Intelligent Logistics

One-Stop Shopping for Supply Chain Optimization

- Intelligent Ports
- Intralogistics and Warehouse
- Commercial Fleets
- Heavy-Duty Fleets
- Driving Safety Solutions
- Cold Chain Management
- Mobile Worker Management

ADVANTECH **iLogistics**

(intel) IoT Solutions Alliance **Premier**

http://www.advantech.com/solutions/ilogistics

About the Intelligent Logistics and Fleet Management Sector

Advantech, a leading global manufacturer of industrial PCs, has extensive experience and expertise in developing specialized industrial vehicle computing solutions for logistics and fleet management. Advantech's intelligent logistics and fleet management sector leads the industry in innovation, delivers premium quality, and is backed by an extensive global sales and marketing network of more than 8,000 employees in 23 countries, providing customers with a rapid time-to-market. To date, the intelligent logistics and fleet management team has successfully completed numerous nationwide intelligent transportation and logistics projects worldwide.

Advantech's intelligent logistics and fleet management sector maintains two mature product lines to effectively satisfy diverse industrial requirements.

- **Industrial mobile computing systems**

  This product line includes mobile data terminals and vehicle-mounted computers with a rugged design, certified power systems, and x86- and RISC-based architectures, making them ideal for fleet management, mobile surveillance, and warehouse management applications. Advantech also offers various products that feature a full suite of RF protocols, standardized vehicle diagnostic tools, vibration and shock resistance, and comprehensive software development kits to facilitate the development of applications for diverse industrial requirements.

- **Industrial portable computers**

  This product line features industrial handheld terminals, industrial-grade tablets, and portable computers with drop tolerance and integrated add-ons, such as an RFID reader and barcode scanner, providing high mobility solutions for field service applications.

Additionally, Advantech's logistics and fleet management solutions support voice commands, OTA and VOIP updates, and can be equipped with value-added application-ready platforms for cold chain management and driving safety to provide comprehensive logistics and fleet management for every industry.
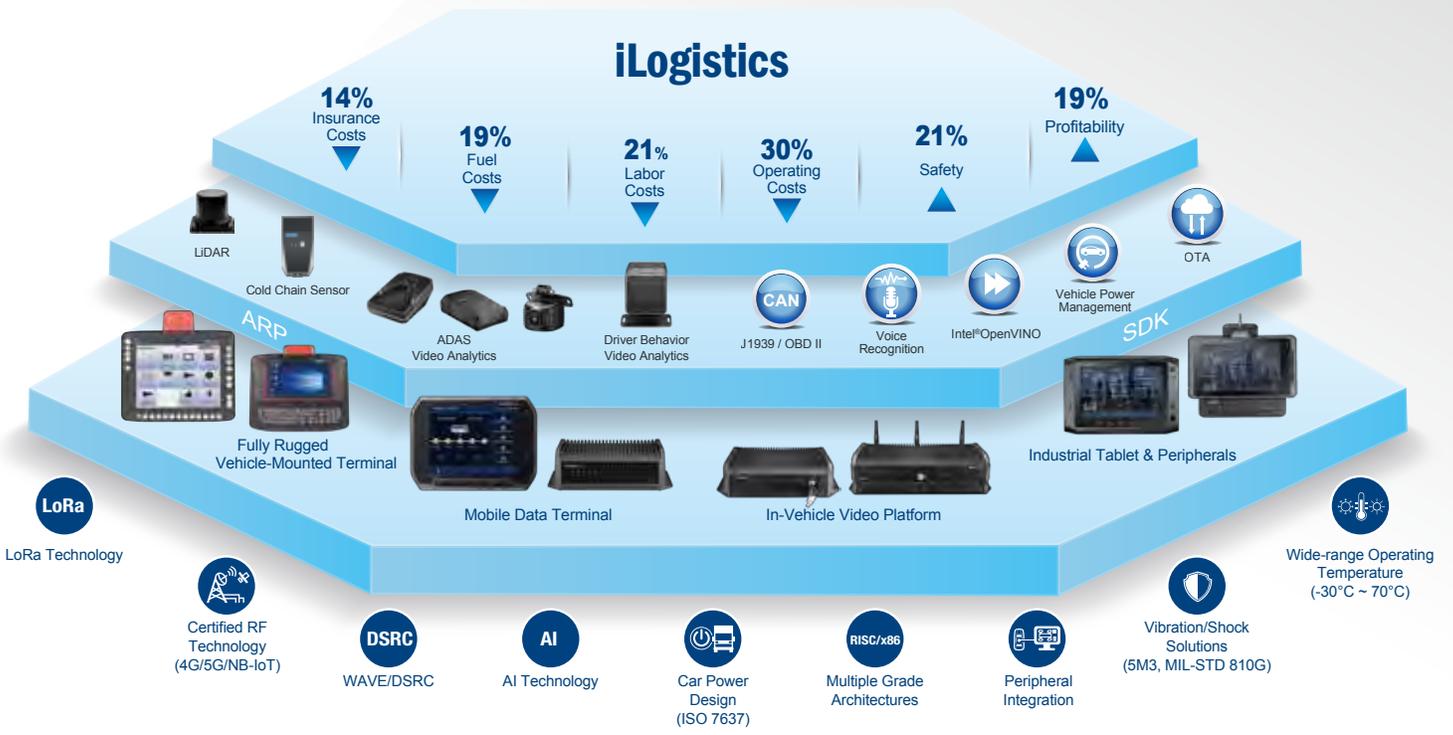
Heavy Duty **Port** **Warehouse** **Fleet Management** **Field Service**

iLogistics

14% Insurance Costs ▼

19% Fuel Costs ▼

21% Labor Costs ▼

30% Operating Costs ▼

21% Safety ▲

19% Profitability ▲

LiDAR

Cold Chain Sensor

ADAS Video Analytics

Driver Behavior Video Analytics

CAN — J1939 / OBD II

Voice Recognition

Intel®OpenVINO

Vehicle Power Management

OTA

ARP

SDK

Fully Rugged Vehicle-Mounted Terminal

Mobile Data Terminal

In-Vehicle Video Platform

Industrial Tablet & Peripherals

LoRa — LoRa Technology

Certified RF Technology (4G/5G/NB-IoT)

DSRC — WAVE/DSRC

AI — AI Technology

Car Power Design (ISO 7637)

RISC/x86 — Multiple Grade Architectures

Peripheral Integration

Vibration/Shock Solutions (5M3, MIL-STD 810G)

Wide-range Operating Temperature (-30°C ~ 70°C)

2

Powerful Industrial Computers Optimize Intralogistics and Warehousing Operations

10%+ ↑ Management Efficiency   **19%+** ↑ Profitability   **30%+** ↓ Operating Cost

Introduction

The recent trend for globalization, which increasingly internationalizes competition and markets, shows that not only computers, but people, machines, and processes are interconnected worldwide. This progress means that logistical processes can no longer be viewed in isolation. Instead, companies must consider, plan, and control all information and product flows together as an integrated whole. Therefore, supply chains must be increasingly automated and adjusted accordingly.

Solution

Advantech provides secure and reliable solutions for intralogistics and warehouse applications. Durable components and extensive testing during the development phase are required to guarantee that vehicle terminals can process, transmit, and deliver data reliably at any time. Industrial PCs in high-bay storages, on forklifts, hand carts, commissioning and packing stations, etc. are mounted to scan and transmit data or implement stationary process visualization, control engineering, or systems monitoring.

Because industrial PCs are used in extreme temperatures while in deep-freeze storage or under direct sunlight, they must be capable of operation in rapidly changing temperatures. Advantech's DLT-V72 series of vehicle-mounted terminals feature an IP66 rating for dust and water ingress protection, as well as an integrated low-profile antenna that provides excellent transmission capabilities in extreme industrial environments. To enhance mobility in warehouses, the DLT-M8110 detachable vehicle-mounted terminal with rugged docking station supports long-duration operation.

System

DLT-V72 Series
Rugged X86-based Vehicle Mount Terminal

DLT-M8110
Detachable & Rugged X86-based Vehicle Mount Terminal

LEO-D51
5.65" ePaper Display with Sub-GHz Communication

LiDAR

Radar

Benefits

- Rugged design with an IP66 rating for water and dust ingress protection, a wide operating temperature range (-30 ~ 50 °C), and MIL-STD-810F and 5M3 certification for shock and vibration tolerance
- Reliable wireless technology offers excellent Wi-Fi connectivity even in transit
- Uninterrupted power supply provided by a backup battery/external hot-swappable batteries

Application Scenario

Global Intelligent Long-Haul Trucks Solution Realize Driver Behavior Management

40%+ ↑ Delivery Efficiency   **10%+ ↑ Fuel Saving**   **14%+ ↓ Insurance Costs**

Introduction

In the long haul trucking industry, the management of vehicle fleets can be extremely challenging. This is because the vehicles are geographically spread, the back-end dispatch center must consolidate information for billing and invoicing, and customer service staff require real-time delivery information to communicate with customers. Additionally, there never seems to be enough time to complete all tasks in this highly competitive industry. For example, at a large US company, the billing and invoicing tasks were typically conducted at the end of the work day when the bills of lading were collected from the drivers. However, the company was looking for an optimized way to perform these tasks during the work day.
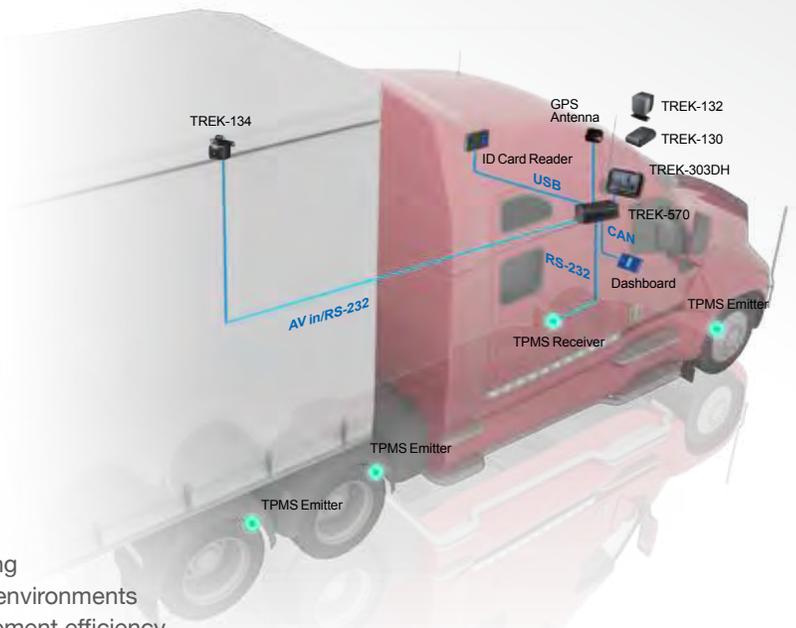
Solution

Advantech TREK-570 in-vehicle computing box satisfied all the carrier requirements. Specifically, the new system enabled delivery confirmations and invoices to be sent within10 minutes after delivery, improving invoice payments and customer service. TREK-570 can be paired with TREK-303 via a single-cable connection, and supports voice recognition. TREK-303 features a 7" TFT LCD screen with a backlight and adjustable brightness. With its rugged aluminum enclosure, the system is tolerant of vibration, dust, and water, and supports a wide operating temperature range, making it ideal for extreme invehicle environments. The DC power input is designed to handle transient voltage and ignition cold cranking, while the power on/ off delay functions allow voltage stabilization when starting the engine. TREK-570 with PTCRB certification is equipped with many flexible communication technologies, such as IEEE 802.11 a/b/g/n, Bluetooth, GNSS (GPS, Galileo,GLONASS, BeiDou) and WWAN (LTE, WCDMA, GSM/GPRS/EDGE), enabling real-time voice and data transmission. The carrier company was extremely satisfied with the implementation of TREK-570 in its fleet vehicles.

System

TREK-303DH
7" In-Vehicle Smart Display

TREK-570
Compact In-Vehicle Computing Box for Fleet Management

AIM-65
8" Industrial Tablet with Vehicle Docking Station

TREK-134

GPS Antenna

TREK-132

TREK-130

ID Card Reader

USB

TREK-303DH

TREK-570

CAN

RS-232

Dashboard

AV in/RS-232

TPMS Emitter

TPMS Receiver

TPMS Emitter

TPMS Emitter

Benefits

- Immediate delivery customer notification
- Increased efficiency through workflow load balancing
- IP54-certified I/O cover design for harsh in-vehicle environments
- Real-time data transmissions enhance fleet management efficiency

Exceptional Solution for Optimized Cold Chain Management

10%+ ↑ Delivery Accuracy   **30%+ ↓** Maintenance Costs   **24hr ↑** Goods Traceability System
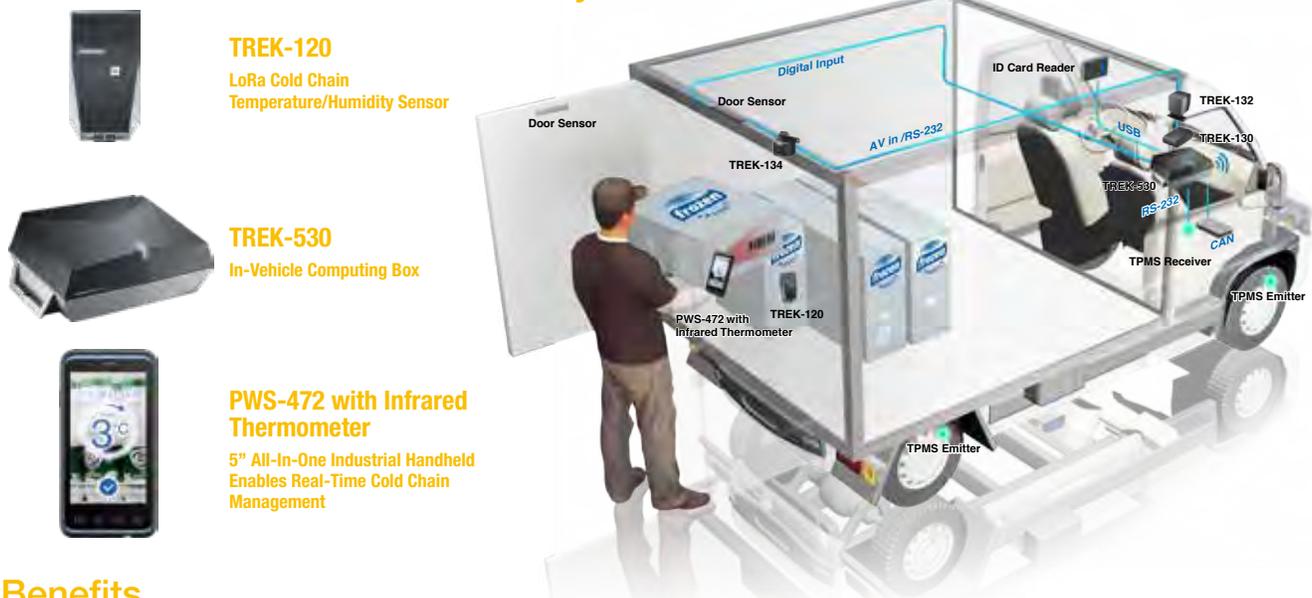
Introduction

Cold chain management is a highly specified field that involves maintaining an accurate temperature and humidity-controlled supply chain from the time that products are manufactured until the time they are used, any small mistake can lead to goods spoilage. However, in a real cold chain process, usually, the goods may be handled by multiple fleet companies while transferring from location A to B, and during the entire shipping process any exception cases, for example, vehicle door unlocking can damage the safety and quality of the product. Once the product is damaged, it is difficult to surmise responsibility, timing, and actual damaged product.

Solution

To ensure the product remains safe for consumption, Advantech provides an exceptional solution for optimized cold chain management which enables the real-time temperature/humidity/drop sensing and vehicle door lock monitoring. Equipped with LoRa technology, Advantech's TREK-530 in-vehicle computing box combined with TREK-120 sensors can transmit real-time data to a backend center, providing a reliable yet economical solution for cold chain management. In addition, the drivers can also implement mobile management via the PWS-472 with infrared thermometer, making them an ideal mobile-monitoring solution for cold chain staff who are no longer required to unpack products for inspection.

System

TREK-120
LoRa Cold Chain Temperature/Humidity Sensor

TREK-530
In-Vehicle Computing Box

PWS-472 with Infrared Thermometer
5" All-In-One Industrial Handheld Enables Real-Time Cold Chain Management

Door Sensor · Digital Input · ID Card Reader · Door Sensor · TREK-132 · AV in /RS-232 · USB · TREK-130 · TREK-134 · TREK-530 · RS-232 · CAN · TPMS Receiver · PWS-472 with Infrared Thermometer · TREK-120 · TPMS Emitter · TPMS Emitter

Benefits

- Real-time exception management for temperature/humidity drop sensing and vehicle door lock monitoring
- Real-time communication & management enhance driver productivity and efficiency
- LoRa technology maximizes signal penetration for long-range data transmissions

Intelligent In-Vehicle Surveillance Platform 2.0 Transforms eBus Systems

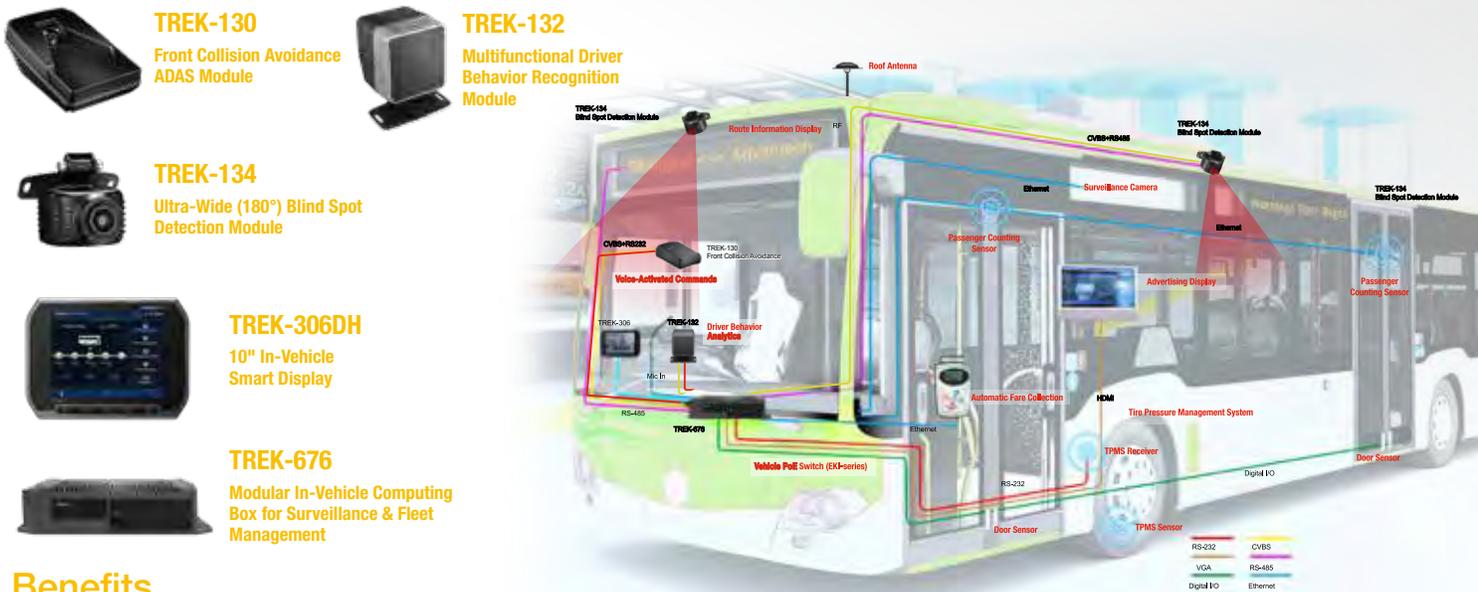**16%+ ↑** Bus Passengers   **24%+ ↓** Traffic Volume   **39%+ ↑** Bus Average Speed

Introduction

Customers seeking smart vehicle solutions for sophisticated eBus systems typically have diverse needs. Advantech assists system integrators in designing comprehensive wireless infrastructures for eBus systems to support the advancement of driving safety, mobile onboard computing and back-end communications.

Solution

Using its knowledge and industry experience, Advantech developed an industrial-grade in-vehicle computing box with industrial-grade Intel® Atom™ processor. The advanced driver assistance systems (ADAS) module is ideal for the improvement of safety in municipal and inter-urban bus fleets. Advantech's eBus 2.0 solution is comprised of a TREK-676 in-vehicle computer and TREK-306DH smart display to satisfy the needs of the management of mobile resources in metropolitan bus fleets. Built-in sensors collect all intra-vehicle data, including engine speed, tire pressure, improper braking, throttle position, passenger and e-Ticket numbers, and video recordings, to provide a detailed record of vehicle driving operations. The data is transmitted to a back-end system facilitating subsequent analysis by fleet managers and coordinators and further increase operation efficiency and safety. Besides intelligent voice recognition technology for hands-free operation, Advantech's eBus 2.0 solution equipped with ADAS modules with intelligent video analysis (IVA) technology supports front-view monitoring, collision avoidance and multifunction driver behavior recognition enhance driving safety.

System

TREK-130
Front Collision Avoidance ADAS Module

TREK-132
Multifunctional Driver Behavior Recognition Module

TREK-134
Ultra-Wide (180°) Blind Spot Detection Module

TREK-306DH
10" In-Vehicle Smart Display

TREK-676
Modular In-Vehicle Computing Box for Surveillance & Fleet Management

Benefits

- Real-time communication and data analysis for efficient dispatching and fleet management
- Enhanced driving safety through intelligent video analytics, voice recognition technology, and vehicle diagnostics
- Real-time information displays, billing, and invoicing for improved service
- TREK-130, TREK-132 and TREK-134 supporting intelligent video analysis modules for enhanced driving safety

Emergency Response Management Solution for Ambulance Applications

10 min. + Emergency Time Saving   **21%+ ↑** Driving Safety   **14%+ ↓** Insurance Costs

Introduction

Ambulances and emergency response vehicles are primarily used to transport patients with acute illness or injury to hospitals for treatment. Because the effectiveness of their response can be measured in seconds, the ability to provide immediate treatment while on route to the hospital is extremely valuable. Thus, in-vehicle computers installed in ambulances must have data collection and analysis capabilities, as well as high computing power to support immediate processing.

Solution

Advantech in-vehicle emergency response management solution, TREK-674 computing terminal with rich built-in RF technology, including GPS with AGPS, Bluetooth, Wi-Fi, and GPRS/CDMA/HSDPA/LTE, enables realtime communication and data transfers, allowing ambulance staff to access patient medical records, plan routes, and communicate with emergency room personnel and back-end fleet managers. Comprehensive I/O interfaces (USB, RS232, CAN bus, LAN, and DI/O) can be used to collect data and control in-vehicle peripherals, such as the siren and warning light. For video surveillance, the embedded Stretch S7 encoder chip supports multi-channel video recording and live streaming, facilitating the provision of real-time information to the back-end server. Thus, images of a patient's injuries can be transmitted from the ambulance to the emergency room for treatment advice and prioritization upon arrival. MIL-STD-810G and 5M3 certified for shock and vibration, TREK-674 features a wide operating temperature (-30 ~ 70 °C) and advanced power management capabilities that support rapid boot up (<20 sec) and wake on-call functions. The integrated tire pressure monitoring system (TPMS) and forward collision warning system (FCWS) further reduce delays by enhancing driving safety.
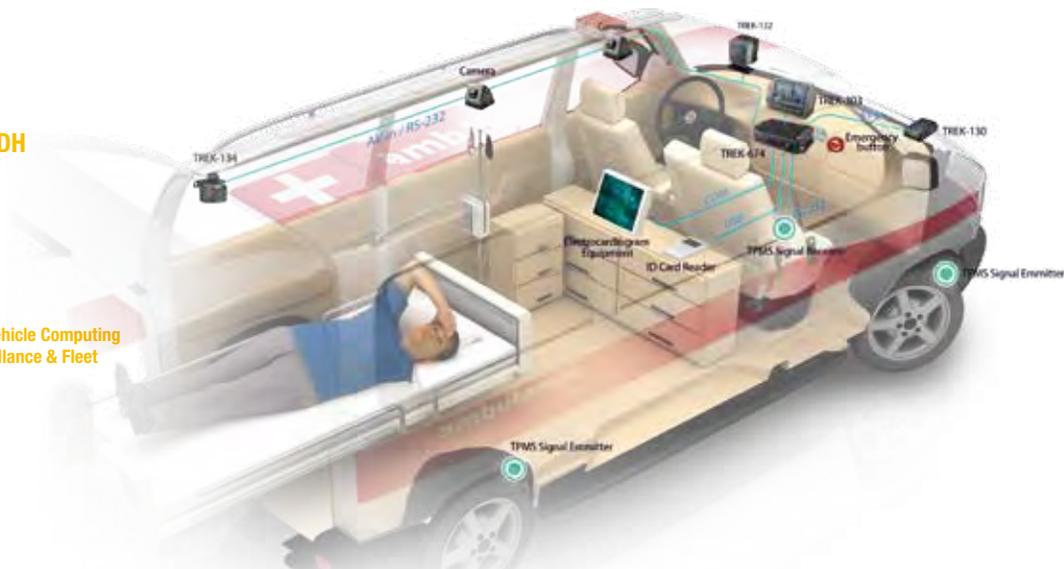
System

TREK-303DH
7" In-Vehicle Smart Display

TREK-674
Compact In-vehicle Computing Box for Surveillance & Fleet Management

Benefits

- In-vehicle surveillance, real-time video streaming, and multichannel recording, allowing emergency room staff to obtain advance knowledge of a patient's condition
- Built-in wireless solution for real-time communication, driver behavior management, and vehicle diagnostics enhance management efficiency and vehicle maintenance
- Integrated tire pressure monitoring system (TPMS) and intelligent video analytics ADAS module to further enhance driving safety

Heavy-Duty Vehicle is Equipped to Satisfy the Toughest Application Requirements

40%+ ↑ Delivery Efficiency   **10%+** ↑ Fuel Saving   **14%+** ↓ Insurance Costs
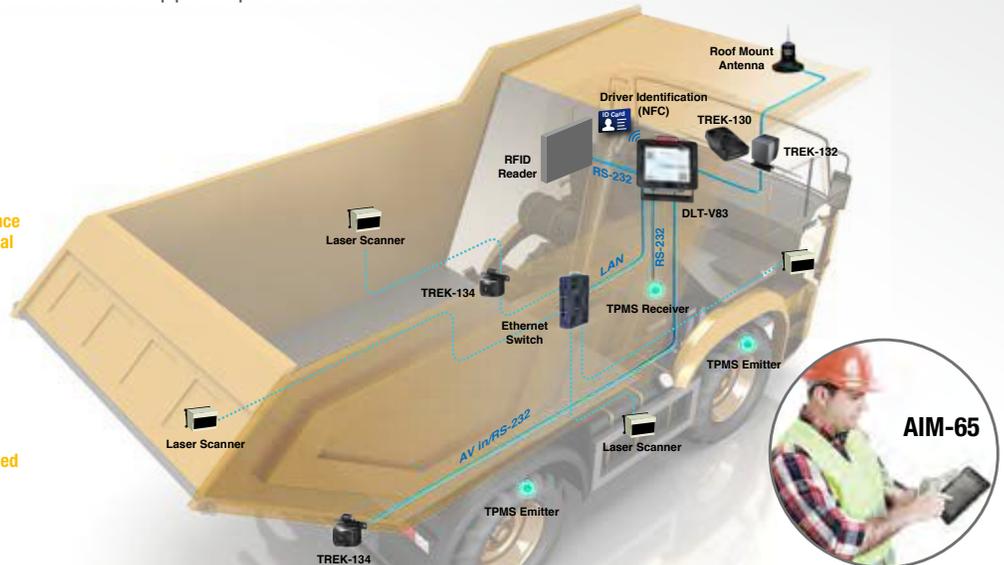
Introduction

Designing reliable systems for agricultural machinery or heavy construction equipment is always challenging because of the need for industrial computers specifically designed for operation in harsh environments. Such computers must be capable of withstanding extreme temperatures, shock and vibration, as well as extreme mechanical loads.

Solution

Advantech provides industrial-grade computers and tablets with a wide configuration ranges and expansion possibilities. The added provision for connectivity options enables extensive monitoring and control function for specific applications, such as freight weighing or sonar data reading. Advantech's DLT-V83 series of vehicle-mounted terminals feature a wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) to withstand operation in harsh environments, advanced security functions to ensure security, and flexible mount options to enable integration in diverse vehicles. The DLT-V83 series terminals allow customers to manage all planning and scheduling, training and data records, performance analysis results, KPIs, and device monitoring.

TREK-773 is a next-generation, all-in-one 7" mobile data terminal. Equipped with an Intel® Atom™ E3827 SOC, TREK-773 offers high-performance computing with wired connections such as Gigabit Ethernet, CAN2.0B (J1939, OBD-II/ISO 15765), and J1708 (J1587). The integrated LTE (backwards compatible with CDMA/HSDPA), GPS, WLAN, and Bluetooth communication interfaces ensure connectivity and real-time data transmissions. Aimed at the automotive market, TREK-773 is compatible with 12/24 V vehicle power and compliant with ISO7637-2 & SAE J1113, ensuring system operation during engine starts. Moreover, the system's ruggedized chassis, wide operating temperature range (-30 ~ 60 °C/ -22 ~ 140 °F), and shock (100G, 6ms) and vibration tolerance support operation in harsh industrial environments.

System

DLT-V83 Series
Rugged, High-Performance Vehicle-Mounted Terminal

TREK-773
7" All-in-One Ultra Rugged Mobile Data Terminal

Benefits

- Extremely robust design featuring dust and water ingress protection (DLT-V83 series: IP66 rating, AIM-65: IP65 rating) to ensure reliable operation in harsh environments
- Integrated UPS system (DLT-V83 series) provides an uninterruptible power supply for emergencies
- CAN bus technology enables effective vehicle diagnostics

Industrial Computing Plays a Major Role Throughout the Entire Automotive Supply Chain

10%+ ↑ Management Efficiency **19%+ ↑ Profitability** **30%+ ↓ Operating Cost**

Introduction

Besides being the world´s most important economic sector by revenue, the automotive industry is also playing a leading role in terms of process complexity, quality expectations and product variety. The enormous product variety and the pressure of tough international competition make it even harder to ensure an efficient logistics process. That is the reason why industrial computing plays a major role throughout the entire automotive supply chain, from allocation and storage of raw materials and components to production, delivery and timely procurement of spare parts. Lean production emphasizes getting the right things to the right place at the right time and in the right quantity to increase the overall equipment effectiveness according to the three metrics of availability, performance and quality. Automobile OEMs and their suppliers can conduct inventory forecasting, ensure quality control and accelerate their time to market.

Solution

Advantech provides industrial computers with a wide selection of reliable industrial PCs to assist throughout the supply chain. The DLT-V6210 vehicle-mounted terminal with IP65 protection, guaranteeing flawless operation even in moist or polluted environments. The high-quality displays are easy to read even in direct sunlight and bright, reflective environments.
Advantech rugged and reliable vehicle-mounted terminals enables tugger train systems to deliver parts and components to the production line right on time and in an ordered sequence, enhancing work efficiency, saving time and accruing costs savings. Advantech UTC series all-in-one touch computers provide the best solution for MES system terminals in a car factory. The extremely responsive touchscreen and 16:9 widescreen display allow staff to easily monitor and control different manufacturing tasks. Advantech UTC series not only improve information exchange, but also streamline manufacturing processes, leading to a dramatically increased productivity.
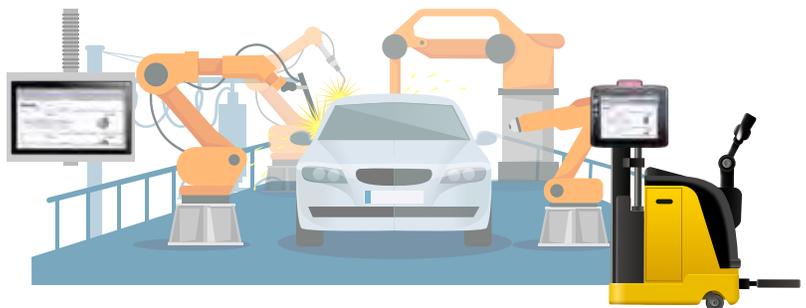
System

DLT-6210

Compact Vehicle-Mounted Terminal with Sunlight-Readable Display

UTC-520

21.5" Ubiquitous Touch Computer with AMD® G-Series T40E Processor

Benefits

• Large temperature range, robust mechanical design supports operations within harsh environment
• Fully rugged, IP65 and 5M3 for the complete system operations within harsh environment
• Low profile diversity Wi-Fi antenna designed for extreme environmental conditions
• Rich I/O and diverse peripheral options for extended functionality (UTC series)
• Supports Windows, Android, and Linux OS (UTC series)
• High performance, low power consumption and fanless system design (UTC series)

Fully Rugged Tablet the Ideal Solution for Field Service Applications

21%+ ↓ Labor Costs   **20%+ ↑** Working Efficiency   **80%+ ↑** Field Management Scope

Introduction

For use in field service applications, such devices must be rugged, able to withstand impacts and drops from rough handling, and offer protection from dust, water, and extreme temperatures. Ideally, devices should also feature handsfree, flexible carry options for portability and enhanced productivity. Wireless communication technology not only connects field service technicians to the dispatch center, enabling them to make informed and effective decisions at the point of service, but also provides dispatchers a complete overview of available resources.

Solution

Advantech provides a diverse range of rugged tablet and handheld terminal solutions with industrial-grade certification providing dust and water ingress prevention, and meet drop, shock, and vibration tolerance standards to withstand operation under harsh environment. The ruggedized devices also feature wireless connectivity with integrated 4G LTE, WLAN, Bluetooth, GPS, and GLONASS. Advantech has also developed modular peripherals which include extension modules, universal cover, shoulder strap, and vehicle/desk docking to enhance efficiency for diverse applications. Advantech 10" PWS-872 rugged tablet embedded with an Intel® Core™ i3/i5/i7/Celeron® processor, Gorilla glass panel, and PCAP control features scratch-resistance and support for glove operation. The AIM-65 with an 8"display features dual OS platform supporting Windows and Android. For one-handed terminal requirements, Advantech provides the right solution with its PWS-472 supporting multiple data acquisition technology, which meets harsh environment standards.

System

PWS-872
10'' Industrial-Grade Tablet

AIM-65
8" Industrial Tablet

PWS-472
5'' Industrial-Handheld Terminal

ID Card Reader
PWS-872
TREK-130
TREK-132
TREK-134
TPMS Receiver
CAN
TPMS Emitter
TPMS Emitter
3G/4G/Wi-Fi/BT
AIM-65

Benefits

- Industrial-grade certification to withstand harsh environments; effectively preventing dust and water ingress, and meet drop, shock, and vibration resistant standards
- Rapid and multiple data acquisition options include front NFC, RFID reader, 1D/2D barcode scanning and high pixel front and rear camera design
- Ergonomic design and modular peripherals for diverse applications

Port Computing Solutions Increase Security and Workflow Efficiency

40%+ ↑ Delivery Efficiency   **10%+** ↑ Fuel Saving   **14%+** ↓ Insurance Costs

Introduction

Port environments have been significantly changing over the last decades. The movement from containers to other transportation mutated into a constantly growing complex of supply networks. The infrastructure of ports is no longer keeping up with the increase in cargo growth at a global level. New technologies, like automation and value-added services beyond the mere movement of cargo are in demand. Besides a variety of data that encompasses the movement of goods, the need to know the change of custody items, arrangement of containers, servicing of ships and scheduling of resources are inalienable. Also security and customs procedures, as well as environmental issues have to be emphasized. Therefore devices should be as automated as much as possible, should work in the background in a naturally intuitive way and should not demand the operator. Information need to be real-time, 100% available in a robust environment and particularly accurate. However, providing complementary solutions along with integration services to enable solutions covering WLAN/WWAN, GPS, RFID, monitoring and reading of electronic containers is essential.

Solution

Advantech DLT-V4108 vehicle mounted terminal with integrated keyboard provides ergonomic yet rugged design ensures easy operation, especially for demanding applications, like port environments. The TREK-734 all-in-one mobile data terminal features anti-noise design with dual microphones, dual speakers enables operation in extreme noisy environment. Advantech provides a wide range of data terminals to satisfy complicating port scenarios.

DLT-V4108
8'' Vehicle-Mounted Terminal with Integrated Keyboard

reddot award 2018
winner

TREK-734
8'' All-in-One Light-Duty Mobile Data Terminal

System

Benefits

• Built-in LTE, GPS, GLONASS, Wi-Fi, and Bluetooth technology provide wireless connectivity for real-time data transmissions

• Developed for outdoor usage with a sunlight readable screen, anti-noise design, and optimized I/O to enhance operational efficiency

• Rugged design with an IP65 rating for water and dust ingress protection and a wide operating temperature range can withstand harsh environments

Capabilities

World-Class RF Solution

Fleet operators are often managing large vehicle fleets that are spread across geographically diverse areas. Advantech's products integrate assisted GPS (AGPS), dead reckoning, Bluetooth, and WWAN protocols (CDMA/GPRS/HSPA+) to ensure effective communication when near tall buildings, mountains, canyons, or in tunnels and underground parking lots. Advantech's design and production flow comply with ISO/TS 16949 standards by delivering high accuracy and rapid time-to-first-fix on satellites.

Certified WWAN, 5G, NB-IoT

Advantech's products utilize industrial modules to transmit and receive data via Certified WWAN, 5G, NB-IoT HSPA+, and LTE technologies. Featuring PTCRB certification, which supports 3GPP network standards, Advantech's products are compliant with North American regulatory standards and additional FCC and IC requirements. PTCRB certification also ensures compliance with the standards for PTCRB cellular network operators (for example, AT&T).

Greater Roaming Capabilities Through Diversified Wi-Fi Technology

Wi-Fi technology is widely used for diverse applications in the warehouse, transportation, mining, and construction industries. However, different applications have unique Wi-Fi requirements. Advantech's products allow customers to select a Wi-Fi module that is most appropriate for their needs, such as a high-power Wi-Fi module that extends the communication distance and coverage for mining applications or an 802.11AC Wi-Fi module for applications that necessitate a high throughput. Most 802.11-based Wi-Fi chipsets feature default device drivers that cannot provide the roaming performance required to ensure constant connectivity with access points as the asset moves through a warehouse, open-air staging area, or manufacturing facility. Advantech's selectable Wi-Fi modules offer superb roaming performance and throughput for critical applications.

GNSS Technology

Built-in GNSS receivers can concurrently track multiple GNSS systems (e.g., GPS, GLONASS, Galileo-ready, BeiDou, and QZSS signals). Because of the dual-frequency RF front-end architecture, two GNSS signals can be received and processed concurrently for accelerated position fixing and increased accuracy when a single GNSS signal is weak. The provision of support for satellite-based augmentation systems (SBAS), such as WAAS, EGNOS and MSAS, enables additional satellites to be used for ranging (navigation), further enhancing precision and availability. SBAS systems supplement GPS data with additional regional or wide area GPS augmentation data, which can be used by GNSS receivers to improve positioning precision.

LoRa Wireless RF Technology

LoRa technology offers compelling features, including long range, low power consumption, high connection capacity and secure data transmission for IoT applications. LoRa fills the technology gap of cellular and Wi-Fi/BLE based networks that require either high bandwidth or high power, have a limited range or inability to penetrate deep indoor environments. LoRa can be utilized by public, private or hybrid networks, and easily plug into existing infrastructure. In effect, LoRa technology is flexible for rural or indoor use cases in smart cities, smart homes and buildings, smart agriculture, smart metering, and smart supply chain and logistics, and enables low-cost battery-operated IoT applications.

Benefits

• Integrated concurrent GNSS receivers are supported by SBAS, AGPS, and dead reckoning technology for improved signal acquisition and maintenance
• LoRa and NB-IoT technology enable long range battery-operated sensors for smart city applications, reduce the effort for wiring, installation and maintenance
• Multiple WWAN protocol support (NB-IoT , UMTS/HSPA, LTE)
• 5G brings faster speeds, lower latency, greater capacity and direct communication capabilities, increasing the potential in logistics, mining, agriculture, law enforcement and many applications

Wide In-Vehicle Operating Temperature Range

Keep Your Cool with Wide-Range Thermal Solutions

Industrial-grade computing systems are designed to work under extreme conditions. In a vehicle, it is possible for temperatures to reach 70 ºC. Hardware expected to perform in these conditions requires special design and materials, special cooling considerations, and extensive temperature testing. Software must be designed with thermal management in mind, and stringent testing should be performed to ensure reliable performance under extreme and rapidly changing temperatures.

Increased Reliability for Long-Term Peace of Mind

Systems designed to withstand a wide range of temperatures operate more reliably, protecting infrastructure investments. System monitors can be programmed to send warning notifications or to shutdown systems when certain thresholds are reached. Advantech's products offer reliable solutions that can handle the demands of fluctuating temperatures and operate across large geographic areas, enabling fleet managers to maintain a competitive edge.

1. Standards compliance

Advantech products support a wide operating temperature range. The TREK series devices have been tested in accordance with SAEJ1455 4.1.3.1 standards over a 24-hour period. The results of which are shown below for reference.
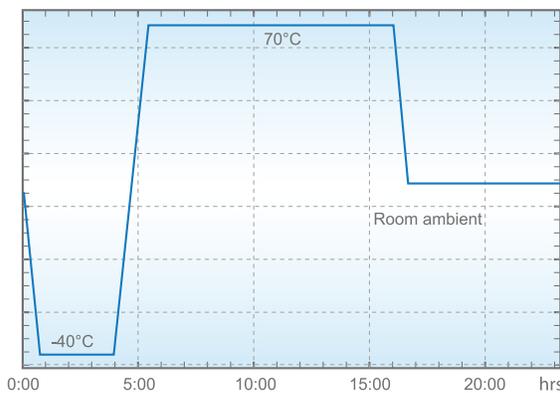

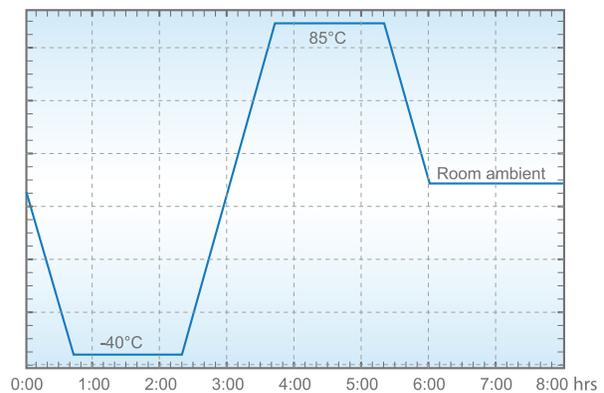Figure 2A. 24-Hour Thermal Cycle

Figure 2B. 8-Hour Thermal Cycle

2. Wide operating temperature testing

Advantech's development team designs fanless thermal solutions with great care. First, only industrial-grade components are used to ensure reliability and durability. During the early design stages, a rigid thermal simulation is performed and reviewed against actual test results. Depending on the outcome, key components are then subjected to stringent wide-range temperature testing, as defined for industrial equipment (-40 to 85 °C; see Figure 2B). The net result is that systems are capable of operating without failure at temperatures of -30 ~ 70 °C (see Figure 2A).

Benefits

• More reliable for mission critical applications
• Long-term protection of investment
• Space-efficient design
• Fanless, low-noise operation

Tolerant of Vibration, Shock, and Vehicle Power Fluctuations

In-Vehicle Solutions Built to Withstand Shock and Vibration

Fleet management systems can be installed in many locations in a vehicle. However, varying road conditions, driving situations, and environments mean that such systems may be negatively impacted by shocks, vibration, and fluctuating vehicle power. In response to this concern, Advantech performs a series of lifecycle profile tests designed to test environmental conditions and physical acceleration on its mobile data products. These tests allow engineers to design products that can withstand vibration, shock, and vehicle power surges/transients, and comply with SAE J1455, MIL-STD-810G, EN60721-3-5 class 5M3, ISO 7637-2, and E-mark standards.

Secure Designs Support Operation in Demanding Environments

Advantech strives to produce mobile data terminals that perform with optimal reliably even in demanding mobile environments. Hard disks are protected by special designs and all components are secured with long-lasting solutions. Advantech responds to the problems associated with operating electronic systems in harsh vehicle environments with thorough research and design. Quality assurance personnel test all products in the target usage environments. Additionally, all development and testing is conducted according to SAE J1455 4.9.4.2, MIL-STD-810G 514.5, and EN60721-3-5 class 5M3 standards.

Certified Vehicle Power Protection with Wide DC Input Range

The automotive environment is fraught with electrical hazards. These hazards, including electromagnetic interference, electrostatic discharge, and other electrical disturbances, are generated by various vehicular subsystems such as ignition, relay contacts, alternator, injectors, and accessories. These generated hazards can occur directly in the wiring harness in the case of conducted hazards, or affect electronic modules indirectly via induction. Typically, for a 12/24 V vehicle power system, the DC voltage may decline to 6/8 V during peak loading and may be subject to engine charging up to a maximum of 32 ~ 34 V. Without power protection, the input of "dirty power" could cause a system malfunction.

Advanced and Flexible Power Management

Efficient power management requires embedded software control. Moreover, the software must be integrated with the hardware from the beginning stages of power development to avoid complications during system implementation. The vehicle power management mechanism is designed to handle various usage scenarios for different applications; for example, startup delays to avoid voltage drops upon engine start, shutdown delays to avoid operation system hang up during shutdown, and remote wakeup by cellular module to shorten system ready time for emergency tasks and 24/7 asset tracking.

In-Vehicle Artificial Intelligence for Enhanced Driving Safety

Advantech Driving Safety Solutions Enhance Driving Safety

The growing number of on-road vehicles has resulted in an increased number of road accidents. For instance, the number of fatal accidents in the U.S. increased by 7.2% from 2014 to 2015. Most of these accidents were the results of the errors made by drivers. The consistent rise in vehicle accidents has lead to an increase in safety concern by the public prompting governments across various nations to mandate the use of advanced driver assistance system.

According to a new market intelligence report by BIS Research, the global ADAS and autonomous driving components market is estimated to grow at a CAGR of 38.6% during the forecast period of 2017-2026. The surge in demand for highly automated vehicles, increased safety concerns, and stringent governmental regulations are the primary factors responsible for the growth of this market.

Advantech's next generation of application ready platforms (ARP) combine original solid Telematics solution and new advanced Intelligent Video Analysis (IVA) Modules into a comprehensive in-vehicle driver safety solution which is able to reduce the risk of vehicle accidents and enhance the overall operational efficiency.
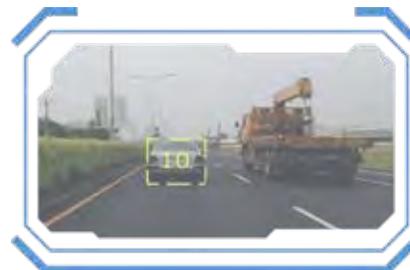
TREK-130, Front Collision Avoidance ADAS Module

TREK-130 is an advanced, multifunction ADAS (Advanced Driver Assistance System) module that combines FCW(Front Collision Warning) and LDW (Lane Departure Warning) algorithms. It is a vision-based active safety solution for vehicle accident prevention and injury mitigation using video recognition technologies. This ADAS module can detect and measure the vehicles ahead, and pre-alert the driver with audible and visual alters when a high risk situation is detected.

- **LDWS: (Lane Departure Warning System)**
The system is compliant with ISO-17361. LDWS warns the driver when a vehicle is drifting or fails to use the correct turn signal when changing lanes.

- **FCWS: (Forward Collision Warning System)**
The system is compliant with ISO-15623 2002-10. FCWS warns the driver if an appropriate safe distance with the forward vehicle is not maintained. When it detects a collision risk, a blue warning light and audio alerts are activated at the same instance.

TREK-132, Multifunctional Driver Behavior Recognition Module

TREK-132 is an advanced, multifunction ADAS (Advanced Driver Assistance System) module that combines Fatigue Detection and Distraction Detection , which includes cell phone usage, eating, and taking the eyes off the road. It is a vision-based active safety solution for vehicle accident prevention and injury mitigation using video recognition technologies. ADAS module monitors the driver' s face, eyes--detecting the frequency and blinking period-- and gestures to calculate the risk level. When risk thresholds are crossed, ADAS delivers both audio and visual alerts.

Capabilities

Phone Use Detection

Distraction Detection

Drowsiness Detection

Food Consumption Detection

TREK-134, Ultra-Wide (180°) Blind Spot Detection Module

Blind spots may occur in the front of the driver when the A-pillar (also called the windshield pillar), side-view mirror, or interior rear-view mirror block a driver's view of the road. Behind the driver, cargo, headrests, and additional pillars may reduce visibility.

TREK-134 with an ultra-wide (180°) detection angle is capable of detecting various moving objects within the blind spots areas, including a 100% pedestrian detection accuracy rating, and immediately triggers a warning.
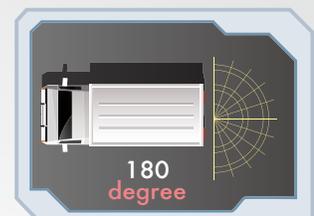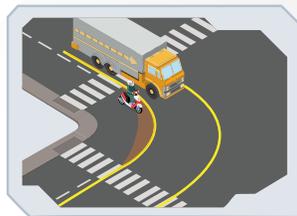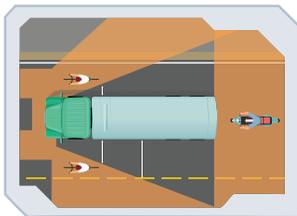
Benefits

- Comprehensive ADAS solution ensures driving safety for fleet management
- Automotive-grade design with ISO certification and compliance with TREK computing box provides comprehensive vehicle application
- Value added Software Development Kit (SDK) with customized management benefits fleet management

Voice Recognition Technology

As listed previously, the majority of distracted behavior coincides with the use of mobile devices, specifically manual operation of a touchscreen. By altering the way data is entered on a device, a reduction in distracted behavior is possible.

Advantech's voice command software frees drivers from manual operation of mobile devices or in-vehicle terminals. Drivers can simply call out a function, and the software automatically activates the required function.

In the U.S., driver distraction is the leading cause of vehicle accidents, accounting for approximately 40% of all accidents according to some studies. Thus, reducing distracted driving behavior is the logical answer for reducing the risks of road accidents, insurance costs, and repairs.

Benefits

- Multi-language support for English and Mandarin Chinese
- Accent localization capabilities
- Can withstand noisy environments (110 dB volume)
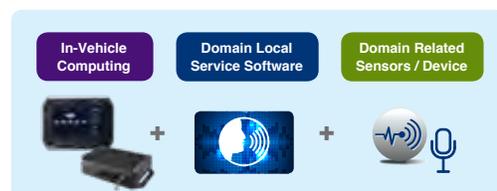
LoRa Technology Ensures Uninterrupted Cold Chain Management

Introduction

A cold chain is a supply chain in which goods must be temperature controlled. Cold chains are commonly associated with the pharmaceutical and food industries. According to a 2016 report by the International Trade Association, global food losses total US$750 billion a year, largely due to cold chain issues. The same report reveals that US$260 billion of annual biopharma sales are dependent on cold chain logistics.

Cold chain is big business and the stakes are high. The implications of a poorly maintained and monitored cold chain go far beyond monetary losses. Food or drugs that unknowingly fall outside of temperature tolerances can pose a hidden risk. They may be tainted with bacteria even though they may not look visibly spoiled. After finding their way into the hands of a consumer or patient, the tainted goods can cause serious illness or even death.

Solution

Advantech's cold chain solution provides an Android App to collect data from mobile device, a setting utility to set sensor conditions and a backend software service for real-time monitoring.

The following describes a typical IoT structure. The temperature and humidity sensors pass data to a gateway, then the gateway uploads the data to the cloud. The managers can use Advantech's cold chain app or a browser to monitor the status of their cold chain logistics in real-time. Advantech's cold chain app provides data collection through mobile devices' NFC function. After filtering, the exceptions are easily displayed.
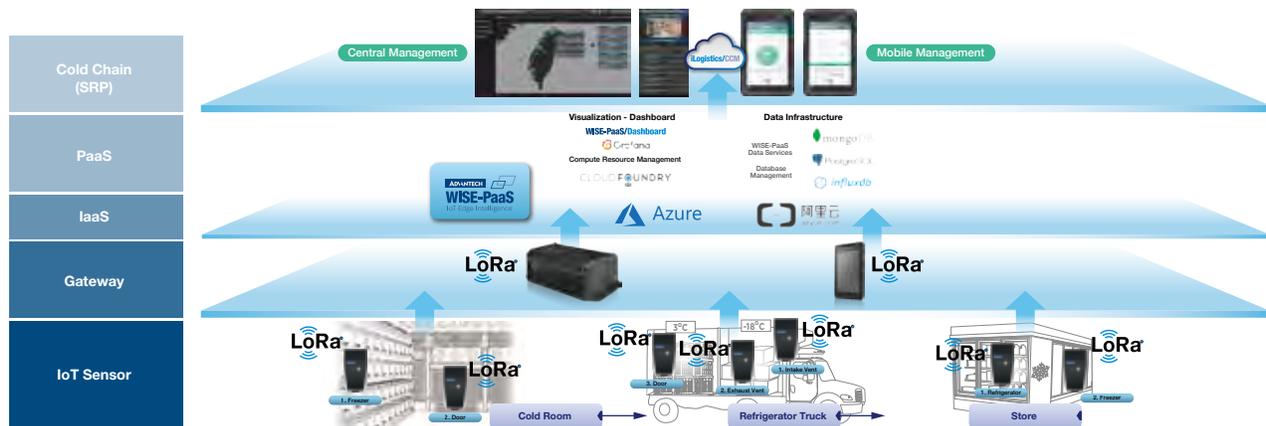
Benefits

Complete Monitoring from Beginning to End

These relatively small IoT sensors can be placed on a pallet or in a box/container. They provide live temperature and humidity readings along the end-to-end journey of a case of frozen shrimp or a pallet of cancer fighting drugs from processing facility to grocery store or hospital.

Real-Time Monitoring

Tracking real-time temperature of goods enables managers to identify shipments that have fallen outside of required tolerances for a long enough period to be considered spoiled. Those goods can be removed from the supply chain once they reach an intermediary point or final destination, and destroyed before causing harm to a consumer. Better still, by receiving timely alerts regarding deviation of temperature tolerance, managers can quickly initiate remedial action preventing spoilage altogether.

Industrial Mobile Computing Solutions for Diverse Applications

Comprehensive Range of Screen Sizes and Modular Peripherals

AIM-65
8" RUGGED TABLET
WITH DUAL OS

AIM-68
10.1" RUGGED TABLET
WITH DUAL OS

PWS-872
10" HIGH-PERFORMANCE
FULLY RUGGED TABLET

PWS-472
5" RUGGED HANDHELD TERMINAL
WITH ANDROID OS

Advancements in mobile technology are transforming field service operations. Mobile computing devices provide real-time access to data, enabling field workers to make informed decisions on the spot. This results in streamlined workflows with greater efficiency, providing enhanced quality and productivity. Moreover, Advantech's industrial mobile computing solutions are provided with comprehensive range of screen sizes(5", 8", 10") and modular peripherals.

The PWS tablet series with a built-in 7th Intel processor features a high-performance rugged design with an IP65 rating and 4-ft. drop tolerance that supports MIL-STD-810G certification. The 5" handheld built-in UHF RFID reader and infrared thermometer, supports warehouse and real-time cold chain management.

The AIM tablet series features the Intel Atom platform and supports dual OS, Windows IoT Enterprise, and Android 6.0, and with its lightweight and fanless design, maximum portability is guaranteed. Built-in Wi-Fi, NFC, 3G/4G LTE, and Bluetooth technologies are provided to enable high-speed data transmissions and real-time communication with not only a central management center but also with other devices that are in the field. Advantech's AIM series is also equipped with extension ports for integrating diverse modules in order to provide configuration flexibility when used for different applications.

Applications

Warehousing
• Goods packing/shipping/receiving
• Inventory management

Manufacturing
• Supply assign daily tasks
• Review and assign daily tasks

Fleet Management
• GPS positioning
• Capture real-time data on vehicle performance and driver performance

Field Service
• On-site diagnostic for troubleshooting
• Customer service and relationship management

Transportation
• Passenger ticketing and inspections
• Asset and facility management

Public Safety
• Crew & vehicle dispatch
• Capture and share real-time info

iLogistics SDK Accelerates Product Development and Time-to-Market

Introduction

Advantech's iLogistics SDK (Software Development Kit) is a software API layer that sits between the operating system and user applications, providing programmatic access to all hardware interfaces and device modules. By enabling system integrators to communicate directly with the system hardware, such as the power management, enable/disable, digital input/output control, brightness control, and hotkey function modules, iLogistics SDK eliminates the complex programming typically required to initiate low-level system commands, thereby accelerating the development and deployment of user applications.

iLogistics SDK can be used to send automatic event triggers based on key system information and parameter data, and applications can be configured to respond to specific event triggers. iLogistics SDK also enables video data to be captured, encoded, previewed, and streamed to a back-end server for monitoring and subsequent analysis.

Next-Generation Vehicle Platform Kit

This latest generation iLogistics SDK package is more than just an API level development kit. Instead, it embodies the concept of vehicle platform kits and features configurable firmware and protocols for the following functionalities: video surveillance, remote diagnostics and upgrades, local peripheral control, in-vehicle intelligent video analytics, sensor control, and intra-vehicle communication. The added inclusion of voice-recognition technology provides an alternative data input method that enables drivers to focus on driving.

iLogistics SDK Utility Stacks

The new iLogistics SDK retains the benefits of previous generations, such as providing easy access to system peripherals and eliminating the complex programming required for low-level system calls; however, rather than the previous demo sample code, it features SDK utility stacks to enable rapid integration and optimization.

Capabilities

The architecture of the iLogistics SDK software package is organized into several layers. At the bottom, the OS kernel layer provides the core system functions for managing vehicle power and peripherals. Above that are the utility stacks, which are sets of integrated tools that enable users to create their own applications. Next is the operating system abstraction layer, which provides the application development interface, making it easier to develop code for multiple software and hardware platforms. At the top is the standard device driver access layer. This reorganized SDK structure enables programmers to write clean, concise code that can be applied across platforms.
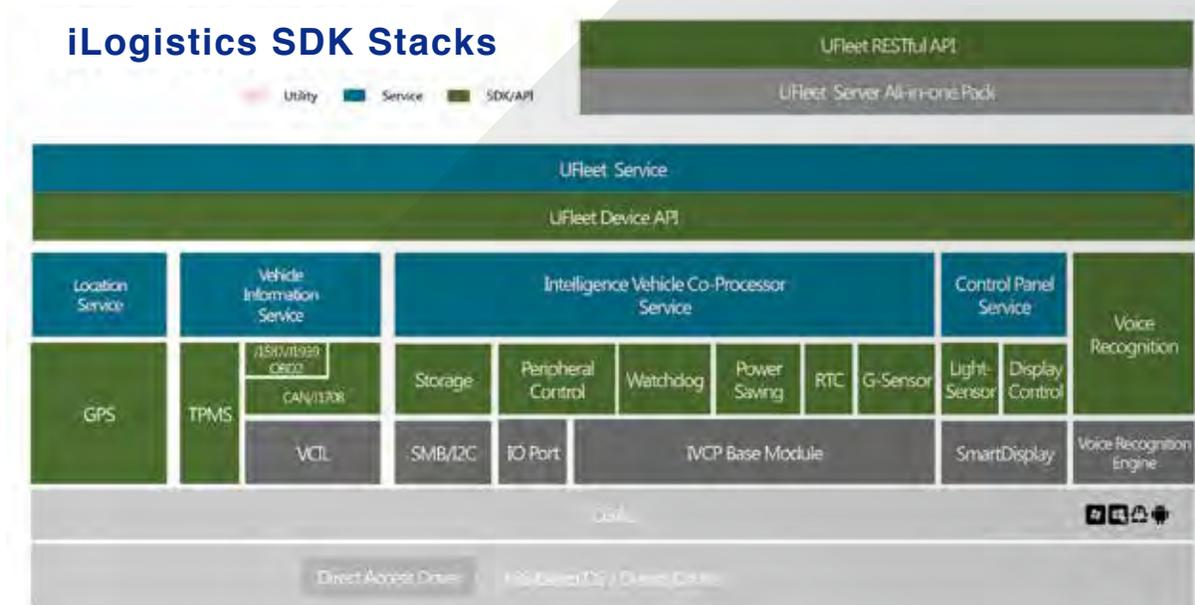
Additional software protection enables customers to save security keys in VPM, encrypt/decrypt stored data on the security chip, protect confidential data, and bundle applications on Advantech's TREK platforms without fear of security breach. The video surveillance technology supports intelligent video analytics, with over-the-air (OTA) file deployment capabilities reducing the overall system maintenance costs and downtime. The connected sensors and CAN bus protocols facilitate system integration and driver behavior analysis, as well as pairing with IOT-ready software. The final piece of the package is the inclusion of the MQTT (message queue telemetry transport) SDK makes connecting to a cloud easier and more convenient.

Benefits

- Retains the functions of previous generations, provides access to low-level hardware functions, and eliminates the complex programming required for low-level system calls
- Voice-controlled, touchless operation increases driving safety
- OTA file deployment enables remote device updates, reducing maintenance costs and system downtime
- Makes user applications portable across different operating systems
- Accelerates product time-to-market
- Event-driven callback triggers are faster and more proactive
- Supports a complete portfolio of protocols and standards for in-vehicle computing solutions
- Provides a single system interface for developers and integrators
- Supports multiple operating systems (WinCE, WES7, WES8, Linux, and Android), ensuring cross-platform portability

OTA Capabilities Provide an Intelligent, One-Stop Solution for Flexible Upgrades

Introduction

Over the last couple of years, many fleet owners have faced the same problem. The issue is best explained as follows, "I am a fleet owner and have 4,000 cars in this country. I have found big issues in our system; there is no doubt that I have to update utilities or drivers of my client devices. This is the inherent problem. 4,000 cars some of which are located far away. What can I do? Should I call back all cars and send teams of engineers to individually update the devices? It's impossible, right? I don't wanna pay a lot for the time and human resources. Do you have any solution for it"?

Solution

Advantech's OTA software upgrade services is a management system providing system monitoring, updating, and tracking through a server. The service is an effective and intelligent tool solving the upgrading issues faced by today's fleet owners.

Software Product Specifications

Device / Group Management
- Add / Import / Edit / Delete Device or Group
- Monitor Network Connection Status of Devices
- Upgrade status tracking and viewing
- Automatic and Scheduling Setting
- Remote Power ON/OFF
- KVM

Package / Catalog Management
- Upload / Delete Package
- Add / Edit / Delete Catalog
- Package Upload Status Monitoring

Storage Management
- Multi-Storage Supported
- Local Storage e.g. FTP
- Public Storage e.g. Baiduyun
- Enable/Disable the Storage
- Edit Configuration of Storage

Event Management
- Package Upload/Download/Deploy Status
- Device Status
- System Log
- Operation Log

Multi-Platform
- Windows 7/8/10 32bit 64bit
- CentOS6.5 32bit
- Yocto x86 32bit / Yocto RISC 64bit
- Ubuntu14.04 32bit

Benefits

Upgrade Management
- Centralized software update management system
- Upgrade process and status can be tracked and monitored through a server
- Provide exception upgrade alarm and filter
- Software version can be viewed through a server

Upgrade Scheduling
- Supports download and deploy scheduling, offering flexible planned upgrading
- Schedule type includes daily, weekly, monthly and once
- Provides separate schedule setting for devices or package types

Roll-Back
- Supports successful upgrade packages backup
- Roll-back to older version when exception happens

Script Upgrading
- Scripting upgrades for flexible updating
- Supports popular scripting language, such as shell and batch

Web Client — OAT Server — Web Client

Internet
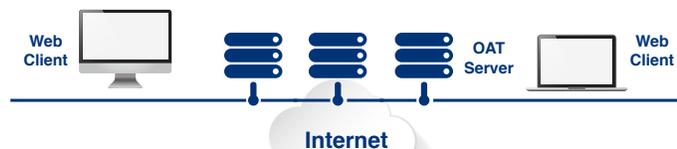
Package supports complicated types of systems, firmwares, drivers and devices:

Systems	Firmware	Drivers	Devices
GIS, video surveillance, command and dispatching, traffic monitoring...etc.	CAN, VPM, Smart display MCU	I/O, WLAN, BT, WWAN	over 1000 types

Design and Manufacturing Services (DMS)

Ongoing business development and evolution typically leads to increased deployment of mobile terminals in order to facilitate mobile computing and enhanced efficiency and accuracy. The Advantech Mobile DMS group uses its professional knowledge and expertise to assist enterprises with adopting mobile devices.

Rugged Design Ensures Reliable Operation in Harsh Environments

Leveraging considerable experience, Advantech's Mobile DMS team is skilled at creating designs that feature a wide operating temperature range (-20 ~ 60 °C/-4 ~ 140 °F) and protection from dust and water ingress (IP67 rating). Additionally, to ensure shock and vibration tolerance, Advantech's Mobile DMS team conducts tests that ensure compliance with the MIL-STD-810G and EN60721-3-5 class 5M3 standards. Advantech's in-house IP, RF, shock and vibration, etc. testing facilities allow engineers to validate and promptly optimize designs. Moreover, the structured and documented testing procedure ensures systematic traceability and effective verification.

System Integration Capabilities for an Enhanced User Experience

Occasionally, enterprises introduce mobile devices for integration with their existing systems and instruments or for special work environments in an effort to improve mobile computing, data processing, and operational efficiency.

Advantech's engineers are highly skilled in ensuring that mobile devices satisfy specific standards, such as UL201 for vehicle diagnosis, and ISO16949 and ISO 7637-2 for fleet management. By meeting the specifications of these requirements, the team is able to deliver reliable and trustworthy mobile computing products.

Consultancy Services to Identify the Ideal Computing Solution

Benefiting from close partnerships with leading hardware and software vendors, Advantech's Mobile DMS group has early access to advanced computing technology and software offerings. Long-term cooperation with key component vendors allows the team to collaboratively develop truly innovative features and modules. Advantech's Mobile DMS team leverages its accumulated experience to impress customers with custom proposals and comprehensive feasibility analysis.

High-Quality Project Management for Satisfying Customer Requirements

Creative ideas cannot be realized without effective execution. For Advantech's Mobile DMS operations, personnel with various skills were organized into customer-focused teams aimed at serving key accounts. These teams adhered to the company's established product introduction processes for developing and validating products.
The provision of clear review points and a supporting IT database ensures that every process occurs in the correct sequence and that the necessary information is collected and stored. By adopting a disciplined approach and step-by-step strategy to accomplishing milestones, the team is able to implement and realize customers' unique vision.

With first-class design and system integration capabilities, as well as extensive consultancy and project management experience, Advantech's Mobile DMS team is more than a passive vendor. Instead, Advantech Mobile DMS is a strategic resources provider and business partner that delivers precise design and manufacturing services.

Customer Requirement Discussion — Feasibility Study — Development — Qualification

Feasibility Study
- Concept design
- Thermal simulation
- PCB Simulation
- System Design

Development
- Electronic design
- Mechanical design
- Power analysis
- Software design
- System integration

Qualification
- Signal analysis
- System validation
- Lab test

Vendors
- Component Management
- Green Product Management

IT Infrastructure
- Product Lifecycle Management

Bug Management — Test Case Management — Design Review

Product Selection Guide

Rugged Vehicle-Mounted Terminal

System		DLT-V83 Series	DLT-V72 Series	DLT-V4108	DLT-V6210
System	CPU	Intel® Core™ i5-4300U dual-core, 1.9 GHz, 4/8 GB RAM Intel® Celeron® 2980U dual-core, 1.6 GHz, 4/8 GB RAM	Intel® Atom™ E3845 quad-core, 1.91 GHz, 4 GB RAM	Intel® Atom™ E3826 dual-core, 1.46 GHz, with 4 GB RAM	Intel® Atom™ E3825 dual-core, 1.33 GHz, with 4 GB RAM
	Memory	8GB - 256GB CFast 2.5" SSD with 128 GB (optional)	8GB - 256GB CFast	32 GB MLC-Fast	32 GB CFast
	OS	Win10 IoT Enterprise, WE8S, WE 8.1 Industry Pro, WES7, Win7 Pro, Linux	Win10 IoT Enterprise, Win7 Pro, WES7, Debian-based Linux, IGEL Linux	Win10 IoT Enterprise, Win7/8 Pro, WES7, WE8S, WEC7	Win10 IoT Enterprise, WES7, WES8S, WEC7, Linux
Display (Resolution)		10.4" /12.1"/15.1" XGA/SVGA color TFT (1024 x 768/ 800 x 600)	10.4"/12.1" XGA color TFT (1024 x 768) 10.1" widescreen WXGA color TFT (1280 x 800)	8" color TFT (1024 x 600)	10.4" XGA color TFT (1024 x 768)
Touch Screen		Resistive touch screen, P-CAP multi-touch screen	Resistive touch screen with optional defroster, P-CAP multi-touch screen	P-CAP multi-touch screen	P-CAP multi-touch screen
Multimedia		1 x integrated speaker	1 x integrated speaker	1 x integrated speaker, 1 x Mic-In, 1 x Line-In, 1 x Line-Out	1 x integrated speaker
Communication		WLAN*, WWAN*, WPAN*, LAN	WLAN*, WWAN*, WPAN*, LAN	WLAN, WWAN*, WPAN, LAN	WLAN, WPAN, LAN
I/O		Serial, USB, CAN*, RSMA/SMA*	Serial, USB, RSMA/SMA*	Serial, USB, CAN, RSMA/SMA	Serial, USB, RSMA*
Environment	IP	IP66	IP66	IP65	IP65
	Operating Temperature	-30 ~ 50 °C			

* Optional feature

All-in-One Mobile Data Terminal

System		TREK-733L	TREK-773	TREK-734
System	CPU	NXP (Freescale) i.MX6DL Cortex-A9 dual-core 1 GHz	Intel® Atom™ E3827 dual-core, 1.75 GHz	NXP (Freescale) i.MX6DL Cortex-A9 dual-core 1 GHz
	Memory	1 GB DDR3 on board	Up to 4 GB DDR3L-1333 memory (2 GB default)	1 GB DDR3 on board (supports up to 2 GB)
	OS	Android 4.4.2 KitKat	Windows Embedded 8 Standard (32-bit) and Win10 IoT LTSB (32-bit)bdefault	Android 5.1.1 Lollipop
Storage		eMMC 4 GB, Micro SD Card	Cfast, SD Card	eMMC 4 GB, Micro SD Card
Display	Type	7" (16:9) TFT LCD	7" industrial-grade TFT LCD	8" (16:9) TFT LCD
	Resolution	WSVGA (1024 x 600)	WVGA (800 x 480)	WSVGA (1024 x 600)
Touch Screen		Capacitive (multi-touch)	4-wire analog resistive touchscreen with 3H surface hardness and IK06 support	Capacitive (multi-touch)
Multimedia		2 x Mic-In, 1 x 2w speaker	1 x Mic-In, 1x 2w speaker	2 x Mic-In, 2 x 2w speaker
Communication		WLAN + Bluetooth, WWAN, GNSS w/ ext. Antenna	WLAN + Bluetooth, WWAN, GNSS, Antenna, NFC (Optional)	WLAN + Bluetooth, WWAN, GNSS w/ ext. Antenna
I/O		MicroSD, SIM, RS-232, USB 2.0, ISO DI/O, CVBS In, Reset Button	Standard I/O , Extended I/O, Power Button/LED Indicators	Micro USB, MIC-In, Line-In/Out, ISO DI/O, CAN Bus, RS-232, USB 2.0, Reset Button
Environment	IP	N/A	IP54 (excluding I/O); optional IP54 I/O cover	IP54
	Operating Temperature	-20 ~ 70 °C	-30 ~ 60 °C	-20 ~ 70 °C

In-Vehicle Display

		TREK-303RH	TREK-303DH	TREK-306-DH
LCD	Resolution (pixel)	WVGA (800 x 480)	WVGA (800 x 480)	XGA (1024 x 768)
	View Angle	140° /120°	140° /120°	178°/178°
Touchscreen	Size	7" format	7.11" format	10.4" (4:3) format
	Type	4-wire Resistive	4-wire Resistive	5-wire Resistive
	IK Shock-Protection Rate	N/A (IK-07, by project-based)	IK-07 (by project-based)	IK-06 (Resistance against impacts with an energy up to 1,00 J)
Front Panel	Speaker	1 x 2-watt speaker	2 x 2-watt speaker	2 x 2-watt speaker
	Brightness Control	Manually controlled by button, Light sensing (optional)	1 x Built-in light sensor for auto-dimming implementation	1 x Built-in light sensor for auto-dimming implementation
	I/O	USB Port, Smart Display Port, Power button, Reset button		
Environment	Vibration	MIL-STD-810G, SAE J1455 4.9.4.2		
	IP	IP 31, IP 54 (with I/O Cover, by project-based)	IP31, IP 54 (with I/O Cover)	IP55 (with I/O Cover)
	Operating Temperature	-30° C ~ 70° C		

ADVANTECH

In-Vehicle Computing Box

		TREK-530	TREK-572	TREK-570	TREK-674
System	CPU	Qualcomm® Snapdragon APQ8009 Cortex-A7 quad-core, 1.3GHz	Intel® Atom™ E3815 single-core, 1.46 GHz	Intel® Atom™ E3826, dual-core, 1.46 GHz	Intel® Atom™ E3827, dual core, 1.75 GHz
	Memory	2GB LPDDR3 eMCP	1 x 2 GB DDR3L SODIMM 1066 MHz, non-ECC (up to 8 GB)	1 x 2 GB DDR3L SODIMM 1066 MHz, non-ECC (up to 4 GB)	1 x SODIMM socket up to 8 GB DDR3L-1066/1333 non-ECC memory (2 GB default)
	OS	Android 6.0 Marshmallow	WES7, WES8, Win10 IoT LTSB, Linux Ubuntu 14.04 Lite (32 bit), Intel® IDP 3.x Moon Island	WES7, WES8, Win10 IoT LTSB (32 bit), Linux Ubuntu 14.04 Kernel 3.19.0 (32 bit)	WES7, Win10 IoT LTSB (32 bit), WES8, and Linux Ubuntu 14.04 Kernel 3.19.0 (32 bit)
	Video HW Encoder	N/A	N/A	N/A	Stretch S7 with H.264 MJPEG support; up to D1 resolution (30fps)
Storage		eMCP 16GB, MicroSD Card	mSATA	mSATA	Cfast, SSD
Display		N/A	Smart Display Ports	Smart Display Ports, VGA, HDMI	Smart Display Ports, VGA
I/O		Micro USB, MIC-In, Line-Out, ISO DI/O, CAN Bus, J1708, RS-232, RS-485, LAN 10/100, Reset Button	Vehicle I/O, Standard I/O, LED Indicators, Power Button, Reset Button	Vehicle I/O, Generic I/O, Standard I/O, LED Indicators, Power Button, Reset Button	Vehicle I/O, Generic I/O, Standard I/O
Communication		WLAN/Bluetooth, GNSS	WLAN + Bluetooth, WWAN, GNSS, Antenna		
Extension Module		WWAN, Backup Battery, LoRa	N/A	N/A	N/A
Environment	Operating Temperature	-20 ~ 65 °C	-30 ~ 70 °C	-30 ~ 70 °C	-30 ~ 70 °C
	Vibration	MIL-STD-810G, EN60721-3 (5M3)	MIL-STD-810G	MIL-STD-810G, EN60721-3 (5M3)	MIL-STD-810G, EN60721-3 (5M3)

Mobile Tablet and Handheld

		PWS-472	AIM-65	AIM-68	PWS-872
System	CPU	ARM® Cortex™-A53, quad-core, 1.3 GHz	Intel® Atom™ quad-core x5-Z8350 (1.44 GHz)	Intel® Atom™ x7-Z8750 quad-core, 1.6 GHz (2M cache, up to 2.56 GHz)	Intel® Celeron® 3965U, 2.2 GHz Intel® Core™ i3-7100U, 1.7 GHz Intel® Core™ i5-7300U, 2.6 GHz (3.5 GHz Intel® Turbo Boost) Intel® Core™ i7-7600U, 2.8 GHz (3.9 GHz with Intel® Turbo Boost)
	Memory	2 GB LPDDR3	2/4 GB (default 2 GB)	4 GB LPDDR3	SODIMM DDR4 2100 MHz 4GB (up to 16 GB)
	OS	Android 5.1 Lollipop	Windows 10 IoT Enterprise, Android 6.0	Windows 10 IoT Enterprise, Android 6.0	Windows 10 IoT Enterprise(64 bit), Linux Ubunto1604
Storage		eMCP 16 GB, SD Card	eMMC, SD Card	eMMC	mSATA SATA III SSD 64 GB (up to 1 TB) SD Card
Display	Type	5" HD LCD	8" IPS LCD	10.1" FHD LCD	10.1" WXGA LED LCD 10.1" WUXGA LED LCD
	Resolution	HD 1280 x 720	WUXGA 1200 x 1920	WUXGA 1920 x 1200	1280 x 800 resolution, 300-nit brightness, 1920 x 1200 resolution, 1000-nit brightness
Touchscreen	Type	Projective capacitive	10-point multi-touch P-CAP touch control	Corning® Gorilla® Glass 3 with 10-point P-CAP touch control	Multi-touch projected capacitive touchscreen with Corning® Gorilla® Glass 3 panel and support for gloved operation
Multimedia		1 x 1W speaker, 1 x microphone	1 x 1W speaker, 1 x microphone	2 x Internal speakers (2 W), 1 x Audio combo jack	2 x 2W speakers, 1 x Audio combo jack
Camera		Rear: 13-Megapixel auto-focus camera	Front: 2-Megapixel camera Rear: 5-Megapixel camera	Front 2.0-megapixel fixed-focus camera Rear: 5.0-megapixel aufo-focus camera	Front: 2 megapixel CMOS sensor camera with video streaming support Rear: 8 megapixel CMOS sensor camera with LED flash and auto focus
Data Collection		1D/2D barcode scanner*, IR thermometer*, UHF RFID*	1D/2D barcode scanner*, LAN + COM module*, UHF RFID module*	1D/2D barcode scanner*, LAN+COM module*, UHF RFID module*	1D barcode scanner*, 1D/2D barcode scanner*, NFC*, UHF RFID module*, Smart card reader module*, Finger Printer*
I/O		Micro USB, PWS/Scanner Trigger/ Programmable Function Buttons	Standard I/O, Extended I/O, Buttons, LED	Standard I/O, Extended I/O, Docking, Buttons, LED Indicator	USB 3.0, USB 2.0, HDMI 1.4, SIM slot, docking port
Wireless Communication		WLAN/Bluetooth, NFC, WWAN*, GNSS	WLAN/Bluetooth, NFC, WWAN*, GNSS*	WLAN/Bluetooth, WWAN*,GPS*, NFC	WLAN/Bluetooth*, WWAN*,GNSS*
Environment	Operating Temperature	-20 ~ 60 °C	-10 ~ 50 °C	-10 ~ 50 °C	-20 ~ 50 °C
	IP	IP65			
	Drop Tested	Up to 120 cm (4 ft)			

* Optional feature

DLT-V83 Series

Rugged, High–Performance Vehicle-Mounted Terminal

Features

- 10/12/15" color TFT display
- Intel® Core™ i5-4300U/Celeron® 2980U dual-core processor
- Rugged, IP66-rated design with 5M2/5M3 certification
- Fully configurable to support specific application requirements
- Impact tolerant, abrasion-resistant touchscreen with IK08 classification
- Integrated uninterruptible power supply (supports up to 10 minutes operation)
- Wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) for extreme environments
- Latest WLAN standard for seamless roaming
- WWAN for outdoor operations

Introduction

The DLT-V83 series are rugged vehicle-mounted terminals designed to increase productivity and maximize system uptime for logistics applications. Powered by an Intel® Core™ i5/Celeron® processor, DLT-V83 terminals support a wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) to withstand operation in extreme industrial environments (from hot and humid, to dry freezer environments). Deployment of this series ensures data integrity and integration across all logistics operations. Furthermore, the high system configurability, connectivity, and interface diversity allows the terminals to be easily customized to support specification application requirements.
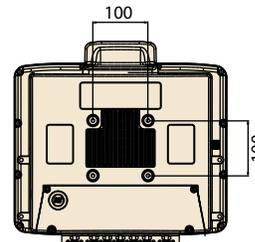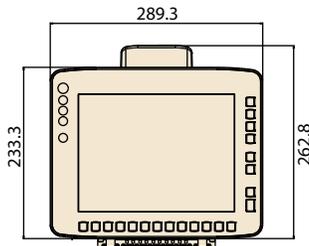
Specifications

System	CPU	Intel® Core™ i5-4300U dual-core, 1.9 GHz, with 4/8 GB RAM Intel® Celeron® 2980U dual-core, 1.6 GHz, with 4/8 GB RAM
	Memory	8/16/32/64/128/256 GB CFast 2.5" SSD with 128 GB (optional)
Housing		Coated aluminum with completely sealed, fanless design
Dimensions (W x H x D)	DLT-V8310	289.3 x 262.8 x 89 mm (11.39 x 10.35 x 3.50 in)
	DLT-V8312	328.4 x 293.9 x 94.7 mm (12.93 x 11.57 x 3.73 in)
	DLT-V8315	390 x 342 x 98 mm (15.35 x 13.46 x 3.86 in)
Weight	DLT-V8310	4.3 kg (9.47 lb) without antenna
	DLT-V8312	5.5 kg (12.12 lb) without antenna
	DLT-V8315	6.2 kg (13.66 lb) without antenna
Display	DLT-V8310 (i5 and Celeron Models)	10.4" XGA color TFT with 1024 x 768 resolution and 400 cd/m² brightness
	DLT-V8310 (Celeron Model)	10.4" SVGA color TFT with 800 x 600 resolution and 400 cd/m² brightness
	DLT-V8312 (i5 and Celeron Models)	12.1" XGA color TFT with 1024 x 768 resolution and 500 cd/m² brightness
	DLT-V8315 (i5 and Celeron Models)	15.1" XGA color TFT with 1024 x 768 resolution and 400 cd/m² brightness
Touchscreen	Type	High-impact tolerant touchscreens available with two control types: - Resistive touchscreen with 5/26 x control buttons - Projected capacitive multi-touch screen with 9 x control buttons - Sunlight-readable resistive touchscreen with 26 x control buttons (Celeron model only)
Control Buttons	Front Panel	5/9/26 x control buttons
Software	Operating System	Windows 10 IoT Enterprise, WE8S, WE 8.1 Industry Pro, WES 7, Win7 Pro, Linux
	Emulations (Third-Party)	VT100, VT220, IBM 5250, TN 3270, Citrix Client®, Freefloat Access One
Communication	WLAN	WLAN IEEE 802.11 a/b/g/n/ac (Optional)
	WWAN	WWAN (LTE, UMTS, HSPA+, GSM, GPRS, EDGE) (Optional)
	LAN	Ethernet 10/100/1000 Mbit/s with optional secondary Ethernet
	WPAN	Bluetooth 4.2 (Optional)
I/O Interfaces	Serial	2 x RS-232, alternatively 1 x RS-232 and RS-422/485
	USB	4 x USB 2.0 (Hi-Speed™) bootable, 1 x service USB
	CAN	Optional
	External Antennas	1 x RSMA for WLAN, 1 x SMA for WWAN (optional)
Audio		1 x integrated speaker (2W)
Power Supply (Internal)		12/24/48 V_{DC} nominal voltage with automatic Power On/Off functionality via vehicle ignition and optional uninterruptible power supply (10 minutes typical); 110/230 V_{AC}, 50/60 Hz, optional for DLT-V8315
Environmental	IP Rating	IP66 rating for the entire system
	Touchscreen Durability	IK08 according to IEC 62262
	Operating Temperature	-30 ~ 50 °C (-22 ~ 122 °F)
	Relative Humidty	10 to 90% at 40 °C (104 °F), non-condensing
	Shock/Vibration	5M3(EN 60721-3-5) for 10" and 12", 5M2 (EN 60721-3-5) for 15" and MIL-STD 810F (US highway truck vibration exposure)
Certification		CE Immunity Class A, Emission Class B/FCC Class B, CCC (for China), MIC (for Japan)

ADVANTECH

Dimensions

Unit: mm

DLT-V8310

289.3 · 233.3 · 262.8 · 89 · 100 · 100

DLT-V8312

328.4 · 263.7 · 293.9 · 94.7 · 100 · 100

DLT-V8315

390 · 313 · 342 · 98 · 100 · 100
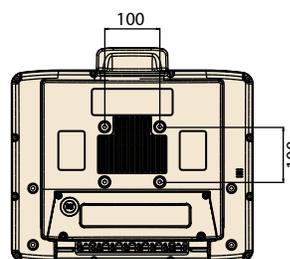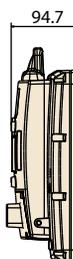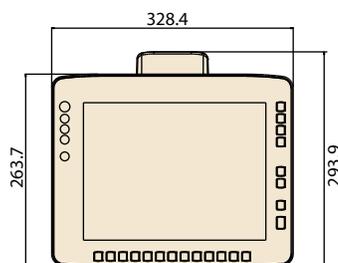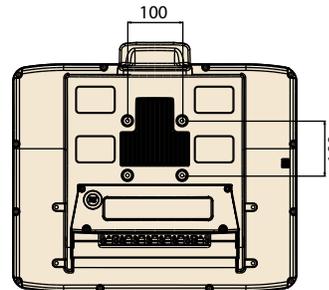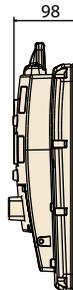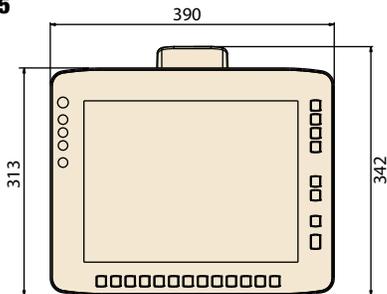
Ordering Information

Part Number	Description	Display	CPU	Touch	Power
DLV8310-1G100F0	DLT-V8310C FL barebone 4GB res SVGA 26key	10.4" SVGA	Intel® Celeron® 2980U Dual Core 1.6 GHz	Resistive touch	DC
DLV8312-1A100F0	DLT-V8312C FL barebone 4GB res XGA 5key	12.1" XGA	Intel® Celeron® 2980U Dual Core 1.6 GHz	Resistive touch	DC
DLV8315-4J300F0	DLT-V8315i5 FL barebone 8GB PCT XGA 9key	15.1" XGA	Intel® Core™ i5- 4300U Dual Core 1.9 GHz	PCT Touch	AC

Further configurations on request!

Optional Accessories

Part Number	Description
DL-MTKT009	Mobile Mounting Bracket
DL-MTRM004	RAM-Mount Set, one arm, arm length 130mm
DL-MTRM003	RAM-Mount Set, one arm, arm length 215mm
DL-MTRM001	RAM-Mount Set, two arms, arm length 150mm

Further configurations on request!

RAM-Mount Set (one arm)

Mobile Mounting Bracket

RAM-Mount Set (two arms)

I/O Connectors

VDC
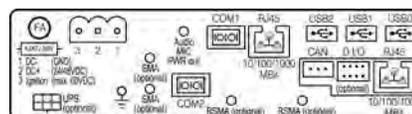
VAC –option only available for DLT-V8315
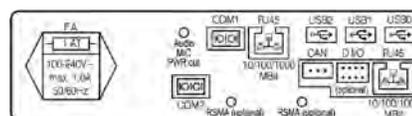
DLT-V72 Series Rugged X86-Based Vehicle-Mounted Terminal

Features

- 10.4/12.1" color TFT display
- Abrasion-resistant touchscreen
- IP66 rating for protection from dust and water ingress
- 5M3 certification for shock and vibration tolerance
- Wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) for extreme environments
- Optional uninterruptible power supply via backup battery (supports up to 20 minutes operation)
- Optional screen defroster, ideal for cold chain and cold storage applications
- Built-in smart sensors for extended functions e.g. screen blanking to reduce accidents

Introduction

DLT-V72 is a rugged vehicle-mounted terminal designed for logistics applications and to provide maximum system uptime. The thin bezel design allows to fit it into the smallest vehicle cabinet. Through it's compact design it does not block the drivers viewable area, hence it is reducing the risk of an accident. Powered by an Intel® Atom™ E3845 quad-core, 1.91 GHz, processor with 4 GB RAM, DLT-V72 supports a wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) to withstand operation in extreme industrial environments (from hot and humid, to dry freezer environments). The integrated Advantech low-profile antenna offers excellent transmission capabilities in a compact form factor. Meanwhile the touchscreen with touch control ensures easy input and gloved operation.

Specifications

|		
System	CPU	Intel® Atom™ E3845 quad-core, 1.91 GHz, 4 GB RAM
	Memory	8GB - 256GB CFast
Dimensions	DLT-V7210	296.4 x 266.2 x 66.7 mm (11.67 x 10.48 x 2.63 in)
	DLT-V7212	334.4 x 294.4 x 68.7 mm (13.17 x 11.59 x 2.70 in)
Weight	DLT-V7210	3.7 kg (8 lb) without battery pack/antenna/accessories
	DLT-V7212	4.65 kg (10 lb) without battery pack/antenna/accessories
Housing		Completely sealed, fanless design made of coated aluminum
Display	DLT-V7210	10.4" XGA color TFT with 1024 x 768 resolution and 400 cd/m² brightness
	DLT-V7212	12.1" XGA color TFT with 1024 x 768 resolution and 500 cd/m² brightness
Touchscreen	Type	- Resistive touchscreen with optional screen defroster - Projective capacitive (P-CAP) touchscreen with multi-touch control
Control Buttons	Front Panel	12 x control buttons
Software	Operating System	Windows 10 IoT Enterprise, Windows 7 Pro, Windows Embedded Standard 7, Debian-based Linux, IGEL Linux
	Emulations (Third-Party)	VT100, VT220, IBM 5250, TN 3270, Citrix Client®, Freefloat Access One
Communication	WLAN	WLAN IEEE 802.11 a/b/g/n/ac (optional)
	WWAN	WWAN (LTE, UMTS, HSPA+, GSM, GPRS, EDGE) (optional)
	LAN	Ethernet 10/100/1000 Mbit/s
	WPAN	Bluetooth 4.2 (optional)
Interfaces	Serial	2 x RS-232, COM1 with switchable 5 V_{DC}/RI
	USB	4 x USB 2.0 (Hi-Speed™) bootable, 1 x service USB 3.0 (Super-Speed™)
	External Antennas	1 x RSMA for WLAN, 1 x SMA for WWAN (optional)
Sensors		Accelerometer, Gyro (optional)
Audio		1 x speaker integrated
Power Supply		12/24/48 V_{DC} nominally Automatic Power On/Off function via vehicle ignition with optional UPS (20 minutes typical); battery life may vary according to load
Environmental	IP Rating	IP66 rating for the entire system
	Operating Temperature	-30 ~ 50 °C (-22 ~ 122 °F)
	Relative Humidty	10 to 90% at 40 °C (104 °F), non-condensing
	Shock/Vibration	5M3 (EN 60721-3-5) and MIL-STD 810F (US highway truck vibration exposure)
	Touchscreen Durability	IK 08
Certifications		CE Immunity Class A, Emission Class B/FCC Class B (for EU and USA)

ADVANTECH

Dimensions

Unit: mm

DLT-V7210

296.40
27.7
266.2
66.70
75
75

DLT-V7212

334.40
68.70
294.4
75
75

Optional Accessories

Part Number	Description
DL-MTKT009	Mounting bracket mobile
DL-MTRM004	RAM-Mount Set, one arm, arm length 130mm
DL-MTRM003	RAM-Mount Set, one arm, arm length 215mm
DL-MTRM001	RAM-Mount Set, two arms, arm length 150mm

Further configurations on request!

I/O Connectors

FA
12.6AT / 250V
3 2 1
RSMA (optional)
SMA (optional)
USB0
USB1
USB2
USB3
RJ45
10/100/1000 MBit
2000029684
COM1
COM2

1 DC- (GND)
2 DC+ (12/24/48VDC)
3 Ignition (max. 60VDC)
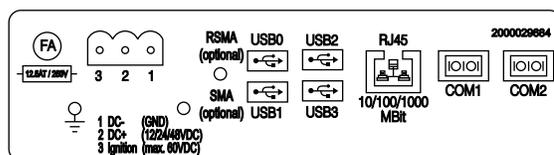
Mount Kit Options

RAM-Mount Set (one arm)

RAM-Mount Set (two arms)

Mobile Mounting Bracket

DLT-V7210 K
DLT-V7210 KD

Rugged, X86-Based Vehicle-Mounted Terminal with Integrated Keyboard

Features

- Intel® Atom™ E3845 quad-core, 1.91 GHz, with 4 GB RAM
- 10.1" widescreen WXGA color TFT display with 1280 x 800 resolution and 500 cd/m² brightness
- Impact-tolerant, abrasion-resistant projected capacitive touchscreen
- Rugged, IP65-rated design with 5M3 certification for shock and vibration tolerance
- Wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F)
- Integrated keyboard for convenient operation
- Optional uninterruptible power supply
- Optional PCT defroster, ideal for cold chain and cold storage applications

Introduction

DLT-V7210 K series is a rugged vehicle-mounted terminal with integrated keyboard designed for logistics applications and to provide maximum system uptime. Powered by an Intel® Atom™ E3845 quad-core, 1.91 GHz, processor with 4 GB RAM, DLT-V7210 K series supports a wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) to withstand operation in extreme industrial environments. DLT-V7210 KD also offers PCT defroster, which is ideal for cold chain and cold storage applications. The low-profile antenna offers excellent transmission capabilities in a compact form factor. Furthermore, the integrated user-friendly keyboard offers convenient operation and efficient data input. Meanwhile, the 10.1" widescreen WXGA color TFT display with touch control allows easy input and configurable touch sensitivity ensures easy operation with gloves.

Specifications

System	CPU	Intel® Atom™ E3845 quad-core, 1.91 GHz, with 4 GB RAM
	Memory	8Gb - 256GB CFast
Dimensions (W x H x D)		297.3 x 264.7 x 80 mm (11.7 x 10.42 x 3.15 in)
Weight		3.7 kg (8.2 lb) without battery pack/accessories
Housing		Coated aluminum with completely sealed, fanless design
Display		10.1" widescreen WXGA color TFT display with 1280 x 800 resolution and 500 cd/m² brightness
Touchscreen	Type	Sunlight-readable projective capacitive touchscreen with multi-touch control (touch sensitivity is configurable)
Control Buttons/Keyboard	Front Panel	12 x control buttons (6 of which are programmable)
	Keyboard	Full-size keyboard (55 keys) with number pad, illuminated keys, and changeable silicon mat; supports on-site replacement; different keyboard versions available (including QWERTY, QWERTZ, AZERTY)
Software	Operating System	Windows 10 IoT Enterprise, Windows 7 Pro, WES7, Debian-based Linux, IGEL Linux
	Emulations (Third-Party)	VT100, VT220, IBM 5250, TN 3270, Citrix Client®, Freefloat Access One
Communication	WLAN	WLAN IEEE 802.11 a/b/g/n/ac (optional)
	WWAN	WWAN (LTE, UMTS, HSPA+, GSM, GPRS, EDGE) (optional)
	LAN	Ethernet 10/100/1000 Mbit/s
	WPAN	Bluetooth 4.2 (optional)
I/O Interfaces	Serial	2 x RS-232, COM1 with switchable 5 V_{DC}/RI
	USB	4 x USB 2.0 (Hi-Speed™) bootable, 1 x service USB 3.0 (Super-Speed™)
	External Antennas	1 x RSMA for WLAN, 1 x SMA for WWAN (optional)
Sensors		Accelerometer, Gyro (optional)
Audio		1 x speaker integrated
Power Supply (Internal)		12/24/48 V_{DC} nominal voltage with automatic Power On/Off function via vehicle ignition and optional uninterruptible power supply (20 minutes typical); battery life may vary according to load
Environmental	IP Rating	IP65 rating for the entire system
	Operating Temperature	-30 ~ 50 °C (-22 ~ 122 °F)
	Relative Humidty	10 to 90% at 40 °C (104 °F), non-condensing
	Shock/Vibration	5M3 (EN 60721-3-5) and MIL-STD 810F (US highway truck vibration exposure)
	Touchscreen Durability	IK 08
Certification		CE Immunity Class A, Emission Class B/FCC Class B (for EU and USA)

Optional Accessories

Part Number	Description
DL-MTKT009	Mounting bracket mobile
DL-MTRM004	RAM-Mount Set, one arm, arm length 130mm
DL-MTRM003	RAM-Mount Set, one arm, arm length 215mm
DL-MTRM001	RAM-Mount Set, two arms, arm length 150mm

Further configurations on request!

Mount Kit Options

RAM-Mount Set (one arm)

RAM-Mount Set (two arms)

Mobile Mounting Bracket

ADVANTECH

DLT-V4108

Vehicle-Mounted Terminal with Integrated Keyboard

Features

- Intel® Atom™ E3826 dual-core, 1.46 GHz, processor
- 8" widescreen color TFT display with high brightness (750 nits)
- Rugged, IP65-rated design with 5M3 certification and integrated keyboard
- LTE, GPS, Wi-Fi®, and Bluetooth® capabilities
- Integrated uninterruptible power supply (supports up to 15 minutes operation)
- Wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) with support for cold storage applications

Introduction

DLT-V4108 is a rugged vehicle-mounted terminal with integrated keyboard; designed to provide maximum service life for logistics applications. With its 5M3 certification and IP65 rating for protection from water and dust ingress, and support for a wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F), DLT-V4108 can withstand operation in extreme industrial environments. The terminal's slim and compact form factor make it suitable for installation in limited spaces, such as narrow vehicle cabins. Furthermore, the integrated ergonomic keyboard (which can be rapidly replaced onsite for easy maintenance) combined with the 8" touchscreen with projected capacitive touch control (which also supports gloved operation) ensure convenient data input and rapid real-time data collection. Finally, the inclusion of Wi-Fi®, LTE, and Bluetooth® technologies offer reliable connectivity and communication for optimized logistics management.

Specifications

System	CPU	Intel® E3826 dual-core, 1.46 GHz, with 4 GB RAM
	Memory	32 GB MLC-Fast
Housing		Coated aluminum with completely sealed, fanless design
Dimensions (W x H x D)		290 x 264 x 60.5 mm (11.42 x 10.39 x 2.38 in)
Weight		3.4 kg (7.49 lb) without antenna
Display		8" color TFT with 1024 x 600 resolution and 750 cd/m² brightness
Touchscreen	Type	Projected capacitive multi-touch
Control Buttons	Front Panel	12 x control buttons
	Keyboard	QWERTY version
Software	Operating System	Windows 10 IoT Enterprise, Windows 7/8 Pro, WES7, WE8S, Windows Embedded Compact 7*
Communication	Wi-Fi	Wi-Fi IEEE 802.11 a/b/g/n
	WWAN	WWAN (GSM, GPRS, EDGE, UMTS, HSPA, LTE) (optional)
	LAN	Ethernet 10/100/1000 Mbit/s with optional secondary Ethernet
	WPAN	Bluetooth
Location-Based Services		GPS (optional)
I/O Interfaces	Serial, USB	1 x RS-232 with 12 V_{DC}, 1 x USB 2.0 host Type A, and 1 x service USB 2.0 with additional USB and RS-232 via master harness cable
	CAN	Via master harness cable
	External Antennas	1 x RSMA for Wi-Fi, 1 x SMA for WWAN, and 1 x SMA for GPS
Audio		1 x speaker integrated 1 x Mic-In, 1 x Line-In, and 1 x Line-Out via master harness cable
Power Supply (Internal)		12/24/48 V_{DC} nominal voltages (9 ~ 60 V_{DC} min./max.) with automatic Power On/Off functionality via vehicle ignition and optional uninterruptible power supply (15 minutes typical)
Environmental	IP Rating	IP65 rating for the entire system
	Touchscreen Durability	IK 06 according to IEC 62262
	Operating Temperature	-30 ~ 50 °C (-22 ~ 122 °F)
	Relative Humidty	10 to 90% at 40 °C (104 °F), non-condensing
	Shock/Vibration	5M3 (EN 60721-3-5) and MIL-STD 810F (US highway truck vibration exposure)
Certification		CE Immunity Class A, Emission Class B/FCC Class B, CCC (for China)

Ordering Information

Part Number	Description	CPU	Memory	Storage	Wi-Fl	BT	GPS	LTE	OS	OS language
DLV4108-7PL210W0E	DLT-V4108 32G Cfast/Win10IoT/WIFI	Intel Atom E3826 Dual Core 1.46GHz	4GB	32GB	V	V	X	X	Win10IoT	English, German, Chinese simpl.
DLV4108-7PL21FW0E	DLT-V4108 32G Cfast/Win10IoT/WIFI+GPS+LTE(EU)	Intel Atom E3826 Dual Core 1.46GHz	4GB	32GB	V	V	V	V	Win10IoT	English, German, Chinese simpl.
DLV4108-7PL21DW0E	DLT-V4108 32G Cfast/Win10IoT/WIFI+GPS+LTE(China)	Intel Atom E3826 Dual Core 1.46GHz	4GB	32GB	V	V	V	V	Win10IoT	English, German, Chinese simpl.
DLV4108-7PL21SW0E	DLT-V4108 32G Cfast/Win10IoT/WIFI+GPS+LTE(US)	Intel Atom E3826 Dual Core 1.46GHz	4GB	32GB	V	V	V	V	Win10IoT	English, German, Chinese simpl.
DLV4108-7PL2M0W1E	DLT-V4108 32G Cfast/WIFI/32G Cfast/ WEC7 English	Intel Atom E3826 Dual Core 1.46GHz	4GB	32GB	V	V	X	X	WEC7	English
DLV4108-7PL2M0W0E	DLT-V4108 32G Cfast/WIFI/32G Cfast/ WEC7 Chinese simpl.	Intel Atom E3826 Dual Core 1.46GHz	4GB	32GB	V	V	X	X	WEC7	Chinese simpl.

* Further configurations on request!

DLT-V6210

Compact Vehicle-Mounted Terminal with Sunlight-Readable Display

Features

- Intel® Atom™ E3825 dual-core, 1.33 GHz, with 4 GB RAM

- 10.4" XGA color TFT display with 600/1300 cd/m² brightness for both indoor and outdoor applications

- Rugged, IP65-rated design with 5M3 certification

- Impact-tolerant, abrasion-resistant projected capacitive touchscreen

- Wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F) with support for cold storage applications

Introduction

DLT-V6210 is a rugged vehicle-mounted terminal designed for efficient logistics applications. With its IP65-rating for protection from water and dust ingress, wide operating temperature range (-30 ~ 50 °C/-22 ~ 122 °F), rugged design, as well as impact-tolerant, scratch-resistant projected capacitive multi-touch display, DLT-V6210 is built to withstand operation in extreme industrial environments. Moreover, the terminal's sunlight-readable display supports operation in direct sunlight for outdoor applications. Finally, a low-profile external Wi-Fi antenna is included to ensure reliable connectivity for logistics and fleet management.

Specifications

System	CPU	Intel® Atom™ E3825 dual-core, 1.33 GHz, with 4 GB RAM
	Memory	32 GB CFast
Dimensions (W x H x D)		285.25 x 256.7 x 70 mm (11.23 x 10.11 x 2.76 in)
Weight		3.2 kg (7.05 lb)
Housing		Coated aluminum with completely sealed, fanless design
Display		10.4" XGA color TFT with 1024 x 768 resolution and 600/1300 cd/m² brightness
Touchscreen	Type	Projected capacitive touchscreen with multi-touch control
Control Buttons	Front Panel	3 x control buttons (1 x power, 1 x brightness up, 1 x brightness down)
Software	Operating System	Win10 IoT Enterprise, WES7, WES8S, WEC7, Linux
Communication	Wi-Fi	Wi-Fi IEEE 802.11 a/b/g/n
	WPAN	Bluetooth 4.0
	LAN	2 x LAN RJ45 10/100/1000 Mbit/s
I/O Interfaces	Serial	1 x RS-232; 5 V$_{DC}$
	USB	2 x USB host Type A, 5 V$_{DC}$, 500 mA
	RSMA	1 x RSMA for external Wi-Fi antenna (optional)
Audio		1 x speaker integrated
Power Supply		12/24/48 V$_{DC}$ nominal voltages with automatic Power On/Off functionality via vehicle ignition
Environmental	IP Rating	IP65 rating for the entire system
	Operating Temperature	-30 ~ 50 °C (-22 ~ 122 °F)
	Relative Humidity	10 to 95% at 25 °C (77 °F), non-condensing
	Shock/Vibration	5M3 (EN 60721-3-5) and MIL-STD 810F (US highway truck vibration exposure)
	Touchscreen Durability	IK 08
Certification		CE Immunity Class A, Emission Class B/FCC Class B (for EU and USA), BSMI/NCC (for Taiwan), TELEC (for Japan), CCC/SRRC (for China)

Ordering Information

Part Number	Description	CPU	Memory	Storage	Wi-Fi	BT	GPS	3G	OS	OS language
DLV6210-7PL170W0E	DLT-V6210 PCAP/32GB/600nits/WiFi/WES7	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	WES7	10 MUI (incl. English, German, Japanese, Chinese trad., Chinese simpl.)
DLV6210-7HL170W0E	DLT-V6210 PCAP/32GB/1300nits/WiFi/WES7	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	WES7	10 MUI (incl. English, German, Japanese, Chinese trad., Chinese simpl.)
DLV6210-7PL110W0E	DLT-V6210 PCAP/32GB/600nits/WiFi/Win10IoT	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	Win10IoT	English, German, Japanese, Chinese simpl.
DLV6210-7HL110W0E	DLT-V6210 PCAP/32GB/1300nits/WiFi/Win10IoT	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	Win10IoT	English, German, Japanese, Chinese simpl.
DLV6210-7PL1P0W0E	DLT-V6210 PCAP/32GB/600nits/WiFi/Win7 Prof.	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	WIN7P	10 MUI (incl. English, German, Japanese, Chinese trad., Chinese simpl.)
DLV6210-7HL1P0W0E	DLT-V6210 PCAP/32GB/1300nits/WiFi/Win7 Prof.	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	WIN7P	10 MUI (incl. English, German, Japanese, Chinese trad., Chinese simpl.)
DLV6210-7PL1M0W0E	DLT-V6210 PCAP/32GB/600nits/WiFi/WEC 7	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	WEC7	English
DLV6210-7HL1M0W0E	DLT-V6210 PCAP/32GB/1300nits/WiFi/WEC 7	Intel Atom E3825 Dual Core 1.33GHz	4GB	32GB	V	V	X	X	WEC7	English

Further configurations on request!

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DLT-M8110

Detachable, Rugged, X86-Based Vehicle-Mounted Terminal

Features

- 10.4" XGA display with P-CAP or resistive touchscreen
- Intel® Atom™ E3827 dual-core, 1.75 GHz, processor
- 4 x programmable dual-function keys
- Hot-swappable battery pack that supports up to 8 hours operation
- Built-in camera, 2D barcode scanner, and Wi-Fi technology
- Fully rugged terminal with MIL-STD-810F and IP65 certification

Introduction

DLT-M8110 is a fully rugged detachable vehicle-mounted terminal designed to satisfy warehouse requirements. Powered by an Intel® Atom™ E3827 processor with 4 GB of DDR3L memory, DLT-M8110 features integrated Wi-Fi technology for logistics operations, Bluetooth 4.0 for connecting peripheral devices, and a built-in camera and 2D barcode scanner for data collection. The inclusion of an external hot-swappable battery that supports up to 8 hours of off-vehicle operation ensures convenient long-duration usage. Finally, DLT-M8110 is 5M3 and MIL-STD-810F certified for shock and vibration tolerance as well as IP65 rated for protection from dust and water ingress, making it ideal for industrial warehouse applications.

Specifications

System	CPU	Intel® Atom™ E3827 dual-core, 1.75 GHz
	Storage	1 x SODIMM, DDR3L-1067, 4 GB 1 x mSATA SSD with 32/128 GB
Housing		Completely sealed, fanless design with hardened polypropylene coating
Dimensions (W x H X D)	Terminal w/o Handstrap	309.36 x 221 x 31.8 mm (12.18 x 8.70 x 1.25 in)
Weight		1.3 kg (2.86 lb)
Display	Type	10.4" XGA (1024 x 768), 4:3 format, with optional P-CAP or resistive touch
	Touchscreen	Optional P-CAP or resistive touch
	Brightness	400 cd/m² typical
Control Buttons	Front Panel	7 x control buttons (4 x programmable dual-function keys plus 1 x Scan, 1 x Power, 1 x Shift function button)
Software	Operating System	Windows Embedded 8 Standard, Windows Embedded 8.1 Industry Pro, Windows Embedded Standard 7, Windows 7 Pro (64 bit), Windows 10 IoT
Communication	Wi-Fi (Terminal)	WLAN IEEE 802.11 a/b/g/n integrated, dual-band diversity
	WPAN	Bluetooth 4.0
Camera		5-megapixel CMOS camera with auto-focus
Scan Functionality		1D/2D barcode scanner
Audio		2 x integrated speakers
Interfaces	USB	1 x USB 3.0 (underneath battery pack) 1 x SMA antenna (rear) for Wi-Fi passthrough (terminal to antenna) 1 x Pogo pins (Positioned on the button) for electrical docking/undocking interface
Power Supply		1 x DC-In underneath battery pack (12 V$_{DC}$) Slim hot-swappable battery pack supports 2.5 hours operation Optional large hot-swappable battery pack supports 8 hours operation
Environmental	IP Rating	IP65
	Operating Temperature	-20 ~ 50 °C (-22 ~ 122 °F)
	Relative Humidity	10 ~ 90% at 40 °C (104 °F), non-condensing
	Shock/Vibration	5M3 (DIN EN 60721-3-5) and MIL-STD 810F (US highway truck vibration exposure)
Certifications		CE/FCC Class B, UL/cUL, JATE

Ordering Information

Part Number	Description	CPU	Memory	Storage	Wi-Fi	BT	GPS	3G	OS	OS language
DLM8110-7R31E0W0E	DLT-M8110 Resist/4GB RAM/32GB mSATA/WiFi/WE8S	Intel Atom E3827 Dual Core 1.75GHz	4GB	32GB	V	V	X	X	WE8S	English, German, Chinese simpl.
DLM8110-7P31E0W0E	DLT-M8110 PCAP/4GB RAM/32GB mSATA/WiFi/ WE8S	Intel Atom E3827 Dual Core 1.75GHz	4GB	32GB	V	V	X	X	WE8S	English, German, Chinese simpl.

Further configurations on request!

Packing List

- Power Cable VDC 3m

Mount Kit Options

Part Number	Description
DLT-M8110-MOUNT0E	Mount kits (all)
DLT-M8110-BKTVEH0E	Vehicle Base
DLT-M8110-BKTKB0E	IR Keyboard
DLT-M8110-BKTFKB0E	Front Keyboard
DLT-M8110-BKTBAR0E	Barcode 1
TBC	Barcode 2

TREK-530

Compact RISC-Based In-Vehicle Computing Box for Fleet Management

Features

- Qualcomm® Snapdragon™ 212 quad-core ARM® Cortex™-A7 SoC with Android 6.0 Marshmallow
- Built-in WLAN, Bluetooth, and GNSS (including BeiDou) modules with external antenna via FAKRA connector
- Modularized design with two extension slots for optional expansion (such as an LTE 4G module or battery) according to application requirements
- Compatible with 12/24V vehicle power
- Multiple isolated DI/O; DI supports dry/wet contact and vehicle speed sensor inputs for measuring distance
- Compliant with MIL-STD-810G and 5M3 standards for shock/vibration tolerance
- Equipped with Advantech's industrial-grade Android Remote General Utilities System (ARGUS) OS for remote management

Introduction

TREK-530 is a compact RISC-based in-vehicle computing box equipped with a Qualcomm® Snapdragon™ 212 quad-core ARM® Cortex™-A7 SoC, isolated DI/O, and two extension slots for optional expansion. Built-in WLAN, Bluetooth, and GNSS modules offer enhanced connectivity, while periodic, digital input, and WWAN suspend/resume functionality supports remote monitoring, making TREK-530 ideal for logistics and fleet management. Moreover, the system's wide operating temperature range (-20 ~ 65 °C), support for 12/24V vehicle power, and compliance with MIL-STD-810G and 5M3 shock/vibration standards ensures TREK-530 can withstand operation in harsh environments.

Specifications

Category	Subcategory	Details
Core	Processor	Qualcomm® Snapdragon™ 212 APQ8009 quad-core ARM® Cortex™-A7 (1.3 GHz) SoC
	Memory	2 GB
	Operating System	Android 6.0 Marshmallow
Storage	eMCP	16 GB
	SD Card	1 x Externally accessible MicroSD (push-push type) with cover
Sensor	G-Sensor	Triple-axis accelerometer (±2g/4g/8g)
I/O	Standard I/O	1 x Micro USB OTG (Mini USB) with cover (for debugging) 1 x MicroSD slot with cover
	Generic I/O (High-Density Connector)	1 x Mic-In, 1 x Line-Out 4 x Isolated DI (dry/wet contact) 2 x Isolated DO (open-collector output with relay driver) 1 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765; firmware configurable) 1 x J1708 (J1587) 1 x USB 2.0 Host 1 x 4-wire RS-232 1 x 4-wire RS-232/RS-485 (software configurable)
	LAN	1 x LAN 10/100
	LED Indicators	1 x Power
	Buttons	1 x Reset button with cover
Wireless Communication	WLAN/Bluetooth	IEEE 802.11 a/b/g/n dual band (2.4/5 GHz) and Bluetooth V4.1 Class 1 (with external antenna via FAKRA connector)
GNSS	Sensitivity	GPS, GLONASS, and AGPS (BeiDou upon request) support (with external antenna via FAKRA connector)
System Power	Input Voltage	Supports 12/24V vehicle power (9 ~ 32V DC input)
	Intelligent Vehicle Power Management	Power on/off management (e.g., programmable ignition on/off delay) RTC wake-up events Power system protection System monitoring and diagnostics (e.g., programmable vehicle battery protection with low voltage disconnect)
Extension Module	WWAN	Sierra Wireless MC7304 via extension module (EU) ▪ LTE: B1, B3, B7, B8, B20 Sierra Wireless MC7354 via extension module (US) ▪ LTE: B2, B4, B5, B13, B17, B25 (external antenna via FAKRA connector)
	Backup Battery Pack	3.6V, 2100mAh. Supports up to 30 minutes operation under full load/2 hrs operation with low power consumption. Charging time approximately 3 hrs.
Mechanical	Mount Options	2 x M4 screw holes
	Dimensions (W x D x H)	164.65 x 109.78 x 60 mm (6.48 x 4.32 x 2.36 in)
	Weight	410g (0.903 lb)

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Specifications Cont.

Environment	Operating Temperature	-20 ~ 65 °C (-4 ~ 149 °F), without backup battery
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)
	IP Rating	IP54 for I/O cover
	Vibration/Shock	MIL-STD-810G, EN60721-3 (5M3)
	Vehicle Regulations	E-mark (E13) (12/24 V system), ISO 7637-2, SAE J1455
	Safety	UL/cUL, CB
	Certifications	CE, FCC, CCC, PTCRB, verizon
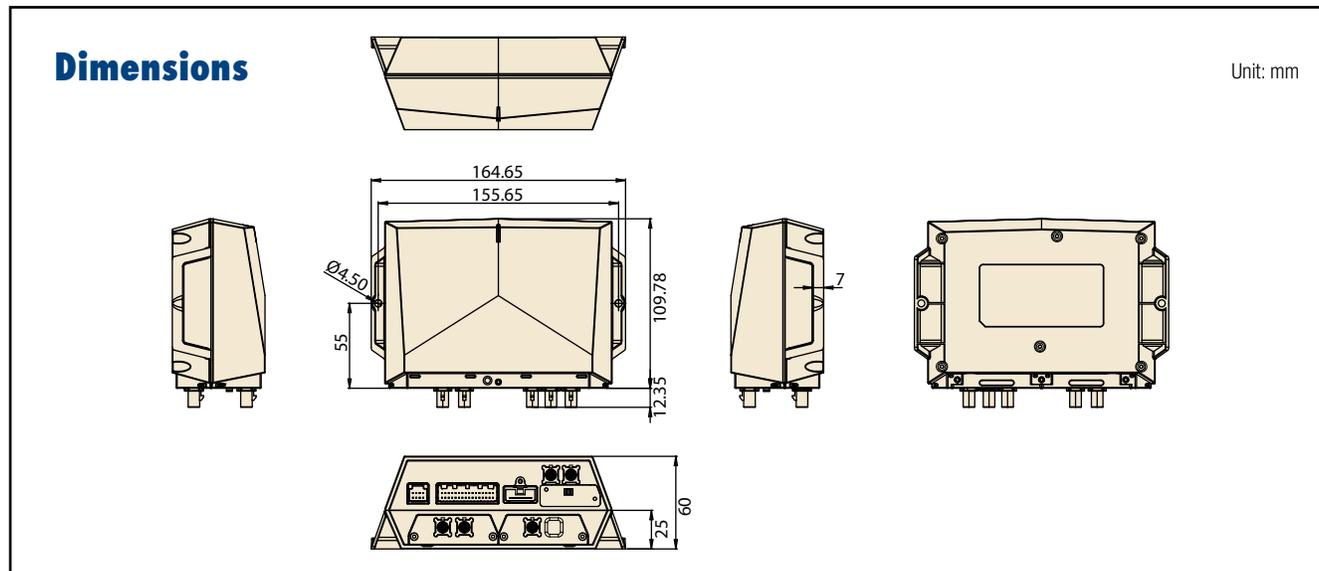
Dimensions

Unit: mm

Modularized I/O

Power input
High-density connector
LAN
WLAN/BT antenna
GNSS antenna
WWAN (main)
WWAN (auxiliary)
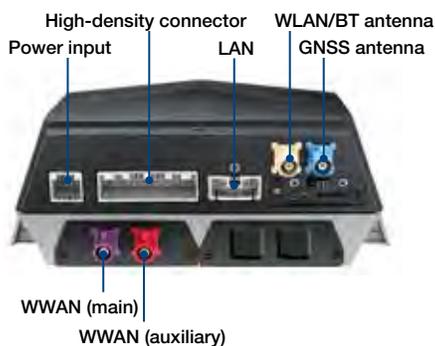
Ordering Information

Part Number	Configuration							
	CPU	Memory	Storage	Wi-Fi	BT	GNSS	4G	OS
TREK-530-GWBADA20	Qualcomm APQ8009	2 GB	16 GB	Yes	Yes	Yes	-	Android 6.0
TREK-530-LWBADA20	Qualcomm APQ8009	2 GB	16 GB	Yes	Yes	Yes	LTE-EU	Android 6.0
TREK-530-LWBADB20	Qualcomm APQ8009	2 GB	16 GB	Yes	Yes	Yes	LTE-US	Android 6.0

Packing List

- 1 x vehicle power cable
- 1 x LAN adaptor cable

Optional Accessories

Part Number	Description
1700027666-01	Power cable for testing
1700027992-01	High-density cable
1750008764-01	WWAN antenna
1750008765-01	WWAN+GPS antenna
1750008763-01	Wi-Fi+BT antenna
TREK-530-BAT000	Backup battery, 3.6V/2100mAh/1S1P
TREK-530-IPCOVER	IP54-rated I/O cover

TREK-570

Compact In-Vehicle Computing Box for Fleet Management

Features

- Intel® Atom™ E3826 system-on-chip (SOC) processor
- Can be paired with TREK-303/306 in-vehicle smart display via a single-cable connection
- Supports real-time rear view monitoring
- Dual independent displays/audio outputs for in-vehicle infotainment and digital signage applications
- Vehicle diagnostics interface with support for configurable CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Built-in GNSS, WLAN, Bluetooth, and WWAN (with a dual SIM card slot) modules
- Intelligent vehicle power management system for ignition on/off delay, wake-up event control, system health monitoring, and diagnostics functions
- Wide operating temperature range (-30 ~ 70 °C/-22 ~ 158 °F)
- Compliant with 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance

Introduction

TREK-570 is a compact and economical in-vehicle computing box powered by an Intel® Atom™ E3826 SOC and can be paired with TREK-303/306 in-vehicle smart displays via a single-cable connection. Aimed at fleet management applications, TREK-570's wide operating temperature and MIL-STD-810G and 5M3 certification for shock vibration resistance enable it to withstand harsh environments. The inclusion of an intelligent vehicle power management (VPM 2.0) chip protects against transient voltage (ISO 7637-2/ SAE J1455/SAE J1113) and enables programmable functions (ignition on/off, delay on/off, and low battery monitoring). TREK-570 also features various I/O for integrating CAN bus devices and peripherals, such as a tire pressure monitoring system. The dual CAN bus ports support diverse protocols (J1939, OBD-II/ISO 15765) to facilitate vehicle diagnostics and driver behavior management. Built-in wireless communication technologies (WLAN, WWAN, Bluetooth) enable vehicle tracking and real-time data transmissions to a centralized control center. Furthermore, TREK-570 also supports dual independent displays/audio outputs for in-vehicle infotainment and digital signage applications.

Specifications

Core	Processor	Intel® Atom™ E3826, dual-core, 1.46 GHz
	Memory	1 x 2 GB DDR3L SODIMM 1066 MHz, non-ECC (up to 4 GB)
	Graphics	Integrated 2D/3D graphics engine
	Operating System	WES7, WES8, Win10 IoT LTSB (32 bit), Linux Ubuntu 14.04 Kernel 3.19.0 (32 bit)
Storage	mSATA	1 x 16 GB UMLC, SQFlash mSATA, with support system bootup
Display	Smart Display Ports[1]	1 x 12V/2A power output for TREK-30x 1 x 18-bit LVDS with 800 x 480/1024 x 768 resolution and automatic detection 1 x Line-Out2 (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, and brightness/light sensor control) 1 x USB 2.0 Type A 1 x Power button 1 x Reset button
	VGA	1 x DB15 (up to 2560 x 1600 resolution)
	HDMI[3]	1 x HDMI (up to 2560 x 1600 resolution)
I/O	Vehicle I/O	2 x CAN bus with raw CAN, J1939, and OBD-II/ISO 15765 support (configurable via firmware) 1 x J1708 with J1587 support 1 x 4-wire RS-485 with auto flow control
	Generic I/O	2 x 4-wire RS-232 4 x Isolated DI (dry contact) 4 x Isolated DO (open collector output, driven by relay) 1 x CVBS-In (for real-time rear view monitoring) 1 x Line-Out2 1 x Mic-In
	Standard I/O	1 x USB 3.0 Type A (rear side, with cable clip) 1 x USB 2.0 Type A (rear side, with cable clip) 1 x High-speed full RS-232, DB-9 (Pin 9 = ring, 12/5 V @0.5 A in BOM; optional via jumper setting) 1 x Giga LAN, with locking RJ45 connector
	LED Indicators	5 x LEDs: 1 x Power (red), 1 x Storage (yellow), 1 x WLAN (green), 1 x WWAN (green), 1 x GPS (yellow)
	Power Button	Via TREK-30x in-vehicle smart display; system is powered on by vehicle ignition as a default
	Reset Button	1 x Reset button (rear side)
RF	WLAN + Bluetooth	IEEE 802.11a/b/g/n + Bluetooth V4.0 combo module via full mini PCIe slot (optional high-power WLAN/WLAN roaming available upon request)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev. a1, 1xRTT) Sierra Wireless MC73xx via full mini PCIe slot (default: MC7354 for US/MC7304 for EU)
	GNSS	MAC-M8Q/W GPS/GLONASS/BeiDou 3 in 1 module
	Antenna	5 x SMA-type antenna holes for GPS, Wi-Fi+Bluetooth MIMO, WWAN/LTE MIMO[4]
Power	Input Voltage	Compatible with 12/24 V vehicle power (6 ~ 32 VDC input; ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off delay) Supports wake-up events: Wake on Alarm (RTC), Wake by Call/SMS, Wake by G-sensor, and Wake by DI (DI0 & DI1) System power protection (low voltage protection for vehicle battery) System monitoring and diagnostics
Mechanical	Dimensions (W x H x D)	Standalone unit: 230 x 72 x 118 mm (9.05 x 2.83 x 4.64 in) With IP54-rated I/O cover: 230 x 72 x 198 mm (9.05 x 2.83 x 7.79 in)
	Weight	Standalone unit: 1.45 kg (3.19 lb) With IP54-rated I/O cover: 1.95 kg (4.29 lb)

Ordering Information

Part Number	Description		Part Number	Description
TREK-570-00A0E	TREK-570 Intel BYT E3826, dual-core, 1.46 GHz, barebone unit		TREK-570-LWBXA0E	TREK570 w/LTE(EU)/GPS/WLAN/BT/W10 IoT LTSB
TREK-570-HWB7A0E	TREK-570 w/LTE (EU)/GPS/WLAN/BT/WES7		TREK-570-LWBXB0E	TREK570 w/LTE(US)/GPS/WLAN/BT/W10 IoT LTSB
TREK-570-LWB7B0E	TREK-570 w/LTE (US)/GPS/WLAN/BT/WES7			

Note: WES8, and Linux OS images are available upon request.

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TREK-572

Ultra Compact In-Vehicle Computing Box for Fleet Management

Features

- Intel® Atom™ E3815 system-on-chip (SOC) processor
- Can be paired with TREK-303/306 in-vehicle smart display via a single-cable connection
- Supports Intel® IDP 3.x Moon Island
- Vehicle diagnostics interface with support for configurable CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Built-in GNSS, WLAN, Bluetooth, and WWAN (with a SIM card slot) modules
- Intelligent vehicle power management system for ignition on/off delay, wake-up event control, system health monitoring, and diagnostics functions
- Wide operating temperature range (-30 ~ 70 °C/-22 ~ 158 °F)
- Compliant with 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance

Introduction

TREK-572 is a compact and economical in-vehicle computing box powered by an Intel® Atom™ E3815 SOC and can be paired with TREK-303/306 in-vehicle smart displays via a single-cable connection. Aimed at fleet management applications, TREK-572's wide operating temperature and MIL-STD-810G and 5M3 certification for shock vibration resistance enable it to withstand harsh environments. The inclusion of an intelligent vehicle power management (VPM 2.0) chip protects against transient voltage (ISO 7637-2/ SAE J1455/SAE J1113) and enables programmable functions (ignition on/off, delay on/off, and low battery monitoring). TREK-572 also features various I/O for integrating CAN bus devices and peripherals, such as a tire pressure monitoring system. The dual CAN bus ports support diverse protocols (J1939, OBD-II/ISO 15765) to facilitate vehicle diagnostics and driver behavior management. Built-in wireless communication technologies (WLAN, WWAN, Bluetooth) enable vehicle tracking and real-time data transmissions to a centralized control center.

Specifications

Core	Processor	Intel® Atom™ E3815, single-core, 1.46 GHz
	Memory	1 x 2 GB DDR3L SODIMM 1066 MHz, non-ECC (up to 8 GB)
	Graphics	Integrated 2D/3D graphics engine
	Operating System	WES7, WES8, Win10 IoT LTSB, Linux Ubuntu 14.04 Lite (32 bit), Intel® IDP 3.x Moon Island (available upon request)
Storage	mSATA	1 x 16 GB UMLC, SQFlash mSATA, with support system bootup
Display	Smart Display Ports[1]	1 x 12V/2A power output for TREK-30x 1 x 18-bit LVDS with 800 x 480/1024 x 768 resolution and automatic detection 1 x Line-Out2 (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, and brightness/light sensor control) 1 x USB 2.0 Type A 1 x Power button 1 x Reset button
I/O	Vehicle I/O	2 x CAN bus with raw CAN, J1939, and OBD-II/ISO 15765 support (configurable via firmware) 1 x J1708 with J1587 support 1 x 4-wire RS-232 (RX/TS/CTS/RTS)
	Standard I/O	1 x USB 2.0 Type A (rear side) 1 x Giga LAN with standard RJ45 connector 1 x Line-Out2 1 x Mic-In
	LED Indicators	1 x Power LED (red)
	Power Button	Via TREK-30x in-vehicle smart display; system is powered on by vehicle ignition as a default
	Reset Button	1 x Reset button (rear side)
RF	WLAN + Bluetooth	IEEE 802.11a/b/g/n + Bluetooth V4.0 combo module via full mini PCIe slot (optional high-power WLAN/WLAN roaming available upon request)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev. a1, 1xRTT) Sierra Wireless MC73xx via full mini PCIe slot (default: MC7354 for US/MC7304 for EU) 1 x Internal mini SIM card slot
	GNSS	1 x u-blox MAX-7Q GPS/GLONASS module with AGPS support (optional 3-in-1 GPS/GLONASS/BeiDou module available upon request)
	Antenna	3 x SMA-type antenna holes for GPS, Wi-Fi+Bluetooth MIMO, WWAN/LTE MIMO[3]
Power	Input Voltage	Compatible with 12/24 V vehicle power (9 ~ 32 VDC input; ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off delay) Supports wake-up events: Wake on Alarm (RTC) and Wake by G-sensor System power protection (low voltage protection for vehicle battery) System monitoring and diagnostics

[1] When paired with TREK-303/306 via a single-cable connection
[2] Both Line-Out interfaces share a single audio codec and the same audio stream
[3] The box-side connector is RP-SMA, female (external female thread with male internal pin)

Ordering Information

Part Number	Description
TREK-572-LWB7B0E	TREK-572 w/LTE(US)/GPS/WLAN/BT/WES7
TREK-572-LWB7A0E	TREK-572 w/LTE(EU)/GPS/WLAN/BT/WES7

Notes:
a. Win10 IoT LTSB and Linux OS images are available upon request.
b. SKU for Europe will be available soon.
c. TREK-572 can only output to TREK in-vehicle smart displays. If you require a display unit to serve as a driver console, please order a TREK-30x unit and connecting cable.

TREK-674

Compact In-Vehicle Computing Box for Fleet Management and Surveillance

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Features

- Vehicle diagnostics interface with configurable CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Embedded Stretch S7 video encoder supports up to 8 analog video inputs and 4 audio inputs
- Built-in GNSS, WLAN, Bluetooth, and WWAN (with dual SIM cards) modules
- Intelligent vehicle power management system supports ignition on/off/delay functions, wake-up event control, and system health monitoring and diagnostics
- Accessible external SSD tray with key-lock protection
- Wide operating temperature range (-30 ~ 70 °C/-22 ~ 158 °F)
- Supports 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance
- Easily paired with TREK in-vehicle smart displays (TREK-303/306) via a single-cable connection

Introduction

TREK-674 is a compact vehicle-grade, dual-core computing box designed to provide high-quality video surveillance and fleet management for police, ambulance, fire engine, and bus fleets. The inclusion of GNSS, WLAN, Bluetooth, and WWAN (with dual SIM cards) modules allows remote monitoring and vehicle tracking even in tunnels. TREK-674 also features several vehicle protocols (J1939, OBD-II/ISO 15765) for vehicle diagnostics and driver behavior management, and supports up to 8 channel camera inputs for high-quality H.264 D1/30fps/ch recording. The USB 3.0 port, dual SIM card sockets, and Cfast slots are front-facing to ensure ease of maintenance. Meanwhile an external swappable SSD tray is provided for video data backups.

Specifications

Core	Processor	Intel® Atom™ E3827 (dual core, 1.75 GHz)
	Memory	1 x SODIMM socket Up to 8 GB DDR3L-1066/1333 non-ECC memory (2 GB default)
	Graphics	Integrated 2D/3D graphics engine
	Video HW Encoder	Stretch S7 with H.264 MJPEG support; up to D1 resolution (30fps) per channel
	Operating System	WES7, Win10 IoT LTSB (32 bit), WES8, and Linux Ubuntu 14.04 Kernel 3.19.0 (32 bit) upon request
Storage	CFast	1 x externally accessible CFast slot with cover and supports system boot up 16 GB, UMLC SQFlash Cfast (default)
	SSD	1 x externally accessible 2.5" SSD tray with key-lock protection, supports system boot up 64 GB, UMLC SQFlash SSD (default)
Display	Smart Display Port [1]	12V/2A power output for TREK-30x 1 x 18-bit LVDS (800 x 480/1024 x 768 resolution with auto-detection) 1 x Line-Out2 (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, brightness, and light sensor control) 1 x USB 2.0 Type A 1 x PWR button 1 x Reset button
	VGA	1 x DB15 (up to 2560 x 1600 resolution)
I/O	Vehicle I/O	2 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765; configurable via firmware) 1 x J1708 (supports J1587)
	Generic I/O	1 x RS-485 with auto flow control 1 x 4-wire RS-232 4 x Isolated DI (dry contact) 2 x Isolated DO (open collector output, driven by relay) 1 x Line-Out [2] 1 x Mic-In
	Standard I/O	1 x USB 3.0 Type A (front) 2 x USB 2.0 Type A (rear, with cable clip) 1 x High-speed full RS-232, DB-9 (Pin 9 = ring, 12/5 V @0.5A is BOM optional via jumper setting) 2 x Giga LAN, with locked-type RJ45 connector
RF	Video/Audio Input (Via DVI-I Connector)	8 x Video inputs with video compression, H.264, MJPEG support, and up to D1 resolution (30fps) per channel 4 x Audio inputs with G.711 audio compression
	LED Indicators	5 x LEDs: Power (red), Storage (yellow), WLAN (green), WWAN (green), and GPS (yellow)
	Power Button	Via TREK-30x in-vehicle smart display; system power on by ignition as default
	Reset Button	1 x Reset button (front)
	WLAN + Bluetooth	IEEE 802.11a/b/g/n + Bluetooth V4.0 combo module via full-size mini PCIE slot (Optional high-power WLAN/WLAN for roaming available upon request)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT): Sierra Wireless MC73xx via full-size mini-PCIe slot (MC7354 for US/MC7304 for EU as default) 2 x external accessible mini-SIM card sockets (selectable) with cover
	GNSS	Built-in u-blox MAX-M8W GPS/GLONASS/BeiDou module with A-GPS support (Optional LEA-6R or Neo-M8L (dead reckoning) available upon request)
	Antenna	4 x SMA-type antenna holes for GPS, Wi-Fi+BT, WWAN/LTE MIMO [3]
Power	Voltage input	Supports 12/24 V vehicle power, 9 ~ 32 V$_{DC}$ input (ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off/delay) Supports wake-up events: wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor System power protection (vehicle battery low voltage protection) System monitoring and diagnostics
Mechanical	Dimensions (W x H x D)	294 x 73 x 184 mm (11.57 x 2.87 x 7.24 in)
	Weight	3.5 kg (7.71 lb)

[1] For direct pairing with TREK-303/306 via a single-cable connection
[2] Supports dual independent audio streams (the Line-Out interfaces of the smart display and generic I/O are driven by different audio codecs)
[3] The TREK-674 connector type is female RP-SMA (e.g., a female connector body (outside threads) with a male inner pin contact)

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Specifications Cont.

Environment	IP Rating	IP30
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC	CE, FCC, CCC
	Safety	UL/cUL, CB
	Vehicle Regulation	E-Mark (E13), SAE J1455, ISO 7637-2, SAE J1113
	RF Regulation	CE (R&TTE), FCC ID
	Operating Temperature	-30 ~ 70 °C (-22 ~ 158 °F)
	Storage Temperature	-40 ~ 80 °C (-40 ~ 176 °F)

Dimensions

Unit: mm

I/O Connectors

Reset button
GPS LED
WWAN LED
WLAN LED
Storage LED
Power LED
2.5" SSD tray with key lock
USB 3.0, Cfast, dual SIM slots

WLAN 1
WWAN 1
WLAN 2
GPS antenna
LAN 2
LAN 1
2 x USB
Smart Display port
Generic I/O port
Power input
Vehicle I/O port
AV In
RS-232
VGA
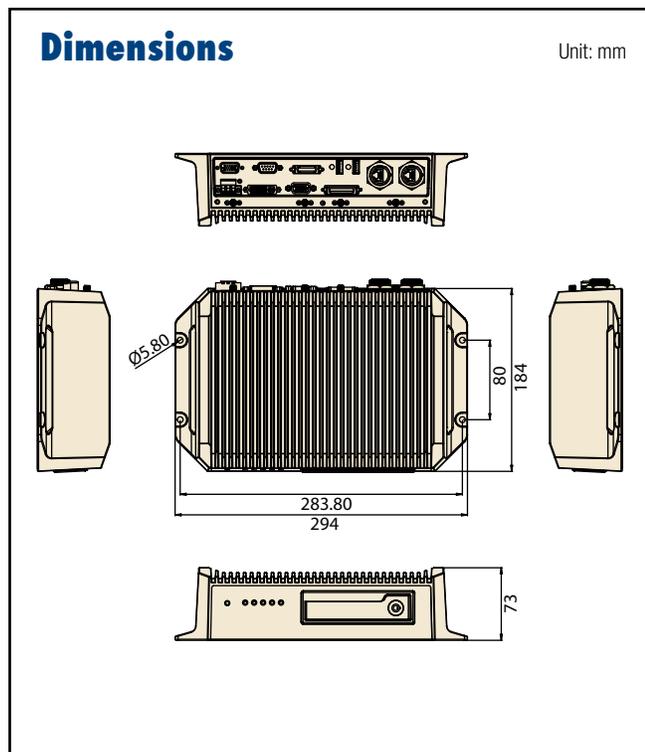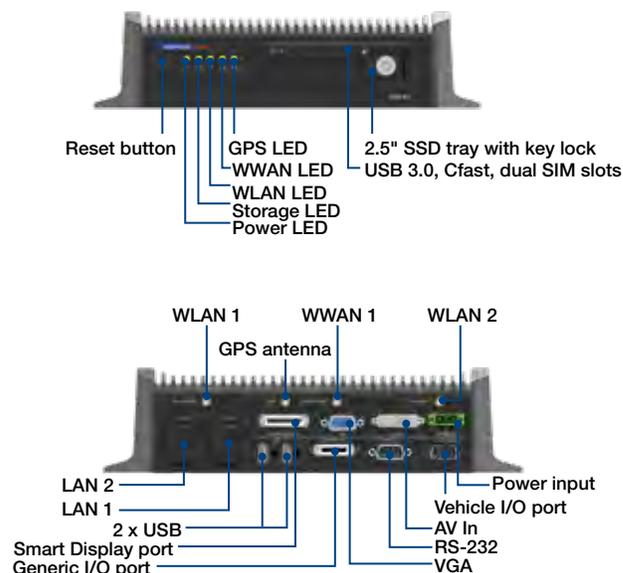
Note: WLAN 1 = WLAN main, WLAN 2 = WLAN auxiliary, WWAN 1 = WWAN main

Ordering Information

Part Number	Description
TREK-674-LWB7A0E	TREK-674 w/LTE(EU)/GPS/WLAN/BT/SSD/WES7
TREK-674-LWB7B0E	TREK-674 w/LTE(US)/GPS/WLAN/BT/SSD/WES7

Note: WES8, Win10 IoT LTSB and Linux OS images are available upon request.

Packing List

Part Number	Description
1700019031	1 x 2M power cable
1700023050-11	1 x generic I/O cable, 2M
1700023051-01	1 x vehicle I/O cable, 30 cm
1700022702-01	1 x Audio/Video cable, 20 cm
1654011716-01	2 x waterproof RJ45 locking kit
1750007724-01	1 x 3-in-1 antenna (LTE/GPS/Wi-Fi), 3M
1750007723-01	1 x Wi-Fi only antenna, 3M
1990018848T000	2 x USB cable clips

Optional Accessories

Part Number	Description
TREK-303R-HA0E	7" WVGA in-vehicle smart display
TREK-306D-HA0E	10" WVGA in-vehicle smart display
1700020007-11	2M smart display cable
1700020008	5M smart display cable
1700020128	5M power cable
1700019464	Power cable, 155 mm (for in-house testing)
96PSA-A60W12V1-1	Adapter AC 100 ~ 240 V, 60 W, 12 V 5A w/o PFC (for in-house testing)

TREK-688

Features

- 4th generation Intel® Core™ processor
- Vehicle diagnostics interface with configurable CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Embedded Stretch S7 video encoder supports up to 16 analog video inputs and 8 audio inputs
- Built-in GNSS, WLAN, Bluetooth, and WWAN (with dual SIM cards) modules
- Intelligent vehicle power management system supports ignition on/off/delay and power protection functions
- Dual externally accessible HDD/SSD tray with key-lock protection
- Wide operating temperature range (-30 ~ 55 °C/-22 ~ 131 °F)
- Supports 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance
- Easily paired with TREK in-vehicle smart displays (TREK-303/306) via a single-cable connection

Introduction

TREK-688 is an industrial-grade in-vehicle computing box designed to provide high-quality fleet management and video surveillance for eBus and BRT systems. The inclusion of GNSS, WLAN, Bluetooth, GPS, and WWAN (with dual SIM cards) modules allows remote monitoring and vehicle tracking even in tunnels. TREK-688 also features several vehicle protocols (J1939, OBD-II/ISO 15765) for vehicle diagnostics and driver behavior management, and supports up to 16 camera inputs and 8 audio inputs for high-quality, MJPEG, H.264 recording to enable motion detection, on-board recording, and real-time data transmissions. The dual Gigabit Ethernet ports with M12 connectors and dual display/dual audio interfaces support different resolutions for convenient application.

Specifications

Core	Processor	Intel® Core™ i7-4650U dual-core, 2.9 GHz (i3-4010U and i5-4300U available upon request)
	Memory	1 x SODIMM socket Up to 8 GB DDR3L-1066/1333 non-ECC memory (4 GB default)
	Graphic	Intel® HD graphics 4400, 1.1 GHz
	Video HW Encoder	Stretch S7 with H.264 MJPEG support; up to D1 resolution (30fps) per channel
	Operating System	Win7 Pro (32 bit) default with WES8, Win10 IoT LTSB, and Linux Ubuntu 14.04 (Kernel 4.2.0) available upon request
Storage	CFast	1 x externally accessible CFast slot with cover and supports system boot up 16 GB, UMLC SQFlash Cfast (default)
	mSATA	1 x mSATA slot that supports system boot up with optional BOM upon request
	HDD/SSD	2 x externally accessible 2.5" mobile HDD/SSD trays with key-lock protection with optional support for system boot up Supports SATA III (6 Gbz/s)
Display	Smart Display Port [1]	12V/2A power output for TREK-30x 1 x 18-bit LVDS (800 x 480 resolution for TREK-303 or 1024 x 768 for TREK-306); configured for TREK-306 as default 1 x Line-Out [2] (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, brightness, and light sensor control) 1 x USB 2.0 Type A 1 x PWR button 1 x Reset button
	HDMI	1 x HDMI 1.4a (up to 3200 x 2000 resolution @ 60 Hz)
	VGA	1 x DB15 (up to 2560 x 1600 resolution)
I/O	Vehicle I/O	2 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765; configurable via firmware) 1 x J1708 (supports J1587) 1 x 4-wire RS-232/422/485 (RS-485 default, configurable via software)
	Generic I/O	2 x 4-wire RS-232 4 x Isolated DI (dry contact) 4 x Isolated DO (open collector output, driven by relay) 1 x Line-Out [2] 1 x Mic-In
	Standard I/O	1 x USB 2.0 Type A (front) 2 x USB 3.0 Type A (rear, with cable clip) 1 x High-speed full RS-232, DB-9 (Pin 9 = ring, 12 V @ 0.5A is BOM optional via jumper setting) 2 x Giga LAN with 8-pin M12 connector
	Video/Audio Input (AV1 and AV2 via dual DVI-I connector)	16 x Video inputs with video compression, H.264, MJPEG support, and up to D1 resolution (30fps) per channel (480fps total) 8 x mono audio inputs with G.711 audio compression
	LED	6 x LEDs: Power (red), CFast (yellow), WLAN (green), WWAN (green), GPS (yellow), and connectivity (yellow)
	Power Button	Via TREK-30x in-vehicle smart display; system power on by ignition as default
	Reset Button	1 x Reset button (front)
RF	WLAN + Bluetooth	6 x LEDs: Power (red), Storage (yellow), WLAN (green), WWAN (green), and GPS (yellow)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT): Sierra Wireless MC73xx via full-size mini-PCIe slot (MC7354 for US/MC7304 for EU as default)
	GNSS	Built-in ublox MAX-M8W GPS/GLONASS/BeiDou module with A-GPS support 2 x externally accessible mini SIM card sockets (selectable) with cover
	Antenna	4 x SMA-type antenna holes for GPS, Wi-Fi+BT, WWAN/LTE MIMO [3]
Power	Input Voltage	Supports 12/24 V vehicle power, 9 ~ 32 V_DC input (ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off/delay) Supports wake-up events: wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor System power protection (vehicle battery low voltage protection) System monitoring and diagnostics
Mechanical	Dimensions (W x H x D)	346 x 92.5 x 196.2 mm (13.62 x 3.64 x 7.72 in)
	Weight	5.9 kg (13 lb) with two HDDs

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Dimensions

Unit: mm

346
316
92.50
334
74
196.20
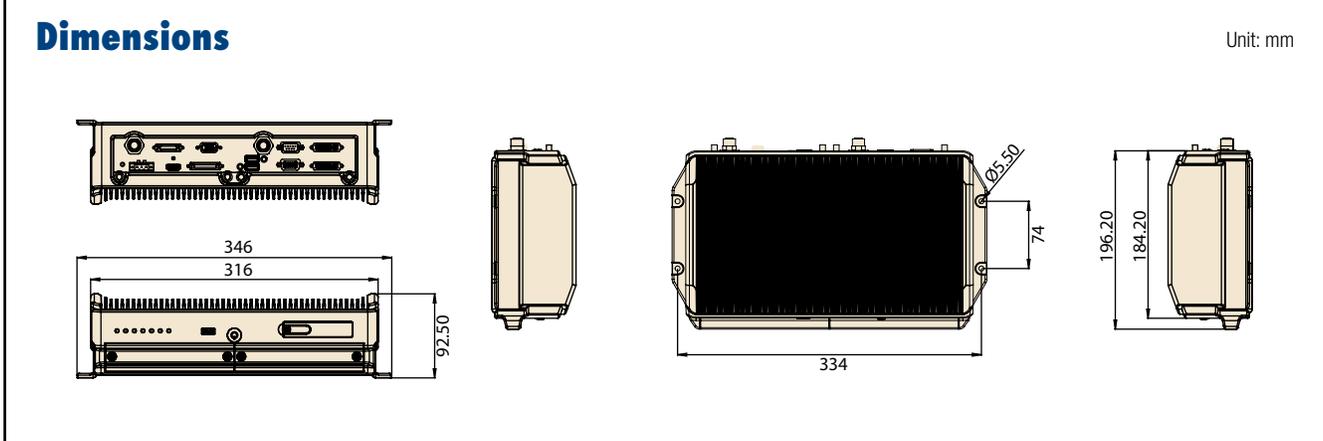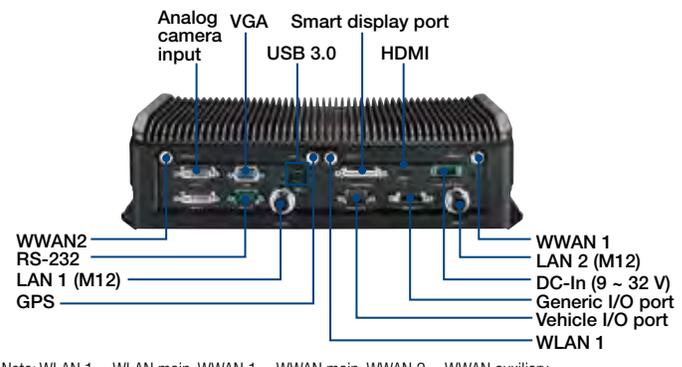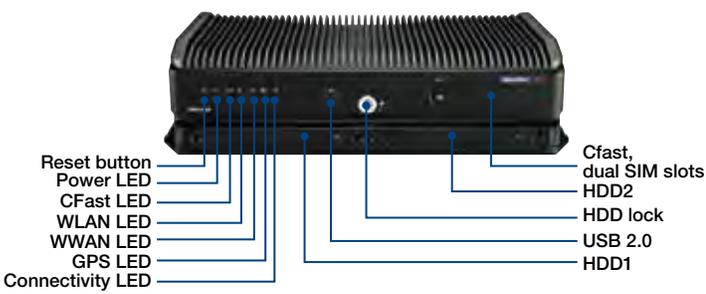184.20
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Specifications Cont.

Environment		
	IP Rating	IP30
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC	CE, FCC
	Safety	UL/cUL, CB
	Vehicle Regulation	E-Mark (E13), SAE J1455, ISO 7637-2, SAE J1113
	RF Regulation	CE (R&TTE), FCC ID
	Operating Temperature	-30 ~ 55 °C (-22 ~ 131 °F)
	Storage Temperature	-40 ~ 80 °C (-40 ~ 176 °F)

[1] For direct pairing with TREK-303/306 via a single-cable connection
[2] Supports dual independent audio streams (the Line-Out interfaces of the smart display and generic I/O are driven by different audio codecs)
[3] The TREK-688 connector type is female RP-SMA (e.g., a female connector body (outside threads) with a male inner pin contact)

I/O Connectors

Reset button
Power LED
CFast LED
WLAN LED
WWAN LED
GPS LED
Connectivity LED

Cfast, dual SIM slots
HDD2
HDD lock
USB 2.0
HDD1

Analog camera input
VGA
Smart display port
USB 3.0
HDMI

WWAN2
RS-232
LAN 1 (M12)
GPS

WWAN 1
LAN 2 (M12)
DC-In (9 ~ 32 V)
Generic I/O port
Vehicle I/O port
WLAN 1

Note: WLAN 1 = WLAN main, WWAN 1 = WWAN main, WWAN 2 = WWAN auxiliary

Ordering Information

Part Number	Description
TREK-688-7LWB7PA0E	i7-4650U/LTE/HSPA+(EU)/GPS/WLAN/BT/Win7 Pro (32 bit)
TREK-688-7LWB7PB0E	i7-4650U/LTE/HSPA+(US)/GPS/WLAN/BT/Win7 Pro (32 bit)
TREK-688-01A0E	i5-4300U/4G RAM/GPS, barebone unit
TREK-688-02A0E	i7-4650U/8G RAM/GPS, barebone unit

Note: WES8, Win10 IoT LTSB, and Linux OS images are available upon request.

Packing List

Part Number	Description
1700019031	1 x 2M power cable
1700023050-11	1 x generic I/O cable, 2M
1700023051-01	1 x vehicle I/O cable, 30 cm
170022702-01	2 x audio/video cables, 20cm
1700020123	1 x USB cable for HDD data backups
1750007927-01	1 x LTE/GPS outdoor combo antenna, 3M
1750007928-01	1 x LTE outdoor antenna, 4M
1750007564-11	1 x Wi-Fi only antenna, 3M

Note: The TREK-688 barebone units (e.g., TREK-688-01A0E/TREK-688-02A0E) are without LTE and Wi-Fi antennas.

Optional Accessories

Part Number	Description
TREK-303R-HA0E	7" WVGA in-vehicle smart display
TREK-306D-HA0E	10" WVGA in-vehicle smart display
1700020007-11	2M smart display cable
1700020008	5M smart display cable
1700020128	5M power cable
1700020170-01	M12 to RJ45 waterproof LAN cable, 50 mm (for in-house testing)
1700019464	Power cable, 155 mm (for in-house testing)
96PSA-A60W12V1-1	Adapter AC 100 ~ 240 V, 60 W, 12 V 5A w/o PFC (for in-house testing)

TREK-733L

RISC-Based All-in-One Light-Duty Mobile Data Terminal

Features

- NXP (Freescale) Cortex™-A9 i.MX6DL dual-core, 1.0 GHz, SOC, 1GB DRAM, 4GB eMMC with Android 4.4.2
- 7" WSVGA (1024 x 600) LCD with P-CAP touchscreen
- Built-in 4G LTE, WLAN/Bluetooth, and GNSS modules (with optional BeiDou); supports external antennas via SMA to increase sensitivity for 4G LTE and GNSS
- Built-in battery pack (3.6 V, 2400 mAh) offers UPS for emergency notifications and data backups
- Compatible with 12/24 V vehicle power
- MIL-STD-810G certified for shock and vibration tolerance
- 1 x Analog video input to dedicated video processor for real-time display applications
- Multiple isolated DI/O interfaces that support vehicle speed data for distance measurements
- Noise suppression technology for built-in voice recognition applications

Introduction

TREK-733L is an ARM-based, all-in-one, light-duty mobile data terminal that features a 7" display with P-CAP touchscreen, NXP Freescale Cortex™-A9 i.MX6DL dual-core (1.0 GHz) SOC, 1 GB DRAM, and Android 4.4.2 operating system. The integrated GNSS, 4G LTE, and WLAN/Bluetooth wireless communication interfaces (with optional BeiDou) enable location tracking, route optimization, and high-speed data exchanges for convenient and effective fleet management. TREK-733L is also equipped with a built-in battery that provides an uninterruptible power source for emergency situations and data backups. MIL-STD-810G certified for shock and vibration tolerance, TREK-733L is ideal for most light-duty vehicle applications. Finally, the inclusion of three external antenna SMA ports supports critical outdoor applications by increasing connection sensitivity and performance.
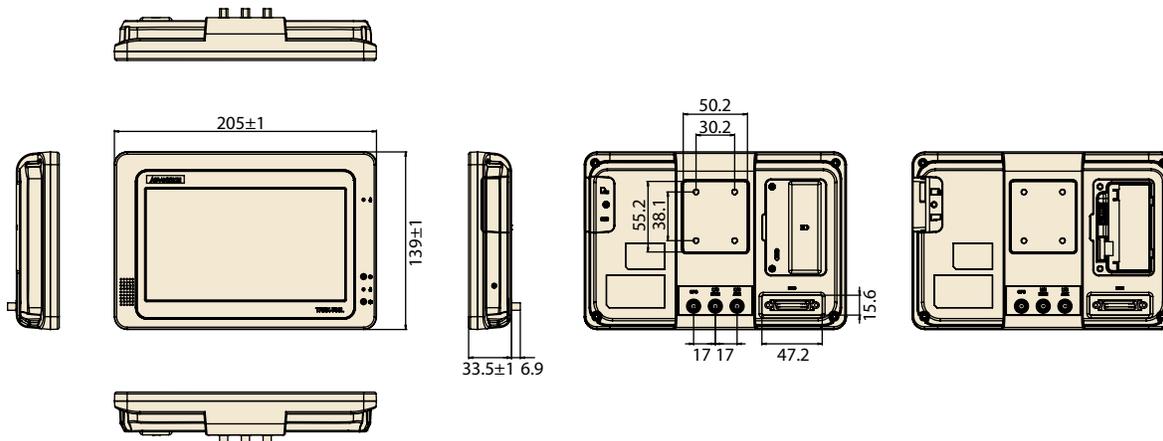
Specifications

Core	Processor	NXP (Freescale) Cortex™-A9 i.MX6DL dual-core, 1.0 GHz, SOC
	Memory	1 GB DDR3 on board
	Graphics	OpenGL® ES 2.0 3D graphics accelerator with a shader and 2D graphics accelerator
	Operating System	Android KitKat 4.4.2
Storage	eMMC	4 GB on board
	SD Card	1 x externally accessible push-push-type micro SD slot with cover
Display	Type	7" TFT LCD
	Resolution	WSVGA (1024 x 600)
	Brightness	500 cd/m² (typical)
	Viewing Angle (H/V)	150°/145°
	Contrast Ratio	700:1
	Backlight Lifetime	15000 hours
Touchscreen	Type	P-CAP 2-point multi-touch (gesture)
	Construction	Glass-film-film
	Transparency	≥85%
Multimedia	Speaker	1 x Internal 2W speaker
	Microphone	2 x Internal microphones for noise suppression
Sensors	Ambient Light Sensor	Sensitive to visable and infrared light
	Motion Sensor	3-axis ±2/4/8 g accelerometer
I/O	Standard I/O	1 x MicroSD 1 x SIM
	Extended I/O	1 x System power input 2 x 2-wire RS-232 1 x USB 2.0 host 6 x ISO DI (DI1 ~ 5 dry contact; DI6 wet contact) 2 x ISO DO (open collector output, driven by relay) 1 x Analog video CVBS input
	LED Indicator	1 x Power LED
	Reset Button	1 x hardware reset switch (right side)
Wireless Communication	WLAN/Bluetooth	IEEE 802.11 b/g/n and Bluetooth V4.0 Class 1.5 (internal antenna)
	WWAN	Sierra Wireless MC7304 via mini PCIe for EU - LTE: B1, B3, B7, B8, B20/HSPA+ UMTS: B1, B2, B5, B6, B8 Sierra Wireless MC7354 via mini PCIe for US - LTE: B2, B4, B5, B13, B17, B25 / HSPA+ UMTS: B1, B2, B4. B5. B8/CDMA EVDO: BC0, BC1, BC10 (external antenna via SMA)
GNSS	Sensitivity	GPS (-161 dBm), GLONASS (-158dBm) with 56 channels and A-GPS support (BeiDou available upon request) (External antenna via SMA)
Power System	Input Voltage	Supports 12/24 V vehicle power, 9 ~ 32 V^DC input
	Intelligent Vehicle Power Management	System power on/off management, system monitoring and diagnostics, system power protection (vehicle battery low voltage protection), and wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor events
	Backup Battery Pack (optional)	3.6V, 2400 mAh; supports 30 minutes operation under full load or 2 hours operation under low power consumption; 3 hours for full recharge

ADVANTECH

TREK-733L

Dimensions

Unit: mm

205±1

139±1

33.5±1 6.9

50.2
30.2
55.2
38.1
15.6
17 17 47.2

Specifications Cont.

Mechanical	Mounting	AMPS Mounting ARM Compatible
	Dimensions (W x D x H)	205 x 139 x 33.5 mm (8.07 x 5.47 x 1.31 in)
	Weight	820 g (1.8 lb) with battery
Environment	Operating Temperature	-20 ~ 70 °C (-4 ~ 158 °F) without backup battery
	Storage Temperature	-20 ~ 70 °C (-4 ~ 158 °F)
	Vibration/Shock	MIL-STD-810G
	Vehicle Regulation	E-mark (E13) (12/24 V system), ISO 7637-2, SAE J1455
	Safety	UL/cUL, CB
	Certifications	CE, FCC, CCC

I/O Connectors

7" P-CAP touchscreen

Microphone

Speaker

Indicator LED

Standard RAM mount hole

I/O door   Battery cover

High density cable connector

External antenna connectors
(1 x GNSS, 1 x LTE main,
1 x LTE auxiliary)

Micro SD slot

SIM card slot

Reset

Battery cell
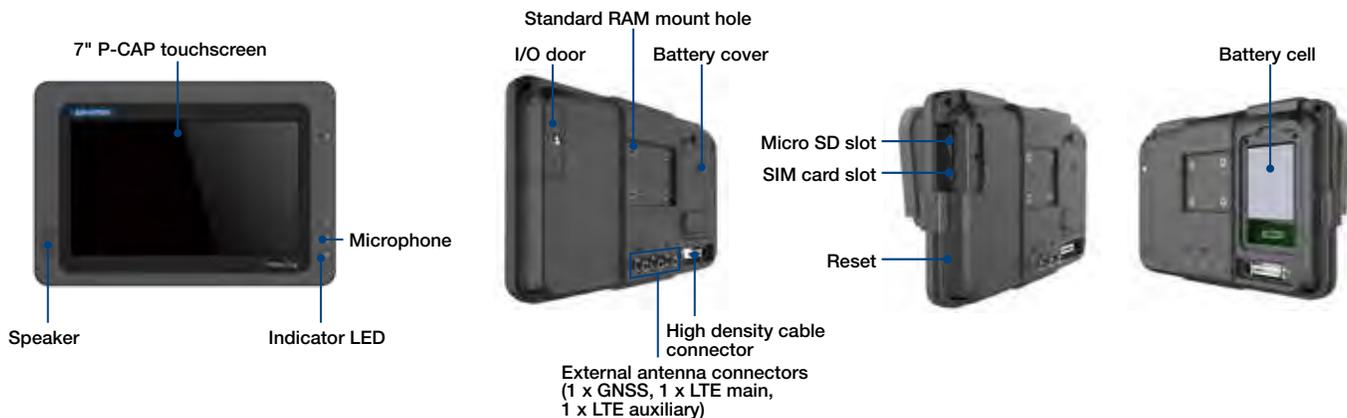
Ordering Information

Part Number	Description
TREK-733L-LWBADA0E	TREK-733L NXP (Freescale) Cortex-A9 i.MX6DL dual-core, 1.0 GHz, 1 GB DRAM, 4 GB eMMC, Android 4.4.2, LTE MC7304 (external antenna), GNSS (external antenna), WLAN/BT (internal antenna), power and I/O cable
TREK-733L-LWBADB0E	TREK-733L NXP (Freescale) Cortex-A9 i.MX6DL dual-core, 1.0 GHz, 1 GB DRAM, 4 GB eMMC, Android 4.4.2, LTE MC7354 (external antenna), GNSS (external antenna), WLAN/BT (internal antenna), power and I/O cable

Optional Items

Part Number	Description
BB-HDV100A3	RS-232 to J1708 and J1939 converter
BB-D99Y	Y cable of DB15 and Deutsch 9-pin for RS-232 to J1708 and J1939 converter
TREK-MNT-301E	Double square plate with AMPS hole pattern
TREK-MNT-302E	Square plate with AMPS hole pattern and X-type base
TREK-MNT-303E	Square plate with AMPS hole pattern and suction cup base

TREK-734

8" All-in-One Heavy-Duty Mobile Data Terminal with Freescale Processor

Features

- Freescale ARM® Cortex™-A9 i.MX 6DualLite processor with Android 5.1
- 8" high-brightness (750 nits) display with multi-touch control
- GNSS (GPS/GLONASS), Wi-Fi, BT, LTE/HSPA+
- 2 x front-facing speakers, 2 x microphones, and 5 x programmable function keys
- Optional accessories include high-density cable, mount kit, IP54-rated I/O cover, internal backup battery pack (7.2 V/2450mAh) and external antennas

Introduction

TREK-734 is a RISC-based open platform all-in-one heavy-duty mobile data terminal equipped with an 8" display, Freescale ARM® Cortex™-A9 i.MX 6DualLite processor, Android 5.1 OS, 1 GB memory, and LTE networking capabilities to enable high-performance computing for fleet management applications. LTE capabilities transform the terminal into a wireless network hub that supports Wi-Fi, BT, and GPS communication to facilitate location tracking and route optimization. Certified to MIL-STD 810G standards for vibration tolerance, TREK-734 can withstand operation in heavy-duty vehicles. Moreover, three external antenna ports are provided for enhanced network communication in order to effectively support critical outdoor applications.

Specifications

Product Name		TREK-734
System	Processor	Freescale ARM® Cortex™-A9 i.MX 6DualLite (1 GHz)
	Memory	1 GB DDR3 (supports up to 2 GB)
	Storage	4 GB onboard eMMC (supports up to 8 GB) 1 x Micro SD slot (externally accessible)
	Watchdog	Yes
	RTC	Yes
	OS	Android 5.1.1
RF	GNSS	u-blox MAX-M8Q (GPS, BD, GLONASS, Galileo)
	WLAN	IEEE 802.11 b/g/n
	BT	Bluetooth V4.0
	WWAN	LTE, HSPA+, GSM/GPRS/EDGE, WCDMA
	Voice Call	N/A
	Wake-on-WWAN	N/A
	SIM	1 x SIM
	External Antenna	1 x WLAN, 1 x WWAN, 1 x GPS (TNC type)
Display	Size/Type	8" (16:10) TFT LCD
	Max. Resolution	1024 x 600
	Brightness (cd/m²)	750 nits
	Viewing Angle (R/L/B/T)	70/80/80/80
	Backlight Life	20,000 hrs
Touchscreen		Capacitive (multi-touch)
Brightness Control		Light sensor for automatic dimming
Function Key		5 x Programmable function keys with green LED backlight
I/O	Vehicle I/O (via high-density connector)	1 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765)
	Generic I/O (via high-density connector)	4 x Isolated DI/2 x DO 1 x 4-wire RS-232, 1 x 2-wire RS-232 1 x CVBS-In 1 x Mic-In 1 x Line-In (R & L) 1 x Line-Out (R & L) 1 x USB 2.0 Type A host
	Standard I/O	1 x mini USB debugging (5 pin) 1 x USB 2.0 Type A host
	Indicators	1 x LED (Power)
Vehicle Power Design	Power Button	Yes
	Reset Button	Yes
	Input Voltage	9 ~ 32 V_{DC}

ADVANTECH

Dimensions

Unit: mm

255

175

V.A (177.2 x 100.4)

95

47

36

117.67

45.77
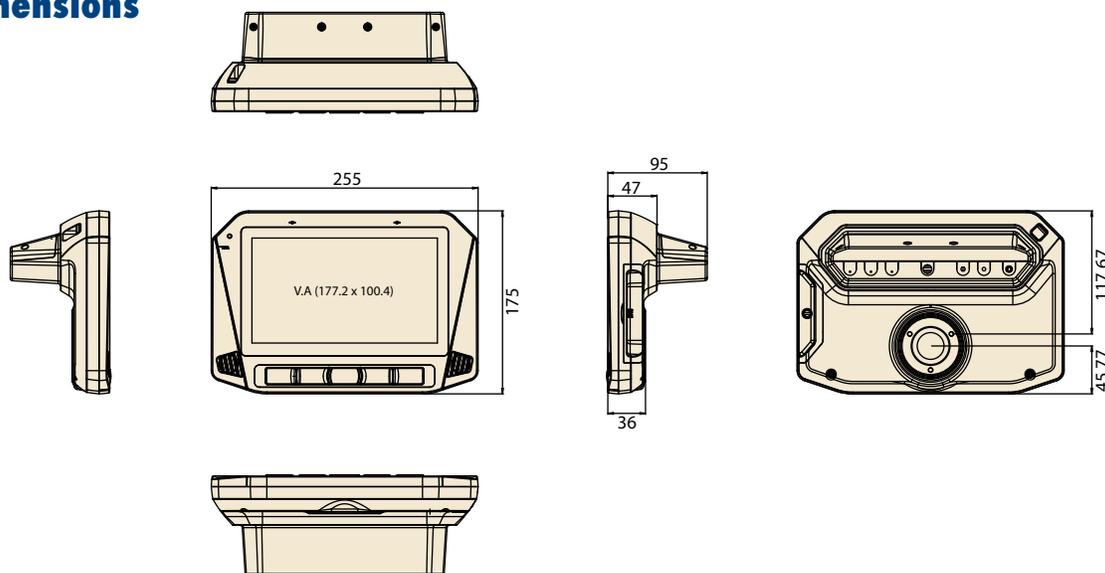
Specifications Cont.

Environment	Power Regulation	E-Mark, ISO 7637-2, SAE J1455, SAE J1113
	IP Rating	IP54
	Operating Temperature	-20 ~ 70 °C (-4 ~ 158 °F) without backup battery
	Storage Temperature	-30 ~ 80 °C (-22 ~ 176 °F)
Certifications	EMC/Safety	CE, FCC, UL/cUL, CCC, CB
	Vehicle Power	e-Mark, ISO 7637-2, SAE J1455, SAE J1113
	Shock/Vibration	MIL-STD-810G, SAE J1455
Physical	Dimensions (W x H x D)	255 x 175 x 95 mm (10.04 x 6.88 x 3.74 in) with IP-rated I/O cover 255 x 175 x 47 mm (10.04 x 6.88 x 1.85 in)
	Weight	1.3 kg (2.86 lb)

I/O Layout

2 x Microphones

Light sensor
Power LED

Programmable
function keys

2 x Speakers

WWAN

Backup battery   High-density connector

Power button

Power input

GPS   RAM mount base

BT/WLAN   USB

IP54-rated I/O cover

Enclosed I/O
- SIM slot
- Micro SD slot
- Mini USB port
- Reset key
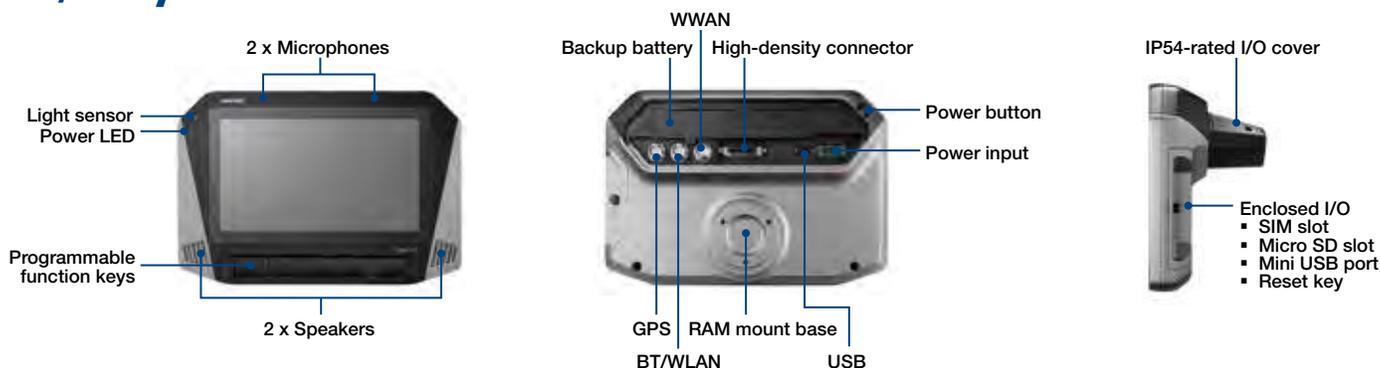
Ordering Information

Part Number	Description
TREK-734C-LWBADA1E	TREK-734 IMX6,2GB,8GB And.5.1 LTE EU EC-25E Int.
TREK-734C-LWBADB1E	TREK-734 IMX6,2GB,8GB And.5.1, LTE NA EC-25A Ext.
TREK-734C-LWBADC1E	TREK-734 IMX6,2GB,8GB And.5.1, Huawei 909 Ext.
TREK-734C-WBADA1E	TREK-734 IMX6,2GB,8GB And.5.1 WLAN/BT Int. Ant.

Optional Accessories

Part Number	Description
1760002560-01	Backup battery pack 7.2V 2450mAh 2S1P
TREK-734-IP000	IP54-rated I/O cover
1700026766-01	High-density connector cable
1750008571-01	WLAN/BT external antenna (TNC)
1750008570-01	WWAN/GPS external antenna (TNC)

TREK-773

7" All-in-One Ultra Rugged Mobile Data Terminal

TAIWAN EXCELLENCE SILVER AWARD 2016

Features

- Intel® Atom™ E3827 SOC with support for WES8, WES7, Win10, and Ubuntu operating systems
- 7" WVGA wide-angle LCD resistive touchscreen
- Vehicle diagnostics interface with CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Built-in GNSS, WLAN, Bluetooth, LTE WWAN modules and optional NFC
- Intelligent vehicle power management system supports ignition on/off/delay functions, wake-up event control, and system health monitoring and diagnostics
- Wide operating temperature range (-30 ~ 60 °C/-22 ~ 140 °F)
- Supports 12/24 V vehicle power (ISO 7637-2)
- MIL-STD-810G and 5M3 certified for shock and vibration tolerance
- Supports voice recognition and intelligent video analytics

Introduction

TREK-773 is a next-generation, all-in-one 7" mobile data terminal. Equipped with an Intel® Atom™ E3827 SOC, TREK-773 offers high-performance computing with wired connections such as Gigabit Ethernet, CAN2.0B (J1939, OBD-II/ISO 15765), and J1708 (J1587). The integrated LTE (backwards compatible with CDMA/HSDPA), GPS, WLAN, and Bluetooth communication interfaces ensure connectivity and real-time data transmissions. Aimed at the automotive market, TREK-773 is compatible with 12/24 V vehicle power and compliant with ISO7637-2 & SAE J1113, ensuring system operation during engine starts. Moreover, the system's ruggedized chassis, wide operating temperature range (-30 ~ 60 °C/-22 ~ 140 °F), and shock (100G, 6ms) and vibration tolerance support operation in harsh industrial environments.
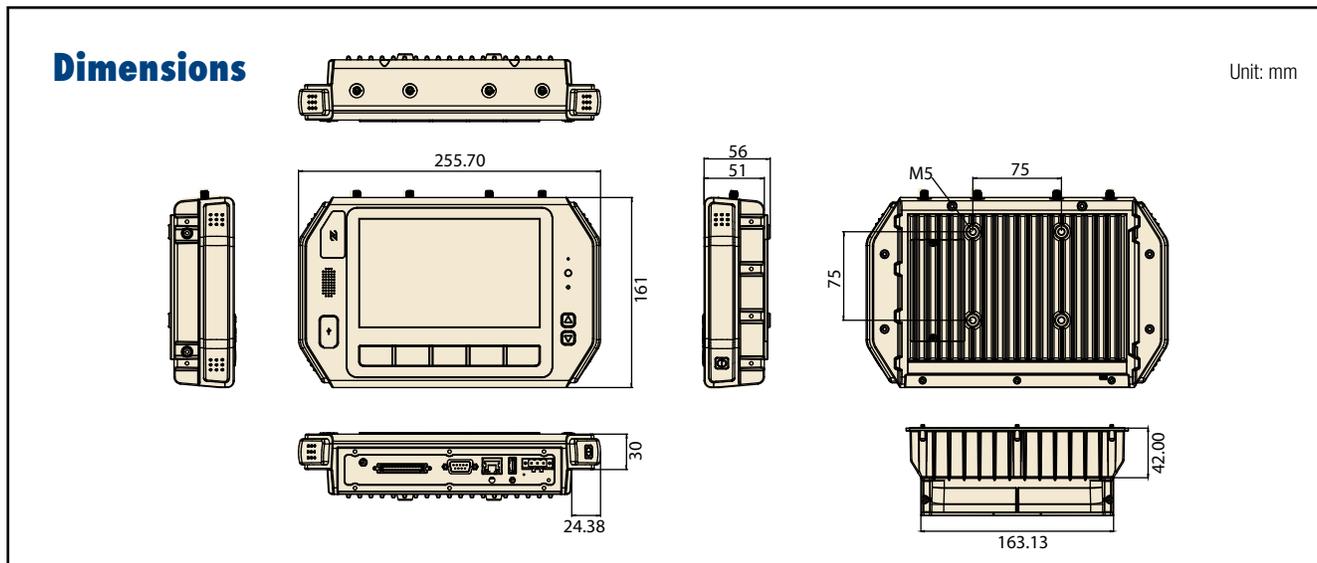
Specifications

Core	Processor	Intel® Atom™ E3827 dual-core, 1.75 GHz
	Memory	Up to 4 GB DDR3L-1333 memory (2 GB default)
	Graphics	Integrated 2D/3D graphics engine
	Operating System	Windows Embedded 8 Standard (32-bit) and Win10 IoT LTSB (32-bit)bdefault, with Windows Embedded 7 Standard and Linux available upon request
Storage	CFast	1 x externally accessible CFast slot with cover and supports system boot up (16GB default for WES8, 32GB default for Win10 IoT LTSB)
	SD Card	1 x externally accessible push-push-type SD slot with cover for convenient expansion
Display	Type	7" industrial-grade TFT LCD
	Resolution	WVGA (800 x 480)
	Brightness (cd/m²)	500 cd/m² (typical)
	Viewing Angle (H/V)	170°/170°
Touchscreen	Type	4-wire analog resistive touchscreen with 3H surface hardness and IK06 (510 g steel ball drop @300 mm) support (Optional sunlight readable touchscreen available upon request)
	Transparency	84% ±3%
Sensor	Sensor	Light sensor, G-sensor
I/O	Function Keys	5 x programmable function keys with green LED indicators
	Standard I/O	1 x SIM card slot (left) 1 x High-speed full RS-232 (rear) (RS232 RI pin can be configured to 12 V$_{DC}$ output) 1 x USB 3.0 host Type A (rear) 1 x Giga LAN with RJ45 connector (rear)
	Extended I/O [2]	1 x Mic-In/1 x Stereo Line-In/1 x Stereo Line-Out, 1 x CVBS input, 1 x USB 2.0 host 1 x High-speed full RS-232, 1 x RS-485 with auto flow control 4 x Isolated DI (dry contact), 4 x isolated DO (open collector output, driven by replay) 1 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765) 1 x J1708 (supports J1587) 1 x 12 V$_{DC}$/1.5A continuous current output (shared with standard I/O full RS-232 DB9)
I/O	Power Button/LED Indicators	1 x Power button; 1 x Power LED indicator (yellow)
RF	WLAN + Bluetooth	IEEE 802.11a/b/g/n + Bluetooth (V4.0 LE, V3.0+HS, V2.1+EDR) combo module via full-size mini PCIE slot (Optional high-power WLAN for roaming available upon request)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT) Sierra Wireless MC73xx via full mini-PCIe (MC7354 for US/MC7304 for EU default)
	GNSS	Built-in u-blox MAX-M8Q GPS/GIONASS/BeiDou module and A-GPS support
	Antenna	1 x GPS, 2 x WWAN (LTE), 2 x WLAN/Bluetooth
	NFC (Optional)	ISO/IEC 14443A, 14443B, 15693; MIFARE 1K/4K, Ultralight; NFC-IP2 protocol
Power	Input Voltage	Supports 12/24 V vehicle power, 9 ~ 32 V$_{DC}$ input (ISO 7637-2 and SAE J1113 compliant) (Optional support for 18 ~ 58 V$_{DC}$ input available upon request)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off management (e.g., programmable ignition On/Off/Delay), system monitoring and diagnostics, system power protection (vehicle battery low voltage protection), and wake-on-alarm (RTC), wake-on-call/SMS, and wake-on-G-sensor events
Mechanical	Dimensions (W x H x D)	255.7 x 161 x 56 mm (10.06 x 6.33 x 2.20 in)
	Weight	2.2 kg (4.8 lb)

[1] The total power output is 12 V$_{DC}$/1.5A and shared with standard RS232 DB9.
[2] The high-density cable is an optional item.

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Dimensions

Unit: mm
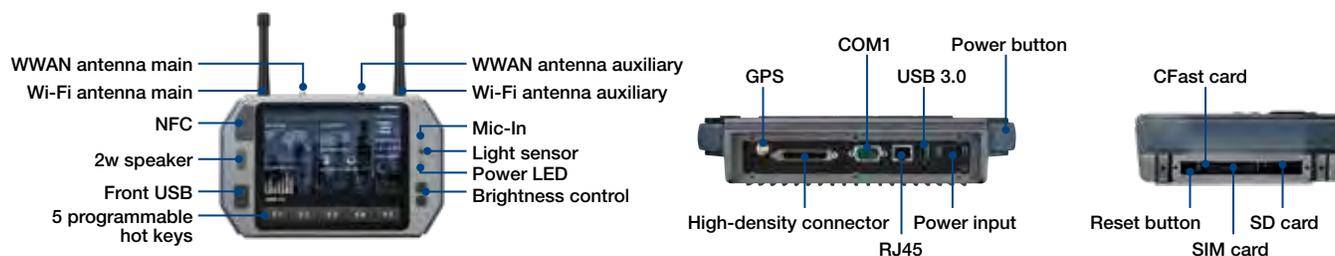
255.70

161

56
51

M5   75

75

30

24.38

42.00

163.13

Specifications Cont.

Environment	IP Rating	IP54 (excluding I/O); optional IP54 protection for entire system with additional I/O cover
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC/Safety	CE, FCC, CCC; UL/cUL, CB
	Vehicle Regulation	E-mark (E13) for 12/24 V system, SAE J1455 class C, ISO 7637-2, SAE J1113
	Railway	EN50155
	RF Regulation	CE (R&TTE), FCC ID
	Operating Temperature	-30 ~ 60 °C (-22 ~ 140 °F)
	Storage Temperature	-40 ~ 80 °C (-40 ~ 176 °F)

I/O Connectors

WWAN antenna main
Wi-Fi antenna main
NFC
2w speaker
Front USB
5 programmable hot keys

WWAN antenna auxiliary
Wi-Fi antenna auxiliary
Mic-In
Light sensor
Power LED
Brightness control

GPS
COM1
USB 3.0
Power button

High-density connector
Power input
RJ45

CFast card
Reset button
SIM card
SD card

Ordering Information

Part Number	Description
TREK-773R-00A0E	TREK-773R Intel BYT E3827 (2C, 1.75GHz) barebone unit w/NFC
TREK-773R-01A0E	TREK-773R Intel BYT E3827 (2C, 1.75GHz) barebone unit
TREK-773R-LWB8A0E	TREK-773R w/LTE(EU)/GPS/WLAN/BT/NFC/CFast/WES8
TREK-773R-LWB8B0E	TREK-773R w/LTE(US)/GPS/WLAN/BT/NFC/CFast/WES8
TREK-773R-LWBXA0E	TREK-773R w/LTE(EU)/GPS/WLAN/BT/CFast/W10
TREK-773R-LWBXB0E	TREK-773R w/LTE(US)/GPS/WLAN/BT/CFast/W10

Note: WES7, and Linux operating system is available upon request.

Packing List

Part Number	Description
1700019031	1 x 12/24V 2M power cable
1750007909-01	2 x Outdoor dipole Wi-Fi antennas
1750007924-01	1 x Outdoor LTE/GPS combo antenna, 3M
1750007926-01	1 x Outdoor LTE antenna, 3M
1990018848T000	2 x USB/LAN cable clips

Note: The TREK-773 barebone unit (TREK-773R-00A0E/TREK-773R-01A0E) includes 1 x 2M power cable.

Option items

Part Number	Description
1700020128	12/24V 5M power cable
1700019307	High-density cable (MDR 50P/BNC+audio jack*3+USB-A+D-sub 9P)
RAM-MOUNT-01	VESA RAM mount w/clamp base, 1.5" ball
RAM-MOUNT-06E	VESA RAM mount w/VESA base, 1.5" ball
9668TREK35E	AC/DC power kit
9668TREK37E	IP54-rated I/O cover

TREK-773 CTOS KIT

Part Number	Description
9668T77300E	TREK-773 WLAN kit (802.11a/b/g/n BT combo)
9668T77301E	TREK-773 LTE module kit for US (MC7354)
9668T77302E	TREK-773 LTE module kit (MC7304)
9668T77303E	TREK-773 GPS kit

Embedded OS

Part Number	Description
2070013976	Image WES7P TREK-773 v1.00 X86 ENG 32bit
2070013975	Image WES8 TREK-773 v1.02 X86 ENG 32bit
20708WX6ES0016	Image WIN10 LTSB-6(Atom) TREK-773 V1.01 X86 7MUI 32bit
20708WX6ES0015	Image WIN10 LTSB-6(Atom) TREK-773 V1.01 X64 7MUI 64bit

TREK-120

LoRa Cold Chain Temperature/ Humidity Sensor

Features

- Supports temperature/humidity/free fall detection
- Wireless data transmissions via NFC and LoRa technology
- Sensor configurable to alarm for real-time management
- Easy, simple installation in diverse refrigerated vehicles
- IP65 rated for protection against water and dust ingress
- Low power consumption for at least 1 year battery life*
- Supports IoT cloud services for centralized and real-time exception management

Specifications

Temperature	Measurement Range	-30 ~ 70 °C (-22 ~ 158 °F)
	Accuracy Range	±0.5 °C from 0 ~ 20 °C(±32.9 °F from 32 ~ 68 °F) ±1 °C from -30 ~ 70 °C (±33.8 °F from -22 ~ 158 °F)
	Resolution	0.1 °C (32.18 °F)
Humidity	Measurement Range	0 ~ 100% RH
	Accuracy Range	±3% from 0 to 80%
Frequency	NFC	13.56MHz
	LoRa	860-930MHz for Taiwan/USA/Japan/South Korea 433MHz for Europe 470-510MHz for China
3-Axis Accelerometer		ST IIS2DH with free fall detection
Data Storage Capacity		65Kbits for 2000 temperature and humidity values + 30 free fall values
LED Indicators		1 x Power status 1 x Alarm
Buttons		1 x Start button
Battery		3.6V/2000mAh wide-temperature (-30 ~ 70 °C) battery
Data Transmissions		NFC only and NFC + LoRa
Mechanical	Mount Options	2 x Screw holes for mounting
	Dimensions (W x D x H)	123.97 x 65.21 x 23.14 mm (4.88 x 2.56 x 0.91 mm)
	Weight	108 g (0.23 lb)
Environment	Operating Temperature	-30 ~ 70 °C (-22 ~ 158 °F)
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)
	IP Rating	IP65
	Drop Tolerance	4 ft. drop onto concrete
	Certifications	CE/FCC/CCC/NCC

*Battery life time depends on operating environments

LoRa Gateway Dongle

Features

- Support frequency from 433MHz to 928MHz frequency Bands
- Host interface: USB
- Enhanced noise filtering for better RF performance
- SMA connector for external antenna
- Dimension: 82x62x20 mm, weight: 100g

NFC Reader

Features

- NFC Frequency : 13.56MHz
- Host interface: Micro USB
- Enhanced noise filtering for better RF performance
- Dimension: 110 x 70 x 10 mm, weight: 250g

Ordering Information

Part number	Description
TREK-120-ANF000A00	Temperature/humidity/G sensor by NFC
TREK-120-ANLNA0A00	Temperature/humidity/G sensor by NFC+LoRa NA902/TW920
TREK-120-ANLEU0A00	Temperature/humidity/G sensor by NFC+LoRa EU433
TREK-120-ANLCN0A00	Temperature/humidity/G sensor by NFC+LoRa CN470
TREK-120-ANR000A00	Cold Chain NFC reader
TREK-120-ALG000A00	LoRa gateway dongle 525MHz ~ 928MHz
TREK-120-ALG000B00	LoRa gateway dongle 433MHz ~ 510MHz
TREK-120-BATT00A00	Wide temperature Li-Metal battery 2000mAh, 10pcs/pack

TREK-130

Front Collision Avoidance ADAS Module

Features

- Image recognition algorithms for front-view monitoring
  - Lane departure warning system (LDWS)
  - Forward collision warning system (FCWS)
- Supports optional video recording board
- Easily display detection through video output
- High dynamic range imaging ensures clear image
- Vehicle-grade design
- Wide operating temperature range (-30 ~ 85 °C/-22 ~ 185 °F)
- MIL-STD-810G and EN60721 (5M3) certified for shock and vibration tolerance
- Easily paired with TREK x-86 in-vehicle computing terminals (TREK-6xx/5xx/7xx) via a single-cable connection
- Supports firmware updates

Introduction

The TREK-130 is an advanced, multifunction Advanced Driver Assistance System (ADAS) module that combines Front Collision Warning (FCW) and Lane Departure Warning (LDW) algorithms. It is a vision-based active safety solution for accident prevention and injury mitigation using video recognition technologies. This ADAS module can detect surrounding vehicles and pre-alert drivers with audible alerts if a high-risk situation is identified.
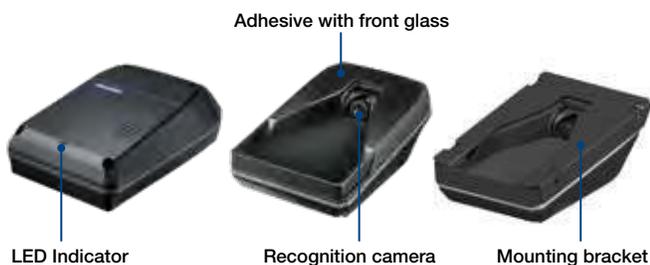
Specifications

Intelligent Video Analysis [1, 2]	Lane Departure Warning System (LDWS)	For LDWS applications, the camera sensor monitors lane markings to detect if the vehicle drifts into another lane. If the system detects that the vehicle has drifted, visual and audio alerts are emitted to warn the driver.
	Forward Collision Warning System (FCWS)	For FCWS applications, the camera sensor processes the images captured by the front camera to detect vehicles ahead and potential collision risks. If a vehicle is detected within a dangerously close proximity, visual and audio alerts are emitted to warn the driver.
Electrical Interface	Camera Sensor	CMOS type, 720p@30fps resolution, 115dB dynamic range; field of view3 (D x H x V): 45/35/26°
	I/O	1 x 4-pin automotive connector (white) for video output 1 x 6-pin automotive connector (grey) for TX/RX and ACC/GND
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	12W typical (input current <1A@ 12 V)
Environment	Operating Temperature	-30 ~ 85 °C (-22 ~ 185 °F)
	Storage Temperature	-40 ~ 105 °C (-40 ~ 221 °F)
	Operating Humidity	30 ~ 80% @ 40 °C/104 °F
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
	Drop Testing	Twice dropped 1.0 m onto concrete
Certification	EMC	FCC/CE/CCC
	Safety	UL/cUL/CB/LVD
Mechanical	Dimensions (W x H x D)	131.3 x 45 x 88 mm (5.16 x 1.77 x 3.46 in)
	Weight	400 g (0.88 lb)

[1] To ensure optimum performance, the system's warning function is only activated when the vehicle speed reaches 60 kmh (37.2 mph).
[2] The module is optimized for vehicles under 1600 mm in height. If the target vehicle exceeds 2000 mm, the module may need to be recalibrated. This service is available upon request.
[3] Because this system is an imaging-based driver assistance system, some conditions and situations may influence the detection accuracy. Please refer to the user manual for further details.

Adhesive with front glass

LED Indicator   Recognition camera   Mounting bracket

Disclaimer
1. Environmental conditions, such as bright lighting or the camera being covered, may trigger false warnings.
2. The presence of dirt or moisture on the camera may impact the recognition capabilities.
3. The TREK-13x series only provides warnings when an object is within the detection area. Additionally, the module does not include an impact breaking function.
4. The TREK-13x series is designed to alert drivers to certain potentially dangerous situations. However, the module cannot replace the functions that drivers would ordinarily perform when driving a vehicle, nor does it reduce the need to remain vigilant and alert at all times, to conform to safe driving standards and practices, and to obey all traffic laws, rules, and regulations.

Ordering Information

Part Number	Description
TREK-130-AL01A0E	TREK-130 (Front View Monitoring) with Std. Mount and 2-Meter cables for Low-Height vehicle

Optional Accessories

Part Number	Description
TREK130CALKIT0-ES	ES P/N for TREK-130 Installation and Calibration Kits

TREK-132

Multifunctional Driver Behavior Recognition Module

Features

- Multifunctional driver behavior recognition algorithms
  - Drowsiness detection
  - Distraction detection
  - Food consumption/smoke detection
  - Phone use detection
- Supports diverse driver characteristics and ethnicities to ensure widespread use
- Two IR LEDs 940nm support detection under poorly lit
- Easily display detection through video output
- Vehicle-grade design
- Wide operating temperature range (-30 ~ 85 °C/-22 ~ 185 °F)
- MIL-STD-810G and EN60721 (5M3) certified for shock and vibration tolerance
- Easily paired with TREK x-86 in-vehicle computing terminals (TREK-6xx/5xx/7xx) via a single-cable connection
- Supports firmware updates

Introduction

TREK-132 is a vision-based active safety solution for effective collision prevention using image recognition technologies for driver behavior detection. The multifunctional driver behavior recognition algorithm measures changes in drivers' eye and body movement patterns to detect drowsiness and/or distraction, and warn the driver with visual and audio alerts with vehicle computer. Through real-time driver behavior management, this intelligent safety solution can effectively prevent vehicle collisions.

Specifications

Intelligent Video Analysis [1]	Drowsiness Detection	Monitors drivers eye movements and blink frequency. Alerts are emitted if the threshold is exceeded.
	Distraction Detection	1. Drowsy driving. 2. Not paying attention to the road. 3. Cell phone use(by hands). 4. Food consumption.
	Detection Conditions	The distance between driver's face and the camera sensor should be 40 ~ 60 cm. [2] Supports diverse driver characteristics and ethnicities, as well as the wearing of glasses/sunglasses (excluding glasses with specular reflection lenses). Suitable for indoor environments (e.g., low illumination, light refraction).
Electrical Interface	Camera Sensor	CMOS type, 480p@30fps resolution, 74.8dB dynamic range; field of view [3] (D x H x V): 49.2°/39°/29°
	I/O	1 x 8-pin automotive connector (grey) for video-out, TX/RX, and ACC/GND
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	7.2W typical (input current <600 mA @ 12 V)
Environment	Operating Temperature	-30 ~ 85 °C (-22 ~ 185 °F)
	Storage Temperature	-40 ~ 105 °C (-40 ~ 221 °F)
	Operating Humidity	30 ~ 80% @ 40 °C/104 °F
	IP Rating	N/A
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
	Drop Testing	Twice dropped 1.0 m onto concrete
Certification	EMC	FCC/CE/CCC
	Safety	UL/cUL/CB
Mechanical	Dimensions (W x H x D)	60 x 65 x 58.7 mm/2.36 x 2.55 x 2.31 in (with mount kit: 75 x 81 x 58.7 mm/2.95 x 3.18 x 2.31 in)
	Weight	155 g (0.34 lb)

[1] The system emits a warning when ACC is activated.
[2] Because this system is an imaging-based driver assistance system, some conditions and situations may influence the detection accuracy. Please refer to the user manual for further details.

I/O Port

Ordering Information

Part Number	Description
TREK-132-AL01A0E	TREK-132 with Std. Mount and 2-Meter Cable for Low-Height vehicle (Short-focus Lens)

Optional Accessories

Part Number	Description
TREK-132-EH01A0E	TREK-132 Extended Mounting kit

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TREK-134

Ultra-Wide (180°) Blind Spot Detection Module

NEW

Features

- 180° ultra-wide detection angle
- AHD 720 High-definition resolution camera
- High dynamic range image to show a clear picture quality
- Easy to display detecting function through video output.
- Vehicle-grade design
- Wide operating temperature range (-30 ~ 85°C/-22 ~ 185°F)
- IP68 Protection rating
- MIL-STD-810G and EN60721 (5M3) certified for shock and vibration tolerance
- Easily paired with TREK X86 in-vehicle computing terminals (TREK-6xx/5xx/7xx) via a single-cable connection

Introduction

Blind spots may occur in the front of the driver when the A-pillar (also called the windshield pillar), side-view mirror, or interior rear-view mirror block a driver's view of the road. Behind the driver, cargo, headrests, and additional pillars may reduce visibility.

TREK-134 Ultra-Wide (180°) detection angle for capable of detecting various moving objects within the blind spots area (with 100% accuracy of pedestrian detection), and immediately triggers the warning.

Specifications

Intelligent Video Analysis	Moving Object Detection	More than 30 x 30 x 80 cm³ object & moving close to the car
	Detection Angle	≤180°
Electrical Interface	Camera Sensor	CMOS type, 720p@30fps resolution, 74.8dB dynamic range; field of view 170°
	I/O	1 x CVBS output (Male) for video-out, TX/RX, and ACC/GND (open wire)
	Power Input	Supports 12/24 V vehicle power, 9 ~36 V_{DC}, with ISO-7637-II compliance
	Power Consumption	7.2W typical (input current <600mA@ 12 V)
Environment	Operating Temperature	-30 ~ 85°C (-22 ~ 185°F)
	Storage Temperature	-40 ~ 105°C (-40 ~ 221°F)
	Operating Humidity	30 ~ 80% @ 40°C/104°F
	IP Rating	IP68
	Vibration/Shock	MIL-STD-810G, EN60721 (5M3)
	Drop Testing	Twice dropped 1.0 m onto concrete
Certification	EMC	FCC/CE/CCC
	Safety	UL/cUL/CB
Mechanical	Dimensions (W x H x D)	40.5 x 28.5 x 38.25 mm
	Weight	85g
	Protection cover (Options)	2mm stainless steel with coating cover (106 x 60 x 60 mm)

* The TREK-134 should pair with the vehicle information such as gear, direction signal and other information to integrate the warning system.

Dimension

TREK-134

TREK-134 with protection cover

Disclaimer
1. False alarm, when the detected object is "Strong edges, Repeatability or Placed most of the screen.
2. The presence of dirt or moisture on the camera may impact the recognition capabilities
3. TREK-134 only provided warning event when object moved to detecting area and there is no any single for impact breaking system.
4. TREK-134 is a intended to alert drivers of certain potentially dangerous situations. It does not replace any functions drivers would ordinarily perform in driving a motor vehicle, nor does it decrease the need for drivers to stay vigilant and alert in all driving conditions, to conform to all safe driving standards and practices, and to obey all traffic laws, rules and regulations.

Ordering Information

Part Number	Description
TREK-134-FL01A0E	TREK-134 (Front side) Module,2-Meter Cable
TREK-134-BH01A0E	TREK-134 (Rear side) Module,2-Meter Cable
TREK-134-LH01A0E	TREK-134 (Left side) Module,2-Meter Cable
TREK-134-RH01A0E	TREK-134 (Right side) Module,2-Meter Cable

Optional Accessories

Part Number	Description
TREK-134-CH01A0E	TREK-134 Protection cover

Application-Ready Platforms

RAM-MOUNT-01

Features

- 92 mm/3.625 in VESA base at both sockets
- 142.8 mm/5.625 in double socket arm for 38 mm/
  1.5 in ball base
- 63.5 mm/2.5 in diameter base with AMPS hole pattern
- Suitable products: TREK-306/773, PWS-870/872 vehicle docking station

RAM-MOUNT-06E

Features

- 92 mm/3.625 in VESA base at both sockets
- 142.8 mm/5.625 in double socket arm for 38 mm/
  1.5 in ball base
- Suitable products: TREK-306/773, PWS-870/872 vehicle docking station

RAM-MOUNT-07E

Features

- 92 mm/3.625 in VESA base at both sockets
- 142.8 mm/5.625 in double socket arm for 38 mm/
  1.5 in ball base
- Flat 63.5 mm/2.5 in diameter base with AMPS hole pattern
- Suitable products: TREK-306/734, AIM-65/68 vehicle docking station

TREK-MNT-301E

Features

- Flat base with AMPS hole pattern
- 140 mm/5.51 in double socket arm for 26 mm/1 in ball base
- Cost-effective design
- Supports 360° rotation
- Suitable products: TREK-303/733L/734

TREK-MNT-302E

Features

- Flat base with AMPS hole pattern
- 140 mm/5.51 in double socket arm for 26 mm/1 in ball base
- 156 mm/6.14 in VESA base
- Cost-effective design
- Supports 360° rotation
- Suitable products: TREK-303/733L/734

TREK-MNT-303E

Features

- Rubber in-vehicle windshield mounting kit
- 360° arm and joint swivel design for flexible adjustment
- Aluminum cast alloy and durable rubber for harsh in-vehicle environments
- Suitable products: TREK-303/733L/734

TREK-ANT-501-GWH5E

All in RP-SMA (M)

Features

- Screw mount 3-in-1 combo antenna
- GPS
- HSPA/GSM/CDMA/UMTS
- Dual-band Wi-Fi (2.4/5 GHz)
- IP67 rating for protection from water and dust
- 5-meter cable
- 145.6 x 35.1 mm/5.73 x 1.38 in (D x H)

TREK-ANT-201-GWL3E

All in RP-SMA (M)

Features

- Adhesive mount 3-in-1 combo antenna
- GPS/Glonass
- LTE/HSPA/GSM/CDMA/UMTS
- Dual-band Wi-Fi (2.4/5 GHz)
- IP67 rating for protection from water and dust
- 3-meter cable
- 200.5 x 66.5 x 9 mm/7.89 x 2.61 x 0.35 in (L x W x H)

TREK-ANT-502-GH5E

All in RP-SMA (M)

Features

- Screw mount 2-in-1 combo antenna
- GPS/Glonass
- HSPA/GSM/CDMA/UMTS
- IP67 rating for protection from water and dust
- 5-meter cable
- 55 x 19.6 mm/2.16 x 0.77 in (D x H)

PWS-472

5" Industrial-Grade Handheld Terminal with ARM® Cortex™-A53 Quad-Core Processor

Features

- ARM® Cortex™-A53, quad-core, 1.3 GHz processor with Android 5.1
- 5" HD (1280 x 720) capacitive touchscreen
- Lightweight design (295 g)
- IP65 rated for protection from water and dust
- Wide operating temperature range (-20 ~ 60 °C)
- Wi-Fi, Bluetooth, GPS, BeiDou, and 4G LTE communication capabilities
- 13-megapixel auto-focus camera and optional 1D/2D barcode scanner (with additional PWS-472 UHF RFID reader model)

Introduction

PWS-472 is an industrial-grade handheld terminal equipped with an ARM® Cortex™-A53, quad-core, 1.3 GHz processor and a 5" HD (1280 x 720) capacitive touchscreen. The inclusion of Wi-Fi (802.11 a/b/g/n), Bluetooth, GPS, and WWAN communication technologies ensures high connectivity, while the 1D/2D barcode scanner and 13-megapixel camera with auto-focus and optional 1D/2D barcode scanner provide convenient data collection tools. To withstand operation in harsh environments, PWS-472 is IP65 rated for protection from water and dust ingress, making it ideal for retail, warehouse, and manufacturing applications.

Specifications

System	Processor	ARM® Cortex™-A53, quad-core, 1.3 GHz
	Memory	2 GB
	Operating System	Android 5.1
Storage	Flash	16 GB
	SD Card	MicroSD (up to 32 GB)
Display	Type	5" LCD
	Resolution	1280 x 720 HD
	Brightness	350 cd/m²
Touchscreen	Type	Capacitive touch
	Construction	GFF
Multimedia	Speaker	1 x Internal 1W speaker
	Microphone	1 x Internal microphone
Camera	Rear	1 x 13 MP camera with LED flash and auto focus
Sensors		E-compass, g-sensor. light sensor
I/O	I/O Ports	1 x Micro USB 2.0 client (via charging cable) 1 x Standard SIM
	Buttons	1 x Power button 2 x Scanner trigger buttons 4 x Function keys
Wireless Communication	WLAN/Bluetooth	IEEE 802.11 a/b/g/n Bluetooth V4.0 BLE
	NFC	Compatible with ISO 15693, ISO 14443A/B, MIFARE®
	WWAN (Optional)*	LTE: B1, B3,B38, B39, B40, B41
GNSS	Satellite System	GPS, GLONASS, Galileo, and BeiDou
Scan Engine		Honeywell N3680 (LED aimer): PWS-472-C10E/C12; Zebra SE4750 (laser aimer): PWS-472-C13
Power System	Voltage Input	5V, 2A
	Battery	3.7V 3200mAH lithium-polymer battery (swappable)
Mechanical	Dimensions (W x D x H)	82.04 x 160 x 26.89 mm (3.22 x 6.29 x 1.05 in)
	Weight	295 g (0.650 lbs) with battery
Environment	Operating Temperature	-20 ~ 60 °C/-4 ~ 140 °F (0 ~ 40 °C/32 ~ 104 °F when charging)
	Storage Temperature	-30 ~ 70 °C/-22 ~ 158 °F
	IP Rating	IP65
	Safety	CB, CCC, BSMI
	Certifications	CE, FCC, CCC, BSMI, KC

* WWAN not available for USA

PWS-472 UHF RFID Reader

Features

- Long-range UHF RFID capabilities (compatible with EPC C-1 G-2/ISO 18000-6C)
- User-friendly trigger button
- IP54 rated for protection from water and dust
- Wide operating temperature range (-20 ~ 60 °C)
- Dimension: 160 x 150 x 80 mm (6.29 x 5.9 x 3.14 in)
- Weight: 650 g (1.43 lbs) with battery

PWS-472 Thermometer

Features

- Infrared thermometer supported
- Rapidly temperature collection and record via camera and barcode scanner
- IP65, wide operating temperature range(-20 ~ 60 °C)
- Dimensions: 160 x 82 x 20 mm (6.30 x 3.23 x 0.79 in)
- Weight: 302g (0.67lb) with battery

Docking Station

Features

- Suitable for desktop and vehicle-mount installation
- Compliant with SAE J1455 standards for shock and vibration tolerance
- Dock with battery charger only
- Magnetic connector design for easy docking/undocking
- Power input: 5V/1A
- Dimensions: 163.97 x 93.12 x 194.27 mm (6.45 x 3.66 x 7.64 in)
- Weight: 450 g (0.99 lb)

Multi-Bay Battery Charger

Features

- Charging time: 3 hr
- Operating temperature: 0 ~ 40 °C
- Power input: 19V/3.42A, external adapter included
- Dimensions: 250 x 112 x 20.7 mm (9.84 x 4.4 x 0.81 in)
- Weight: 420 g (0.92 lb)
- Supports up to 4 external batteries

Ordering Information

Part Number	Description
PWS-472-C40	PWS-472 with Infrared Thermometer
PWS-472-C30E	PWS-472 UHF RFID reader
PWS-470-VCRADLE00E	Docking station with battery charger only
PWS-472-BAT100E	3.7V/3200mAh lithium-polymer battery
PWS-472-BAG100E	Tablet holster
PWS-472-MBC100E	Multi-bay battery charger
1654013554-01	Micro USB magnetic male connector

Ordering Information

Part Number	Configuration											
	CPU	LCD	Memory	Storage	Rear CAM	Wi-Fi	BT	GNSS	4G	NFC	1D/2D Barcode	OS
PWS-472-C10E	Cortex-A53	5"	2GB	16GB	Yes	Yes	Yes	Yes	Yes	Yes	Yes (Honeywell N3680)	Android 5.1
PWS-472-C12	Cortex-A53	5"	2GB	16GB	Yes	Yes	Yes	Yes	-	Yes	Yes (Honeywell N3680)	Android 5.1
PWS-472-C13	Cortex-A53	5"	2GB	16GB	Yes	Yes	Yes	Yes	Yes	Yes	Yes (Zebra SE4750)	Android 5.1
PWS-472-C20E	Cortex-A53	5"	2GB	16GB	Yes	Yes	Yes	Yes	Yes	Yes	-	Android 5.1

AIM-65

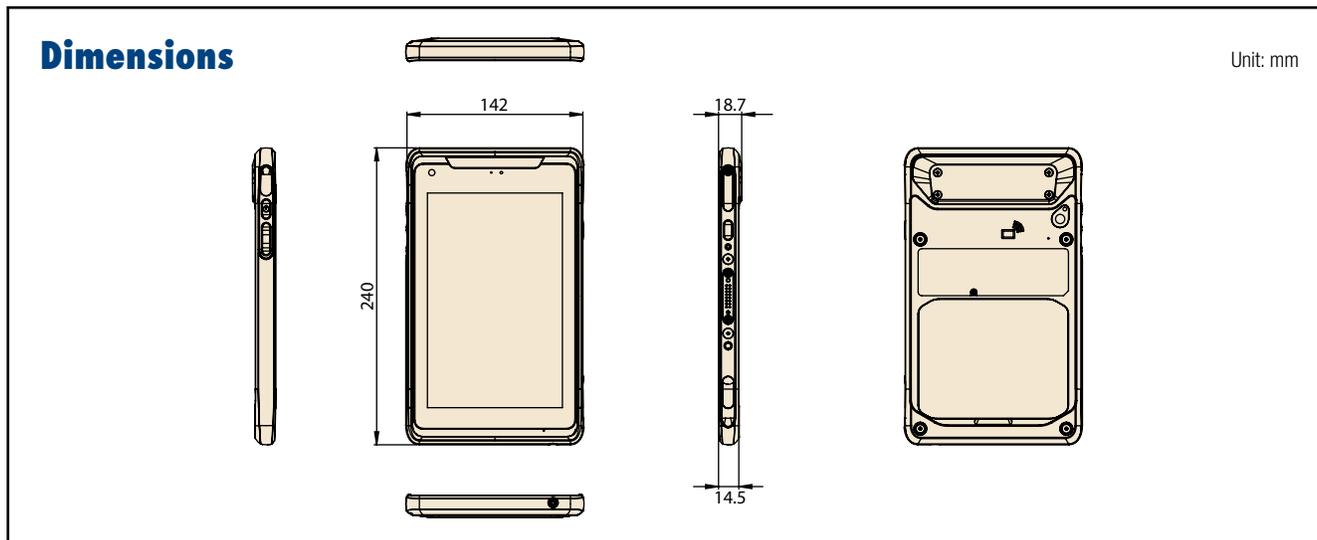## 8" Industrial-Grade Tablet

Features

- Intel® Atom™ processor with support for Windows 10 IoT and Android 6.0
- 8" WUXGA full HD display with scratch-resistant Corning® Gorilla® Glass 3 and multi-touch PCAP control
- WLAN, BT, NFC, 3G/4G LTE technology for seamless communications
- Optional extension modules such as 1D/2D barcode scanner, LAN + COM module, and UHF RFID module
- Optional accessories include an active stylus pen, hand strap, and shoulder strap, as well as vehicle, office, desk, and VESA docking stations
- Additional modules and accessories can be customized according to application requirements
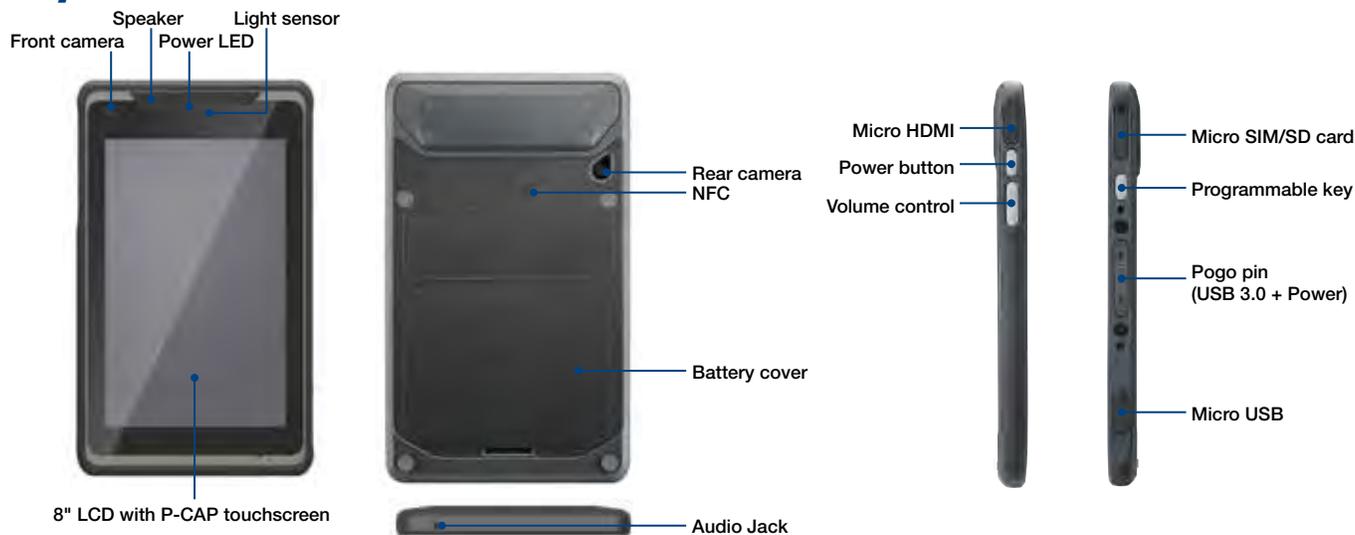- SOTI MobiControl certified for enterprise mobility management

Specifications

System	Processor	Intel® Atom™ quad-core x5-Z8350 (1.44 GHz)
	Memory	2/4 GB (default 2 GB)
	OS	Windows 10 IoT Enterprise, Android 6.0
Storage	eMMC	32/64 GB (default 32 GB)
	SD Card	1 x Micro SD
Display	Type	8" IPS LCD
	Resolution	WUXGA 1200 x 1920
	Brightness	400 cd/m²
Touchscreen	Type	10-point multi-touch P-CAP touch control
	Construction	Directly bonded Corning® Gorilla® Glass 3
Multimedia	Speaker	1 x Internal speaker (1 W)
	Microphone	1 x Internal microphone for noise suppression
Camera	Front	2-Megapixel camera with fixed focus
	Rear	5-Megapixel camera with auto focus and LED flash
Sensors		Ambient light sensor, e-compass, g-sensor, gyroscope
I/O	Standard I/O	1 x Micro HDMI 1 x Micro USB 2.0 (host and charging) 1 x Micro SIM
	Extended I/O	1 x AIM extension 14-pin pogo connector: 1 x USB 2.0, 1 x 2-wire UART, 5V/1A power 1 x AIM dock 16-pin pogo connector: 1 x USB 3.0, 9V power
	Buttons	1 x Power 2 x Volume control 1 x Hotkey (default function: barcode scanner trigger)
	LED	1 x Power/battery status indicator
Wireless Communication	WLAN/Bluetooth	1. IEEE 802.11 b/g/n, Bluetooth® v4.0 Class2 2. IEEE 802.11 a/b/g/n/ac, Bluetooth® v4.2
	NFC	13.56 MHz, compatible with ISO 15693, ISO 14443A, ISO 14443B, FeliCa
	WWAN	4G LTE multi-device broadband
GNSS	Satellite System (Optional)	GPS, GLONASS
Power	Input Voltage	Micro USB: 5V/3A Dock pogo: 9V/2A
	Battery	Swappable battery: 1S2P 3.8V 18.6W
Mechanical	Dimensions (W x D x H)	142 x 240 x 14.5 mm (5.59 x 9.44 x 0.57 in)
	Weight	0.6 kg (1.32 lb)
Environment	Operating Temperature	-10 ~ 50 °C (14 ~ 122 °F)
	Storage Temperature	-20 ~ 60 °C (-4 ~ 140 °F)
	IP Rating	IP65
	Shock	Operating: SAE J1455; Non-operating: IEC 60721-3-5 5M3 compliant
	Vibration	SAE J1455
	Drop Tested	Up to 120 cm (4 ft) onto plywood over concrete
	Safety/EMC	UL, CB, LVD + Energy Star 6.1, CE, FCC, IC, VCCI, RCM, CCC, BSMI
	Certifications	RED, FCC ID, IC, TELEC, NCC, SRRC, RCM

ADVANTECH

Dimensions

Unit: mm

142

240

18.7

14.5

System I/O

Front camera
Speaker
Power LED
Light sensor

8" LCD with P-CAP touchscreen

Rear camera
NFC

Battery cover

Audio Jack

Micro HDMI
Power button
Volume control

Micro SIM/SD card
Programmable key
Pogo pin (USB 3.0 + Power)
Micro USB

Ordering Information

Part Number	Description	Configuration									
		Memory	Storage	NFC	Wi-Fi/BT	LTE	GPS	F-Cam	R-Cam	OS	
AIM-65AT-20101000	8I/2G/32G/WIN10/bgn	2 GB	32 GB	Yes	Yes	-	-	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-20103000	8I/2G/32G/WIN10/bgn/NA/GPS	2 GB	32 GB	Yes	Yes	Yes (NA)	Yes	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-20104000	8I/2G/32G/WIN10/bgn/EU/GPS	2 GB	32 GB	Yes	Yes	Yes (EU)	Yes	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-21101000	8I/2G/32G/A6.0/bgn	2 GB	32 GB	Yes	Yes	-	-	2 MP	5 MP	Android 6.0	
AIM-65AT-21103000	8I/2G/32G/A6.0/bgn/NA/GPS	2 GB	32 GB	Yes	Yes	Yes (NA)	Yes	2 MP	5 MP	Android 6.0	
AIM-65AT-21104000	8I/2G/32G/A6.0/bgn/EU/GPS	2 GB	32 GB	Yes	Yes	Yes (EU)	Yes	2 MP	5 MP	Android 6.0	
AIM-65AT-22301000	8I/4G/64G/WIN10/bgn	4 GB	64 GB	Yes	Yes	-	-	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-22307000	8I/4G/64G/WIN10/ac	4 GB	64 GB	Yes	Yes (Wi-Fi AC)	-	-	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-22303000	8I/4G/64G/WIN10/bgn/NA/GPS	4 GB	64 GB	Yes	Yes	Yes (NA)	Yes	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-22304000	8I/4G/64G/WIN10/bgn/EU/GPS	4 GB	64 GB	Yes	Yes	Yes (EU)	Yes	2 MP	5 MP	Win 10 IoT Enterprise	
AIM-65AT-23301000	8I/4G/64G/A6.0/bgn	4 GB	64 GB	Yes	Yes	-	-	2 MP	5 MP	Android 6.0	
AIM-65AT-23307000	8I/4G/64G/A6.0/ac	4 GB	64 GB	Yes	Yes (Wi-Fi AC)	-	-	2 MP	5 MP	Android 6.0	
AIM-65AT-23303000	8I/4G/64G/A6.0/bgn/NA/GPS	4 GB	64 GB	Yes	Yes	Yes (NA)	Yes	2 MP	5 MP	Android 6.0	
AIM-65AT-23304000	8I/4G/64G/A6.0/bgn/EU/GPS	4 GB	64 GB	Yes	Yes	Yes (EU)	Yes	2 MP	5 MP	Android 6.0	

Optional Accessories

Part Number	Description
1700001524	Power cord (USA) UL 3P 10A 125V 183 cm
1700008921	Power cord (Japan) PSE 3P 7A 125V 183 cm
1700019146	Power cord (China) CCC 3P 10A 250V 183 cm
1700018553	Power cord (NZ/AU) SAA 3P 10A 250V 183 cm
170203180A	Power cord (UK) BSI 3P 10A 250V 183 cm
170203183C	Power cord (EU) 3P 2.5A 250V 183 cm
XAIM-A16-018N1A	AIM-65 adaptor ADP A/D 100-240V 33W 5V 9V DUAL MICRO USB

Note: Power cords are suitable for AIM-65, AIM-VSD, and AIM-MCS.

Packing List

Description
1 x AIM-65
1 x AC/DC adaptor
1 x Power cord TW

AIM-VEH7

Vehicle Docking Station for AIM-65 Industrial-Grade Tablet

Features

- Compatible with 9 ~ 32 V_{DC} in-vehicle power supply
- Rapid single-handed docking and undocking
- Anti-theft locking mechanism
- External GPS antenna
- Programmable function keys
- High-density connector
- Compliant with SAE J1455 for vibration and shock tolerance
- Safe and reliable design for vehicle applications

CE FCC CCC

Specifications

		Fully Configured Unit	Charging Dock Only
I/O	High-Density Connector	1 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765) with configurable firmware 5 x Digital inputs 1 x Odometer (supports dry and wet contact) with configurable and switchable firmware (default wet contact) 2 x Digital outputs (supports speed pulse) 1 x RS-232 (4 wire) 1 x RS-232/485 (2 wire) (default RS-485, termination enabled) 1 x USB 2.0 1 x Power output 12V 1A	N/A
GPS	Extended GPS	1 x External GPS antenna	N/A
Function Keys		5 x Programmable function keys	N/A
Key Lock		Anti-theft key lock (key can be removed)	N/A
Power	Input Voltage	Supports 12/24 V vehicle power (9 ~ 32 V_{DC} input range)	
Mechanical	Dimensions (W x D x H)	196 x 76.9 x 212.75 mm (7.71 x 3.02 x 8.37 in)	
	Weight	0.5 kg (1.10 lb)	
	Method of Mounting	VESA 30.2 x 38.1 mm (1.19 x 1.5 in)	
Environment	Operating Temperature	-10 ~ 50 °C (14 ~ 122 °F); 0 ~ 40 °C (32 ~ 104 °F) when charging	
	Storage Temperature	-30 ~ 80 °C (-22 ~ 176 °F)	
	IP Rating	IP54	
	Vibration/Shock	SAE J1455	
	Safety	UL, CB, LVD, CCC	
	Vehicle Power Regulation	E-Mark, ISO7637-2	
	Certifications	CE, FCC, CCC	

Ordering Information

Part Number	Description
AIM-VEH7-0000	AIM vehicle docking station (full configuration)
AIM-VEH7-0010	AIM vehicle docking station (charging only)
1700026766-01	High-density cable
PWS-770-GPSAN00E	External GPS antenna
1700027666-01	Vehicle power cable (In-house engineer testing only)
1700027665-01	Vehicle power cable (vehicle battery)

Packing List

Description
1 x AIM-VHE7
1 x Vehicle power cable (vehicle battery)

Dimensions

Unit: mm

68.5

76.9

196

212.75

ADVANTECH
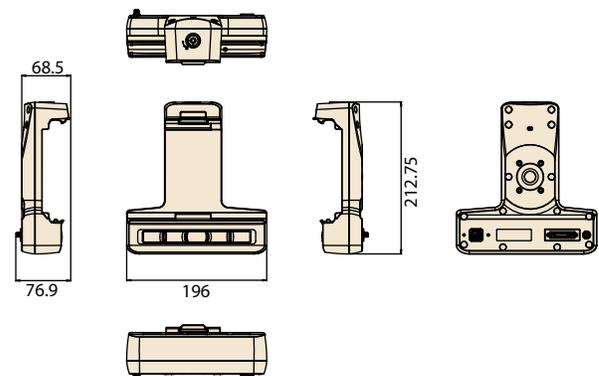
AIM-VSD

Docking Station Series for AIM-65 Industrial-Grade Tablet

Features

- 9 ~ 32 V wide input voltage range
- VESA (75 x 75 mm)-compliant docking stations
- -10 ~ 50 °C (14 ~122 °F) operating temperature
- Reliable docking connector for office applications

CE FCC

Specifications

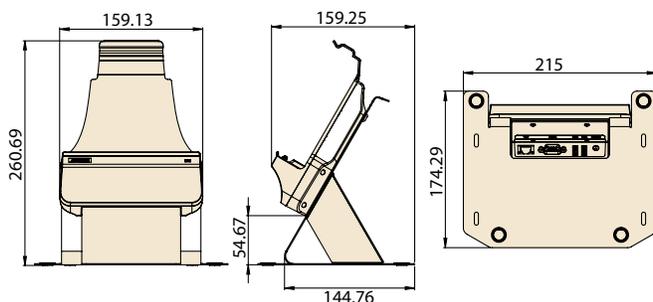|		Advanced Office Docking Station	Office Docking Station with USB	Advanced VESA Docking Station	VESA Docking Station with USB
I/O		2 x USB 3.0 1 x RS-232 COM 1 x Gigabit LAN 1 x Power jack	2 x USB 2.0 1 x Power jack	2 x USB 3.0 1 x RS-232 COM 1 x Gigabit LAN 1 x Power jack	2 x USB 2.0 1 x Power jack
Stand		SECC steel	SECC steel	-	-
Power	Input Voltage	9 ~ 32 V	19 V	9 ~ 32 V	19 V
Mechanical	Dimensions (W x D x H)	215 x 174.29 x 260.69 mm (8.5 x 6.9 x 10.3 in)	215 x 174.29 x 260.69 mm (8.5 x 6.9 x 10.3 in)	160 x 61.8 x 189.2 mm (6.3 x 2.4 x 7.4 in)	160 x 61.8 x 189.2 mm (6.3 x 2.4 x 7.4 in)
	Weight	0.75 kg (1.65 lb)	0.75 kg (1.65 lb)	0.282 kg (0.62 lb)	0.28 kg (0.61 lb)
Environment	Operating Temperature	-10 ~ 50 °C (14 ~122 °F)	-10 ~ 50 °C (14 ~122 °F)	-10 ~ 50 °C (14 ~122 °F)	-10 ~ 50 °C (14 ~122 °F)
	Storage Temperature	-20 ~ 70 °C (-4 ~ 158 °F)	-20 ~ 70 °C (-4 ~ 158 °F)	-20 ~ 70 °C (-4 ~ 158 °F)	-20 ~ 70 °C (-4 ~ 158 °F)
	Safety	UL, CB, LVD, CCC	UL, CB, LVD, CCC	UL, CB, LVD, CCC	UL, CB, LVD, CCC
	Certifications	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC	CE, FCC, CCC

Dimensions

Unit: mm

Office Docking Station

159.13 · 159.25 · 260.69 · 54.67 · 144.76 · 215 · 174.29

VESA Advanced/VESA Docking Station

29 · 189.20 · 43 · 160 · 61.80
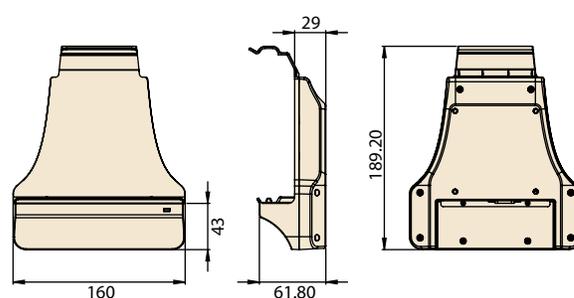
Ordering Information

Part Number	Description
AIM-OFD0-0170	AIM 8 advanced office docking station (full I/O configuration)
AIM-OFD0-0171	AIM 8 office docking station (USB)
AIM-VSD0-0170	AIM 8 advanced VESA docking station (Full I/O configuration)
AIM-VSD0-0171	AIM 8 VESA docking station with USB (USB)
AIM-STD0-0000	AIM 8 VESA stand

Packing List

Description
1 x AIM VSD
1 x AC/DC adaptor

AIM-68

Features

- Intel® Atom™ processor with support for Windows 10 IoT and Android 6.0
- 10.1" WUXGA full HD display with scratch-resistant Corning® Gorilla® Glass 3 and multi-touch PCAP control
- WLAN, BT, NFC, 3G/4G LTE technologies for seamless communication
- Optional extension modules such as 1D/2D barcode scanner, LAN+COM module, and UHF RFID reader module
- Optional accessories include an active stylus pen, hand strap, shoulder strap, as well as vehicle, VESA, and office docking stations
- Additional modules and accessories can be customized according to application requirements
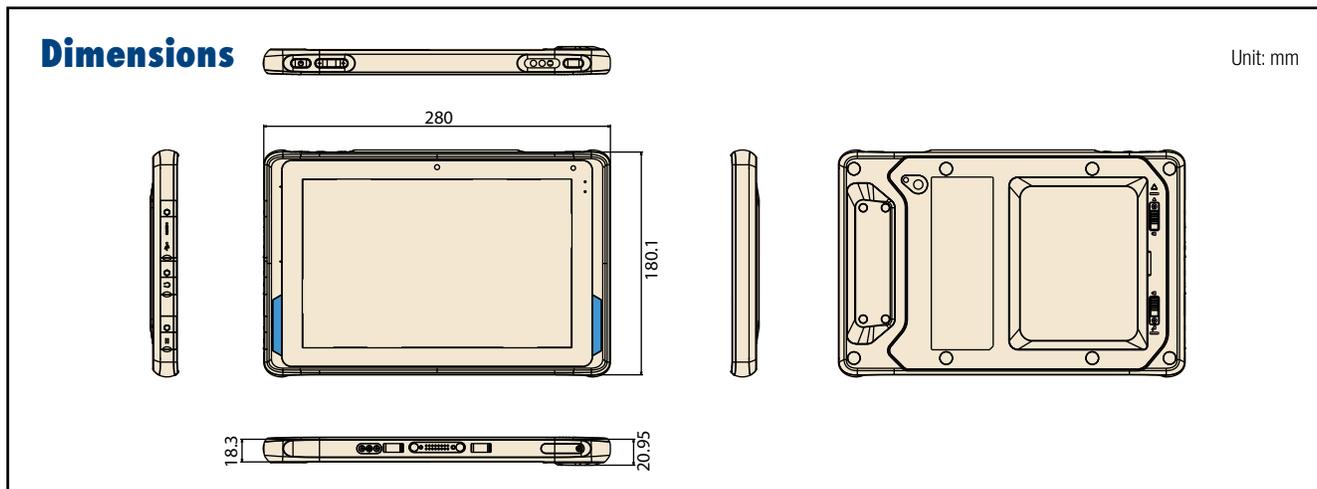
Specifications

System	Processor	Intel® Atom™ x7-Z8750 quad-core, 1.6 GHz (2M cache, up to 2.56 GHz)
	Memory	4 GB LPDDR3
	OS	Windows 10 IoT Enterprise, Android 6.0
Storage	eMMC	64 GB
Display	Type	10.1" FHD LCD
	Resolution	WUXGA 1920 x 1200
	Brightness	380 cd/m² (optional 800 cd/m²)
Touchscreen	Type	Corning® Gorilla® Glass 3 with 10-point P-CAP touch control
Audio	Speaker	2 x Internal speakers (2 W)
	Audio Jack	1 x Audio combo jack (combines stereo audio output and mono microphone input)
Camera	Front	2.0-megapixel fixed-focus camera
	Rear	5.0-megapixel aufo-focus camera with LED flash
Sensors		Ambient light sensor, e-compass, G-sensor, gyroscope
Barcode Scanner (Optional)		Integrated 1D/2D barcode scanner
I/O Interface	Standard I/O	1 x Micro HDMI, 1 x USB 3.0, 1 x combo audio jack, 1 x 19 VDC-in jack, 1 x SIM card reader, 1 x micro SD card reader
	Extended I/O	1 x AIM extension 14-pin pogo connector, 1 x USB 2.0, 1 x 2-wire UART, 5V/1A power
	Docking	1 x AIM docking 16-pin pogo connector, 1 x USB 3.0, 9V power
	Buttons	1 x Power button, 2 x volume keys (up/down), 1 x programmable function key
	LED Indicator	Full: green (100%); Charging: blue; Low: red (≤10%)
Wireless Communication	WLAN/Bluetooth	IEEE 802.11a/b/g/n/ac, Bluetooth® v4.1
	WWAN (Optional)	4G LTE multi-device broadband
	NFC	13.56 MHz, compatible with ISO15693, ISO14443A, ISO 14443B, FeliCa
Power System	Input Voltage	DC jack: 19V/3.41A Docking pogo: 9V/2A
	Battery	Hot-swappable smart battery with capacity LED indicators; Capacity: 26 WHr Operating time: Approximately 5.5 hr (depending on usage scenario*) Charging time: < 3 hr
Mechanical	Dimensions (W x D x H)	280 x 18.3 x 180.1 mm (11 x 0.7 x 7.1 in)
	Weight	980 g (2.2 lb)
Environment	Operating Temperature	-10 ~ 50 °C (14 ~ 122 °F)
	Storage Temperature	-20 ~ 70 °C (-4 ~ 158 °F)
	IP Rating	IP65
	Shock	Operating: 10 ~ 20 G, 11 ms; Non-operating: 50 G ,11 ms
	Vibration	Operating: (5 ~ 500 Hz) 0.5 ~ 1 G; Non-operating: (5 ~ 500 Hz) 0.04 PSD
	Humidity	Operating: 10 ~ 90% @ 40 °C non-condensing Storage: -10 ~ 95% non-condensing
	Altitude	Operating: sea level 0 to 3048 m (10k ft); Storage: sea level 0 to 12192 m (40k ft)
	Drop Tested	Up to 120 cm (4 ft) onto plywood over concrete
	Safety/EMC	UL, CB, LVD + Energy Star 6.1, CE, FCC, IC, VCCI, BSMI
	Certifications	FCC ID, TELEC, NCC, SRRC, RCM

*Testing method: JEITA 2.0. The battery duration and recharge time may vary according to different factors such as screen brightness, applications, features, power management, battery condition, and other configurable settings.

ADVANTECH

Dimensions

Unit: mm

280

180.1

18.3

20.95

System I/O

Volume control

Power button

Programmable Key

Barcode scanner

Front camera

Rear camera

AIM extension port   NFC

I/O door:
1 x USB 3.0
1 x micro HDMI

Combo audio jack

DC-in jack

Integrated speakers

SD + SIM door

Pogo pin

Ordering Information

Part Number	Description	Memory	Storage	LCD	Barcode	NFC	Wi-Fi/BT	LTE+GPS	F-Camera	R-Camera	OS
AIM-68CT-C2101000	10I/4G/64G/WIN10/AC/G/	4 GB	64 GB	380 nits	X	V	V	X	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C21B1000	10I/4G/64G/WIN10/AC/BCR/G/	4 GB	64 GB	380 nits	V	V	V	X	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C2103000	10I/4G/64G/WIN10/AC/NA/GPS/G/	4 GB	64 GB	380 nits	X	V	V	V (NA)	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C2105000	10I/4G/64G/WIN10/AC/EU/GPS/G/	4 GB	64 GB	380 nits	X	V	V	V (EU)	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C2107000	10I/4G/64G/WIN10/AC/APAC/GPS/G/	4 GB	64 GB	380 nits	X	V	V	V (APAC)	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C2104000	10I/4G/64G/WIN10/AC/NA/GPS/HB/G/	4 GB	64 GB	800 nits	X	V	V	V (NA)	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C2106000	10I/4G/64G/WIN10/AC/EU/GPS/HB/G/	4 GB	64 GB	800 nits	X	V	V	V (EU)	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C2108000	10I/4G/64G/WIN10/AC/APAC/GPS/HB/G/	4 GB	64 GB	800 nits	X	V	V	V (APAC)	2M	5M	Win 10 IoT Enterprise
AIM-68CT-C3101000	10I/4G/64G/A6.0/AC/G/	4 GB	64 GB	380 nits	X	V	V	X	2M	5M	Android 6.0
AIM-68CT-C31B1000	10I/4G/64G/A6.0/AC/BCR/G/	4 GB	64 GB	380 nits	V	V	V	X	2M	5M	Android 6.0
AIM-68CT-C3103000	10I/4G/64G/A6.0/AC/NA/GPS/G/	4 GB	64 GB	380 nits	X	V	V	V (NA)	2M	5M	Android 6.0
AIM-68CT-C3105000	10I/4G/64G/A6.0/AC/EU/GPS/G/	4 GB	64 GB	380 nits	X	V	V	V (EU)	2M	5M	Android 6.0
AIM-68CT-C3107000	10I/4G/64G/A6.0/AC/APAC/GPS/G/	4 GB	64 GB	380 nits	X	V	V	V (APAC)	2M	5M	Android 6.0
AIM-68CT-C3104000	10I/4G/64G/A6.0/AC/NA/GPS/HB/G/	4 GB	64 GB	800 nits	X	V	V	V (NA)	2M	5M	Android 6.0
AIM-68CT-C3106000	10I/4G/64G/A6.0/AC/EU/GPS/HB/G/	4 GB	64 GB	800 nits	X	V	V	V (EU)	2M	5M	Android 6.0
AIM-68CT-C3108000	10I/4G/64G/A6.0/AC/APAC/GPS/HB/G/	4 GB	64 GB	800 nits	X	V	V	V (APAC)	2M	5M	Android 6.0

Optional Accessories

Part Number	Description
1700001947	Power cord (USA) UL 2P 7A 125 V 183 cm
1700001949	Power Cord(UK) BSI 2P 2.5A 250V 183cm
1700029278-01	Power Cord (Japan) PSE 2P 7A 125V 183cm
1700029279-01	Power Cord (NZ/AU) SAA 2P 2.5A 250V 183 cm
1700008972	Power cord (China)CCC 2P 2.5A 250 V 183 cm
1700001948-11	Power cord (EU) EU 2P 2.5A 250 V 183 cm
AIM-ADP0-0424	AIM-68 adaptor (DC-in to 2-pin power cord)

Note: Power cords are suitable for AIM-68, AIM-VSD, and AIM-DDS.

For sales inquiries or further information, please contact us at Mobile@advantech.com.tw

AIM-68 Packing List

Description
1 x AIM-68
1 x AC/DC adaptor
1 x 2-pin power cord (USA)

AIM-VEH10

Vehicle Docking Stations for AIM-68 Industrial-Grade Tablet

Features

- Compatible with 9 ~ 32 V_{DC} in-vehicle power supply
- Easy and instant single-handed docking and undocking
- Anti-theft locking mechanism
- External GPS antenna
- Programmable function keys
- High-density connectors
- Compliant with SAE J1455 for vibration and shock tolerance
- Safe and reliable design for vehicle applications

CE FCC CCC

Specifications

		Fully Configured Unit	Charging Dock Only
I/O	High-Density Connector	1 x CAN bus (supports raw CAN, J1939, OBD-II/ISO 15765) with configurable firmware 5 x Digital inputs 1 x Odometer (supports dry and wet contact) with configurable and switchable firmware (default wet contact) 2 x Digital outputs (supports speed pulse) 1 x RS-232 (4 wire) 1 x RS-232/485 (2 wire) (default RS-485, termination enabled) 1 x USB 2.0 1 x Power input 12 V 1 A	1 x Power input 12 V 1A
GPS	GPS Extended	1 x External GPS antenna	N/A
Function Keys		5 x Programmable function keys	N/A
Key Lock		Anti-theft key lock (key can be removed)	N/A
Power	Input Voltage	Supports 12/24 V vehicle power (9 ~ 32 V_{DC} input range)	
Mechanical	Dimensions (W x D x H)	226 x 83.08 x 250.24 mm (8.9 x 3.27 x 9.9 in)	
	Weight	0.77 kg (1.70 lb)	
Environment	Operating Temperature	-10 ~ 50 °C (14 ~ 122 °F); 0 ~ 40 °C (32 ~ 104 °F) for charging	
	Storage Temperature	-30 ~ 80 °C (-22 ~ 176 °F)	
	IP Rating	IP54	
	Vibration/Shock	SAE J1455	
	Safety	UL, CB, LVD, CCC	
	Vehicle Power Regulation	ISO7637-2	
	Certifications	CE, FCC, CCC	

Ordering Information

Part Number	Description
AIM-VED0-0422	AIM vehicle docking station (full configuration)
AIM-VED0-0423	AIM vehicle docking station (charging only)
1700026766-01	High-density cable
PWS-770-GPSAN00E	External GPS antenna
1700027666-01	Vehicle power cable (In-house engineer testing only)
1700027665-01	Vehicle power cable (vehicle battery)

Packing List

Description
1 x AIM-VHE10
1 x Vehicle power cable (vehicle battery)

Dimensions

Unit: mm

90.55

77.62

250.24

226

83.08

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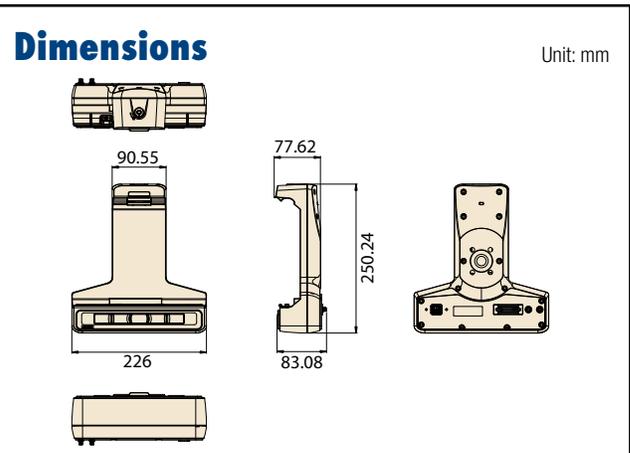
AIM Series Extensions and Accessories

Extension Modules

	Barcode Scanner (20°)	Barcode Scanner (70°)	LAN + COM Module	UHF RFID Reader
Part Number	AIM-EXT0-0040	AIM-EXT0-0041	AIM-EXT0-0046	AIM-EXT0-0047(EU) AIM-EXT0-0049(US)
Features	Sensor: CMOS sensor with 640 x 480 pixel resolution Illumination & aiming: white LED Illumination/red LED dot aimer Typical frame rate: 30 frames per second Field of view: horizontal: 37.8°, vertical: 28.8°	Sensor: CMOS sensor with 640 x 480 pixel resolution Illumination & aiming: white LED Illumination/red LED dot aimer Typical frame rate: 30 frames per second Field of view: horizontal: 37.8°, vertical: 28.8°	1 x 10/100 Ethernet port 1 x COM port	RFID output power: 25 watt RFID antenna type: linear polarization Frequency: EU: 867 ~ 869MHz US: 913 ~ 917MHz Tag standard supported: EPC Class 1 Gen 2 / ISO 18000-6C
Dimensions	130.2 x 38.7 x 27.8 mm (5.12 x 1.52 x 1.09 in)	130.2 x 38.7 x 32 mm (5.12 x 1.52 x 1.25 in)	130.2 x 70 x 29 mm (5.12 x 2.75 x 1.14 in)	130.2 x 63.6 x 65.9 mm (5.12 x 2.5 x2.59 in)
Weight	0.042 kg (0.092 lb)	0.042 kg (0.092 lb)	0.078 kg (0.171 lb)	0.08 kg (0.176 lb)

Accessories

	Hand Strap	Shoulder Strap	Holster (for AIM-65)	Active Stylus	Battery with Meter
Part Number	AIM-SRP0-0000	AIM-SRP0-0001	AIM-HOL0-0160	AIM-P704	AIM-BAT0-0252 (for AIM-65) AIM-BAT0-0452 (for AIM-68)
Color	Black	Black	Black	Black	Black
Dimensions	240 x 20 mm (9.44 x 0.78 in)	380 x 135 x 20 mm (14.96 x 5.31 x 0.78 in)	250 x 150 x 30 mm (9.84 x 5.9 x 1.18 in)	140 x 9.7 mm (5.51 x 0.38 in)	AIM-65: 98 x 84.5 x 6.5 mm (3.85 x 3.32 x 0.25 in) AIM-68: 120 x 87 x 7.5 mm (4.72 x 3.43 x 0.30 in)
Weight	0.022 kg (0.048 lb)	0.05 kg (0.11 lb)	0.23 kg (0.5 lb)	0.02 kg (0.044 lb)	AIM-65: 0.104 kg (0.229 lb) AIM-68: 0.147 kg (0.324 lb)
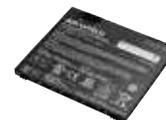
Docking Station and Multi-Bay Charging Stations

	Desk Docking Station (for AIM-65)	Multi-Tablet Charging Station (for AIM-65)	Multi-Battery Charging Station
Part Number	AIM-SDD7-0000	AIM-CHG0-0150	AIM-MBC0-0051
Color	Black	Black	Black
Dimensions	131.5 x 128.5 x 107.9 mm (5.17 x 5.05 x 4.24 in)	387 x 269 x 49 mm (15.23 x 10.59 x 1.92 in)	144.2 x 155.4 x 39 mm (5.7 x 6.1 x 1.5 in)
Weight	0.572 kg (1.26 lb)	1.98 kg (4.36 lb)	0.48 kg (1.05 lb)

PWS-872

10" Industrial-Grade Tablet with 7th Generation Intel® Core™ i3/i5/i7/Celeron® Processor

Features

- 7th generation Intel® Core™ i3/i5/i7/Celeron® processor with integrated Intel® Turbo Boost technology
- 10.1" high-brightness WUXGA LED display with scratch-resistant Corning® Gorilla® Glass 3 panel
- Multi-touch PCAP touchscreen with support for gloved operation
- Rugged design with MIL-STD-810G certification, IP65 rating, and 4-ft. drop tolerance
- 4G LTE, WLAN (802.11 a/b/g/n/ac), Bluetooth 4.1, and GPS modules with BeiDou/GLONASS support
- Built-in front and rear cameras, 1D/2D barcode scanner, and NFC RFID reader
- Hot-swappable battery supports up to 11 hours operation*
- Microsoft® Windows 10 OS
- Optional peripherals include vehicle docking station, desk docking station, and multiple extension modules

Introduction

PWS-872 is an industrial-grade tablet equipped with an Intel® Core™ i3/i5/i7/Celeron® processor, 10.1" WUXGA LED display with multi-touch PCAP control, mSATA SATA III SSD storage, multiple I/O, and Wi-Fi (802.11 a/b/g/n/ac), NFC, 3G/4G LTE, and Bluetooth 4.1 communication technologies. The built-in front (2M) and rear (8M) cameras, 1D/2D barcode scanner, and NFC reader provide convenient data collection tools, and the high-brightness sunlight-readable display supports outdoor applications. For mobile field-service applications, PWS-872 can be integrated with a hot-swappable external battery that supports up to 11 hours operation to enable long-duration use. Designed for harsh environments, PWS-872 is also MIL-STD-810G certified for shock and vibration tolerance, IP65 rated for protection from water and dust ingress, and can withstand drops of up to 4 ft. Moreover, PWS-872 can be integrated with a wide range of peripherals, such as a vehicle docking station, multi-bay battery charger, universal cover, and various I/O extension modules, to provide application-specific solutions.
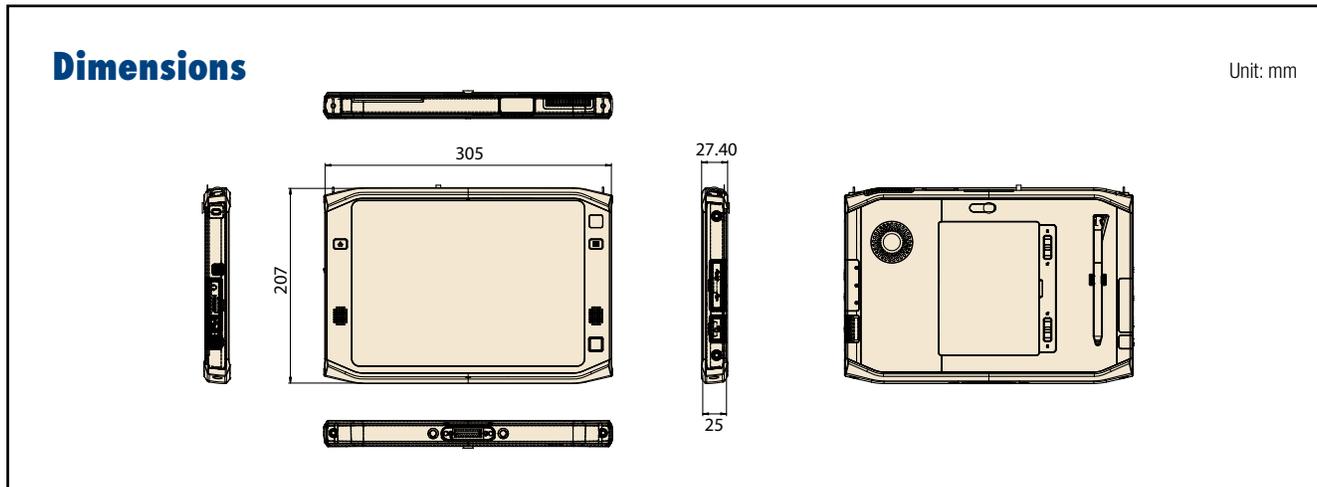
Specifications

Core	CPU & Chipset	Intel® Celeron® 3965U, 2.2 GHz Intel® Core™ i3-7100U, 1.7 GHz Intel® Core™ i5-7300U, 2.6 GHz (3.5 GHz Intel® Turbo Boost) Intel® Core™ i7-7600U, 2.8 GHz (3.9 GHz with Intel® Turbo Boost)
	Memory	SODIMM DDR4, 2100 MHz (up to 16 GB)
	Storage	mSATA SATA III SSD (64 GB ~ 1 TB)
Display	Display	10.1" WXGA LED LCD with 1280 x 800 resolution, 300-nit brightness, anti-glare surface for sunlight readability, and LED backlight 10.1" WUXGA LED LCD with 1920 x 1200 resolution, 1000-nit high brightness, anti-glare surface for sunlight readability, and LED backlight
	Touch Panel	Multi-touch projected capacitive touchscreen with scratch-resistant Corning® Gorilla® Glass 3 panel and support for gloved operation
	Sensor	Ambient light, accelerometer (g-sensor), e-compass, gyroscope (0°, 90°, 270° screen rotation)
System	WLAN+Bluetooth	IEEE 802.11 a/b/g/n/ac wave 2 + Bluetooth 4.1 EDR
	WWAN	4G LTE, HSPA+/UMTS, GSM/GPRS/EDGE (optional) PLS8-E for EU 800/900/1800/2600, PLS8-X for US 700/850/AWS/1900 (optional)
	GNSS	Integrated GPS, BeiDou, GLONASS
	Camera	Front: 2 megapixel CMOS sensor camera with video streaming support Rear: 8 megapixel CMOS sensor camera with LED flash and auto focus
	Data Collection	Optional 1D barcode scanner (Honeywell N4313), 2D barcode scanner (Honeywell N3680), and NFC RFID reader (13.56 MHz, supports ISO14443A/B, ISO15693, MIFARE, FeliCa)
	Security	1 x Fingerprint scanner (optional), 1 x Trusted Platform Module 1.2, 1 x Kensington Security Slot
	Audio	2 x 2W speakers, 1 x microphone
	Input	Multi-touch projected capacitive touchscreen, 2 x programmable buttons, 5 x programmable capacitive touch sensor inputs, 1 x capacitive stylus, on-screen QWERTY keyboard
	LED Indicators	Power, battery, RFID
	I/O	2 x USB 3.0, 1 x USB 2.0 1 x HDMI 1.4 1 x SD card slot (SDXC/UHS1/UHS2) 1 x Audio combo jack (line-in/line-out) 1 x DC-in 1 x SIM slot 1 x Docking port (32 pin) (USB 3.0, USB 2.0, PCIE 2.0, DisplayPort)
	Battery	Main battery: 4S1P 14.4V 2730mAh Hot-swappable external battery: 4S2P 14.4V 4080mAh (supports up to 11 hours operation*)
	Power Input	19V ± 5%
	OS	Microsoft® Windows 10 IoT (64 bit), Linux Ubunto1604
Environment	Temperature	Operating: -20 ~ 50 °C/-4 ~ 122 °F (0 ~ 40 °C/32 ~ 104 °F when charging to protect the battery) Storage: -40 ~ 60 °C (-40 ~ 140 °F)
	Humidity	5 ~ 95% @ 40 °C/104 °F
	IP Rating	IP65
	Drop Tolerance	Up to 4 ft.
Certification	Vibration/Shock	MIL-STD-810G
	EMC/RF	CE/FCC/CCC/SAR*
	Safety	UL/CE/CB/CCC
	Mobile Device Management	SOTI compatible
Mechanical	Dimensions (L x W x H)	305 x 207 x 25/27 mm (12 x 8.14 x 0.98/1.06 in)
	Weight	1.4 kg (3.08 lb)

* The estimated battery life is based on MobileMark® 2014 benchmark. Actual battery performance will vary according to system settings and configuration.
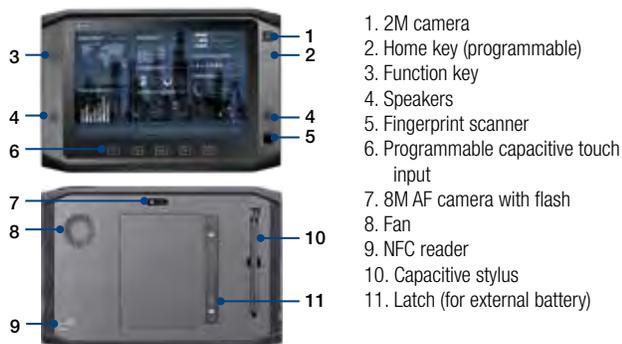* WIFI certification only; LTE certification by project.

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Dimensions

Unit: mm

305

207

27.40

25

System I/O

PWS-872 Front/Rear View

1. 2M camera
2. Home key (programmable)
3. Function key
4. Speakers
5. Fingerprint scanner
6. Programmable capacitive touch input
7. 8M AF camera with flash
8. Fan
9. NFC reader
10. Capacitive stylus
11. Latch (for external battery)

PWS-872 Right/Left Side View

1. Kensington Security Slot
2. Power button
3. Audio combo jack
4. HDMI connector (1.4)
5. USB 3.0 port

6. DC-in
7. Screw hole for extension modules
8. USB 3.0 port
9. USB 2.0 port
10. SD card slot (SDXC)

Ordering Information

Standard SKU	Configuration											RFID reader	Barcode scanner	Fingerprint scanner
	CPU	LCD	Memory	Storage	Front camera	Rear camera	Wi-Fi	BT	GPS	4G	OS			
PWS-872-CS6W0X000	Celeron	Standard (without capacity hot keys)	DDR4 4GB	SSD 64GB (0 ~ 70 °C)	-	-	Yes	Yes	-	-	Win 10 IoT	-	-	-
PWS-872-CS6W0X200	Celeron	Standard (without Capacity Hot Key)	DDR4 4GB	SSD 64GB (0~70°C)	Yes	Yes	Yes	Yes	-	-	Win10 IoT	-	2D	-
PWS-872-3S6W0X000	Core i3	Standard	DDR4 4GB	SSD 64GB (0 ~ 70 °C)	Yes	Yes	Yes	Yes	-	-	Win 10 IoT	-	-	-
PWS-872-3S6W4X200	Core i3	Standard	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-US	Win 10 IoT	-	2D	-
PWS-872-3S6W6X200	Core i3	Standard	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-EU	Win 10 IoT	-	2D	-
PWS-872-5S6W4X200	Core i5	Standard	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-US	Win 10 IoT	-	2D	-
PWS-872-5S6W6X200	Core i5	Standard	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-EU	Win 10 IoT	-	2D	-
PWS-872-7S6W4X200	Core i7	Standard	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-US	Win 10 IoT	-	2D	-
PWS-872-7S6W6X200	Core i7	Standard	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-EU	Win 10 IoT	-	2D	-
PWS-872-CH6W0X000	Celeron	High brightness	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	-	Win 10 IoT	-	-	-
PWS-872-3H6W6X200	Core i3	High brightness	DDR4 4GB	SSD 64GB	Yes	Yes	Yes	Yes	-	LTE-EU	Win 10 IoT	-	2D	-

Packing List

Part Number	Description
96PSA-A65W19V1-1	1 x 65W adapter
9680015843	1 x Capacitive stylus

PWS-870/872 Peripherals

Vehicle Docking Station and Docking Station for the PWS-870/872 Series

Vehicle Docking Station

Features

- CAN 2.0 A/B (J1939) and OBDII (ISO 15765) protocol support for vehicle diagnostics
- Anti-theft locking mechanism
- External GPS SMA antenna
- Compatible with 12V/24 V vehicle power
- Ignition control
- Rapid device docking and removal
- Provides complete port replication
- Compliant with MIL-STD-810G and SAE J1455 for vibration and shock tolerance
- E-mark (E13) certified for vehicle safety

Specifications

I/O	HDC	1 x HDC connector
	HDC I/O	1 x RS-232, 1 x CAN 2.0 A/B (supports J1939) with OBDII protocol (supports ISO 15765), 1 x line-in, 1 x line-out, 2 x DI, and 2 x DO
	USB	2 x USB 3.0 (locking type)
	Ethernet	1 x 100/1000 LAN (M12)
	SMA for GPS	1 x for external GPS antenna
	DC-In	1 x Power jack (M12) 19V ± 5% (can be paired with a vehicle adapter (PWS-770-CAD1200E/PWS-770-CAD2400E/PWS-770-CADAP00E) or DC-in (M12) adapter cable (1700021797-01)
Environment	IP Rating	IP54 (with tablet docked and all cables connected)
	Operating Temperature	-20 ~ 50 °C/-4 ~ 122 °F (0 ~ 40 °C/32 ~ 104 °F when charging) with tablet docked
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)
Certifications	Vibration/Shock	MIL-STD-810G, Method 514.5; SAE J1455
	EMC	CE, FCC
	Safety	UL, CB
	Vehicle Safety	E-mark (E13) (when paired with PWS-770-CAD1200E/PWS-770-CAD2400E)
Mount Options		VESA (75 x 75 mm)
Weight		950 g (2.09 lb)
Dimensions		240.5 x 280.9 x 95.4 mm (9.46 x 11.05 x 3.75 in)

Ordering Information

Part Number	Description (for PWS-870/872 series)
PWS-870-VCRADLE00E	Vehicle docking station with LAN cable and M12(M) to 8P/RJ45(F) cable (5 cm)
PWS-870-VCRADLE01E	Charge-only vehicle docking station
PWS-870-VMOUNT00E	Vehicle docking station without I/O
PWS-770-CADAP00E*	Vehicle power DC 10 ~ 32V 90W (120cm) to cigarette lighter adaptor with M12 connector
PWS-770-CAD1200E*	Vehicle power DC 10 ~ 32V 90W adaptor with 12V relay (120 cm) and M12 connector
PWS-770-CAD2400E*	Vehicle power DC 10 ~ 32V 90W adaptor with 24V relay (120 cm) and M12 connector
1700021797-01	M12 connector to DC-in cable (10 cm) Note: Connect the PWS-870/872 vehicle docking station DC-in port (M12) to the power jack adapter (96PSA-A65W19V1-1)
PWS-870-CHDC00E	Vehicle docking station HDC cable (200 cm), supports 1 x RS-232, 1 x CAN 2.0, 2 x DI, 2x DO, 1 x line-in, 1 x line-out
PWS-770-GPSAN00E	GPS antenna cable 5.5V 22mA (500 cm)
RAM-MOUNT-06E	5.625" double socket arm for 1.5" ball base, 3.625" VESA base at both sockets
RAM-MOUNT-07E	5.625" double socket arm for 1.5" ball base (1 socket with 3.625" VESA base, 1 socket with flat 2.5" diameter base AMPS hole pattern)
PWS-870-VDOCK-CBE	Vehicle docking starter cable kit (power cable, HDC cable, and GPS antenna)

Notes:
1. The PWS-870/872 vehicle docking station includes a LAN cable for M12-to-RJ45 connector. The vehicle adapter is optional. Do not attempt to connect the vehicle adapter M12 plug to the tablet's DC-in port.
2. Advantech strongly recommends initially purchasing the starter cable kit and power adapter for evaluation (suitable power adapters are marked*)

Docking Station

Features

- Provides complete port replication for PWS-870/872 tablets
- Wide operating temperature range (-20 ~ 50 °C/-4 ~ 122 °F)

Specifications

I/O	1 x LAN (10/100/1000) 1 x VGA 1 x RS-232 2 x USB 3.0 host connectors 1 x DC-in (19V ± 5%)
Environment	Operating temperature: -20 ~ 50 °C (-4 ~ 122 °F) Storage temperature: -20 ~ 60 °C (-4 ~ 140 °F) Humidity: 5 ~ 95%
Certifications	CE, FCC, UL, CB
Dimensions	223.8 x 146.7 x 128.5 mm (8.81 x 5.77 x 5.05 in)
Weight	820 g (1.80 lb)

Ordering Information

Part Number	Description
PWS-870-CRADLE00E	Desk docking station for PWS-870/872

Note: This product does not include a power adapter. Use the standard tablet power adapter.

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PWS-870/872 Peripherals

Optional Accessories and Extension Modules for the PWS-870/872 Series

Universal Cover Package

Features

- Material: Plastic, PVC
- Color: Black
- Dimensions:305 x 254.2 x 88.4 mm (12 x 10 x 3.48 in)
- Weight: 500 g (1.10 lb)
- Package contents: Universal cover with handle, stand, strap, and holster options

Extension Modules

MSR and Smart Card Reader

Features

- Smart Card Reader
  – ISO 7816 PC/SC
  – EMV 4.0 Level 1
  – Supports I2C memory cards (SLE4418, SLE4428, SLE4432, SLE4442, SLE4436, SLE5536, SLE6636, AT88SC1608, AT45D041)
- Magnetic Stripe Reader
  – MagneSafe™ IntelliHead
  – Supports US 7810, ISO 7811/AAMVA
  – Read speed: 6 ~ 60 IPS (15.4 ~ 12.4 cm)
  – Triple DES encryption
  – DUKPT key management
- Operating temperature: -20 ~ 50 °C (-4 ~ 122 °F)
- Storage temperature: -20 ~ 60 °C (-4 ~ 140 °F)
- Dimensions: 192.2 x 40.2 x 25 mm (7.56 x 1.58 x 0.98 in)
- Weight: 120 g (0.26 lb)

Additional I/O

Features

- Interfaces: 1 x USB 3.0 (type A, 5V/0.9A), 2 x RS-232 (D-sub 9), 1 x 10/100/1000 Ethernet (RJ45)
- Operating temperature: -20 ~ 50 °C (-4 ~ 122 °F)
- Dimensions: 192.2 x 45.2 x 25 mm (7.56 x 1.77 x 0.98 in)
- Weight: 140 g (0.30 lb)

UHF RFID Reader

Features

- RFID output power: 0.063W EIRP
- RFID antenna type: Linear polarization
- Frequency: EU: 865 ~ 868 MHz, US: 902 ~ 928 MHz
- Tag standard supported: EPC Class 1 Gen 2/ISO 18000-6C
- Operating temperature: -20 ~ 50 °C (-4 ~ 122 °F)
- Maximum output power: +18dBm (conductive)
- Dimensions: 192.2 x 40.2 x 25 mm (7.56 x 1.58 x 0.98 in)
- Weight: 110 g (0.24 lb)

External Battery

Features

- Capacity: 14.8V 4080mAh
- IP rating: IP65
- Dimensions: 141.2 x 106.2 x 17 mm (5.55 x 4.18 x 0.66 in)
- Weight: 385 g (0.84 lb)

Multi-Bay Battery Charger

Features

- Supports up to 4 external batteries
- Charging time: 4 hr
- Charge status LED indicators
- Screw holes for secure installation
- Power input: 19.5V/7.7A
- Dimensions: 214.4 x 229.4 x 60 mm (8.44 x 9.03 x 2.36 in)
- Weight: 1.4 kg (3.08 lb)
- Packing material: XAASC-FSP150-RFBN2 (1X 150w adapter)

Active Pen (for PWS-872)

Features

- Operating frequency: 90 ~ 250 KHz
- Operating temperature: 0 ~ 50 °C (32 ~ 122 °F)
- Buttons: 2 x side buttons (eraser, barrel)
- Battery: 1 x AAAA (replaceable)
- Dimensions: 140 x 9.7 mm (5.51 x 0.38 in)
- Weight: 70 g (0.15 lb)

Screen Protection Film (for PWS-872)

Features

- 10.1" replacement anti-glare screen protection film

Ordering Information

Part Number	Description
PWS-870-UCOVER00E	Universal cover package (for PWS-870/872 series)
PWS-870-EXT300E	MSR and smart card reader (for PWS-870/872 series)
PWS-870-EXT100E	I/O extension module (for PWS-870/872 series)
PWS-870-EXT200E (EU)	UHF RFID reader (for PWS-870/872 series)
PWS-870-EXT210E (US)	UHF RFID reader (for PWS-870/872 series)
PWS-870-BAT100E	External battery (for PWS-870/872 series)
PWS-870-MBC00E	Multi-bay battery charger (for PWS-870/872 series)
PWS-872-ACTPEN	Active pen (for PWS-872)
PWS-872-PROFILM	10.1" replacement screen protection film (for PWS-872)

LEO-D31

2.9" ePaper Display with Sub-GHz Communication

NEW

Features

- 2.9" ePaper with black, white and red colors
- Sunlight-readable display and 180-degree view angle
- Support data transmissions via Sub-GHz
- Display tags can roam and locate
- Years opreating on battery life, up to 8000 updates
- Fastener for various fixed solutions, quick installation and cableless

Introduction

LEO-D31 is an ePaper Display that represents a new generation of environmentally friendly products. The LEO-D31 ePaper Display is design to replace traditional printed paper and requies only low power to maintain the information display. The displayed contect of most LEO-D31s can be synchronously updated via Sub-GHz communication. Our Sub-GHz protocol can transmit farther, good penetration, more power save and roamable to achieve positioning effect. Therefore, LEO-D31 ePaper Display is more suitable for IoT applications such as factory storage, hospital medicine cabinets and UD carts.

Specifications

Display Size	2.9"
Display Area	66.9 x 29.06 mm (2.63 x 1.41 in)
Display Colors	Black/White/Red
Resolution	296 x 128 pixel
DPI	112
Dimensions	92.6 x 45 x 10.3 mm (3.65 x 1.77 x 0.41 in)
Weight	50 g (0.01lb)
Protocol	Proprirtary Sub-GHz ISM band
Frenquency	868 MHz or 915 MHz
Power Supply	CR2032 x 3
Operating Temperature	0 ~ 40°C (32~104°F)
IP Rating	IP54
Certifications	CE, FCC, NCC, TELEC

Dimensions

Unit: mm

LEO-D31

92.60
65.90
28.06
45.00
29.09
33.00
10.30

Fastener

1.60
87.01
Ø3.30
38.00
35.61
5.90

Ordering Information

Part Number	Display		Comunication		Outlook	
	Size	Colors	Frequency	Region	Front/Back	Back
LEO-D31-R0E80	2.9"	Black/White/Red	868 MHz	Europe	White/Blue	White
LEO-D31-R0N90	2.9"	Black/White/Red	915 MHz	US/Japan/China/Taiwan	White/Blue	White

Sub-GHz Access Point

Features

- Interface: Ethernet and wireless
- Protocol: Proprirtary Sub-GHz ISM band
- LED indicator: Green (power), Blue (network), Red (Error)
- Transmission Range: 100 meters (328 ft) line of sight
- Connected Quntitly: 15 routers
- Power Supply: DC 5V1A mini USB
- Dimensions: 78 x 68 x 30.3 mm (3.07 x 2.68 x 1.19 in) excluding antenna
- Weight: 84 g (0.185 lb)
- Operating Temperature: 0 ~ 40 °C (32 ~ 104 °F)

Sub-GHz Router

Features

- Interface: Wireless
- Protocol: Proprirtary Sub-GHz ISM band
- LED indicator: Green (power), Blue (network), Red (Error)
- Transmission Range: 100 meters (328 ft) line of sight
- Connected Quntitly: 1000 display tags
- Power Supply: DC 5V1A mini USB
- Dimensions: 68.5 x 49 x 33 mm (2.7 x 1.93 x 1.3 in) excluding antenna
- Weight: 60 g (0.132 lb)
- Operating Temperature: 0 ~ 40 °C (32 ~ 104 °F)

Ordering Information

Part Number	Type	Frequency	Region
USM-D62-E80	Access Point	868 MHz	Europe
USM-D62-N90	Access Point	915 MHz	US/Japan/China/Taiwan
USM-D64-E80	Router	868 MHz	Europe
USM-D64-N90	Router	915 MHz	US/Japan/China/Taiwan
31OTLEOD0001A0	LEO-D Device Manager		

ADVANTECH

LEO-D51

5.65" ePaper Display with Sub-GHz Communication

NEW

Features

- 5.65" ePaper with black, white and red colors
- Sunlight-readable display and 180-degree view angle
- Support data transmissions via Sub-GHz
- Display tags can roam and locate
- Years opreation on battery life, ups to 8,000 updates
- Fastener for various fixed solutions, quick installation and cableless

Introduction

LEO-D51 is an ePaper Display that represents a new generation of environmentally friendly products. The LEO-D51 ePaper Display is designed to replace traditional printed paper and requies only low power to maintain the information display. The displayed contect of most LEO-D51s can be synchronously updated via Sub-GHz communication. The Sub-GHz protocol can transmit farther, good penetration, more power save and roamable to achieve positioning effect. Therefore, LEO-D51 ePaper Display is more suitable for IoT applications such as factory production carts, hospital bedside card, and door card in conference room of office building.

Specifications

Display Size	5.65"
Display Area	114.9 x 85.8 mm (4.52 x 3.38 in)
Display Colors	Black/White/Red
Resolution	600 x 448 pixel
DPI	132
Dimensions	140.8 x 114 x 16.5 mm (5.54 x 4.49 x 0.65 in)
Weight	195 g (0.43lb)
Protocol	Proprirtary Sub-GHz ISM band
Frenquency	868 MHz or 915 MHz
Power Supply	AAA x 4
Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)
IP Rating	IP54
Certifications	CE, FCC, NCC, TELEC

Dimensions

Unit: mm

LEO-D51

16.50

114.00

140.80

Fastener

Ø4.5

75.00

72.00

140.00

113.20

SECTION A-A

SECTION B-B

7.70

Ordering Information

Part Number	Display		Comunication		Outlook	
	Size	Colors	Frequency	Region	Front/Back	Back
LEO-D51-R0E80	5.65"	Black/White/Red	868 MHz	Europe	White/Blue	White
LEO-D51-R0N90	5.65"	Black/White/Red	915 MHz	US/Japan/China/Taiwan	White/Blue	White

Sub-GHz Access Point

Features

- Interface: Ethernet and wireless
- Protocol: Proprirtary Sub-GHz ISM band
- LED indicator: Green (power), Blue (network), Red (Error)
- Transmission Range: 100 meters (328 ft) line of sight
- Connected Quntitly: 15 routers
- Power Supply: DC 5V1A mini USB
- Dimensions: 78 x 68 x 30.3 mm (3.07 x 2.68 x 1.19 in) excluding antenna
- Weight: 84 g (0.185 lb)
- Operating Temperature: 0 ~ 40 °C (32 ~ 104 °F)

Sub-GHz Router

Features

- Interface: Wireless
- Protocol: Proprirtary Sub-GHz ISM band
- LED indicator: Green (power), Blue (network), Red (Error)
- Transmission Range: 100 meters (328 ft) line of sight
- Connected Quntitly: 1000 display tags
- Power Supply: DC 5V1A mini USB
- Dimensions: 68.5 x 49 x 33 mm (2.7 x 1.93 x 1.3 in) excluding antenna
- Weight: 60 g (0.132 lb)
- Operating Temperature: 0 ~ 40 °C (32 ~ 104 °F)

Ordering Information

Part Number	Type	Region
USM-D62-E80	Access Point	Europe
USM-D62-N90	Access Point	US/Japan/China/Taiwan
USM-D64-E80	Router	Europe
USM-D64-N90	Router	US/Japan/China/Taiwan
31OTLEOD0001A0	LEO-D Device Manager	
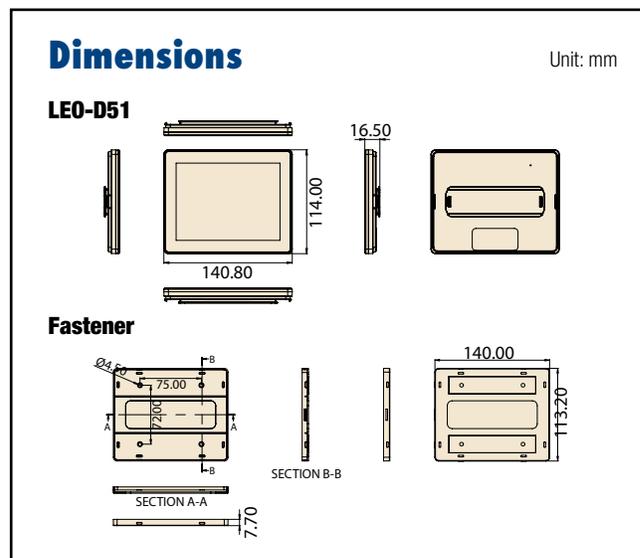
Regional Service & Customization Centers

China | Kunshan
86-512-5777-5666

Taiwan | Taipei
886-2-2792-7818

Netherlands | Eindhoven
31-40-267-7000

Poland | Warsaw
00800-2426-8080

USA | Milpitas, CA
1-408-519-3898

Worldwide Offices

Greater China

China
Toll Free	800-810-0345
Beijing	86-10-6298-4346
Shanghai	86-21-3632-1616
Shenzhen	86-755-8212-4222
Chengdu	86-28-8545-0198
Hong Kong	852-2720-5118

Taiwan
Toll Free	0800-777-111
Taipei & IoT Campus	886-2-2792-7818
Taichung	886-4-2329-0371
Kaohsiung	886-7-229-3600

Middle East and Africa

Europe
Israel	072-2410527

Asia

Japan
Toll Free	0800-500-1055
Tokyo	81-3-6802-1021
Osaka	81-6-6267-1887
Nagoya	81-0800-500-1055

Korea
Toll Free	080-363-9494
Seoul	82-2-3663-9494

Singapore
Singapore	65-6442-1000

Malaysia
Kuala Lumpur	60-3-7725-4188
Penang	60-4-537-9188

Thailand
Bangkok	66-02-2488306-9

Vietnam
Hanoi	84-24-3399-1155

India
Bangalore	91-80-2545-0206
Pune	91-94-2260-2349

Indonesia
Jakarta	62-21-751-1939

Australia
Toll Free	1300-308-531
Melbourne	61-3-9797-0100

Europe

Germany
Toll Free	00800-2426-8080/81
Munich	49-89-12599-0
Düsseldorf	49-2103-97-855-0

France
Paris	33-1-4119-4666

Italy
Milano	39-02-9544-961

Benelux & Nordics
Breda	31-76-523-3100

UK
Newcastle	44-0-191-262-4844
London	44-0-870-493-1433

Poland
Warsaw	48-22-31-51-100

Russia
Moscow	8-800-555-01-50
St. Petersburg	8-800-555-81-20

Czech Republic
Ústí nad Orlicí	420-465-521-020

Ireland
Oranmore	353-91-792444

Americas

North America
Toll Free	1-888-576-9668
Cincinnati	1-513-742-8895
Milpitas	1-408-519-3898
Irvine	1-949-420-2500
Ottawa	1-815-434-8731

Brazil
Toll Free	0800-770-5355
São Paulo	55-11-5592-5367

Mexico
Toll Free	1-800-467-2415
Mexico City	52-55-6275-2727

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