



Innovative Human-Systems Interface

Intelligent Interfaces Since 1946

Advanced Naval Displays

IEE specializes in the design, test, support and fielding of Human Interface Systems used in demanding naval applications throughout the world.

Since 1946, IEE has developed an extensive product portfolio encompassing flat panel displays, keypads and switch bezels, lightweight enclosures, video processing, serial communication and power conversion for rugged environments.

Our display enhancement devices range from 3.5" (measured diagonally) to 24" and beyond. Our proven expertise in rugged, integrated display design includes features such as multi-mode backlighting, brightness control from NVIS to high bright, optical bonding, touchscreens, EMI filtering, custom anti-reflective/anti-glare (AR/AG) coatings and rugged packaging.

IEE effectively integrates numerous low and medium power high performance processing elements into system designs. Recent products include low power integrated ARM processors that support embedded Linux and Android operating systems with a wide range of communication peripheral interfaces.

Our products are fully qualified to the military standards and are field proven for use in rugged applications, attesting to their uncompromising quality and performance.

Benefits You Can Count On

IEE display technology provides a unique combination of user benefits. These include:

- Programmable incremental brightness control across application specific ranges:
 - Low light / below deck: $<<1$ to 200 cd/m^2
 - Standard brightness: 450 cd/m^2
 - High bright, above deck/bridge: $> 650 \text{ cd/m}^2$
- Low power, high reliability LED backlighting
- Active and passive contrast enhancement
- Wide viewing angle
- Wide operating temperature range; optional heaters for extended low temperature operation
- Environmentally- and EMI-sealed enclosures
- In-house manufacturing and optical bonding facilities

Meeting Military Standards

Designed and built to the most demanding quality and performance specifications, IEE displays meet or exceed the following Mil-Spec standards:

- Environmental: MIL-STD-810, MIL-STD-901, MIL-STD-167
- EMI/EMC: MIL-STD-461/462
- Panel construction & lighting: MIL-P-7788
- Power: MIL-STD-704



Advanced Naval Displays...continued

Tailoring the Display to Your Specific Needs

IEE understands that each application has its own set of unique user requirements, so we offer a variety of enhancement capabilities and options to meet your needs exactly, including:

- Touch screen integration: resistive, 5-wire and 8-wire, multi-touch
- Active brightness enhancement: high bright LED backlights/controllers
- Passive brightness enhancement: BEF, DBEF, enhanced specular reflector film (ESR), etc.
- Automatic brightness control
- On-screen display controllers
- LCD video controllers: DVI and analog RGB inputs
- Optional support for multiple interface formats: LVDS, component and composite video, Ethernet and USB



If your application requires customization or enhancement capabilities not listed here, please consult our applications engineering group. Chances are we can give you precisely what you need.

Note: IEE is registered with the US DOS and as such we adhere to all ITAR regulations as it pertains to 'defense articles'.

ISO 9001:2008 Certified



3.5" Diagonal Screen Size

Resolution:	QVGA 320 x 240
Brightness (typical):	80 cd/m ²
Contrast Ratio:	150:1
Viewing Angle Horiz./Vert.:	± 35° H / ± 35° V
Power Consumption:	3.6 W (typ), 4 W (max) at 12 Vdc
Operating Temperature:	-20 °C to +70 °C

7.0" Diagonal Screen Size

Resolution:	WVGA 800 x 480
Brightness (typical):	450 cd/m ²
Contrast Ratio:	500:1
Viewing Angle Horiz./Vert.:	± 80° H / ± 80° V
Power Consumption:	8.7 W (typ), 9.5 W (max) at 28 Vdc
Operating Temperature:	-20 °C to +70 °C

10.4" Diagonal Screen Size

Resolution:	XGA 1024 x 768
Brightness (typical):	400 cd/m ²
Contrast Ratio:	1200:1
Viewing Angle Horiz./Vert.:	± 80° (min), ± 88° (typ) H / V
Power Consumption:	11 W (typ), 12 W (max) at 28 Vdc
Operating Temperature:	-30 °C to +70 °C

12.1" Diagonal Screen Size

Resolution:	XGA 1024 x 768
Brightness (typical):	<<1 to 200 cd/m ² *
Contrast Ratio:	600:1
Viewing Angle Horiz./Vert.:	± 60° H / -45°, +50° V
Power Consumption:	19 W (typ), 23 W (max) at 28 Vdc
Operating Temperature:	-30 °C to +80 °C

15" Diagonal Screen Size

Resolution:	XGA 1024 x 768
Brightness (typical):	<<1 to 200 cd/m ² *
Contrast Ratio:	500:1
Viewing Angle Horiz./Vert.:	± 80° H / -60°, +80° V
Power Consumption:	11.5 W (typ), 14 W (max) at 28 Vdc
Operating Temperature:	-10 °C to +70 °C

19" Diagonal Screen Size

Resolution:	SXGA 1280 x 1024
Brightness (typical):	<<1 to 200 cd/m ² *
Contrast Ratio:	800:1
Viewing Angle Horiz./Vert.:	± 70° (min), ± 88° (typ) H / V
Power Consumption:	26.5 W (typ), 45 W (max) at 28 Vdc
Operating Temperature:	0 °C to +60 °C

24" Diagonal Screen Size **COMING SOON!**

Resolution:	WUXGA 1920 x 1200
Brightness (typical):	400 cd/m ²
Contrast Ratio:	800:1
Viewing Angle Horiz./Vert.:	± 80° (min), ± 88° (typ) H / V
Power Consumption:	44 W (typ), 60 W (max) at 28 Vdc
Operating Temperature:	-10 °C to +70 °C

* Note: Brightness shown is for "Below Deck" low ambient light configuration.

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