

PRODUCT OVERVIEW



Product Overview



PRODUCT	SamBa SE-34	SamBa QS-34	ultracoolSamBa HR-100
Application Example	Scanning Spectroscopy, PMT Replacement, Fluorescence Spectroscopy, Kinetics at very low light levels.	Scanning Spectroscopy, PMT Replacement, Fluorescence Spectroscopy, Kinetics.	Highly sensitive Luminescence Imaging from UV to NIR at 1 MPixel resolution.
Features	Very high sensitivity, single electron detection. Very fast Data Acquisition: 3,000 fps @ 4 spectral Bands	Very fast Data Acquisition: 3,000 fps @ 4 spectral Bands	Extremely high sensitivity, high resolution imaging at low light levels. Ultra deep cooling for very long exposure times.
Image Sensor Type	CCD: Charge Multiplier frame transfer	CCD: Advanced open phase frame transfer	CCD: Back thinned, back illuminated, full frame
Number of Pixels	656 x 496 (x2)	656 x 496 (x2)	1024 x 1024
Pixel-Size	7.4 μm x 7.4 μm	7.4 μm x 7.4 μm	13 μm x 13 μm
Active area	4.9 mm x 3.7 mm	4.9 mm x 3.7 mm	13.3 mm x 13.3 mm
Read Noise	1 e ⁻ rms	20 e ⁻ rms	4 e ⁻ rms (typical)
Sensor Cooling	Temperature stabilized default set to 20 °C	Temperature stabilized default set to 20 °C	Ultra deep cooling to 100 °C delta
Dark Current	50 e ⁻ /pix•s at 20 °C	50 e ⁻ /pix•s at 20 °C	9•10 ⁻⁵ e ⁻ /pix•s at - 70 °C (calculated)
Anti-blooming	Yes	Yes	–
Peak Quantum Efficiency	40 %	40 %	93 %
Spectra/s (100 Spectra/frame, 4 wavelength bands)	300 000	300 000	N/A
Frames/s at full image resolution	30 fps	30 fps	11 sec/readout (HQ mode)
Digital Resolution	12 bit	12 bit	16 bit
Ethernet Connection	Yes	Yes	Yes
Nominal Readout Rate	10 MHz	10 MHz	100 KHz (HQ mode)
Dimensions	100 mm x 100 mm x 120 mm	100 mm x 100 mm x 120mm	100 mm x 130 mm x 170 mm
Integrated Data Processing ** 1. FPGA (inline w. hardware) 2. RISC CPU 3. DSP	Yes Yes Optional	Yes Yes Optional	Yes Yes Optional
Order Number	SVSB06-MB-1001	SVSB02-MB-1001	SVSB13-MB-1001

* Hermetically sealed peltier cooling

** Integrated data processing is freely progamable for the user



coolSamBa

SamBa Series

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coolSamBa HR-320

Luminescence Imaging with high resolution.

High resolution. Very low dark current. Deep cooling for long integration times.

CCD: On-chip micro-lenses, transparent gate, full frame

2184 x 1471

6.8 µm x 6.8 µm

14.85 mm x 10.26 mm

7 e⁻ rms

Deep cooling at 60 °C delta *

0.015 e⁻/pix·s at -35 °C

No

90 %

N/A

6.4 sec / readout

16 bit

Yes

500 KHz

100 mm x 100 mm x 170 mm

Yes

Yes

Optional

SVSB08-MB-1001

coolSamBa HR-630

Luminescence Imaging with very high resolution.

High resolution. Very low dark current. Deep cooling for long integration times.

CCD: On-chip micro-lenses, transparent gate, full frame

3072 x 2048

9 µm x 9 µm

27.65 mm x 18.48 mm

7 e⁻ rms

Deep cooling at 50 °C delta *

0.015 e⁻/pix·s at -35 °C

Optional

65 %

N/A

12.8 sec / readout

16 bit

Yes

500 KHz

100 mm x 100 mm x 170 mm

Yes

Yes

Optional

SVSB05-MB-1001

cmosSamBa HR-130

Medical instrumentation, Machine vision & inspection, Robotics, Traffic supervision, Surveillance etc...

Small remote head 25 mm x 25 mm x 26 mm, high resolution (1.3 Mpixel), global shutter / rolling shutter, 120 dB dyn.range

CMOS: active pixel: IBIS 5a, Monochrome, progressive scan

1280 x 1024

6.7 µm x 6.7 µm

8.57 mm x 6.86 mm

20-30 e⁻ rms

Optional 20 °C delta

750 e⁻/pix·s at 25 °C

Yes, Inherent

35 %

N/A

28 fps

10 bit

Yes

40 MHz

25 mm x 25 mm x 26 mm (remote head)

Yes

Yes

-

SVSB11-MB-1001



cmosSamBa



SamBa

SamBa Series



Sensovation's **SamBa** cameras are rapid multi-channel detection systems for applications in spectroscopy and low light imaging, based on a modular platform of core technologies. Main application field for the **SamBa-series** can be found in spectroscopy and imaging in biotechnology, diagnostics, analytical and other life-science instrumentation. These cameras uniquely enable sample based detection, in which the information obtained from individual samples is enhanced significantly through intelligent data processing.

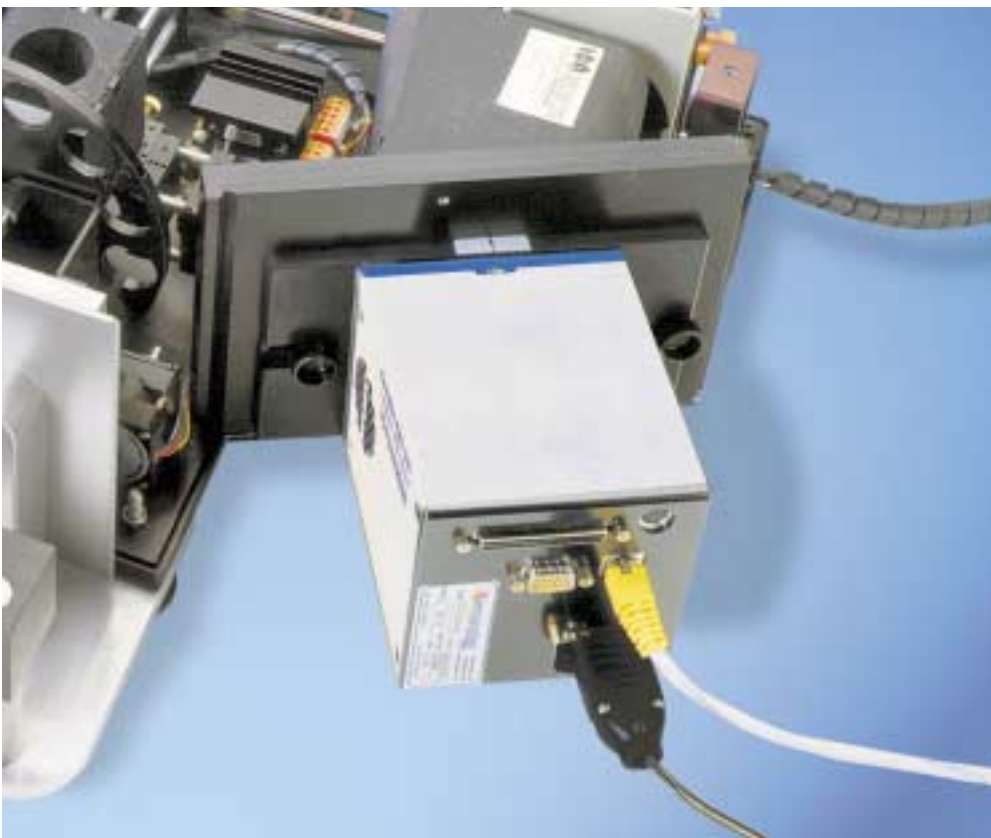
Different groups of **SamBa** cameras are available, depending on the specific application demand: **Samba SE** version offers single-electron detection capability based on latest charge multiplier technology for exceptional high sensitivity and high speed spectroscopy applications. **SamBa QS** gives you the high flexibility, programmability and consistent performance needed for high speed multi-channel spectral acquisition with high sensitivity/low noise. The **coolSamBa** features robust, maintenance-free deep cooling of the sensor for longer integration times and noise-reduced readout which improves the detection-limit dramatically. The HR-Series offers high resolution imaging up to 6.3 Mpixel. The **coolSamBa HR** is used for ultra high-sensitivity luminescence imaging and other low light applications at longer exposure times, while the **cmosSamBa HR** with remote head and multiple slope function rather is used for inspection, automation and machine vision applications.

All **SamBa** cameras incorporate scientific, latest technology and high performance monochrome image sensors. Your fast optics can approach close to the image sensor, while at the same time convenient C-mount offers adaptation to any optical system. All cameras can easily be programmed by simple ASCII commands, either through RS232 or Ethernet TCP/IP interface. Image acquisition occurs via TCP/IP or LVDS frame grabber. In addition some models have a fast UDP or camera-link interface.

SamBa Series

The SamBa Cameras and intelligent Array Sensors have the following Features:

- Unlimited pixel binning capability
- 3-step data processing
- Intelligent data reduction
- High speed spectroscopy – replace PMT's!
- High resolution up to 16 Mpixel
- Deep-cooled versions
- Ethernet network capability
- Excellent price/performance ratio



SamBa SE-34 integrated in a customer's instrument for high sensitivity fluorescence measurements