



# MICAPS HPS3CMOS SERIES

C-mount USB3.0 CMOS Cameras  
SONY PREGIUS CMOS Sensor



The HPS3CMOS Series camera uses a high-quality SONY CMOS sensor to capture images, and it employs USB3.0 for fast data transfer. With a hardware resolution of 1.5 to 45 megapixels, it's housed in a durable CNC aluminum alloy casing. Equipped with a 12-bit Super-fine Hardware Image Signal Processor Video Pipeline (Super-FineTM HISPVP), the HPS3CMOS Series handles tasks like Demosaic, Adjustments, Automatic Exposure, Gain Adjustment, One Push WhiteBalance, Chrominance Adjustment, Saturation Adjustment, Gamma Correction, Luminance Adjustment, and Contrast Adjustment. It processes Bayer data and produces RAW data for 8/12 bit output. This offloads heavy processing tasks from the PC to the Super-FineTM HISPVP, significantly boosting processing speed.

The camera comes bundled with the advanced Micaps MicroView video and image processing application. It supports multiple platforms such as Windows, Linux, macOS, and Android, with SDKs available for Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, and more. The HPS3CMOS Series is well-suited for use in bright field light environments and excels in microscope image capture and analysis, offering a higher frame rate for superior performance.

### Features

- SONY CMOS sensor with USB3.0 interface
- Ultra low noise and low power dissipation
- Global Shutter
- Standard C-Mount camera
- With advanced video & image processing application Micaps MicroView
- Super-fine Color hardware Color Engine ensuring high frame rates

| Model No.       | Sensor & Size(mm)                      | Pixel(μm)   | G Sensitivity<br>Dark Signal           | FPS/Resolution                                                                                                                                                    | Binning                                                                                          | Exposure    |
|-----------------|----------------------------------------|-------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------|
| HPS3CMOS45000CA | 45M/IMX492[C]<br>1.4" (18.93x13.00)    | 2.315x2.315 | 108mv with 1/30s<br>0.03mv with 1/30s  | 8.1@8176x5616<br>30.0@4080x2808<br>8.1@7408x5556<br>33.0@4088x2808<br>10.4@8176x4320<br>34.7@4096x2160<br>62.5@2048x1080<br>86.5@1344x720                         | 1x1(3:2)<br>2x2(3:2)<br>1x1(4:3)<br>2x2(4:3)<br>1x1(17:9)<br>2x2(17:9)<br>3x3(17:9)<br>4x4(17:9) | 0.1ms~15s   |
| HPS3CMOS45000CB | 45M/IMX492[C]<br>1.4" (18.93x13.00)    | 2.315x2.315 | 108mv with 1/30s<br>0.03mv with 1/30s  | 8.1@8176x5616(C)<br>30.0@4080x2808(M)<br>8.1@7408x5556(C)<br>33.0@3696x2778(M)<br>10.4@8176x4320(C)<br>34.7@4096x2160(M)<br>62.5@2048x1080(M)<br>86.5@1344x720(M) | 1x1(3:2)<br>2x2(3:2)<br>1x1(4:3)<br>2x2(4:3)<br>1x1(17:9)<br>2x2(17:9)<br>3x3(17:9)<br>4x4(17:9) | 0.1ms~15s   |
| HPS3CMOS32000CA | 32M/IMX294[C]<br>1.15" (12.96x12.96)   | 2.315x2.315 | 108mv with 1/30s<br>0.03mv with 1/30s  | 8.1@5600x5600<br>30.0@2800x2800<br>30.0@1400x1400                                                                                                                 | 1x1<br>2x2<br>4x4                                                                                | 0.1ms~15s   |
| HPS3CMOS25000CA | 25M/IMX511[C]<br>1/2.3 " (5.519x5.519) | 1.12x1.12   | 96.3mv with 1/30s<br>0.1mv with 1/30s  | 12@4928x4928<br>46@2464x2464<br>100@1648x1648                                                                                                                     | 1x1<br>2x2<br>3x3                                                                                | 0.013ms~15s |
| HPS3CMOS21000CA | 21M/IMX269[C]<br>4/3 "(17.4x13.0)      | 3.3 x3.3    | 399mv with 1/30s<br>0.1mv with 1/30s   | 17@5280x3954<br>17@3952x3952<br>56@2640x1976<br>67@1760x1316<br>192@584x438                                                                                       | 1x1<br>1x1<br>2x2<br>3x3<br>9x9                                                                  | 0.1ms~15s   |
| HPS3CMOS20400CA | 20.4M/IMX541[C]<br>1.1 "(12.32x12.32)  | 2.74 x2.74  | 1574mv with 1/30s<br>0.15mv with 1/30s | 17.5@4496x4496<br>64.4@2240x2240<br>64.4@1120x1120                                                                                                                | 1x1<br>2x2<br>4x4                                                                                | 0.03ms~15s  |

C: Color, GS: Global Shutter

| Model No.       | Sensor & Size(mm)                         | Pixel(μm)  | G Sensitivity<br>Dark Signal                                     | FPS/Resolution                                      | Binning           | Exposure    |
|-----------------|-------------------------------------------|------------|------------------------------------------------------------------|-----------------------------------------------------|-------------------|-------------|
| HPS3CMOS20000CA | 20M/IMX183[C]<br>1“(13.06x8.76)           | 2.4 x2.4   | 462mv with 1/30s<br>0.21mv with 1/30s                            | 15@5440x3648<br>50@2736x1824<br>60@1824x1216        | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| HPS3CMOS20000CC | 20M/IMX183[C]<br>1“(13.06x8.76)           | 2.4 x2.4   | 462mv with 1/30s<br>0.21mv with 1/30s                            | 20@5440x3648<br>48@2736x1824<br>58@1824x1216        | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| HPS3CMOS18000CA | 18M/SONY Special[C]<br>1/2.2“(5.86x4.46)  | 1.2 x1.2   | 130mv with 1/30s<br>0.1mv with 1/30s                             | 17@4880x3720<br>40@2448x1836<br>50@1728x1296        | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| HPS3CMOS15600CA | 15.6M/SONY Special<br>[C]1.1“(13.0x13.0)  | 3.3 x3.3   | 399mv with 1/30s<br>0.1mv with 1/30s                             | 17@3952x3952<br>56@1976x1976<br>67@1316x1316        | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| HPS3CMOS12400CA | 12.4M/IMX545 [C,GS]<br>1/1.1“(11.22x8.22) | 2.74 x2.74 | 1337mv with 1/30s<br>0.15mv with 1/30s                           | 28.2@4096x3000<br>100.9@2048x1500<br>100.9@1024x750 | 1x1<br>2x2<br>4x4 | 0.03ms~15s  |
| HPS3CMOS12300CA | 12.3M/IMX304[C,GS]<br>1.1“(14.13x10.35)   | 3.45x3.45  | 1146mv with 1/30s<br>0.1mv with 1/30s                            | 23.4@4096x3000<br>46.3@2048x1500                    | 1x1<br>1x1        | 0.244ms~15s |
| HPS3CMOS12000CA | 12M/IMX226[C]<br>1/1.7“(7.40x5.55)        | 1.85x1.85  | 280mv with 1/30s<br>0.1mv with 1/30s                             | 25@4000x3000<br>50@2048x1080                        | 1x1<br>2x2        | 0.1ms~15s   |
| HPS3CMOS12000CB | 12M/IMX577[C]<br>1/2“(6.29x4.71)          | 1.55x1.55  | 250mv with 1/30s<br>0.25mv with 1/30s                            | 30@4056x3040<br>60@2028x1520<br>120@1014x760        | 1x1<br>2x2<br>4x4 | 0.1ms~5s    |
| HPS3CMOS12000CC | 12M/IMX676[C]<br>1/1.6“(7.07x7.07)        | 2.0x2.0    | 3637mv with 12 bit<br>converted value (HCG)<br>0.15mv with 1/30s | 27@3536x3536<br>60@1768x1768                        | 1x1<br>2x2        | 0.013ms~15s |
| HPS3CMOS9000CA  | 9.0M/IMX305[C,GS]<br>1“(14.13x7.45)       | 3.45x3.45  | 1146mv with 1/30s<br>0.15mv with 1/30s                           | 34@4096x2160<br>60@2048x1080                        | 1x1<br>1x1        | 0.1ms~15s   |
| HPS3CMOS8300CB  | 8.3M/IMX334[C]<br>1/1.8“(7.68x4.32)       | 2.0x2.0    | 505mv with 1/30s<br>0.1mv with 1/30s                             | 35@3840x2160<br>60@1920x1080                        | 1x1<br>2x2        | 0.02ms~15s  |
| HPS3CMOS8300CD  | 8.3M/IMX585[C]<br>1/1.2“(11.14x6.26)      | 2.9x2.9    | 5970(mV/lx/s)<br>0.13mv with 1/30s                               | 45@3840x2160<br>70@1920x1080                        | 1x1<br>2x2        | 0.02ms~15s  |
| HPS3CMOS8300CE  | 8.3M/IMX678[C]<br>1/1.8“(7.68x4.32)       | 2.0x2.0    | 3541(mV/lx/s)<br>0.15mv with 1/30s                               | 45@3840x2160<br>70@1920x1080                        | 1x1<br>2x2        | 0.02ms~15s  |
| HPS3CMOS8000CA  | 8.0M/IMX294[C]<br>1.15“(13.00x13.00)      | 4.63 x4.63 | 419mv with 1/30s<br>0.12mv with 1/30s                            | 30@2808x2808(14bit)<br>139@1392x1392<br>139@696x696 | 1x1<br>2x2<br>4x4 | 0.1ms~15s   |
| HPS3CMOS6300CA  | 6.3M/IMX178[C]<br>1/1.8“(7.37x4.92)       | 2.4x2.4    | 425mv with 1/30s<br>0.15mv with 1/30s                            | 30@3072 x2048<br>38@1536x 1024                      | 1x1<br>2x2        | 0.02ms~15s  |
| HPS3CMOS6300CB  | 6.3M/IMX178[C]<br>1/1.8“(7.37x4.92)       | 2.4x2.4    | 425mv with 1/30s<br>0.15mv with 1/30s                            | 59@3072 x2048<br>59@1536x 1024                      | 1x1<br>2x2        | 0.02ms~15s  |
| HPS3CMOS5100CA  | 5.1M/IMX547[C]<br>1/1.8“(6.71x5.61)       | 2.74x2.74  | 1337mv with 1/30s<br>0.15mv with 1/30s                           | 63@2448x2048<br>208.4@1224x1024                     | 1x1<br>2x2        | 0.03ms~15s  |
| HPS3CMOS5000CA  | 5.0M/IMX264[C,GS]<br>2/3”(8.45x7.07)      | 3.45x3.45  | 1146mv with 1/30s<br>0.15mv with 1/30s                           | 35@2448x2048<br>50@1224x1024                        | 1x1<br>1x1        | 0.1ms~15s   |
| HPS3CMOS3100CA  | 3.1M/IMX265[C,GS]<br>1/1.8“(7.07x5.30)    | 3.45x3.45  | 1146mvwith 1/30s<br>0.15mv with 1/30s                            | 53@2048x1536<br>85@1024x768                         | 1x1<br>1x1        | 0.1ms~15s   |
| HPS3CMOS3100CB  | 3.1M/IMX123[C]<br>1/2.8“(5.12x3.84)       | 2.5x2.5    | 600mv with 1/30s<br>0.15mv with 1/30s                            | 50@2048x1536<br>50@1920x1080                        | 1x1<br>1x1        | 0.1ms~15s   |
| HPS3CMOS2100CA  | 2.1M/IMX482[C]<br>1/1.2“(11.14x6.26)      | 5.8x5.8    | 8935mv with 1/30s<br>0.6mv with 1/30s                            | 96@1920x1080                                        | 1x1               | 14us~15s    |
| HPS3CMOS2000CA  | 2M/IMX385[C]<br>1/2”(7.2x4.05)            | 3.75x3.75  | 2350mv with 1/30s<br>0.15mv with 1/30s                           | 125@1920x1080                                       | 1x1               | 0.1ms~15s   |
| HPS3CMOS1500CA  | 1.5M/IMX273[C,GS]<br>1/2.9”(4.968X3.726)  | 3.45X3.45  | 1146mvwith 1/30s<br>0.15mv with 1/30s                            | 164@1440x1080<br>320@720x540                        | 1x1<br>2x2        | 0.1ms~15s   |

| OTHER HARDWARE CONFIGURATION |                                                                                                                   |
|------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Spectral Range               | 380-650nm (with IR-filter), for Monochromatic Camera, AR Is Used                                                  |
| White Balance                | ROI White Balance/ Manual Temp-Tint Adjustment                                                                    |
| Color Rendering Technique    | Ultra Fine Color Engine                                                                                           |
| Capture/Control SDK          | Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc); |
| ADC                          | 8 Bit / 14 Bit                                                                                                    |
| Recording System             | Still Picture and Movie                                                                                           |
| Cooling System*              | Natural                                                                                                           |

| SOFTWARE ENVIRONMENT |                                                                                    |
|----------------------|------------------------------------------------------------------------------------|
| Operating System     | Support Microsoft Windows XP / Vista / 7 /8/10 (32 & 64 bit)OS X (Mac OS X), Linux |
| PC Requirements      | CPU: Equal to Intel Core2 2.8GHz or Higher                                         |
|                      | Memory: 2GB or More                                                                |
|                      | USB port: USB2.0 High-speed Port                                                   |
|                      | Display: 17" or Larger                                                             |
| CD-ROM               |                                                                                    |

#### OPERATING ENVIRONMENT

|                       |                        |
|-----------------------|------------------------|
| Operating Temperature | -10 °C~ 50 °C          |
| Storage Temperature   | -20 °C~ 60 °C          |
| Operating Humidity    | 30~80%RH               |
| Storage Humidity      | 10~60%RH               |
| Power Supply          | DC 5V over PC USB Port |

#### APPLICATIONS

- Scientific research, education (teaching, demonstration and academic exchanges)
- Digital laboratory, medical research
- Industrial visual (PCB examination, IC quality control)
- Medical treatment (pathological observation)
- Food (microbial colony observation and counting)
- Aerospace, military (high sophisticated weapons)



#### LABLINK INSTRUMENTS

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