HD-CCTV Products & Solutions

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HD-CCTV Products & Solutions

Premium to your security

HD-CCTV / WEBGATE / PREMIUM TO YOUR HD-CCTV / WEBGATE / PREMIUM TO YOUR HD-CCTV / WEBGAT
VR / WEBGATE / PREMIUM TO YOUR H.264 DVR / WEBGATE / PREMIUM TO YOUR H.264 DVR / PREMIUM
/ WEBGATE / PREMIUM TO YOUR HD IP/NVR / WEBGATE / PREMIUM TO YOUR HD IP/NVR / WEBGATE / P
MS / WEBGATE / PREMIUM TO YOUR CMS / WEBGATE / PREMIUM TO YOUR CMS / WEBGATE / PREMIUM

WEBGATE

WEBGATE

/ PREMIUM TO YOUR HD-CCTV / WEB
PREMIUM TO YOUR H.264 DVR / WE
EMIUM TO YOUR HD IP/NVR / WEBGA
PREMIUM TO YOUR CMS / WEBGATE

WEBGATE HD-CCTV SOLUTION PROVIDER

Enjoy the Genuine HD Security
with WEBGATE HD-CCTV Solution.

Established in 1997, the Webgate division of Daemyung Enterprise Co., Ltd has been running continuously to keep the promise of providing the most innovative products with safety and security in mind.
The core philosophy is what allows Webgate to be the leading brand now, while ushering in the future of HD Security.
WEBGATE Video Surveillance products are second to none being the first in the world to recieve several certifications from HDcctv Alliance.
With proven outstanding performance in an ever evolving technological world, we will always uphold the promise to satisfy the changing needs and bring you the first, and the best.

Philosophy, Vision, & Mission

WEBGATE Philosophy : We value the manifestation of future trends.
Based on this, Webgate is the leading company in the world of HD Video surveillance market and continuing to serve the most convenient and secure product line humanity has ever known.
Welcome to a new... World of Webgate

History of WEBGATE

1998. 3 VCU — Development of Image processing system of UAV(Unmanned Aerial Vehicle) for the Korean Army

1999. 5 WebEye-E10 — Development of WebEye series, the world's first Wavelet base multi streaming IP camera

2000. 1 i-Rec C104 — Development of i-Rec C104, the world's first DVR integrating camera

2001. 1 M360, DVrS — Development of DVrS, the world's first 108ch NVR solution

2002. 2 WebEye-MC10 — The world's first 3GPP real-time MPEG-4 streaming camera

2003. 5 DS412 — Introduction of DS412, the world's first Hybrid DVR (Analog 4ch + IP 12ch) using WEBGATE own differential Wavelet image processing

2003.10 DS1600Q — Introduction of DS1600Q–16ch Wavelet DVR using WEBGATE own differential Wavelet image processing

2005. 5 Control Center — Introduction of Control Center–CMS (Central Management Software) supporting 1024 unit registration and 6 monitors and virtual matrix etc.

2007. 3 B101M — Introduction of MPEG-4 IP products supporting 8 multi streams

2007. 9 MD1600H — Introduction of MD1600H – the world's first 16ch D1 real-time Stand-alone DVR

2007.10 MD3200M — Introduction of MD3200M – the world's first 32ch 2CIF real-time Stand-alone DVR

2008.10 NVS04S — Introduction of NVS04S – the world's first 16ch Mega-Pixel Stand-alone type NVR

2010.11 C720B — 720p HD-SDI camera, The world's first certified by HDcctv Alliance.

2010.11 RP102 — HD-SDI repeater, The world's first certified by HDcctv Alliance

2011. 2 C1080B — 1080p HD-SDI camera, The world's first certified by HDcctv Alliance

2011. 3 HD400H — 4ch Full-HD DVR, The world's first certified by HDcctv Alliance

2011. 7 HD800H — 8ch Full-HD DVR, The world's first certified by HDcctv Alliance

2011. 7 HD400ME — 4ch Full-HD DVR, The world's first certified by HDcctv Alliance

2012. 5 HD2SD — HD-SDI to SD convertor, The world's first certified by HDcctv Alliance

2012. 5 SDI2HDMI — HD-SDI to HDMI convertor, The world's first certified by HDcctv Alliance

2012. 5 HD1600M — Full-HD DVR, The world's first certified by HDcctv Alliance

Intellectual Property

1999.10 10Method of image processing for monitoring camera

2000. 3 Method and network expression system of embedded device

2003. 3 Method and multi channels support device of digital Image system

2003. 8 2D Wavelet conversion device

2007. 12 Internet Protocol-based surveillance system, using the Internet Protocol address assigned, and the way of network camera operation

2010. 6 Method of hard disk driver mount

2010. 6 IR LED control and IR LED camera

2012. 7 Using SDI Compressed video transferring system and the way

Under application

SNS Relay Service for Embeded device

Effective management method for memory allocation and cancellation

PRODUCT **LINEUP**

HD-CCTV **DVR**

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Model		OS / Codec	Channel	Display / Resolution	Recording / Resolution	Audio In/Out	Monitor Out	HDD / ODD	External Storage	USB	Page
	HD1600M	Linux / H.264	16ch	480/400fps@1080p	120/100fps@1080p 240/200fps@720p	4 / 1	HDMI, VGA	4 / 1	Max. 16TB(eSATA) Max. 64TB(NVS04R)	2	21p
	HD800H		8ch	240/200fps@1080p	120/100fps@1080p 240/200fps@720p	4 / 1	HDMI, VGA	4 / 1	Max. 16TB(eSATA) Max. 64TB(NVS04R)	2	23p
	HD400H		4ch	120/100fps@1080p	60/50fps@1080p 120/100fps@720p	4 / 1	HDMI, VGA	4 / 1	Max. 16TB(eSATA) Max. 64TB(NVS04R)	2	25p
	HDC400M		4ch	120/100fps@1080p	30/25fps@1080p 60/50fps@720p	4 / 1	HDMI	1 / 0	Max. 16TB(eSATA)	2	27p

HD-CCTV **Storage**

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Model		Max Capacity	HDD Bay	RAID	Host I/F	Power Supply	Page
	NVS04R	64TB	4	Mirroring	Giga Ethernet	220W power w/PFC	31p
	ES0104	16TB	4	0, 1, 0+1, 3, 5 and JBOD	eSATA	220W power w/PFC	33p
	ES0212	16TB	12	0, 1, 10(1E), 3, 5, 6 and JBOD	eSATA	400Wx2 redundant power w/PFC	35p

HD-CCTV **Camera**

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Model		Chip set	Resolution	Lens	LEDs	Function	Auto Focus	IP66	Power	page
	C1080PT-Z20	1/3" 2.1M CMOS	35/25fps@1080p 60/50fps@720p	X20, Optical ZOOM	-	3DNR/WDR/BLC, TDN OSD(RS485)	-	O	AC 24V	49p
	C1080B		35/25fps@1080p 60/50fps@720p (Clipping)	-	-	3DNR/WDR/BLC, TDN Upgrade Firmware/OSD(RS485)	-	-	DC 12V	51p
	C1080BM			-	-		-	-	DC 12V	51p
	C1080D			2.8~10mm, F1.2	-		-	-	AC 24V / DC 12V	53p
	C1080D-IR				24		-	-	AC 24V / DC 12V	55p
	C1080D-AF				-		O	-	AC 24V / DC 12V	57p
	C1080D-IR-AF				24		O	-	AC 24V / DC 12V	59p
	C1080VD				-			O	AC 24V / DC 12V	53p
	C1080VD-IR				24			O	AC 24V / DC 12V	55p
	C1080VD-AF				-		O	O	AC 24V / DC 12V	57p
	C1080VD-IR-AF				24		O	O	AC 24V / DC 12V	59p
	C1080BL-IR18-AF				18		O	O	AC 24V / DC 12V	61p
	C1080BL-IR48-AF				48		O	O	AC 24V / DC 12V	61p

HD-CCTV **Converter & Etc**

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Model		Feature	Page
	RP102	1ch HD-SDI to 2ch HD-SDI Repeater	67p
	SDI2HDMI	1ch HD-SDI to 1ch HDMI Converter	67p
	HDMI2SDI	1ch HDMI to 1ch HD-SDI Converter	67p
	SD2HD	6ch CVBS to 1ch HD-SDI Converter	69p
	HD2SD	1ch HD-SDI to 1ch CVBS Converter	69p
	OPT-SDI-TX1/RX1	HD-SDI Optic Converter	71p
	OPT-SDI-TX1S/RX1S	RS485 HD-SDI Optic Converter	71p
	WKC-100	Remote Control Keyboard	71p

HD **IP / NVR**

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Model		Feature	Page
	B101M	1ch video server with MPEG-4	75p
	D101M	1ch video decoder with MPEG-4	77p
	HDC730C	1/3" 1.3M CMOS, 1280x720(720p 30fps), PoE, , MPEG 4	79p
	SPD350M	1/4" Optical 35x CCD, D1x30(25)fps, MPEG 4	81p
	NVS04S	16ch Network Video Recorder with 4 hot-swap SATA HDD	83p

H.264 Stand Alone **DVR**

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Model		OS / Codec	Channel	Display	Recording / Resolution	Audio In/Out	Monitor Out	HDD / ODD	External Storage	USB	Page
	MH3200M	Linux / H.264	32ch	960fps	960/900fps@2CIF	16 / 1	4 BNC + 2 DVI	4 / 1	Max. 8TB(eSATA) Max. 32TB(NVS04R)	2	87p
	MH1600H	Linux / H.264	16ch	480fps	480/400fps@D1	16 / 1	4 BNC + 2 DVI	4 / 1	Max. 8TB(eSATA) Max. 32TB(NVS04R)	2	89p
	MH1600M	Linux / H.264	16ch	480fps	480/400fps@2CIF	4 / 1	2 BNC + 1 DVI	4 / 1	Max. 8TB(eSATA) Max. 32TB(NVS04R)	2	91p
	EH1600L	Linux / H.264	16ch	480fps	480/400fps@CIF	4 / 1	2 BNC + 1 DVI	2 / 1	Max. 8TB(eSATA)	2	93p
	EH800M	Linux / H.264	8ch	240fps	240/200fps@2CIF	4 / 1	2 BNC + 1 DVI	2 / 1	Max. 8TB(eSATA)	2	95p
	EH400H	Linux / H.264	4ch	120fps	120/100fps@D1	4 / 1	2 BNC + 1 DVI	2 / 1	Max. 8TB(eSATA)	2	97p
	LH1600C	Linux / H.264	16ch	480fps	480/400fps@CIF	4 / 1	2 BNC + 1 VGA	2 / 0	-	2	99p
	LH800L	Linux / H.264	8ch	240fps	240/200fps@2CIF	4 / 1	2 BNC + 1 VGA	2 / 0	-	2	101p

SW Solution

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Model	Units	Decoding Performance	Monitor	Virtual Matrix	e-Map	Rule-based auto-action	Action log	External Controller	Page
Control Center Standard	1024	12 HD	2	No	Yes	No	No	USB joystick, Jog / Shuttle	117p
Control Center Pro	1024	12 HD	6	No	Sub-map	Yes	Yes	USB joystick, Jog / Shuttle, WKC-100	117p
Control Center Enterprise	1024	12 HD	4 + 50	Yes	Sub-map	Yes	Yes	USB joystick, Jog / Shuttle, WKC-100	117p
WinRDS	Streaming Solution, 512ch, 512Mbps input, 512Mbps output, 100 user account								119p
Webeye	Mobile App for iOS and Android, 16 units, 4division live & ptz, HD resolution, alarm and system event								121p

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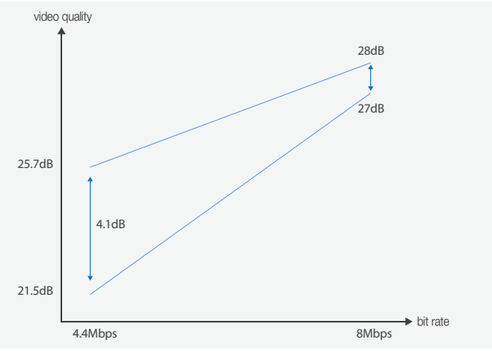
Full HD Video Recorder
H.264
Multi-Streaming
Broadcast quality

Distinguishing video quality by the CODEC used for broadcasting. And multi-streaming along with the best video, provides remote monitoring through network.

HD-CCTV DVR

HD-CCTV DVR **Features**

Broadcast quality using High Fidelity Video Codec



The HD DVR Series adopted a high-performance video codec which is used for broadcasting to show excellent video quality. Since this codec is using a toolset which requires a high level H.264 compression technology, our HD DVR series shows better quality than any competitors'.
The following graph shows the superiority of Webgate's video quality by 1dB ~4.1dB over 4.4Mbps ~ 8Mbps.

Webgate's video image

Competitor's video image

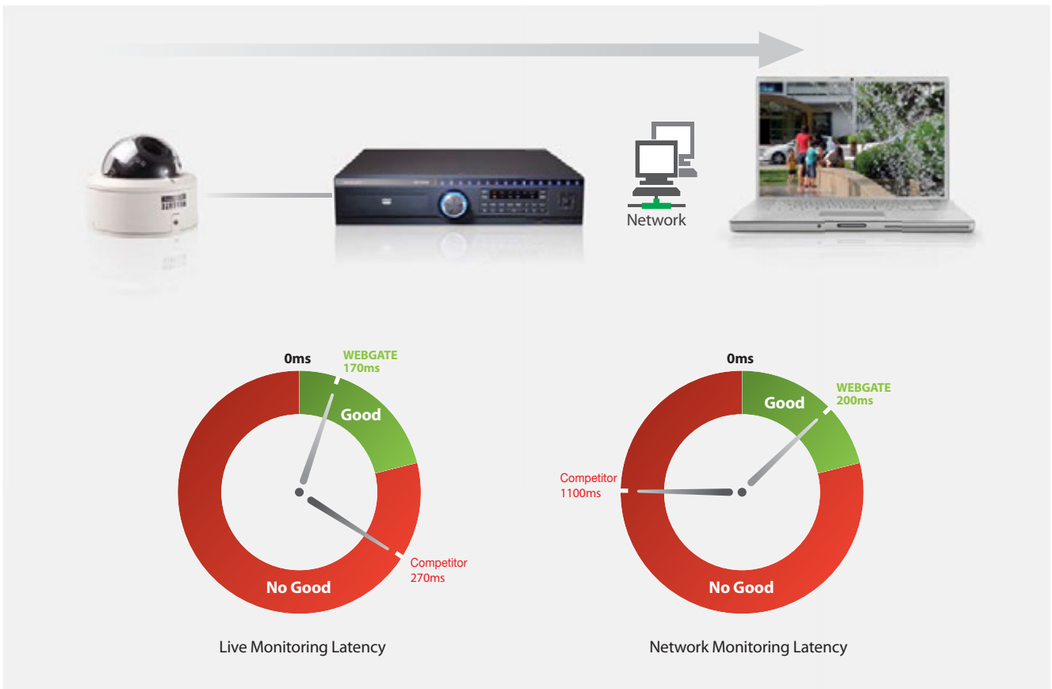
Multi-Streaming Technology

All of Webgate's products support multi-streaming, satisfies various network requests like high-quality monitoring, low bandwidth consumption, and mobile monitoring.
The HD DVR series provide 3 video streams. Two H.264 video streams of HD and SD, and one JPEG SD stream. The user can easily change the second SD stream's resolution, quality, and framerate regardless of recording settings. The user can obtain high-quality HD video images, distribute several streams, or can check video images through twitter, mobile phone, ftp, e-mail, and so on.
All these actions are automatically performed during the communication between DVR and CMS. Users don't need to worry about what type of stream he/she usees, and won't need to turn off the other DVR functions to use these multiple streams.

HD-CCTV DVR **Features**

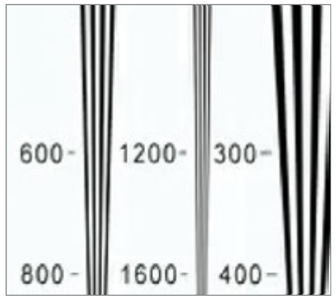
Rapid network response using SLL(Super Low Latency) technology

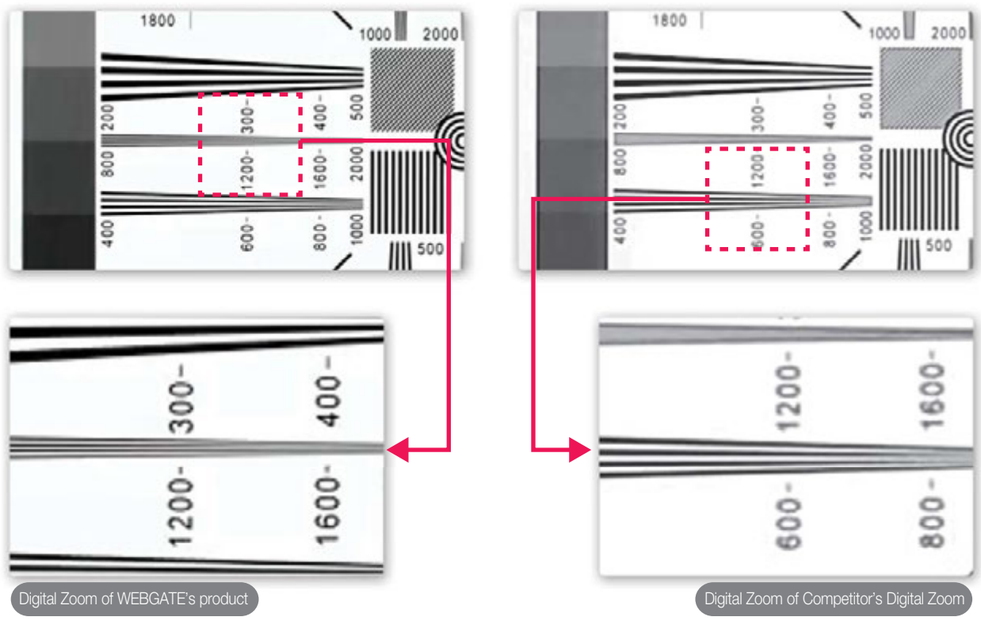
The HD DVR's video codec starts its compression before an image has fully filled up the memory, and finishes its compression as soon as the image is completely filled up the memory. This technology is called SSL and because of this, the HD DVR shows close to 0 video delay even though the video is transmitted through a network. This network delay is less than competitor's HDMI video delay of 270ms.



WISE Display Engine

Webgate's HD DVR series adopted the in-house WISE Display Engine. It supports clear and natural video image at single/ 4-split/ 9-split/ 16-split display screen. Through this technology, the HD DVR provides excellent horizontal resolution of 1200TV lines.





Self-developed WISE Display Engine provides the best video quality both at multi-screen display and Digital-zoom condition.

HD-CCTV DVR **Features**

High Performance, High Reliability Video File System (VFS)

Webgate's VFS is a specialized DVR file system that minimizes the hard disk drive header's movement. It also always saves data into consecutive sectors. By using VFS, the DVR can maximize HDD's performance and could improve reliability and life-cycle of HDD.

IPFR(Intelligent Power Failure Recovery) Technology

The SMPS is specially designed to protect circuit control so data on the HDD will not be destroyed during a sudden power failure. In some cases where data is lost, the IPFR minimizes this loss within the last single frame instead of the entire block.

Diverse bad block management

If any trouble occurs inside the HDD, the HDD will mark the relevant block to prevent further access. If there are too many defects to record, the DVR will hand over recording to the next HDD. The DVR shows the total quanitity of bad blocks which were found both from the DVR and reported by the S.M.A.R.T function. The user may then perform data backups before the HDD completely fails. If any trouble occurs, the DVR will send notification by e-mail, relay, popup windows, and other methods.

Mirroring

When saving data into two HDDs at the same time, if one HDD fails, the user can still recover recorded data from the other HDD. Since banks and casinos require strict regulations against losing data, mirroring technology is mainly used.

Mass strage

Aside from the default communication network port, the HD DVR provides additional Gigabit Ethernet ports. WEBGATE's storage(NVS04R) can expand the DVR's HDD capacity up to 64TB using this port. The NVS04R has two network ports that can be cascaded up to 8 units without an additional hub network device. If the Mirroring function is in use, two 64TB storages are used to save the same video data. Additionally, external eSATA storage which may have RAID technology can be connected to HD DVR's eSATAport, and this can expand the DVR storage up to 16TB.

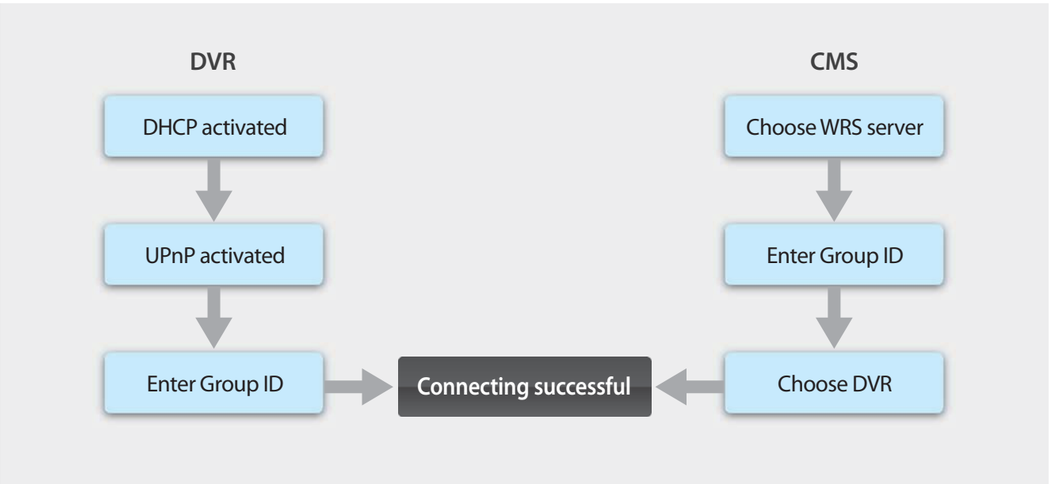
At-the-PC Playback

The HDD within the DVR can be accessed directly from a PC. The HDD can connect to a PC through USB or eSATA.
Windows cannot support the HDD's read/write directly, however through the CMS software, the operator can do all the necessary work such as Playback, Search, and Backup. When the DVR is broken, the user can play recorded data and create backups using CMS. Since all these processes only need to be able to read, the HDD will not show any trouble after being re-installed to the DVR.
When a full HDD backup is necessary, the above method provided is a simple solution.

HD-CCTV DVR **Features**

Simple Plug & Play Network Installation

By enabling UPnP protocol and WRS service, operator can connect to a DVR which has a dynamic IP through the network without router configuration.



Auto port forward using UPnP

If a DVR shares the port number to the router by UPnP protocols, the router can deliver the connection request from an external source to the DVR automatically. Users don't need to configure the router.

WRS(WEBGATE Registration Service)

WRS is a network service that manages the DVR which has both a public and dynamic IP. If the operator inputs a group ID in the DVR menu, the group ID is registered to Webgate's WRS server. Since the CMS shows the DVR list under the same group ID by communication between CMS and WRS, users can easily connect to the desired DVR. There is no need of membership registration, or remembering of MAC address or S/N.

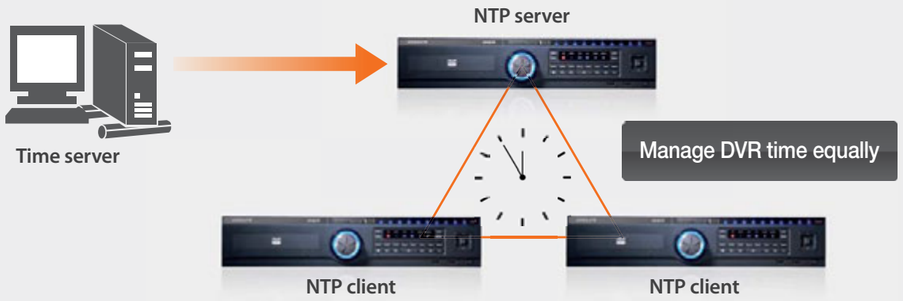
Frame by Frame step reverse

Due to the high performance codec and WISE display engine, the DVR can provide forward and reverse step playback by frame. In cases of racetracks and casinos, all frames are valuable. When the user wants to find any single frame, it will be very effective.

Advanced Lightning Protection

WEBGATE's lightning protection meets the requirements of the international surge standard IEC 61000-4-5's level 5, and can protect 8KV/500A.The DVRs are built with advanced protection from lightning as a precaution to minimize damage from electrical storms. The HD-SDI product line of high-frequency signals, RS-485 communication lines have the advanced surge protection circuit. This also includes protection for the sensor/relay as well.

HD-CCTV DVR **Features**



Time Synchronized DVR Network

The DVR can get time information from the NTP and be configured to work as an NTP server itself. This will allow one DVR to get the time information from the NTP server, and distribute the acquired information to other DVRs on the local network at the same time. This way there will be no time difference within each DVR.
In the case that a DVR is not connected to a network, the DVR's temperaturecompensated real-time clock guarantees less than 0.1 second error in one day.

Interface with POS/ATM

WEBGATE DVR can interface with the VSI product lines that contain 300 types of POS/ATM protocols within.
Through the family of VSI products, the DVR can record text data, provide search, and playback. By connecting multiple VSI products, the DVR can recieve text data from several POS devices and can connect the text data to the desired video channel. The DVR records video and text data separately, and can overlay the text data on video when necessary. The CMS also supports text search.

Status notification by SNS (Social Network Service)

By connecting the DVR with twitter, a user can easily check or be notified of status and alarm events anytime and anywhere. While conventional e-mail notification can support only 1 person, the SNS can support many people at the same time. An operator can set permissions to allow who may recieve notifications.

Multi platform support by Java viewer

Webgate's DVRs are embedded with Java Viewer which support connections from different operating systems such as Mac and linux. Users can access PTZ control, video monitoring, event/alarm through browsers such as IE, Chrome, Safari, and FireFox.

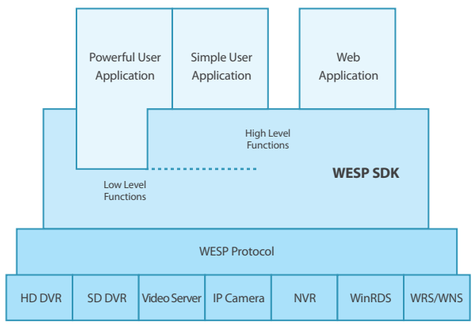
HD-CCTV DVR **Features**

Centralized Password Management

The Webgate DVRs contain radius protocols in which a server can change every DVRs' password at once.
This function is instrumental when needs of security policies require periodic password changes in establishments such as banks and other secure facilities.

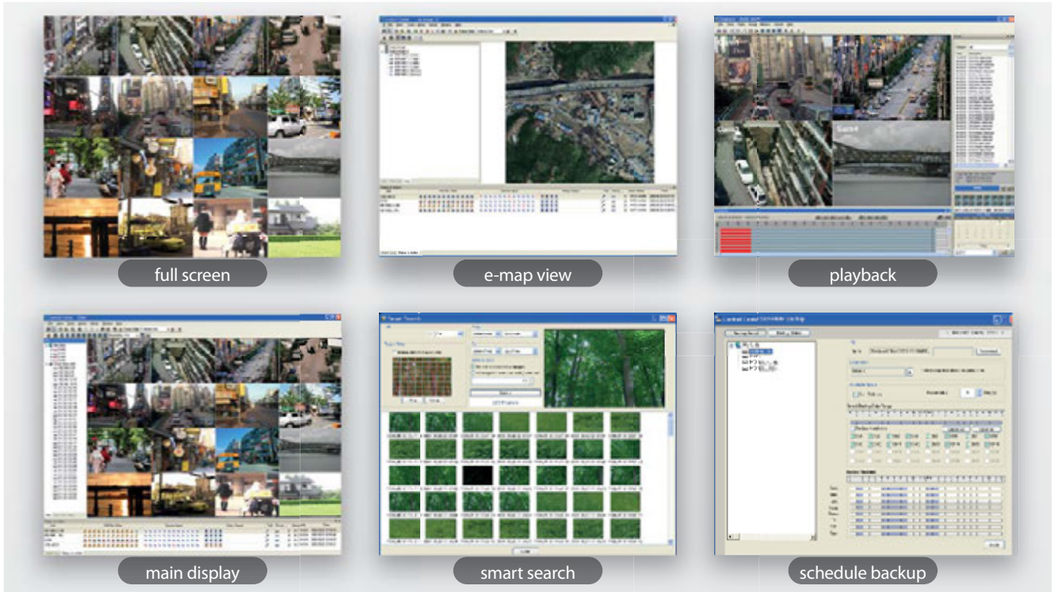
Flexible and powerful WESP SDK

Due to the flexibility and interoperability of the WESP(Webgate Embedded Standard Protocol) SDK, it supports all functions of equipment so that a user can easily develope their own applications.
This SDK supports a broad range of equipment from low to high levels such as video data receiving and playback with caption display. The user can develop programs based on their coding capabilities.
Since all of Webgates' products conform to the WESP protocol, if a user creates a program, that same application can be used with other Webgate products.
The WESP SDK was developed based on Microsoft COM technology, and it supports various programming languages (VB, VC++, VB Script, Java Script, .NET). Web developers who are familiar Java Script can create their own customized applications to fit their needs. The Webgate Embedded Standard Protocol Software Development Kit is constructed to empower the user to secure, adapt, and overcome virtually any environment the way the user sees fit.



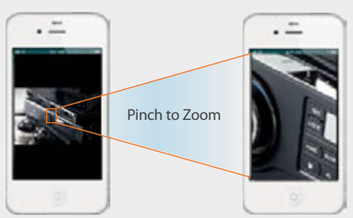
Powerful CMS : Control Center Standard/ Pro/ Enterprise

Control Center Standard is provided as a bundled software for the DVR. It can manage a maximum of 1024 DVRs, 2monitors, and provides View Set, user-specific authority settings. It also provides real time even status, and all the other necessary functions. Diverse search methods are also included such as Time, Calendar, Event, Thumbnail, and text based search to help the operator play back recorded video data with ease.
The Control Center Pro includes all functions of the standard version, but also provides functions which are necessary for for a large scale central control system. it supports a maximum of 6 monitors, provides rule-based actions which the operator can define a series of actions. The DVR can also record the operator's CMS control history.
The Enterprise version provides a Virtual Matrix System. One server PC can control a maximum of 50 client PCs' CMS. This allows large scale of systems to be constructed without using the HD-SDI matrix device.



Mobile Viewer : WebEye

WebEye is a mobile application for DVR that supports iOS and Android. An operator can register DVRs, monitor video, and control PTZs. Its system log informs any malfunctions that may occur such as power failures, HDD trouble, and shows event logs with an alarm history.
It can support full-frame video display, connect a HD DVR, and provide HD video. The user can also take advantage of the Digital Zoom Function directly on their smart phone with touch screen pinch zoom capabilities.



[HD video check using D-Zoom in iPhone viewer]

HD-CCTV **DVR**

HD1600M Full HD Digital Video Recorder

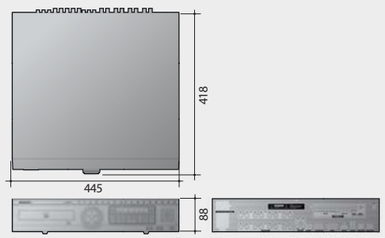
Key Features

- 16CH HD-SDI Stand-Alone DVR
- The World's First HDcctv Certified 16CH DVR
- 100/120fps Recording at 1080p, 200/240fps at 720p
- Adjustable Recording Quality/Speed Setup per Each Channel
- Support High Resolution Over 1200TV Line in Live/Playback
- Support Dual Codec(H.264,JPEG) / Multi Stream(Full HD/HD/D1/CIF)
- Support 1920x1080 Resolution via HDMI and VGA Port
- Built-in Multiplexer for 16CH Live Monitoring and Playback (1/4/9/16 Mode)
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support Max. 64TB(NVS04R Connection via Giga Ethernet) or Max 16TB(e-SATA)
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- At-the-PC Playback of Removed DVR HDD
- Lightning Protection on HD-SDI, RS-485, DIO ports
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Full SDK available for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(720p, 1280x720) : 25/50, 30/60, 29.97/59.54 fps SMPTE 296M(1080p, 1920x1080) : 25, 30, 29.97 fps (Input format auto detection)
Connectors	16ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI / VGA 1, 4, 9, 16 mode User defined sequence / alarm pop-up 1920x1080p at HDMI / VGA port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920*1080, 1280*720
Rate	120fps/100fps at 1080p 240fps/200fps at 720p
Quality	720p 5 levels , 1080p 7 levels
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	60fps/50fps at 1080p 120fps/100fps at 720p
Search type	Time, calender, event, thumbnail
Block playback	24hours ~ 31days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, text
Event check schedule	24hrs / 7days
Event action	Buzzer, relay, e-mail, twitter, FTP, alarm pop-up
MD area	22x15
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	4ch input / 1ch output
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD H.264 same as recording 1 additional H.264 smaller than recording 1 JPEG for e-mail sending or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for network storage (NVS04R)
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 16TB with SATA, Max 64TB with cascaded NVS04R
Backup type	Multi-channel or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Adroid supported
CMS	Control center standard, max 1000 clients
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5℃ ~ 45℃ (41℉ ~ 113℉)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 100W Typical 70W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD800H Full HD Digital Video Recorder

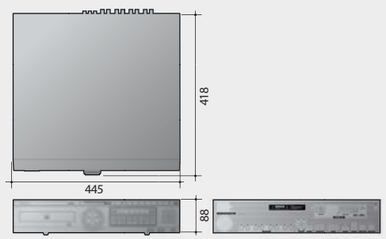
Key Features

- 8CH HD-SDI Stand-Alone DVR
- The World's First HDcctv Certified 8CH DVR
- 100/120fps Recording at 1080p, 200/240fps at 720p
- Both 1080p/720p Resolution and Adjustable Recording Quality/ Speed Setup per Each Channel
- Support High Resolution Over 1200TV Line in Live/Playback
- Support Dual Codec(H.264,JPEG) / Multi Stream(Full HD/HD/D1/CIF)
- Support 1920x1080 Resolution via HDMI and VGA Port
- Built-in Multiplexer for 8CH Live Monitoring and Playback (1/4/8 Mode)
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support Max. 64TB(NVS04R Connection via Giga Ethernet) or Max 16TB(e-SATA)
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- At-the-PC Playback of Removed DVR HDD
- linghtning Protection on HD-SDI, RS-485, DIO ports
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Full SDK available for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(720p, 1280x720) : 25/50, 30/60, 29.97/59.54 fps SMPTE 296M(1080p, 1920x1080) : 25, 30, 29.97 fps (Input format auto detection), 720p&1080p can be mixed
Connectors	8ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI / VGA 1, 4, 9 mode User defined sequence / alarm pop-up 1920x1080p at HDMI / VGA port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920*1080, 1280*720
Rate	120fps/100fps at 1080p 240fps/200fps at 720p
Quality	720p 5 levels , 1080p 7 levels
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	60fps/50fps at 1080p 120fps/100fps at 720p
Search type	Time, Calender, Event, Thumbnail
Block playback	24hours ~ 31days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, text
Event check schedule	24hrs / 7days
Event action	Buzzer, relay, e-mail, twitter, FTP, alarm pop-up
MD area	22x15
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	4ch input / 1ch output
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD H.264 same as recording 1 additional H.264 smaller than recording 1 JPEG for e-mail sending or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for network storage (NVS04R)
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 16TB with SATA, Max 64TB with cascaded NVS04R
Backup type	Multi-channel or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	8 dry-contact
Relay output	4 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1000 clients
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	9.5 Kg (No HDD)
Operating temperature	5℃ ~ 45℃ (41℉ ~ 113℉)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 95W Typical 65W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD400H Full HD Digital Video Recorder

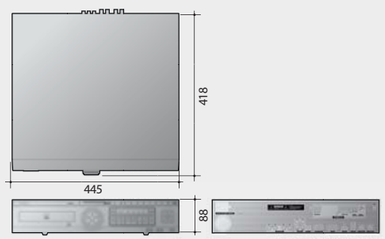
Key Features

- 4CH HD-SDI Stand-Alone DVR
- The World's First HDcctv Certified 4CH DVR
- 50/60fps Recording at 1080p, 100/120fps at 720p
- Both 1080p/720p Resolution and Adjustable Recording Quality/ Speed Setup per Each Channel
- Support High Resolution Over 1200TV Line in Live/Playback
- Support Dual Codec(H.264,JPEG) / Multi Stream(Full HD/HD/D1/CIF)
- Support 1920x1080 Resolution via HDMI and VGA Port
- Built-in Multiplexer for 4CH Live Monitoring and Playback (1/4 Mode)
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support Max. 64TB(NVS04R Connection via Giga Ethernet) or Max 16TB(e-SATA)
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- At-the-PC Playback of Removed DVR HDD
- linghtning Protection on HD-SDI, RS-485, DIO ports
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Full SDK available for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(720p, 1280x720) : 25/50, 30/60, 29.97/59.54 fps SMPTE 296M(1080p, 1920x1080) : 25, 30, 29.97 fps Input format auto detection, 720p&1080p can be mixed
Connectors	4ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI / VGA 1, 4 mode User defined sequence / alarm pop-up 1920x1080p at HDMI / VGA port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920*1080, 1280*720
Rate	60fps/50fps at 1080p 120fps/100fps at 720p
Quality	720p 5 levels , 1080p 7 levels
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	60fps/50fps at 1080p 120fps/100fps at 720p
Search type	Time, Calender, Event, Thumbnail
Block playback	24hours ~ 31days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, text
Event check schedule	24hrs / 7days
Event action	Buzzer, relay, e-mail, twitter, FTP, alarm pop-up
MD area	22x15
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	4ch input / 1ch output
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD H.264 same as recording 1 additional H.264 smaller than recording 1 JPEG for e-mail sending or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for network storage (NVS04R)
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 16TB with SATA, Max 64TB with cascaded NVS04R
Backup type	Multi-channel or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	4 dry-contact
Relay output	4 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1000 clients
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	9.5 Kg (No HDD)
Operating temperature	5℃ ~ 45℃ (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HDC400M Full HD Digital Video Recorder

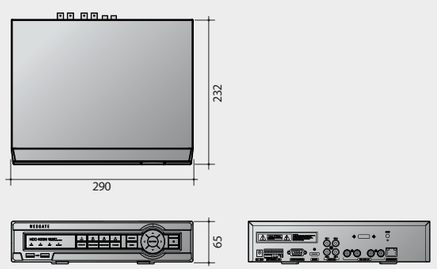
Key Features

- 4CH HD-SDI Stand-Alone DVR
- Certified by HDcctv
- 25/30fps Recording at 1080p, 50/60fps at 720p
- Adjustable Recording Quality/Speed Setup per Each Channel
- Support High Resolution Over 1200TV Line in Live/Playback
- Support Multi Stream(HD, HD/4, HD/16)
- Support 1920x1080 Resolution via HDMI Port
- Built-in Multiplexer for 4CH Live Monitoring and Playback (1/4 Mode)
- Support IPFR (Intelligent Power Failure Recovery) File System
- 1 Internal SATA Type HDD and Additional 16TB via eSATA Port
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- At-the-PC Playback of Removed DVR HDD
- Lightning Protection on HD-SDI, RS-485, DIO ports
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Full SDK available for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(720p, 1280x720) : 25/50, 30/60, 29.97/59.54 fps SMPTE 296M(1080p, 1920x1080) : 25, 30, 29.97 fps Input format auto detection, 720p&1080p can not be mixed
Connectors	4ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI 1, 4 mode User defined sequence / alarm pop-up 1920x1080p at HDMI port
RECORDING	
Compression	H.264
Resolution	1920*1080, 1280*720
Rate	30fps/25fps at 1080p 60fps/50fps at 720p
Quality	720p 5 levels , 1080p 7 levels
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	30fps/25fps at 1080p 60fps/50fps at 720p
Search type	Time, Calender, Event, Thumbnail
Block playback	24hours ~ 31days
EVENT & ALARM	
Event source	MD, Sensor, Text
Event check schedule	24hrs / 7days
Event action	Buzzer, relay, e-mail, twitter, FTP, alarm pop-up
MD area	22x15
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	input 4ch RCA / output HDMI
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100/1000 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD H.264 same as recording 1 additional H.264 smaller than recording
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	1 internal SATA HDD, 1 external eSATA I/F
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 16TB
Backup type	Multi-channel or single channel avi file
Backup device	USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 1 RS-485
Sensor input	4 dry-contact
Relay output	2 relay
CONTROLLER	
Device	Front panel, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Adroid supported
CMS	Control center standard, max 1000 clients
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	290(W) x 230(D) x 68(H) mm
Weight	2.5 Kg (No HDD)
Operating temperature	5℃ ~ 45℃ (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 30W Typical 20W
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV

Storage

Cascading up to **8 units**
Max. Capacity of 64TB

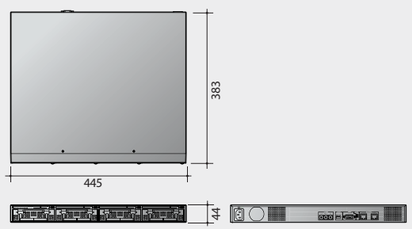
Connection by **Gigabit Ethernet**
Supports **Mirroring**

NVS04R HD-CCTV Storage

Key Features

- Extended Storage Device for DVR
- Support MH & HD DVR Series of Webgate
- Extended Max 32TB connecting to storage port of DVR (MH series)
- Extended Max 64TB connecting to storage port of HD DVR(HD series)
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 HDD Racks with Hot-Swap SATA
- Built-in 1 network Port for DVR Connection
- Built-in network Port for Extended Storage(NVS04R)

Dimension (unit:mm)



Front

Back

Specifications

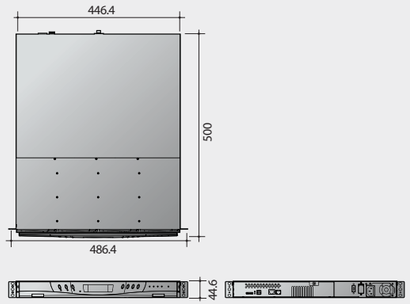
SYSTEM	
OS	Embedded linux
Storage device	4 SATA interface with hot-swap function
Intelligent file system	Data-loss protection against power failure
Capacity	HD series : Max 16TB MH series : Max 8TB
Capacity Expansion	HD series : Max 64TB with cascaded NVS04R MH series : Max 32TB with cascaded NVS04R
RECORDING	
Performance	10MB/s
RAID	Internal mirroring support
NETWORK	
Connection 1	Gigabit Ethernet for DVR connection
Connection 2	Gigabit Ethernet for Cascade
ENVIRONMENT & PHYSICAL	
Dimension	445(W) x 383(D) x 44(H) mm
Weight	Approx. 5.5 Kg (with one HDD)
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 85W Typical 60W
Approval	FCC, CE, MIC, RoHS

ES0104 eSATA RAID Subsystem

Key Features

- 1U/4Bays, eSATA - SATA II RAID sub-system
- RAID 0,1,0+1,3,5, and JBOD
- eSATA (3Gbps) host interface
- Multi volume host access
- Max. 8TB connecting to LH/EH/MH series DVR
- Max 16TB connecting to HD series
- Hot-spare and auto rebuild
- Inside buzzer alarm
- Password protection
- Serial port for external event notification

Dimension (unit:mm)



Specifications

ELECTRICAL	
Form-factor	1U 19-inch rackmount chassis
RAID processor	400MHz storage I/O processor
RAID level	0, 1, 0+1, 3, 5 and JBOD
Cache memory	128MB
No. of channels (host+drive)	2+4
Host bus interface	eSATA / USB 2.0
Drive bus interface	SATA II (3Gb/s, NCQ)
Data transfer rate	Up to 3.0Gbps(SATA II) / Up to 480Mbits(USB 2.0)
Back plane board	SATA II
Hot-swap drive trays	Four (4) 1-inch trays
Power supply	220W w/PFC
Cooling fan	1
Password protection	Yes
Audible alarm	Yes
Failed drive indicators	Yes
Failed drive auto rebuild	Yes
Online consistency check	Yes
Online expansion	No
Array Roaming	Yes
Online RAID level/ stripe size migration	Yes
Instant availability and background initialization	Yes
Environment monitor	Yes
Auto spare support	Yes
Bad block auto-remapping	Yes
Remote management	Yes
MAID support	Yes
Over 2TB support	Yes
Power requirements	AC 100V ~ 240V +/-10% Full range, 6A ~ 3A, 50Hz ~ 60Hz

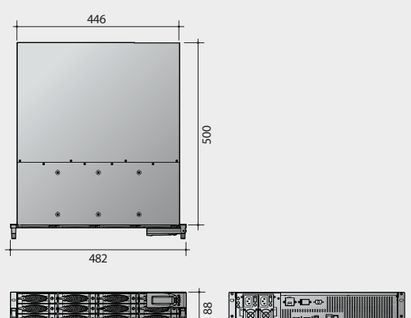
ENVIRONMENTAL	
Relative Humidity	10% ~ 85% Non-condensing
Operating Temp	10°C ~ 40°C (50°F ~ 104°F)
Physical Dimensions	486.4(W) x 500(D) x 44.6(H) mm
Weight	7.6kg (without HDD)

ES0212 eSATA RAID Subsystem

Key Features

- 2U/12Bays, eSATA - SATA II RAID sub-system
- RAID 0,1,10(1E),3,5,6 and JBOD
- Redundant power supplier
- eSATA (3Gbps) host interface
- Max. 8TB connecting to LH/EH/MH series DVR
- Max 16TB connecting to HD series
- Hot-spare and auto rebuild
- Inside buzzer alarm
- Password protection
- Serial port for external event notification
- Smart LCD panel
- Realtime drive and status notification
- Web base GUI management utility

Dimension (unit:mm)



Specifications

ELECTRICAL	
Form-factor	2U 19-inch rackmount chassis
RAID processor	400MHz storage I/O processor
RAID level	0 , 1 , 10 (1E) , 3 , 5 , 6 and JBOD
Cache memory	256MB
No. of channels (host+drive)	4+16
Host bus interface	USB 2.0 / eSATA x 2 / iSCSI * Only eSATA is suitable for DVR connection
Drive bus interface	SATA II (Up toa3.0 Gbps)
Data transfer rate	Support up to 480 Mbps (USB 2.0) Support up to 3.0 Gbps (SATA II) Support 10 / 100 / 1000 Mbps Ethernet
Hot-swap drive trays	Twelve (12) 1-inch trays
Cooling fan	2
Password protection	Yes
Audible alarm	Yes
Failed drive indicators	Yes
Failed drive auto rebuild	Yes
Online consistency check	Yes
Online expansion	No
Array Roaming	Yes
Online RAID level/ stripe size migration	Yes
Instant availability and background initialization	Yes
Environment monitor	Yes
Auto spare support	Yes
Bad block auto-remapping	Yes
Remote management	Yes
MAID support	Yes
Over 2TB support	Yes
Power supplies	400W x2 redundant power supplies w/PFC
Power requirements	AC 100V ~ 240V +/-10% Full range, 6A ~ 3A, 50Hz ~ 60Hz

ENVIRONMENTAL	
Relative Humidity	10% ~ 85% Non-condensing
Operating Temp	10°C ~ 40°C (50°F ~ 104°F)
Physical Dimensions	482(W) x 500(D) x 88(H) mm
Weight	14.4kg (without HDD)

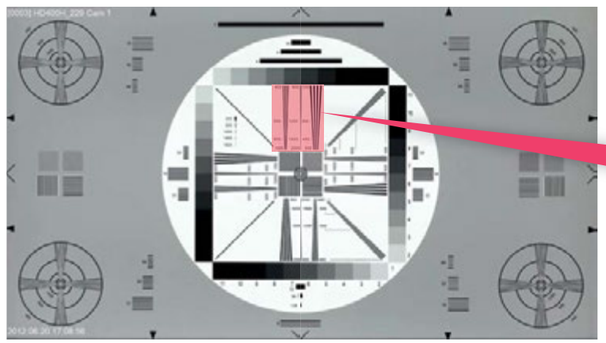
HD-CCTV CAMERA

1080p Full HD
Anti-Motion blur
SMART IR-LED Control
Digital **Slow Shutter**
Auto Focus

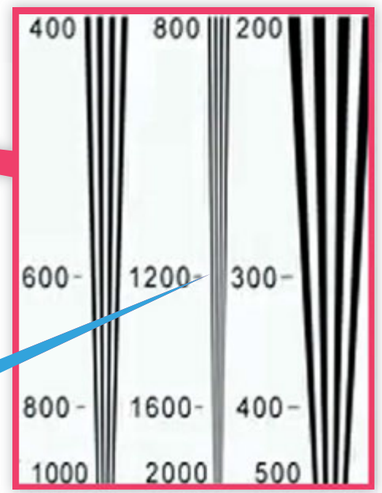
HD-CCTV Camera **Features**

High-Resolution : Provides 1,200TV Line

HD-CCTV camera provides high-quality Full-HD(1920 x 1080p) video image.
It uses new signal processing technology to show such fine video.



WGI HD-SDI Camera (C1080B)



Over 1,200 TV Line

Auto Focus : Auto Focus by one-push

AF series cameras support auto focus function. Because adjust focusing of HD camera is very difficult work, it helps easy installation and to get best HD video image. Besides, if camera is connected to DVR by serial communication, user can control zoom and focus remotely.

Before Auto Focus

After Auto Focus

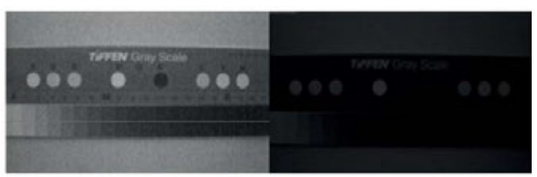
Excellent sensitivity : Clear image at 0.0005 lux

High-performance signal processing makes camera to have high sensitivity at dark environment where even human eyes cannot identify target object.

(BW: 0.0005Lux / Color: 0.2Lux@50IRE, F1.4, 3100K, DSS off)

WGI C1080B (2M, CMOS, 0.2Lux) "S" Camera (2M, CMOS, 1.0Lux)

Test Environment: 0.08 Lux Color Mode - F1.2, Flourescent



WGI C1080B (2M, CMOS, 0.0005Lux) "S" Camera (2M, CMOS, 0.1Lux)

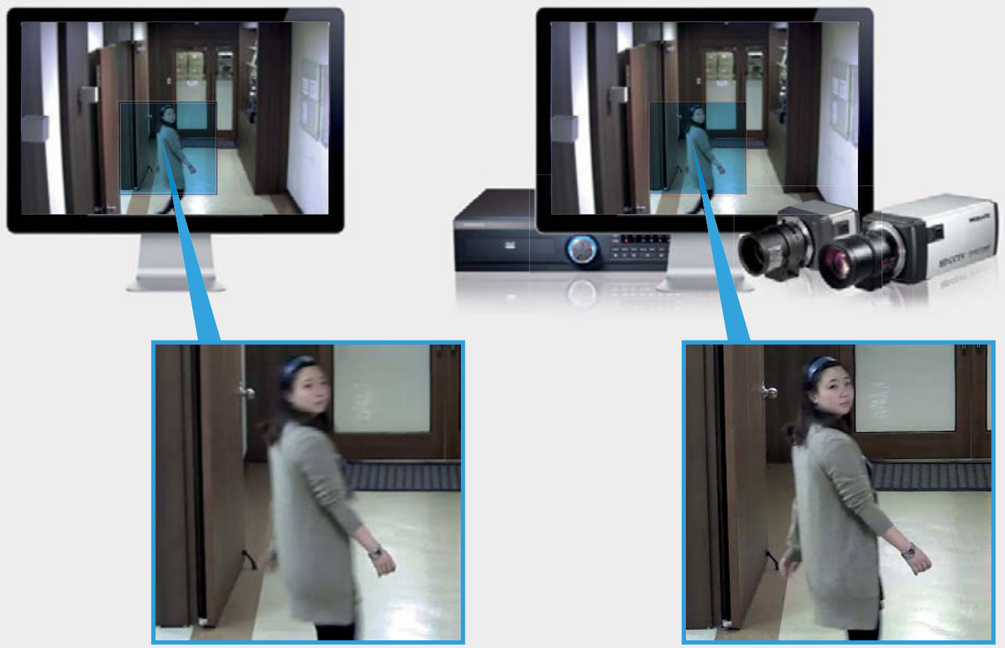
Test Environment: 0.005 Lux Color Mode - F1.2, Flourescent

HD-CCTV Camera **Features**

Anti-Motion blur : Delivers more clear image for any moving object

High-performance, new video signal processing methods provide clear image without motion blurring.

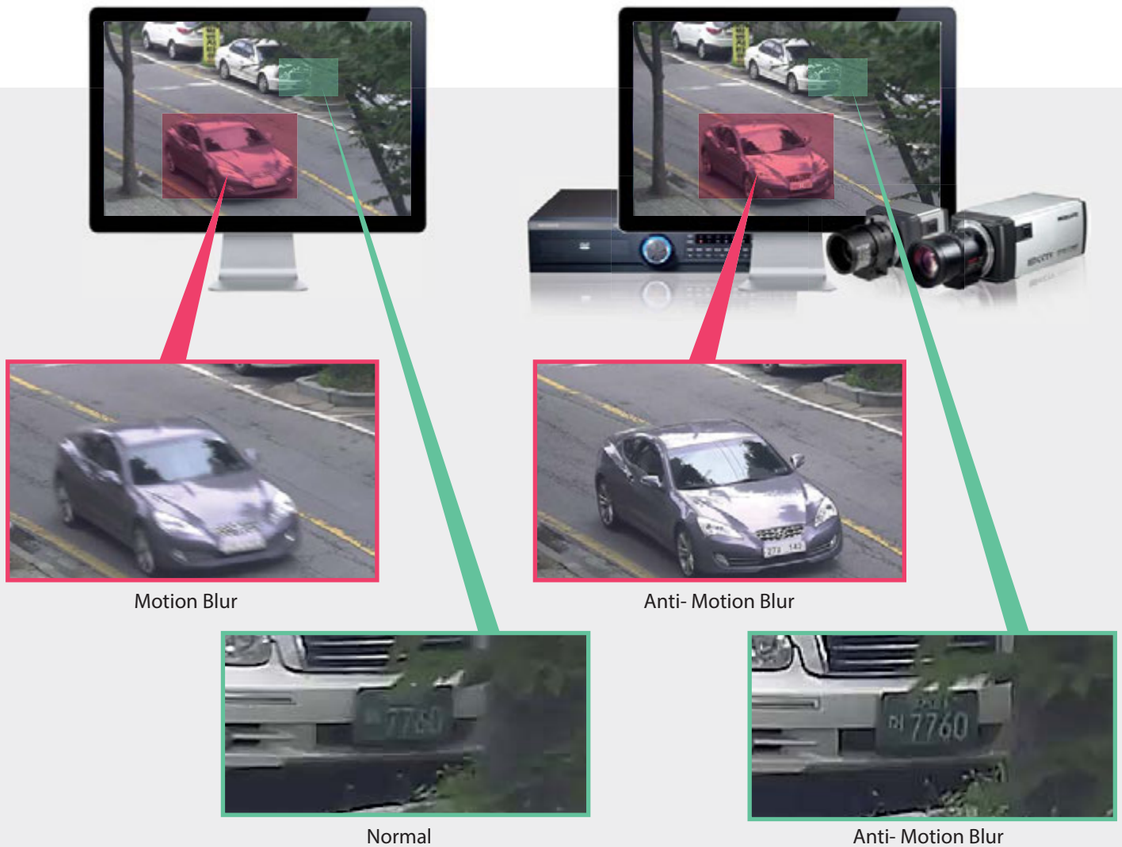
[Indoor Mode]
This mode minimizes the motion blurring at indoor environment like entrance or corridor.



Motion Blur

Anti- Motion Blur

[Outdoor Mode]
This mode minimizes the motion blurring at outdoor environment, and it is especially useful for the license plate recognition on the road. This function also minimizes the image blurring caused by camera.



Motion Blur

Anti- Motion Blur

Normal

Anti- Motion Blur

HD-CCTV Camera **Features**

CVBS output : Auxiliary analog video output

For easy installation, camera provides auxiliary CVBS (NTSC/PAL) video output. By using full-screen and zoom screen of CVBS output, installer can easily adjust not only the angle of view but also focus.

Full Screen

Zoom Screen

WDR : Smart Backlight Compensation

WDR function helps camera to show clear video image even very bright and dark scene is mixed in the same one image. User may select BLC or HLC function according to the install environment.

WDR OFF

WDR ON

White Balance : Nature color as it is…

Camera delivers natural color images by excellent color reproduction performance against various light conditions.

Test environment : 5 Lux Color mode - F1.4, 3100K

C1080B(2M, CMOS)

"L" company (2M IP, CMOS)

"G" company (2M HD-SDI, CMOS)

Test Pattern : Color Bar, Stress Pattern

To help checking the quality of HD-SDI transmission cable, camera supports color bar and stress pattern. This is a request from HDcctv and it also helps to check product's well-working condition.
Especially, Stress pattern is the most sensitive video image to cable quality. (C1080B model only)

HD-CCTV Camera **Features**

Intelligent brightness control

SMART IR-LED function automatically controls the intensity of IR-LED according to the distance with the target. Camera can show clear video image without saturation of light at lightness environment.

Normal IR-LED

Smart IR-LED

DSS : Digital Slow Shutter (Sense-up)

At very dark environment, DSS function accumulates the light into the sensor pixels, and provides visible video image as a result.

Light Off, DSS Off

Light Off, DSS ON = 5x

Light Off, DSS ON = 10x

TDN : True Day & Night

TDN function always provides clear video image by distinguishing daytime and nighttime. In case of night time, TDN mechanism removes IR-CUT filter to gather more light. (inlcuding IR light source)

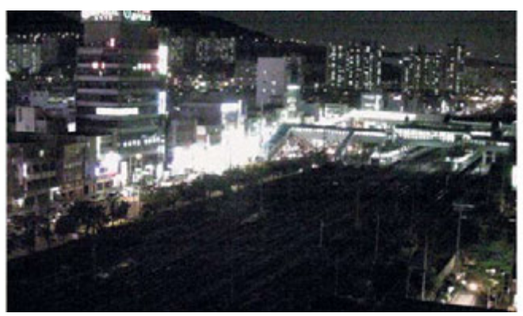
Light On, Day Mode (228 Lux)

Light Off, Day Mode (0 Lux)

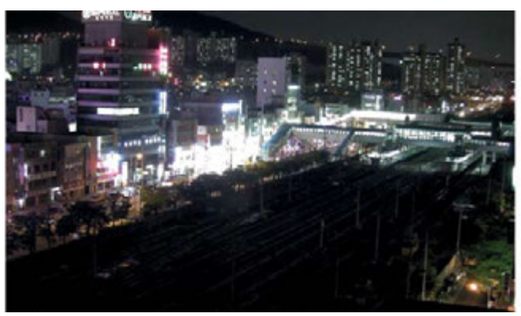
Light Off, Night Mode (0 Lux)

3DNR : Powerful 3-Dimensional Digital Noise Reduction

3DNR function removes video noise at dark environment, and it provides clear video image as a result.
We adopted 3DNR and it provides better performance than 2DNR.



C1080B 3DNR OFF



C1080B 3DNR ON (high)

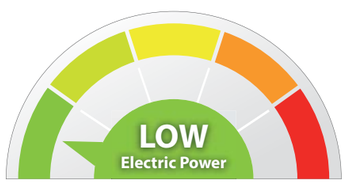
HD-CCTV Camera **Features**

DVR interface : Remote camera control by DVR

If serial communication is used between camera and DVR, DVR can control all functions of camera by OSD menu, and allow user can upgrade camera's firmware. By this function, user can even manage the camera through network. In case of -AF models, user can control camera's zoom and Focus.

Dual Voltage : DC12V / AC24V

User may select either DC12V or AC24V according to the install environment. Both power inputs use same terminal, and camera contains a protection circuit for reverse DC polarity input.



Low power consumption

Webgate's cameras consume lower power when they compared with competitor's ones. It significantly increases the reliability of products which are very sensitive to install environment.

Excellent mechanical design

Dome type camera's 3-axis gimbal provides easy installation.
Box type camera's front case is designed for lens to keep the center of optical sensor, and not to decrease the focus performance over the whole screen.
Bullet type camera provides one-puch focusing and it helps easy installation.

Box Camera (Patent pending: 10-2011-0014790)
Title : Design of camera front case
Substance : Mechanical design which keeps the center of image sensor and lens for fine focusing. The design minimized the mechanical error.

Bullet Camera (Patent No. : 10-1018881)
Title : CCTV Bracket
Substance : Mechanical design fixing 3-axis with ease which is used for adjusting of angle of view.

C1080PT-Z20

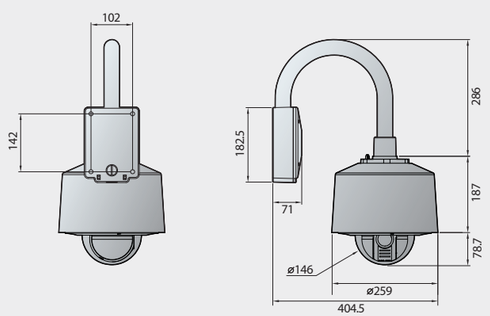
Full HD PTZ Dome Camera

Key Features

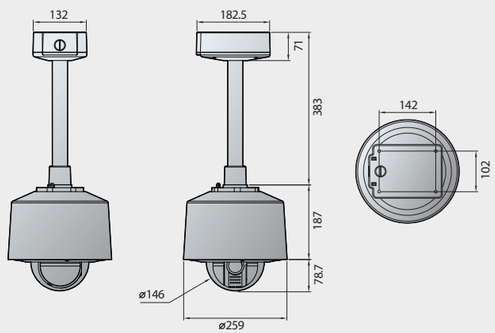
- HD-SDI 20x Speed Dome Camera
- 20x Optical Zoom (4.7 ~ 94mm) and 10x Digital Zoom
- 1/3" 2M CMOS progressive image sensor
- HD-SDI 1080p or 720p Video Output
- WDR function
- Privacy zone function (Up to 8 Area)
- True Day&Night with IR cut filter removable
- Dust-proof/Water-proof (IP66)
- Powerful Function
  - · 255 Preset Positions with Alphanumeric Labels
  - · 4 Pattern, 8 Scan and 8 Group Functions
  - · 8 Privacy zones (Spherical Coordinates)
  - · Power-up Action

Dimension (unit:mm)

Wall Mount Bracket



Ceiling Mount Bracket



Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	**B/W**	0.3Lux@50IRE, F1.6, 50IRE, High Sensitivity Mode, 0.095Lux@F1.6 50IRE
	Color	1.7Lux@50IRE, F1.7, 50IRE, High Sensitivity Mode, 0.5Lux@F1.6 50IRE
Lens	**Zoom**	x20 Optical zoom & x10 Digital zoom
	Angle of View	H:55.4˚(W) ~ 2.9˚(T)
	Focal length	F 1.6 ~ 3.5 F=4.7 ~ 94mm
Video Output	**Output**	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	**Day&Night**	Auto/Day/Night(ICR)
	Focus	Auto/Manual
	Exposure Mode	Full Auto/Shutter/Iris/Bright/Manual
	White Balance	Auto WB/Indoor/Outdoor/One Push WB/Manual WB
	AGC	Auto/Manual(-3~28dB, 2dB steps)
	WDR	WDR: Auto/Off
Pan/Tilt	**Range**	Pan:360˚(Endless), Tilt:180˚
	Pan / Tilt Speed	Preset"360˚/sec, Manual:0.05˚~360˚/sec(Zoom Proportional), Scan:1˚~180˚/sec
	Preset	255 preset with Labels/Independent Camera Setup
	Pattern	4 Patterns(Approx. 5 Minutes for Each Pattern)
	Scan	8 Scans
	Group	8 Groups(Max. 20 Enters for Each Group)
	Other functions	Power-up Action & etc.
CONTROL INTERFACE		
Communication		RS-485
RS-485 Protocol		Auto(Pelco-D, Pelco-P, Samsung-E can be supported automatically)
ELECTRICITY		
Power Consumption		AC 24V
MECHANICAL		
Dimension		Dome(ø) : 146mm, Housing(øxH) : 259x266mm
Weight		Net: 6Kg, Package: 10.9kg
ENVIRONMENTS		
Operation Temp. / Humidity		-40 ºC ~ 50 ºC / 10% RH ~ 80% RH
CERTIFICATIONS		
Certifications		FCC, CE, IP66

C1080BM C1080B

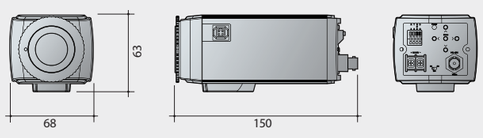
C1080B / C1080BM Full HD Box Camera

Key Features

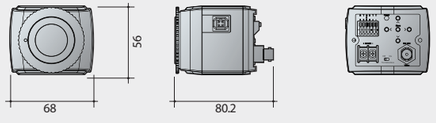
- Certified by HDcctv Alliance : C1080B
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 video Output
- Horizontal/Vertical resolution over 1200TV line
- High-performance under low light environment
  (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for moving object
- Easy OSD menu control like conventional CCTV camera
- Remote control & upgrade through RS485 from DVR
- Strobe signal output for external light
- DC Iris & C/CS mountable (C-Adaptor Ring)
- Support Test Patterns (Color bar, Stress Pattern) : C1080B

Dimension (unit:mm)

C1080B



C1080BM



Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	B/W	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	Mount	CS/ C(Ring Adaptor)
	Filter	True Day & Night (ICR)
	type	DC Auto Iris, Manual
Video Output	Output	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	Control Method	OSD(5 Push Buttons), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 setup
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric Shutter	AUTO, MANUAL(12 steps), INDOOR, OUTDOOR, ANTI-FLICKER
	D-ZOOM	0 ~ 16 steps
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF/ON (28 Zones)
CONTROL INTERFACE		
RS232		Debug
RS485		Upgrade Firmware / OSD Control
Strobe for external light		TTL level
ELECTRICITY		
Power Consumption		DC 12V ± 10%, 4W
MECHANICAL		
Dimension	C1080B	68(W) x 150(D) x 63(H) mm
	C1080BM	68(W) x 81(D) x 56(H) mm
Weight	C1080B	350g (Lens not include)
	C1080BM	320g (Lens not include)
ENVIRONMENTS		
Operation Temp. / Humidity		0 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS, HDcctv(C1080B)

C1080VD

C1080D

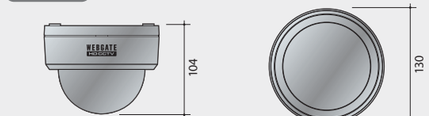
C1080D / C1080VD Full HD Dome Camera

Key Features

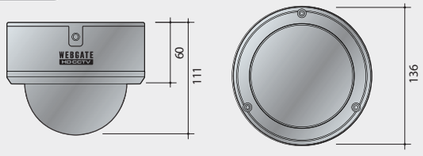
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 Video Output
- DC Iris, 2.8mm ~ 10mm, F1.2 Megapixel lens
- Horizontal/Vertical resolution over 1200TV line
- High-performance under low light environment
  (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for moving object
- Easy OSD menu control like conventional CCTV camera
- Remote control & upgrade through RS485 from DVR
- Dust-proof/Water-proof (IP66) : Vandal model
- 3-Axis for easy installation
- CVBS Video output for easy installation
- Dual Voltage(AC24V, DC12V)

Dimension (unit:mm)

C1080D



C1080VD



Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	**B/W**	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	**Mount**	D-Mount
	Filter	True Day & Night
	type	DC Auto Iris, 2.8~10mm, F1.2
Video Output	**Output**	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	**Control Method**	OSD(Internal Joystick), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 setup
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric Shutter	AUTO, MANUAL(12 steps), INDOOR, OUTDOOR, ANTI-FLICKER
	D-ZOOM	0 ~ 16 steps
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF/ON (28 Zones)
CONTROL INTERFACE		
RS485		Upgrade Firmware / OSD Control
ELECTRICITY		
Power Consumption		DC 12V ± 10%, 3W / AC 24V ± 10%, 4W
MECHANICAL		
Dimension	**C1080D**	130(ø) x 104(H)mm
	C1080VD	136(ø) x 111(H)mm
Weight	**C1080D**	359g
	C1080VD	759g
ENVIRONMENTS		
Operation Temp. / Humidity		0 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS

HD-CCTV **Camera**

C1080D-IR

C1080VD-IR

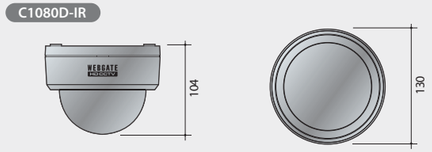
C1080D-IR / C1080VD-IR Full HD IR Dome Camera

Key Features

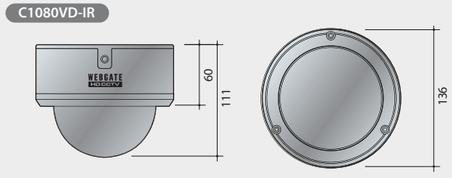
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 Video Output
- DC Iris, 2.8mm ~ 10mm, F1.2 Megapixel lens
- Horizontal/Vertical resolution over 1200TV line
- High-performance under low light environment
  (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for moving object
- Smart IR function
- Easy OSD menu control like conventional CCTV camera
- Remote control & upgrade through RS485 from DVR
- Dust-proof/Water-proof (IP66) : Vandal model
- 3-Axis for easy installation
- Built-in IR LED (24pcs)
- CVBS Video output for easy installation
- Dual Voltage(AC24V, DC12V)

Dimension (unit:mm)

C1080D-IR



C1080VD-IR



Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	**B/W**	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	**Mount**	D-Mount
	Filter	True Day & Night
	type	DC Auto Iris, 2.8~10mm, F1.2
Video Output	**Output**	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	**Control Method**	OSD(Internal Joystick), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 setup
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric Shutter	AUTO, MANUAL(12 steps), INDOOR, OUTDOOR, ANTI-FLICKER
	D-ZOOM	0 ~ 16 steps
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF/ON (28 Zones)
LIGHT		
Strobe for light	**C1080D-IR**	24pcs, 850mm 60Degree control by visible light sensor.
	C1080VD-IR	
CONTROL INTERFACE		
RS485		Upgrade Firmware / OSD Control
ELECTRICITY		
Power Consumption		DC 12V ± 10%, 4W / AC 24V ± 10%, 5W
MECHANICAL		
Dimension	**C1080D-IR**	130(ø) x 104(H)mm
	C1080VD-IR	136(ø) x 111(H)mm
Weight	**C1080D-IR**	369g
	C1080VD-IR	769g
ENVIRONMENTS		
Operation Temp. / Humidity		0 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS

C1080D-AF

C1080VD-AF

C1080D-AF / C1080VD-AF

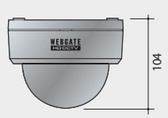
Full HD Auto Focus Dome Camera

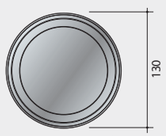
Key Features

- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 Video Output
- DC Iris, 2.8mm ~ 10mm, F1.2 Megapixel lens
- Horizontal/Vertical resolution over 1200TV line
- High-performance under low light environment
  (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for moving object
- One-push Auto focus function
- Easy OSD menu control like conventional CCTV camera
- Remote Zoom/Focus control & upgrade through RS485 from DVR
- Dust-proof/Water-proof (IP66) : Vandal model
- 3-Axis for easy installation
- CVBS Video output for easy installation
- Dual Voltage(AC24V, DC12V)

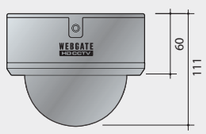
Dimension (unit:mm)

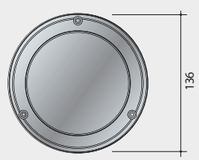
C1080D-AF





C1080VD-AF





Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	**B/W**	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	**Mount**	D-Mount
	Filter	True Day & Night
	type	DC Auto Iris, 2.8~10mm, F1.2
Video Output	**Output**	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	**Control Method**	OSD(Internal Joystick), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 setup
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric Shutter	AUTO, MANUAL(12 steps), INDOOR, OUTDOOR, ANTI-FLICKER
	D-ZOOM	0 ~ 16 steps
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF/ON (28 Zones)
CONTROL INTERFACE		
RS485		Upgrade Firmware / OSD Control
ELECTRICITY		
Power Consumption		DC 12V ± 10%, 3W / AC 24V ± 10%, 4W
MECHANICAL		
Dimension	**C1080D-AF**	130(ø) x 104(H)mm
	C1080VD-AF	136(ø) x 111(H)mm
Weight	**C1080D-AF**	370g
	C1080VD-AF	770g
ENVIRONMENTS		
Operation Temp. / Humidity		0 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS

C1080D-IR-AF

C1080VD-IR-AF

C1080D-IR-AF / C1080VD-IR-AF

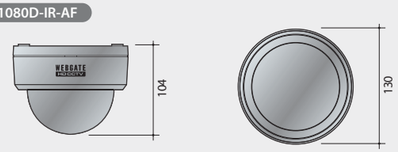
Full HD Auto Focus IR Dome Camera

Key Features

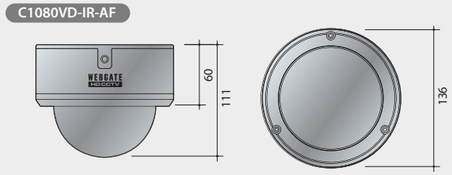
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 Video Output
- DC Iris, 2.8mm ~ 10mm, F1.2 Megapixel lens
- Horizontal/Vertical resolution over 1200TV line
- High-performance under low light environment
  (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for moving object
- One-push Auto focus function
- Smart IR function (No Saturation)
- Easy OSD menu control like conventional CCTV camera
- Remote Zoom/Focus control & upgrade through RS485 from DVR
- Dust-proof/Water-proof (IP66) : Vandal model
- 3-Axis for easy installation
- Built-in IR LED (24pcs)
- CVBS Video output for easy installation
- Dual Voltage(AC24V, DC12V)

Dimension (unit:mm)

C1080D-IR-AF



C1080VD-IR-AF



Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	**B/W**	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	**Mount**	D-Mount
	Filter	True Day & Night
	type	DC Auto Iris, 2.8~10mm, F1.2
Video Output	**Output**	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	**Control Method**	OSD(Internal Joystick), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 setup
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric Shutter	AUTO, MANUAL(12 steps), INDOOR, OUTDOOR, ANTI-FLICKER
	D-ZOOM	0 ~ 16 steps
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF/ON (28 Zones)
LIGHT		
Strobe for light	**C1080D-IR-AF**	24pcs, 850mm 60Degree control by visible light sensor.
	C1080VD-IR-AF	
CONTROL INTERFACE		
RS485		Upgrade Firmware / OSD Control
ELECTRICITY		
Power Consumption		DC 12V ± 10%, 4W / AC 24V ± 10%, 6W
MECHANICAL		
Dimension	**C1080D-IR-AF**	130(ø) x 104(H)mm
	C1080VD-IR-AF	136(ø) x 111(H)mm
Weight	**C1080D-IR-AF**	380g
	C1080VD-IR-AF	780g
ENVIRONMENTS		
Operation Temp. / Humidity		0 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS

C1080BL-IR18-AF
C1080BL-IR48-AF

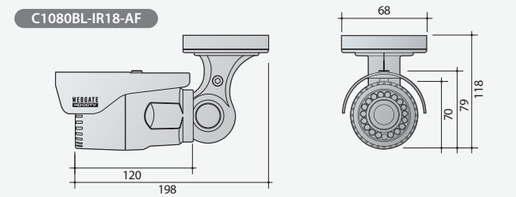
Full HD Auto Focus IR Bullet Camera

Key Features

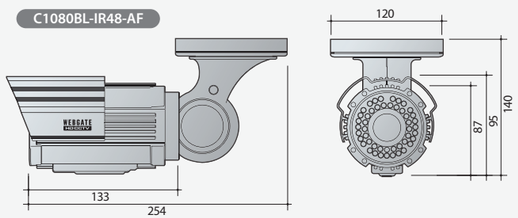
- 1/3" 2.1M CMOS progressive image sensor
- HD-SDI 1080p25/30 & 720p25/30 Video Output
- DC Iris, 2.8mm ~ 10mm, F1.2 Megapixel lens
- Horizontal/Vertical resolution over 1200TV line
- High-performance under low light environment
  (BW : 0.0005 Lux/ Color : 0.2Lux@50IRE, F.1.4, 3100K, DSS off)
- 3DNR (Noise Reduction)
- Backlight compensation of WDR/BLC/HLC
- Privacy zone function (Color selectable)
- True Day&Night with IR cut filter removable
- Anti-Motion Blur for moving object
- One-push Auto focus function
- Smart IR function (No Saturation)
- Easy OSD menu control like conventional CCTV camera
- Remote Zoom/Focus control & upgrade through RS485 from DVR
- Dust-proof/Water-proof (IP66)
- All-in-one Bracket & Housing structure
- Built-in IR LED (IR18: 18pcs, IR48: 48pcs)
- CVBS Video output for easy installation
- Dual Voltage(AC24V, DC12V)

Dimension (unit:mm)

C1080BL-IR18-AF



C1080BL-IR48-AF



Specifications

VIDEO		
Sensor Type		1/3" 2.1Megapixel CMOS
Total Pixels		1920(H) x 1080(V) = 2.1M pixels
Scanning System		Progressive Scan
Min illumination	B/W	0.0005Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
	Color	0.2Lux@50IRE, F1.2, 3100K, DSS(OFF), AGC(10)
Lens	Mount	CS / C(Ring Adaptor)
	Filter	True Day & Night
	type	DC Auto Iris, Manual
Video Output	Output	1(BNC 1.0 Vp-p, 75Ω)
	Resolution	1080p 30fps / 25fps, 720p 60fps / 50fps (Clipping)
	HD-SDI	SMPTE 292M compatible
	Distance	Approx. 200m(650 ft.) of RG6, 150m(490 ft.) of RG59
Video Control	Control Method	OSD(5 Push Buttons), DVR, CMS(Control Center)
	AGC	1 ~ 10 steps
	Mirror	Horizontal / Vertical
	WDR	OFF, 0 ~ 4 setup
	BLC	OFF, LOW, MIDDLE, HIGH
	ACE	OFF, ON
	DNR	OFF, LOW, MIDDLE, HIGH
	DSS	OFF, x2 ~ x10
	White Balance	AUTO, PRESET, MANUAL
	Electric Shutter	AUTO, MANUAL(12 steps), INDOOR, OUTDOOR, ANTI-FLICKER
	D-ZOOM	0 ~ 16 steps
	Lens Shading	OFF, ON
	HLC	0 ~ 10 steps
	Privacy	OFF/ON (28 Zones)
CONTROL INTERFACE		
RS485		Upgrade Firmware / OSD Control
Strobe for external light		TTL level
ELECTRICITY		
Power Consumption	C1080BL-IR18-AF	DC 12V ± 10%, 4W / AC 24V ± 10%, 6W
	C1080BL-IR48-AF	DC 12V ± 10%, 5W / AC 24V ± 10%, 8W
MECHANICAL		
Dimension	C1080BL-IR18-AF	88(W) x 118(H) x 198(D) mm
	C1080BL-IR48-AF	120(W) x 140(H) x 254(D) mm
Weight	C1080BL-IR18-AF	720g (1.6 lbs)
	C1080BL-IR48-AF	1600g (3.5 lbs)
ENVIRONMENTS		
Operation Temp. / Humidity		0 ºC ~ 50 ºC / 0%RH ~ 80%RH
CERTIFICATIONS		
Certifications		KC, FCC, CE, RoHS

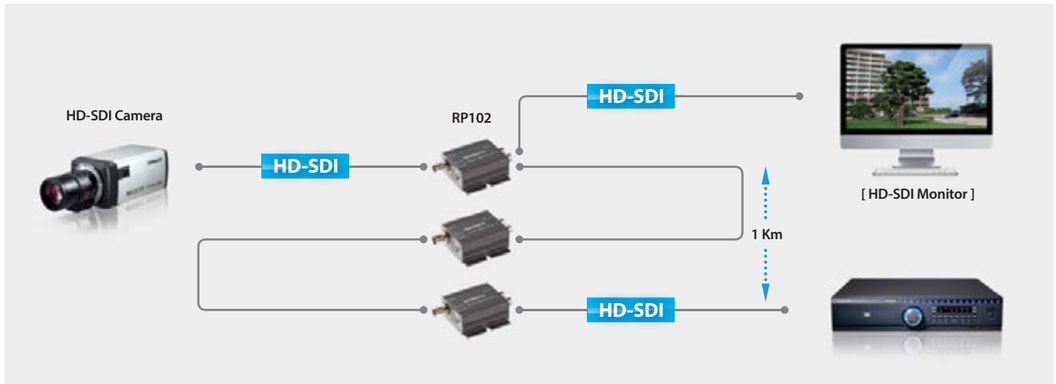
HD-CCTV
Converters & etc.

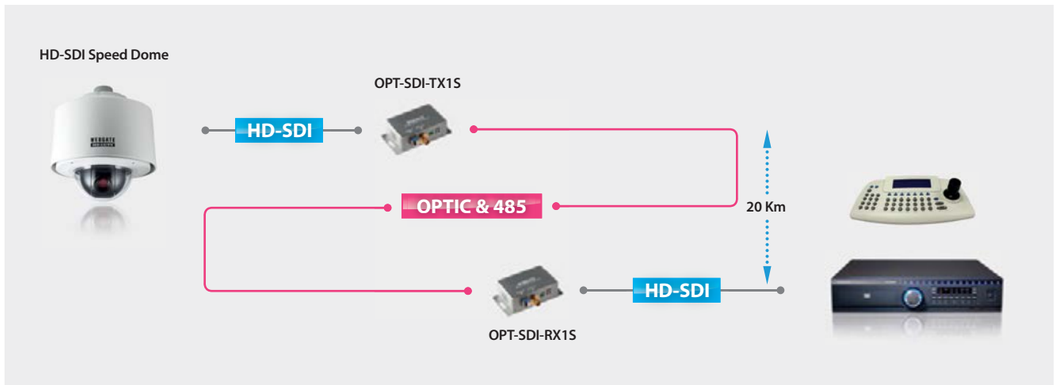
2CH **Distributor**
HD-SDI Repeater
HDMI **Converter**
CVBS **Converter**
Optic **Converter**

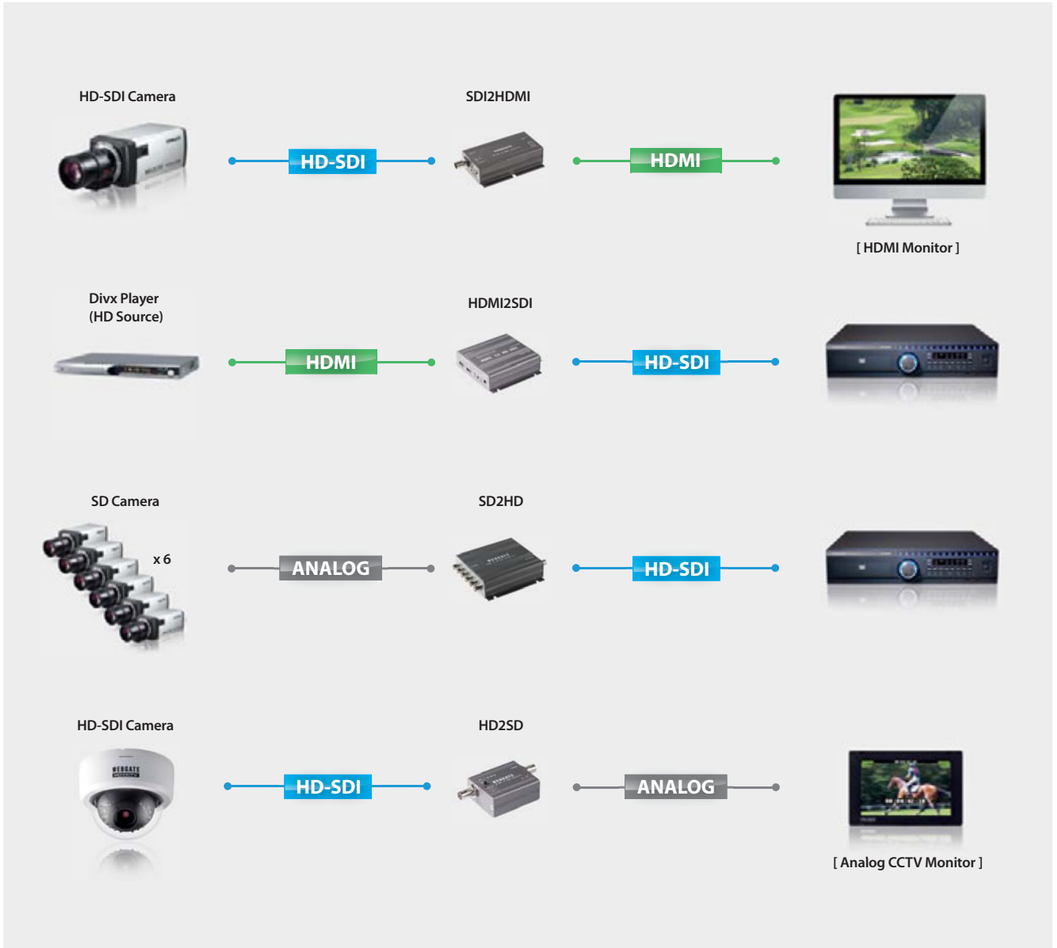
HD-CCTV Converter **Features**

HD-SDI Converter

Building HD-CCTV system requires various devices.
For this, various devices are prepared such as repeater for extending transmission distance, optic converter and signal converters of HD-SDI, HDMI, Analog.
Each device supports the best quality of HD-SDI signal to configure the most optimized system.





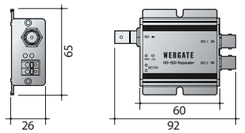


RP102

Key Features

- The world's first HDcctv certified repeater
- HD-SDI repeater & distributer
- BNC 1ch input / 2ch output
- Auto detection on input image
- Transmission distance expandable using multiple repeaters
- HD-SDI transmission distance : Approx. 200m(650 ft.) of RG6 or 150m(490 ft.) of RG59
- Power, Link LED indicator

Dimension (Unit:mm)



Specifications

VIDEO INPUT	
Video Input standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i50/60, 1080p25/30)
	SMPTE 296M(720p25/30/60)
VIDEO OUTPUT	
Video Output standard	2CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i50/60, 1080p25/30)
	SMPTE 296M(720p25/30/60)
PERFORMANCE	
Function	Include equalizing, Reclocking, Driver

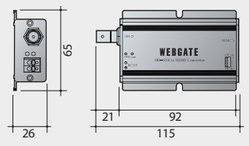
INTERFACE	
Indication LED	Power LED(Red), Link LED(Green)
ENVIRONMENTAL & PHYSICAL	
Dimension	92(W) x 65(D) x 26(H) mm
Weight	Approx. 120g(0.2 lbs)
Operating temperature	0℃ ~ 50℃ / 20%RH to 80%RH
Input Voltage	12 VDC
Power consumption	Max 3W
Approval	KC, FCC, CE, RoHS, HDcctv

SDI2HDMI

Key Features

- The world's first HDcctv certified converter
- HD-SDI to HDMI converter
- BNC input / HDMI output
- HD-SDI transmission distance : Approx. 200m(650 ft.) of RG6 or 150m(490 ft.) of RG59
- HDMI embedded audio output
- Power, Link LED indicator

Dimension (Unit:mm)



Specifications

VIDEO INPUT	
Video Input standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i50/60, 1080p25/30)
	SMPTE 296M(720p25/30/60)
VIDEO OUTPUT	
Video Output standard	1CH(HDMI)
Resolution	1080p60RB, 1080p60, 1080i60, 720p60
AUDIO	
Audio Output	2CH(Left, Right), HDMI

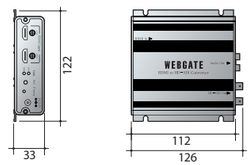
INTERFACE	
Indication LED	Power LED(Red), Link LED(Green)
Mode switch	4 switch for operation mode setting
ENVIRONMENTAL & PHYSICAL	
Dimenstion	115(W) x 65(D) x 26(H) mm
Weight	Approx. 140g(0.3 lbs)
Operating temperature	0℃ ~ 50℃ / 20%RH to 80%RH
Input Voltage	12 VDC
Power consumption	Max 4W
Approval	KC, FCC, CE, RoHS, HDcctv

HDMI2SDI

Key Features

- HDMI to HD-SDI converter
- Auto detection on input image
- Mode selection switch for video output format selection
- HD-SDI embedded audio & RCA audio output
- Power, Link LED indicator

Dimension (Unit:mm)



Specifications

VIDEO INPUT	
Video Input standard	2CH(HDMI, selectable)
Resolution	1080p60/50, 1080i60/50, 480p60, 576p50 480i60, 576i50
VIDEO OUTPUT	
Video Output standard	2CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i50/60, 1080p25/30)
	SMPTE 296M(720p25/30/60)
AUDIO	
Audio output	2CH (Left, Right), RCA connector
PERFORMANCE	
Function	Include equalizing, Reclocking, Driver

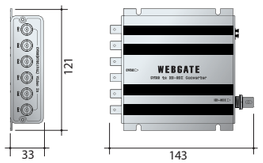
INTERFACE	
Indication LED	Input channel indication LED (Green, Red), Power LED (Red)
Mode switch	4 switch for operation mode setting
ENVIRONMENTAL & PHYSICAL	
Dimension	126(W) x 122(D) x 33(H) mm
Weight	Approx. 310g(0.7 lbs)
Operating temperature	0℃ ~ 50℃ / 20%RH to 80%RH
Input Voltage	12 VDC
Power consumption	Max 4W
Approval	KC, FCC, CE, RoHS

SD2HD

Key Features

- CVBS to HD-SDI converter
- Max 6ch CVBS signal input
- NTSC/PAL switch selectable
- 1/4/6ch output selectable
- 16:9, 4:3 video ratio mode
- HD-SDI transmission distance
  : Approx. 200m(650 ft.) of RG6 or 150m(490 ft.) of RG59
- Power LED indicator

Dimension (Unit:mm)



Specifications

VIDEO INPUT	
Video Input standard	6CH(NTSC/PAL CVBS)
VIDEO OUTPUT	
Video Output standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080p25/30)
INTERFACE	
Indication LED	Power LED(RED)
Mode switch	SW1 : NTSC/PAL select SW2 : 1CH Mode select SW3 : 4CH Mode select SW4 : 16:9/4:3 Mode select

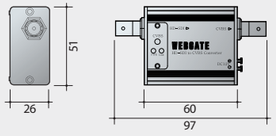
ENVIRONMENTAL & PHYSICAL	
Dimension	143(W) x 121(D) x 33(H) mm
Weight	Approx. 320g(0.7 lbs)
Operating temperature	0°C ~ 50°C / 10%RH to 80%RH
Input Voltage	12 VDC
Power consumption	Max 5W
Approval	KC, FCC, CE, RoHS

HD2SD

Key Features

- The world's first HDcctv certified converter
- HD-SDI to CVBS converter
- HD-SDI 1080p & 720p video format
- Auto detection on input video
- Auto standby mode for power saving
- Full screen(16:9), Zoom-in mode(4:3) output
- 50/60Hz system compatible
- Power, Link LED indicator

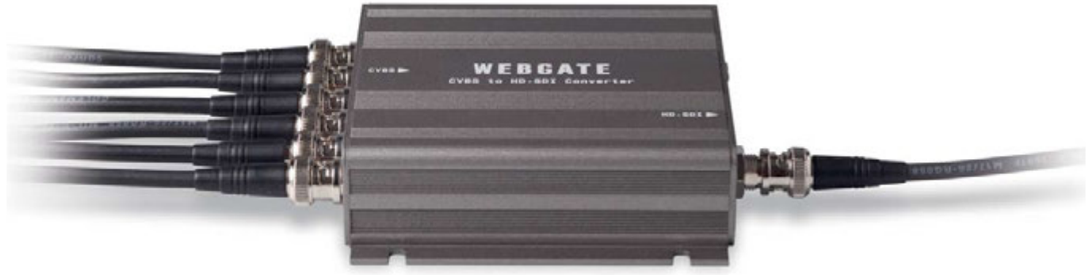
Dimension (Unit:mm)



Specifications

VIDEO INPUT	
Video Input standard	1CH(HD-SDI SMPTE 292M)
Resolution	SMPTE 274M(1080i50/60, 1080p25/30)
	SMPTE 296M(720p25/30/50/60)
VIDEO OUTPUT	
Video Output standard	CVBS(NTSC/PAL-auto change according to 25/30Hz)
INTERFACE	
Indication LED	Power LED : Red, Link LED : Green
Mode switch	Focus(Cropped Image)/Angle(Scaled Image) mode sequence change

ENVIRONMENTAL & PHYSICAL	
Dimension	97(W) x 51(D) x 26(H) mm
Weight	Approx. 110g(0.24 lbs)
Operating temperature	0°C ~ 50°C / 20%RH to 80%RH
Input Voltage	12 VDC
Power consumption	Max 2.2W, Sleep mode 0.2W
Approval	KC, FCC, CE, RoHS, HDcctv

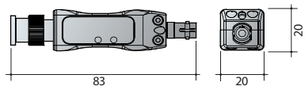


OPT-SDI-TX1/RX1

Key Features

- HD-SDI optical transceiver
- 3G/HD/SD high resolution video signal support
- Max. 20Km(12.4mi) signal transmission(1.5Gbps)
- BNC connector for HD-SDI and ST type fiber connector
- Robust metal die-casting enclosure for harsh environment
- Power, Link LED indicator

Dimension (Unit:mm)



Specifications

HD-SDI PORT	
Video Input standard	1CH(SMPTE 424, 292M)
Resolution	SMPTE425M(1080p50/60) SMPTE274M(1080p25/30) SMPTE296M(720p25/30/50/60)
OPTICAL PORT	
Fiber Type	Single-mode
Connector	ST
Distance	20Km(12.4mi) at 1.5Gbps

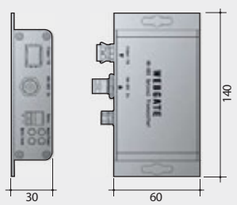
ENVIRONMENTAL & PHYSICAL	
Dimension	20(W) x 83(D) x 20(H) mm
Weight	Approx. 70g(0.2 lbs)
Operating temperature	0℃ ~ 50℃ / 0%RH to 85%RH
Input Voltage	5VDC
Power consumption	Max 5W
Approval	KCC, FCC, CE, RoHS

OPT-SDI-TX1S/RX1S

Key Features

- HD-SDI optical transceiver
- 3G/HD/SD high resolution video signal support
- Max. 20Km(12.4mi) signal transmission(1.5Gbps)
- One directional RS485 communication support
- Automatic shutdown of laser head to extend the laser life (input signal detection)
- Overload protection and automatic recovery
- Power, Link LED indicator

Dimension (Unit:mm)



Specifications

HD-SDI PORT	
Video Input standard	1CH(SMPTE 424, 292M)
Resolution	SMPTE425M(1080p50/60) SMPTE274M(1080p25/30) SMPTE296M(720p25/30/50/60)
OPTICAL PORT	
Fiber Type	Single-mode
Connector	LC
Distance	20Km(12.4mi) at 1.5Gbps

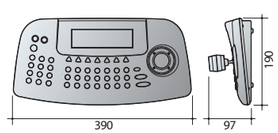
ENVIRONMENTAL & PHYSICAL	
Dimension	114(W) x 60(D) x 30(H) mm
Weight	Approx. 170g(0.4 lbs)
Operating temperature	0℃ ~ 50℃ / 5%RH to 95%RH
Input Voltage	12VDC
Power consumption	Max 12W
Approval	FCC, EMS
REVERSE DATA CHANNEL	
Method	RS485

WKC-100

Key Features

- Support 255 DVRs, 255 SPD connection
- Control camera connected to PTZ channel via DVR and CMS
- Control unit, channel of CMS
- Control preset, tour, pattern, group and other major features
- Support RS485/422/232 port
- Support various protocol (Pelco-D, Pelco-P and so on)

Dimension (Unit:mm)



Specifications

DEVICE CONNECTION	
Support Devices	HD/MH/EH/LH series DVR Pelco-D/Pelco-P Camera Control Center S/W
COMMUNICATION	
Method	RS485/RS422/RS232
Cascade	Up to 255 keyboard with Master/Slave
Protocol	EZ, HWL, S2, S2e, Pelco-D, Pelco-P
Password	Master, User Word Login

INTERFACE	
Joystick	3 Axis Joy Stick
LCD	30 x 8 Character lcd
ENVIRONMENTAL & PHYSICAL	
Dimension	390(W) x 190(D) x 97(H) mm
Weight	Approx. 1.2kg(0.4 lbs)
Operating temperature	0°C ~ 50°C / 0%RH to 90%RH
Input Voltage	12 VDC
Power consumption	Max 6W

HD IP & NVR

Versatile WESP
(Webgate Embedded Standard Protocol) SDK
Provides Max.8 Streams
Dual Video Compression

Reliable Standalone NVR
Supports Mirroring and IPFR
(Intelligent Power Failure Recovery)

B101M Network Server Solution

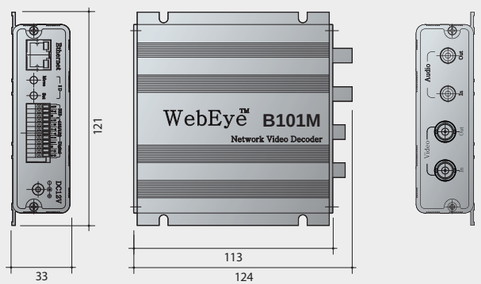
Key Features

- 1CH MPEG-4 Video Server
- Support Multi Streaming(Max.8) at D1/60fps
- Support Dual-Codec (MPEG-4 & JPEG)
- Support D1 / Half D1 / CIF / QCIF Resolution
- 2 Sensor Input (Dry Contact) / 2 Digital Output (TTL level)
- Monitoring and Setup via IE Browser

Front

Back

Dimension (unit:mm)



Specifications

IMAGE COMPRESSION	
MPEG-4 Resolution	Up to 720x480 @ 30 frames per second, Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
Scanning System	Up to 8 streams simultaneously, Up to MPEG-4 D1(4CIF) 60fps performance
NETWORK	
Program	Control Center, Web Browser
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP, DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	10 users
Security	Encrypted password, IP filtering
INPUT / OUTPUT	
Video	1 Input : CVBS(BNC) / 1 Output : CVBS(BNC)
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
Sensor Input	Software-controlled 2 sensor inputs (Dry contact)
Digital Output Schedule	Daily : Day / Night / Four-segment time frame Weekly : Weekdays / Weekends Conditions : MD, Sensor
Digital Output	Software-controlled 2 digital outputs (TTL level)
PTZ CONTROL	
Serial Port	RS232, RS422/485
Control Method (Remote)	On-the-screen PTZ control on PC
Preset Mode	64 points preset per channel
ADDITIONAL FUNCTION	
Password Protection	Yes
Video Motion Detection	Yes
FTP/E-mail Sending	Yes
OS	
Operation System	Embedded Linux
ENVIRONMENTS	
Operation Temperature	5℃~40℃
Storage Temperature	-10℃~55℃
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation
ELECTRICITY	
DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V 5A
Power Consumption	Max. 5W (DC12V)
MACHANICAL	
Dimension (mm)	121.0(W) x 124.0(D) x 33.0(H)
Weight	Approx. 300g
Approval	KC, FCC, CE, RoHS

D101M Network Video Decoder

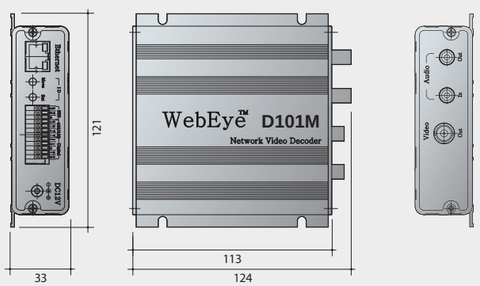
Key Features

- 1ch video decoder with MPEG-4
- Support various resolution, "D1(4CIF), HALF D1(2CIF), CIF, QCIF"
- Support Dual-Codec (MPEG-4 & JPEG)
- Support sequential monitoring up to 16 video server
- Support OSD of video server in non-PC environment
- Support bi-directional audio (1ch input & output with RCA type)

Front

Back

Dimension (unit:mm)



Specifications

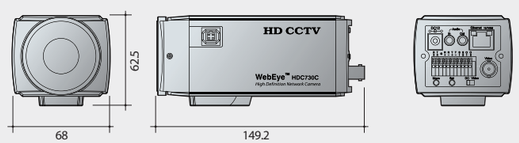
IMAGE COMPRESSION	
MPEG-4 Resolution	Up to 720x480 @ 30 frames per second Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
NETWORK	
Program	Control Center
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP, DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	10 users
Security	Encrypted password, IP filtering
INPUT / OUTPUT	
Video	1 Ch output for analog monitor
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
ADDITIONAL FUNCTION	
Key Input for OSD control	Yes
Sequence Monitoring	Yes
Keyboard for remote PTZ control	Yes
Caption on Screen	Yes
OS	
Operation System	Embedded Linux
ENVIRONMENTS	
Operation Temperature	5℃~40℃
Storage Temperature	-10℃~55℃
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation
ELECTRICITY	
DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V 5A
Power Consumption	Max. 5W (DC12V)
MACHANICAL	
Dimension (mm)	121.0(W) x 124.0(D) x 33.0(H)
Weight	Approx. 300g
Approval	KC, FCC, CE, RoHS

HDC730C HD Network Box Camera

Key Features

- 1CH MPEG-4 High Definition Network Camera
- Support 30fps@720p, 22.5fps@1280x960
- Support 1280x720, (x1/4), (x1/16) Resolution
- Superior Feature under the Low Light Condition
  0.001lux@B&W, 0.5lux@Color
- 1/3" 1.3M CMOS Sensor
- PoE (Power over Ethernet) Option
- Bi-Directional Audio (1CH Input/Output)
- 2 Sensor Input (Dry Contact) / 2 Digital Output (TTL level)
- 1 RS232 and 1RS422/485 for PTZ Control
- Support Static or Dynamic IP for xDSL and Cable-Modem User
- Monitoring and Setup via IE Browser
- Support WESP (Webgate Embedded Standard Protocol)
  SDK for SI and Project Manager

Dimension (unit:mm)



Specifications

LENS	
Lens Mount	CS, C type with adaptor ring
Lens Type	Fixed, DC iris, Video Iris

CCD CAMERA	
CCD Format	Progressive Scan Diagonal 6.0mm(Type 1/3), Color Exview HAD CCD
Resolution	1280 x 720(720p)
Effective Pixels	1.25M-Effective Pixel
Min. Lux Level	0.001 Lux @ 50IRE, F1.4, 3100K, 0.5Lux @ 50IRE, F1.4, 3100K
Sensitivity(F5.6)	3200K, 706 cd/m2, Y signal, 1/30 s accumulation
White balance	ATW/AWC/PUSH
AGC	Yes
Back-light compensation	Yes
DSS	Yes

IMAGE COMPRESSION	
MPEG-4 Resolution	Up to 1280x720 @ 30 frames per second Support 720p/D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Support 720p/D1(4CIF)/HALF(2CIF)/CIF/QCIF
Performance	Up to 2 streams simultaneously Up to MPEG-4 720p 30fps performance Network

NETWORK	
Program	Control Center, Web Browser
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP, DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	5 users
Security	Encrypted password, IP filtering

INPUT / OUTPUT	
Video	1 ch output
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
Sensor Input	Software-controlled 2 sensor input (Dry contact)
Digital Output Schedule	Daily : Day / Night / Four-segment time frame Weekly : Weekdays / Weekends Conditions : MD, Sensor
Digital Output	Software-controlled 2 digital outputs (TTL level)

PTZ CONTROL	
Serial Port	RS232, RS422/485
Control Method (Remote)	On-the-screen PTZ control on PC
Preset Mode	64 points preset per channel

ADDITIONAL FUNCTION	
Password Protection	Yes
Video Motion Detection	Yes
FTP/E-mail Sending	Yes

OS	
Operation System	Embedded Linux

ENVIRONMENTS	
Operation Temperature	5℃~40℃
Storage Temperature	-10℃~55℃
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation

ELECTRICITY	
DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V 5A
Power Consumption	Max. 7W (DC12V), 8W(PoE)

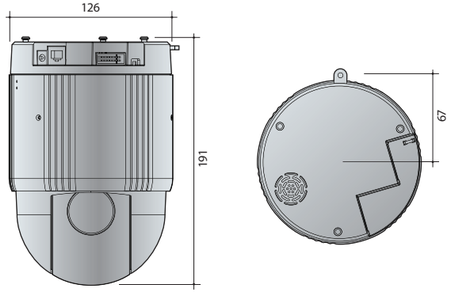
MACHANICAL	
Dimension (mm)	63(W) x 145(D) x 68(H)
Weight	Approx. 460g
Approval	KC, FCC, CE, RoHS

SPD350M Network Speed Dome Camera

Key Features

- 1CH MPEG-4 High Definition Network Speed Dome Camera
- Support Multi Streaming(Max.8) at D1/60fps
- Support D1 / Half D1 / CIF / QCIF Resolution
- Support Day/Night in IR Cut-filter Method
- Built-in Image Stabilization Circuit, 360-Degree Spin
- x35 Optical Zoom (x12 Digital Zoom)
- Support Dual-Codec (MPEG-4 & JPEG)
- SNR Noise Deduction Circuit Adopted / PoE Option
- Bi-Directional Audio (RCA type)
- 4 Sensor Input (Dry Contact) / 2 Digital Output (TTL level)
- 1 RS232 and 1RS422/485 for PTZ Control
- Support Static or Dynamic IP for xDSL and Cable-Modem User
- Monitoring and Setup via IE Browser
- Support WESP (Webgate Embedded Standard Protocol) SDK for SI and Project Manager

Dimension (unit:mm)



Specifications

LENS	
Lens Ex-changeable	Fixed
Lens Optical	3.4 ~ 119 mm(F1.4 to F4.2), Optical zoom 35x , Digital zoom 12x
CCD CAMERA	
CCD Format	Image Size 4.5mm Dia.(1/4 inch), Progressive Scan
Video Type	NTSC/PAL
Max. Resolution	720x486(NTSC), 752x582 (PAL)
Image Transfer Rate	MAX. 30fps(NTSC) , MAX. 25fps (PAL)
Minimum illumination	IR-cut ON(1/60s)(NTSC)/(1/50s)(PAL) – 0.5 Lux/1 Lux(Progressive) IR-cut ON(1/4s)(NTSC)/(1/3s)(PAL) – 0.05 Lux/0.1 Lux(Progressive) IR-cut ON(1/2s)(NTSC)/(1/1.5s)(PAL) – 0.025 Lux/0.05 Lux(Progressive) IR-cut OFF(1/4s)(NTSC)/(1/1/3s)(APL) – Approx. 0.01Lux(B/W)(Progressive)
AGC	Yes
Auto white balance	Yes
Back-light compensation	Yes
IMAGE COMPRESSION	
MPEG-4 Resolution	Up to 720x480 @ 30 frames per second Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
JPEG Resolution	Support D1(4CIF)/HALF(2CIF)/CIF/QCIF
Performance	Up to 8 streams simultaneously Up to MPEG-4 D1(4CIF) 60fps performance
NETWORK	
Program	Control Center, Web Browser
Protocol	TCP/IP, HTTP, ARP, ICMP, UDP, FTP, SMTP, DNS, DHCP, PPPoE, SNTP
Connection	10/100Mbps Ethernet (RJ-45)
F/W Upgrade	Firmware upgrade via Network
Number of clients	10 users
Security	Encrypted password, IP filtering
INPUT / OUTPUT	
Video Output	VBS, 1Vp-p / 75Ω, Composite signal
Audio	1 input : Line-in, 1Vpp / 1 output : Line-out, 1Vpp
Sensor Input	Software-controlled 4 sensor inputs (Dry contact)
Digital Output Schedule	Daily : Day / Night / Four-segment time frame Weekly : Weekdays / Weekends Conditions : MD, Sensor
Digital Output	Software-controlled 2 digital outputs (TTL level)

PTZ CONTROL	
Serial Port	RS232, RS422/485
Control Method (Remote)	On-the-screen PTZ control on PC
Preset Mode	64 points preset per channel
ADDITIONAL FUNCTION	
Password Protection	Yes
Video Motion Detection	Yes
FTP/E-mail Sending	Yes
OS	
Operation System	Embedded Linux
ENVIRONMENTS	
Operation Temperature	5℃~40℃
Storage Temperature	-10℃~55℃
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation
ELECTRICITY	
DC Adaptor (optional)	Input : AC 110~220V / Output : DC 12V 5A
Power Consumption	Max. 12W (DC12V)
MACHANICAL	
Dimension (mm)	126.0(Φ) x 191.0(mm)
Weight	Approx. 1.2kg
Approval	KC, FCC, CE, RoHS

NVS04S HD Network Video Recorder

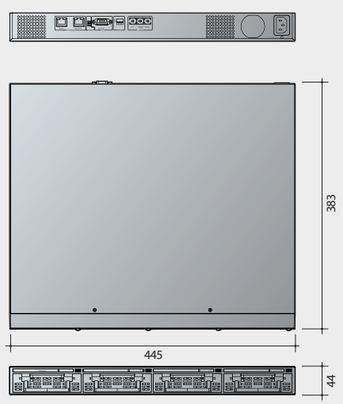
Key Features

- Network Video Storage Device (Stand Alone Type)
- 16 HD IP Video Channel Support
- 4 Hot-Swap SATA HDD Racks can be Installed
- Remote Monitoring / Control via Integrated Software
- IPFR Support (Intelligent Power Failure Recovery)

Front

Back

Dimension (unit:mm)



Specifications

SYSTEM	
OS	Embedded linux
Network	1 Gigabit Ethernet port for network 1 Gigabit Ethernet for further use
VIDEO	
Channel	up to 16 HD IP video
Supported camera	B101M, E30M, SPD260M, SPD350M, VD101M, HDC730 * Axis, Arecont, Truen, Acti, STW, Brickcom * Please contact local sales for detail model name
Codec	MPEG-4, h.264
Recording Rate	up to 480fps
STORAGE	
Capacity	8TB
Performance	up to 80Mbps
Storage device	4 SATA interface with hot-swap function
Intelligent file system	Data-loss protection against power failure
EVENT	
Capacity	8TB
Storage device	4 SATA interface with hot-swap function
Intelligent file system	Data-loss protection against power failure
ENVIRONMENTAL	
Operation Temperature	+5℃ ~ +40℃ (+41F ~ +113F)
Storage Temperature	-25℃ ~ +70℃ (-13F ~ +158F)
Operation Humidity	30%~80%, free of condensation
Storage Humidity	93% below, free of condensation
ELECTRICITY	
Power	AC 100~240V, 50/60Hz
Power Consumption with 4HDD	TBD
ENVIRONMENTAL & PHYSICAL	
Dimension (mm)	430(W) x 362(D) x 44(H)
Weight	Approx. 5.5 Kg (with one HDD)

H.264 DVR

- H.264 and JPEG **dual codec**
- Adjustable **resolution**
- PTZ **control**
- **Built-in** Mirroring support

H.264 Stand Alone **DVR**

MH3200M H.264 Stand Alone Digital Video Recorder

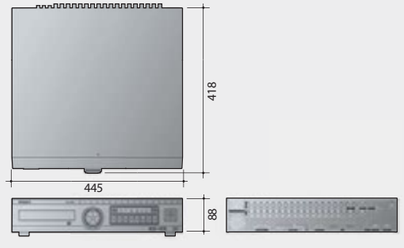
Key Features

- 32ch Stand-alone DVR
- Monitoring/Recording (960fps at 2CIF) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- 4 Individual Monitor Output via Built-in 4 BNC and 2 DVI Port (Each Monitor Support Playback/Screen Division/Menu Feature)
- Support Dual Codec(H.264,JPEG) / Multi Stream
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support External Storage via Giga-LAN (NVS04R)
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Provide Full SDK for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	32 BNC connectors (NTSC/PAL, auto detect)
Connectors	32ch, 75Ω a connector

VIDEO OUTPUT	
Video Output	4 BNC (Each monitor support 16 division), 2 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop out	Not supported

RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	960/900fps (NTSC/PAL) at Half D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail
Block playback	24hours ~ 31days

EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO	
Input/output	16ch input / 1ch output

PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported

STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for storage
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA, Max 32TB with cascaded NVS04R
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay

CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse

SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	Approx. 9.5 kg (21 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

MH1600H

H.264 Stand Alone Digital Video Recorder

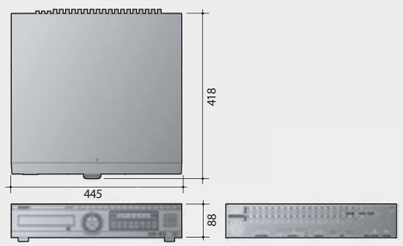
Key Features

- 16ch Stand-alone DVR
- Monitoring/Recording (480fps at D1) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- 4 Individual Monitor Output via Built-in 4 BNC and 2 DVI Port (Each Monitor Support Playback/Screen Division/Menu Feature)
- Support Dual Codec(H.264,JPEG) / Multi Stream
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support External Storage via Giga-LAN (NVS04R)
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Provide Full SDK for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	4 BNC (Each monitor support 16 division), 2 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop out	16 with auto-termination
RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at D1(4CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	16ch input / 1ch output
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for storage
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA, Max 32TB with cascaded NVS04R
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	Approx. 9.5 kg (21 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

MH1600M H.264 Stand Alone Digital Video Recorder

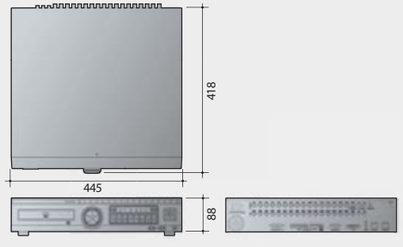
Key Features

- 16ch Stand-alone DVR
- Monitoring/Recording (480fps at HALF D1) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- 4 Individual Monitor Output via Built-in 4 BNC and 2 DVI Port (Each Monitor Support Playback/Screen Division/Menu Feature)
- Support Dual Codec(H.264,JPEG) / Multi Stream
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support External Storage via Giga-LAN (NVS04R)
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Provide Full SDK for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT	
Video Output	2 BNC (Each monitor support 16 division), 1 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop out	16 with auto-termination

RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at Half D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO	
Input/output	16ch input / 1ch output

PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported

STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for storage
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA, Max 32TB with cascaded NVS04R
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay

CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse

SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	Approx. 9.5 kg (21 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

EH1600L H.264 Stand Alone Digital Video Recorder

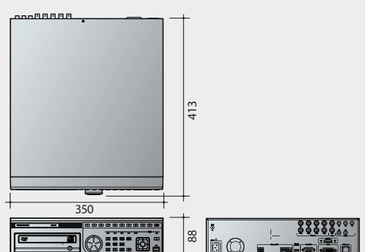
Key Features

- 16ch Stand-alone DVR
- Monitoring/Recording (480fps at CIF) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- Main and Spot Monitor Output via Built-in 2 BNC and 1 DVI Port
- Support Dual Codec(H.264,JPEG) / Multi Stream
- 2 Internal SATA Type HDDs
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Provide Full SDK for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector

VIDEO OUTPUT	
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 DVI 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop out	16 with auto-termination

RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at CIF
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days

PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days

EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support

SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter

AUDIO	
Input/output	4ch input / 1ch output

PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback

SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported

STORAGE & BACKUP	
Storage devices	2 internal SATA HDDs, 1 external eSATA I/F
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health

SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	2 relay

CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse

SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK

ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 kg (17 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

EH800M

H.264 Stand Alone Digital Video Recorder

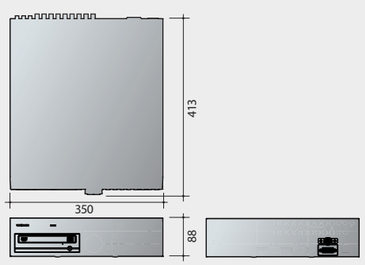
Key Features

- 8ch Stand-alone DVR
- Monitoring/Recording (240fps at 2CIF) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- Main and Spot Monitor Output via Built-in 2 BNC and 1 DVI Port
- Support Dual Codec(H.264,JPEG) / Multi Stream
- 2 Internal SATA Type HDDs
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Provide Full SDK for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	8 BNC connectors (NTSC/PAL, auto detect)
Connectors	8ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 DVI 1, 4, 9 mode User defined sequence / alarm pop-up
Loop out	8 with auto-termination
RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	240/200fps (NTSC/PAL) at HALF D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	4ch input / 1ch output
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	2 internal SATA HDDs, 1 external eSATA I/F
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	8 dry-contact
Relay output	2 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 kg (17 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

EH400H

H.264 Stand Alone Digital Video Recorder

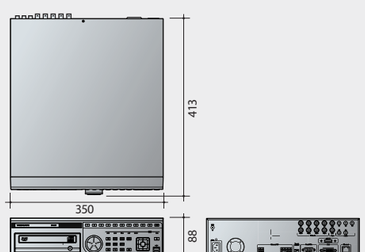
Key Features

- 4ch Stand-alone DVR
- Monitoring/Recording (120fps at D1) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- Main and Spot Monitor Output via Built-in 2 BNC and 1 DVI Port
- Support Dual Codec(H.264,JPEG) / Multi Stream
- 2 Internal SATA Type HDDs
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Provide Full SDK for Easy and Powerful Customization

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	4 BNC connectors (NTSC/PAL, auto detect)
Connectors	4ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 DVI 1, 4 mode User defined sequence / alarm pop-up
Loop out	4 with auto-termination
RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	120/100fps (NTSC/PAL) at D1 (4CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, Twitter, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	4ch input / 1ch output
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	2 internal SATA HDDs, 1 external eSATA I/F
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	4 dry-contact
Relay output	2 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 413(D) x 88(H) mm
Weight	Approx. 8.0 kg (17 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

LH1600C H.264 Stand Alone Digital Video Recorder

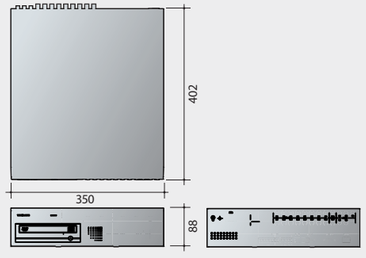
Key Features

- 16ch Stand-alone DVR
- Monitoring/Recording (240fps at CIF) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- Main and Spot Monitor Output via Built-in 2 BNC and 1 DVI Port
- Support Dual Codec(H.264,JPEG) / Multi Stream
- 1 Internal SATA Type HDDs (Optional DVD-R/W)
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	16 BNC connectors (NTSC/PAL, auto detect)
Connectors	16ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 VGA 1, 4, 9, 16 mode User defined sequence / alarm pop-up
Loop out	Not supported
RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	480/400fps (NTSC/PAL) at CIF
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay
AUDIO	
Input/output	4ch input / 1ch output
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	2 internal SATA HDD
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD(option) or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	2 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 402(D) x 88(H) mm
Weight	Approx. 8.0 kg (17 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

H.264 Stand Alone **DVR**

LH800L H.264 Stnad Alone Digital Video Recorder

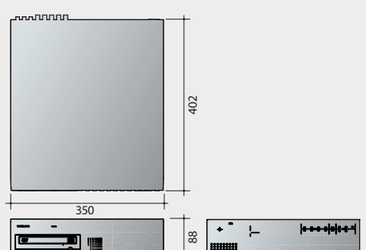
Key Features

- 8ch Stand-alone DVR
- Monitoring/Recording (240fps at CIF) for All Channels
- Adjustable Recording Quality/Speed Setup per Each Channel
- Main and Spot Monitor Output via Built-in 2 BNC and 1 DVI Port
- Support Dual Codec(H.264,JPEG) / Multi Stream
- 1 Internal SATA Type HDDs (Optional DVD-R/W)
- Support External Storage via eSATA
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)

Front

Back

Dimension (unit:mm)



Specifications

VIDEO INPUT	
Video input analog ch	8 BNC connectors (NTSC/PAL, auto detect)
Connectors	8ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	2 BNC (1 Main Monitor, 1 Spot Monitor), 1 VGA 1, 4, 9 mode User defined sequence / alarm pop-up
Loop out	Not supported
RECORDING	
Resolution	D1(4CIF), Half D1(2CIF), CIF
Rate	240/200fps (NTSC/PAL) at Half D1(2CIF)
Quality	5 levels of compression rate / Record frame rate adjustment
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Search type	Time, Calender, Event, Thumbnail, Smart
Block playback	24hours ~ 99days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, video loss, text
Event check schedule	24hrs / 7days
Event action	Buzzer, Relay, E-mail, FTP, Alarm Pop-Up
MD area	22x15(NTSC) or 22x18(PAL) grid
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay
AUDIO	
Input/output	4ch input / 1ch output
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

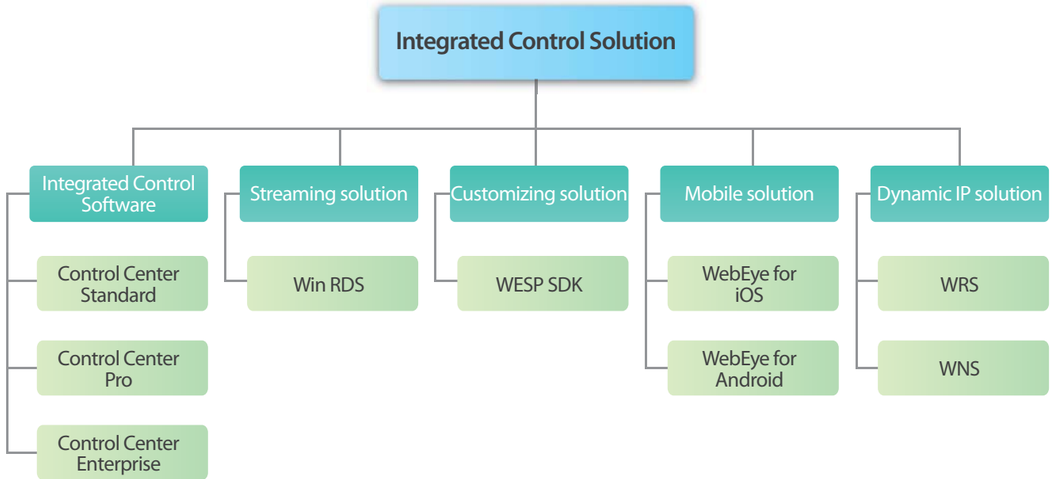
NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	2 internal SATA HDD
Mirroring	Not Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 8TB with SATA
Backup type	Multi-channel own file format or single channel avi file
Backup device	Internal CD/DVD(option) or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	8 dry-contact
Relay output	2 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with Chrome, Firefox and Safari
Mobile viewer	Monitoring with PTZ, iPhone & Android supported
CMS	Control center standard, max 1024 DVRs
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	350(W) x 402(D) x 88(H) mm
Weight	Approx. 8.0 kg (17 lbs), No HDD
Operating temperature	5°C ~ 45°C (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 75W Typical 50W
Approval	FCC, CE, MIC, RoHS

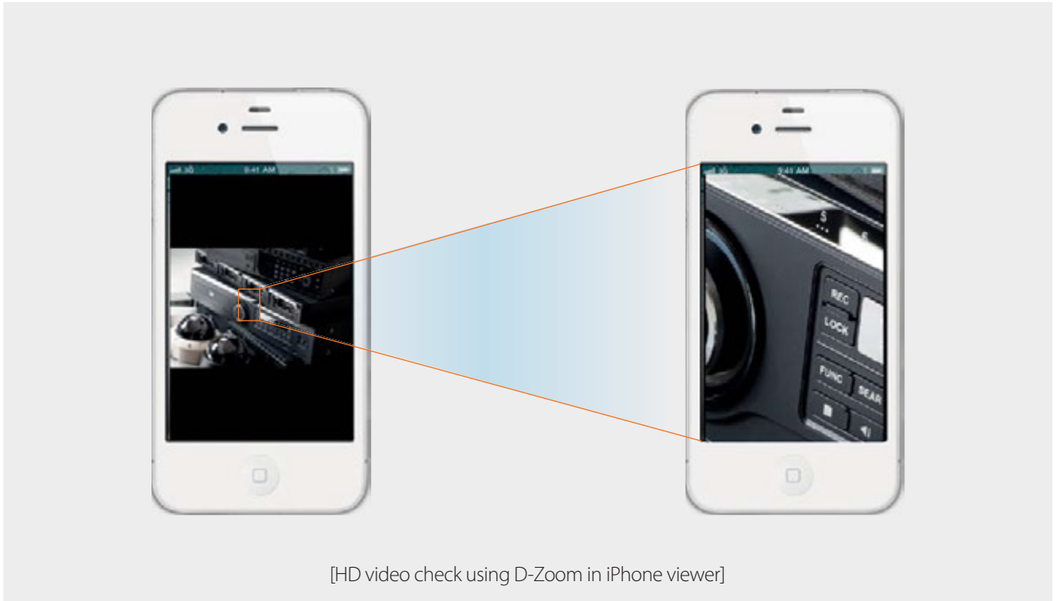
Software SOLUTION

WebEye - WEBGATE mobile application - allows the authorized users to monitor and control all WEBGATE products under mobile environment anywhere and anytime.

Convenient and Feature-**rich CMS**
WebEye for iPhone, Android Phone
Easy DVR access by **Mobile page**
Live Monitoring Anytime Anywhere

Centralized Management System **Features**





[HD video check using D-Zoom in iPhone viewer]

Integrated Control S/W : Control Center

Control Center is Integrated Control S/W of WEBGATE. It consists of Standard version, free of charge supplied with product and Pro version, more powerful features included and Enterprise version including Virtual Matrix feature.

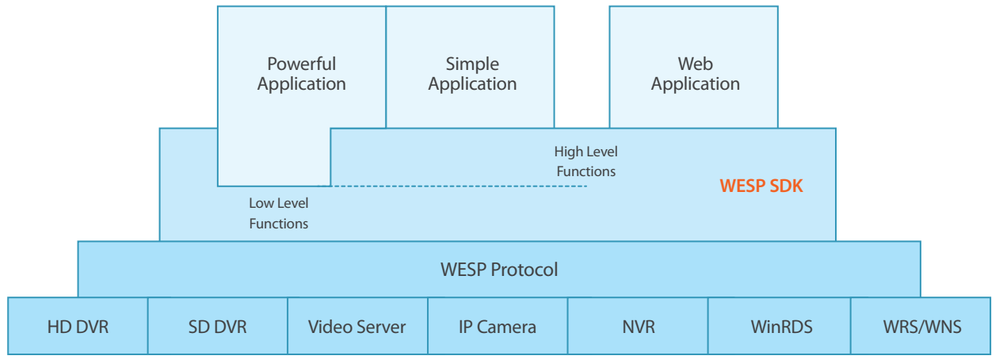
Streaming Solution : WinRDS

WinRDS(Windows ReDistribution Server) is streaming server supplying multi users with Video/Audio stream and Alarm/Status information. It is used when servicing video via Public website or when multi Control Center management is required.

Customizing Solution : WESP SDK

The powerful, abundant WESP(Webgate Embedded Standard Protocol) SDK has full function of Control Center with which any special application preferred by user can be developed with ease. With multi functions from low level function able to set up all function of product to high level function showing image, controlling PTZ achieved in single code, it can develop various program meet with user's level.
In addition, It can be programmed with various languages (VB, VC++, VB Script, Java Script, .NET) since it is made based on Microsoft COM® Technology. Web page programmer using Java Script can make featured application too.
All WEBGATE's products use single protocol called WESP so one single program can be adopted to all range of WEBGATE's products.

Centralized Management System **Features**



Dynamic IP solution : WRS and WNS

WRS and WNS are solutions enabling remote user to access to units having dynamic IP.
WRS(WebGate Registration Service, www.webeye.to) is different from DDNS service where complicated procedure such as member register, unit register are not required but easy to find my unit having dynamic IP and register it from Control Center.
WNS(WebGate Naming Service, www.mycam.to) is DDNS service, changing IP address managed by WRS server into domain name address. It is required service when user access to unit not from Control Center but from web browser.
WRS and WNS both developed and managed in house so users will be free from any worry for sudden stop of service or malfunctions which might have been experienced in free DDNS use.
Moreover, these services are being managed 24 hours in IDC (Internet Data Center) safely not worrying for power failure

Mobile Solution : WebEye for iPhone, Android phone

WebEye is customized App working on iOS and Android which can manage multi devices under mobile environment. DVR or WinRDS can be registered and monitored or user can control PTZ too. System log to check system for power failure, HDD failure and Event log to check alarm status are supported.
Supporting full frame image monitoring and if connected to HD DVR, user can check details of image from received HD level high quality image through Digital Zoom function.

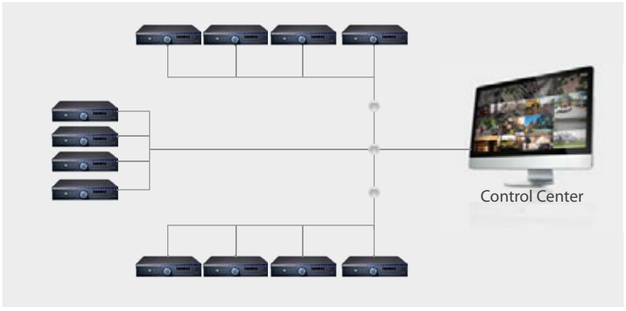
Provide Simplified Integrated Solution through Unified Protocol Policy

This all solutions are provided in unified single protocol called WESP(Webgate Embedded Standard Protocol). WEBGATE had been aware of how important it is to unify Protocol when WEBGATE started as IP camera expert and developed WESP which is in-house unified protocol in early of 2000. All products from IP camera, NVR, SD DVR to HD DVR developed using WESP protocol can be managed under single SW(Control Center). New developing product also will be unified using same SW.

Control Center **Features**

1024 Units Management

CC can manage Max. 1024 units in one PC. Less CPU and network bandwidth are required with 'Distributed Connection Management' technology so multi units can be managed in one PC in real time.



Flexible high performance Video Engine

Over 12ch at 1080p 30fps stream can be monitored flexibly from version 3.0 with new installed high performance display engine.
If PC's performance is lacking suddenly for other program, it will reduce monitoring fps of minimum channels to secure system stability and it will recover original fps once the performance is recovered.

256 channels display via Auto Stream Selection

Support Max.64 screen division monitoring per monitor, Standard version supports 128 channels monitoring via 2 monitors, Pro version support 256 channels monitoring via 4 monitors out of 6 monitors.
Auto Stream Selection function supports the most optimized full frame monitoring during multi monitoring. This function, with the help of advantages of WEBGATE's products supporting multi streaming, selects stream automatically fitting screen division to avoid unnecessary network bandwidth or CPU consumption. For example , when HD DVR is connected, HD image for single channel mode, SD level stream(D1, Half, CIF) for 16 screen division or smaller screen. This function works automatically so user doesn't need to select stream or wait for it.

Supports Multi monitor

To manage multi units effectively in one PC, 2 monitors for Standard version, Max. 6 monitors for Pro version supports. Quick and easy setup on each multi monitor can be done through Layout manager.
Also to maintain screen configuration preferred by user, it can memorize user's configured screen configuration when power off then restore it when starts.

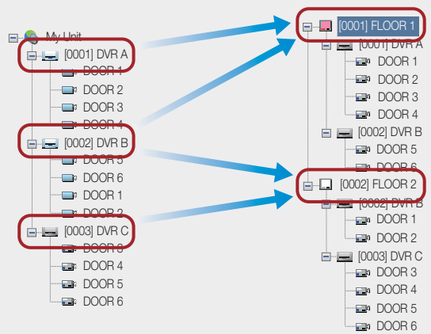
Virtual Matrix function

Enterprise version of Control Center has feature to manage 51ea PCs as 1ea Server and the other 50ea Clients. Server Control Center can control screen of Client Control Center so user can monitor 3,000 channels and manage them throughout virtual matrix of 1024x51.
Server and Client Control Center share information so either connecting to any PC among 51ea PCs, user can work under same screen configuration and unit information.

Control Center **Features**

ViewSet : Virtualizing units by channel grouping

Viewset function is grouping function where user can select preferring channels from multi units and it works as one of unit virtualized with new name.
Control Center provides various features such as user's own editable screen configuration, Alarm popup together with other channels included in viewset, sequence among viewset and so on.
Thisviewset features will be very useful for intensive monitoring on important spots selected by user.



[The way to 2ea 'FLOOR'viewset by mixing 3ea DVR channels]

Authority setup function per user

Control Center has user management function to limit feature on each user. Executing Control Center can be blocked by password or specific program such as 'setup', 'playback' can be blocked per user.
Pro version has more detailed function such as saving layout per user or block specific unit access.

Classified Map function

Units can be managed in a unit of map by locating camera, sensor, mike and relay on the map. Monitoring video, controlling relay or displaying all set of videos registered in the map can be supported. Icon will be flickering to inform user of event such as Motion Detection, Sensor on, Relay on.
Moreover, Pro version supports sub-map or map link to support effective navigation feature among maps.

Status & Action Panel showing status of connected units in real time graphically

Status & Action panel is managing tool to show multi unit's status in real time. It can not only show unit's video connection status, Event trigger status such as Motion Detection or sensor and saving status graphically but also it can response to events such as turning on relay, warning message via bi directional audio.

MD/No Video	Shows camera status of DVR as no-video or Motion Detection
Sensor Input	Shows current status of sensor.
Relay Output	Shows status of relay or control it.
Talk	Audio transfer to selected or all units through PC mike.
Recording	Shows status if recording is going or if any problem in HDD.
Alarm Notify	Select not to receive alarm of units

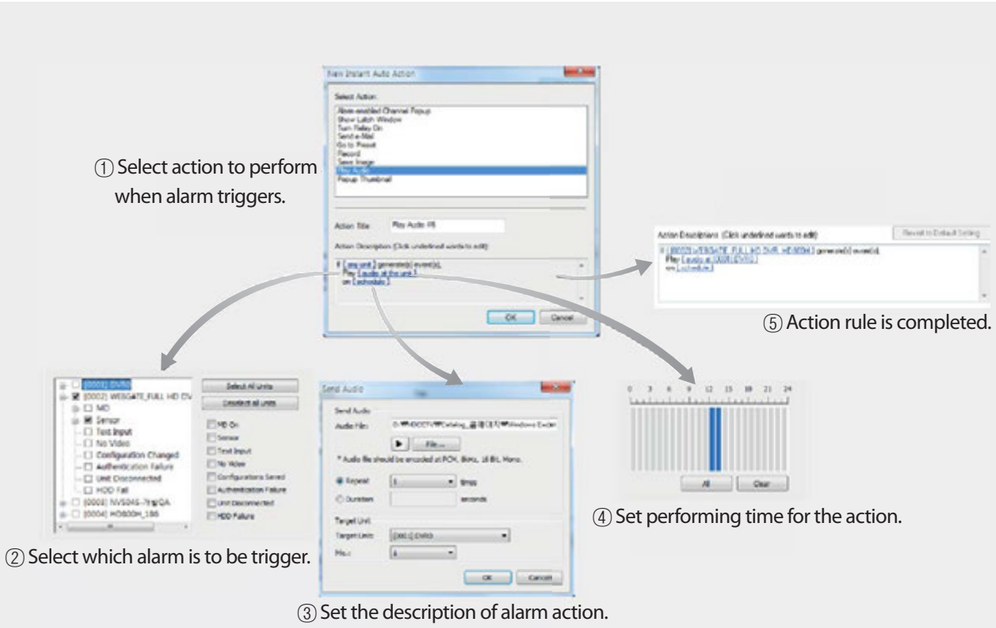
Quick recording

User can make instant recording on the channel during Control Center monitoring by click on right button of mouse.

Control Center **Features**

Integrated event management via Rule-based Auto Action

When event is triggered, user can set CC to make various reactions such as image popup, warning sound (wav file format) output, E-mail transfer, warning window popup, move preset, quick record, save JPEG image and so on. These reactions can be achieved at specific time as a scheduling too. Especially Pro version further to support these reactions under user defined scenario as a rule.



[This picture is about how to make rule-based auto action for one of example that warning message of "Do not open the door" output from DVR (DVR0) with speaker if there is someone opening the back door of office (Sensor no.1 of FULL_HD DVR) at lunch time (12 ~ 2 o'clock). This function can be available to Control Center Pro version.

Keyboard shortcut and Joystick keyboard support

The most of functions can be defined into keyboard shortcut for easy and fast control. Based on this keyboard shortcut, the customized keyboard WKC-100 or USB joystick can select channels or control PTZ. With USB jog/shuttle, user can control or perform playback speed such as playback frame by frame with ease.

[Example for control PTZ from joystick]

[Example for monitoring playback frame by frame using jog & shuttle]

Event log save/search function

All incoming event logs will be saved and managed in DB while Control Center is running. User can select preferable condition and search event log based on that, and the result can be exported as a file and user can playback image by connecting directly to the unit too.

User action log save/search function (For Pro)

Pro version can record not only event log but also user's Control Ccenter control. By recording who achieved playback/backup, close warning message, it is possible to check if user made reasonable reaction when alarm triggers based on rule.

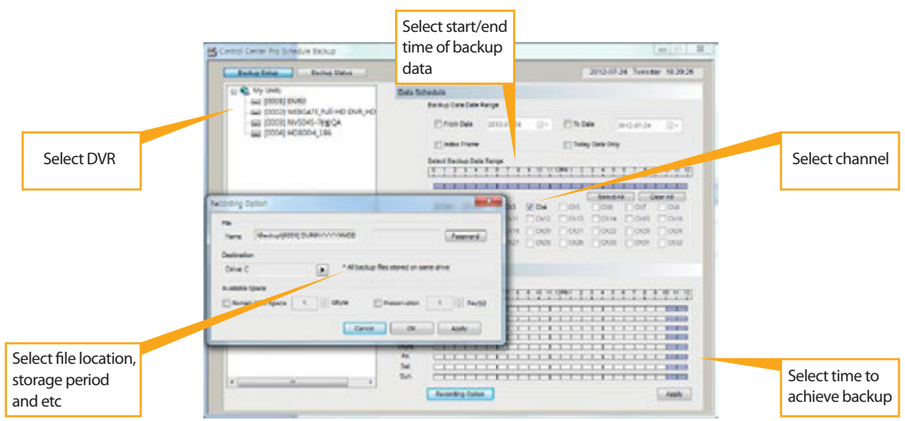
Control Center **Features**

Calendar/Timeline/Smart/Thumbnail/Text search

Control Center's playback program provides various search features.
User can check kinds of events based on time graphically through timeline search and move to the time with ease.
Smart search enables user to see images only with motion in designated area set by user.
Thumbnail search enables user to check images with long interval at a look.
User can search recorded data based on text data of POS/ATM stored in DVR and search image of text immediately.

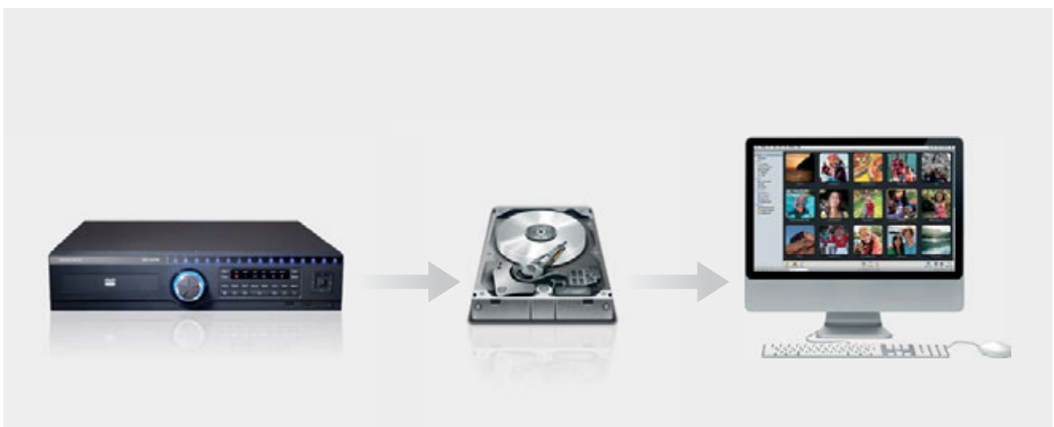
Schedule Backup

Schedule backup is function to back up the data of DVR connected to Control Center to PC HDD according to pre-set schedule. It is possible to select unit, time, channel individually then program them so user can pick up important data of important unit for effective backup.



Playback at the PC

HDD used in DVR can be connected to the PC through USB or eSATA port and user can achieve playback, search, backup from the HDD through Control Center, Whereas reading/writing on the HDD is impossible through Windows OS.
This feature will be useful in case DVR is damaged by intruder but user can still check recorded image of HDD installed in damaged DVR from Control Center by installing the HDD in the PC. This procedure involves reading only for HDD, so this HDD can be restored to record/playback as it was once installed again in DVR.
In addition, If backup for whole HDD is required, user can add HDD with same capacity or bigger capacity to PC then copy it through Control Center to back up whole data of HDD with ease.



Centralized Management **Software**

Control Center (3.x)

Key Features

- Central Monitoring Program supporting Max. 1024 units
- Consists of Monitoring, Playback, Setup Program and Utility
- 64 Screen Division Monitoring
- Capable of Managing Multi Monitors in 1 PC
  (Std : 2, Pro, 6, Ent 4+50 Extended Monitor)
- Layered Map Function
- Status&Action Panel displaying Status of Connected Unit Graphically
- Rule based Auto Action (Pro, Ent)
- User's Action Log Save/Search Function (Pro, Ent)
- Auto Backup Function of DVR via Schedule Backup Function
- Remote Login to Other Control Center to Share Unit Information
- Support All Range of Webgate Unit's Connection from IP Camera, NVR to DVR
- High Performance Video Engine Capable of Displaying 12 Full-HD Streams in Real Time
- Calendar, Time Line, Event, Text, Smart, Thumbnail
- User's Customized Composition of Screen Division via Viewset
- Alarm Popup / Squence Function
- Authority Setup per User
- Event Log Save/Search Function
- Support USB or Customized Joystick Keyboard (WKC-100) (Pro, Ent)
- Playback/Search/Backup Copy Function of HDD Removed from DVR

Specifications

	Control Center Standard	*Control Center Professional*	*Control Center Enterprise*
GENERAL			
Maximum # of Units	1024	1024	1024
Maximum # of Monitors (Views)	2	6	4+50 External Monitor
Maximum # of Supported Division	1/4/9/13/26/25/36/49/64	1/4/9/13/26/25/36/49/64	1/4/9/13/26/25/36/49/64
H/W Support	HD Series DVR, LH/EH/MH Series DVR, MD Series DVR, MPEG-4 WebEye Series, NVS04S, WinDVrS, WinRDS	HD Series DVR, LH/EH/MH Series DVR, MD Series DVR, MPEG-4 WebEye Series, NVS04S, WinDVrS, WinRDS	HD Series DVR, LH/EH/MH Series DVR, MD Series DVR, MPEG-4 WebEye Series, NVS04S, WinDVrS, WinRDS
Video Format	H.264 / MPEG4 / JPEG	H.264 / MPEG4 / JPEG	H.264 / MPEG4 / JPEG
Audio Format	ADPCM/Truespeech/G.723	ADPCM/Truespeech/G.723	ADPCM/Truespeech/G.723
User Management	Yes	Yes Manage Units, Monitors by user separately	Yes Manage Units, Monitors by user separately
Account level	Yes	Yes	Yes
Max account	100	100	100
WNS (DDNS)	Yes	Yes	Yes
WRS (Dynamic IP Registration Service)	Yes	Yes	Yes

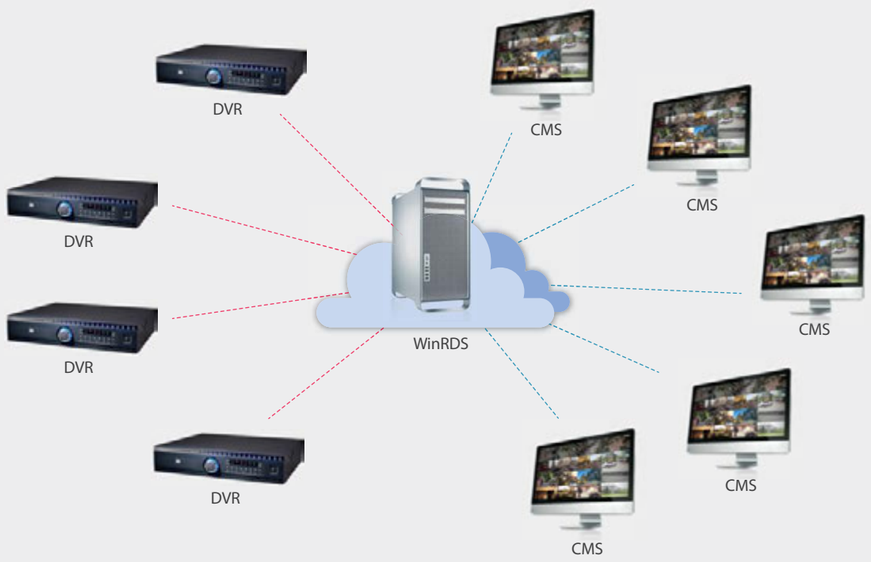
	Control Center Standard	*Control Center Professional*	*Control Center Enterprise*
MONITOR			
Performance	12 HD 1080p30	12 HD 1080p30	12 HD 1080p30 / PC
Real-Time Audio	Yes	Yes	Yes
Remote PTZ Control	Yes	Yes	Yes
Remote I/O Control	Yes	Yes	Yes
Save snapshot image	Yes	Yes	Yes
Quick Recording	Yes	Yes	Yes
Alarm Log Viewer, Save/Search Event List	Yes	Yes	Yes
Auto Action	Yes Alarm Popup, Buzzer	Yes Alarm Popup, Buzzer, Latch Window, Relay, e-Mail, Preser, Recording, Save image	Yes Alarm Popup, Buzzer, Latch Window, Relay, e-Mail, Preser, Recording, Save image
Rule based auto action	No	Yes	Yes
Error Management (Latch function)	No	Yes Item of errors to be managed are selectable freely	Yes Item of errors to be managed are selectable freely
Action Log	No	Yes User action, auto action	Yes User action, auto action
Log Save	Yes	Yes	Yes
Status Viewer	Yes	Yes	Yes
Auto Connection (Lost & Recovery)	Yes	Yes	Yes
Watermark	Yes	Yes	Yes
Keyboard Shortcuts	No	Yes	Yes
Joystick (WKC-100)	No	Yes	Yes
View set(group)	Yes	Yes	Yes
Map	Yes	Yes Section, Sub Map, Map Link	Yes Section, Sub Map, Map Link
Remote Login	No	No	Yes
PLAYBACK			
Playback	Yes	Yes	Yes
Backup (re4, avi)	Yes	Yes	Yes
Log Viewer	Yes	Yes	Yes
Timeline display (log) Timeline index search	Yes	Yes	Yes
Go to a certain time Calendar search	Yes	Yes	Yes
Playback event image	Yes	Yes	Yes
Speed playback(0.5 ~ 64x)	Yes	Yes	Yes
Smart Search	Yes	Yes	Yes
Thumbnail Search	Yes	Yes	Yes
Text Search	Yes	Yes	Yes
Snapshot / print	Yes	Yes	Yes
Zoom in/out image Brightness/Contrast	Yes	Yes	Yes
Audio play	Yes	Yes	Yes
Fix Layout	No	Yes	Yes
UTILITIES			
Web Viewer	No	No	Yes
Schedule Backup	Yes	Yes	Yes
DVR HDD Manager	Yes	Yes	Yes
File Converter (eye to bmp, rec to avi …)	Yes	Yes	Yes
System Requirement			
Recommended	Intel Core i7 3.4GHz, 8GB of RAM, 500GB HDD, Radeon 1024MB PCI-E Graphic Cards, Support AGP Accelate, Support PCI-E 2.0 16x or higher, 100/1000 Ethernet NIC, Sound Card, Windows 7		
Minimumage	Intel Core2Duo 2.93GHz, 2GB of RAM, 100GB HDD, 128MB Graphic Card, Support AGP Accelate 10/100/1000 Ethernet NIC, Sound Card, Windows XP	Intel Core2Quad 2.40GHz, 4GB of RAM, 500GB HDD, 256MB PCI-E Graphic Card, Support AGP Accelate, 10/100/1000 Ethernet NIC, Sound Card, Windows 7	

WinRDS (Windows ReDistribution Server)

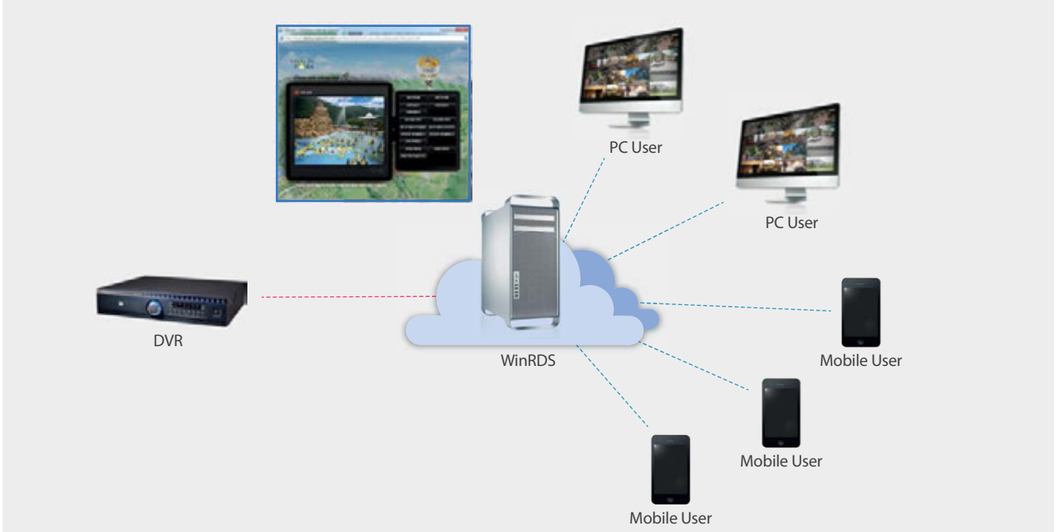
Key Features

- Streaming Server to Redistribute DVR Stream to multiple Users
- Max. 512 Channels Transmission (500Mbps)
- Max. 512 Users Support (500Mbps)
- Authority Management for Access and Control based on User's Account

• Scenerio 1 - DVRs set up provide full frame images from multiple PCs



• Scenerio 1.2 - DVR capable of providing images to the public via internet



Specifications

GENERAL	
Max number of Registrable channel	512 channels (500Mbps)
Number of channel for service simultaneously	512(CIF 7fps)/ 250(CIF 30fps))/ 170(D1 15fps)/140(720p 15fps)/ 80(1080p 15fps) (Unit : channel) Max. 500Mbps
Number of output stream for service simultaneously	512(CIF 7fps)/ 250(CIF 30fps))/ 170(D1 15fps)/140(720p 15fps)/ 80(1080p 15fps) (Unit : stream) Max. 500Mbps
Remote Software	Control Center Std/Pro
User	100 user
SYSTEM REQUIREMENT	
Minimum Requirement	Intel i7-870 CPU @2.93GHz or higher / 4GB RAM / 1TB or more HDD / PCI-E Gigabit Ethernet NIC Card x2

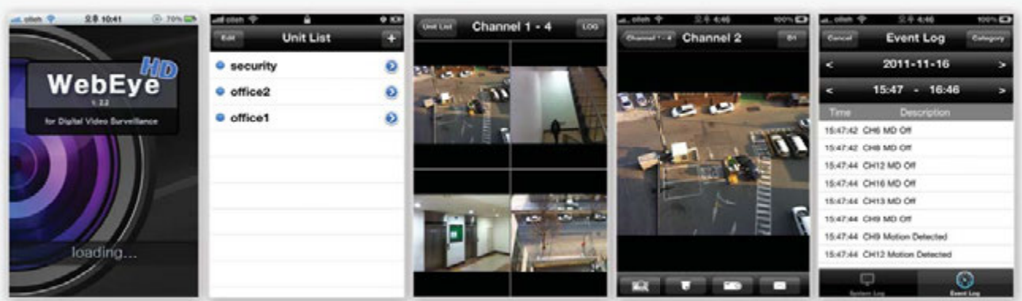
Mobile Application **Software**

WebEye

Key Features

- Mobile Viewer for iPhone / Android Phone
- Support MH/LH/EH/MH/HD series DVRs
- Max. 16 DVRs Support
- Dynamic IP unit connection
- Support QCIF/CIF/Half/D1/720p/1080p resolutions
- 4 screen division monitoring
- Streaming up to 30fps
- Support PTZ
- Support HD Resolution including D-Zoom
- Check Unit Status by Searching System logs
- Check alarm status by searching Event Log

Screen Shots

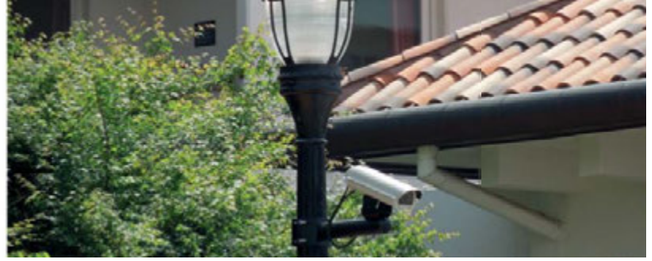


Specifications

	iOS	*Android*
SUPPORT		
H/W	iPhone 3Gs/4G, iPod Touch 3G/4G, iPad, iPad2	All Android Phones
OS	iOS 4.2 & above (iOS 5.x Not Tested)	Android2.2 or above (Android 2.2 tested)
Device	HD Series DVR, LH/EH/MH Series DVR, MD Series DVR	HD Series DVR, LH/EH/MH Series DVR, MD Series DVR
SERVER		
List manager	Add, Remove, Modify	Add, Remove, Modify
Address	IP, ULR, WRS	IP, URL(DNS/DDNS)
Port	Support	Support
ID/Password	Support	Support
Discovery	TCP, WRS(up to 16)	TCP, WRS(up to 20)
VIDEO INPUT		
Protocol	WESP	WESP
Standard	NTSC, PAL, HD	NTSC, PAL
Resolution	QCIF, CIF, HALF, D1, 720P, 1080P	QCIF, CIF, HALF, D1, 720p, 1080p
Compression	JPEG, H.264	JPEG, H.264
VIDEO DISPLAY		
Division	Single or 4 Divisions	Single or 4 Divisions
Frame rate	MAX CIF 30, Half 20, D1 7, 720P 4, 1080P 1, JPEG 1 fps (It depends on network)	
DIGITAL ZOOM		
Support	D1, 720p, 1080p resolution	-
PTZ		
Protocol	CGI call	WESP
Command	Zoom In/Out, Tilt Up/Down, Pan Left/Right	Zoom In/Out, Tilt Up/Down, Pan Left/Right
LOG		
Protocol	System Log, Event Log	System Log, Event Log
Search	WESP	WESP
Type	Date (Event Log – Date + Time)	Date
System log filter	Nothing	Nothing
Event log filter	**Status&Action** "CH Pre Alarm Start" "CH Post Alarm Stop", "CH Recording Start", "CH Recording Stop", "Manual Recording Start", "Manual Recording Stop", "Unknown Code"	**Status&Action** "CH Pre Alarm Start" "CH Post Alarm Stop", "CH Recording Start", "CH Recording Stop", "Manual Recording Start", "Manual Recording Stop", "Unknown Code"
	Text "Text Input"	**Text** "Text Input"
	Motion "Motion Detected", "MD Off"	**Motion** "Motion Detected", "MD Off"
	Alarm "Sensor On", "Sensor Off", "CH Network Event On", "CH Network Event Off", "CH Site Connected", "CH Site Disconnected", "CH Site Disconnected(Cont.)", "CH No Video", "CH Video Detected", "Bookmark"	**Alarm** "Sensor On", "Sensor Off", "CH Network Event On", "CH Network Event Off", "CH Site Connected", "CH Site Disconnected", "CH Site Disconnected(Cont.)", "CH No Video", "CH Video Detected", "Bookmark"
Event log filter	Up to 1000	Up to 1000

Solution **Guides**

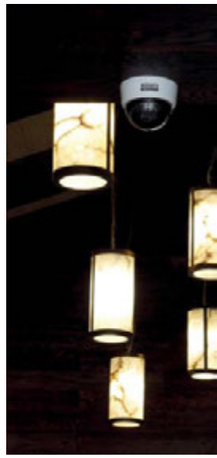
Hotel & Leisure
Game & Casino
Bank
Transportation
Industry
Public & Education
Retail













Hotel & Leisure

We provide the best method to prevent negligent accidents of our customers and employees, and protect the important equipment in a hotel or leisure facility.

Reliable management of entrance histories through differentiated high-definition recording

- Provision of image data to identify visitors by using the high resolution recording of HD
- Easy searching of entrance histories using a date/time, thumbnail, smart search

Prevention of negligent accidents through the efficient monitoring of dangerous areas

- 6 times improved video resolution than existing analog video system (when used 1080P camera)
- 3 times wider angle of view than existing analog video system (when used 1080P camera)
- Monitoring of accidents in elevators, indoor/outdoor swimming pools, and invaders into a restricted area

Minimization of factors for a friction with customers

- High-definition parking lot monitoring
- Recognition of entering and leaving car number plates, and securing of car conditions during entering and leaving
- High-density recording of lobby situations and counter customer reception

High-density Internet P.R. of the views around the hotel and resort, weather, etc.

- Real-time high-definition video P.R. of hotels and resorts via the Internet homepage
- Securing of video clips to provide to the tourism and P.R. site

Game & Casino

The real-time monitoring of a store and the HDTV level recording of video without delay provides a comfortable environment where customers can enjoy games feeling easy.

Prevention of cheating through differentiated high-definition and real-time recording

- Video recording of maximum 30 frames/second at 1920x1080 image size without delay time
- Monitoring of cheating by customers and dealers, and provision of optimal corroborative facts in case of any accident
- Minimization of factors for a friction with customers

Establishment of large-scale system using HD-SDI matrix and CMS

- Decentralized video record processing by HD-SDI DVRs
- Provides integrated solution by HD-SDI matrix and/or provides network integration by CMS

Safe custody of recording data through high-capacity storage and mirroring function

- Provision of an external storage interface of maximum 64TB per a HD-SDI DVR
- Safe custody of data via mirroring recording method
- Provision of perfect measures against troubles in the storage media

Bank

We protect your precious financial assets from various crimes through more wider monitoring and HDTV class video recording

Thorough recording of visitors through differentiated high-definition video

- About 3 times wider angle of view than the existing SD class camera (when used 1080P camera)
- Reliable recording of customer movement, and provision of high-definition image

Clear recording of customer face through applying a HD camera to the ATM

- About 6 times higher resolution than the existing SD class camera (when used 1080P camera)
- Provision of a perfect solution compared to the existing CCTV recorded image in which face recognition was unclear

Safe custody of recording data through high-capacity storage and its mirroring function

- Custody of recorded data for more than 1 month
- Provides perfect measure against a trouble of storage media through dispersed storage, mirroring, backup, etc.

Reliable prevention of robbery, cheating and provides the corroborative facts

- Recording of maximum 30 frames per second at 1920x1080 resolution
- Prevention of a dispute with customers and employees

tegration of DVRs using CMS

- Integrated control and real-time remote monitoring of dispersed DVRs at each branch
- Prior prevention of unjust data operation by using a Radius function

Transportation

We protect the safety of passengers and crew members using an airport, harbor and railway including the monitoring of road traffic situation

Monitoring the waiting room and facility of airport, harbor and railway, using more wider view and clear image

- Searching of suspicious persons and monitoring of their actions
- Automatic recognition of persons on the blacklist through interlocking with face recognition system
- Monitoring of robbery case and damage of important facilities such as roads, airports, harbor, etc.

Monitoring of a real-time traffic situation

- Long-distance transmission of high-definition video to control center through fiber-optic cable
- Detailed confirmation of accident contents by using an auto-focus PTZ camera

Perfect identification of unjust passengers and provision of corroborative facts

- Ticket gate at railway station and subway station
- Monitoring of violent figures in a bus and provision of the best recorded video images

Excellent recognition rate of car license plate by high definition image

- Monitoring of illegal parking
- Checking of vehicles entering and leaving the unmanned parking lot or the parking lot

Industry

We can prevent dangers in dangerous facilities by perfectly providing high-definition and real-time monitoring methods

Provides optimal monitoring solution for important facilities

- Monitoring of intruder into the hydro, thermal or nuclear power plant
- Protection of equipment in a power plant, factory, warehouse or building

Monitoring of a civil or architectural construction site

- Theft prevention of raw and subsidiary materials and the damage to facilities
- Monitoring in all directions of 360°by using wide angle and auto-focus PTZ camera
- Remote monitoring of the construction progress situation at a site

Monitoring the operation condition of important equipment

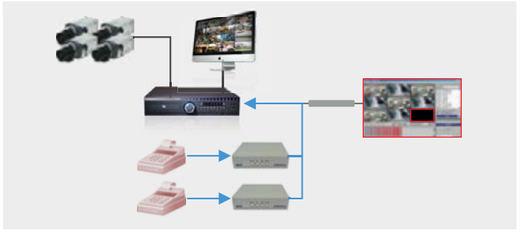
- Remote monitoring of operation condition, and real-time checking through iPhone or Android Phone
- Can provide corroborative facts about control responsibility by using a reliable high-definition recorded image

Process control of a factory or plant

- Process monitoring by using high-definition and real-time transmission
- Real-time monitoring and alarming of dangerous equipment in petroleum and chemical plant, etc.
- Protection of workers and equipment through the observation and prior prevention of dangerous factors

Retail

You can get HDTV class monitoring and recorded video images only with the same design and installation method as the existing ones and the simple button operation of a DVR



Provision of the same design and installation method as the existing analog CCTV design

- No need of complicated network configuration and setup
- Provides a monitoring method you are already familiar with

Configuration of a full-embedded system guaranteeing reliability

- Provision of a solution of the same type as the existing DVR
- System configuration is only composed of trivial trouble-free embedded products

Simple monitoring, recording and playback method without needing a PC

- No need of complicated setups for operation
- Simple DVR operation with front buttons or mouse click

Efficient store management through interface with POS system

- Provision of a means to minimize the friction with customers
- Possibility of providing corroborative facts about exact money receipt and disbursements

Improvement of store service

- Real-time monitoring of store through iPhone or Android Phone
- Checking the display conditions of merchandise, and suspicious customers to prevent robbery

Public & Education

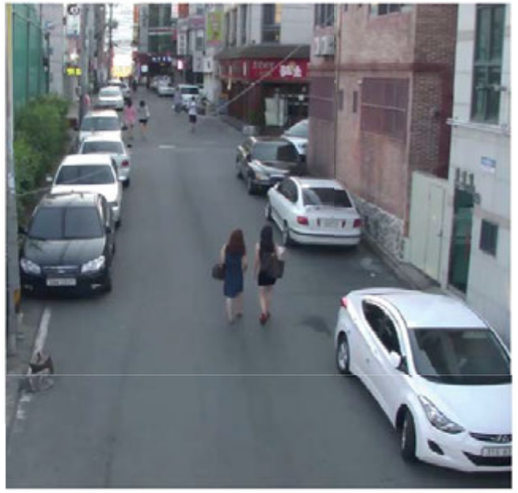
We provide the optimal solution to manage public facilities through provision of high-definition video images, wide angle of view and to prevent juvenile crimes that may happen at school.

School zone monitoring

- Monitoring of suspicious persons around elementary schools, and its connection with the police station
- Provides countermeasures against illegal intruder into a school
- Provision of the optimal solution to prevent juvenile crimes in school through wide-angle surveillance and high quality video

Real-time monitoring of cultural assets and advertisement of tourism through Internet

- Real-time and high-definition monitoring of major national cultural assets
- Prevention of damage to cultural assets by suspicious persons, and provides reliable evidence



Provision of a perfect urban crime prevention solution

- Monitoring of a particular region using the high-definition video, and monitoring of vehicle movement by number plate recognition
- Interlocking with an emergency bell system
- Integration of a wide area crime prevention system using the CMS

Monitoring of downtown park

- Monitoring of illegal activities in a park

HD-CCTV TECH NOTE

HD-CCTV system and HD-SDI transmission method

lass video quality as the biggest issue in the CCTV market

Recently the biggest issue in CCTV market can be said to be the high resolution application of HD or Megapixel class more than anything else. The change of resolution from the existing SD(720x480:NTSC) class to HD(1920x1080:HD1080p) class requires a change in the whole system, not the video quality enhancement of camera simply.
The SD class(NTSC/PAL) image was not enough to meet the market requirement of the times, high definition and high visibility, in the HDTV era due to a limitation in resolution. The market requirement for high definition started to be applied to the CCTV market in a Megapixel IP camera type along with the development of a HD class image sensor at a reasonable price, and recently HD-SDI transmission technology was grafted on the CCTV market, starting to be introduced as a product group of HD-CCTV.

Introduction of HD-SDI transmission technology

In order to adopt HD class video into CCTV system, HD-SDI transmission technology and dedicated chip solutions were introduced in the security market. Because HD-SDI is easy to understand and easy to use, it provided easy way to build the HD surveillance system. Moreover, because this technology was already verified in the broadcasting market, it can be said that HD-SDI surveillance systems already have the reliability.

HD-CCTV as a HD system?

In here, we want to define a CCTV to transmit the SD class video through a coaxial cable as the SD-CCTV, and a CCTV to transmit the HD class video through a coaxial cable using HD-SDI transmission method as the HD-CCTV. This is because the HD-SDI transmission method was developed as the most suitable transmission method to transmit the HD class video without degradation of video quality, being used as the standard transmission method between broadcasting systems for HDTV system. Now, the high definition video security market is expected to develop into a new shape through competition and fusion between the HD-CCTV market and the IP market.

HDTV and HD-CCTV

HD-SDI transmission method used in HD-CCTV system

HD-SDI is a standard specification to transmit video between HD class broadcasting systems. HD-SDI is the abbreviation of High Definition Serial Digital Interface, which means the method to convert video signal into serial video data and transmit it through a coaxial cable without compressing it. HD-SDI was standardized by SMPTE, which describes all the contents of electric interfaces, data formats, auxiliary data and video formats. The feature of HD-SDI transmission method is that because it transmits video as digital signal, it does not make degradation of video quality within a distance where data are not lost. It can transmit audio and control signals as well as images, and it seems that it will be able to supply power in the future.
The HD-SDI transmission method is basically different from SD class transmission method. As shown in the table below. Although they use the same coaxial cable, but there is big difference that SD class video is using the analog transmission method and HD-SDI is using the digital transmission method. In addition, the HD-SDI transmission method is one of the SDI transmission methods, which can transmit video up to 1080p30. This is defined in SMPTE 292M, which uses 1.485 Gb/s transmission data quantity and 750MHz transmission frequency.

	SD-CCTV	SDI transmission method		
		SD-HDI	HD-SDI	3G-SDI
Signal type	Analogue	Digital	Digital	Digital
Standard	NTSC, PAL, SECAM	SMPTE 259M	SMPTE 292M	SMPTE 424M
Data transmission volume	X	360 Mb/s	1.485 Gb/s	2.970 Gb/s
Transmission frequency	X	180 MHz	About 750 MHz	약 1.5GHz
Max resolution	720 x 480i or 720 x 576i	960x486@59.94i	1080i60, 1080p30	1080p60

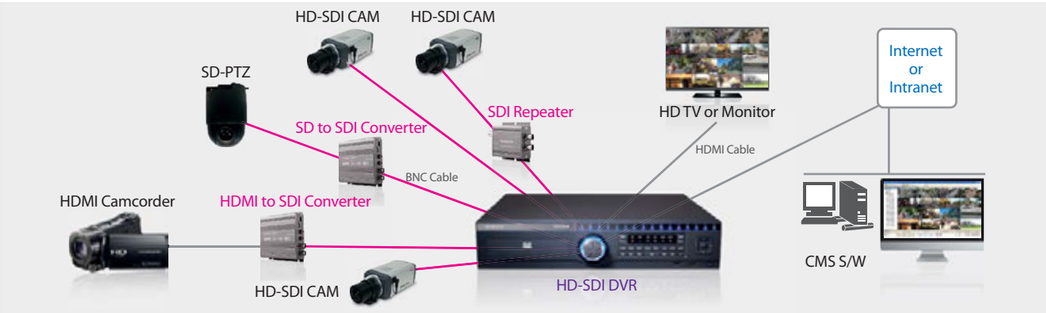
HD-SDI : A technology to transmit HD video digitally through a coaxial cable without compressing it.

HD-CCTV, HDcctv, HD-SDI terminology

HD-SDI : Technology to transmit HD video digitally through a coaxial cable without compression
HD-CCTV : CCTV system realized HD class video by using the HD-SDI transmission method
HDcctv : HD-CCTV guaranteeing the specification and performance defined by the HDcctv alliance

Example of HD-CCTV system configuration

The figure below is an example of using a HD-SDI transmission method, showing that various types of cameras are connected with a HD-SDI DVR using the HD-SDI transmission technology to realize the system. In here, HD-SDI cameras, repeaters, DVRs, etc. were used. A repeater can be used in the middle of a line to extend the transmission distance of the HD-SDI signal, and the existing SD camera's video signal can be changed to the HD-SDI signal through a converter.



Feature comparison of HD-CCTV system

The following summarizes the property differences between HD-CCTV, SD-CCTV and IP based system as a table. Taking a look at one, the feature of the HD-CCTV shows that camera image can be recorded without being affected by network errors because the most important part of transmitting and saving the camera image uses a coaxial cable. This is just one of the key factors in the security system.

	Transmission method		
	HD-CCTV (HD-SDI)	CCTV	MP IP Camera
Pathway to IP Network	DVR or Streamer	DVR or Streamer	NVR or Router
Recording Immune to IP LAN Failure	Yes	Yes	Usually Not
Works with Existing Coax	Yes	Yes	Needs Adaptor
Local-Site Live View Immune to IP LAN Failure	Yes	Yes	No
Near Zero Latency	Yes	Yes	No
Comprehensive, Global Interface Standard	Yes	Yes	No
Guaranteed 100% Plug-and-Play	Yes	Yes	No
100% Digital	Uncompressed	No	Compressed
Delivers 720 or 1080 Video	Uncompressed	No	Compressed
Delivers full frame rate HDTV	Uncompressed	No	No
Commissioned Cost per Video Channel	Medium	Low	High
Delivers 〉2-MP Video	Planned	No	Compressed

What is the weak point of the HD-CCTV system?

Short transmission distance?

The transmission distance of existing SD-CCTV is 300m or more when using a coaxial cable. The transmission distance of HD-SDI is about 150m~200m when using a coaxial cable exclusive for the HD-SDI. Of course, there may be a little difference depending on quality of coaxial cables. Even using the existing coaxial cable can transmit video at least 100m. For your reference, the transmission distance of the UTP cable(CAT5,6) for network communication is about 100m, and accordingly, the transmission distance may not be a weak point. In addition, using a commercialized HD-SDI repeater or optical transmission converter can extend the transmission distance as much as one likes.

Remote monitoring(network) is impossible?

HD-SDI camera can be networked through a DVR or video server, so there is no problem in integration through a network. Being an issue recently, a smart phone can monitor the HD video also because the service can be provided through a DVR. It seems that network monitoring is possible without additional equipment because the connection of camera to a storage device(DVR) is essential in security market.

Full HD 1080p resolution is enough?

Video size of HD is 6 times bigger than SD resolution physically, but considering the aspect that SD camera's video quality is deteriorated through analog signal transmission and the degradation of still image due to interlace scanning at image sensor (composed of a field of image frame taken at two different times), the video quality difference between SD class and HD class exceeds the 6 times difference by far. In addition, realistically most of the monitoring equipment(HDTV, LCD monitor, etc.) has the 1920x1080 resolution. The HDTV broadcasting also uses the 1920x1080 screen size, so you can do monitoring HD resolution at the most competitive price. Now, considering the reality that HDTVs are supplied in a full scale just worldwide, the Full-HD 1080p resolution is expected to become the most competitive resolution for a considerable period.

Prospect of HD-CCTV system

The request for HD-CCTV by the users already accustomed to high video quality of HDTV is being received as a very natural thing. There is still a little burden in prices, but it is expected to approach the customer required level in terms of time and price in a not so long time.

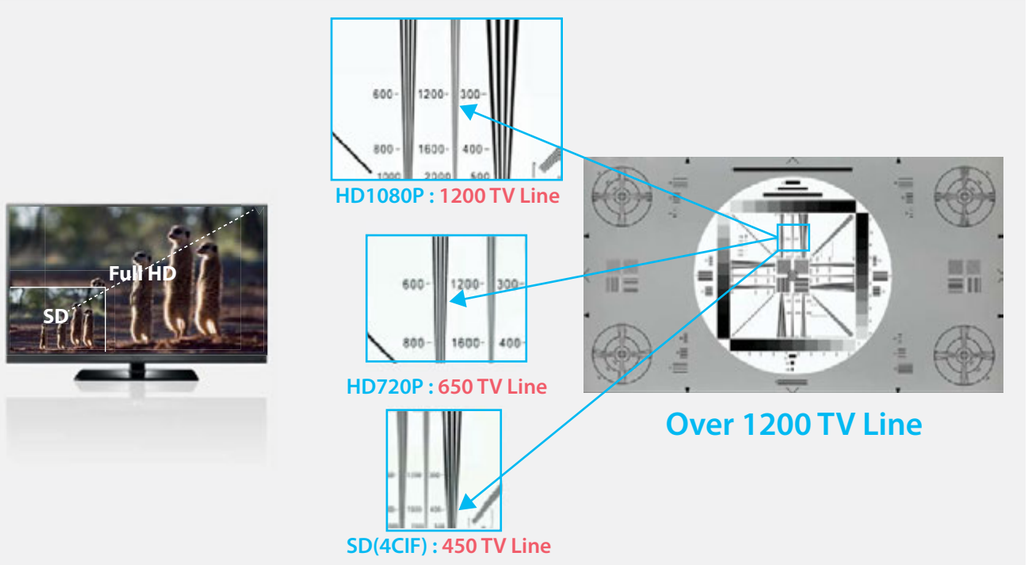
The HD-CCTV system introduced for the first time in 2009 started to be released in a full scale from 2011, and is expected to enter a full-scale growth period over 2012 through 2015. It seems that most sites requiring the high resolution such as important facilities, banking sectors, etc. will be changed into the HD-CCTV during this period. More than anything else, this is because the operation of small scale systems is simple and the composition of large scale systems through a network is enabled due to the easy installation and control of the HD-CCTV products with the experience in designing, installing and controlling the SD-CCTV system used so far. As an example, its installation at a place requiring high video quality such as highway control system, casino, bank, etc. is being discussed in a full scale. As one naturally purchases a HDTV if the person purchases a new TV, it is expected that an era in which the installation of CCTV system just means the installation of HD-CCTV system.

6 times bigger resolution size

HD-SDI standard allows 1080p resolution image together with 720p. In case of 1080p resolution, it has 6 times bigger image size than SD level resolution. Therefore, it will be able to be used in the special market such as car license plate recognition or face identification of criminal requiring High Resolution.

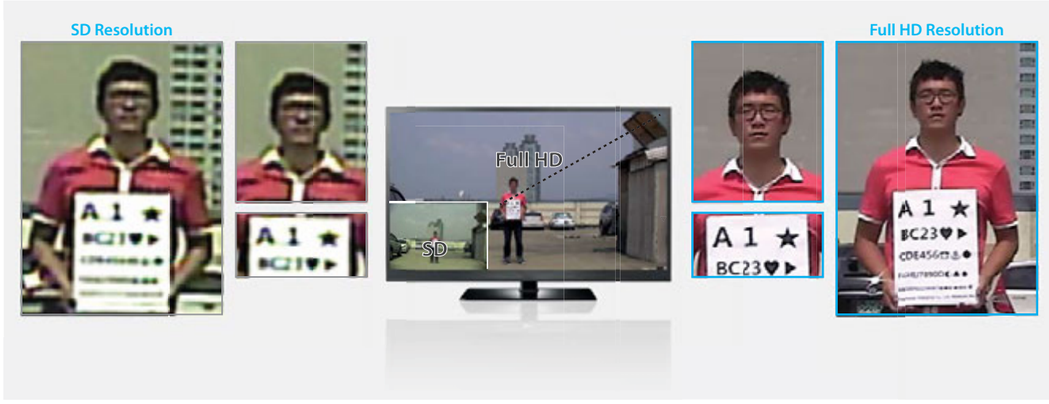
High Definition

1080p shows over 1200TV lines in both horizontal and vertical resolution. It is decidedly superior to the SD resolution which can only show between 450TV lines and 600TV lines.



Face Identification

Below pictures show the difference between 1080p image and SD image. These pictures were taken under the same environment, and you may find the big differences in parts of face and text identification.

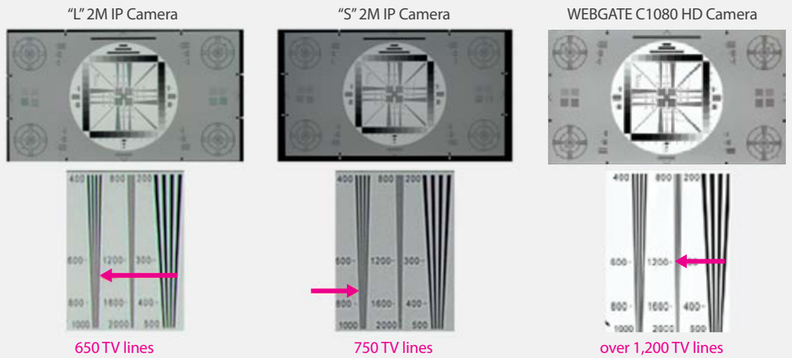


Digital transmission without video quality degradation

In case of SD-CCTV, transmitted analog video signal's quality is decreased by external noise and during the digital converting at DVR, but HD-SDI cameras execute image processing, get digital video and transmit the digital video to DVR without any converting process. So, there is no video degradation during the transmission and DVR processing, and user can do monitoring clear video image.

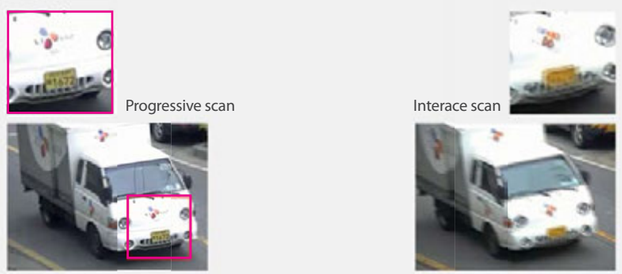
Uncompressed video for monitoring

Below pictures show resolution chart image taken from diverse 2 Mega-Pixel cameras. Since HD-SDI cameras do not compress video, it shows more clear image, and superior horizontal and vertical resolution.



Progressive Scan

HD-SDI camera captures the images by progressive scan method, and it provides more clear image than SD camera which delivers interlaced video streams.

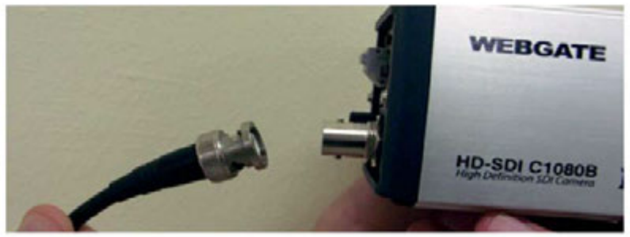


The effect of raising Zoom Magnification

Compare 35x Speed Dome camera used in conventional CCTV to 20x HD-CCTV camera, the picture of 20x Full HD camera is clearer than that of 35x SD camera in same distance, and this can be recognized surely inthe picture of number plate. 20x Full HD camera can have the resolution of 45x SD camera, andplease refer to "Readability of Full HD & SD zoom camera(151p~154p)" for more explanation about this.

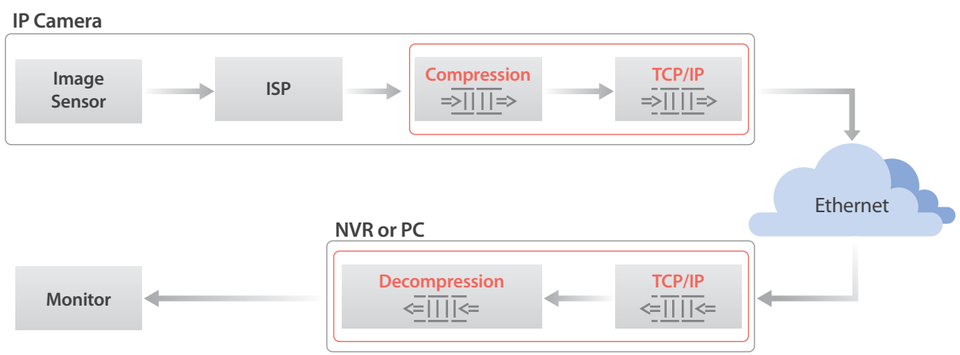
Plug & Play using Coaxial Cable

In case of HD-CCTV, the coaxial cable used in conventional CCTV can be reusable. The management of camera and DVR is very similar to that of SD products, so it can contribute to minimize the technical burden of conventional installer and manager of monitoring center. This is because HD-CCTV is relatively easy to handle when it compared with IP system which has product compatibility issue and difficult network configuration.



HD real time monitoring (Full Frame, No latency, No compression)

Because HD-SDI transmits video as digital data without compression, you can get the best video image without any quality degradation, and furthermore because there is no latency, you can control PTZ with real-time from control center. It means HD-SDI had overcome some restrictions of HD video introduction due to picture degradation and delay of IP solution.
The below picture shows the component of network system. IP camera includes delay caused by video compression and network transmission besides, NVR includes delay caused by network and video recovery. This will make the overall delay of total system, and this will decrease the completeness of the system such as you can see from PTZ control.



Trustworthy Channel (Video-only Channel)

It is possible to transmit and record video with no interference of network error because HD-CCTV is transmitting video through coaxial cable. The trustworthy of transmitting channel is one of the most core elements to secure trustworthy of security system.

Improved Camera reliability by low heat

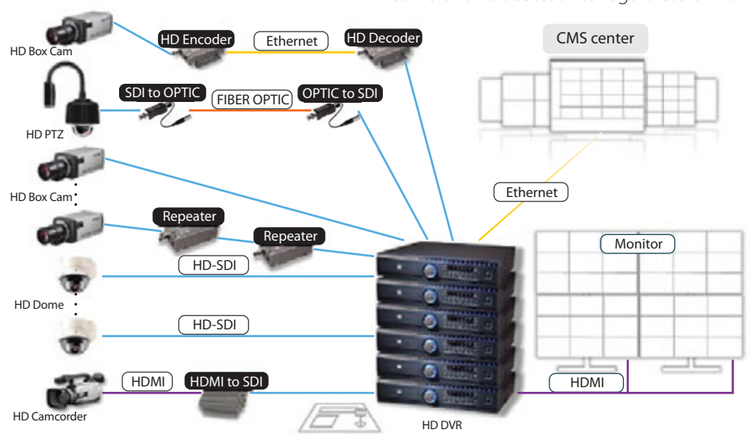
Surveillance cameras can be installed both indoor and outdoor. So minimizing performance degradationof camera is required under the environment where camera is exposed to high temperature. The power consumption of HD-SDI camera can be relatively minimized because it does not needs H.264 compression or IP network feature. And this will contribute to secure the reliability of camera.

Easy Integrated Monitoring

The system using both HD-SDI camera and HD-SDI DVR can be easily integrated and installed into the conventional SD-CCTV. It is easy to use some channels as SD and some channels as HD together in the same monitoring system. This could be achieved more easily with the help of HD-SDI Hybrid DVR or SD-to-HD converter.
In addition, it is possible to integrate with IP network system and remotely access the system because HD-SDI DVR can have the network feature.

Securing Compatibility among Equipment positively

The system using various HD-SDI camera and HD-SDI DVR can be easily integrated and installed like conventional SD-CCTV system. Various converters will offer easy connection among different type of devices if HD class video is converted into HD-SDI transmission method. This is superior to the IP camera system which makes compatibility problem among devices due to the different high-level protocol. Therefore, user can configure HD-CCTV system based on installation environment requirement by selecting various cameras and accessories regardless of manufacturers.



Features of HD-SDI signal

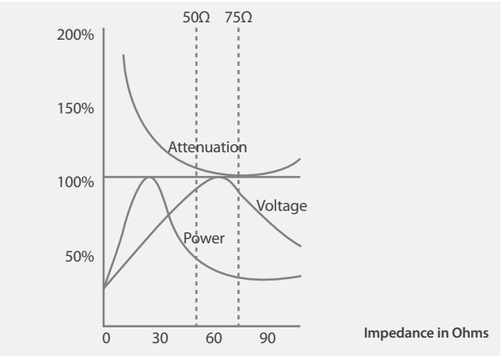
The transmission method of HD-SDI uses Bitrate 1.485Gbit/s of SDI(Serial Digital Interface) method as a standard of SMPTE 292M defined by SMPTE(Society of Motion Picture and Television Engineer). The transmission of HD-SDI uses high frequency of 750MHz due to large amount of data transferred per second. Compared to Analog video signal which uses less than 10MHz, it is over 75 times differences. The higher frequency means short wavelength of signal, and signal attenuation by distance will be increased. So, the most important part in HD-SDI transmission is to minimize decrease of signal. To minimize decrease of signal , user needs to select suitable coaxial cable for HD-SDI transmission.

Coaxial Cable

The coaxial cable consists of signal line, insulator surrounding signal line and shield(outer conductor). The signal line, being a metal, has resistance value and this resistance value can be separated as resistance, capacitance and reactance. From these 3 values characteristic impedance is decided, and there are 50ohm and 75ohm impedance in Coaxial cable.
Video cable has minimum attenuation at 75ohm characteristic impedance and can transfer signal farthest at that time.
External diameter of signal line, permittivity of insulator and external diameter of insulator are the elements to maintain 75ohm impedance.
Even though conventional Analog CCTV system consists of coaxial cable, user needs to check impedance of coaxial cable, quality of insulator, shielding method and impedance of cable connector to apply HD-CCTV system using HD-SDI.

75ohm Impedance

The below picture shows Attenuation according to Characteristic Impedance, Power and Voltage. HD-SDI transmission signal is very low voltage and the most important part in the coaxial cable is signal decrease. If signal decrease is big, that means transmission distance becomes short. So, 75ohm characteristic impedance cable which shows minimum attenuation should be used.
In contrast to HD-SDI signal, 50ohm characteristic impedance coaxial cable is used in area of RF such as communication, measurement, antenna to deliver signal of higher voltage and current even though signal decrease is bit fallen behind.



Solid/Foamed/High-Foamed insulated cable

Coaxial cable consistsof signal line and insulator, outer conductor (shield), and plastic jacket. Because cable's performance and usage is determined by insulator, it is important to select the proper insulator. In case of HD-SDI signal transmission, Foamed/High-Foamed insulator shows better characteristic impedance than solid insulated cable.

Solid Polyethylene Insulator

Common polyethylene (PE) insulator shows the feature of high dielectric constant, easy to manufacture, and strong. They are primarily used as mobile cable.

Foamed insulator

In order to enhance the performance of transmission than the Solid Polyethylene Insulator, Foamed insulator is inserting air into polyethylene when making the insulator, or inflating polyethylene by gas compound to decrease the dielectric constant. This is the most general insulator that reduces the loss of signal transmission, lengthen the transmission distance. But, by injecting air, occurs voids between particles and it makes insulator weak. Because foamed insulator can be easily damaged by external shocks, it is mainly used as installation cable.

Foamed insulator used at coaxial cable

High-foamed insulator

High-foamed insulator improved the hardness which is the weak point of foamed insulator, and decreased the dielectric constant to improve the transmission performance. This will be the superior insulation cable improved the performance and durability, and this cable is sometimes used for HD-SDI cable to transmit high frequency signal to long distance.

Braided Shield / multi-shield

Coaxial cable is shielded to block the external noise. If not well-shielded and noise entered, it distorts the original signal and affect the proper signal transmission. Inner insulator to shielding area ratio is called as noise insulation factor, and braiding factor informs the density of braided shielding. Noise insulation factor of normal aluminum wrapping shield is 100% because aluminum wrapping tape is tightly wraps the entire outside of insulator.

Braided Shield / braiding factor

In case of braided shield, it is impossible to get the 100% braiding factor. Normally it shows braiding factor of 90%~95%, and high-performance, high-price cable shows the braiding factor up to 98%. Low-price cable shows worse braiding factor. Generally, if the braiding factor is more than 95%, it is called as good braided shielding. Higher braiding factor shows better shielding effect.

Aluminum Shield / multi-shield

Because the braided shield is thicker than aluminum wrapping shield, it is effective for low frequency signal, and in case of aluminum shield, it is normally used by thin aluminum tape and due to Skin Effect, it is effective for high frequency signal. Because HD-SDI has high frequency signal, double or triple shielded cables which use braided shield and aluminum shield together show good performance.

75 Ohm coaxial connector

If a cable is terminated by a resistor value which is different from cable's impedance, it will make a reflected signal and this signal interferes in the original signal flow. Generally, VSWR(Voltage Standing Wave Ratio) is used to check how well termination resistor matches with cable impedance, and sometimes this is called as "Return Loss". This value is calculated by transmitting power to reflecting power ratio.
If 75ohm BNC connector is used with 75ohm coaxial cable, it will make low return loss(VSWR) up to 2GHz frequency, but if 50ohm BNC connector is used with 75ohm coaxial cable, it will make big return loss because of impedance mismatch. Big return loss generates Jitter which make bit error of HD-SDI signal and if this Jitter is too severe, HD-SDI signal cannot be transmitted properly. In case of HD-CCTV transmission, 75ohm connector must be used both for cable and connector.

Cross-section area of signal line

Although both analog video and HD-SDI video can be transmitted through a coaxial cable, they show the difference in the transmission distance. By "Skin Effect", high frequency signals tend to flow only through the skin of cable. In case of HD-SDI, if 75ohm, 5C coaxial cable is used, the signal uses only outer 10% of the cross-section area of the signal line. Therefore, if you want to transmit more higher frequency signal, actually used cross-section area of signal line will be decreased and resistor value will be increased accordingly. It means higher frequency signal will have bigger attenuation, and you'd better to choose thicker cable. The thickness of signal line is defined as AWG(American Wire Gauge), and lower value means the thicker signal line.

The main coaxial cable types and specifications

RG-type coaxial cable

RG-type coaxial cables include RG-59, RG-6, RG-58, RG-8, etc. following the American coaxial cable standard. RG-58, RG-8 is 50ohm coaxial cable and RG-59, RG-6 is 75ohm video coaxial cable. RG-59 means 4C high-foamed coaxial cable, and RG-6 means 5C high-foamed coaxial cable. /U means normal cable and /T means triple shielded cable.

ECX-type coaxial cable

ECX-type coaxial cablesinclude 3C-2V, 5C-2V, 7C-2V, 10C-2V etc., and they are defined in Korean domestic standard KSC 3610. They are solid polyethylene insulation type coaxial cable, and it is different from foamed insulation type ones. 3, 5, 7, and 10 means the outer diameter, C means 75ohm impedance, 2 means PE (polyethylene), and V means braided-shielding.

FB (T)-type coaxial cable

FB(T)-type coaxial cables include 3C-(H) FB (T), 4C-(H) FB (T), 7C-(H) FB (T), 10C-(H) FB (T) etc., and they are defined as foamed/high-foamed polyethylene insulation coaxial cable in Korean domestic standard KSC 3617. 3, 5, 7, and 10 means the outer diameter, C means 75ohm impedance, F means foamed PE insulation, B means braided-shielding, and T means triple shield. Especially, HF means high-foamed, but the expression is a little different according to manufacturers. In case of HD-SDI transmission, high-foamed insulation type is better than ECX type, and HFBT/FBT type's triple shielding shows better signal attenuation performance.
For reference, FB(T) type coaxial cable shows the most cost effective performance in HD-SDI transmission because it has high-foamed insulation and shielding as default suitable for high frequency. But, if the distance is short, every cable does not make problem. You may refer to the standard signal attenuation vs. frequency band table provided from cable manufacturers. You may think that HD-SDI signal could reach to the distance where the standard attenuation become 20dB at 750MHz (1/2 of 1.5GHz) frequency band.

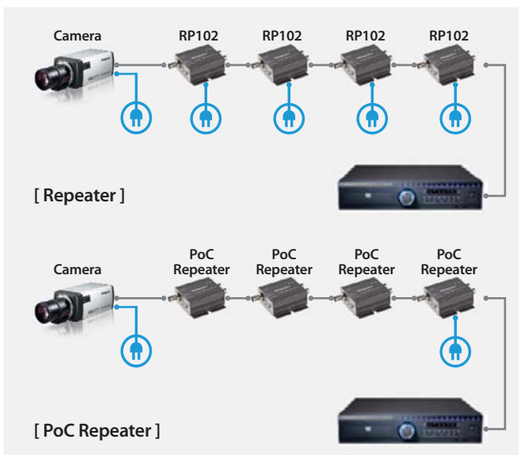
HD-SDI signal extension

Maximum HD-SDI transmission distance is almost decided according to the type of coaxial cable as shown in the table below. If you want to lengthen the distance, you may use higher rating cable which has lower signal attenuation, or you may use HD-SDI repeater, or you may adopt fiber-optic converter for long distance.

	Cable type	HD-SDI transmission distance	Remark
1	5C2V	about 100m	cable for analog signal
2	4C-FB(T), 4C-HFB(T), RG59	about 150m	High-foamed cable, double or trishield recommended
3	5C-FB(T), 5C-HFB(T), L-6CHD, RG6	about 200m	customized for HD-SDI

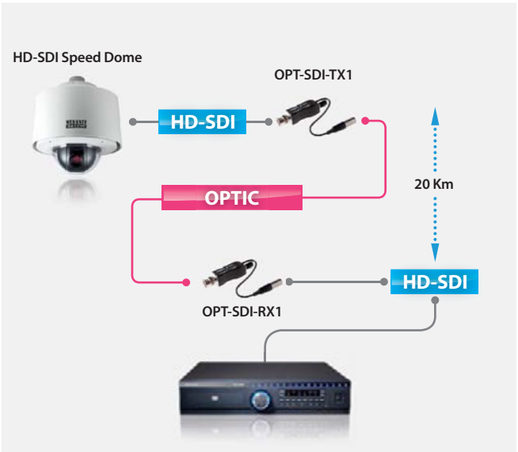
Repeater / PoC repeater

HD-SDI repeater has equalizer function to compensate and recover video signals attenuated. HD-SDI repeater is used for extend the transmission distance. PoC(Power over Coax) is a repeater which supplies power via coaxial cable. If used PoC repeater, it does not need to supply power into the repeaters which are connected in the middle of line. According to the cable type, maximum number of PoC repeater is different.



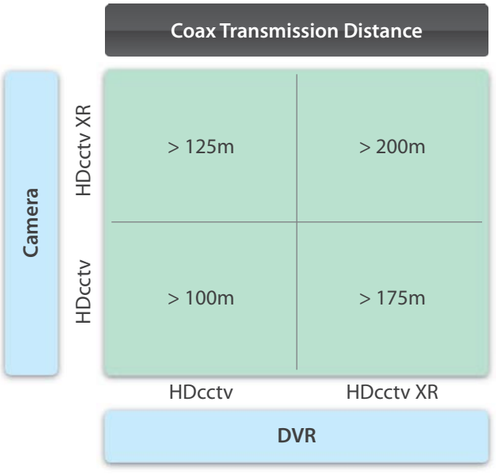
Fiber Optic converter (HD-SDI fiber optic transmission)

In order to make up for the weakness and to reduce transmission loss and to extend transmission distance to dozens of Km, fiber-optic transmitter is in use. The advantages are as follows. installation is easy due to thin cable, and although HD-SDI video can be transmitted around 100~300m using normal coaxial cable, but it can be transmitted up to dozen of Km by fiber-optic cable. Moreover, normal coaxial cable is easy to be affected by EMI, RFI noise, but fiber-optic cable is not affected by these electromagnetic noises, and if used multiplex transmission, several data can be transmitted through one fiber-optic cable.



HDcctv 1.0 XR(eXtended Reach)

The HDcctv 1.0 XR standard is to improve the transmission distance through coaxial cable, and this standard applied devices and products are being prepared. XR version improved the transmission distance by only electrical improvement of transmitter and receiver chipset device. So, if cameras or DVRs are compatible with HDcctv standard, they are easily upgraded to have improve transmission distance by replacing the device to XR version. Following figure shows the difference of RG59 cable's transmission distance between normal device and XR version device. If both of camera and DVR adopted the XR version, transmission distance can be extended from 100m to 200m.



Effect by zoom magnification

In case of analog zoom camera, zoom performance was simply compared by its zoom magnification. Of course, because the actual zoom performance is depend on the wide-end focal length, such simple comparison will not provide the accurate comparison result. For an example, same 35x zoom camera may show different zoom performance by the difference of wide-end focal length. Nevertheless, generally wide-end focal length was ignored in analog zoom camera.
In case of HD-CCTV providing 1080p resolution, such simple comparison makes problem. BecauseHD(1080p) zoom camera provides 2.5 times detailed image in horizontally than analog camera, it means HD zoom camera provides 2.5 times higher zoom effect.

Comparison of two cameras which have same wide-end focal length

Camera 1 : 35x SD zoom camera
Camera 2 : 20x HD zoom camera

If 20x HD zoom camera is converted to SD camera's zoom magnification, the results are as follows.
Resolution of HD camera : 1920 x 1080 pixels
Resolution of SD camera : 720 x 480 pixels
Zoom effect based on vertical pixels : 1080/480 = 2.25 times
Zoom effect based on horizontal pixels : 1920/702 = 2.66 times
Under the same focal length, Full HD camera will show 2~3 times higher zoom magnification performance (performance to show more details) than SD camera. In conclusion, 20x HD zoom camera has 45~53 times higher zoom magnification performance than analog camera.

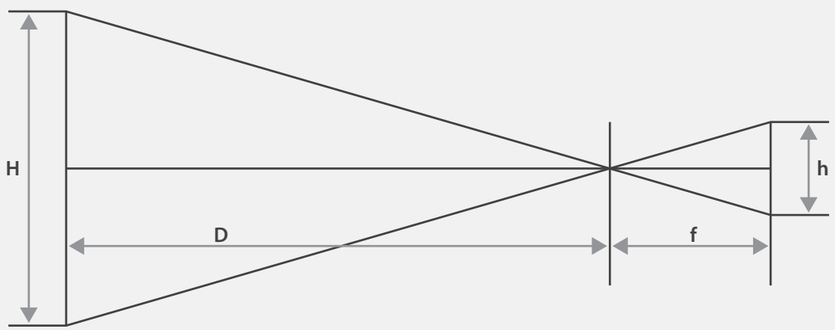
Actual zoom performance test

Camera Specifications

Camera1 : Analog Camera
35x SD Zoom Camera
Focus range 3.4 ~ 119mm
Camera 2 : HD Camera(720p)
18x Zoom(94mm) Camera
Focus range 4.7 ~ 84.6mm
Camera 3 : Full HD Camera(1080p)
20x Zoom(94mm) Camera
Focus range 4.7 ~ 94mm

Distance between camera and target object is 119m

Focal Length & Object Distance



Object side
H : Object height
D : object distance

H : D = h : f
D x h = H x f
H = (D x h/f), h = (H x F/D)

Sensor side
f : focal length(max.)
h : image size

Q1) If the height of target object(119m away) is 4.8m, what is the height(ratio) on screen?

Camera1 : 35x Analog Camera

h = H x f / D = 4.8m x 119mm / 119m = 4.80mm (100%)
(when D = 119m, H = 4.8m, f=119mm)

Camera 2 : 18x HD Camera(720p)

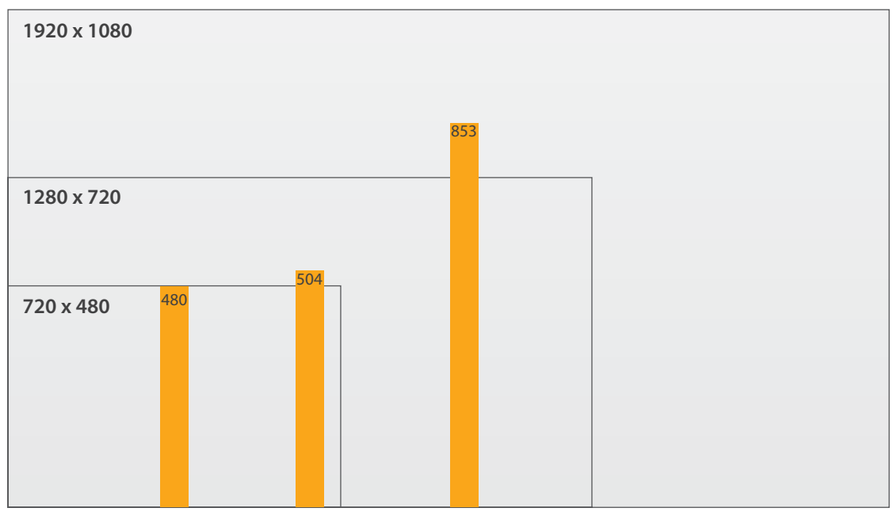
h = H x f / D = 4.8m x 84.6mm / 119m = 3.40mm (70% of Camera1)
(when D = 119m, H = 4.8m, f=84.6mm)

Camera 3 : 20x Full HD Camera(1080p)

h = H x f / D = 4.8m x 94mm / 119m = 3.79mm (79% of Camera1)
(when D = 119m, H = 4.8m, f=94mm)

Consideration of this case are as follows.

100% height of 720 x 480 is 480 pixel
70% height of 1280 x 720 is 504 pixel
79% height of 1920 x 1080 is 853 pixel



Q2) If the target object(119m away) filled the entire screen, what is the actual height of target?

1. Camera1 : 35x SD Zoom Camera

Object height(H) = D x h / f = 119m x 4.8mm / 119mm = 4.80m
(when D = 119m, f = 119mm, h = 4.8mm)

Camera 2 : 18x HD Zoom Camera(720p)

Object height(H) = D x h / f = 119m x 4.8mm / 84.6mm = 6.75m
(when D = 119m, f = 84.6mm, h = 4.8mm)

Camera 3 : 20x Full HD Zoom Camera(1080p)

Object height(H) = D x h / f = 119m x 4.8mm / 94mm = 6.07m
(when D = 119m, f = 94mm, h = 4.8mm)

If summarized,

- Max. performance of zoom camera is not related to zoom magnification, and it depends on the Tele-end focal length.
- Even though if used the same zoom lens, actual resolution shows difference according to the pixel number of image sensor.
- If we know the distance between camera and target object and its size on screen is decided, we can calculate the Tele-end focal length.

In conclusion, 20x Full HD zoom camera and 45x analog camera shows similar zoom performance.

Status of HDcctv Alliance

HDcctvAlliance(www.highdefcctv.org) is developing the HD-SDI standard based on SMPTE standard. Their purpose is functional and performance standardization for speedy HD-SDI market expansion, so it adds new items to ensure the performance and restricts items suitable for surveillance market. Approx. 50 companies all over the world is joining this alliance and closely working with the alliance. Below picture shows the company logos that joined and working with HDcctv Alliance at present. It includes diverse companies like chipset provider, DVR and camera manufacturers from various countries of the world.

Product compatibility and guarantee of transmission performance

HDcctv Alliance is developing the HD-SDI standard, and this standard includes video, physical layer, meta data, etc. which are using between HD-SDI Tx/Rx equipment. Especially, they are standardizing the performance, compatibility requirements that are necessary for surveillance camera, DVR, monitor, and repeater, and its purpose is fast market expansion of HD-SDI products in surveillance market. For example, because still image is as very important as video in surveillance market, they donot allow interlace scan method that makes quality degradationof still image and only allow progressive scanning method.
HDcctv Alliance is clearly providing the HD-SDI's minimum requirements for performance, standardizing the compatibility between equipment, and ensuring product performance for the expansion and settlement of the HD-CCTV market.

Standardization (differences with SMPTE)

HDcctv Alliance and SMPTE made a license agreement in year 2009, and the HDcctv standard was derived from SMPTE-292M. Because HD-SDI is already proven technology in broadcasting market, it did not need a separate standard. However, in contrast to the relatively small and high cost of broadcasting equipment market, large and price-sensitive surveillance market needs further standardization of electrical function, performance and the compatibility between diverse equipment. HDcctv standard requests the plug and play regardless of device's features, nation, price and it provides their test methods in certification process.
Below table shows the differences between SMPTE and HDcctv standard. HD-CCTV adopted 1.485Gbps, 1080p30 HD-SDI transmission method due to the compatibility between equipment and importance of still image. Additionally, the transmission distance is one of the main issues, it requests strict signal quality of equipment. HDcctv is still working for improvement of transmission distance, communication between equipment and adding PoC function for easy installation.

		SMPTE	HDcctv V1.0
Video Format	Physical Layer	SD-SDI, HD-SDI, 3G-SDI	HD-SDI
	Max bit rate	up to 1080p60	up to 1080p30
	Scanning	progressive, interlace	progressive
Signal Performance	Signal Loss(dB)	〉typically 20dB	〈 36dB@L-4CFB
	Bit error	Not defined	No error when 150m@RG59
Future Spac.	eXtend Reach	Not defined	will be released at HDcctv XR
	Bi-directional control	Not defined	will be released at HDcctv V2.0
	Power over Coax	Not defined	will be released later
Etc	Certification Process	Not defined	O

Purpose of Certification Process

HDcctv Alliance has been contributed to ensure the product reliability in security market through the certification activities for requirements of product performance as well as the standardization.
This certification process maintains the compatibility between equipment, and ensures the performance and reliability of HD-CCTV products in the market.

Transmit Port Requirement (Physical Layer)

To obtain HDcctv Certification for the HD-SDI transmitter device, must fulfill below test requirement. Refer to theHDcctv Standard documents for more information.

Test ID1-1 : Raster Requirement

Reference	Requirement
HDcctv Specification V1.0 S1001 720 Line Video Image Formats for HDcctv Digital Interfaces Sections 6 and 7 HDcctv Specification V1.0 S1002 1920 Line Video Image Formats for HDcctv Digital Interfaces Sections 6 and 7	The video format meets the horizontal and vertical timing requirements for the 720p video signal. Line numbers and line CRC' s meet the requirements for the 720p video signal. The video format meets the horizontal and vertical timing requirements for the 1080p video signal. Line numbers and line CRC' s meet the requirements for the 1080p video signal.

Video format

Standard & Format #	Scanning Nomenclature	Samples per active line (S/AL)	Active line per frame (AL/F)	Frame rate (Hz)	Scanning format
1-1	720p30	1280	720	30	Progressive
1-2	720p29.97	1280	720	30/1.001	Progressive
1-3	720p50	1280	720	50	Progressive
1-4	720p25	1280	720	25	Progressive
1-5	720p60	1280	720	60	Progressive
1-6	720p59.94	1280	720	60/1.001	Progressive
2-1	1080p90	1920	1080	30	Progressive
2-2	1080p29.97	1920	1080	30/1.001	Progressive
2-3	1080p25	1920	1080	25	Progressive

Test ID1-2 : Metadata Requirement

This is to test the integrity of auxiliary data along with video data. It includes the requirements like location of auxiliary data, stream ID, etc.

Reference	Requirement
HDcctv Specification V1.0 S2001 HDcctv Interface Stream ID Section 4 HDcctv Specification V1.0 S1100 Video, Audio, Data and Metadata – Mapping and Serial data Format Section 3.2.1	The Stream ID meets the format requirements of S2001. The Stream ID is mapped into the video data in accordance with S1100.

Test ID1-3, ID1-4 : Eye Signal Requirement

This is a test to verify the Eye Pattern's integrity using 1m standardized cable. The requirements for this signal are as follows and it includes voltage level, rising time, falling time, jitter, etc.

Reference	Requirement
HDcctv Specification V1.0 Source Eye Mask S1200 Figure 2 HDcctv Specification V1.0 Transmit Jitter Template S1200 Figure 4	Refer to "CTP1 Eye Diagram Requirements"

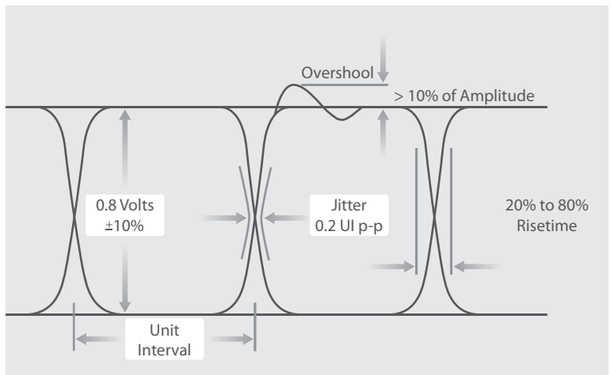


Figure CTP1 Eye Diagram Requirement

Test ID1-5 : BER(Bit Error Rate) < 10^{-12}

There must be no Bit Error for 3 minutes using standardized cable. This test should be repeated 3 times.

Reference	Requirement
HDcctv Specification V1.0 BER S1200 section 3.2.2.	Meets or exceeds a BER of 10^{-12}

Receiver Port Requirement(Physical Layer)

Test ID1-1 : Video format and Frame rates

It verifies the requirements of standard video format. It is to maintain compatibility of video format between the video equipment and to prevent loss of video information.

Reference	Requirement
HDcctv Specification V1.0 S1001 720 Line Video Image Formats for HDcctv Digital Interfaces Sections 6 and 7	The measured video format meets the horizontal and vertical timing requirements for the 720p video signal.
HDcctv Specification V1.0 S1002 1920 Line Video Image Formats for HDcctv Digital Interfaces Sections 6 and 7	The measured video format meets the horizontal and vertical timing requirements for the 1080p video signal

Test ID2-1 : BER Test

There must be no Bit Error for for 3 minutes using standardized cable. This test should be repeated 3 times.

Reference	Requirement
HDcctv Specification V1.0 Input Jitter Tolerance S1200 Section 3.2.2	Meets or exceeds the BER requirements of 10-12 when receiving an HDcctv Specification V1.0 compliant signal operating over 150m of HDcctv reference coax cable.

On-going Innovation

Non-IP HD cameras are in service around the world. Many of these are HDcctv-compliant, and a second generation of HDcctv products is in preparation.
HDcctv 1.0 is current. The high-level specifications for HDcctv 2.0TM, HDcctv XRTM, and HDcctv CXTM are complete, with the full specification suite on track for ratification around the middle of 2012.
Prototype cameras and DVRs implementing advanced capabilities including up-the-cable remote control, increased transmission distance over coaxial cable, and native transmission over Ethernet cable, are expected in 2012.

Technical Overview

The HDcctv Standard derives from a set of specifications, including SMPTE-292M, developed by the Society of Motion Picture and Television Engineers for application in high-definition broadcast television studios. This collection of specifications, collectively called "High-Definition Serial Digital Interface," or HD-SDI, has been proven in television studios worldwide since the late 1990's. HD-SDI does not include a compliance certification standard. While the lack of independent tests for interroperability and electrical performance is not an issue for the relatively low- volume, high-value broadcast studio market, the larger, more cost-senstiive professional surveillance market requires multi-vendor inter-operability and re- liable electrical performance for mass production.
Through a unique cross-industry license agreement executed in 2009, SMPTE authorized the HDcctv Alliance to adapt HD-SDI technology for Digital HDsurveillance as the HDcctv Standard.

A crucial contribution of the HDcctv Alliance Technical Committee has been the development and ratification of a comprehensive compliance certification process, including test methodology. The remarkably fragmented surveillance equipment market includes many hundreds of suppliers looking to diffrentiate their products while reducing both material and manufacturing costs to an absolute minimum. HDcctv compliance certification testing is uniquely valuable to manufacturers seeking to assure interoperability and electrical performance. The rigorous HDcctv compliance tests enable manufacturers to warrant "plug and play" interoperability with other compliant equipment, irrespective of functionality, country of origin, or price point.
Eager to enter the promising market for non-IP HD surveillance equipment, some manufacturers designed prototype cameras incorporating key components that were themselves already in production before HDcctv 1.0 was ratified. That is why some non-IP HD prototypes available in early 2012 cannot be certified as HDcctv compliant. These products are sometimes advertised as "HD-SDI." Buyers should be aware that SMPTE's HD-SDI encompasses a broad set of specifications that are not universally consistent, rather than a single comprehensive interface standard. Each "HD-SDI" product reflects individual interpretations of SMPTE's various HD-SDI specifications. Because the original HD-SDI specifications allow for great diversity, "HD-SDI" products are not certain to inter-operate among vendors. Furthermore, because there is no electrical testing standard in the HD-SDI specification suite, the manufacturers of "HD-SDI" prototypes may not have any technical basis to warrant the products' electrical performance. HDcctv compliance overcomes these concerns.
HDcctv stands as the world's only comprehensive electrical standard for Digital HDsurveillance video, enabling manufacturers of compliant products to warrant:
Greater than 100m transmission distance, over even relatively narrow-gauge coaxial cable
Plug-and-play multi-vendor interoperability
Forward compatibility with future versions of the standard
Look for the distinctive HDcctv compliance mark to be sure!

HD cctv™ member

HDcctv 1.0

720p25/30, 720p50/60, and 1080p25/30 transmission over at least 100m of RG59 coaxial cable
Ratified November 2009
Compliance Certification Standard for HDcctv 1.0 ratified September 2010
First HDcctv 1.0-compliant products certified January 2011
Figure 1 shows a block diagram of an HDcctv 1.0 channel.

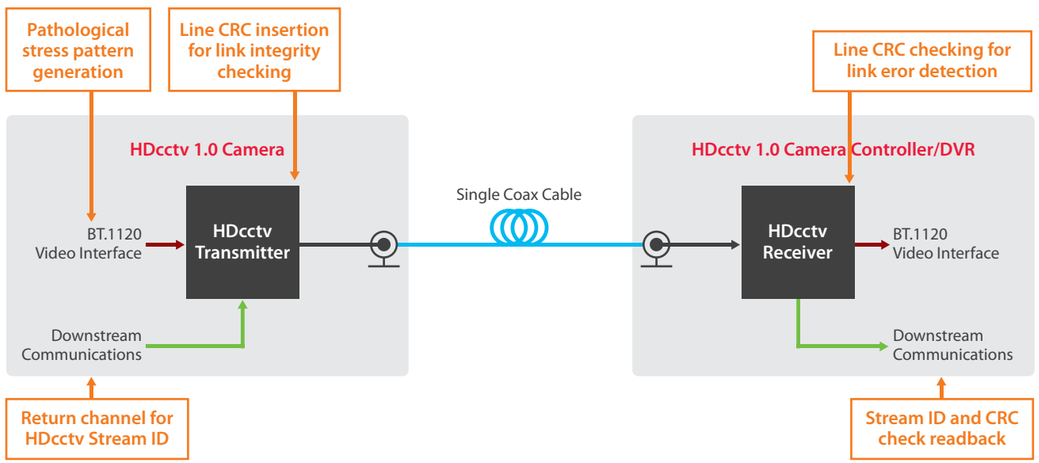


Figure 1 : HDcctv 1.0 Channel

HDcctv XR(tm) ("XR" derives from "eXtended Reach")

HDcctv XR is a significant transmission distance enhancement for coaxial cable, expected to result in even greater CCTV retrofit success rates.
HDcctv XR relies on a purely electrical technique. Although some compression schemes were considered years ago, the Technical Committee chose to reserve lightweight compression for possible use in higher-pixel-rate future versions of the standard.
Any generation of HDcctv-compliant products may be certified as XR capable. Figure 2 shows the block diagram of an HDcctv 1.0 XR channel.

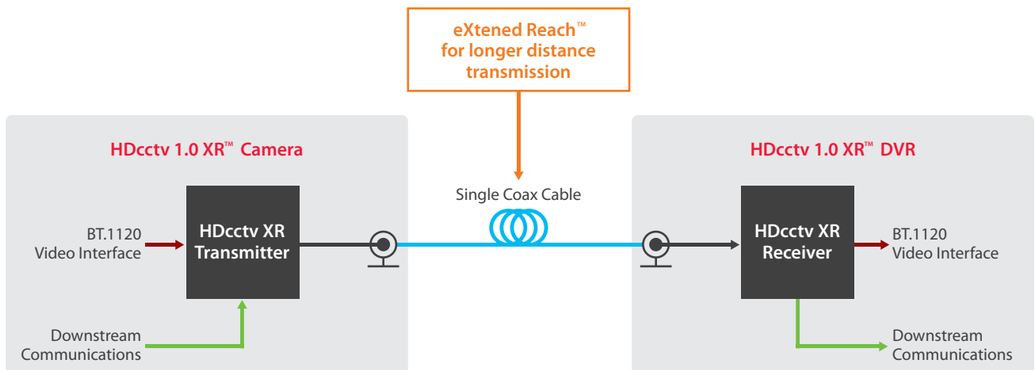


Figure 2 : HDcctv 1.0 XR Channel

As a general guide, XR increases transmission distance over new RG59 solid-core coaxial cable, as indicated in Figure 3.

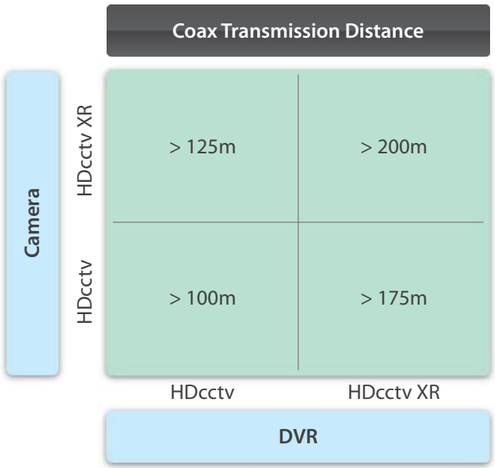


Figure 3 : Transmission Distance Increases due to HDcctv XR

The ability to transmit a signal over any given run of legacy cable is ultimately a function of the physical properties of that cable and the quality of its terminations. Length is just one factor; core composition, wire gauge, cable run geometry, the integrity of the insulating layers, and so forth, also affect the result. HDcctv XR increases the set of legacy cables that can be directly re-used in Digital HD surveillance upgrades for existing CCTV systems.

What Transmission Distance to Expect?

The minimum transmission distance for various cable makes and models is shown in Table 1.

Expected Transmission Distance*		
HDcctv 1.0/2.0	HDcctv 1.0/2.0 XR	Cable Type
225	325	Webro WF100 1.00mm conductor
220	320	Excel RG6/U 1.02mm conductor
195	275	Qing WSC100 1.02mm conductor
150	250	Belden 543945 0.813mm conductor
125	175	Excel RG59/U 0.58mm conductor
120	170	Qing RG59 0.58mm conductor
110	160	JYEBAO RG59B/U 0.58mm conductor
95	137	Canare 3C2V 0.50mm conductor

** in meters, over new, properly terminated cable. The XR column applies for XR-XR transmission only and not for mixed XR/non-XR transmission.*
The quality of legacy cables varies widely.
Therefore, a legacy cable approaching the corresponding length in the table may not sustain HDcctv or HDcctv XR transmission.
In such cases, it is recommended that security installer test the cable.

Table 1 : Minimum Transmission Distances

HDcctv 2.0(tm) (Bi-Directional Communications)

HDcctv 2.0 enables multi-vendor interoperability for up-the-cable remote control, bi-directional metadata, and optional audio.

The HDcctv 2.0 Bi-Dir communications protocol is simple, wherein paired ports exchange 255-byte packets patterned on the PSIA and Pelco-D protocols.

Hcctv 2.0 provides for an encapsulated downstream 75Mb/s payload data stream. HDcctv 2.0 thereby makes it possible to extend the SLOC scheme (developed for simultaneous trnamission of PAL/NTSAC and compressed high-resolution video) to HD: A high-Mp camera sends unadulterated HDTV in parallel with a compressed higher-resolution stream over a single cable. HDcctv 2.0 also provides 5Mb/s (optionally 10Mb/s) upstream payload data bandwidth, as is needed for high-quality audio.

Figure 4 illustrates the block diagram of an HDcctv 2.0 transmitter.

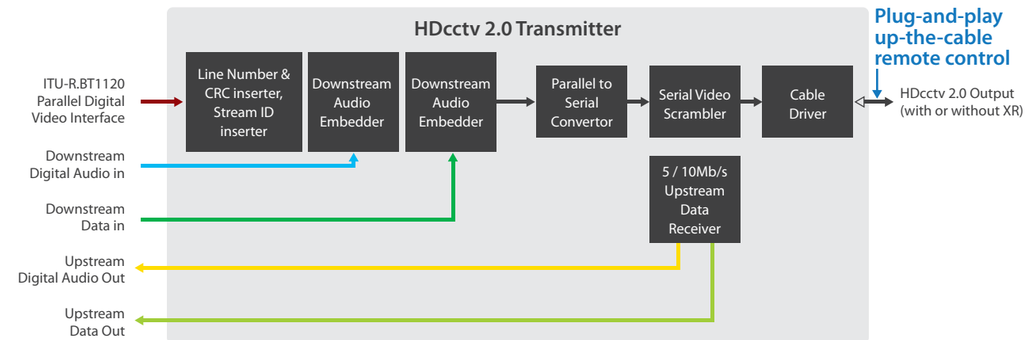


Figure 4 : HDcctv 2.0 Transmitter

Figure 5 illustrates the block diagram of an HDcctv 2.0 receiver.

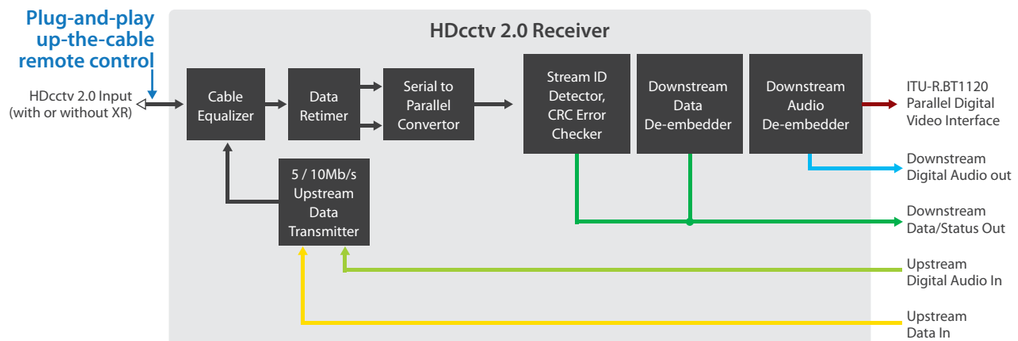


Figure 5 : HDcctv 2.0 Receiver

Figure 6 summarizes interoperability among HDcctv 1.0 and HDcctv 2.0 products.

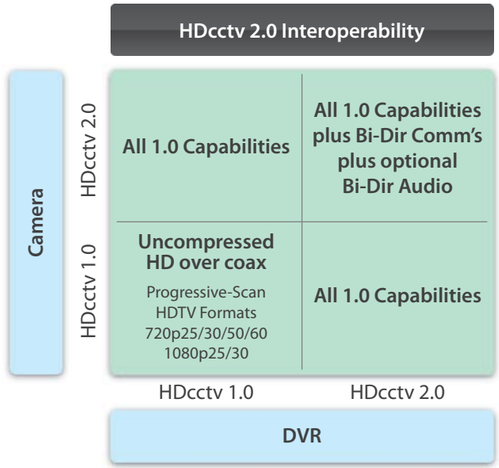


Figure 6 : HDcctv 1.0 and HDcctv 2.0 Interoperability

Comparison among Surveillance Video Interface Technologies

Table 2 compares key properties of alternative video transport technologies.

Surveillance Camera Interfaces	HDcctv 2.0 XR™	HDcctv 1.0 XR™	HDcctv 1.0™	HD-SDI	PAL/NTSC	Ethernet
Typical Gateway to Remote IP Network	DVR	DVR	DVR	DVR	DVR	Router
Directly Re-Uses Existing Coax	Yes	Yes	Yes	Yes	Yes	via Adapter
Unaltered TV Signal Available for Live View	Yes	Yes	Yes	Yes	Yes	No
Near Zero Transmission Latency	Yes	Yes	Yes	Yes	Yes	No
Megapixel Sensors	Yes	Yes	Yes	Yes	No	Yes
High-quality HD at full SMPTE frame rates	Yes	Yes	Yes	Yes	No	Compressed
Plug-and Play Multi-Vendor Interoperability	Yes	Yes	Yes	Some	Yes	Some
Transmission Distance without Repeaters	〉200m	〉200m	〉100m	Variable	〉300m	〉90m
Up-the-Cable Remote Control, Audio	1 standard	Proprietary	Proprietary	Proprietary	〉1 standard	〉1 standard
Commissioned Cost per Video Channel	Medium	Medium	Medium	Medium	Low	Medium

** as measured over new, properly terminated cable*

Table 2 : Comparison Among Video Transport Technologies

HDcctv CX(tm) ("CX" derives from "Cat-X")

HDcctv CX transmits uncompressed HD signals over familiar types of IP LAN cable. Any HDcctv-compliant product may be certified CX capable. Transmission distance over new, properly termianted Cat-5e exceeds 100m.
HDcctv CX enables a less expensive alternative to coaxial cable for greenfield HDcctv installations.
HDcctv CX also enables ready upgrades from legacy IP cameras to HDcctv, directly re-using LAN cables that are home-run to a control room.
Figure shows a block diagram of an HDcctv 1.0 CX channel.

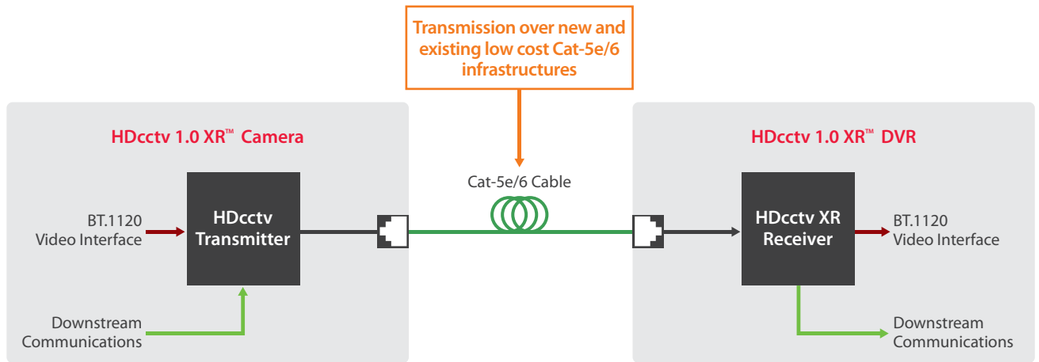


Figure 7 : HDcctv 1.0 CX Channel

Figure 8 illustrates HDcctv CX connectors on the rear panels of compliant products.

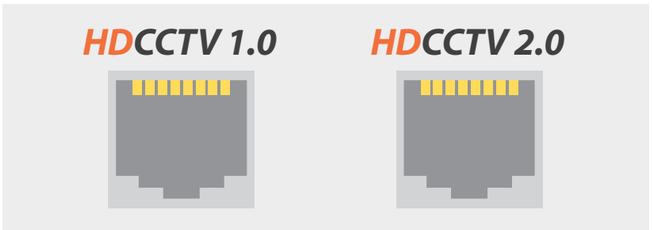


Figure 8 : HDcctv CX Rear-Panel Connectors

HDcctv 3.0 and Beyond

HDcctv 3.0 is likely to provide for power-over-copper and also native optical fiber transmission.
Under the unique license agreement between HDcctv Alliance and SMPTE, the HDcctv Standard readily tracks SMPTE's video format roadmap of successively increasing resolutions. (See, for example, UHDTV.) In order to best address the unique requirements of the surveillance market, the HDcctv Alliance Technical Committee is free to consider video formats beyond those sanctioned by SMPTE. Subsequent versions of the HDcctv standard are expected to offer higher resolutions (to tens of millions of pixels per frame) and higher frame rates (to hundreds of frames per second).
Future versions of the HDcctv standard may also provide for 3D surveillance video, wireless signal transmission, and more.
The contents of the HDcctv standard, and the timing of new versions of the standard, are determined collectively by HDcctv Alliance Members.

This article is retrieved from http://www.highdefcctv.org/hdcctv-specification