We’ve advanced our camera technology, so you can advance your science

Building on our extensive experience with high performance scientific cameras and advanced imaging applications, Hamamatsu introduces the new ORCA-Flash4.0 V3. This one camera expertly handles applications ranging from the acquisition of beautiful scientific images to experiments that demand detection, quantification and speed. With on-board FPGA processing enabling intelligent data reduction, highly refined in-camera, pixel-level calibrations, increased USB3.0 frame rates, purposeful and innovative triggering capabilities, patented lightsheet read out modes and individual camera noise characterization the ORCA-Flash4.0 V3 is the precision instrument for imaging.

ORCA-Flash4.0 V3

Hamamatsu Photonics Italia S.R.L.
(39) 02 93581733
EMAIL: info@hamamatsu.it

Hamamatsu Photonics UK Limited
(44) 1707 294881
EMAIL: hpc@hamamatsu.com.cn

Hamamatsu Photonics K.K., Systems Division
(81) 53 431 0124
EMAIL: export@sys.hpk.co.jp

Hamamatsu Photonics Norden AB
(46) 8 509 033 00
EMAIL: info@hamamatsu.se

Hamamatsu Photonics (CHINA) Co., Ltd.
(86) 10 6566 6016

Hamamatsu Photonics Deutschland GmbH
(49) 8152 375 0
EMAIL: info@hamamatsu.de

Hamamatsu Corporation, U.S.A.
(908) 231 0960
EMAIL: usa@hamamatsu.com

Hamamatsu Photonics Nederland B.V.
(31) 1 69 53 71 00
EMAIL: info@hamamatsu.nl

Hamamatsu Photonics S.A.R.L.
(33) 1 69 53 71 00
EMAIL: info@hamamatsu.fr

Hamamatsu Photonics Norden AB
(46) 8 509 033 00
EMAIL: info@hamamatsu.se

Hamamatsu Photonics Italia S.R.L.
(39) 02 93581733
EMAIL: info@hamamatsu.it

Hamamatsu Photonics UK Limited
(44) 1707 294881
EMAIL: hpc@hamamatsu.com.cn

Hamamatsu Photonics K.K., Systems Division
(81) 53 431 0124
EMAIL: export@sys.hpk.co.jp

hamamatuscameras.com
Calibrated for Quantitative Accuracy

Our ORCA-Flash4.0 cameras have always provided the advantage of low camera noise. In quantitative applications, like single molecule and super resolution imaging, fully understanding camera noise is also important. Every ORCA-Flash4.0 V3 is carefully calibrated... as a precision instrument must be. Our attention to this detail delivers outstanding linearity, especially at low light, and offers improved photo response non-uniformity (PRNU) and dark signal non-uniformity (DSNU) to minimize pixel differences and reduce fixed pattern noise. Each camera ships with a certificate providing the read noise and photoelectron conversion factor specific for that camera.

Flexibility for Customized Data Control

Like its predecessors, each ORCA-Flash4.0 V3 is capable of both USB3.0 or Camera Link output. In addition, the ORCA-Flash4.0 V3 offers data reduction through user-controllable look up tables (LUT) for 12 or 8-bit output. These two choices, combined with region of interest selection enable you to fine tune acquisition speed and image data requirements.

Focus on the Relevant Data

Our new "Enhanced Visualization Mode" was designed to help answer the question "Can I see it?" Many low light experiments, especially those that were previously imaged using EM-CCDs are now routinely accomplished—with better signal to noise, faster speeds and at far less expense—by sCMOS cameras. However, we sometimes miss the visual punchiness of EM-CCD images. Enhanced Visualization Mode pops the contrast of the displayed image, while saving the sCMOS raw image data to disk. And sometimes our innate tendency to seek contrast can be a distraction. Even a few hot pixels in a time lapse or tracking experiment can divert our attention or our analysis from the real data. Enter our multi-level, user-selectable, hot pixel reduction. By applying a series of increasingly aggressive algorithms to detect noisy pixels, you can choose to eliminate these small but distracting elements. And since nobody appreciates having their data unexpectedly modified, the default setting for this hot pixel correction is off when you power up the camera.

Powerful Triggering for Synchronization

Joining a full complement of sophisticated triggering routines, our new Master Pulse timing generator allows the ORCA-Flash4.0 V3 to truly run the experiment. Performing functions that previously would have required an external pulse generator the ORCA-FLASH4.0 V3's Master Pulse has flexible timing delays built in. Powerful synchronization of multiple cameras and devices just became a lot simpler.

Patented Tools for Advanced Imaging

The ORCA-Flash4.0 V3 includes our now patented, Lightsheet Readout Mode which takes advantage of sCMOS rolling shutter readout to enhance the quality of lightsheet images. When paired with our W-VIEW GEMINI image splitting optics, a single ORCA-Flash4.0 V3 camera becomes a powerful dual wavelength imaging device. In "W-VIEW Mode," each half of the sensor can be exposed independently, facilitating balanced dual color imaging with a single camera. And this feature can be combined with the new and patented "Dual Lightsheet Mode" making simultaneous dual wavelength lightsheet microscopy a reality. And finally, the ORCA-Flash4.0 V3 is the perfect complement to our new W-VIEW GEMINI-2C dual camera, super resolution-quality, image splitting optics.

1 See our poster “Quantitative Evaluation of Accuracy and Variance of Individual Pixels in a Scientific CMOS Camera for Computational Imaging”, Shigeo Watanabe, Tensuke Takahashi and Keith Bennett. Presented at SMLMS and LSFM, August, 2016.