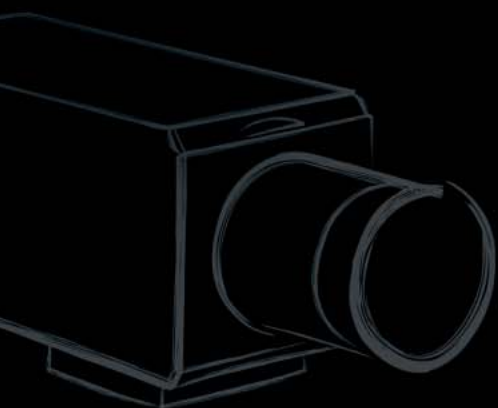


# JVC®

The Perfect Experience / —

## Video Surveillance Products



2005—2006

ntsc

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& Monitor

IP Security  
Products

System  
Information

Technical  
Information

Glossary



■ <b>Index</b> .....	<b>P.2</b>
■ <b>Line-up Chart</b> .....	<b>P.3</b>
■ <b>Color Camera</b> .....	<b>P.4–P.14</b>
Fixed Camera/Fixed Dome Camera/PTZ Dome Camera	
■ <b>Storage</b> .....	<b>P.15–P.18</b>
Digital Video Recorder/Video Cassette Recorder	
■ <b>Flat Panel Display &amp; Monitor</b> .....	<b>P.19–P.23</b>
Plasma Display/LCD Monitor/CRT Monitor	
■ <b>IP Security Products</b> .....	<b>P.24–P.31</b>
PTZ IP Camera/Fixed IP Dome Camera/Fixed IP Camera/ Encoder/Software/Network Video Recorder	
■ <b>System Information</b> .....	<b>P.32–P.36</b>
Ready Pak VR-609U/VR-616U system configuration VR-609U/VR-616U monitoring images VR-609U/VR-616U remote surveillance via network (LAN/WAN) System controller for VR-609U/VR-616U VN-E4U system configuration	
■ <b>Technical Information</b> .....	<b>P.37–P.41</b>
Camera line-up by horizontal resolution Wide dynamic range function IR cut filter on/off function Easy day/night function Focus adjustment function Dust and water protection (IP code) Vandal resistant Alarm zoom function Various functions of PTZ dome camera Relationship between focal length and field of vision Information about network construction	
■ <b>Glossary</b> .....	<b>P.42–P.43</b>

Index	Products		Features	Specifications
Line-up Chart	<b>GD-17L1G</b>	17" LCD Monitor	<b>P. 19</b>	<b>P. 22</b>
	<b>GD-19L1G</b>	19" LCD Monitor	<b>P. 19</b>	<b>P. 22</b>
	<b>GM-V42UG</b>	42" Plasma Display	<b>P. 19</b>	<b>P. 22</b>
	<b>GM-X50U</b>	50" Plasma Display	<b>P. 19</b>	<b>P. 22</b>
	<b>GSC-2000J/VR</b>	System Controller (option)	<b>P. 15</b>	<b>P. 35</b>
	<b>KA-H205U</b>	Heater Unit	<b>P. 7</b>	—
	<b>LM-15G<sub>UA</sub></b>	15" LCD Monitor	<b>P. 19</b>	<b>P. 22</b>
	<b>LM-17G<sub>UA</sub></b>	17" LCD Monitor	<b>P. 19</b>	<b>P. 22</b>
	<b>SR-9168US</b>	168H High Density VCR	<b>P. 16</b>	<b>P. 18</b>
	<b>SR-L911US</b>	40H High Density VCR	<b>P. 16</b>	<b>P. 18</b>
Color Camera	<b>TK-C1460U</b>	1/3" ExDR Day/Night Camera	<b>P. 5</b>	<b>P. 11</b>
	<b>TK-C1480U</b>	1/3" ExDR Camera	<b>P. 5</b>	<b>P. 11</b>
	<b>TK-C205U(A)</b>	1/4" Fixed Dome Camera	<b>P. 6</b>	<b>P. 12</b>
	<b>TK-C205VPU(A)</b>	1/4" Fixed Dome Camera	<b>P. 7</b>	<b>P. 12</b>
Storage	<b>TK-C215V12U</b>	1/4" Fixed Dome Camera	<b>P. 8</b>	<b>P. 13</b>
	<b>TK-C215V4U</b>	1/4" Fixed Dome Camera	<b>P. 8</b>	<b>P. 13</b>
	<b>TK-C625U</b>	12x PTZ Dome Camera	<b>P. 9</b>	<b>P. 14</b>
	<b>TK-C750U</b>	1/3" STD Resolution Camera	<b>P. 4</b>	<b>P. 10</b>
Flat Panel Display & Monitor	<b>TK-C920U(A)</b>	1/3" High Resolution Camera	<b>P. 4</b>	<b>P. 10</b>
	<b>TK-WD310U</b>	1/3" WDR Camera	<b>P. 6</b>	<b>P. 11</b>
	<b>TM-A101G</b>	9"v CRT Monitor	<b>P. 20</b>	<b>P. 23</b>
	<b>TM-A130SU</b>	13"v CRT Monitor	<b>P. 20</b>	<b>P. 23</b>
IP Security Products	<b>TM-A13SU</b>	13"v CRT Monitor	<b>P. 20</b>	<b>P. 23</b>
	<b>TM-A13UCV</b>	13"v CRT Monitor	<b>P. 20</b>	<b>P. 23</b>
	<b>TM-A210G</b>	20"v CRT Monitor	<b>P. 20</b>	<b>P. 23</b>
	<b>TM-H150CG</b>	14"v CRT Monitor	<b>P. 21</b>	<b>P. 23</b>
System Information	<b>TM-H1700G</b>	16"v CRT Monitor	<b>P. 21</b>	<b>P. 23</b>
	<b>TM-H1900G</b>	18"v CRT Monitor	<b>P. 21</b>	<b>P. 23</b>
	<b>VN-C11U</b>	1/3" Fixed IP Camera	<b>P. 25</b>	<b>P. 28</b>
	<b>VN-C205U</b>	1/4" Fixed IP Dome Camera	<b>P. 24</b>	<b>P. 27</b>
Technical Information	<b>VN-C30U</b>	15x PTZ IP Camera	<b>P. 26</b>	<b>P. 29</b>
	<b>VN-C625U</b>	12x PTZ IP Dome Camera	<b>P. 24</b>	<b>P. 27</b>
	<b>VN-C655U(B)</b>	25x PTZ IP Dome Camera	<b>P. 25</b>	<b>P. 28</b>
	<b>VN-E4U</b>	Network Encoder	<b>P. 26</b>	<b>P. 29</b>
Glossary	<b>VN-S400U</b>	Viewer Software	<b>P. 30</b>	<b>P. 30</b>
	<b>VN-SE400U</b>	Control Software	<b>P. 30</b>	—
	<b>VR-609U</b>	9-ch Digital Video Recorder	<b>P. 15</b>	<b>P. 17</b>
	<b>VR-616U</b>	16-ch Digital Video Recorder	<b>P. 15</b>	<b>P. 17</b>
	<b>VR-N100U</b>	Network Video Recorder	<b>P. 31</b>	<b>P. 31</b>

## Video Security Products

### Color Camera

#### TK-C920U(A)

1/3" High Resolution Camera

540 TVL  
Ready Pak P.32  
Easy D/N P.38



▶▶▶ P.4 Specifications P.10

#### TK-C750U

1/3" STD Resolution Camera

Ready Pak P.32



▶▶▶ P.4 Specifications P.10

#### TK-C1460U

1/3" ExDR  
Day/Night Camera

Ready Pak P.32  
ExDR P.37  
IR ON/OFF P.38



▶▶▶ P.5 Specifications P.11

#### TK-C1480U

1/3" ExDR Camera

Ready Pak P.32  
ExDR P.37



▶▶▶ P.5 Specifications P.11

#### TK-WD310U

1/3" WDR Camera

WDR P.37



▶▶▶ P.6 Specifications P.11

#### TK-C205U(A)

1/4" Fixed Dome Camera

540 TVL  
Easy D/N P.38  
Focus Adjustment P.38



▶▶▶ P.6 Specifications P.12

#### TK-C205VPU(A)

1/4" Fixed Dome Camera

540 TVL  
Easy D/N P.38  
Focus Adjustment P.38  
IP66 P.38  
Vandal Resistant P.39



▶▶▶ P.7 Specifications P.12

#### TK-C215V4U

1/4" Fixed Dome Camera

540 TVL  
Easy D/N P.38  
Focus Adjustment P.38



▶▶▶ P.8 Specifications P.13

#### TK-C215V12U

1/4" Fixed Dome Camera

540 TVL  
Easy D/N P.38  
Focus Adjustment P.38  
Alarm Zoom P.39



▶▶▶ P.8 Specifications P.13

#### TK-C625U

12x PTZ Dome Camera

540 TVL  
System Info P.35  
GSC-2000J P.38  
IR ON/OFF P.38  
Technical Information P.39



▶▶▶ P.9 Specifications P.14

### Storage

#### VR-609U

9-ch Digital Video Recorder

System Information P.33-P.35



▶▶▶ P.15 Specifications P.17

#### VR-616U

16-ch Digital Video Recorder

System Information P.33-P.35



▶▶▶ P.15 Specifications P.17

#### SR-L911US

40H High Density VCR



▶▶▶ P.16 Specifications P.18

#### SR-9168US

168H High Density VCR



▶▶▶ P.16 Specifications P.18

### Flat Panel Display & Monitor

#### GM-X50U

50" Plasma Display



▶▶▶ P.19 Specifications P.22

#### GM-V42UG

42" Plasma Display



▶▶▶ P.19 Specifications P.22

#### LM-15GUA

15" LCD Monitor



▶▶▶ P.19 Specifications P.22

#### LM-17GUA

17" LCD Monitor



▶▶▶ P.19 Specifications P.22

#### GD-17L1G

17" LCD Monitor



▶▶▶ P.19 Specifications P.22

#### GD-19L1G

19" LCD Monitor



▶▶▶ P.19 Specifications P.22

#### TM-A101G

9"v CRT Monitor



▶▶▶ P.20 Specifications P.23

#### TM-A130SU

13"v CRT Monitor



▶▶▶ P.20 Specifications P.23

#### TM-A13SU

13"v CRT Monitor



▶▶▶ P.20 Specifications P.23

#### TM-A13UCV

13"v CRT Monitor



▶▶▶ P.20 Specifications P.23

#### TM-A210G

20"v CRT Monitor



▶▶▶ P.20 Specifications P.23

#### TM-H150CG

14"v CRT Monitor



▶▶▶ P.21 Specifications P.23

#### TM-H1700G

16"v CRT Monitor



▶▶▶ P.21 Specifications P.23

#### TM-H1900G

18"v CRT Monitor



## IP Security Products

### IP Camera

#### VN-C205U

1/4" Fixed IP Dome Camera

Easy D/N P.38  
Focus Adjustment P.38



▶▶▶ P.24 Specifications P.27

#### VN-C625U

12x PTZ IP Dome Camera

IR ON/OFF P.38  
Technical Information P.39



▶▶▶ P.24 Specifications P.27

#### VN-C655U(B)

25x PTZ IP Dome Camera

ExDR P.37  
IR ON/OFF P.38  
Technical Information P.39



▶▶▶ P.25 Specifications P.28

### IP Camera

#### VN-C11U

1/3" Fixed IP Camera

Easy D/N P.38



▶▶▶ P.25 Specifications P.28

#### VN-C30U

15x PTZ IP Camera



▶▶▶ P.26 Specifications P.29

### Encoder

#### VN-E4U

Network Encoder

System Information P.36



▶▶▶ P.26 Specifications P.29

### Viewer & Control Software

#### VN-S400U

Multi-Viewer



▶▶▶ P.30 Specifications P.30

#### VN-SE400U

External Device Controller Pack

Free Download



▶▶▶ P.30

### Network Video Recorder

#### VR-N100U

Network Video Recorder



▶▶▶ P.31 Specifications P.31



## 1/3" High Resolution Camera

Refer to P.32 Refer to P.38

## TK-C920U(A)

540 TVL

Ready Pak

Easy D/N



TK-C920U(A) rear

- ▶ 1/3" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 0.7 lx F1.2 (color mode), 0.48 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
- ▶ AC 24 V/DC 12 V power supply

## 1/3" STD Resolution Camera

Refer to P.32

## TK-C750U

Ready Pak



TK-C750U 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), 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
- ▶ AC 24 V power supply

## 1/3" ExDR Day/Night Camera

## TK-C1460U

Refer to P.32 Refer to P.37 Refer to P.38

Ready Pak

ExDR

IR ON/OFF



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



Free software is available for camera control.

Camera menu content, including AGC level, IRIS level, scene memory setting/call, color level, BLC area and IR cut filter on/off, can be set via PC.

For inquiries regarding control software, please access the following URL and select your country of residence.

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



Index

Line-up Chart

Color Camera

Storage

Flat Panel Display &amp; Monitor

IP Security Products

System Information

Technical Information

Glossary

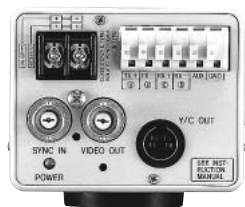
## 1/3" ExDR Camera

## TK-C1480U

Refer to P.32 Refer to P.37

Ready Pak

ExDR



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
- ▶ AC 24 V/DC 12 V power supply

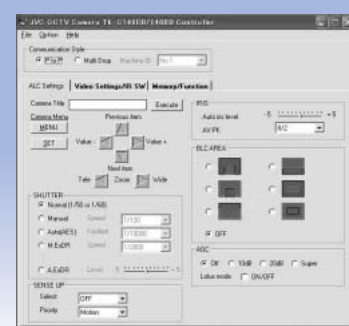


Free software is available for camera control.

Camera menu content, including AGC level, IRIS level, scene memory setting/call, color level, BLC area, can be set via PC.

For inquiries regarding control software, please access the following URL and select your country of residence.

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



## 1/3" WDR Camera

Refer to P.37

## TK-WD310U

WDR



- ▶ 1/3" digital image device with wide dynamic range (WDR)
- ▶ Innovative 14-bit DSP
- ▶ High-speed, automatic 5 level exposure control for each pixel
- ▶ 480 TV lines of horizontal resolution
- ▶ 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
- ▶ AC 24 V/DC 12 V power supply



TK-WD310U rear

## Notes:

1. The WDR function will not operate with AGC or slow shutter mode engaged.
2. The video pictures can become noisy in high extremes of temperature (over 95 °F/35 °C), when also the operation of the slow shutter function may become problematic.
3. In very dark conditions the image quality may suffer slight deterioration.
4. Under fluorescent lighting, the color balance may vary slightly.
5. Fluctuations in the AC mains frequency can cause beat noise, when the camera is in Line lock mode.
6. All manufacturers utilizing this technology will experience similar phenomenon.

## 1/4" Fixed Dome Camera

Refer to P.38

Refer to P.38

## TK-C205U(A)

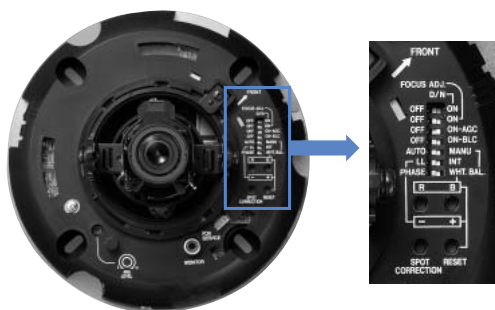
540 TVL

Easy D/N

Focus Adjustment



- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ Fits standard 6" electrical box for easy installation
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 1.5 lx F1.2 (color mode), 0.9 lx F1.2 (B&W mode)
- ▶ S/N ratio 50 dB (AGC off)
- ▶ Revolutionary integrated 10-bit DSP
- ▶ Built-in variable focal length auto iris lens (f = 2.6 mm to 6.0 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
- ▶ AC 24 V/DC 12 V power supply



Cover inside





## 1/4" Fixed Dome Camera

## TK-C205VPU(A)

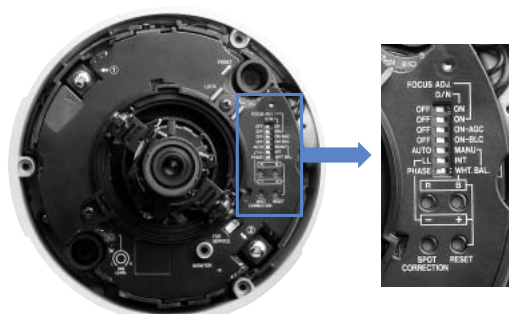
Refer to P.38 Refer to P.38 Refer to P.38 Refer to P.39

540 TVL

Easy D/N

Focus  
Adjustment

IP66

Vandal  
Resistant

Cover inside



- ▶ 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
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 0.9 lx F1.2 (color mode), 0.7 lx F1.2 (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 variable focal length auto iris lens (f = 2.6 mm to 6.0 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
- ▶ AC 24 V/DC 12 V power supply
- ▶ New inner cover to mask the direction of the camera
- ▶ Optional heater unit allowing you to use in various weather conditions

## Heater unit



KA-H205U

## Options for TK-C205(A) series

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

## Recessed housing

CMTK-C205VP  
(TK-C205VPU(A) only)

## Pendant mount



PMTK-C205

## Wall mount



WMTK-C205

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& MonitorIP Security  
ProductsSystem  
InformationTechnical  
Information

Glossary

## 1/4" Fixed Dome Camera

Refer to P.38 Refer to P.38

## TK-C215V4U

540 TVL

Easy D/N

Focus  
Adjustment

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 2.8 lx F1.3 (color mode), 1.9 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
- ▶ Wide lens angle adjustment mechanism
- ▶ 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
- ▶ Easy flush mountable without optional bracket
- ▶ AC 24 V/DC 12 V power supply

## 1/4" Fixed Dome Camera

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

## TK-C215V12U

540 TVL

Easy D/N

Focus  
Adjustment

Alarm Zoom



- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ Easy day/night function
- ▶ Super LoLux™ sensitivity: 3.6 lx F1.6 (color mode), 2.4 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
- ▶ Wide lens angle adjustment mechanism
- ▶ 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
- ▶ Easy flush mountable without optional bracket
- ▶ AC 24 V/DC 12 V power supply

## 12x PTZ Dome Camera

## TK-C625U

540 TVL

Refer to P.35

Refer to P.38

Refer to P.39

System Info  
GSC-2000J

IR ON/OFF

Technical  
Information

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 540 TV lines of horizontal resolution
- ▶ 12x zoom lens (f = 3.8 mm to 45.6 mm)
- ▶ Super LoLux™ sensitivity: 1.8 lx F1.6
- ▶ Minimum illumination: 0.075 lx F1.6 (B&W mode)
- ▶ Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting)
- ▶ Built-in menu with Private mask and Auto black
- ▶ Auto trace/Auto pan/Auto patrol/Auto return/Area title
- ▶ Variable panning/tilting speed
- ▶ 100 preset positions
- ▶ Easy AF and One-push auto focus
- ▶ 360 degree endless rotation, 180 degree Auto flip
- ▶ RS-422A/RS-485 interface
- ▶ Alarm terminal (input x1, output x1)



**Free software is available for camera control.**

Camera menu content, including AGC level, IRIS level, scene memory setting/call, color level, BLC area and PTZ control can be set via PC.

For inquiries regarding control software, please access the following URL and select your country of residence.

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



Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& MonitorIP Security  
ProductsSystem  
InformationTechnical  
Information

Glossary

	TK-C920U(A)	TK-C750U
<b>Image device</b>	1/3" Interline Transfer CCD	1/3" Interline Transfer CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	250,000 (510 H x 492 V)
<b>Video processing</b>	Built-in DSP (10-bit)	Built-in DSP (9-bit)
<b>Pick-up area</b>	4.8 mm (H) x 3.6 mm (V)	4.8 mm (H) x 3.6 mm (V)
<b>Sync system</b>	Internal, Line lock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlaced, 525 lines	2:1 Interlaced, 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	330 TV lines
<b>Minimum illumination (typical)</b>	1.5 lx F1.2, AGC on, 50 IRE* 0.7 lx F1.2, AGC on, 25 IRE* < B&W mode > 1.0 lx F1.2, AGC on, 50 IRE*, Easy D/N 0.48 lx F1.2, AGC on, 25 IRE*, Easy D/N	0.55 lx F1.2, AGC on, 50 IRE* 0.28 lx F1.2, AGC on, 25 IRE*
<b>Communication</b>	—	—
<b>Iris control</b>	Video iris/DC iris	DC iris
<b>White balance</b> < ATW color temp. range >	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>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 mount</b>	C/CS	C/CS
<b>Power supply</b>	AC 24 V (60 Hz)/DC 12 V, UL listed	AC 24 V (60 Hz), UL listed
<b>Power consumption</b>	4.7 W	3.3 W
<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>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>	—	—

\* IRE is used in the same meaning as video level.

	TK-C1460U	TK-C1480U	TK-WD310U
<b>Image device</b>	1/3" Interline Transfer CCD	1/3" Interline Transfer 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>Video processing</b>	Built-in DSP (10-bit)	Built-in DSP (10-bit)	Built-in DSP (14-bit)
<b>Pick-up area</b>	4.8 mm (H) x 3.6 mm (V)	4.8 mm (H) x 3.6 mm (V)	5.04 mm (H) x 3.78 mm (V)
<b>Sync system</b>	Internal, Line lock, Full genlock	Internal, Line lock, Full genlock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlaced, 525 lines	2:1 Interlaced, 525 lines	2:1 Interlaced, 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> < B&W mode >	0.8 lx F1.2, AGC 20 dB, 50 IRE* 0.4 lx F1.2, AGC 20 dB, 25 IRE* < 0.02 lx F1.2, AGC 20 dB, 50 IRE* < 0.01 lx F1.2, AGC 20 dB, 25 IRE* >	0.4 lx F1.2, AGC 20 dB, 25 IRE* 0.25 lx F1.2, Super AGC, 25 IRE* 0.0125 lx F1.2, AGC 20 dB, 25 IRE*, 32x slow shutter	1.9 lx F1.2, AGC high, 50 IRE* 0.9 lx F1.2, AGC high, 25 IRE*
<b>Communication</b>	RS-422A or RS-485 (switchable) 9,600 bit/s	RS-422A or RS-485 (switchable) 9,600 bit/s	—
<b>Iris control</b>	Video iris/DC iris	Video iris/DC iris	Video iris/DC iris
<b>White balance</b> < ATW color temp. range >	ATW/AWB/Manual < 2,500 K to 8,000 K >	ATW/AWB/Manual < 2,500 K to 8,000 K >	ATW/AWB/Manual < 2,500 K to 10,000 K >
<b>Wide dynamic range function</b>	ExDR (by dual shutters)	ExDR (by dual shutters)	WDR (by multi sampling)
<b>Backlight compensation</b>	Yes (areas are selectable)	Yes (areas are selectable)	—
<b>AES</b>	Select from menu (1/60 s to 1/10,000 s)	Select from menu (1/60 s to 1/10,000 s)	—
<b>Lens mount</b>	C/CS	C/CS	CS
<b>Power supply</b>	AC 24 V (60 Hz)/DC 12 V, UL listed	AC 24 V (60 Hz)/DC 12 V, UL listed	AC 24 V (60 Hz)/DC 12V, UL listed
<b>Power consumption</b>	6.0 W	5.2 W	5.7 W
<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) >	14 °F to 122 °F (–10 °C to 50 °C) < 32 °F to 95 °F (0 °C to 35 °C) >
<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>	1.5 lbs. (640 g)	1.4 lbs. (600 g)	0.8 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

\* IRE is used in the same meaning as video level.

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& MonitorIP Security  
ProductsSystem  
InformationTechnical  
Information

Glossary



## TK-C205U(A)

## TK-C205VPU(A)

## CAMERA

Image device	1/4" Interline Transfer CCD	1/4" Interline Transfer CCD
Number of effective pixels	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)
Video processing	Built-in DSP (10-bit)	Built-in DSP (10-bit)
Pick-up area	3.6 mm (H) x 2.7 mm (V)	3.6 mm (H) x 2.7 mm (V)
Sync system	Internal, Line lock	Internal, Line lock
Scanning system	2:1 Interlaced, 525 lines	2:1 Interlaced, 525 lines
Scanning frequency	15.734 kHz (H), 59.94 Hz (V)	15.734 kHz (H), 59.94 Hz (V)
Video output	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)	Composite video signal : 1.0 V (p-p), 75 ohms
Video S/N ratio	50 dB (AGC off)	50 dB (AGC off)
Horizontal resolution	540 TV lines	540 TV lines
Minimum illumination (typical)	3.0 lx F1.2, AGC on, 50 IRE* 1.5 lx F1.2, AGC on, 25 IRE* 0.9 lx F1.2, AGC on, 25 IRE* with optional clear dome cover	2.0 lx F1.2, AGC on, 50 IRE* 0.9 lx F1.2, AGC on, 25 IRE*
< B&W mode >	< 2.0 lx F1.2, AGC on, 50 IRE*, Easy D/N > < 0.9 lx F1.2, AGC on, 25 IRE*, Easy D/N >	< 1.3 lx F1.2, AGC on, 50 IRE*, Easy D/N > < 0.7 lx F1.2, AGC on, 25 IRE*, Easy D/N >
White balance < ATW color temp. range >	ATW/Manual < 2,300 K to 10,000 K >	ATW/Manual < 2,300 K to 10,000 K >
Backlight compensation	on/off	on/off

## LENS

Focal length < Angle of vision >	2.6 mm to 6 mm < 82° (H) x 59° (V) to 35° (H) x 26° (V) >	2.6 mm to 6 mm < 82° (H) x 59° (V) to 35° (H) x 26° (V) >
Max. aperture ratio	F1.2	F1.2
Angle adjustment range	Horizontal: 120° Vertical: +80°, -50° Tilt: ±15°	Horizontal: 350° Vertical: +80°, -50° Tilt: ±15°

## GENERAL

Power supply	AC 24 V (50/60 Hz)/DC 12 V, UL listed	AC 24 V (50/60 Hz)/DC 12 V, UL listed
Power consumption	4.3 W	4.2 W, 19.2 W with optional heater
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) > -40 °F to 122 °F (-40 °C to 50 °C) with optional heater < -22 °F to 104 °F (-30 °C to 40 °C) with optional heater >
Weather resistance	—	IP66, NEMA4
Dimensions	ø 6-3/16 inches x 3-9/16 inches (H) (ø 156 mm x 89 mm (H) )	ø 6-5/16 inches x 4-9/16 inches (H) (ø 160 mm x 115.2 mm (H) )
Weight	1.3 lbs. (570 g)	2.9 lbs. (1.3 kg)
Accessories	—	Wrench x 1 Silica gel x 1

\* IRE is used in the same meaning as video level.

	TK-C215V4U	TK-C215V12U
<b>CAMERA</b>		
<b>Image device</b>	1/4" Interline Transfer CCD	1/4" Interline Transfer CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)	380,000 (768 H x 494 V)
<b>Video processing</b>	Built-in DSP (10-bit)	Built-in DSP (10-bit)
<b>Pick-up area</b>	3.6 mm (H) x 2.7 mm (V)	3.6 mm (H) x 2.7 mm (V)
<b>Sync system</b>	Internal, Line lock	Internal, Line lock
<b>Scanning system</b>	2:1 Interlaced, 525 lines	2:1 Interlaced, 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>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>	5.6 lx F1.3, AGC on, 50 IRE* 2.8 lx F1.3, AGC on, 25 IRE* < B&W mode > 3.8 lx F1.3, AGC on, 50 IRE* 1.9 lx F1.3, AGC on, 25 IRE*	8.5 lx F1.6, AGC on, 50 IRE* 4.2 lx F1.6, AGC on, 25 IRE* 5.7 lx F1.6, AGC on, 50 IRE* 2.8 lx F1.6, AGC on, 25 IRE*
<b>White balance</b> < ATW color temp. range >	ATW/Manual < 2,300 K to 10,000 K >	ATW/Manual < 2,300 K to 10,000 K >
<b>Backlight compensation</b>	on/off	on/off
<b>LENS</b>		
<b>Focal length</b> < Angle of vision >	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° Tilt: ±100°	Horizontal: 350° Vertical: ±80° Tilt: ±100°
<b>GENERAL</b>		
<b>Power supply</b>	AC 24 V (50/60 Hz)/DC 12 V, UL listed	AC 24 V (50/60 Hz)/DC 12 V, UL listed
<b>Power consumption</b>	4.2 W	12.0 W (max.)
<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>Weather resistance</b>	—	—
<b>Dimensions</b>	ø 5-23/32 inches x 4-5/8 inches (H) (ø 145 mm x 117 mm (H) )	ø 5-23/32 inches x 4-5/8 inches (H) (ø 145 mm x 117 mm (H) )
<b>Weight</b>	1.21 lbs. (550 g)	1.28 lbs. (580 g)
<b>Accessories</b>	—	—

\* IRE is used in the same meaning as video level.

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& MonitorIP Security  
ProductsSystem  
InformationTechnical  
Information

Glossary

## TK-C625U

## CAMERA

**Image device** 1/4" Interline Transfer CCD

**Number of effective pixels** 380,000 (768 H x 494 V)

**Sync system** Internal, Line lock

**Video output** Composite video signal  
: 1.0 V (p-p), 75 ohms

**Video S/N ratio** 50 dB

**Horizontal resolution** 540 TV lines

**Minimum illumination (typical)** 3.6 lx F1.6, AGC 20 dB, 50 IRE\*  
1.8 lx F1.6, AGC 20 dB, 25 IRE\*  
< B&W mode > 0.15 lx F1.6, AGC 20 dB, 50 IRE\*  
0.075 lx F1.6, AGC 20 dB, 25 IRE\* >

**White balance** ATW/Manual  
< ATW color temp. range > < 2,300 K to 10,000 K >

**Backlight compensation** 4 patterns

**Camera ID** 16 characters

## LENS

**Zoom ratio** 12x, 3.8 mm to 45.6 mm

**Max. aperture ratio** F1.6

**Zooming speed** Approx. 3.0 s (max.)

**Focus speed** Approx. 1.2 s (max.)

## MOVING MECHANISM

**Panning** 360° endless rotation

**Tilting** 0° to 90°

**Panning speed** 1.5 °/s to 180 °/s (preset)

**Tilting speed** 1 °/s to 120 °/s (preset)

## GENERAL

**Communication** RS-422A or RS-485 (switchable),  
9,600 bit/s

**Power supply** AC 24 V (60 Hz), UL listed

**Power consumption** 1.5 A

**Operating temperature range** 14 °F to 122 °F (–10 °C to 50 °C)  
< recommended > < 32 °F to 104 °F (0 °C to 40 °C) >

**Dimensions** ø 4-3/4 inches x 7-1/2 inches (H)  
(ø 120 mm x 190 mm (H) )

**Weight** 2.9 lbs. (1.3 kg)

\* IRE is used in the same meaning as video level.

## 9-ch/16-ch Digital Video Recorder

Refer to P.33-P.35

**VR-609U**<sub>(9-ch)</sub>/**VR-616U**<sub>(16-ch)</sub>**System**  
Information

Photo: VR-609U



Photo: VR-616U



Front cover open (VR-616U)

- ▶ Built-in 240 GB HDD, slot for optional, removable HDD up to 240 GB
- ▶ High resolution recording of 60 fps
- ▶ Wavelet compression
- ▶ Triplex working enables live, recording and playback all at the same time
- ▶ 9-ch/16-ch real-time monitoring with multi-screen display **Refer to P.33**
- ▶ Spot monitor output
- ▶ Digital audio recording and playback
- ▶ Remote surveillance via network (built-in web server/bundled software) **Refer to P.34**
- ▶ E-mail event notification
- ▶ Convenient manual search with Jog&Shuttle
- ▶ Variable speed search function
- ▶ Image sequence function
- ▶ Covert channel function
- ▶ Automatic check and recovery function
- ▶ On screen display (Time/Date/Camera ID/Recording information)
- ▶ Multiple backup functions
- ▶ Auto diagnostic function
- ▶ Digital zoom function
- ▶ Timer recording function
- ▶ Pre/Post alarm recording function
- ▶ Motion detection (Area/Sensing speed adjustable)
- ▶ JVC's PTZ dome camera control
- ▶ Multiple languages (English/French/Spanish)
- ▶ IR remote control unit (standard option)
- ▶ Video authentication system

## System Controller (option)

Refer to P.35

**GSC-2000J/VR****System**  
Information

- ▶ Operates a single DVR and up to 16 cameras (JVC products only)



VR-609U rear



VR-616U rear

## Recording time list

VR-609U		Field rate											
Quality	6f/1s	5f/1s	4f/1s	3f/1s	2f/1s	1f/1s	1f/2s	1f/3s	1f/4s	1f/5s	1f/6s	1f/8s	1f/9s
Recording condition HDD: 240 GB, Audio recording: off, 9 cameras connected													
HQ3	18	22	27	36	55	110	221	332	443	554	665	887	998
HQ2	18	22	27	36	55	110	221	332	443	554	665	887	998
HQ1	18	22	27	36	55	110	221	332	443	554	665	887	998
Q4	18	22	27	36	55	110	221	332	443	554	665	887	998
Q3	18	22	27	36	55	110	221	332	443	554	665	887	998
Q2	27	33	41	55	83	166	332	499	665	832	998	1,331	1,497
Q1	36	44	55	73	110	221	443	665	887	1,109	1,331	1,775	1,997

(Unit: Hour)

VR-616U				Field rate							
Quality	3f/1s	2f/1s	1f/1s	1f/2s	1f/3s	1f/4s	1f/5s	1f/6s	1f/8s	1f/16s	
Recording condition HDD: 240 GB, Audio recording: off, 16 cameras connected											
HQ3	20	31	62	124	187	249	312	374	499	998	
HQ2	20	31	62	124	187	249	312	374	499	998	
HQ1	20	31	62	124	187	249	312	374	499	998	
Q4	20	31	62	124	187	249	312	374	499	998	
Q3	20	31	62	124	187	249	312	374	499	998	
Q2	31	46	93	187	280	374	468	561	748	1,497	
Q1	41	62	124	249	374	499	624	748	998	1,997	

(Unit: Hour)

## 40H High Density VCR

## SR-L911US



- ▶ Up to 40 hours continuous video/audio recording/playback capability
- ▶ Shuttle ring operation
- ▶ One-touch time search/Alarm search function
- ▶ Alarm mode automatic selection during timer recording
- ▶ Key lock function
- ▶ Aluminum diecast mechanism for long-lasting reliability
- ▶ Optional RS-232C interface
- ▶ Series recording
- ▶ FDP counter display/Hour meter (on screen)
- ▶ Alarm/Sensor recording
- ▶ Timer recording
- ▶ Automatic recording check mode
- ▶ Field recording/Playback



SR-L911US rear

## 168H High Density VCR

## SR-9168US



- ▶ Up to 168 hours of high density recording
- ▶ 6 hour realtime recording
- ▶ Shuttle ring operation
- ▶ One-touch time search/Alarm search function
- ▶ Alarm mode automatic selection during timer recording
- ▶ Key lock function
- ▶ Aluminum diecast mechanism for long-lasting reliability
- ▶ Easy to maintain with solderless drum
- ▶ Optional RS-232C interface
- ▶ Series recording
- ▶ FDP counter display/Hour meter (on screen)
- ▶ Alarm/Sensor recording
- ▶ Timer recording
- ▶ Automatic recording check mode
- ▶ Field recording/Playback



SR-9168US rear



	VR-609U	VR-616U
<b>VIDEO</b>		
Input	9-ch (BNC)	16-ch (BNC)
<b>AUDIO</b>		
Input/Output	1-ch (RCA)	1-ch (RCA)
<b>DISPLAY</b>		
Speed	60 fps	60 fps
Split screen < add user defined >	1, 4, 6, 7, 9 < PIP >	1, 4, 6, 7, 9, 10, 16 < 10, 13, PIP >
<b>RECORDING</b>		
Speed	60 fps (max.), 30 fps/1-ch	60 fps (max.), 30 fps/1-ch
Resolution	720 x 240	720 x 240
Compression method	WAVELET	WAVELET
Image quality	Selectable 7 steps	Selectable 7 steps
Mode	Motion detection, Sensor, Schedule	Motion detection, Sensor, Schedule
<b>PLAYBACK</b>		
Display	1, 4, 9	1, 4, 9, 16
Search mode	Date, Time, Channel, Event	Date, Time, Channel, Event
<b>MONITOR</b>		
Output	Monitor x 2, Spot x 1, VGA x 1, S-video x 1	Monitor x 2, Spot x 1, VGA x 1, S-video x 1
<b>CONTROL</b>		
Sensor input	9	16
Relay output	4	4
Pan/Tilt/Zoom	9-ch	16-ch
<b>NETWORK</b>		
Transmission speed	Real-time	Real-time
Remote view	Via web browser Bundled software	Via web browser Bundled software
Protocol	TCP/IP	TCP/IP
<b>OTHERS</b>		
Watch dog	Self-recover	Self-recover
OS	Embedded Linux	Embedded Linux
Power supply	AC 120 V (50/60 Hz), UL listed	AC 120 V (50/60 Hz), UL listed
<b>BUILT-IN DEVICE</b>		
HDD	240 GB	240 GB
Removable rack	1 pcs	1 pcs
USB (1.0)	2 ports	2 ports
IEEE 1394	1 port	1 port
LAN (RJ-45)	10 BASE-T/100 BASE-TX	10 BASE-T/100 BASE-TX
<b>GENERAL</b>		
Operating temperature	41 °F to 104 °F (5 °C to 40 °C)	41 °F to 104 °F (5 °C to 40 °C)
Dimensions (W x H x D)	17-1/16 inches x 3-1/2 inches x 17-3/4 inches (432 mm x 88 mm x 431 mm)	17-1/16 inches x 3-1/2 inches x 17-3/4 inches (432 mm x 88 mm x 431 mm)
Weight	19.8 lbs. (9.0 kg)	19.8 lbs. (9.0 kg)

## SR-L911US

## SR-9168US

## VIDEO

<b>Signal input</b>	0.5 V (p-p) to 2.0 V (p-p), 75 ohms, unbalanced (BNC)	0.5 V(p-p) to 2.0 V (p-p), 75 ohms, unbalanced (BNC)
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<b>Signal output</b>	1.0 V (p-p), 75 ohms, unbalanced (BNC)	1.0 V (p-p), 75 ohms, unbalanced (BNC)
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<b>Horizontal resolution</b>	Color mode: more than 230 TV lines (8 hour realtime)	Color mode: more than 230 TV lines (6 H mode)
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<b>S/N ratio</b>	More than 43 dB (8 hour realtime)	More than 43 dB (6 H mode)
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## AUDIO

<b>Number of tracks</b>	1	1
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<b>Line input</b>	–8 dBs, 50 kohms, unbalanced (RCA)	–8 dBs, 50 kohms, unbalanced (RCA)
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<b>Mic input</b>	–67 dBs, 600 ohms, unbalanced	–67 dBs, 600 ohms, unbalanced
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<b>Line output</b>	–8 dBs, 1 kohm, unbalanced (RCA)	–8 dBs, 1 kohm, unbalanced (RCA)
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<b>Frequency response</b>	100 Hz to 5 kHz (8 hour realtime)	100 Hz to 5 kHz (6 H mode)
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<b>S/N ratio</b>	More than 40 dB (8 hour realtime)	More than 40 dB (6 H mode)
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## TIME/DATE GENERATOR

<b>Display</b>	Month, Day, Year, Hours, Minutes, Seconds, Recording mode	Month, Day, Year, Hours, Minutes, Seconds, Recording mode
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<b>Display position</b>	4	4
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<b>Character size</b>	16 H	16 H
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<b>Power backup</b>	Approx. five years	Approx. five years
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## INPUT/OUTPUT TERMINALS

<b>Alarm input</b>	Input-ground contact	Input-ground contact
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<b>Camera SW output</b>	Negative pulse output (approx. 5 ms)	Negative pulse output (approx. 5 ms)
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## GENERAL

<b>Power supply</b>	AC 120 V (50/60 Hz), UL listed	AC 120 V (50/60 Hz), UL listed
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<b>Power consumption</b>	16 W (4 W in stand-by mode)	16 W (5 W in stand-by mode)
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<b>Dimensions (W x H x D)</b>	14-3/16 inches x 3-3/4 inches x 11-3/8 inches (360 mm x 94 mm x 288 mm)	14-3/16 inches x 3-3/4 inches x 11-3/8 inches (360 mm x 94 mm x 288 mm)
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<b>Weight</b>	11.0 lbs. (5.0 kg)	11.0 lbs. (5.0 kg)
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<b>Operating temperature &lt; storage &gt;</b>	41 °F to 104 °F (5 °C to 40 °C) < –4 °F to 140 °F (–20 °C to 60 °C) >	41 °F to 104 °F (5 °C to 40 °C) < –4 °F to 140 °F (–20 °C to 60 °C) >
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<b>Tape speed</b>	11.12 mm/s (8 H), 3.71 mm/s (24 H), 2.22 mm/s (40 H)	11.12 mm/s (EP mode)
-------------------	--	----------------------

<b>Recording and playback time</b>	8 hour realtime 24, 40 hour mode (High density: field recording/playback) (with T-160 cassette tape)	6 hours (EP mode) (high density mode: field recording) 6, L18, L30, 48, 72, 96, 120, 168, 240 hours (with T-120 cassette tape) 8, L24, L40, 64, 96, 128, 160, 224, 320 hours (with T-160 cassette tape)
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## OPTIONAL ACCESSORIES

**SA-K97U:** RS-232C interface  
**RM-G30U:** Remote control unit

**SA-K97U:** RS-232C interface  
**RM-G30U:** Remote control unit

## 50" Plasma Display

## GM-X50U

50"



- ▶ Superb video quality
- ▶ 2000:1 contrast ratio
- ▶ Bright picture of 400 cd/m<sup>2</sup> (set), 1,000 cd/m<sup>2</sup> (panel)
- ▶ Original gamma control
- ▶ 1.07 billion colors/1,024 levels
- ▶ UXGA compatibility
- ▶ Integrated 2 W x 2 speakers
- ▶ Removable front bezel for customisation
- ▶ RS-232C terminal and MAKE remote for professional applications
- ▶ Self-diagnostic indicator
- ▶ Various setup capabilities
- ▶ Timer on/off helping eliminate phosphor burn-in

## 42" Plasma Display

## GM-V42UG

42"



- ▶ Superb video quality
- ▶ 3000:1 contrast ratio
- ▶ Bright picture of 400 cd/m<sup>2</sup> (set), 1,000 cd/m<sup>2</sup> (panel)
- ▶ Original gamma control
- ▶ S-VGA/XGA compatibility
- ▶ Integrated 2 W x 2 speakers
- ▶ Removable front bezel for customisation
- ▶ RS-232C terminal and MAKE remote for professional applications
- ▶ Self-diagnostic indicator
- ▶ Various setup capabilities
- ▶ Fanless convection cooling

## 15"/17" LCD Monitor

LM-15G<sub>UA</sub>/LM-17G<sub>UA</sub>

15"

17"

LM-15G<sub>UA</sub> rearLM-17G<sub>UA</sub> rear

- ▶ 15" and 17" TFT screen with metal cabinet
- ▶ Bright picture of 400 cd/m<sup>2</sup> (LM-15G<sub>UA</sub>), 280 cd/m<sup>2</sup> (LM-17G<sub>UA</sub>)
- ▶ 16.2 million colors
- ▶ NTSC/PAL multi-standard compatibility
- ▶ 16:9/4:3 (LM-15G<sub>UA</sub>) and 16:9/5:4 (LM-17G<sub>UA</sub>) selectable aspect ratio
- ▶ XGA resolution (LM-15G<sub>UA</sub>) and S-XGA resolution (LM-17G<sub>UA</sub>)
- ▶ Two composite video inputs
- ▶ One PC input (analog RGB)
- ▶ MAKE remote
- ▶ Direct VESA standard 100 mm mounting
- ▶ Stand unit included
- ▶ AC 100 V–240 V power supply

## 17"/19" LCD Monitor

## GD-17L1G/GD-19L1G

17"

19"



- ▶ Stylish and easy setup LCD monitor
- ▶ Bright picture of 300 cd/m<sup>2</sup> (GD-17L1G), 250 cd/m<sup>2</sup> (GD-19L1G)
- ▶ Contrast ratio 500:1 (GD-17L1G), 1,000:1 (GD-19L1G)
- ▶ Wide view LCD panel
- ▶ PC and NTSC/PAL multi-standard compatibility
- ▶ AC 100 V–240 V built-in power supply with detachable AC cable
- ▶ Built-in front stereo speaker (2 W + 2 W)
- ▶ IR remote control unit
- ▶ Square and flush surface cabinet design
- ▶ Direct VESA standard 100 mm mounting
- ▶ Tilt stand unit included

## 9"v CRT Monitor

## TM-A101G

9"v



TM-A101G rear

- ▶ 9" 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
- ▶ AC 120 V/230 V 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
- ▶ AC 120 V/220 V–240 V 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
- ▶ AC 120 V/220 V–240 V universal power supply
- ▶ Underscan, Color off, blue check functions
- ▶ Wired remote control (D-sub 15 pin)

## 16"v/18"v CRT Monitor

## TM-H1700G/TM-H1900G

16"v

18"v

TM-H1700G/  
TM-H1900G 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
- ▶ AC 120 V/230 V universal power supply
- ▶ EIA rack mountable  
(**TM-H1700G:** height 8U, **TM-H1900G:** height 9U)
- ▶ Big screen, small cabinet design
- ▶ Wired remote control (D-sub 15 pin)

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& MonitorIP Security  
ProductsSystem  
InformationTechnical  
Information

Glossary



	GM-X50U	GM-V42UG
<b>PANEL</b>		
<b>Screen size (W x H)</b>	43-9/16 inches x 24-7/16 inches (1,107 mm x 622 mm)	36-3/4 inches x 21 inches (933 mm x 533 mm)
<b>Aspect ratio</b>	16:9 (4:3/16:9 selectable)	16:9 (4:3/16:9 selectable)
<b>Number of pixels</b>	1,366 (H) x 768 (V)	852 (H) x 480 (V)
<b>OTHER SPECIFICATIONS</b>		
<b>Input</b>	Composite video x 2 (Bridged-out x 1, Auto termination) Y/C x 1, RGB x 2, Component x 1, Audio (2-ch) x 4	Composite video x 2 (Bridged-out x 1, Auto termination) Y/C x 1, RGB x 2, Component x 1, Audio (2-ch) x 4
<b>Speaker output &lt; internal &gt;</b>	3 W + 3 W (6 ohms); Audio output (2-ch) x1 < 2 W + 2 W >	3 W + 3 W (6 ohms); Audio output (2-ch) x1 < 2 W + 2 W >
<b>Dimensions (W x H x D)</b>	48-5/8 inches x 29-3/8 inches x 4-1/8 inches (1,232 mm x 743 mm x 103 mm)	40-3/4 inches x 25-1/4 inches x 3-5/8 inches (1,035 mm x 640 mm x 89 mm)
<b>Weight</b>	110.0 lbs. (50.0 kg)	77.4 lbs. (35.1 kg)
<b>Power supply</b>	AC 120 V (50/60Hz), UL listed	AC 120 V (50/60Hz), UL listed

	LM-15GUA	LM-17GUA
<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 (5:4/16:9 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) RGB x1	Composite video x 2 (Bridged-out possible, Auto termination) RGB x1
<b>Speaker output &lt; internal &gt;</b>	—	—
<b>Dimensions (W x H x D)</b>	14-5/8 inches x 12-1/4 inches x 2-5/8 inches (370 mm x 309 mm x 66.1 mm) without stand	15-7/8 inches x 13-3/4 inches x 2-3/4 inches (402 mm x 348 mm x 70.1 mm) without stand
<b>Weight</b>	8.8 lbs. (4.0 kg) without stand, 9.7 lbs. (4.4 kg) with stand	10.6 lbs. (4.8 kg) without stand, 12.4 lbs. (5.6 kg) with stand
<b>Power supply</b>	AC 100 V – 240 V (50 Hz/60 Hz), UL listed	AC 100 V – 240 V (50 Hz/60 Hz), UL listed

	GD-17L1G	GD-19L1G
<b>PANEL</b>		
<b>Screen size (W x H)</b>	13-3/8 inches x 10-6/8 inches (337.9 mm x 270.3 mm)	14-7/8 inches x 11-7/8 inches (376.3 mm x 301.1 mm)
<b>Aspect ratio</b>	5:4 panel	5:4 panel
<b>Number of pixels</b>	1,280 (H) x 1,024 (V)	1,280 (H) x 1,024 (V)
<b>OTHER SPECIFICATIONS</b>		
<b>Input</b>	Composite video x 1, Y/C x 1, Y/B-Y/R-Y x 1, RGB x 1, Audio (2-ch) x 1	Composite video x 1, Y/C x 1, Y/B-Y/R-Y x 1, RGB x 1, Audio (2-ch) x 1
<b>Speaker output &lt; internal &gt;</b>	— < 2 W + 2 W >	— < 2 W + 2 W >
<b>Dimensions (W x H x D)</b>	15-3/8 inches x 13-1/2 inches x 2-5/8 inches (388.3 mm x 340.0 mm x 66.0 mm) without stand 15-3/8 inches x 14-3/8 inches x 7-5/8 inches (388.3 mm x 363.6 mm x 192.0 mm) with stand	16-7/8 inches x 14-5/8 inches x 2-7/8 inches (428.3 mm x 370.2 mm x 72.5 mm) without stand 16-7/8 inches x 15-5/8 inches x 7-7/8 inches (428.3 mm x 395.5 mm x 200.0 mm) with stand
<b>Weight</b>	11.0 lbs. (5.0 kg) without stand, 12.5 lbs. (5.7 kg) with stand	14.3 lbs. (6.5 kg) without stand, 16.0 lbs. (7.3 kg) with stand
<b>Power supply</b>	AC 120 V, UL listed AC 230 V, CE declaration	AC 120 V, UL listed AC 230 V, CE declaration

	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>	AC 120 V, UL listed AC 230 V, CE declaration	AC 120 V, 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	TM-A210G
<b>CRT</b>	13"v Stripe pitch of 0.64 mm	13"v Stripe pitch of 0.64 mm	20"v Stripe pitch of 0.63 mm
<b>Horizontal resolution</b>	More than 320 TV lines	More than 320 TV lines	More than 450 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)	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>	AC 120 V, UL listed	AC 120 V, UL listed	AC 120 V, UL listed AC 220 V – 240 V, CE declaration
<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)	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>	21.0 lbs. (9.6 kg)	20.9 lbs. (9.5 kg)	63.0 lbs. (28.1 kg)

	TM-H150CG	TM-H1700G	TM-H1900G
<b>CRT</b>	14"v Trio-dot pitch of 0.27 mm	16"v Trio-dot pitch of 0.27 mm (P-22 phosphor)	18"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	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)	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	8 cm round, 1 W output
<b>Power supply</b>	AC 120 V, UL listed AC 220 V – 240 V, CE declaration	AC 120 V, UL listed AC 230 V, CE declaration	AC 120 V, UL listed AC 230 V, 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)	17-3/8 inches x 14-7/8 inches x 19-5/8 inches (440 mm x 375 mm x 496 mm)
<b>Weight</b>	35.2 lbs. (16.0 kg)	43.2 lbs. (19.6 kg)	55.2 lbs. (25.1 kg)

## 1/4" Fixed IP Dome Camera

Refer to P.38 Refer to P.38

## VN-C205U

Easy D/N

Focus Adjustment



Cover inside

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ Fits standard 6" electrical box for easy installation
- ▶ Easy day/night function
- ▶ Focus adjustment function
- ▶ UP to 30 fps Motion-JPEG in VGA mode (640 x 480)
- ▶ Full hybrid with both analog and IP output
- ▶ CF card slot for local alarm recording
- ▶ Access protection
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ FTP client/server function
- ▶ Multicasting capability
- ▶ Built-in web server
- ▶ Motion detection function



Viewing image

with electrical box



## 12x PTZ IP Dome Camera

Refer to P.38 Refer to P.39

## VN-C625U

IR ON/OFF

Technical 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
- ▶ Multicasting capability
- ▶ Built-in web server
- ▶ Motion detection function



Viewing image

## 25x PTZ IP Dome Camera

## VN-C655U(B)

Refer to P.37

Refer to P.38

Refer to P.39

**ExDR****IR ON/OFF****Technical  
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
- ▶ Multicasting capability
- ▶ Built-in web server
- ▶ Motion detection function



Viewing image

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display  
& MonitorIP Security  
ProductsSystem  
InformationTechnical  
Information

Glossary

## 1/3" Fixed IP Camera

## VN-C11U

Refer to P.38

**Easy D/N**

- ▶ 1/3" high resolution IT CCD with 380,000 effective pixels
- ▶ Versatile monitoring and camera control capability
- ▶ Switchable MPEG-4/JPEG
- ▶ Up to 640 x 480 resolution output
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Easy day/night function
- ▶ Pre/Post alarm recording
- ▶ FTP client/server function
- ▶ Support NAT/IP masquerade
- ▶ Alarm I/O (2-in/1-out)
- ▶ Multicasting capability
- ▶ Built-in web server
- ▶ Monitor out
- ▶ Motion detection function



Viewing image



VN-C11U rear

## 15x PTZ IP Camera

## VN-C30U



**V.NETWORKS**  
Visual Network System

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ▶ 15x optical zoom lens
- ▶ Built-in multi-angle pan/tilt capability
- ▶ Versatile monitoring and camera control capability
- ▶ Switchable MPEG-1/JPEG
- ▶ DHCP support
- ▶ FTP client/server function
- ▶ Support NAT/IP masquerade
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Alarm I/O (2-in/1-out)
- ▶ Multicasting capability
- ▶ Built-in web server



Viewing image

## Network Encoder

## VN-E4U

Refer to P.36

**System**  
Information

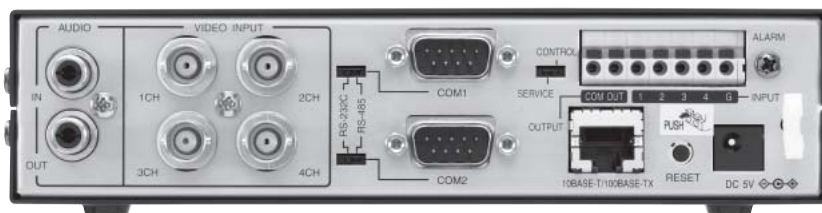


**V.NETWORKS**  
Visual Network System

- ▶ Direct connection with up to 4 analog cameras
- ▶ JPEG compression
- ▶ Built-in 10 BASE-T/100 BASE-TX interface
- ▶ Pre/Post alarm recording
- ▶ External device control via RS-485/RS-232C
- ▶ FTP client function
- ▶ Support NAT/IP masquerade
- ▶ Multicasting capability
- ▶ Built-in web server
- ▶ Motion detection function
- ▶ DC 5 V power supply



Viewing image



VN-E4U rear



VN-C205U	
<b>CAMERA</b>	
<b>Image device</b>	1/4" Interline Transfer CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)
<b>Video processing</b>	Built-in DSP (10-bit)
<b>Pick-up area</b>	3.6 mm (H) x 2.7 mm (V)
<b>Video output (INT only)</b>	Composite video signal: 1.0 V (p-p), 75 ohms (BNC)
<b>Monitor output (INT only)</b>	Composite video signal: 1.0 V (p-p), Hi-Z (RCA) : Front side
<b>Minimum illumination (typical)</b>	1.5 lx F1.2, AGC on, 25 IRE <sup>+</sup> , wide end 0.9 lx F1.2, AGC on, 25 IRE <sup>+</sup> , wide end with optional clear dome cover < 0.9 lx F1.2, AGC on, 25 IRE <sup>+</sup> , Easy D/N, wide end >
<b>&lt; B&amp;W mode &gt;</b>	
<b>White balance &lt; ATW temp. range &gt;</b>	ATW/Manual < 2,300 K to 10,000 K >
<b>AGC</b>	on/off
<b>Focus adjustment</b>	on/off
<b>Backlight compensation</b>	on/off
<b>LENS</b>	
<b>Focal length &lt; Angle of vision &gt;</b>	2.6 mm to 6.0 mm < 82° (H) x 59° (V) to 35° (H) x 26° (V) >
<b>Max. aperture ratio</b>	F1.2
<b>Angle adjustment range</b>	Horizontal: 120°, Vertical: +80°, -50°, Tilt: ±15°
<b>GENERAL</b>	
<b>Alarm I/O</b>	Input x2, Output x2
<b>Power supply</b>	AC 24 V (60 Hz)/DC 12 V, UL listed
<b>Power consumption</b>	800 mA
<b>Operating temperature</b>	32 °F to 104 °F (0 °C to 40 °C)
<b>Dimensions</b>	ø 6-5/16 inches x 5-9/32 inches (H) (ø 160 mm x 134 mm (H) )
<b>Weight</b>	2.2 lbs. (1.0 kg)
<b>NETWORK</b>	
<b>Network interfaces</b>	RJ-45 (Cat 5), 10 BASE-T/100 BASE-TX (auto negotiation)
<b>Protocol</b>	TCP/IP, UDP/IP, HTTP, FTP, ICMP, ARP, DHCP, NTP
<b>Picture</b>	Resolution (pixel): 320 x 240, 640 x 480 Compression: JPEG (7 levels)
<b>Frame rate</b>	30 fps (max.) in 640 x 480
<b>Internal storage capacity</b>	8 MB (RAM) or CF card <sup>++</sup> (option)
<b>Data transmission</b>	Multicast/Unicast
<b>Access protection</b>	3 level passwords
<b>View through</b>	JVC controller software and VR-N100U with VDR view/ Web browser (Internet Explorer 5.x/6.x)
<b>Internal clock backup battery</b>	Yes
<b>SYSTEM REQUIREMENT (recommended)</b>	
<b>OS</b>	Windows 2000 server (SP1 or later)/pro (SP1 or later), Windows XP pro/home (SP 1 or later)
<b>CPU</b>	Pentium IV 3.2 GHz or higher
<b>Memory</b>	More than 1 GB
<b>HDD space</b>	More than 20 MB
<b>Display/Video card</b>	More than 1,024 x 768 pixels, True color (24-bit or 32-bit)

<sup>+</sup> IRE is used in the same meaning as video level.

<sup>++</sup> May not be compatible with certain CF cards; use of industrial version Compact Flash cards JVC recommended.

VN-C625U	
<b>CAMERA</b>	
<b>Image device</b>	1/4" Interline Transfer CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)
<b>Minimum illumination (typical) &lt; B&amp;W mode &gt;</b>	3.6 lx F1.6, AGC 20 dB, 50 IRE <sup>+</sup> , wide end 1.8 lx F1.6, AGC 20 dB, 25 IRE <sup>+</sup> , wide end < 0.15 lx F1.6, AGC 20 dB, 50 IRE <sup>+</sup> , wide end >
<b>Backlight compensation</b>	Yes (4 areas are selectable)
<b>Shutter speed</b>	Select from menu (1/60 s, 1/100 s to 10,000 s)
<b>White balance &lt; ATW temp. range &gt;</b>	ATW/Manual < 2,300 K to 10,000 K >
<b>LENS</b>	
<b>Zoom ratio</b>	12x optical (3.8 mm to 45.6 mm)
<b>Max. aperture</b>	F1.6
<b>Auto focus</b>	Easy AF/One push AF
<b>MECHANISM</b>	
<b>Preset position</b>	100 positions
<b>Panning</b>	360° endless rotation
<b>Panning speed</b>	1.5 °/s to 180 °/s
<b>Tilting</b>	0° to 90°
<b>Tilting speed</b>	1 °/s to 120 °/s
<b>GENERAL</b>	
<b>Outer dome cover</b>	Clear
<b>Alarm I/O</b>	Input x2, Output x2
<b>Power supply</b>	DC 12 V (AC 24 V to DC 12 V adapter included), UL listed
<b>Power consumption</b>	2.0 A (max.)
<b>Operating temperature</b>	32 °F to 104 °F (0 °C to 40 °C)
<b>Dimensions</b>	ø 4-23/32 inches x 7-1/2 inches (H) (ø 120 mm x 190 mm (H) )
<b>Weight</b>	2.65 lbs. (1.2 kg)
<b>NETWORK</b>	
<b>Network interfaces</b>	10 BASE-T/100 BASE-TX
<b>Protocol</b>	TCP/IP, UDP/IP, HTTP, FTP, ICMP, ARP, DHCP, NTP
<b>Picture</b>	Resolution (pixel): 320 x 240, 640 x 480 Compression: JPEG
<b>Frame rate</b>	30 fps (max.) in 640 x 480 and 320 x 240
<b>Internal storage capacity</b>	8 MB (RAM) or CF card <sup>**</sup> (option)
<b>Data transmission</b>	Multicast/Unicast
<b>Access protection</b>	3 level passwords
<b>View through</b>	JVC controller software and VR-N100U with VDR view/ Web browser (Internet Explorer 4.x/5.x/6.x)
<b>Internal clock backup battery</b>	Yes
<b>SYSTEM REQUIREMENT (recommended)</b>	
<b>OS</b>	Windows 2000 server (SP1 or later)/pro (SP1 or later), Windows XP pro/home
<b>CPU</b>	Pentium IV 3.2 GHz or higher
<b>Memory</b>	More than 1 GB
<b>HDD space</b>	More than 20 MB
<b>Display/Video card</b>	More than 1,024 x 768 pixels, True color (24-bit or 32-bit)

<sup>+</sup> IRE is used in the same meaning as video level.

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

## VN-C655U(B)

## CAMERA

Image device	1/4" Interline Transfer CCD
Number of effective pixels	380,000 (768 H x 494 V)
Wide dynamic range	400x (max.)
Minimum illumination (typical)	2.0 lx F1.6, AGC 20dB, 50 IRE <sup>+</sup> , wide end 0.6 lx F1.6, AGC 20dB, 25 IRE <sup>+</sup> , wide end 0.07 lx F1.6, AGC 20dB, 50 IRE <sup>+</sup> , wide end, 32x slow shutter < 0.06 lx F1.6, AGC 20dB, 50 IRE <sup>+</sup> , wide end >
< B&W mode >	
Backlight compensation	Yes (4 areas are selectable)
Shutter speed	Select from menu (1/60 s, 1/100 s to 10,000 s)
White balance	ATW/Manual
< ATW temp. range >	< 2,500 K to 8,000 K >

## LENS

Zoom ratio	25x optical (3.8 mm to 95 mm), 10x electronic
Max. aperture	F1.6
Auto focus	Easy AF/One push AF

## MECHANISM

Preset positions	100 positions
Panning	360° endless rotation
Panning speed	1°/s to 300°/s
Tilting	0° to 90°
Tilting speed	1°/s to 180°/s

## GENERAL

Outer dome cover	Clear
Alarms I/O	Input x2, Output x2
Power supply	DC 18 V (AC 24 V to DC 18 V adapter included), UL listed
Power consumption	1.4 A (max.)
Operating temperature	32 °F to 122 °F (0 °C to 50 °C)
Dimensions	ø 6 inches x 7-1/2 inches (H) (ø 152 mm x 190 mm (H) )
Weight	4.9 lbs. (2.2 kg)

## NETWORK

Network interfaces	10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, HTTP, FTP, ICMP, ARP, DHCP, NTP
Picture	Resolution (pixel): 320 x 240, 640 x 480 Compression: JPEG
Frame rate	30 fps (max.) in 640 x 480 and 320 x 240
Internal storage capacity	8 MB (RAM)
Data transmission	Multicast/Unicast
Access protection	3 level passwords
View through	JVC controller software and VR-N100U with VDR view/ Web browser (Internet Explorer 4.x/5.x/6.x)
Internal clock backup battery	Yes

## SYSTEM REQUIREMENT (recommended)

OS	Windows 2000 server (SP1 or later)/pro (SP1 or later), Windows XP pro/home
CPU	Pentium IV 3.2 GHz or higher
Memory	More than 1 GB
HDD space	More than 20 MB
Display/Video card	More than 1,024 x 768 pixels, True color (24-bit or 32-bit)

<sup>+</sup> IRE is used in the same meaning as video level.

## VN-C11U

Image device	1/3" Interline Transfer CCD
Number of effective pixels	380,000 (768 H x 494 V)
Video S/N ratio	50 dB
Lens mount	C/CS
Iris control	DC Iris
White balance	Auto/Manual
Minimum illumination (typical)	2.5 lx F1.2, AGC on, 50 IRE* 1.0 lx F1.2, AGC on, 25 IRE* < 0.4 lx F1.2, AGC on, 25 IRE*, Easy D/N >
< B&W mode >	
Interface	RJ-45 (Cat 5), 10 BASE-T/100 BASE-TX
Alarm I/O	Input x2, Output x1
Protocol	UDP/IP, TCP/IP, HTTP, FTP, DHCP IGMP, ARP, RTP, RTSP
Picture	Resolution (pixel): 160 x 120, 320 x 240, 640 x 480 Compression: JPEG/MPEG-4
Frame rate (fps)**	160 x 120: JPEG: 30***, MPEG-4: 30 320 x 240: JPEG: 30***, MPEG-4: 24 640 x 480: JPEG: 8***, MPEG-4: —
Storage RAM	16 MB (8 MB for pre/post alarm recording)
Access protection	3 level passwords
Motion detection	Yes
Multicasting	Yes (JPEG only)
Web server	Yes
Monitor out	Yes (BNC connector, NTSC)
View through	JVC control software and VR-N100U with VDR view/web browser****
Power supply	AC 24 V/DC 12 V, UL listed
Power consumption	1.2 A (max.)
Dimensions (W x H x D)	2-4/5 inches x 2-5/9 inches x 5-3/4 inches (71 mm x 64.5 mm x 146 mm)
Weight	1.2 lbs. (560 g)

## SYSTEM REQUIREMENT (recommended)

OS	Windows 2000 server (SP1 or later)/ pro (SP1 or later), Windows XP pro/home
CPU	Pentium III 1.0 GHz or higher
Memory	More than 128 MB
HDD space	More than 20 MB
Display/Video card	More than 1,024 x 768 pixels, True color (24-bit or 32-bit)

\* IRE is used in the same meaning as video level.

\*\* Frame rate varies depending on the operating environment.

\*\*\* In the multicasting mode. Frame rate may be reduced while in the unicast mode.

\*\*\*\* Web browser compatible with both Java script and frame display. Netscape 4.0 or later, or Internet Explorer 4.x/5.x/6.x is required. Depending on which version of Java VM (virtual machine) is installed, it may not be possible to view moving images even with Internet Explorer version 4.x/5.x/6.x.

VN-C30U	
<b>Image device</b>	1/4" Interline Transfer CCD
<b>Number of effective pixels</b>	380,000 (768 H x 494 V)
<b>Built-in lens</b>	Zoom: Optical 15x Focal length (f): 4.1 mm to 61.5 mm Aperture ratio (F): F1.4 Focus: Auto/Manual Min. object distance: 0.8 m
<b>Minimum illumination (typical)</b>	2.5 lx F1.4, AGC on, 50 IRE <sup>+</sup> 1.25 lx F1.4, AGC on, 25 IRE <sup>+</sup>
<b>Interface</b>	RJ-45 (Cat 5), 10 BASE-T/100 BASE-TX
<b>Alarm I/O</b>	Input x 2, Output x 1
<b>Protocol</b>	UDP/IP, TCP/IP, HTTP, FTP
<b>Picture</b>	Resolution (pixels): 160 x 120, 320 x 240, 640 x 480 Compression: MPEG-1, JPEG
<b>Frame rate (fps)**</b>	160 x 120: MPEG-1: 30, JPEG: 15 320 x 240: MPEG-1: 30, JPEG: 10 640 x 480: MPEG-1: —, JPEG: 3
<b>Position memory</b>	10 positions
<b>Pan/Tilt angle</b>	Pan: +160° to -160° Tilt: 0° to -90°
<b>Pan/Tilt speed</b>	100 °/s
<b>View through</b>	JVC control software and VR-N100U with VDR view/ Web browser***
<b>Power supply</b>	DC 12 V, UL listed
<b>Power consumption</b>	2.0 A (max.)
<b>Dimensions (W x H x D)</b>	4-1/8 inches x 6-1/2 inches x 4-1/8 inches (105 mm x 166 mm x 105 mm)
<b>Weight</b>	1.77 lbs. (800 g)

**SYSTEM REQUIREMENT (recommended)**

<b>OS</b>	Windows 95, Windows 98/98SE, Windows NT server 4.0 (SP4 or later), Windows NT workstation 4.0 (SP4 or later), Windows Me, Windows 2000 server (SP1 or later)/pro (SP1 or later), Windows XP pro/home
<b>CPU</b>	Pentium III 500 MHz or higher
<b>Memory</b>	More than 128 MB
<b>HDD space</b>	More than 20 MB
<b>Display/Video card</b>	More than 1,024 x 768 pixels, True color (32-bit)

<sup>+</sup>IRE is used in the same meaning as video level.

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

<sup>+++</sup> Web browser compatible with both Java script and frame display. Netscape 4.0 or later, or Internet Explorer 4.x/5.x/6.x is required. Depending on which version of Java VM (virtual machine) is installed, it may not be possible to view moving images even with Internet Explorer version 4.x/5.x/6.x.

VN-E4U	
<b>Video input</b>	Composite video signal : 1.0 V (p-p), 75 ohms (BNC) x 4
<b>Interface</b>	RJ-45 (Cat 5), 10 BASE-T/100 BASE-TX
<b>Alarm I/O</b>	Input x 2, 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)*</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
<b>Motion detection</b>	Up to 300 areas, sensitivity adjustable
<b>Multicasting</b>	Yes
<b>Web server</b>	Yes
<b>View through</b>	VR-N100U with VDR view/ Web browser (Internet Explorer 6.0 (SP 2) )
<b>Power supply</b>	DC 5 V
<b>Power consumption</b>	20.0 W (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 40 mm x 190 mm)
<b>Weight</b>	2.4 lbs. (1.1 kg)

**SYSTEM REQUIREMENT (recommended)**

<b>OS</b>	Windows XP pro/home (SP2)
<b>Web browser</b>	Internet Explorer 6.0 (SP2)
<b>CPU</b>	Pentium IV 1.5 GHz for 1-ch Pentium IV 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

\* Frame rate varies depending on the operating environment.

## Viewer Software/Control Software

## VN-S400U/VN-SE400U

▶ Multi-viewer **VN-S400U**:

Up to 256 VN-C30U/VN-C11U/VN-C655U/VN-C625U devices can be registered and as many as 16 window displays and recordings are possible (Display and recording change depending on the operating environment).

▶ External device controller pack **VN-SE400U\***:

This plug-in software is compatible with VN-S400U. Compatible with TK-C625U, TK-C1460U and TK-C1480U.

\* Downloadable from the following URL

 <http://pro.jvc.com> → V.Networks Web site → SUPPORT → DOWNLOAD

## Specifications

## VN-S400U

Forms of provision	Fee charged for CD-ROM
Compatible models	
VN-C625U	Yes
VN-C655U	Yes
VN-C11U (Firmware Ver1.2 or later)	Yes
VN-C30U (Firmware Ver1.3 or later)**	Yes
VN-A1U (Firmware Ver2.0 or later)	Yes
VN-C3U	Yes
VN-C2U	Yes
VN-C1U	Yes
PC model	PC/AT compatible
CPU	Pentium III more than 1 GHz
Memory	More than 256 MB
HDD space	More than 20 MB
Graphic board	Supported DirectX
Display and video card	More than 1,024 x 768 (recommended 1,280 x 1,024) More than True color (24-bit)
LAN card	100 BASE-TX
Compatible OS	
Windows 2000 server	—
Windows 2000 professional	Yes (SP4)
Windows XP professional	Yes (SP1/1a)
Windows XP home edition	Yes (SP1/1a)
Windows server 2003	—
Browser	Internet Explorer 6.0 (SP1)

1) To browse or playback VN-S400U MPEG-4 images, you must install either a DirectX 8.1 or higher runtime package or ISO MPEG-4 codec. It is also necessary to install the Windows media format 7.1 runtime package and G.726 codec. 2) When used in the above-mentioned operating environments, it is possible for VN-S400U to simultaneously display 16 screens, each with a screen size of 320 x 240 (Compressibility: 2; Frame-rate: 1). It should be noted, however, that these settings are only targets, and operation cannot be guaranteed. \*\* VN-S400U is not compatible with VN-C30U JPEG multicast.

## Network Video Recorder

## VR-N100U



## Model Number

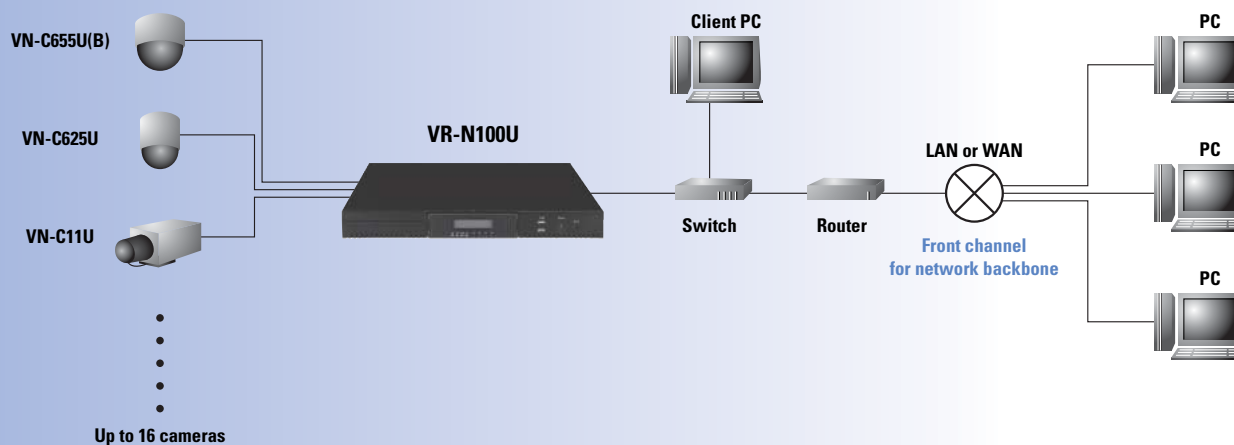
VR-N100U-1320: 1.3 TB HDD

VR-N100U-2000: 2.0 TB HDD

- ▶ Integrated network video recorder and IP camera management
- ▶ Easy access to live and archived video from anywhere and anytime
- ▶ Records 16 cameras at 30 fps and high resolution
- ▶ Automatic camera discovery and configuration
- ▶ A single static IP address can support thousands of IP cameras
- ▶ Manages the camera's network usage, thus preserving bandwidth
- ▶ Storage of 1.3 TB or 2.0 TB available (4x HDDs in RAID 5, expandable up to 105 TB)
- ▶ Control via JVC NVR client software and/or web browser (e. g. Microsoft Internet Explorer)
- ▶ Interfaces with IT industry standard hardware

## System Configuration

For inquiries regarding VR-N100U, please contact: JVC Professional Products Company  
1700 Valley Road Wayne, NJ 07470, U.S.A. TEL: (973) 317-5000



## Specifications

## VR-N100U

## Hardware

- 19" 1U rack mount chassis
- 1x server motherboard with CPU/Fan/RAM/OS/APP
- 1x LCD/LED system status display
- 4x HDDs (RAID set, 5<sup>th</sup> optimized recovery cache)
- A single static IP address can support thousands of IP cameras
- Dual 10 BASE-T/100 BASE-TX network interface card
- SCSI: support for VR-N100U-ST expandable RAID modules
- PCI expansion slot: support for additional upcoming functionality and features
- 6 ATA channels: support for onboard RAID set
- Power supply: AC 120 V
- Power consumption: 0.5 A
- Dimensions (L x W x H): 22-13/16 inches x 16-3/4 inches x 1-3/4 inches (580 mm x 426 mm x 45 mm)
- Weight: 25.0 lbs. (11.3 kg)
- Operating temperature: 32 °F to 95 °F (0 °C to 35 °C)
- < storage >: < 14 °F to 149 °F (-10 °C to 65 °C) >
- UL60950-1, TÜV/GS, FCC part 15 subpart B class A

## Software

- 16 camera license
- Automatic camera discovery and configuration
- Software RAID
- 24 x 7 x 365 operation
- Simultaneous real time recording at 30 fps
- Video motion detection (motion capable cameras required)
- Pan/Tilt/Zoom (PTZ capable cameras required)
- Random access search
- Customized setting for each camera
- Enterprise client management windows software
- Unlimited user license with VR-N100U
- Unlimited customized software multiplexer switch
- Unlimited VR-N100U and camera support

Refer to P.38

## Ready Pak

IP66



The JVC Ready Pak series is a packaged surveillance system that includes a JVC camera and lens assembled in an environmental housing. The assembly is pre-wired, and adjusted to make installation simple and quick saving your valuable time in the field.





The Ready Pak housing meets the standard for IP66/NEMA protection. The assembly includes an integral sunshield and wall mount. A heater is included to insure the camera is maintained at a proper temperature.

The Ready Pak is available with a choice of 4 JVC cameras and a choice of a 2.5 mm to 12 mm or 5 mm to 50 mm variable focal lens.

If you need further information, please contact JVC for assistance.

## 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</b> Standard resolution	HMTK-C750	2.5 mm to 12 mm	-212	HMTK-C750-212
		5 mm to 50 mm	-550	HMTK-C750-550
 <b>TK-C920U(A)</b> High resolution	HMTK-C920	2.5 mm to 12 mm	-212	HMTK-C920-212
		5 mm to 50 mm	-550	HMTK-C920-550
 <b>TK-C1480U</b> ExDR	HMTK-C1480	2.5 mm to 12 mm	-212	HMTK-C1480-212
		5 mm to 50 mm	-550	HMTK-C1480-550
 <b>TK-C1460U</b> Day/Night	HMTK-C1460	2.5 mm to 12 mm	-212	HMTK-C1460-212
		5 mm to 50 mm	-550	HMTK-C1460-550



## VR-609U/VR-616U system configuration

These figures are general examples of the surveillance application.

Index

Line-up Chart

Color Camera

Storage

Flat Panel Display &amp; Monitor

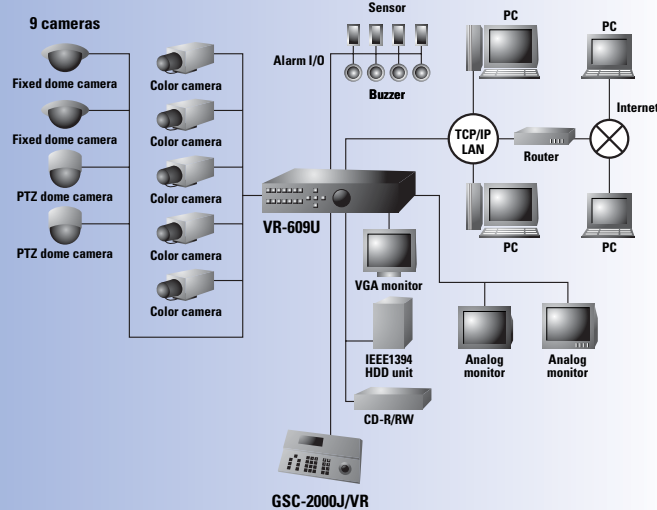
IP Security Products

System Information

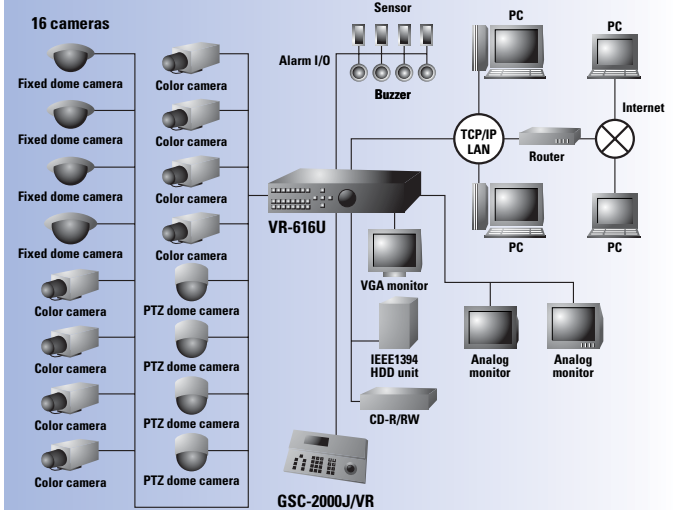
Technical Information

Glossary

## VR-609U



## VR-616U

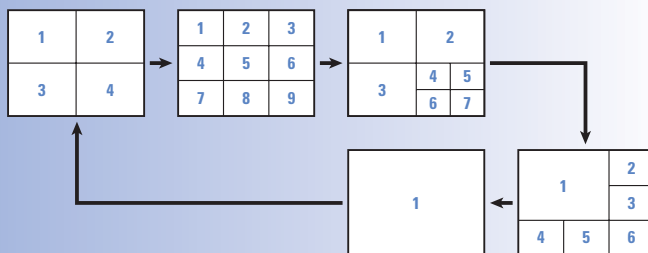


## VR-609U/VR-616U monitoring images

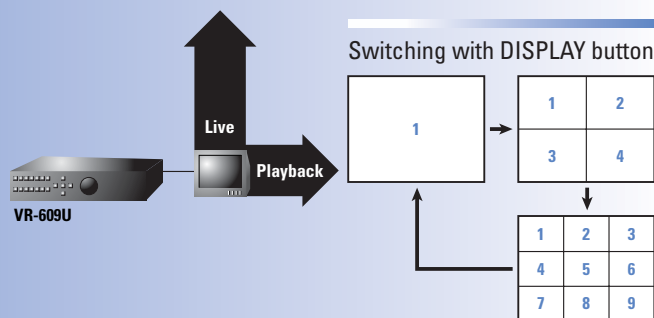
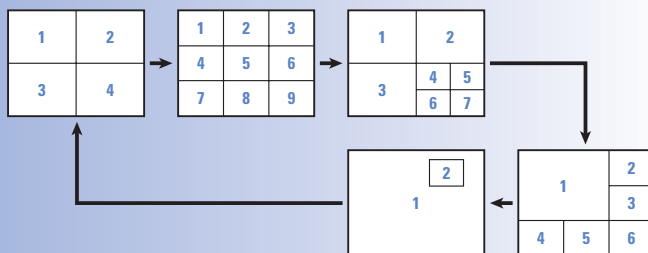
Possible to customize the layout of the display from several patterns.

## VR-609U

Default setting: Switching with DISPLAY button

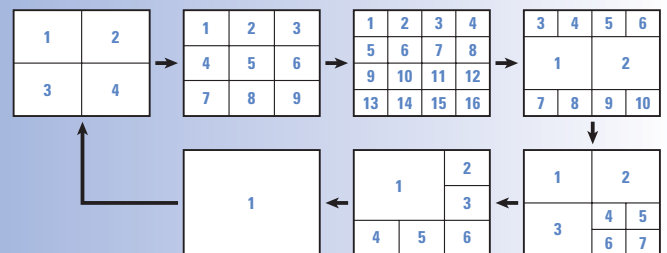


User setting: Switching with USER and DISPLAY buttons

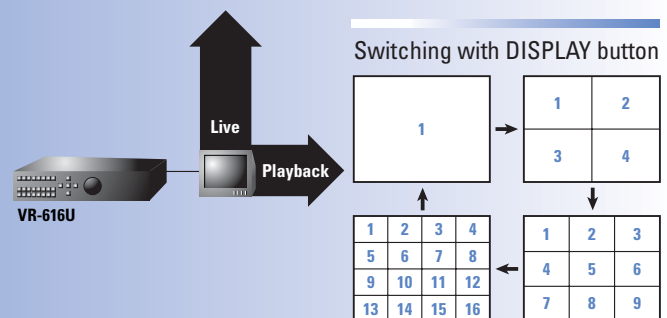
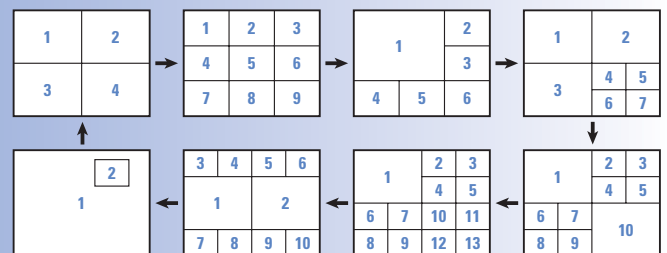


## VR-616U

Default setting: Switching with DISPLAY button



User setting: Switching with USER and DISPLAY buttons



## VR-609U/VR-616U remote surveillance via network (LAN/WAN)

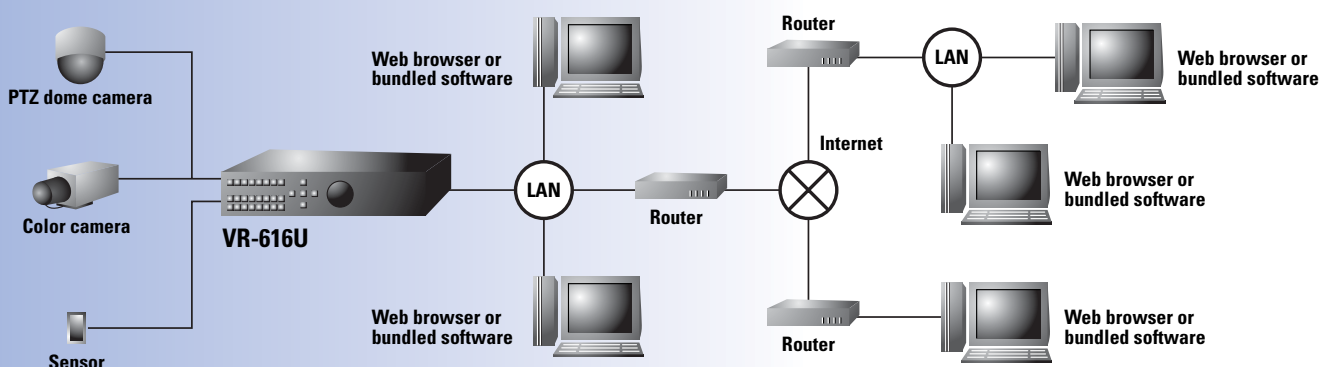
### System configuration

#### Supports web server, remote control and remote file transfer via network

⚠ Remote monitor/playback/operation, depend on network quality.

When the network quality is bad, the connection could be cut or the playback could be slower.

Please use remote network operation in a sufficient network environment.




### System requirement

PC	Type	PC/AT compatible machine
	CPU	Required: more than PentiumIII 866 MHz Recommended: more than PentiumIV 1.8 GHz
	Memory	More than 256 MB
	Graphic board	<ul style="list-style-type: none"> <li>• DirectX support</li> <li>• Direct Draw Video overlay supported VGA (DirectX 7.x, 8.x)</li> <li>• 1,024 x 768 or better, True color or higher</li> <li>• Graphic memory 32 MB or higher</li> <li>• The on-board video chip cannot be used. Tested with the video card of nVIDIA Geforce FX5700 Ultra.</li> </ul>
	HDD	Free space more than 12 MB
Compatible OS		Windows 98, Windows 2000, Windows Me, Windows XP

The PC specification is merely recommended specifications for using the client software with ease and is not a guarantee against its operation. Using on the system that is not fulfilled the system requirements, the response from PC may become slow.

### Built-in web server function

#### Live monitoring

- ▶ Display mode selection  \*VR-616U only
- ▶ Possible to display the type or alarm signals on a screen  
Sensor: When there is a sensor signal input from Alarm-in connector  
Motion: When there is a motion detection
- ▶ Possible to control PTZ dome camera


#### Playback search

- ▶ Possible to check channel, date and time
- ▶ Password protection: Only one person is allowed to see the web playback screen



### Function of bundled software [VR-609U/VR-616U player]

#### Live mode

- ▶ Title/Border on/off
- ▶ Display mode selection  \*VR-616U only
- ▶ PTZ dome camera select and control
- ▶ Channel selection

#### Search mode

- ▶ Time date search
- ▶ Event search
- ▶ Download (remote backup)
- ▶ Channel selection

#### Playback mode

- ▶ Play (Forward&Backward), Pause, Stop control
- ▶ Play speed selection (5 level)
- ▶ Print image
- ▶ Resolution selection

4-ch mode



## System controller for VR-609U/VR-616U

Operates a single DVR and up to 16 cameras (JVC products only).



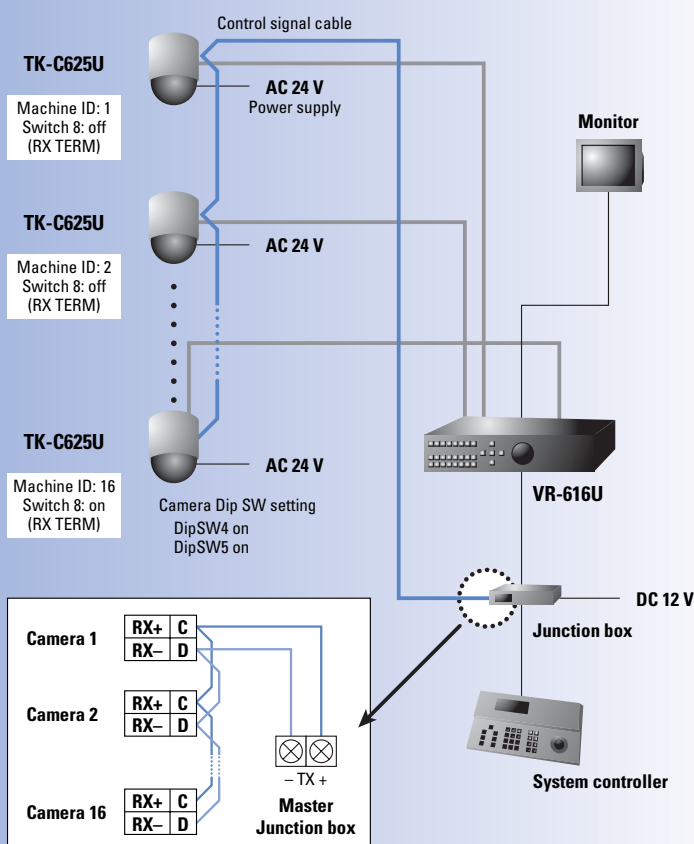
## PTZ dome camera control: TK-C625U

- ▶ Built-in 3 axis joy stick
- ▶ Built-in pan/tilt and zoom controls
- ▶ Focus far/near
- ▶ Auto focus on/off
- ▶ Panning/Tilting 8 steps
- ▶ Zooming 4 steps
- ▶ IRIS open/close
- ▶ Home/Preset position call
- ▶ Auto pan/Auto patrol on/off
- ▶ Camera menu on/off
- ▶ Parameter change
- ▶ Operation lock function
- ▶ RS-485 operation
- ▶ DC 12 V power operation via junction box
- ▶ Easy wiring connection and operation

## DVR control: VR-609U and VR-616U

- ▶ Various function keys to control JVC DVR
- ▶ Direct connection from junction box for easy wiring
- ▶ Multi camera control available
- ▶ Channel selection
- ▶ Image sequence on/off
- ▶ Auto sequence on/off
- ▶ Alarm reset
- ▶ Zoom on/off
- ▶ Freeze on/off
- ▶ Triplex on/off/move
- ▶ Display split screen
- ▶ User setting on/off
- ▶ Menu on/off
- ▶ Master menu return/Slave menu call
- ▶ Parameter change
- ▶ Recording on/off
- ▶ Forward playback on/off/pause
- ▶ Reverse playback on/off/pause
- ▶ VGA on/off

## System configuration



Please use a twisted pair cable. Connect a +terminal (TX+)/-terminal (TX-) of this equipment to the RX+/RX- terminal of a PTZ dome camera. The camera connected at the end should setup a terminal.

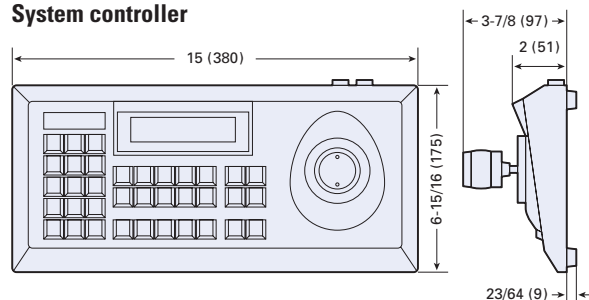
## Specifications

## GSC-2000J/VR

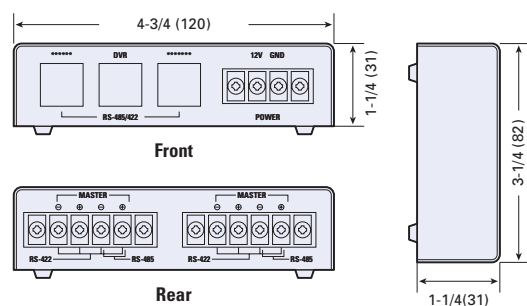
Connector port	Direct TX+/-, RX+/- (RJ-45)
Communication	RS-485
Communication speed	9,600 bit/s
Operating distance	1.2 km (max.)
Number of camera/DVR control	16/1 (max.)
Power supply	DC 12 V
Power consumption	300 mA, 3.6 W
Operating temperature	41 °F to 104 °F (5 °C to 40 °C)
Operating humidity	30 % to 80 % RH non-condensing
Weight	2.6 lbs. (1.2 kg)

## Dimensions

## System controller

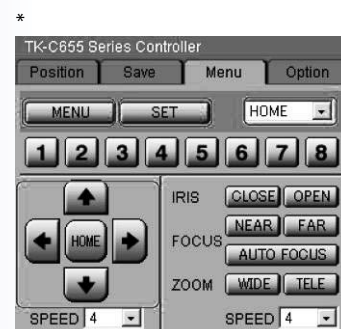
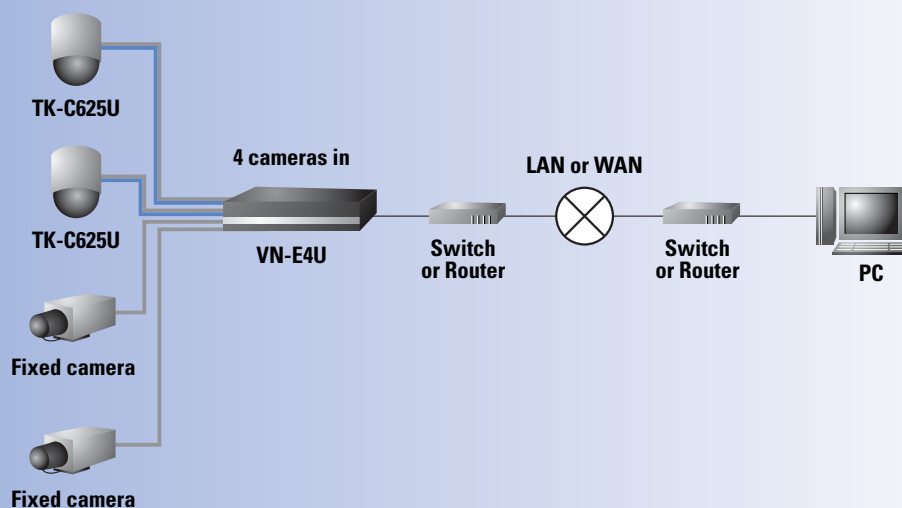


## Junction box

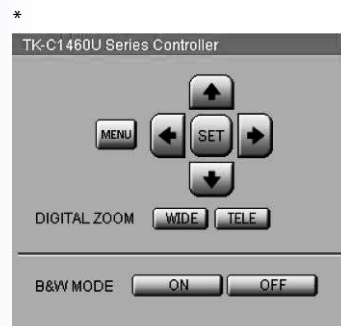
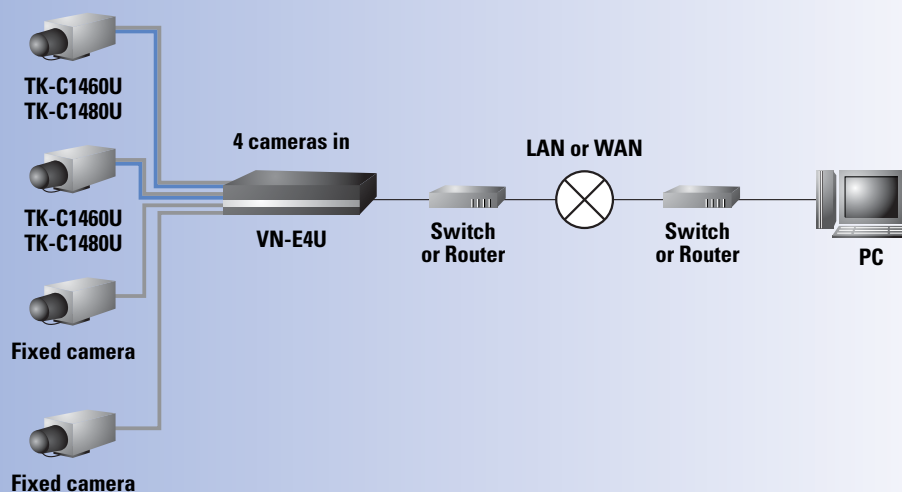


## VN-E4U system configuration

### TK-C625U controller



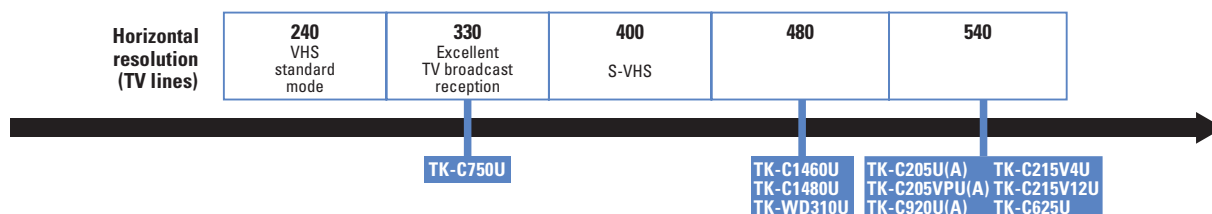
### TK-C1460U/TK-C1480U series controller



- Video signal
- Control signal
- Network

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

# 1 Camera line-up by horizontal resolution

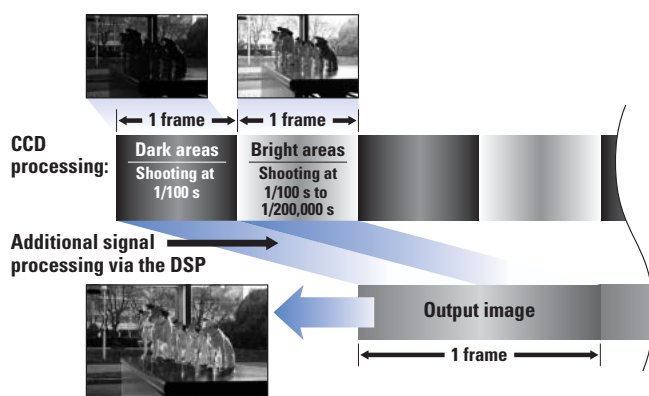


# 2 Wide dynamic range function

**ExDR** **WDR**

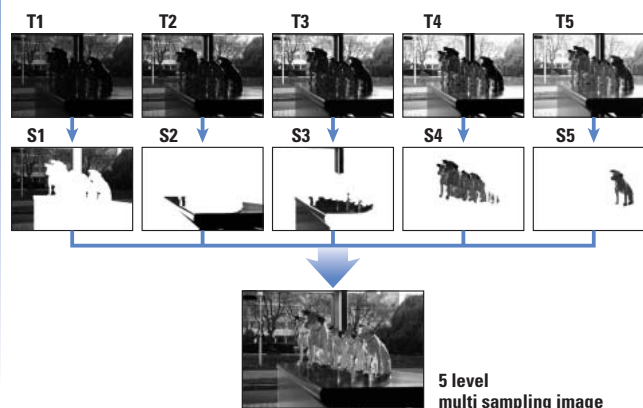
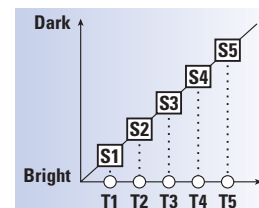
## Extended dynamic range (ExDR)

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 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 TK-C1480U	Auto iris normal mode		Auto tracking white balance (ATW) ExDR mode Color	AGC mode	AGC mode slow shutter (intermittent picture)
ExDR (W/IR on/off) TK-C1460U	Auto iris normal mode		ExDR mode Color	AGC mode	IR cut filter off B&W mode B&W
WDR TK-WD310U	Auto iris normal mode		WDR mode real time response Color	AGC mode LoLux™ mode Need to change the setting of camera	

## 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>Casino</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>Bank</li> <li>Retail shop</li> <li>Prison</li> </ul>
WDR TK-WD310U	<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>

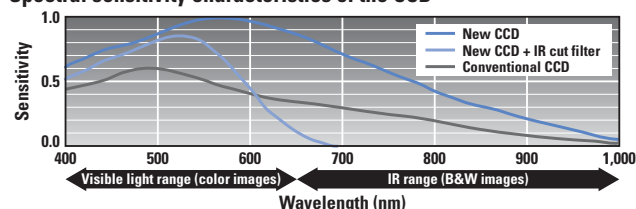
### 3 IR cut filter on/off function

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

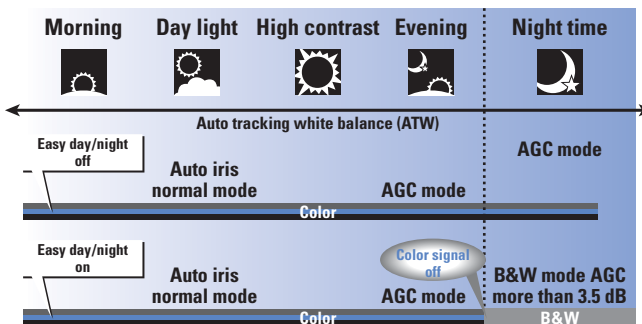


Object cameras: TK-C1460U [P.5], TK-C625U [P.9], VN-C625U [P.24] and VN-C655U [P.25]

### 4 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-C920U(A) [P.4], TK-C205U(A) [P.6], TK-C205VPU(A) [P.7], TK-C215V4U [P.8], TK-C215V12U [P.8], VN-C205U [P.24] and VN-C11U [P.25]

### 5 Focus adjustment function

Focus Adjustment

By turning the focus adjustment function to "ON" when adjusting the focus, the lens iris is forcibly opened and the zone of acceptable focus (depth of field) becomes shallow (i.e. the zone of acceptable focus narrows). This enables more accurate focusing than would be possible under ordinary conditions. Once the necessary adjustments have been made and the function has been turned to "OFF", the iris returns to its optimal state.

Object cameras: TK-C205U(A) [P.6], TK-C205VPU(A) [P.7], TK-C215V4U [P.8] and TK-C215V12U [P.8]

**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.

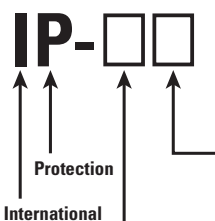
Depth of field	Shallow	Deep
Lens	Tele angle	Wide angle
Exposure	Open	Narrow
Position of object	Close	Far

### 6 Dust and water protection (IP code)

Degrees of protection provided by electrical machinery and apparatus enclosures

IP66

Object cameras: TK-C205VPU(A) [P.7] and Ready Pak [P.32]



#### 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

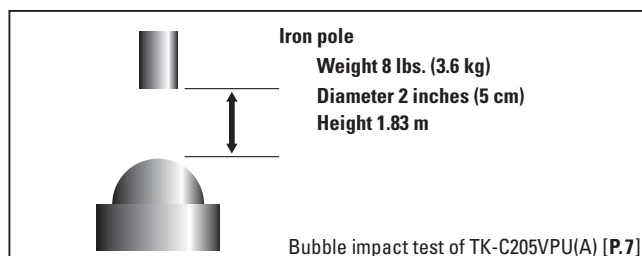
#### Degrees of protection against solid foreign objects

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.



## 7 Vandal resistant

**Vandal  
Resistant**


### Results

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

## 8 Alarm zoom function

**Alarm Zoom**
**Object camera:** TK-C215V12U [P.8]

This fixed mini dome camera will 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

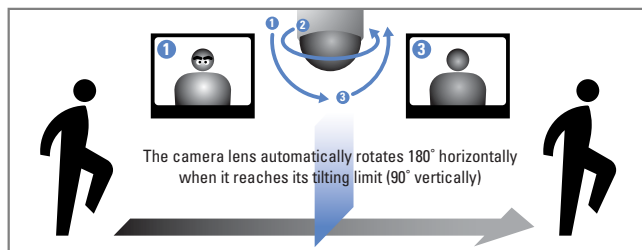
will move from "regular position" to "another position" when alarm signal comes, for instance.

## 9 Various functions of PTZ dome camera

**Object cameras:** TK-C625U [P.9], VN-C625U [P.24] and VN-C655U(B) [P.25]

### 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.

### 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 (VN-C625U and VN-C655U(B): Auto tour)

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 except TK-C625U)

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.

# 10 Relationship between focal length and field of vision

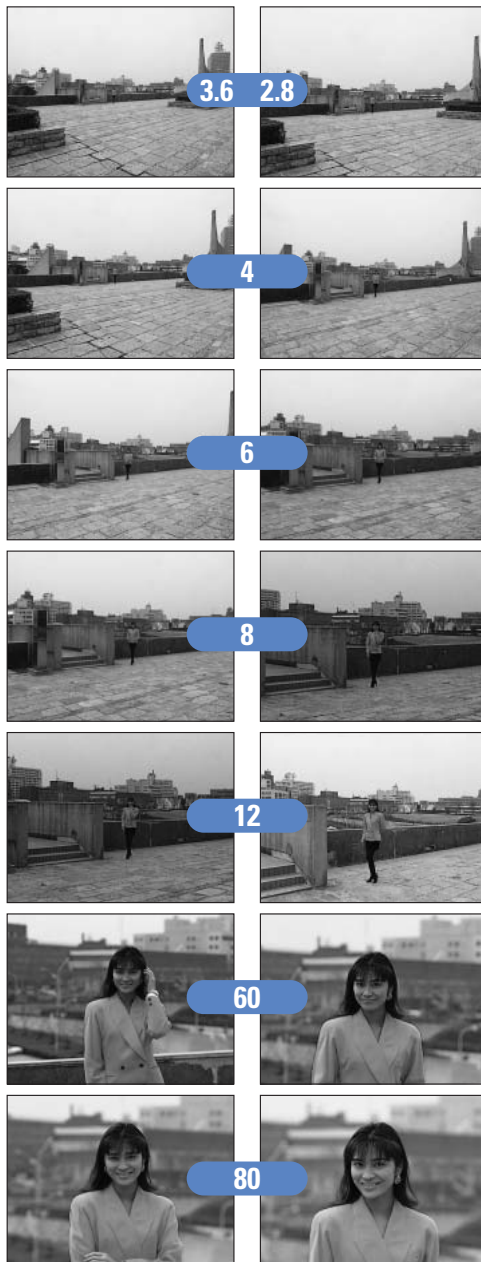
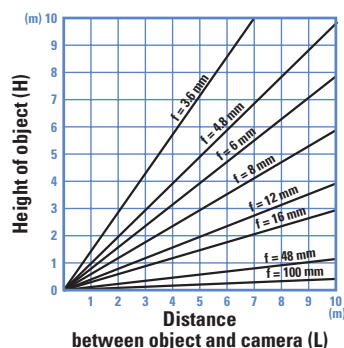
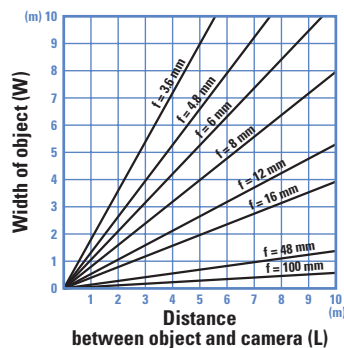
1/2"

1/3"

## Lens focal length

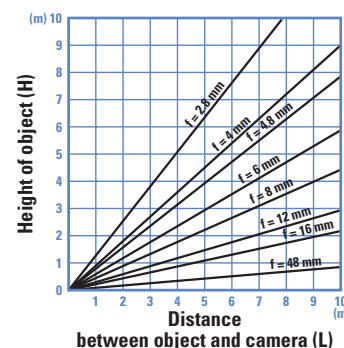
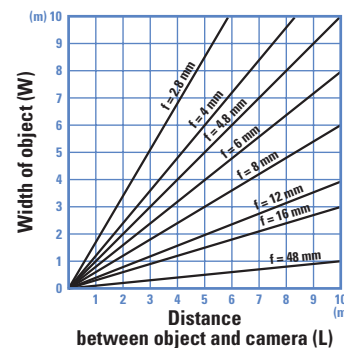
### Simplified chart

Lens focal length (mm)	Horizontal angle of video (degree)	Vertical angle of video (degree)
3.6	81°	66°
4.8	67°	53°
6	56°	44°
8	44°	33°
12	30°	23°
16	23°	17°
69	5.3°	4°
100	3.7°	2.7°



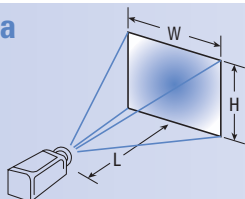
### Simplified chart

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°



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

## Formula



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

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

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

- 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)

## 11 Information about network construction

### IP address

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

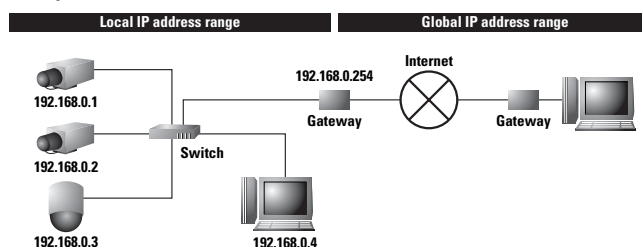
Private IP address is an IP address that can be used freely as a LAN network address without being connected to the Internet.

#### 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's V.Networks.

Example:



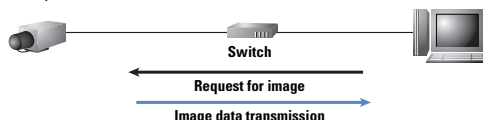
### Simultaneous access by multiple users

The frame rate (or bit rate), which refers to the number of images that can be transmitted by V.Networks within a second, is decided according to the specifications of V.Networks. Within the range of specification approximately 10 users can simultaneously access V.Networks. However, when a large number of users simultaneously access V.Networks, 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.

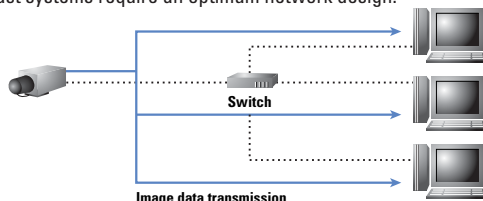


#### Multicast transmission

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.



### Alarms

V.Networks has two inputs and one output alarm terminals (except VN-C655U(B), VN-C625U and VN-C205U: input x 2/output x 2, VN-E4U: input x 4/output x 4). 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 V.Networks GND should be connected to the COM terminal. When distributing an alarm to several multi-viewers (VN-S400U) with a single camera, it is possible to register up to 5 distribution addresses for VN-C30U and up to 10 for VN-C11U.

### 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:  $15 \text{ (kB)} \times 2 \text{ (fps)} \times 86,400 \text{ (s)} = 259,200 \text{ (kB)} = 2.59 \text{ (GB)}$

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

A:  $40 \text{ (GB)} \div 2.59 \text{ (GB)} = 15.444 = 15 \text{ (days)}$

#### Maximum recorded file size

The maximum recorded file size vary depending on the application and Windows file system.

Maximum recorded file size (JPEG)

Application software		Windows file system	
Standard controller	VN-S400U	FAT32	NTFS
2 GB	No limitation	4 GB	2 TB

For long recording, it is recommended to use VN-S400U and NTFS file system. The VN-S400U possesses a function that allows them to automatically separate recording files every hour on the software side. For example, if you record for three days straight, 72 recording files will automatically be created. (24 hours/day x 3 days = 72 hours)

### JPEG network traffic

**Data size per image x Frame rate x 8(bit/byte) x 1.2(overhead)**  
= JPEG network traffic

Example:

Q: What is the network traffic if the camera setting is resolution 320 x 240, compression rate 2 and frame rate 5 fps ?

A:  $15 \text{ (kB)} \times 5 \text{ (fps)} \times 8 \text{ (bit/byte)} \times 1.2 = 720 \text{ (kbps)}$

### Technical information for software developers

The following technical information are available for integrating V.Networks cameras into customers own application software or system.

**API:** UDP data and other communication specifications that include the structure of control data, structure of JPEG data and some examples of sequence until JPEG data is acquired. Compatible with VN-C30U, VN-E4U, VN-C11U, VN-C655U(B), VN-C625U and VN-C205U.

**CGI:** Program to be downloaded by web browser that returns the result processed in web server. Compatible with VN-C30U, VN-E4U, VN-C11U, VN-C655U(B), VN-C625U and VN-C205U.

**RTP/RTSP:** The method for transmission and reception of MPEG-4 streaming. The RTSP is used to control the stream (start and stop), and the RTP is used to transmit/receive the data. Compatible with VN-C11U.

In order to receive these JVC confidential technical information, please contact local JVC sales office and enter into the license and non-disclosure agreements. These information are supplied on royalty free basis.

**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 IEEE802.3u. 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 an 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 IEEE802.3. CSMA/CD has been adopted for data transmission over networks.

**F 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 V.Networks 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 V.Networks 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 V.Networks (VN-C655U/C625U/C30U/E4U/C11U) 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.

\*It is necessary to equip VN-E4U with a Compact flash card (sold separately).

**FTP server function**

This refers to the V.Networks (VN-C655U/C625U/C30U/E4U/C11U) 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/C625U/C30U/E4U/C11U.

\*It is necessary to equip VN-E4U with a compact flash card (sold separately).

**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.

**The institute of electrical and electronics engineers 1394 (IEEE1394)**

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.

**I 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 VN-C655U/C625U/C30U/C11U/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.



**L 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 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 NAPT.

**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 V.Networks' 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.

**S 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.

**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.37**

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.

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Author, Director and Editor: Yukari Taguchi, Masaki Yoshihara, Kenji Nikki







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**JVC Professional Products Company**

1700 Valley Road Wayne, NJ 07470, U.S.A.

TEL: (973) 317-5000 FAX: (973) 317-5030

**Internet Web Site: <http://pro.jvc.com>**

**E-mail: [proinfo@jvc.com](mailto:proinfo@jvc.com)**

**JVC Canada Inc.**

21 Finchdene Square Scarborough, Ontario M1X 1A7 CANADA

TEL: (416) 293-1311 FAX: (416) 293-8208

**Internet Web Site: <http://www.jvc.ca/en/pro>**