

- 1M 1000fps
- 2M
- 4M



| CMOS | OpticalInterface 1M 1000fps | OpticalInterface 2M | OpticalInterface 4M |
|-------------------------------|---|--|--|
| Interface | Optical | Optical | Optical |
| Model name (B/W/Color) | VCC-10P1M VCC-10P1R | VCC-GC21U110P VCC-FC21U190P | VCC-FC21FR110P VCC-FC21FR190P |
| Sensor | — | CMV2000 | CMV4000 |
| Sensor size | 2/3 type CMOS | 2/3 type CMOS | 1 type CMOS |
| Unit cell size (μm) | 6.6 μm × 6.6 μm | 5.5 μm × 5.5 μm | 5.5 μm × 5.5 μm |
| Effective pixels (H) × (V) | 1280 × 1024 | 2048 × 1024 | 2048 × 2048 |
| Resolution | 1.3M | 2M | 4M |
| Frame rate | 1077fps (at 1M mode) / 874fps (SXGA) | 126fps | 68fps |
| Pixel clock | 77MHz | 72MHz | 72MHz |
| Shutter | OFF ~ 1/90,000s | OFF ~ 1/40,000s | OFF ~ 1/40,000s |
| Lens mount | M42 mount | C mount | C mount |
| Dimensions (W) × (H) × (D) mm | 65 × 65 × 101.5 | 43 × 29 × 55 | 43 × 29 × 55 |
| Features | Opt-C-Link, Optical I/F, Fixed trigger, Pulse width trigger, Pulse width trigger shutter mode, Shading correction, Sequence control, HDR, Binarization, ROI, Optical cable 150m | 2M resolution, Optical I/F, Wide broadband transmission, Long distance transmission (150m), Noise-less, Opt-C-LINK, ROI function | 4M resolution, Optical I/F, Wide broadband transmission, Long distance transmission (150m), Noise-less, Opt-C-LINK, ROI function |

VCC-10P1M/R is an optical interface camera with 2/3 type SXGA CMOS image sensor. With high speed data output rate of 6.25Gbps x 2ch., the camera outputs max.1077fps at 1024 x 1024 resolution, and 874fps at SXGA resolution. Optical I/F enables transmission of images over longer distance, and is extremely immune to environmental noise, which make this camera suitable for shooting high speed images under various conditions.

Ultra-High Speed Camera Systems

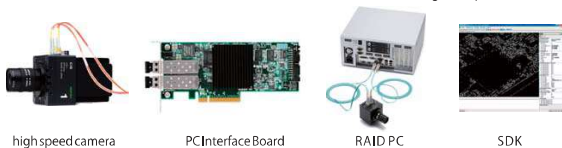
High speed imaging system for recording and replaying of images captured using VCC-10P1 R/M HS model. The frame rate at 1M pixel is 1000fps, and at 640x2 resolution, 120,000fps. Good for observing movements too fast for the human eyes to see.

[System Configuration example]

| Category | Model Name | Without PC (Example of System Configuration) | With PC (Example of System Configuration) |
|------------------------------|---|--|---|
| High speed camera | VCC-10P1RH5 (Color) VCC-10P1MH5 (Monochrome) | Color, B/W Selection | Color, B/W Selection |
| PC Interface Board | APX-3800 | ○ | — |
| Image Recording PC with RAID | — | — | ○ |
| SDK | AZP-ACAPPLUS-01 (With Free Viewer) | ○ | ○ |
| AC/DC Adaptor | S12-1.5A (12pin 12V 1.5A) | ○ | ○ |
| Tripod Attachment | — | ○ | ○ |
| Lens for high speed camera | SV-2509S (25mm, F0.95) | ○ | ○ |
| Lens mount adaptor | M42-C mount conversion | ○ | ○ |
| Optical cable | Optical cable 1m | ○ | ○ |

| Frame rate | Horizontal resolution H 1280 | Horizontal resolution H 1024 | Horizontal resolution H 640 |
|-------------|------------------------------|------------------------------|-----------------------------|
| 874 fps | 1280 x 1024 | 1024 x 1024 | 640 x 1024 |
| 1,000 fps | 1280 x 892 | 1024 x 1024 | 640 x 1024 |
| 2,000 fps | 1280 x 440 | 1024 x 545 | 640 x 843 |
| 3,477 fps | 1280 x 248 | 1024 x 308 | 640 x 480 |
| 4,000 fps | 1280 x 214 | 1024 x 265 | 640 x 415 |
| 6,000 fps | 1280 x 138 | 1024 x 173 | 640 x 273 |
| 8,000 fps | 1280 x 101 | 1024 x 127 | 640 x 201 |
| 10,000 fps | 1280 x 78 | 1024 x 99 | 640 x 159 |
| 12,000 fps | 1280 x 63 | 1024 x 80 | 640 x 130 |
| 15,000 fps | 1280 x 48 | 1024 x 62 | 640 x 102 |
| 23,000 fps | 1280 x 26 | 1024 x 36 | 640 x 62 |
| 35,000 fps | 1280 x 12 | 1024 x 18 | 640 x 36 |
| 57,000 fps | 1280 x 2 | 1024 x 6 | 640 x 18 |
| 80,000 fps | — | — | 640 x 8 |
| 120,000 fps | — | — | 640 x 2 |

Setting examples of frame rate



※Opt-C-Link is the registered trade mark of AVAL DATA.

- EIA
- VGA
- XGA
- SXGA
- UXGA



| CCD | EIA double speed output | VGA | VGA |
|-------------------------------|--|--|--|
| Interface | Analog | Analog | Analog |
| Model Name (B/W/Color) | VCC-G20E20B | VCC-G20V20B | VCC-G20V30B |
| Sensor | ICX418AL | ICX414AL | ICX424AL |
| Sensor size | 1/2 type CCD | 1/2 type CCD | 1/3 type CCD |
| Unit cell size (μm) | 8.40 μm × 9.80 μm | 9.90 μm × 9.90 μm | 7.40 μm × 7.40 μm |
| Effective pixels (H) × (V) | 768 × 494 | 659 × 494 | 659 × 494 |
| Resolution | 380K EIA | VGA | VGA |
| Frame rate | 30fps/60fps | 30fps/60fps | 30fps/60fps |
| Pixel clock | 14.318 / 28.636MHz | 12.272 / 24.545MHz | 12.272 / 24.545MHz |
| Shutter | OFF ~ 1/20,000s (Double speed) | OFF ~ 1/20,000s | OFF ~ 1/20,000s |
| Lens mount | C mount | C mount | C mount |
| Dimensions (W) × (H) × (D) mm | 29 × 29 × 29 | 29 × 29 × 29 | 29 × 29 × 29 |
| Features | Analog EIA TV format output, External trigger, Restart + Reset function, Double speed output | Analog VS output, External trigger, Partial scan | Analog VS output, External trigger, Partial scan |

| CCD | XGA | SXGA | UXGA |
|-------------------------------|--|--|--|
| Interface | Analog | Analog | Analog |
| Model Name (B/W/Color) | VCC-G20X30B | VCC-G20S20B | VCC-G20U20A |
| Sensor | ICX204AL | ICX267AL | ICX274AL |
| Sensor size | 1/3 type CCD | 1/2 type CCD | 1/1.8 type CCD |
| Unit cell size (μm) | 4.65 μm × 4.65 μm | 4.65 μm × 4.65 μm | 4.40 μm × 4.40 μm |
| Effective pixels (H) × (V) | 1034 × 779 | 1392 × 1040 | 1628 × 1236 |
| Resolution | XGA | SXGA | UXGA |
| Frame rate | 30fps | 15fps | 15fps |
| Pixel clock | 30MHz | 28.636MHz | 36MHz |
| Shutter | OFF ~ 1/10,000s | OFF ~ 1/10,000s | OFF ~ 1/10,000s |
| Lens mount | C mount | C mount | C mount |
| Dimensions (W) × (H) × (D) mm | 29 × 29 × 29 | 29 × 29 × 29 | 29 × 29 × 29 |
| Features | Analog VS output, External trigger, Partial scan | Analog VS output, External trigger, Partial scan | Analog VS output, External trigger, Partial scan |

Accessories



| | Camera lens mount conversion ring | | | AC adaptor | |
|----------------------------|--|--|--|---|----------------------------|
| Model name and part number | M48-F mount conversion ring | M42-F mount conversion ring | M42-C mount conversion ring | 6pins AC adaptor (R28)S6FG | 12pins AC adaptor (R28)S12 |
| | | | | 12pins AC adaptor (1.5A)12V-1.5A-S12-A-A | |
| Features | Conversion ring from M48 to F lens mount | Conversion ring from M42 to F lens mount | Conversion ring from M42 to C lens mount | In warranty only when connected to the corresponding CIS cameras and accessories. | |