

## ❖ **BM-141 GE / BB-141 GE** Progressive Scan

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



- *Member of C<sub>3</sub> Basic series, covering VGA to UXGA resolution*
- *1392 (h) x 1040 (v) 6.45 μm square pixels*
- *2/3" progressive scan - Monochrome and Bayer mosaic color versions*
- *30 frames/second with full resolution in continuous operation*
- *Increased frame rate with vertical binning (BM-141 GE) and partial scan*
- *Exposure time from 63 μs to 2 sec. using Pulse Width trigger mode*
- *Programmable exposure from 63 μs to 33 ms*
- *Several pre-processing functions for offloading host PC*
- *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 12, 10 or 8-bit output*
- *Programmable GPIO with opto-isolated inputs and outputs*
- *Variable Partial Scan*
- *Comprehensive software tools and SDK for Windows XP/Vista*

**GigE**™  
VISION

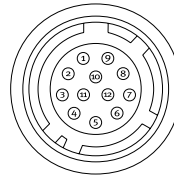


# Specifications for BM-141 GE / BB-141 GE

Specifications	BM-140 GE / BB-140 GE																
Sensor	Sony ICX-285 2/3" progressive scan																
Pixel Clock	58 MHz																
Frame rate full frame	30 frames/second																
Active area	8.98 (h) x 6.7 (v) mm 2/3" diagonal																
Cell size	6.45 x 6.45 pixels																
Active pixels	1392 x 1040																
Color (BB-141 GE)	Raw Bayer output, host-based interpolation																
Read-out modes	<table border="0"> <tr> <td>Full</td> <td>1392 (h) x 1040 (v) 30.12 fps</td> </tr> <tr> <td>Vertical binning</td> <td>1392 (h) x 520 (v) 50.18 fps* (Note 1)</td> </tr> <tr> <td>2/3 partial scan</td> <td>1392 (h) x 694 (v) 41.05 fps</td> </tr> <tr> <td>1/2 partial scan</td> <td>1392 (h) x 520 (v) 50.06 fps</td> </tr> <tr> <td>1/4 partial scan</td> <td>1392 (h) x 260 (v) 74.57 fps</td> </tr> <tr> <td>1/8 partial scan</td> <td>1392 (h) x 130 (v) 98.73 fps</td> </tr> <tr> <td>Draft</td> <td>1392 (h) x 260 (v) 101.17 fps *(Note 2)</td> </tr> <tr> <td>Variable Partical scan</td> <td>Start line from 1 to 1025, height from 8 to 1032, vertical.</td> </tr> </table>	Full	1392 (h) x 1040 (v) 30.12 fps	Vertical binning	1392 (h) x 520 (v) 50.18 fps* (Note 1)	2/3 partial scan	1392 (h) x 694 (v) 41.05 fps	1/2 partial scan	1392 (h) x 520 (v) 50.06 fps	1/4 partial scan	1392 (h) x 260 (v) 74.57 fps	1/8 partial scan	1392 (h) x 130 (v) 98.73 fps	Draft	1392 (h) x 260 (v) 101.17 fps *(Note 2)	Variable Partical scan	Start line from 1 to 1025, height from 8 to 1032, vertical.
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Variable Partical scan	Start line from 1 to 1025, height from 8 to 1032, vertical.																
Region-of-interest (ROI)	User definable. Memory read-out *Note 1: BM-141GE only *Note 2: BB-141GE only																
Sensitivity (BM-141 GE)	0.03 Lux (On sensor, max. gain, shutter off, 50% video)																
Sensitivity (BB-141 GE)	0.2 Lux (On sensor, max. gain, shutter off, 50% video)																
S/N ratio	>58dB (odB gain)																
Video output	GigE Vision, 8-bit, 10-bit or 12-bit																
Auto-iris lens video output	0.7 Vp-p, enabled by internal switch																
Gain	Manual/Automatic -6 to +24 dB																
Synchronization	External hardware trigger via GPIO Software trigger via GigE Vision																
GPIO Module	<table border="0"> <tr> <td>Input/output switch</td> <td>Configurable 16-in/12-out switch (LUT)</td> </tr> <tr> <td>Clock generator (one)</td> <td>12-bit counter based on Pixel Clock</td> </tr> <tr> <td>Pulse generators (two)</td> <td>19-bit counters programmable for length, start point, stop point, repeat</td> </tr> </table>	Input/output switch	Configurable 16-in/12-out switch (LUT)	Clock generator (one)	12-bit counter based on Pixel Clock	Pulse generators (two)	19-bit counters programmable for length, start point, stop point, repeat										
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Hardware trigger modes	Continuous, Pre-Select, Pulse Width, Sequence (Gain, Shutter, ROI) Reset-continuous trigger, Delay Readout																
Electronic shutter	<table border="0"> <tr> <td>Pre-set shutter</td> <td>1/30 to 1/10,000 in 10 steps</td> </tr> <tr> <td>Programmable exposure</td> <td>2L (1/16,000 sec.) to 1052L (1/30 sec.) in 63µs step.</td> </tr> <tr> <td>Exposure Time (Abs)</td> <td>µsec - user definable. Same range as PE</td> </tr> <tr> <td>Pulse Width</td> <td>63µs to 2 sec.</td> </tr> <tr> <td>Auto shutter</td> <td>64L to 1052L</td> </tr> </table>	Pre-set shutter	1/30 to 1/10,000 in 10 steps	Programmable exposure	2L (1/16,000 sec.) to 1052L (1/30 sec.) in 63µs step.	Exposure Time (Abs)	µsec - user definable. Same range as PE	Pulse Width	63µs to 2 sec.	Auto shutter	64L to 1052L						
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Pre-processing funtions	In camera Bayer white balance, look-up-table (LUT), In-camera blemish compensation.																
Control interface	Register based. GigE Vision/GenlCam compliant																
Functions controlled via GigE Vision interface	Shutter, Gain, Black level, Trigger mode, Readout mode, GPIO setup, ROI (GenlCam mandatory functions)																
GigE Vision streaming control	Packet size (1428 to 16384 bytes), Delayed (frame) Readout, Inter-packet delay																
Indicators on rear panel	Power / Hardware trigger, GigE link, GigE activity																
Operating Temperature	-5°C to +50°C																
Humidity (operation)	20 - 90% non-condensing																
Storage temp./humidity	-25°C to +60°C / 20 to 90% non-condensing																
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 - 24V DC +/- 10%. 5.1W (full frame @ 12V)																
Lens mount	C-mount																
Dimensions (H x W x L)	55 x 55 x 55 mm																
Weight	230 g																

## Connector pin-out

### DC In / GPIO



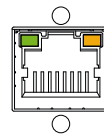
HIROSE HR10A-10R-12PB-01

#### Connector Pin-out

- |       |                             |
|-------|-----------------------------|
| Pin 1 | GND                         |
| 2     | +12 VDC 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

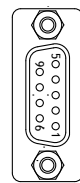
### GigE Vision interface Accepts RJ-45 with thumbscrews



- |       |         |   |         |
|-------|---------|---|---------|
| 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) |

### D-sub 9 pin connector for GPIO (Auxiliary)

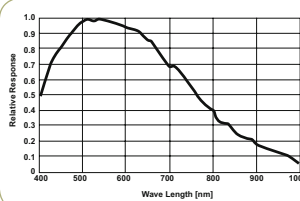
Type: DD-09SSG



No.	I/O	Name
1	I	LVDS IN1-
2	I	LVDS IN1+
3	I	TTL IN 1*
4	O	TTL OUT 1
5		GND
6		NC
7		NC
8	O	TTL OUT 2
9		GND

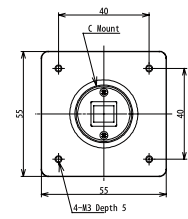
\*Can be set to 75Ω terminator via internal switches

## Spectral Response BM-141 GE

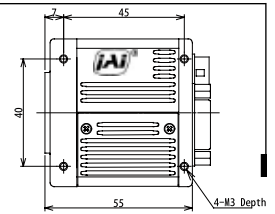


## Dimensions

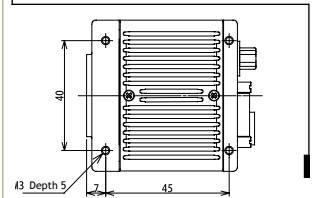
### Front view



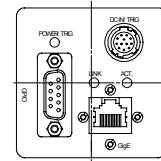
### Side view



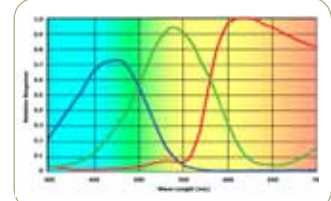
### Bottom view



### Rear view



## Spectral Response BB-141 GE



## Ordering Information

- |           |   |
|-----------|---|
| BM-141 GE | 2/3" Monochrome Progressive Scan Camera         |
| BB-141 GE | 2/3" Bayer Mosaic Color Progressive Scan Camera |

## C3 Camera Suite Unlimited Digital Switchability

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