

## ➤ CM-200 PMCL / CB-200 PMCL Progressive Scan

 **Camera Suite**  
Unlimited  
Digital  
Switchability



- Compact series 1/1.8" progressive scan camera
- Power over Camera Link (PoCL)
- Monochrome and Bayer mosaic color versions
- 1620 (h) x 1236 (v) pixels active area
- 4.4µm square pixels
- 25 frames/second with full resolution in continuous operation
- Up to 24 frames/second with external trigger and full resolution
- Up to 89 frames/second with partial scan
- 48 frames/second with vertical binning (CM-200 MCL only)
- Shutter speed from 32 µs to 2 sec. using Pulse Width Control
- Programmable exposure from 64 µs to 40 ms
- Pre-select and Pulse width trigger modes
- LVAL-synchronous/-asynchronous operation (auto-detect)
- Auto-iris lens video output allows a wider range of light
- 10 or 8-bit output
- Setup by Windows NT/2000/XP via serial communication

  
(Mini Camera Link)



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# Specifications for CM-200 PMCL / CB-200 PMCL

Specifications	CM-200 PMCL / CB-200 PMCL												
Sensor	1/1.8" progressive scan CCD												
Pixel Clock	65 MHz												
Frame rate full frame	24.98 frames/sec. (1251 lines per frame)												
Active area	7.13 (h) x 5.44 (v) mm												
Cell size	4.4 (h) x 4.4 (v) $\mu\text{m}$												
Active pixels	1620 (h) x 1236 (v)												
Color (CB-200 MCL)	Raw Bayer output for host-based interpolation												
Read-out modes	<table border="0"> <tr> <td>Full</td> <td>1620 (h) x 1236 (v) 24.98 fps</td> </tr> <tr> <td>1/2 partial scan</td> <td>1620 (h) x 712 (v) 43.89 fps</td> </tr> <tr> <td>1/4 partial scan</td> <td>1620 (h) x 448 (v) 69.75 fps</td> </tr> <tr> <td>1/8 partial scan</td> <td>1620 (h) x 316 (v) 98.89 fps</td> </tr> <tr> <td>2/3 partial scan</td> <td>1620 (h) x 888 (v) 35.19 fps</td> </tr> <tr> <td>Vertical binning</td> <td>1620 (h) x 627 (v) 48.87 fps*</td> </tr> </table> <p>*NOTE: CM-200PMCL only</p>	Full	1620 (h) x 1236 (v) 24.98 fps	1/2 partial scan	1620 (h) x 712 (v) 43.89 fps	1/4 partial scan	1620 (h) x 448 (v) 69.75 fps	1/8 partial scan	1620 (h) x 316 (v) 98.89 fps	2/3 partial scan	1620 (h) x 888 (v) 35.19 fps	Vertical binning	1620 (h) x 627 (v) 48.87 fps*
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Sensitivity (CM-200 MCL)	0.25 Lux (On sensor, Max. gain, Shutter OFF, 50% video)												
Sensitivity (CB-200 MCL)	0.8 Lux (On sensor, Max. gain, Shutter OFF, 50% video)												
S/N ratio	>50dB (0 dB gain)												
Video output	8 or 10 bit in Mini-CL												
Auto-iris lens video	0.7 Vp-p												
Gain	Manual, -3dB to +24dB												
Synchronization	Int. X-tal or ext. trigger												
Inputs	<table border="0"> <tr> <td>Camera Link</td> <td>Ext. trigger, LVDS (CC 1)</td> </tr> <tr> <td>TTL</td> <td>Ext. trigger 4V <math>\pm</math>2V</td> </tr> </table>	Camera Link	Ext. trigger, LVDS (CC 1)	TTL	Ext. trigger 4V $\pm$ 2V								
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Trigger modes	Pre-select, Pulse Width												
Electronic shutter	<table border="0"> <tr> <td>Pre-set shutter</td> <td>1/24 to 1/10,000 in 10 steps</td> </tr> <tr> <td>Programmable exposure</td> <td>2L (64<math>\mu\text{s}</math>) to 1052L (40ms) in 1L steps</td> </tr> <tr> <td>Pulse Width Control</td> <td>32<math>\mu\text{s}</math> to 2 sec.</td> </tr> </table>	Pre-set shutter	1/24 to 1/10,000 in 10 steps	Programmable exposure	2L (64 $\mu\text{s}$ ) to 1052L (40ms) in 1L steps	Pulse Width Control	32 $\mu\text{s}$ to 2 sec.						
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Programmable exposure	2L (64 $\mu\text{s}$ ) to 1052L (40ms) in 1L steps												
Pulse Width Control	32 $\mu\text{s}$ to 2 sec.												
Accumulation	Auto-detect LVAL-synchr. / asynchr.												
Control interface	Mini-CL serial communication												
Functions controlled by serial communication	Shutter, Trigger mode, Readout mode, Trigger Polarity, Black level, Gain,												
Indicators on rear panel	LED for power and trigger input												
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 200Hz XYZ)												
Shock	70G												
Regulations	CE (EN 61000-6-2, EN-61000-6-3), FCC part 15 class B, RoHS/WEEE												
Power	12V DC $\pm$ 10% 3 W (PoCL)												
Lens mount	C-mount												
Dimensions (H x W x L)	29 x 44 x 66 mm												
Weight	115 g												

## Connector pin-out

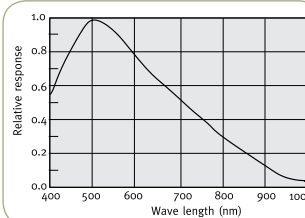
### Mini-CL interface



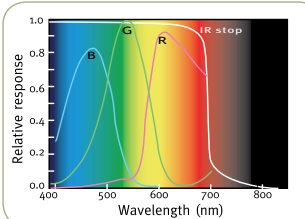
Pin	Signal	Function
1 14	+12V/GND	Power
2 15	-/+ Tx0	CL Data
3 16	-/+ Tx1	CL Data
4 17	-/+ Tx2	CL Data
5 18	-/+ Txclk	CL clk
6 19	-/+ Tx3	CL Data
7 20	+/- SerTC	Serial in
8 21	-/+ SerTFG	Serial out
9 22	CC1-/CC1+	Ext. trig*
10 23	CC2-/CC2+	Not used
11 24	CC3-/CC3+	Not used
12 25	CC4-/CC4+	Not used
13 26	GND/+12V	Power

NOTE:  
The PoCL interface requires a compatible frame grabber for proper and safe operation.

## Spectral Response CM-200 PMCL

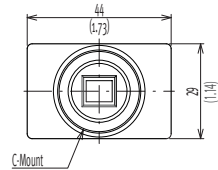


## Spectral Response CB-200 PMCL



## Dimensions

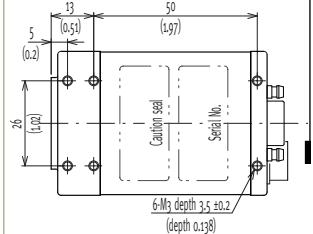
### Front view



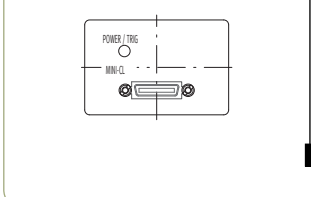
### Side view



### Bottom view



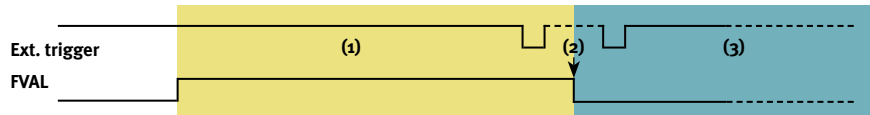
### Rear view



## Ordering Information

CM-200 PMCL	1/1.8" Monochrome Progressive Scan Camera
CB-200 PMCL	1/1.8" Bayer Mosaic Color Progressive Scan Camera

## FVAL auto-detect trigger function (next LVAL or immediate)



- (1) Within this period camera starts accumulation at next LVAL (prevents feed-through noise)
- (2) Avoid trigger at FVAL transition, as function may randomly switch between "next LVAL" and "immediate"
- (3) Within this period camera starts accumulation immediately (no delay)



See the possibilities

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