

# IA44 Image Analysis System Specification Sheet

- Full Image Management Package
  - Image Capture
  - Image Manage
  - Image Database
  - Image Search
- Image Stitching and Image Fusion
- PAXcam Color Digital Cameras
  - PAXcam3 3.1 Mp Digital Camera
  - PAXcam2 2.0 Mp Digital Camera
  - PAXcam ARC Adjustable Resolution Digital Camera
  - PAXcam5 5.0 Mp
  - PAXcam2+ Low Light 2.0 Mp CCD Digital Camera
  - High Speed USB2
  - 1/2-Inch Format Image Sensors
- PAXcam Camera Interface
  - Capture
  - Focus Indicator
  - White Balance
  - Saturation
  - Contrast
  - Exposure
  - Frame Rate
  - Preview Resolution
    - \* Full or Half
  - ROI Settings
  - Save Camera Settings
  - Quicksave Wizard
  - Post Capture Processing
  - Background Correction
  - Overlays
  - Gamma
  - Gain
  - Brightness
  - Capture Time Settings
  - Optional Live Measurement
- Full Image Analysis IA44 Routines
  - Multi-Field Analysis
  - Live or Saved Images
  - Full Set of Material Science Applications
    - \* Area Fraction
    - \* Particle Size
    - \* Porosity
    - \* Nodularity
    - \* Dendrite Arm Spacing
    - \* Grain Size
    - \* Ductile Iron
    - \* Gray Iron
    - \* Ferrite/Pearlite
    - \* Graphite Flake
    - \* Coating/Layer Thickness
  - Complete Application Wizard for easy creation and editing of applications
  - Image Filters
    - \* Edge Detection
    - \* Vertical Edge
    - \* Horizontal Edge
    - \* Smooth
    - \* Sharpen
    - \* Laplace (Edge)
    - \* Gaussian (Smoothing)
    - \* Median (Smoothing)
    - \* Top Hat (Edge)
    - \* Erode
    - \* Dilate
    - \* Watershed
    - \* Skeletonize
- Basic Measurement Routines
  - Point-to-Point
  - Weld Analysis
  - Scale Bar
  - Manual Area Measurements
    - \* Rectangles
    - \* Ellipses
    - \* Polygons
    - \* Irregular Shapes
  - Angle Measurements
  - Parallel Line Calipers
  - Manual Tagging of Events
  - Segmented Lines
  - Scale Bar
- Enhanced Measurement Routines
  - Arc Measurement
  - Grid Overlays of Image
  - Auto-detection by Density
  - Auto-detection by Color
  - Filters for Detecting Objects
  - User-Defined Wizards for Analysis
    - Nodularity Wizard
    - Ferrite/Pearlite Wizard
    - Grainsize Wizard
- Easy Calibration Wizard
  - Calibrate and Measure in English or Metric
  - Calibration Log
- Full Reporting via Microsoft Office
  - Excel
  - Word
  - PowerPoint
  - Etc.



### PAXcam ARC Specifications

<b>Interface</b>	High Speed USB 2.0
<b>Image Sensor</b>	1/2-inch format; color or mono; 6.6 mm x 5.3 mm array
<b>Effective Pixels</b>	1280 x 1024, 5.2 $\mu$ m square pixels Pixel shifting technology for 1.3 Mp to 20 Mp resolution
<b>Frame Rate</b>	15 fps at 1280 x 1024, 60 fps at 640 x 480
<b>Sensitivity</b>	High
<b>Dynamic Range</b>	>60 dB
<b>Auto Exposure</b>	Manual 0.1 ms to 3 seconds
<b>White Balance</b>	Automatic/Manual
<b>Power Requirement</b>	USB bus power, or external 6 VDC, 900 mA
<b>Power Consumption</b>	~2.5 Watts
<b>Operating Temp</b>	0°C to +50°C
<b>Operating Humidity</b>	20% to 80%, Non-condensing
<b>Interface Connector</b>	USB 2.0 includes cable
<b>Lens Mount</b>	C-Mount lens adapter

### PAXcam2 Specifications

<b>Interface</b>	High Speed USB 2.0
<b>Image Sensor</b>	1/2-inch format; color or mono; 6.7 mm x 5.0 mm array
<b>Effective Pixels</b>	1600 x 1200, 4.2 $\mu$ m square pixels
<b>Frame Rate</b>	10 fps at 1600 x 1200, 40 fps at 800 x 600 (sub-sampled)
<b>Sensitivity</b>	High
<b>Dynamic Range</b>	60 dB
<b>Auto Exposure</b>	Automatic/Manual
<b>White Balance</b>	Automatic/Manual
<b>Power Requirement</b>	USB bus power, or external 6 VDC, 500 mA
<b>Power Consumption</b>	~2.5 Watts
<b>Operating Temp</b>	0°C to +40°C
<b>Operating Humidity</b>	20% to 80%, Non-condensing
<b>Interface Connector</b>	USB 2.0
<b>Lens Mount</b>	C-Mount

### PAXcam2+ Specifications

<b>Interface</b>	High Speed USB 2.0
<b>Image Sensor</b>	1/1.8-inch format; color (mono also available)
<b>Pixel Size</b>	4.4 $\mu$ m square
<b>Effective Pixels</b>	1616 x 1216 2.0 Mp
<b>Scan Type</b>	Progressive Scan
<b>Resolution</b>	UXGA
<b>Digital Output</b>	8 Bit/channel, 24 Bit
<b>Frame Rate</b>	12 fps @ 1600 x 1200 40 fps @ 800x 600
<b>Interface</b>	High Speed USB 2.0
<b>Image Sensor</b>	1/1.8-inch format; color (mono also available)
<b>Sensitivity</b>	High
<b>Signal/Noise</b>	>66 dB
<b>Auto Exposure</b>	Auto/Manual
<b>Integration Times</b>	1 ms to 16 seconds
<b>White Balance</b>	Auto/Manual
<b>Power Requirement</b>	USB bus power or external 5 VDC, 500 mA

<b>Power Consumption</b>	~2.5 Watts
<b>Operating Temp</b>	0°C to +50°C
<b>Operating Humidity</b>	5% to 95% Non-condensing
<b>Variable Frame Rate</b>	Yes
<b>Lens Mount</b>	C-Mount
<b>TWAIN Compliant</b>	Yes
<b>Direct Show™ Compatible</b>	Yes

### PAXcam3 Specifications

<b>Interface</b>	High Speed USB 2.0
<b>Image Sensor</b>	1/2-inch format; color or mono; 6.5 mm x 4.9 mm array
<b>Effective Pixels</b>	2048 x 1536, 3.2 $\mu$ m square pixels
<b>Frame Rate</b>	6 fps at 2048 x 1536 20 fps at 1600 x 1200 (sub-sampled)
<b>Sensitivity</b>	High
<b>Dynamic Range</b>	61 dB
<b>Auto Exposure</b>	Automatic/Manual
<b>White Balance</b>	Automatic/Manual
<b>Power Requirement</b>	USB bus power, or external 6VDC, 500 mA
<b>Power Consumption</b>	~2.5 Watts
<b>Operating Temp</b>	0°C to +60°C
<b>Operating Humidity</b>	20% to 80%, Non-condensing
<b>Interface Connector</b>	USB 2.0
<b>Lens Mount</b>	C-Mount

### PAXcam5 Specifications

<b>Interface</b>	High Speed USB 2.0
<b>Image Sensor</b>	0.4-inch format; color or mono; 5.7 mm x 4.28 mm array
<b>Pixel Size</b>	2.2 $\mu$ m square
<b>Effective Pixels</b>	2592 x 1944 5.0 Mp
<b>Scan Type</b>	Progressive Scan
<b>Resolution</b>	5 MP native
<b>Digital Output</b>	8 Bit
<b>Frame Rate</b>	10 fps @ 1296 x 972 7 fps @ 2592 x 1944
<b>Sensitivity</b>	High
<b>Dynamic Range</b>	>60 dB
<b>Auto Exposure</b>	Auto/Manual
<b>White Balance</b>	Auto/Manual
<b>Power Requirement</b>	USB bus power or external 5 VDC, 500 mA
<b>Power Consumption</b>	~2.5Watts
<b>Operating Temp</b>	0°C to +50°C
<b>Operating Humidity</b>	5% to 95% Non-condensing
<b>Video Operation</b>	Yes
<b>Variable Frame Rate</b>	Yes
<b>Lens Mount</b>	C-Mount
<b>TWAIN Compliant</b>	Yes
<b>Direct Show™ Compatible</b>	Yes

*Specifications and part numbers may change.  
Consult LECO for latest information.*