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SHARP's Strong 2 industrial displays announcement was featured on the online edition of *Managing Automation*. *Managing Automation* is an online and print resource for business and technology managers in manufacturing. The print publication and website enable manufacturing management to analyze, select, implement and operate technologies to enhance their business processes for increased effectiveness and competitiveness in the market place. Inclusion in *Managing Automation* raises awareness for Sharp's commitment to the industrial marketplace and highlights SHARP's technological expertise and product line to managers and engineers selecting products for factory automation applications.



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Industrial Displays feature 600:1 contrast ratio.

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Sharp Microelectronics of the Americas Announces Strong 2 Technology Standard for Industrial Displays

Available in two 10.4 in. models and two 12.1 in. models, Strong 2 Amorphous Silicon LCDs offer 450 cd/m² of brightness and can operate in extreme temperatures from -30 to +80°C. They are 1.5 G certified for shock and vibration, making them suited for EMT equipment in emergency vehicles, or test and measurement equipment in harsh environments. Other applications include outdoor kiosks, indoor HMIs, and where image quality is important, such as online catalog sales.

SAN FRANCISCO & CAMAS, Wash.--June 6, 2006--At the Society for Information Display 2006 International Symposium Seminar and Exhibition, Sharp today introduces Strong 2, Sharp's new performance standard for its industrial Amorphous Silicon Liquid Crystal Displays (a-Si LCDs). With this new standard, Sharp gives OEM customers assurance that Strong 2 LCDs meet greater performance requirements in brightness, contrast, temperature range, and shock/vibration.

Sharp is currently offering four Strong 2 displays -- the 10.4 inch LQ104V1DG61 and LQ104V1LG61 along with the 12.1 inch LQ121S1DG61 and LQ121S1LG61.

The integration of displays in industrial devices, such as patient monitoring, human-

machine interface, factory automation, and e-signage requires that these displays meet far more stringent performance criteria than displays used in consumer applications, because they are used in harsher environments. Sharp's Strong 2 LCDs exhibit marked performance improvements in four areas of great importance to design engineers in the industrial market.

Wider temperature range

Strong 2 displays can operate in extreme temperatures ranging from -30(degrees) to +80(degrees)C. Laboratory testing has shown they need no elaborate display enclosures with fans or other cooling methods, even in hot or dusty environments, thus eliminating air filter purchase and servicing costs. In cold environments or high altitudes, the displays meet minimum temperature specifications without heaters and will operate in these environments at standard refresh rates. Therefore, engineers can design them into a wider range of devices used not only in extreme climates, but also in sensitive environments such as gas pumps or clean rooms.

Higher brightness

Since a touch screen can reduce display brightness (in some cases by nearly 70 cd/m²), Strong 2 displays offer 450 cd/m² of brightness at the outset, to maintain brightness and clarity even after integrating a touch screen. Because they already offer superior light output, designers no longer need to add extra display backlights for high ambient light applications, or when adding an antireflective overlay to the display to enhance readability. By reducing the number of modifications needed, Strong 2 displays save engineers time and lower device costs while maintaining a superior display image.

Greater contrast

Displays meeting the Strong 2 standard feature a 600:1 contrast ratio for crisper, clearer images and more vivid colors.

Greater resistance to shock and vibration

Strong 2 displays are 1.5G certified for greater shock and vibration, making them ideal for rugged medical applications such as EMT equipment in emergency vehicles, or test and measurement equipment used in harsh environments. They also require less cushioning to pass stringent environmental-use tests.

Cost savings

Because Sharp's Strong 2 display technology was developed specifically for the industrial and medical markets, design engineers benefit from both short- and long-term cost savings. Previously, engineers designing for these markets used displays targeted for consumer applications, and relied on third party integrators to enhance the performance and reliability of the displays to meet the thermal management, brightness, contrast, shock, and vibration criteria needed for industrial devices. Integrating a Strong 2 display into an industrial design requires fewer enhancements at the outset, and the final products can achieve longer lifetimes with more durable display components.

"No other display manufacturer can match the range of sizes Sharp offers, or our performance levels where it matters for industrial designers," said Kraig Kawada, Senior Director of Display Products at Sharp Microelectronics of the Americas. "And Sharp industrial display support is long-term."

"Sharp's Strong 2 standard was developed to meet the exacting performance needs of industrial customers. Strong 2 testifies to our ongoing refinement of product offerings for the North American market," said Kawada. "We're continuously in contact with our customers, developing high quality displays for their increasingly wider range of applications."

Applications

In addition to medical and industrial equipment, the rugged Strong 2 displays are ideal for applications such as:

- Outdoor use including ticketing kiosks, ATMs, gas pump or offshore oil rig displays, and small outdoor advertising;

- Indoor use in human/machine interfaces and in areas with exposure to higher temperatures due to manufacturing processes;

- Applications where image quality is extremely important, and higher contrast ratio is a key factor; for example, online catalog sales where customers perceive the quality of the item by how it looks on-screen.

Sharp Strong 2 displays are RoHS(Note A) compliant, continuing Sharp's track record of developing environmentally-sound products and in following eco-friendly manufacturing processes.

http://www.managingautomation.com/maonline/news/product/read/Industrial_Displays_feature_6001_contrast_ratio_19951