



Mission Critical

Marine | Military

BUILT TO SURVIVE EXTREME WORKING CONDITIONS

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.

From industrial display and panel PC, HMI, embedded systems, and IoT gateways to rugged tablets and handheld devices, Winmate caters to industries ranging from transportation and logistics to marine and military, railway, oil and gas, and also provides customization services to create a unique solution for specific customer requirements.

The Winmate Difference

Innovation and Ruggedness

Blending innovation and ruggedness, our products are designed to meet the requirements of vertical markets' environmental standards.

Engineering Intelligence

We are committed to maintaining the highest standards in engineering excellence to ensure our products deliver reliability, durability, and optimized performance.

Quality Commitment

Quality assurance and entire engineering processes are conducted in-house. This is why we invested significantly in our state-of-the-art testing facility with additional global support.



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Efficiency

Our team is committed to efficiency and maintaining the shortest possible development cycles. From design to testing, the whole development process is conducted in-house to achieve the market advantage in speed and quality.

Reliability

Reliability, service and support are part of our foundation. Every product undergoes the scrutiny of industrial standards testing to verify electrical, mechanical, thermal, and firmware design performance.

Customized Solutions

Years of experience allow Winmate to offer customized solutions for different applications.

From product design to accessories, our engineering team designs and supports the system integration process.

- CUSTOMIZED CONFIGURATION
- CUSTOM OS IMAGE
- CUSTOM BIOS
- ENCLOSURE DESIGN
- PERIPHERALS AND OPTIONS
- CUSTOM-DESIGNED ACCESSORIES

Technical Know-How

We understand that, for enterprises operating in rugged or potentially hazardous environments, the access to the cutting-edge solutions purpose-built for their applications is imperative. As a result, Winmate locates its resources from project research and design, software development and customization, product verification and validation, to testing all in-house to maximize freedom to research and implement the latest technologies available.

The latest technologies we deploy for our rugged products:



- Dry and wet optical bonding
- Panel enhancement for sunlight readability
- Anti-reflection (AR) and anti-glare (AG) glass protection coating
- · Light sensor
- Hyper dimming
- Electronic potting
- Touch screen integration: projected capacitive, resistive or SAW touch

- Waterproof enclosure
- Military EMI and mesh coating
- Wireless capabilities
- Data capture devices integration
- Defroster for ultra-low temperature environments
- Stainless steel SUS 316/ AISI 316.
- Shock and vibration resistance
- Wide-range operation temperature

Marine



Overview

Winmate understands the marine industry's needs and provides solutions to the unique challenges that the industry faces.

- Ruggedness: Winmate reliability tests ensure optimal performance in harsh environments, including exposure to humidity, shock, and vibration.
- Panel Options: Transflective screen or a high brightness display.
- Viewability: Numerous combinations of display and touch technologies and backlight intensities help enable sunlight viewability.
- Design and Electronics: Powder-coated aluminum housings feature anticorrosion protection.

Industrial Challenges

To meet the marine industry's regulatory requirements, Winmate offers certified solutions for shipping navigation, monitoring and surveillance, and ship automation systems. Winmate understands the needs of the marine industry and provides solutions to industrial challenges:

- Extreme environments
 Marine equipment faces extreme environments such as temperature changes, strong vibration, water drops.
- Accurate chart depiction
 An accurate chart displaying is crucial in maritime applications.
- Day, night, and dusk
 On-board computers must provide viewability in a day, night, and dusk conditions.

Technology

ECDIS Color Calibration

Winmate Marine Displays and Panel PCs can be adjusted to a day, dusk or night mode to accommodate any lighting situation. Color settings are calibrated at the factory for accurate color reproduction according to the IEC 61174 ECDIS Standard.

Certificate

Winmate marine products are built and tested according to the DNV GL-CG-0339, IEC60945, and IACS-E10.



DNV GL is an idependent foundation with the objectives of safeguarding life, property and the environment at sea and on shore. DNV certification pertains to the quality of ships, offshore units and installations of the system and components. DNV requirements are harmonized with IACS Unified Requirements E10 and IEC publication 60945.



International Association of Classification Societies (IACS) is an organization that provides technical support and guidance for promoting the safety of life, property and the environment through the verification of compliance with technical and engineering standards for the design, construction and life-cycle maintenance of ships, offshore units and other marine-related facilities.



Equipment wished to be use in navigation and radio communication systems is to comply with IEC 60945, "Maritime navigation and radio communication equipment and systems – General Requirements- Method of testing and required test results".

Innovative Solutions

All Winmate marine products are built and tested according to DNVGL-CG-0339, IEC60945 and IACS-E10.

- Winmate reliability test ensures optimal performance in harsh maritime environments
- Powder-coated aluminum housing feature anti-corrosion protection, handle significant vibration and shock, and operation in high humidity
- Enhanced panel viewability and backlight intensity
- Transflective screen or a high brightness display
- ECDIS color calibration to accurately display navigational charts

Application Story

Bridge Workstation



Background

Winmate's marine panel PC was installed as a part of a navigational bridge system designed to plot and monitor a vessel's position. The system features the Automatic Identification System (AIS) Class B transport and electronic chart system. The updates of charting material are distributed to the craft through a WIFI router installed onboard.

Core products

• 15"~26" ECDIS Panel PC

Main Challenges

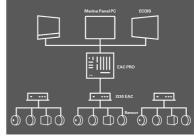
• Customized software settings

Why Winmate

- Certified DNV GL for marine applications
- ECDIS calibrated display with multitouch
- NMEA 0183 and DIDO interfaces for marine devices communication
- Vibration, shock, corrosion resistance



Winmate's DNV GL Certified Panel PC



Application Diagram: Bridge System

Marine Embedded Computing 1330EAC-IKW



44 ABUNDANT INTERFACES AND RUGGED CONSTRUCTION.

- Intel® Core™ i5-7200U (3M Cache, up to 3.10 GHz)
- Intel® Core™ i5-7300U (3M Cache, up to 3.50 GHz)
- Windows 10 IoT Enterprise (Optional), Linux Ubuntu 18.04 (Optional)
- 2.5" SSD Slot

DDR4-2133 SO DIMM, 64 GB mSATA SSD

Four USB 3.0

VGA, DVI output

RS-232/422/485

Two LAN ports

8 x Isolated DIDO, 4 In/4out

Aluminum housing

24V DC In (Approval by Certificate)

Vibration, shock resistant DNVGL CG-0339 (Class A)

Custom configuration

Up to 16 GB 2.5 SSD

Memory

2nd Storage



HDMI Output

Application



Vessel Communication Solution

"EFFECTIVE MARINE DEVICES COMMUNICATION"

High-performance embedded system that feature an NMEA 0183 interface and digital input/output for effective marine device communication.





Color Calibration AR Glass





NMEA 0183

DI/DO

Application



Bridge System

"ECDIS COMPLIANCE TO REPRODUCE ACCURATE CHART DISPLAY"

Marine panel PC featuring a flat edge-to-edge surface and PCAP touchscreen was installed in a bridge system. A large screen and responsive touch allow for intuitive user controls of the bridge system.

10.1"~ 26" Marine Panel PC **ECDIS Series**



PROCESSING POWER AND USER-FRIENDLY INTERFACE.

- 10.1"/15"/19"/24"/26", PCAP touchscreen
- IEC 60945, DNVGL-CG-0339, IACS E10
- Windows 10 IoT Enterprise (Optional),
 Linux Ubuntu 18.04 (Optional)

RS-232/422/485, RS-232, two USB 3.0

Capacitive touch keys for display control

Day, dusk, and night mode

0%~100% backlight brightness dimming control

Panel mount, support VESA mount

Vibration resistant DNVGL CG-0339 (Class A)

Front IP66 waterproof and dustproof

10.4"~24" Marine Panel PC

Dimming Knob Series



CORROSION RESISTANT.

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- 10.4"~24", resistive touchscreen
- Intel Atom® N2600 (1M Cache, 1.6 GHz)
- Windows 7 (Optional), Linux Ubuntu 16.04 (Optional)
- IEC 60945, DNVGL-CG-0339, IACS-E10 certified

4 GB SO-DIMM, DDR3L

Integrated Dual Broadcom BCM57780 A1KMLG

Isolated power module

Default 9 to 36 V DC power supply with terminal block

Panel (Flush) mount with IP66, VESA, bracket mount

Custom configuration







Memory

AR Glass

PCAP Touch





Mounting Bracket RS-422/ 485

Application



Boat Command Center

"GREAT VISUALIZATION OF THE DASHBOARD"

The marine panel PC installed in a boat command center allows you to view all of your boat's vital signs directly from your computer. Customized dimming setting increases the visibility in dusk or night time.





ECDIS Color Calibration

AR Glass





NMEA 0183

DI/DO

Application



Navigation System

"FULL RANGE DIMMING AND ECDIS COMPLIANCE"

Large brilliant 26-inch LCD with user-friendly projected capacitive touch screen offers better navigation experience and quick-switch to adjust between day, dusk, and night-time ECDIS modes for maritime applications.

15"~ 26" Marine Display **ECDIS Series**



PROCESSING POWER AND USER-FRIENDLY INTERFACE.

- 15"/19"/24"/26", PCAP touchscreen
- IEC 60945, DNVGL-CG-0339, IACS E10 certified

Edge-to-edge narrow bezel design

Fanless cooling system

Capacitive touch keys for quick function access

Support ECDIS DAY, DUSK, and NIGHT mode

IEC60945 4th Edition, DNVGL-CG-0339, IACS E10

10.4"~24" Marine Display

Dimming Knob Series



WITH DIMMING KNOB.

- 10.4"~24", resistive touchscreen
- IEC 60945, DNV 2.4, IACS-E10 certified

Resistive touch screen (Optional protection glass w/o touch function)

IP66 aluminum housing with powder coating design (IP54 rear)

24 V DC power supply with terminal block (Default, isolation resistance)

Picture-in-picture (PIP) function and multi-video inputs

Ease-of-use front panel OSD control

Enhanced shock and vibration resistance

Custom configuration





Touch

SAW Touch





AR Glass Mounting Bracket

Application



Navigation Simulator

"FAST DEPLOYMENT WITH EXISTING NAVIGATION SYSTEM"

Winmate 24-inch marine monitor with the resistive touchscreen was installed in a navigation system of a maritime training center. Transmission of RGB and composite video signal was required to integrate with existing systems.

Military



Overview

Winmate's rugged computing devices for military applications are designed to be tough and durable, and undergo rigors of testing to ensure safety and performance, going beyond military standard compliance.

Winmate understands the needs of the military industry and provides solutions that can overcome these industrial challenges:

- MIL-STD 810-G Testing: For MIL-STD 810G compliance, Winmate tests the product against extreme environmental conditions (temperature, shock, vibration, humidity).
- MIL-STD 461-F Testing: For MIL-STD 461F compliance, detailed testing specification ensures that the product meets the requirements for the control of electromagnetic interference.

Built to survive drops, shocks, liquid spills, vibrations, dust, salt, and extreme temperatures, our specially designed military line of products has been tested for compliance to military MIL-STD-810G environmental and MIL-STD 461F EMC standards.



Technology

Military Certifications

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



All of Winmate's NVIS LCD components are designed and produced in Taiwan, using military-grade components to meet or exceed MIL-STD-3009 compliance of Type 1 (Direct View Image) Class B NVIS requirements compatible lighting with NVIS utilizing 665 nm objective lens filters. Class B devices compatible with NVIS Red and with properly filtered red lights and color electronic displays that meet the requirement.

MIL-STD-461 is a United States Military Standard that describes how to test equipment for electromagnetic compatibility.



Specifically, MIL-STD-461F details testing specification to ensure the conducted emissions (CE), conducted susceptibility (CS), radiated emissions (RE), and radiated susceptibility (RS) of a system can meet the requirements for the control of electromagnetic interference.

MIL-STD-461E/F

- MIL-STD-461 Method CE101/CE102: Conducted Emissions
- MIL-STD-461 Method RE101/RE102: Radiated Emissions
- MIL-STD-461 Method CS101/CS106/CS109/CS114/CS115/CS116: Conducted Susceptibility
- MIL-STD-461 Method RS101/RS103: Radiated Susceptibility

The MIL-STD-810 test series are approved for use by all departments and agencies of the United States Department of Defense (DoD).



The standard describes environmental management and engineering processes that can be of enormous value to generate confidence in the environmental worthiness and overall durability of a system design.

- MIL-STD-810 Method 501.4: High Temperature
 - MIL-STD-810 Method 502.4: Low Temperature
 - MIL-STD-810 Method 507.4: Humidity
 - MIL-STD-810 Method 514.5: Vibration
 - MIL-STD-810 Method 516.5: Shock

Military Connectors

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



MIL-DTL-38999/III VGA/RS232/USB-A/LAN









Panel Viewability & OSD Control

The high-resolution display is fully rugged offering optimized visibility with optical bonding, and comes with easy-to-use front panel control. The advanced computing platform enables faster searches and real-time information, providing rapid response capabilities.

Application Story

Military Vehicle



Background

In modern military vehicles, precise navigation and robust communications are essential for safe tactic operations. Winmate provides rugged, vibration and shock resistant computing solutions that are designed to be mounted inside military vehicles.

Core products

- G-WIN Military Panel PC
- Military Console Rack Panel PC
- 4K UHD Military Display

Main Challenges

- Strong vibration
- Mounting solution in confined space

Tank Navigation

Why Winmate

- Wireless communications WWAN, WLAN and GPS
- Tested for vibration, shock resistance MIL-STD-810G
- Tested for EMI MIL-STD-461



Application Diagram: Military Vehicle

17"~24" Military Console Rack Panel PC Rack Mount Series



44 POWERFUL PROCESSING AND LATEST OS.

- 17 "~24", SXGATFT LCD
- Intel[®] Celeron[®] N2930 2.16 GHz
- Military Grade Power Connector (MIL-DTL-38999/1)
- Windows 10 IoT Enterprise (Optional), Linux Ubuntu 18.04 (Optional)

Anti-Corrosion Housing / Fanless

Compliant with MIL-STD-810G/F, MIL-STD-461E/F

Flush Rack / Rack Mount Mechanical Design (8U)

Convenient On-Screen Display Controls

AC 110~240 V Power input default

Isolation DC 9~36 V Power input (Optional)

Built-in Light Sensor for auto brightness control

Custom configuration

Up to 32 GB

Up to 512GB



Memory

Storage HDMI







AR Glass EMI Mesh RS232 Coating



DC Power Input

Application



Military Training Center

"COMPATIBLE WITH OUR EXISTING SYSTEM DESIGN"

Military-grade panel PC was installed in a new military training center facility in Europe. The solution simulates

real experience on the field.







Memory

Storage

Resistive Touch







AR Glass

EMI Mesh Coating

RS232



DC Power Input

Application



Military Base Airport

"BRILLIANT SCREEN WITH INTUITIVE TOUCH CONTROLS"

The Rack Mount Military Panel
PC was mounted in a controller
room of a military base airport
to control, monitor and navigate
military aircrafts.

15"~32" Military PCAP Panel PC Rack Mount Series



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TAILORED FOR MILITARY APPLICATIONS.

• 15"~32", PCAP touchscreen

• Intel[®] Core[™] i5-8265U 1.6GHz

 Windows 10 IoT Enterprise (Optional), Linux Ubuntu 18.04 (Optional)

Anti-Corrosion Housing / Fanless

Compliant with MIL-STD-810G/F, MIL-STD-461E/F

Flush Rack / Rack Mount Mechanical Design (8U)

Convenient On-Screen Display Controls

AC 110~240 V Power input default

Isolation DC 9~36 V Power input (Optional)

Built-in Light Sensor for auto brightness control

8.4"~15" G-WIN Military Panel PC G-WIN Military Series



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WIRELESS CONNECTIVITY AND RUGGED FORM FACTOR.

- 8.4"/10.4"/15", resistive touchscreen
- Intel® Celeron® N2930 (2M Cache, up to 2.16 GHz)
- Windows® 10 IoT Enterprise (Optional), Linux Ubuntu 18.04 (Optional)

Aluminum Die-casting Housing with Anti-Corrosion Treatments

Military Grade connector with VESA mount

MIL-STD-810F/G Compliant

Build in ambient Light sensor

Wide Range 9 to 36V DC Input Acceptable for Optional

Custom configuration







Memory

Storage

EMI Mesh Coating







RS232

DC Power Input

AR Glass

Application



Military Vehicle

"FAST COMPUTING AND RICH CONNECTIVITY"

Compact and rugged G-WIN military panel PC with powerful processor and latest operating system now controls a military armored vehicle's navigation system.





High Brightness AR Glass





HDMI

EMI Mesh Coating

Application



Military Training Center

"TRUE COLOR DEPICTION"

Winmate's 32-inch display was installed in the military training center to simulate tactical operations on the field. The 4K UHD resolution makes a difference and allows visualization of every small detail of the complex training program with lots of charts, diagrams, and hardly visible marks.

27" / 32" 4K UHD Chassis Military Display

M270TF-MIL, M320TF-MIL



ULTRA HD RESOLUTION, SHARP IMAGES.

"

- 27"/32", PCAP touchscreen
- UHD 4K (3840 x 2160) native resolution
- Chassis housing

1.07B display colors

VGA, DVI, Display Port 1.2

EMC MIL-STD 461E/F with optional EMI Glass/Touch

Vibration, humidity, transit drop, salt fog MIL-STD 810F/G

Convenient user controls with front panel capacitive OSD

Metal housing with aluminum bezel

Power input 24 V DC

Support VESA mount

Front IP65 waterproof and dustproof

15"~40" Military Display

PCAP Rack Mount Series



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RUGGED CONSTRUCTION AND RESPONSIVE TOUCH SCREEN.

- 15"~40", PCAP touchscreen
- Vibration, shock MIL-STD 810F/G
- EMC MIL-STD 461E/F

VGA, DVI-D

5 x BNCs (R,G,B,H,V)

Power connector MIL-DTL-38999/1

Power input AC 100~240V

Rack mount, support VESA mount

EMC MIL-STD 461E/F

Vibration, shock MIL-STD 810F/G

Front IP65 waterproof and dustproof

Custom configuration





EMI Mesh Coating DC Power Input

Application



Command Control Room

"MILITARY GRADE COMPLIANCE"

The military console rack display was mounted in a command center on a military base. Full military compliance and ruggedness allow for easy implementation.





Coating

DC Power Input EMI Mesh

Application



Military Avionics Test System Display

"SHARP IMAGES AND RUGGED DESIGN"

Winmate Rack Mount Military Display with AR protection glass was installed as a part of mission critical test equipment for aircraft avionics. Sharp images of every test detail is to ensure the best depiction of each detail that matters.

17"~32" Military Display

Protective Glass Rack Mount Series



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TAILORED FOR MILITARY APPLICATIONS.

- 17"~32", AR glass screen
- Vibration, shock MIL-STD 810F/G
- EMC MIL-STD 461E/F

VGA, DVI-D

5 x BNCs (R.G.B.H.V)

Power connector MIL-DTL-38999/1

Power input AC 100~240V

Rack mount, support VESA mount

EMC MIL-STD 461E/F

Vibration, shock MIL-STD 810F/G

Front IP65 waterproof and dustproof

8.4"/ 10.4" Ultra-Rugged Tablet Intel[®] Core i5 Series



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FEATURES MILITARY-SPECIFIC INTERFACES 99

- 8.4"/ 10.4", resolution transflective TFT-LCD panel
- Intel® Core™ i5-8265U 1.6 GHz (turbo up to 3.9GHz)
- Windows 10 IoT Enterprise (Optional), Linux Ubuntu 18.04 (Optional)

With daylight-readable screen 600 nits optical bonding for clarity increasing and readability enhancing

Ecological seals protect ports as well as connectors from moisture and dust

Adjustable Kickstand that is Convertible to a handle

Magnesium Alloy Housing with All-Around Flastomeric Rubber

MIL-STD-38999 connector for LAN/USB2.0, RS232/ RS422 and DC Power Input

Custom configuration

16 GB

Up to 512 GB 512 GB

Memory

Storage 2nd Storage

4g 3g

3G



4G

GLONASS

Application



Tactical Operations

"POWERFUL. COMPACT. AND RUGGED.

Durable housing of 10.4-inch Ultra-Rugged Tablet R10IWK8M-RTT2ML is strong enough to withstand shocks, jolts, drops, and prolonged vibration. And impervious to incursion by dust, dirt, water and other liquids, or any contaminant.

Up to 8 GB

υ_{ρ tο} 512 GB

4g

Memory

Storage

4G LTE





3G GLONASS

Application



Military Field Exercises

"RUGGED AND ERGONOMIC"

With military applicationtailored accessories, the 8.4-inch Ultra-Rugged Tablet R08IP8M-RTU1ML offers an ultimate solution for military training. The tablet withstands the rigors of harsh environments: dust, rain, and drops on the ground.

8.4" / 10.4" Ultra-Rugged Tablet Intel® Pentium® N4200 Series



F©CE

BUILT TO HANDLE THE TOUGHEST TASKS. ,

- 8.4"/ 10.4", anti-scratch resistive touchscreen
- Intel[®] Pentium[®] N4200 Apollo Lake 1.1 GHz (up to 2.5 GHz)
- Windows 10 IoT Enterprise

With daylight-readable screen 600 nits optical bonding for clarity increasing and readability enhancing

Ecological seals protect ports as well as connectors from moisture and dust

Adjustable Kickstand that is Convertible to a handle

Magnesium Alloy Housing with All-Around Elastomeric Rubber

MIL-STD-38999 connector for LAN/USB2.0, RS232/RS422 and DC Power Input

IP54 waterproof and dustproof

MIL-STD-810G shock, vibration and drop resistance

13.3" Ultra-Rugged Tablet

M133KML(HB) Series



FIELD MOBILITY FOR MISSION CRITICAL

- 13.3", Resolution Transflective TFT-LCD Panel
- Intel[®] Core[™] i5-7200U 2.5 GHz, up to 3.10 GHz
- Windows 10 IoT Enterprise

4 GB SODIMM DDR4-2400

128 GB M.2 SSD

MIL-STD-38999 connectors: LAN/ USB 2.0, RS-232/422

MIL-STD-38999 power input connector

2 x USB 3.0, 1 x USB 3.1(Type C)

2 MP front camera, 5 MP rear camera with autofocus

WLAN, BT, GPS/ GLONASS

Battery operating time up to 11 hours

IP65 waterproof and dustproof

MIL-STD-810G shock, vibration and drop resistance

Custom configuration

16 GB

512 GB

512 GB

Memory

Storage

2nd Storage





4G

Batterv Hotswap

Application



Combat Mission **Navigation**

"BRILLIANT LARGE SUNLIGHT READABLE SCRFFN"

Ranger commander uses the M133KML ultra-rugged tablet to explain the combat mission and points. Designed for those in the field, the M133KML features an adjustable handle easily convertible to a kickstand for extra convenience.



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