



### 4K (3,840 x 2,160) H.264 Vandal Resistant Dome Network Camera

#### Key Features

- **4K (3,840 x 2,160)** images up to 30 fps, **12M pixel (4,000 x 3,000)** images up to 15 fps
- Newly developed 1/1.7 type high sensitivity MOS image sensor
- **Ultrawide x6 zoom lens** with the newly developed **3-drive lens** system (Horizontal Angle: 100.0°(wide) to 17.0°(tele)) [4 : 3 mode]
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording.
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- **Smart coding Technology : Group of Pictures (GOP) control** function removes unnecessary information from the frame for realizing efficient encoding. **Auto VIQS** (Variable Image Quality on Specified area) function recognizes the no movement area in a video automatically and lowering the resolution of it to reduce the data size. **GOP control** and **Auto VIQS** can save the network bandwidth and the disk space of recorder effectively.
- High sensitivity with Day/Night (ICR\*) function: 0.3 lx (Color), 0.04 lx (B/W) at F1.6  
\* ICR: IR Cut filter Removal
- Smart **IR LED** equipped: The equipped infrared LED makes it possible to take pictures at zero lx. **The IR LED** is controlled to match the environment, thereby the camera provides clear images of human faces without white blur.
- Camera attachment bracket allows an easy camera installation toward all four directions.
- **ABF (Auto Back Focus)** ensures easy installation.
- **VIQS** (Variable Image Quality on Specified area) technology allows the designated **eight locations** to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate.
- Cropping function enables to provide whole image and the part image simultaneously.  
Up to 4 image capture areas can be specified, and it is also possible to control the sequence.
- Electronic sensitivity enhancement: Auto (Up to 16/30s) / OFF
- Selectable light control modes:  
Outdoor scene, Indoor scene (50 Hz) / Indoor scene (60 Hz), Fix shutter
- 1x, 2x, 4x digital zoom controlled by browser
- **VMD** (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- **Privacy Zone** can mask up to 8 private areas, such as house windows and entrances/exits.
- **Camera title display**: Up to 20 alphanumeric characters on the browser
- **Alarm sources** including 3 terminal input, VMD and Panasonic alarm command can trigger actions such as SDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, Indication on browser, Alarm terminal output, and Panasonic alarm protocol output.
- Full duplex bi-directional audio allows interactive communication between camera site and monitoring site.
- SDXC/SDHC/SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (H.264 / JPEG). Realize long-term recording and auto backup function.
- **Fog compensation function** equipped as standard.
- **HLC (High Light Compensation) technology** reduces strong light sources such as vehicle headlights to prevent camera being blinded.
- **SCC (Super Chroma Compensation)** function realizes a better color reproducibility even in low illumination.
- Internet mode: H.264 images can be transmitted over HTTP protocol.
- Multi-language: English / Italian / French / German / Spanish / Portuguese / Russian / Chinese / Japanese
- IPv4/IPv6 protocol supported
- Supports SSL, DDNS (viewnetcam, RFC2136)
- Still images (JPEG) can be viewed on mobile phones via Internet.
- ONVIF compliant model
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X(UL50), NEMA 4X compliant.
- Dehumidification device for use with various weather conditions
- Vandal resistant mechanism for high reliability (IK10)
- **Rain wash coating dome cover**

# Specifications

<b>Camera</b>	Image Sensor	1/1.7 type MOS image sensor	
	Scanning Mode	Progressive scan	
	Scanning Area	7.40 mm (H) x 5.55 mm (V) {9/32 inches (H) x 7/32 inches (V)}	
	Minimum Illumination	Color : 0.3 lx, BW : 0.04 lx, BW(with IR LED) : 0 lx (F1.6, Maximum shutter : Off (1/30s), Gain : High), Color : 0.02 lx, BW 0.003 lx (F1.6, Maximum shutter : Max. 16/30s, AGC : High) *1	
	IR LED Light	Off / Auto(High / Mid / Low)	
	IR LED irradiation distance	Approx. 30 m (98.43 feet) {at IR LED : Auto (High)}	
	White Balance	ATW1 (2,700 - 6,000 K) / ATW2 (2,000 - 6,000 K) / AWC (2,000 - 10,000 K)	
	Light Control Mode	Outdoor scene/ Indoor scene (50 Hz) / Indoor scene (60 Hz) / Fix shutter	
	Maximum shutter	max. 1/1000 s, max. 1/500 s, max. 1/250 s, max. 1/120 s, max. 1/100 s, max. 2/120 s, max. 2/100 s, max. 1/30 s, max. 2/30 s, max. 4/30 s, max. 6/30 s, max. 10/30 s, max. 16/30 s	
	Shutter Speed	Off(1/30), 3/100, 3/120, 2/100, 2/120, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000	
	Wide Dynamic Range	On / Off	
	Adaptive Black Stretch	On / Off (only when Wide dynamic range: off)	
	Fog compensation	On / Off (only when Wide dynamic range/ Adaptive black stretch: Off)	
	High light compensation(HLC)	On / Off (only when Wide dynamic range/ Back light compensation (BLC): Off)	
	Gain (AGC)	On (High) / On(Mid) / On(Low) / Off	
	Day/Night (ICR)	Off / On / Auto1 (Normal) / Auto2 (IR Light) / Auto3 (SCC)	
	Digital Noise Reduction	High / Low	
	Video Motion Detection (VMD)	On / Off, 4 areas available	
	Privacy Zone	On / Off (up to 8 zones available)	
	VIQS	On / Off (up to 8 locations)	
	Camera Title (OSD)	On / Off Up to 20 characters (alphanumeric characters, marks)	
Focus Adjustment	ABF / Manual (Html only)		
<b>Lens</b>	Vari Focal Length	4.2 mm - 25.2 mm {5/32 inches - 1 inch}	
	Angular Field of View	[16 : 9 mode] Horizontal : 17 ° (TELE) - 96 ° (WIDE) Vertical : 9.3 ° (TELE) - 54 ° (WIDE) [4 : 3 mode] Horizontal : 17 ° (TELE) - 100 ° (WIDE) Vertical : 13 ° (TELE) - 75 ° (WIDE)	
	Maximum Aperture Ratio	1 : 1.6 (WIDE) - 1 : 3.3 (TELE)	
	Focusing Range	0.6 m - ∞	
<b>Adjusting Angle</b>	Horizontal	±180 °	
	Vertical	0 to 85° Image tilt adjustment range : -45° (Left) to +300° (Right)	
<b>Browser GUI</b>	Cropping	H.264(1) Ch1 - Ch4 Up to 4 image capture areas can be specified. *only when Image capture mode : Cropping [16:9] (30fps mode)	
	Camera Control	Brightness, AUX On / Off	
	Display Mode	Spot, Quad: Image from 16 cameras can be displayed in 4 different Quad screens or 16 split screen (JPEG only). 20 characters camera title available.	
	Digital Zoom	1x, 2x, 4x controlled by browser GUI	
	Camera Title	Up to 20 alphanumeric characters	
	Clock Display	Time: 12H/24H, Date: 5 formats on the browser, Summer time (Manual)	
	Alarm Control	Reset	
	One Shot Capture	A still picture will be displayed on a newly opened window.	
	Audio	Mic (Line) Input : On / Off Volume adjustment : Low / Middle / High Audio Output : On / Off Volume adjustment : Low / Middle / High	
	SD Memory Data Download	Still or motion Images recorded in the SDXC/SDHC/SD The recorded data can be downloaded.	
	GUI/Setup Menu Language	English, Italian, French, German, Spanish, Portuguese, Russian, Chinese, Japanese	
	System Log	Up to 100 (Internal) Up to 4,000 (SDXC/SDHC/SD memory) error logs	
	Supported OS *2	Microsoft® Windows® 8.1, Microsoft® Windows® 8, Microsoft® Windows® 7, Microsoft® Windows Vista®	
	Supported Browser	Windows® Internet Explorer® 11 (32 bit) Windows® Internet Explorer® 10 (32 bit) Windows® Internet Explorer® 9 (32 bit) Windows® Internet Explorer® 8 (32 bit) Windows® Internet Explorer® 7 (32 bit)	
	<b>Network</b>	Network IF	10Base-T / 100Base-TX, RJ45 connector
		Image Resolution	<b>•8 mega pixel [16 : 9] (30 fps mode)</b> H.264(1): 3,840 x 2,160, up to 30 fps JPEG(2): 640 x 360, up to 30 fps <b>•8 mega pixel [16 : 9] (15 fps mode)</b> H.264(1): 3,840 x 2,160, up to 15 fps Compliant with H.264 H.264(2): 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (1), H.264 (2), or JPEG (2). JPEG(2): 640 x 360 <b>•12 mega pixel [4 : 3] (15 fps mode)</b> H.264(1): 4,000 x 3,000, up to 15 fps H.264(2): 640 x 480 / 320 x 240, up to 5 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (1), H.264 (2), or JPEG (2). JPEG(2): 640 x 480 <b>•5 mega pixel [4 : 3] (30 fps mode)</b> H.264(1): 2,560 x 1,920 / 2,048 x 1,536 / 1,600 x 1,200 / 1,280 x 960 / 800 x 600, up to 30 fps H.264(2): 1,280 x 960 / 800 x 600 / 640 x 480 / 320 x 240, up to 30 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (1), H.264 (2), or JPEG (2). JPEG(2): 640 x 480 <b>•4 mega pixel [16 : 9] (30 fps mode)</b> H.264(1): 2,560 x 1,440 / 1,920 x 1,080 / 1,280 x 720, up to 30 fps H.264(2): 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps H.264(3): 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps H.264(4): 640 x 360, up to 30 fps JPEG(2): 640 x 360 <b>•Cropping [16 : 9] (30 fps mode)</b> H.264(1): Ch1 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(1): Ch2 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(1): Ch3 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(1): Ch4 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(2): 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (2) or JPEG (2). JPEG(2): 640 x 360
		H.264	Transmission priority
		Constant bit rate / Variable bit rate / Frame rate / Best effort / Advanced VBR	

<b>Network</b>	H.264	Frame Rate <When Variable bit rate, Frame rate, or Advanced VBR is selected> 1 / 3 / 5* / 7.5* / 10* / 12* / 15* / 20* / 30* fps * The frame rate is limited to "bit rate". When a value with an asterisk (*) is selected, the actual frame rate may be lower than the value selected.
		Bit Rate/Cliet 64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 6,144 / 8,192 / 10,240 / 12,288 / 14,336 / 16,384 / 20,480 / 24,576 / 30,720 / 40,960 kbps * The available range of the H.264 bit rate varies depending on the setting selected for "image capture size".
		Image Quality <When Constant bit rate or Best effort is selected> Low / Normal / Fine <When Variable bit rate is selected> 0 Super Fine / 1 Fine / 2 / 3 / 4 / 5 Normal / 6 / 7 / 8 / 9 Low
		Smart Coding mode On (Low / Mid / High) / Off (Only when "Variable bit rate" is selected)
		Refresh Interval 0.2 / 0.25 / 0.33 / 0.5 / 1 / 2 / 3 / 4 / 5 s
		Transmission Type Unicast / Multicast
	JPEG	Image Quality 10 steps Refresh Interval 0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.) Transmission Type Pull / Push
		Audio Compression G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps / AAC-LC *3 64 kbps / 96 kbps / 128 kbps
		Audio transmission/reception Off / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)
		Authentication for Audio Level 1 only / Level 2 higher / All users
	Supported Protocol IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, MLD, ICMP, ARP IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTCP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP	
	FTP Client Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SDXC/SDHC/SD memory card is available.) Maximum concurrent access number Up to 14 users (Depends on network conditions)	
	SDXC/SDHC/SD Memory Card (Option) H.264 recording: Manual REC / Alarm REC (Pre/Post) / Schedule REC / Backup upon network failure * Use the SD memory card manufactured by Panasonic (SD speed class 4 or higher), and in the case of SD Speed Class 10, that complies with UHS-1(Ultra High Speed-1). JPEG recording: Manual REC / Alarm REC (Pre/Post) / FTP error / Backup upon network failure Compatible SD (SDHC/SDXC) card: Panasonic 2 GB, 4 GB*, 8 GB*, 16 GB*, 32 GB*, 64 GB** model *SDHC card, ** SDXC card (except miniSD card and microSD card)	
	Cellular Phone Compatibility JPEG image, AUX control (by access level)	
	Mobile Terminal Compatibility*4 iPad, iPhone, iPod touch (iOS 4.2.1 or later), Android™ mobile terminals	
<b>Alarm</b>	Alarm Source	3 terminals input, VMD, Command alarm
	Alarm Actions	SDXC/SDHC/SD memory recording, E-mail notification, Indication on browser, FTP image transfer, Panasonic protocol output
	Alarm Log	With SDXC/SDHC/SD memory card: 50,000 logs
	Schedule	Alarm / VMD / Access permission / H.264 recording / Scene file / FTP periodic image transmission
<b>Input/ Output</b>	Monitor Output (for adjustment)	VBS: 1.0 V [p-p] / 75 Ω, NTSC / PAL composite, RCA jack
	Microphone/Line Input	ø3.5 mm stereo mini jack Input impedance: Approx. 2 kΩ (unbalanced) For microphone input Recommended applicable microphone: Plug-in power type Supply voltage: 2.5 V ±0.5 V Recommended sensitivity of microphone: -48 dB±3 dB (0 dB=1 V/Pa, 1 kHz) For line input Input level: Approx. -10 dBV
	Audio Output *5	ø3.5 mm stereo mini jack Output impedance: Approx. 600 Ω (unbalanced) / Output level: -20 dBV Can be used as the monitor output by switching browser GUI.
	External I/O Terminals	ALARM IN1 (DAY/NIGHT IN), ALARM IN2 (ALARM OUT), ALARM IN3 (AUX OUT, DAY/NIGHT OUT)
<b>General</b>	Safety	UL (UL60950-1, UL60950-22), C-UL (CAN/CSA C22.2 No.60950-1), CE, IEC60950-1
	EMC	FCC (Part15 ClassA), ICES003 ClassA, EN55023 ClassB, EN55022 ClassB, EN55024
	Power Source and Power Consumption *6	DC12 V : 1050 mA / Approx. 12.6 W PoE (IEEE802.3af compliant) / PoE DC48 V : 265 mA / Approx. 12.95 W (Class 0 device)
	Ambient Operating Temperature	-45 °C to +50 °C (-49 °F to 122 °F)
	Ambient Operating Humidity	10 to 90 % (no condensation)
	Impact Protection	Compliant with IK10 (IEC 62262)
	Water and Dust Resistance *7	Main body: IP66 (IEC60529), Type 4X (UL50), NEMA 4X compliant
	Dimensions	When using the attachment plate : ø228 mm x 189 mm (H) {ø8-31/32 inches x 7-7/16 inches (H)}, Dome radius 80 mm {3-5/32 inches} When using the base bracket : ø228 mm x 225 mm (H) {ø8-31/32 inches x 8-27/32 inches (H)}, Dome radius 80 mm {3-5/32 inches}
	Mass (approx.)	When using the attachment plate : Approx. 3.2 kg (7.05 lbs) When using the base bracket : Approx. 3.7 kg (8.16 lbs)
	Finish	Main body : Aluminum die cast, light gray, Dome section : Clear polycarbonate resin Dome cover : Clear polycarbonate resin (Rain wash coating)
	Others	Tamper-resistant enclosure *8

\*1 Converted value

\*2 For further information about PC system requirements and precautions for when using Microsoft® Windows® 8.1, Microsoft® Windows® 8, Microsoft® Windows® 7, Microsoft® Windows Vista®, or Windows Internet Explorer, click "Manual" - "Open" from the supplied CD-ROM and refer to "Notes on Windows® / Internet Explorer® versions".

\*3 AAC-LC (Advanced Audio Coding - Low Complexity) is only used when recording audio on an SD memory card.

\*4 For further information about compatible devices, refer to our website (<http://security.panasonic.com/support/info/>).

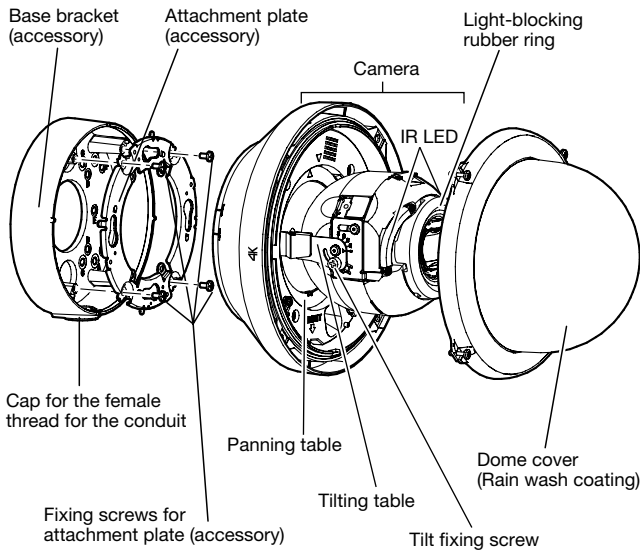
\*5 In order to be able to switch the monitor output, "8 mega pixel [16:9](15fps mode)", "5 mega pixel [4:3](30fps mode)", or "12 mega pixel [4:3](15fps mode)" must be selected for "Image capture mode". For information about usage limitations, refer to "2.3.1 Configure the basic settings [Basic]" in the "Operating Instructions".

\*6 Refer to our website (<http://security.panasonic.com/support/info/>) for further information about Power source and Power consumption information.

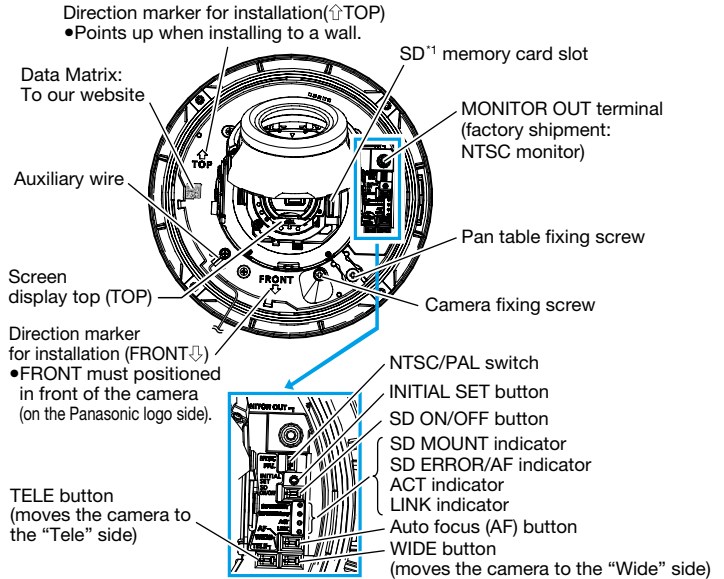
\*7 Only when installation work is properly performed according to the instructions in this book and appropriate waterproof treatment is performed.

\*8 Component that has a structure on which the screws that are accessible after installation cannot be screwed or unscrewed using an ordinary screwdriver.

## Part Names and Functions



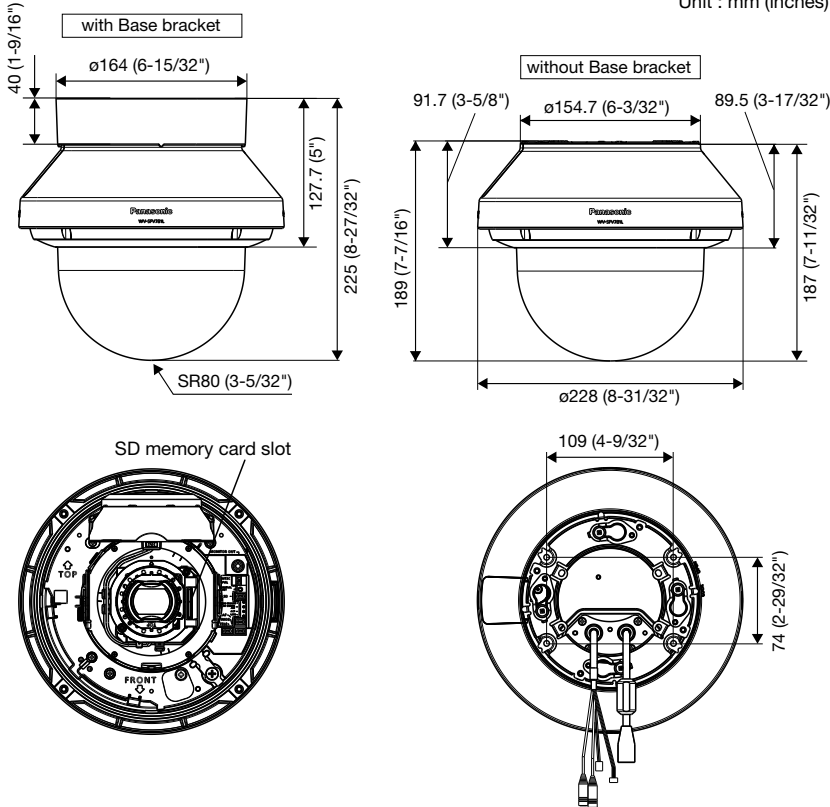
### Inside the dome cover (with IR LED mounting section opened)



<sup>1</sup> SDXC/SDHC/SD memory card is described as SD memory card

## Appearance

Unit : mm (inches)



### Trademarks and registered trademarks

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### Important

- Safety Precaution: Carefully read the Important Information, Installation Guide and operating instructions before using this product.
- Panasonic cannot be responsible for the performance of the network and/or other manufacturers' products used on the network.

- Masses and dimensions are approximate.
- Specifications are subject to change without notice.

## Standard Accessories

- Important Information ..... 1 pc.
- Installation Guide ..... 1 set.
- CD-ROM <sup>1</sup> ..... 1 pc.
- Code label <sup>2</sup> ..... 1 pc.

The following parts are used during installation procedures.

- Attachment plate ..... 1 pc.
- Base bracket ..... 1 pc.
- Fixing screws for attachment plate (M4 x 8 mm) ..... 5 pcs. (of them, 1 for spare)
- Template A (for the attachment plate) ..... 1 sheet.
- Template B (for the base bracket) ..... 1 sheet.
- Bit (Hex wrench, screw size 6.35 mm {1/4 inches} T20) ..... 1 pc.
- Waterproof tape ..... 1 pc.
- 4P alarm cable ..... 1 pc.
- 2P power cable ..... 1 pc.
- LAN connector cover ..... 1 pc.
- MONITOR OUT conversion plug <sup>3</sup> ..... 1 pc.
- Protection cover ..... 1 pc.

<sup>1</sup> The CD-ROM contains the operating instructions and different kinds of tool software programs.

<sup>2</sup> This label may be required for network management.

The network administrator shall retain the code label.

<sup>3</sup> This can be used as MONITOR OUT by switching the audio/monitor output cable of the unit using software switching.

Connect the MONITOR OUT conversion plug to the audio/monitor output cable and use it when converting the ø3.5 mm stereo mini jack to the RCA pin jack output.

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