1.2” progressive scan IT CCD (Kodak KAI-4021)
2048 x 2048 resolution @ 15 fps dual-tap
7.4 µm square pixels
Software-selectable single-tap mode available @ 8 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 (1000, 500, 250 lines)
2X2 binning and user-definable variable partial scan
Full-frame shutter to 1/16,000 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
Specifications for TM-4200GE/TMC-4200GE

<table>
<thead>
<tr>
<th>Specifications</th>
<th>TM-4200GE/TMC-4200GE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
<td>1.2” progressive scan interline transfer CCD</td>
</tr>
<tr>
<td>Active area</td>
<td>15.15mm x 15.15mm</td>
</tr>
<tr>
<td>Active pixels</td>
<td>2048 (H) x 2048 (V)</td>
</tr>
<tr>
<td>Cell size</td>
<td>7.4 μm x 7.4 μm</td>
</tr>
<tr>
<td>Readout modes</td>
<td>A: 2048 (H) x 2048 (V) @ 15 Hz</td>
</tr>
<tr>
<td></td>
<td>B: 2048 (H) x 1000 (V) @ 28 Hz (partial scan)</td>
</tr>
<tr>
<td></td>
<td>C: 2048 (H) x 500 (V) @ 50 Hz (partial scan)</td>
</tr>
<tr>
<td></td>
<td>D: 2048 (H) x 250 (V) @ 80 Hz (partial scan)</td>
</tr>
<tr>
<td></td>
<td>U: User-definable partial scan</td>
</tr>
<tr>
<td>Synchronization</td>
<td>Internal/External auto switch</td>
</tr>
<tr>
<td></td>
<td>HD/VD, 4.0 Vp-p impedance 4.7K Ω</td>
</tr>
<tr>
<td></td>
<td>VD=14.79 Hz ± 2%, non-interlace</td>
</tr>
<tr>
<td></td>
<td>HD=30.78 kHz ± 2%</td>
</tr>
<tr>
<td>Pixel clock</td>
<td>40.00 MHz</td>
</tr>
<tr>
<td>S/N ratio</td>
<td>&gt; 58 dB</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Mono: 0.12 lux f=1.4 (no shutter) @ 15 fps, 0.8 lux f=1.4 (no shutter) @ 15 fps, Pixel sensitivity: 31 μV/e-</td>
</tr>
<tr>
<td>Video output</td>
<td>Analog: 1.0 Vp-p, 75 Ω</td>
</tr>
<tr>
<td></td>
<td>Digital: Gigabit Ethernet (8-bit/10-bit/12-bit)</td>
</tr>
<tr>
<td>Color</td>
<td>Raw Bayer output for host-based interpolation</td>
</tr>
<tr>
<td>Gamma</td>
<td>Programmable LUT (Gamma 1.0 std)</td>
</tr>
<tr>
<td>Shutter speed</td>
<td>Programmable</td>
</tr>
<tr>
<td>Lens mount</td>
<td>C, f, M42 mount (use 1” format lenses)</td>
</tr>
<tr>
<td>Power</td>
<td>12V DC ± 10%, 590 mA (typical at 25° C)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10° C to 50° C</td>
</tr>
<tr>
<td>Vibration</td>
<td>7 Grms (50 Hz to 2000 Hz) Random</td>
</tr>
<tr>
<td>Shock</td>
<td>70 G, 11 ms, half-sine</td>
</tr>
<tr>
<td>Dimensions (H x W x L)</td>
<td>51 mm x 51 mm x 85 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>214 g (without tripod)</td>
</tr>
</tbody>
</table>

**Specs: 1.2” Progressive Scan Interline Transfer CCD**

**Sensitivity:**
- Mono: 0.12 lux @ f=1.4 (no shutter) @ 15 fps, 0.8 lux @ f=1.4 (no shutter) @ 15 fps, Pixel sensitivity: 31 μV/e-

**Video Output:**
- Analog: 1.0 Vp-p, 75 Ω
- Digital: Gigabit Ethernet (8-bit/10-bit/12-bit)

**Color:** Raw Bayer output for host-based interpolation

**Gamma:** Programmable LUT (Gamma 1.0 std)

**Shutter Speed:** Programmable

**Lens Mount:** C, f, M42 mount (use 1” format lenses)

**Power:** 12V DC ± 10%, 590 mA (typical at 25° C)

**Operating Temperature:** -10° C to 50° C

**Vibration:** 7 Grms (50 Hz to 2000 Hz) Random

**Shock:** 70 G, 11 ms, half-sine

**Dimensions:**
- 51 mm x 51 mm x 85 mm

**Weight:** 214 g (without tripod)

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**GUI Interface**

A user-friendly graphical user interface (GUI), provided as part of the camera’s extensive software development kit (SDK), allows users to control various camera functions, including:

- Shutter control for manual async. and pulse width control
- Gain control
- A/D reference voltage control
- Save settings
- Load settings
- Report settings
- LUT setting and graphic display
- Scanning mode selection and option selections

The SDK also provides functions for controlling the grabbing of images, and configuring local I/Os, by means of an integrated API and a set of powerful C++ classes. Changes in the camera’s acquisition modes automatically update the API for easy image acquisition. CPU usage is only a few percent, due to the TCP/IP offload engine.

Software available for download at www.jai.com

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**Spectral Response**

**TM-4200GE (monochrome)**

**TMC-4200GE (color)**

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**Dimensions**

**Front view**

**Side view**

**Bottom view**

**Rear view**

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**Ordering Information**

**Camera**

- **Lead Processing:** TM-4200GE (mono), TMC-4200GE (color)
- **RoHS Compliant:**
  - TM-4200GE (mono), TMC-4200GE (color)

**Optional Functions**

- Internal IR Filter Added: OP3-1 (monochrome only)
- Optical Filter Removal: OP2-2 (color only)
- Glassless CCD Imager: OP21
- Ultraviolet Imager: OP21-UV (monochrome only)
- f mount: OP65-6
- M42 mount: OP65-7
- M42 mount, 20mm back focus: OP65-8

**Optional Accessories (MUST BE ORDERED SEPARATELY)**

- Power Supply: PD-12UUP (includes power connector)
- Power Supply/2m cable: PD-12UU/12P-025

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**Visit our web site on www.jai.com**

**See the possibilities**