BUILT TO SURVIVE EXTREME WORKING CONDITIONS

Ingress Protection

Reach DNV certification level

MIL-STD-810G/H compliance

Mission Critical

Marine | Defence

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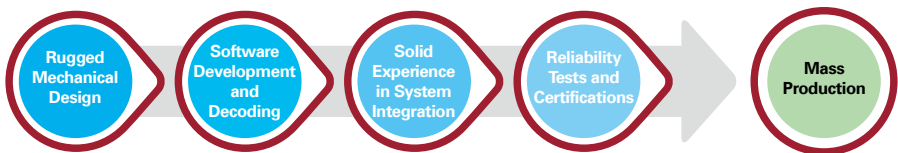
From product design to accessories, our engineering team designs and support the system integration process.

- 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:

Rugged Mechanical Design → Software Development and Decoding → Solid Experience in System Integration → Reliability Tests and Certifications → Mass Production

- 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 display and touch technologies and backlight intensities help enable sunlight viewability.

- Design and Electronics: Powder-coated aluminum housings feature anti-corrosion 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 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 independent foundation to safeguard life, property, and the environment at sea and onshore. 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.
	The International Association of Classification Societies (IACS) is a technology-based non-governmental organization that currently consists of twelve member marine classification societies. More than 90% of the world's cargo-carrying ships' tonnage is covered by the classification standards set by member societies of IACS. Marine classification is a system for promoting the safety of life, property, and the environment primarily through establishing and verifying 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 used in navigation and radio communication systems 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

Application Diagram: Bridge System

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 Story

Command Center

Background

Modern ships has several advanced navigation equipment systems which give accurate data for the voyage. Winmate's panel PC and HMI feature brilliant display with projected capacitive touch screen and several features tailored for marine applications. Convenient user interface and functionality of application-focused marine panel PC and HMI give ship navigation officer precise location information and details of the journey. The use of the electronic chart system, allow ship's navigating crew to pinpoint locations, and attaining directions much easier than before.

Core products

- 10.4~26″ Marine Panel PC
- Marine EAC Box PC I330EAC

Main Challenges

- Customized software
- Local language support

Navigation and dashboard visualization for your safe voyage at the sea

Why Winmate

- Multiple panel PC sizes for dashboard visualization
- Customizability and ability to work with SW provider for best product result
- Maritime certified devices

Up to
52 GB

Memory

Up to
512 GB

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.

Marine Embedded Computing
I330EAC-ITW

" ABUNDANT INTERFACES AND RUGGED CONSTRUCTION. "

- Intel® Core™ i5-1145G7E, 2.4 GHz (turbo up to 4.2GHz)
- Windows 10 IoT Enterprise (Optional)
- 8 x NMEA 0183 Port

DDR4-2133 SO DIMM, 64 GB mSATA SSD

Four USB 3.0

2 x RS232/422/485

Two LAN ports

8 x Isolated DIDO, 4 In/ 4out

Aluminum Enclosure

24V DC In (Approval by Certificate)

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 7 Embedded Systems (Optional)
  Windows 10 IoT Enterprise (Optional)
  Linux Ubuntu 18.04 (Optional)

RS232/422/485, RJ45, two USB 3.0

Capacitive touch keys for display controls

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

Custom configuration

Storage   AR Glass   Color Calibration

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.

Up to
8 GB

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.

10.4"~24" Marine Panel PC
Dimming Knob Series

" CORROSION RESISTANT. "

- 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

Isolated power module

Default 9 to 36 V DC power supply with terminal block

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

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

Custom configuration

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.

Dimming Knob Series

Custom configuration

PCAP 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.

" BRIGHTNESS CONTROL 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 a 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

Defence

Overview

Winmate's rugged computing devices for military applications are designed to be tough and durable and undergo rigorous 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 controlling 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

MIL-STD-3009	MIL-STD-3009, DEPARTMENT OF DEFENSE INTERFACE STANDARD establishes aircraft lighting and displays equipment emission requirements. It is intended for use with night vision imaging systems (NVIS). It applies to all systems, subsystems, component equipment, and hardware that provide the lighting environment on aircraft where NVIS is employed.
MIL-STD-461E/F	MIL-STD-461 is a United States Military Standard that describes testing equipment for electromagnetic compatibility.
	Specifically, MIL-STD-461F details testing specifications to ensure the conducted emissions (CE), showed susceptibility (CS), radiated emissions (RE), and radiated susceptibility (RS) of a system can meet the requirements for the control of electromagnetic interference.
	• 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
MIL-STD-810F/G	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 enormously value to generate confidence in a system's environmental worthiness and overall durability.
	• 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/I Power Connector	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 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 Computer

Background

Precise navigation and robust communications are essential for safe tactic operations in modern military vehicles. 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
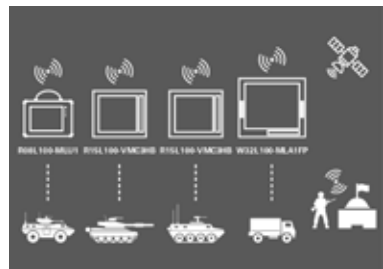- 4K UHD Military Display

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

E500QK-ML

Custom configuration

Docking Connector

NFC Reader

Military Connector

Expansion Port

Application

Field Training Exercises

"COMPACT AND DURABLE HANDHELD COMPUTER"

Rugged specifications of the compact E500QK handheld computer mean that military personnel can take photos, enter data, and take photos in any harsh environment. The latest Android operating system offers tremendous potential for developing or adapting mobile computer applications, allowing the military to acquire the newest technology rapidly.

NEW PRODUCT

FC CE

" RUGGED DESIGN BUILT TO SURVIVE . "

- 5", PCAP touchscreen
- Qualcomm® Snapdragon™ 660 (Octa-core 2.2 GHz)
- Android 9.0

Optical bonding for sunlight viewability

8MP Front / 13MP Rear Camera

WLAN, BT, GPS/AGPS

19 keypad include power key

Military standard connector
(default USB + Power, optional LAN & Audio)

Ambient light sensor, E-Compass, Gyro, acceleration sensors

Battery operating time up to 20 hr

IP67 waterproof and dustproof

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

8.4″ / 10.4" Defence Rugged Tablet
Intel® Pentium® N4200 Series

" BUILT TO HANDLE THE TOUGHEST TASKS. "

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

With daylight-readable screen 700 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

Custom configuration

Up to **8 GB**	Up to **512 GB**
Memory	Storage
GLONASS	WWAN

Application

Military Field Exercises

"RUGGED AND ERGONOMIC"

With military application-tailored accessories, the 10.4-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.

Intel® Core i5 Series

"FEATURES MILITARY-SPECIFIC INTERFACES."

- 8.4"/ 10.1" /10.4" Panel with direct optical bonding
- 8th Gen. Intel® Core™ i5-8265U, 1.6 GHz (turbo up to 3.90 GHz)
- Adjustable Kickstand that is Convertible to a handle

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

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MIL-STD-38999 connector for Giga LAN, RS232/RS422 and Power Input

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With daylight-readable screen 800 nits optical bonding for clarity increasing and readability enhancing

---

Sunlight readable display withtouchscreen

Supports GPS GLONASS, Galileo, BDS (Optional)

Magnesium alloy housing with all-around elastomeric rubber

Custom configuration

Up to 16 GB	Up to 512 GB	Up to 512 GB
Memory	Storage	2nd Storage

WWAN

WWAN

GLONASS

Application

Tactical Operations

"POWERFUL, COMPACT, AND RUGGED."

Durable housing of 10.1-inch Rugged Tablet R10IWK8M 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.

13.3" Defence Rugged Tablet
M133KML(HB)

NEW PRODUCT

FC CE

" 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

Application

Combat Mission Navigation

"BRILLIANT LARGE SUNLIGHT READABLE SCREEN"

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.

G-WIN Military Series

Custom configuration

Up to 8 GB
Memory

Up to 512 GB
Storage

EMI Mesh Coating

RS232

9~36V DC
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.

" WIRELESS CONNECTIVITY AND RUGGED FORM FACTOR. "

- Military grade power connector
- Ultra Low Power and High Performance Intel® Celeron® Bay Trail N2930 1.83 GHz
- Fanless Design

Full IP65 dust/water resistant protection (except I/O parts)

Aluminum housing with anti-corrosion treatments

Anti-shock and vibration standard according to MIL-STD-810F/G & IEC60068-2-27

5 wire resistive touchscreen / anti-reflection protection glass (Optional)

Wireless LAN with antenna (Optional)

Wide range 9 to 36 V DC input (Optional)

15″~24″ Defence Console Rack Panel PC
Rack Mount Series

FCC CE

" POWERFUL PROCESSING AND LATEST OS. "

- 15 ″~24″, Rock Mount
- Intel® Celeron® N2930 2.16 GHz
- Military Grade Power Connector (MIL-DTL-38999/1)
- Windows 7 Embedded Systems (Optional)
  Windows 10 IoT Enterprise (Optional)
  Linux Ubuntu 18.04 (Optional)

Anti-corrosion housing / fanless

Compliant with MIL-STD-810G/F

Flush rack / rack mount mechanical design (9U)

Convenient on-screen display controls

AC 110~240 V power input (Optional)

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 Coating	RS232
9~36V DC		
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.

4K2K Defence Series

Custom configuration

EMI Mesh Coating

9~36V DC — DC Power Input

PCAP Touch

AR Glass

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.

" RUGGED CONSTRUCTION AND RESPONSIVE TOUCH SCREEN. "

- 15.6"~40" Display with 4K UHD native resolution
- Compliant MIL-STD 810G/ MIL-STD 461E
- Rack mount mechanical design, supports VESA mount

AR protection glass

Military-grade power connector (MIL-DTL-38999/1)

AC 100~240V, Universal, ±10%; DC 9~36V, ±10% (Optional)

Convenient on-screen display controls

Reliable computing tailored for defence applications

Come with MIL-DTL-38999 type I power input connector

WINMATE

COMPLIANT MIL-STD 461F
COMPLIANT MIL-STD 810G

**Defence Rugged Tablet
M133KML(HB)**

FIELD MOBILITY FOR MISSION CRITICAL.

**Rugged Handheld Computer
E500QK-ML**

COMPLIANT MIL-STD 461F
COMPLIANT MIL-STD 810G

WINMATE

Contact Us

Winmate Inc.
No.111, Shing-De Rd.,
San-Chung District,
New Taipei City 24158, Taiwan
Tel +886-2-8511-0288
E-mail sales@winmate.com.tw
Website www.winmate.com

Winmate USA Inc.
2640 Mathews Street,
Smyrna, GA 30080, USA
Tel +1 678-653-8800
E-mail NASales@winmate.com.tw
Website www.winmate-rugged.com

TTX Canada Inc.
150 Werlich Drive, Units 5&6
Cambridge, Ontario, N1T 1N6 Canada
Tel +1-519-621-1881
E-mail Sales@ttx.ca
Website www.ttx.ca

Winmate Germany
Bgm.-Gradl-Straße 1 D-85232
Bergkirchen-Feldgeding
Tel +49 0 8131 33204-0
E-mail info@tl-electronic.de
Website www.tl-electronic.de/

北京京融电自动化科技有限公司
Room 204, Building A,
Shangdi International Technology Venture
Park, No. 1, Xinxi Road, Haidian District,
Beijing City
Tel +86-10-82743702/3802
E-mail sales@winmate.com.cn
Website www.winmate.com.cn