

OMRON

Vision System FH series

Industry's Fastest Compact Vision System

The Fastest **FH**



- » Easy to Integrate in Machines
- » Increase Machine Speed
- » Perform High-precision Machine Operation

SYSTMAC

Industry's Fastest* Compact Vision System A New Concept in Image Processing That Considers

It's time to move beyond simply increasing the speed of image processing and start seriously shortening Machine cycle time. This is the concept that gave birth to OMRON's FH-series Vision System and its best-in-the-industry speed.

Manufacturing Machines are operated through the interaction of sensors, PLCs, servomotors, and other devices. Vision Systems measure positions and perform inspections, and the results are used to control the operation of Machines. The demand for faster, more precise Vision System operation is the primary requirement. The FH-series Vision System provides higher speed and precision for Machine cycle time and is loaded with all of the performance required to move Machines quickly and at high precision into a compact Controller for embedding into Machine. And even though the Camera/communications Interfaces, Image processing algorithms, and other features of this complete Image processing system are built into one housing, the flexibility of a PC-based Image processing system is also provided to help increase efficiency in the frequent reuse of Machine designs and in design changes.

*Based on OMRON Investigation in May 2013.

The advertisement features a central image of the OMRON FH Series Vision System hardware unit. A yellow cable labeled "Input" is connected to the left side of the unit. To the right of the unit, three camera lenses are shown above the text "FH Series". Below this, logos for EtherCAT, EtherNet/IP, Think & Step, and I-DC are displayed. A large blue arrow points from the hardware unit towards a machine application on the right, which is labeled "Shorter Machine Cycle Times". A blue box labeled "Logic control" is positioned over the machine application. The background is a light blue gradient with a subtle grid pattern.

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Machine Cycle Time

Increase Machine Speed >> p4



- **High-speed Response to Execution Instructions from a PLC**

A high-speed image bus and 4-core processing increase the speed at every step, from image input to data output.

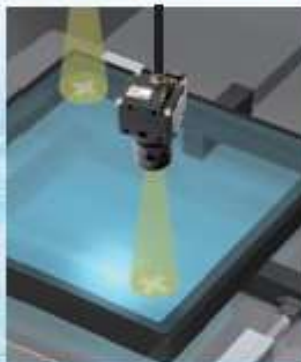
- **Multiple camera inspections provide total judgement results**

Calculations are easy to set for the results from four parallel tasks.

- **Quickly Outputting Measurement Results to a PLC**

You can output results to an NJ-series Machine Automation Controller on an EtherCAT communications cycle of 500 µs.

Perform High-precision Machine Operation >> p8



- **Measurements for Out-of-focus or Rotated Images**

The new Shape Search III processing item provides superior stability.

- **No Worker-dependence in Calibration Accuracy**

Vision master calibration is provided.

Easy to Integrate in Machines >> p10



- **Shared Machine Interface**

Microsoft® .NET is supported.

- **Display Only Required Menu Commands on the Operation Interface**

User interface customization is supported.

- **Fast Support for Additional Measurement Needs**

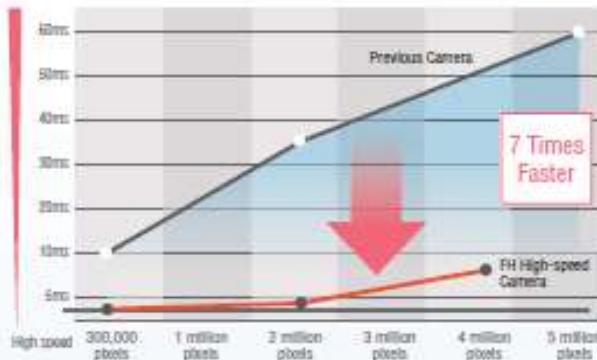
Complete processing item libraries are provided.

Process Higher-resolution Images without Increasing the Machine Cycle Time



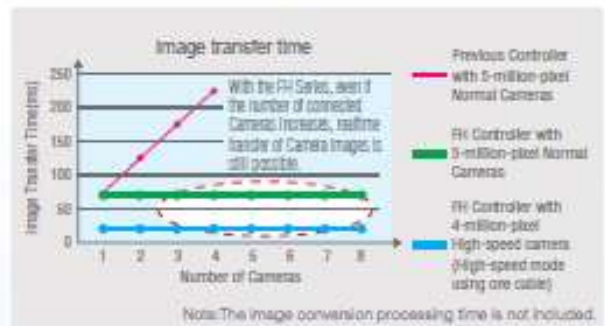
High-speed Image Input **Fastest: 3.3 ms**

Camera resolution, driven by higher expectations for quality, continues to increase. OMRON has greatly reduced the input time and image transfer time to provide high-speed processing to match the speed of Machine applications for high-resolution Images. Even with more Cameras and higher resolution, high-speed Image Input will contribute to increasing throughput.



Realtime Image Transfer

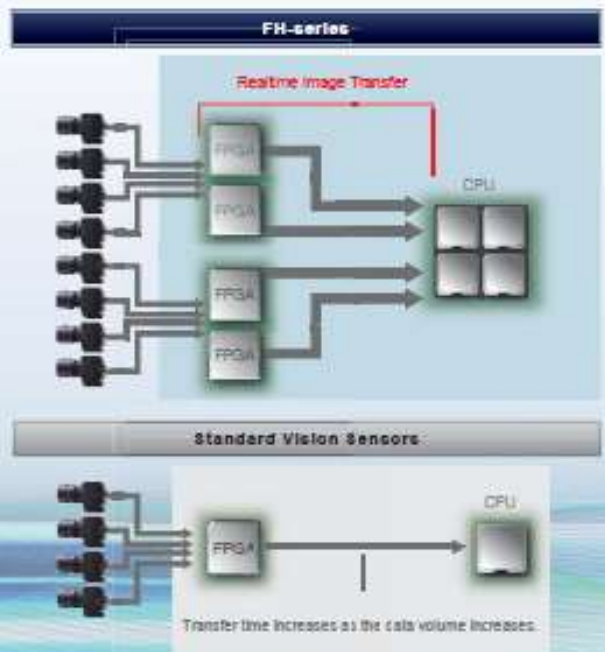
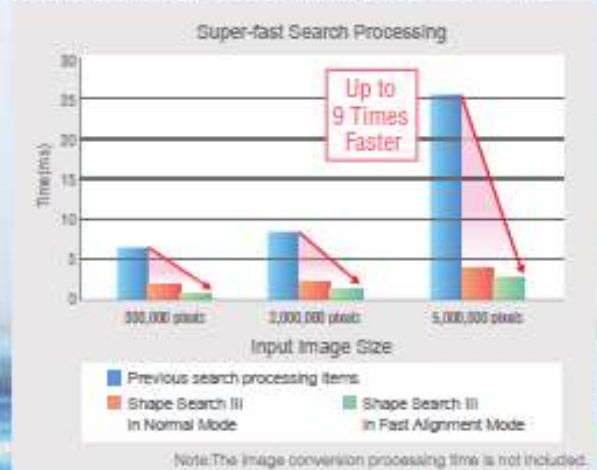
High-resolution Cameras capture large amounts of data, which can make a bottleneck out of the transfer speed time in addition to the image input time bottleneck. An FH-series Controller provides a faster, multi-line image bus to enable realtime transfer of large amounts of image data for high-resolution Cameras or multiple Cameras. If high-precision measurements were sacrificed due to speed, the FH Series returns your precision without increasing cycle time.



Ultra-high-speed Searching **Shape Search III**



New technology makes search algorithms nine times faster than before. Even for unstable image conditions, including light interference, overlapping shapes, gloss, and incomplete Images, stable searching is possible without reducing speed, resulting in a increased stability.



Four-core CPU* to Meet High-speed Demands for Different Machines

*for high speed controllers only

Case1 Perform Calculations for Multiple Cameras without Delay

Even when the measurement results of sequential operations are dependent on the speed of the independent action, parallel processing allows high speed performance without any dwell time. The measurement results from four cores can be easily calculated on one Controller to achieve continuous interaction without any special programming.



Measuring the Next Workpiece without Waiting Time



Frequently Waiting for Processing with a Standard Vision Sensor

The lack of the ability for standard Vision Sensors to handle parallel processing creates waiting time everywhere. If the Machine cycle time cannot be increased, a Controller must be added for each process to perform parallel processing, increasing costs.

