

## ❖ CM-200 MCL / CB-200 MCL

Progressive Scan



- **Compact series 1/1.8" progressive scan camera**
- **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)**
- **Power over CL (PoCL) version available**
- **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**



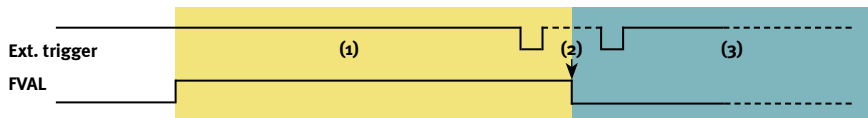
# Specifications for CM-200 MCL / CB-200 MCL

Specifications	CM-200 MCL / CB-200 MCL												
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) μm												
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-200MCL 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 +12dB												
Synchronization	Int. X-tal or ext. trigger												
Inputs	Camera Link TTL Ext. trigger, LVDS (CC 1) Ext. trigger 4V ±2V												
Outputs	Camera Link TTL Clk., FVAL, LVAL, Data, EEN XEEN												
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 (64μs) to 1052L (40ms) in 1L steps</td> </tr> <tr> <td>Pulse Width Control</td> <td>32μs to 2 sec.</td> </tr> </table>	Pre-set shutter	1/24 to 1/10,000 in 10 steps	Programmable exposure	2L (64μs) to 1052L (40ms) in 1L steps	Pulse Width Control	32μs to 2 sec.						
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Pulse Width Control	32μs 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 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 W												
Lens mount	C-mount												
Dimensions (H x W x L)	29 x 44 x 66 mm												
Weight	120 g												

## Ordering Information

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

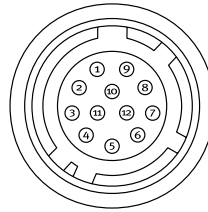
## FVAL auto-detect trigger function (next LVAL or immediate)



- (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)

## Connector pin-out

### DC In / Trigger



HIROSE HR10A-10R-12PB-01

- |       |                             |
|-------|-----------------------------|
| Pin 1 | Ground                      |
| 2     | +12V DC                     |
| 3     | Ground                      |
| 4     | Auto Iris lens video output |
| 5     | Ground                      |
| 6     | N/C                         |
| 7     | N/C                         |
| 8     | Ground                      |
| 9     | XEEN out                    |
| 10    | Trigger in*                 |
| 11    | +12V DC                     |
| 12    | Ground                      |

### Mini-CL interface

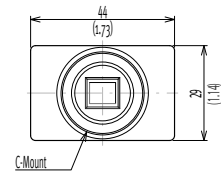


- | Pin | Signal | Function        |            |
|-----|--------|-----------------|------------|
| 1   | 14     | GND             |            |
| 2   | 15     | +/-Tx0          | CL Data    |
| 3   | 16     | +/-Tx1          | CL Data    |
| 4   | 17     | +/-Tx2          | CL Data    |
| 5   | 18     | +/-Txclk        | CL clk     |
| 6   | 19     | +/-Tx3          | CL Data    |
| 7   | 20     | SerTC+/SerTC-   | Serial in  |
| 8   | 21     | SerTFG+/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             |            |

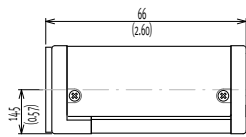
For PoCL version pins 1 and 26 are used for +12V  
 \*) in Mini-CL or 12-pin Hirose

## Dimensions

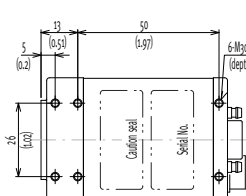
### Front view



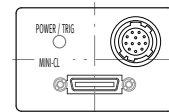
### Side view



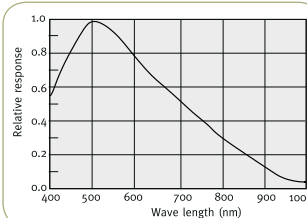
### Bottom view



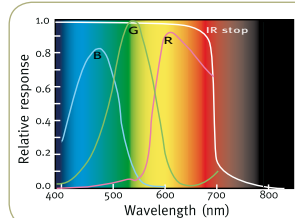
### Rear view



## Spectral Response CM-200 MCL



## Spectral Response CB-200 MCL



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