



## Modular Display Unit (MDU)

### Introduction

The Modular Display Unit (MDU) concept consists of two parts, one display and one backbox. The backbox can either include a processing unit or an extended connector platform. The displays are available in different sizes and with varying functionalities.

### Why MDU?

- Scalability in panel sizes from 12 – 32”, compatible with all backboxes.
- Highly customizable rugged display or Panel PC.
- Optimized for rapid development in small volume.
- Mid-life upgrades are easily facilitated by upgrading the backbox.
- Freedom in system configuration and performance: select CPU, memory, storage, operating system, and more.
- Panel PC combinations reduce external cabling, leading to improved signal quality and less complex integrations.
- Rugged, not ruggedized – all products are designed specifically for military environments.

## Mounting

All MDU units come with the same mounting interface and docking connector, which enables full interoperability between all displays and all backboxes.



## Customization

The MDU concept has a focus on modular design to enable customization and rapid development. It is therefore possible to tailor the product to the customer's exact specification even for small volume projects.

## Design for defense

MilDef is fully focused on delivering military-grade products for tactical use with an understanding of the tough conditions under which the equipment operates. Therefore, only high-quality designs and materials that protect and maintain long-term functionality and reliability are used. All products are built to comply with demanding military standards, ensuring reliable performance over many missions.

The products are, at a minimum, IP65 as well as fulfilling the MIL-STD-810, MIL-STD-461 & MIL-STD-1275 standards.

## Cost effective

The MilDef MDU keeps the form factor over many generations, including the same mechanical and electrical docking interface, aiming to always use the same connectors and pin assignment. Integration, for example in a vehicle, is only done once; upgrades are "plug and play". This enables cost-effective mid-life upgrades when for example the computer backbox needs a faster CPU resulting in a low total cost of ownership.

## Configuration

The below options are examples of configuration choices. More options can be made available on demand.

Display unit	Back box
<p><b>Display type</b></p> <ul style="list-style-type: none"> <li>○ Size (10-32")</li> <li>○ AG glass</li> <li>○ AR glass</li> <li>○ IK class</li> </ul> <p><b>Touch</b></p> <ul style="list-style-type: none"> <li>○ Single touch /multi touch</li> <li>○ Resistive / capacitive</li> </ul> <p><b>Buttons</b></p> <ul style="list-style-type: none"> <li>○ Programable buttons</li> <li>○ Number of buttons</li> <li>○ On screen buttons</li> </ul> <p><b>Display specifications</b></p> <ul style="list-style-type: none"> <li>○ Nits</li> <li>○ Response time</li> <li>○ Resolution</li> <li>○ Contrast</li> <li>○ NVIS</li> </ul>	<p><b>CPU</b></p> <ul style="list-style-type: none"> <li>○ Intel Atom</li> <li>○ Intel i7</li> </ul> <p><b>Storage</b></p> <ul style="list-style-type: none"> <li>○ RAM</li> <li>○ Removable SSD</li> <li>○ Fixed SSD</li> </ul> <p><b>Connectors</b></p> <ul style="list-style-type: none"> <li>○ MIL connectors</li> <li>○ Sealed industrial</li> <li>○ Fiber</li> </ul> <p><b>Interfaces</b></p> <ul style="list-style-type: none"> <li>○ CAN</li> <li>○ Video grabber</li> <li>○ Dedicated graphics card</li> <li>○ Analog video interface</li> <li>○ Digital video interfaces</li> <li>○ LAN</li> <li>○ USB</li> <li>○ Serial</li> </ul>

## Environmental specifications

Specifications	Details
<p><b>Operating temperature</b> MIL-STD-810G, Method 501.5/502.5</p>	-40 to 55°C (-40 to 160°F) or better
<p><b>Ingress protection</b></p>	IP65 or better
<p><b>Low air pressure</b> MIL-STD-810G, Method 500.5,</p>	Procedure II - Operation/Air Carriage 4.572m (15,000 ft)
<p><b>Rapid decompression</b> MIL-STD-810G, Method 500.5,</p>	Procedure III - Rapid decompression 75.2 kPa, corresponding to 2438m (8.000 ft) 17 kPa, corresponding to 12192m (40.000 ft)
<p><b>Salt fog</b> MIL-STD-810G Method, 509.5</p>	5% +- 1% (by weight) Two cycles, 24h wet + 24h dry /cycle
<p><b>Temperature shock</b> MIL-STD 810G, Method 503.5</p>	Procedure I 55 °C (131 °F) / -40 °C (-40 °F)

<b>Transit drop, in shipping package</b> MIL-STD-810G, method 516.6	Procedure IV - Transit drop. Table 516.6-VI, Transit drop test, < 45.4 kg (100 lbs), < 91 cm (36 inch), Manpacked or man-portable
<b>Vibration – Helicopter</b> MIL-STD-810G. Method 514.6	Procedure I - General vibration, Category 14 - Rotary wing aircraft - helicopter
<b>Vibration - Loose cargo</b> MIL-STD-810G. Method 514.6	Procedure II - Loose cargo transportation, Category 5 - Truck/trailer - loose cargo
<b>Vibration - Tracked vehicles</b> MIL-STD-810G. Method: 514.6	MIL-STD-810G. Method: 514.6, Procedure 1 - General vibration, Category 20 - Ground vehicles - ground mobile, tracked vehicles
<b>Vibration – Wheeled vehicle</b> MIL-STD-810G. Method: 514.6	MIL-STD-810G. Method: 514.6, Procedure 1 - General vibration, Category 20 - Ground vehicles - ground mobile, wheeled vehicles

## EMC/ESD specifications

Standard	Details
EMI conducted MIL-STD-461F, Method CE102	BASIC CURVE 10kHz to 10MHz
EMI radiated MIL-STD-461F, Method RE102	Navy Mobile & Army 2MHz - 18GHz
EMS conducted MIL-STD-461F, Method CS101	Conducted susceptibility, power leads. CURVE #1 30Hz to 150kHz
EMS conducted MIL-STD-461F, Method CS114	Army, Ground 10kHz - 200MHz
EMS conducted MIL-STD-461F, Method CS115	Conducted susceptibility, bulk cable injection, impulse excitation
EMS conducted MIL-STD-461F, Method CS116	10kHz - 100MHz
EMS radiated MIL-STD-461G, Method RS103	Air Force ground 2MHz to 1GHz Army
ESD EN61000-4-2	16 kV air, 8 kV contact

## Warranty

All units come with a 5-year hardware warranty. For more information please see, [MilDef General Terms and Conditions](#).