

# ❖ LQ-201CL

4 CMOS RGB/NIR Line Scan Camera



- 4 CMOS line scan camera with Camera Link output
- Dichroic RGB/NIR beam splitter prism with 4 sensors
- 4 sensors with 2048 pixels, 14  $\mu\text{m}$  x 14  $\mu\text{m}$
- Low-noise operation (S/N: 55 dB) providing superior image quality
- 28.672 mm sensor scan width
- 4 x 8 bits or 4 x 10 bits output through Camera Link interface
- Line rate up to 33014 lines per second at 84 MHz pixel clock
- One-push auto white balance
- Flat field correction and color shading correction
- Binning function for extended sensivity
- Sub-sampling and windowing readout
- Set-up and installation aid with built-in test generator
- Available with M52 mount (standard) or Nikon F-mount
- Short ASCII commands for set-up via RS 232C or Camera Link
- Setup by Windows software



# Specifications for LQ-201CL

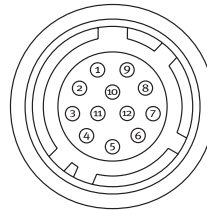
Specifications		LQ-201CL
Scanning system		Line sensor with internal clock
Pixel clock		84.00 MHz
Line rate	Standard Programmable	30.29µs (Full resolution/binning/internal trigger) 30.29µs~15.0ms, 11.9ns increments
Sensor		4 CMOS line sensors mounted on R/G/B/NIR beam splitter prism
Sensor scanning width		28.672 mm
Cell size		14 µm x 14 µm
Active pixels		4 x 2048 (h) 4 x 1024 (h) with 2:1 binning
Sensor sensitivity		Radiometric: 64nJ/cm <sup>2</sup>
Sensitivity		2800 Lux (7800K, Line rate= 600µs, gain=0 dB, shutter=OFF, Lens iris=F2 100% video)
S/N ratio		55 dB on green with gain = 0 dB
Video output		4 x 8 bit in CL base configuration 4 x 10 bit in CL medium configuration
Gain	Master tracking	Master: 0 dB to +8 dB R/B/NIR -4 dB to +6 dB
	Individual mode	Analog gain= Low (0dB) or High (+6dB) R/G/B/NIR -4 dB to +14 dB Analog gain= Low (0dB) or High (+6dB)
White balance		Manual, fixed or one-push Adjustable range 4000 K to 9000 K Fixed: 4000 K, 4600 K or 5600 K
Shading correction		Individual R/G/B/NIR flat or R/B/NIR to G
Flat-field correction		PRNU Correction: Built-in DSNU Correction: Built-in
Synchronization		Internal X-tal or external trigger
Trigger modes		No-shutter, shutter-select and pulse width control
Programmable exposure		9.52 µs to 14.99 msec. in 11.9 ns increments
Functions controlled by RS 232C or CL		Trigger modes, scan rate, exposure time, gain/black level, shading correction, flat-field correction, white balance, diagnostics
Diagnostics		Test pattern generator. (Color bar, gray pattern and white) LED for power
Lens mount		M-52 mount. (Standard) Nikon F-mount. (Factory option)
Sensor alignment		Better than ±0.1 pixel (at center)
Operating temperature		-5°C to +45°C/20 – 80% non-condensing
Storage temp./humidity		-25°C to +60°C/20 – 80% non-condensing
Vibration		3G (20Hz to 200Hz, XYZ direction)
Shock		50G
Regulations		Emission: CE CISPR Pub. 22 (EN55022) Immunity: CISPR Pub. 24 IEC61000-4-2 Conforming level 4 FCC Part15 Class B RoHS, KC
Power		12V DC to 24V DC ± 10%.
Dimensions (H x W x D)		90 mm x 90 mm x 120 mm (without connector and lens mount protrusion)
Weight		1050 g

## Ordering Information

LQ-201CL-M52	4 CMOS RGB/NIR Line Scan Camera. M52-mount
LQ-201CL-F	4 CMOS RGB/NIR Line Scan Camera. F-mount

## Connection Pin-out

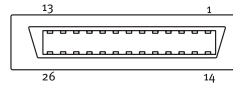
### DC In / Trigger



HIROSE HR10A-10R-12PB-71

Pin 1	Ground
Pin 2	+12V to +24V DC
Pin 3	Ground
Pin 4	Reserved
Pin 5	Ground
Pin 6	RXD RS 232C*
Pin 7	TXD RS 232C*
Pin 8	Ground
Pin 9	XEEN output
Pin 10	Trigger input (TTL)*
Pin 11	DC in +12V to +24V
Pin 12	Ground

### Camera Link Interface



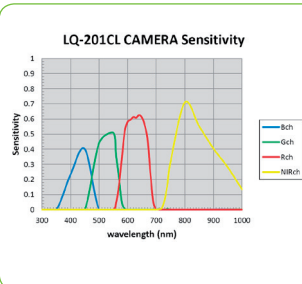
Pin	Signal	Function	
1	14	GND	
2	15	X <sub>0</sub> -/X <sub>0</sub> +	CL Data
3	16	X <sub>1</sub> -/X <sub>1</sub> +	CL Data
4	17	X <sub>2</sub> -/X <sub>2</sub> +	CL Data
5	18	Xclk-/Xclk+	CL Clk
6	19	X <sub>3</sub> -/X <sub>3</sub> +	CL Data
7	20	SerTC+/SerTC-	Serial in *
8	21	SerTFG-/SerTFG+	Serial out *
9	22	CC1-/CC1+	Trigger *
10	23	CC2-/CC2+	Reserved
11	24	N.C.	Not used
12	25	N.C.	Not used
13	26	GND	

\* In Camera Link or 12 pin Hirose

#### Note:

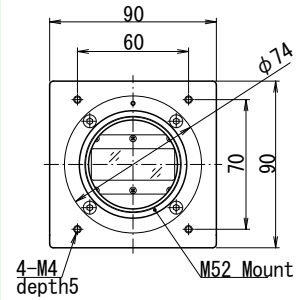
Camera Link base configuration shown.  
For medium configuration refer to Camera Link specifications or operation manual.

## Spectral Response

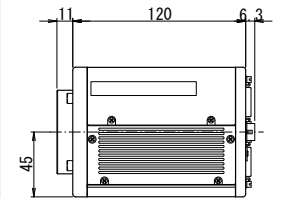


## Dimensions

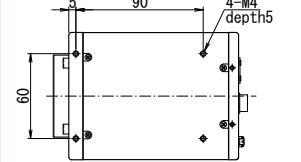
### Front view



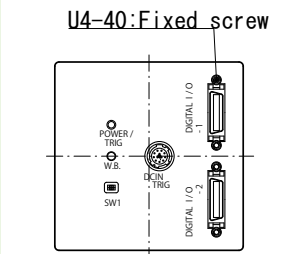
### Side view



### Bottom view



### Rear view



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