



Handheld Device Capabilities

IEE specializes in the design, test, support and fielding of Human Interface Systems used in demanding military 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.

IEE's family of Handheld Control Display Units (CDUs) are combat proven, sunlight readable, MIL-qualified units designed for soldier mount, vehicle mount or man-pack hand-held use. The backlit enhanced displays are available in a wide range of sizes and resolutions, and are available configured with low power, high performance reprogrammable microprocessors supporting industry standard peripherals and communication protocols. IEE offers an extensive set of optional operator interfaces that are selected to match the specific I/O needs of the application; from buttons and keypads, through touch screen technologies responding to stylus, finger, or gloved hand inputs.

Benefits You Can Count On

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

- Military qualified, combat proven, rugged units
- Display sizes and resolutions range from 4-line 2.8" character displays to full graphic displays from 3.5" QVGA through 7.0"-wide SVGA
- Multi-mode backlighting systems that provide sunlight readability and NVIS compatibility
- Integrated touch screen technology: resistive, IR, SAW, multi-touch
- Low power, high performance reprogrammable microprocessor-based operation
- Flexible serial data interfacing through industry-standard Ethernet and EIA RS-422
- Functionality ranging from basic text I/O to full web browser features
- Linux or Android OS hosted on an ARM processor
- Optional "zeroize" switch
- **New 3D display technology from 3M**



Meeting Military Standards

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

- Environmental: MIL-STD-810, MIL-S-901, MIL-STD-167
- EMI/EMC: MIL-STD-461/462
- Panel construction & lighting: MIL-P-7788
- NVIS: MIL-STD-3009
- Power: MIL-STD-704, MIL-STD-1275



Handheld Device Capabilities...cont.

3D Display Technology from 3M for Military Applications

IEE now offers 3D display technology from 3M in a 4.8" WVGA handheld device. Using autostereoscopic 3D display technology in conjunction with sophisticated LED backlighting, IEE has developed a truly high resolution, low-power, portable 3D display device without the need for 3D glasses. The 3D technology from 3M provides significant advantages over competing technologies that suffer from lower screen resolutions, color distortion, and image inversion with head movements. IEE's 3D display brings the added dimension of depth to displayed data, video and graphics that helps to separate and highlight critical information. This ability to "layer" real world data makes this technology a natural fit for remote control UAV/UAS or robotic systems, as well as virtualization applications such as embedded training and simulation. Other application examples include terrain mapping, 360 degree situational awareness, drive behind the armor and enhanced remote observation.



Handheld Product Family

The following products represent a sample of CDUs that have been built, tested and delivered for specific applications. Customized versions of these products can be further tailored to meet your needs. Our browser-based units access the web through either wired or wireless Ethernet executing HTML 5.0, JAVA scripts, JAVA applets or other methods.



If your application requires customization or enhancement capabilities not listed here, please consult our applications team – we can customize to 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



Character Display CDUs

Mini-CDU

Display Size:	1.1" x 2.6" wide temp. transfective STN
Character Display:	4 rows by 14 characters
Keypad:	8 keys (4x2)
Contrast Ratio:	3:1
Power Consumption (typical):	0.65 W

HH-CDU

Display Size:	1.1" x 2.6"
Character Display:	4 rows by 14 characters
Keypad:	16 keys (4x4)
Contrast Ratio:	3:1
Power Consumption (typical):	1.15 W

3.5" QVGA CDU

Keypad:	9 keys (3x3)
Resolution:	QVGA 320 x 240 x RGB
Display Size:	3.5" QVGA Color TFT transfective LCD
Brightness (typical):	100 cd/m ²
Contrast Ratio (typical):	20:1 (reflective), 150:1 (transmissive)
Power Consumption (typical):	1.4 W, 2.1 W with backlight, 2.8 W max

Browser-based CDUs

3.5" QVGA Browser CDU

Keypad:	6 keys (3x2)
Resolution:	320 x 240 x RGB
Display Size:	3.5" QVGA Color TFT transfective LCD
Brightness (typical):	100 cd/m ²
Contrast Ratio (typical):	20:1 (reflective), 150:1 (transmissive)
Power Consumption (typical):	3.0 W

4.3" WVGA Browser CDU (preliminary)

Keypad (Touch Screen):	6 keys (3x2)
Resolution:	480 x 800 x RGB
Display Size:	4.3" WVGA Color TFT transfective LCD
Brightness (typical):	400 cd/m ²
Contrast Ratio (typical):	20:1 (reflective), 150:1 (transmissive)
Power Consumption (typical):	3.5 W

7.0" WVGA Browser CDU

Keypad:	5 keys (5x1)
Resolution:	800 x 480 x RGB
Display Size:	7.0" WVGA Color TFT transfective LCD
Brightness (typical):	550 cd/m ²
Contrast Ratio (typical):	500:1 (native)
Power Consumption (typical):	5 W

7.0" WSVGA Mil Tablet (preliminary)

Keypad (Touch Screen):	10 keys (2x5)
Resolution:	1024 x 600 x RGB
Display Size:	7.0" WSVGA Color TFT transfective LCD
Brightness (typical):	400 cd/m ²
Contrast Ratio (typical):	20:1 (reflective), 150:1 (transmissive)
Power Consumption (typical):	5 W

Handheld 3D Displays

4.8" WVGA Handheld 3D Display (preliminary)

Resolution:	800 x 480 x RGB
Display Size:	4.8" WVGA Autostereoscopic Color TFT LCD
Brightness (typical):	200 cd/m ² (2D or 3D mode)
Optimum Viewing Distance:	16"
External Dimension:	3.45" x 5.98" x 1.22"

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