



The Perfect Experience / —

# Video Surveillance Products

## 2008–2009



Line-up Chart

Color Camera

Flat Panel Display  
& Monitor

Network Camera  
& Encoder

Recorder

Software

System  
Information

Technical  
Information

Glossary

Index

## P. 1 Line-up Chart

## P. 2 Color Camera

## P.13 Flat Panel Display & Monitor

## P.17 Network Camera & Encoder

## P.28 Recorder

## P.31 Software

## P.32 System Information

Combination of brackets and cameras  
for VN-V686U/VN-V686WPU  
Mounting drawings and specifications  
Ready Pak  
VN-E4U system configuration  
VN-RS800U system configuration  
VR-N900U/VR-N1600U system configuration

## P.38 Technical Information

Camera horizontal resolution chart  
Lens iris terminal  
Wide dynamic range function  
IR cut filter on/off function  
Easy day/night function  
Focus adjustment function  
Private mask  
Alarm zoom function  
Active gamma function (Easy wide-D)  
Display mode  
Image stabilizer  
Megapixel  
Bi-directional audio  
Various functions of PTZ dome camera  
Direct drive for PTZ mechanism  
Vandal resistant  
Dust and water protection (IP code)  
3 way mount  
Easy installation  
One-touch lock installation  
Relationship between focal length and field of view  
Network specific information

## P.46 Glossary

## P.49 Index

## Color Camera

### TK-C920BU

1/3" High Resolution Camera

► P.2 Specifications P.8

550 TVL  
Focus Adjustment  
Ready Pak  
Display Mode  
Easy D/N



### TK-C750U(A)

1/3" STD Resolution Camera

► P.2 Specifications P.8

Ready Pak



### TK-C925U

1/3" Day/Night Camera

► P.3 Specifications P.9

540 TVL  
Display Mode  
IR ON/OFF  
Focus Adjustment



### TK-C1530U

1/3" Day/Night Camera

► P.3 Specifications P.9

540 TVL  
Private Mask  
IR ON/OFF  
Display Mode  
Focus Adjustment



### TK-C1460U

1/3" ExDR Day/Night Camera

► P.4 Specifications P.10

Ready Pak  
ExDR  
IR ON/OFF



### TK-C1480U

1/3" ExDR Camera

► P.4 Specifications P.10

Ready Pak  
ExDR



### TK-WD310U(B)

1/3" WDR Camera

► P.5 Specifications P.10

WDR  
Easy D/N



### TK-C215V4U(A)

1/4" Fixed Dome Camera

► P.6 Specifications P.11

540 TVL  
3way Mount  
Easy D/N  
Focus Adjustment



### TK-C215V12U(A)

1/4" Fixed Dome Camera

► P.6 Specifications P.11

540 TVL  
Alarm Zoom  
Easy D/N  
3way Mount  
Focus Adjustment



### TK-C215VP4U

1/4" Fixed Dome Camera  
(Vandal Resistant)

► P.7 Specifications P.12

540 TVL  
Vandal Resistant  
Easy D/N  
IP66  
Focus Adjustment  
Easy Installation



### TK-C215VP12U

1/4" Fixed Dome Camera  
(Vandal Resistant)

► P.7 Specifications P.12

540 TVL  
Alarm Zoom  
Easy D/N  
Vandal Resistant  
IP66  
Focus Adjustment



## Flat Panel Display &amp; Monitor

**LM-150/LM-170**

15"/17" LCD Monitor

15"  
17"

► P.13 Specifications P.15

**TM-A101G**

9"v CRT Monitor

9"v



► P.13 Specifications P.15

**TM-A130SU**

13"v CRT Monitor

13"v



► P.13 Specifications P.15

**TM-A130SU/TM-A13UCV**

13"v CRT Monitor

13"v



► P.13 Specifications P.16

**TM-A210G**

20"v CRT Monitor

20"v



► P.14 Specifications P.16

**TM-H150CG**

14"v CRT Monitor

14"v



► P.14 Specifications P.16

**TM-H1700G**

16"v CRT Monitor

16"v



► P.14 Specifications P.16

## Network Camera &amp; Encoder

**VN-V25U**

1/4" Network Camera

Ready Pak  
Easy D/N  
Private Mask  
Active Gamma  
Display Mute  
Dual Stream  
PoE

► P.17 Specifications P.20

**VN-V26U**

1/4" Network Camera

Ready Pak  
System Information  
IR ON/OFF  
Private Mask  
Active Gamma  
Display Mute  
Bi-Directional Audio  
PoE  
Dual Stream

► P.17 Specifications P.20

**VN-X35U**

1/3" Megapixel Network Camera

Easy D/N  
System Information  
Private Mask  
Active Gamma  
Display Mute  
Megapixel  
Dual Stream

► P.18 Specifications P.21

**VN-C215V4U(A)**

1/4" Fixed Network Dome Camera

Easy D/N  
Focus Adjustment  
3way Mount  
PoE

► P.19 Specifications P.22

**VN-C215VP4U(A)**  
1/4" Fixed Network Dome Camera  
(Vandal Resistant)Easy D/N  
Focus Adjustment  
Vandal Resistant  
IP66  
Easy Installation  
PoE

► P.19 Specifications P.22

**VN-C625U**

12x PTZ Network Dome Camera

IR ON/OFF  
Private Mask  
Technical Information

► P.23 Specifications P.25

**VN-C655U(B)**

25x PTZ Network Dome Camera

ExDR  
IR ON/OFF  
Private Mask  
Technical Information

► P.23 Specifications P.25

**VN-V686U**

36x PTZ Network Dome Camera

IR ON/OFF  
Private Mask  
Active Gamma  
Display Mute  
Image Stabilizer  
Technical Information  
Direct Drive  
One-Touch Lock  
Dual Stream

► P.24 Specifications P.26

**VN-V686WPU**36x Outdoor  
PTZ Network Dome CameraIR ON/OFF  
Private Mask  
Active Gamma  
Display Mute  
Image Stabilizer  
Technical Information  
Direct Drive  
IP66  
Dual Stream

► P.24 Specifications P.26

**VN-E4U**

Network Encoder

System Information



► P.27 Specifications P.27

## Recorder

**VR-N900U**Network Video Recorder  
(Hybrid Network and Analog Cameras)

System Information



► P.28 Specifications P.30

**VR-N1600U**

Network Video Recorder

System Information



► P.28 Specifications P.30

## Software

**VN-RS800U**Video Management Software  
(Light Edition) for Network Cameras/Encoder

System Information



► P.31 Specifications P.31

## 1/3" High Resolution Camera

## TK-C920BU

Refer to P.34 Refer to P.39 Refer to P.39 Refer to P.40

550 TVL

Ready Pak

Easy D/N

Focus  
AdjustmentDisplay  
Mode

Lens not included



TK-C920BU rear

- ▶ 1/3" high resolution IT CCD with 380,000 effective pixels
- ▶ 550 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 0.35 lx F1.2 (color mode), 0.25 lx F1.2 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ Automatic electronic shutter (AES) on/off
- ▶ Automatic gain control (AGC) on/off, max. 26 dB (color mode)
- ▶ Auto tracking white balance (ATW) and manual: 2,300 K to 10,000 K
- ▶ Backlight compensation (BLC) on/off
- ▶ Sync systems INT/Line lock
- ▶ Support video/DC iris lens control
- ▶ C/CS lens compatible
- ▶ Built-in display mode (CRT or LCD selectable)
- ▶ 24 VAC/12 VDC power supply

## 1/3" STD Resolution Camera

## TK-C750U(A)

Refer to P.34

Ready Pak



Lens not included



TK-C750U(A) rear

- ▶ 1/3" IT CCD with 250,000 effective pixels
- ▶ 330 TV lines of horizontal resolution
- ▶ Minimum illumination: 0.28 lx F1.2
- ▶ Auto tracking white balance (ATW) and One-touch auto white balance (AWB)
- ▶ Auto white balance adjustment range: 2,300 K to 10,000 K
- ▶ Automatic gain control (AGC) on/off, max. 26 dB
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Backlight compensation (BLC) on/off
- ▶ Automatic electronic shutter (AES) on/off
- ▶ DC iris lens control
- ▶ Sync systems INT/Line lock
- ▶ C/CS lens compatible
- ▶ 24 VAC/12 VDC power supply



## 1/3" Day/Night Camera

## TK-C925U

Refer to P.39 Refer to P.39 Refer to P.40

540 TVL

IR ON/OFF

Focus  
AdjustmentDisplay  
Mode

Lens not included



TK-C925U rear

- ▶ 1/3" high resolution IT CCD with 380,000 effective pixels
- ▶ Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting)
- ▶ 540 TV lines of horizontal resolution
- ▶ Super LoLux™ sensitivity: 0.4 lx F1.2 (color mode), 0.05 lx F1.2 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Built-in menu
- ▶ Automatic electronic shutter (AES) on/off
- ▶ Automatic gain control (AGC) off/on (high/super)
- ▶ Auto tracking white balance (ATW) wide, narrow, AWC and Manual Paint
- ▶ Backlight compensation (BLC) on/off
- ▶ Sync systems INT/Line lock
- ▶ Support video/DC iris lens control
- ▶ C/CS lens compatible
- ▶ Built-in display mode (CRT or LCD selectable)
- ▶ 24 VAC/12 VDC power supply

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder

Software

System  
InformationTechnical  
Information

Glossary

Index

## 1/3" Day/Night Camera

## TK-C1530U

Refer to P.39 Refer to P.39 Refer to P.39 Refer to P.40

540 TVL

IR ON/OFF

Focus  
AdjustmentPrivate  
MaskDisplay  
Mode

Lens not included



TK-C1530U rear

- ▶ 1/3" high resolution IT CCD with 380,000 effective pixels
- ▶ Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting)
- ▶ 540 TV lines of horizontal resolution
- ▶ Super LoLux™ sensitivity: 0.4 lx F1.2 (color mode), 0.05 lx F1.2 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ Scene file function for customer's parameter setting
- ▶ RS-422A/RS-485 remote control capability for camera setting
- ▶ Smart edge control mode (S.E.C.)
- ▶ Built-in menu
- ▶ Automatic electronic shutter (AES) on/off
- ▶ Automatic gain control (AGC) off/on (high/super)
- ▶ Auto tracking white balance (ATW) wide, narrow, AWC and Manual Paint
- ▶ Backlight compensation (BLC) on/off
- ▶ Sync systems INT/Line lock
- ▶ Support video/DC iris lens control
- ▶ 4 areas private mask
- ▶ C/CS lens compatible
- ▶ Built-in display mode (CRT or LCD selectable)
- ▶ 24 VAC/12 VDC power supply

## 1/3" ExDR Day/Night Camera

Refer to **P.34** Refer to **P.38** Refer to **P.39**

## TK-C1460U

Ready Pak

ExDR

IR ON/OFF



Lens not included



TK-C1460U rear

- ▶ 1/3" high sensitive IT CCD with 380,000 effective pixels
- ▶ Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting)
- ▶ 480 TV lines of horizontal resolution
- ▶ Extended dynamic range (ExDR) function
- ▶ Motion detection with alarm signal output
- ▶ 10x digital zoom function
- ▶ Super LoLux™ sensitivity: 0.4 lx F1.2
- ▶ Minimum illumination: 0.0003 lx (32x slow shutter, B&W mode)
- ▶ RS-422A/RS-485 remote control capability for camera setting
- ▶ Auto tracking white balance (ATW)
- ▶ Automatic gain control (AGC) on/off, max. 23 dB
- ▶ Auto/Manual image correction with Backlight compensation
- ▶ Y/C video output
- ▶ Sync systems INT/Line lock, Full genlock
- ▶ 24 VAC/12 VDC power supply

## 1/3" ExDR Camera

Refer to **P.34** Refer to **P.38**

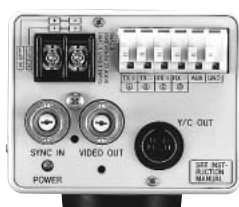
## TK-C1480U

Ready Pak

ExDR



Lens not included



TK-C1480U rear

- ▶ 1/3" high sensitive IT CCD with 380,000 effective pixels
- ▶ 480 TV lines of horizontal resolution
- ▶ Super LoLux™ sensitivity: 0.25 lx F1.2
- ▶ Minimum illumination: 0.0125 lx (32x slow shutter)
- ▶ Extended dynamic range (ExDR) function
- ▶ Motion detection with alarm signal output
- ▶ RS-422A/RS-485 remote control capability for camera setting
- ▶ Auto tracking white balance (ATW)
- ▶ Automatic gain control (AGC) on/off, max. 23 dB
- ▶ Auto/Manual image correction with Backlight compensation
- ▶ Y/C video output
- ▶ Sync systems INT/Line lock, Full genlock
- ▶ 24 VAC/12 VDC power supply

## 1/3" WDR Camera

Refer to P.38 Refer to P.39

## TK-WD310U(B)

WDR

Easy D/N



Lens not included

- ▶ 1/3" digital image device with wide dynamic range (WDR)
- ▶ Innovative 14-bit DSP
- ▶ High-speed, automatic 5 levels exposure control for each pixel
- ▶ 480 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Programmable camera menu system
- ▶ Auto tracking white balance (ATW), single-push and manual
- ▶ Automatic gain control (AGC) on/off, max. 34 dB
- ▶ 24 characters camera title
- ▶ Supports video/DC iris lens control
- ▶ Ultra compact body
- ▶ 24 VAC/12 VDC power supply



TK-WD310U(B) rear

**Notes:**

1. The WDR function will not operate with AGC or slow shutter mode engaged.
2. In very dark conditions the image quality may suffer slight deterioration.
3. Under fluorescent lighting, the color balance may vary slightly.
4. All manufacturers utilizing this technology will experience similar phenomenon.

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder

Software

System  
InformationTechnical  
Information

Glossary

Index

## 1/4" Fixed Dome Camera

## TK-C215V4U(A)

Refer to P.39 Refer to P.39 Refer to P.42

540 TVL

Easy D/N

Focus  
Adjustment

3way Mount



Cover removed

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 0.75 lx F1.3 (color mode), 0.4 lx F1.3 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ Built-in 3.6x variable focal length auto iris lens (f = 2.8 mm to 10.0 mm)
- ▶ Focus adjustment function
- ▶ Triple axis rotation system for wide lens angle adjustment
- ▶ Monitor video output (RCA) for easy camera setup
- ▶ Automatic gain control (AGC) on/off, max. 26 dB
- ▶ Auto tracking white balance (ATW) and manual: 2,300 K to 10,000 K
- ▶ Backlight compensation (BLC) on/off
- ▶ Sync systems INT/Line lock
- ▶ Easy flush mountable without optional bracket
- ▶ Compatible with US 6" electrical box
- ▶ 24 VAC/12 VDC power supply

with electrical box



## 1/4" Fixed Dome Camera

## TK-C215V12U(A)

Refer to P.39 Refer to P.39 Refer to P.39 Refer to P.42

540 TVL

Easy D/N

Focus  
Adjustment

Alarm Zoom

3way Mount



Cover removed

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 1.0 lx F1.6 (color mode), 0.6 lx F1.6 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ Built-in 12x variable focal length auto iris lens (f = 3.8 mm to 45.6 mm)
- ▶ Alarm zoom function
- ▶ Focus adjustment function
- ▶ Triple axis rotation system for wide lens angle adjustment
- ▶ Monitor video output (RCA) for easy camera setup
- ▶ Automatic gain control (AGC) on/off, max. 26 dB
- ▶ Auto tracking white balance (ATW) and manual: 2,300 K to 10,000 K
- ▶ Backlight compensation (BLC) on/off
- ▶ Sync systems INT/Line lock
- ▶ Easy flush mountable without optional bracket
- ▶ Compatible with US 6" electrical box
- ▶ 24 VAC/12 VDC power supply

with electrical box





## 1/4" Fixed Dome Camera (Vandal Resistant)

## TK-C215VP4U

Refer to P.39 Refer to P.39 Refer to P.41 Refer to P.42 Refer to P.43

540 TVL

Easy D/N

Focus  
AdjustmentVandal  
Resistant

IP66

Easy  
Installation

Cover removed

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ Outdoor-ready vandal resistant structure (complies with IP66)
- ▶ Easy to install with built-in ceiling mechanism
- ▶ Triple axis rotation system for wide lens angle adjustment
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 0.8 lx F1.3 (color mode), 0.4 lx F1.3 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ All normal adjustments accessible on face of camera with front cover removed
- ▶ Built-in 3.6x variable focal length auto iris lens (f = 2.8 mm to 10 mm)
- ▶ Focus adjustment function
- ▶ Monitor video output (RCA) for easy camera setup
- ▶ Automatic gain control (AGC) on/off, max. 26 dB
- ▶ Auto tracking white balance (ATW) and manual: 2,300 K to 10,000 K
- ▶ Backlight compensation on/off
- ▶ Sync systems INT/Line lock
- ▶ 24 VAC/12 VDC power supply
- ▶ New inner cover to mask the direction of the camera
- ▶ Optional heater unit: **KA-ZH215U** allowing you to use in various weather conditions

Optional heater unit



KA-ZH215U

## 1/4" Fixed Dome Camera (Vandal Resistant)

## TK-C215VP12U

Refer to P.39 Refer to P.39 Refer to P.39 Refer to P.41 Refer to P.42 Refer to P.43

540 TVL

Easy D/N

Focus  
Adjustment

Alarm Zoom

Vandal  
Resistant

IP66

Easy  
Installation

Cover removed

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ Outdoor-ready vandal resistant structure (complies with IP66)
- ▶ Easy to install with built-in ceiling mechanism
- ▶ Triple axis rotation system for wide lens angle adjustment
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 1.1 lx F1.6 (color mode), 0.6 lx F1.6 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ All normal adjustments accessible on face of camera with front cover removed
- ▶ Built-in 12x variable focal length auto iris lens (f = 3.8 mm to 45.6 mm)
- ▶ Alarm zoom function
- ▶ Focus adjustment function
- ▶ Monitor video output (RCA) for easy camera setup
- ▶ Automatic gain control (AGC) on/off, max. 26 dB
- ▶ Auto tracking white balance (ATW) and manual: 2,300 K to 10,000 K
- ▶ Backlight compensation on/off
- ▶ Sync systems INT/Line lock
- ▶ 24 VAC/12 VDC power supply
- ▶ New inner cover to mask the direction of the camera
- ▶ Optional heater unit: **KA-ZH215U** allowing you to use in various weather conditions

Optional heater unit



KA-ZH215U

	TK-C920BU	TK-C750U(A)
<b>Camera</b>		
<b>Image device</b>	1/3" IT CCD	1/3" IT CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	250,000 (510 H x 492 V)
<b>Sync system</b>	Internal, Line lock	Internal, Line lock
<b>Scanning system</b>	2:1 interlace, 525 lines	2:1 Interlace, 525 lines
<b>Scanning frequency</b>	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)
<b>Video output</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)
<b>Y/C output</b>	—	—
<b>Video S/N ratio</b>	50 dB (AGC off)	50 dB (AGC off)
<b>Horizontal resolution</b>	550 TV lines	330 TV lines
<b>Minimum illumination (typical)</b>	0.7 lx (50%, F1.2, AGC on) 0.35 lx (25%, F1.2, AGC on)	0.55 lx (50%, F1.2, AGC on) 0.28 lx (25%, F1.2, AGC on)
<b>&lt; B&amp;W mode &gt;</b>	< 0.5 lx (50%, F1.2, AGC on) 0.25 lx (25%, F1.2, AGC on) >	
<b>Communication</b>	—	—
<b>Iris control</b>	Video iris/DC iris	DC iris
<b>White balance</b> <b>&lt; ATW color temp. range &gt;</b>	ATW/Manual < 2,300 K to 10,000 K >	ATW/Manual (one-push adjustable) < 2,300 K to 10,000 K >
<b>Wide dynamic range function</b>	—	—
<b>Display mode</b>	CRT or LCD selectable	—
<b>Backlight compensation</b>	on/off	on/off
<b>AES</b>	on/off (1/60 s to 1/100,000 s)	on/off (1/60 s to 1/100,000 s)
<b>Lens</b>		
<b>Lens mount</b>	C/CS	C/CS
<b>Focal length</b> <b>&lt; angle of vision &gt;</b>	—	—
<b>Max. aperture ratio</b>	—	—
<b>Angle adjustment range</b>	—	—
<b>General</b>		
<b>Power supply</b>	24 VAC (50 Hz/60 Hz)/12 VDC, UL listed	24 VAC (60 Hz)/12 VDC, UL listed
<b>Power consumption</b>	4.7 W	3.3 W
<b>Operating temperature range</b> <b>&lt; recommended &gt;</b>	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
<b>Dust and water protection</b>	—	—
<b>Dimensions (W x H x D)</b>	2 inches x 2-5/16 inches x 5 inches (50 mm x 57.5 mm x 126 mm)	2 inches x 2-5/16 inches x 5 inches (50 mm x 57.5 mm x 126 mm)
<b>Weight</b>	0.82 lbs. (370 g)	0.75 lbs. (340 g)
<b>Accessories</b>	—	—

	TK-C925U	TK-C1530U
<b>Camera</b>		
<b>Image device</b>	1/3" IT CCD	1/3" IT CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)
<b>Sync system</b>	Internal, Line lock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlace, 525 lines	2:1 Interlace, 525 lines
<b>Scanning frequency</b>	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)
<b>Video output</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)
<b>Y/C output</b>	—	—
<b>Video S/N ratio</b>	50 dB (AGC off)	50 dB (AGC off)
<b>Horizontal resolution</b>	540 TV lines	540 TV lines
<b>Minimum illumination (typical)</b>	1.5 lx (50%, F1.2, AGC high) 0.4 lx (25%, F1.2, AGC super)	1.5 lx (50%, F1.2, AGC high) 0.4 lx (25%, F1.2, AGC super)
<b>&lt; B&amp;W mode &gt;</b>	< 0.05 lx (25%, F1.2, AGC super) >	< 0.05 lx (25%, F1.2, AGC super) >
<b>Communication</b>	—	RS-422A or RS-485, 9,600 bps
<b>Iris control</b>	Video iris/DC iris	Video iris/DC iris
<b>White balance</b> <b>&lt; ATW color temp. range &gt;</b>	ATW (wide/narrow)/AWC/Manual < 2,300 K to 10,000 K >	ATW (wide/narrow)/AWC/Manual < 2,300 K to 10,000 K >
<b>Wide dynamic range function</b>	—	—
<b>Display mode</b>	CRT or LCD selectable	CRT or LCD selectable
<b>Backlight compensation</b>	on/off	on/off
<b>AES</b>	on/off (1/60 s to 1/100,000 s)	on/off (1/60 s to 1/100,000 s)
<b>Lens</b>		
<b>Lens mount</b>	C/CS	C/CS
<b>Focal length</b> <b>&lt; angle of vision &gt;</b>	—	—
<b>Max. aperture ratio</b>	—	—
<b>Angle adjustment range</b>	—	—
<b>General</b>		
<b>Power supply</b>	24 VAC (60 Hz)/12 VDC, UL listed	24 VAC (60 Hz)/12 VDC, UL listed
<b>Power consumption</b>	4.8 W	5.0 W
<b>Operating temperature range</b> <b>&lt; recommended &gt;</b>	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
<b>Dust and water protection</b>	—	—
<b>Dimensions (W x H x D)</b>	2-1/2 inches x 2-1/8 inches x 5 inches (65 mm x 55 mm x 126 mm)	2-1/2 inches x 2-1/8 inches x 5 inches (65 mm x 55 mm x 126 mm)
<b>Weight</b>	0.88 lbs. (480 g)	0.88 lbs. (480 g)
<b>Accessories</b>	—	—

	TK-C1460U	TK-C1480U	TK-WD310U(B)
<b>Camera</b>			
<b>Image device</b>	1/3" IT CCD	1/3" IT CCD	1/3" WDR digital image device
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)	380,000 (720 H x 540 V)
<b>Sync system</b>	Internal, Line lock, Full genlock	Internal, Line lock, Full genlock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlace, 525 lines	2:1 Interlace, 525 lines	2:1 Interlace, 525 lines
<b>Scanning frequency</b>	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)
<b>Video output</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)
<b>Y/C output</b>	Y/C video signal (4-pin) Y: 0.714 V (p-p), 75 ohms C: 0.286 V (p-p), 75 ohms	Y/C video signal (4-pin) Y: 0.714 V (p-p), 75 ohms C: 0.286 V (p-p), 75 ohms	—
<b>Video S/N ratio</b>	50 dB (AGC off)	50 dB (AGC off)	50 dB (AGC off)
<b>Horizontal resolution</b>	480 TV lines	480 TV lines	480 TV lines
<b>Minimum illumination (typical)</b>	0.8 lx (50%, F1.2, AGC 20 dB) 0.4 lx (25%, F1.2, AGC 20 dB) 0.0125 lx (25%, F1.2, AGC 20 dB, 32x sense-up) 0.02 lx (50%, F1.2, AGC 20 dB) 0.01 lx (25%, F1.2, AGC 20 dB) 0.0003 lx (25%, F1.2, AGC 20 dB, 32x sense-up)	0.8 lx (50%, F1.2, AGC 20 dB) 0.4 lx (25%, F1.2, AGC 20 dB) 0.0125 lx (25%, F1.2, AGC 20 dB, 32x sense-up)	1.9 lx (50%, F1.2, AGC High) 0.9 lx (25%, F1.2, AGC High)  0.5 lx (50%, F1.2, AGC on, Easy D/N) 0.25 lx (25%, F1.2, AGC on, Easy D/N)
<b>&lt; B&amp;W mode &gt;</b>			
<b>Communication</b>	RS-422A or RS-485, 9,600 bps	RS-422A or RS-485, 9,600 bps	—
<b>Iris control</b>	Video iris/DC iris	Video iris/DC iris	Video iris/DC iris
<b>White balance</b> <b>&lt; ATW color temp. range &gt;</b>	ATW/AWB/Manual < 2,500 K to 8,000 K >	ATW/AWB/Manual < 2,500 K to 8,000 K >	ATW/AWB/Manual < 2,300 K to 10,000 K >
<b>Wide dynamic range function</b>	ExDR (by dual shutters)	ExDR (by dual shutters)	WDR (by multi sampling)
<b>Display mode</b>	—	—	—
<b>Backlight compensation</b>	Yes (areas are selectable)	Yes (areas are selectable)	—
<b>AES</b>	Select from menu (1/60 s to 1/100,000 s)	Select from menu (1/60 s to 1/100,000 s)	—
<b>Lens</b>			
<b>Lens mount</b>	C/CS	C/CS	CS
<b>Focal length</b> <b>&lt; angle of vision &gt;</b>	—	—	—
<b>Max. aperture ratio</b>	—	—	—
<b>Angle adjustment range</b>	—	—	—
<b>General</b>			
<b>Power supply</b>	24 VAC (60 Hz)/12 VDC, UL listed	24 VAC (60 Hz)/12 VDC, UL listed	24 VAC (60 Hz)/12 VDC, UL listed
<b>Power consumption</b>	6.0 W	5.2 W	5.7 W
<b>Operating temperature range</b> <b>&lt; recommended &gt;</b>	14 °F to 122 °F (–10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (–10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (–10 °C to 50 °C) < 32 °F to 95 °F (0 °C to 35 °C) >
<b>Dust and water protection</b>	—	—	—
<b>Dimensions (W x H x D)</b>	2-13/16 inches x 2-1/2 inches x 5-7/8 inches (70 mm x 63 mm x 149 mm)	2-13/16 inches x 2-1/2 inches x 5-7/8 inches (70 mm x 63 mm x 149 mm)	2 inches x 2-5/16 inches x 4-1/4 inches (50 mm x 57.5 mm x 107 mm)
<b>Weight</b>	1.41 lbs. (640 g)	1.32 lbs. (600 g)	0.73 lbs. (330 g)
<b>Accessories</b>	4P plug x 1 Ferrite core x 1	4P plug x 1 Ferrite core x 1	Ferrite core x 1

	TK-C215V4U(A)	TK-C215V12U(A)
<b>Camera</b>		
<b>Image device</b>	1/4" IT CCD	1/4" IT CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)
<b>Sync system</b>	Internal, Line lock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlace, 525 lines	2:1 Interlace, 525 lines
<b>Scanning frequency</b>	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)
<b>Video output</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)
<b>Y/C output</b>	—	—
<b>Video S/N ratio</b>	50 dB (AGC off)	50 dB (AGC off)
<b>Horizontal resolution</b>	540 TV lines	540 TV lines
<b>Minimum illumination (typical)</b>	0.75 lx (25%, F1.3, AGC on)	1.0 lx (25%, F1.6, AGC on)
<b>&lt; B&amp;W mode &gt;</b>	< 0.4 lx (25%, F1.3, AGC on, Easy D/N) >	< 0.6 lx (25%, F1.6, AGC on, Easy D/N) >
<b>Communication</b>	—	—
<b>Iris control</b>	DC iris	DC iris
<b>White balance</b> <b>&lt; ATW color temp. range &gt;</b>	ATW/Manual < 2,300 K to 10,000 K >	ATW/Manual < 2,300 K to 10,000 K >
<b>Wide dynamic range function</b>	—	—
<b>Display mode</b>	—	—
<b>Backlight compensation</b>	on/off	on/off
<b>AES</b>	—	—
<b>Lens</b>		
<b>Lens mount</b>	—	—
<b>Focal length</b> <b>&lt; angle of vision &gt;</b>	2.8 mm to 10 mm < 73° (H) x 54° (V) to 20° (H) x 15° (V) >	3.8 mm to 45.6 mm < 52° (H) x 39° (V) to 4.5° (H) x 3.4° (V) >
<b>Max. aperture ratio</b>	F1.3	F1.6
<b>Angle adjustment range</b>	Horizontal: 350°, Vertical: ±80°, Rotation: ±175°	Horizontal: 350°, Vertical: ±80°, Rotation: ±175°
<b>General</b>		
<b>Power supply</b>	24 VAC (50/60 Hz)/12 VDC, UL listed	24 VAC (50/60 Hz)/12 VDC, UL listed
<b>Power consumption</b>	4.2 W	6.6 W
<b>Operating temperature range</b> <b>&lt; recommended &gt;</b>	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
<b>Dust and water protection</b>	—	—
<b>Dimensions (W x H x D)</b>	ø 6-1/8 inches x 4-7/8 inches (H) ( ø 156 mm x 123 mm (H) )	ø 6-1/8 inches x 4-7/8 inches (H) ( ø 156 mm x 123 mm (H) )
<b>Weight</b>	1.43 lbs. (650 g)	1.54 lbs. (700 g)
<b>Accessories</b>	—	—



	TK-C215VP4U	TK-C215VP12U
<b>Camera</b>		
<b>Image device</b>	1/4" IT CCD	1/4" IT CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)
<b>Sync system</b>	Internal, Line lock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlace, 525 lines	2:1 Interlace, 525 lines
<b>Scanning frequency</b>	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)
<b>Video output</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)
<b>Y/C output</b>	—	—
<b>Video S/N ratio</b>	50 dB (AGC off)	50 dB (AGC off)
<b>Horizontal resolution</b>	540 TV lines	540 TV lines
<b>Minimum illumination (typical)</b>	0.8 lx (25%, F1.3, AGC on)	1.1 lx (25%, F1.6, AGC on)
<b>&lt; B&amp;W mode &gt;</b>	< 0.4 lx (25%, F1.3, AGC on, Easy D/N) >	< 0.6 lx (25%, F1.6, AGC on, Easy D/N) >
<b>Communication</b>	—	—
<b>Iris control</b>	DC iris	DC iris
<b>White balance</b> <b>&lt; ATW color temp. range &gt;</b>	ATW/Manual < 2,300 K to 10,000 K >	ATW/Manual < 2,300 K to 10,000 K >
<b>Wide dynamic range function</b>	—	—
<b>Display mode</b>	—	—
<b>Backlight compensation</b>	on/off	on/off
<b>AES</b>	—	—
<b>Lens</b>		
<b>Lens mount</b>	—	—
<b>Focal length</b> <b>&lt; angle of vision &gt;</b>	2.8 mm to 10 mm < 73° (H) x 54° (V) to 20° (H) x 15° (V) >	3.8 mm to 45.6 mm < 52° (H) x 39° (V) to 4.5° (H) x 3.4° (V) >
<b>Max. aperture ratio</b>	F1.3	F1.6
<b>Angle adjustment range</b>	Horizontal: 350°, Vertical: ±70°, Rotation: ±175°	Horizontal: 350°, Vertical: ±70°, Rotation: ±175°
<b>General</b>		
<b>Power supply</b>	24 VAC (50/60 Hz)/12 VDC, UL listed	24 VAC (50/60 Hz)/12 VDC, UL listed
<b>Power consumption</b>	4.2 W	6.6 W
<b>Operating temperature range</b> <b>&lt; recommended &gt;</b>	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (−10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
<b>Dust and water protection</b>	IP66	IP66
<b>Dimensions (W x H x D)</b>	ø 6-1/4 inches x 4-7/8 inches (H) ( ø 160 mm x 123 mm (H) )	ø 6-1/4 inches x 4-7/8 inches (H) ( ø 160 mm x 123 mm (H) )
<b>Weight</b>	2.64 lbs. (1.2 kg)	2.86 lbs. (1.3 kg)
<b>Accessories</b>	Wrench x 1 Silica gel x 1	Wrench x 1 Silica gel x 1

## 15"/17" LCD Monitor

## LM-150/LM-170

15"

17"



- ▶ Robust metal cabinet with corner protector
- ▶ Selectable MAKE, TRIGGER remote
- ▶ Selectable scan size direct key : over, 100% and user setting
- ▶ Direct keys on the front cabinet for input selection and picture settings
- ▶ 16:9/4:3 selectable aspect ratio
- ▶ XGA resolution (**LM-150**) and S-XGA resolution (**LM-170**)
- ▶ Bright Picture of 400 cd/m<sup>2</sup> (**LM-150**), 300 cd/m<sup>2</sup> (**LM-170**)
- ▶ 16.2 million colors (**LM-150**), 16.7 million colors (**LM-170**)
- ▶ Two composite video inputs, two PC inputs (DVI-D and analog RGB)
- ▶ NTSC/PAL compatibility
- ▶ Direct VESA standard 100 mm mounting
- ▶ Tilt stand unit included, height selectable

## 9"v CRT Monitor

## TM-A101G

9"v



TM-A101G rear

- ▶ 9"v full-square CRT with more than 300 TV lines of horizontal resolution
- ▶ 16:9/4:3 selectable aspect ratio
- ▶ Space-saving cabinet design minimizes depth and height
- ▶ On screen menu adjustment
- ▶ NTSC/PAL multi-standard compatibility
- ▶ 120 VAC/230 VAC universal power supply
- ▶ Side-by-side 19" EIA rack mounting (height 5U)
- ▶ Built-in speaker
- ▶ Remote aspect ratio select
- ▶ Remote input select

## 13"v CRT Monitor

## TM-A130SU

13"v



TM-A130SU rear

- ▶ 320 TV lines of horizontal resolution
- ▶ Two composite video inputs
- ▶ One Y/C input
- ▶ Two audio inputs
- ▶ NTSC/PAL multi-standard compatibility
- ▶ Tough metal cabinet
- ▶ Built-in speaker

## 13"v CRT Monitor

## TM-A13SU/TM-A13UCV

13"v



TM-A13SU rear



TM-A13UCV rear

- ▶ 320 TV lines of horizontal resolution
- ▶ Two composite video inputs
- ▶ One Y/C input (**TM-A13SU**)
- ▶ Two audio inputs (**TM-A13SU**)
- ▶ NTSC/PAL multi-standard compatibility
- ▶ Built-in speaker (**TM-A13SU**)

## 20"v CRT Monitor

## TM-A210G

20"v



TM-A210G rear

- ▶ 450 TV lines of horizontal resolution
- ▶ Full-square CRT with vertical stripe phosphor
- ▶ 16:9/4:3 selectable aspect ratio
- ▶ NTSC/PAL multi-standard compatibility
- ▶ Control lock
- ▶ Remote aspect ratio select
- ▶ Remote input select
- ▶ 120 VAC/220 VAC – 240 VAC universal power supply

## 14"v CRT Monitor

## TM-H150CG

14"v



TM-H150CG rear

- ▶ More than 750 TV lines of horizontal resolution
- ▶ Ultra compact cabinet (height 7U)
- ▶ Input slot for optional component/SDI card (IF-C01COMG/IF-C01SDG/IF-C51SDG/IF-C21SDG)
- ▶ NTSC/PAL multi-standard compatibility
- ▶ 120 VAC/220 VAC – 240 VAC universal power supply
- ▶ Underscan, Color off, blue check functions
- ▶ Wired remote control (D-sub 15 pin)

## 16"vCRT Monitor

## TM-H1700G

16"v



TM-H1700G rear

- ▶ 750 TV lines of horizontal resolution
- ▶ 16:9/4:3 selectable aspect ratio
- ▶ Underscan supports multiplexer applications
- ▶ On screen menu
- ▶ NTSC/PAL multi-standard compatibility
- ▶ 120 VAC/230 VAC universal power supply
- ▶ EIA rack mountable: height 8U
- ▶ Big screen, small cabinet design
- ▶ Wired remote control (D-sub 15 pin)

	LM-150	LM-170
<b>Panel</b>		
<b>Screen size (W x H)</b>	12 inches x 9 inches (304 mm x 228 mm)	13-3/8 inches x 10-3/4 inches (338 mm x 270 mm)
<b>Aspect ratio</b>	4:3 panel (4:3/16:9 selectable)	5:4 panel (4:3/16:9 selectable)
<b>Number of pixels</b>	1,024 (H) x 768 (V)	1,280 (H) x 1,024 (V)
<b>Other specifications</b>		
<b>Input</b>	Composite video x 2 (Bridged-out possible, Auto termination), DVI-D for PC x 1, PC (analog RGB) x 1	Composite video x 2 (Bridged-out possible, Auto termination), DVI-D for PC x 1, PC (analog RGB) x 1, Audio (monaural) x 2, Audio (stereo) x 2
<b>Speaker output &lt; internal &gt;</b>	—	< 1 W monaural >
<b>Power supply</b>	100 VAC – 240 VAC (50 Hz/60 Hz), UL listed, CE declaration, Built-in power supply with detachable AC cable	100 VAC – 240 VAC (50 Hz/60 Hz), UL listed, CE declaration, Built-in power supply with detachable AC cable
<b>Dimensions (W x H x D)</b>	13-1/2 inches x 11-1/2 inches x 2-7/8 inches (342 mm x 291 mm x 71 mm) without stand 13-1/2 inches x 13-1/8 inches x 7-1/4 inches (342 mm x 331 mm x 184 mm) with stand	14-3/4 inches x 13-1/4 inches x 2-7/8 inches (374 mm x 334 mm x 71 mm) without stand 14-3/4 inches x 14-3/4 inches x 7-1/4 inches (374 mm x 374 mm x 184 mm) with stand
<b>Weight</b>	13.6 lbs. (6.2 kg) without stand 7.9 lbs. (3.6 kg) with stand	15.8 lbs. (7.2 kg) without stand 10.1 lbs. (4.6 kg) with stand

	TM-A101G	TM-A130SU
<b>CRT</b>	9"v Stripe pitch of 0.50 mm (P-22 phosphor)	13"v Stripe pitch of 0.65 mm
<b>Horizontal resolution</b>	More than 300 TV lines	More than 320 TV lines
<b>Input</b>	Composite video x 2 (Bridged-out possible, Auto termination) Audio (1-ch) x 2 (Bridged-out possible)	Composite video x 2 (Bridged-out possible, Auto termination) Y/C x 1 Audio (1-ch) x 2 (Bridged-out possible)
<b>Audio speaker</b>	8 cm round, 1 W output	8 cm round, 1 W output
<b>Power supply</b>	120 VAC, UL listed 230 VAC, CE declaration	120 VAC, UL listed
<b>Dimensions (W x H x D)</b>	8-3/4 inches x 8-3/4 inches x 12-1/2 inches (222 mm x 220 mm x 316.3 mm)	13-5/8 inches x 12-1/4 inches x 14-5/8 inches (346 mm x 310 mm x 368.5 mm)
<b>Weight</b>	15.0 lbs. (6.8 kg)	26.9 lbs. (12.2 kg)

	TM-A13SU	TM-A13UCV
<b>CRT</b>	13"v Stripe pitch of 0.64 mm	13"v Stripe pitch of 0.64 mm
<b>Horizontal resolution</b>	More than 320 TV lines	More than 320 TV lines
<b>Input</b>	Composite video x 2 (Bridged-out possible, Auto termination) Y/C x 1 Audio (1-ch) x 2 (Bridged-out possible)	Composite video x 2 (Bridged-out possible, Auto termination)
<b>Audio speaker</b>	8 cm round, 1 W output	—
<b>Power supply</b>	120 VAC, UL listed	120 VAC, UL listed
<b>Dimensions (W x H x D)</b>	14-1/2 inches x 12-1/4 inches x 14-11/16 inches (368 mm x 310 mm x 371.5 mm)	14-1/2 inches x 12-1/4 inches x 14-11/16 inches (368 mm x 310 mm x 371.5 mm)
<b>Weight</b>	21.0 lbs. (9.6 kg)	20.9 lbs. (9.5 kg)

	TM-A210G
<b>CRT</b>	20"v Stripe pitch of 0.63 mm
<b>Horizontal resolution</b>	More than 450 TV lines
<b>Input</b>	Composite video x 2 (Bridged-out possible, Auto termination) Y/C x 1 (Bridged-out possible, Auto termination) Audio (1-ch) x 2 (Bridged-out possible)
<b>Audio speaker</b>	8 cm round, 1 W output
<b>Power supply</b>	120 VAC, UL listed 220 VAC – 240 VAC, CE declaration
<b>Dimensions (W x H x D)</b>	18-3/4 inches x 16-1/8 inches x 19-3/8 inches (476 mm x 407.5 mm x 492 mm)
<b>Weight</b>	63.0 lbs. (28.1 kg)

	TM-H150CG	TM-H1700G
<b>CRT</b>	14"v Trio-dot pitch of 0.27 mm	16"v Trio-dot pitch of 0.27 mm (P-22 phosphor)
<b>Horizontal resolution</b>	More than 750 TV lines	More than 750 TV lines
<b>Input</b>	Composite video x 2 (Bridged-out possible, Auto termination) Y/C x 1 (Bridged-out possible) Audio (1-ch) x 2 (Bridged-out possible) 1 card slot for component or SDI card	Composite video x 2 (Bridged-out possible, Auto termination) Y/C x 1 (Bridged-out possible, Auto termination) Audio (1-ch) x 2 (Bridged-out possible)
<b>Audio speaker</b>	8 cm round, 1 W output	8 cm round, 1 W output
<b>Power supply</b>	120 VAC, UL listed 220 VAC – 240 VAC, CE declaration	120 VAC, UL listed 230 VAC, CE declaration
<b>Dimensions (W x H x D)</b>	14-3/16 inches x 12-1/4 inches x 15-1/2 inches (360 mm x 310 mm x 418 mm)	15-5/8 inches x 13-1/4 inches x 16-1/2 inches (395 mm x 334 mm x 418 mm)
<b>Weight</b>	35.2 lbs. (16.0 kg)	43.2 lbs. (19.6 kg)



## 1/4" Network Camera

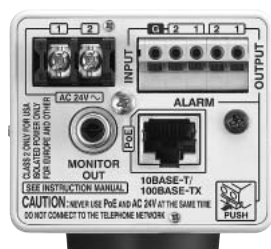
## VN-V25U

Refer to P.34 Refer to P.39 Refer to P.39 Refer to P.40 Refer to P.40 Refer to P.45 Refer to P.45

Ready Pak Easy D/N Private Mask Active Gamma Display Mode PoE Dual Stream



Lens not included



VN-V25U rear

- ▶ 1/4" progressive scan CCD
- ▶ MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA
- ▶ Day/Night surveillance with Easy day/night function
- ▶ Active gamma function (Easy wide-D) for backlight compensation
- ▶ Free shape and unlimited number of positions for private mask
- ▶ Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- ▶ Web based setup and viewing tool
- ▶ Password protection and IP address filtering
- ▶ Trigger input by built-in motion detection and external alarm input
- ▶ Pre/Post alarm buffer of 8 MB
- ▶ Alarm terminal (input x 2, output x 2)
- ▶ 20 simultaneous users, unlimited users by multicasting
- ▶ Monitor output for setup



Built-in setup tool and viewer for VN-V25U, VN-V26U, VN-C215 series and VN-V686 series

Line-up Chart

Color Camera

Flat Panel Display &amp; Monitor

Network Camera &amp; Encoder

Recorder

Software

System Information

Technical Information

Glossary

Index

## 1/4" Network Camera

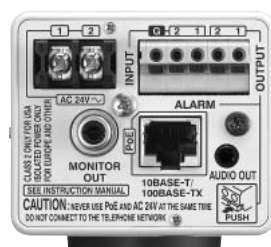
## VN-V26U

Refer to P.34 Refer to P.36 Refer to P.39 Refer to P.39 Refer to P.40 Refer to P.40 Refer to P.41 Refer to P.45 Refer to P.45

Ready Pak System Information IR ON/OFF Private Mask Active Gamma Display Mode Bi-directional Audio PoE Dual Stream

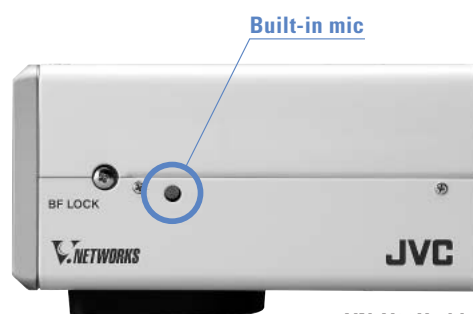


Lens not included



VN-V26U rear

- ▶ 1/4" progressive scan CCD
- ▶ MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA
- ▶ Day/Night surveillance with auto IR cut filter on/off
- ▶ Active gamma function (Easy wide-D) for backlight compensation
- ▶ Free shape and unlimited number of positions for private mask
- ▶ Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- ▶ Web based setup and viewing tool
- ▶ Password protection and IP address filtering
- ▶ Bi-directional audio communication
- ▶ Trigger input by built-in motion detection and external alarm input
- ▶ Pre/Post alarm buffer of 8 MB
- ▶ Alarm terminal (input x 2, output x 2)
- ▶ 20 simultaneous users, unlimited users by multicasting
- ▶ Monitor output for setup



VN-V26U side

## 1/3" Megapixel Network Camera

**VN-X35U**

Available in October 2008

Refer to P.39

Refer to P.36

Refer to P.39

Refer to P.40

Refer to P.40

Refer to P.40

Refer to P.41

Refer to P.45

Refer to P.45

Easy D/N

System  
InformationPrivate  
MaskActive  
GammaDisplay  
Mode

Megapixel

Bi-directional  
Audio

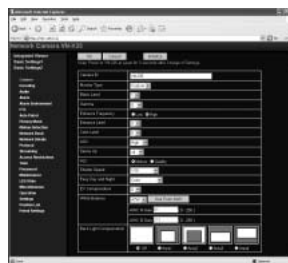
PoE

Dual  
Stream

Lens not included

**MEGAPIXEL****VN-X35U rear**

- ▶ 1/3" progressive scan CCD
- ▶ 1.3 megapixel Quad-VGA Motion JPEG and VGA MPEG-4 (15 fps each) dual stream
- ▶ Day/Night surveillance with Easy day/night function
- ▶ Partial resizing and digital PTZ function
- ▶ Active gamma function (Easy wide-D) for backlight compensation
- ▶ Free shape and unlimited number of positions for private mask
- ▶ Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- ▶ Web based setup and viewing tool
- ▶ Password protection and IP address filtering
- ▶ Bi-directional audio communication
- ▶ Trigger input by built-in motion detection and external alarm input/output
- ▶ Pre/Post alarm buffer of 8 MB
- ▶ 20 simultaneous users, unlimited users by multicasting
- ▶ Focus assistance function for easy setup
- ▶ Monitor output for setup

**Built-in setup tool and viewer for VN-X35U**

\* It is recommended to use the specific lens JVC recommends for VN-X35U.  
Please contact JVC Professional Products Company for more details.

## 1/4" Fixed Network Dome Camera

## VN-C215V4U(A)

Refer to P.39 Refer to P.39 Refer to P.42 Refer to P.45

Easy D/N

Focus  
Adjustment

3way Mount

PoE



- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ Progressive output (JVC IP conversion)
- ▶ Up to 30 fps Motion JPEG in VGA mode (640 x 480)
- ▶ Built-in 3.6x variable focal length auto iris lens (f = 2.8 mm to 10.0 mm)
- ▶ Triple axis rotation mechanism
- ▶ Easy day/night function
- ▶ Focus adjustment function
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Support Power over Ethernet (PoE)
- ▶ Built-in web server
- ▶ Pre/Post alarm buffer
- ▶ Access protection
- ▶ Alarm I/O (2-in/2-out)
- ▶ FTP client function
- ▶ Multicast
- ▶ Motion detection function
- ▶ Easy to install with built-in ceiling mechanism



Viewing image

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder

Software

System  
InformationTechnical  
Information

Glossary

Index

## 1/4" Fixed Network Dome Camera (Vandal Resistant)

## VN-C215VP4U(A)

Refer to P.39 Refer to P.39 Refer to P.41 Refer to P.42 Refer to P.43 Refer to P.45

Easy D/N

Focus  
AdjustmentVandal  
Resistant

IP66

Easy  
Installation

PoE



- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ Progressive output (JVC IP conversion)
- ▶ Up to 30 fps Motion JPEG in VGA mode (640 x 480)
- ▶ Built-in 3.6x variable focal length auto iris lens (f = 2.8 mm to 10 mm)
- ▶ Triple axis rotation mechanism
- ▶ Vandal resistance/IP 66
- ▶ Easy day/night function
- ▶ Focus adjustment function
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Support Power over Ethernet (PoE)
- ▶ Built-in web server
- ▶ Pre/Post alarm buffer
- ▶ Access protection
- ▶ Alarm I/O (2-in/2-out)
- ▶ FTP client function
- ▶ Multicast
- ▶ Motion detection function
- ▶ Optional heater unit: **KA-ZH215U** allows to meet -30°C operation



Viewing image

Optional heater unit



KA-ZH215U

VN-V25U		VN-V26U	
<b>Camera</b>			
<b>Image device</b>	1/4" progressive scan CCD	1/4" progressive scan CCD	
<b>Number of effective pixels</b>	330,000 (659 H x 494 V)	330,000 (659 H x 494 V)	
<b>Minimum illumination (typical)</b>	1.0 lx (50%, F1.2, AGC SUPER) 0.5 lx (25%, F1.2, AGC SUPER) < B&W mode > 0.8 lx (50%, F1.2, AGC SUPER) 0.4 lx (25%, F1.2, AGC SUPER)	0.6 lx (50%, F1.2, AGC SUPER) 0.3 lx (25%, F1.2, AGC SUPER) 0.06 lx (50%, F1.2, AGC SUPER) 0.03 lx (25%, F1.2, AGC SUPER)	
<b>Iris control</b>	DC iris	DC iris	
<b>White balance</b> < ATW color temp. range >	ATW/AWC	ATW/AWC	
<b>Wide dynamic range function</b>	Active gamma (Easy wide-D)	Active gamma (Easy wide-D)	
<b>Backlight compensation</b>	Yes (4 areas are selectable)	Yes (4 areas are selectable)	
<b>Lens</b>			
<b>Lens mount</b>	C/CS	C/CS	
<b>Focal length</b> < angle of vision >	—	—	
<b>Max. aperture ratio</b>	—	—	
<b>Angle adjustment range</b>	—	—	
<b>General</b>			
<b>Alarm I/O</b>	Input x 2, Output x 2	Input x 2, Output x 2	
<b>Monitor output</b>	Composite video signal: 1.0 V (p-p), NTSC/PAL (RCA)	Composite video signal: 1.0 V (p-p), NTSC/PAL (RCA)	
<b>Audio communication</b>	—	Internal microphone/Line out (mini jack ø3.5 mm)	
<b>Power supply</b>	24 VAC (50 Hz/60 Hz)/48 VDC (PoE)	24 VAC (50 Hz/60 Hz)/48 VDC (PoE)	
<b>Power consumption</b>	0.35 A (24 VAC)/115 mA (PoE)	0.35 A (24 VAC)/115 mA (PoE)	
<b>Operating temperature range</b> < recommended >	14 °F to 122 °F (–10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (–10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	
<b>Dust and water protection</b>	—	—	
<b>Dimensions (W x H x D)</b>	2-9/16 inches x 2-1/2 inches x 5 inches (65 mm x 63 mm x 126 mm)	2-9/16 inches x 2-1/2 inches x 5 inches (65 mm x 63 mm x 126 mm)	
<b>Weight</b>	1.06 lbs. (480 g)	1.17 lbs. (530 g)	
<b>Network</b>			
<b>Network interfaces</b>	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	
<b>Protocol</b>	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP	
<b>Picture</b>	<b>Resolution (pixel)</b>	320 x 240, 640 x 480	
	<b>Compression</b>	Motion JPEG, MPEG-4	
<b>Frame rate</b>	30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 x 480 simultaneously (full frame dual stream)	30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 x 480 simultaneously (full frame dual stream)	
<b>Audio compression</b>	—	μ-law 64 kbps mono AD/DA 16-bits	
<b>Internal storage capacity</b>	8 MB (RAM)	8 MB (RAM)	
<b>Access protection</b>	3 levels password, IP address filtering	3 levels password, IP address filtering	
<b>Motion detection</b>	Yes	Yes	
<b>Web server</b>	Yes	Yes	
<b>Data transmission</b>	Unicast/Multicast	Unicast/Multicast	
<b>System requirement (recommended)</b>			
<b>OS</b>	Windows XP pro (SP2)/home (SP2)	Windows XP pro (SP2)/home (SP2)	
<b>CPU</b>	Pentium 4 (1.5 GHz)	Pentium 4 (1.5 GHz)	
<b>Memory</b>	More than 1 GB	More than 1 GB	
<b>HDD space</b>	More than 512 MB	More than 512 MB	
<b>Display/Video card</b>	1,024 x 768 pixels, true color (24-bit or 32-bit)	1,024 x 768 pixels, true color (24-bit or 32-bit)	

VN-X35U	
<b>Camera</b>	
Image device	1/3" progressive scan CCD
Number of effective pixels	1,250,000 (1,296 H x 966 V)
Minimum illumination (typical)	0.6 lx (50%, F1.0, AGC SUPER) 0.3 lx (25%, F1.0, AGC SUPER)
< B&W mode >	< 0.4 lx (50%, F1.0, AGC SUPER) > < 0.2 lx (25%, F1.0, AGC SUPER) >
Iris control	DC iris
White balance	ATW/AWC
< ATW color temp. range >	
Wide dynamic range function	Active gamma (Easy wide-D)
Backlight compensation	Yes (4 areas are selectable)
<b>Lens</b>	
Lens mount	CS
Focal length	—
< angle of vision >	
Max. aperture ratio	—
Angle adjustment range	—
<b>General</b>	
Alarm I/O	Input x 2, Output x 2
Monitor output	Composite video signal: 1.0 V (p-p), NTSC/PAL (RCA)
Audio communication	Line in/Line out (mini jack ø3.5mm)
Power supply	24 VAC (50 Hz/60 Hz)/48 VDC (PoE)
Power consumption	0.35 A (24 VAC)/115 mA (PoE)
Operating temperature range	14 °F to 122 °F (–10 °C to 50 °C)
< recommended >	< 32 °F to 104 °F (0 °C to 40 °C) >
Dust and water protection	—
Dimensions (W x H x D)	2-9/16 inches x 2-1/2 inches x 5 inches (65 mm x 63 mm x 126 mm)
Weight	1.14 lbs. (520 g)
<b>Network</b>	
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP
Picture	Resolution (pixel)
	320 x 240, 640 x 480, 1,280 x 960 (Motion JPEG only)
	Compression
	Motion JPEG, MPEG-4
Frame rate	15 fps (max.) per each stream of Motion JPEG and MPEG-4 in all compression format (dual stream)
Audio compression	μ-law 64 kbps mono AD/DA 16-bits
Internal storage capacity	8 MB (RAM)
Access protection	3 levels password, IP address filtering
Motion detection	Yes
Web server	Yes
Data transmission	Unicast/Multicast
<b>System requirement (recommended)</b>	
OS	Windows Vista Business, Windows XP pro (SP2)/home (SP2)
CPU	Pentium 4 (2 GHz)
Memory	More than 1 GB
HDD space	More than 512 MB
Display/Video card	1,600 x 1,200 pixels, true color (24-bit or 32-bit), VRAM 256MB recommended



	VN-C215V4U(A)	VN-C215VP4U(A)
Line-up Chart	<b>Camera</b>	
	Image device	1/4" IT CCD
	Number of effective pixels	380,000 (768 H x 494 V)
	Minimum illumination (typical)	0.75 lx (25%, F1.3, AGC on)
	< B&W mode >	< 0.4 lx (25%, F1.3, AGC on, Easy D/N) >
	Iris control	—
	White balance	Auto/Manual
	< ATW color temp. range >	Auto/Manual
	Wide dynamic range function	—
	Backlight compensation	on/off
Color Camera	<b>Lens</b>	
	Lens mount	—
	Focal length	2.8 mm to 10 mm
	< angle of vision >	< 73° (H) x 54° (V) to 20° (H) x 15° (V) >
	Max. aperture ratio	F1.3
	Angle adjustment range	Horizontal: 350°, Vertical: ±80°, Rotation: ±175°
		Horizontal: 350°, Vertical: ±70°, Rotation: ±175°
	<b>General</b>	
	Alarm I/O	Input x 2, Output x 2
Flat Panel Display & Monitor	Monitor output	Composite video signal: 1.0 V (p-p), NTSC (RCA)
	Audio communication	—
	Power supply	12 VDC /PoE (IEEE 802.3af)
	Power consumption	0.5 A (max.)
	Operating temperature range	14 °F to 122 °F (–10 °C to 50 °C)
	< recommended >	–22 °F to 122 °F (–30 °C to 50 °C) with heater
	Dust and water protection	—
	Dimensions	ø 5-3/4 inches x 5-1/4 inches (H) (ø 145 mm x 133 mm (H) )
	Weight	1.65 lbs. (750 g)
		2.87 lbs. (1.3 kg)
Network Camera & Encoder	<b>Network</b>	
	Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
	Protocol	TCP/IP, UDP/IP, HTTP, FTP, DHCP, ARP, ICMP, SNMP, SMTP, DSCP, DNS, TTL, IGMP
	Picture	Resolution (pixel)
		320 x 240, 640 x 480
	Compression	Motion-JPEG
		Motion-JPEG
	Frame rate	30 fps (max.) in 640 x 480
	Audio compression	—
	Internal storage capacity	8 MB (RAM)
Recorder	Access protection	3 levels password, IP address filtering
	Motion detection	Yes
	Web server	Yes
	Data transmission	Unicast/Multicast
	<b>System requirement (recommended)</b>	
	OS	Windows XP pro/home (SP2)
		Windows XP pro/home (SP2)
	CPU	Pentium 4, 1.5 GHz or higher
	Memory	More than 1 GB
	HDD space	More than 20 MB
Software	Display/Video card	1,024 x 768 pixels, true color (24-bit or 32-bit)
		1,024 x 768 pixels, true color (24-bit or 32-bit)
System Information		
Technical Information		
Glossary		
Index		

## 12x PTZ Network Dome Camera

Refer to P.39 Refer to P.39 Refer to P.41

## VN-C625U

IR ON/OFF

Private  
MaskTechnical  
Information

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 12x optical zoom lens
- ▶ 360 degree endless rotation and 180 degree Auto flip
- ▶ Up to 30 fps Motion-JPEG in VGA mode (640 x 480)
- ▶ CF card slot for local alarm recording
- ▶ Access protection
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Day/Night surveillance with auto IR cut filter on/off
- ▶ Auto patrol, Auto pan, Auto tour function
- ▶ Private mask function
- ▶ Up to 100 preset positions
- ▶ Alarm I/O (2-in/2-out)
- ▶ FTP client/server function
- ▶ Multicast
- ▶ Built-in web server
- ▶ Motion detection function



Viewing image

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder

Software

System  
InformationTechnical  
Information

Glossary

Index

## 25x PTZ Network Dome Camera

Refer to P.38 Refer to P.39 Refer to P.39 Refer to P.41

## VN-C655U(B)

ExDR

IR ON/OFF

Private  
MaskTechnical  
Information

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 25x optical zoom lens and 10x electronic zoom
- ▶ 360 degree endless rotation and 180 degree Auto flip
- ▶ Up to 30 fps Motion-JPEG in VGA mode (640 x 480)
- ▶ Access protection
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Extended dynamic range (ExDR)
- ▶ Day/Night surveillance with auto IR cut filter on/off
- ▶ Auto patrol, Auto pan, Auto tour function
- ▶ Private mask function
- ▶ Up to 100 preset positions
- ▶ Alarm I/O (2-in/2-out)
- ▶ FTP client/server function
- ▶ Multicast
- ▶ Built-in web server
- ▶ Motion detection function



Viewing image

## 36x PTZ Network Dome Camera

## VN-V686U

Refer to P.39

Refer to P.39

Refer to P.40

Refer to P.40

Refer to P.40

Refer to P.41

Refer to P.41

Refer to P.43

Refer to P.45

IR ON/OFF

Private  
MaskActive  
GammaDisplay  
ModeImage  
StabilizerTechnical  
Information

Direct Drive

One-touch  
LockDual  
Stream

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 36x optical zoom lens and 32x electronic zoom
- ▶ MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA
- ▶ Day/Night surveillance with auto IR cut filter on/off
- ▶ Active gamma function (Easy wide-D) for backlight compensation
- ▶ Direct drive motor for pan/tilt mechanism
- ▶ Image stabilizer for reducing image blur
- ▶ Auto tracking function
- ▶ 8 areas private mask
- ▶ "One-touch lock" quick and easy installation
- ▶ Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- ▶ Web based setup and viewing tool and access protection
- ▶ 20 simultaneous users, unlimited users by multicasting
- ▶ Trigger input by built-in motion detection and external alarm input
- ▶ Pre/Post alarm buffer of 8 MB
- ▶ Alarm terminal (input x 2, output x 2)

## 36x Outdoor PTZ Network Dome Camera

## VN-V686WPU

Refer to P.39

Refer to P.40

Refer to P.52

Refer to P.40

Refer to P.40

Refer to P.41

Refer to P.41

Refer to P.42

Refer to P.45

IR ON/OFF

Private  
MaskActive  
GammaDisplay  
ModeImage  
StabilizerTechnical  
Information

Direct Drive

IP66

Dual  
Stream

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ Ready for outdoor installation with wall mount housing and IP66-compliant
- ▶ 36x optical zoom lens and 32x electronic zoom
- ▶ MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA
- ▶ Day/Night surveillance with auto IR cut filter on/off
- ▶ Active gamma function (Easy wide-D) for backlight compensation
- ▶ Direct drive motor for pan/tilt mechanism
- ▶ Image stabilizer for reducing image blur
- ▶ Auto tracking function
- ▶ 8 areas private mask
- ▶ Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- ▶ Web based setup and viewing tool and access protection
- ▶ 20 simultaneous users, unlimited users by multicasting
- ▶ Trigger input by built-in motion detection and external alarm input
- ▶ Pre/Post alarm buffer of 8 MB
- ▶ Alarm terminal (input x 2, output x 2)

VN-C625U		VN-C655U(B)
<b>Camera</b>		
Image device	1/4" IT CCD	1/4" IT CCD
Number of effective pixels	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)
Minimum illumination (typical)	3.6 lx (50%, F1.6, AGC 20 dB, wide end) 1.8 lx (25%, F1.6, AGC 20 dB, wide end)	2.0 lx (50%, F1.6, AGC 20 dB, wide end) 0.6 lx (25%, F1.6, AGC 20 dB, wide end)
< B&W mode >	< 0.15 lx (50%, F1.6, AGC 20 dB, wide end >	0.07 lx (50%, F1.6, AGC 20 dB, wide end, 32x slow shutter) < 0.06 lx (50%, F1.6, AGC 20 dB, wide end >
White balance	ATW/Manual	ATW/Manual
< ATW color temp. range >	< 2,300 K to 10,000 K >	< 2,300 K to 8,000 K >
Wide dynamic range function	—	ExDR
Backlight compensation	Yes (4 areas are selectable)	Yes (4 areas are selectable)
Shutter speed	Select from menu (1/60 s, 1/100 s, 1/10,000 s)	Select from menu (1/60 s, 1/100 s, 1/10,000 s)
<b>Lens</b>		
Zoom ratio	12x optical (3.8 mm to 45.6 mm)	25x optical (3.8 mm to 95 mm), 10x electronic
Max. aperture ratio	F1.6	F1.6
Auto focus	Easy AF/One push AF	Easy AF/One push AF
<b>Mechanism</b>		
Preset position	100 positions	100 positions
Panning	360° endless rotation	360° endless rotation
Panning speed	1.5 °/s to 300 °/s	1.5 °/s to 300 °/s
Tilting	0° to 90°	0° to 90°
Tilting speed	1 °/s to 180 °/s	1 °/s to 180 °/s
<b>General</b>		
Alarm I/O	Input x 2, Output x 2	Input x 2, Output x 2
Power supply	18 VDC (24 VAC to 18 VDC adapter include), UL listed	18 VDC (24 VAC to 18 VDC adapter include), UL listed
Power consumption	2.0 A (max.)	1.4 A (max.)
Operating temperature range	32 °F to 104 °F (0 °C to 40 °C)	32 °F to 122 °F (0 °C to 50 °C)
< recommended >		
Dimensions	ø 4-23/32 inches x 7-1/2 inches (H) (ø 120 mm x 190 mm (H))	ø 6 inches x 7-1/2 inches (H) (ø 152 mm x 190 mm (H))
Weight	2.65 lbs. (1.2 kg)	4.85 lbs. (2.2 kg)
<b>Network</b>		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, HTTP, FTP, DHCP, ARP, ICMP, NTP	TCP/IP, UDP/IP, HTTP, FTP, DHCP, ARP, ICMP, NTP
Picture	Resolution (pixel)	320 x 240, 640 x 480
	Compression	Motion JPEG
Frame rate	30 fps (max.) in 640 x 480 and 320 x 240	30 fps (max.) in 640 x 480 and 320 x 240
Internal storage capacity	8 MB (RAM) or CF card* (option)	8 MB (RAM)
Access protection	3 levels password	3 levels password
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
<b>System requirement (recommended)</b>		
OS	Windows 2000 server/pro (SP1 or later) Windows XP pro/home	Windows 2000 server/pro (SP1 or later) Windows XP pro/home
CPU	Pentium 4, 3.2 GHz or higher	Pentium 4, 3.2 GHz or higher
Memory	More than 1 GB	More than 1 GB
HDD space	More than 20 MB	More than 20 MB
Display/Video card	1,024 x 768 pixels, true color (24-bit or 32-bit)	1,024 x 768 pixels, true color (24-bit or 32-bit)

\* May not be compatible with certain CF cards;  
use of industrial version Compact Flash cards JVC recommended.

VN-V686U			VN-V686WPU		
Camera					
Image device	1/4" IT CCD		1/4" IT CCD		
Number of effective pixels	380,000 (768 H x 494 V)		380,000 (768 H x 494 V)		
Minimum illumination (typical)	1.0 lx (50%, F1.6, AGC SUPER) 0.5 lx (25%, F1.6, AGC SUPER)		1.0 lx (50%, F1.6, AGC SUPER) 0.5 lx (25%, F1.6, AGC SUPER)		
< B&W mode >	0.08 lx (50%, F1.6, AGC SUPER) 0.04 lx (25%, F1.6, AGC SUPER)		0.08 lx (50%, F1.6, AGC SUPER) 0.04 lx (25%, F1.6, AGC SUPER)		
White balance < ATW color temp. range >	ATW/AWC		ATW/AWC		
Wide dynamic range function	Active gamma (Easy wide-D)		Active gamma (Easy wide-D)		
Backlight compensation	Yes (4 areas are selectable)		Yes (4 areas are selectable)		
Shutter speed	Select from menu (1/60 s to 1/10,000 s)		Select from menu (1/60 s to 1/10,000 s)		
Lens					
Zoom ratio	36x optical (3.4 mm to 122 mm), 32x electronic		36x optical (3.4 mm to 122 mm), 32x electronic		
Max. aperture ratio	F1.6		F1.6		
Auto focus	Easy AF/One push AF		Easy AF/One push AF		
Mechanism					
Preset position	100 positions		100 positions		
Panning	360° endless rotation		360° endless rotation		
Panning speed	0.04 °/s to 400 °/s		0.04 °/s to 400 °/s		
Tilting	-5° to 185°		-5° to 185°		
Tilting speed	0.04 °/s to 400 °/s		0.04 °/s to 400 °/s		
General					
Alarm I/O	Input x 2, Output x 2		Input x 2, Output x 2		
Power supply	24 VDC (50 Hz/60 Hz)		24 VDC (50 Hz/60 Hz)		
Power consumption	1.6 A (max.)		3 A (max.)		
Operating temperature range < recommended >	14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >		14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >		
Dimensions	ø 6-1/4 inches x 7-7/8 inches (ø 160 mm x 201 mm (H))		ø 10-1/4* inches x 15-1/8** inches x 13-3/4** inches (ø 260* mm x 385** mm (H) x 350** mm (D))		
Weight	4.2 lbs. (1.9 kg)		12.2 lbs. (5.5 kg)		
Network					
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX		RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX		
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP		TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP		
Picture	Resolution (pixel)	320 x 240, 640 x 480	320 x 240, 640 x 480		
	Compression	Motion JPEG, MPEG-4	Motion JPEG, MPEG-4		
Frame rate	30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 x 480 simultaneously (full frame dual stream)		30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 x 480 simultaneously (full frame dual stream)		
Internal storage capacity	8 MB (RAM)		8 MB (RAM)		
Access protection	3 levels password, IP address filtering		3 levels password, IP address filtering		
Motion detection	Yes		Yes		
Web server	Yes		Yes		
Data transmission	Unicast/Multicast		Unicast/Multicast		
System requirement (recommended)					
OS	Windows XP pro (SP2)/home (SP2)		Windows XP pro (SP2)/home (SP2)		
CPU	Pentium 4 (1.5 GHz)		Pentium 4 (1.5 GHz)		
Memory	More than 1 GB		More than 1 GB		
HDD space	More than 512 MB		More than 512 MB		
Display/Video card	1,024 x 768 pixels, true color (24-bit or 32-bit)		1,024 x 768 pixels, true color (24-bit or 32-bit)		

\* incl. housing \*\* incl. bracket



## Network Encoder

### VN-E4U

Refer to P.35

System Information

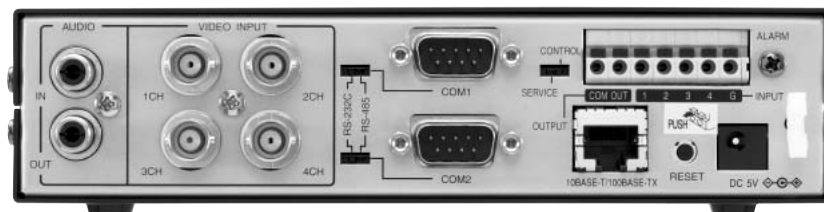


- ▶ 30 fps at VGA (640 x 480) per channel offering 120 fps in total
- ▶ Direct connection with up to 4 analogue cameras
- ▶ JPEG compression
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Pre/Post alarm buffer 8 MB (internal RAM)
- ▶ External device control via RS-485/RS-232C
- ▶ Support for JVC and Pelco-D\* protocol
- ▶ Two-way audio input/output
- ▶ FTP client function
- ▶ Support NAT/IP masquerade
- ▶ Multicast
- ▶ Built-in web server
- ▶ Motion detection function
- ▶ 5 VDC power supply

\* PTZ dome camera only



Viewing image



VN-E4U rear

## Specifications

VN-E4U	
<b>Video input</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC) x 4
<b>Interface</b>	RJ-45, 10 BASE-T/100 BASE-TX
<b>Alarm I/O</b>	Input x 4, Output x 1
<b>Protocol</b>	UDP/IP, TCP/IP, HTTP, FTP, DHCP, IGMP, ARP
<b>Picture</b>	Resolution (pixels): 320 x 240, 640 x 480 Compression: JPEG
<b>Frame rate (fps)<sup>+</sup></b>	320 x 240: 30 fps total: 120 fps 640 x 480: 30 fps total: 120 fps
<b>Serial connectors</b>	RS-485, RS-232C, D-sub 9 pin 2 ports
<b>Internal memory</b>	2 MB SDRAM for pre/post alarm recording (10 MB RAM)
<b>Motion detection</b>	Up to 300 areas, sensitivity adjustable
<b>Multicasting</b>	Yes
<b>Web server</b>	Yes
<b>View through</b>	Web browser (Internet Explorer 6.0 (SP 2) )
<b>Power supply</b>	5 VDC (AC adapter include)
<b>Power consumption</b>	3.0 A (max.)
<b>Dimensions (W x H x D)</b>	7-9/32 inches x 1-7/8 inches x 8-1/4 inches (185 mm x 44 mm x 189 mm)
<b>Weight</b>	2.4 lbs. (1.1 kg)
<b>System Requirement (Recommended)</b>	
<b>OS</b>	Windows XP pro/home (SP2)
<b>Web browser</b>	Internet Explorer 6.0 (SP2)
<b>CPU</b>	Pentium 4 1.5 GHz for 1-ch Pentium 4 3.4 GHz for 4-ch
<b>Memory</b>	More than 1 GB
<b>HDD space</b>	More than 20 MB
<b>Display/Video card</b>	1,600 x 1,200 pixels, True color (24-bit or 32-bit)
<b>Sound card (for audio use)</b>	Sound Blaster PCI

<sup>+</sup> Frame rate varies depending on the operating environment.

Line-up Chart

Color Camera

Flat Panel Display & Monitor

Network Camera & Encoder

Recorder

Software

System Information

Technical Information

Glossary

Index

## Network Video Recorder (Hybrid Network and Analog Cameras)

Refer to P.36-P.37

## VR-N900U

System  
Information

Powered by Milestone



- ▶ Pre-installed XProtect Enterprise software for user-friendly interface and easy operation
- ▶ Can be used as a stand alone unit without PC or as edge devices for XProtect Enterprise
- ▶ Hybrid recording solution with built-in 4-ch encoder
- ▶ Up to 9-ch recorder fully camera licensed
- ▶ Support Motion JPEG/MPEG-4 camera recording
- ▶ Built-in 250 GB HDD with an additional expansion slot
- ▶ Frame rate
  - Recording : up to 120 ips at VGA
  - Display : up to 60 ips at VGA
  - Distribution: up to 30 ips at VGA
- ▶ PTZ preset positions are saved inside camera without using camera setup tool
- ▶ External storage up to 4 TB using the optional 2 units of VR-D0U
- ▶ Available NAS archiving structure
- ▶ Available remote viewing and setup
- ▶ Open platform for systems enabling integration of third party devices



VR-N900U rear

## Network Video Recorder

Refer to P.36-P.37

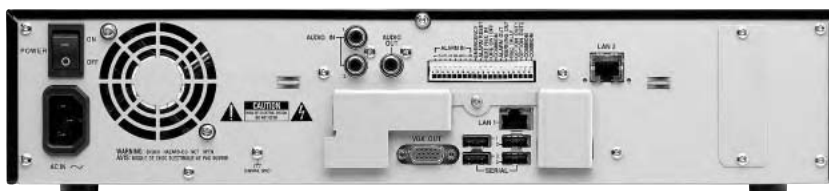
## VR-N1600U

System  
Information

Powered by Milestone



- ▶ Pre-installed XProtect Enterprise software for user-friendly interface and easy operation
- ▶ Can be used as a stand alone unit without PC or as edge devices for XProtect Enterprise
- ▶ Up to 16-ch recorder fully camera licensed
- ▶ Support Motion JPEG/MPEG-4 camera recording
- ▶ Built-in 500 GB HDD with an additional expansion slot
- ▶ Frame rate
  - Recording : up to 160 ips at VGA
  - Display : up to 80 ips at VGA
  - Distribution: up to 80 ips at VGA
- ▶ PTZ preset positions are saved inside camera without using camera setup tool
- ▶ External storage up to 4 TB using the optional 2 units of VR-D0U
- ▶ Available NAS archiving structure
- ▶ Available remote viewing and setup
- ▶ Open platform for systems enabling integration of third party devices



VR-N1600U rear

## VR-N900U/VR-N1600U

## Recording time schedule

(Hour)

## VR-N900U

• 9-ch recording without audio recording  
at 250 GB pre-installed HDD

Image size	Data/Image (kB)	Frame rate per second (each camera)					
		10	5	3	1	0.5	0.2
VGA	32	17	34	57	178	380	985
	24	24	48	80	245	514	1,321
	16	37	75	125	380	783	1,994
	10	62	123	205	622	1,267	3,204
QVGA	27	21	42	70	215	454	1,172
	15	40	80	133	406	837	2,128
	8	78	155	259	783	1,590	4,011
	5	126	252	420	1,267	2,559	6,432

## VR-N1600U

• 16-ch recording without audio recording  
at 500 GB pre-installed HDD

Image size	Data/Image (kB)	Frame rate per second (each camera)					
		10	5	3	1	0.5	0.2
VGA	32	22	43	72	223	470	1,211
	24	30	60	100	305	635	1,623
	20	37	73	122	371	767	1,953
	16	46	93	155	470	964	2,447
QVGA	27	26	53	88	269	562	1,440
	15	50	99	166	503	1,030	2,612
	8	96	192	319	964	1,953	4,918
	5	155	310	517	1,557	3,139	7,883

Viewing and recording by Quad-VGA size of VN-X35U need approximately four times larger network bandwidth and storage space per one channel than the viewing and recording by VGA size.

The actual recording time varies depending on the camera settings, input image contents and condition of the hard disk. Use this table as a guide to the recording time.

## Supported firmware

Brand	Product	Supported firmware
JVC	VN-C20U	ver. 1.0+
	VN-V25U	ver. 1.0+
	VN-V26U	ver. 1.0+
	VN-X35U	ver. 1.0+
	VN-C215V4U/VP4U	ver. 1.0+
	VN-C625U	ver. 2.06+
	VN-C655U(B)	ver. 2.07+
	VN-V686U/WPU	ver. 1.02+
	VN-E4U	ver. 1.2+
VERINT	S1700	ver. 4.22b build 28+
	S1704	ver. 4.22b build 28+
	S1708_SSL	ver. 4.22b build 28+
	S1900	ver. 4.4j build 100+
	S2700e	ver. 4.4h build 600+
	S2700e/VR	ver. 4.4h build 600+
AXIS	206	ver. 4.21
	207	ver. 4.22
	211/211A	ver. 4.3
	216FD	ver. 4.34
	225FD	ver. 4.31
	207W	ver. 4.40
	212	ver. 4.35
	213	ver. 4.30
	214	ver. 4.33

Over 400 products can be connected by installing the device driver provided by Milestone. Auto detect function and guarantee of proper operation with VR-N900U/VR-N1600U apply to the products on this list only.



Viewer sample



## Notes:

Milestone is a registered trade mark of Milestone Systems A/S'.  
XProtect Enterprise is license software by Milestone Systems A/S'.

## HDD External Unit (option)

## VR-D0U



- ▶ HDD case to be connected with VR-N900U, VR-N1600U
- ▶ 4 HDD can be installed in this case, by 250 GB or 500 GB
- ▶ Up to 2 units of VR-D0U (max. 4 TB in total) can be connected to VR-N900U/VR-N1600U

		VR-N900U	VR-N1600U
<b>Recording format</b>		JPEG/MPEG-4	
<b>Camera channel</b>		9	16
<b>Analog video input</b>		4	—
<b>Frame rate (VGA)</b>		Recording/Display/Distribution: 120/60/30	Recording/Display/Distribution: 160/80/80
<b>Recording frame rate for analog input</b>		20	—
<b>CPU and memory</b>		CPU: Pentium 4 RAM: 512 MB	Core 2 DUO E4300 (1.80 GHz) RAM: 512 MB
<b>HDD capacity</b>		250 GB	500 GB
<b>Additional HDD</b>		250 GB (internal), max. 4 TB (USB external)	500 GB (internal), max. 4 TB (USB external)
<b>NAS</b>		Yes	
<b>Mirroring</b>		—	Internal HDD
<b>Export function</b>		Export media: USB memory or CD-R/RW (USB external) Export format: AVI (video), JPEG (image), database (internal format)	
<b>Recording function</b>		Alarm recording, Scheduled recording, Manual recording	
<b>Playback function</b>		Normal/Slow/Fast playback, fast forward and reverse, Frame-by frame playback	
<b>Search function</b>		Time/Date search, Alarm search, Motion detection on playback images	
<b>Security</b>		Protected by user name and password	
<b>Language support</b>		Main menu: English Application: English, German, French, Italian, Spanish	
<b>Supported protocol</b>		HTTP, SMTP (client), TCP, DHCP (client/IP lease), ARP, DNS (client), NTP	
<b>Minimum requirements for remote PC</b>		OS Windows 2000 Professional, Windows 2000 Server and Advanced Server, Windows XP Professional (32 or 64-bit), Windows Server 2003 (32 or 64-bit) CPU Pentium 4 2.4 GHz or higher (Xeon recommended) RAM 512 MB (1 GB recommended) Network At least 10/100 Ethernet NIC Graphic card AGP or PCI-Express, 1,024 x 768 (1,280 x 1,024 recommended), more than 16-bit color HDD capacity for installation 50 MB Software .NET Framework 2.0, and DirectX 9.0 or later, Microsoft Internet Explorer 6.0	
<b>Remote PC operation</b>		Live viewing, Playback of recording images, Camera control, Data export	
<b>I/F</b>	LAN 1	1000 BASE-T, 100 BASE-TX, 10 BASE-T	
	LAN 2	100 BASE-TX, 10 BASE-T	
	Serial	USB 2.0 x 5	
	Display output	D-sub 15 pin	D-sub 15 pin
		1,600 x 1,200 1,280 x 1,024 1,024 x 768	1,600 x 1,200 1,280 x 1,024 1,280 x 720 1,024 x 768
	Camera control	D-sub RS-485 (for analog PTZ control)	
	Audio in	Analog RCA x 2	
	Audio out	Analog RCA x 1	
	Alarm terminal	Alarm in x 4	Alarm in x 8
		Emergency, Alarm reset in, EXT REC in, OPE on/off, Alarm out, Warning out, REC tally, Option out x 2, Common x 3	
<b>Power supply</b>		120 VAC – 240 VAC	120 VAC (60 Hz)
<b>Power consumption</b>		Max. 1.7 A (120 VAC – 240 VAC)	Max. 1.2 A (120 VAC)
<b>Operating temperature</b>		41°F to 104 °F (5 °C to 40 °C)	
<b>Dimension (W x H x D)</b>		16-5/8 inches x 3-1/2 inches x 14-5/8 inches (420 mm x 88 mm x 350 mm)	
<b>Weight</b>		17 lbs. (7.7 kg) excluding power supply	
<b>Accessories</b>		Startup guide, CD-ROM (Instruction), Power cord, Rack mount brackets, HDD brackets	

## Video Management Software (Light Edition) for Network Cameras/Encoder

Refer to P.35

## VN-RS800U

System  
Information

- ▶ **Basic function**
  - Support up to 32 cameras
  - Display frame rate: Up to 16 fps (VGA)
  - Recording frame rate: Up to total approx. 280 fps (VGA/REC only) or approx. 190 fps (VGA/REC and Display), in case of Core 2 Duo 2.4 GHz CPU
  - \* Actual frame rates depend on system hardware
- ▶ **Live Display**
  - Split mode (1/4/5/9/12/16) and automatic sequence
  - Camera control: VN-C30U/VN-C625U/VN-C655U(B)/VN-V686U/VN-V686WPU
- ▶ **Recording function**
  - Always REC / Manual REC
  - Alarm REC / Timer REC
- ▶ **Playback function**
  - Search: Time & Date/Event
  - Snap shot: JPEG
  - Video file export & saving (AVI file)
- ▶ **Alarm function**
  - Alarm detect by camera (terminal/motion detect)
  - Automatic alarm recording with alarm message display
  - Warning detect (Camera error, HDD error)
- ▶ **Audio communication (VN-E4U/VN-V26U/VN-X35U)**
  - Live monitoring and sound transmission from the PC
  - Recording both sound of input and output with image file
  - Export the image by AVI format with audio

## Specifications

VN-RS800U				
<b>Supported models</b>	<b>VN-C10U</b> (JPEG)	ver. 2.9+	<b>VN-X35U</b> (JPEG)	ver. 1.0+
	<b>VN-C11U</b> (JPEG)	ver. 2.9+	<b>VN-C215V4U</b>	ver. 1.0+
	<b>VN-C30U</b> (JPEG)	ver. 4.8+	<b>VN-C215VP4U</b>	ver. 1.0+
	<b>VN-A1U</b>	ver. 3.3+	<b>VN-C625U</b>	ver. 2.6+
	<b>VN-C20U</b>	ver. 1.1+	<b>VN-C655U(B)</b>	ver. 2.7+
	<b>VN-C205U</b>	ver. 1.3+	<b>VN-V686U/WPU</b> (JPEG)	ver. 1.02+
	<b>VN-V25U</b> (JPEG)	ver. 1.0+	<b>VN-E4U</b>	ver. 1.2.0+
	<b>VN-V26U</b> (JPEG)	ver. 1.0+		
<b>OS</b>	Windows Server 2003, Standard Edition R2 Windows XP Professional SP2 Windows Vista Business			
<b>CPU</b>	Intel Pentium 4 (HT on)/D/ Xeon 2.8 GHz or higher Intel Core 2 Duo 2.4 GHz or higher			
<b>Memory</b>	1 GByte or more			
<b>HDD</b>	About 200 MB for installation Recording file folder internal disk drive recommended Image record volume the NTFS format, the internal disk drive, and RAID 1/5 recommended			
<b>Graphic board</b>	16 MB VRAM or more (unshared with the main memory) 1,024 x 768, true color (32-bit) recommended			
<b>Sound</b>	Complied with AD97 (SoundMax recommended)			
<b>LAN card</b>	100 BASE-T, 1000 BASE-TX (recommended)			

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder



Software

System  
InformationTechnical  
Information

Glossary

Index

## Combination of brackets and cameras for VN-V686U/VN-V686WPU

	Camera	VN-V686U	VN-V686WPU
			
Bracket			
Pendant mount	<b>WB-S681U</b>	Yes	No
Wall mount	<b>WB-S682U</b>	Yes	No
Flush mount	<b>RCVN686</b>	Yes	No
Outdoor pendant mount	<b>WB-S684U</b>	No	Yes
Corner mount	<b>JCA2</b>	No	Yes
Pole mount	<b>JPM3</b>	No	Yes

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder

Software

System  
InformationTechnical  
Information

Glossary

Index



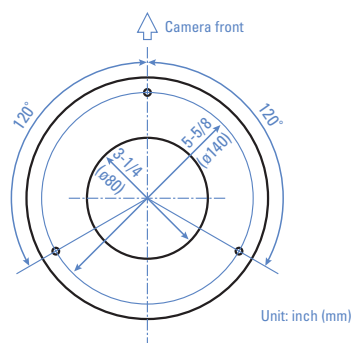
# Mounting drawings and specifications

For inquiries regarding brackets, please contact:

**JVC Professional Products Company**

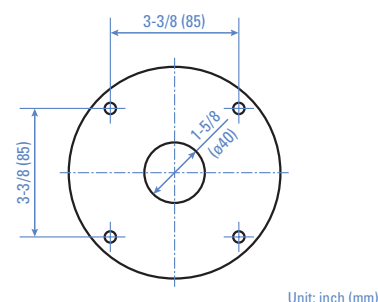
1700 Valley Road Wayne, NJ 07470, U.S.A. TEL: (973) 317-5000

## Direct mount VN-V686U



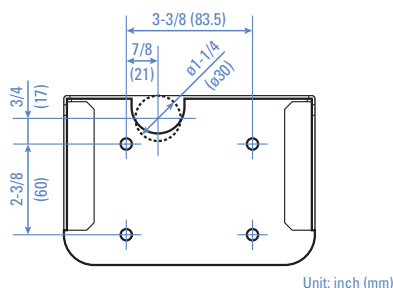
- Weight: Approx. 4.2 lbs. (1.9 kg)
- Mansell number: Approx. 0.9PB8.5/0.4

## WB-S681U Pendant mount



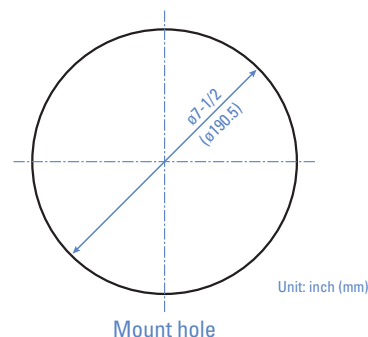
- Materials: ABS resin cover, SPCC bracket and Steel pipe
- Weight: Approx. 3.8 lbs. (1.7 kg)
- Mansell number: Approx. 0.9PB8.5/0.4

## WB-S682U Wall mount

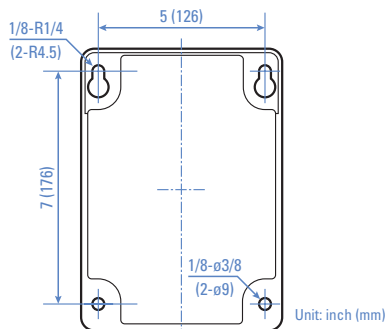


- Materials: SPCC
- Weight: Approx. 2 lbs. (0.9 kg)
- Mansell number: Approx. 0.9PB8.5/0.4

## RCVN686 Flush mount

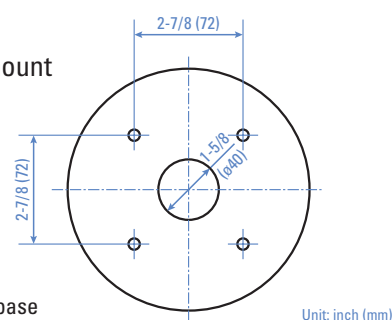


## Outdoor wall mount VN-V686WPU



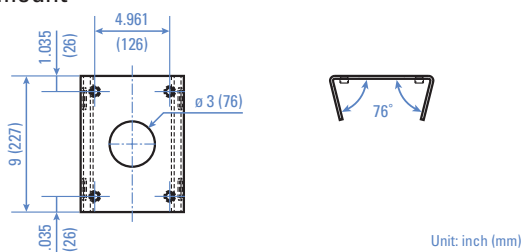
- Weight: Approx. 12.2 lbs. (5.5 kg)
- Mansell number: Approx. 0.9PB8.5/0.4

## WB-S684U Outdoor pendant mount



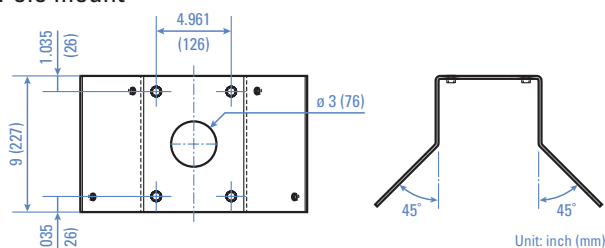
- Materials: Aluminium base and Steel pipe
- Weight: Approx. 2.9 lbs. (1.3 kg)
- Mansell number: Approx. 0.9PB8.5/0.4

## JCA2 Corner mount



- Materials: Aluminium

## JPM3 Pole mount



- Materials: Aluminium

Line-up Chart

Color Camera

Flat Panel Display  
& MonitorNetwork Camera  
& Encoder

Recorder

Software

System  
InformationTechnical  
Information

Glossary

Index

Refer to P.42







**Ready Pak** For U.S. market only**IP66****Camera with outdoor housing, wall mount and lens professionally configured**

JVC's Ready Pak cameras are a unique concept in the industry. This is a popular way for our integrators to get out in front of the jobs faster with a ready to go package that combines one of the leading housing manufacturer's housing with a choice of two different vari-focal lenses. These models will provide coverage for most security job requirements.

The JVC camera has the lens professionally installed and back focused them mounted inside the housing with all the wiring connected for power, network, heater and blower. All the integrator has to do is plug the camera into network and power; then it is on line providing immediate coverage. Not only do these Ready Paks save time for installations, but everything is professionally set and connected so you can be assured this product will last in the toughest installation environment.

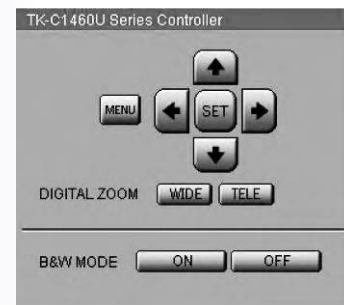
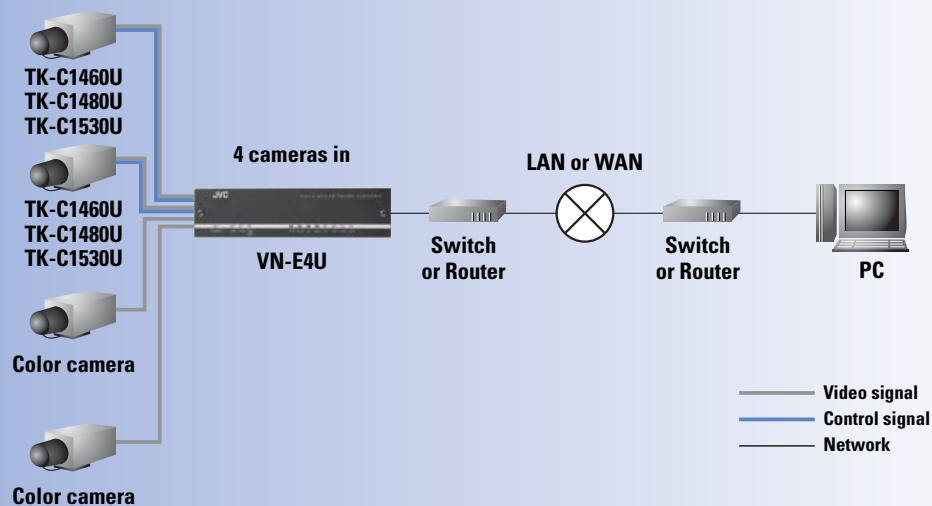
**Selection guide**

For inquiries regarding Ready Pak, please contact: JVC Professional Products Company  
1700 Valley Road Wayne, NJ 07470, U.S.A. TEL: (973) 317-5000

Camera	Ready Pak prefix	Auto iris vari-focal	Ready Pak suffix	Model number
 <b>TK-C750U(A)</b> Standard resolution	<b>HMTK-C750</b>	2.5 mm to 12 mm	<b>-212</b>	<b>HMTK-C750-212</b>
		5 mm to 50 mm	<b>-550</b>	<b>HMTK-C750-550</b>
 <b>TK-C920BU</b> High resolution	<b>HMTK-C920</b>	2.5 mm to 12 mm	<b>-212</b>	<b>HMTK-C920-212</b>
		5 mm to 50 mm	<b>-550</b>	<b>HMTK-C920-550</b>
 <b>TK-C1480U</b> ExDR	<b>HMTK-C1480</b>	2.5 mm to 12 mm	<b>-212</b>	<b>HMTK-C1480-212</b>
		5 mm to 50 mm	<b>-550</b>	<b>HMTK-C1480-550</b>
 <b>TK-C1460U</b> Day/Night	<b>HMTK-C1460</b>	2.5 mm to 12 mm	<b>-212</b>	<b>HMTK-C1460-212</b>
		5 mm to 50 mm	<b>-550</b>	<b>HMTK-C1460-550</b>
 <b>VN-V25U</b> 1/4" Network Camera	<b>VNV25</b>	2.5 mm to 12 mm	<b>4x</b>	<b>VNV25RP4X</b>
		5 mm to 50 mm	<b>10x</b>	<b>VNV25RP10X</b>
 <b>VN-V26U</b> 1/4" Network Camera	<b>VNV26</b>	2.5 mm to 12 mm	<b>4x</b>	<b>VNV26RP4X</b>
		5 mm to 50 mm	<b>10x</b>	<b>VNV26RP10X</b>

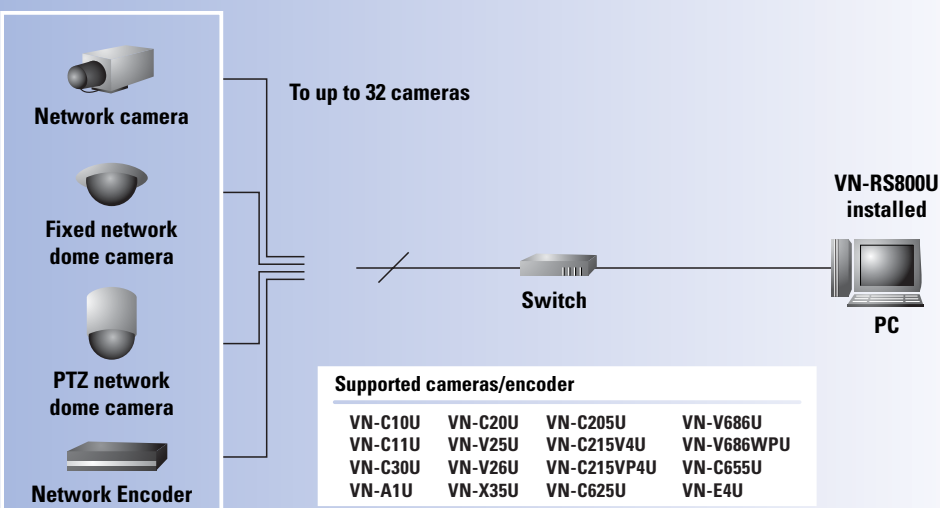
## VN-E4U system configuration

### TK-C1530U, TK-C1460U, TK-C1480U series controller



This is just an image of the built-in web browser of VN-E4U.

## VN-RS800U system configuration



Line-up Chart

Color Camera

Flat Panel Display &amp; Monitor

Network Camera &amp; Encoder

Recorder

Software

System Information

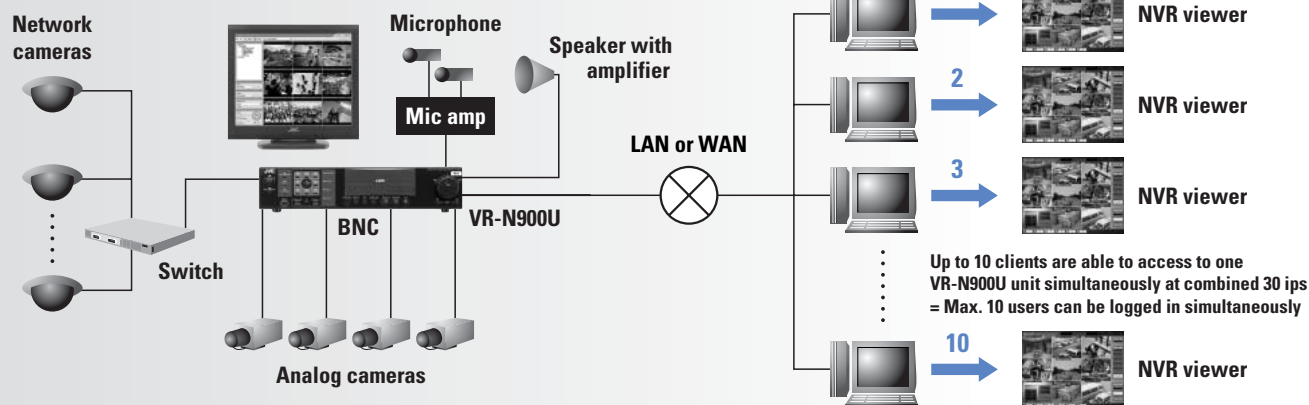
Technical Information

Glossary

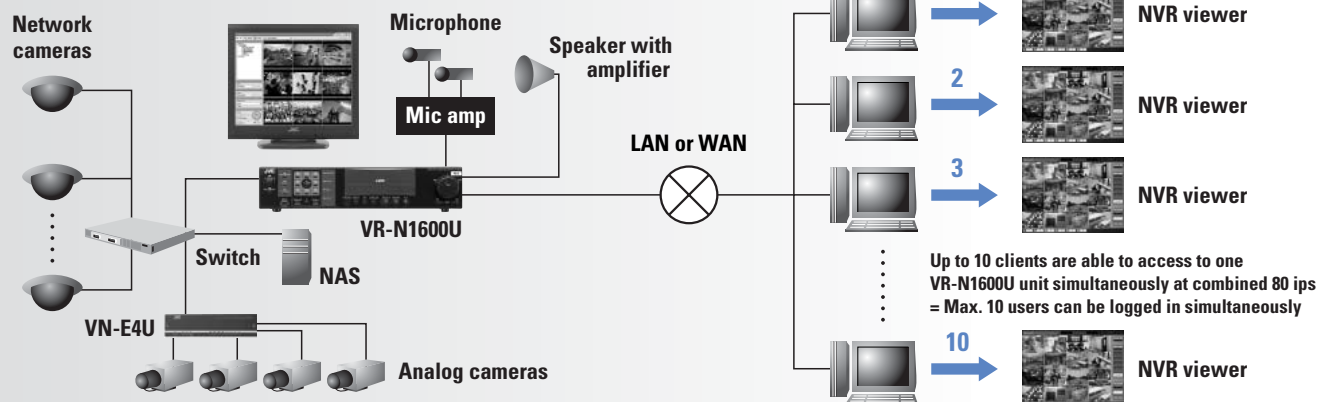
Index

## VR-N900U/VR-N1600U system configuration

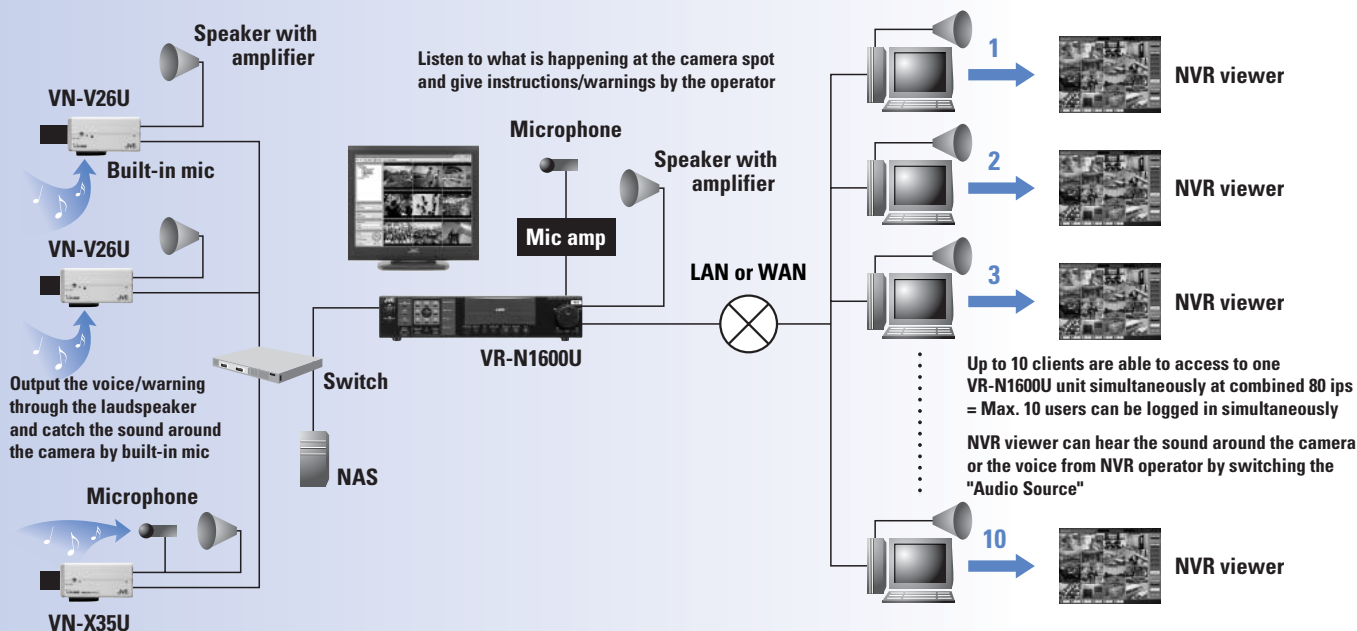
### VR-N900U basic system configuration



### VR-N1600U basic system configuration



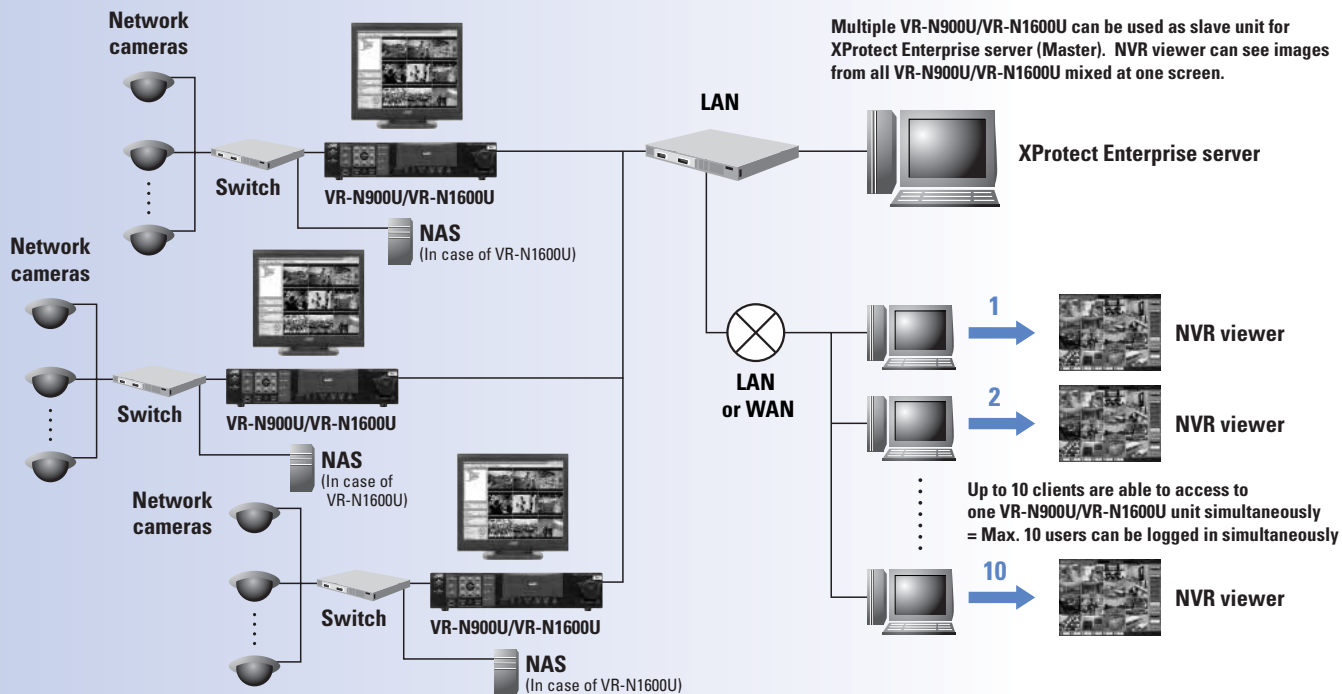
### VR-N1600U system configuration with VN-V26U/VN-X35U audio function



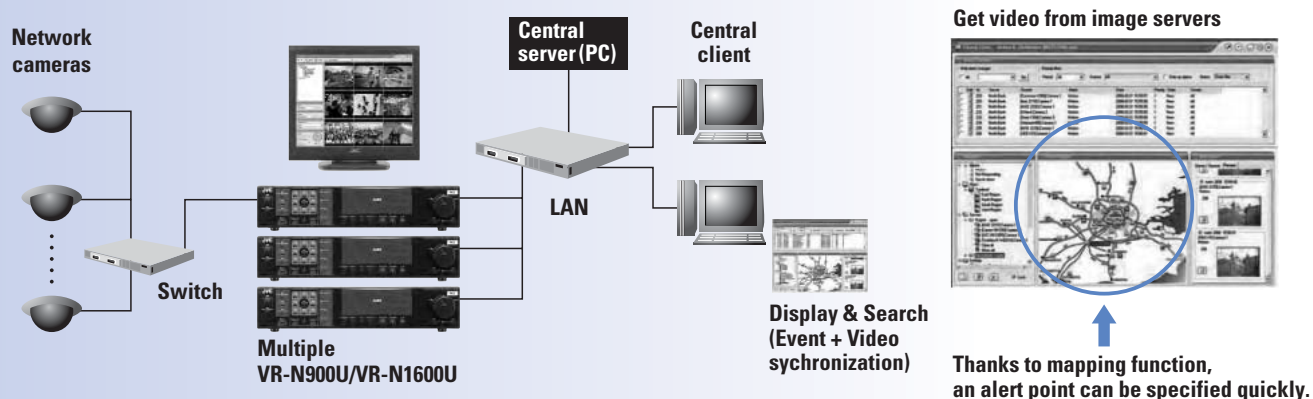
All GUI images are just sample.

## VR-N900U/VR-N1600U system configuration

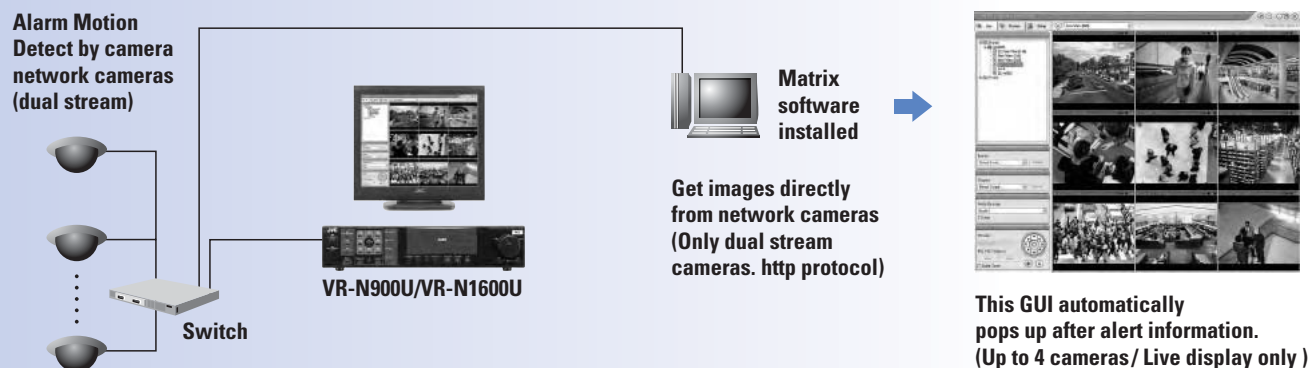
### Expanded system with optional "Milestone XProtect Enterprise" server



### Total surveillance application with optional "Milestone Central Client" software



### Event monitoring application with optional "Milestone Matrix" software



All GUI images are just sample.

Line-up Chart

Color Camera

Flat Panel Display &amp; Monitor

Network Camera &amp; Encoder

Recorder

Software

System Information

Technical Information

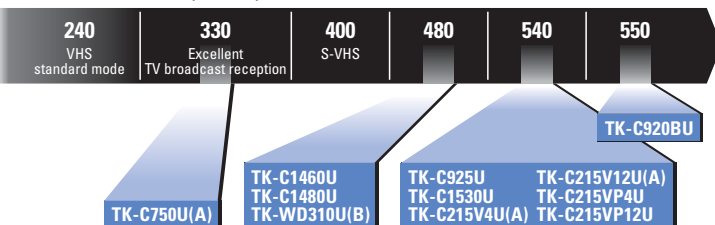
Glossary

Index

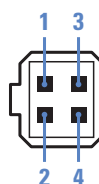


## 1 Camera horizontal resolution chart

### Horizontal resolution (TV line)



## 2 Lens iris terminal



Lens Pin No.	DC iris does not contain EE amplifier	Video iris contain EE amplifier
1	Brake ⊖	9.5 V (max. 50 mA)
2	Brake ⊕	NC
3	Drive ⊕	VIDEO
4	Drive ⊖	GND

Object cameras: TK-C920BU [P.2], TK-C925U [P.3], TK-C1530U [P.3], TK-C1460U [P.4], TK-C1480U [P.4] and TK-WD310U(B) [P.5]

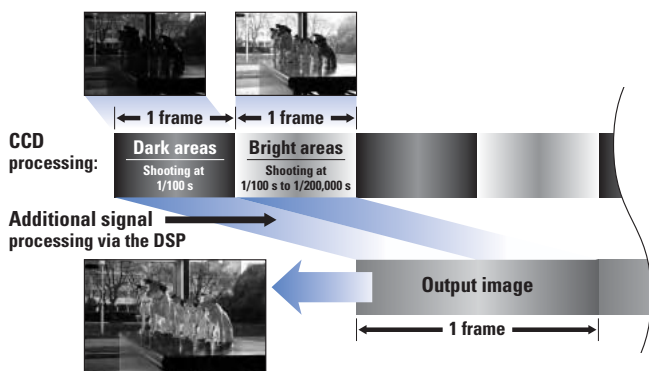
## 3 Wide dynamic range function

ExDR

WDR

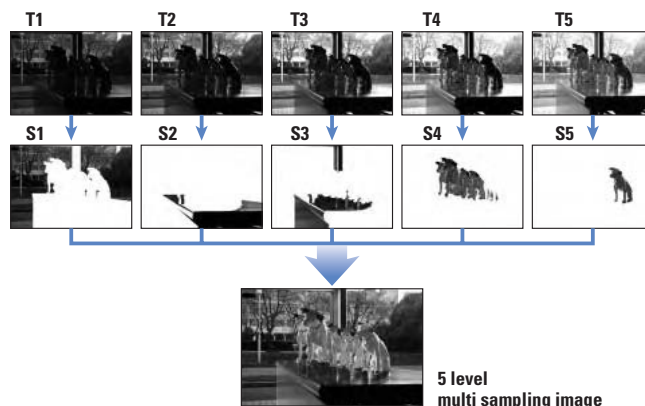
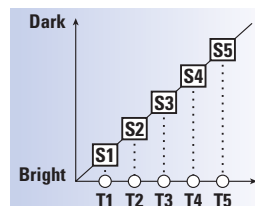
### Extended dynamic range (ExDR)

Under adverse backlighting conditions, conventional cameras can not make clear images. In this case, images in dark areas become almost black as pitch and images in bright areas become almost white. JVC's new digital signal processor (DSP) circuit, which enables the realization of a wide dynamic range function, solves these problems. By capturing clear images through the use of a low-speed shutter in dark areas and a high-speed shutter in bright areas and then combining these two images, a uniformly easy-to-view image can be achieved.



### Wide dynamic range (WDR)

JVC's innovated technology featuring a wide dynamic range function performs by multi sampling method. TK-WD310U(B) automatically adjust luminance by pixel with 14-bit digital processing as well as implement 5 level multi sampling, in order to realize an accurate color reproduction.



### Selection guide for JVC line-up

	Morning	Day light	High contrast	Evening	Night time
ExDR			Auto tracking white balance (ATW)		
TK-C1480U	Auto iris normal mode	Auto iris normal mode	ExDR mode color	AGC mode	AGC mode slow shutter (Intermittent picture)
ExDR (W/IR on/off)					
TK-C1460U	Auto iris normal mode	Auto iris normal mode	ExDR mode color	AGC mode	IR cut filter off B&W mode
VN-C655U(B)					B&W
WDR					
TK-WD310U(B)	Auto iris normal mode	Auto iris normal mode	WDR mode real time response color	AGC mode	Easy day/night B&W mode B&W

### Advantage for each model

	Advantage	Summary	Application example
ExDR			
TK-C1480U	<ul style="list-style-type: none"> <li>0.4 lx F1.2, AGC 20 dB, 25 IRE</li> <li>0.0125 lx under slow shutter</li> <li>S/N ratio 50 dB</li> </ul>	<ul style="list-style-type: none"> <li>ExDR image output</li> <li>Menu/RS-422A/RS-485 interface</li> </ul>	<ul style="list-style-type: none"> <li>Casinos</li> <li>Traffic</li> <li>Town center</li> </ul>
ExDR (W/IR on/off)			
TK-C1460U	<ul style="list-style-type: none"> <li>0.4 lx F1.2, AGC 20 dB, 25 IRE</li> <li>0.0003 lx under slow shutter (B&amp;W)</li> <li>S/N ratio 50 dB</li> </ul>	<ul style="list-style-type: none"> <li>ExDR image output</li> <li>Menu/RS-422A/RS-485 interface</li> <li>Day/Night function (IR)</li> </ul>	<ul style="list-style-type: none"> <li>Banks</li> <li>Retail shops</li> <li>Prison</li> </ul>
VN-C655U(B)			
WDR			
TK-WD310U(B)	<ul style="list-style-type: none"> <li>14-bit high speed digital process</li> <li>Realize high speed WDR with 5 level multi sampling each pixel</li> </ul>	<ul style="list-style-type: none"> <li>WDR image output</li> <li>Ultra compact body</li> </ul>	<ul style="list-style-type: none"> <li>Bank ATM</li> <li>Train (platform)</li> <li>Entrance</li> </ul>



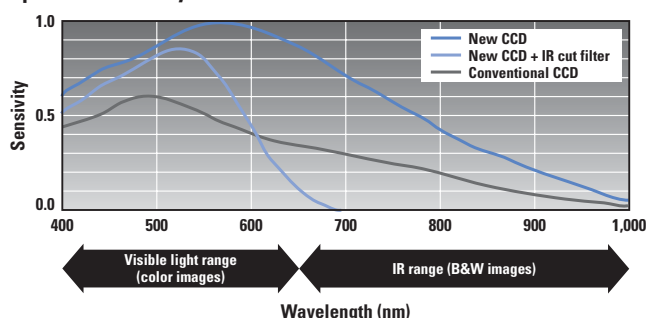
## 4 IR cut filter on/off function

IR ON/OFF

IR cut filter makes it possible to capture both color, black and white images with just one camera. This is done by turning the filter to "ON" when shooting in sunlight during the day for color images and turning it to "OFF" at night for black and white images. Therefore continuous twenty-four-hour surveillance is possible thanks to this function.

\* Noise will briefly occur on the screen when switching to the IR cut filter.

### Spectral sensitivity characteristics of the CCD

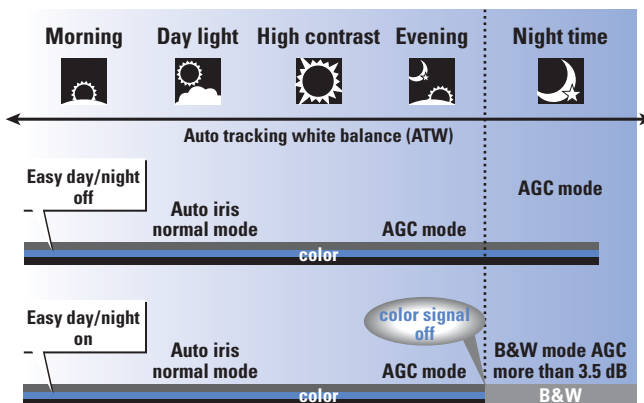


Object cameras: TK-C925U [P.3], TK-C1530U [P.3], TK-C1460U [P.4], VN-V26U [P.17], VN-C625U [P.23], VN-C655U(B) [P.23], VN-V686U [P.24] and VN-V686WPU [P.24]

## 5 Easy day/night function

Easy D/N

Camera uses color mode when the object is bright, and black and white mode when it is dark. (In this mode, AGC is always active regardless of the setting.)



Object cameras: TK-C920BU [P.2], TK-WD310U(B) [P.5], TK-C215V4U(A) [P.6], TK-C215V12U(A) [P.6], TK-C215VP4U [P.7], TK-C215VP12U [P.7], VN-V25U [P.17], VN-X35U [P.18], VN-C215V4U(A) [P.19] and VN-C215VP4U(A) [P.19]

## 6 Focus adjustment function

Focus Adjustment

When the focus adjustment function is turned "ON", the lens iris is focused fully open for about 30 seconds before returning to its original position. This results in a shallow depth of field (high-speed shutter) and makes it much easier to adjust focus.

### What is depth of field ?

When a video is taken with the lens focused on the main object, there is a zone in which objects both in front of and behind the main object appear to be in focus. This zone is referred to as the "depth of field". When the zone of acceptable focus is broad, the depth of field is said to be "deep", and when the zone is narrow, the depth of field is said to be "shallow". If the depth of field is deep, the video will appear to be in focus from front to back. If the depth of field is shallow, however, only the main object will actually be in focus.

Depth of field	Shallow	Deep
Lens	Tele angle	Wide angle
Exposure	Open	Narrow
Position of object	Close	Far

Object cameras: TK-C920BU [P.2], TK-C925U [P.3], TK-C1530U [P.3], TK-C215V4U(A) [P.6], TK-C215V12U(A) [P.6], TK-C215VP4U [P.7], TK-C215VP12U [P.7], VN-C215V4U(A) [P.19] and VN-C215VP4U(A) [P.19]

## 7 Private mask

Private Mask

Using the private mask function, operators can mask selected areas for the purpose of surveillance near privacy areas.

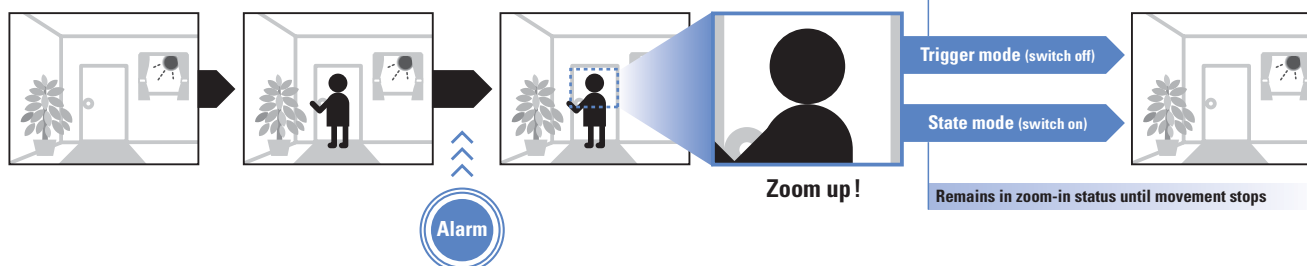


Object cameras: TK-C1530U [P.3], VN-V25U [P.17], VN-V26U [P.17], VN-X35U [P.18], VN-C625U [P.23], VN-C655U(B) [P.23], VN-V686U [P.24] and VN-V686WPU [P.24]

## 8 Alarm zoom function

Alarm Zoom

TK-C215V12U(A) and TK-C215VP12U have "12x lens", "alarm input interface", and "memory for 2 different lens position". Thanks to this memory function, the camera lens unit can be set for 2 lens position and the zoom-up mechanism will move from "regular position" to "another position" when alarm signal comes, for instance.



Object cameras: TK-C215V12U(A) [P.6] and TK-C215VP12U [P.7]

## 9 Active gamma function (Easy wide-D)

Active Gamma

Gamma value is highly related to the total appearance of dark areas on screen. The appropriate gamma correction is applied automatically according to the darkness of the screen because of the backlight condition during the gamma setting is "Active".



### Normal

Near area is dark and can not be recognized against the lights.



### Active gamma

Gamma is compensated so that the dark area can be recognized.

**Object cameras:** VN-V25U [P.17], VN-V26U [P.17], VN-X35U [P.18], VN-V686U [P.24] and VN-V686WPU [P.24]

## 10 Display mode

Display Mode

By changing the "Monitor Type" setting according to the monitor used to display the video, the improved picture quality can be available. This setting is highly related to the value of gamma and enhance parameters. For example in CRT mode, dark areas are not reproduced with appropriate gray level and can be seen slightly whitish on LCD monitors, or some noises are visually-enhanced on black areas. Display mode can help reducing these kinds of problems happened by the characters of displays used.

Monitor type (mode)	
<b>CRT</b>	This mode offers the picture quality setting for CRT (cathode-ray tube) monitors.
<b>LCD1/LCD2</b>	This mode offers picture quality setting for LCD monitors. Gamma and enhance value is tuned specifically for LCD monitors. LCD1 and LCD2 have different gamma values. (TK-C920BU, TK-C925U, TK-C1530U have only one LCD mode)
<b>CUSTOM</b>	Enables setting of picture quality according to the user's preference. (This mode is only for VN-V25U/26U, VN-X35U and VN-V686U/WPU)

**Object cameras:** TK-C920BU [P.2], TK-C925U [P.3], TK-C1530U [P.3], VN-V25U [P.17], VN-V26U [P.17], VN-X35U [P.18], VN-V686U [P.24] and VN-V686WPU [P.24]

## 11 Image stabilizer

Image Stabilizer

Image stabilizer function helps reduce image blur in cases where the camera is shook by the wind or vibrations coming from its surrounding. Stabilizer function is realized by two processes as following;

**Process 1 :** The sensor detects the direction, speed and range of vibration of the camera.

**Process 2 :** Cut out the appropriate area only from all pixels captured by CCD device depend on the detected direction, speed and range of vibration. The visible angle of view on the monitor is 1.3x magnified (digital zoom) image during the stabilizer function is effective to keep the margin of compensating and cutting out appropriate image.

Visible angle on monitor

Camera shakes this direction



All pixels captured by CCD

Visible angle is compensated by cutting out to maintain the visible angle originally.



All pixels captured by CCD

**Object cameras:** VN-V686U [P.24] and VN-V686WPU [P.24]

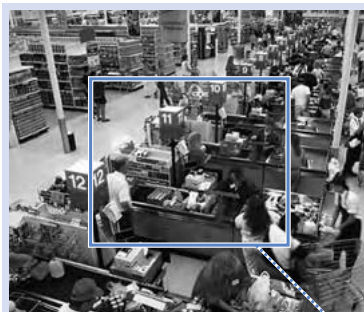
## 12 Megapixel

Megapixel

The camera which has one million pixels or more image resolution is called "Megapixel camera". The image resolution provided by a megapixel camera is more than 3 or 4 times higher compared to a high-resolution analog camera or VGA size image of a network camera. The higher resolution image provides more detailed and precise image, that makes it possible to see or record the numbers, characters and faces precisely. Megapixel camera can shoot wider and larger area than non-mega pixel, it means much less number of megapixel cameras covers wide area.

Please be aware that higher resolution streams need much more bandwidth and storage space. In case of VN-X35U, the Quad-VGA stream needs approximately four times larger network bandwidth and storage space than VGA stream.

**Object camera:** VN-X35U [P.18]



Shooting area by megapixel

by non-megapixel



Non-megapixel

Magnify partially



Rough, difficult to read



Megapixel

Magnify partially

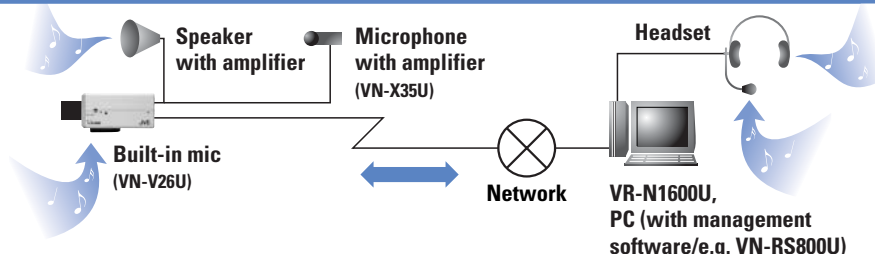


Precise, identifiable

## 13 Bi-directional audio

Bi-directional Audio

Bi-directional audio communication allows to listen to the sound or voice around the camera spot, and speak to or emit an alarm sound for the person near the camera at / from the monitoring room using the microphone and speaker attached at both side. This kind of function helps to make more advanced monitoring system with the capability of conversation and warning.

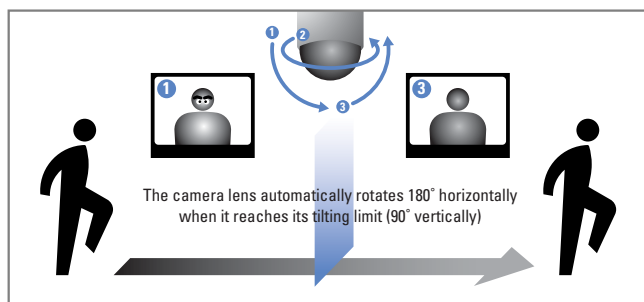


**Object cameras:** VN-V26U [P.17] and VN-X35U [P.18]

## 14 Various functions of PTZ dome camera

### Auto flip (all models)

With the function switched on, the camera automatically flips over 180 degrees when it reaches its tilting limit, making it possible for the camera to continue displaying right-way-up images once it has gone through the vertical.



### Digital flip (VN-C655U(B))

Digital flip inverts pictures on both vertical and horizontal axis once the tilt reaches 135 degrees, after the camera has passed through the vertical axis.

### Auto pan (all models)

Use the Auto pan screen to set the Auto pan function, which allows the camera to be revolved slowly in a horizontal direction. Auto pan function has three modes, the return mode for continual movement between two positions, the right mode for clockwise rotation and the left mode for counterclockwise rotation.

**Object cameras:** VN-C625U [P.23], VN-C655U(B) [P.23], VN-V686U [P.24] and VN-V686WPU [P.24]

### Auto trace (all models)

Auto trace function lets the operator repeat a series of manual camera operations performed over a period of 30 seconds. When Auto trace mode is activated, the 30 seconds sequence of manual operations is memorised and then automatically repeated every 30 seconds.

### Auto patrol (all models)

This function allows the camera to automatically move to multiple positions based on the preset position, sequence and time.

### Auto return (all models)

The camera can be set to return automatically to its original position or to restart a specified operation (Auto pan or Auto patrol) at selected intervals.

### AF for IR (all models)

Auto focus function activates when switching from color to black and white or vice versa, ensuring clear pictures even during switching.

### Motion detection (all models)

The image view is divided into 48 separate sectors. In the setup menu the user can designate the sectors where movement is to be auto-detected, so triggering an alarm signal. The setup menu is smart and this serves to eliminate false alarms, making the JVC's PTZ dome camera very reliable surveillance device.

### Auto tracking/Intelligent auto tracking (VN-V686U and VN-V686WPU)

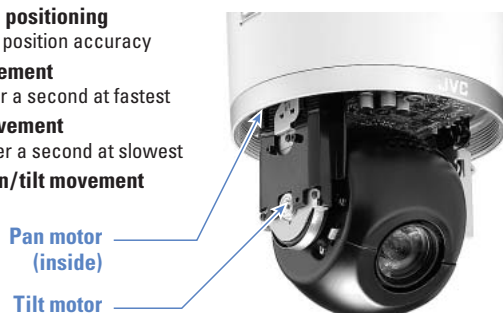
The camera can automatically track and shoot moving objects. Auto tracking function detects the moving object based on the brightness changes on screen when the camera is at the home position. Intelligent auto tracking function detects the moving object based on the specific color and keeps the same size of the object by zoom function. Both tracking function can be changed the sensitivity level of detection. The camera returns automatically to its home position after tracking if any movement can not be detected for a while depend on the setting.

## 15 Direct drive for PTZ mechanism

Direct Drive

The newly developed direct drive rotation platform rotates the camera by motor mechanism instead of conventional belt drive mechanism. Smaller number of parts used inside this direct drive extends the life of pan/tilt movement mechanism than conventional method. The direct drive offers also the following advantages.

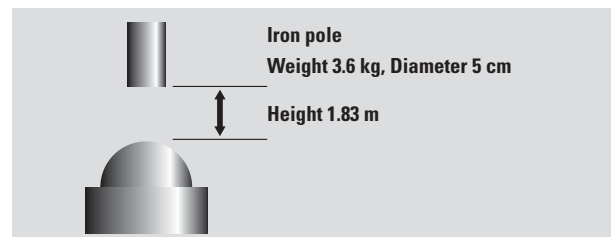
- **Accurate positioning**  
±0.03° position accuracy
- **Fast movement**  
400° per a second at fastest
- **Slow movement**  
0.04° per a second at slowest
- **Silent pan/tilt movement**



**Object cameras:** VN-V686U [P.24] and VN-V686WPU [P.24]

## 16 Vandal resistant

Vandal Resistant



### Results

Weight: 3.6 kg Height: 1.83 m	Weight 1.5 times more Weight: 5.4 kg Height: 1.83 m	Weight twice times Weight: 7.2 kg Height: 1.83 m
OK	OK	OK

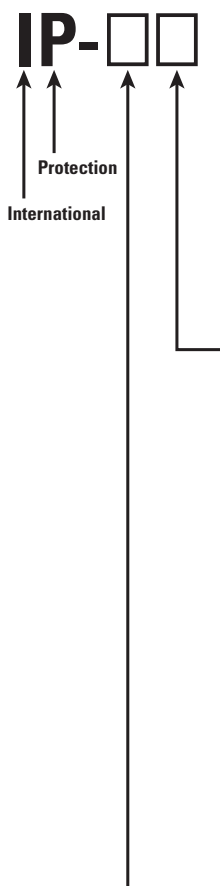
After performing this standard test the dome cover did not sustain any cracking. The test was repeated with twice the initial test weight and again there was no evidence of cracking.

**Object cameras:** TK-C215VP4U(A) [P.7], TK-C215VP12U(A) [P.7] and VN-C215VP4U(A) [P.19]

## 17 Dust and water protection (IP code)

Degrees of protection provided by electrical machinery and apparatus enclosures

IP66



### Degrees of protection against water

Second characteristic numeral	Degree of protection (summary)	Degree of protection (definition)
0	No protection	—
1	Protected against vertically falling water drops	Vertically falling water drops shall have no harmful effects
2	Protected against vertically falling water drops when the enclosure is tilted up to 15 degrees	Vertically falling water drops shall have no harmful effects when the enclosure is tilted at any angle up to 15 degrees
3	Protected against spraying water	Water sprayed vertically toward either side of the enclosure at an angle of up to 60 degrees shall have no harmful effects
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects
5	Protected against water jets	Water projected from a nozzle in jets against the enclosure from any direction shall have no harmful effects
6	Protected against powerful water jets	Water projected from a nozzle in powerful water jets against the enclosure from any direction shall have no harmful effects
7	Protected against the effects of temporary immersion in water	Temporary immersion of the enclosure in water under standardized conditions of pressure and time shall have no harmful effects
8	Protected against the effects of continuous immersion in water	Continuous immersion of the enclosure in water under conditions that shall be agreed upon between the manufacturer and user but which are more severe than those for numeral 7 shall have no harmful effects

### Degrees of protection against solid foreign objects

First characteristic numeral	Degree of protection (summary)	Degree of protection (definition)
0	No protection	—
1	Protected against solid foreign objects of 50 mm diameter and greater	The object probe, a sphere with a 50 mm diameter, shall not fully penetrate
2	Protected against solid foreign objects of 12.5 mm diameter and greater	The object probe, a sphere with a 12.5 mm diameter, shall not fully penetrate
3	Protected against solid foreign objects of 2.5 mm diameter and greater	The object probe, a sphere of 2.5 mm diameter, shall not penetrate at all
4	Protected against solid foreign objects of 1.0 mm diameter and greater	The object probe, a sphere of 1.0 mm diameter, shall not penetrate at all
5	Dust protected	Penetration of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
6	Dust tight	No penetration of dust

\* Information regarding close proximity with dangerous places has been omitted. \* The full diameter of the solid probe shall not pass through the external opening.

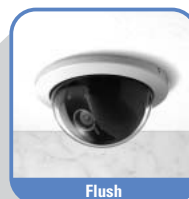
Object cameras: TK-C215VP4U(A) [P.7], TK-C215VP12U [P.7], VN-C215VP4U(A) [P.19], VN-V686WPU [P.24] and Ready Pak [P.34]

## 18 3 way mount

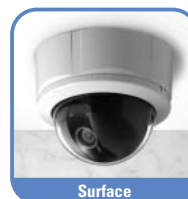
3 way Mount

### 3 ways flexibility of installation

No additional mounting hardware is required for flush mounting on a ceiling. Wall mounting is even possible thanks to the TK-C215/VN-C215 triple axis rotation system. Furthermore, use 6 inch electrical box, it's possible to directly install on ceiling.



Flush



Surface



Wall mount

### Simple and flexible installation

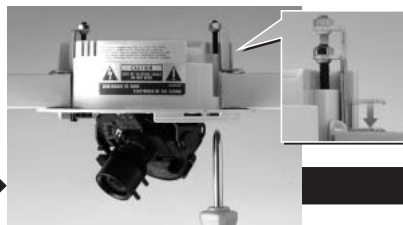
With self-contained L-shaped mounting brackets, flush installations of the TK-C215/VN-C215 couldn't be easier. No extra brackets are required. With this new method, installation can be completed in nearly one-fifth the time of our conventional surveillance cameras. Moreover, surface mounting is possible, too.



1. Remove the camera's outer cover and ceiling panel.



2. Once the camera has been inserted into the hole drilled in the ceiling, push in the screws and rotate them 90° clockwise.



3. After removing the screwdriver, the springs attached to the screws will stretch and the camera can be firmly secured to the ceiling.  
**Note:** This must be carried out for all three screws.



4. Mount the ceiling panel to complete installation.

Object cameras: TK-C215V4U(A) [P.6], TK-C215V12U(A) [P.6] and VN-C215V4U(A) [P.19]



## 19 Easy installation

Easy  
Installation

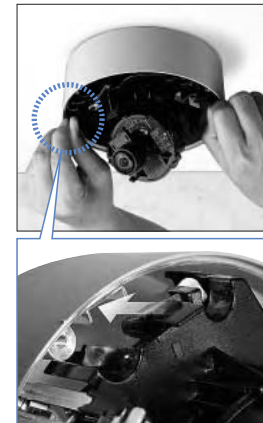
With an all aluminum die-cast camera case and specific poly carbonate cover, these TK-C215VP/VN-C215VP cameras can withstand various rough environments while having a tough vandal resistant structure. While it is tough on vandals and adverse environment conditions, this camera is user friendly. The following pictures illustrate the easy installation process of the new JVC TK-C215VP/VN-C215VP.



**1.** Pull out the camera unit by loosening the screws. \*1



**2.** Mount the camera base to the ceiling using conduit. \*2



**3.** Slide the camera unit into the camera base and gently push until locks-in with a click.



**4.** Using a screwdriver secure the camera unit to the base by tightening the 2 screws.



**5.** Adjust the angle and focus testing with the dome cover.



**6.** After lens setup, install silica gel bag and fit the inner cover.



**7.** Install and secure dome cover using supplied Allen hex wrench. Installation completed!

\*1: These procedures showed by photos for leaflet and actually camera base and dome cover connected by a fall prevention wire.

\*2: After wiring, video connectors should be inserted into camera unit.

Object cameras: TK-C215VP4U [P.7], TK-C215VP12U [P.7] and VN-C215VP4U(A) [P.19]

## 20 One-touch lock installation

One-touch  
Lock

Thanks to its "One-touch lock" mechanism, installation is extremely easy. Simply insert the camera unit to the bracket, and that's all, greatly reducing time and cost for installation and maintenance.

### • Eg.: Direct mount installation



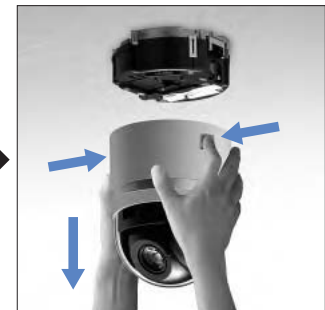
**1.** Screw the camera's ceiling mount section onto it at 3 points.



**2.** Push the camera straight up to the ceiling mount section. If done correctly, you will hear a click as it locks into place.



**3.** Installation completed!



**4. Detachment**  
To remove, press the Lock buttons located on both sides of the camera to release the locks, then pull the camera straight down.

Object camera: VN-V686U [P.24]

Line-up Chart

Color Camera

Flat Panel Display  
& Monitor

Network Camera  
& Encoder

Recorder

Software

System  
Information

Technical  
Information

Glossary

Index

## 21 Relationship between focal length and field of view

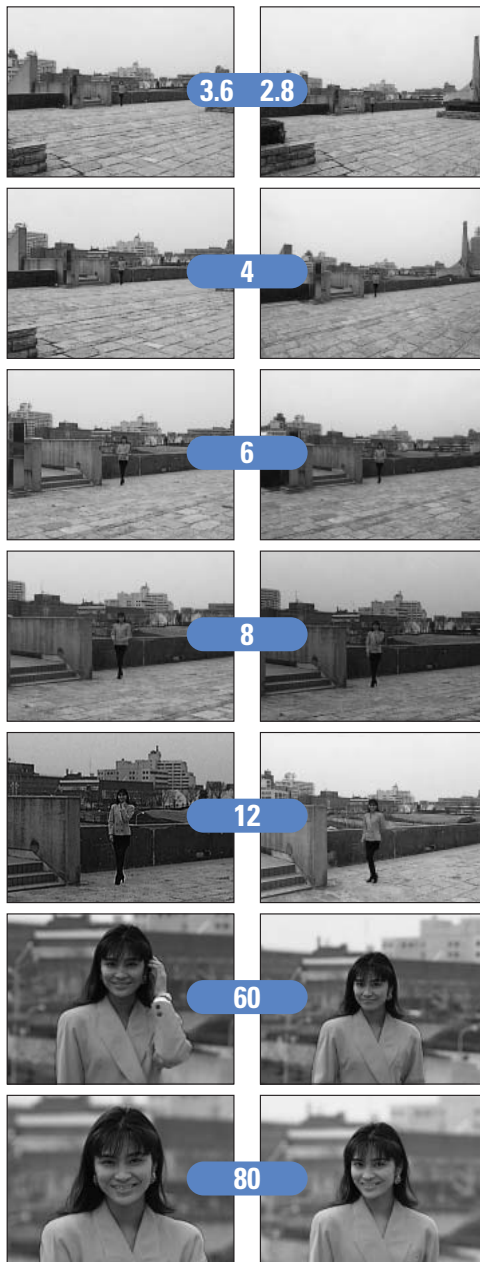
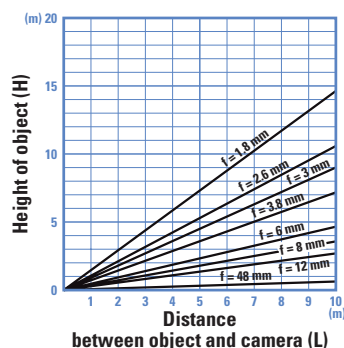
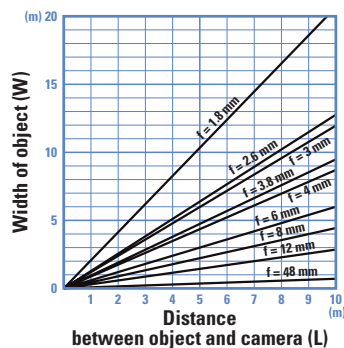
1/4"

1/3"

### Lens focal length

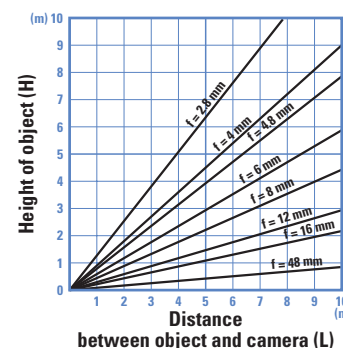
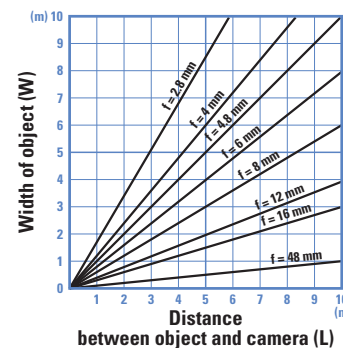
#### Simplified chart

Lens focal length (mm)	Horizontal angle of video (degree)	Vertical angle of video (degree)
1.8	90°	74°
2.6	69°	55°
3	62°	49°
3.8	51°	39°
4	49°	37°
6	33°	25°
8	25°	19°
12	17°	13°
48	4.3°	3.2°



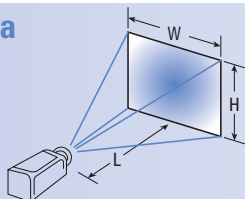
#### Simplified chart

Lens focal length (mm)	Horizontal angle of video (degree)	Vertical angle of video (degree)
2.8	81°	66°
4	62°	48°
4.8	53°	41°
6	44°	33°
8	33°	25°
12	23°	17°
16	17°	13°
48	6°	5°



• This shooting is an image that was taken with a distance of 10 meters between object and camera.

### Formula



$$W = \frac{X}{f} \times L$$

$$H = \frac{Y}{f} \times L$$

$$(H = \frac{3}{4} W)$$

- Image range of monitor (width, height and angle) is 10 % less than that of actual data.
- Due to distortion that occurs with a wide-angle lens, actual angle of taken image will be wider than calculated value.

### Parameter chart

CCD size	1/2"	1/3"	1/4"
X	6.4	4.8	3.6
Y	4.8	3.6	2.7

W = Width of video (m)  
H = Height of video (m)  
f = Focal length of lens being used (mm)  
L = Distance between object and camera (m)



## 22 Network specific information

### IP address

#### What is a private (local) IP address?

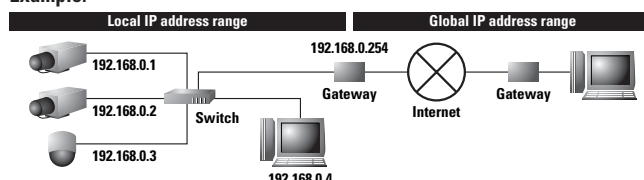
Private IP address is an IP address that can be used freely as a LAN network address without being connected to the Internet.

#### What is a global IP address?

Global IP address is an IP address that is assigned to a device connected to the Internet. This address is indispensable for carrying out transmissions via the Internet.

"192.168.0.2" is the IP address set in the initial settings for JVC IP products.

#### Example:



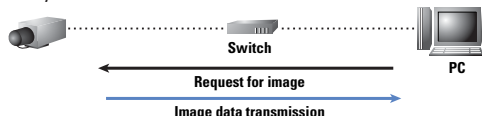
### Simultaneous access by multiple users

The frame rate (or bit rate), which refers to the number of images that can be transmitted by JVC IP products within a second, is decided according to the specifications of JVC IP products. Within the range of specification approximately 10 users can simultaneously access JVC IP products. However, when a large number of users simultaneously access JVC IP products, there may be a decline in the frame rate or image quality.

### Unicast and Multicast

#### Unicast transmission

Since unicast involves one-to-one transmission between two terminals (e.g. between a camera and a monitoring PC), it is necessary for the bandwidths to be equivalent to the number of terminals when identical information is to be acquired by several terminals.

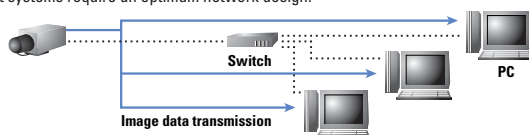


#### Multicast transmission

Since multicast is used to transmit a single packet to multiple terminals, the data transmission volume decreases regardless of the number of terminals. Multicast requires a compatible network device.

\* Remote surveillance via the Internet cannot be carried out with a multicast system.

\* Multicast systems require an optimum network design.

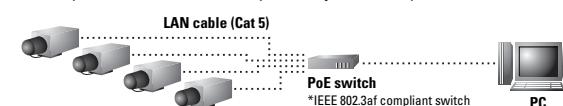


### PoE (Power over Ethernet)

PoE

PoE supplies the electric power to the network camera by using LAN cable (Cat 5). Easy installation like JVC analog cameras is available with single cable. It doesn't require data cable and AC power cable separately.

PoE compliant network switch or power injector is required for PoE installation.



### Alarms

JVC IP products has two inputs and two outputs alarm terminals (except VN-E4U: input x 4/output x 1). Either a less voltage a-contact or c-contact output-type alarm input sensor should be employed. Since alarm output is NPN open collector output, NPN open collector output must be converted to less-voltage a-contact output when using a general sequencer. In addition, it is important to note that the GND must be connected to a control device. In the event that the control device has no GND, the JVC IP products GND should be connected to the COM terminal. When distributing an alarm to several multi-viewers (VN-RS800U) with a single camera, it is possible to register up to 5 distribution addresses for up to 10 for JVC's JVC IP products.

### File size

#### JPEG recorded file size calculation for 1 camera

JPEG data size per image (approximate data)

Resolution	Compression rate (kB)						
	1	2	3	4	5	6	7
160 x 120	9	6	4	3	3	3	2
320 x 240	22	15	10	9	8	7	6
340 x 480	59	37	24	19	17	16	15
640 x 480 (fine mode)	65	41	27	21	19	18	17

#### Example:

Camera setting: Resolution 320 x 240, Compression rate 2, Frame rate 2 fps

Q: What is the file size for 1 day recording ?

A: 15 (kB) x 2 (fps) x 86,400 (s) = 259,200 (kB) = **2.59 (GB)**

Q: How many days is the recording possible with 40 GB HDD ?

A: 40 (GB) ÷ 2.59 (GB) = 15.444 = **15 (days)**

### Bit rate of JPEG stream

**JPEG traffic = Data size per image x Frame rate x 8 (bit/byte)**

For example, when 10 fps is requested by two clients, and in addition, multicast is transmitted at a rate of 10 fps, the total frame rate will be:

**10 + 10 + 10 = 30 fps**

If the JPEG file size per frame is 30 KB, then the total bit rate will be:

**30 KB x 30 fps = 900 KB/s = Approx. 7.2 Mbps**

### Bit rate of MPEG-4 stream

You can select either the Variable Bit Rate (VBR) or Constant Bit Rate (CBR) system for MPEG-4 stream. When the VBR system is selected, the bit rate varies according to the condition of the input video signals. The VBR system delivers a stable picture quality, but forecast of the bit rate is difficult. When the CBR system is selected, encoding is performed at a fixed bit rate regardless of the condition of the input video signals. The picture quality varies under the CBR system, but the bit rate can be easily forecast. You can specify an estimated bit rate for both VBR and CBR. (64 kbps – 8,000 kbps)

### Bit rate of audio (In case of VN-V26U/VN-X35U)

Up to 2 audio data streams can be sent by VN-V26U and only 1 audio data stream can be received. Data volume for 1 audio stream is 64 kbps.

**Audio data volume = 64 kbps x Number of streams**

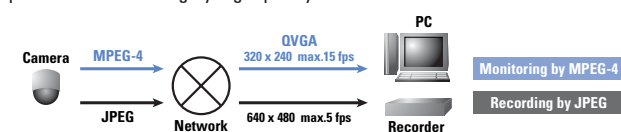
The number of streams is the total number of streams sent via TCP (number of clients), streams sent via multicast, and stream received by VN-V26U. For example, when VN-V26U sends out 2 audio streams and receives 1 audio stream, data volume will be as follows.

**64 kbps x 3 streams = 192 kbps**

### Dual stream (MPEG-4 & JPEG)

Dual Stream

As example, simultaneously able to use both monitoring by smooth MPEG-4 picture and recording by high quality JPEG.



### API (Technical information for software developers)

API (Application program interface): UDP, HTTP data and other communicative specifications that include the structures of control data, JPEG/MPEG data and some examples of sequence until image data is acquired. API is available for integrating JVC IP products into customers own application software or system. In order to receive these JVC technical information, please contact local JVC sales office.

#### Local JVC sales office :

[http://www.jvc-victor.co.jp/english/company/contacts/hqpage\\_a2.htm](http://www.jvc-victor.co.jp/english/company/contacts/hqpage_a2.htm)

**A Automatic gain control (AGC)**

Using a circuit built into the camera, gain control makes it possible to automatically maintain a constant output signal level even if there are changes in brightness. This makes it possible to obtain a picture with the same level of brightness regardless of whether it is taken in a dark or bright place. (Noise may slightly stand out.) When a strong signal exceeding the set level is input, signal saturation is prevented by controlling gain. In the event that a weak signal is input, the signal is raised to correspond with the set level and this fixed level is maintained.

**Application program interface (API)**

This refers to the instruction and function sets that can be utilized when developing software as well as the established rule set for the program procedures that are necessary for employing these instruction and function sets.

**Automatic electronic shutter (AES)**

This is a function that automatically controls the device output level according to the incident light amount by utilizing the electronic shutter function of a solid-state image device.

**Auto negotiation**

Auto negotiation is regulated by IEEE 802.3u. This function can be used to determine the appropriate transmission system for the corresponding device (Hub etc.) as well as select the optimum (highest possible speed) transmission method prior to transmission. When the corresponding device supports two or more of the transmission systems as well as the auto negotiation function, the high-priority items (fast transmission speed etc.) are given precedence. In the event that the corresponding device does not support the auto negotiation function, the transmission speed is automatically selected, but the automatic selection of full-duplex/half-duplex is not performed and half-duplex is always chosen.

**Auto white balance (AWB)**

When using CCD or film, pictures often come out reddish or greenish (orangish or bluish) in color when taken under incandescent or fluorescent light. AWB makes it possible to adjust white color balance under a wide variety of light sources. Automatic tracking (tracing) white balance (ATW), automatic white balance (AWB), automatic white balance control (AWC), manual mode and other features are available.

**B Backlight compensation (BLC)**

With backlight scene, the auto iris function responds to the bright portion of the screen, thus causing the iris to narrow and resulting in the "darkening of the subject" phenomenon. Backlight compensation is a function that can be utilized to correct this phenomenon.

**C Category 5 (Cat 5)**

This refers to the quality assurance of connection parts such as unshielded twisted pair (UTP) cables and connectors. With LAN, category 3 is primarily utilized. For 100 BASE-TX, category 5 and above are used, and category 5e and above are required for 1,000 BASE-T.

**Charge coupled device (CCD)**

A charge coupled device is a semiconductor device that converts images to electrical signals.

**Closed circuit television (CCTV)**

Refers to a system of cameras and video accessory devices over a internal cabling path. Differs from broadcast video.

**Compact flash (CF)**

This is the standard for memory cards advocated by San Disk Corporation, and is utilized as a storage device for digital cameras etc. Compact flash combines flash memory that does not go off even when the power is turned off and an I/O controller circuit on just one card.

**Common intermediate format (CIF)**

This is the universal video signal format regulated by ITU-T H.261. CIF supports moving images with a data rate of up to 30 frames per second and a resolution of 352 x 288 pixels.

**CSMA/CD**

This is an access control method utilized for ethernet transmissions. When collisions occur due to multiple terminals attempting to simultaneously make transmissions, the transmissions are stopped and then resumed after an appropriate amount of time has passed.

**D Dynamic host configuration protocol (DHCP)**

This protocol is employed to automatically allocate IP addresses to clients when they turn on their PCs and then retrieve these addresses from them when they switch off their computers. On the server side, it is only necessary to collectively prepare several DHCP-client-use IP addresses. It is also possible to simultaneously provide clients with information such as gateway addresses, domain names and subnet masks.

**Domain name system (DNS)**

This system is used to replace IP addresses, which are expressed on the Internet with numerals (e.g. 255.254.253.0), with domain names that are easy to remember. On the internet, there are servers referred to as DNS servers that have IP address and domain name tables. By connecting to DNS servers, users can access the server that possesses the IP address via the domain name.

**Digital signal processor (DSP)**

This processor converts the input analog signal to a digital signal and then performs a variety of signal processing tasks. Thus, unlike analog processing, it is possible to produce stable and clear images without signal degradation within the circuit.

**Dynamic range**

This refers to the range within which the reproduction of images can be performed without adversely affecting gradation. The amount of light necessary for the luminance signal to reach the white peak at 100 IRE (100 % video level) is defined as 1, and this is the ratio of the amount of light with which it is possible to perform the reproduction of images without clipping even when more light comes in than the amount stated above. In general, this is expressed in dB, % and times.

**E Electronic sensitivity up**

This is a function used to increase sensitivity by lengthening image device storage time beyond the norm or adding image signals to image memory via frames or field units.

**Electronic zoom**

This is a function that employs the scanning variable of an image device or image memory rather than an optic lens to electronically enlarge or shrink the image on the screen.

**Ethernet**

This is the LAN standard devised by Xerox Corporation, DEC Corporation (currently a branch of Compaq Computer Corporation) and Intel Corporation, and has been standardized by the IEEE 802.3. CSMA/CD has been adopted for data transmission over networks.

**E Firewall**

This is a software system that is used to prevent unauthorized entry into an organization's computer network from the outside. It also refers to computers with built-in firewall systems.

**Frame rate**

This rate is established by JVC IP Products and refers to the number of frames transmitted per second for JPEG and MPEG-4 images. The maximum frame rate is fixed for each image size depending on the specifications of the respective JVC IP Products models.

**File transfer protocol (FTP)**

This is one of the communications protocols used when exchanging files over the Internet. FTP is employed as the standard Internet file transfer method. Selecting FTP can often save time when downloading.

**FTP client function**

This is a JVC IP Products (VN-C655U(B)/C625U/C215V4U(A)/C215VP4U(A)/E4U) function that makes it possible to periodically (range of values: 0 to 86,400 seconds) upload images (JPEG still images only) to any FTP server.

**FTP server function**

This refers to the JVC IP Products (VN-C655U(B)/C625U) user page storage function. By utilizing any FTP client software program, HTML or JPEG image signals independently created by the user can be uploaded to VN-C655U(B)/C625U.

**Full duplex**

This is a transmission method by which it is possible to send and receive data simultaneously.

**F number**

This is a number that represents lens brightness; the smaller number, the brighter lens. The relationship between brightness (F number), focal length (fl) and effective diameter (D) is described by the following equation:  $F = fl/D$ .

**G Genlock**

This is a type of external sync system with a function that synchronizes external sync signals with frequency and phase. There are three types of genlock input signals: composite sync signals (composite SYNC), composite video signals (VBS or VS) and black burst signals (BBS).

**H Half duplex**

This is a transmission method by which data cannot be sent and received simultaneously, but rather can only be transmitted in one direction at a time.

**Hyper text transfer protocol (HTTP)**

This is a protocol used by World wide web (www) servers and web browsers for sending and receiving information such as files.

**I The institute of electrical and electronics engineers 1394 (IEEE 1394)**

This is a next-generation, high-speed SCSI standard used to connect computers with peripherals and other devices. Both daisy-chain connections of up to 63 devices and tree connections are made possible by this protocol. The transfer speeds of 100 Mbps, 200 Mbps and 400 Mbps have been standardized.

**Internet Group Management Protocol (IGMP)**

This is a protocol provides a way for an Internet computer to report its multicast group membership to adjacent routers. Multicasting allows one computer on the Internet to send content to multiple other computers that have identified themselves as interested in receiving the originating computer's content.

**Iris**

The iris controls the amount of light taken in by the lens when changes in illumination occur. A manual iris lens is used when luminance is fixed, and an auto iris lens is used in cases when luminance changes according to the time of day.

**J Java applet**

This is a small program that is distributed from a WWW server to a web browser (client) and then executed by the Web browser. It is used for the purpose of adding movement to the screen. When viewing the image of JVC IP Products (VN-C655U(B)/C625U/E4U) on Internet Explorer or Netscape, this program is utilized to display moving images.

**Joint photographic coding experts group (JPEG)**

This is a standard established by ITU-TS (International Telecommunication Union: formerly known as CCITT) and ISO (International Organization for Standardization) that decides the compression and expansion of color still images. This technology makes it possible to compress still images from a scale of 1/10 to 1/100. Although one of the disadvantages of this is that both compression and distribution are time consuming, compressibility can be modified; this means that by altering the degree of deterioration in image quality during compression it becomes possible to choose from among image quality, file size and processing time.

**J Local area network (LAN)**

This refers to the connection of multiple computers or peripherals over a network within a confined area such as the same building, site or organization. Correspondingly, a computer network that goes beyond buildings or sites to connect LAN between remote locations is referred to as a wide area network (WAN).

**Lens mount**

Cameras have different types of lens sockets including C mount, CS mount and bayonet mount. C and CS mounts are screw-type mounts; C mounts have a flange focal length of 17.526 mm and CS mounts have a flange focal length of 12.5 mm. Bayonet mounts are often employed in three-chip cameras and this type of mount conforms to the standard for studio-use cameras.

**Line lock**

This is a function that synchronizes the camera's vertical synchronizing signal with the frequency of the commercial power supply. The function can be used to reduce hum noise induction to the video signal and illumination flicker. If the image output of several cameras is switched, vertical synchronization disturbance, which occurs on the screen, can be prevented.

**M Media access control (MAC) address**

This refers to the unique address allotted to all devices connected to LAN, and is represented as a 16 base, 12 digit, 48-bit (6 byte) address. The high 3 bytes are assigned by the device's vendor ID and the low 3 bytes are assigned by a unique number from the vendor.

**Minimum illumination**

The minimum level of object illumination required for security cameras is referred to as "minimum illumination". The lower this value is, the higher the sensitivity of the camera. This value also serves as an indication of how dark of a place shooting can be carried out in. It should be duly noted that minimum illumination changes depending on both the F number of the lens being used and the reflectance of the object. If a security camera is used at a level close to the minimum illumination, the image may become blurred. Since this is undesirable, we recommend that sufficient illumination be used.

**Motion detection**

This is a function that alerts you with an alarm when there is motion in the image.

**Motion JPEG**

This is a technology that makes it possible to decompress still JPEG images at a high speed as well as make them appear as if they are moving by showing them in succession. This can also refer to the moving image data or the codec that performs compression/decompression. Unlike MPEG data, which only records differential information between the frames of a moving image, Motion JPEG makes it possible to edit any portion of a moving image because each frame is saved as a still image.

**Moving picture coding experts group/ Moving picture experts group (MPEG)**

There are numerous standards such as MPEG-1, MPEG-2 and MPEG-4 for technologies utilized to compress digital moving images. MPEG-1 takes into account storage/playback on storage media such as CD-ROM and has playback quality equivalent to that of VTR. MPEG-2 takes into consideration usage with broadcast media and has playback quality equivalent to that of HDTV. MPEG-4 is aimed at the distribution of low-quality images at a high compression rate through the use of a slow-speed network.

**Multicast**

This is a method that makes it possible to simultaneously transmit the same data to several specified computers.

**N NAS**

Network Attached Storage (NAS) is a hard disk storage system which is designed to be attached to a computer network. NAS allows more hard disk storage space to be added to a network that already utilizes servers without shutting them down for maintenance and upgrades.

**Network address port translation (NAPT)**

Network address port translation is the official name for IP masquerade. This technology is used to effectively utilize scarce IP address resources by converting IP addresses and TCP/IP port numbers between two networks (WAN/LAN).

**Network address translation (NAT)**

This technology makes it possible to mutually convert private and global IP addresses as well as transparently access these addresses. NAT functions are incorporated in a router.

**Network time protocol (NTP)**

NTP is a time information protocol that is used as a standard on the Internet. SNTP is a simplified version of NTP.

**O OLE control extension (OCX)**

OCX is a software component based on OLE2.0. Although the correct term is OLE control, the filename extension is "OCX", and therefore it is primarily referred to as OLE control extension. It is also called Active X.

**OSI reference model**

This model shows the protocol guidelines and its functions are separated into a total of seven layers. The upper layer of the model, which is closest to human interface, consists of three layers: the application layer, the presentation layer and the session layer. The lower layer, which is used for transmission purposes, consists of four layers: the transport layer, the network layer, the data link layer and the physical layer.

**P Personal computer memory card international association (PCMCIA)**

PCMCIA stands for personal computer memory card international association and regulates cards and slots related to PC cards.

**Port address translation**

This technology is used to convert IP addresses and TCP/UDP port numbers between two networks (WAN/LAN) and effectively utilize scarce IP address resources. This is also referred to as IP masquerade or NAT.

**Port number**

This is the upper layer process of an IP that accepts information from the lower layer. TCP and UDP network protocols are identifiers used to differentiate between programs.

**Protocol**

This term refers to the rules of transmission. Protocol provides a definition of the procedures that should be followed when sending and receiving data.

**Q Quarter common intermediate format (QCIF)**

With QCIF, the resolution of CIF is reduced in similar proportion by half and the resolution becomes 176 x 144 pixels. The number of pixels is one-fourth that of CIF and this format supports moving images at a data rate of up to 30 frames per second.

**Quality level**

This is used for JVC IP Products' JPEG images to determine to what extent the original image should be compressed. There are settings for either seven levels or three levels (high, medium and low). Quality level is closely related to image quality and the lower the degree of compression, the higher the image quality; however, this also causes the volume of data in the image file to increase. The default setting is either "2" or "Medium".

**R Redundant array of independent disks (RAID)**

This is referred to as a RAID disk array and is a means by which multiple hard disks can be combined to be utilized like a single disk and reliability and processing speed can be increased. Although there are seven different types of RAID ranging from RAID 0 to RAID 6, only RAID 0, 1, 5 and combinations of these types are actually used.

**Resolution**

Resolution is the scale used to express the degree to which a screen is clear or blurred. Both horizontal resolution and vertical resolution are indicated using actual numbers and are also employed as scales for representing camera performance. In fact, horizontal resolution is generally utilized to compare performance. It can be said that the higher number, the better performance of camera. Ordinarily, a televised TV broadcast with fairly good horizontal resolution has a resolution of around 330 TV lines.

**Real-time transport protocol (RTP)**

This is a transmission protocol used for streaming playback of sound or images. In UDP-type protocols, for which packet-loss countermeasures, transmission time guarantees, etc. are not implemented, effective bandwidth and delay time are usually sent to the server via RTCP. The server adjusts the quality of the data to be sent via RTP according to the transmission status information it has received and then sends the data.

**Router**

An electronic device that connects a local area network (LAN) to a wide area network (WAN) and handles the task of routing messages between the two networks.

**S S/N ratio**

In analog and digital communications, signal-to-noise ratio, often written S/N or SNR, is a measure of signal strength relative to background noise. The ratio is usually measured in decibels (dB). The higher the ratio, the less obtrusive the background noise is.

**Smear**

This is a phenomenon in which vertical streaks appear above and below brightly lit spot lights or objects in images with especially high luminance. When an excessive amount of light enters a solid-state image device, an unnecessary electric charge occurs in the vertical transfer section, thereby causing this phenomenon.

**Simple network management protocol (SNMP)**

This is a protocol used to form a network management system on a TCP/IP network. There is a manager and an agent; the manager inquires about network management information and the agent responds to these inquiries. The manager function is performed by an exclusive SNMP manager software program and the agent function is carried out by telecommunications equipment such as a router or Switching-Hub.

**Subnetmask**

A filter used to determine what subnet an IP address belongs to. An IP address has two components, the network address and the host address. For example, consider the IP address 150.215.017.009. Assuming this is part of a Class B network, the first two numbers (150.215) represent the Class B network address, and the second two numbers (017.009) identify a particular host on this network.

**Switch**

A small hardware device that joins multiple computers together within one local area network (LAN).

**T Transmission control protocol (TCP)**

This is an OSI reference model transport layer protocol that is utilized as a standard on the Internet. Although TCP is highly reliable due to the fact that it has a retransmission control mechanism, it has a low transmission speed.

**Transmission control protocol/Internet protocol (TCP/IP)**

This is a standard Internet protocol that is comprised of a protocol that specifies a communications software program (application) and then establishes a data transmission channel (TCP), and a protocol related to communication pathways (IP).

**U User datagram protocol (UDP)**

This is utilized as an OSI reference model transport layer protocol. Although UDP has low reliability due to the fact that it has no retransmission control mechanism, it has a high transmission speed.

**Uninterruptible power supply (UPS)**

This is a device that can be used to supply power for a fixed period of time in the event of an unexpected power outage so that PCs can be shut down safely.

**V Voice over IP (VoIP)**

This technology makes it possible to place telephone calls over an IP network. Although the internet can be used as a phone line, the call quality of internet phone is generally not very high because transmission speed and delay cannot be guaranteed.

**W Wide dynamic range function WDR Refer to P.38**

This refers to a function through which various processes are performed, thereby making it possible to capture clear images even when there is extreme backlighting.

Products		Features	Specifications
<b>LM-150</b>	15" LCD Monitor	<b>P. 13</b>	<b>P. 15</b>
<b>LM-170</b>	17" LCD Monitor	<b>P. 13</b>	<b>P. 15</b>
<b>TK-C1460U</b>	1/3" ExDR Day/Night Camera	<b>P. 4</b>	<b>P. 10</b>
<b>TK-C1480U</b>	1/3" ExDR Camera	<b>P. 4</b>	<b>P. 10</b>
<b>TK-C1530U</b>	1/3" Day/Night Camera	<b>P. 3</b>	<b>P. 9</b>
<b>TK-C215V12U(A)</b>	1/4" Fixed Dome Camera	<b>P. 6</b>	<b>P. 11</b>
<b>TK-C215V4U(A)</b>	1/4" Fixed Dome Camera	<b>P. 6</b>	<b>P. 11</b>
<b>TK-C215VP12U</b>	1/4" Fixed Dome Camera (Vandal Resistant)	<b>P. 7</b>	<b>P. 12</b>
<b>TK-C215VP4U</b>	1/4" Fixed Dome Camera (Vandal Resistant)	<b>P. 7</b>	<b>P. 12</b>
<b>TK-C750U(A)</b>	1/3" STD Resolution Camera	<b>P. 2</b>	<b>P. 8</b>
<b>TK-C920BU</b>	1/3" High Resolution Camera	<b>P. 2</b>	<b>P. 8</b>
<b>TK-C925U</b>	1/3" Day/Night Camera	<b>P. 3</b>	<b>P. 9</b>
<b>TK-WD310U(B)</b>	1/3" WDR Camera	<b>P. 5</b>	<b>P. 10</b>
<b>TM-A101G</b>	9"v CRT Monitor	<b>P. 13</b>	<b>P. 15</b>
<b>TM-A130SU</b>	13"v CRT Monitor	<b>P. 13</b>	<b>P. 15</b>
<b>TM-A13SU</b>	13"v CRT Monitor	<b>P. 13</b>	<b>P. 16</b>
<b>TM-A13UCV</b>	13"v CRT Monitor	<b>P. 13</b>	<b>P. 16</b>
<b>TM-A210G</b>	20"v CRT Monitor	<b>P. 14</b>	<b>P. 16</b>
<b>TM-H150CG</b>	14"v CRT Monitor	<b>P. 14</b>	<b>P. 16</b>
<b>TM-H1700G</b>	16"v CRT Monitor	<b>P. 14</b>	<b>P. 16</b>
<b>VN-C215V4U(A)</b>	1/4" Fixed Network Dome Camera	<b>P. 19</b>	<b>P. 22</b>
<b>VN-C215VP4U(A)</b>	1/4" Fixed Network Dome Camera (Vandal Resistant)	<b>P. 19</b>	<b>P. 22</b>
<b>VN-C625U</b>	12x PTZ Network Dome Camera	<b>P. 23</b>	<b>P. 25</b>
<b>VN-C655U(B)</b>	25x PTZ Network Dome Camera	<b>P. 23</b>	<b>P. 25</b>
<b>VN-E4U</b>	Network Encoder	<b>P. 27</b>	<b>P. 27</b>
<b>VN-RS800U</b>	Recording Server Software (Light Edition) for Network Cameras/Encoder	<b>P. 31</b>	<b>P. 31</b>
<b>VN-V25U</b>	1/4" Network Camera	<b>P. 17</b>	<b>P. 20</b>
<b>VN-V26U</b>	1/4" Network Camera	<b>P. 17</b>	<b>P. 20</b>
<b>VN-V686U</b>	36x PTZ Network Dome Camera	<b>P. 24</b>	<b>P. 26</b>
<b>VN-V686WPU</b>	36x Outdoor PTZ Network Dome Camera	<b>P. 24</b>	<b>P. 26</b>
<b>VN-X35U</b>	1/3" Megapixel Network Camera	<b>P. 18</b>	<b>P. 21</b>
<b>VR-D0U</b>	HDD External Unit (option)	<b>P. 29</b>	—
<b>VR-N1600U</b>	Network Video Recorder	<b>P. 28</b>	<b>P. 30</b>
<b>VR-N900U</b>	Network Video Recorder (Hybrid Network and Analog Cameras)	<b>P. 28</b>	<b>P. 30</b>

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■ The Hachioji Plant of Victor Company of Japan, Ltd., has received ISO14001 and ISO9001 Certifications under the global standard for environmental management.

# JVC®

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Printed in Japan KCN-8406  
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