

## ❖ AD-o8o CL

2 CCD Multi-spectral camera



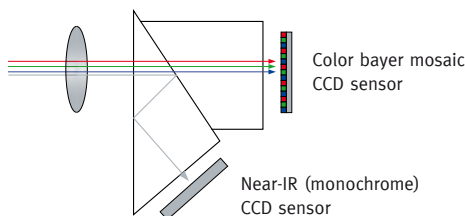
- **Multi-spectral 2-channel CCD camera**
- **Advanced series 2 x 1/3" progressive scan camera**
- **Simultaneously captures Visible and Near-IR through the same optical path**
- **1024 (h) x 768 (v) active pixels per channel**
- **4.65  $\mu\text{m}$  square pixels**
- **30 frames/second with full resolution**
- **Increased frame rate with partial scan**
- **Programmable exposure from 20 $\mu\text{s}$  to 33ms**
- **Pre-select and Pulse width trigger modes**
- **LVAL Synchronous/-asynchronous operation (auto-detect)**
- **Auto-iris lens video output allows a wider range of light**
- **RGB 24-bit or Raw Bayer 10 or 8-bit output for visible**
- **10 or 8-bit output for Near-IR**
- **Setup by Windows NT/2000/XP via serial communication**



# Specifications for AD-o8o CL

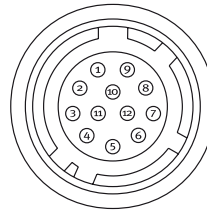
| Specifications                               |                       | AD-o8o CL                                                                                                     |
|----------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------|
| Sensor                                       | Visible<br>Near-IR    | 1/3" color Bayer mosaic IT CCD<br>1/3" Monochrome interline transfer CCD                                      |
| Pixel Clock                                  |                       | 33.75 MHz                                                                                                     |
| Frame rate full frame                        |                       | 30 frames/sec.                                                                                                |
| Active area                                  |                       | 4.76 (h) x 3.57 (v) mm                                                                                        |
| Cell size                                    |                       | 4.65 (h) x 4.65 (v) $\mu$ m                                                                                   |
| Active pixels                                |                       | 1024 (h) x 768 (v)                                                                                            |
| Color visible                                |                       | Raw Bayer output, or RGB 24-bit                                                                               |
| Read-out modes                               |                       |                                                                                                               |
|                                              | Full                  | 1024 (h) x 768 (v) 30 fps                                                                                     |
|                                              | 1/2 partial scan      | 1024 (h) x 384 (v) 48 fps                                                                                     |
|                                              | 1/4 partial scan      | 1024 (h) x 192 (v) 68 fps                                                                                     |
|                                              | 1/8 partial scan      | 1024 (h) x 96 (v) 86 fps                                                                                      |
| Sensitivity                                  | Visible               | 1.4 Lux (On sensor, max. gain, shutter off, 50% video)                                                        |
| Sensitivity                                  | Near-IR               | 0.1 $\mu$ W/cm <sup>2</sup> at 800nm (On sensor, max. gain, shutter off, 50% video)                           |
| S/N ratio                                    |                       | >54dB (Gain 0 dB, shutter off)                                                                                |
| Video output                                 | Visible<br>Near-IR    | 24-bits RGB or raw Bayer output<br>8 or 10 bit                                                                |
| Auto-iris lens video                         |                       | 0.7 Vp-p                                                                                                      |
| Gain                                         |                       | -3dB to +12dB                                                                                                 |
| Synchronization                              |                       | Int. X-tal or ext. trigger                                                                                    |
| Inputs                                       | Camera Link<br>TTL    | Ext. trigger, LVDS, (CC 1)<br>Ext. Trigger 4V $\pm$ 2V                                                        |
| Outputs                                      | Camera Link<br>TTL    | Clk., FVAL, LVAL, Data, EEN<br>XEEN                                                                           |
| Trigger modes                                |                       | Pre Select, Pulse Width                                                                                       |
| Electronic shutter                           |                       |                                                                                                               |
|                                              | Pre-set shutter       | 1/30 to 1/50,000 sec. in 12 steps                                                                             |
|                                              | Programmable exposure | 0.5L to 792L (1LVAL unit)                                                                                     |
|                                              | Pulse Width Control   | 1.5L to 60 frames                                                                                             |
| White balance                                |                       | Only for RGB 24-bits output<br>Gain range: -3dB to +6dB<br>Manual: 3000K to 6500K<br>One-push: 3000K to 6500K |
| Knee function                                |                       | For 24-bit output (visible)<br>Near-IR 8 or 10 bit Knee point, Knee slope                                     |
| Control interface                            |                       | Camera Link                                                                                                   |
| Functions controlled by serial communication |                       | Gain, shutter, trigger modes, read-out modes, bit depth                                                       |
| 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/WEEE                                               |
| Power                                        |                       | 12V DC $\pm$ 10%. 4 W                                                                                         |
| Lens mount                                   |                       | C-mount                                                                                                       |
| 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 10226-1A10JL



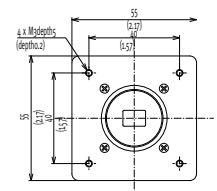
| Pin | Signal | Function        |
|-----|--------|-----------------|
| 1   | 14     | GND             |
| 2   | 15     | +/-Tx0          |
| 3   | 16     | +/-Tx1          |
| 4   | 17     | +/-Tx2          |
| 5   | 18     | +/-Txclk        |
| 6   | 19     | +/-Tx3          |
| 7   | 20     | SerTC+/SerTC-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

Camera Link medium configuration.

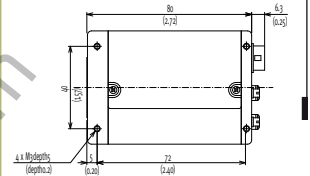
\*) Camera Link

## Dimensions

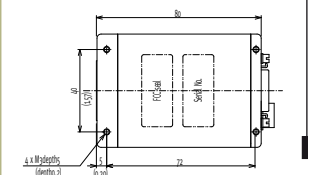
### Front view



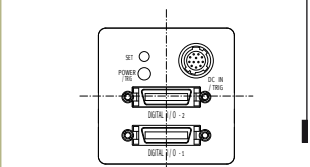
### Side view



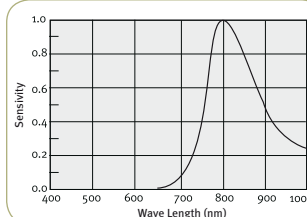
### Bottom view



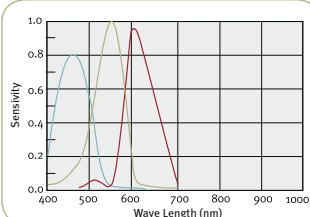
### Rear view



## Near-IR Response AD-o8o CL



## Visible Response AD-o8o CL



## Ordering Information

AD-o8oCL Digital 2CCD Progressive Scan Multi-Spectral Camera

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