

General Catalog

2012-2013 NTSC

Video Surveillance Products



Glossarv



Line-up Chart





Lens not included

1/3" Super LoLux Camera

JVC

SuperLoLux[™]

TK-C9300UA True D/N Privacy 600TVL ExDR 3D Noise Focus Display ▶ 1/3" high resolution IT CCD with 380,000 effective pixels ► High performance 14-bit DSP True Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting) ▶ 600 TV lines of horizontal resolution* Spelala

- ► Super LoLuxTM sensitivity: 0.025 lx F1.2 (color mode), 0.003 lx F1.2 (B&W mode)
- ► S/N ratio 52 dB (AGC off)
- ► 3D noise reduction (3DNR)
- ► Low power consumption
- Extended dynamic range (ExDR) function
- Built-in menu screen
- ► Automatic gain control (AGC) off/on (mid/high)
- ► Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint
- Backlight compensation (BLC) on/off
- ► Slow shutter capability: x2 to x128
- Digital zoom and reverse mode capability
- DC iris lens control
- ► CS lens compatible
- 4 areas privacy mask
- ► Built-in motion detection
- Built-in display mode (CRT or LCD selectable)
- ► 24 VAC/12 VDC power supply

1/3" Super LoLux Camera

TK-C9200UA

- ► Easy day/night function
- ► Super LoLuxTM sensitivity: 0.025 lx F1.2 (color mode), 0.015 lx F1.2 (B&W mode)
- ► S/N ratio 52 dB (AGC off)
- ► 3D noise reduction (3DNR)
- Low power consumption
- Built-in menu screen
- Automatic electronic shutter (AES) on/off
- Automatic gain control (AGC) on/off (mid/high)
- ► Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint
- Backlight compensation (BLC) on/off
- ► Slow shutter capability: x2 to x128
- Digital zoom and reverse mode capability
- ► DC iris lens control
- ► CS lens compatible
- 4 areas privacy mask
- Built-in display mode (CRT or LCD selectable)
- ► 24 VAC/12 VDC power supply

Network Camera

System Information

Information echnical

Glossary

Lens not included



TK-C9200UA rear

TK-C9300UA rear

Socials

SuperLoLux[™]

JVC

	600TVL	Easy D/N	3D Noise Reduction	Focus Adjustment	Privacy Mask	Display Mode	
► 1/3" high resolution IT CCD with	n 380,000	effective p	ixels				
 High performance 14-bit DSP 							
600 TV lines of horizontal resolution	ution*						

1/2" Super LoLux Camera

TK-C9510U 600 TVL EXDR True D/N 3D Noise CLVI Focus Privacy ▶ 1/2" high resolution IT CCD with 380,000 effective pixels ► High performance 14-bit DSP True Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting) ▶ 600 TV lines of horizontal resolution* Spelito ► Super LoLuxTM sensitivity: 0.025 lx F1.2 (color mode), 0.003 lx F1.2 (B&W mode) NC S/N ratio 52 dB (AGC off) ► C.L.V.I. – Clear Logic Video Intelligence technology for wide dynamic range and anti fog ► 3D noise reduction (3DNR) ► Low power consumption Extended dynamic range (ExDR) function ▶ 8 patterns of programmable scene memories suitable for GENERAL, TRAFFIC, DAY, NIGHT, SuperLoLux[™] Lens not included LOW NOISE, WIDE-D, BLC and ANTI-FOG ► H.L.I. – High light inverter for strong illumination ► RS-485 remote control capability for setting by JCCP/Pelco-P/Pelco-D protocols ► Built-in menu screen Automatic gain control (AGC) off/on (mid/high) Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint ► Backlight compensation (BLC) on/off ► Slow shutter capability: x2 to x128 Digital zoom and reverse mode capability ► DC iris lens control TK-C9510U rear ► CS lens compatible ► 4 areas privacy mask Built-in motion detection ► Built-in display mode (CRT or LCD selectable) ► 24 VAC/12 VDC *Scheduled to be available in 2012 1/3" Super WDR Camera

TK-WD9601U

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	JVC	EPROTAR
OD		

- 540 TVL Easy D/N
- ► 1/3" digital image device with super wide dynamic range
- ► High speed automatic 5-shutter composition for 120dB wide dynamic range
- ► Programmable area setting for applying wide dynamic range function
- 540 TV lines of horizontal resolution
- ► Easy day/night function
- S/N ratio 52dB (AGC OFF)
- ► 3D noise reduction (3DNR)
- Low power consumption
- ► Built-in menu screen
- ► Automatic gain control (AGC) on/off
- Auto tracking white balance(ATW), AWB and Manual contorl
- Slow shutter capability
- ► DC iris lens control, CS lens mount compatible
- 4 areas privacy mask
- ► 24 VAC/12 VDC power supply

1/3" Super LoLux Camera with IR

TK-C8301RU



Super**L**o**L**ux[™]

- ► 1/3" high resoluution IT CCD with 380,000 effective pixels
- High performance 14-bit DSP
- ► True Day/Night surveillance with auto IR cut filter and IR-LED on/off (Color and 0 Ix B&W shooting)

Focus

Privacy

Display

3D Noise

► 600 TV lines of horizontal resolution

600 TVL

► Super LoLux[™] sensitivity: 0.025 lx F1.2 (color mode), 0.006 lx F1.2 (B&W mode)

ExDR True D/N IR-LED

- S/N ratio 52 dB (AGC off)
- ► Low power consumption
- ► Built-in 3.75x variable focal length auto iris lens (f=2.8mm to 10.5mm)
- Visored lens protection with dust shield
- Extended dynamic range (ExDR) function
- Built-in menu screen
- ► Automatic gain control (AGC)
- ► Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint
- Backlight compensation(BLC) on/off
- Slow shutter capability x2 to x128
- Digital zoom and reverse mode capability
- 4 areas privacy mask
- Built-in display mode (CRT or LCD selectable)
- ► 12 LEDs cover 20m distance
- 24 VAC/12 VDC power supply

1/3" Day/Night Camera

TK-C1530U



System Information



Glossary

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Lens not included



TK-C1530U rear

- ► 1/3" high resolution IT CCD with 380,000 effective pixels
- ► True Day/Night surveillance with auto IR cut filter on/off (Color/B&W shooting)

True D/N

540 TVL

Privacy

Display

- ► 540 TV lines of horizontal resolution
- ► 0.4 lx F1.2 (color mode), 0.05 lx F1.2 (B&W mode)
- ► S/N ratio 50 dB (AGC off)
- ► 10-bit DSP integrated
- ► Scene file function for customer's parameter setting
- RS-422A/RS-485 remote control capability for camera setting
- Smart edge control mode (S.E.C.)
- ► Built-in menu
- ► Automatic electronic shutter (AES) on/off
- ► Automatic gain control (AGC) off/on (high/super)
- ► Auto tracking white balance (ATW) wide, narrow, AWC and Manual Paint
- ► Backlight compensation (BLC) on/off
- Sync systems INT/Line lock
- ► Support video/DC iris lens control
- 4 areas private mask
- C/CS lens compatible
- ► Built-in display mode (CRT or LCD selectable)
- ► 24 VAC/12 VDC power supply

1/3" Super LoLux Mini Dome Camera (Vandal Resistant)

Privacy TK-C2201UA 600_{TVL} Easy D/N 3D Noise Focus Display ▶ 1/3" high resolution IT CCD with 380,000 effective pixels ► High performance 14-bit DSP ► 600 TV lines of horizontal resolution ► Easy day/night function ► Super LoLuxTM sensitivity: 0.025 lx F1.2 (color mode), 0.015 lx F1.2 (B&W mode) S/N ratio 52 dB (AGC off) ► 3D noise reduction (3DNR) ► Low power consumption ▶ Built-in 3.75x variable focal length auto iris lens (f = 2.8 mm to 10.5 mm) ► Fine focus adjustment mechanism ► 3 axis gimble for wide lens angle adjustment (350°H × ±80°V × ±100°R) SuperLoLux[™] Monitor video output (RCA) for easy camera setup Automatic gain control (AGC) on/off (mid/high) ► Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint Backlight compensation (BLC) on/off Slow shutter capability: x2 to x128 Digital zoom capability ► 4 areas privacy mask ► Built-in display mode (CRT or LCD selectable) Ceiling recessed bracket Vandal resistant dome cover Inner cover to mask the direction of the lens Compact design ► 24 VAC/12 VDC power supply Inside cover WB-S2205 1/3" LoLux Mini Dome Camera with IR **TK-T2101RU** True D/N IR-LED 600 TVL ▶ 1/3" high resolution IT CCD with 480,000 effective pixels ► High performance 10-bit DSP



Lo**L**∪x[™]

- ► 600 TV lines of horizontal resolution
- ► True Day/Night surveillance with auto IR cut filter and IR-LED on/off (Color and 0 Ix B&W shooting)
- ► S/N ratio 50 dB (AGC off)
- ► Built-in variable focal length auto iris lens (f=2.8 to 10.5mm)
- ► 3 axis gimble for wide lens angle adjustment
- Automatic gain control (AGC)
- Backlight compensation (BLC) on/off
- ► High light compensation fro extreme white light
- Easy wide dynamic range for backlight compensation
- ► Max. 8 areas privacy mask
- Built-in motion detection
- ► On screen menu by 8 languages
- ► 14 LEDs cover 15m distance
- ► Compact design
- 24 VAC/12 VDC power supply

System Information

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1/3" Super LoLux Dome Camera (Vandal Proof)

TK-C2201WPUA	600 _{TVL} Easy D/N 3D Noise Reduction Adjustment Privacy Display Vandal IP66
	 1/3" high resolution IT CCD with 380,000 effective pixels High performance 14-bit DSP Outdoor-ready vandal and tamper proof structure (complies with IP66) Triple axis rotation system for wide lens angle adjustment 600 TV lines of horizontal resolution Easy day/night function Super LoLux[™] sensitivity: 0.025 lx F1.2 (color mode), 0.015 lx F1.2 (B&W mode) S/N ratio 52 dB (AGC off) 3D noise reduction (3DNR) Low power consumption
Pendant mount Transformed and the Wall mount with c2055 With c20555 With c2055	 European consumption Built-in 3.75x variable focal length auto iris lens (f = 2.8 mm to 10.5 mm) Fine focus adjustment mechanism 3 axis gimble for wide lens angle adjustment (350°H × ±80°V × ±100°R) Monitor video output (RCA) for easy camera setup Automatic gain control (AGC) on/off (mid/high) Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint Backlight compensation (BLC) on/off Slow shutter capability: x2 to x128
PMTK-C205W	 Digital zoom capability 4 areas privacy mask Built-in display mode (CRT or LCD selectable) Inner cover to mask the direction of the lens 24 VAC/12 VDC power supply Optional heater unit: KA-ZH215U allows to meet - 22°F (-30°C) operation
1/3" Super LoLux Dome Camera with IR (Vand	al Proof)
TK-C2301WPRU 6	OOTVL ExDR True D/N 3D Noise Reduction Focus Adjustment Privacy Mask Display Mode IR-LED Vandal Proof IP66 > 1/3" high resolution IT CCD with 380,000 effective pixels > High performance 14-bit DSP > Outdoor-ready vandal and tamper proof structure (complies with IP66)

- ► Triple axis rotation system for wide lens angle adjustment
- ► 600 TV lines of horizontal resolution
- ► True Day/Night surveillance with auto IR cut filter and IR-LED on/off (Color and 0 Ix B&W shooting)
- ► Super LoLux[™] sensitivity: 0.025 lx F1.2 (color mode), 0.015 lx F1.2 (B&W mode)
- ► S/N ratio 52 dB (AGC off)
- ► 3D noise reduction (3DNR)
- ► Low power consumption

SuperLoLux[™]

Ceiling recessed bracket

WMTK-C205W

CMTK-C205VP

Wall mo

- Built-in 3.75x variable focal length auto iris lens (f = 2.8 mm to 10.5 mm)
- ► Fine focus adjustment mechanism
- ► 3 axis gimble for wide lens angle adjustment (350°H × ±80°V × ±100°R)
- ► Monitor video output (RCA) for easy camera setup
- Automatic gain control (AGC) on/off (mid/high)
- ► Auto tracking white balance (ATW) wide/narrow, AWC and Manual Paint
- Backlight compensation (BLC) on/off
- Slow shutter capability: x2 to x128
- Digital zoom capability
- 4 areas privacy mask
- Built-in display mode (CRT or LCD selectable)
- Inner cover to mask the direction of the lens
- ► 12 LEDS cover 20m distance
- ► 24 VAC/12 VDC power supply
- Optional heater unit: KA-ZH215U allows
- ▶ to meet 22°F (–30°C) operation







System Information

Pendant mount

PMTK-C205W

$1/3"\ LoLux$ Bullet Camera with IR

TK-T8101WPRU

600 TVL True D/N IR-LED Privacy Vandal IP66



► 1/3" high resolution IT CCD with 480,000 effective pixels

- ► High performance 10-bit DSP
- Outdoor-ready water and dust proof housing for wall/ceiling mount (complies with IP66)
- ► 600 TV lines of horizontal resolution
- ► True Day/Night surveillance with auto IR cut filter and IR-LED on/off (Color and 0 Ix B&W shooting)
- ► S/N ratio 50 dB (AGC off)
 - ► Built-in variable focal length auto iris lens (f=3.3 to 12mm)
- ► Automatic gain control (AGC)
- ► Backlight compensation (BLC) on/off
- High light compensation fro extreme white light
- Easy wide dynamic range for backlight compensation
- Max. 8 areas privacy mask
- ► Built-in motion detection
- ► On screen menu by 8 languages
- ► 28 LEDs cover 20M distance
- ► Vandal protected casing with die-cast aluminum
- ► 24 VAC/12 VDC power supply

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	TK-C9300UA	TK-C9200UA
Camera		
Image device	1/3" IT CCD	1/3" IT CCD
Number of effective pixels	380,000 (768 H × 494 V)	380,000 (768 H × 494 V)
Sync system	Internal	Internal
Scanning system	2:1 interlace, 525 lines	2:1 interlace, 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 (BNC)
Y/C output	_	_
Video S/N ratio	52 dB (AGC off)	52 dB (AGC off)
Horizontal resolution	600 TV lines*	600 TV lines*
Minimum illumination (typical) < B&W mode >	0.05 lx (50%, F1.2, AGC on) 0.025 lx (25%, F1.2, AGC on) \$	0.05 lx (50%, F1.2, AGC on) 0.025 lx (25%, F1.2, AGC on) < 0.03 lx (50%, F1.2, AGC on) 0.015 lx (25%, F1.2, AGC on) >
Communication	_	_
Iris control	DC iris	DC iris
White balance ATW (wide/narrow)/AWC/Manual Paint ATW (wide/narrow)/AWC/Manual Paint < ATW color temp. range > < 2,300 K to 10,000 K > < 2,300 K to 10		ATW (wide/narrow)/AWC/Manual Paint < 2,300 K to 10,000 K >
Wide dynamic range function ExDR (by dual shutter) —		_
Display mode	CRT/LCD1/LCD2	CRT/LCD1/LCD2
Backlight compensation	on/off (areas are selectable)	on/off (areas are selectable)
AES —		on/off (1/60 s to 1/100,000 s)
Lens		
Lens mount	CS	CS
Focal length < angle of vision >	-	-
Max. aperture ratio	-	-
Angle adjustment range	—	-
General		
Power supply	24 VAC (60 Hz) /12 VDC, UL listed	24 VAC (60 Hz) /12 VDC, UL listed
Power consumption	2.5 W	2.3 W
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) >
Dust and water protection	_	_
Dimensions (W × H × D)	2-3/16 inches ×2-7/16 inches × 5 inches (55 mm × 61 mm × 126 mm)	2-3/16 inches ×2-7/16 inches × 5 inches (55 mm × 61 mm × 126 mm)
Weight (approx.)	0.6 lbs. (280 g)	0.6 lbs. (280 g)
Accessories	-	-

	TK-C9510U	TK-WD9601U
Camera		
Image device	1/2" IT CCD	1/3" IT CCD
Number of effective pixels	380,000 (768 H × 494 V)	380,000 (768 H × 494 V)
Sync system	Internal, Line lock, Vsync lock	Internal
Scanning system	2:1 interlace, 525 lines	2:1 interlace, 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 (BNC)
Y/C output	_	_
Video S/N ratio	52 dB (AGC off)	52 dB (AGC off)
Horizontal resolution	600 TV lines**	540 TV lines
Minimum illumination (typical) < B&W mode >	0.05 Ix (50%, F1.2, AGC HIGH) 0.025 Ix (25%, F1.2, AGC HIGH) \$\langle 0.006 Ix (50%, F1.2, AGC HIGH) 0.003 Ix (25%, F1.2, AGC HIGH) \rangle \rangle	0.5 lx (50%, F1.2, AGC HIGH) 0.25 lx (25%, F1.2, AGC HIGH) < 0.3 lx (50%, F1.2, AGC HIGH) 0.15 lx (25%, F1.2, AGC HIGH)
Communication	_	_
Iris control	DC iris, Video iris	DC iris
White balance ATW (wide/narrow) / AWC / Manual ATW (wide/narrow) / AWC / Manual < ATW color temp. range > < 2,300 K to 10,000 K > < 2,300 K to 10,000 K >		ATW (wide/narrow) / AWC / Manual < 2,300 K to 10,000 K >
Wide dynamic range function	ExDR (by dual shutter)	Super WDR (by multi shutter)
Display mode	CRT/LCD1/LCD2	LCD1/LCD2/LCD3
Backlight compensation	Yes (6 patterns)	_
AES	on/off (1/60 s to 1/100,000 s)	-
Lens		
Lens mount	CS	CS
Focal length < angle of vision >	-	-
Max. aperture ratio	_	-
Angle adjustment range	_	-
General		
Power supply	24 VAC (60 Hz) /12 VDC, UL listed	24 VAC (50 Hz / 60 Hz) /12 VDC, UL listed
Power consumption	2.5 W	2.5 W
Operating temperature range < recommended >	-10 °C to 50 °C < 0 °C to 40 °C >	−10 °C to 50 °C < 0 °C to 40 °C >
Dust and water protection	-	-
Dimensions (W × H × D)	2-3/16 inches ×2-7/16 inches × 5 inches (55 mm × 61 mm × 126 mm)	2-3/16 inches ×2-7/16 inches × 5 inches (55 mm × 61 mm × 126 mm)
Weight (approx.)	0.68 lbs. (310 g)	0.66 lbs. (300 g)
Accessories	-	_

	TK-C8301RU	TK-C1530U
Camera		
Image device	1/3" IT CCD	1/3" IT CCD
Number of effective pixels	380,000 (768 H × 494 V)	380,000 (768 H × 494 V)
Sync system	Internal	Internal, Line lock
Scanning system	2:1 interlace, 525 lines	2:1 Interlace, 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 (BNC)
Y/C output	-	_
Video S/N ratio	52 dB (AGC off)	50 dB (AGC off)
Horizontal resolution	600 TV lines*	540 TV lines
Minimum illumination (typical) < B&W mode >	0.05 Ix (50%, F1.2, AGC HIGH) 0.025 Ix (25%, F1.2, AGC HIGH) 0.006 Ix (50%, F1.2, AGC HIGH) 0.003 Ix (25%, F1.2, AGC HIGH)	1.5 lx (50%, F1.2, AGC high) 0.4 lx (25%, F1.2, AGC super) < 0.05 lx (25%, F1.2, AGC super) >
	0 Ix with IR LED ON	
Communication	_	RS-422A or RS-485, 9,600 bps
Iris control	DC iris	Video iris/DC iris
White balance ATW (wide/narrow)/AWC/Manual Paint ATW (wide/narrow)/AWC/Manual < ATW color temp. range > < 2,300 K to 10,000 K > < 2,300 K to 10,000 K >		ATW (wide/narrow)/AWC/Manual < 2,300 K to 10,000 K >
Wide dynamic range function ExDR (by dual shutter) —		_
Display mode	CRT/LCD1/LCD2	CRT or LCD selectable
Backlight compensation	on/off (areas are selectable)	on/off
AES	_	on/off (1/60 s to 1/100,000 s)
Lens		
Lens mount	_	C/CS
Focal length 2.8mm to 10.5mm, 3.75x vari-focal < angle of vision > <100° (H) x 73° (V) to 24° (H) x 21° (v)>		-
Max. aperture ratio	F1.2	-
Angle adjustment range	_	_
IR-LED		
General		
Power supply	24 VAC (50 Hz/60 Hz)	24 VAC (60 Hz)/12 VDC, UL listed
Power consumption	2.5 W	5.0 W
Operating temperature range < recommended >	-10 °C to 50 °C < 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) >
Dust and water protection	-	_
Dimensions (W × H × D)	2-3/16 inches × 2-7/16 inches × 6-15/16 inches (55 mm × 61 mm × 175 mm)	2-1/2 inches × 2-3/16 inches × 5 inches (65 mm × 55 mm × 126 mm)
Weight (approx.)	0.77 lbs.(350 g)	0.88 lbs. (480 g)
Accessories	_	

	TK-C2201UA	TK-T2101RU
Camera		
Image device	1/3" IT CCD	1/3" IT CCD
Number of effective pixels	380,000 (768 H × 494 V)	480,000 (976 H × 582 V)
Sync system	Internal	Internal
Scanning system	2:1 interlace, 525 lines	2:1 interlace, 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 (BNC)
Y/C output	-	_
Video S/N ratio	52 dB (AGC off)	50 dB (AGC off)
Horizontal resolution	600 TV lines	600 TV lines
Minimum illumination (typical) < B&W mode >	Minimum illumination (typical) 0.05 lx (50%, F1.2, AGC HIGH) 0.05 lx (50%, F1.2, AGC ON) 0.025 lx (25%, F1.2, AGC HIGH) 0.025 lx (25%, F1.2, AGC ON) 0.025 lx (25%, F1.2, AGC ON) < B&W mode > 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (50%, F1.2, AGC ON) < B&W mode > 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (50%, F1.2, AGC ON) 0.1x with IR LED ON	
Communication	-	_
Iris control	DC iris	DC iris
White balanceATW (wide/narrow)/AWC/Manual PaintATW/M< ATW color temp. range >< 2,300 K to 10,000 K >Push/F		ATW/Manual/User Push/Push lock
Wide dynamic range function —		_
Display mode CRT/LCD1/LCD2 —		-
Backlight compensation on/off (areas are selectable) OFF/BLC/HLC		OFF/BLC/HLC
AES —		_
Lens		
Lens mount — —		-
Focal length < angle of vision >	Socal length 2.8 mm to 10.5 mm, 3.75x vari-focal 2.8 mm to 10.5 mm, 3.75x vari-focal : angle of vision > < 100° (H) × 73° (V) to 24° (H) × 21° (V) > < 100° (H) × 74° (V) to 27° (H) × 21° (V) >	
Max. aperture ratio	F1.2	F1.2
Angle adjustment range	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°	-
IR-LED	_	14 LEDs, 15m
General		
Power supply	24 VAC (60 Hz) /12 VDC, UL listed	24 VAC (60 Hz) /12 VDC, UL listed
Power consumption	2.3 W	5 W
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) >
Dust and water protection	_	-
Dimensions (W × H × D)	ø 3-3/8 inches × 3-7/8 inches (H) (ø 110 mm × 97 mm (H))	ø 4-7/16 inches × 3-7/8 inches (H) (ø 112 mm × 97 mm (H))
Weight (approx.)	0.73 lbs. (330 g)	0.66 lbs. (300 g)
Accessories	-	_

Color Camera

Network Camera Recorder

System Information

Technical Information

	TK-C2201WPUA	TK-C2301WPRU		
Camera				
Image device	1/3" IT CCD	1/3" IT CCD		
Number of effective pixels	380,000 (768 H × 494 V)	380,000 (768 H × 494 V)		
Sync system	Internal	Internal		
Scanning system	2:1 interlace, 525 lines	2:1 interlace, 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 (BNC)		
Y/C output	-	-		
Video S/N ratio	52 dB (AGC off)	52 dB (AGC off)		
Horizontal resolution	600 TV lines	600 TV lines		
Minimum illumination (typical) < B&W mode >	illumination (typical) 0.05 lx (50%, F1.2, AGC HIGH) 0.05 lx (50%, F1.2, AGC HIGH) 0.025 lx (25%, F1.2, AGC HIGH) 0.025 lx (25%, F1.2, AGC HIGH) 0.025 lx (25%, F1.2, AGC HIGH) olde > 0.015 lx (25%, F1.2, AGC HIGH) 0.025 lx (25%, F1.2, AGC HIGH) 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (25%, F1.2, AGC HIGH) 0.015 lx (25%, F1.2, AGC HIGH)			
Communication	_			
Iris control	DC iris	DC iris		
White balanceATW (wide/narrow)/AWC/Manual Paint< ATW color temp. range >< 2,300 K to 10,000 K >		ATW (wide/narrow)/AWC/Manual Paint < 2,300 K to 10,000 K >		
Wide dynamic range function —		ExDR (by dual shutter)		
Display mode	CRT/LCD1/LCD2	CRT/LCD1/LCD2		
Backlight compensation	on/off (areas are selectable)	on/off (areas are selectable)		
AES	_	-		
Lens				
Lens mount — — —				
Focal length < angle of vision >	2.8 mm to 10.5 mm, 3.75x vari-focal < 100° (H) × 73° (V) to 24° (H) × 21° (V) >	2.8 mm to 10.5 mm, 3.75x vari-focal < 100° (H) × 73° (V) to 24° (H) × 21° (V) >		
Max. aperture ratio	F1.2	F1.2		
Angle adjustment range	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°		
IR-LED	_	12 LEDs, 20m		
General				
Power supply	24 VAC (60 Hz) /12 VDC, UL listed	24 VAC (50 Hz/60 Hz) /12 VDC, UL listed		
Power consumption	2.3 W *without optional heater	2.5 W *without 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) >		
Dust and water protection	IP66	IP66		
Dimensions (W × H × D)	ø 6-1/4 inches × 4-7/8 inches (H) (ø 160 mm × 125 mm (H))	ø 6-1/4 inches × 4-7/8 inches (H) (ø 160 mm × 125 mm (H))		
Weight (approx.)	2.9 lbs. (1.3 kg)	2.9 lbs. (1.3 kg)		
Accessories	Wrench × 1 Silica gel × 1	Wrench × 1 Silica gel × 1		

Glossary

*Tamron M13VM246 at wide angle. **Tamron M12VM412 at wide angle.

	TK-T8101WPRU
Camera	
Image device	1/3" IT CCD
Number of effective pixels	480,000 (976 H × 582 V)
Sync system	Internal, Line lock
Scanning system	2:1 Interlace, 525 lines
Scanning frequency	15.734 kHz (H), 59.94 Hz (V)
Video output	Composite video signal : 1.0 V (p-p), 75 ohms (BNC)
Y/C output	-
Video S/N ratio	50 dB (AGC off)
Horizontal resolution	600 TV lines
Minimum illumination (typical) < B&W mode >	0.05 Ix (50%, F1.4, AGC ON) 0.025 Ix (25%, F1.4, AGC ON) < 0.015 Ix (50%, F1.4, AGC ON) O Ix with IR LED ON
Communication	-
Iris control	DC iris
White balance < ATW color temp. range >	ATW/Narrow/User Push/Push lock
Wide dynamic range function	-
Display mode	-
Backlight compensation	OFF/BLC/HLC
AES	_
Lens	
Lens mount	-
Focal length < angle of vision >	3.3mm to 12 mm <90°(H) x 64°(V) to 24°(H) x18°(V)>
Max. aperture ratio	F1.4
Angle adjustment range	-
IR-LED	28 LEDs, 20m
General	
Power supply	24 VAC (60 Hz)/12 VDC, UL listed
Power consumption	7 W
Operating temperature range < recommended >	14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
Dust and water protection	IP66
Dimensions (W × H × D)	8-5/16 inches × 3-7/16 inches × 8-1/8 inches (83 mm × 87 mm × 206 mm)
Weight (approx.)	1.49 lbs. (680 g)
Accessories	

Color Camera

Network Camera Recorder

System Information

Technical Information

LoLux HD Network Camera

VN-T16U Easy D/N Megapixel Bi-directional H.264HP Dual Stream



- ► 1/2.7" Mega pixel CMOS
- ► Full frame 1920 x 1080 H.264, MPEG-4 or Motion JPEG Multi codec
- ► Day/Night surveillance with Easy day/night function
- Digital noise reduction
- Web based setup and viewing tool
- Multiple user access levels with password protection
- ► Bi-directional audio communication (Windows XP recommended)
- Alarm terminal (input x 1, output x 1)
- ► Alarm recording on SD card
- ► ONVIF protocol support
- ► PoE and 24 VAC/12 VDC power supply selectable

LoLux HD[™]

Super LoLux HD Network Camera

Privacy Display VN-H37U True D/N **3D** Noise CLVI Megapixel H.264HP



Lens not included

Xear Logic Video In

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Super LoLux HD

SuperLoLux HD[™]

- ▶ 1/3" CMOS with 2,120,000 effective pixels
- ► H.264 High profile Super LoLux HDTM DSP
- ► Full HD 1920 × 1080 H.264 High profile, MPEG-4 and Motion JPEG Multi codec
- ▶ 30 fps Full HD H.264, 30 fps VGA MPEG-4, or 15 fps Full HD JPEG distribution
- ► Super LoLux HDTM sensitivity: 0.15 lx F1.2 (color mode)
- ► True Day/Night surveillance with auto IR cut filer on/off
- ► C.L.V.I. Clear Logic Video Intelligence technology for wide dynamic range and anti fog
- ► 3D noise reduction (3DNR)
- ► Partial resizing and digital PTZ function
- Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- Password protection and IP address filtering
- ▶ 20 simultaneous users, unlimited users by multicasting
- Simultaneous analog video output
- Active tampering alarm by blockage detection
- ► Full-time SD recording
- ONVIF/PSIA protocol support
- ► Power over ethernet (PoE)



Built-in setup tool and viewer

Super LoLux HD Network Camera

VN-H137U	Easy D/N	3D Noise Reduction	CLVI	Privacy Mask	Display Mode	Megapixel	H.264HP	Dual Stream

- ▶ 1/3" CMOS with 2,120,000 effective pixels
- ► H.264 High profile Super LoLux HDTM DSP
- ► Full HD 1920 × 1080 H.264 High profile, MPEG-4 and Motion JPEG Multi codec
- Built-in 3.75x variable focal length auto iris lens (f = 2.8mm to 10.5mm)
- Visored lens protection with dust shield
- ► 30 fps Full HD H.264, 30 fps VGA MPEG-4, or 15 fps Full HD JPEG distribution
- ► Super LoLux HDTM sensitivity: 0.15 lx F1.2 (color mode)
- Day/Night surveillance with Easy day/night function
- ► C.L.V.I. Clear Logic Video Intelligence technology for wide dynamic range and anti fog
- ► 3D noise reduction (3DNR)
- ► Partial resizing and digital PTZ function
- Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- Password protection and IP address filtering
- ▶ 20 simultaneous users, unlimited users by multicasting
- Simultaneous analog video output
- Active tampering alarm by blockage detection
- ► Full-time SD recording
- ONVIF/PSIA protocol support
- Power over ethernet (PoE)





Built-in setup tool and viewer

Glossary

work Ca



Super LoLux HD Network Camera

True D/N CLVI Privacy Display Megapixel H.264HP VN-H57U 3D Noise Bi-direction Audio ▶ 1/3" CMOS with 2,120,000 effective pixels Clear Logic Video Intelligenc ► H.264 High profile Super LoLux HDTM DSP ▶ Full HD 1920 × 1080 H.264 High profile, MPEG-4 and Motion JPEG Multi codec CIV ► 30 fps Full HD H.264, 30 fps VGA MPEG-4, or 15 fps Full HD JPEG distribution ► Super LoLux HDTM sensitivity: 0.15 lx F1.2 (color mode) JVC ► True Day/Night surveillance with auto IR cut filer on/off C.L.V.I. – Clear Logic Video Intelligence technology for wide dynamic range and anti fog ► 3D noise reduction (3DNR) ► Partial resizing and digital PTZ function ► Installer friendly remote backfocus adjustment function Password protection and IP address filtering Super LoLux HD[™] Lens not included ► Bi-directional audio communication Built-in Motion detection ► Built-in intellgent audio detection ► PoE and 24 VAC power supply ► Trigger input alarm terminal (input × 2, output × 2) > 20 simultaneous users, unlimited users by multicasting selectable ► Simultaneous analog video output ► Active tampering alarm by blockage detection ► Full-time SD recording ONVIF/PSIA protocol support Built-in setup tool and viewer

Super LoLux HD Network Bullet Camera

Color Camera

Network Camera

Recorde

System Information

Technical Information

VN-H157WPU	True D/N 3D Noise Reduction CLVI	Privacy Display Mask Display	Megapixel H.20	64HP Bi-directional Audio	IP66 Dual Stream
	 1/3" CMOS with 2,1 H.264 High profile S Full HD 1920 × 1080 Built-in 3.0x variable Outdoor-ready water 30 fps Full HD H.264 Super LoLux HD™ s True Day/Night surv C.L.V.I. – Clear Logic 3D noise reduction (Partial resizing and definition of the second second	20,000 effective pixe uper LoLux HD [™] DS H.264 High profile, I focal length auto iris r and dust proof hous l, 30 fps VGA MPEG- ensitivity: 0.15 Ix F1.2 eillance with auto IR c Video Intelligence to 3DNR) digital PTZ function note focus adjustmen and IP address filter communication cion dio detection cables (input × 2, out ers, unlimited users b g video output rm by impact and blo	Is P MPEG-4 and Mo s lens (f = 3.0mr sing for wall/ceil 4, or 15 fps Full 2 (color mode) cut filer on/off echnology for wi th function ring put × 2) by multicasting pckage	tion JPEG Multi co n to 9.0mm) ing mount coplies HD JPEG distribut ide dynamic range Ceiling mount*	odec with IP66 ion and anti fog
	 ONVIF/PSIA protoco PoE and 24 VAC pow 	l support ver supply selectable		1	

LoLux HD Network Mini Dome Camera

VN-T216U



- ► 1/2.7" Mega pixel CMOS
- ► H.264 High profile Super LoLux HDTM DSP
- ► Full frame 1920 x 1080 H.264, MPEG-4 or Motion JPEG Multi codec

Easy D/N Megapixel Bi-directional H.264HP Dual Stream

- ► Built-in 3.0x variable focal length auto iris lens (f=3mm to 9mm)
- ► Day/Night surveillance with Easy day/night function
- Digital noise reduction
- ► Web based setup and viewing tool
- ► Multiple user access levels with password protection
- ► Bi-directional audio communication (Windows XP recommended)
- ► Alarm terminal (input x 1, output x 1)
- Alarm recording on SD card
- ONVIF protocol support
- ► PoE and 24 VAC/12 VDC power supply selectable

LoLux HD Network Dome Camera with IR (Vandal Proof)

VN-T216VPRU	True D/N Megapixel H.264HP Bi-directional IR-LED Vandal IP66 Dual Stream
	 1/2.7" Mega pixel CMOS H.264 High profile Super LoLux HD[™] DSP Full frame 1920 x 1080 H.264, MPEG-4 or Motion JPEG Multi codec Built-in 3.0x variable focal length auto iris lens (f=3mm to 9mm) Outdoor-ready vandal and tamper proof structure (complies with IP66) True Day/Night surveillance with auto IR cut filter and IR-LED on/off (Color and 0 lx B&W shooting) Digital noise reduction Web based setup and viewing tool Multiple user access levels with password protection Bi-directional audio communication (Windows XP recommended)
LoLux HD [™]	Alarm terminal (input v 1, autout v 1)

- ► Alarm terminal (input x 1, output x 1)
- Alarm recording on SD card
 ONVIF protocol support
- 21 LEDs cover 15m distance
- ► PoE and 24 VAC/12 VDC power supply selectable

System Information

Color Camera

Network Camera

Recorder

Super LoLux HD Network Mini Dome Camera (Vandal Resistant)

Easy D/N 3D Noise Reduction	CLVI Privacy	Display Mode Mega	apixel H.264HP Vandal Dual Resistant Stream
 1/3" CMOS with 2,124 H.264 High profile Su Full HD 1920 × 1080 I Built-in 3.75x variable 30 fps Full HD H.264, Super LoLux HD[™] se Day/Night surveillance C.L.V.I. – Clear Logic 3D noise reduction (3 Partial resizing and d Built-in display mode Fine focus adjustmen Vandal resistant dom Password protection 20 simultaneous analog Active tampering alar Full-time SD recordin ONVIF/PSIA protocol Power over ethernet of 	D,000 effective pixel per LoLux HD [™] DSI H.264 High profile, M a focal length auto ir 30 fps VGA MPEG-4 nsitivity: 0.15 lx F1.2 with Easy day/nigly Video Intelligence te BDNR) igital PTZ function (LCD1/LCD2/CRT/C t and triple axis rota e cover and IP address filter rs, unlimited users b video output m by blockage detect g support POE)	s P MPEG-4 and Mot is lens (f = 2.8m 4, or 15 fps Full I 2 (color mode) ht function echnology for wi Custom selectab tion mechanism ring y multicasting ction	tion JPEG Multi codec tim to 10.5mm) HD JPEG distribution de dynamic range and anti fog le) Ceiling recessed bracket WB-S2205
	Easy D/NDisse Reduction1/3" CMOS with 2,120H.264 High profile SuFull HD 1920 × 1080 HBuilt-in 3.75x variable30 fps Full HD H.264,Super LoLux HD™ seDay/Night surveillandC.L.V.I. – Clear Logic3D noise reduction (3Partial resizing and dBuilt-in display modeFine focus adjustmenVandal resistant domPassword protection20 simultaneous userSimultaneous analogActive tampering alarFull-time SD recordinONVIF/PSIA protocolPower over ethernet (Easy D/NBD Noise ReductionCLVIPrivacy1/3" CMOS with 2,120,000 effective pixelH.264 High profile Super LoLux HD™ DSFull HD 1920 × 1080 H.264 High profile, NBuilt-in 3.75x variable focal length auto ir30 fps Full HD H.264, 30 fps VGA MPEG-Super LoLux HD™ sensitivity: 0.15 Ix F1.2Day/Night surveillance with Easy day/nigC.L.V.I. – Clear Logic Video Intelligence te3D noise reduction (3DNR)Partial resizing and digital PTZ functionBuilt-in display mode (LCD1/LCD2/CRT/C)Fine focus adjustment and triple axis rotaVandal resistant dome coverPassword protection and IP address filter20 simultaneous users, unlimited users bSimultaneous analog video outputActive tampering alarm by blockage deterFull-time SD recordingONVIF/PSIA protocol supportPower over ethernet (PoE)	Easy D/N Big Musice Reduction CLVI Privacy Mask Display Display Meg 1/3" CMOS with 2,120,000 effective pixels + 1/3" CMOS with 2,120,000 effective pixels + 1.264 High profile Super LoLux HD™ DSP Full HD 1920 × 1080 H.264 High profile, MPEG-4 and Mo Built-in 3.75x variable focal length auto iris lens (f = 2.8m 30 fps Full HD H.264, 30 fps VGA MPEG-4, or 15 fps Full Super LoLux HD™ sensitivity: 0.15 lx F1.2 (color mode) Day/Night surveillance with Easy day/night function C.L.V.I. – Clear Logic Video Intelligence technology for with 3D noise reduction (3DNR) Partial resizing and digital PTZ function Built-in display mode (LCD1/LCD2/CRT/Custom selectab) Fine focus adjustment and triple axis rotation mechanism Vandal resistant dome cover Password protection and IP address filtering 20 simultaneous analog video output Active tampering alarm by blockage detection Full-time SD recording ONVIF/PSIA protocol support Power over ethernet (PoE)

Super LoLux HD Network Dome Camera (Vandal Proof)

Color Camera

Network Camera

Recorder

System Information

Technical Information

Glossary

VN-H237VPU	Easy D/N 3D Noise CLVI Privacy Display Megapixel H.264HP Vandal IP66 Dual Stream
<image/> <image/> <image/>	 1/3" CMOS with 2,120,000 effective pixels H.264 High profile Super LoLux HD[™] DSP Full HD 1920 × 1080 H.264 High profile, MPEG-4 and Motion JPEG Multi codec Built-in 3.75x variable focal length auto iris lens (f = 2.8mm to 10.5mm) Outdoor-ready vandal and tamper proof structure (complies with IP66) 30 fps Full HD H.264, 30 fps VGA MPEG-4, and 15 fps Full HD JPEG distribution Super LoLux HD[™] sensitivity: 0.25 lx F1.2 (color mode) Day/Night surveillance with Easy day/night function C.L.V.I. – Clear Logic Video Intelligence technology for wide dynamic range and anti fog 3D noise reduction (3DNR) Partial resizing and digital PTZ function Built-in display mode (LCD1/LCD2/CRT/Custom selectable) Fine focus adjustment and triple axis rotation mechanism Vandal resistant dome cover Password protection and IP address filtering 20 simultaneous users, unlimited users by multicasting Simultaneous analog video output Active tampering alarm by impact and blockage detection Fuil-time SD recording ONVIF/PSIA protocol support Power over ethernet (PoE)

WB-S2205

Super LoLux HD Network Mini Dome Camera (Vandal Resistant)

VN-H257U	True D/N 3D Noise Reduction	CLVI Privacy Mask	Display Mode Megapixel	H.264HP Bi-directional Audio Vandal Dual Stream
<image/>	 1/3" CMOS wit H.264 High pro- Full HD 1920 x Built-in 3.0x va 30 fps Full HD Super LoLux F True Day/Nigh C.L.V.I Clear 3D noise reduce Partial resizing Fine focus adju Installer friend Password protion Bi-directional Built-in Motion Built-in intelligation Trigger input a 20 simultaneous Active tamperidetection SD recording / PoE and 24 VA 	h 2,120,000 effec ofile Super LoLux 1080 H.264 High triable focal lengt H.264, 30 fps VG. D [™] sensitivity : C t surveillance with Logic Video Intel tion (3DNR) and digital PTZ f testment and triple ly remote focus a ection and IP add audio communica detection ent audio detectio larm cables (inpu us users, unlimite analog video outp ng alarm by impa NAS recording rotocol support C power supply si	tive pixels HD™DSP profile, MPEG-4 and h auto iris lens (f=3.0 A MPEG-4, or 15 fps 0.15 lx F1.2 (color mo n auto IR cut filter on, ligence technology fo unction axis rotation mechan djustment function ress filtering tion n t x 2, output x 2) d users by multicasting tot auto blockage	I Motion JPEG Multi codec Dmm to 9.0mm) Full HD JPEG distribution de) /off or wide dynamic range and anti fog nism ing Ceiling recessed bracket WB-S2205

Super LoLux HD Network Dome Camera (Vandal Proof)

VN-H257VPU	True D/N	3D Noise CLVI Privacy Display Megapixel H.264HP H.264HP Audio Vandal IP66 Dual Stream
Cee Lay: Web Iteligene		 1/3" CMOS with 2,120,000 effective pixels H.264 High profile Super LoLux HD[™] DSP Full HD 1920 × 1080 H.264 High profile, MPEG-4 and Motion JPEG Multi codec Built-in 3.0x variable focal length auto iris lens (f = 3.0mm to 9.0mm) Outdoor-ready vandal and tamper proof structure coplies with IP66 30 fps Full HD H.264, 30 fps VGA MPEG-4, or 15 fps Full HD JPEG distribution Super LoLux HD[™] sensitivity: 0.15 Ix F1.2 (color mode) True Day/Night surveillance with auto IR cut filer on/off C.L.V.I. – Clear Logic Video Intelligence technology for wide dynamic range and anti fog 3D noise reduction (3DNR)
Pendant mount	Super LoLux HD"	 Partial resizing and digital PTZ function Fine focus adjustment and triple axis rotation mechanism Installer friendly remote focus adjustment function Password protection and IP address filtering Bi-directional audio communication Built-in Motion detection Built-in intellgent audio detection Trigger input Alarm cables (input × 2, output × 2) 20 simultaneous users, unlimited users by multicasting Simultaneous analog video output
-	Ceiling recessed bracket	 Active tampering alarm by impact and blockage detection Fuii-time SD recording ONVIF/PSIA protocol support PoE and 24 VAC power supply selectable
PMTK-C205W	CMTK-C205V	P

	VN-T16U
Camera	
Image device	1/2.7" CMOS
Number of effective pixels	2,120,000 (1,944 H × 1,092 V)
Minimum illumination (typical) < B&W mode >	0.6 Ix (50%, F1.2, AGC ON) 0.3 Ix (25%, F1.2, AGC ON) < 0.6 Ix (50%, F1.2, AGC ON) >
Iris control	DC iris
White balance	-
Wide dynamic range function	Yes
Backlight compensation	Yes
Lens	
Lens mount	CS
Focal length < angle of vision >	_
Max. aperture ratio	-
Angle adjustment range	_
General	
SD card recoding	Yes
Alarm I/O	Input x 1, Output x 1
Monitor output	_
Audio communication	Line in / Line out
Power supply	24 VAC (50 Hz/60 Hz)/12 VDC/48 VDC (PoE)
Power consumption	550 mA (12 VDC)/0.13 A (PoE)
Operating temperature range < recommended >	14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
Dust and water protection	_
Dimensions (W × H × D)	2-1/4 inches × 2-11/16 inches × 4-15/16 inches 56 mm × 68 mm × 125 mm
Weight (approx.)	0.86 lbs. (390 g)
Network	
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, FTP, UDP/IP, ICMP, ARP, DHCP, HTTP, DNS, RTCP, IGMP, RTP, RTSP, ONVIF
Picture Resolution (pixel)	1,920 x 1,080, 1,280 x 720, 720 x 480, 704 x 480, 640 x 480
Compression	Motion JPEG, H264 (High/Baseline), MPEG-4
Frame rate	Max 30 fps
Audio compression	-
Internal storage capacity	_
Access protection	Password protection
Motion detection	Yes
Web server	Yes
Data transmission	Unicast/Multicast
System requirement (recommended)	l
0\$	Windows XP, Windows 7
CPU	Pentium 4 (2.4GHz)
Memory	More than 1 GB
HDD space	More than 1 GB
Display/Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)

	VN-H37U	VN-H137U
Camera		
Image device	1/3" CMOS	1/3" CMOS
Number of effective pixels	2,120,000 (1,944 H × 1,092 V)	2,120,000 (1,944 H × 1,092 V)
Minimum illumination (typical)	0.3 lx (50%, F1.2, AGC HIGH)	0.3 IX (50%, F1.2, AGC HIGH)
< B&W mode >	0.15 IX (25%, F1.2, AGC HIGH) < 0.05 IX (50%, F1.2,AGC HIGH) >	0.15 IX (25%, F1.2, AGC HIGH) < 0.25 IX (50%, F1.2,AGC HIGH) >
Iris control	DC iris	DC iris
White balance	ATW/AWC	ATW/AWC
Wide dynamic range function	C.L.V.I.	C.L.V.I.
Backlight compensation	Yes (4 patterns)	Yes (4 patterns)
Lens		
Lens mount	CS	-
Focal length < angle of vision >	-	2.8 mm to 10.5 mm, 3.75x vari-focal < 110 °(H) × 60 °(V) to 30 °(H) × 17 °(V) >
Max. aperture ratio	_	F1.2
Angle adjustment range	-	_
General		
SD card recoding	Yes	Yes
Alarm I/O	-	-
Monitor output	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)
Audio communication	-	-
Power supply	48 VDC (PoE)	48 VDC (PoE)
Power consumption	120mA (PoE)	120mA (PoE)
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) >
Dust and water protection	-	-
Dimensions (W × H × D)	2-3/16 inches × 2-7/16 inches × 5 inches 55 mm × 61 mm × 126 mm	2-3/16 inches \times 2-7/16 inches \times 6-15/16 inches 55 mm \times 61 mm \times 175 mm
Weight (approx.)	0.75 lbs. (340 g)	0.86 lbs. (390 g)
Network		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA
Picture Resolution (pixel)	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080
Compression	Motion JPEG, H.264 (High/Baseline), MPEG-4	Motion JPEG, H.264 (High/Baseline), MPEG-4
Frame rate	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)
Audio compression	-	
Internal storage capacity	16 MB (RAM)	16 MB (RAM)
Access protection	3 levels password, IP address filtering	3 levels password, IP address filtering
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
System requirement (recommended		
0\$	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro
CPU	Core 2 Duo (3 GHz)	Core 2 Duo (3 GHz)
Memory	More than 2 GB	More than 2 GB
HDD space	More than 1 GB	More than 1 GB
Display/Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)	1,024 × 768 pixels, true color (24-bit or 32-bit)

	VN-H57U	VN-H157WPU
Camera		
Image device	1/3" CMOS	1/3" CMOS
Number of effective pixels	2,120,000 (1,944 H × 1,092 V)	2,120,000 (1,944 H × 1,092 V)
Minimum illumination (typical)	0.3 lx (50%, F1.2, AGC HIGH)	0.3 IX (50%, F1.2, AGC HIGH)
< B&W mode >	< 0.05 lx (25%, F1.2, AGC HIGH) >	< 0.05 lx (20%, F1.2, AGC HIGH) <
Iris control	DC iris	DC iris
White balance	ATW/AWC	ATW/AWC
Wide dynamic range function	C.L.V.I.	C.L.V.I.
Backlight compensation	Yes (4 patterns)	Yes (4 patterns)
Lens		
Lens mount	CS	
Focal length < angle of vision >	_	3.0 mm to 9.0 mm, 3.0x vari-focal < 103 °(H) x 56 °(V) to 79 °(H) x 44°(V) >
Max. aperture ratio	_	F1.2
Angle adjustment range	_	Horizontal: ±50°, Vertical: 90°, Rotation: ±110°
General		
SD card recoding	Yes	Yes
Alarm I/O	Input × 2, Output × 2	Input × 2, Output × 2
Monitor output	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)
Audio communication	Line in/Line out	Line in/Line out
Power supply	24 VAC (50 Hz/60 Hz) /48 VDC (PoE)	24 VAC (50 Hz/60 Hz) /48 VDC (PoE)
Power consumption	0.5 A (24 VAC)/135 mA (PoE)	0.5 A (24 VAC)/135 mA (PoE)
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) >
Dust and water protection	_	IP66
Dimensions (W × H × D)	2-3/16 inches × 2-7/16 inches × 5 inches 55 mm × 61 mm × 126 mm	5-9/16 inches × 6-5/8 inches × 10-1/8 inches 140 mm × 167 mm × 257 mm
Weight (approx.)	0.8 lbs. (360 g)	3.3 lbs. (1.5 kg)
Network		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA
Picture Resolution (pixel)	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080
Compression	Motion JPEG, H.264 (High/Baseline), MPEG-4	Motion JPEG, H.264 (High/Baseline), MPEG-4
Frame rate	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)
Audio compression	µ-law 64 kbps mono AD/DA 16-bits	μ-law 64 kbps mono AD/DA 16-bits
Internal storage capacity	16 MB (RAM)	16 MB (RAM)
Access protection	3 levels password, IP address filtering	3 levels password, IP address filtering
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
System requirement (recommended)	<u> </u>	
0\$	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro
CPU	Core 2 Duo (3 GHz)	Core 2 Duo (3 GHz)
Memory	More than 2 GB	More than 2 GB
HDD space	More than 1 GB	More than 1 GB
Display/Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)	1,024 × 768 pixels, true color (24-bit or 32-bit)

	VN-T216U	VN-T216VPRU
Camera		
Image device	1/2.7" CMOS	1/2.7" CMOS
Number of effective pixels	2,120,000 (1,944 H × 1,092 V)	2,120,000 (1,944 H × 1,092 V)
Minimum illumination (typical) < B&W mode >	0.6 Ix (50%, F1.2, AGC ON) 0.3 Ix (25%, F1.2, AGC ON) < 0.6 Ix (50%, F1.2, AGC ON) >	0.6 ix (50%, F1.2, AGC ON) 0.3 ix (25%, F1.2, AGC ON) < 0 ix with IR-LED ON >
Iris control	DC iris	DC iris
White balance	ATW/Manual	_
Wide dynamic range function	_	Yes
Backlight compensation	Yes	Yes
Lens		
Lens mount	_	CS
Focal length < angle of vision >	3.0 mm to 9.0 mm, 3.0x vari-focal	_
Max. aperture ratio	F1.2	_
Angle adjustment range	_	_
IR-LED	_	21 LEDs, 15 m
General		
SD card recoding	Yes	Yes
Alarm I/O	Input x 1, Output x 1	Input x 1, Output x 1
Monitor output	_	_
Audio communication	Line in / Line out	Line in / Line out
Power supply	24 VAC (50 Hz/60 Hz)/12VDC/48VDC (PoE)	24 VAC (50 Hz/60 Hz)/12 VDC/48 VDC (PoE)
Power consumption	550 mA (12 VDC)/0.13 A (PoE)	550 mA (12VDC)
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) >
Dust and water protection	_	IP66
Dimensions (W × H × D)	ø 5 inches × 4-3/16 inches ø 126 mm × 106 mm (H)	ø 6-1/8 inches × 4-7/16 inches ø 155 mm × 113 mm (H)
Weight (approx.)	1.1 lbs. (490 g)	3.0 lbs. (1,360 g)
Network		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, FTP, UDA/IP, ICMP, ARP, DHCP, HTTP, DNS, RTCP, IGMP, RTP, RTSP, ONVIF	TCP/IP, FTP, UDA/IP, ICMP, ARP, DHCP, HTTP, DNS, RTCP, IGMP, RTP, RTSP, ONVIF
Picture Resolution (pixel)	1,920 x 1,080, 1,280 x 720, 720 x 480, 704 x 480, 640 x 480	1,920 x 1,080, 1,280 x 720, 720 x 480, 704 x 480, 640 x 480
Compression	Motion JPEG, H264 (High/Baseline), MPEG-4	Motion JPEG, H264 (High/Baseline), MPEG-4
Frame rate	Max 25 fps	Max 25 fps
Audio compression		_
Internal storage capacity		_
Access protection	Password protection	Password protection
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
System requirement (recommended)		
0\$	Windows XP, Windows 7	Windows XP, Windows 7
CPU	Pentium 4 (2.4GHz)	Pentium 4 (24GHz)
Memory	More than 1 GB	More than 1 GB
HDD space	More than 1 GB	More than 1 GB
Display/Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)	1,024 × 768 pixels, true color (24-bit or 32-bit)

System Information

Technical Information

	VN-H237U	VN-H237VPU
Camera		
Image device	1/3" CMOS	1/3" CMOS
Number of effective pixels	2,120,000 (1,944 H × 1,092 V)	2,120,000 (1,944 H × 1,092 V)
Minimum illumination (typical)	0.5 lx (50%, F1.2, AGC HIGH)	0.3 IX (50%, F1.2, AGC HIGH)
< B&W mode >	0.25 IX (25%, F1.2, AGC HIGH)	0.15 IX (25%, F1.2, AGC HIGH) < 0.25 IX (50%, F1.2, AGC HIGH) >
Iris control	DC iris	DC iris
White balance	ATW/AWC	ATW/AWC
Wide dynamic range function	C.L.V.I.	C.L.V.I.
Backlight compensation	Yes (4 patterns)	Yes (4 patterns)
Lens		
Lens mount	_	—
Focal length < angle of vision >	2.8 mm to 10.5 mm, 3.75x vari-focal < 110 °(H) x 60 °(V) to 30 °(H) x 17 °(V) >	2.8 mm to 10.5 mm, 3.75x vari-focal < 114 °(H) x 60 °(V) to 30 °(H) x 17 °(V) >
Max. aperture ratio	F1.2	F1.2
Angle adjustment range	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°
General		
SD card recoding	Yes	Yes
Alarm I/O	_	-
Monitor output	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)
Audio communication	_	_
Power supply	48 VDC (PoE)	48 VDC (PoE)
Power consumption	120 mA (PoE)	120 mA (PoE)
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) >
Dust and water protection	_	IP66
Dimensions (W × H × D)	ø 4-3/8 inches × 4-5/8 inches (H) ø 111 mm × 117 mm (H)	ø 6-1/4 inches × 4-7/8 inches (H) ø 160 mm × 125 mm (H)
Weight (approx.)	0.99 lbs. (450g)	2.9 lbs. (1.3kg)
Network		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF*, PSIA	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA
Picture Resolution (pixel)	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080
Compression	Motion JPEG, H.264 (High/Baseline), MPEG-4	Motion JPEG, H.264, MPEG-4
Frame rate	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)
Audio compression	_	-
Internal storage capacity	16 MB (RAM)	16 MB (RAM)
Access protection	3 levels password, IP address filtering	3 levels password, IP address filtering
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
System requirement (recommended	1	
0\$	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro
CPU	Core 2 Duo (3 GHz)	Core 2 Duo (3 GHz)
Memory	More than 2 GB	More than 2 GB
HDD space	More than 1 GB	More than 1 GB
Display/Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)	1,024 × 768 pixels, true color (24-bit or 32-bit)

	VN-H257U	VN-H257VPU
Camera		
Image device	1/3" CMOS	1/3" CMOS
Number of effective pixels	2,120,000 (1,944 H × 1,092 V)	2,120,000 (1,944 H × 1,092 V)
Minimum illumination (typical)	0.3 lx (50%, F1.2, AGC HIGH)	0.3 IX (50%, F1.2, AGC HIGH)
< B&W mode >	< 0.05 Ix (50%, F1.2, AGC HIGH) >	< 0.05 Ix (50%, F1.2, AGC HIGH) >
Iris control	DC iris	DC iris
White balance	ATW/AWC	ATW/AWC
Wide dynamic range function	C.L.V.I.	C.L.V.I.
Backlight compensation	Yes (4 patterns)	Yes (4 patterns)
Lens		
Lens mount	_	—
Focal length < angle of vision >	3.0 mm to 9.0 mm, 3.0x vari-focal <103° (H) x 56° (V) to 79° (H) x44° (V)>	3.0 mm to 9.0 mm, 3.0x vari-focal <103° (H) x 56° (V) to 79° (H) x44° (V)>
Max. aperture ratio	F1.2	F1.2
Angle adjustment range	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°	Horizontal: 350°, Vertical: ±80°, Rotation: ±100°
General		
SD card recoding	Yes	Yes
Alarm I/O	Input × 2, Output × 2	Input × 2, Output × 2
Monitor output	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)	Composite video signal: 1.0 V (p-p), PAL/NTSC (RCA)
Audio communication	Line in / Line out	Line in / Line out
Power supply	24 VAC (50 Hz/60 Hz) /48 VDC (PoE)	24 VAC (50 Hz/60 Hz) /48 VDC (PoE)
Power consumption	0.5 A (24 VAC)/135 mA (PoE)	0.5 A (24 VAC) /135 mA (PoE)
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) >
Dust and water protection	_	IP66
Dimensions (W × H × D)	ø 4-3/8 inches × 4-5/8 inches (H) ø 111 mm × 117 mm (H)	ø 6-1/4 inches × 4-7/8 inches (H) ø 160 mm × 125 mm (H)
Weight (approx.)	0.99 lbs. (450g)	2.9 lbs. (1.3 kg)
Network		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, HTTPS, SNMP, ONVIF, PSIA
Picture Resolution (pixel)	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080	All compression: 320 × 240, 640 × 480 Motion JPEG/H.264 only: 1,280 × 720, 1,280 × 960, 1,920 × 1,080
Compression	Motion JPEG, H.264 (High/Baseline), MPEG-4	Motion JPEG, H.264, MPEG-4
Frame rate	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 10 fps Motion JPEG (1,920 × 1,080)	30 fps H.264 (1,920 × 1,080), 30 fps MPEG-4 (640 × 480), 15 fps Motion JPEG (1,920 × 1,080)
Audio compression	µ-law 64 kbps mono AD/DA 16-bits	μ-law 64 kbps mono AD/DA 16-bits
Internal storage capacity	16 MB (RAM)	16 MB (RAM)
Access protection	3 levels password, IP address filtering	3 levels password, IP address filtering
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
System requirement (recommended)	
0\$	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro	Windows Vista Business (SP2), Windows XP pro (SP3), Windows 7 pro
CPU	Core 2 Duo (3 GHz)	Core 2 Duo (3 GHz)
Memory	More than 2 GB	More than 2 GB
HDD space	More than 1 GB	More than 1 GB
Display/Video card	1 024 × 768 pixels, true color (24-bit or 32-bit)	1 024 × 768 pixels true color (24-bit or 32-bit)

27x PTZ Network Dome Camera

VN-V685U True D/N Privacy Display Direct One-Touch Dual Drive Lock Stream 3D Noise lmage Stabilizer ▶ 1/4" high resolution IT CCD with 380,000 effective pixels ► 27x optical zoom lens and 32x electronic zoom ▶ MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA ► True Day/Night surveillance with auto IR cut filter on/off ► 3D noise reduction (3DNR) ► Active gamma function (Easy wide-D) for backlight compensation ► Superior Direct Drive motor mechanism provides 2 million zoom / 5 million pan and tilt / 4million focus operations ► Image stabilizer for reducing image blur ► Auto tracking function

- ► 8 areas privacy mask
- "One-touch lock" quick and easy installation
- Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- Web based setup and viewing tool and access protection
- > 20 simultaneous users, unlimited users by multicasting
- ► 24 VAC/PoE
- ► Trigger input by built-in motion detection and external alarm input
- Pre/Post alarm buffer of 8 MB
- ► Alarm terminal (input × 2, output × 2)

36x PTZ Network Dome Camera

VN-V686BU	True D/N 3D Noise Privacy Display Image Direct One-Touch Dual Reduction Mask Mode Stabilizer Drive Lock Stream
	 1/4" high resolution IT CCD with 380,000 effective pixels 36x optical zoom lens and 32x electronic zoom MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA True Day/Night surveillance with auto IR cut filter on/off 3D noise reduction (3DNR) Active gamma function (Easy wide-D) for backlight compensation Superior Direct Drive motor mechanism provides 2 million zoom / 5 million pan and tilt / 4million focus operations Image stabilizer for reducing image blur Auto tracking function 8 areas privacy mask "One-touch lock" quick and easy installation Built-in display mode (LCD1/LCD2/CRT/Custom selectable) Web based setup and viewing tool and access protection 20 simultaneous users, unlimited users by multicasting 24 VAC/PoE Trigger input by built-in motion detection and external alarm input

- ► Pre/Post alarm buffer of 8 MB
- ► Alarm terminal (input × 2, output × 2)

Color Camera

Technical Information

36x Outdoor PTZ Network Dome Camera

VN-V686WPBU



True D/N Privacy Display Image Stahiliz IP66

- ▶ 1/4" high resolution IT CCD with 380,000 effective pixels
- ► Ready for outdoor installation with wall mount housing and IP66-compliant
- ► 36x optical zoom lens and 32x electronic zoom
- ▶ MPEG-4/Motion JPEG full frame (30 fps each) dual stream in VGA
- ► True Day/Night surveillance with auto IR cut filter on/off
- ► 3D noise reduction (3DNR)
- ► Active gamma function (Easy wide-D) for backlight compensation
- ► Superior Direct Drive motor mechanism provides 2 million zoom / 5 million pan and tilt / 4million focus operations
- ► Image stabilizer for reducing image blur
- ► Auto tracking function
- ► 8 areas privacy mask
- ► Built-in display mode (LCD1/LCD2/CRT/Custom selectable)
- Web based setup and viewing tool and access protection
- > 20 simultaneous users, unlimited users by multicasting
- ► 24 VAC/PoE *without heater
- Trigger input by built-in motion detection and external alarm input
- ► Pre/Post alarm buffer of 8 MB
- ► Alarm terminal (input × 2, output × 2)



RCVN686

Technical Information

System Information

Color Camera

Recorder

	VN-V685U	VN-V686BU
Camera		
Image device	1/4" IT CCD	1/4" IT CCD
Number of effective pixels	380,000 (768 H × 494 V)	380,000 (768 H × 494 V)
Minimum illumination (typical) < B&W mode >	1.0 lx (50%, F1.6, AGC super) 0.5 lx (25%, F1.6, AGC super) 	1.0 lx (50%, F1.6, AGC super) 0.5 lx (25%, F1.6, AGC super) <
White balance	ATW/AWC	ATW/AWC
Wide dynamic range function	Active gamma (Easy wide-D)	Active gamma (Easy wide-D)
Backlight compensation	Yes (4 areas are selectable)	Yes (4 areas are selectable)
Shutter speed	Select from menu (1/60 s to 1/10,000 s)	Select from menu (1/60 s to 1/10,000 s)
Lens		
Zoom ratio	27x optical (3.4mm to 92.6mm) 32x electronic	36x optical (3.4 mm to 122 mm), 32x electronic
Max. aperture ratio	F1.6	F1.6
Auto focus	Easy AF/One push AF	Easy AF/One push AF
Mechanism		
Preset position	100 positions	100 positions
Panning	360° endless rotation	360° endless rotation
Panning speed	0.04 °/s to 400 °/s	0.04 °/s to 400 °/s
Tilting	-5° to 185°	-5° to 185°
Tilting speed	0.04 °/s to 400 °/s	0.04 °/s to 400 °/s
General		
Alarm I/O	Input × 2, Output × 2	Input × 2, Output × 2
Power supply	24 VAC (50 Hz/60 Hz) /48 VDC (PoE)	24 VAC (50 Hz/60 Hz) /48 VDC (PoE)
Power consumption	1.2 A (24 VAC) /12.95 W (PoE)	1.2 A (24 VAC) /12.95 W (PoE)
Operating temperature range < recommended >	14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >	14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
Dimensions	ø 6-1/4 inches × 7-7/8 inches (ø 160 mm × 201 mm (H))	ø 6-1/4 inches × 7-7/8 inches (ø 160 mm × 201 mm (H))
Weight (approx.)	4.2 lbs. (1.9 kg)	4.2 lbs. (1.9 kg)
Network		
Network interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, VSIP	TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, VSIP
Picture Resolution (pixel)	320 × 240, 640 × 480	320 × 240, 640 × 480
Compression	Motion JPEG, MPEG-4	Motion JPEG, MPEG-4
Frame rate	30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 × 480 simultaneously (full frame dual stream)	30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 × 480 simultaneously (full frame dual stream)
Internal storage capacity	8 MB (RAM)	8 MB (RAM)
Access protection	3 levels password, IP address filtering	3 levels password, IP address filtering
Motion detection	Yes	Yes
Web server	Yes	Yes
Data transmission	Unicast/Multicast	Unicast/Multicast
System requirement (recommende	1)	
0\$	Windows Vista Business (SP1), Windows XP pro (SP2) /home (SP2)	Windows Vista Business (SP1), Windows XP pro (SP2) /home (SP2)
CPU	Pentium 4 (1.5 GHz)	Pentium 4 (1.5 GHz)
Memory	More than 1 GB	More than 1 GB
HDD space	More than 512 MB	More than 512 MB
Display/Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)	1,024 × 768 pixels, true color (24-bit or 32-bit)

		VN-V686WPBU
Camera		
lmage de	evice	1/4" IT CCD
Number	of effective pixels	380,000 (768 H × 494 V)
Minimun < B&W m	n illumination (typical) 10de >	1.0 Ix (50%, F1.6, AGC super) 0.5 Ix (25%, F1.6, AGC super) $\langle 0.08$ Ix (50%, F1.6, AGC super) $\langle 0.04$ Ix (25%, F1.6, AGC super) \rangle
White ba	lance	ATW/AWC
Wide dyr	namic range function	Active gamma (Easy wide-D)
Backligh	t compensation	Yes (4 areas are selectable)
Shutter s	speed	Select from menu (1/60 s to 1/10,000 s)
Lens		
Zoom rat	tio	36x optical (3.4 mm to 122 mm), 32x electronic
Max. ape	erture ratio	F1.6
Auto focu	us	Easy AF/One push AF
Mechanism	l	
Preset po	osition	100 positions
Panning		360° endless rotation
Panning	speed	0.04 °/s to 400 °/s
Tilting		-5° to 185°
Tilting sp	peed	0.04 °/s to 400 °/s
General		
Alarm I/0	D	Input × 2, Output × 2
Power su	ıpply	24 VAC (50 Hz/60 Hz) / 48 VDC (PoE) *without heater
Power co	onsumption	1.2 A(24 VAC) / 12.95 W (PoE) *without heater
Operatin < recomr	g temperature range nended >	14 °F to 122 °F (-10 °C to 50 °C) < 32 °F to 104 °F (0 °C to 40 °C) >
Dimensio	ons	ø 10-1/4* inches × 15-1/8** inches × 13-3/4** inches (ø 260* mm × 385** mm (H) × 350** mm (D))
Weight (approx.)	12.2 lbs. (5.5 kg)
Network		
Network	interfaces	RJ-45 (Cat 5): 10 BASE-T/100 BASE-TX
Protocol		TCP/IP, UDP/IP, FTP, ICMP, ARP, DHCP, SNTP, HTTP, DSCP, SMTP, RTP, IGMP, IPv6, VSIP
Picture	Resolution (pixel)	320 × 240, 640 × 480
_	Compression	Motion JPEG, MPEG-4
Frame ra	ite	30 fps (max.) per each stream of Motion JPEG and MPEG-4 in 640 × 480 simultaneously (full frame dual stream)
Internal	storage capacity	8 MB (RAM)
Access p	rotection	3 levels password, IP address filtering
Motion d	etection	Yes
Web serv	ver	Yes
Data trar	nsmission	Unicast/Multicast
System req	uirement (recommended)	
0\$		Windows Vista Business (SP1), Windows XP pro (SP2) /home (SP2)
CPU		Pentium 4 (1.5 GHz)
Memory		More than 1 GB
HDD spa	ce	More than 512 MB
Display/	Video card	1,024 × 768 pixels, true color (24-bit or 32-bit)

System Information

Color Camera

Network Camera

System Information

Information echnical

Glossary

Multi Codec Network Video Recorder



Data export function

Storage period

Strage period (VF	Strage period (VR-X1600U/VR-X3200U)															
Built-in 1TB (Hour)																
H.264										JPEG						
lmage size	FullHD 30ips	720P 30ips	FullHD 15ips	720P 30ips	VGA 30ips	VGA 15ips	VGA 1ips	VGA (Low quality) 1ips	VGA, 35KB							
Bit rate	3.6Mbps	2Mbps	1.8Mbps	1Mbps	660Kbps	330Kbps	128Kbps	64Kbps	30ips	15ips	10ips	5ips	3ips	1ips	0.5ips	0.2ips
16ch/without sound	_	58	65	117	181	632	933	1866	_		47	93	156	467	933	2333
16ch/with 2ch sound	-	58	65	116	179	353	878	1659			47	93	154	452	878	2018
32ch/without sound	—		I	58	90	181	467	933	I		_	47	78	233	467	1166
32ch/with 2ch sound	_			58	90	179	452	878	_		_	47	77	230	452	1082

8TB (4TB internal + 4TB external, no RAID)

3TB (4TB internal + 4TB external, no RAID) (Hour											(Hour)					
		H.264							JPEG							
lmage size	FullHD 30ips	720P 30ips	FullHD 15ips	720P 30ips	VGA 30ips	VGA 15ips	VGA 1ips	VGA (Low quality) 1ips	VGA, 35KB							
Bit rate	3.6Mbps	2Mbps	1.8Mbps	1Mbps	660Kbps	330Kbps	128Kbps	64Kbps	30ips	15ips	10ips	5ips	3ips	1ips	0.5ips	0.2ips
16ch/without sound	_	481	534	962	1492	2984	7692	15384		_	385	769	1282	3846	7692	19230
16ch/with 2ch sound		479	532	954	1474	2913	7240	13675			383	764	1269	3730	7240	16632
32ch/without sound	I			481	746	1492	3846	7692				385	641	1923	3846	9615
32ch/with 2ch sound	_			479	741	1474	3730	7240				383	638	1893	3730	8918

4TB internal, RAIDIO

	H.264							JPEG								
lmage size	FullHD 30ips	720P 30ips	FullHD 15ips	720P 30ips	VGA 30ips	VGA 15ips	VGA 1ips	VGA (Low quality) 1ips	VGA, 35KB							
Bit rate	3.6Mbps	2Mbps	1.8Mbps	1Mbps	660Kbps	330Kbps	128Kbps	64Kbps	30ips	15ips	10ips	5ips	3ips	1ips	0.5ips	0.2ips
16ch/without sound	65	117	130	237	368	736	1899	3797	_	63	95	190	316	949	1899	4747
16ch/with 2ch sound	65	116	129	235	364	719	1787	3375	_	63	95	189	313	921	1787	4105
32ch/without sound	_	_	65	119	184	368	949	1899	_	_	_	95	158	475	949	2373
32ch/with 2ch sound	_	_	65	118	183	364	921	1787	_		_	95	157	467	921	2201

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(Hour)

	VR-X1600U	VR-X3200U
Camera channel	16 (Up to 32-ch in total by additional channel option)	32 (Up to 64-ch in total by additional channel option)
Video compression	H.264/JPEG/MPEG-4	H.264/JPEG/MPEG-4
Audio compression	µ-law (64kbps) A/D 8-bit, Fs 8 KHz	μ-law (64kbps) A/D 8-bit, Fs 8 KHz
Analogue video input	-	-
Frame rate (720P, H.264)	Recording/Display/Distribution: 100/100/100, 240/0/100 (without live viewing)	Recording/Display/Distribution: 150/150/150, 240/0/150 (without live viewing)
Recording frame rate for analogue input	-	-
CPU and memory	Intel G6950 Dual-Core (2.8 GHz) RAM: 4 GB	Intel Core i3 (3 GHz) RAM: 4 GB
HDD capacity	1 TB	1 TB
Additional HDD	3 TB (Optional bracket VR-HDDOU is required)	3 TB (Optional bracket VR-HDDOU is required)
NAS	Yes	Yes
RAID	1/5/10, 6 (optional)	1/5/10, 6 (optional)
Master slave configuration	Yes	Yes
Export function	Export media: USB memory, CD-R/RW or DVD-R/RW (USB ex Export format: AVI (video), JPEG (image), database (internal f	ternal) format)
Recording function	Alarm recording, Scheduled recording, Manual recording	
Playback function	Normal/Slow/Fast playback, fast forward and reverse, Frame-	by frame playback, simulataneous playback/recording
Search function	Time/Date search, Alarm search, Motion detection on playbac	k images
Security	Protected by user name and password	
Language	English	
Supported protocol	HTTP, SMTP (client), TCP, DHCP (client/IP lease), ARP, DNS (client), NTP, SNMP (Ver. 1 and 2c), DDNS, SMNP
Minimum requirements OS for remote PC CPU RAM Network Graphic card HDD capacity for installation Software	Microsoft Windows XP Professional*, Windows Server 2003*, Windows Vista (Business*, Enterprise*, Ultimate*), Windows Intel Core2 Duo, 2.4 GHz or higher 1 GB Ethernet, 100 Mbit or higher AGP or PCI-Express, minimum 1,024 × 768 (1,280 × 1,024 reco Minimum 100 MB free DirectX 9.0 or newer required to run Playback Viewer application	, Windows Server 2008 R1*/R2*, 7 (Professional*, Enterprise*, Ultimate*) *32-bit or 64-bit ommended), 16-bit color on. Microsoft .NET 4.0 Framework
Remote PC operation	Live viewing, Playback of recording images, Camera control, E	Data export
I/F LAN 1 LAN 2 Serial Display output External storage Audio in Audio out Alarm terminal	1000 BASE-T, 100 BASE-TX, 10 BASE-T 1000 BASE-T, 100 BASE-TX, 10 BASE-T USB 2.0 × 6 RGB × 1 DVI × 1 (Digital only) eSATA × 1 mini jack mini jack Alarm in × 8 Alarm reset in, OPE on/off, Warning out, REC tally	
Power supply	120 VAC – 240 VAC	
Power consumption	Max. 1.2 A (120 VAC)	
Operating temperature	41 °F to 104 °F (5 °C to 40 °C)	
Dimension (W × H × D)	16-5/8 inchs × 5-5/8 inchs × 14-5/3 inchs 420 mm × 140 mm × 350 mm	
Weight (approx.)	20 lbs. (9.1 kg) excluding power supply	
Accessories	Startup guide, Power cord, Rack mount brackets	

Combination of brackets and cameras										
Br	Camera acket	VN-V685U VN-V686BU	VN-V686WPBU	TK-C2201UA VN-H237U VN-H257U	TK-C2301WPRU TK-C2201WPUA VN-H237VPU VN-H257VPU VN-H257VPU VN-T216VPRU	TK-T8101WPRU VN-H157WPU				
	Pendant mount WB-S681U	Yes	No		No	No				
	Pendant mount PMTK-C205W	No	Na		Yes	Na				
	Wall mount WB-S682F	Yes	Ne		Ne					
	Wall mount WMTK-C205W				Yes					
bracke	Ceiling recessed bracket RCVN686	Yes			Na					
ptional	Ceiling recessed bracket WB-S2205	Na		Yes						
0	Ceiling recessed bracket CMTK-C205VP	Na			Yes					
	Outdoor pendant mount WB-S684U	No	Yes		No	No				
	Corner mount JCA2	No	Yes		No	No				
	Pole mount JPM3	No	Yes		No	No				
ree	Recessed mount	No	No		No	No				
cket-f	Direct mount	Yes Ceiling	No	Yes Wall/Ceiling	Yes Wall/Ceiling	No				
Bra	Outdoor installation	No	Yes Wall		Yes Wall/Ceiling	Yes Wall/Ceiling				

Mounting drawings and specifications





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Unit: inch (mm)

3-3/8 (85)

3-3/8 (85)

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Mounting drawings and specifications



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8 Focus adjustment	function		Focus	9 Pr
When the focus adjustment function open for about 30 seconds before a in a shallow depth of field (high-sp adjust focus.	on is turned "ON", t returning to its orig eed shutter) and n	he lens iris ginal positi nakes it mu	is focused fully on. This results ch easier to	Using th purpose
What is depth of fiel lens focused on the main objec front of and behind the main ob referred to as the "depth of field broad, the depth of field is said narrow, the depth of field is said deep, the video will appear to be in focus from front to	d? When a st, there is a zone in ject appear to be id.". When the zone to be "deep", and d to be "shallow".	video is tak n which obj n focus. Ti of acceptal when the zo If the depth Shallow	ten with the ects both in his zone is ble focus is ne is n of field is Deep	without
back. If the depth of field is shallow however only the	Lens	Tele angle	Wide angle	
main object will actually be	Exposure	Open	Narrow	Object ca
in focus.	Position of object	Close	Far	TK-C1530
Object cameras: TK-C9300UA, TK-C920 TK-C1530U, TK-C2201UA, TK-C2201WPU <i>F</i>	0UA, TK-C9510U, TK-\ \ and TK-C2301WPRU	VD9601U, TK [.]	-C8301RU,	VN-H257
10 Active/Variable ga	amma func	tion (Eas	sy wide-D)	12 Im
Gamma value is highly related to the screen. Active gamma function pre- according to the darkness of the in	ne total appearance ovides automatic g nage because of th	e of dark ar jamma adju e backlight	eas on the Istment condition.	Image s shook b functior
Variable gamma function allows the users setup the gamma			125	Proces
adjustment manually.	1.12	27	10 C	The cam
				device c visible a during t and cutt
A STREET	-	1		
Normal Near area is dark and can not be recognized against the lights.	Active/Variable Gamma is compen can be recognized.	gamma sated so tha	t the dark area	
Object cameras of active gamma: VN	-V685U, VN-V686BU a	nd VN-V686W	/PBU	
_				
11 Display mode			Display Mode	
By changing the "Monitor Type" set the video, the improved picture qua related to the value of gamma and mode, dark areas are not reproduc seen slightly whitish on LCD monit on black areas. Display mode can happened by the characters of disp	ting according to f ality can be availab enhance paramete ed with appropria ors, or some noise help reducing thes plays used.	the monitor Ile. This se rs. For exa te gray leve es are visua e kinds of p	used to display tting is highly mple in CRT I and can be Ily-enhanced problems	All pi

Monitor type (mode)	
CRT	This mode offers the picture quality setting for CRT (cathode-ray tube) monitors.
LCD1/LCD2	This mode offers picture quality setting for LCD monitors, gamma and enhance value is tuned specifically for LCD monitors. LCD1 and LCD2 have different gamma values.
CUSTOM	Enables setting of picture quality according to the user's preference.

Object cameras: The models having the [Display mode] icon on the introduction pages have thsi function.

Privacy mask

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



Object cameras: TK-C9300UA, TK-C9200UA, TK-C9510U, TK-C9601U, TK-C8301RU, TK-C1530U, TK-C2201UA, TK-T2101RU, TK-C2201WPUA, TK-C2301WPRU, TK-T8101WPRU, VN-H37U, VN-H137U, VN-H57U, VN-H157WPU, VN-H237U, VN-H237VPU, VN-H257U, VN-H257VPU, VN-V685U, VN-V686BU and VN-V686WPBU

12 Image stabilizer

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

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

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



Object cameras: VN-V685U, VN-V686BU and VN-V686WPBU

Privacy

iechnica nformati

13 Megapixel



Bi-directional audio 15

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



16 Fine focus adjust [Patent Pending]

For assisting focusing to the finest point, the Variable-Focal lens now incorporates a newly developed focus screw mechanism (Patent Pending).



Recorde

17 Various functions of PTZ dome camera

Auto flip

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

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

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 patrol

18

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

Object cameras: VN-V685U, VN-V686BU and VN-V686WPBU

Direct drive for PTZ mechanism

Auto trace

Auto trace fu 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 return

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

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

Motion detection

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

Auto tracking (VN-V685/686 series) Intelligent auto tracking (VN-V685/686 series)

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

Recorder

The newly developed direct drive rotation platform rotates the camera by motor mechanism instead of conventional belt drive mechanism. Smaller number of parts used inside this direct drive extends the life of pan/tilt movement mechanism than conventional method. The direct drive offers also the following advantages. Accurate positioning ±0.03° position accuracy Fast movement 400° per a second at fastest : VN-V685/686 series Slow movement 0.04° per a second at slowest Silent pan/tilt movement

Pan motor (inside) -

Tilt motor _

Object cameras: VN-V685U, VN-V686BU and VN-V686WPBU



20 Dust ar	nd wate	er protecti Degrees of	ON (IP code) Degree	es of protection provided by electrical machinery and apparatus enclosures IP66
		Second characteristic numeral	Degree of protection (summary)	Degree of protection (definition)
Protection International		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	5 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					

Object cameras: TK-C2201WPUA, TK-C2301WPRU, TK-T8101WPRU, VN-H157WPU, VN-T216VPRU, VN-H237VPU, VN-V686WPBU and WB-S684U

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21 Easy installation

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



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





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



 $\begin{array}{c} \textbf{2.} \ \text{Mount the camera base to} \\ \text{the ceiling using conduit. }^{*2} \end{array}$





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



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



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

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

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



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



ne-Touc Lock

Object cameras: TK-C2201WPUA, TK-C2301WPRU, VN-H237VPU and VN-H257VPU

22 One-touch lock installation

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

Eg.: Direct mount installation



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



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



3. Installation completed!



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

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• 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.

f = Focal length of lens being used (mm) L = Distance between object and camera (m)

26 Network specific information

IP adress

What is a private (local) IP address ?

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

What is a global IP address ?

Global IP address is an IP address that is assigned to a device connected to the Internet. This address is indispensable for carrying out transmissions via the Internet. "192.168.0.2" is the IP address set in the initial settings for JVC IP products.

Example:



Simultaneous access by multiple users

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

Unicast and Multicast

Unicast transmission

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



Multicast transmission

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

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



PoE (Power over Ethernet)

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

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



Alarms

JVC IP cameras have two inputs and two outputs alarm terminals. Either a less voltage a-contact or c-contact output-type alarm input sensor should be employed. Since alarm output is NPN open collector output, NPN open collector output must be converted to less-voltage a-contact output when using a general sequencer. In addition, it is important to note that the GND must be connected to a control device. In the event that the control device has no GND, the JVC IP camera's GND should be connected to the COM terminal. When distributing an alarm to several multi-viewers or recorders with a single camera, it is possible to make actions depend on the function of devices.

File size

JPEG recorded file size calculation for 1 camera JPEG data size per image (approximate data)

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

Example:

Camera setting: Resolution 320 × 240, Compression rate 2, Frame rate 2 fps **Q**: What is the file size for 1 day recording ?

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

Q: How many days is the recording possible with 40 GB HDD ? **A:** $40(GB) \div 2.59(GB) = 15.444 = 15(days)$

Bit rate of JPEG stream

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

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

10 + 10 + 10 = 30 fps

If the JPEG file size per frame is 30 KB, then the total bit rate will be: $30~KB\times 30~fps=900~KB/s=Approx.~7.2~Mbps$

Bit rate of MPEG-4 stream

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

Bit rate of audio (In case of VN-V26U, VN-X35U, VN-V225U/VPU and VN-X235U/VPU)

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

The number of streams is the total number of streams sent via TCP (number of clients), streams sent via multicast, and stream received by VN-V26U. For example, when VN-V26U sends out 2 audio streams and receives 1 audio stream, data volume will be as follows. 64 kbps × 3 streams = 192 kbps

PoE

Dual stream (MPEG-4 & JPEG)

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



API (Technical information for software developers)

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

Local JVC sales office :

http://www.jvc-victor.jp/english/worldmap_pro/index.html

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Dual Stream

Automatic gain control (AGC)

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

Application program interface (API)

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

Automatic electronic shutter (AES)

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

Auto negotiation

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

Auto white balance (AWB)

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

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.

Category 5 (Cat 5), Category 6 (Cat 6)

This refers to the quality assurance of connection parts such as unshielded twisted pair (UTP) cables and connectors. For 100 BASE-TX, category 5 and above are used, category 5e and above are required for 1,000 BASE-T, and category 6 are used for 1,000 BASE-TX.

Charge coupled device (CCD)

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

Closed circuit television (CCTV)

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

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.

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.

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

Ε

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

Firewall

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

Frame rate

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

File transfer protocol (FTP)

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

FTP client function

This function makes it possible to periodically upload images from the camera (JPEG still images only) to any FTP server.

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.

В

С

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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.264

Н

One of the latest video compression scheme in the MPEG-4 format. H.264 is sometimes referred to as "MPEG-4 Part 10" or as "AVC". It is becoming the digital video standard for consumer electronics and personal computers thanks to the better compression efficiency than precious compression schemes.

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 (IEEE 1394)

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

Internet Group Management Protocol (IGMP)

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

IPv6

IPv6 stands for Internet Protocol version 6. It is the second version of the Internet Protocol to be used generally across the virtual world. The first version was IPv4 and the main upgrades in IPv6 is in the number of addresses available for networked devices. This is mainly due to the number of bits in each protocol. IPv4 addresses have 32 bits in them and so allow a maximum of four billion addresses. IPv6 addresses have 128 bits. However, IPv4 is still the protocol of choice for most of the Internet currently.

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.

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.

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.

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.

MPEG-4

One of the latest audio and video compression method standarded by MPEG group. This format is designed specially for low-bandwidth, less than 1.5Mbps video/audio encoding purposes. MPEG-4 itself is not just one unified encoding mechanism, but rather a group name for several styles of video and audio encoding methods, referred as "profiles" or "layers".

Multicast

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

NAS

Ν

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

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Р

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.

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.

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.

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 image quality.

Real-time transport protocol (RTP)

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

Router

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

S S/N ratio

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

Smear

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

Simple network management protocol (SNMP)

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

Subnetmask

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

Switch

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

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).

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.

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.

Wide dynamic range function

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.

Iechnical Informatior

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Products		Features	Specification
TK-C1530U	1/3" Day/Night Camera	P. 4	P.10
TK-C2201UA	1/3" Super LoLux Mini Dome Camera (Vandal Resistant)	P. 5	P.11
TK-C2201WPUA	1/3" Super LoLux Dome Camera (Vandal Proof)	P. 6	P.12
TK-C2301WPRU	1/3" Super LoLux Dome Camera with IR (Vandal Proof)	P. 6	P.12
TK-C8301RU	1/3" Super LoLux Camera with IR	P. 4	P.10
TK-C9200UA	1/3" Super LoLux Camera	P. 2	P. 8
TK-C9300UA	1/3" Super LoLux Camera	P. 2	P. 8
TK-C9510U	1/2" Super LoLux Camera	P. 3	P. 9
TK-T2101RU	1/3" LoLux Mini Dome Camera with IR	P. 5	P.11
TK-T8101WPRU	1/3" LoLux Bullet Camera with IR	P. 7	P.13
TK-WD9601U	1/3" Super WDR Camera	P. 3	P. 9
VN-H157WPU	Super LoLux HD Network Bullet Camera	P.16	P.22
VN-H137U	Super LoLux HD Network Camera	P.15	P.21
VN-H237U	Super LoLux HD Network Mini Dome Camera (Vandal Resistant)	P.18	P.24
VN-H237VPU	Super LoLux HD Network Dome Camera (Vandal Proof)	P.18	P.24
VN-H257U	Super LoLux HD Network Mini Dome Camera (Vandal Resistant)	P.19	P.25
VN-H257VPU	Super LoLux HD Network Dome Camera (Vandal Proof)	P.19	P.25
VN-H37U	Super LoLux HD Network Camera	P.15	P.21
VN-H57U	Super LoLux HD Network Camera	P.16	P.22
VN-T16U	LoLux HD Network Camera	P.14	P.20
VN-T216U	LoLux HD Network Mini Dome Camera	P.17	P.23
VN-T216VPRU	LoLux HD Network Dome Camera with IR (Vandal Proof)	P.17	P.23
VN-V685U	27x PTZ Network Dome Camera	P.26	P.28
VN-V686BU	36x PTZ Network Dome Camera	P.26	P.28
VN-V686WPBU	36x Outdoor PTZ Network Dome Camera	P.27	P.29
VR-X1600U	Multi Codec Network Video Recorder	P.30-P.31	P.32
VR-X3200U	Multi Codec Network Video Recorder	P.30-P.31	P.32

Color Camera

Glossary

System Information

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