

Programmable displays developed by DSE to thrive in the most rugged of mobile environments!



There are very few mobile machine applications where the operator does not have some form of indication and interface to show machine information and control status. The choice for OEMs to use either a programmable display, LED/lamps or traditional switches comes down to many factors such as the application, the operator, cost, space constraints, local laws, and environmental conditions.

While the traditional approach has its place, the benefits are outweighed by having a programmable display. Combining machine operations, status, alarms, and warnings throughout multiple pages/screens to suit the application. Replacing switches with programmable softkeys gives the flexibility of allowing a single key to have multiple functions on the same page and different uses on every page if required. Used in combination with dynamic icons/images to indicate the various function of the push button.

Of course, programmable displays don't have to be used in isolation, they can be used in combination with fixed hardwired switches or buttons, where certain functions or operations benefit from larger physical keys or bespoke units. This approach follows the automotive industry where displays with no keys are chosen by car manufacturers, preferring, to use "iDrive" controls consisting of an encoder and multiple switches/buttons. The same setup can be achieved in the off-highway world.

Touch screens are part of everyday life now with smart phones, tablets and even home heating systems. Just as the choice of what type of operator interface used is based on various considerations, the same can apply with the choice of touch or non-touch displays.

With technology moving away from resistive touch to PCAP (capacitive touch) with glove support, the operator is getting a better feel to the interface. Having a programmable touch screen gives the additional flexibility to choose which full pages or areas of a page have touch enabled. For example, only having the touch screen enabled for service personnel allowing for ease of data entry or machine set up/calibration and having operators utilise display keys.

The trend towards integrating larger programmable displays within rugged mobile applications has increased over the last few years and OEMs now recognise the benefits this display technology provides operators. Having instant access to a complete view of equipment on a single large all-weather display has distinct advantages. Mobile machinery displays are following the automotive industry, as car manufacturers introduce larger displays to incorporate navigation, infotainment systems, reversing cameras, heating controls and more.

The ability to have the OEM put their own corporate identity or brand on a display is often overlooked. By this we don't mean branding the physical unit, but instead using the specific font set, logos or colour scheme of the company, to make an off the shelf piece of hardware look bespoke. This can start with a company's logo appearing when the display is booted up.



The **DSEM812** Programmable Display is the largest full colour display in the **DSE M-Series** line-up. The 12.1 inch display offers a 1280 x 800 viewing area at 16:10 resolution and is the perfect solution for new and retro-fit installations. The **DSEM812** can be viewed in full sunlight and features a bonded LCD display inside an IP67/NEMA 6 rated enclosure. The display is available in two variants, a 16-button configurable display with capacitive touchscreen or capacitive touchscreen only. Both options are glove-friendly, allowing operators complete interaction, whatever the conditions. The **DSEM812** offers flexible dash or RAM mount installation options and can be configured for landscape or portrait orientation.

Blind spots are extremely common on heavy machinery. The **DSEM812** can be used to remove these blind spots by displaying images from multiple locations alongside key operational data. This allows operators to move safely. Warnings and information messages can be added to show on top of a video image, helping to save display space and removing the requirement for multiple displays to be fitted inside a single cab.

Both **DSEM812** variants offer 4 camera interfaces (PAL, NTSC and Ethernet), 3 independent CAN interfaces (J1939, CANopen or Raw CAN) and 2 Ethernet connections. 12 configurable inputs/outputs offer outstanding levels of flexibility and integration. The **DSEM812** does not have to be installed inside a cab, it performs to the same high standards regardless of its location.

Connectivity is extremely important across the industry and the **DSEM812** offers GPS and Wi-Fi connectivity. Built-in Wi-Fi on machinery equipment provides a range of options for service personnel and machine operators to take advantage of. Large amounts of data can be collected from multiple locations on a machine and passed via CANbus or Ethernet to the **DSEM812** display, where data can be accessed wirelessly.



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If instructional information is required to be shared with an OEMs customer, the **DSEM812** features a PDF viewer for showing operator manuals, drawings and diagnostic help files. Additionally, the **DSEM812** has a media player. Instruction and help videos can be played directly on the **DSEM812**.

DSE utilises CODESYS and Qt software platforms across its display range to meet a combination of application requirements. This enables OEMs to choose the best solution for their organisation. Additionally, consideration has been made for other departments within an OEM, the **DSEM812** has a USB interface to reduce programming times in production. This is where application software can be loaded with a pen drive (USB stick). There is no need for software tools or engineering support. The same feature is also used for service engineers when software updates are required on a customer's site.

The **DSEM812** is an extremely powerful device that allows installers and operators to achieve outstanding control and functionality, tailored to meet their exact requirements. The **DSEM812** display represents the next generation in display technology.

To learn more about the **DSEM812** and our **DSEControl®** M-Series range visit www.deepseaelectronics.com