

## ➤ **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  $\mu$ m 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  $\mu$ s to 2 sec. using Pulse Width trigger mode
- Programmable exposure from 63  $\mu$ s 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**<sup>™</sup>  
VISION



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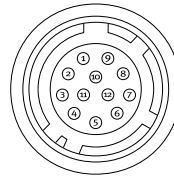
See the possibilities

# 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	<p>Full 1392 (h) x 1040 (v) 30.12 fps</p> <p>Vertical binning 1392 (h) x 520 (v) 50.18 fps* (Note 1)</p> <p>2/3 partial scan 1392 (h) x 694 (v) 41.05 fps</p> <p>1/2 partial scan 1392 (h) x 520 (v) 50.06 fps</p> <p>1/4 partial scan 1392 (h) x 260 (v) 74.57 fps</p> <p>1/8 partial scan 1392 (h) x 130 (v) 98.73 fps</p> <p>Draft 1392 (h) x 260 (v) 101.17 fps *(Note 2)</p> <p>Variable Partical scan Start line from 1 to 1025, height from 8 to 1032, vertical.</p> <p>Region-of-interest (ROI) User definable. Memory read-out</p> <p>*Note 1: BM-141GE only</p> <p>*Note 2: BB-141GE only</p>
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	<p>Input/output switch Configurable 16-in/12-out switch (LUT)</p> <p>Clock generator (one) 12-bit counter based on Pixel Clock</p> <p>Pulse generators (two) 19-bit counters programmable for length, start point, stop point, repeat</p>
Hardware trigger modes	Continuous, Pre-Select, Pulse Width, Sequence (Gain, Shutter, ROI) Reset-continous trigger, Delay Readout
Electronic shutter	<p>Pre-set shutter 1/30 to 1/10,000 in 10 steps</p> <p>Programmable exposure 2L (1/16,000 sec.) to 1052L (1/30 sec.) in 63µs step.</p> <p>Exposure Time (Abs) µsec - user definable. Same range as PE</p> <p>Pulse Width 63µs to 2 sec.</p> <p>Auto shutter 64L to 1052L</p>
Pre-processing funtions	In camera Bayer white balance, look-up-table (LUT), In-camera blemish compensation.
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 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



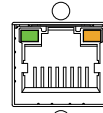
HIROSE HR10A-10R-12PB-01

#### Connector Pin-out

Pin 1	GND
2	+12 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

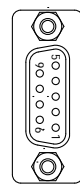
### GigE Vision interface Accepts RJ-45 with thumbscrews



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)

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

Type: DD-09SSG

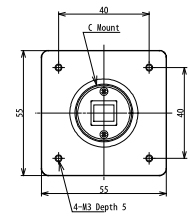


No.	I/O	Name
1	I	LVDS IN1-
2	I	LVDS IN1+
3	I	TTL IN 1*
4	O	TTL OUT 1
5		GND
6		NC
7		NC
8	O	TTL OUT 2
9		GND

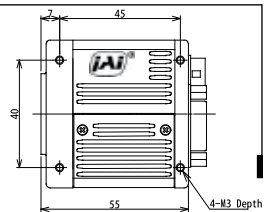
\*Can be set to 75Ω terminator via internal switches

## Dimensions

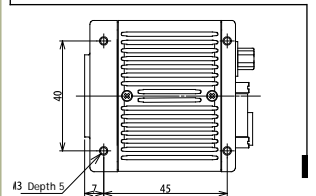
### Front view



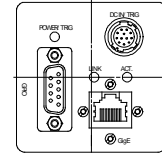
### Side view



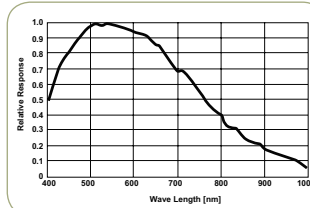
### Bottom view



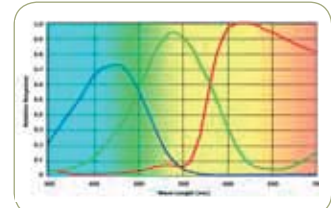
### Rear view



## Spectral Response BM-141 GE



## 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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