

## ❖ AD-o81 CL

2 CCD High dynamic range camera

**C<sub>3</sub> Camera Suite**  
Unlimited  
Digital  
Switchability



- 2-monochrome prism-mounted progressive scan CCDs (1/3")
- Member of the C<sub>3</sub> Advanced series
- 1024 (h) x 768 (v) active pixels per channel
- 4.65  $\mu\text{m}$  square pixels
- 30 frames/second with full resolution
- 60 frames/second for interleaved high frame rate operation
- Increased frame rates with partial scan or vertical binning
- Programmable exposure from 20 $\mu\text{s}$  to 33ms
- 11-step preset shutter from 1/60s to 1/50000s
- Pre-select and pulse width trigger modes
- PIV (Particle Image Velocimetry) mode available
- LVAL synchronous/asynchronous operation (auto-detect)
- Analog video output for auto-iris lens control
- 10- or 8-bit Camera Link output
- Two I/O connectors configurable for separate or combined output
- Setup by Windows NT/2000/XP via serial communication

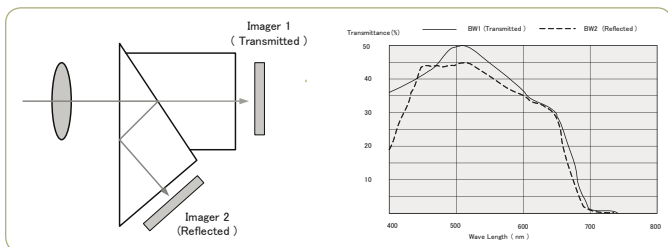
CAMERA  
**Link**

**iAi**<sup>®</sup>

# Specifications for AD-o81CL

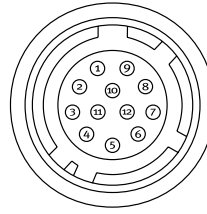
Specifications		AD-o81CL
Sensor	Sensor 1 Sensor 2	1/3" Monochrome IT CCD (ICX204AL) 1/3" Monochrome IT CCD (ICX204AL)
Pixel Clock		33.75 MHz
Frame rate (HDR mode)		30 frames/sec.
Frame rate (interleaved)		60 frames/sec.
Active area		4.76 (h) x 3.57 (v) mm
Cell size		4.65 (h) x 4.65 (v) μm
Active pixels		1024 (h) x 768 (v)
Read-out modes	Full 1/2 partial scan 1/4 partial scan 1/8 partial scan V binning	1024 (h) x 768 (v) 30/60 fps 1024 (h) x 384 (v) 48/96 fps 1024 (h) x 192 (v) 68/136 fps 1024 (h) x 96 (v) 86/172 fps 1024 (h) x 384 (v) 49.5/99 fps
Sensitivity		1.1 Lux (On sensor, max. gain, shutter off, 50% video)
S/N ratio		>54dB (Gain 0 dB, shutter off)
Video output		Dual monochrome 8 or 10 bit, synchronized or separate timing. Output selectable to one or both CL connectors
Auto-iris lens video		0.7 Vp-p
Gain		-3dB to +12dB
Synchronization		Int. X-tal
Inputs	Camera Link TTL (Hirose 12P)	Ext. trigger, LVDS, (CC 1) Ext. Trigger 4V ±2V
Outputs	Camera Link TTL (Hirose 12P)	EEN, FVAL, LVAL, DVAL, PCLK XEEN (x 2)
Trigger modes		Pre Select, Pulse Width and PIV mode
Electronic shutter	Pre-set shutter Programmable exposure Pulse Width Control	1/60 to 1/50,000 sec. in 11 steps 0.5L to 792L (1LVAL unit) 1.5L to 60 frames
Auto luminance balance		Gain setting range: -3 to +6 dB (HDR mode) Detection area is selectable from 9 divisions
Knee compensation		Knee point, Knee slope (10 or 8 bit)
Control interface		Camera Link x 2
Indicators on rear panel		LED for power and trigger input
Operating Temperature		-5°C to +45°C
Humidity (operation)		20 - 80% non-condensing
Storage temp./humidity		-25°C to +60°C / 20 to 80%
Vibration		3 G (15Hz to 200 Hz XYZ)
Shock		50G
Regulations		CE (EN 61000-6-2, EN-61000-6-3), FCC part 15 class B, RoHS
Power		12V DC ± 10% 3.8 W
Lens mount		C-mount (use 3CCD type, rear protrusion <4mm)
Dimensions (H x W x L)		55(H) x 55(W) x 80(D) mm
Weight		400 g

## 2CCD Prism



## Connector pin-out

### DC In / Trigger

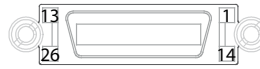


HIROSE HR10A-10R-12PB-01

Pin	Signal
1	Ground
2	+12V DC
3	Ground
4	Auto Iris lens video output
5	Ground
6	XEEN 1 out
7	XEEN 2 out
8	Ground
9	Not used
10	Trigger 1 in
11	Trigger 2 in
12	Ground

### Camera Link Interface

26 pin MDR connector 3M 10226-1A10L

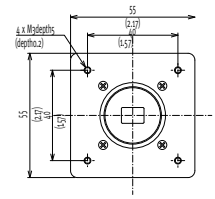


Pin	Signal	Function
1 14	GND	
2 15	-/+Tx0	CL Data
3 16	-/+Tx1	CL Data
4 17	-/+Tx2	CL Data
5 18	-/+Txclk	CL clk
6 19	-/+Tx3	CL Data
7 20	SerTC-/SerTC-	Serial in*
8 21	SerTFG+/SerTFG+	Serial out*
9 22	CC1-/CC1+	Ext. trig*
10 23	CC2-/CC2-	Not used
11 24	CC3-/CC3+	Not used
12 25	CC4-/CC4-	Not used
13 26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

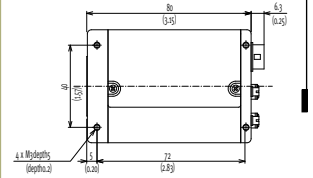
Camera Link medium configuration.  
\* Camera Link

## Dimensions

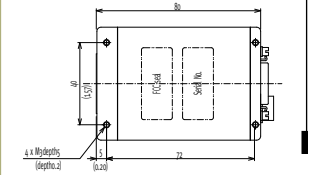
### Front view



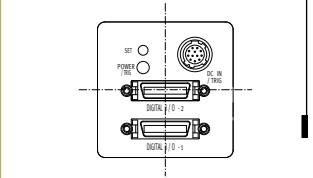
### Side view



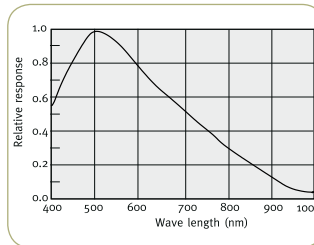
### Bottom view



### Rear view



## AD-o81CL



## High Dynamic Range Output

By altering the shutter/gain settings of the two CCDs and fusing the two synchronized video streams during post-processing, the AD-o81CL can provide more than double the dynamic range of standard CCD cameras (up to ~120 dB) but in a linear fashion that avoids the noise, shutter, and compression issues found in typical CMOS-based logarithmic or LinLog™ high dynamic range cameras. For more information, read the HDR tech note available at [www.jai.com](http://www.jai.com)

## Ordering Information

AD-o81CL 2CCD High dynamic range Camera

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