**S P E C S**

**Specifications:**

- **CCD Grades:**
  - SPOT Camera:
    - Grade 3 Kodak 1400 CCD
    - Total Point Defects ≤ 20
    - Total Cluster Defects ≤ 8
    - Total Column Defects ≤ 4
    - (also available with Grade 2, 1 or 0 CCD)
  - SPOT-2 Camera:
    - Grade 2 Kodak 1400 CCD
    - Total Point Defects ≤ 10
    - Total Cluster Defects ≤ 5
    - Total Column Defects ≤ 2
    - (also available with Grade 3, 1 or 0 CCD)

- **CCD Format and Resolution:**
  - 1315 x 1033 pixels (1,358,395 pixels)
  - 6.8 micron x 6.8 micron pixel size
  - Active area 8.94mm x 7.02mm

- **Image Acquisition Bit Depth:**
  - 8 bit and 12 bit grayscale;
  - 24 bit and 36 bit RGB color

- **Digitization:**
  - Pixel-by-pixel digitization in camera head

- **CCD Cooling:**
  - Thermoelectric cooler with forced air
  - Cooled to -12°C (37° differential at typical room temperature of 25°C)
  - Temperature stability +/- 1°C in 8 hour period

- **Full Scale:**
  - 38,250 e (set to 85% of 45,000 e full well capacity)

- **Dark Current:**
  - 0.05 e/p/s at -12°C (typical)
  - 0.2 e/p/s at -12°C (max)

- **Read Noise:**
  - 13 e rms (typical)
  - 20 e rms (max)

- **Signal to Noise Ratio:**
  - 69 dB (typical)
  - 66 dB (min)

- **Binning Modes:**
  - 2 x 2, 3 x 3, 4 x 4

- **Color & IR Filter:**
  - SPOT Camera: fixed
  - SPOT-2 Camera: on slider

- **Operating Environment:**
  - 10%-80% relative humidity
  - 15-30°C ambient

- **Pixel Readout Rate:**
  - 1.08 MHz

- **Exposure:**
  - Choice of auto or manual exposure settings, exposure range 80ms-17 minutes per color

- **Lens Mount:**
  - Nikon "F" bayonet mount (adapters available for almost all new and older microscopes), can accept Nikon macro lenses

- **Fast Focus:**
  - 4 subframes per second (typical)

- **File Sizes:**
  - 8 bit = 1.33 MB
  - 12 bit = 1.99 MB
  - 16 bit = 2.66 MB
  - 24 bit = 3.98 MB
  - 36 bit = 5.98 MB
  - 48 bit = 7.97 MB

- **Software and Operating System:**
  - For Windows 95/98/NT
  - Proprietary software environment includes:
    - Auto exposure / Auto white balance
    - Image database
    - Report generator / Calibration mark imprinting
    - Distance, area and angle measurement
    - Editing tools (histogram, sharpen, gamma, etc.)
    - Annotation
    - Flatfield correction / Background subtract
    - TWain driver / Device driver available for several image analysis programs
  - For Mac Power PC:
    - TWain driver (for use with Adobe Photoshop and other TWain compliant software)

- **Computer Requirements PC:**
  - Pentium required (P166 or faster recommended)
  - 64MB RAM required (128MB recommended)
  - Video card should provide 24 bit RGB "millions of colors" at desired monitor resolution (8MB VRAM required for recommended 21" monitor operating at 1600 x 1200 resolution)

- **Computer Requirements MAC:**
  - Power PC with a PCI bus running MAC OS 7.6 or greater
  - 64MB RAM required (128MB recommended)
  - Video card should provide "millions of colors" at desired monitor resolution (8MB VRAM recommended for resolution of 1280 x 1024 at refresh rate of 70Hz)

- **Camera Head:**
  - SPOT Camera:
    - Dimensions: 5.0"H x 7.0"W x 7.25"D
    - Weight: 7 lbs.
  - SPOT-2 Camera:
    - Dimensions: 5.0"H x 7.0"W x 7.25"D
    - Weight: 12 lbs.

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**Quantum Efficiency of Kodak KAF-1400 CCD**

![Quantum Efficiency Graph](image)

**External Shutter Control:**
- BNC connector on PCI plug-in board; TTL level output for shuttering fluorescent illuminator

**Power Supply:**
- Factory configurable to 100V, 120V, 220V or 230V, 50/60Hz
- Dimensions: 5.0"H x 10.5"W x 8.0"D
- Weight: 12 lbs.