

## ❖ CM-141 MCL / CB-141 MCL Progressive Scan



- C3 Compact series 2/3" progressive scan camera
- Monochrome and Bayer mosaic color versions
- 1392 (h) x 1040 (v) active pixels
- 6.45  $\mu\text{m}$  square pixels
- 30 frames/second triggered and continuous operation with full resolution
- Up to 141 frames/second with variable partial scan
- 50 frames/second with vertical binning (CM-141 MCL only)
- Shutter speed from 63 $\mu\text{s}$  to 2 sec. using Pulse Width Control
- Preset shutter from OFF (1/30) to 1/10,000
- Programmable exposure from 63 $\mu\text{s}$  to 33ms
- Fine Exposure from 1/15847s to 1/85149s by 1 pixel clock unit
- Pre-select, Pulse width and reset continuous trigger modes
- Smearless EPS mode available
- LVAL-synchronous/-asynchronous operation (auto-detect)
- 8, 10 or 12-bit output
- Setup by Windows 2000/XP via serial communication
- Mini Camera Link interface (Power over Camera Link also available)
- Right angle option available

**CAMERA  
Link**  
(Mini Camera Link)



# Specifications for CM-141 MCL / CB-141 MCL

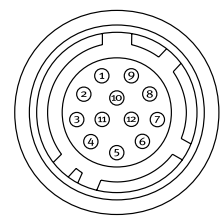
Specifications	CM-141 MCL / CB-141 MCL												
Sensor	CM-141 MCL Sony ICX-285AL 2/3" progressive scan CCD CB-141 MCL Sony ICX-285AQ 2/3" progressive scan CCD												
Pixel Clock	58 MHz												
Frame rate full frame	30.12 frames/second												
Active area	8.98 (h) x 6.7 (v) mm 2/3" diagonal												
Cell size	6.45 (h) x 6.45 (v) μm												
Active pixels	1392 (h) x 1040 (v)												
Color (CB-141 MCL)	Selectable Raw Bayer 8, 10 or 12 bit												
Read-out modes	<table border="0"> <tr> <td>Full scan</td> <td>1392 (h) x 1040 (v) 30.12 fps</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>Vertical binning</td> <td>1392 (h) x 520 (v) 50.18 fps* (Note)</td> </tr> </table> Variable Partial scan - Start line from 1 to 1024 Variable Partial scan - High from 8 to 1032 (Lines) *NOTE: CM-141 MCL only	Full scan	1392 (h) x 1040 (v) 30.12 fps	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	Vertical binning	1392 (h) x 520 (v) 50.18 fps* (Note)
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Sensitivity (CM-141 MCL)	0.03 Lux (On sensor, Max. gain, shutter off, 50% video)												
Sensitivity (CB-141 MCL)	0.2 Lux (On sensor, Max. gain, shutter off, 50% video)												
S/N ratio	>58dB (0 dB gain)												
Video output	8, 10 or 12 bit in Mini-CL												
Auto-iris lens video	0.7V p-p												
Gain	-6dB to 24dB												
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	Edge pre-select, Pulse Width, RCT, Smearless EPS												
Electronic shutter	Pre-set shutter speed 1/30 to 1/10,000 in 10 steps Programmable exposure 2L (63μs) to 1052L (33.19ms) in 1L steps Pulse Width Control 63μs to 2 sec. Fine Exposure 1/158475 to 1/851495 (in 1 pixel clock unit)												
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 +50°C												
Humidity (operation)	20% - 90% non-condensing												
Storage temp./humidity	-25°C to +60°C / 20%-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 DC ±10% 5.1 W												
Lens mount	C-mount												
Dimensions (H x W x L)	29 x 44 x 75 mm (standard Mono/Color) 29 x 44 x 93.5 mm (with Right Angle)												
Weight	130 g (CM/CB-141 MCL) 160 g (CM/CB-141 MCL-RA with Right Angle)												

## Ordering Information

CM-141 MCL	2/3" Monochrome Progressive Scan
CB-141 MCL	2/3" Bayer Mosaic Color Progressive Scan
CM-141 MCL-RA	2/3" Monochrome Progressive Scan (with Right Angle)
CB-141 MCL-RA	2/3" Bayer Mosaic Color Progressive Scan (with Right Angle)

## Connector pin-out

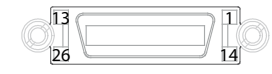
### DC In / Trigger



HIROSE HR10A-10R-12PB-01

Pin	Signal
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	N/C
12	Ground

### Mini-CL interface

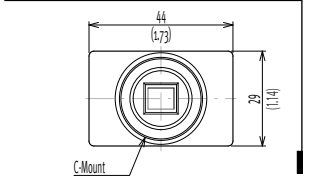


Pin	Signal	Function
1	14	GND
2	15	-/+ Tx0
3	16	-/+ Tx1
4	17	-/+ Tx2
5	18	-/+ Txclk
6	19	-/+ Tx3
7	20	SerTC+/SerTC-
8	21	SerTFG+/SerTFG-
9	22	CC1-/CC1+
10	23	CC2-/CC2+
11	24	CC3-/CC3+
12	25	CC4-/CC4+
13	26	GND

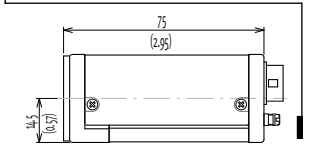
\* in Mini-CL or 12-pin Hirose

## Dimensions

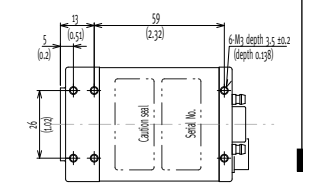
### Front view



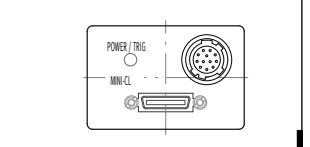
### Side view



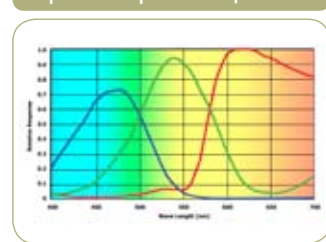
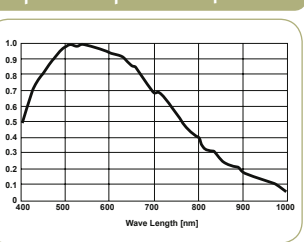
### Bottom view



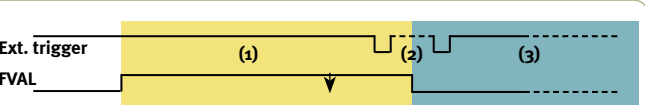
### Rear view



## Spectral Response



## 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" (+/- 1 LVAL)
- (3) Within this period camera starts accumulation immediately (no delay)