

## ❖ 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>™</sup>  
 VISION



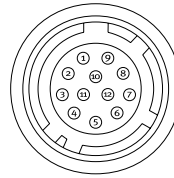
# Specifications for CM-140 GE / CB-140 GE

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 *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 (odB 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 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) 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. 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	12-24V DC +/-10%. 3.5W (@12V)**
Lens mount	C-mount
Dimensions (H x W x L)	29 x 44 x 75 mm
Weight	125 g

\*\*NOTE: voltages above 13.2V DC only supported on CM-140 models with serial numbers of 141256 or higher and on CB-140 models with serial numbers of 140922 or higher

## Connector pin-out

### DC In / GPIO



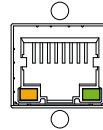
HIROSE HR10A-10R-12PB-01

### 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

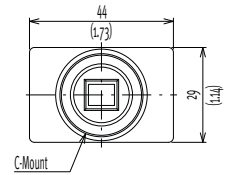
### GigE Vision interface Accepts RJ-45 with thumbscrews



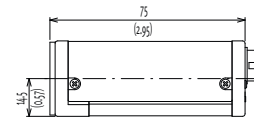
- Pin 1 TRD+(0)      5 TRD-(2)  
 2 TRD-(0)      6 TRD-(1)  
 3 TRD+(1)      7 TRD+(3)  
 4 TRD+(2)      8 TRD-(3)

## Dimensions

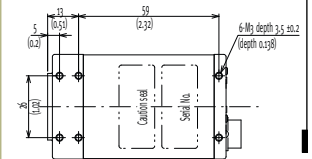
### Front view



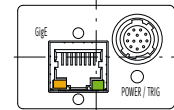
### Side view



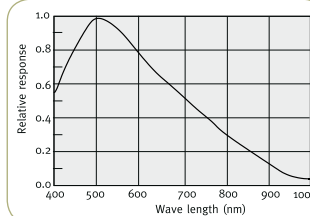
### Bottom view



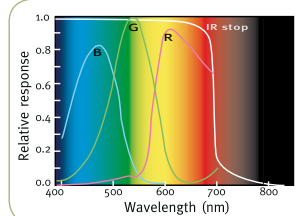
### Rear view



## Spectral Response CM-140 GE



## Spectral Response CB-140 GE



## Ordering Information

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

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