

## ❖ TM-2040 GE / TMC-2040 GE

Progressive Scan CCD



- 1" progressive scan IT CCD (Kodak KAI-2020)
- 1600 x 1200 pixels @ 34 fps dual-tap mode
- 7.4  $\mu\text{m}$  square pixels
- SW selectable single-tap mode @ 17 fps
- 12-bit A/D (linear) or 8-bit/10-bit with look-up table (LUT)
- GigE Vision Ethernet output and analog output
- 100 m with standard CAT 5E or CAT 6 cable
- Image center partial scan (600, 300, 150 lines)
- User-programmable variable partial scan
- 2X binning (H & V independently selectable)
- Full-frame shutter to 1/32,000 sec.
- Asynchronous reset, no-delay, pulse width control shutter
- Defective pixel compensation
- PIV (particle imaging velocimetry) mode
- Extensive software developer's kit (SDK)
- Monochrome or color

**GigE**<sup>TM</sup>  
VISION



# Specifications for TM-2040GE/TMC-2040GE

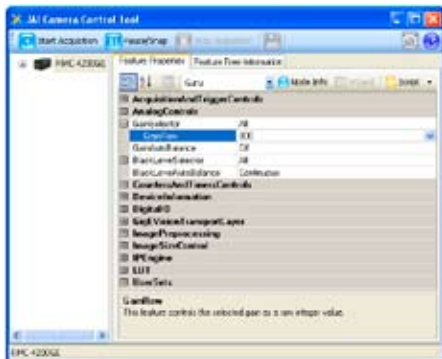
Specifications	TM-2040GE/TMC-2040GE
Sensor	1" progressive scan interline transfer CCD
Active area	11.8mm x 8.8mm
Active pixels	1600 (H) x 1200 (V)
Cell size	7.4 $\mu\text{m}$ x 7.4 $\mu\text{m}$
Readout modes	A 1600 (H) x 1200 (V) @ 34 Hz B 1600 (H) x 600 (V) @ 58 Hz (partial scan) C 1600 (H) x 300 (V) @ 90 Hz (partial scan) D 1600 (H) x 150 (V) @ 122 Hz (partial scan) U user-programmable partial scan
Synchronization	Internal/External auto switch HD/VD, 4.0 Vp-p impedance 4.7K $\Omega$ VD= 34 Hz $\pm$ 2%, non-interlace HD= 41.7 kHz $\pm$ 2%
Pixel clock	40.00 MHz
S/N ratio	>58 dB
Sensitivity	Mono 0.4 lux f=1.4 (no shutter) @ 34 fps, Color 2.4 lux f=1.4 (no shutter) @ 34 fps, Pixel sensitivity: 30 $\mu\text{V}/\text{e}^-$
Video output	Analog 1.0 Vp-p, 75 $\Omega$ Digital Gigabit Ethernet (8-bit/10-bit/12-bit)
Color (RMC/TMC-2040 only)	Raw Bayer output for host-based interpolation
Gamma	Programmable LUT (Gamma 1.0 std)
Shutter speed (programmable)	1/34 to 1/32,000 sec in increments of 24 $\mu\text{s}$
Lens mount	C, F, M42 mount (use 1" format lenses)
Power	12V DC $\pm$ 10%, 800 mA (typical at 25° C)
Operating temperature	-10° C to 50° C
Vibration	7 Grms (10 Hz to 2000 Hz) Random
Shock	70 G, 11 ms, half-sine
Dimensions (H x W x L)	51 mm x 51 mm x 85 mm
Weight	216 g (without tripod)

## GUI Interface

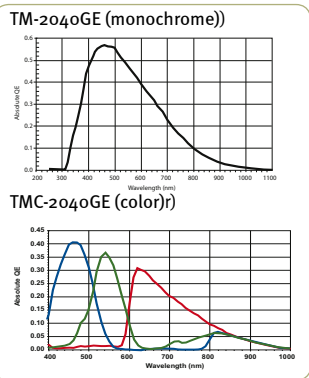
This camera can interface with any GigE Vision compliant software and hardware. The JAI SDK is provided to allow users to control various camera functions including:

- Exposure control for free running, triggered, and pulse width control.
- Gain and black Level
- Save settings
- Load settings
- LUT control to maximize dynamic range
- Scan mode selection.
- Pulse generators

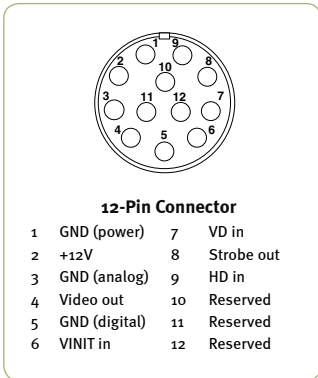
The SDK provides functions for controlling image capture, as well as easy interfaces for setting camera functions and an API for .NET and C++ interfaces. CPU usage can be kept low via the JAI GigE Vision Filter Driver.



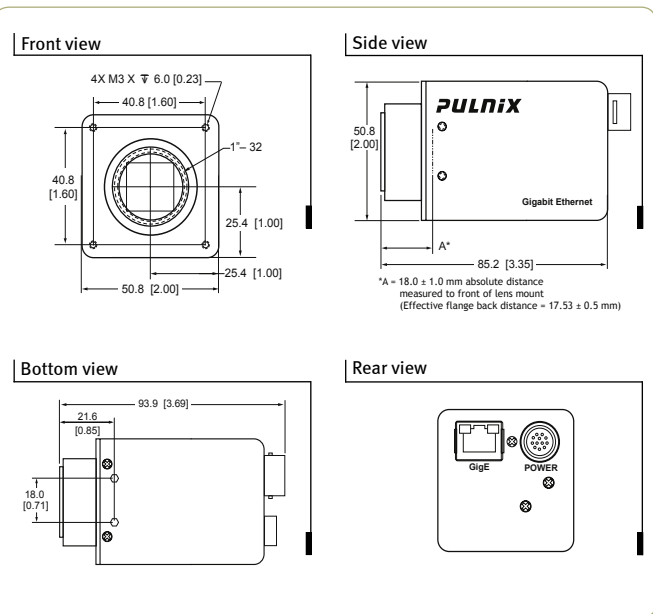
## Spectral Response



## Connector Pin-out



## Dimensions



## Ordering Information

Camera	
Lead Processing	TM-2040GE (mono), TMC-2040GE (color)
RoHS Compliant	RM-2040GE (mono), RMC-2040GE (color)
Optional Functions	
Internal IR Filter Added	OP3-1
Optical Filter Removal	OP3-2 (color only)
Glassless CCD Imager	OP21
Ultraviolet Imager	OP21-UV (monochrome only)
F mount	OP65-6
M42 mount	OP65-7
M42 mount, 10mm back focus	OP65-8
Optional Accessories (must be ordered separately)	
Tripod Adapter Kit	TP-20
Power Supply/2m cable	PD-12UUP/12P-02S
Power Supply	PD-12UUP series (includes power connector)

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