

ERGOS

Human Factors Engineering



Blogpost | 21 September 2017

When to use marine-spec displays?



ir. Niels de Groot Eur.Erg.

+31 (0)53-428 0500
niels.de.groot@ergos.nl
contact@ergos.nl
www.ergos.nl

On ships we find two types of computer displays: standard 'office' displays (brand names like LG, Dell, HP, Samsung, Iiyama) and 'marine specification' displays (Hatteland, Isic, Nottrot, and some others). At first glance they look quite similar, until you have a look at the price tag: the marine spec displays easily cost three times as much as an office quality display of similar size and resolution. So what is the difference, and in which case you should use specifically marine spec monitors?

Dimmable background

Basically, each marine spec display begins its life as a standard high-end office display. However, the marine spec displays are tweaked a bit, by adding 0 to 100% dimmable background illumination. This allows the operator to dim the monitor to very low lighting levels, without compromising the light contrast and color contrast. Most office monitors have no background dimming at all: they just change the transparency of the LCD matrix. Office monitors used on a ship's bridge usually work fine in daylight. At night however, when it is dark on the bridge, each display will turn into a light source, significantly reducing the operator's ability to perceive navigation lights outside.

Certification

Some marine instrumentation systems, like radar and electronic charts (ECDIS), have authority approval certificates for the entire chain of components. It means that it is only allowed to use specifically tested and approved displays. This can be an embedded display, but often there is a small choice of other monitors that can be applied as well – as long they are marine spec.

Physical quality

Marine spec displays are more robust and solid than office displays. Display application on a ship's bridge requires reliable, durable and robust equipment. Reliability is directly related to safety. Durability is required because of its 24/7 use in combination with a long life span. Display casings, mounts and electronic components, should also be vibration and shock resistant, since a ship is a moving environment.

Conclusion

For application on ship's bridges, marine spec displays are preferred – because of the high physical quality. For navigation workplaces marine spec is considered to be essential, because of the superior dimming capabilities. For radar / ECDIS applications marine spec displays are even mandatory. However, be sure to apply marine spec displays for all applications on the navigation workplace (also VMS, CCTV, Survey, etcetera), otherwise the actual effect on human perception will be minimal. For other environments on the ship, where night vision is no requirement, standard office displays can give good results as well.

Tip: most marine spec displays offer a built-in feature for remote dimming. Dimming capability of displays is most effective when it is easy to use. A small panel with one or more rotary dials in direct reach of the operator is a convenient solution, specifically on bridges with many displays.

Interested in more do's and don'ts concerning Human Factors of ship's instrumentation? Please let me know, and I will dedicate another article to your question. Or take a look on www.maritime-ergonomics.com