April 9th, 2013

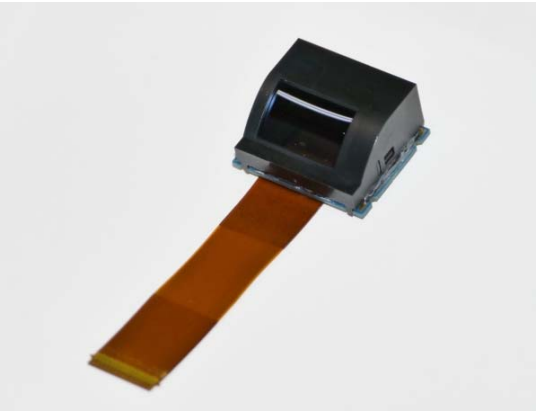
Citizen Finetech Miyota has launched our highest resolution display to date. This advancement represents a thirty percent increase in resolution over previous displays and delivers a high performance viewfinder solution for the Digital Single Lens Reflex camera market

Citizen holdings Co., Ltd.
Citizen Finetech Miyota Co., Ltd.

Citizen Finetech Miyota Co., Ltd.(Headquarters : Miyota-machi, Nagano, Japan / President : Toshihiko Satoh), a consolidated subsidiary company of Citizen Holdings, Co., Ltd. (Headquarters : Nishi Tokyo-shi, Tokyo, Japan / President : Toshio Tokura), has developed a brand-new high resolution Liquid Crystal Display. This new display with a resolution equivalent to 3.69 million pixels is a thirty percent increase in resolution compared to existing technology. Citizen Finetech Miyota (CFM) plans to release this brand-new Electronic View Finder (EVF) model this summer with a focus on the **Digital Single Lens Reflex Camera market.**

With the advent of mirrorless interchangeable-lens camera, an increasing number of digital still camera (DSC) makers are replacing conventional optical viewfinders with electronic viewfinders (EVF). EVFs allow DSC makers to simultaneously display critical information to the user while reviewing or framing a photo. In addition, EVFs enable much smaller and simplified viewfinder optical systems. The extremely high resolution of CFM's latest EVF is a perfect match for the higher resolution sensors found in high performance DSCs and offers a truly life-like representation of the photographic subject.

Citizen Finetech Miyota has been developing and delivering Ferroelectric Liquid Crystal on Silicon (FLCOS) display devices which feature extremely fast response, high resolution, high brightness, and seamless images to various DSC makers since the late nineties.



Our brand-new Quad-VGA display delivers an equivalent 3.69 million pixels (1,280 x 960 x RGB) in a 0.4 inch diagonal with full 24-bit color. This best in class performance has been realized by advanced driver circuit design and improved ferroelectric liquid crystal response. The Quad-VGA offers substantially higher resolution than previous 0.4 inch diagonal displays that offer only 2.36 million pixels. This makes our Quad-VGA the highest resolution 0.4 inch diagonal EVF (*1) available. The thirty percent improvement in resolution and the high color fidelity provide a three-dimensional feeling and enable the more accurate camera focus required by DSLR cameras.

Through highly optimized ferroelectric liquid crystal technology and drive methods we have drastically reduced the color break-up effect(*3) inherent with many other field sequential display methods(*2). The combination of high resolution, high color fidelity,

and minimal color break-up positions our Quad-VGA as the ideal viewfinder solution for next generation DSCs.

■ Structure of ferroelectric liquid crystal

Combining the extremely fast response of custom engineered ferroelectric liquid crystal and fully custom reflective display silicon backplanes, a technology known as Reflective FLCOS(Ferroelectric Liquid Crystal on Silicon), CFM has delivered high-resolution small-form factor display products to a wide range of top tier DSC makers. CFM's Reflective FLCOS technology provides a high performance viewfinder solution without the need for external drivers, illumination systems or color filters.

The acquisition of the display business from Micron Technology, Inc.(US) in Aug., 2012 brought core IP in ferroelectric liquid crystal, process, and silicon backplane innovations to the CFM portfolio. The addition of FLC and ASIC design expertise to the CFM team directly accelerated the development of our new class-leading Quad-VGA display.

■ Features of the Quad-VGA panel

1. Size : 0.4 inch diagonal (Display area)
2. Resolution : 1,280 x 960 x RGB (Equivalent to 3.69 million pixels)
3. Minimized Color break-up :
   Increased color field rate to 3x
4. Advanced temperature optimization :
   Improved and optimized temperature compensation enables maximum performance over the entire temperature range
5. Support for a 120 Hz input signal :
   Enables a substantial reduction in time lag when converting image data into display video data

■ Market conditions of DSC-EVF

EVFs allow camera makers to provide the user with more information when reviewing and framing images.

DSC makers have been adopting EVFs since 2002. The adoption of EVFs in high-end DSCs has grown in sync with the availability of higher resolution electronic viewfinders.

Smart phones with enhanced camera functions are depressing the compact camera market. Meanwhile, the market for cameras with interchangeable lenses such as DSLRs and mirrorless interchangeable-lens cameras is expected to expand.

■Citizen Finetech Miyota Co., Ltd.

It was established in 2008 by merger between Citizen Miyota Co., Ltd. and Citizen Finetech Co., Ltd.
Its main business is manufacturing and sales of crystal components, LCD devices and optical devices.

*1. Based on our March, 2013 research. (Small panel : below 0.5 inch diagonal)
*2. Display method for making full color images by displaying sequentially red, green and blue images temporally with extremely high speed.
*3. Color breakup is the apparent separation of color fields during fast motion of the eye or the device incorporating the viewfinder.

Contact Information about our Product

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