQUIREMENTS

The dimensions and weight shall not exceed the following:

- 5.1 Width: to fit standard 19" rack mount;
- 5.2 Height: maximum 6RU (Rack Units);
- 5.3 Depth: 600 mm; and
- 5.4 Weight: 30 kg.

6.0 DESIGN REQUIREMENTS

- 6.1 The unit must be self contained.
- 6.2 The unit must fit in a standard 19" rack.
- 6.3 The NVR shall be based on common off-the-shelf computers and operating systems.
- 6.4 All function controls for NVR configuration and operation shall be available through remote access software.
- 6.5 Power Failure Recovery shall enable the NVR to resume functioning in the same state that it was in at the time of the power failure.
- 6.6 Memory Backup shall protect timer settings in the event of power failure.
- 6.7 All test points on the NVR shall be clearly labelled and easily accessible for calibration and maintenance.
- 6.8 All equipment shall be modular with plug-in circuit cards and assemblies.
- 6.9 The design Mean Time Between Failure (MTBF) shall be at least 10,000 hours.
- 6.10 The unit shall provided remote diagnostics to indicate recording failure or video loss from an IP camera or IP encoder.
- 6.11 The recorder shall utilize user login, password and rights management such as to limit users' access to specific cameras, both live and recorded.
- 6.12 The recorder system shall provided user rights and priorities to control of P/T/Z cameras.

7.0 TECHNICAL REQUIREMENTS

The NVR shall meet the following requirements:

- 7.1 Video Format: Determined by camera;
- 7.2 Audio: Synchronized with video input (when equipped);

-
- | | | |
|------|------------------------|---|
| 7.3 | System Recording Rate: | up to 120 Mbits/sec; |
| 7.4 | Recording Frame Rate: | maximum 20 simultaneous inputs @ 640 x 480 pixels, 30 frames per second per input; |
| 7.5 | Recording Capacity: | Shall have the ability to connect to external local RAID storage drives to a minimum of 4 external RAID chassis. Limited only by hard drive capacity; |
| 7.6 | Primary Storage: | Hot Swappable Hard Drives (capacity as per STR); |
| 7.7 | RAID 5: | Internal storage shall be 4TB RAID 5 as a minimum (depending on storage requirement); |
| 7.8 | Watermark: | The video must contain some form of watermark or fingerprint so that any attempt to tamper with the recorded digital image may be detected. |
| 7.9 | Interface: | 100Base-T/10Base-T (auto fallback); |
| 7.10 | Protocol: | Internet Interface Protocol; and |
| 7.11 | User Display: | HTML-based GUI. |
| 7.12 | Failure Indication: | Message to the FAAS when NVR stops recording for any reason |
| 7.13 | Fail-Over Archiving | To be provided (The RAID 5 feature of the NVR is NOT considered redundant archiving. Additional archiver(s) that will automatically take over recording of the cameras assigned to an NVR that has completely or partially failed, in excess of a single RAID Drive, must be provided.) |
| 7.14 | Fail-Over Directory | To be provided (The Fail-Over Directory may reside on the Fail-Over Archiver) |
| 7.15 | Operating System | The operating system for the unit shall be contained on two (2) solid state drives configured as RAID 1 storage. The OS shall NOT be installed on the RAID 5 video array. |

8.0 INTERFERENCE

The NVR performance and video quality shall not be affected by the presence or use of standard CSC electronic equipment. The units shall work at the following distance limits:

- 8.1 CB transceivers at 1 metre or more;
- 8.2 VHF or UHF transceivers (25W) at 1 metre or more;
- 8.3 Other radio frequency transmitting, receiving and distribution equipment at 5 metres or more; and
- 8.4 Personal computers and/or computer work stations at 5 metres or more.

The NVR shall not interfere with any standard electronic equipment used at the institutions.

9.0 SAFETY

- 9.1 The NVR must be CSA, UL, ULC or CE approved, as required by law.

- END OF TEXT -



**CORRECTIONAL SERVICES CANADA
TECHNICAL SERVICES BRANCH
ELECTRONIC SECURITY SYSTEMS**



ES/STD-0232
Revision 2
February 2014

**ELECTRONIC ENGINEERING STANDARD
FIXED NETWORK COLOUR DOME CAMERA
FOR USE IN FEDERAL CORRECTIONAL INSTITUTIONS**

AUTHORITY

Acquisition of a camera for the identified purposes that is not in compliance with this standard must be approved by the Design Authority.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address:

Director, Electronic Security Systems
Correctional Service of Canada
340 Laurier Avenue West,
Ottawa, Ontario
K1A 0P9

Approved by:

Director,
Electronic Security Systems

TABLE OF REVISIONS

Revision	Paragraph	Comment
0	N/A	Original
1	All	New structure and change to merge indoor and outdoor.
2	Definitions	Removed
	2.1	Added reference IEC EN 61000-4-3, Radiated RF immunity
	3.2.2.3	Changed humidity to non-condensing 20%-90%
	3.3.1	Interference now uses IEC EN 61000-4-3, Radiated RF immunity

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TABLE OF ABBREVIATIONS

Abbreviation	Expansion
AGC	Automatic Gain Control
CSC	Correctional Service Canada
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
MJPEG	Motion Joint Photographic Experts Group
MTBF	Mean Time Between Failures
ONVIF	Open Network Video Interface Forum
PoE	Power over Ethernet
TCP/IP	Transmission Control Protocol/Internet Protocol

1 INTRODUCTION

1.1 Overview

- .1 This standard defines the requirements of Correctional Service Canada (CSC) for a fixed focus, network capable, dome camera for use at federal correctional institutions.

1.2 Purpose

- .1 The cameras are deployed for both observation and evidentiary use.
- .2 These cameras are for deployment for all outdoor fixed camera locations **except**:
 - .1 facility perimeter;
- .3 These cameras are for deployment for all indoor fixed camera locations **except**:
 - .1 observation cells;
 - .2 principal entrance panoramic;

2 REFERENCES

2.1 Specifications, Standards, and Statements of Work

- .1 Access to non-government specifications is the responsibility of the contractor.
- IEC EN60529 – International Electrotechnical Commission Degrees of protection provided by enclosures (IP Code)
- IEC EN60950-1 – International Electrotechnical Commission Information technology equipment – Safety
- IEC EN 61000-4-3 – International Electrotechnical Commission Radiated RF immunity
- IEC EN62262 – International Electrotechnical Commission Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts
- IEEE 802.3at – IEEE Standard for Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Amendment 3: Data Terminal Equipment (DTE) Power via the Media Dependent Interface (MDI) Enhancements
- IEEE 802.3u – IEEE Standards for Local and Metropolitan Area Networks: Supplement to Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications Media Access Control (MAC) Parameters, Physical Layer, Medium Attachment Units, and Repeater for 100 Mb/s Operation, Type 100BASE-T

3 PHYSICAL

3.1 Dimensions

- .1 The camera case and dome must:
 - .1 measure a base diameter less than 200mm;
 - .2 measure from base to top of dome of less than 175mm excluding any mount;
 - .3 weigh less than 2.5kg;

3.2 Environment

- .1 The camera case and dome must:
 - .1 meet or exceed IEC EN60529 IP66 dust and water resistance when mounted;
 - .2 meet or exceed IEC EN62262 IK10 impact resistance;
 - .3 have threaded openings for conduits;
 - .4 have a threaded plug to seal all unused openings;
 - .5 have set-screws to secure all conduit and plugs from inside the dome;
 - .6 have tamper resistant heads on all externally accessible screws;
 - .7 have a permanently affixed label on the interior of the unit which identifies the manufacturer, the model or assembly number, the serial number and the power requirement;
 - .8 have a permanently affixed label on the exterior of the unit which identifies the manufacturer, the model or assembly number, the serial number and the power requirement;
- .2 The camera must:
 - .1 be capable of continuous operation;
 - .2 start and operate from -40°C to 50°C;
 - .3 start and operate from 20% to 90% non-condensing humidity;

3.3 Interference

- .1 The camera must be certified compliant to IEC EN 61000-4-3, Radiated RF immunity

3.4 Reliability

- .1 The camera must have an MTBF of at least 25,000 hours.

3.5 Safety

- .1 The camera must meet IEC 60950-1 or the CSA equivalent.

4 OPERATIONAL

4.1 Camera

- .1 The camera must retain its configuration over a power cycle.
- .2 The image sensor must:
 - .1 include automatic or remote back focus;
 - .2 have a minimum of 480,000 pixels (horizontal x vertical);
 - .3 have day (colour) and night (black and white) modes;
 - .4 automatic removable infrared cut filter for day/night transition;
 - .5 have 0.5 lux or less minimum illumination for day mode;
 - .6 have 0.1 lux or less minimum illumination for night mode;
 - .7 include Automatic Gain Control (AGC);
 - .8 include extended dynamic range processing;

4.2 Lens

- .1 The camera lens must:
 - .1 have a 35° to 80° or greater horizontal angular view varifocal lens
 - .2 be approved by the manufacturer of the camera for that camera;

4.3 Video

- .1 The video encoding must:
 - .1 support H.264 configurable I-frame frequency of at least 3 per second;
 - .2 support H.264 constant bit rate transmission mode;
 - .3 support H.264 frame rate transmission mode;
 - .4 support at least 3 levels of H.264 image quality;
 - .5 support at least 3 levels of MJPEG image quality;
- .2 The video output must:
 - .1 include an on-screen, programmable character generation overlay capability with a minimum of 8 visible characters;
 - .2 support at least two simultaneous H.264 video streams at 30 frames per second with at least 480,000 pixel resolution;
 - .3 support at least two simultaneous video streams, one H.264 and one MJPEG at 15 frames per second with at least 480,000 pixel resolution;

5 INTERFACE

5.1 Ports

- .1 The camera must:
 - .1 interface over IPV4 TCP/IP;
 - .2 be able to operate on 100Base-TX (IEEE 802.3u);
 - .3 connect using an RJ-45 connector;
 - .4 be ONVIF compliant;

5.2 Power

- .1 The camera must be a Type 1 powered device operating solely from Power over Ethernet (PoE) compliant with IEEE 802.3at Class 0, 1, 2, or 3.

5.3 Video Management System Compatibility

- .1 The camera model must be identified as “Certified” or “Supported by Design” in the Genetec Omnicast Supported Hardware camera list.