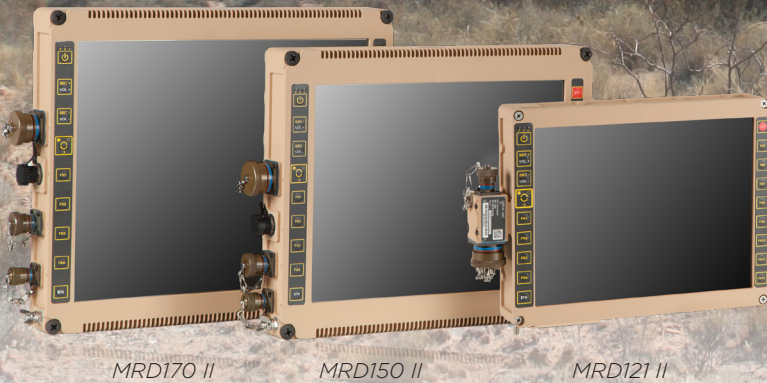


MULTI-FUNCTION RUGGED DISPLAYS (MRD) II



OPERATIONAL RELIABILITY IN THE HARSHTEST ENVIRONMENTS

The MRD II's are multi-function, extremely rugged, sun light readable displays that incorporate resistive multi-touch screens. The 12.1" and 15" MRD II's implement XGA (1024x768) resolution LCD screens, while the 17" has a SXGA (1280x1024) resolution LCD. The internal display assembly is optically bonded to optimize direct sunlight readability and enable operation through harsh vibration and shock environments. The display system provides the user with the flexibility to operate the MRD II in both direct sunlight and extremely low-light level applications.

All MRD II's support an optional rugged USB keyboard that meets the same environmental requirements.

The MRD II's are ideally suited for rugged fixed and mobile applications that have demanding environmental requirements. The MRD II's can operate through extreme thermal, shock, and vibration exposure while hard mounted.* Operation in the toughest military, Department of Homeland Security (DHS), and industrial environments has been validated through an intensive qualification program and fielded operations.

The MRD II's include bezel keys for Power, Brightness and Volume controls as well as bezel keys that can operate as software defined application hotkeys. The combination of the bezel keys, touch screen, and optional keyboard allow the MRD II's to be an ideal workstation for computing, sensor integration, and video processing applications.

*Some configurations may require isolation mounts.

MULTI-FUNCTION RUGGED DISPLAYS (MRD) II

FEATURES

Workstation – The MRD II workstation displays are well suited for mobile and harsh environments where reliability is critical. These displays allow operators access to critical data in locations and work environments where normal displays could not operate.



Multiple interfaces – The MRD II's offer resistive multi-touch screen, and optional rugged USB keyboard interfaces for operators. All of these interfaces operate over the full spectrum of rugged environmental specifications.



Ruggedness – With a strong aluminum housing, EMI shielding, industrial grade connectors, and high performance-bonded display assemblies the MRD II's can sustain operation through the harshest of environmental conditions.



Multi function – The MRD II's screen size, resolution, and touch screen interface allow each display to be used for multiple concurrent application. As a workstation display, the MRD II's can simultaneously display live video in one portion of the screen while critical control systems are monitored and adjusted in another portion of the screen.



For mission-critical applications in the most demanding environments



INDUSTRIAL



BORDER PATROL

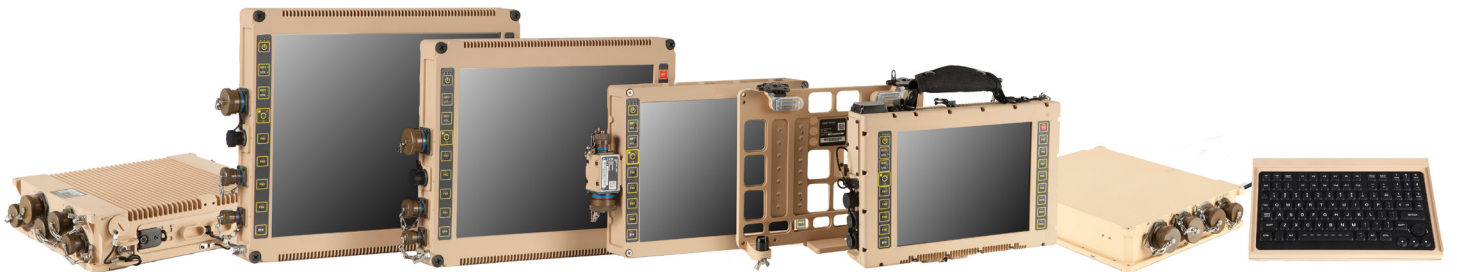


MILITARY

SCALABLE FAMILY OF HARDWARE

The MRD II displays are members of a scalable family of rugged computing solutions. They can be integrated with the DDUx II, or MRT104 II Tablet family members. All components are designed for interoperability, allowing multiple flexible configurations to solve simple, complex, and evolutionary requirements.

- MRD121 II (12.1") can be attached to the DDUx II
- MRD150 II (15") and MRD170 II (17") can be attached to both the DDUx II and MRT104 II
- Multiple cable length options, up to 25 ft, are available for attaching the MRD II Displays
- To support multiple work stations, the DDUx II can simultaneously attach to the MRD121 II plus a MRD150 II or MRD170 II



DDUx II

*MRD 170 II
17" Rugged Display*

*MRD 150 II
15" Rugged Display*

*MRD 121 II
12.1" Rugged Display*

Tablet Mount

*MRT 104 II
10.4" Rugged Tablet PC*

*I/O Expansion
Dock*

Keyboard Unit (KU)

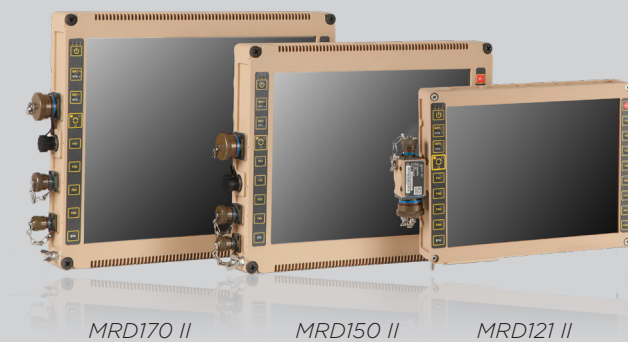
MULTI-FUNCTION RUGGED DISPLAYS (MRD) II

PHYSICAL FEATURES

CHARACTERISTIC	MEASUREMENT
Weight	MRD121: 6.6 lbs; MRD150: 12 lbs; MRD170: 14.3 lbs
Dimensions	MRD121: 13.2" x 9.8" x 1.9"; MRD150: 16.1" x 11.9" x 2.0"; MRD170: 17.1" x 13.3" x 2.0"
Input Power	20-33 VDC vehicle power IAW MIL-STD-1275D
Power Consumption	MRD121: 20W (typical); MRD150: 40W (typical); MRD170: 40W (typical)

SUPPORTED INTERFACES

Touch Screen	Pressure sensitive resistive multi-touch touch screen
USB 2.0	Two (2) on circular MIL connector
Display	MRD121: 12.1" XGA LCD, 4:3 aspect ratio MRD150: 15.0" XGA LCD, 4:3 aspect ratio MRD170: 17.0" SXGA LCD, 5:4 aspect ratio
Video Input	MRD121: LVDS MRD150: LVDS or Display Port 1.2 MRD170: LVDS or Display Port 1.2
Audio	Integrated speaker
Display Backlight	Adjustable backlight, 800 cd/m2 high bright to 0.1 cd/m2 for Night Vision Goggle (NVG) compatible operation



MRD170 II

MRD150 II

MRD121 II

ENVIRONMENTAL

CHARACTERISTIC	MEASUREMENT
Temperature	Operating, -46°C to +71°C Storage, -51°C to +71°C
Altitude	Compliant with MIL-STD-810G, 500.5, Proc I, II, & III (15K ft - operational, 50K ft - storage, 8K to 40K ft - rapid decompression)
Sand and Dust	Compliant with MIL-STD-810G, 510.5, Proc I, II (blowing sand at 40-65 MPH for 6 hrs at ambient + 6 hrs at max operate, blowing dust at 17-23 MPH for 1.5 hrs)
Water Tightness	Compliant with MIL-STD-810G, 506.5, Proc I, and 512.5, Proc 1 (No water penetration during: driving rain: 4 in/hr at 40 MPH for 30 min, 30 PSIG from 5 ft.
Driving Rain	Compliant with MIL-STD-810G, 506.5 Proc I (4"/hr @ 40 MPH)
Water Jet	25 PSIG from 5 ft
Immersion	Compliant (1") with MIL-STD-810G, 125.5 Proc II
Humidity	Compliant with MIL-STD-810G, 507.5, Proc II
Fungus	Compliant with MIL-STD-810G, 508.6 (materials resist to fungal growth)
Explosive Atmosphere	Compliant with MIL-STD-810G, 511.5, Proc I (will not cause ignition of explosive gaseous mixture while operating)
Salt Fog	Compliant with MIL-STD-810G, 509.5, Proc I (resistance to salt-fog atmosphere for 48 hrs)
Solar Radiation	Compliant with MIL-STD-810G, 505.5, Proc I, hot-dry climate (operate through three 24 hr exposure cycles)
Vibration	Compliant with MIL-STD-810G, 514.6, Custom procedure (Operate through: 15 min/phase/axis of Ground Mobile Wheeled Vibration Profile, M113 Crew Compartment Wall Profile, and 150 min/phase/axis Bradley Sponson Vibration Profile)
Shock	Compliant with MIL-STD-810G, 516.6, Proc I (Operate through: 40g at 6ms, 50g at 10ms, 100g at 1ms, 575g at 0.5ms)
Drop	Compliant with MIL-STD-810G, 516.6 Proc VI (bench handling)
EMI/EMC	Compliant with MIL-STD-461F, CE-102, CS-101, CS-114, CS-115, RE-102, RS-103 (fully configured system, fully cabled)
ESD	Compliant with IEC 61000-4-2 Levels 1 & 4 (2KV to I/O pins, 8KV to chassis, 15KV to non-conductive surfaces)
Reliability	Demonstrated MTBF Reliability of 1572 hrs IAW MIL-HDBK-781A, minimum of 10 system for 30 days (exposure: +49 to -32°C, 24-30 VDC)
High Altitude Electromagnetic Pulse	Compliant with MIL-STD-461F RS105 and CS116
Near Lightning Strike	Compliant with MIL-STD-464

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