



Press Release

A-ENG-25002 | June 26, 2025

HyperVision HPV-X₃

Capture the Invisible

- The new HyperVision HPV-X₃ ultra-high-speed camera advances science and industry now in its 5th generation
- World-class high-speed recording at 20 million frames per second
- Three times the resolution of the previous model

Shimadzu Europa, a leader in analytical instrumentation and testing equipment, is launching the HyperVision HPV-X₃ high-speed video camera. The HyperVision HPV-X₃ offers world-class recording speeds and promises to make a significant impact on industrial progress and our understanding of physical phenomena. High-speed cameras are traditionally used in materials science and aerospace development, but there is also an increasing demand for high-speed cameras in the medical and industrial sectors.

Due to the growing demand for studying ultra-fast microscopic phenomena at higher speeds and resolutions, the HyperVision HPV-X₃ is equipped with a new FTCMOS₃ high-speed CMOS image sensor. It was developed in partnership with Professors Rihito Kuroda and Shigetoshi Sugawa of the New Industry Creation Hatchery Center at Tohoku University.

The HyperVision HPV-X₃ doubles the recording speed of its predecessor, the HyperVision HPV-X₂, to offer world-class performance at 20 million frames per second. It also has three times the resolution of its predecessor and maintains image resolution even at its highest recording speed. Versatility and ease of use are also improved with newly introduced functionality to synchronize recording with external signals. With the HyperVision HPV-X₃, Shimadzu looks to make a significant impact in foundational research through the visualization and recording of images of ultra-fast microscopic phenomena that are invisible to the human eye.

Features of the HPV-X3

World-class recording speeds

Equipped with the FTCMOS₃ high-speed image sensor developed in partnership with Tohoku University, the maximum recording speed has increased from 10 million fps (previous model) to 20 million fps. The HyperVision HPV-X₃ offers world-class recording speeds that capture ultra-fast phenomena.



Improved resolution with three times the pixels of the previous model
The number of image pixels has been increased to 300,000, three times that of the previous model, enabling high-speed recording while maintaining resolution. The HyperVision HPV-X3 offers more accurate data acquisition during digital image correlation (DIC), which is used to measure strain during strength testing and other tests that involve specimen deformation.

Newly introduced frame synchronization
Syncing the timing of specimen illumination with deformation and image acquisition is essential to the capture of ultra-fast phenomena. As the first model from Shimadzu to offer frame synchronization, the HyperVision HPV-X₃ can synchronize the acquisition of individual frames to external signals. Control the timing of image capture for more accurate recording of ultra-fast phenomena.

Award-winning technology

Shimadzu has been a pioneer in the manufacture and sale of high-speed cameras since 2005. In 2022, Shimadzu and Tohoku University were awarded the Inoue Harushige Prize for developing the FTCMOS series of high-speed CMOS image sensors, a prize given to researchers and corporations for outstanding technology that has been developed and commercialized with original research from a university or research institute.

Web summary

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Figure 1: HyperVision HPV-X3 high-speed video camera

Web link: <u>HyperVision HPV-X3</u>: Shimadzu (Europe)

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