

TRANSPORTATION

A composite image showing a yellow and white airplane flying in the sky above a stack of colorful shipping containers (red, blue, green, orange) and a yellow semi-truck with a white trailer parked in a lot. A large blue circular graphic element is on the right side of the page.

**Diagnostics/
Engineering/
Manufacturing**

**CONNECTIVITY FOR
VEHICLES ON THE ROAD**

Q1 - 2023

About Winmate

Founded in 1996, Winmate Inc. is a pioneer in rugged computing technology. Winmate has provided business leaders worldwide with reliable, robust solutions for the most challenging industrial conditions for over two decades. 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 the industrial display, panel PC, HMI, embedded systems to rugged mobile devices, Winmate caters to industries ranging from transportation and logistics to marine and military, railway, oil, and gas, and provides customization services to create a unique solution for specific customer requirements.

The Winmate Difference

Innovation and Ruggedness

With 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. It is why we invested significantly in our state-of-the-art testing facility with additional global support.

“
**INNOVATIVE
TECHNOLOGY FOR
OPERATIONAL
EXCELLENCE.**
”

Efficiency

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

Reliability

Reliability, service, and support are part of our foundation. Every product scrutinizes 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.

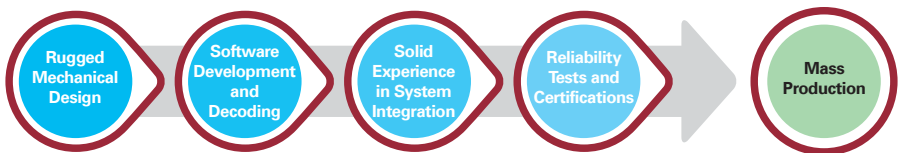
From product design to accessories, our engineering team designs and support the system integration process.

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

Technical Know-How

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

Logistics and Transportation

Overview

In the warehouse environment, the ability to mount mobile devices and computers to forklifts, trucks, tuggers, and inventory pickers is essential for maximizing productivity. From inventory management to order fulfillment, asset tracking, shipping, and receiving, the warehouse floor is a complex ecosystem requiring highly efficient technology to keep things running smoothly.

Our vehicle mount computers include:

- The latest Android™ or Windows® operating system
- Robust wireless communications
- Vehicle mounting solutions

Winmate's rugged vehicle-mounted computers and rugged tablets are designed to fit seamlessly into forklifts and other warehouse vehicles, which helps minimize errors, streamline ordering and inventory management, and improve operational efficiencies.

Industrial Challenges

• **In-vehicle installation**

Computer hardware tailored for warehouse and logistics must be compatible with RAM mount or VESA mount in-vehicle installation methods.

• **Unstable power supply from the vehicle**

Instability during start-up and shutdown can cause system crashes and restarting issues. Devices that receive power from the vehicle must have a solution to ensure stable performance in unstable power supply situations.

• **Working in cold storage areas**

In a large warehouse environment, forklifts frequently go back and forth between the cold storage areas and room-temperature environments. The computer devices must show stable performance in low and high temperatures.

• **Driver's safety**

The computer must not distract the driver.

• **Strong vibration**

Devices installed on a forklift must be rugged enough to withstand all-day operations and vibration from the vehicle.

Technology

- RAM mount and VESA mount solutions
- Wide-range power input and ignition control
- Built-in defroster to work in cold storage
- Screen blanking function to automatically control screen behavior
- Waterproof, dust, and drop resistant IP65-rated enclosure
- Accessories tailored for warehouse and logistic applications



**WE DELIVER RUGGED COMPUTING SOLUTIONS
FOR YOUR LOGISTICAL NEEDS.**



RUGGED TABLETS

Portable and wireless rugged tablet computers can survive in any environment and get real work done.



VEHICLE-MOUNTED COMPUTERS

Rugged vehicle-mounted computers are used for data collection in the warehouse and logistic applications, designed to fit seamlessly into forklifts, trucks, and other vehicles.



G-WIN PANEL PC

Rugged Panel PC are used for data collection in the warehouse and logistic applications, designed to fit seamlessly into forklifts, trucks, and other vehicles.

Application Story

Heavy Duty Trucks



Background

Integrating connected vehicle technology into the trucking sector presents enormous potential for creating safer and more efficient roadways. Winmate provides fixed-mounted computers for conventional field service fleet management to perform location tracking and task management.

Core Products

- GS Series Full IP65 Panel PC
- Embedded Box PC F65EAC-1K32

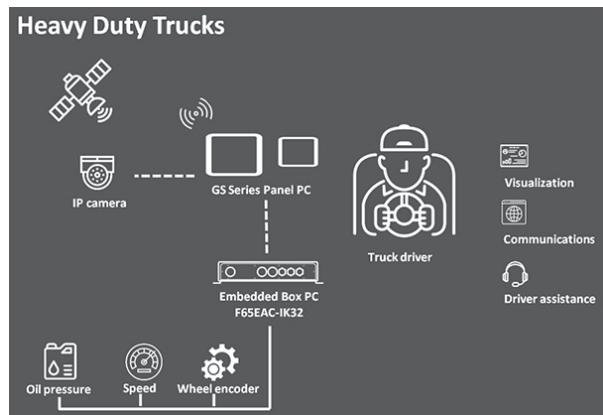
“ PROVIDE CONNECTIVITY FOR VEHICLES ON THE ROAD. ”

Main Challenges

- Connectivity in remote locations

Why Winmate

- Provide solution to enhance signal
- Devices resist strong vibration
- Customized BIOS



Application Diagram: Truck automation

Application Story

Train Cabin Operator Panel



Background

Winmate provides total solution for information display and computing for railway transportation. In the control room, Winmate offers displays of various sizes, and a full array of mounting options for limited installation space in trains. For computing needs, our EAC computer box provides I/O, thermal, and anti-shock requirements in a train. In addition, for passengers on board, we have displays to show timing information, as well as playing back entertainment or advertisement clips.

Core Products

- 10.4" G-WIN Panel PC R10IK3S-VMT2
- EAC Box PC

“

RELIABLE AND DURABLE DISPLAY SOLUTION FOR NAVIGATION AND TASK MANAGEMENT

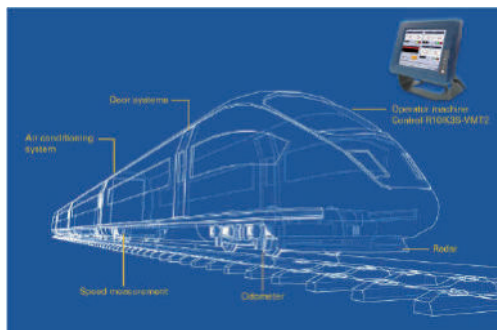
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Main Challenges

- Strong vibration
- Operating in cold environments

Why Winmate

- Vibration resistant design
- EN50155 EMC test report
- Offers a solution for operating in extreme temperatures -20°C to 60°C
- Strong hardware design capabilities to accommodate various truck configurations.



Application Diagram: The dashboard cabin

Application Story

Urban Waste Collection



Background

An innovative waste management company catering to millions of residents through municipal services deploys the IoT for intelligent waste collection. Yet, they were looking for a rugged Android-based vehicle-mounted computer to help integrate the data collected through the sensors, and RFID readers, then communicate with the command center to take their truck tracking system to the next level.

Core Products

- 10.4" FM10Q vehicle-mounted computer

“**A SMART IN-VEHICLE
COMPUTING SOLUTION
FOR SMART CITIES.**”

Main Challenges

- Extreme operating environment
- Multiple I/O ports
- Reliable wireless communication capabilities.

Why Winmate

- We provide IP65 rated and MIL-STD-810G certified rugged computers to survive the dusty waste collection environments.
- We provide a customization service to meet your specific needs.



FM10Q VMC installed firmly on the truck

7" Android Vehicle Mounted PC FM07M



“ **VEHICLE POWER SOLUTION.** ”

- ARM A53 Quad Core 2.0GHz Processor
- 7"; 1024 x 600 panel with projected capacitive multi-touch screen

-
- Wide power input 9-24V DC with ignition
-
- Wide-range operating temperature
-
- RAM mount, support VESA mount
-
- M12 waterproof connectors , IP65 waterproof and dustproof
-
- Shock and vibration resistance according to MIL-STD-810H
-
- Support Android or Linux operating system
-

Custom configuration



WWAN



NFC RFID Reader

Application



Easy In-Vehicle Installation

“SUPPORTS BOTH VESA AND RAM MOUNTS”

Winmate FM07 series supports both VESA mount and RAM mounts to help you save the time and ease installing the vehicle-mounted computer. The FM07M is easily mounted and fully-rugged, helps you to have higher work efficiency.

Custom configuration

Up to
16 GB

Memory
(FM07E)

Up to
8 GB

Memory
(FM07)



WWAN

7" Vehicle Mounted Computer with M12 connector

FM07/ FM07E

**NEW
PRODUCT**



“

VIBRATION AND SHOCK-PROOF DESIGN.

”

- Intel® Celeron® N3350 Apollo or Intel® Celeron® N6210 Elkhart Lake
- 7", 1024 x 600 panel with projected capacitive Multi-Touch screen
- Wide power input 9-36V DC with ignition

M12 waterproof connectors

IP65 waterproof and dustproof

Shock and vibration resistance according to MIL-STD-810G

Programmable function keys

Built to survive the extreme temperature range

Application



Warehouse Management

“IMPROVE OPERATIONAL EFFICIENCIES WITH VEHICLE MOUNTED COMPUTERS”

Winmate's vehicle-mounted computers are designed to fit seamlessly into forklifts and other vehicles in a warehouse complex. With a range of mounting options and high-performance Intel processors to choose from, these VMCs can minimize errors and streamline inventory management.

10.4" / 12.1" / 14" Android Forklift Computers

FM10Q-V/ FM12Q-V/ FM14Q-V



“ WIDE RANGE OPERATING TEMPERATURE. ”

- All in one HMI design, Integrated I/O function
- Qualcomm Snapdragon™ 660 octa-core, 2.2 GHz CPU, Android forklift computers
- 10.4" / 12.1", 1024 x 768 Panel with PCAP touchscreen
- 14", 1920 x 1080 Panel with PCAP touchscreen

Wide power input 10-60V DC with ignition

Wide range operating temperature

Support RAM mount and VESA mount

High-performance Qualcomm® Snapdragon™ CPU

Compact housing with anti-scratch P-Cap multi-touch screen

Vibration and shock-proof design ensure reliable performance

IP65 waterproof and dustproof vehicle mounted computer

1 x USB 2.0 port, 1 x USB 3.0 Type-C (OTG), 2 x COM Port, 1 x Micro SD card slot, 1 x SIM card slot, 1 x LAN, 1 x DIDO (Optional), 1 x CANBUS (Optional), 1 x Audio (Optional)

Custom configuration



WWAN



GPS/
GLONASS



UPS
Battery



Brightness



CANBUS



DIDO



Audio

Application



Reliable And Rugged

“WORKABLE IN HOT AND COLD WAREHOUSE”

To meet the challenging nature of cold chain solutions, our rugged computers are built with thermal sensors to automatically activate and deactivate the defroster (optional) to avoid inner condensation and provide stable performance.

Custom configuration



WWAN



GPS/
GLONASS



UPS
Battery



Brightness



CANBUS



DIDO



Audio

Application



Minimize Errors and Streamline Inventory Management

“WITH A RANGE OF MOUNTING OPTIONS”

The vehicle mounted computers or tablet PCs installed on a forklift must be rugged enough to withstand all-day operations with vibration from the vehicle.

10.4" / 12.1" / 14" Windows Vehicle Mounted PC

FM10E-V/ FM12E-V/ FM14E-V

NEW
PRODUCT



FC CE

“ WIDE RANGE OPERATING TEMPERATURE. ”

- All in one HMI design, Integrated I/O function
- Intel® Elkhart lake x6425E Processor vehicle computer
- 10.4" / 12.1", 1024 x 768 Panel with PCAP touch screen
- 14", 1920 x 1080 Panel with PCAP touch screen

IP65 waterproof and dustproof

Wide power input 10-60V DC with ignition

Wide range operating temperature

Support RAM mount and VESA mount

1 x USB 2.0 port, 1 x USB 3.0 Type-C (OTG), 2 x COM Port, 1 x Micro SD card slot, 1 x SIM card slot, 1 x LAN, 1 x DIDO (Optional), 1 x CANBUS (Optional), 1 x Audio (Optional)

10.4" / 12.1" / 14" Windows Vehicle Mounted PC

FM10AD-V/ FM12AD-V/ FM14AD-V



“ENABLE AUTOMATION IN THE WAREHOUSE.”

- All in one HMI design, Integrated I/O function
- 12th Gen. Intel® Processor Family – Alder Lake Processor
- 10.4" / 12.1"; 1024 x 768 Panel with PCAP touch screen
- 14"; 1920 x 1080 Panel with PCAP touch screen

IP65 waterproof and dustproof

Wide power input 10-60V DC with ignition

Wide range operating temperature

Support RAM mount and VESA mount

1 x USB 2.0 port, 1 x USB 3.0 Type-C (OTG), 2 x COM Port, 1 x Micro SD card slot, 1 x SIM card slot, 1 x LAN, 1 x DIDO (Optional), 1 x CANBUS (Optional), 1 x Audio (Optional)

Custom configuration



WWAN



GPS/
GLONASS



Brightness



CANBUS



DIDO



Audio

Application



Advanced Communications

“ENABLE UNINTERRUPTED COMMUNICATIONS”

In a large warehouse environment, forklifts usually go back and forth between the cold and regular ambient storage. The rugged computers must show the same stable performance in both low and high temperatures.

10.4" / 12.1" Android Vehicle Mounted PC FM10Q/ FM12Q

NEW
PRODUCT

Custom configuration



WWAN



Brightness
up to 800 nits



UPS Battery



GPS



“FOR YOUR UNIQUE ANDROID
IN-VEHICLE APPLICATION.”

- 10.4" / 12.1", 1024 x 768, PCAP touchscreen
- Qualcomm® Snapdragon™ 660 octa-core, 2.2 GHz

RAM mount/VESA mount

Field replaceable front panel to reduce service costs

IP65 waterproof and dustproof vehicle mounted computer

Wide range -30°C to 50°C operating temperature

GPS/ GLONASS, G-sensor, Temp. sensor

Magnesium alloy back cover with plastic bezel

Fanless design

1 x USB 3.0 Type-C (OTG) (tablet), 1 x DB9 connector for 2 x USB 2.0 port (docking)



Forklift Automation

“MEETING A VARIETY
OF CUSTOMER
REQUIREMENTS”

Winmate's FM10Q/FM12Q are powerful vehicle mounted computers that features a Qualcomm® Snapdragon™ 660 CPU and Android 9.0 operating system. The Android-based platform allows fast development of a variety of customized applications for every level across the enterprise.

10.4" / 12.1" Windows Vehicle Mounted PC

FM10E/ FM12E



“ DATA COLLECTION IN LOGISTICS APPLICATIONS. ”

- 10.4" / 12.1", 1024 x 768 Panel with PCAP Touch
- Intel® Elkhart lake x6425E Processor
- Windows 10 IoT Enterprise

-
- 4 GB SODIMM DDR4-3200, 128 GB M.2 MLC SSD
-
- WLAN, BT, GPS/AGPS
-
- G-Sensor, light sensor, temperature sensor
-
- 2 MP front camera
-
- Screen blanking function for driver's safety
-
- RAM mount, support VESA mount
-
- Power input 10-60V DC with ignition control
-
- IP65 waterproof and dustproof
-
- MIL-STD-810H vibration, shock resistant
-

Custom configuration



Memory



Storage



WWAN

Application



Forklift Automation

“ULTRA-RUGGED TOUCH SCREEN FOR THE TOUGHEST ENVIRONMENTS”

The large screen with the latest mobility platform for future-proofing, and features that will make the transition to a completely different OS as painless as possible.

10.1" Windows Rugged Tablet M101S

Custom configuration



Memory



Storage



Barcode Reader



WWAN



HF RFID Reader



Micro HDMI Port



High Capacity Battery
16hr

Application



Delivery Service

"INSTANTLY ACCESS ORDER INFORMATION"

The M101S rugged tablet with an LTE module and barcode scanner boosts productivity and speeds up delivery services, giving quick access to order information anywhere you go. The solution includes a vehicle cradle for in-vehicle mounting and charging.



“ **ROBUST TABLET TO WITHSTAND INDUSTRIAL USE.** ”

- 10.1", 1920 x 1200, PCAP touchscreen
- Intel® Core™ i5-7200U Kaby Lake 2.5 GHz, up to 3.1GHz
- Windows 10 IoT Enterprise

4 GB DDR4 SDRAM, 128 GB SSD, micro SDXC card slot

Light sensor, g-sensor, Gyro

2 MP webcam, 8 MP rear camera with autofocus

HF RFID 13.56MHZ (Optional)

USB 3.0 Type-A, USB 3.0 Type-C, docking connector

WLAN, BT, GPS, GLONASS

IP65 waterproof and dustproof

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

8" Windows Vehicle Mounted PC M101BK



**“ QWERTY KEYPAD TO INPUT
DATA IN ANY CONDITIONS. ”**

- Long battery life with Intel® Celeron® N2930 Bay Trail-M Processor
- 8", 1280x800 wide viewing angle with PCAP touch, in vehicle computer mounts
- 5MP Auto-focus camera

IP65 waterproof and dustproof

ISO/IEC 9995-3 QWERTY Keypad

Hot-swappable battery design with optional high capacity battery pack

MIL-STD-810G compliant

Optional extendable UHF RFID reader

Optional built-in 1D/2D barcode, HF RFID reader

4GB SO-DIMM, DDR3L 1600 MHz

1 x Intel® Ethernet Controller WG82574L

Custom configuration



Memory



Storage



WWAN

Application



Distribution Center

“IMPROVES OPERATOR
PRODUCTIVITY”

The M101BK can handle the challenges of the modern warehouse, even in cold storage environments. The QWERTY keypad allows comfortable typing even while wearing thick gloves. The detachable front panel provides mobility for forklift operators who wish to perform tasks outside the forklift.

8" Windows Rugged Tablet M900P/ M900PT

Custom configuration



Memory



Storage



HF RFID
Reader



Barcode Reader



WWAN



“ **PORTABLE AND
POWERFUL SOLUTION.** ”

- 8", 1280 x 800, PCAP touchscreen
- Intel® Pentium® N4200 (2M Cache, up to 2.5 GHz)
- Windows 10 IoT Enterprise

4 GB LPDDR4, 64 GB SSD

Light sensor, g-sensor, Gyro

2 MP webcam, 8 MP rear camera with autofocus

WLAN, BT, GPS, GLONASS

USB 3.0 (Type A), USB 3.0 (Type C), docking connector

D-sub for vehicle gateway connection

Built-in smart card reader (Default M900PT)

IP65 waterproof and dustproof

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



Connected Truck

“CONNECTIVITY FOR
VEHICLES ON THE ROAD”

Winmate developed a smart truck solution for a heavy-duty vehicle. Installed on a dashboard using a vehicle cradle, the 8" rugged tablet M900P and custom-designed vehicle gateway VG-100 now connects in-vehicle systems and allows status monitoring of semi-trucks in Europe.

10.1"~15" G-WIN Windows Panel PC G-WIN GS Series



“ **TOUGH. RUGGED.
HEAVY DUTY.** ”

- 10.1" ~ 15", P-CAP touchscreen
- Low power consumption with Intel® Celeron® N2930
- Fanless cooling system and ultra low power

1 x SO-DIMM, DDR3L 1600 MHz, 4GB 8GB (Optional)

VESA mount/ Panel mount

A true flat, easy-to-clean front surface with edge-to-edge design

Plenty of I/O, including 1 x LAN, 1 x COM, 1 x USB 2.0

Complete input range power supply

Full IP65 protection against water and dust with M12 connectors

Custom configuration

Up to
8 GB

Memory

Up to
512 GB

Storage



mPCIe



WLAN

WLAN



Protection Glass

Application



Straw Collector

“ INTERACTIVE AND
SMART TERMINAL FOR
HEAVY-DUTY VEHICLE
USE ”

G-WIN series tailored for those who demand excellent in-vehicle computing systems, operating in conditions with great shock and vibration levels.

7"~15" G-WIN Android Panel PC

G-WIN GS Series



“ **SATISFY YOUR
HEAVY-DUTY NEEDS.** ”

- 7"~15"; P-CAP touchscreen
- NXP i.MX6 Dual Core 1GHz (Optional Quad Core)(FA series), ARM A53 Quad Core 2.0GHz (IM series)
- Fanless cooling system and ultra-low power

Onboard 1GB LPDDR3, 16GB eMMC (FA series)

Onboard 4GB LPDDR4, 32GB eMMC (IM series)

Support Android or Linux operating system

1 x LAN, 1 x RS232, 1 x USB, 1 x USB OTG,
1 x Micro SD

Storage temperature -30°C to 60°C

Custom configuration



Memory (NXP)



Storage (NXP)



Protection Glass

Application



Maritime Port Logistics Chain (PLC)

“FOR DEMANDING
WORKING CONDITIONS”

Winmate's 10.4" GS Series Panel PC was installed inside trucks to improve port logistic operations. Heavy-duty G-WIN panel PC designed for demanding conditions and survive both water drops and temperature changes.



RELIABLE COMPUTING SOLUTIONS FOR NAVIGATION AND TASK MANAGEMENT.

WWW.WINMATE.COM



**M900P/PT SERIES
9" RUGGED TABLET**



**M101S
10.1" WINDOWS
RUGGED TABLET**



**VMC SERIES
7" ~12.1" VEHICLE
MOUNTED COMPUTER**



**G-WIN SERIES
7" ~21.5" PANEL PC**



FM14AD-V

FM10Q-V

WINMATE

*Convenient operation and efficient
data input with*

WINMATE ALL-IN-ONE DESIGN VEHICLE COMPUTING SOLUTIONS.



FM12E

FM12Q-V

FM10E-V

FM07E