

Progressive Scan Industrial Camera Series Featuring GigE Vision Interface

GigE Vision

Cameras for Industries



Gigabit Ethernet

High speed (1Gbps) & long distance (100m) transfer
Available PoE (Power over Ethernet) Power Supply

Compatible with GigE Vision™ & GENiCAM™

Color Cameras

- KP-FD500GV** 5 Mega pixel, 9fps
- KP-FD202GV** UXGA, 30fps
- KP-FD140GV** SXGA, 30fps
- KP-FD83GV** XGA, 36fps
- KP-FD33GV** VGA, 90fps

Black & White Cameras

- KP-F500GV** 5 Mega pixel, 16fps
- KP-F202GV** UXGA, 30fps
- KP-F140GV** SXGA, 30fps
- KP-F83GV** XGA, 36fps
- KP-F33GV** VGA, 90fps



Actual Size

3CCD Color Camera

HV-F22GV SXGA, 15fps

Actual Size



GigE Vision — Main features

Speed: 1Gbps Distance: 100m



Gigabit Ethernet interface

Direct connection is possible to PC by the Gigabit Ethernet cable. This cable is less bulky compared to parallel digital output cabling. The GigE Cable length can be extended to maximum of 100m without hub and switcher

GigE Vision™ (Ver 1.00) compatible

GigE Vision, the Industrial camera interface standard, provides high speed data transmission at a maximum of 1Gbps which is highly suitable for image processing.

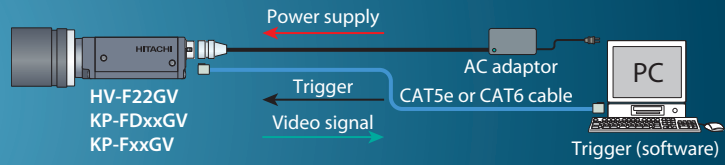
GENiCAM™ (Ver 1.00) compatible

Using the industrial camera control API "GENiCAM", which is supported by the European Machine Vision Association (EMVA), the development of camera control system is simplified.

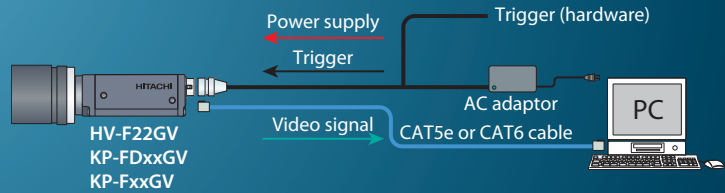
PoE correspondence (except HV-F22GV)

An Ethernet cable provides Power supply (Power over Ethernet).

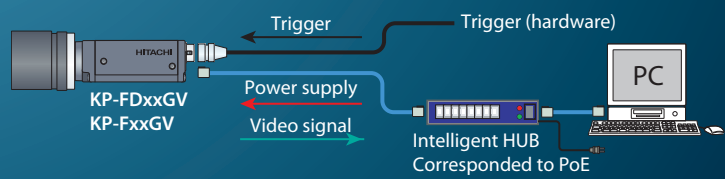
Direct connection to PC and triggered via Ethernet (software trigger)



Direct connection to PC and triggered via multi-connector (Hardware trigger)



Connection via HUB/switcher to PC and power supply via the Ethernet (PoE)



Specifications

| | | KP-F33GV | KP-F83G30V | KP-F140GV | KP-F202GV | KP-F500GV |
|--------------------------|-------------------------|--|---|--|---|---|
| Imaging device | | 1/3-inch progressive scan interline CCD (with on-chip microlenses) | | 1/2-inch progressive scan interline CCD (with on-chip microlenses) | 1/1.8-inch progressive scan interline CCD | 2/3-inch progressive scan interline CCD |
| | Total number of pixels | 692(H) x 504(V) | 1077(H) x 788(V) | 1434(H) x 1050(V) | 1688(H) x 1248(V) | 2536(H) x 2068(V) |
| | No. of effective pixels | 656(H) x 494(V) | 1034(H) x 779(V) | 1392(H) x 1040(V) | 1628(H) x 1236(V) | 2456(H) x 2058(V) |
| | Pixel size | 7.4 μm(H) x 7.4 μm(V) (Square pixel) | 4.65 μm(H) x 4.65 μm(V) (Square pixel) | | 4.4 μm(H) x 4.4 μm(V) (Square pixel) | 3.45 μm(H) x 3.45 μm(V) (Square pixel) |
| Scanning area | | 4.88 mm(H) x 3.66 mm(V) | 4.76 mm(H) x 3.57 mm(V) | 6.32 mm(H) x 4.76 mm(V) | 7.16 mm(H) x 5.44 mm(V) | 8.47 mm(H) x 7.10 mm(V) |
| Scanning system | | Progressive | | | | |
| Sync system | | Internal / external | | | | |
| Lens mount | | C mount | | | | |
| Flange focal distance | | 17.526 mm | | | | |
| Video output | Interface | Gigabit Ethernet | | | | |
| | Protocol | GigE Vision compliant | | | | |
| | Transfer rate | 1 Gbit per second | | | | |
| | Image format | MONO 8 / 10 / 12 bit | | | | |
| | Image size | 640(H) x 480(V) | 1024(H) x 768(V) | 1360(H) x 1024(V) | 1620(H) x 1220(V) | 2448(H) x 2050(V) |
| | Frame rate | 90 frames per second | 36 frames per second | 30 frames per second | | 16 frames per second |
| Sensitivity | | 2000 lx, F11, 3200K | | | 2000 lx, F8, 3200K | 400 lx, F8, 3200K |
| Electric shutter speed | | OFF/Auto (AES) / Manual(PRESET or VARIABLE), OFF is normal exposure(frame rate) | | | | |
| | PRESET | 1/90, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/50000 second | 1/36, 1/60, 1/125, 1/250, 1/1000, 1/2000, 1/10000, 1/50000 second | 1/30, 1/60, 1/100, 1/250, 1/1000, 1/2000, 1/10000, 1/50000 second | | 1/16, 1/60, 1/100, 1/250, 1/1000, 1/2000, 1/10000, 1/50000 second |
| | VARIABLE | From 10 second to approx. 1/100000 second | | | | |
| External trigger shutter | Mode | Fixed shutter. One trigger, VD Sync, Reset control | | | | |
| | Input | Via Gigabit Ethernet cable (Software trigger), 12-pin connector (Hardware trigger) | | | | |
| | Input level | 5Vp-p ±1 V | | | 24Vp-p ±1 V | |
| External sync signal | VD output | 5Vp-p ±0.3 V | | | | |
| | Strobe out | 5Vp-p ±0.3 V | | | | |
| Binning mode | | OFF / ON | | | | |
| Partial scan | | Grabbing image area is adjustable at horizontal / vertical | | | | |
| ALC (Auto level control) | | Adjustable for video level | | | | |
| Gain | | Auto / Manual (0 dB to 18 dB) | | | | Auto / Manual (0 dB to 12 dB) |
| Gamma | | OFF (γ=1) / ON | | | | |
| Sharpness | | Adjustable | | | | |
| Black level | | Adjustable | | | | |
| Power supply | | DC+12 V ± 1V (input from 12-pin connector), 48 V (PoE) | | | | |
| Power consumption | | Approx. 4.0 W (DC+12 V) | | | Approx. 7.5 W (DC+12 V) | Approx. 7.8 W (DC+12 V) |
| Ambient temperature | Performance | 0 °C to +40 °C / 30 to 80 %RH | | | 0 °C to +40 °C / 90 %RH or less | |
| | Operating | -10 °C to +50 °C / 30 to 80 %RH | | | -10 °C to +50 °C / 90 %RH or less | |
| | Storage | -20 °C to +60 °C / 20 to 90 %RH | | | -20 °C to +60 °C / 70 %RH or less | |
| Vibration endurance | | 68.65 m/s ² or less(10 to 200 Hz, 30 minutes each on XYZ axes) (Do not subject to strong vibration for long periods of time.) | | | 98.6 m/s ² or less(15 to 200 to 15 Hz, 10 minutes each on XYZ axes) (Do not subject to strong vibration for long periods of time.) | |
| Shock endurance | | 490.3 m/s ² or less (vertical, horizontal, once each face) | | | | |
| External dimensions | | 44(W) x 29(H) x 72(D) mm(not including lens and protrusions) | | | | |
| Mass | | Approx. 140 g (without lens) | | | | |
| Supplied equipment | | Camera and CD-ROM (Operation manual / driver software) | | | | |
| Optional accessories | | Tripod adaptor (TA-M1), LAN cable (Enhanced category 5 or Category 6) | | | | |

1CCD Black & White / Color Models

High resolution & High Frame rate

| Model | CCD | Effective pixels | Frame rate |
|---------------------------------------|-------|-------------------|------------|
| Color (1CCD, RGB/YUV/RAW/MONO) | | | |
| KP-FD500GV | 2/3 | 2456(H) x 2058(V) | 9 fps *1 |
| KP-FD202GV | 1/1.8 | 1628(H) x 1236(V) | 30 fps *1 |
| KP-FD140GV | 1/2 | 1392(H) x 1040(V) | 30 fps *2 |
| KP-FD83GV | 1/3 | 1034(H) x 779(V) | 36 fps |
| KP-FD33GV | 1/3 | 656(H) x 494(V) | 90 fps |
| Black & White (MONO) | | | |
| KP-F500GV | 2/3 | 2456(H) x 2058(V) | 16 fps |
| KP-F202GV | 1/1.8 | 1628(H) x 1236(V) | 30 fps |
| KP-F140GV | 1/2 | 1392(H) x 1040(V) | 30 fps |
| KP-F83GV | 1/3 | 1034(H) x 779(V) | 36 fps |
| KP-F33GV | 1/3 | 656(H) x 494(V) | 90 fps |

*1: RAW 8bit *2: Up to SXGA (1280(H) x 960(V)) readout

High color accuracy (Color Model)

The RGB primary color mosaic filter achieves high color reproduction.

Versatile CCD drive functions

- Auto electronic Shutter mode (AES)
Adjusted automatically from 10 second to approx. 1/100,000 second.
- Preset electronic shutter mode
Multi-step up to 1/50000 second in 8 steps.
- Variable electronic shutter mode
Variable at 1H steps from 10 second to approx. 1/100,000 second.

White balance (Color Model)

- ATW : Auto-tracking white balance mode
- MANUAL : Manual white balance (R, B gain control)
- One-Push : Auto adjust function

Specifications

| | | KP-FD33GV | KP-FD83GV | KP-FD140GV | KP-FD202GV | KP-FD500GV |
|--------------------------|-------------------------|--|---|---|---|--|
| Imaging device | Total number of pixels | 692(H) x 504(V) | 1077(H) x 788(V) | 1434(H) x 1050(V) | 1688(H) x 1248(V) | 2536(H) x 2068(V) |
| | No. of effective pixels | 656(H) x 494(V) | 1034(H) x 779(V) | 1392(H) x 1040(V) | 1628(H) x 1236(V) | 2456(H) x 2058(V) |
| | Pixel size | 7.4 μm(H) x 7.4 μm(V) (Square pixel) | 4.65 μm(H) x 4.65 μm(V) (Square pixel) | | 4.4 μm(H) x 4.4 μm(V) (Square pixel) | 3.45 μm(H) x 3.45 μm(V) (Square pixel) |
| | Color filter | RGB primary color mosaic filter | | | | |
| Scanning area | | 4.88 mm(H) x 3.66 mm(V) | 4.76 mm(H) x 3.57 mm(V) | 6.32 mm(H) x 4.76 mm(V) | 7.16 mm(H) x 5.44 mm(V) | 8.15 mm(H) x 7.07 mm(V) |
| Scanning system | | Progressive | | | | |
| Sync system | | Internal / external | | | | |
| Lens mount | | C mount | | | | |
| Flange focal distance | | 17.526 mm | | | | |
| Video output | Interface | Gigabit Ethernet | | | | |
| | Protocol | GigE Vision compliant | | | | |
| | Transfer rate | 1 Gbit per second | | | | |
| | Image format | RGB 8 / 10 / 12bit, YUV (4:2:2) 8 / 10 / 12bit, RAW 8 / 10 / 12bit, MONO 8 / 10 / 12bit | | | | |
| | Image size | 640(H) x 480(V) | 1024(H) x 768(V) | 1360(H) x 1024(V) | 1620(H) x 1220(V) | 2448(H) x 2050(V) |
| Frame rate | | 90 frames per second | 36 frames per second | 30 frames per second | | 9 frames per second |
| | | *Frame rate is different for following format | | | | |
| | | RGB 12bit: 85 frames per second | RGB 12bit: 33 frames per second | RGB 8bit: 28 frames per second RGB 10bit: 22 frames per second RGB 12bit: 18 frames per second YUV 12bit: 28 frames per second | RGB 8bit: 18 frames per second RGB 10bit: 12 frames per second RGB 12bit: 9 frames per second YUV 8bit: 26 frames per second YUV 10/12bit: 18 frames per second | RGB 8bit: 8 frames per second RGB 10bit: 6 frames per second RGB 12bit: 4 frames per second YUV 10/12bit: 8 frames per second |
| Sensitivity | | 2000 lx, F5.6, 3200K | | | | 2000 lx, F11, 3200K |
| Electric shutter speed | PRESET | OFF/Auto(AES)/Manual(PRESET or VARIABLE), OFF is normal exposure(frame rate) | | | | |
| | VARIABLE | 1/90, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/50000 second | 1/36, 1/60, 1/125, 1/250, 1/1000, 1/2000, 1/10000, 1/50000 second | 1/30, 1/60, 1/100, 1/250, 1/1000, 1/2000, 1/10000, 1/50000 second | | 1/9, 1/60, 1/100, 1/250, 1/1000, 1/2000, 1/10000, 1/50000 second |
| External trigger shutter | Mode | Fixed shutter, One trigger, VD Sync, Reset control | | | | |
| | Input | Via Gigabit Ethernet cable (Software trigger), 12-pin connector (Hardware trigger) | | | | |
| External sync signal | Input level | 5 Vp-p ±1 V | | | | |
| | VD output | 5 Vp-p ±0.3 V | | | | |
| Partial scan | Strobe out | 5 Vp-p ±0.3 V | | | | |
| | | Grabbing image area is adjustable at horizontal / vertical | | | | |
| ALC (Auto level control) | | Adjustable for video level | | | | |
| White balance | | ATW/MANUAL/One-push | | | | |
| Gain | | Auto / Manual (0dB to 18dB) | | | | Auto / Manual (0dB to 12dB) |
| Gamma | | OFF (γ=1) / ON | | | | |
| Color masking | | OFF/ON (6 color independent masking) | | | | |
| Paint black | | Adjustable | | | | |
| Sharpness | | Adjustable | | | | |
| Black level | | Adjustable | | | | |
| Knee | | Adjustable | | | | |
| Power supply | | DC+12 V plus minus 1 V (input from 12-pin connector), 48 V (PoE) | | | | |
| Power consumption | | Approx. 4.5 W (DC+12 V) | | Approx. 7.8 W (DC+12 V) | | Approx. 7.5 W (DC+12 V) |
| Ambient temperature | Performance | 0 °C to +40 °C / 30 to 80 %RH | | | 0 °C to +40 °C / 90 %RH or less | |
| | Operating | -10 °C to +50 °C / 30 to 80 %RH | | | -10 °C to +50 °C / 90 %RH or less | |
| | Storage | -20 °C to +60 °C / 20 to 90 %RH | | | -20 °C to +60 °C / 70 %RH or less | |
| Vibration endurance | | 68.65 m/s ² or less(10 to 200 Hz, 30 minutes each on XYZ axes) (Do not subject to strong vibration for long periods of time.) | | | 98.6 m/s ² or less(15 to 200 to 15 Hz, 10 minutes each on XYZ axes) (Do not subject to strong vibration for long periods of time.) | |
| Shock endurance | | 490.3 m/s ² or less (vertical, horizontal, once each face) | | | | |
| External dimensions | | 44(W) x 29(H) x 72(D) mm (not including lens and protrusions) | | | | |
| Mass | | Approx. 140 g (without lens) | | | | |
| Supplied equipment | | Camera and CD-ROM (Operation manual / driver software) | | | | |
| Optional accessories | | Tripod adaptor (TA-M1), LAN cable (Enhanced category 5 or Category 6) | | | | |



Lens: option

6 color independent masking (Color Model)

Saturation and hue of primary colors R, G, B and complementary colors Cy, Mg, Ye can be independently varied. It is effective for many applications (Image capture, microscope, etc) needing accurate color reproduction.

External trigger

An external trigger signal input can be used to capture an image at desired timing for instant view or processing. The software trigger using a Gigabit Ethernet cable and the hardware trigger can deal with all trigger signals.

Versatile output image format (Color Model)

The output format can be selected
RGB 8 / 10 / 12bit, YUV (4:2:2) 8 / 10 / 12bit, RAW 8 / 10 / 12bit or MONO 8 / 10 / 12bit.

3CCD Color Model

HV-F22GV 1/2, 1360 (H) x 1024 (V), 15 fps

High resolution

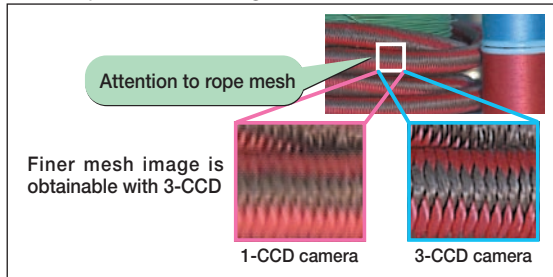
The 1/2-inch / 1.45 Mega pixels square lattice progressive scan CCD (R. G. B. 3CCD) and highly precise CCD positioning technology results in high resolution of 1360(H) x 1024(V) (SXGA).

High Precision digital Processing

The single chip 3 million gates 0.18µm DSP design reduces the size, power consumption and greatly enhances stability. The 12 bit A/D converter and 14bit DSP processing provide a high S/N ratio and wide dynamic range.

High color reproduction and resolution

The 3 CCD (R. G. B) and prism system provide accurate color reproduction and high resolution.



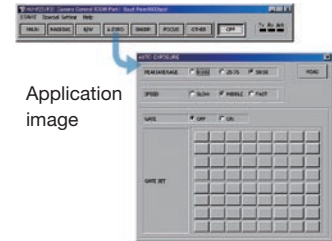
Lens: option

Easy to use GUI software

Various camera functions are available for adjustment through the easy-to-use GUI software which is included with the camera.

Application menu

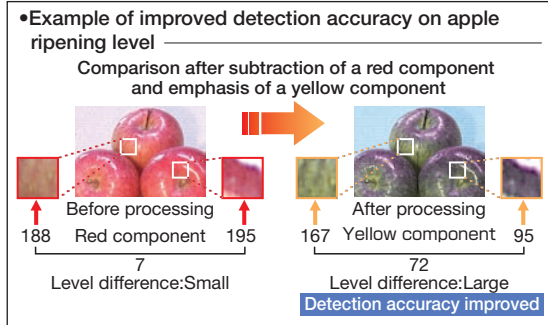
- MAIN
- BRIGHTNESS
- SHARPNESS
- WHITE BALANCE
- GAIN
- SHUTTER
- AUTO EXPOSURE
- SATURATION
- GAMMA
- TRIGGER
- FLASH
- AUTO SHADING
- MASKING
- B/W (BLACK BALANCE & WHITE GATE)
- AUTO EXPOSURE
- SHARPNESS
- OTHER FUNC
- Focus detection



Application image

6 color independent masking

Saturation and hue of primary colors R, G, B and complementary colors Cy, Mg, Ye can be independently varied. It is effective for a applications (Image capture, microscope, etc) needing highly accurate color hue.



Adjustable Sharpness (DTL) width

Sharpness (DTL) width is adjustable. Natural definition is provided when setting a sharpness lower. A clear detail is provided when setting it higher.

Auto Shading (ASC)

Color shading (uneven color) due to lens and lighting can be automatically corrected.

Versatile CCD driving function

- External Trigger function
- Long time accumulate mode
- Variable shutter mode
- Automatic electronic shutter mode (AES)

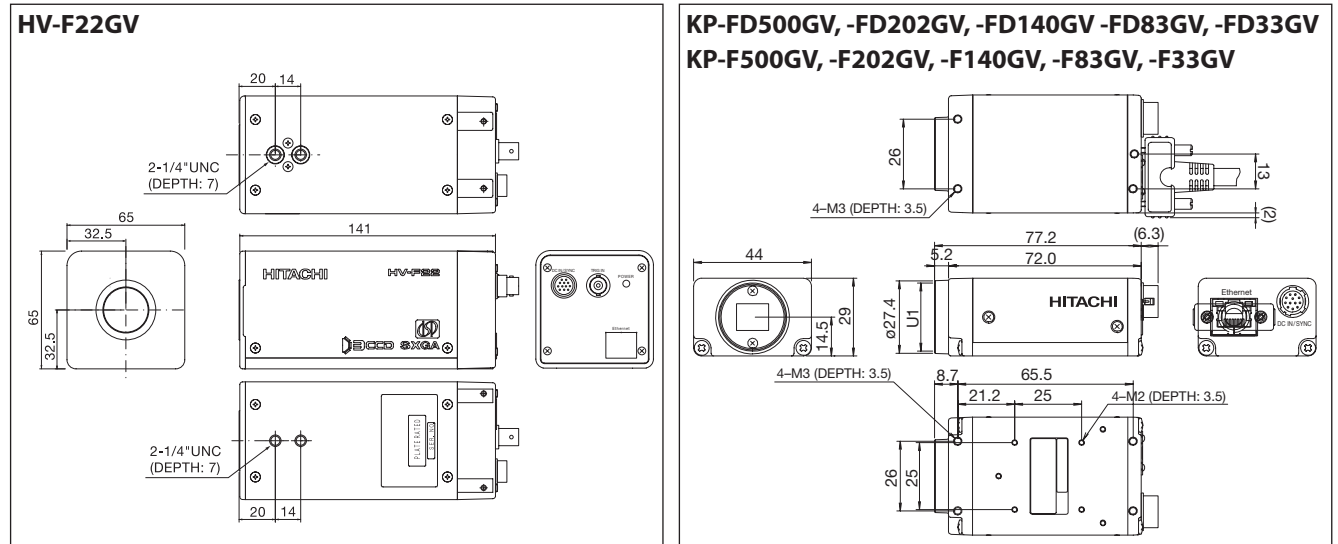
Improved operation

- Provides 4 application files
- Realtime automatic white balance function (ATW)
- Automatic Exposure (ALC)(Automatic level control) (Digital light measuring utilizing a scene divided into 64 sensing areas)
- Focus data output (serial data)
- 2 mode gain control(AGC function, 1 dB step programmable gain control)
- Contrast function
- Flare correction circuit
- Brightness (master black), R/B black, R/B gain adjustment function
- Color bar function
- Neg/pos switching function
- Rear LED indicator (Power on/off, communication state)

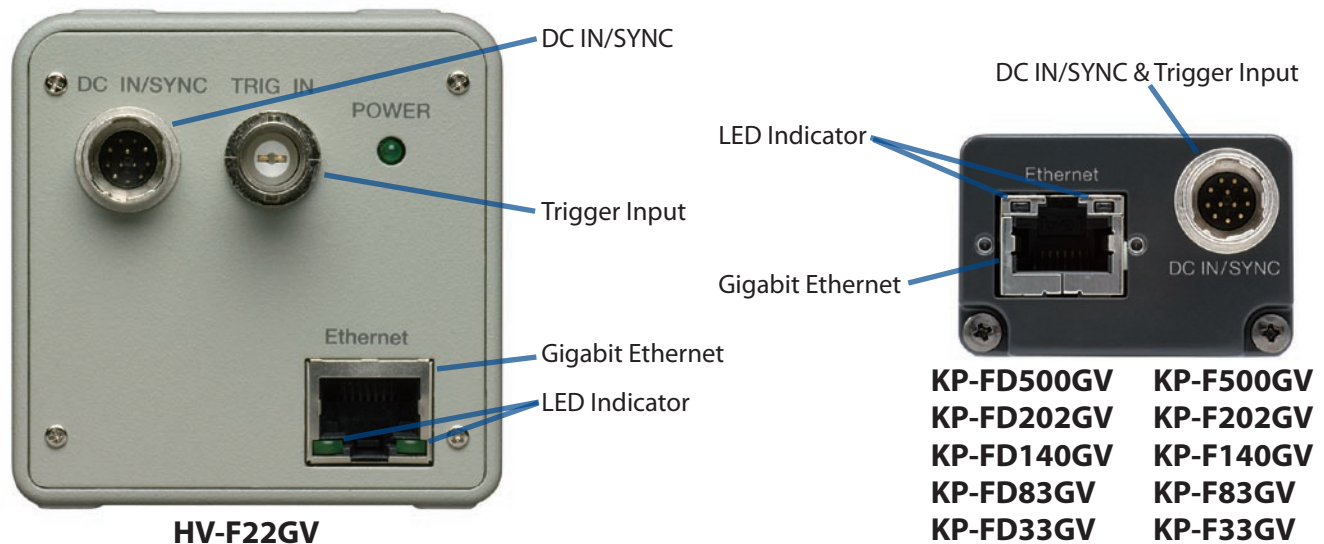
Specifications

| | | HV-F22GV |
|-----------------------------------|-------------------------|--|
| Imaging device | Total number of pixels | 1434(H) x 1050(V) |
| | No. of effective pixels | 1360(H) x 1024(V) |
| | Pixel size | 4.65 µm(H) x 4.65 µm(V) (Square pixel) |
| | Optical system | 1/2-inch F1.6 prism |
| Scanning area | | 6.32 mm(H) x 4.76 mm(V) |
| Scanning system | | Progressive |
| Sync system | | Internal / external (HD/VD automatically switch) |
| Lens mount | | C mount |
| Flange focal distance | | 17.526 mm |
| Video output | Interface | Gigabit Ethernet |
| | Protocol | GigE Vision compliant |
| | Transfer rate | 1 Gbit per second |
| | Image format | RGB 8 bit |
| | Image size | 1360(H) x 1024(V) |
| | Frame rate | 15 frames per second |
| Sensitivity | | 2000 lx, F8 (at 1/30 second shutter) |
| Electric shutter speed | Variable | Auto(AES) / Variable / Accumulate mode |
| | AES | 1/15 to 1/100,000 second |
| | Accumulate | 1/15 to 4 second (1 frame step) |
| External trigger shutter | Mode | Fixed shutter, One trigger |
| | Input | Via Gigabit Ethernet cable (Software trigger) or 12-pin connector (Hardware trigger) |
| | Input level | Low: 0 V DC, High: 3 to 24 V DC |
| External sync signal (Strobe out) | | 5 Vp-p ±0.3 V |
| Screen distortion | | All Screen: 0% (except lens characteristics) |
| Registration | | All Screen: 0.05% (except lens characteristics) |
| Vertical Sharpness | | 2 H |
| White balance | | ATW / MANUAL/ One-push |
| Gain | | AGC (0 to +12 dB) or 1dB step |
| Gamma | | 0.45 / 1.0 (ON / OFF) |
| Color masking | | OFF/ON(6 color independent masking) |
| Sharpness | | Sharpness (DTL) level, Sharpness (DTL) width |
| Color bar | | Full |
| Power supply | | DC+12 V (10.5 V to 15 V DC without ripple) |
| Power consumption | | Approx. 9.0 W (DC+12 V) |
| Ambient temperature | Operating | 0 °C to +40 °C |
| | Storage | -20 °C to +60 °C |
| Vibration endurance | | 24.5 m/s ² or less (10 to 200 Hz, 30 minutes each on XYZ axes) (Do not subject to strong vibration for long periods of time.) |
| Shock endurance | | 392 m/s ² or less (vertical, horizontal, once each face) |
| External dimensions | | 65(W) x 65(H) x 141(D) mm (not including lens and protrusions) |
| Mass | | Approx. 600 g (without lens) |
| Supplied equipment | | Camera, Lens mount sheet, DC IN / SYNC connector plug (HR10A-10P-12S) and CD-ROM (driver software) and Instruction manual |
| Optional accessories | | LAN cable (Enhanced category 5 or Category 6) |

Dimensions



Rear View



Accessories

| Type | | Black and White | Color | 3CCD |
|----------------|-------------------|---|--|-----------------|
| | Model Name | KP-F500GV KP-F202GV KP-F140GV KP-F83GV KP-F33GV | KP-FD500GV KP-FD202GV KP-FD140GV KP-FD83GV KP-FD33GV | HV-F22GV |
| Tripod Adaptor | TA-M1 | ○ | ○ | |
| Camera Cable | (2m) C-201KSM | ○ | ○ | ○ |
| | (5m) C-501KSM | ○ | ○ | ○ |
| | (10m) C-102KSM | ○ | ○ | ○ |
| 12 Pin Plug | HR10A-10P-12S | ○ | ○ | ○ |
| Dummy Glass | ARC1214 | *1 | ○ | |
| IR-Cut Filter | IRC650 | | *2 | *2 |



TA-M1



C-201KSM

*1: ARC1214 is equipped in the KP-F type camera.

*2: IRC650 is equipped in the KP-FD/HV-F type camera.

Hitachi Industrial Progressive Scan Camera Line-up

| Frame rate | Image Size | | | | |
|------------|---|---|---|--|--|
| | VGA | XGA | SXGA | UXGA | 5.0M |
| 120fps | (RAW) KP-FR31PCL/SCL (B/W) KP-F31PCL/SCL | (3CCD) : 3CCD output (RGB) : RGB Output (RAW) : RAW Data Output (B/W) : Monochrome Output GigE Vision Series KP-FD type can select the output image format (RGB/YUV/RAW/MONO) | | GV : GigE Vision PCL : Power over Camera Link SCL : Mini Camera Link CL : Camera Link F : IEEE1394.a/b | |
| 91fps | (RAW) KP-FR39PCL/SCL (B/W) KP-F39PCL/SCL | | | | |
| 90fps | (RGB) KP-FD33GV (B/W) KP-F33GV | | | | |
| 60fps | (RGB) KP-FD32F (RAW) KP-FR30PCL/SCL (RAW) KP-FBR30PCL/SCL (B/W) KP-F30PCL/SCL (B/W) KP-F32F (B/W) KP-FB30PCL/SCL | (3CMOS)HDTV 720P (920K) HV-HD30 | | | |
| 36fps | | (RGB)KP-FD83GV (B/W) KP-F80PCL/SCL (B/W)KP-F83GV (RAW) KP-FR80PCL/SCL | | | |
| 30fps | | (3CCD)HV-F31CL (B/W) KP-F83F | (RGB)KP-FD140GV (RGB) KP-FD140PCL/SCL (B/W)KP-F140GV | (RGB) KP-FD202PCL/SCL (RAW) KP-FR230PCL/SCL (B/W) KP-F230PCL/SCL (B/W)KP-F202GV (RGB) KP-FD202GV | |
| 16fps | | | | | (RAW) KP-FR500PCL/SCL (B/W) KP-F500PCL/SCL (B/W) KP-F500GV |
| 15fps | | (3CCD)HV-F31F | (3CCD)HV-F22GV (3CCD)HV-F22CL (RGB) KP-FD140F (B/W) KP-F140F | (RAW) KP-FR200PCL/SCL (B/W) KP-F200PCL/SCL | |
| 12fps | | | | | (RGB) KP-FD500PCL/SCL |
| 9fps | | | | | (RGB) KP-FD500GV |
| 7.5fps | | | (3CCD)HV-F22F | | |



KP-FD500/FR500/F500P(S)CL
KP-FD202/FD140P(S)CL
44x44x41mm



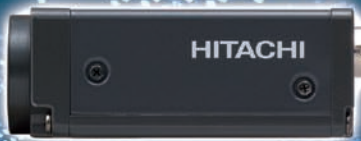
KP-FR200/F200P(S)CL
KP-FR80/F80P(S)CL
KP-FR39/F390P(S)CL
KP-FR30/F30P(S)CL
29x29x29mm



KP-FR230/F230P(S)CL
KP-FR31/F31P(S)CL
29x29x38mm



KP-FBR30/FB30P(S)CL
Head 12x12.5x47.5mm
CCU 29x29x38mm



KP-FD500/F500GV
KP-FD202/F202GV
KP-FD140/F140GV
KP-FD83/F33GV
KP-FD33/F33GV
44x29x72mm



HV-F22GV
65x65x141mm
HV-F22/F31CL
HV-F22/F31F
65x65x130mm

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CAUTION: To ensure safe operation, Please read the instruction manual before using this product.

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These Specifications are subject to change without notice.

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