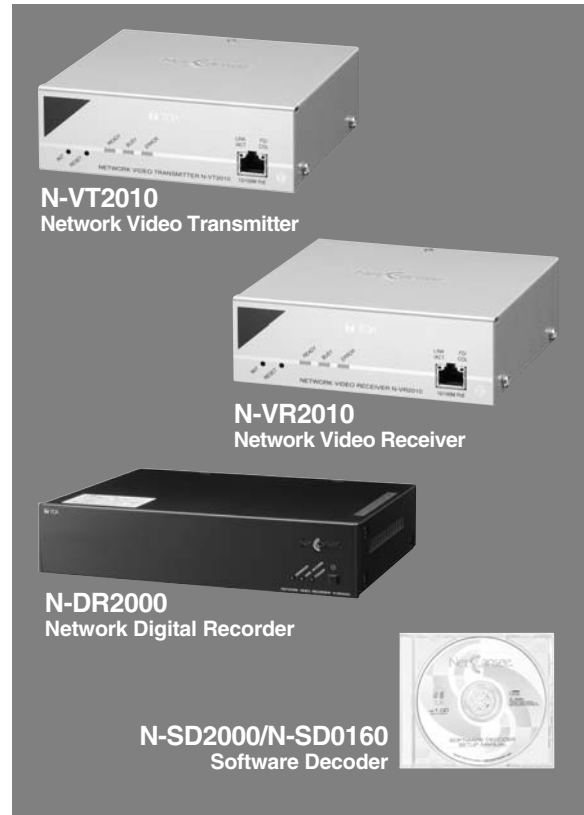


# Network Camera System



## DESCRIPTION

The TOA "Netcansee" is a Network Camera System that provides network-based transmission of video, audio and control signals. For video transmission, the system employs Dual Stream image transmission to simultaneously transmit in two standards: MPEG-4, which is ideally suited for transmitting moving pictures, and JPEG, for high-resolution image recording. Both PCM and ADPCM are employed for audio transmission, enabling duplex transmission with excellent sound quality.

Two cameras are available. The N-CC2360 is a Network Color Camera that serves as a high-performance surveillance camera, equipped with wide dynamic range, high sensitivity, and day/night functions. The N-CC2564, a Network Combination Dome Camera, is a high-speed rotating camera featuring a 23X optical zoom lens and an array of automatic operational functions.

The N-VT2010 is the system's Network Transmitter, allowing conventional analog cameras and CCTV systems for image transmission via the network.

The N-VR2010 is the Network Receiver for the Netcansee System. It converts analog video signals into digital signals, so that images transmitted via the network can be viewed on a video monitor. A Network Video Recorder, the N-DR2000, is available to enable simultaneous recording of both images and audio which are being delivered by a camera or transmitter that is connected to the network.

By installing the system's N-SD2000 Software Decoder, images and audio captured by Netcansee System equipments connected to the network can be monitored on a PC. The N-SD2000 also allows users to operate or choose settings for a Camera, Digital Video Recorder or Multiplexer.

## SYSTEM FEATURES

### ■ Transmits MPEG-4 and JPEG simultaneously (Dual Stream).

- Monitors with smooth-movement images and records high-quality still images.
- Image output sizes and frame rates can be varied as required to satisfy bandwidth limitations of LAN and WAN networks.

### ■ Utilizes MPEG-4ASP (Advanced Simple Profile)

- Accommodates transmission rates ranging from 16 kbps to 4Mbps.
- Can transmit D1-size (720 x 480) image output at 30 fps, with image quality better than MPEG-2 CODEC (if same transmission speed is maintained.)
- The MPEG-4ASP codec has improved compression efficiency with enhanced interlacing and B-frame capabilities compared to the conventional MPEG-4SP(Simple Profile) codec.

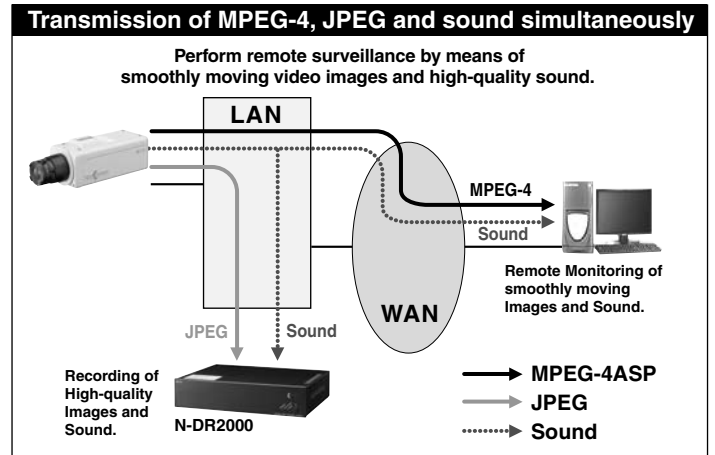
### ■ Bidirectional, high-quality audio transmission

- Audio signals are available as uncompressed PCM or with Subband A-DPCM compression. Audio can be bidirectionally transmitted over a network along with images at an 8 kHz or 32 kHz sampling rate.

### ■ PoE (Power over Ethernet) eliminates need for a dedicated power cable.

- As power is provided alongside data in the same cable over a network, wiring requirements are minimized and the number of cables are reduced as well (excluding network combination dome cameras and network video recorders).

### ■ Simultaneous real-time surveillance as well as image/audio recording and playback on a PC with the software decoder.



### ■ The Network Digital Recorder records digital data as data is generated.

- Images from each network-based cameras can be recorded as JPEG files and high quality audio recording is also possible.
- Recorded data can be searched at high speed and viewed via network.

### ■ Able to withstand potential network problems to maintain functioning as a surveillance system.

#### Recommended Personal Computer (for Software decoder)

Personal Computer: PC/AT compatible (usable on a network)

Requirements:

- CPU: Pentium 4, over 3 GHz
- Memory: Over 512 MB
- Display adapter: XGA (1024 x 768 pixels), Recommended: Intel Chipset Usable on DirectX 9.0a or later
- Sound controller: Usable over DirectX 9.0a or later
- Network adapter: Over 100 BASE-TX

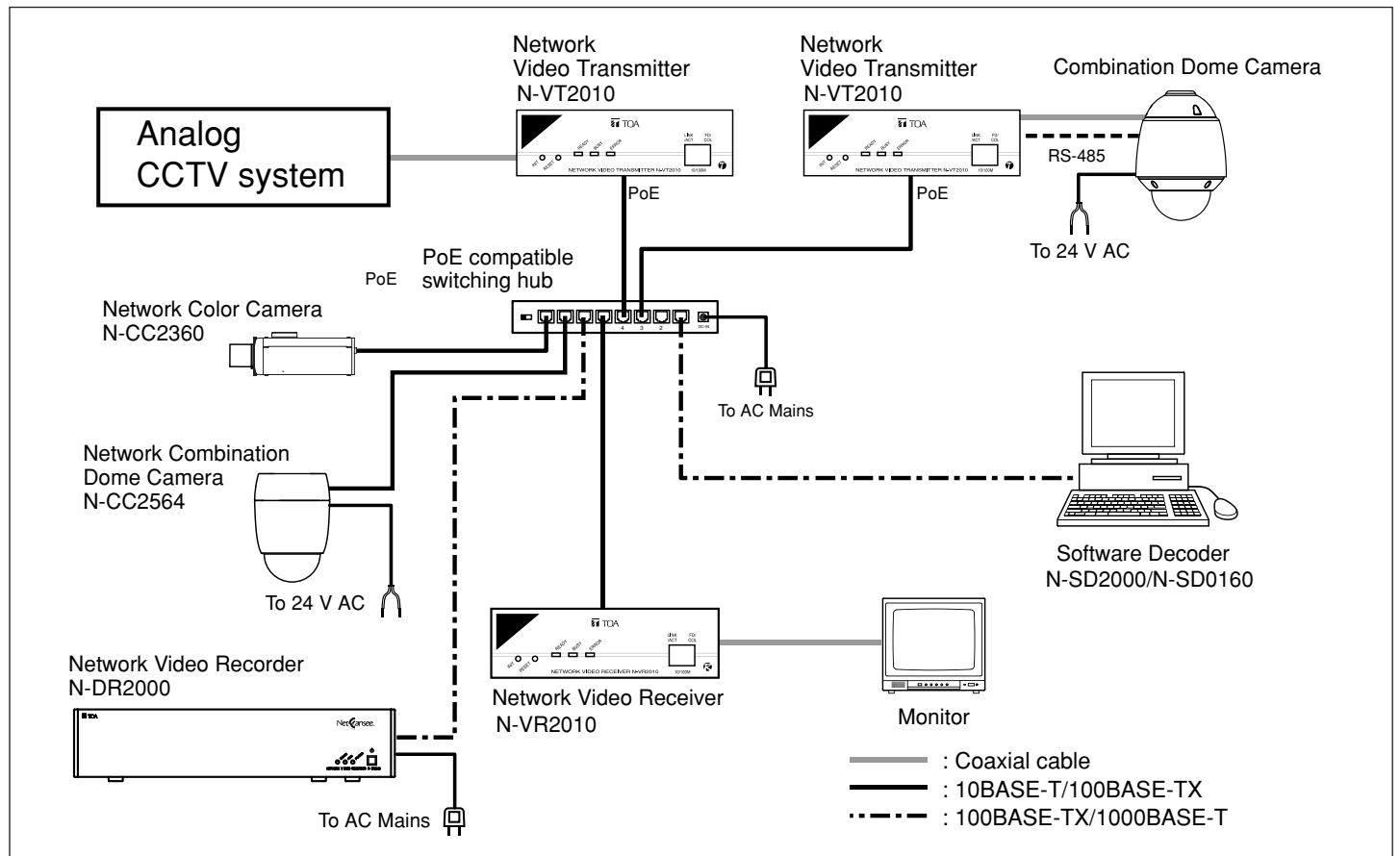
OS: Windows XP Professional

Web Browser: Internet Explorer 6.0 or later

\* Pentium is a trademark of Intel Corporation.

\* Windows is a trademark of Microsoft Corporation.

## CONNECTION EXAMPLE



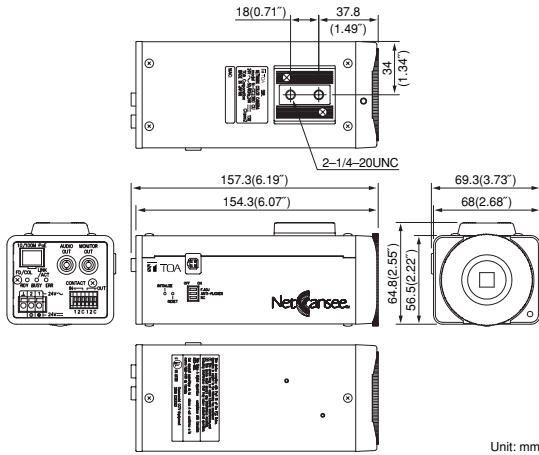
# N-CC2360

## Network Color Camera



Lens is optional

### APPEARANCE AND DIMENSIONAL DIAGRAM



### FEATURES

- High-performance model allows mounting a CS lens and includes Wide Dynamic Range and Day & Night functions.
- 24V AC or 24V DC operation is possible. Moreover, PoE capability simplifies connectivity requiring just a single LAN cable.
- The built-in microphone and audio output terminal allows bidirectional audio transmission.
- Monitor output for connecting an analog video monitor display.
- Contact output × 2; Contact input × 2.

### CAMERA MOUNT BRACKETS

**C-BC11**  
For ceiling mount



**C-BC21**  
For wall/ceiling mount



**C-BC31**  
For wall/ceiling mount



**C-BC41**  
For ceiling mount



### SPECIFICATIONS

\*0dB = 1V

<b>Power Source</b>	24 V AC, 50/60 Hz or 24 V DC or PoE (IEEE802.3af)
<b>Power Consumption</b>	13 W (at 24 V AC), (8 W:PoE, 350 mA; 24 V DC)
<b>Power Terminal</b>	Screwless connector (Solid cable: ø0.4 – ø1.2 mm (AWG 26 – 16), Stranded cable: 0.3 – 1.25 mm <sup>2</sup> (AWG 22–16))
<b>Monitor Output</b>	VBS 1.0 (p-p), 75Ω, RCA pin jack, NTSC
<b>Microphone</b>	Omnidirectional, electret condenser microphone
<b>Audio Output</b>	1 channel, -10 dB*, low impedance, unbalanced, RCA pin jack
<b>Contact Input</b>	2 channels (Color/B&W Switching input included), no-voltage contact input, open voltage: 9 V DC, short-circuit current: Under 10 mA, loop resistance: Under 200Ω, screwless connector
<b>Contact Output</b>	2 channels, open collector output, withstand voltage: 30 V DC, control current: 50 mA, screwless connector
<b>Camera</b>	
<b>Image Device</b>	1/3 type IT-CCD
<b>Number of Effective Pixels</b>	768 (H) X 494 (V) (380,000 pixels)
<b>Scanning System</b>	2:1 interlace
<b>Scanning Frequency</b>	Horizontal: 15.734 kHz, Vertical: 59.94 Hz
<b>Synchronizing System</b>	Internal
<b>Minimum Required Illumination</b>	0.5 lx (50 IRE), 0.1 lx (20 IRE) (F 1.0) (sensitivity up: OFF) (color mode) 0.01 lx (F 1.0) (sensitivity up: ON) (B&W mode, incandescent lamp)
<b>Automatic Electric Shutter Range</b>	1: 2000 (F 1.4 – 63)
<b>Dynamic Range</b>	46 dB (backlight compensation: wide dynamic ON)
<b>Backlight Compensation</b>	WIDE DYNAMIC/ON/OFF
<b>Shutter Speed</b>	1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
<b>AGC</b>	Auto/Fixed/OFF
<b>Sensitivity Up</b>	OFF, 2, 4, 6, 8, 10, 16, 24, 32, 64, times
<b>White Balance Mode</b>	ATW/AWB/Manual
<b>Lens Mount</b>	CS mount
<b>Auto-iris Lens Output</b>	DC input type (4 pin connector)
<b>Character Display</b>	Up to 16 characters (alphanumeric and symbols)
<b>Other Functions</b>	Privacy masking (up to 4), Electronic zoom (2x), Horizontal/Vertical reverse, Flickering reduction (DIP switch), Focus adjustment switch (DIP switch), Chroma level: Normal/manual (MIN – MAX), Enhancer: Normal/Manual (soft – sharp)
<b>Network</b>	
<b>Network I/F</b>	10 BASE-T/100 BASE-TX, Auto/Manual: RJ45 connector
<b>Network Protocol</b>	TCP, UDP, SIP, RTP, IGMP, HTTP, ARP, DHCP, DNS, SNMP, FTP, SMTP
<b>Video Compression/Resolution</b>	MPEG-4, D1 (720 × 480), Half D1 (720 × 240), QVGA (320 × 240) JPEG: D1 (720 × 480), Half D1 (720 × 240), VGA (640 × 480), QVGA (320 × 240), QQVGA (160 × 120)
<b>Frame Rate</b>	MPEG-4 (D1, max. 30 fps) + JPEG (D1, max. 5 fps)
<b>Audio Compression/Decompression</b>	Sub-band ADPCM, PCM (non-compression)
<b>Audio Sampling Frequency</b>	8 kHz, 32 kHz
<b>Image Transfer Rate</b>	MPEG-4: max. 4 Mbps
<b>Simultaneous Connected Number</b>	5 (MPEG-4: 4, JPEG: 1), In streaming mode: No limit (MPEG-4 only)
<b>Other Function</b>	Password authentication, Motion detection function
<b>Operating Temperature</b>	-10°C to 50°C (+14°F to +122°F) (Continuously active for operation at temperature below 0°C (+32°F))
<b>Operating Humidity</b>	Under 90% RH (no condensation)
<b>Application</b>	Indoor used
<b>Finish</b>	Case: Surface-treated steel plate, sand gray, paint
<b>Dimensions</b>	69.3 (W) × 64.8 (H) × 157.3 (D) mm 69.3 (2.73" × 2.55" × 6.19")
<b>Weight</b>	670 g (1.43 lb)
<b>Accessories</b>	CD-ROM (Software decoder: N-SD2000, Manual ((PDF)) × 1, Power conversion cable × 1

Note:  
The following camera housings can be used for this camera: C-CH200FH/C-CH210FH  
Dome type camera housings  
Due to internal heat generation, other indoor- and outdoor-use camera housings cannot be used.

### OPTIONAL LENSES (DC-input type)

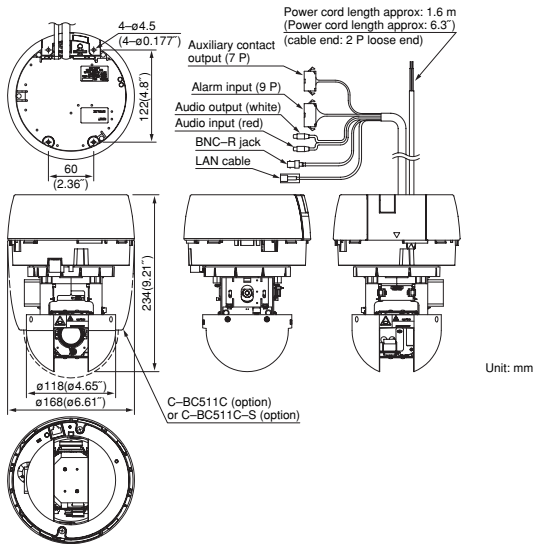
<b>Varifocal Auto Iris Lenses</b>	<b>CT-10VFGA</b> <b>CT-2ZMGA</b>
<b>Varifocal Auto Iris Lenses with Day/Night function</b>	<b>CT-R5VFG</b> <b>CT-R3VFG</b>
<b>Auto Iris Lenses</b>	<b>CT-0312GA</b> <b>CT-0412GA</b> <b>CT-0812GA</b>
<b>Motorized Zoom Lenses</b>	<b>CT-6ZMG</b> <b>CT-10ZMGA</b> <b>CT-21ZMG</b>

# N-CC2564

## Network Combination Dome Camera



### APPEARANCE AND DIMENSIONAL DIAGRAM



### FEATURES

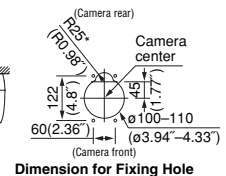
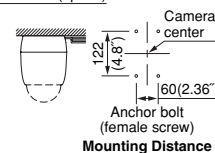
- 255 preset positions + Home position
- 276X zoom (optical 23X, electronic 12X)
- 360° continuous pan rotation range
- Tilt rotation range +5° to -185° (using Auto-Flip function)
- High-speed pan/tilt rotating speed of up to 360°/sec.
- Rotating speed can be varied to match lens zooming ratio in manual operation mode.
- 1/4 type CCD image device
- 480 lines high resolution
- Wide dynamic range function
- Auto focus (three modes)
- High-sensitivity function (color and B/W modes)
- Motion detection function
- Privacy masking function (up to 8 locations)
- Restricting camera movement
- Auto-pan function
- Programmable camera operation initiated by alarm input.
- Bi-directional audio transmission (line input / line output)

### SPECIFICATIONS

\*0dB = 1V

<b>Power Source</b>	24 V AC, 50/60 Hz
<b>Power Consumption</b>	20 W (normal operation), 25 W max. (1.6 A max.)
<b>Video Output</b>	VBS 1.0V (p-p), 75Ω, BNC-R jack, NTSC
<b>Audio Input</b>	1 channel, -10 dB*, 10kΩ, unbalanced, RCA pin jack
<b>Audio Output</b>	1 channel, -10 dB*, low impedance, unbalanced, RCA pin jack
<b>Alarm Input</b>	8 channels, no-voltage make contact input, open voltage: 9 V DC, short-circuit current: Under 10 mA (settable alarm action)
<b>Auxiliary Contact Output</b>	3 channels: Open collector output, withstand voltage: 30 V DC, permissible current: Under 50 mA 1 channel: Relay contact output, permissible voltage: 30 V DC, permissible current: Under 1 A
<b>Camera</b>	
<b>Image Device</b>	1/4 type CCD
<b>Resolution</b>	Horizontal: 480 lines (at center)
<b>S/N ratio</b>	50 dB
<b>Synchronization</b>	Internal synchronization/Power synchronization (phase adjustable when in power synchronization mode)
<b>Minimum Required Illumination</b>	High-sensitivity function OFF: 3 lx (50 IRE), 1 lx (20 IRE) High-sensitivity function ON: 0.03 lx (50 IRE), 0.01 lx (20 IRE)
<b>Backlight Compensation</b>	WIDE DYNAMIC/Pattern 1/Pattern 2/Pattern 3/OFF
<b>Dynamic Range</b>	46 dB (backlight compensation: WIDE DYNAMIC operation)
<b>High-Sensitivity Function</b>	B/W mode and slow shutter mode (32 times max.)
<b>White Balance</b>	ATW/AWB
<b>Flicker Reduction</b>	Automatic correction
<b>ID</b>	8 characters (alphanumeric and symbols) Camera, Position, Trace, Auto-pan, Tour, Home, Alarm, Sector, AUX
<b>No. of Preset Positions</b>	255 Positions + Home
<b>Automatic Operation</b>	Auto-pan, Preset sequence, Auto-trace (2 preset patterns (60 s)), Tour (16 preset patterns)
<b>Timer</b>	Refresh: Starts at the preset time every day or every week by timer settings Program: Settable 16 actions
<b>Other Functions</b>	Auto Flip, Freeze preset, Manual limit, Privacy masking (up to 8), Motion detection (each 8 presets at each 4 positions)
<b>Lens</b>	
<b>Zooming</b>	23X
<b>Electronic Zooming</b>	12x zooming
<b>Auto-Focus</b>	One push/stop AF/continuous
<b>Effective Focal Length</b>	f = 3.6 – 82.8 mm (23X)
<b>Effective Angle of View</b>	Horizontal: 54° (W) – 2.5° (T), Vertical: 41.6° (W) – 1.9° (T)
<b>Maximum Aperture</b>	F 1.6 (W) – F 3.7 (T)
<b>Zoom Speed</b>	WIDE end to TELE end Approx. 1.5 sec. (preset operation), Approx. 2.9 sec. (manual operation)
<b>Pan/Tilt Head</b>	
<b>Rotating Range</b>	Panning: Endless 360° rotation, Tilting: +5° to -185°
<b>Rotating Speed</b>	Panning/Tilting: 360°/s max. (preset operation), 360°/s max. (manual operation)
<b>Network</b>	
<b>Network I/F</b>	10 BASE-T/100 BASE-TX, Auto-Nego/Manual: RJ45 connector
<b>Network Protocol</b>	TCP, UDP, SIP, RIP, IGMP, HTTP, ARP, DHCP, DNS, SNMP, FTP, SMTP
<b>Video Compression/Resolution</b>	MPEG-4, D1 (720 x 480), Half D1 (720 x 240), QVGA (320 X 240) JPEG: D1 (720 X 480), Half D1 (720 x 240), VGA (640 X 480), QVGA (320 X 240), QQVGA (160 x 120)
<b>Frame Rate</b>	MPEG-4 (D1, max. 30 fps) + JPEG (D1, max. 5 fps)
<b>Audio Compression/Decompression</b>	Sub-band ADPCM, PCM (non-compression)
<b>Audio Sampling Frequency</b>	8 kHz, 32 kHz
<b>Image Transfer Rate</b>	MPEG-4: 4 Mbps max
<b>Simultaneous Connected Number</b>	5 (MPEG-4: 4, JPEG: 1), When streaming mode is set: No limit (MPEG-4 only)
<b>Operating Temperature</b>	-10°C to 50°C (+14°F to +122°F) (Continuously active for operation at temperature below 0°C (+32°F))
<b>Operating Humidity</b>	Under 90% RH (no condensation)
<b>Application</b>	Indoor use
<b>Finish</b>	Base: PC/ABS resin, cool gray, Camera: PC/ABS resin, black
<b>Dimensions</b>	ø168 (ø6.61") x 234 (9.21") (H) mm
<b>Weight</b>	2 kg (4.4 lb)
<b>Accessories</b>	Camera mounting screw x 4, Safety wire x 1, Category5 shielded coupler (female to female) x 1, Extension connector (Alarm input, AUX contact output) x 1 each, CD-ROM (Software decoder: N-SD2000, manual (PDF)) x 1
<b>Options</b>	Ceiling mounting cover: C-BC511C, C-BC511C-S Flush ceiling mounting bracket: C-BC511U, C-BC511U-S Ceiling suspension bracket: C-BC511P, Wall mounting bracket: C-BC511W Ceiling mounting bracket: C-BC511A

C-BC511C (option)  
or C-BC511C-S (option)

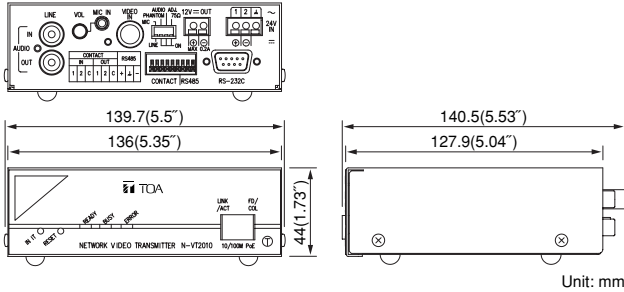


# N-VT2010

## Network Video Transmitter



### APPEARANCE AND DIMENSIONAL DIAGRAM



### FEATURES

- Connecting for analog camera to digitally transmit images to a network.
- Bidirectional audio transmission (Audio input × 1, Audio output × 1)
- 24V AC or 24V DC operation is possible. Moreover, PoE capability simplifies connectivity requiring just a single LAN cable.
- RS-232C × 1; RS-485 × 1 for remote control of combination dome camera.
- Power supply for CV series camera (12V DC)

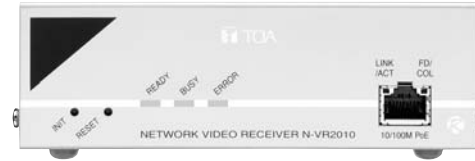
### SPECIFICATIONS

\*0dB = 1V

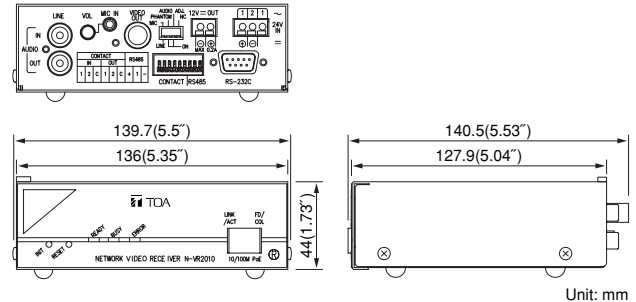
<b>Power Source</b>	24 V AC, 50/60 Hz or 24 V DC or PoE (IEEE802.3af)
<b>Power Consumption</b>	10 W: at 24 V AC (9 W: PoE, 400 mA: 24 V DC)
<b>Power Terminal</b>	Screwless connector (Solid cable: $\phi$ 0.4 – $\phi$ 1.2 mm (AWG 26–16) Stranded cable: 0.3 – 1.25 mm <sup>2</sup> (AWG 22–16))
<b>Power Output</b>	12 V DC, max. 0.2 A, screwless connector
<b>Video Input</b>	1 channel, VBS 1.0 V(p-p), 75 $\Omega$ , BNC jack, NTSC
<b>Audio Input</b>	1 channel, unbalanced, LINE/MIC changeable LINE: -10 dB*, 10 k $\Omega$ , RCA pin jack MIC: -60 dB*, 2.2 k $\Omega$ , mini-jack, volume adjustable Phantom power supply (9 V, can be set with switch)
<b>Audio Output</b>	1 channel, -10 dB*, low impedance, unbalanced, RCA pin jack
<b>Audio Frequency</b>	Response 50 to 14,000 Hz (when the sampling frequency is 32 kHz)
<b>Contact Input</b>	2 channel, no-voltage contact input, open voltage: 3 V DC, short-circuit current: Under 10 mA, loop resistance: Under 200 $\Omega$ , screwless connector
<b>Contact Output</b>	2 channel, open collector output, withstand voltage: 30 V DC, control current: 50 mA, screwless connector
<b>Serial Port</b>	RS-232C: D-sub connector (9 pins, male), RS-485: screwless connector
<b>Network</b>	
<b>Network I/F</b>	10 BASE-T/100 BASE-TX, Auto-Nego/Manual: RJ45 connector
<b>Network Protocol</b>	TCP, UDP, SIP, RTP, IGMP, HTTP, ARP, DHCP, DNS, SNTP, FTP, SMTP
<b>Video Compression/Resolution</b>	MPEG-4, D1 (720 × 480), Half D1 (720 × 240), QVGA (320 × 240) JPEG: D1 (720 × 480), Half D1 (720 × 240), VGA (640 × 480), QVGA (320 × 240), QQVGA (160 × 120)
<b>Frame Rate</b>	MPEG-4 (D1, max. 30 fps) + JPEG (D1, max. 5 fps)
<b>Audio Compression/Decompression</b>	Sub-band ADPCM, PCM (non-compression)
<b>Audio Sampling Frequency</b>	8 kHz, 32 kHz
<b>Image Transfer Rate</b>	MPEG-4: max. 4 Mbps
<b>Simultaneous Connected Number</b>	5 (MPEG-4: 4, JPEG: 1), In streaming mode: No limit (MPEG-4 only)
<b>Other Function</b>	Password authentication, Motion detection function
<b>Operating Temperature</b>	0°C to 50°C (32°F to +122°F) (Continuously active for operation at temperature below 0°C (+32°F))
<b>Operating Humidity</b>	Under 90% RH (no condensation)
<b>Finish</b>	Case: Surface-treated steel plate, silver, paint
<b>Dimensions</b>	136 (W) x 44 (H) x 127.9 (D) mm (5.35" x 1.73" x 5.04")
<b>Weight</b>	700 g (1.54 lb)
<b>Accessories</b>	CD-ROM (Software decoder: N-SD2000, Manuals (PDF)) × 1, Power conversion cable × 1

# N-VR2010

## Network Video Receiver



### APPEARANCE AND DIMENSIONAL DIAGRAM



### FEATURES

- Allows displaying digital image data from a network camera or network video transmitter on an analog monitor screen.
- Bidirectional audio transmission (Audio input × 1, Audio output × 1)
- 24V AC or 24V DC operation is possible. Moreover, PoE capability simplifies connectivity requiring just a single LAN cable.
- RS-232C × 1; RS-485 × 1 for remote controller
- Power supply (12V DC)

### SPECIFICATIONS

\*0dB = 1V

<b>Power Source</b>	24 V AC, 50/60 Hz or 24 V DC or PoE (IEEE802.3af)
<b>Power Consumption</b>	10 W: at 24 V AC (9 W: PoE, 400 mA: 24 V DC)
<b>Power Terminal</b>	Screwless connector (Solid cable: $\phi$ 0.4 – $\phi$ 1.2 mm (AWG 26–16) Stranded cable: 0.3 – 1.25 mm <sup>2</sup> (AWG 22–16))
<b>Power Output</b>	12 V DC, max. 0.2 A, screwless connector
<b>Video Output</b>	1 channel, VBS 1.0 V(p-p), 75 $\Omega$ , BNC jack, NTSC
<b>Audio Input</b>	1 channel, unbalanced, LINE/MIC changeable, volume adjustable LINE: -10 dB*, 10 k $\Omega$ , RCA pin jack MIC: -60 dB*, 2.2 k $\Omega$ , mini-jack, volume adjustable Phantom power supply (9 V, can be set with switch)
<b>Audio Output</b>	1 channel, -10 dB*, low impedance, unbalanced, RCA pin jack
<b>Audio Frequency Response</b>	50 to 14,000 Hz (when the sampling frequency is 32 kHz)
<b>Contact Input</b>	2 channel, no-voltage contact input, open voltage: 3 V DC, short-circuit current: Under 10 mA, loop resistance: Under 200 $\Omega$ , screwless connector
<b>Contact Output</b>	2 channel, open collector output, withstand voltage: 30 V DC, control current: 50 mA, screwless connector
<b>Serial Port</b>	RS-232C: D-sub connector (9 pins, male), RS-485: screwless connector
<b>Network</b>	
<b>Network I/F</b>	10 BASE-T/100 BASE-TX, Auto-Nego/Manual: RJ45 connector
<b>Network Protocol</b>	TCP, UDP, SIP, RTP, IGMP, HTTP, ARP, DHCP, DNS, SNTP
<b>Video Compression/Resolution</b>	MPEG-4, D1 (720 × 480), Half D1 (720 × 240), QVGA (320 × 240)
<b>Frame Rate</b>	MPEG-4: D1, max. 30 fps
<b>Audio Compression/Decompression</b>	Sub-band ADPCM, PCM (non-compression)
<b>Audio Sampling Frequency</b>	8 kHz, 32 kHz
<b>Image Transfer Rate</b>	MPEG-4: max. 4 Mbps
<b>Other Function</b>	Password authentication
<b>Operating Temperature</b>	0°C to 50°C (32°F to +122°F)
<b>Operating Humidity</b>	Under 90% RH (no condensation)
<b>Finish</b>	Case: Surface-treated steel plate, silver, paint
<b>Dimensions</b>	136 (W) x 44 (H) x 127.9 (D) mm (5.35" x 1.73" x 5.04")
<b>Weight</b>	700 g (1.54 lb)
<b>Accessory</b>	Power conversion cable × 1

# N-SD2000

## Software Decoder



### FUNCTIONS

- **Allows monitoring of MPEG-4 images from four surveillance cameras at a time.**
- **Can handle images from up to 2,000 surveillance cameras (Display only four images at a time).**
- **Point-view/Zoom-view Functions**  
While monitoring live images from the combination dome camera, clicking on any point with the mouse moves that point to the center of the screen. (Point-view)  
An area selected by dragging the mouse is zoomed up for display. (Zoom-view)
- **Bidirectional Audio Transmission**  
Enables pick-up of sound from the surveillance area, as well as issuing a voice warning to an intruder.
- **Remote Control**  
Network Color Cameras, Network Combination Dome Cameras, Digital Video Recorders and Combination Dome Cameras can be remotely controlled.
- **Display of images recorded on the N-DR2000 and easy search for images users want to view**
- **Motion Detection Function can be easily set and checked.**
- **Data recorded on the Network Video Recorder can be exported onto a PC.**

# N-SD0160

## Software Decoder

- **Sixteen images from Network Color Camera, Network Combination Dome Camera and Network Video Transmitter can be monitored simultaneously.**
- **Can handle images from up to 100 surveillance cameras (Display only 16 images at a time).**
- **Recording onto the PC hard disk**  
Up to 5 minutes of the displaying network camera can be manually recorded onto the hard disk of the PC, as well as up to 30 minutes of recording that starts automatically when an alarm signal is detected.
- **Remote Control**  
Network Combination Dome Camera can be remotely controlled.

### SPECIFICATIONS

<b>Required Personal Computer</b>	PC/AT compatible
<b>Requirements</b>	CPU: Pentium 4, over 3 GHz Memory: Over 512 MB Display adapter: XGA (1024 x 768 pixels), Recommended: Intel Chipset Usable on DirectX 9.0a or later Sound controller: Usable over DirectX 9.0a later Network adapter: Over 100 BASE-TX
<b>Required OS</b>	Windows XP Professional
<b>Media</b>	CD-ROM
<b>Function</b>	Establishment of connections to TOA network color camera, network combination dome camera and network video transmitter Connection of live image: Manual, start up, simultaneousness with 4ch (group), sequence, streaming Connection of audio: Live, bi-directional, PTT, simultaneousness with 4ch Establishment of connection to TOA network digital video recorder Playback, search and export of recorded data (images only) Screen display Full screen, selection of 1 segment or 4 segment split screen Network device control Display of input/output contact state Control of output contact Control of TOA digital video recorder, multiplexer and combination dome camera (Models to be controlled directly are limited.) Serial bridge Point view (for TOA network combination dome camera) Menu control of network color camera Other functions Automatic detection, restart, setting change, flash LED, operation state warning, registration/deletion of network device, parameter setting, connection and disconnection from network video receiver to network color camera, network combination camera and network video transmitter, motion detection setting, snapshot, digital zoom, stillness display, system log, firmware upload, configuration file upload/download

\*Pentium is a trademark of Intel Corporation.

\*Windows is a trademark of Microsoft Corporation.

\*Note

The software decoder may malfunction or have its performance downgraded if other application software is running together.

Two or more software decoders cannot be started with one PC.

When using the decoder under multi-display environment, take care the following.

Specify only a single display for running this software program. Traveling between displays during operation may cause equipment malfunction.

Use the digital zoom function while the image is stopped temporarily. Failure to do so could cause equipment malfunction.

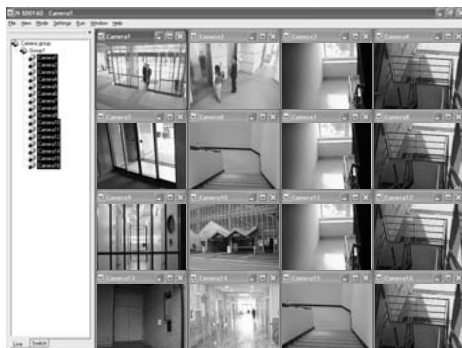
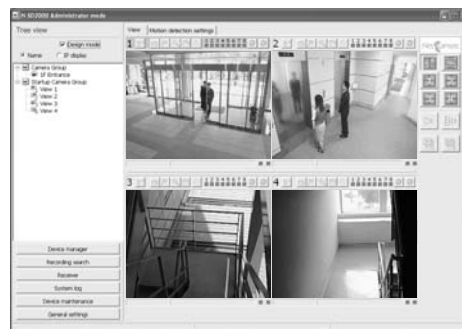
\*Notes on MPEG-4 patent license

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 VISUAL PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER FOR (i) ENCODING VIDEO IN COMPLIANCE WITH THE MPEG-4 VISUAL STANDARD ("MPEG-4 VIDEO") AND/OR

(ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED BY MPEG LA TO PROVIDE MPEG-4 VIDEO.

NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE.

ADDITIONAL INFORMATION INCLUDING THAT RELATING TO PROMOTIONAL, INTERNAL AND COMMERCIAL USES AND LICENSING MAY BE OBTAINED FROM MPEG LA,LLC. SEE [HTTP://WWW.MPEGLA.COM](http://www.mpegla.com)

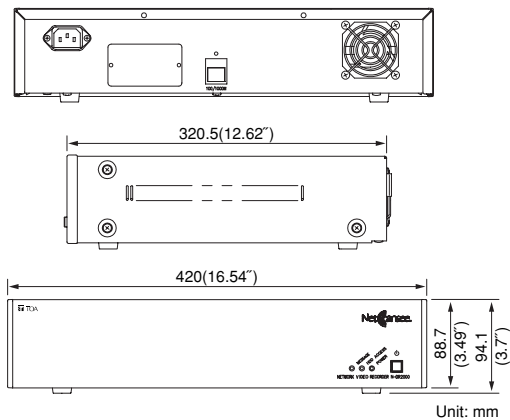


# N-DR2000

## Network Video Recorder



### APPEARANCE AND DIMENSIONAL DIAGRAM



### SPECIFICATIONS

<b>Power Source</b>	110-120 V AC, 50/60 Hz
<b>Power Consumption</b>	57 W (0.8 A)
<b>Recording Storage</b>	HDD S-ATA 640 GB (320 GB X 2)
<b>Network</b>	
<b>Network I/F</b>	100 BASE-TX/1000 BASE-T, Auto-Negotiation: RJ45 connector
<b>Network Protocol</b>	TCP, UDP, SIP, RTP, HTTP, SMTP, ARP, DNS, NTP
<b>Frame Rate</b>	Settable 1, 2, 3, 5 fps (per Network Camera and Network Video transmitter)
<b>Recording Method</b>	Video: JPEG Audio: sub-band ADPCM, PCM (non-compression)
<b>Number of Simultaneous Recording</b>	Up to 16 stations (Network camera or Network video transmitter)
<b>Recording Mode</b>	Normal, Scheduled, Alarm, Pre-alarm
<b>Image Quality</b>	5 level adjustment
<b>Resolution</b>	D1 (720 X 480), Half D1 (720 X 240), QVGA (320 X 240)
<b>Other Function</b>	
<b>Alert notification</b>	Alert notification via e-mail, time synchronization, operating log
<b>Altitude</b>	Under 3000 m (Under 10000 ft) (relative to sea level)
<b>Operating Temperature</b>	0°C to +40°C (32°F to 104°F)
<b>Operating Humidity</b>	20% to 80% RH (no condensation)
<b>Finish</b>	Case: Pre-coated steel plate, black
<b>Dimensions</b>	420 (W) x 88.7 (H) x 320.5 (D) mm (16.54" x 3.49" x 12.62")
<b>Weight</b>	6.1 kg (13.45 lb)
<b>Accessories</b>	Power cord (2 m (6.56 ft)) x 1, CD-ROM(update disk) x 1
<b>Option</b>	Rack mounting bracket: MB-23B

### FEATURES

- Allows images (and audio) from network cameras/video transmitters, as well as event data, to be recorded, distributed, and stored over a network.
- The recorder can have its settings adjusted over the network using a PC equipped with standard Web browser software (such as Internet Explorer).
- An NTP server function can be used to synchronize the time throughout the system automatically.
- If the recorder malfunctions, an email notification can be sent to a pre-set email address to make the administrator aware of the problem.

### RECORDING TIME TABLE

#### Audio recording: None

Image size	Picture quality	Recording rate per camera (fps), Recording time (hour)			
		1	2	3	5
<b>D1</b>	1	129	64	43	25
<b>D1</b>	3	186	93	62	37
<b>D1</b>	5	337	168	112	67
<b>Half-D1</b>	1	192	96	64	38
<b>Half-D1</b>	3	276	138	92	55
<b>Half-D1</b>	5	493	246	164	98
<b>QVGA</b>	1	364	182	121	72
<b>QVGA</b>	3	521	260	173	104
<b>QVGA</b>	5	958	479	319	191

#### Audio recording: 32 k Compression: ON

Image size	Picture quality	Recording rate per camera (fps), Recording time (hour)			
		1	2	3	5
<b>D1</b>	1	104	57	39	24
<b>D1</b>	3	138	79	55	34
<b>D1</b>	5	208	128	93	60
<b>Half-D1</b>	1	142	81	57	36
<b>Half-D1</b>	3	183	110	78	50
<b>Half-D1</b>	5	258	169	126	83
<b>QVGA</b>	1	218	136	99	64
<b>QVGA</b>	3	266	176	131	87
<b>QVGA</b>	5	346	254	201	141

Depending on recording conditions, actual available recording times may be shorter than those listed in this chart.

# ARCHITECTURAL AND ENGINEERING SPECIFICATIONS

## GENERAL REQUIREMENTS

The specified network camera system transmits video, audio and control signals via a network. It allows simultaneous transmission (MPEG-4 format) and recording (JPEG format) of video images. Audio signals can be compressed (sub-band ADPCM) or decompressed (PCM) and transmitted bidirectionally. Images with audio can also be transmitted and monitored. The system supports PoE operation, which transmits power along with data over the same cable, reducing the number of cables required. The system also features high resistance to inherent network problems, allowing it to function as a reliable surveillance system. The system consists of the network cameras, a network video transmitter, a network video receiver, and a network digital video recorder. Images with audio can be monitored on a local computer by installing the software decoder in the PC.

## NETWORK COLOR CAMERA SPECIFICATIONS

The specified camera shall be a network color camera capable of direct connection to a LAN. The camera shall be a high-performance, indoor-use camera employing a 1/3 inch IT CCD as an image sensing device. The camera shall be capable of mounting a CS lens and shall be equipped with wide dynamic range and day & night functions. The camera shall support PoE operation and shall facilitate connections using a single LAN cable. It shall operate on 24V AC, 24V DC or PoE, and the power consumption shall be 13W at 24V DC, 350mA at 24V DC and 8W at PoE. The built-in microphone and audio output terminal shall allow bidirectional audio transmission. The camera shall be equipped with an RCA pin jack monitor output for connecting an analog video monitor display, as well as 2 contact inputs and 2 contact outputs. The following functions shall be made available: backlight compensation, auto gain control, motion detection, and sensitivity up functions. Shutter speed shall be able to be set to 1/60, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000 or 1/10000 and the dynamic range shall be 46 dB. The number of effective pixels shall be 380,000. The scanning system shall be 2:1 interlaced scanning, and the scanning frequency shall be 15.734kHz (horizontal) and 59.94 Hz (vertical). The minimum required illumination shall be 0.5lx (50 IRE) and 0.1lx (20 IRE) when in color mode with the sensitivity up function set to OFF, and shall be 0.01lx when in black & white mode with the sensitivity up function set to ON. Both the sub-band ADPCM and PCM systems shall be used for audio data compression and decompression, and the sampling frequency shall be 8kHz and 32kHz. The image transfer rate shall be a maximum of 4 Mbps in MPEG-4 format, and up to 5 images (MPEG-4: 4 and JPEG:1) shall be capable of being simultaneously connected when in streaming mode. The frame rate shall be a maximum of 25 frames (D1, MPEG-4) and 5 frames (D1, JPEG). Operation shall require password authentication. The operating temperature range shall be between -10°C and +50°C (+14°F and 122°F), operating humidity shall be less than 90% and weight shall be 670g (1.63 lb). Dimensions shall be 69.3 (W) × 64.8 (H) × 157.3 (D) mm (2.73" × 2.55" × 6.19"). Other functions available to the color camera shall include privacy masking, electronic zoom, horizontal and vertical reverse, and flicker reduction functions. The specified camera shall be a TOA N-CC2360 or approved equivalent.

## NETWORK COMBINATION CAMERA SPECIFICATIONS

The specified camera shall be a combination dome camera capable of direct connection to a LAN. The camera shall be an indoor-use camera with 480 horizontal lines of resolution and shall employ an image sensing device of 1/4 inch CCD. A maximum of 255 preset positions shall be able to be set, and these preset positions shall be capable of being timer-controlled, frozen or displayed in sequential order. Power supply shall be 24V AC and power consumption shall be a maximum of 25W. The pan rotation range shall be a continuous 360° (may be set for auto pan), and the tilt rotation range shall be between +5° and -185°. The rotating speed shall be capable of being varied to match the lens ratio in manual operation mode. Programmable camera operation shall be initiated when an alarm signal is received, and bidirectional audio transmission shall be made possible. Other functions shall include wide dynamic range, auto focus, high sensitivity, motion detection, privacy masking and backlight compensation functions. The specified camera shall be equipped with 1 video output, 1 audio input and 1 audio output, 8 alarm make contact inputs and 4 AUX control outputs (3 open collector outputs and 1 relay contact output). The synchronization method shall be either internal or a line lock system. The minimum required illumination shall be 3lx (50 IRE) or 1lx (20 IRE) when the high sensitivity function has been disabled, and shall be 0.03lx (50 IRE) or 0.01lx (20 IRE) when the high sensitivity function has been enabled. The effective focal length shall be between f=3.6 and 82.8 mm (23X), the effective horizontal view angle shall be 54° (wide angle) and 2.5° (tele) and the effective vertical view angle shall be 41.6° (wide angle) and 1.9° (tele), while the maximum aperture shall be F1.6 (wide angle) and F3.7 (tele). Both the sub-band ADPCM and PCM systems shall be used for audio data compression and decompression, and the sampling frequency shall be 8kHz and 32kHz. The image transfer rate shall be a maximum of 4 Mbps in MPEG-4 format, and up to 5 images (MPEG-4: 4 and JPEG:1) shall be capable of being simultaneously connected when in streaming mode. The frame rate shall be a maximum of 25 frames (D1, MPEG-4) and 5 frames (D1, JPEG). An ID consisting of 8-digit alphanumeric characters shall be required when operating cameras, preset positions, auto-pan and alarm functions. Numerous covers and brackets are available for different application requirements. Operating temperature range shall be between -10°C and +50°C (+14°F and 122°F), operating humidity shall be less than 90% and weight shall be 2 kg (4.4 lb). Dimensions shall be 168 mm (6.61") in diameter and 234 mm (9.21") in height. The specified camera shall be a TOA N-CC2564 or approved equivalent.

## NETWORK VIDEO TRANSMITTER SPECIFICATIONS

The specified network video transmitter shall be connected to a LAN and transmit analog camera's video and audio signals over the network. It shall support the PoE function and shall facilitate connections using just a single LAN cable. Power supply shall be 24V AC, 24V DC or PoE, and the power consumption shall be 10W at 24V AC, 400mA at 24V DC and 9W at PoE. The video transmitter shall be designed to supply the power (12V DC) to 12V DC type cameras, and allow bidirectional audio transmission using the line/mic (changeable) input (1 channel) and line output (1 channel). The video transmitter shall also be



equipped with 1 channel of video input, 2 contact input and 2 contact output channels, as well as 1 channel each of RS-232C and RS-485 terminals for remotely controlling a PTZ camera. The sampling frequencies shall be 8kHz and 32kHz. Image transfer rate shall be a maximum of 4 Mbps in MPEG-4 format and up to 5 images (MPEG-4: 4 and JPEG:1) shall be capable of being simultaneously connected when in streaming mode. Frame rate shall be a maximum of 25 frames (D1, MPEG-4) and 5 frames (D1, JPEG). Operating temperature range shall be between 0°C and +50°C (32°F and 122°F), and humidity shall be less than 90% and weight shall be 700g (1.54 lb). Dimensions shall be 136 (W) × 44 (H) × 127.9 (D) mm (5.35" x 1.73" x 5.04"). The network video transmitter shall be a TOA N-VT2010 or approved equivalent.

### **NETWORK VIDEO RECEIVER SPECIFICATIONS**

The specified network video receiver shall be capable of displaying digital images received from a network camera or network video transmitter on an analog monitor screen. It shall support the PoE function and shall facilitate connections using just a single LAN cable. Power supply shall be 24V AC, 24V DC or PoE, and the power consumption shall be 10W at 24V AC, 400mA at 24V DC and 9W at PoE. The video receiver shall be equipped with 1 power output for 12V DC power supply and shall allow bidirectional audio transmission using the line/mic (changeable) input (1 channel) and line output (1 channel). It shall also be equipped with 1 video output and 2 channels each of contact input and contact output, as well as 1 channel each of RS-232C and RS-485 terminals for connecting a remote control unit. The sampling frequency shall be 8kHz and 32kHz. Image transfer rate shall be a maximum of 4 Mbps in MPEG-4 format and the ADPCM system shall be employed for image compression and depression decompression. Operating temperature range shall be between 0°C and +50°C (32°F and 122°F) and operating humidity shall be less than 90%, while weight shall be 700g (1.54 lb). Dimensions shall be 136 (W) × 44 (H) × 127.9 (D) mm (5.35" x 1.73" x 5.04"). The network video receiver shall be a TOA N-VR2010 or approved equivalent.

### **NETWORK DIGITAL RECORDER SPECIFICATIONS**

The specified network digital recorder shall be capable of recording ongoing digital images (JPEG formats) and audio (sub-band ADPCM and PCM), as well as simultaneously recording data from up to 16 cameras and transmitters. Recorded data shall be converted into a database for high-speed search and viewing, and also shall be distributed to multiple locations. The video recorder shall be equipped with an email function that notifies with an alert in emergency situations, and a search function enabled by day & time, block, alarm, and motion detection. A browser shall be used for setup and the video recorder shall be supported by a highly reliable Linux operating system. The power supply shall be 110 – 120V AC and power consumption shall be 57W. The hard disk drive shall have a storage capacity of 640GB (320GB × 2). The frame rate shall be capable of being selected from 1, 2, 3, and 5 fps, while time synchronization shall be achieved using the NTP server among equipment connected to the system. The recording method shall be JPEG for video and sub-band

ADPCM and PCM for audio, and image quality shall be adjustable in 5 steps. There shall be Normal, Scheduled, Alarm and Pre-alarm recording modes, and resolution shall be 720 × 480 lines for D1 format, 720 × 240 lines and 320 × 240 lines for QVGA format. Operating temperature range shall be between 0°C and +40°C (+32°F and +104°F), while operating humidity range shall be between 20% and 80%. Dimensions shall be 420 (W) × 88.7 (H) × 320.5 (D) mm (16.54" x 3.49" x 12.62") and weight shall be 6.1 kg (13.45 lb). The network digital recorder shall be a TOA N-DR2000 or approved equivalent.

### **SOFTWARE DECODER SPECIFICATION**

The specified software shall run under the Microsoft Windows operating system, allowing camera images to be monitored on a PC without using a receiver. It shall also be capable of monitoring MPEG-4 images from a maximum of 4 surveillance cameras at a time, as well as of handling images from up to 2,000 surveillance cameras. The specified software shall be equipped with a point-view function that moves a certain point of image to the center of the screen if that point is clicked with the mouse while monitoring live images from the PTZ camera. It shall also have a zoom-view function that zooms up the area selected by dragging the mouse for display. The dedicated network color cameras, network combination dome cameras, and digital video recorders can be remotely controlled, while the motion detection function can be set and checked easily. The software shall be capable of easily exporting data recorded on the digital video recorder to a PC. It shall not only display images recorded on the digital video recorder, but also allow easy search for images. Images can be displayed on the full screen, 1-segment screen or 4-segment split screen. Recorded and liver images can be viewed simultaneously. The software shall be a TOA N-SD2000 or approved equivalent.

### **SOFTWARE DECODER SPECIFICATION**

The specified software shall run under the Microsoft Windows operating system, allowing camera images to be monitored on a PC without using a receiver. It shall also be capable of monitoring MPEG-4 images from a maximum of 16 surveillance cameras at a time, as well as handling images from up to 100 surveillance cameras. The dedicated network combination dome cameras can be remotely controlled. Images can be displayed on the full screen, 1, 4, 9 and 16-segment split screen or in sequential order. Up to 5 minutes of the displaying network camera can be manually recorded onto the hard disk of the PC, as well as up to 30 minutes of recording that starts automatically when an alarm signal is detected. The software shall be a TOA N-SD0160 or approved equivalent.

# Covers and Brackets for Network Combination Dome Cameras

