Branching Out with Visteon’s Dual View Display Technology

Showcasing Visteon’s innovation in display technology, a new dual view demonstration property made its debut at CES®. Displaying different information - depending on whether it is viewed from the left or from the right - drivers and passengers can enjoy separate visuals on the same high resolution display. Visteon is now preparing to launch a dual view display with the highest resolution on the market with Jaguar Land Rover.

Dual view technology simultaneously displays two crystal-clear, high-quality images with no interference. By splitting light into left and right components, dual view displays can show different content - such as navigation for the driver and video for the passenger - that is only visible in the user’s viewing angle. It offers a flexible and versatile solution for the ever increasing demands for more information and content in the vehicle.

The latest dual view display examples use a number of technologies that are proprietary to the display supplier. One of them is a means to superimpose a so-called “parallax barrier” on to a thin-film transistor (TFT) LCD. This enables the dual-view system to direct light from the backlight into right and left directions, making it possible to show different visual content on the same screen depending on the viewing angle.

IN THE KNOW

GARY WALLER
Business Development Lead, Jaguar Land Rover

As business development lead, Gary is concentrated on business development, strategy and execution for Visteon's Jaguar Land Rover account. He has a vast amount of experience in the role and has spent the past 15 years at Visteon. Gary is based in Chelmsford, UK.

STEVE PURCELL
Displays Technical Fellow

As displays technical fellow, Steve works with global display suppliers and Visteon’s customers to develop display systems and technologies to support the global automotive cockpit electronics business. He is based in Chelmsford, UK.
The display in situ in single-view mode

Dual view display technology has been on the market for a number of years but has been a niche application in the automotive environment, mainly due to certain limitations in display resolution. Visteon, in partnership with display supplier Sharp, were among the first suppliers to feature dual view displays on Jaguar Land Rover and Mercedes vehicles.

Visteon's latest developments feature 8-inch and 10.26-inch parallax barrier dual view displays that are currently starting up production for Jaguar Land Rover, which will be a real step up in the improvement of the display quality for both driver and passenger alike.

Visteon's 10.26-inch dual view display, which launches in mid-2016 on the Range Rover Evoque and Land Rover Discovery, has been developed in conjunction with Sharp. At 2560 x 542 pixels (255 DPI), it has a significantly higher resolution than the 8-inch display’s 1600x480 pixels.

At nearly double the number of pixels, the 10.26-inch display requires a greater number of source/gate drivers and significantly higher data throughput in order to support the frame rates required for high quality video performance. The requirements to support the 10.26-inch display therefore differ from that of the 8-inch, driving the need for a dual video interface.

Although both the 8 and 10.26-inch are termed as “dumb” displays that are driven by an external infotainment head unit, they both in fact contain an FPGA and memory to support frame buffering, image manipulation (including left-right view interlacing) and video synchronization that cannot be handled in the infotainment head unit.
Dual view display technology changes the in-car viewing experience for both driver and passenger

The displays use a 'normally white' twisted nematic technology (to optimize luminance and minimize crosstalk) with a luminance of approximately 500 cd/m² and will include a capacitive touch screen. The 10.26-inch will be the highest resolution display on the market and it will be split into 2x1280x542 (135 DPI) views, offering the same resolution as the single view displays Visteon supplies to Jaguar Land Rover, ensuring dual view customers no longer need to accept a poorer experience.

Many automakers showed interest in Visteon dual view technology at CES® and were excited about the possibilities it offers. Customer group and product development teams are looking at where to take the technology next – for example, adding driver/passenger discrimination to enhance the passenger HMI interactivity.

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