



**KOWLOON SOUTHERN LINK
Contractor's Submission Form**

Contract: KDB200 - West Kowloon Station and Tunnels,
Jordan Road to East Tsim Sha Tsui Station

For KCRC Internal Use Only

EDMS No.:

To: Engineer's Representative-Mr. Tom Keenan

Title of Submission: Proposal for Visual Monitoring System

Submission Ref. No. KDB200/CSF/ENV/000101/I

Description of Contents: (for material submissions, include information of suppliers, brand, type, and location of application)

Please refer to attachment **See Below**

The submission is updated with new domain name for the website and new web hosting company.

(Note: Please be reminded that as per GS section G18.4 as revised by KCR letter ref. KSL-2006/KDB200/QM101/K1-87426 15 November 2006 (see in/11147), document submissions need 1 unbound original, 1 unbound copy, six bound copies, and two electronic copies (on two CDs); and drawing submissions need 1 A1 size original, eleven sets of A1 size prints folded into A4 size, three unbound sets of A3 size prints reduced from the A1 size original, two electronic copies, 1 drawing list (in hard and soft copy) in accordance with the CADD Manual for New Railway Works. Any deviation to the G18.4 copy requirements must state the name of the KCRC staff authorising the change into the CSF specification/drawing reference field.

Purpose of Submission:

For Review **For Information** **For Record Purposes**

From: Contractor's Representative

Name: Mr. Greg Jacques **Signature:**
Title: Project Director
Date: 1-Sep-2007



Remarks:

No. of copies included in this submission: 8

Hard copies
 CDs and Floppy Diskettes

Specification/Drawing Reference (if applicable):
EP2.10, EI/003

FOR KCRC INTERNAL USE ONLY

Internal Distribution of Submission

RECEIPT DATE:

SUBJECT CODE:

NAME	ACTION	COMMENT	INFO

CON04-T1(KSL)

Prepared by: Cheung, M.K. (Env) →

CSF Type: Construction/General

Outgoing Ref: 16002

MMJV review : _____

Ver.: July05

Contractor's Submission Form Rev 6, 18 Nov 2006


KCRC KOWLOON SOUTHERN LINK

CONTRACT KDB200

ENVIRONMENTAL MONITORING AND AUDIT

PROPOSAL FOR VISUAL MONITORING SYSTEM

AUGUST 2007

Certified By :	M.K. Cheung
Signed :	
Position :	Environmental Team Leader
Date :	31 AUG 07

Proposal for Visual Monitoring System (VMS)

Contract No. :KDB200

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Introduction

Project Background

A 3.8km new underground railway line (hereafter called “Kowloon Southern Link” or KSL) would be constructed to connect the KCRC East Tsim Sha Tsui (TST) Station to the West Rail (WR) Nam Cheong (NAC) Station, with its alignment running under Salisbury Road, Canton Road and the West Kowloon Reclamation area. It is expected that the KSL would improve the accessibility to and lessen the traffic congestions at TST and West Kowloon districts. The civil construction works for the KSL are split into three design-and-build contracts namely KDB200, KDB300 and KDB400.

KCRC has awarded the contracts KDB200 (West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station) to Link 200JV (LJV) in August 2005. Based on the relevant conditions stipulated in the Environmental Permit, Visual Monitoring System (VMS) shall be installed at the site for the purpose of monitoring construction activities at the site.

Compliance of Environmental Permit Conditions

The purpose of this proposal is to fulfill the requirements stated under the conditions of Environmental Permit and Link 200 JV’s Further Environmental Permit.

Conditions 2.10

Within one month of the commencement of construction of the Project, the Permit Holder shall propose a plan and a system of web cameras for the Director’s agreement. The web camera(s) shall be designed to provide sufficient locations/views covering the whole alignment of the Project as shown in (Figure1) of this Permit. The locations shall include at least and, in particular:

- (i) The construction access shaft as shown in (Figure 2) of this Permit;
- (ii) The Tunnel Boring Machine (TBM) launching shaft at the southern end of West Kowloon Station; and
- (iii) In addition, any other major works area(s) as necessary.

Conditions 5.6

Within three months of the commencement of construction of the Project, the Permit Holder shall install and thereafter maintain a system of web cameras covering the location(s) as agreed with the Director under Condition 2.10 of this Permit. The system shall provide real time visual monitoring of the site condition accessible by public through the dedicated web site set up by the Permit Holder under Condition 6.2.

System Installation

The installation work of the VMS is tentative to start in January 2006 and is scheduled to be completed within 1 month. The VMS will host 2 web cameras, that will be located at roof of YMCA and Roof of Canton Road Government Building, to provide dedicated surveillance. Both cameras are equipped with pan, tilt and zoom functions, such that the cameras will be adjusted accordingly for the purpose of monitoring at desired position of the construction site.

Solution

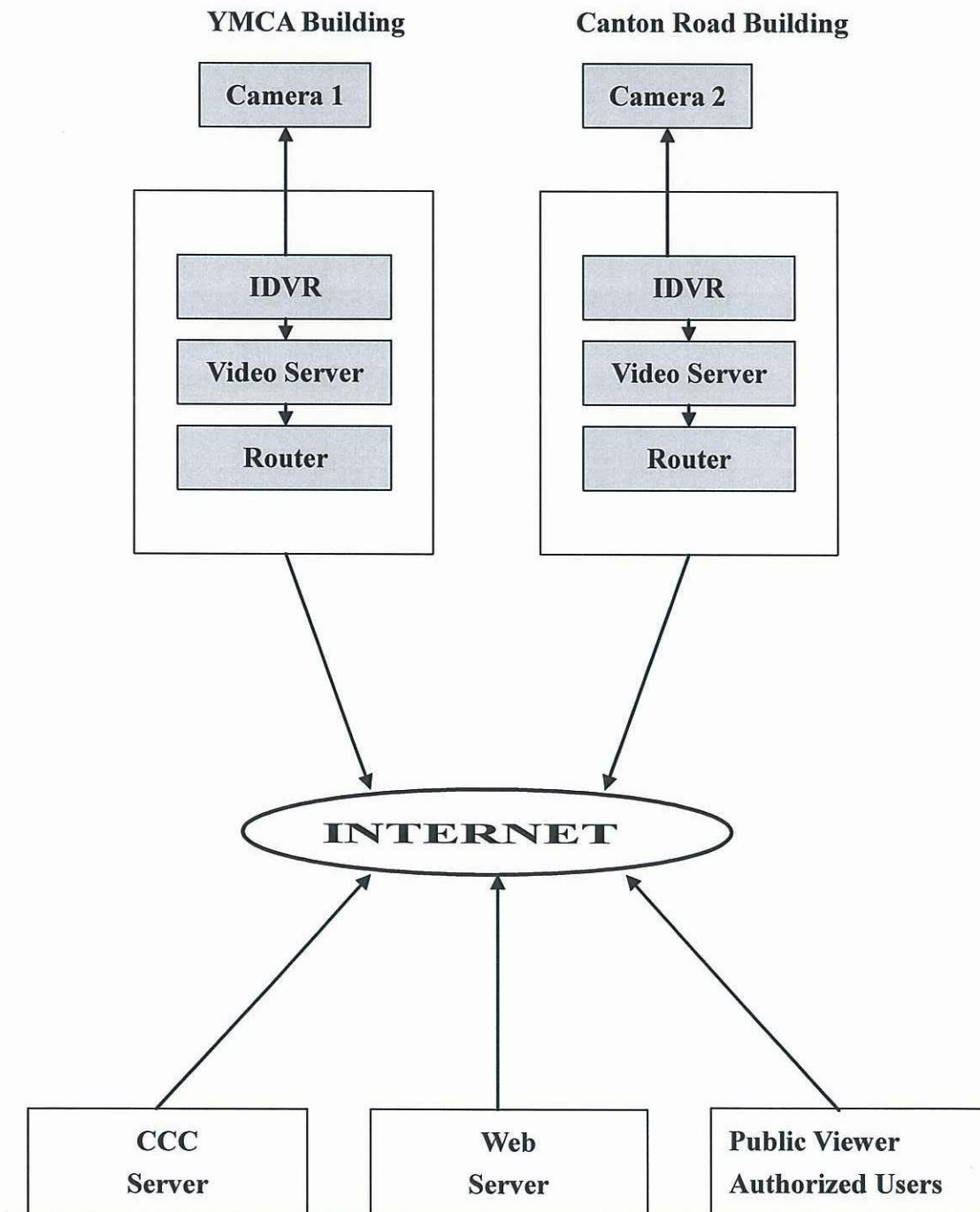
According to the result in Site Survey and requirements stated in the provided Environmental Permit, solution of the Visual Monitoring System consists of a dedicated website (i.e. www.kcrclink200.com), 2 cameras for real-time image and recording. The cameras can be controlled by designated parties e.g KCRC, EPD, IEC, the ET, the Contractor and the operator of VMS, to use the pan/tilt/zoom functions for the purpose of monitoring at desired position of the construction site.

Two web camera will be used to monitor the construction site with major construction activities for KDB200 respectively.

Diagram below shows :

Section 1

Diagram



Section 2

Digital Video Recorder (DVR)

The GeniusEye i-BOX RIO (DVR) surveillance system supports:

- View / Record up to 16 Camera per box
- Allow multiple remote login with different security level access control
- Remote controllable Pan/Tilt/Zoom function
- Changeable Recording / Viewing Frame rate
- Remote Viewable by IE5.X or better
- Historical Video Images and Video can be sorted and search by year, month, day, time
- Disk Storage Management, Video and image files can be stored and arranged in multiple hard disk

Digital Video Recorder Specification

P4 2.4G CPU

512Mb Ram

200G HD X 2 ,RAID 1

10/100 Base TX Ethernet LAN

On Board IO- Two Ps/2, Two USB, Two Serial

AC97 Codec

Onboard graphics engine

Operating System: Microsoft Windows XP

DVR Backup

Daily backup is performed by a RAID 1 system or equivalence connect with 2 x 200G hard disk.

RAID 1 system is to continuously synchronise the data capture in the main hard disk to backup hard disk. If the main hard disk fails the other one can act as the primary and will have exactly the same content of the failed hard disk.

Data Storage

Images/Video are recorded locally on the DVR. Each frame will occupy 30k of storage space, therefore 3 months of recording will occupy:

$30k \times 30(\text{once every 2 seconds})=900k(\text{min})$

$900k/\text{min} \times 60\text{min} \times 24\text{h}=1296\text{m}/\text{day}$

$1296\text{m} \times 92\text{d} = 119.232\text{G}(3 \text{ month})$

Operating System and Geniuseye DVR software will occupy less than 3Gb of storage space. Therefore a 200G Harddisk will be more than sufficient to store 3 months of images.

Features

General Specifications	iDVR RIO
Remote video/ image retrieval	✓
Post IP to FTP server	✓
Scheduled Recording	✓
Pan Tilt Zoom Focus Iris Control	✓
IO Support	✓
Post video to video streaming server	✓
Overall Frame Rate	25fps
Maximum Frame Rate per Camera	25fps
Standby, MD Alarm & Record Operation	✓
Disk Storage Management	Single or Multiple
Video Motion Detection	Individual Camera
Motion Detection Recording	✓
Camera Settings	Individual Camera
Video Recording & Playback Resolution	320x240/640x480
Video Player and Editor	Integrated
Access Control Passwords	✓
Administration Mode	✓
Remote monitoring	IE 5.x or NS 5.x
Remote Snap Shot	✓

Section 3

Video Server

The AXIS 241S Video Server support :

- View and snapshot image resolution up to 768 X 576 pixels
- Refresh Rate 2 seconds per frame
- Motion JPEG Video Compression
- 10/100BaseTX Fast Ethernet
- Network protocol including HTTP,FTP,DHCP,SSL/TLS,TCP,UDP,DNS,SMTP and more. Detail please see attached.
- Microsoft Operation System and Internet Explorer 5.X or late
- 3 Level password protection to control and administration function.
- Level 1---- View image
- Level 2---- View image, Control Pan/Tilt/Zoom (PTZ) function.
- Level 3----View image, Control Pan/Tilt/Zoom (PTZ) function, Administration Setting.
- Operation Conditions : Temp 5-50C (41-122F) Humidity 20-80% RH
- Remote control the camera PTZ function.

Processors and memory

CPU : ETRAX 100LX 32bit

Video processing and compression : ARTPEC-2

RAM : 32MB

Flash : 8MB

Section 4

High Speed Dome Camera

Brand : Dyna Color

Model No. D77H0

Specification

- Digital 24-bit colour
- PAL : 795 X 596 pixels RGB CCD sensor
- White Balance : Auto/Manual
- BLC : On / Off
- 450 TV Line
- Pan Travel : 360 degree endless rotation
- Tilt Travel : -10 – 99 degree
- Zoom : Optical 16x, Digital x1~x8 variable
- Focal Length : 4~64mm
- Remote controllable PTZ function

Camera Outdoor Housing

- Built in Fan and Heater (24VAC)
- Environmentally Sealed and Weatherized for use in Temperature to 50C
- Optical Clear Dome Cover
- Sun Shield

Section 5

Web Hosting

Server location

Our web server is placed at a data centre

They have a 24 hours support centre. Their website is as followed:

<http://www.jump.com.hk/>

Contact & Address

Jump Web Services Ltd,
1904 Lyndhurst Tower,
1 Lyndhurst Terrace,
Central, Hong Kong

Phone: (852) 2559 1293 Fax: (852) 2581 9500

Bandwidth

Their dedicated line is connected to Hong Kong Internet Backbone (HKIX). They connect our LINUX red hat server via their highly reliable redundant connection to the Internet.

- HKIX ~ 230Mbps ATM
- UUNET ~ 30Mbps
- NETPLUS ~ 30Mbps

Our web server Spec:

Pentium 4 2.8G

1G Ram

160G Harddisk

Operation System: Linux Red 9.x

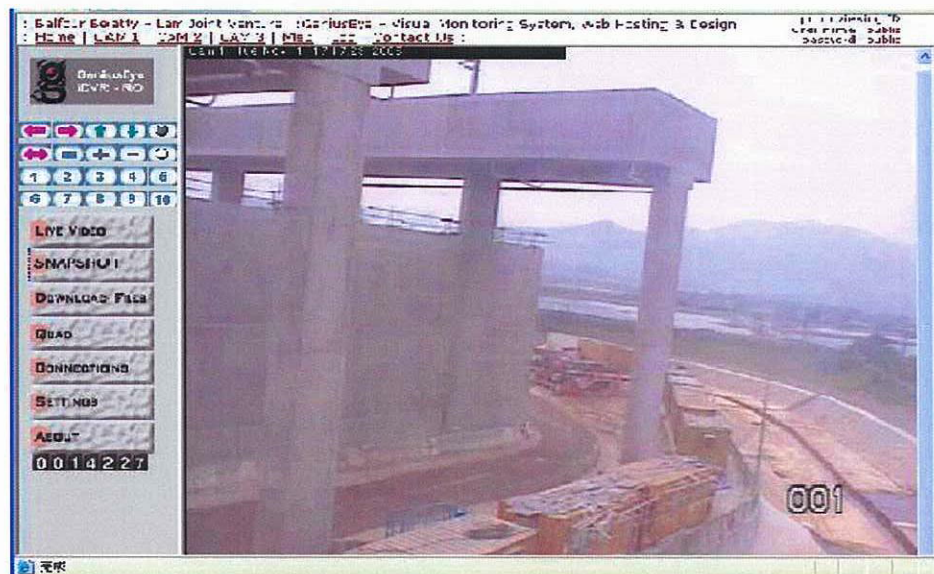
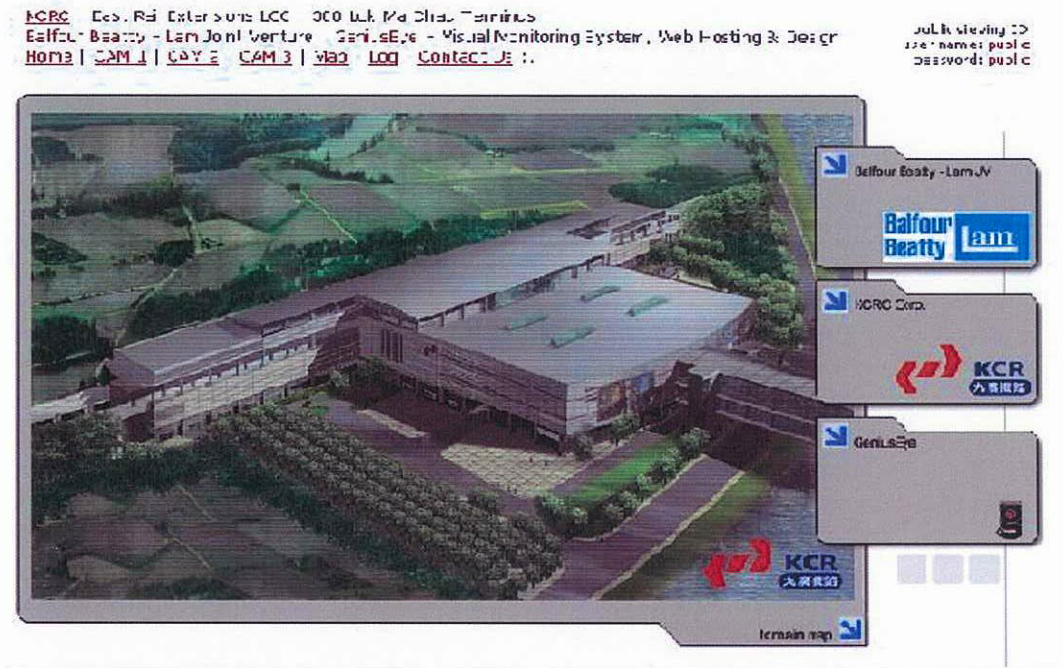
Notes

Xeon 2.8G Window Server is excluded in this quotation due to existing equipments available in our data centre. Due to the nature of our video servers, a powerful web server not be needed and will not improve the video quality in any way.

Section 6

Website Design

Sample



The WCS can be accessed with Internet Explorer 5 or above. No additional software is needed to gain access. The WCS web page can be accessed by just opening port 80. There will be username(s) and password(s) already assigned by KCR in order to gain access to the WCS website. In any circumstance, if KCR is willing to change its login ID, changes can be made anytime. The WCS website is already equipped with buttons for different functions that accommodate the camera

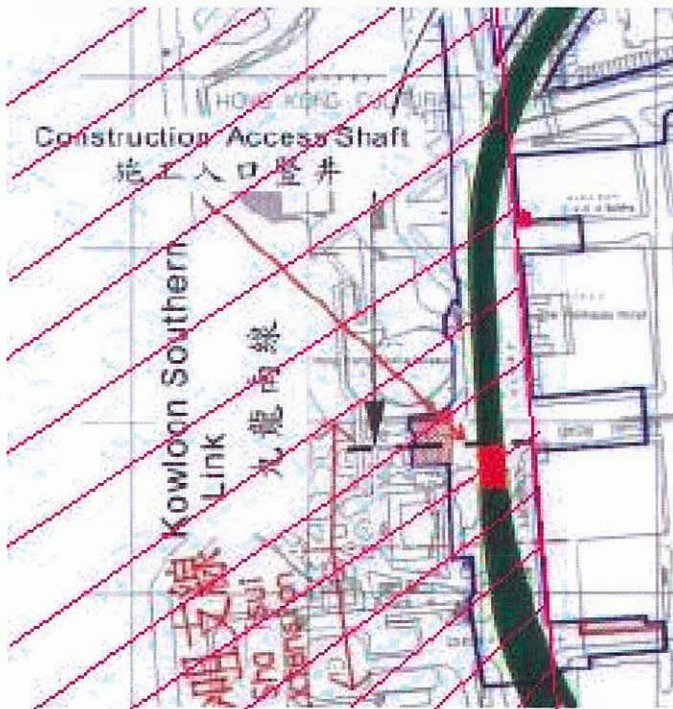
Section 7

Camera 1 Views Coverage

Setup Location :Roof of YMCA

41 Salisbury Road, Kowloon, Hong Kong

View Coverage : Access shaft, Hong Kong Space Museum, Hong Kong Cultural Centre

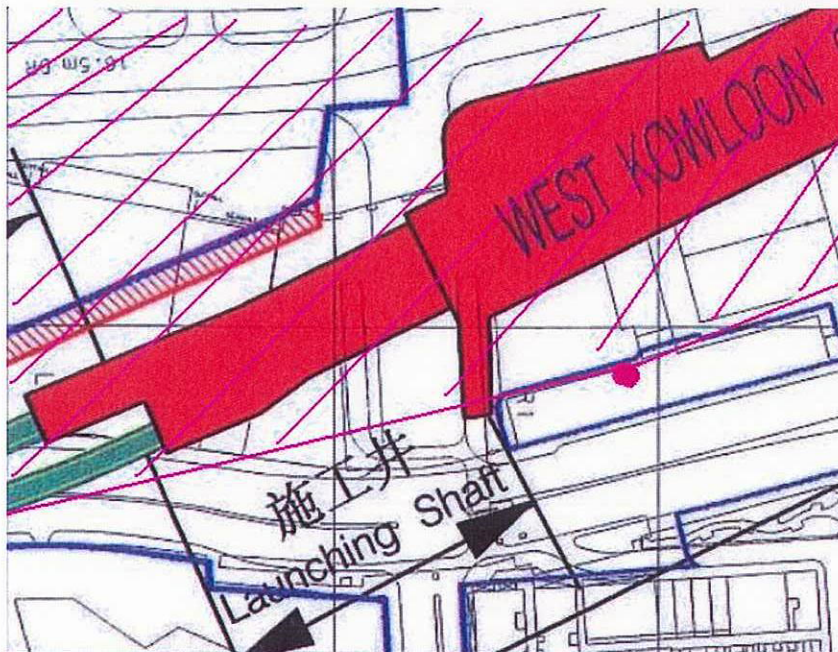


The pink spot on the map is Camera 1 which is located on the roof top of YMCA. The pink line indicates the viewable area of camera 1 which includes the Construction Access Shaft. Predicted view of Camera 1 is presented in Figure 3.

Camera 2 Views Coverage

Setup Location : Roof of Canton Road Government Office
393 Canton Road.

Views Coverage : Launching shaft, Lai Chack Middle School, Canton Road
Government School, Man King Building



The pink spot on the map is Camera 2 which is located on the roof top of Canton Road Building. The pink line indicates the viewable area of camera 2 which include the launching shaft. Predicted view of Camera 1 is presented in Figure 4.

Section 8

Maintenance & Support

We will provide a 24 hours support hotline. The respond time to system failure shall be 2 hours within office hour (Monday to Friday 9:00 – 6:00 Saturday 9:00 – 1:00) and 3 hours outside office hour.

Status Monitoring

Our Command Centre Console (CCC) server located in our office has the ability to monitor the status of the video server and the camera, so that we can provide appropriate support efficiently. The CCC server can monitor and log the following fields:

- Video Loss (Camera Failure)
- Recording status
- Motion Detection
- IP changes

Equipment Replacement

DVR & Video Server

In the case of video server failure, system can be restored within 24 hours.

Speed Dome Camera

Replacement of Speed Dome Camera will take up to 48 hours. If 2 or more fails at the same time, replacement period will take up to 5 work days.

Web Server @ data centre

24 Hours 7 days backup & support and highly reliable redundant connection is available. In case of server failure, server can be recovered in less than 24 hours.

Website Maintenance

Alteration will take less than 24 hours. In case of equipment failure or equipment being service, all status can be updated and shown in the website instantly.

Remark :

Expected Items :

- Dedicated fixed IP broadband connection (recommended 2M broadband connection for better result in real time viewing and PTZ control)
- Suggest Domain Name “ www.kcrlink200.com”

Limitation :

- The camera housing without wiper because it is made of a "dust non-stickable" surface. Wiper, therefore, is not required for cleaning purpose. In case of torrent of rain, the camera housing has built in heater and fan. The humidity sensor kicks in and heater will be activated to keep interior all time moisture free. The camera housing comes with a maintenance which cleansing is already included.

Others :

Xeon 2.8G Window Server is excluded in this quotation due to existing equipments available in our data centre. Due to the nature of our video servers, a powerful web server not be needed and will not improve the video quality in any way.

Figure 1

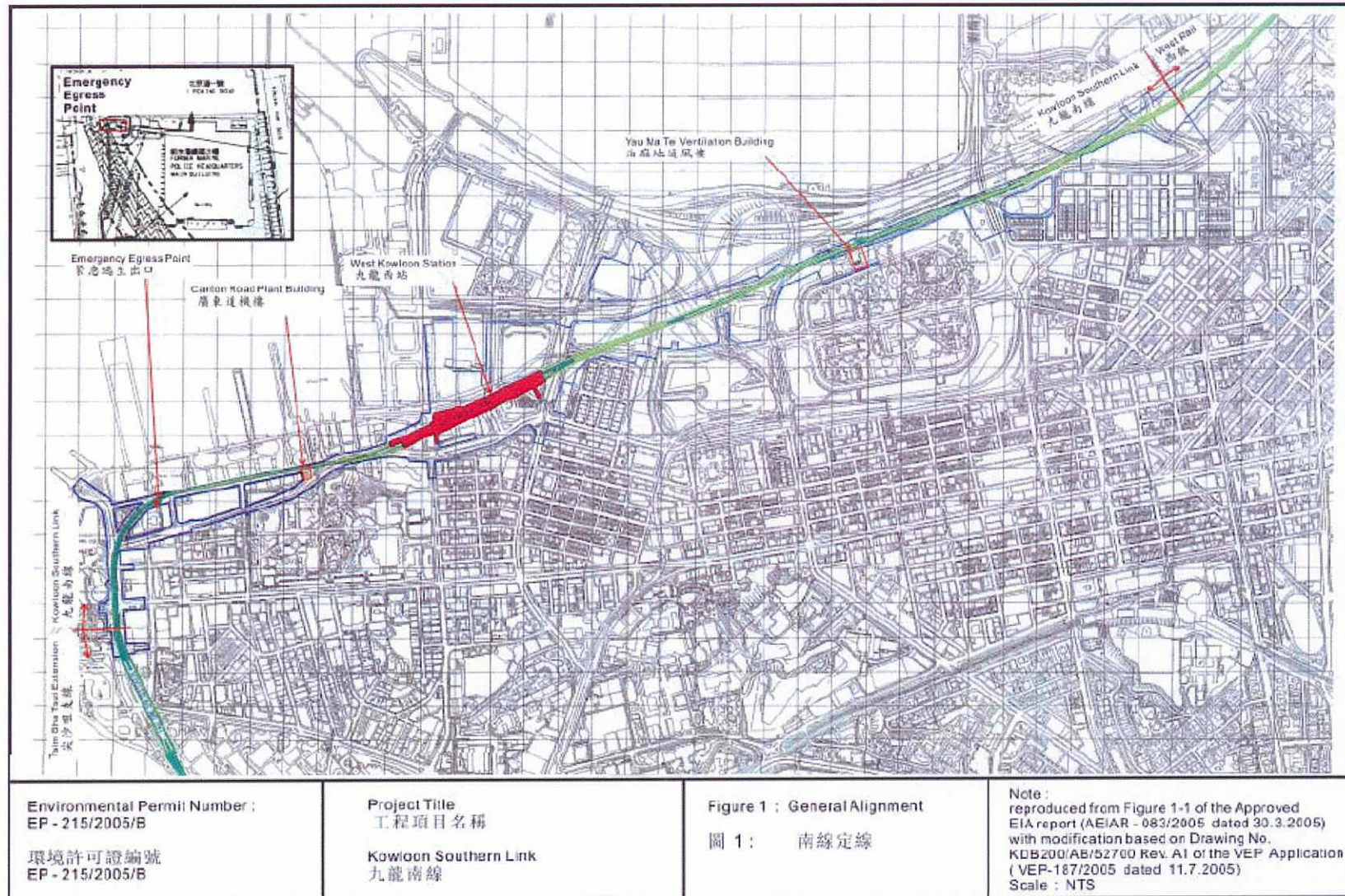
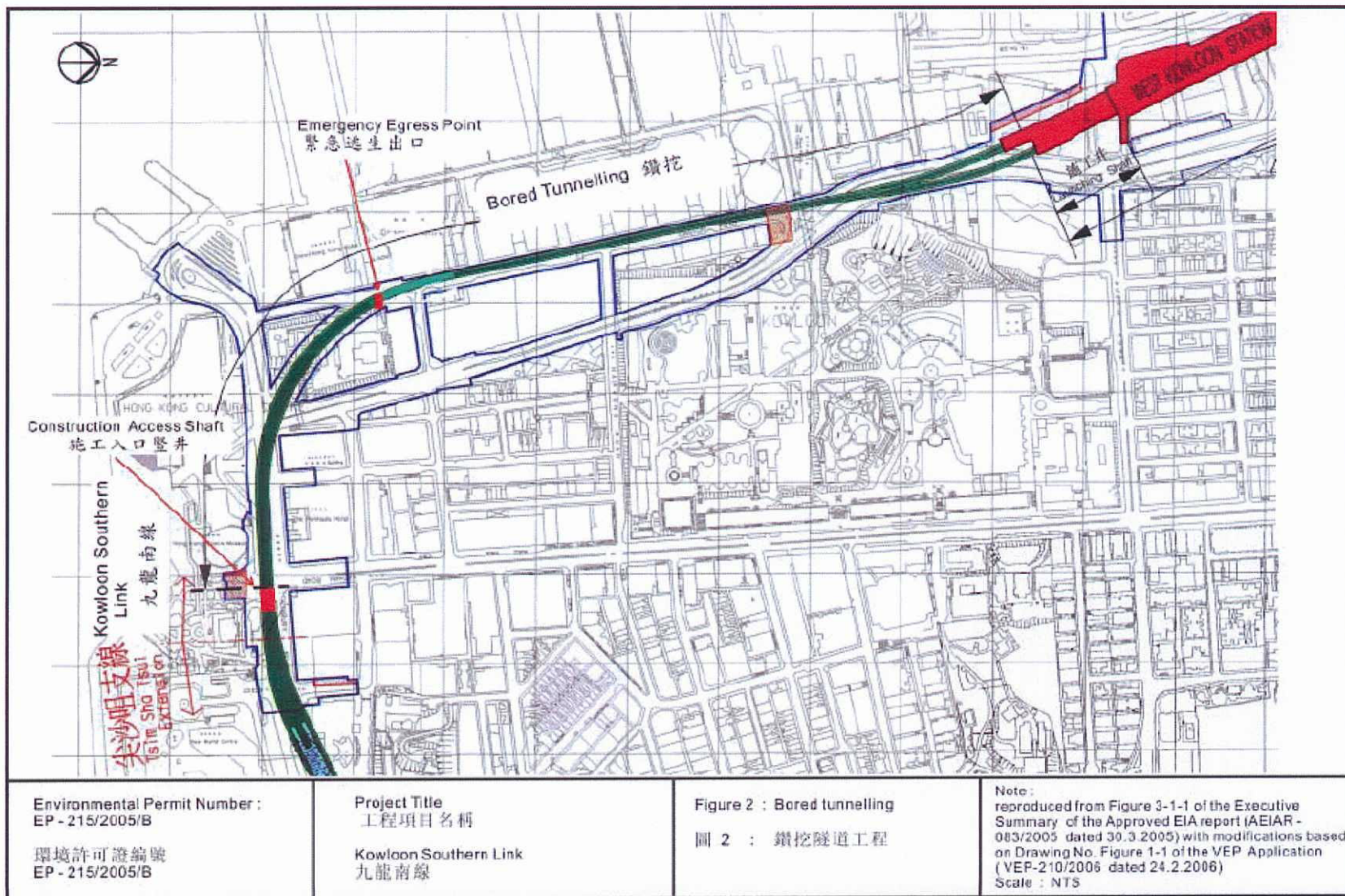


Figure 2



Filename : // ksl - fg 2_2005B.cdr

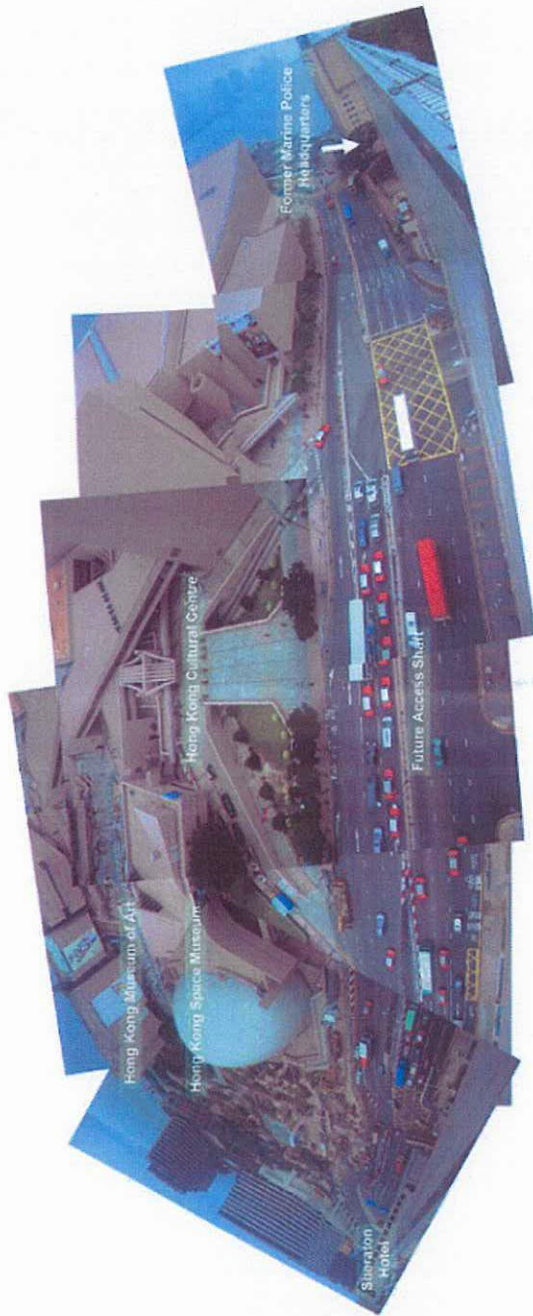


Figure 3: Predicted view of Camera 1 at the Roof of YMCA

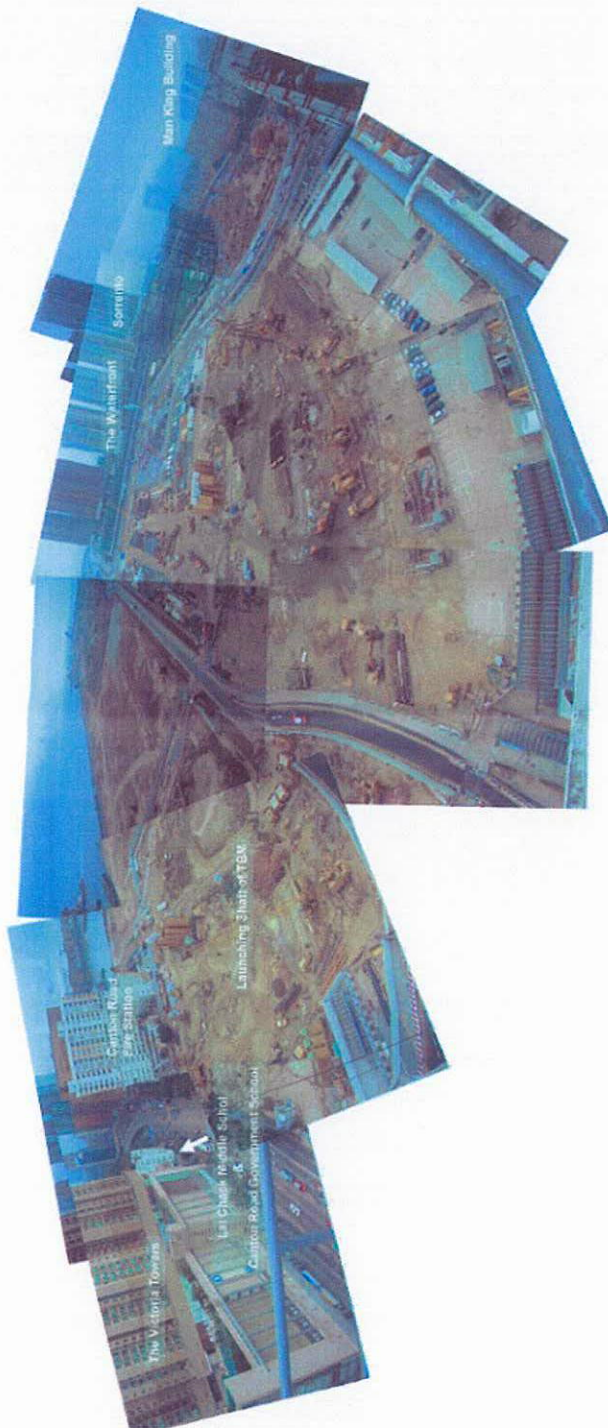


Figure 4: Predicted view of Camera 2 at the Roof of Canton Road Government Office

SPECIFICATION

GENERAL FEATURE

Environment	Indoor / Outdoor
Controller I/F	RS-485
Operating Temperature	0°-40°C
Power Source	24 VAC or 12VDC
Power Consumption	14.04 W
Dimensions	Ø130X200mm
Weight	1.5kg

ROTARY BODY FEATURE

	D7720A-□□□□	D7720B-□□□□	D7720C-□□□□
Pan Travel	360° endless		
Tilt Travel	0°-90°		
Manual Speed	6°-150°/s	1°-150°/s	1°-150°/s
Preset Speed	PAN	6°-360°/s Standard*	1°-375°/s High Resolution*
	Tilt	6°-360°/s Standard*	1°-375°/s High Resolution*

*Standard:768 steps/circle High Resolution:1600 steps/circle

CONTROL FEATURE

	D7720□-□□□□		
	H□□□	I□□□	J□□□
D&P protocol	YES	YES	YES
Presets	128	128	128
Preset Accuracy	0.50	0.50	0.50
Patterns	1	1	1
Sequence	4	4	4
Auto-Pan	1	1	1
Proportional Pan& Tilt with zoom	YES	YES	YES
Zone Title	YES	YES	YES
Home Position	YES	YES	YES
P/T/Z Auto-Restoring	YES	YES	YES
Auto-Turn Around	YES	YES	YES
DSS	X	YES	YES
WDR	X	X	YES
IR	X	X	YES

CAMERA FEATURE

	D7720□-H□□□	D7720□-I□□□	D7720□-J□□□
Total Pixels	NTSC:811(H)x508(V) PAL:795(H)x596(V)	NTSC:758(H)x504(V) PAL:758(H)x592(V)	NTSC:724(H)x494(V) PAL:724(H)x582(V)
Effective Pixels	NTSC:768(H)x494(V) PAL:752(H)x582(V)		
Sensor Type	1/4" CCD		
Scanning System	PAL, NTSC, 2:1 interlace		
Synchronization	Internal / Line Lock		
Video Output	1.0Vpp / 75Ω, BNC		
Horizontal Resolution	NTSC:450 TVL PAL:450 TVL	NTSC:470 TVL PAL:460 TVL	NTSC:470 TVL PAL:470 TVL
S/N Ratio	46dB	50dB	50dB
Minimum Illumination	1 lx	0.1 lx	0.02 lx 0 lx(IR illuminator)
Focal Length	4-64mm	4-88mm	3.6-82.8 mm
Zoom Ratio	16X optical zoom	22X optical zoom	23X optical zoom
Digital Zoom	X1-X8 variable		X1-X10
Zoom Speed	3.6 sec / 6 sec	3.9 sec / 6.3 sec	2.9 sec / 5.8 sec
Focus Mode	Auto / Manual		
White Balance	Auto / Manual		
Iris Control	Auto / Manual		
Electronic Shutter	1/60 - 1/30k sec. (NTSC) 1/50 - 1/30k sec. (PAL)	1/2 - 1/30k sec. (NTSC) 1/1.5 - 1/30k sec. (PAL)	1/2 - 1/30k sec. (NTSC) 1/1.5 - 1/30k Sec. (PAL)
AGC Control	Auto / Manual		
BLC	On / Off		



MODEL : D7720 HIGH SPEED DOME CAMERA

D7720 is a subcompact 5" dome camera system designed for superb performance and durability. Its pristine housing looks good in any security and surveillance installation.

D7720 standard model contains new generation advanced DSP color camera, with up to 22X optical zoom and 8X digital magnifier, delivers the power of a 176X zoom to ensure that the finest details are captured. Continuous auto focus, back light compensation, and auto iris control are some of the salient features incorporated to fit your needs.

High speed tilt and 360° endless rotation and auto turn around function allows D7720 to be installed in the most demanding applications. RS-485 communication channel is available for remote control purposes, 128 preset points can be programmed for precise location of target areas, you can also define multiple sequence routes for the camera to operate automatically.

Dependability and ultra high reliability are key factors in the D7720 design cycle. Every D7720 is assembled with meticulous care and thorough testing at our ISO9001 compliant factory. High performance, reliability, and reasonable price, D7720 is an ideal solution to your tough surveillance requirement.

Design and Specifications are subject to change without notice. (Rev. 01.10)

HIGH SPEED DOME CAMERA SERIES

MODEL D7720

Product Features

Standard Features (All Models)

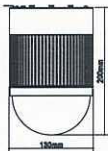
- 5" Compact, Low Profile Color Dome Camera
- 360° Continuous Pan Rotation
- Continuous Auto Focus
- Variable Speed 1~375°
- Auto-Turn Around Function
Performs 180° Pan Immediately While Tracking an Object Under the Dome
- 128 Presets
- Home Position Function
- Pan/ Tilt Speed Proportional to Zoom Ratio
- 22X Optical Zoom, 8X Electronic Zoom (Option)
- Minimum illumination : 0.1Lux (Option)
- Advanced DSP Camera
 - Auto White Balance
 - Backlight Compensation
 - Auto Iris Control
 - Electronic Shutter
- Remote Control via RS-485
- Built in 4 Alarm Inputs
- On Screen Display for Camera Control
- 12VDC/ 24VAC Model Available
- 24VAC Line Lock
- Twist Lock Release from Base for Easy Installation and Servicing

Outdoor Housing Features

- Environmentally Sealed
- Sun Shield

DYNACOLOR
MKPB-7720-04

DIMENSION



PRODUCT SELECTION

D7720 A-H1NG

P/T Resolution

- A: Standard resolution* Pan/Tilt
- B: Pan: High resolution*
Tilt: Standard resolution*
- C: High resolution Pan/Tilt*

Camera Type

- H: 16X module
- I: 22X module
- J: 23X module (0 lux)

Power Source

- 1: DC12V power in
- 2: AC 24V power in

Video Output

- N: NTSC
- P: PAL

Color

- S: Skin
- B: Black & Blue
- G: Gray

*Standard Resolution:768 steps/circle High Resolution:1600 steps/circle

Developed and Manufactured by :

DYNACOLOR, INC.
彩富電子股份有限公司

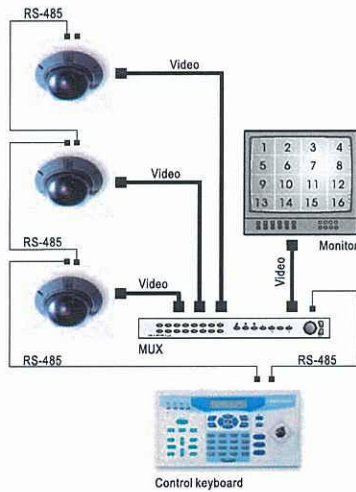
114 台北市內湖區洲子街116號

No. 116, Jui Tz Street, Neihu, Taipei, Taiwan
Tel:886-2-2659-9898 Fax:886-2659-8868
http://www.dynacolor.com.tw
E-mail:sales@dynacolor.com.tw

Represented by:

Worldwide Distribution and Service Network

STANDARD SECURITY SYSTEM ARCHITECTURE



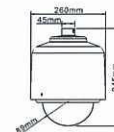
D731X CCTV CONTROL KEYBOARD

- Dome/Multiplexer Can be Controlled by One Keyboard
- Friendly User Interface by LCD Display
- RS-485 Control Interface
- Max. 255 CCTV Devices Can be Controlled
- 3-Axis Joystick is Available
- F/W Can be Upgrade through RS-232 Port



DIMENSION(mm)
330 (L) *175 (W) *65 (H)

HOUSING for INDOOR/OUTDOOR SPECIFICATION



HOUSING for OUTDOOR

- Easy Installation
- Built in Fan
- Optical Clear Dome Cover
- Different Pendant Available
- Environmentally Sealed and Weatherized for use in Temperatures to 50°C
- 24VAC Heater Built in
- Sun Shield



■ HOUSING for OUTDOOR



HOUSING for INDOOR

- Easy Installation
- Built in Fan
- Optical Clear Dome Cover
- Different Pendant Available
- Environmentally Sealed and Weatherized for use in Temperatures to 50°C

HOUSING SELECTION D77H00-VT



ETHERNET BASED SECURITY SYSTEM ARCHITECTURE



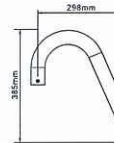
D750 SERIES ETHERNET VIDEO GATEWAY

- Dome Can be Controlled through Ethernet
- TCP/IP Enabled Ethernet Connection
- Allow Viewing Video through Any Browser
- Real Time Video Capturing
- Integrated Bi-Directional RS-232/RS-485 Communication
- Password Protection
- Pre-Alarm Recording



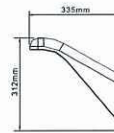
DIMENSION(mm)
131 (W) *34.5 (H) *104 (D)

PENDANT ACCESSORIES



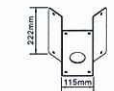
GOOSENECK TUBE

- MATERIAL: IRON TUBE
- WEIGHT: 2.1Kg



GOOSENECK PENDANT

- MATERIAL: ALUMINUM
- WEIGHT: 1.8Kg



CORNER PLATE

- MATERIAL: SPCC Painted Black
- WEIGHT: 1.9Kg



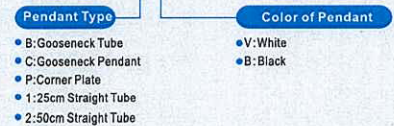
STRAIGHT TUBE 25 cm/50 cm

- MATERIAL: IRON TUBE
- WEIGHT: 1.2Kg

PLACEMENT EXAMPLE



PENDANT SELECTION D77H03 - B V



AXIS 241 Video Servers

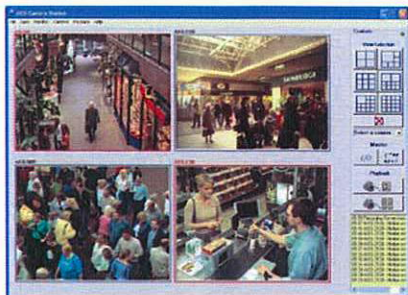
*Full-featured digital benefits
for analog surveillance systems*

AXIS 241 Video Servers from the market leader in network video, are designed to migrate your analog investments into high-performance IP solutions, ideal for surveillance and remote monitoring.

The AXIS 241 Video Servers accommodate one or four analog video streams depending on the model. System integration and network utilization are optimized with sophisticated functions such as built-in motion detection, SNMP and simultaneous Motion JPEG and MPEG-4 streams. Powerful event management tools include image upload, alarm notification and I/O control. Pan/tilt/zoom control is done over the serial port, enabling PTZ and dome camera handling over the network.

A complete set of security features, including multiple user access levels, HTTPS encryption and IP address filtering, ensure secure video handling and configuration.

AXIS 241QA/SA provide one audio stream in each direction, enabling users to not only see, but also listen in on an area and communicate requests or orders. In addition, they offer a de-interlace filter that improves image quality in the highest resolution (4CIF). This feature eliminates the motion blur problems caused by the analog PAL/NTSC video signal.



- High quality, de-interlaced* video at 30/25 frames per second per channel
- Simultaneous Motion JPEG and MPEG-4 streams in resolutions up to 768x576
- Video motion detection and pre/post-alarm buffer
- Support for PTZ and dome cameras
- HTTPS encryption for network security
- Integrated two-way audio support*

*AXIS 241 QA/SA

AXIS[®]
COMMUNICATIONS
Make your network smarter

AXIS 241 Video Servers



25187/EN/R2/0506

Specifications	
Models	AXIS 241QA: Four video channels, two-way audio AXIS 241Q ¹ : Four video channels AXIS 241 SA: One video channel, two-way audio AXIS 241S ¹ : One video channel <i>*Also available as Blade versions for Axis Video Rack Solution</i>
Video compression	Motion JPEG MPEG-4 Part 2 (ISO/IEC 14496-2), Profiles: ASP and SP
Resolutions	Resolutions 4CIF, 2CIFExp, 2CIF, CIF, QCIF max 704x480 (NTSC) 768x576 (PAL) min 160x120 (NTSC) 176x144 (PAL)
Frame rate	Motion JPEG: Up to 30/25 fps at 4CIF (1ch) 30/25 fps at CIF (4ch) MPEG-4: Up to 30/25 fps at 2CIF (1ch) 20/17 fps at CIF (4ch)
Video streaming	Simultaneous Motion JPEG and MPEG-4 Controllable frame rate and bandwidth Constant and variable bit rate (MPEG-4)
Image settings	Compression levels: 11 (Motion JPEG) /23 (MPEG-4) Rotation: 90°, 180°, 270° Aspect ratio correction Color: color, black & white Overlay capabilities: time, date, text or image De-interlace filter (AXIS 241QA/SA)
Audio (AXIS 241QA/SA)	G.711 PCM 64kbit/s, G.726 ADPCM 32 or 24 kbit/s, full duplex, half duplex, simplex or audio off
Security	Multiple user access levels with password protection, IP address filtering and HTTPS encryption
Alarm and event management	Events triggered by built-in motion detection, external inputs or according to a schedule Image upload over FTP, email and HTTP Notification over TCP, email, HTTP and external outputs Pre- and post alarm buffer of 9 MB per channel (approx. 4 min of CIF resolution video at 4 frames per second)
Pan/Tilt/Zoom	A wide range of PTZ and dome cameras is supported, free drivers available at www.axis.com PTZ control queuing capability
Connectors	Analog composite video, NTSC/PAL autosensing inputs: AXIS 241Q/OA: 4 BNC inputs AXIS 241S/SA: 1 BNC input and 1 BNC output: loopthrough or Y/C video input Ethernet 10BaseT/100BaseTX, RJ-45 Terminal block: 4 alarm inputs, 4 alarm outputs, RS-485/422 half duplex port, alternative power connection D-Sub for RS-232 port AXIS 241QA/SA: 3.5 mm jack for Mic in (max 54 mVpp) or Line in (max 8.0 Vpp, mono), 3.5 mm jack for Line out (max 2.6 Vpp, mono) to active speaker
Casing	Metal casing. Standalone, stackable or with brackets for wall or cage mount
Processors and memory	CPU: ETRAX 100LX 32bit Video processing and compression: ARTPEC-2 RAM: 64MB (241Q/OA), 32 MB (241S/SA) Flash: 8 MB
Power	7 - 20 V DC, max 8 W
Operating conditions	5 - 50 °C (41 - 122 °F) Humidity 20 - 80% RH (non-condensing)
Installation, management and maintenance	Installation tool on CD and web-based configuration Configuration backup and restore Firmware upgrades over HTTP or FTP, firmware available at www.axis.com
Video access from Web browser	Camera live view, sequence tour capability for up to 20 PTZ presets or other Axis video sources, customizable HTML pages
Minimum Web browsing requirements	Pentium III CPU 500 MHz or higher, or equivalent AMD 128 MB RAM AGP graphic card, Direct Draw, 32 MB RAM Windows XP, 2000, NT4.0*, ME* or 98*, DirectX 9.0 or later Internet Explorer 5.x or later For other operating systems and browsers see www.axis.com/techsup <i>*Motion JPEG only</i>
System integration support	Powerful API for software integration available at www.axis.com , including HTTP API, AXIS Media Control SDK, event trigger data in video stream, embedded scripting and access to serial port peripherals over HTTP/TCP. Watchdog secures continuous operation, can be monitored by other systems via event notification. Embedded operating system: Linux 2.4
Supported protocols	HTTP, HTTPS, SSL/TLS*, TCP, SNMPv1/v2cv/v3 (MIB-II) ¹ , RTSP, RTP, UDP, IGMP, RTPC, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS. More information on protocol usage available at www.axis.com <i>*This product includes software developed by the Open SSL Project for use in the Open SSL Toolkit.</i>
Applications (not included)	AXIS Camera Station - Surveillance application for viewing, recording and archiving up to 25 cameras AXIS Camera Recorder - Surveillance application for viewing and recording up to 16 cameras AXIS Camera Explorer - Basic software for viewing and manual recording See www.axis.com/partner/adp_partners.htm for more software applications via partners
Included Accessories	Power supply 9 V DC, mounting brackets, connector kit, Installation Guide, CD with installation tool, software and User's Manual, MPEG-4 licenses (1 encoder, 1 decoder), MPEG-4 decoder (Windows)
Accessories (not included)	Cable adapter Y/C to BNC (AXIS 241SA/AXIS 241S) AXIS 292 Network Video Decoder AXIS MPEG-4 Decoder 10 user license pack Power over Ethernet splitters and midspans IEEE 802.11g wireless bridge and access point
Approvals	EMC: EN55024: 1998+A1, EN55022:1998 ClassB EN61000-3-2:2000, EN61000-3-3:1995+A1, FCC Part 15 Subpart B Class B, VCCI: 2003 Class B ITE, C-tick AS/NZS 3548 and ICES-003 Class B by compliance with EN 550022:1998 Class B Safety: UL and CSA (Power supply), EN60950
Dimensions (HxWxD) and weight	42 x 140 x 155 mm (1 ¹¹ / ₁₆ " x 3 ⁸ / ₁₆ " x 7 ² / ₁₆ ") 540 g (1.2 lbs) excl. power supply

1) SNMP support available for AXIS 241S/Q in a coming upgrade



AXIS 241SA



AXIS 241QA



AXIS 241S



AXIS 241Q



AXIS 241Q/S are also available as blade versions for Axis Rack Solution. 12 blade slots allow for centralized video server management.

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APPENDIX C - Job Reference

<u>Client</u>	<u>Project</u>	<u>Technologies</u>
Alpine Silk	E-Commerce Website	PHP, Database, HTML
Arietti & Partners	Corporate Website	Flash, PHP, Database, HTML
Chez Patrick	Resturant Website	HTML, Banner Ads
Clearwater International	Corporate Website	Flash, HTML
DNTA	Corporate Website	Flash, PHP, HTML
Ekcito	E-Commerce Website	Flash, PHP, Database, HTML, Banner Ads
Empire International Tailors	E-Commerce Website	PHP, Database
European Motors	Corporate Website	Flash, CGI
Financial Times	Online Marketing	Banner Ads, Email Broadcast, Flash Animation
Gmtee	E-Commerce Website	PHP, Database, HTML
HKFineArt	E-Commerce Website	PHP, Database, HTML
Hong Kong Finance Holdings	Corporate Website	HTML
ItzKitz Ltd.	E-Commerce Website	PHP, Database
Kwiksure.com	Corporate Website	PHP, HTML
LKE Power	Corporate Website	PHP, HTML, Content Management System
Lotus Challenge Asia	Information Website	HTML
Macau.com	Information Website	Flash, PHP, Database, HTML, Banner Ads
Make Ripples	E-Commerce Website	PHP, Database, HTML
OverStockArt	E-Commerce Website	PHP, Database
Product Works	Corporate Website	Flash, PHP, Database, HTML
Sutherland-Chan Centre	Corporate Website	PHP, HTML
Tailored Shirts	E-Commerce Website	PHP, Database, HTML
Team Building Asia	Corporate Website	PHP, Database, HTML
The Laurus Group	Corporate Website	HTML
TL Force Contracting Co., Ltd.	Portfolio Website	PHP, HTML
TradingPost	Corporate Website	PHP, Database
UBS	Multimedia Production	Flash Animation, Multimedia Presentation
UBS Hong Kong Open	Information Website	Flash, PHP, Database, HTML
Win Lose Draw	Gaming Website	PHP, Database, HTML, Banner Ads