

# QHYCCD New Product Announcement



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**QHY128C 35mm Format 24 Megapixels**



**QHY367C 35mm Format 36 Megapixels**

# QHYCCD New Product Announcement

- Ultra High Performance
- Ultra Low Read Noise and Dark Current
- Unique Thermal Noise Reduction Technology
- Zero Amplifier Glow
- 128MB DDRII Image Buffer
- True Raw Image Output
- Anti-Dew Technology
- AR+AR Optical Window
- Orthogonal CCD Placement Guaranteed +/- 20um

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## **QHY367C**

The QHY367C uses a full frame (35mm format) 36 Megapixel Sony IMX094 Exmor CMOS Sensor. Pixel size is 4.88 $\mu$ m. This is the same sensor used in the Nikon D810A camera. At the lowest gain the readout noise is still only 3.2e-. At unity gain the readout noise is 2.4 e-. At high gain, 1.8e-. The Dynamic range is 1:17000, > 14 stops.

## **QHY128C**

QHY128C uses a full frame (35mm format) 24 Megapixel Sony IMX128 Exmor CMOS Sensor. Pixel size is 5.97 $\mu$ m. This is the same sensor used in the Nikon D600, D660 and D750 as well as the popular Sony RX1 camera. At lowest gain the readout noise is still only 4e-. At unity gain the readout noise is 2.7e-. At high gain, 1.8e-. The Dynamic range is 1:17000, >14 stops.

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## **Unique Thermal Noise Reduction Technology**

In addition to standard 2-stage Thermoelectric Cooling, these cameras (as well as all QHYCCD COLDMOS cameras) employ a unique QHYCCD noise control technology that reduces the thermal noise of the cmos sensor. This technology is unique to QHYCCD cameras and reduces thermal noise to levels lower than can be achieved by competing cameras.

## **Zero Amplifier Glow**

The QHYCCD128C and QHY367C have the rare capability of taking long duration exposures with zero amplifier glow, making them eminently suitable for deep space imaging as well as planetary imaging.

## **128MB DDRII Image Buffer**

The QHYCCD128C and QHY367C both have a 128MB DDRII image buffer. This frame buffer avoids the risk of frame loss and assures the integrity of the data when transferred over a busy USB 3.0 port or a slower USB 2.0 port.

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## **True RAW Image Output**

Consumer cameras often offer “RAW” image output, but users often find that the data is often not 100% raw. Traces of noise reduction and hot pixel removal are often present. In the QHY implementation, however, the data is truly the original signal, maintaining maximum flexibility for astronomical image processing.

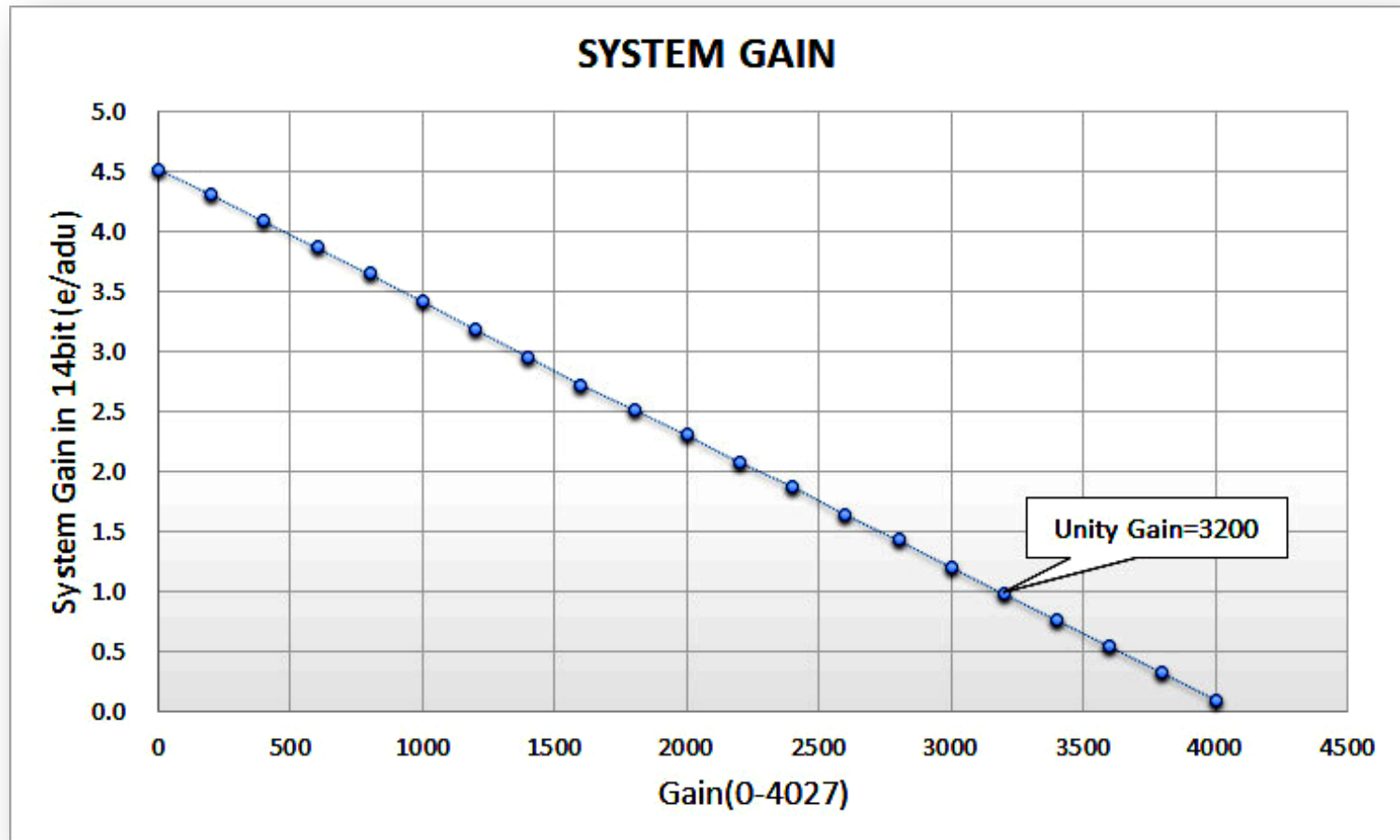
## **Anti-Dew Technology**

With years of experience producing cooled cameras designs, QHYCCD has fully implemented anti-dew technology for both the CMOS surface glass and the optical window. The cameras have a heating board for the optical window to prevent dew and a silicon gel tube socket design for control of moisture within the CMOS chamber.

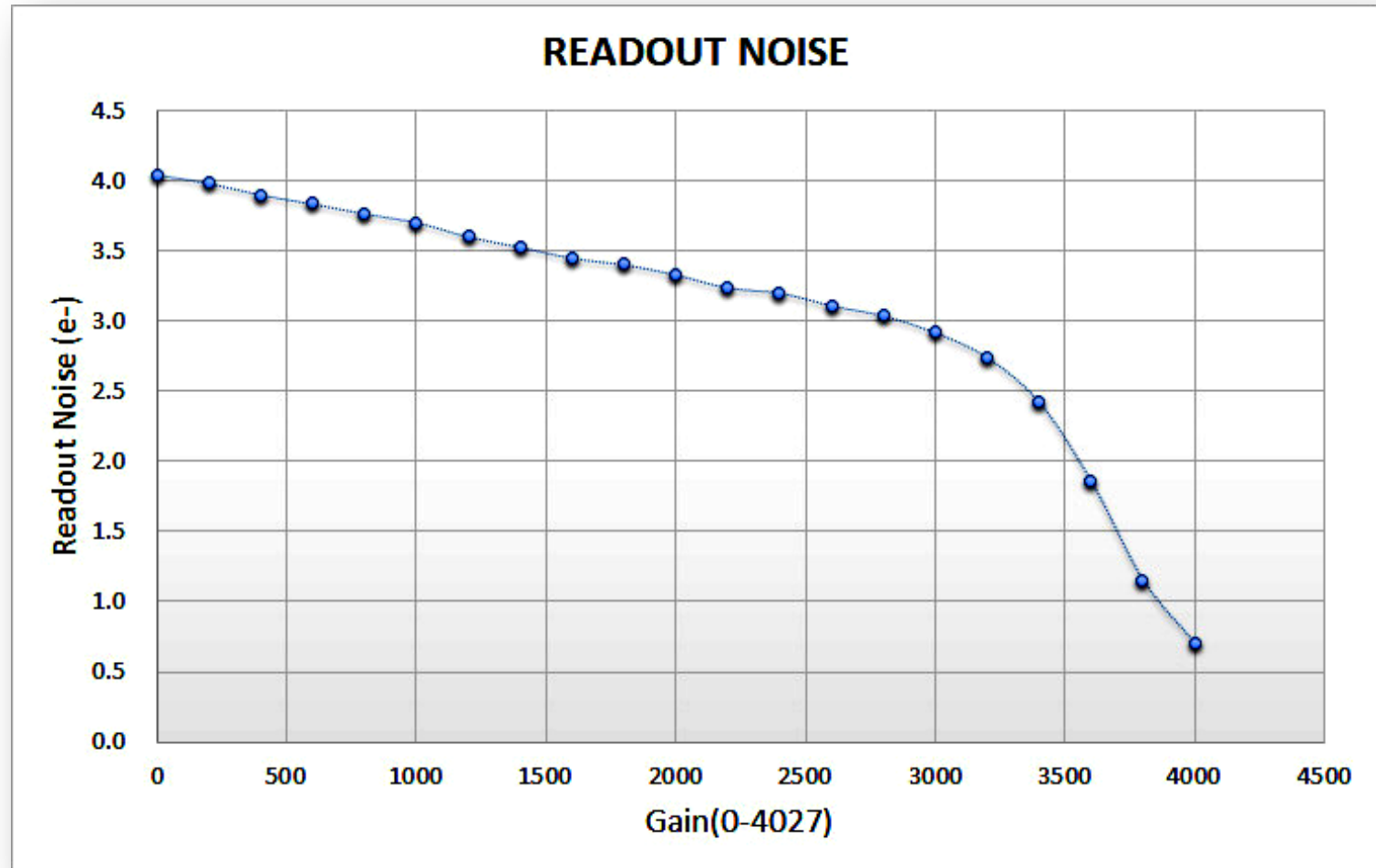
## **AR+AR optic window**

In order to avoid halos around the bright stars the optical window is AR+AR coated rather than the common IR cut coating common for color cameras. An IR cut filter is used to limit the wavelengths recorded to visible light, or it can be removed for more sensitivity to longer wavelengths and NIR.

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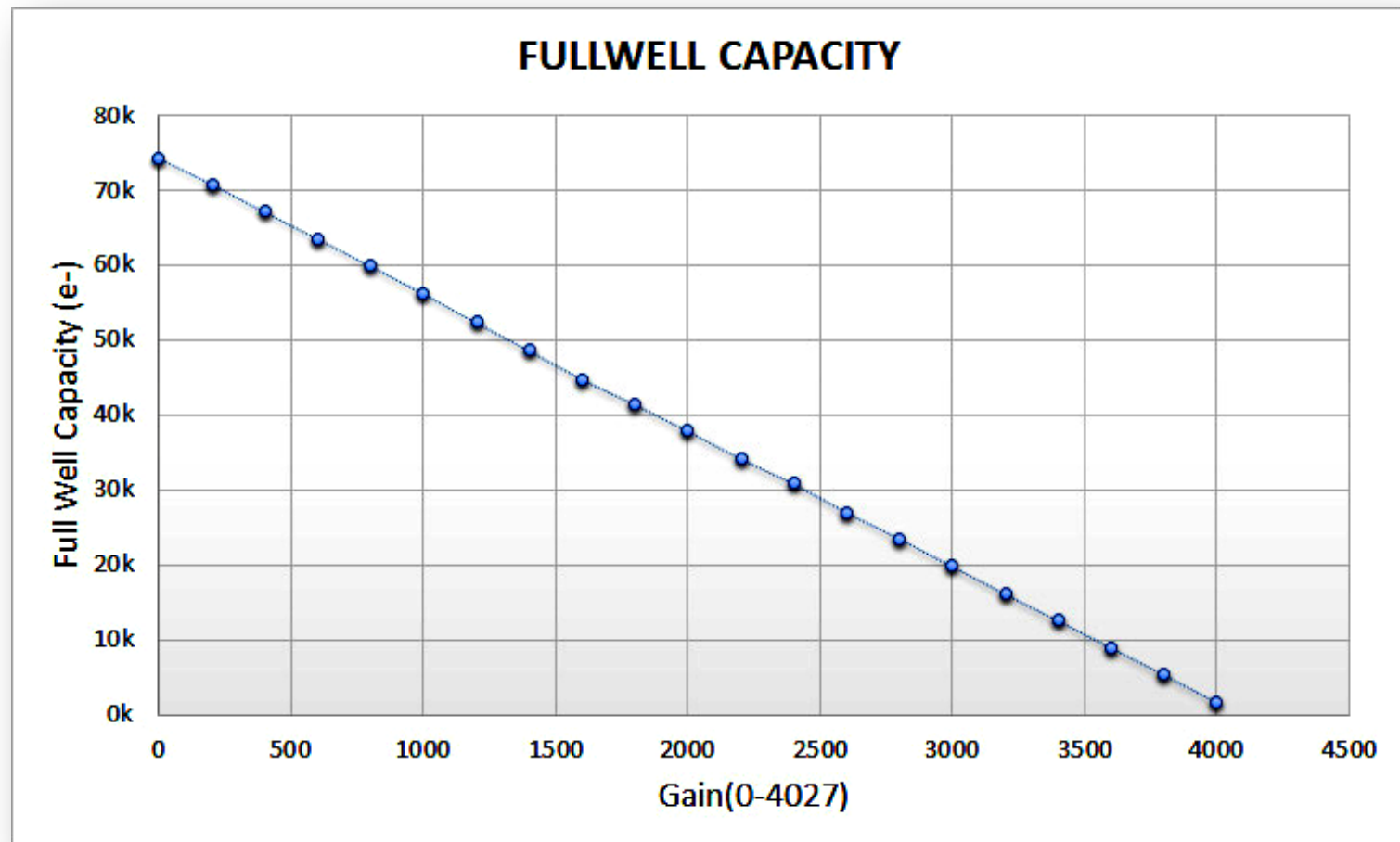


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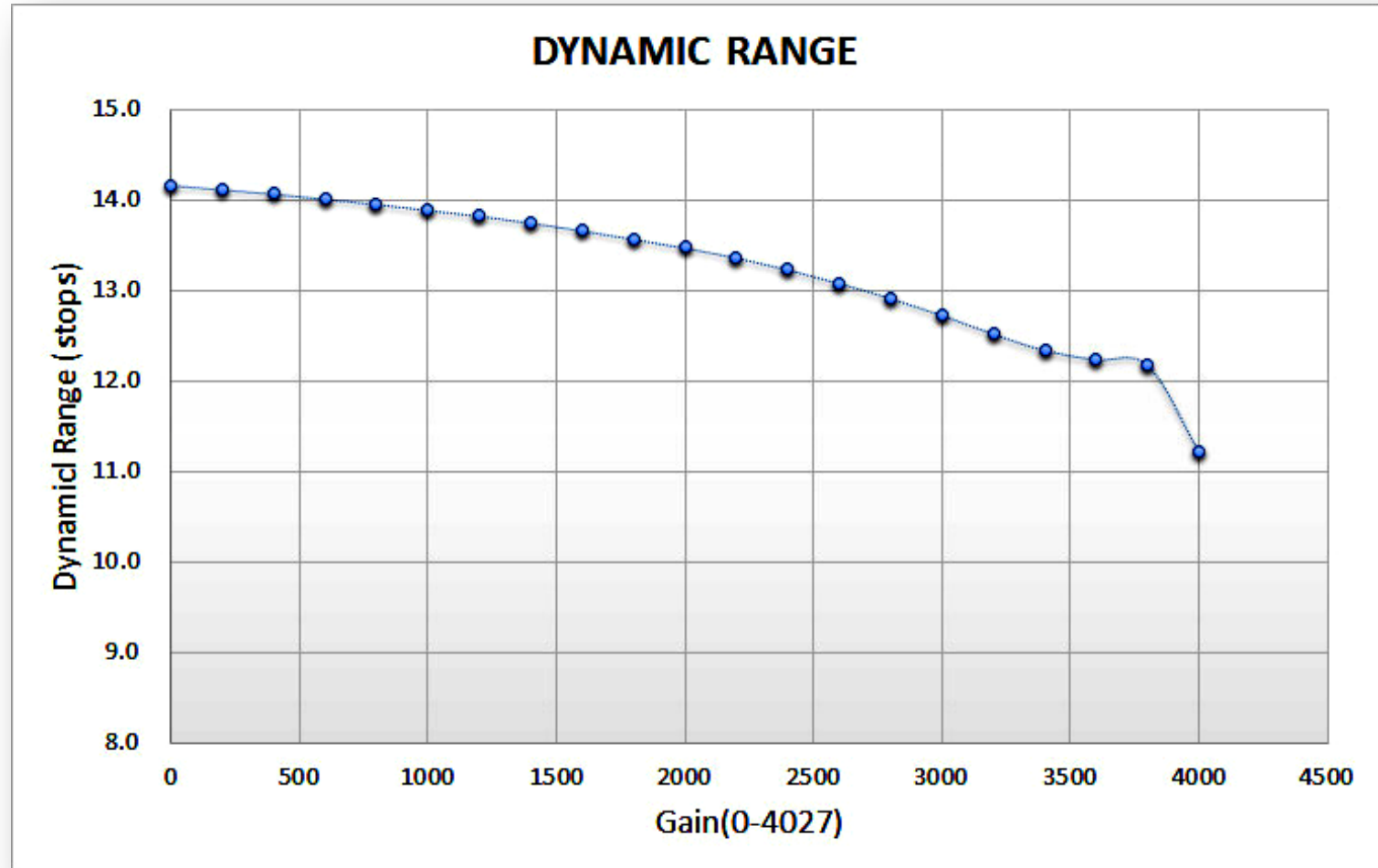




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Model	QHY128C	QHY367C
Sensor	Sony IMX128 Color CMOS	Sony IMX094 Color CMOS
Sensor Size	36mm x 24mm full frame	36mm x 24mm full frame
Pixel Size	5.97um x 5.97um	4.88um x 4.88um
Effective Pixels	6036 x 4028 24 Megapixels	7376 x 4938 36.4 Megapixels
Binning	1 x 1	1 x 1
Full Well	74ke-	56ke-
Readout Type	Progressive Scan	Progressive Scan
Shutter	Electronic shutter	Electronic shutter
Exposure Time	60us - 3600 sec	60us - 3600 sec
Peak QE	53%	TBD
AD Convert	14BIT	14BIT
Readout Noise	4e-@Low gain, 2.7e-@unity gain 1.8e@high gain	3.2e-@Low gain, 2.4e@unity gain 1.8e@high gain
Maximum Dynamic Range	More than 1:17000 >14 STOPS	More than 1:17000 >14 STOPS
Mechanical Interface	M54/0.75 female thread	M54/0.75 female thread
TEC	2-stage TEC -35C below ambient	2-stage TEC -35C below ambient
Weight(Camera only)	788g	788g
Power Consumption	30W @ 100% TEC, 13W @ 50%TEC	30W @ 100% TEC, 13W @ 50%TEC
Interface	USB3.0, 12V DC Power socket withock(2.1mm)	USB3.0, 12V DC Power socket wlock(2.1mm)
Frame Rate	5FPS@Full Resolution 9FPS@2160 LINES (e.g. 7400*2160, 4096*2160) 16.5FPS@1080 LINES (e.g. 7400*1080,1920*1080) 22.5FPS@768 LINES 32FPS@480 LINES	3.2FPS@Full Frame 7FPS@2160 LINES (e.g. 7400*2160, 4096*2160) 14FPS@1080 LINES (e.g. 7400*1080,1920*1080) 19FPS@768 LINES, 30FPS@480 LINES 40FPS@320 LINES, 83FPS@100 LINES























# QHYCCD New Product Announcement

QHY367C Color Images Courtesy Beta Testers:

Terry Hancock:

M42

Horsehead

M78 and Barnard's Loop

M31

Gianni Fardelli

Rho Ophiuchi

# QHYCCD New Product Announcement

For information contact your local dealer or:

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## **QHYCCD Products**

[www.qhyccd.com](http://www.qhyccd.com)