

What defines a true ruggedness.



White Paper

Everything You Need to Know
About Defence-Grade Rugged
Computers

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Introduction

Laptops used by everyday consumers rest in relatively benign environments, indoors at room temperature, and rarely exposed to harsh weather like rain or snow. Defence laptop users face much more extreme environments than the average desktop user and need a laptop to perform in harsh conditions. Warfighters also need mobile computing to work basically in the middle of nowhere, which maintains connectivity in remote locations.

The better the technology the soldier, airman, marine, or sailor has in the field, the better their decision making and effectiveness.

When deciding the right products for defence and defense, you should be armed with the right information that leads to better choices.

Here are the critical points to consider when choosing a rugged computer for defence applications.

1. Armed forces usually have a much stricter demand for ruggedness and durability than businesses and often require a testing confirmation to ensure that the particular hardware will withstand the rigorous environments. These criteria can make numerous commercial and even industrial-grade device remedies unacceptable.

2. DoD procurement policy follows strict guidelines as well as eliminates numerous industrial businesses.

3. Assimilation of brand-new modern technology on existing systems calls for unique layouts, typically calling for one-of-a-kind user interfaces to traditional equipment.

4. Weight, power, and size considerations commonly limit the adoption of added hardware, restricting the fit of existing equipment styles.

5. Which tests issues and what questions to ask to guarantee the device does reliably and supplies the best innovation for the worker's requirements.



Everything You Need to Know About Defence-Grade Rugged Computers

Unfortunately, you can not obtain all those attributes from a neighborhood electronics store or Amazon.com. So exactly how do you equip your defence workers with the right devices? When selecting one of the ideal defence-grade tablets, you must first consider some vital functions, including compliance with armed forces criteria, IP Score, ecological compatibility, sunshine readability, and connectivity. This guide helps you understand the standards and testing to try to help you examine tough mobile phones. It likewise highlights the vital functions to search for when equipping mobile employees with the best device for working in today's connected atmosphere. Why should you read this overview before making your next tough mobile phone purchase choice?

Limited budget plans and IT team source constraints imply that any type of mobile computing technology released requirements to execute with exceptional longevity- without constant fixings or performance concerns. They know just how to review smartphones for lasting, trustworthy performance, leading to higher employee contentment and performance.

Lots of consumer-grade devices are being labeled as "rugged." Nonetheless, they do not provide the sturdiness or solution that purpose-built smartphones do. "Purpose-built" suggests that they are specially engineered and also built "from scratch" to perform continuously reliable for a mobile labor force that is when driving, functioning outdoors, or in a manufacturing facility or stockroom. This guide offers details to help lead you with your acquisition analysis process.

For over 25 years, Winmate has been a manufacturer of field-proven enhanced screens for army applications, has been a trusted company of boosted defence and industrial applications. Winmate produces innovative rugged computers and displays with sophisticated functions like low-latency video processing, high-bright, NVIS backlighting, and lightweight from rapid prototyping of personalized layouts to full-scale manufacturing runs ruggedized units. Winmate's direct control of essential procedure steps reduces prices, lowers manufacturing lead times, and improves lifecycle management. Winmate rugged computers are dispersed worldwide. IEE is ISO 9001:2015, as well as MIL-STD-810G certified.



Key Factors to Consider

1. MIL-STD Compliance

Rugged tablets for defence applications must endure falls of several feet, water exposure, and glaring sunlight while maintaining performance. There are various defence specifications these must meet to ensure end-users can survive in these environments. Ensure that the devices have been tested according to MIL-STD 810-G requirements against extreme environmental conditions - temperature, shock, vibration, and humidity. One more standard to follow is MIL-STD 461F to ensure that the product meets the control of electromagnetic interference (EMI). Ask your vendor which method was used to test the device, then after you receive a test report from the manufacturer, do not forget to do your testing.

2. IP Rating

Ingress Protection (IP) rating or IEC standard 60529 is an essential part of any rugged device, measuring its level of protection against particles and liquid. Generally, the higher the score, the better the protection. If a device claimed to be defence-grade, it should have IP protection—the choice of whether IP65 or IP67 depends on the needs of your application.

3. Compatibility with Existing Defence Environments

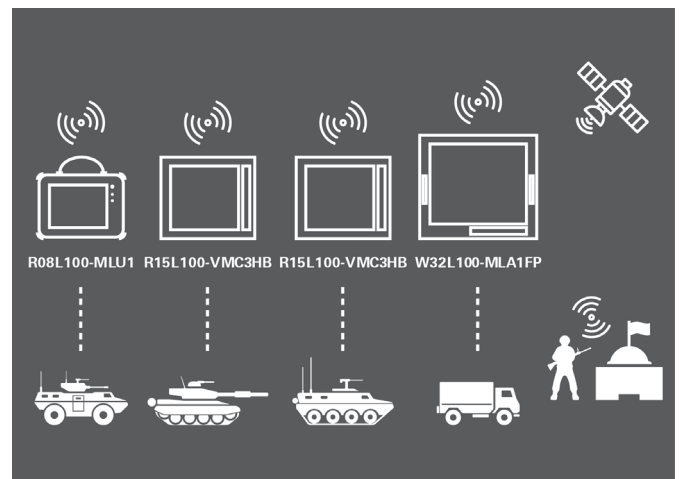
The MIL-STD-38999 type circular connectors, also called standard defence connectors withstand extreme shock, exposure, and vibration, are commonplace in defence and commercial applications are typically used in harsh defence and aerospace environments. For smooth integration into existing defence environments, rugged defence-grade tablets should have defence-qualified MIL-STD-38999 connectors with exceptional versatility for LAN/ USB 2.0, RS-232/ RS-422, and DC power input to enable effortless connection to defence equipment.

4. Sunlight Readability

Defence mobile devices typically will be used outdoors where bright sunlight is a fact of life. A few technologies increase the LCD panel's quality, making it more sunlight readable. The first one is an anti-glare solution on tablet glass that helps diffuse the glaring light, reducing its intensity. This makes it easier for the observer to see the correct image and provide perfect readability at extreme viewing angles. Another sunlight readability feature to look for when choosing a touchscreen.

5. Real-Time Wireless Connectivity for Battlefield Communications

Real-time data access to the right information is critical for mission-critical and battlefield operations. Robust wireless connectivity onboard defence-grade rugged tablets enable the warfighter to take advantage of fast and accurate GPS with outstanding horizontal position accuracy. WLAN, BT, and WWAN connectivity also allow the user to have robust communications anytime and anywhere.



Application Diagram: Defence Vehicle

Defence-Grade: Testing Durability

Defence mobile devices commonly will be used outdoors where brilliant sunshine is a reality of life. Tablet computers provide a brand-new generation of ease for defence personnel, but not all of the devices offered on the market are appropriate for such a demanding atmosphere. To do this, all of our devices, no matter of rugged class, must sustain strenuous testing done by the Winmate R&D designers as well as at independent, internationally recognized third-party test labs for our semi and fully-rugged devices.

DID YOU KNOW?

Each year, over 1,000 Winmate rugged computers are undergoing a series of testing to reveal any weak points before they show up in a customer's hands. These testing procedures' key goal is to validate that our devices not just fulfill but surpass the MIL-STD-810G requirements, offering more confidence for applications in harsh environments.





All Winmate defence products are built and tested according to defence standards MIL-STD-810 and MIL-STD-461. Some of the selected products meet MIL-STD-3009 compliance of Type 1 Class B NVIS requirements.



STAMINA EXAMINATIONS

Our devices have gone through strenuous tests for decrease and resonance to see if they can hold up against accidents or survive day after day on duty.



SETTING EXAMINATIONS

We have snuffed our devices with rain, blasted them with dirt and sand, as well as revealed them to mountain-high elevations and jungle-like moisture - and also, they keep working.



TEMPERATURE EXAMINATIONS

Our devices have undertaken several tests in temperatures and do not even damage a sweat.



CONNECTION EXAMINATIONS

We placed our antenna via different tests in our very own (and one of the world's most giant) anechoic chamber, evaluating performance in real-world environments-- warmth, calm, rainfall, and also much more.

From armed forces bases to police cars, on the shop floor, or in a laboratory, Winmate defence-grade devices help maintain progress on the road or remote area. Engineered to endure declines, drops, dust, tablets, and handhelds survive and prosper in one of the most requiring settings. Our devices help you finish the job, no matter where a task takes you.



Winmate Products: Overview

Winmate offers rugged mobile tablet and laptop computers, commercial off the rack (COTS) defence-grade computer systems, and rugged displays that are developed to adhere to demanding armed forces specs (MIL-STD) standards. These sturdy defence-grade display screen products are created for usage in the mission-critical field of battle electronic devices in ground mobile, avionics, and marine applications.

Environmental and functional upgrade plans are available for defence and protection applications on land, sea, or air. These upgrades are additionally offered for non-defence applications requiring night vision systems or EMI shielding, such as the automotive industry, police, and search and rescue.

We help to design and manufacture your unique armed forces and defense solutions.

DID YOU KNOW?

Winmate defence-grade devices come with MIL-DTL-38999 type I and III connectors – high-performance cylindrical connectors for cable-to-panel applications in defence, air traffic control, or other mission-critical situations.

Some of the distinguishing features of our defence series:

- Aluminum-magnesium alloy enclosure
- Black powder-coating, optional colors available
- High luminance LED backlight
- Optical bonding: sticking a cover glass, safety overlay, or touchscreen to the front surface area of the LCD making use of an optical-grade silicone to boost solar reflectivity and ruggedness
- Anti-reflective and high brightness screen
- Advanced wide variety dimming ratio - from 100% to real black
- MIL-STD-810G shock, drop, vibration resistance
- Low profile cable assemblies/ connections
- Potted parts where relevant
- MIL-DTL 38999 I/O ports
- Programmable function buttons
- Ergonomic design
- Available touchscreens: PCAP, resistive
- AR protection glass, EMI mesh filter
- Power input 9-36 VDC
- Operating temperature: -20 ° to 70 ° C (Extreme temperature available by request)
- Operating humidity: ≤ 0% to ≤ 100%
- Solid-state, durable components
- Operating system: Windows 10 Enterprise, Linux Ubuntu 18.04, Android 9.0
- 2-year warranty

Notice that features may vary by product line and each model. Please refer to a product datasheet available on the website.



Summary

These are just a few distinguishing features that ruggedized defence devices have over industrial-grade solutions. In contrast, rugged defence systems may cost more; their robust, highly reliable designs and features guarantee longer a life-time for the product, which results in a lower Total Cost of Ownership (TCO). Tablet computers offer a new generation of convenience for defence personnel, but not all of the devices available on the market are suitable for such a demanding environment. Companies such as Winmate help end-users navigate this process, so they choose with the right safety, longevity, and functionality. Make your choice carefully.



**5" Rugged Handheld
E500QK**

Qualcomm®
Snapdragon™ 660



**13.3" Ultra-Rugged Tablet
M133KML(HB)**

Intel® Core™ i5-7200U
Kaby Lake, 2.5 GHz



**8.4" Ultra-Rugged Tablet
R08IP8M-RTU1ML**

Intel® Pentium® N4200
Apollo Lake, 1.1GHz



**10.4" Ultra-Rugged Tablet
R10IWK8M-RTT2ML**

Intel® Core™ i5-8265U
Whiskey Lake, 1.6 GHz

About Winmate

Founded in 1996, Winmate Inc. is a pioneer in rugged computing technology. For over two decades, Winmate has provided business leaders worldwide with reliable, rugged solutions made for the most challenging industrial conditions. From R&D to manufacturing to in-house testing, Winmate Inc. manages the entire product development process with ready-made products available for quick deployment. Today Winmate's innovative approach has helped countless enterprises at every level with equipment automation and seamless Industrial Internet of Things (IIoT) integration.

Visit www.winmate.com





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