

## ❖ CM-140 GE / CB-140 GE

Progressive Scan

**C<sub>3</sub> Camera Suite**  
Unlimited  
Digital  
Switchability



- Member of C<sub>3</sub> Compact series, covering VGA to UXGA resolution
- 1392 (h) x 1040 (v) 4.65  $\mu$ m square pixels
- 1/2" progressive scan - Monochrome and Bayer mosaic color versions
- 31 frames/second with full resolution in continuous operation
- 30 frames/second with external trigger and full resolution
- Increased frame rate with vertical binning (CM-140 GE) and partial scan
- Exposure time from 31  $\mu$ s to 2 sec. using Pulse Width trigger mode
- Programmable exposure from 61.2  $\mu$ s to 32.2 ms
- Sequencer trigger mode for on-the-fly change of gain, exposure and ROI
- LVAL-synchronous/-asynchronous operation (auto-detect)
- Auto iris lens video output allows a wider range of light
- GigE Vision interface with 10 or 8-bit output
- Programmable GPIO with opto-isolated inputs and outputs
- Comprehensive software tools and SDK for Windows XP/Vista

**GigE**<sup>TM</sup>  
VISION

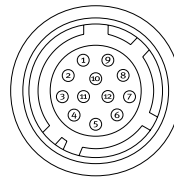


# Specifications for CM-140 GE / CB-140 GE

| Specifications                                 | CM-140 GE / CB-140 GE                                                                                         |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Sensor                                         | 1/2" progressive scan                                                                                         |
| Pixel Clock                                    | 65 MHz                                                                                                        |
| Frame rate full frame                          | 31.08 frames/second (1052 lines per frame)                                                                    |
| Active area                                    | 6.4 (h) x 4.8 (v) mm                                                                                          |
| Cell size                                      | 4.65 x 4.65 pixels                                                                                            |
| Active pixels                                  | 1392 x 1040                                                                                                   |
| Color (CB-140 GE)                              | Raw Bayer output, host-based interpolation                                                                    |
| Read-out modes                                 |                                                                                                               |
| Full                                           | 1392 (h) x 1040 (v) 31.08 fps                                                                                 |
| 1/2 partial scan                               | 1392 (h) x 520(v) 46.57 fps                                                                                   |
| 1/4 partial scan                               | 1392 (h) x 260 (v) 61.92 fps                                                                                  |
| 1/8 partial scan                               | 1392 (h) x 130 (v) 73.97 fps                                                                                  |
| 2/3 partial scan                               | 1392 (h) x 694 (v) 39.97 fps                                                                                  |
| Vertical binning                               | 1392 (h) x 520 (v) 48.86 fps*                                                                                 |
| Region-of-interest (ROI)                       | User definable. Memory read-out<br>*NOTE: CM-140 GE only                                                      |
| Sensitivity (CM-140 GE)                        | 0.3 Lux (On sensor, max. gain, shutter off, 50% video)                                                        |
| Sensitivity (CB-140 GE)                        | 1.6 Lux (On sensor, max. gain, shutter off, 50% video)                                                        |
| S/N ratio                                      | >50dB (0dB gain)                                                                                              |
| Video output                                   | GigE Vision, 8-bit or 10-bit                                                                                  |
| Auto-iris lens video output                    | 0.7 Vp-p, enabled by internal switch                                                                          |
| Gain                                           | Manual, -3 to +24 dB                                                                                          |
| Synchronization                                | External hardware trigger via GPIO<br>Software trigger via GigE Vision                                        |
| GPIO Module                                    |                                                                                                               |
| Input/output switch                            | Configurable 14-in/9-out switch (LUT)                                                                         |
| Clock generator (one)                          | 12-bit counter based on 25MHz clock or Pixel Clock                                                            |
| Pulse generators (four)                        | 20-bit counters programmable for length, start point, stop point, repeat                                      |
| Hardware trigger modes                         | Continuous, Pre-Select, Pulse Width, Sequence (Gain, Shutter, ROI)<br>Reset-continuous trigger, Delay Readout |
| Electronic shutter                             |                                                                                                               |
| Pre-set shutter                                | 1/31 to 1/10,000 in 10 steps                                                                                  |
| Programmable exposure                          | 2L (61.2µs) to 1052L (32.2ms) in 1L steps                                                                     |
| Exposure Time (Abs)                            | µsec - user definable. Same range as PE                                                                       |
| Pulse Width                                    | 31µs to 2 sec.                                                                                                |
| Control interface                              | Register based.<br>GigE Vision/GenICam compliant                                                              |
| Functions controlled via GigE Vision interface | Shutter, Gain, Black level, Trigger mode, Readout mode, GPIO setup, ROI (GenICam mandatory functions)         |
| GigE Vision streaming control                  | Packet size (1428 to 4040 bytes), Delayed (frame) Readout, Inter-packet delay                                 |
| Indicators on rear panel                       | Power / Hardware trigger, GigE link, GigE activity                                                            |
| Operating Temperature                          | -5°C to +45°C                                                                                                 |
| Humidity (operation)                           | 20 - 90% non-condensing                                                                                       |
| Storage temp./humidity                         | -25°C to +60°C / 20 to 90%                                                                                    |
| Vibration                                      | 10G (20Hz to 200 Hz XYZ)                                                                                      |
| Shock                                          | 70G                                                                                                           |
| Regulations                                    | CE (EN 61000-6-2, EN-61000-6-3), FCC part 15 class B, RoHS/WEEE                                               |
| Power                                          | 12V DC +/-10%. 3.5W                                                                                           |
| Lens mount                                     | C-mount                                                                                                       |
| Dimensions (H x W x L)                         | 29 x 44 x 75 mm                                                                                               |
| Weight                                         | 125 g                                                                                                         |

## Connector pin-out

### DC In / GPIO



HIROSE HR10A-10R-12PB-01

### Connector Pin-out

|     |    |                                |
|-----|----|--------------------------------|
| Pin | 1  | GND                            |
|     | 2  | +12 V DC input                 |
|     | 3  | Opto in 2(-)* / GND            |
|     | 4  | Opto in 2(+)* / Auto iris lens |
|     | 5  | Opto in 1(-)                   |
|     | 6  | Opto in 1(+)                   |
|     | 7  | Opto out 1(-)                  |
|     | 8  | Opto out 1(+)                  |
|     | 9  | Opto out 2(-)                  |
|     | 10 | Opto out 2(+)                  |
|     | 11 | +12V DC input                  |
|     | 12 | GND                            |

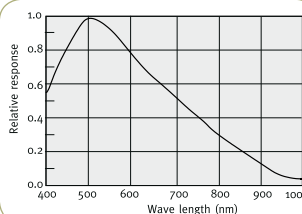
\* Pins 3 and 4 can be configured by internal switch selection

### GigE Vision interface Accepts RJ-45 with thumbscrews



|     |   |         |   |         |
|-----|---|---------|---|---------|
| Pin | 1 | TRD+(o) | 5 | TRD-(2) |
|     | 2 | TRD-(o) | 6 | TRD-(1) |
|     | 3 | TRD+(1) | 7 | TRD+(3) |
|     | 4 | TRD+(2) | 8 | TRD-(3) |

## Spectral Response CM-140 GE

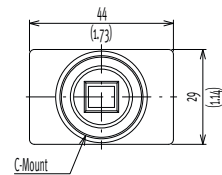


## Ordering Information

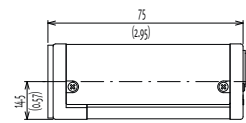
CM-140 GE 1/2" Monochrome Progressive Scan Camera  
CB-140 GE 1/2" Bayer Mosaic Color Progressive Scan Camera

## Dimensions

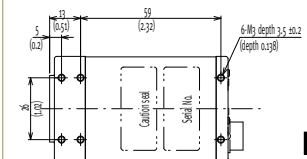
### Front view



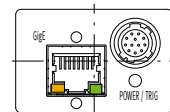
### Side view



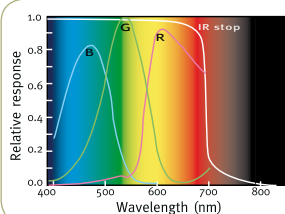
### Bottom view



### Rear view



## Spectral Response CB-140 GE



C3 Camera Suite ➡ Unlimited Digital Switchability

Europe, Middle East & Africa  
Phone +45 4457 8888  
Fax +45 4491 3252

Asia Pacific  
Phone +81 45 440 0154  
Fax +81 45 440 0166

Americas  
Phone (Toll-Free) 1 800 445 5444  
Phone +1 408 383 0300

Visit our web site on [www.jai.com](http://www.jai.com)

See the possibilities

