

❖ CM-140 MCL / CB-140 MCL Progressive Scan



- **Compact series 1/2" progressive scan camera**
- **Monochrome and Bayer mosaic color versions**
- **1380 (h) x 1040 (v) active pixels**
- **4.65 μm square pixels**
- **31 frames/second with full resolution in continuous operation**
- **30 frames/second with external trigger and full resolution**
- **Up to 74 frames/second with partial scan**
- **48 frames/second with vertical binning (CM-140 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**

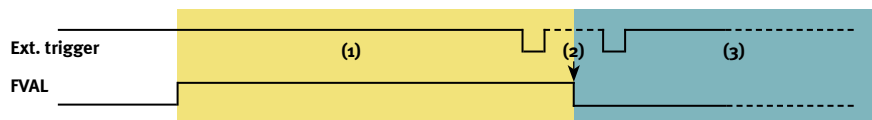
Specifications for CM-140 MCL / CB-140 MCL

Specifications	CM-140 MCL / CB-140 MCL																		
Sensor	1/2" progressive scan CCD																		
Pixel Clock	65 MHz																		
Frame rate full frame	31.08 frames/second (1052 lines per frame)																		
Active area	6.4 (h) x 4.8 (v) mm																		
Cell size	4.65 x 4.65 pixels																		
Active pixels	1380 x 1040																		
Color (CB-140 MCL)	Raw Bayer output, host-based interpolation																		
Read-out modes	<table border="0"> <tr> <td>Full</td> <td>1380 (h) x 1040 (v)</td> <td>31.08 fps</td> </tr> <tr> <td>1/2 partial scan</td> <td>1380 (h) x 520(v)</td> <td>46.57 fps</td> </tr> <tr> <td>1/4 partial scan</td> <td>1380 (h) x 269 (v)</td> <td>61.92 fps</td> </tr> <tr> <td>1/8 partial scan</td> <td>1380 (h) x 130 (v)</td> <td>73.97 fps</td> </tr> <tr> <td>2/3 partial scan</td> <td>1380 (h) x 694 (v)</td> <td>39.97 fps</td> </tr> <tr> <td>Vertical binning</td> <td>1380 (h) x 527 (v)</td> <td>48.86 fps*</td> </tr> </table> <p>*NOTE: CM-140 MCL only</p>	Full	1380 (h) x 1040 (v)	31.08 fps	1/2 partial scan	1380 (h) x 520(v)	46.57 fps	1/4 partial scan	1380 (h) x 269 (v)	61.92 fps	1/8 partial scan	1380 (h) x 130 (v)	73.97 fps	2/3 partial scan	1380 (h) x 694 (v)	39.97 fps	Vertical binning	1380 (h) x 527 (v)	48.86 fps*
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Sensitivity (CM-140 MCL)	0.3 Lux (On sensor, Max. gain, shutter off, 50% video)																		
Sensitivity (CB-140 MCL)	1.6 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	<table border="0"> <tr> <td>Camera Link</td> <td>Ext. trigger, LVDS (CC 1)</td> </tr> <tr> <td>TTL</td> <td>Ext. trigger 4V ±2V</td> </tr> </table>	Camera Link	Ext. trigger, LVDS (CC 1)	TTL	Ext. trigger 4V ±2V														
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Trigger modes	Pre-select, Pulse Width																		
Electronic shutter																			
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.																		
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	115 g																		

Ordering Information

CM-140 MCL 1/2" Monochrome Progressive Scan Camera
CB-140 MCL 1/2" Bayer Mosaic Color Progressive Scan Camera

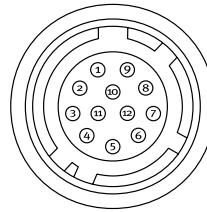
FVAL auto-detect trigger function (next LVAL or immediate)



- (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

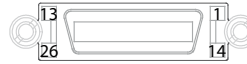
DC In / Trigger



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

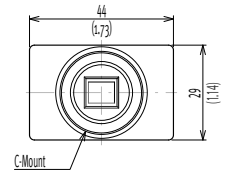


Pin	Signal	Function
1 14	GND	-
2 15	+/-Tx0	CL Data
3 16	+/-Tx1	CL Data
4 17	+/-Tx2	CL Data
5 18	+/-Txclk	CL clk
6 19	+/-Tx3	CL Data
7 20	SerTC+/SerTC-	Serial in
8 21	SerTFG+/SerTFG-	Serial out
9 22	CC1-/CC1+	Ext. trig*
10 23	CC2+/CC2-	Not used
11 24	CC3-/CC3+	Not used
12 25	CC4+/CC4-	Not used
13 26	GND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

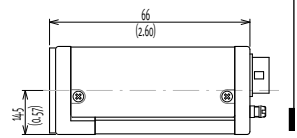
For PoCL version pins 1 and 26 are used for +12V
*) in Mini-CL or 12-pin Hirose

Dimensions

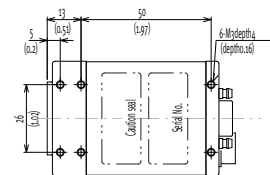
Front view



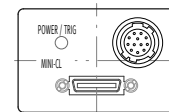
Side view



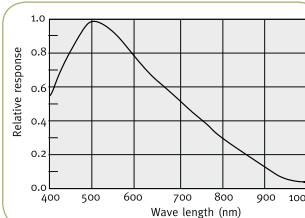
Bottom view



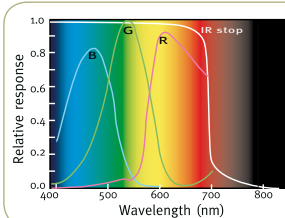
Rear view



Spectral Response CM-140 MCL



Spectral Response CB-140 MCL



Europe, Middle East & Africa
Phone +45 4457 8888
Fax +45 4491 8880

Asia Pacific
Phone +81 45 440 0154
Fax +81 45 440 0166

Americas
Phone (Toll-Free) 1 800 445 5444
Phone +1 408 383 0300



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