

## Application

This camera is designed for high-resolution, quantitative and high speed capture of low light images as well as brightfield images.

This camera is commonly used in low light fluorescence, Phase, fluorescence, FRET, FRAP, Ca<sup>++</sup>, GFP, and with deconvolution of lowlight fluorescent images.

| Feature | Benefit |
|---------|---------|
|---------|---------|

|  |   |
|--|---|
| CCD cooled to -28°C from an ambient temperature of 20°C (-48° differential).....   | Reduces dark noise to allow for long exposures  |
| 1360 x 1024 (1.39 Mpixel) image capture ..   | Resolves fine detail  |
| Live mode programmable gain (1-16x) .....  | Facilitates live mode previews of low light specimens   |
| 18 MHz live mode .....   | High-speed imaging for real time focusing and framing   |
| 10 bit x 18 MHz A-D conversion .....   | High-speed capture and 1024 Brightness levels   |
| New high quantum efficiency CCD .....  | Increases sensitivity for faster image captures   |
| Interline progressive scan CCD .....   | Electronic shuttering eliminates mechanical shutter shortcomings related to speed, wear, and vibration  |
| PCI Interface .....  | Stable, high-speed interface for PC and Mac platforms is over 50% faster than Firewire™ (IEEE 1394)   |
| SPOT™ Software .....   | Provides essential tools for modern microscopy and is widely supported by 3rd party software companies for high end applications as well as providing DLL with SDK for OEM Driver development |
| Mac® & Windows® operating systems<br>Basic & Advance Applications, Twain & Apple Event, DLL w/ SDK and Tutorial manual, 3rd Party Driver support |   |

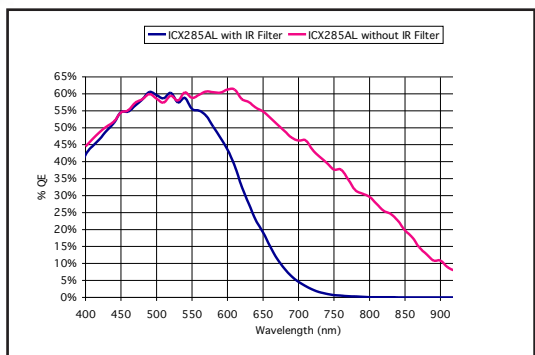
**RT™ SE18 Monochrome**



# Data Sheet

DIAGNOSTIC  
instruments, inc.  
SOURCE  
solution

RT™ SE18 Monochrome



### **CCD information:**

Sony ICX-285AL with cover glass  
Monochrome progressive scan interline CCD  
1360 x 1024, 6.45 µm square pixels  
8.77mm x 6.60mm active area  
100x minimum anti-blooming

**CCD grade:** Grade 0

### **CCD Cooling:**

-48°C differential from ambient via  
thermoelectric cooler with fan cooled heat sink  
(-28°C from an ambient of 20°C)

### **Digitization information:**

Digitized pixel-by-pixel at CCD sensor  
Live mode: 10 bit x 18 MHz  
Live image frame rate: 9.7 frames per second at  
full resolution  
Capture mode: 10 bit x 18MHz  
(see chart for frame rate)  
A/D Converter full scale set to 14,800 e (Gain=1)  
Saved bit depths: 8, 12 or 16 bit BW

### **Noise specifications:**

Read noise: 15-18 e rms  
Dark noise: 0.012 e/p/s

### **Exposure:**

40 microseconds to 71 minutes  
Captured and live mode automatic exposure  
Captured and live mode manual exposure

**Lens mount:** C-mount

**Sealing window:** UBK7 w/ multilayer  
anti-reflection coating (RT1200)  
IR Filter w/multilayer anti-  
reflection coating (RT1210)

**Computer interface:** PCI bus card

**External shutter control:** BNC TTL level  
output w/programmable delay

### **Mechanical:**

**Tripod mount:** 1/4 - 20 UNC

**Camera head:** 4.96" (126mm) x 4.94"  
(125.5mm) x 4.39" (111.5mm), 3.4 lbs. (1.5 kg)

**Power supply:** 5.66" (143.7mm) x 7.81"  
(198.3mm) x 3.60" (91.5mm), 3.3 lbs. (1.5 kg)

**Operating environment:** 0 to 30°C ambient, 0-80%  
relative humidity non-condensing

**Power requirements:** 85-264 VAC, 47-63 Hz

Captured Frames per Second\*

| Binning | REGION OF INTEREST |           |           |
|---------|--------------------|-----------|-----------|
|         | 1360 X 1024        | 512 X 512 | 256 X 256 |
| 1 x 1   | 9.7                | 15.8      | 24.3      |
| 2 x 2   | 16.8               | 24.8      | 33.6      |
| 3 x 3   | 22.3               | 30.8      | 38.3      |
| 4 x 4   | 26.6               | 34.7      | 41.9      |

Single shot with .04ms exposure, no post-processing,  
images saved to RAM on 1.7 GHz P4  
running Windows XP

**Certifications:** CE, FCC Class A, EN60950

### **SPOT software features:**

Live mode viewing window & controls, auto-  
exposure live and capture modes, image capture  
window, predefined and custom image setups,  
flat field correction, pan and zoom windows,  
customizable floating taskbar, spot metering,  
annotation, calibration mark, measurement tools,  
sequential image capture and playback, exportable  
image archiving database, report generator, macro  
scripting, interactive print dialog, online help menu

### **File formats:**

BMP, TIFF, TIFF-JPEG, JPEG, JPEG-2000,  
PICT, AVI

### **TIFF File sizes:**

8 bit BW / 1.33MB  
12 bit BW / 2.00 MB  
16 bit BW / 2.66 MB

### **Drivers included:**

Twain for supported Windows® operating systems  
AppleEvent for supported Mac® operating systems

### **Native drivers for 3rd party software:**

Call or visit our website ([www.diaginc.com](http://www.diaginc.com))

### **Minimum system requirements:**

Full size PCI bus slot or PCMCIA CardBus slot\*  
\*-Requires Magma™ Adapter (sold separately)  
PC: Pentium 166 or greater w/  
Windows 95, 98, 00, NT, ME, XP  
Mac: Power PC, OS 8.6 - OS X  
RAM: 64MB minimum, 256MB suggested  
Video card: 24 bit RGB @ desired resolution

### **Items included:**

Camera head, PCI plug-in board, data cable,  
power supply cable, power supply, power cord,  
SPOT software install CD (includes drivers),  
user guide, 2 year warranty

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Windows ® is a registered trademark of Microsoft.

RT® SE18 Monochrome: Catalog Number: RT1200  
RT® SE18 Monochrome w/IR filter: Catalog Number: RT1210

