

## ❖ **TM-1020-15CL** Monochrome Progressive Scan CCD



- *1" progressive scan IT CCD (Kodak KAI-1010M)*
- *1008(H) x 1018(V) resolution @ 15 fps*
- *9.0  $\mu$ m square pixels with full frame integration for long exposures*
- *Compact 44 x 44 x 63 mm housing with high-rel connector*
- *Digital Camera Link output and analog output*
- *30 fps with 2X vertical binning*
- *Full-frame shutter to 1/16,000 sec.*
- *Asynchronous reset, no-delay shutter*
- *Read-out-inhibit control for multiple-camera applications*
- *RS-232 external control*



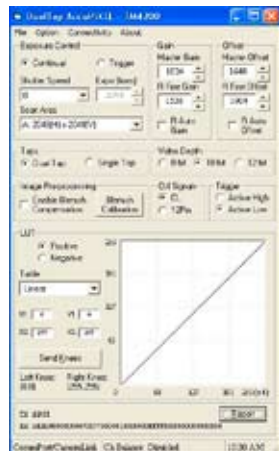
# Specifications for TM-1020-15CL

Specifications		TM-1020-15CL
Sensor		1" progressive scan interline transfer CCD
Active area		9.1mm x 9.2mm
Active pixels		1008 (H) x 1018 (V)
Cell size		9.0 μm x 9.0 μm
Readout modes		1008 (H) x 1018 (V) @ 15 Hz 1008 (H) x 509 (V) @ 30 Hz (2-row binning)
Synchronization		Internal/External auto switch HD/VD, 4.0 Vp-p impedance 4.7K Ω VD=15 Hz ± 5%, non-interlace HD=15.75 kHz ± 5%
Pixel clock		20.00 MHz
Resolution	Digital	1008 (H) x 1018 (V)
	Analog	over 700 TV lines (H) x 800 TV lines (V)
S/N ratio		>50 dB
Sensitivity		0.22 lux f=1.4 (no shutter) @ 15 fps Pixel sensitivity: 10 μV/e-
Video output	Analog	1.0 Vp-p composite video, 75 Ω
	Digital	Camera Link (Base configuration)
Gamma		Programmable LUT (1.0 std)
Lens mount		C-mount (use M1" format lenses)
Power		12V DC ± 10%, 500 mA (typical at 25° C)
Operating temperature		-10° C to 45° C
Vibration		7 Grms (10 Hz to 2000 Hz) Random
Shock		70 G, 11 ms, half-sine
Dimensions (H x W x L)		44.5 mm x 44.5 mm x 63 mm
Weight		140 g (without tripod)

## GUI Interface

A user-friendly GUI (graphical user interface) is provided. This interface allows users to control the following functions of the TM-1020-15CL camera:

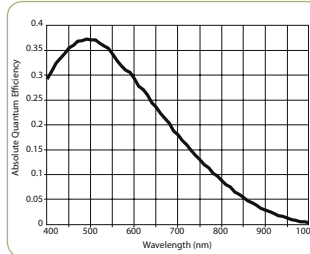
- Shutter control for manual async. and pulse-width control
- Gain control
- Offset control
- Save settings
- Load settings
- Report settings
- LUT setting and graphic display
- Scanning mode selection and option selections
- Channel auto balancing



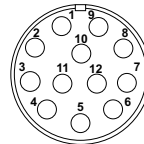
Camera parameters can be uploaded from the PC to the camera. Once these parameters are stored in EEPROMs, an instantaneous change from one setting to another can be done with a delay of few frames in between.

Software available for download at [www.jai.com](http://www.jai.com)

## Spectral Response



## Connector Pin-out



### 12-Pin Connector

1 GND	7 VD in
2 +12V DC	8 GND
3 GND	9 HD in
4 Video out	10 NC
5 GND	11 INTEG/ROI
6 NC	12 NC

## Shutter Speed

	Manual	Async
0	no shutter	no shutter
1	1/60	1/16,000
2	1/125	1/8,000
3	1/250	1/4,000
4	1/500	1/2,000
5	1/1,000	1/1,000
6	1/2,000	1/500
7	1/4,000	1/250
8	1/8,000	1/125
9	1/16,000	Ext. pulse width control

## Ordering Information

Camera	
Lead Processing	TM-1020-15CL
RoHS Compliant	RM-1020-15CL
Optional Functions	
Internal IR Filter Added	OP3-1
Optical Filter Removal	OP3-2
Glassless CCD Imager	OP21
Ultraviolet Imager	OP21-UV
Strobe Output	OP8o
10-Bit Output	OP93-1
Optional Accessories (MUST BE ORDERED SEPARATELY)	
I/O	26CL-02-26 digital output cable
Power Supply	PD-12UUP (includes power connector)
Power Cable	12P-02S

## Dimensions

