

Mobile Resource Management

Quality In-Vehicle Computer and Tablet Solutions

- ✓ Long Haul Trucks
- ✓ Local Fleets
- ✓ eBus Systems
- ✓ Utility Fleets
- ✓ Mobile Workers



ADVANTECH
Premier Partner

Vertrieb durch



AMC – Analytik & Messtechnik GmbH Chemnitz

Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
09120 Chemnitz Fax: +49/371/38388-99
E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

Advantech-DLoG Capabilities

Certified Car Power Solution

When it comes to car power solutions, the common way to solve this problem in the industry is to design wide DC input range. However, the Advantech-DLoG team always think ahead. Besides working on DC input range, we also develop power management software to optimize your usage, and we insist that all systems pass vehicle related tests, such as SAE J1113/ ISO 7637-2/ E-mark to ensure customer equipment can operate well in severe environments. The first priority for the in-vehicle environment is solving the crucial problems presented by dirty power sources. In most present-day motorized vehicles, DC power storage is provided by a lead-acid rechargeable battery, and that battery is charged by the engine and the generator or alternator. The DC voltage in such a vehicular environment is seriously impacted by ignition signals, motor RPMs (speeding up or slowing down), loading devices (audio system, MOD, PND, lamps, horn, etc.) and the temperature.

Wide DC Input Range

Normally, for a 12V/24V vehicle power system, the DC voltage may go down to 6V/8V during peak loading (see Figure 1), and it may be subject to engine charging up to a maximum of 32~34 V. If there were no power protection, this dirty power input might cause a fleet management system malfunction; in fact this very thing happens easily in old trucks. Therefore, providing for a wide DC input voltage range avoids damage to the system.

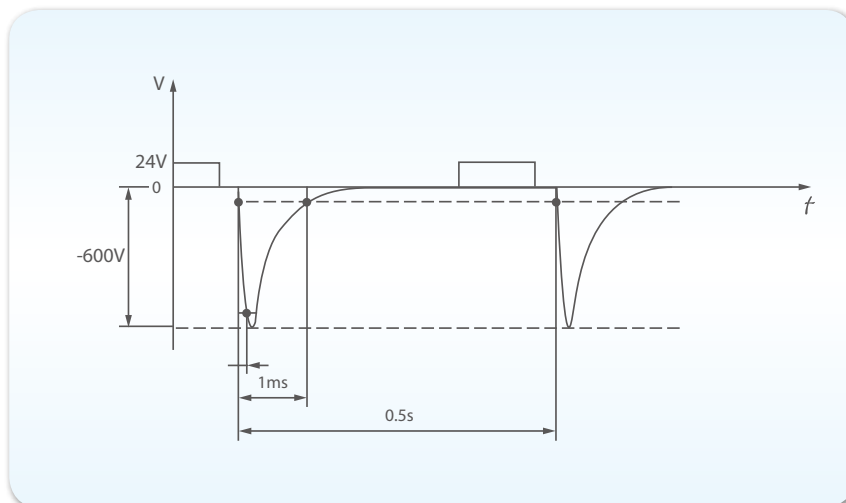


Figure 1 in ISO 7637-2 for 24-V vehicle power system

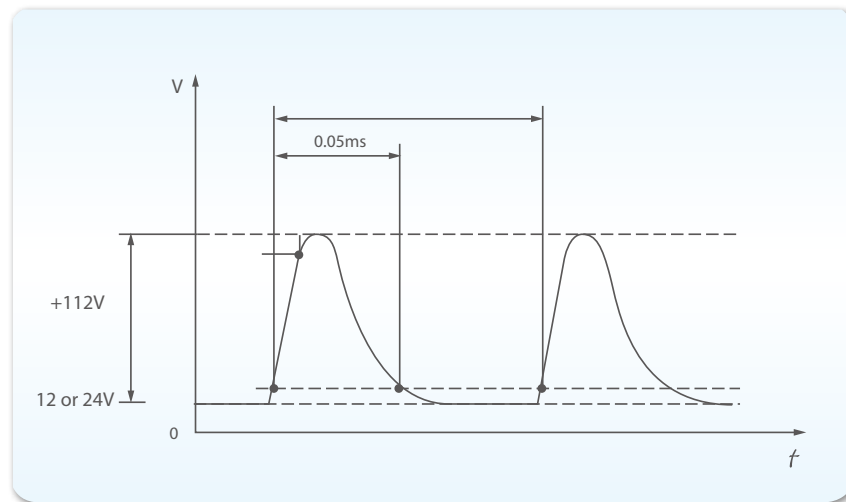
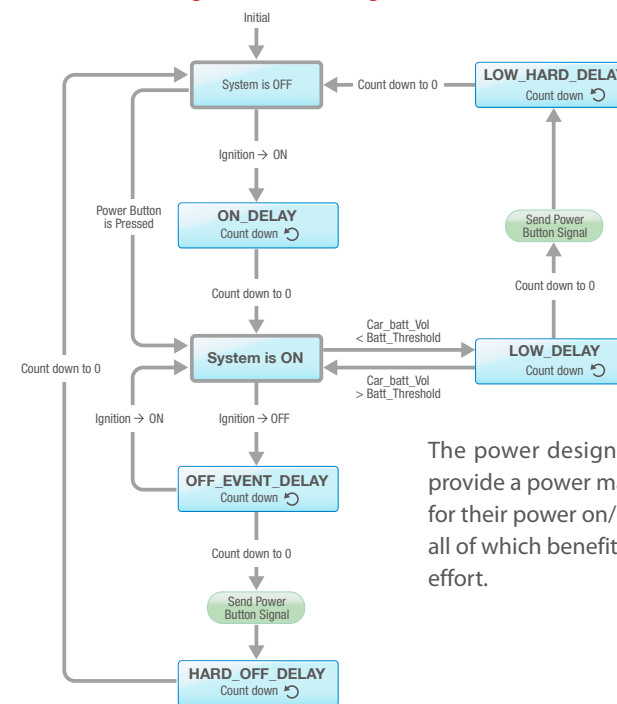


Figure 2 in ISO 7637-2 for 24-V vehicle power system

Power Management

Efficient power energy management requires embedded software control. Software design must be integrated with hardware design from the beginning of power development to avoid complications during system implementation.

Power Management Flow Diagram



The power design mechanism integrates a power management algorithm; we provide a power management demo AP and API that lets the customer set timings for their power on/off delay requirements, ignition on/off delay, and hard off delay, all of which benefits customers considerably by reducing application development effort.

SAE J1113/ ISO 7637-2/ E-mark Certifications

The automotive environment is fraught with electrical hazards. These hazards, including electromagnetic interference, electrostatic discharges and other electrical disturbances, are generated by various vehicular sub-systems such as ignition, relay contacts, alternator, injectors, and accessories. These generated hazards can occur directly in the wiring harness in case of conducted hazards, or may affect electronic modules indirectly via induction. These hazards can impact the electronics in two ways—either on the data lines or on the power rail wires, depending on the environment. Therefore, in order to assure good power design, Advantech-DLoG products are always certified—our guarantee of design quality.

Benefits

- Vehicle-Grade Power Certifications:
 - E-mark: Certification for vehicles / vehicle components. E-mark is the indication of conformity with European Union Directives for motor vehicles.
 - ISO 7637-2: Road Vehicles – Standards for electrical disturbance from conduction and coupling - Part 2: Electrical transient conduction along supply lines only on vehicles with nominal 12 V or 24 V supply voltage, second edition, 2004.
 - SAE J1455: Recommended environmental practices for electronic equipment design in heavy-duty vehicle applications.
- SAE J1113: Electromagnetic susceptibility measurement procedures for vehicle components (except aircraft).
- Wide-range DC input supports 6-36 V.
- Software supports SDK for easy power settings (delay, ignition, on/off control, hard off).
- Protection against low power conditions.

Advantech-DLoG Capabilities

In-vehicle Wide Working Temperature Range

Keep Your Cool with Wide-Range Thermal Solutions

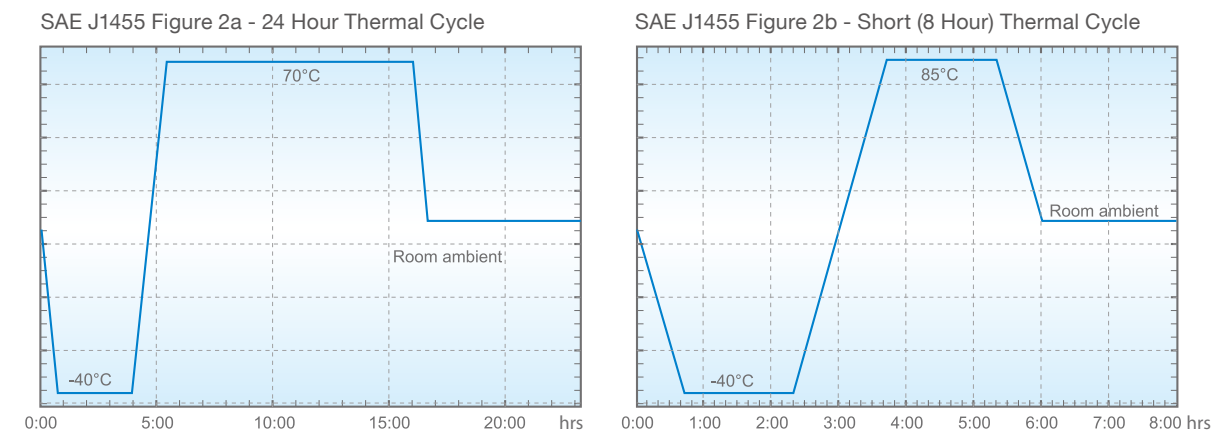
Industrial-grade computing systems are designed to work under extreme conditions. In a vehicle, it is possible for temperatures to reach up to 70°C. Hardware expected to perform in these conditions requires special design and materials, special cooling considerations, and extensive temperature testing. 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 run under a wide range of temperatures operate more reliably, and protect investments. System monitors can be programmed to send warning notifications or to shutdown systems when certain thresholds are reached. More reliable equipment can handle the demand from fluctuating changes in temperature, and operation across large geographic areas, helping fleet managers maintain a competitive edge.

1. About standards

Advantech-DLoG products support operation under a wide range of working temperatures. TREK series devices were tested in accordance with SAE J1455 4.1.3.1 standards over a 24 hr period; the results are shown below for reference:



2. How we achieve wide range temperature operation

Advantech's experienced fanless thermal solution team designs with prudence in mind. 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. And depending on result outcomes, key components for durability are then put under strict wide range temperature testing as defined for industrial equipment (-40 to 85°C, see Figure 2b). The net result is that systems are able to operate without failure at ranges of -30 to 70°C (see Figure 2a).

Benefits

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

Advantech-DLoG Capabilities

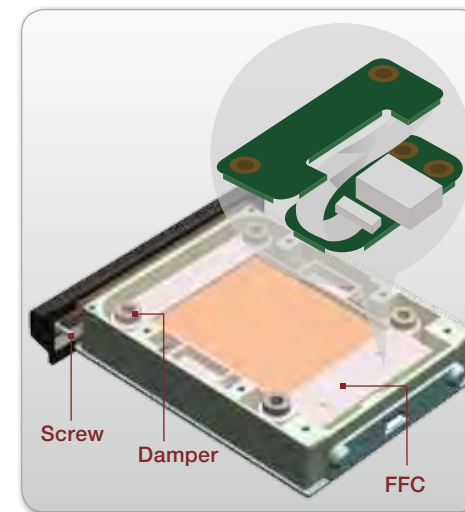
Vibration and Shock Resistance

Fleet Management systems can be installed at many locations in a vehicle. But with varying road conditions and driving situations, shocks and vibrations can impact these systems. In response to this concern, Advantech-DLoG performs a series of life cycle profile tests designed to test environmental conditions and physical acceleration on its mobile data products. These tests allow engineers to design products that withstand vibration and shock, and comply with SAE J1455, MIL-STD-810G, and EN60721-3-5 class 5M3 standards.

How does Advantech-DLoG technology reduce the impact of shock and vibration?

Advantech-DLoG's broad range of mobile data terminal products is suitable for use in any vehicle—including trucks, transit buses, taxis, subways, and light rail. Advantech-DLoG strives to produce mobile data terminals that perform ever more reliably under the severe conditions that occur in mobile environments.

- Hard disks are protected by some special designs including 2 screws in front of the HDD, 12 dampers and an FFC cable inside the HDD box to prevent environmental shock impact our HDD.

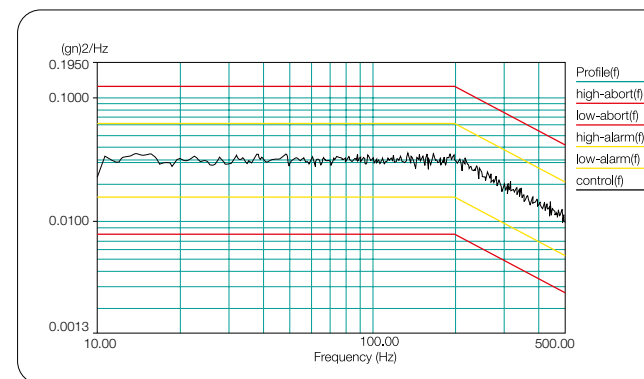


Advantech-DLoG responds to the problems associated with electronic systems operating in harsh vehicle environments by thorough research and design. Quality Assurance personnel physically test products in the environment in which they will be used. The development and testing that is conducted follow SAE J1455 4.9.4.2, and MIL-STD-810G 514.5, and EN60721-3-5 class 5M3 standards.

The "EN60721-3-5 class 5M3" standard certification means the product can withstand three times the shock and vibration of most military MIL-810G grade computing devices.

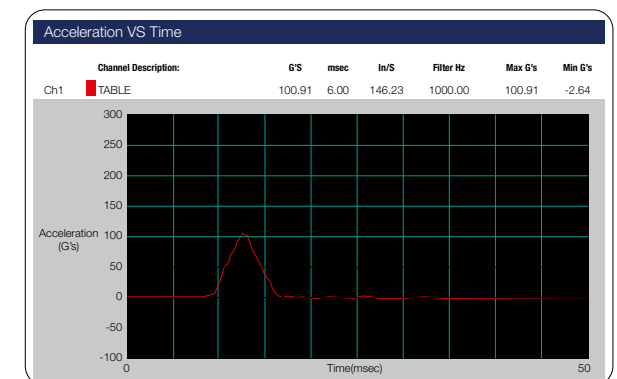
Note: EN60721-3-5 : Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 5: Ground vehicle installations.

Test Vibration Curve



EN 60721-3-5 Class 5M3 Random Vibration Test (3.38Grms)
10~500Hz, 3.38Grms, 1hr/per axis
Test PSD: 10~200Hz: 3 m²/S³, 200~500Hz, 1 m²/S³

Test Shock Curve



EN 60721-3-5 Class 5M3 Shock Test – Level II (100G /6ms)

Advantech-DLoG Capabilities

World Class RF Solution

Fleet operators must manage large vehicle fleets in geographically challenging situations. Advantech-DLoG products integrate Assisted GPS (AGPS), dead reckoning, Bluetooth, and WWAN protocols (CDMA/GPRS/HSPA+), ensuring effective operation near tall buildings, mountains, canyons, in tunnels and in underground parking lots—improving management and competitiveness. Advantech-DLoG design and production flow are compliant with ISO/TS 16949, with a quick time to first fix on satellite and very effective accuracy.

Radio Communication and PTCRB Certification

Advantech-DLoG products utilize industrial modules to transmit and receive data via CDMA, GPRS and HSPA+. With PTCRB certification which is compliant with 3GPP network standards, our products accommodate North American standards and additional requirements from the FCC and IC. By obtaining PTCRB Certification, it also ensures compliance with cellular network standards within the PTCRB Operators' networks (ex. AT&T).



About GPS

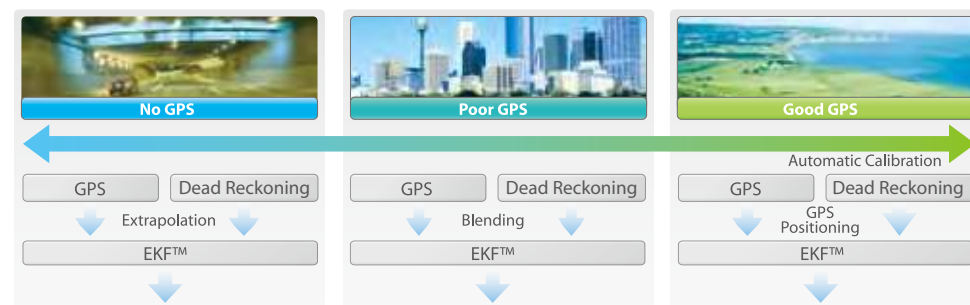
One problem affecting management of vehicle fleets is the accuracy of location data. This accuracy is greatly dependent on the techniques used to determine location. Advantech-DLoG has teamed up with a leading chip manufacturer specializing in AGPS and dead reckoning, to develop a unique low-power consuming technology that delivers reliable, advanced GPS solutions. These solutions provide optimal sensitivity, connectivity, noise immunity, and continued tracking in areas where satellite signals are interrupted.

AGPS Technology

Under adverse signal conditions, however, data downloads from satellites to the GPS receiver and subsequent positional fix can take an unacceptably long time. AGPS boosts acquisition performance by providing satellite positional data to the GPS receiver via wireless networks or the internet. This enables the GPS receiver to compute a position within seconds, even under poor signal conditions. The service is available free-of-charge, in both online and offline versions that are easy to integrate into the system.

Dead Reckoning Technology

Dead reckoning technology supplements GPS data using additional sensors that detect distance travelled with an odometer and turn rate with a gyroscope, providing an accurate position in tunnels, indoor parking facilities, roofed logistics centers, urban canyons and any other environment where obstructed GPS signals hinder positioning. The following chart shows that when there is no GPS signal, drivers must rely completely on dead reckoning technology to extrapolate location. With a poor signal, drivers rely on a blend of both GPS and dead reckoning data for position information.



Benefits

- Integrated AGPS and dead reckoning, improves signal acquisition and maintenance
- Open antenna detection prevents tampering
- Real-time communications with central dispatch
- Multiple WWAN protocol support (CDMA/EV-DO, quad-band GPRS/EDGE, and UMTS/HSPA)
- Bluetooth allows driver to transmit data to the cab via a mobile device
- Wi-Fi eases software upgrades allowing them to be done over the air

Advantech-DLoG Capabilities

MRM SDK Accelerates Your Time to Market

The MRM SDK Package is a software API layer which allows system integrators to effortlessly communicate with hardware on a system. It sits between a user application and the operating system, eliminating the complex programming required to make low-level system calls. Using the MRM SDK Package, customers can more efficiently develop application programs, evaluate platform performance, quickly add peripheral support, and provide post-installation maintenance/debugging support. In the past system integrators had to program complicated system calls to device drivers which communicated with the hardware layer. Now they can interact directly with the MRM SDK Package, reducing development time and easing product deployment.

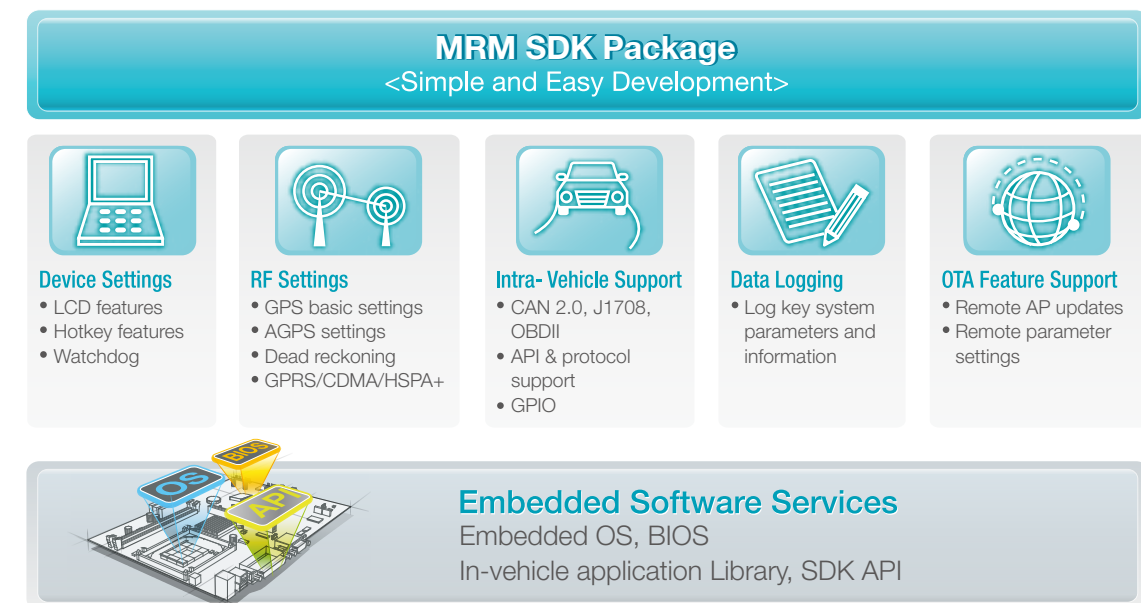
Helping System Integrators Get Work Done Efficiently

The MRM SDK Package sends event triggers for various functions. The user application can listen for an event trigger and respond to it. And more functions will continue to be added to the SDK over time. The main package includes support for the following functional categories:

- Device settings—LCD settings, hotkey features, and watchdog settings
- RF settings—GPS, AGPS, dead reckoning, GPRS/CDMA/HSPA+, VOIP, WLAN, Bluetooth
- In-vehicle communications—CAN bus / API and protocol support, GPIO
- Data logging—capture of key system information and parameters
- Over-The-Air (OTA) support—remote application updates, and remote parameter settings

MRM SDK Package also runs on multiple operating systems (WinXPE, WinCE, WES7, Linux or Android), providing user application portability across platforms without change.

Diagram



Benefits

MRM SDK Package assists system integrators by giving them easy access to low-level hardware functions, saving time and money in their product development cycle.

- Allows easier and more efficient programming
- Makes user applications portable across different operating systems
- Speeds up 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
- Gives the system integrator a single interface

Advantech-DLoG Capabilities

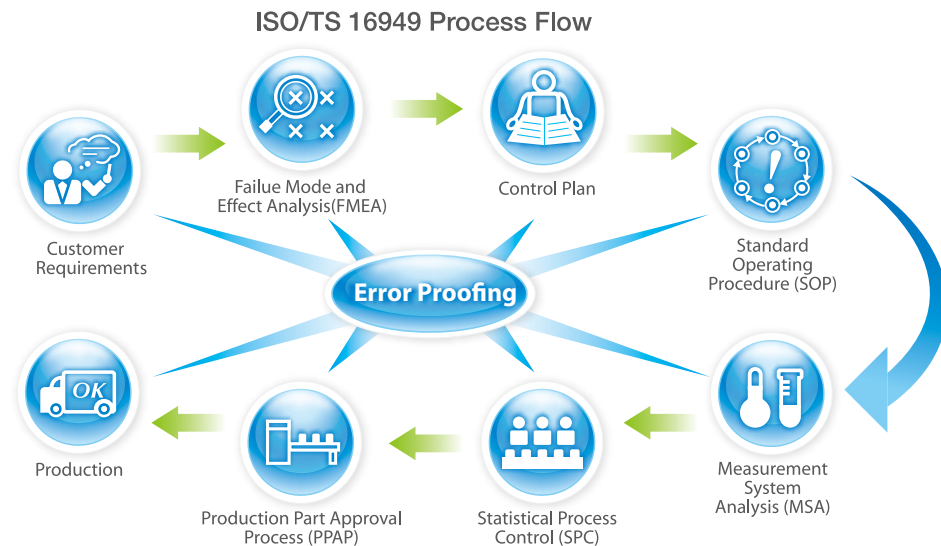
ISO/TS 16949 Drives Continuous Improvements in Automotive Standards

ISO/TS 16949 is a technical standard based on ISO9001. It aligns automotive standards of quality control from the US (QS9000), Italy (AVSQ), France (EAQF), Germany (VDA6.1), and Japan into a process-based system of continual improvement, defect prevention, and optimization of the supply chain through reduction of waste. It was authored by SGS, and requires group members to perform detailed root cause analysis of product defects and failures, as well as waste and variation analysis. The key metrics of ISO/TS16949 are: production part approval process (PPAP), advanced product quality planning (APQP), failure mode and effect analysis (FMEA), measurement system analysis (MSA) including gauge repeatability and reproducibility (R&R), and statistical process control (SPC). As a condition of keeping the certification, mandatory change implementation with measurable improvements must take place after the analysis is done, thereby ensuring a system of continuous improvement.

Advantech-DLoG is committed to following the ISO/TS16949 standard in its in-vehicle products, as part of a continuous self-improvement effort. Annual audits will ensure that vehicle-grade standards related to ISO/TS16949 are met and measurable in accordance with the certification requirements. Advantech-DLoG is ready to take first-tier customer projects and customized ODM requests.

Process Flow

ISO/TS 16949 methodology follows the advanced product quality planning process (APQP). It begins by defining customer and regulatory requirements, including scope, and team organization. Planning and definition follow, in which a strategy is chosen, benchmarks and goals set, reliability studies performed, and customer input gathered. In the product design and development phase, two types of failure mode and effect analysis (FMEA) are performed: design failure mode and effects analysis (DFMEA), and process failure mode and effects analysis (PFMEA). A control plan including process capability, SOP, and measurement systems analysis (MSA) follow the FMEA. Statistical process controls (SPC) monitor processes ensuring they operate at full potential. The production part approval process (PPAP) provides validation and management signoff. In the final production phase, feedback, assessment, and corrective actions are measured in relation to customer satisfaction, service, delivery, and consistency.



Benefits

- Solid design and production
- Lower defect rates, which lead to lower manufacturing costs
- Increased efficiencies along the entire supply chain
- A single internationally agreed upon standard for quality management, which is easily recognizable
- Measurement, analysis and continuous improvements

Advantech-DLoG Capabilities

Ecosystem Benefits Everyone



Compatibility and interoperability are critical concepts for mobile communications products. With these principles in mind, Advantech-DLoG works closely with its suppliers to assure both compatibility and interoperability. As a participant in a well-developed industrial ecosystem, Advantech-DLoG offers customers pre-vetted options from a stable of standard protocols that ensure communications with maximum mobility and compatibility.

1. For external modules/devices: Advantech-DLoG provides solutions and options that our customers craft into different application solutions. A number of devices have been tested and certified compatible with our products; our customers can refer to our peripherals list and select the options they need. Some examples are: RFID, barcode scanner, RAM mount, and external CAN bus solutions. Customers realize savings in effort required for selecting and testing peripheral vendors. This win-win strategy benefits Advantech-DLoG suppliers and customers.
2. For internal module vendors: Especially for functions such as GPS/GPRS, WiFi, and Bluetooth, the associated RF communication modules are critical elements for in-vehicle products. Since quality is extremely important, we source only world-recognized RF modules. We check for approved certifications, such as PTCRB, R&TTE, etc., so our customers save time and expense. Close cooperation with our eco-partners benefits all concerned.

Benefits:

- Assured hardware compatibility
- Assured protocol compatibility
- Assured interoperability
- Reduced sourcing effort
- Reduced testing
- Faster time to market
- Stable systems

Advantech-DLoG partners with the companies below to serve the marketplace and offer leading edge products. In order to keep up to date with new technology and to develop cutting edge solutions for our customers, Advantech-DLoG's open philosophy enables us to serve more effectively and to bring valuable new solutions to market more quickly. These are Advantech-DLoG's most valued partners:

OS	Core Chip	Vehicle Communication Provider	GPS	RF module	Others
Microsoft, Linux, Android	Intel, TI	Simma	u-blox	Sierra Wireless, Cinterion, Telit	ALK, iris, Pressure Pro
  	 			  	  

Advantech-DLoG Capabilities

High Flexibility to Fit Needs

An Economical and Simple Step to Increase System Robustness

TREK-753 has an I/O cover which is IP54-certified to protect against water and dust. The I/O cover extends this protection to cable attachments and connectors. This allows the system to operate in wet or dirty environments where spray from water or dust churned up from the road might otherwise cripple computer equipment.



Application-Oriented Offerings

Advantech customized accessories include mounting kits, hand straps, shoulder straps, desk cradle, and vehicle docking make your work more comfortable and convenient in field.



Advantech mounting kits are the perfect choice for securing MDTs (Mobile Data Terminal) to vehicles on the move. The mounting kits come with two plates and double socket arms which can absorb harmful shocks and vibrations. They are designed to absorb a shock of up to 40G, 11ms (MIL-STD-810G) or 100 G, 6ms (EN60721-3-5) and will hold MDTs solidly in place even in the harshest of conditions. View angle and position of MDTs is fully adjustable by the double socket design. All RAM components are interchangeable, so if you decide to switch items from one vehicle to another, simply swap them out with a turn of the knob. There are many different, non-destructive RAM mounting bases that will quickly attach and fit different vehicle cabins. They have been tested on vehicles from Toyota, CAT, Daewoo, Komatsu, Yale, Hyster, Clark, Mitsubishi, Nissan, and many others.

Configurable Modules Meet Requirements of Various Fields

Data capture has never been easier or more versatile with PWS-770's modular support. Businesses can add individual modules to tailor the unit to their specific need. Modules include a camera, 1D/2D barcode reader, magnetic stripe reader, and RFID reader. Accessories include hand straps, shoulder straps, desk cradle, and vehicle docking cover for carrying, desktop and in-vehicle use. The flexibility in customizing PWS-770 increases efficiency in the field by allowing capture and transmission of data in real-time.



Long Operation and Low Weight Is Perfect for Compact and Light Duty Applications

One of the most important and unique design features of the portable system is the battery, which is hot-swappable for long-lasting support allowing the system to operate for up to 8 hours at a time by hot swapping with an external battery. Another benefit is its lightweight design, making it more comfortable to carry for longer periods of time.



Application Story

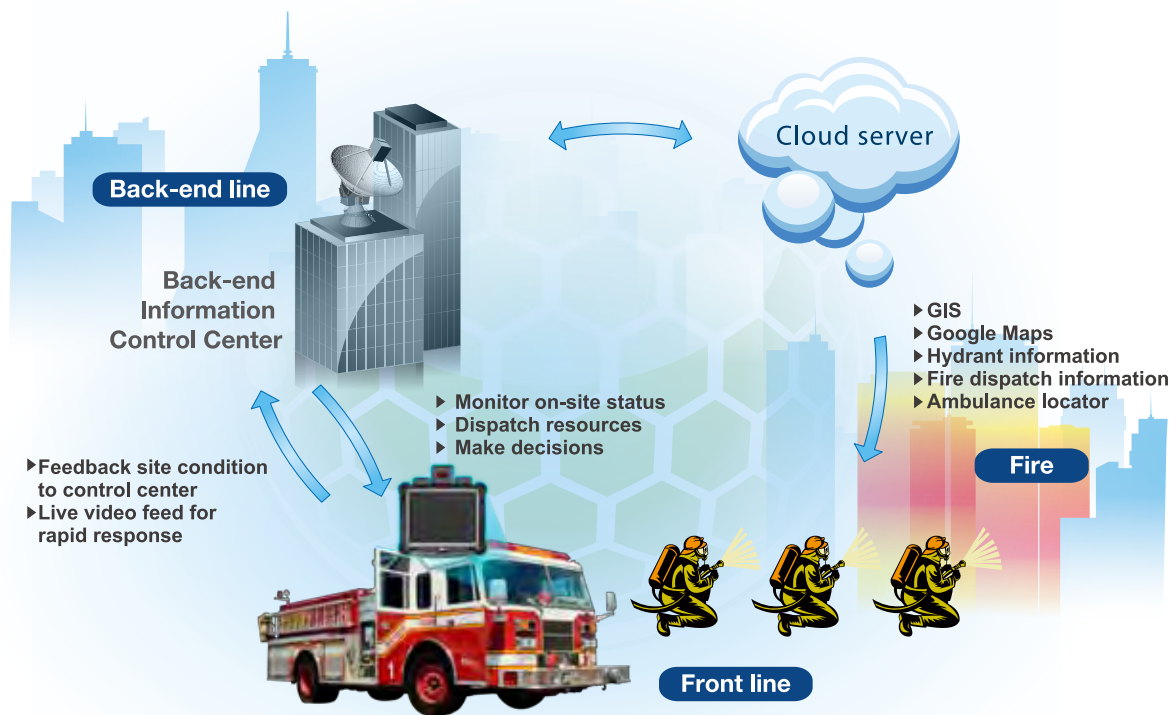
Emergency Services in Action

Introduction

Firemen scramble over the devastation left behind by fires, typhoons, floods or other rescue operations. The effectiveness of their response can be measured in seconds. So any improvement in response times can help save lives and property. Traditionally, emergency response teams make use of mobile phones, paper, and a lot of manual work. These methods are time-consuming and can also lead to inaccurate or missing information.

System

How can emergency service personnel best solve the problem of providing the quickest response possible? A good start is by using a rugged designed tablet PC. It needs to be dust-proof, waterproof, shockproof and supply information such as GIS, Google maps, hydrant location, dispatch, and the location of ambulances in the area onto an integrated screen. Rescue personnel must be able to easily operate and carry the device at the disaster site, use the internet, check security systems, fire rescue databases and have access back to a central command center.



PWS-770 Vehicle Docking Station

- Implements GPS module inside
- Locking mechanism for theft deterrence
- Complement port replication
- Cable management
- Ignition control
- Shock and vibration absorption



Solution

Advantech provides an ideal solution, the PWS-770 semi-rugged tablet computer. It assists rescue workers, firefighters and other emergency service personnel in their jobs and performs flawlessly in high-temperature, dusty, windy and rainy environments. The PWS-770 features:

- Sunlight readable touch panel
- IP54 rating, both dustproof and waterproof
- 4ft drop resistant
- Wide temperature operating range: -10~50° C (0~40° C charge)

At an affected site, PWS-770 provides complete and efficient wireless connectivity using:

- WiFi: 802.11 b/g/n
- BT 4.0
- GPS
- WWAN 3.75G

The PWS-770 comes with a complete set of accessories for specific needs that improve workflow as well as increasing operating comfort and mobility. Accessories include hand straps, shoulder straps, a desk cradle, and a vehicle dock. The carry bag and hand-strap allow rescuers to comfortably carry the PWS-770, while the cradle and dock make it easy to use in vehicle or on the desktop. A second battery is hot-swappable to provide long-lasting operation of up to 8 hours at a time. When personnel go back to the fire truck or rescue vehicle, the system can be docked at the vehicle where it remains in operation while charging the battery.

Benefits

PWS-770 Helps Back-end Operations:

- Makes it easy to monitor on-site status
- Reduces time to make decisions
- Allocates human and related equipment resource efficiency

And PWS-770 Helps Operations in the Field Too:

- Replaces time-intensive, error-prone paper records and manual entry processes
- Increases Efficiency of Emergency Processes
- Savings cost and time by aggregating all information and helping personnel complete the mission



PWS-770

- Efficient Intel® Atom™ N2600 1.6 GHz processor
- 10.4" XGA LED panel, WAV transfective-LCD, high brightness 300 cd/m2
- Hot swap, high capacity Li-ion battery provides 8 hours of operation
- Rich array of I/O ports supports a variety of applications
- IP54-certified, 4 ft drop rating from 120 cm
- Built-in Wi-Fi/Bluetooth/GPS/WWAN (3.75G)
- Optional data capture modules: barcode scanner / MSR / RFID
- Lightweight, 1.2 kg

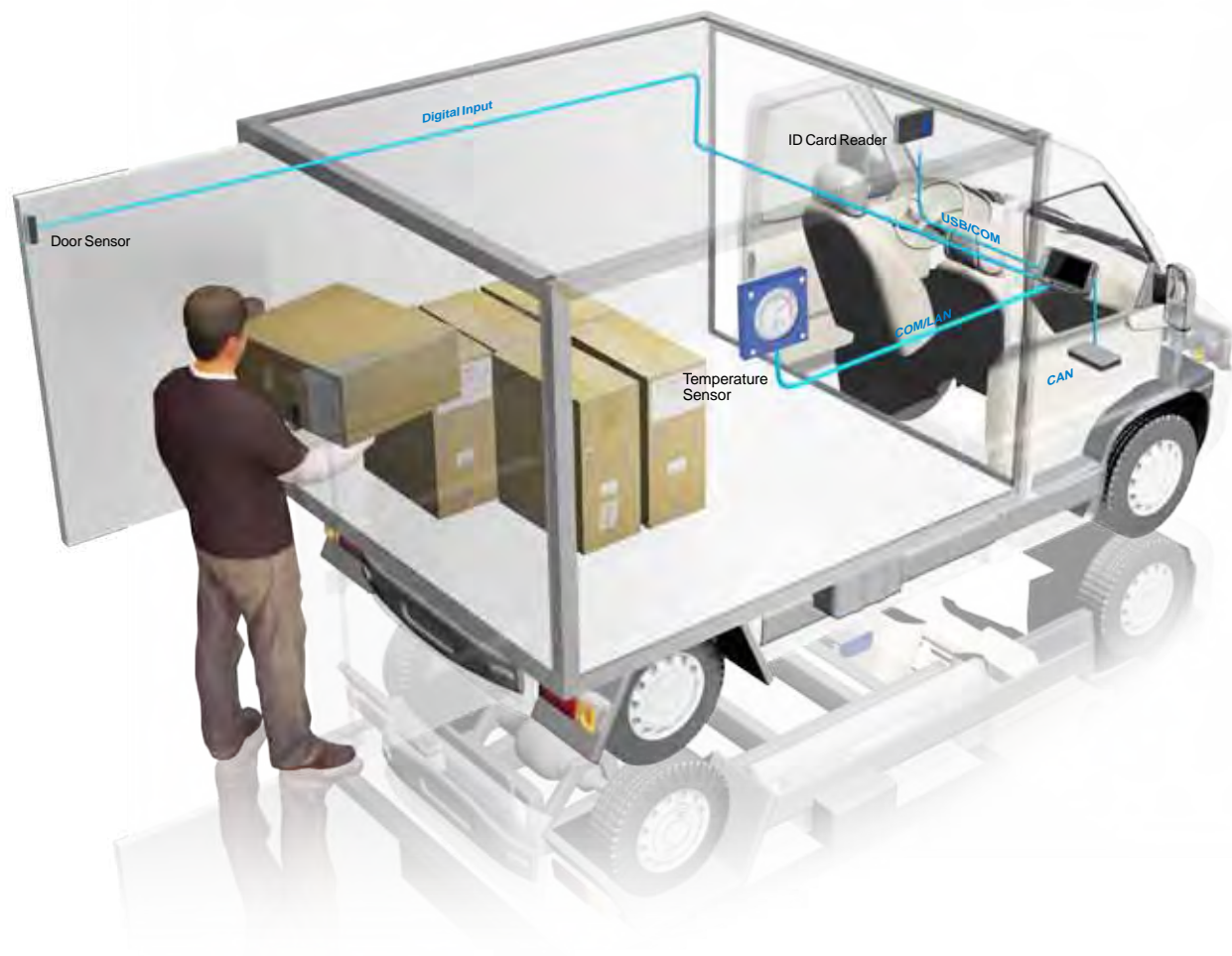
Application Story

Cutting Edge Local Fleet Management

Introduction

When it comes to fleet management, Advantech-DLoG is proud to play a role in advancing safety, efficiency, and profitability. One notable example is the Mobile Data Terminal (MDT) that helps manage moving fleet assets. With built-in GPS, CDMA/GPRS/HSPA+, the MDT keeps drivers and dispatchers in close communication. And depending on sensor outfitting, the Advantech-DLoG MDT can track everything from mileage, routing, speed, and acceleration, to braking, oil pressure, and fuel consumption. An important additional function is the logging of driver duty and rest hours to help maintain compliance with safety and hours-of-service regulations. The TREK-722/723 ARM base MDT can be mated with a software solution that takes virtually all the drudgery out of tedious logging and tracking, enabling well-informed management for even the most complex fleet operations.

System



Solution

TREK-722/723 is a RISC platform with 5"/7" all-in-one MDT. The radio frequency options and programmable function keys make TREK-722/723 suitable for local fleet management, especially small truck, local delivery, government fleets and taxis. It is designed to be power compliant with ISO7637-2 & SAE J1113 standards, ensuring the system is stable in a dirty power system.

In cold applications, it is important to monitor temperature during food transportation. When the driver is out of the vehicle or off-duty, a fleet owner doesn't normally have access to the status of fleet assets and vehicles. But, with the suspend/wakeup feature of TREK-722/723, 24/7 monitoring mechanisms are supported via periodic, digital input or WWAN wakeup. The fleet owner can monitor vehicle and cargo on a daily, weekly, or specific time basis. If a driver or a thief opens a vehicle door when it is left unattended an event is triggered by the door sensor to inform a center operator responsible for asset security. Furthermore, the operator can remotely wakeup the TREK-722/723 via SMS to have access to vehicle data.

Benefits

- Advantech-DLoG's mobile data terminal computing is a highly integrated solution for fleet management applications. System integrators benefit from Advantech-DLoG MDT's reduced software development needs, which means faster time-to-market.
- Improved efficiency for fleet managers and route planners
- Enhanced driver productivity and efficiency
- Well-rested drivers operating well-maintained equipment helps keep highways safe for everyone
- Real-time communications and information delivered to driver and the central office
- Collected data can be marketed for additional income (e.g. : Some fleet owners sell up-to-date temperature and route condition information to other businesses)



NEW

TREK-722/723 (RISC All-in-One Mobile Data Terminal)

- 5" & 7" LCD (800 x 480) with resistive touchscreen
- 24/7 monitoring & reporting
- WinCE6.0, Linux, and Android
- Built-in CAN bus with J1939 protocol
- Built-in GPS with AGPS feature, BT, CDMA/GPRS/HSPA+
- Operating temperature -20 ~ 60° C (TREK-722) ; -30 ~ 70° C (TREK-723)



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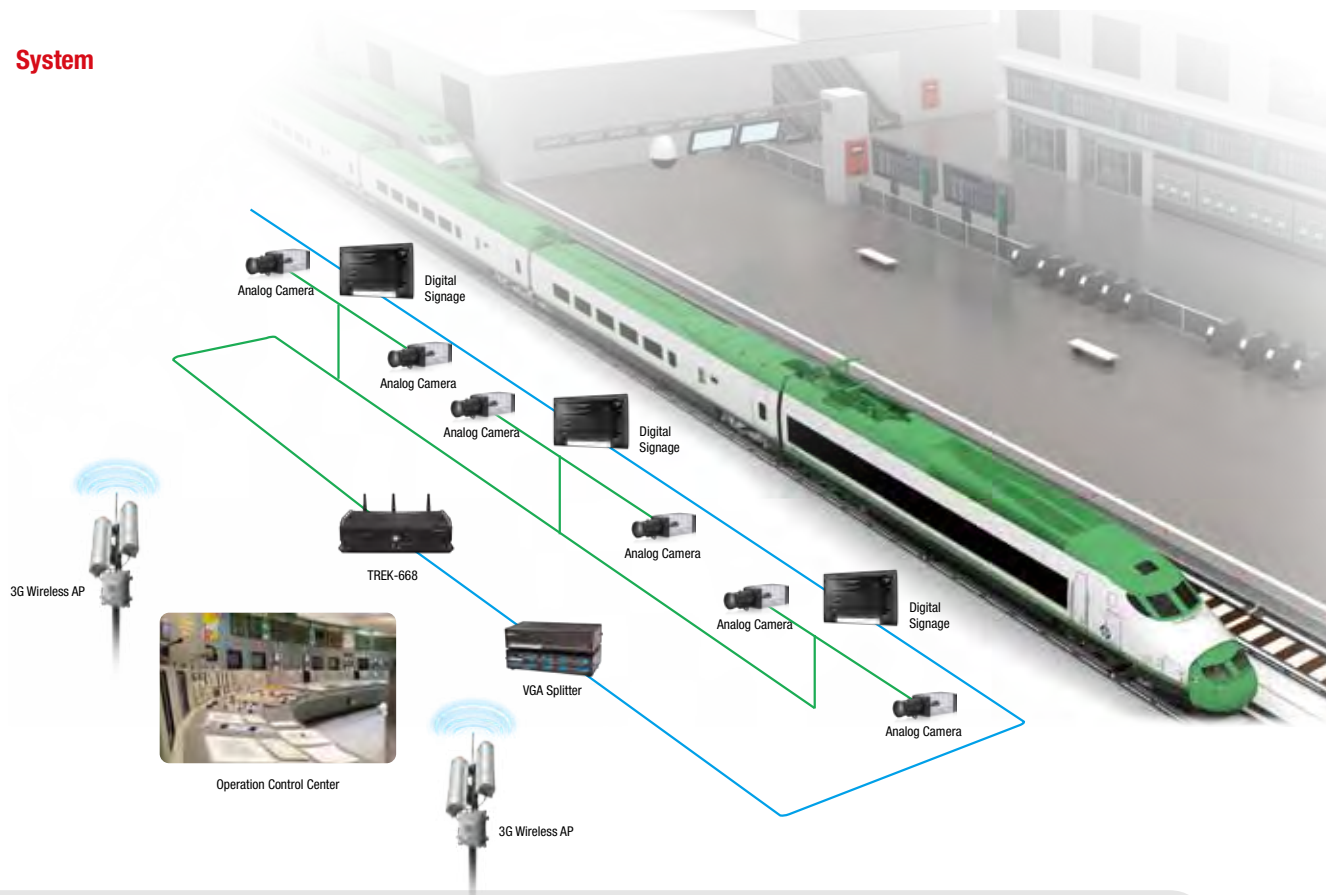
Application Story

Safety Should Never Be Compromised

Introduction

Fleet management and in-vehicle surveillance personnel need instant access to critical information when responding to emergencies and life threatening events. Advantech-DLoG provides video surveillance to operation control centers to assist them in issuing commands and guidance to personnel. The advanced mobile data solution provides real-time access to applications such as train dispatching, critical information about train cars, and an infotainment system. And video surveillance helps increase driver and passenger safety. This in turn reduces collisions, injuries, maintenance and insurance costs.

System



TREK-303DH (7" Smart Vehicle Display)

- 7" display with touchscreen supports 800 x 480 resolution
- -30 to 70° C wide range temperature
- Five user-defined function keys, 2-watt speaker x 2, and USB host.
- Supports auto-dimming
- One cable connects with TREK box solutions
- Power on/off button on the side
- CE/FCC/CCC certified



Solution

TREK-668 is an industrial-grade, dual-core computing box designed to provide high-quality video surveillance and fleet management for police cars, ambulances, fire engines, buses and trains. TREK-668 supports vehicle tracking and positioning, and is capable of dead-reckoning, which allows vehicle locations to be traced even when the vehicle is in a tunnel. TREK-668 supports the J1939 protocol for vehicle diagnostics and driver behavior management, and it also supports high-quality, MPEG-4, MJPEG, H.264 recording and transmission of up to 12 channel analog camera inputs. It has 1 channel PSE for IP camera integration, and dual display /dual audio interfaces which support different resolutions. TREK-668 has 8 audio inputs and provides a hybrid recording function allowing for images to be transmitted as either digital or analog video signals. TREK-668 provides reliable on-board recording and can transmit images or alarms for remote monitoring over WLAN, GPRS, 3G or LTE network connections.

- Automotive grade working temperature range (-30° C to 60° C).
- Rich I/O including CAN, RS-232, RS-485, J1708, 4DI/4DO (isolated), Line out, Mic in, and USB.
- 4/8/12 channel analog video input, 1 PSE for IP Camera. Camera supports D1 resolution per channel with 30 frames per second (up to 16 channels at Half-D1 resolution).
- 2 piece SSD or 2.5 mobile HDD as external accessible storage
- Built-in communication modules, including GPRS/HSPA+/CDMA, WLAN and Bluetooth; supports dual SIM, dual HSPA+; supports dual SIM cards and dual WWAN module mechanism.
- GPS with AGPS and dead reckoning technology (Gyro & speed line).
- Certifications: CE, FCC, E-mark, MIL-STD-810G, ISO 7637-2, SAEJ1455, SAE J1113 regulations.
- Ignition on/off delay; software controllable for car power management.

Benefits

TREK-668 brings customers many benefits. These are just a few:

- Real-time video streaming to back-end office for command and control decision-making for collective intelligence.
- Real-time communications and information delivered to driver and the central office.
- Dual display, coupled with TREK-303 and VGA output for displaying routing and location assistance, critical information of carriage, and infotainment system.
- Rugged equipment ensures access to data in harsh, in-vehicle environments.
- Dual SIM cards, free roaming charges.



NEW

TREK-668 (In-vehicle Surveillance with Fleet Management Computing Box)

- Automotive grade working temperature range (-30° C to 60° C)
- Rich I/O including CAN, RS-232, RS-485, J1708, 8DI/4DO (isolated), Line out, Mic in, USB.
- 4/8/12 channel analog video input, one PSE for IP Camera supports 30 frames D1 resolution per channel per second. (Supports up to 16 channels for half D1 resolution)
- Built-in communication modules, including GPRS/HSDPA/CDMA, WLAN & Bluetooth, supports dual SIM, dual HSDPA, supports dual SIM cards and dual WWAN module mechanism
- GPS with AGPS and dead reckoning technology (Gyro & speed line)

Application Story

Tracking & Management System for Enhanced Productivity and Turnover



Introduction

Intermodal transportation involves the use of freight containers using multiple modes of transport (railway, freighter and truck) without any handling of the freight itself when changing modes. The freight containers are exchanged in intermodal stations or terminals. The optimization in the management of such terminals is very important because the load times have a great impact in the economic profit. Thus, the efficiency of identifying and locating freight containers inside the terminal is critical.

Efficiency in cargo exchange in a maritime container terminal is very important due to its associated cost. Among the different available technologies for optimizing the terminal operation, RFID identification is one of the most promising ones. Customers are looking to solutions to increase worker safety, as well as provide a means to monitor containers. A freight container management system with TREK-753 is presented, composed of a software platform supporting the typical use cases, as well as a wireless RFID network deployed throughout the terminal. This system allows for container traceability, efficient reservation and vehicle management, automatic loading plan calculation, and fault tolerance. Analysis, design and implementation stages are discussed, including the selection of the most suitable hardware and an execution example of one of the use cases.

System

Advantech-DLoG's TREK-753 makes an optimal in-vehicle cab mount solution helping keep equipment in service, improving efficiency, and giving management and drivers the access they need to important metrics. The WLAN connection receives proximity information from RFID tags, and delivers comprehensive data to both driver and dispatch. Safety and collision avoidance are increased and management knows the precise whereabouts of its container in the yard.



Solution

For a solution to be effective in these environments it needs to occupy a small footprint which can be mounted in a vehicle cab where space is a premium. Additionally it needs to have a dimmable screen for use in daytime or nighttime conditions. TREK-753 is a rugged, compact, vehicle-mounted computer, with an IP54-rating for the entire system. It has an I/O cover which is IP54-certified for protection against water and dust. The I/O cover extends this protection to cable attachments and connectors. This allows the system to operate in wet or dirty environments where spray from water or dust churned up from the road might otherwise cripple computer equipment. Container trucks or reach stackers can rely on the rugged protection offered by TREK-753. The unit is fanless with an aluminum chassis design, and fits easily into space-constrained areas.

TREK-753 LCD has been upgraded to support auto brightness adjustment. Reduced lighting makes the system easier to use at night. The TREK-753 mounted in a vehicle cab is also able to display proximity information, monitor health conditions of vehicle components through its CAN Bus attachments, track navigation and location, prevent collisions, and monitor driver behavior all in real-time. TREK-753 improves efficiency, safety and productivity. It is cost-effective, and relied on by companies around the world.

Benefits

- TREK-753 brings customers many benefits. These are just a few:
- Enhanced visibility and control on terminal operations
 - Improved operational efficiencies in ranges of 20%-40%
 - Enhanced asset turnover and labor productivity
 - Real-time location assignment container tracking
 - Optimal utilization of terminal capacity
 - Online seamless access to real time information for customers
 - Operational reports to enhance shift productivity
 - IP54 protection with I/O cover
 - Rugged, industrial design for long-term use

TREK-753 (7" Mobile Data Terminal)

- Supports analog video input & CAN2.0b with J1939 protocol
- Supports CDMA/HSDPA/GPRS, GPS, WLAN, BT communications
- 12 V/24 V option: 6 ~ 36 V input range compliant to ISO7637-2 & SAE J1113 standards
- 48 V option: 18 ~ 58 V input range for specific applications
- Fanless and ruggedized aluminum chassis, able to work under -30 ~ 60° C temperature range

ITS/Telematics Excellent 100

TAIWAN EXCELLENCE 2012

Application Story

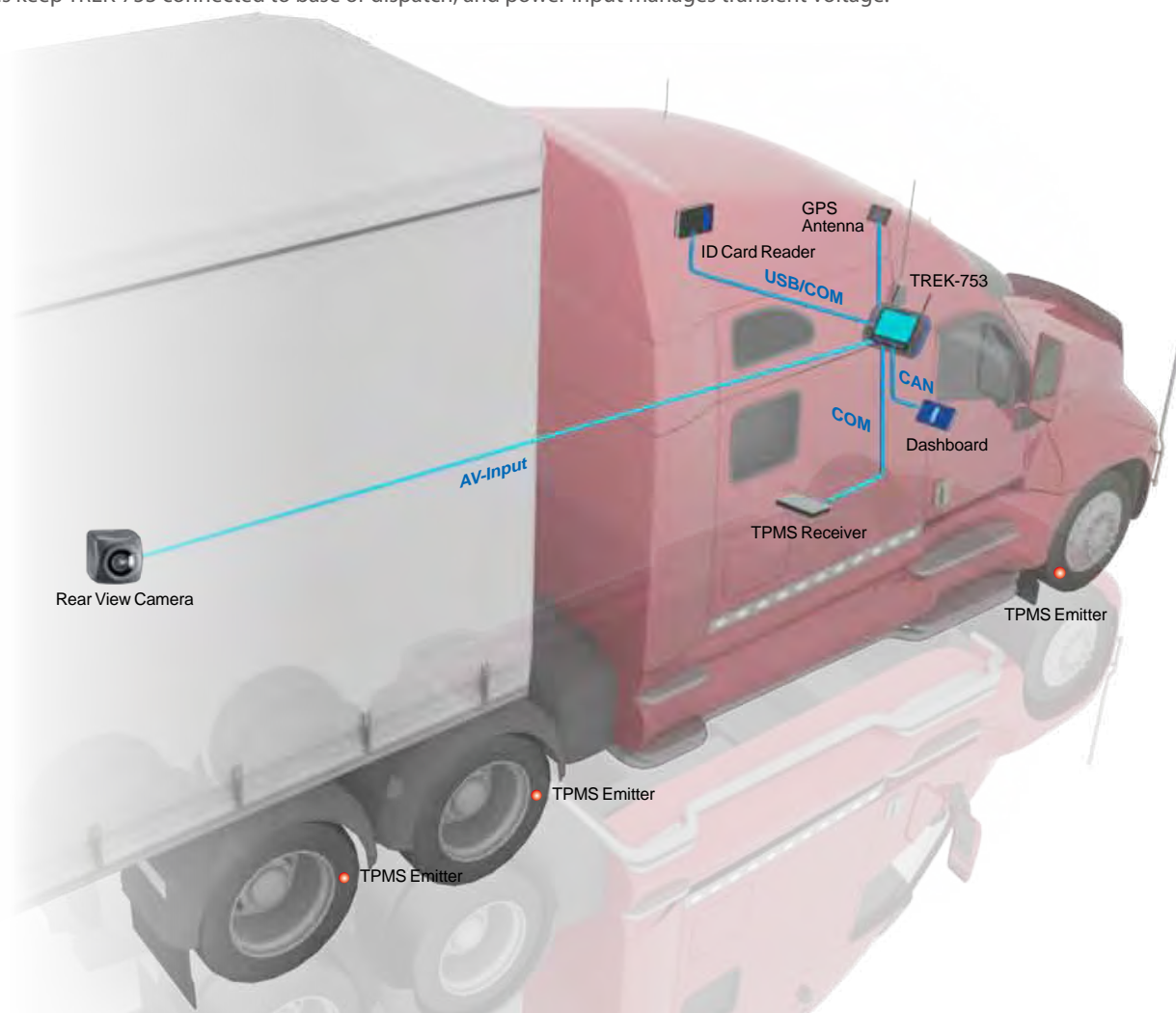
TREK-753 Boosts Long Haul Trucking Efficiency

Introduction

Managing vehicle fleets in the long haul trucking industry is challenging: vehicles and drivers are spread out geographically; central offices need to consolidate information for billing and invoicing; and customer service needs to stay on top of deliveries to be able to communicate with clients. It seems there is never enough time in the day to get the work done in this highly competitive business. A large company in the United States was trying to sort out just these types of challenges to improve their operating efficiency and maintain their competitive edge. Billing and invoicing for the company is done at the end of the driving day, when the bills of lading are collected from drivers. The company was looking for a way to spread this workload throughout the work day rather than trying to do it all at the end of the day. The ability to process billing and invoicing in real-time during the day would improve the efficiency of the freight carrier. The system needed to be small enough to fit into the tight spaces of a truck cab; it had to have features like integrated wireless cellular technology and USB support; and it needed to be able to withstand transient vehicle power, vibrations, and extremes in temperature.

System

The TREK-753 mobile data terminal operates as the information center of the vehicle. USB connectors allow easy access to maintain peripherals; the CAN port with J1939 support receives vehicle diagnostic information; wireless options keep TREK-753 connected to base or dispatch; and power input manages transient voltage.



Solution

Advantech-DLoG's TREK-753 mobile data terminal fulfilled all the requirements of the carrier, as well as providing an added benefit: the new system allowed them to send delivery confirmations and invoices within 10 minutes of delivery, improving invoice payments, and improving customer support. TREK-753 is equipped with a 7" TFT LCD screen with adjustable brightness and a backlight. Its fanless, rugged aluminum enclosure withstands vibrations, is dust resistant, and waterproof. It supports a wide range of operating temperatures—perfect for use inside a vehicle cab that is subject to weather extremes. The DC power input is designed to handle transient voltage conditions, ignition cold crank, and has power on/off delays to allow stabilization of voltage during engine start. TREK-753 has many flexible communication options: IEEE 802.11b/g/n, GPS, GPRS/HSDPA/CDMA cellular technology, offering real-time voice and data transmission. The company is very satisfied with the implementation of TREK-753 in its fleet.

Benefits

Advantech-DLoG's TREK-753 mobile data terminal benefits long haul truckers by providing real-time wireless access. The benefits include:

- Immediate delivery notifications available to customers
- Rugged, fanless design in a small form factor
- Waterproof and dustproof with IP54 I/O cover protection
- GPS tracking capability
- Increased efficiency by load balancing workflow
- Increased visibility of support, leading to more customer satisfaction
- Ability to operate in extreme temperatures with transient voltage protection
- Flexible expansion capabilities with a variety of peripheral connectors
- Built-in GPS, GPRS, HSDPA, CDMA, Bluetooth and wireless LAN, enabling different RF communication technologies.



TREK-753 (7" Mobile Data Terminal)

- Supports analog video input & CAN2.0b with J1939 protocol
- Supports CDMA/HSDPA/GPRS, GPS, WLAN, BT communications
- 12 V/24 V option: 6 ~ 36 V input range compliant to ISO7637-2 & SAE J1113 standards
- 48 V option: 18 ~ 58 V input range for specific applications
- Fanless and ruggedized aluminum chassis, able to work under -30 ~ 60° C temperature range



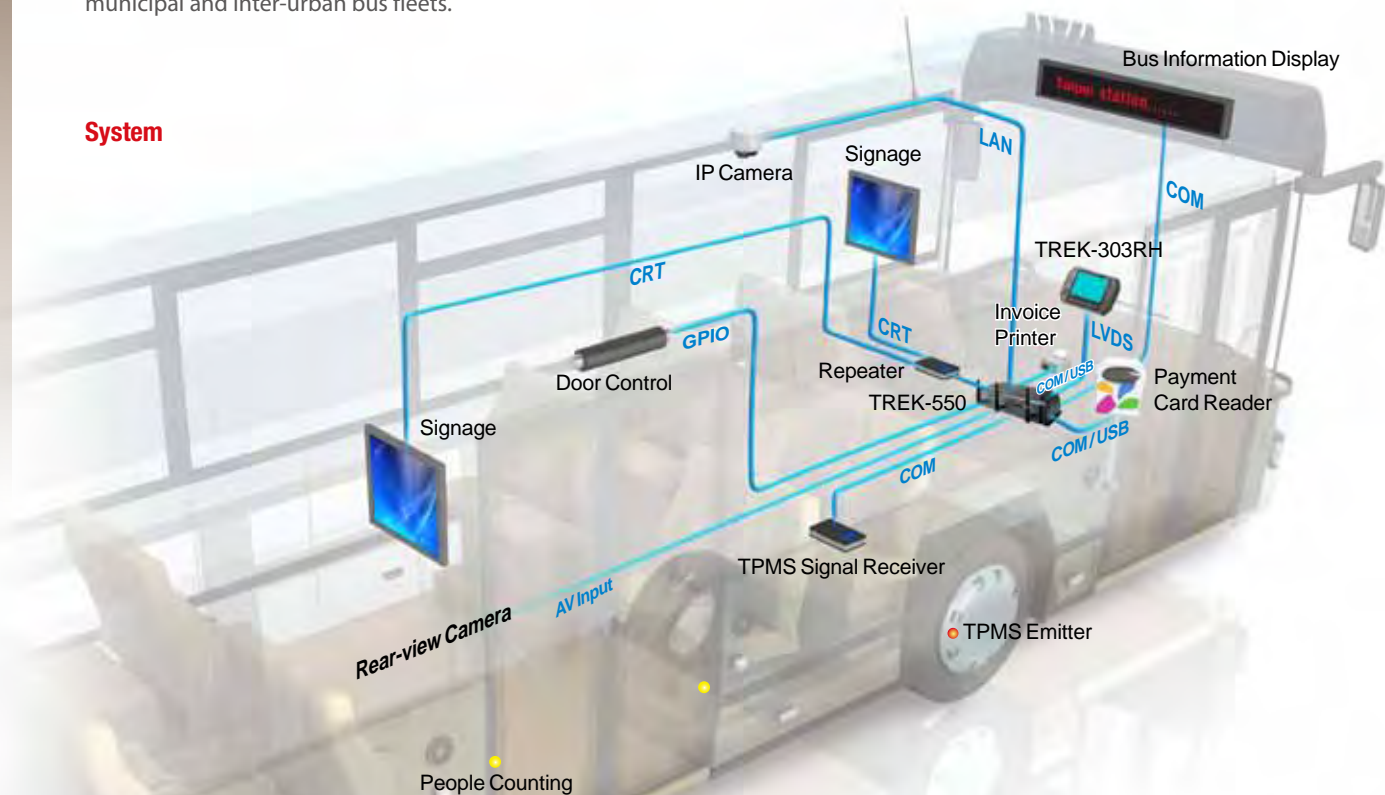
Application Story

Mobile Data Terminal Solutions for e-Bus Systems

Introduction

Customers looking for smart vehicle solutions for sophisticated e-Bus systems have a diverse set of needs. Advantech-DLoG is helping system integrators design e-Bus systems as part of a sophisticated wireless infrastructure to bring mobile onboard computing and back-office communications in the transportation industry to the next level. Advantech-DLoG uses its knowledge to deliver an industrial grade Intel Atom processor based, in-vehicle box computer ideal for municipal and inter-urban bus fleets.

System



Solution

Advantech-DLoG fulfills the requirements of metropolitan bus fleets with the TREK-550 in-vehicle box computer and the TREK-303H smart vehicle display providing:

- ISO 7637-2, SAE J1455 & SAE J1113 certifications—guarantees operation in an environment with a wide range of working temperatures, transient power disturbances, vibration and shock.
- TREK-303H smart vehicle display (LVDS) – designed to fit in the tight space of a cab and provide the driver with an easily-controlled touch panel interface
- Door sensor (GPIO) – allows a passenger counter to keep track of the number of riders onboard
- In-vehicle surveillance (LAN) – enhances security by recording an interior view of the passenger compartment via an IP camera
- Real-time rear view camera (Video-in) – increases safety by preventing accidents and alerting driver of pedestrians at the rear of the bus
- Vehicle status monitoring (CAN with J1939) – provides driver/dispatch with vehicle metrics and diagnostic information
- Tire Pressure Monitoring System (COM) – increases safety by monitoring and reporting tire pressure
- In-vehicle signage display (CRT) – enables delivery of unique information at different points on the bus through dual independent video and audio connections
- Advanced GPS (module) - includes dead reckoning and AGPS support for continual navigation when satellite tracking is unavailable
- Built-in GPRS, HSDPA, CDMA, Bluetooth and wireless LAN, enabling different RF communication technologies.

Benefits

Advantech-DLoG's mobile data terminal computing system is a full-featured, comprehensive solution. Its benefits include:

- Real-time billing and invoicing
- Enhanced safety for passengers and drivers
- Improved efficiency for fleet managers and route planners
- Real-time communications and information delivered to driver and the central office
- Industrial design that is both reliable and space-conscious
- Proactive vehicle diagnostics monitoring
- Ability to learn bus position and other information by smart phone



TREK-303RH (7" Smart Vehicle Display)

- 7" 16:9 automotive-grade 800x480 LED type TFT LCD display
- 4-wire touchscreen
- Light sensor for auto backlight control
- Five software configurable hotkeys in front panel with green LED backlight
- One cable to pair with TREK-550 with a simple connection
- One USB host in front panel for easy maintenance



TREK-550 (x86 In-Vehicle Computing Box)

- Automotive grade SAE J1455 / E-mark working temperature range (-30° C to 70° C) with Intel Atom Industrial In-Vehicle Computing Box Z510PT/Z520PT
- Built-in 50 channel GPS with AGPS & dead reckoning feature (Gyro & speed line)
- CAN bus 2.0B with J1939 protocol support & J1708 communication
- Built-in G sensor for auto accident reporting & two video-input ports for rear view monitoring application
- Built-in GPRS/CDMA/HSDPA, Bluetooth & WLAN
- Dual independent display output port & dual independent audio output port (one for driver, the other for passenger)
- Reliable 12V/24V car power solution with 6V ~ 36VDC-input and ISO-7637, SAE J1113



Product Information

All-in-one In-vehicle Computers

NEW



Smart Display

NEW



In-vehicle Box Computers



NEW



Industrial Tablet

NEW



NEW



Model Name	TREK-722	TREK-723	TREK-753	TREK-303RH	TREK-303DH	
Processor	TI ARM Cortex-A8 AM3703 800 MHz		Industrial-grade Intel Atom XL Z510PT 1.1 GHz (Z520PT 1.3 GHz as option)	-	-	
Design Compatible Models	-	-	-	Paired with TREK-550/ TREK-668	Paired with TREK-550/ TREK-668	
OS	WinCE6.0 & optional Android 2.3.4		WES 2009, WinCE6.0 and Ubuntu Linux 10.04	-	-	
Memory	Size	On board 256MB Mobile LPDDR	One 200-pin SODIMM socket, Supports up to 2 GB DDR2 400/533 memory module	-	-	
	Module Type	On board LPDDR	1 x 200-pin SODIMM	-	-	
Storage	On board NAND type 2GB for boot loader, operating system & customer apps 1 x push-push type SD slot		1 x external accessible SD slot, 1 x external accessible CF slot	-	-	
Display	Size/Type	5" (16:9) TFT LCD	7" (16:9) TFT LCD	7" (16:9) TFT LCD	7" (16:9) TFT LCD	
	Max. Resolution	800 x 480	800 x 480	800 x 480	800 x 480	
	Max. Colors	262K	262K	262K	262K	
	Brightness (cd/m ²)	350 with TS (typical)	400 with TS (typical)	400 with TS (typical)	400 with TS (typical)	400 with TS (typical)
	Viewing Angle (degrees)	70° / 70° / 70° / 50°		70° / 70° / 60° / 60°	70° / 70° / 60° / 60°	70° / 70° / 60° / 60°
	Backlight MTBF	20,000 hrs		50,000 hrs	50,000 hrs	50,000 hrs
Touchscreen	Technology	4-wire resistive type	4-wire resistive type; optional support for sunlight readable feature by Low-Reflection touch solution	4-wire resistive type	4-wire resistive type	
	Brightness Control	Built-in light sensor for auto backlight adjustment	2 x hotkeys in front panel; built-in light sensor for auto backlight adjustment	2 x hotkeys in front panel; built-in light sensor for auto backlight adjustment	Built-in light sensor for auto backlight adjustment	
I/O Ports	2 x USB host, 2 x RS-232, 1 x CAN with J1939 protocol, 2 x DI/DO		3 x USB host, 2 x RS-232 with DC Output, 1 x RS-485, 1 x CAN w/ J1939, 1 x J1708, 4 x isolated DI/DO	36-pin locking type connector (connect to TREK box), power/wake up button		
Audio	Built-in 2 watt speaker		Built-in 2 watt speaker	Built-in 2 watt speaker	2 * 2 watt speakers	
WWAN	GPRS : Cinterion TC63i qual-bands CDMA : Sierrawireless MC5728V HSPA+ : Cinterion PH8		GPRS : Cinterion MC55i qual-bands CDMA : Sierrawireless MC5728V HSPA+ : Sierrawireless MC8090/8092	-	-	
Network (LAN)	-		1 x 10/100/1000 Mbps	-	-	
WLAN	-	802.11b/g/n	802.11b/g/n	-	-	
Bluetooth	Yes		Yes	-	-	
Power	12V/24V car power design. DC-input 6V ~ 36V with ISO 7637-2, SAE J1113 & E-mark		12V/24V car power design. DC-input 6V ~ 36V with ISO 7637-2, SAE J1113 & E-mark; option to support 48V car power system	12 V ± 5% (Powered by TREK-5xx/6xx)		
Operating Temperature	-20 ~ 60° C (TREK-722)/ -30 ~ 70° C (TREK-723)		-30° C ~ 60° C	-30° C ~ 70° C		
Vibration/Shock	MIL-STD-810G, EN-60721-3-5 (5M3)		MIL-STD-810G, EN-60721-3-5 (5M3)	MIL-STD-810G		
Certifications	CE, FCC, UL/cUL, CB, CCC, E-mark, PTCRB		CE, FCC, UL/cUL, CB, CCC, E-mark, PTCRB, EN50155	CE, FCC, UL/cUL, CCC		
Dimensions (W x H x D)	165 x 115 x 43 mm (TREK-722)/ 213 x 145 x 43 mm (TREK-723)		256 x 161 x 56 mm	244 x 160 x 41 mm	212.75 x 141.85 x 35 mm	
Weight	0.65 kg (TREK-722)/ 0.85 kg (TREK-723)		2.2 kg	0.8 kg	0.76 kg	

Model Name	TREK-550	TREK-668
Processor	Industrial grade Intel Atom XL Z510PT 1.1 GHz (Z520PT 1.3 GHz as option)	Intel Atom N2600 1.6 GHz (Dual core)
OS	Win CE 6.0, WES 2009, XP and Linux (Ubuntu 10.04/2.6.34)	WES7/Win7
Memory	Size	One 200-pin SODIMM socket, Supports up to 2 GB DDR2 400/533 memory module (WinCE only support upto 512MB)
	Video	DDR3 up to 2GB
Video	CRT	1 x VGA output by DB-15 (supports different content with LVDS port)
	LVDS	1 x (supports different content with CRT port)
	Video in	2 x composite analog video input ports for real-time rear-view monitor feature (doesn't support video recording)
I/O Interface	Audio	Mic-in, Line-out, SPK-out
	Ethernet	1 x Giga LAN 10/100/1000 Mbps Ethernet controller, supports POE IP camera; compliant IEEE 802.3af and provides up to 15.4 watts power output
	USB	4 x USB host ports
	Serial Ports	2 x full function RS-232 with DC Output, 1 x 4-wire RS-232, 1 x RS-485, 1x J1708
	DI/O	4 x Isolated dry contact digital inputs and 4 x isolated relay driver output
	CAN	1 x CAN 2.0 A/B (J1939 protocol support)
	GPS	50-Channel uBlox LEA-6S with AGPS as default; u-blox LEA-6R with AGPS & dead-reckoning feature (built-in Gyro & speed line) as option
WWAN	GPRS : Cinterion MC55i qual-bands CDMA : Sierrawireless MC5728V HSPA+ : Sierrawireless MC8090/8092	GPRS : Cinterion MC55i qual-bands CDMA : Sierrawireless MC5728V HSPA+ : Sierrawireless MC8090/8092 (2*SIM, 2*mini-PCle slot)
Bluetooth	Yes	Yes
Storage	CF	1 x external-accessible port (for memory mode only)
	SATA	Option to support built-in 2.5" SSD (either solution with CF slot)
Power Requirements	Input Voltage: 12V/24V car power design. DC-input 6V ~ 36V with ISO 7637-2, SAE J1113 & E-mark	12V/24V car power design. DC-input 9V ~ 32V with ISO 7637-2, SAE J1113 & E-mark
Operating Temperature	-30° C ~ +70° C	-30° C ~ 60° C
Vibration/Shock	MIL-STD-810G, EN-60721-3-5 (5M3)	MIL-STD-810G
Certifications	CE, FCC, UL/cUL, CCC, E-mark, PTCRB	CE, FCC, UL/cUL, CCC, E-mark, PTCRB, EN50155
Dimensions (W x H x D)	266 x 149 x 68 mm	346 x 97 x 196.2 mm
Weight	1.2 kg	5.7 kg (including 2 HDD)

Model Name	PWS-770	PWS-440
Processor	CPU	Intel Atom N2600/1.6 GHz
	Companion Chipset	Intel NM10
Memory	SODIMM DDRIII to 2 GB	256 MB DDR Mobile RAM on board
Storage	Supports mSATA SSD 32 GB ~ 128 GB	1 GB Flash ROM on board
Display	Size/ Type	10.4" XGA (1024 x 768) (Transflective) LCD
	Brightness (cd/m ²)	300 cd/m ² LED back light
Touch Panel	4-wire resistive touch panel	4-wire resistive touch panel
Application Buttons	Power button x 1 (L side) Function keys x 3 (F1-F3) Tablet PC keyboard x 1 Mode key x 1 Enter key x 1	1 x power on/suspend button Navigation key and four function keys 1 x HW reset key located right side door
	Activate key x 2 (S1 & S2): Activate barcode reader, CCD camera & dimming adjustment required to control the brightness	1 x button for backlight on/off (using power on/ suspend button)
I/O Ports	USB 2.0 x 2 Serial port RS-232 x 1 VGA port x 1 Audio in jack x 1 Audio out jack x 1 Internal mono microphone x 1 DC-in x 1 Docking port (32-pin; USB/PCIE/DC) SIM slot (with WWAN option)	2 x USB type A connectors, USB1.1 host 1 x USB mini type B connector, USB1.1 slave 1 x RS-232 (full), 1 x RS-232/422/485 (optional) 1 x RJ-45 for 10/100M ethernet 1 x stereo headphone jack 1 x DC-In connector
	802.11b/g/n WLAN built-in with integrated antenna Bluetooth class 2, 4.0 built-in with integrated antenna GPS receiver with antenna (Optional); WWAN (Optional)	802.11b/g WLAN module build in Bluetooth class 2, v2.1 built-in with integral antenna GPS receiver with antenna built-in GSM/GPRS/WCDMA/HSDPA (3.5 G) internal module (for data transmission only)
Data Collection Modules	CMOS 2.0M pixel Camera module 1D/2D Barcode; MSR; HF RFID	
Dimensions & Weight	264 (L) x 213 mm (W) x 18 (H), Under 1.2 kg without rubber bumper & optional devices	155 x 96 x 42 mm, 650 g
Power	Battery	Main battery: 3S1P 11.1V 1900 mAh Hot-Swap 2nd battery: 3S2P 11.1V 3760mAh/5000mAh
	Power Adapter	AC Adapter: AC 100V-240V 50/60Hz, 19V/3.42A/65W, Auto Sensing/Switching worldwide power supply Car Adapter: AC 120V-320V
Environment	Operating Temperature	-10 to 50° C (charging activity will be active during 0 ~ 40° C for battery safety)
	Storage Temperature	-20 to +60° C
	Operating Humidity	5% ~ 95% @ 40° C
OS	IP Rating	IP-54
	Drop	4 foot drop onto plywood, MIL-STD-810G 516.5 Procedure VI
Certifications	IP Rating	IP67
	Drop	5 Feet drop to concrete
OS	Windows 7 Professional / Embedded	Windows CE 6.0 and Windows Embedded Handheld 6.5
Certifications	CE/FCC/CCC/BSMI/C-Tick UL/CE/CB/CCC	CE, FCC, CCC MIL-STD-461E MIL-STD-810G
Accessories	AC adaptor (19V, 65W) Stylus (default), Vehicle cradle VESA Mounting Bracket Carrying Bag Hand strap Desktop stand 2nd battery	Hand Strap 4-IN-1 battery charger (Option) Cradle (Option)

TREK-722/723

NEW



RISC All-in-One Mobile Data Terminal



Features

- 5" & 7" LCD (800 x 480) with resistive touchscreen
- 24/7 monitoring & reporting
- WinCE6.0 & optional Android 2.3.4
- Built-in CAN bus with J1939 protocol
- Built-in GPS with AGPS feature, BT, CDMA/GPRS/HSPA+



Introduction

TREK-722/723 is a RISC platform with 5"/7" display all-in-one Mobile Data Terminal (MDT). The radio frequency options and programmable function keys make TREK-722/723 suitable for local fleet management, especially small truck, local delivery, government fleet and taxi. It is designed with vehicle power compliant to ISO7637-2 & SAE J1113 ensuring stability in a car with a "dirty" power system. With Suspend/Wakeup feature, TREK-722/723 supports a 24/7 monitoring mechanism with periodic, digital input & WWAN wakeup.

Specifications

	Model	TREK-722	TREK-723	
Display	Type	5" industrial grade wide screen TFT LCD	7" industrial grade wide screen TFT LCD	
	Luminance	350 cd/m ² (without touchscreen), auto brightness controlled by light sensor	400 cd/m ² (without touchscreen), auto brightness controlled by light sensor	
	Resolution	800 x 480	800 x 480	
	View Angle (R/L/B/T)	70/70/70/50	70/70/70/50	
	Contrast Ratio	500 (typical)	500 (typical)	
	LED Lifetime	20000 hr (minimum)	20000 hr (minimum)	
Touchscreen	Type	4-wire resistive with flat panel design		
	Light Transmission	81±3%		
Kernel	CPU	TI ARM Cortex-A8 AM3703 800 MHz		
	RAM	On board 256MB Mobile LPDDR		
	Storage	On board NAND type 2GB for boot loader, OS & customer's APs 1 x push-push type SD slot		
	Watchdog	Yes		
	RTC	Yes with one time swappable 200 mAh lithium coin battery		
	Operating System	WinCE 6.0 R3 core version / Android Gingerbread 2.3.4 support by project		
Functions	GPS (Optional)	Built-in 50 channel u-blox LEA-6S with internal antenna		
	Bluetooth (Optional)	Built-in Class 2 Bluetooth V2.1+EDR with internal antenna		
	WWAN (Optional)	<ul style="list-style-type: none"> Built-in Quad-band GPRS module Cinterion TC63i with internal antenna Built-in UMTS/HSPA+ module Cinterion PH8 with internal antenna Built-in CDMA/EV-DO module Sierra Wireless MC5728V with internal antenna 		
		WLAN (Optional)	TREK-723 optional supports 802.11 b/g/n with SMA connector for external antenna	
		Audio	1 x built-in 2 W mono speaker 1 x MIC input, 1 x mono line-in, 1 x stereo line-out via high density cable (*1)	
	Power Supply	Video	1 x CVBS input via high density cable (*1) 1 x Y/C input via high density cable (*1)	
		USB Client	1 x USB client I/F via USB mini-B connector with rubber door protection	
		USB Host	1 x USB host I/F via USB A-type connector (500 mA) with rubber door protection	
			1 x USB host I/F via high density cable (*1) with USB A-type connector (500 mA)	
		Serial Port	2 x 4-wire RS-232 via high density cable (*1)	
Digital Input/Output		2 x isolated digital input (DI) which can wake up system via high density cable (*1)		
		2 x isolated digital output (DO) via high density cable (*1)		
CAN bus		1 x CAN bus 2.0a/b with J1939 protocol via high density cable (*1)		
Function Key		5 x programmable function keys with green LED		
Input Voltage		12 V/24 V option supports 6 ~ 36 V car power design with ISO7637-2 & SAE J1113 compliant		
	Ignition ON/OFF	Power on delay, default 2 seconds; Power off delay, default 5 seconds; Hardware power off delay, default 30 seconds. SW configurable		
	Suspend/Wakeup	<300 mW low power saving mode with periodical, DI, WWAN wakeup mechanism		

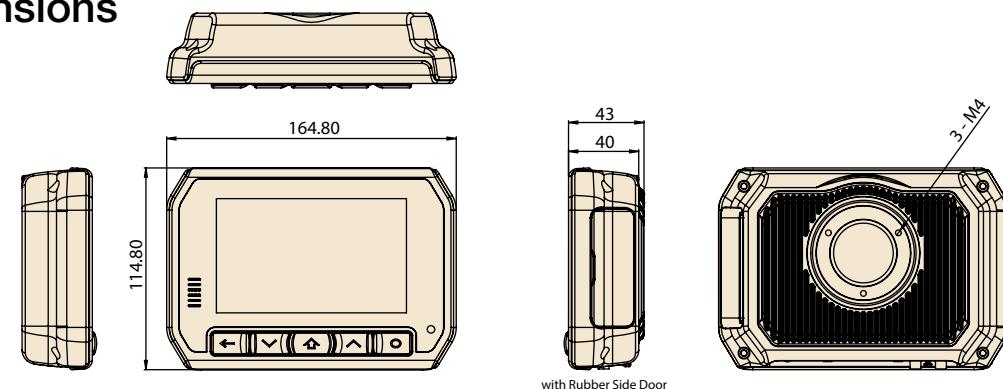
*1. High density cable is an optional item for ordering.

TREK-722/723

Mechanical	Material	Plastic chassis with aluminum heat sink
	Ingress Protection	IP54 except I/O plate at the bottom
	Weight	650 grams (TREK-722) / 850 grams (TREK-723)
Environmental Specifications	Dimensions (W x H x D)	165 x 115 x 43 mm (TREK-722) / 213 x 145 x 45 mm (TREK-723)
	Operating Temperature	-20 ~ 60° C (TREK-722) / -30 ~ 70° C (TREK-723)
	Storage Temperature	-30 ~ 80° C
	Relative Humidity	10 ~ 90% @ 40° C (non-condensing)
	Shock/Vibration	Compliant to MIL-STD-810G, SAE J1455, Class 5M3 according to DIN EN 60721-3-5
	Certifications	CE, FCC, UL, CUL, CB, PTCRB, CCC

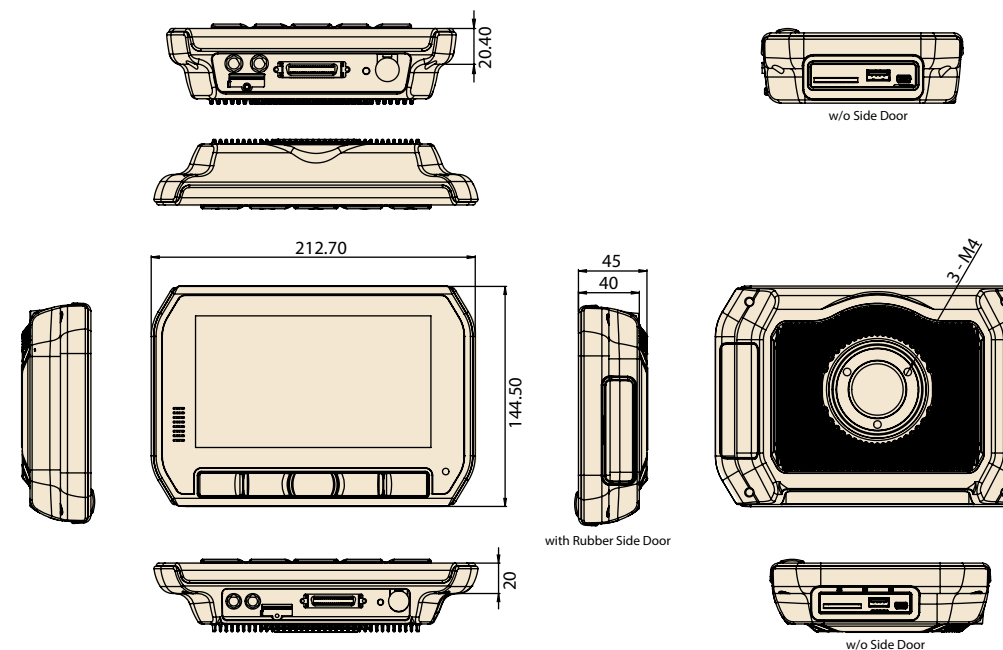
Dimensions

TREK-722



Unit: mm

TREK-723



Ordering Information

Part Number	Description
TREK-722R-A0E	TREK-722 barebone (GPRS/HSPA+ dedicated)
TREK-722R-B0E	TREK-722 barebone (CDMA dedicated)
TREK-722R-CBCEA0E	TREK-722R-A0E w/ GPS, CDMA, BT, CE
TREK-722R-GBCEA0E	TREK-722R-A0E w/ GPS, GPRS, BT, CE
TREK-722R-HBCEA0E	TREK-722R-A0E w/ GPS, HSPA, BT, CE
TREK-723R-A0E	TREK-723 barebone (GPRS/HSPA+ dedicated)
TREK-723R-B0E	TREK-723 barebone (CDMA dedicated)
TREK-723R-CBCEA0E	TREK-723R-A0E w/ GPS, CDMA, BT, CE
TREK-723R-GBCEA0E	TREK-723R-A0E w/ GPS, GPRS, BT, CE
TREK-723R-HBCEA0E	TREK-723R-A0E w/ GPS, HSPA, BT, CE

Optional Items

Part Number	Description
1700020042	A Cable MDR 40P/USB-A(M)+Audio Jack*2+DC Jack+BN
1700019611	Cigarette lighter cable for testing purposes (30cm)
9666074302E	19V adapter for TREK-743 test purposes
RAM-MOUNT-02	VESA RAM mount w/2.5" DIA. base, 1.5" ball
RAM-MOUNT-07E	75mm VESA base, RAM-202U, and socket ARM

TREK-753



7" Mobile Data Terminal with Intel Atom Z510PT/Z520PT

Features

- 7" WVGA LCD with 5 programmable adjustable brightness hot keys
- Windows Embedded Standard (WES) 2009, WinCE6.0 and Ubuntu Linux 10.04
- Supports analog video input & CAN2.0b with J1939 protocol
- Supports CDMA/HSDPA/GPRS, GPS, WLAN, BT communications
- 12 V/24 V option: 6 ~ 36 V input range compliant to ISO7637-2 & SAE J1113 standards
- 48 V option: 18 ~ 58 V input range for specific applications
- Fanless and ruggedized aluminum chassis, able to work under -30 ~ 60° C temperature range



Introduction

TREK-753 is a new generation, all-in-one 7" mobile data terminal with touchscreen, with a compact design for commercial vehicles. With an Intel Atom Z510PT/Z520PT processor, the system is high performing with wired connections like Gigabit Ethernet & CAN2.0b with J1939 protocol support; users can also connect to network services using easily with CDMA/ HSDPA/ GPRS/ GPS/ WiFi/ BT options. Focused on the automotive market, TREK-753 is designed with vehicle power which is compliant with ISO7637-2 & SAE J1113, ensuring the system is more stable during engine starts. Die casting and a ruggedized chassis not only provide more capabilities in a wide range of temperatures (-30 ~ 60° C), but TREK-753 is also suitable for harsh environments subject to shock (100 G, 6 ms) and vibration.

Specifications

Processor	OS	Windows Embedded Standard (WES) 2009, WinCE6.0 and Ubuntu Linux 10.04
	CPU	Onboard Intel Atom 1.1 GHz / 1.33 GHz (optional)
	Chipset	Onboard Intel LE82US15EE
	Watch Dog	Yes
	RTC	Yes with one time 200mAh li-ion coin battery
	RAM	1 x 200-pin SODIMM socket supports a memory module of up to 2 GB
	Storage	1 x external accessible type II Compact Flash memory card (bootable device) 1 x SD card with external access for extra capacity (SD function is not available with WinCE6.0)
Bus Expansion		1 x mini-PCIe slot for built-in WLAN (b/g/n) module
		1 x mini-PCIe slot for built-in CDMA/HSDPA (USB 2.0 interface)
LCD	Display Type	7" 16:9 industrial degree TFT color TFT LCD, LED backlight
	Luminance	400 cd/m2 (average with TS)
	Max. Resolution	WVGA 800 x 480, 10% ~ 100% brightness controlled by two hardware buttons on the front panel and a light sensor
Touchscreen	Type	4-wire analog resistive type, continuous resolution, optional support for sunlight readable touchscreen
I/O Functions	COM	3 x COM ports: 1 x full function RS-232 port supports high speed (up to 1Mb max.) with 12 V/2.5 A in I/O plate 1 x full function RS-232 supports high speed (up to 1 Mb max.) port via high density cable (*1) 1 x RS-485 port via high density cable (*1)
	Audio	1 x built-in 2 W speaker on front panel 1 x line-in, 1 x line-out, 1 x microphone input via high density cable (*1)
	Function Keys	5 x green lit, programmable function keys, 2 x for LCD back light adjustment
	USB	3 x USB 2.0 ports 1 x rubber door protection at front panel, 1 x type A connector with cable clip, 1 x high density cable (*1)
	Video Input (Rear View Monitor)	1 x video input for rear view camera via high density connector
	LAN	1 x 100/1000T Gigabit Ethernet via RJ-45 cable (*1)
	Light Sensor	1 x light sensor on front cover for auto LCD backlight adjustment
	DI/DO	4 x isolated digital input & 4 x isolated digital output ports via high density cable (*1)
	CAN Bus	1 x CAN 2.0b with J1939 protocol via high density cable (*1)
	J1708	1 x J1708 via high density cable (*1)
RF Functions	GPS (Optional)	Built-in 50 channel GPS uBlox LEA-5S with SMA connector for external antenna
	Bluetooth (Optional)	Built-in Class 2 Bluetooth V2.0 + EDR module with internal antenna
	WWAN (Optional)	1 x Built-in Quad-band 900/1800/850/1900MHz GSM/GPRS module Cinterion MC55i with SMA connector for external antenna 1 x Built-in HSDPA module Sierrawireless MC8790V with SMA connector for external antenna 1 x Built-in CDMA module Sierrawireless MC5728 with SMA connector for external antenna
	WLAN (Optional)	Built-in AzureWave AW-NE768 IEEE 802.11b/g/n with SMA connector for external antenna
Power Supply	Input Voltage	12 V/24 V option supports 6 ~ 36 V car power design with ISO7637-2 & SAE J1113 compliance 48 V option supports 18 ~ 58 V input for specific applications
	Ignition On/Off	Power on delay, default 2 seconds; Power off delay, default 5 seconds; Hardware power off delay, default 30 seconds. SW configurable
	LED indicator	1 x yellow LED shows system power ready (on front panel)

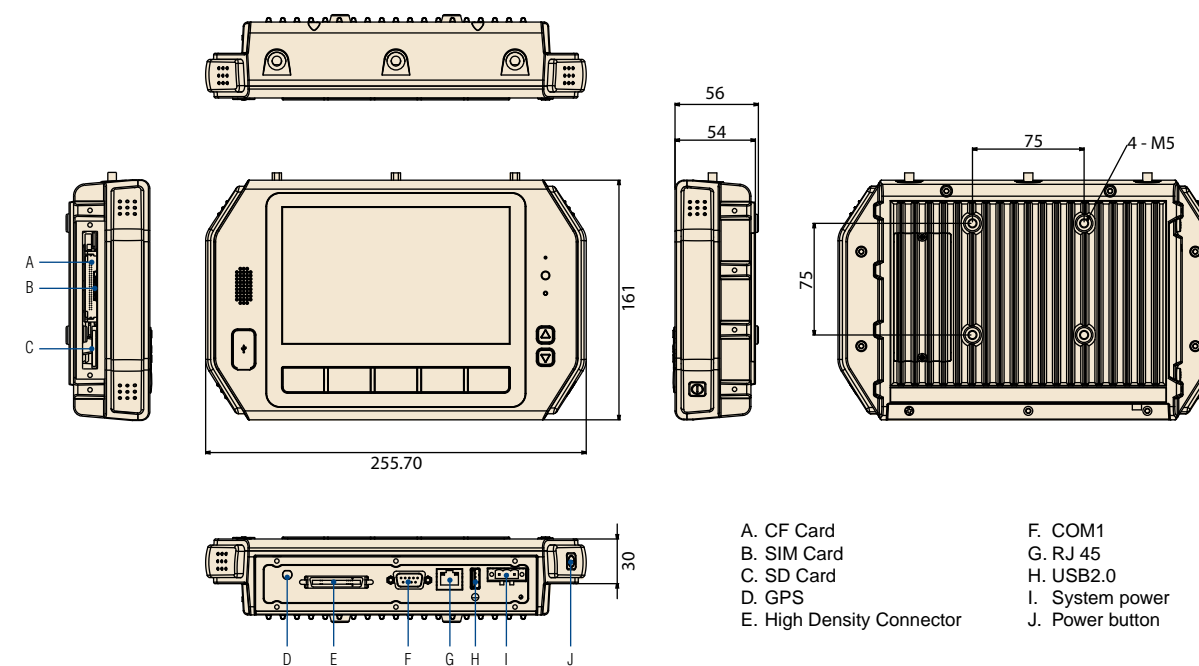
*1. High density cable is an optional item for ordering.

TREK-753

Mechanical Design	Material	Aluminum
	Protection	IP54 (except I/O plate), option to support entire system IP54 with additional I/O cover (9668TREK37E)
	Weight	2.2 kg (~4.85 lbs)
	Dimensions (W x H x D)	255.7 x 161 x 56 mm (10.04" x 6.30" x 2.20")
Environmental Specifications	Operating Temperature	-30 ~ 60° C
	Relative Humidity	Compliant to 10 ~ 90% @ 40° C (non-condensing)
	Vibration Shock	MIL-STD-810G (US highway truck), Method 516.5, SAE J1455, Class 5M3 in accordance with DIN EN 60721-3-5
	Certifications	CE, FCC, UL/cUL, CB, CCC, E-mark, PTCRB, EN50155

Dimensions

Unit: mm



- A. CF Card
- B. SIM Card
- C. SD Card
- D. GPS
- E. High Density Connector
- F. COM1
- G. RJ 45
- H. USB2.0
- I. System power
- J. Power button

Ordering Information

Part Number	Description
TREK-753R-0A0E	TREK-753R Bare bone with Z510 1.1 G CPU
TREK-753R-1A0E	TREK-753R Bare bone with Z520 1.3 G CPU
TREK-753S-0A0E	TREK-753R Bare bone with 1.1 G CPU/SR T/S*
TREK-753R-CWBXPA0E	TREK-753R w/CDMA/GPS/WLAN/BT/1 GB RAM/4 G CF/WES
TREK-753R-HWBXPA0E	TREK-753R w/HSDPA/GPS/WLAN/BT/1 GB RAM/4 G CF/WES
TREK-753R-GWBXPA0E	TREK-753R w/GPRS/GPS/WLAN/BT/1 GB RAM/4 G CF/WES

*Note: SR T/S stands for Sunlight Readable TouchScreen.

Optional items

Part Number	Description
1700019307	High density cable (2 meters)
1700019611	Cigarette lighter cable for testing purpose (30cm)
RAM-MOUNT-01	VESA RAM mount w/clamp base 1.5" ball
RAM-MOUNT-06E	VESA RAM mount w/VESA base, 1.5" ball
9668TREK37E	IP54 I/O housing cover for TREK-753

TREK-753 CTOS Kit

Part Number	Description
9668TREK30E	TREK-753R RevA0 GPS kit
9668TREK31E	TREK-753R RevA0 WiFi (Azurewave) kit
9668TREK32E	TREK-753R RevA0 HSDPA kit
9668TREK34E	TREK-753R RevA0 GPRS kit
9668TREK35E	TREK-753R RevA0 AC/DC power kit
9668TREK36E	TREK-753R RevA0 BT module kit

TREK-303DH

NEW

7" Smart Vehicle Display



Features

- 7" display with touchscreen supports 800 x 480 resolution
- 30 to 70° C wide range temperature
- Five user-defined function keys, 2-watt speaker x 2, and USB host.
- Supports auto-dimming
- One cable connects with TREK box solutions
- Power on/off button on the side
- CE/FCC/CCC certified



Introduction

The TREK-303DH is a vehicle display system for Mobile Resource Management (MRM) applications in trucks and buses. The TREK-303DH touch panel is ideal for fleet management and dispatch applications. It also meets requirements for automotive grade working temperatures (-30 ~ 70° C). TREK-303DH provides excellent display capabilities, featuring light-weight housing, it's compatible with RAM mounting solutions that customers can easily install. TREK-303DH supports resolutions of 800 x 480; it is compatible with TREK box solutions connecting with only one cable. TREK-303DH is designed with drivers in mind: when the system requires powering up or waking up, it can be easily controlled from the button located on the side; and for night driving, the panel has an auto detecting light sensor to automatically adjust brightness.

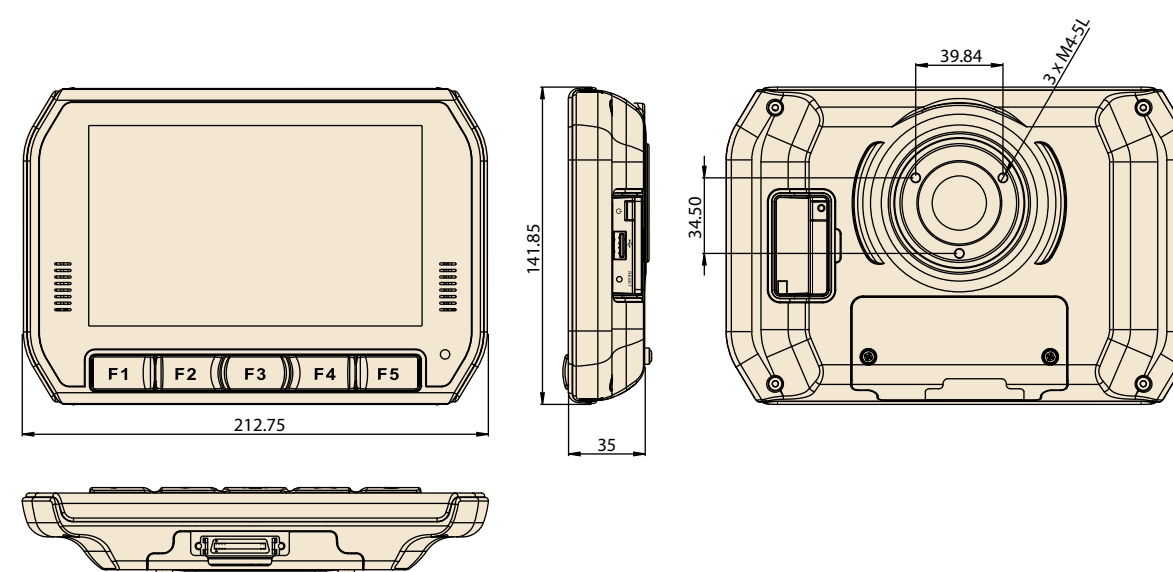
Specifications

LCD	Design Compatible Models	Paired with TREK box solutions
	Resolution (pixel)	800 x 480
	LVDS Interface	18-bit
	Pixel Pitch	0.2168 (H) x 0.2168 (V)
	Brightness (cd/m ²)	390 (typical) with touchscreen
	View Angle (R/L/B/T)	70° / 70° / 60° / 60°
	Contrast Ratio	500
	Lamp Life (hrs)	50,000 (hrs)
	Lamp Type	LED
	Touchscreen	Touchscreen
Front Plane	Speaker	2-watt x 2
	Hotkeys	5 hotkeys (user defined)
	Brightness Control	Supports auto-dimming
Side Cover		Power button, USB host X 1, reset button
Bluetooth		Optional, supports Bluetooth Class II, version 2.0 + EDR, antenna built-in
Power	DC Input	12 V +- 5%
	Power Consumption	~12 W (Max.), ~4 W (normal)
Mechanical	Mounting	Design compatible with RAM mount
	Material	PC
	Weight	0.76 kg
	Dimensions	212.75 x 141.85 x 35 mm
Environment	Operating Temperature	-30 to + 70° C
	Storage Temperature	-40 to + 80° C
	Vibration	MIL-STD-810G, SAE J1455 4.9.4.2
	IP Rating	IP 31 (entire system), IP 54 (without I/O)

TREK-303DH

Dimensions

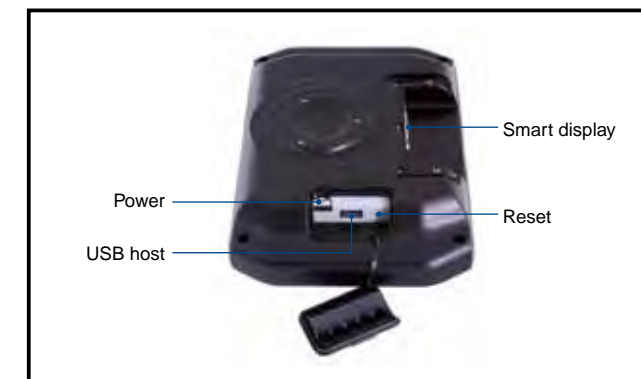
Unit: mm



Fully Integrated I/O



A. B. Spaecker
C. User-defined hotkeys
D. Light sensor
E. Reset, power, USB host (side)



Ordering Information

Part Number	Description
TREK-303D-HA0E	7" vehicle display system, 800 x 480 resolution, with 4-wire resistive touchscreen, 2-watt speaker x 2
RAM-MOUNT-07E	5.625" double socket arm for 1.5" ball base
1700018342	2-meter cable (paired with TREK-550 and TREK-668)

Packing List

Part Number	Description	Quantity
TREK-303D-HA0E	7" vehicle display system, 800 x 480 resolution, with 4-wire resistive touchscreen, 2-watt speakers x 2	1

TREK-550



Intel Atom In-Vehicle Computing Box

Features

- Supports Win CE 6.0, WES 2009, XP and Linux (Ubuntu 10.04/2.6.34)
- Automotive grade working temperature range (-30 to 70° C)
- Rich I/O including CAN, LAN, RS-232, RS-485, J1708, 4DI/4DO (isolated), Line out, Mic in, USB, and Video-in
- Built-in communication modules, including GPRS/HSDPA/CDMA, WLAN & Bluetooth
- GPS with AGPS and dead reckoning technology (Gyro & speed line)
- Certifications: CE/FCC/E-mark, MIL-STD-810G, ISO 7637-2, SAE J1455, SAE J1113 regulations
- Dual independent display/audio output for both driver and passenger
- Ignition on/off delay; SW controllable for car power management



Introduction

The TREK-550 is a dedicated box computer for industrial vehicle fleets, transport trucks, buses and taxis. TREK-550 combined with variety of I/O connectors can be connected to devices like OBD-II or TPMS (Tire Pressure Monitoring Systems). Dual display/dual audio interfaces supporting different resolutions can deliver different applications to different displays; eg: one application to a fleet driver and another to a digital signage application.

Built-in wireless communications (WWAN, WLAN, BT) enable TREK-550 to send important driver/vehicle/location/cargo information back to the control center. TREK-550 can also operate in extreme environments with features like a wide working temperature range (-30 to 70° C). TREK-550 also uses a special design to handle the critical issue of in-vehicle power. Special power protection (ISO7637-2/SAE J1455 Class A/ SAE J1113) and car power management software (Ignition on/off, delay on/off, low battery monitor) prevent electrical noise and surges from impacting the system, guarding against damage from transient car power. TREK-550 also supports a rear view monitor via a video port connection. With this feature, drivers can monitor the environment on both sides of the truck in real-time for driving safety. TREK-550 can also support dead-reckoning, meaning the truck can still be traced even when the driver is driving in a tunnel.

Specifications

System	CPU	Intel Atom XL Z510PT 1.1 GHz (Z520PT 1.3 GHz is optional) (Industrial grade)
	Chipset	Intel LE82US15EE
Physical	System Memory	1 x 200-pin SODIMM socket; Supports up to 2 GB industrial DDR2 400/533 memory module
	OS	Windows Embedded Standard 2009, Windows CE 6.0, Windows XP
Storage	Dimensions (W x H x D)	266 x 149 x 69.7 mm
	Weight	2 kg
Display interface	Compact Flash	1x Type II (externally accessible)
	Smart Display Port	Design compatible with TREK-303H, 7" smart display signal includes: <ul style="list-style-type: none"> 18-bit LVDS out 2 x RS-232 ports Mono audio out 1 x USB host 12V DC output @ 1A output
I/O	CAN	1 x CAN 2.0 A/B (J1939 protocol is ready, 2500Vrms isolation protection) via box header
	Video In	2 x composite video inputs for rear view monitor; bypass to digital display port; doesn't support video recording (NTSC, PAL, SECAM with automatic format detection)
	USB Host	3 x USB host ports type A connectors with cable clip (front I/O panel x1; rear I/O panel x2)
	Mic In	1 x Mic-in jack with cable clip
	Line Out	1 x line out jack with cable clip
	COM Ports	<ul style="list-style-type: none"> 2 x full function RS-232 ports, 5 V @ 500 mA, 12 V @ 250 mA, ping9, jumper selected 1 x 4-wire RS-232, 1 x RS485, 1 x J1708
	Isolated DI/DO	<ul style="list-style-type: none"> 4 x isolated dry contact digital inputs via DB9 (2500 Vrms protection) 4 x relay drivers via DB9
	VGA Output	1 x VGA output via DB-15 (independent display)
	LAN	1 x 10/100/1000 Ethernet (with LEDs) via DB9 with cable clips
	Communication	WWAN
WLAN		Optional, supports 802.11 a/b/g/n, with SMA connector for external antenna (through internal Mini PCI Express)
Bluetooth		Optional, supports Bluetooth Class II, Version 2.0 + EDR, antenna built-in
Model		ublox industrial grade LEA-6S
GPS	RF Receiver Type	50 channels GPS L1 frequency, C/A code
	Cold Start	29 s
	Warm Start	29 s
	Hot Start	<1 s
	AGPS	<5 s
	Acquisition	160 dBm
	Protocol	NMEA (Input/Output, ASCII, 0183.2.3 (compatible to 3.0)) UBX (u-blox proprietary protocol) (Note: Dead Reckoning optional)
G sensor	Built-in	

Remark: New TREK-550 is with Advantech DLoG logo.

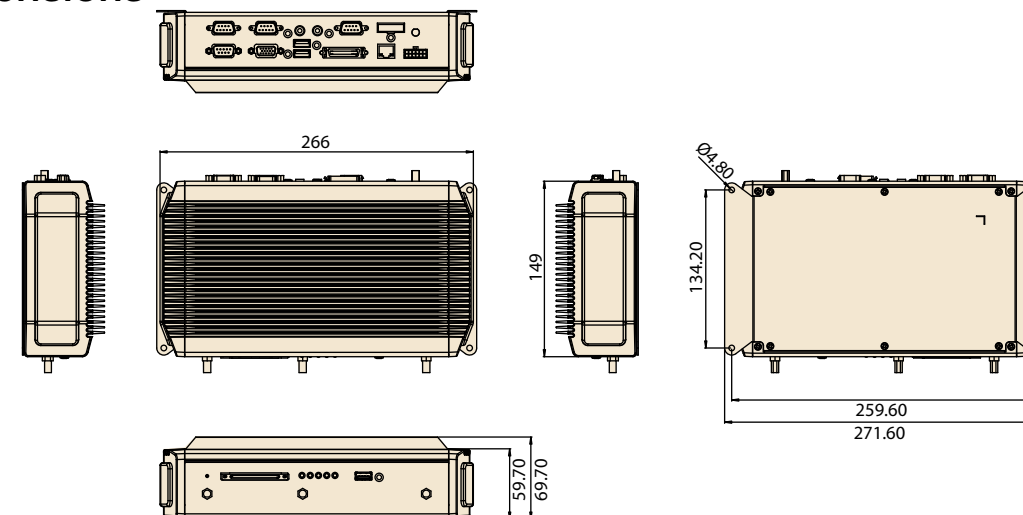
Vertrieb durch **AMC**
AMC - Analytik & Messtechnik GmbH Chemnitz
Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
09120 Chemnitz Fax: +49/371/38388-99
E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

TREK-550

LED	LED Indicator	<ul style="list-style-type: none"> Power (Red) Storage Access (Green) WLAN data transfer (Green) WWAN link (Green) GPS operation (Blue)
Car Power Design	DC-input	Supports 12/24 V car power system by ISO7637-2 & SAEJ1113 (6V - 36V wide DC input)
	Power Management	<ul style="list-style-type: none"> Power on/off delay, Power on delay, 2 sec default Power off delay, 5 sec as default Delay time controllable by SW configuration Low voltage protection
Environment	HW Reset	1 reset button
	IP Rating	IP 31
	Operating Temp.	-30° C ~ +70° C
	Storage Temp.	-40° C ~ +85° C
	Vibration/Shock	MIL-STD-810G/ 202A, Method 516.5, EN60721-3 (5M3) compliant
Certifications	EMC	CE, FCC, IC
	Safety/ RF	CE, CB, PTCRB
Mechanical	Vehicle Power Regulation	E-mark, SAE J1455, SAE J1113, ISO7637-2 level IV compliant
	Material	Top cover (Aluminum extrusion) Side cover (PC) Bottom & I/O cover (metal)

Dimensions

Unit: mm



Ordering Information

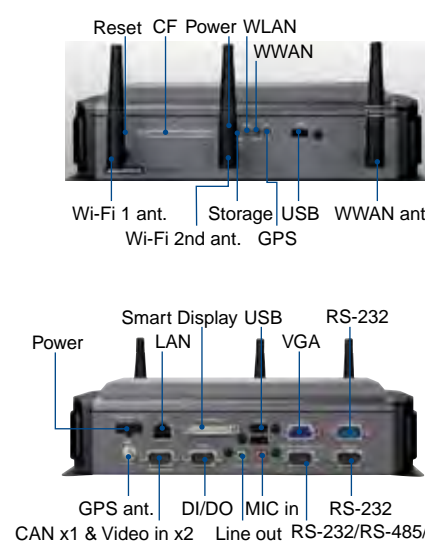
Part Number	Description
TREK-550-00A2E	Intel Atom Z510PT 1.1 GHz GPRS Barebone
TREK-550-00A2E	Intel Atom Z510PT 1.1 GHz HSXPA CDMA Barebone
TREK-550-10A2E	Intel Atom Z520PT 1.3 GHz GPRS Barebone
TREK-550-11A2E	Intel Atom Z520PT 1.3 GHz HSXPA / CDMA Barebone
9668TREK20E	Cinterion MC55i 4 Band GPRS Kit
9668TREK21E	Sierra Wireless 5728V CDMA Module Kit
9668TREK66E	802.11 B/G/N Module Kit
9668TREK64E	TREK 550 BT module kit
9668TREK68E	Sierra Wireless 8090 HSUPA for USA only
9668TREK69E	Sierra Wireless 8092 HSUPA
9668TREK70E	Ublox LEA-6S GPS module

(Note: Module kits include RF, antenna and internal cable)

Packing List

Description	Part Number	Quantity
TREK-550		x1
CAN/Video-in cable (15 cm)	1700021556-01	x1
Power cable (1.8 m)	1700018306	x1
Startup manual	2068055000	x1
Cable clip for Mic in, line out, USB host, LAN	1990018848T000	x6
Cap Plug-Power for TREK-550	199021213T000	x1

I/O Connectors



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AMC - Analytik & Messtechnik GmbH Chemnitz
Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
09120 Chemnitz Fax: +49/371/38388-99
E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

TREK-668

NEW



In-vehicle Surveillance with Fleet Management Computing Box

Features

- Automotive grade working temperature range (-30° C to 60° C)
- Rich I/O including CAN, RS-232, RS-485, J1708, 8DI/4DO (isolated), Line out, Mic in, USB.
- 4/8/12 channel analog video input, one PSE for IP Camera supports
- Built-in including GPRS/HSDPA/CDMA, WLAN & Bluetooth (supports dual SIM cards and dual WWAN module mechanism)
- GPS with AGPS and dead reckoning technology (Gyro & speed line)
- Certifications: CE/FCC/E-mark, MIL-STD-810G, ISO 7637-2, SAEJ1455, SAE J1113 regulations, EN50155



Introduction

TREK-668 is an industrial-grade, dual-core computing box designed to provide high-quality video surveillance and fleet management for police car, ambulance, fire engine, buses and trains. TREK-668 delivers tracking and positioning and also supports dead-reckoning, which allows a truck to be traced even if the driver is in a tunnel. It supports the J1939 protocol for vehicle diagnostics and driver behavior management, and it supports high-quality, MPEG-4, MJPEG, H.264 recording, and transmission for up to 12 camera inputs. It has one PSE for an IP camera, and dual display/dual audio interfaces which support different resolutions. Each camera input provides motion detection capabilities; there are 8 audio inputs. The TREK-668 provides reliable on-board recording and can transmit images or alarms for remote monitoring over a wireless, GPRS, 3G, or HSDPA network connection.

Specifications

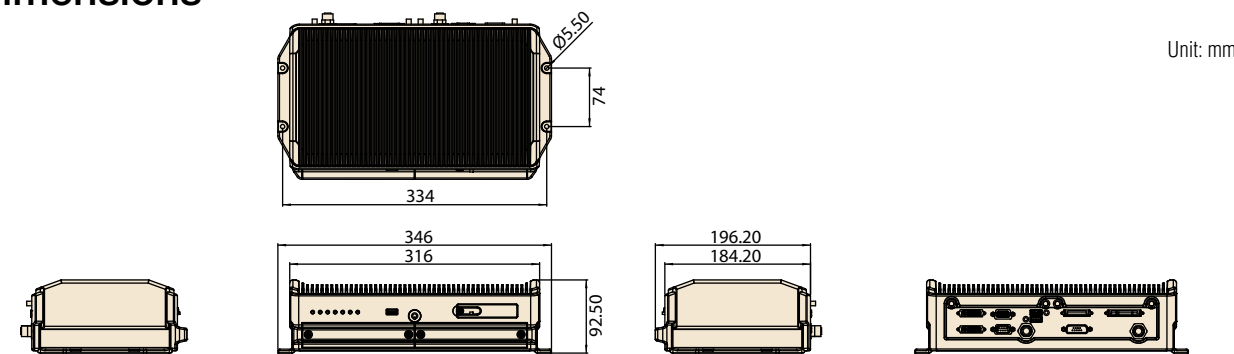
Core	CPU	Intel Atom N2600 1.6 GHz (Dual core)
	System Memory	DDR 3 800MHz , up to 2GB
	Chipset	Intel NM10 Express Chipset
	Graphics	Integrated 2D/3D Graphics Engine Supports Directx* 10.1 compliant Pixel Shader* v2.0 and OGL 3.0
	Video Encoder Engine	Stretch S7
Video/Audio	OS	Windows WES7/Win7
	LVDS out	18-bit LVDS interface (Paired with TREK-303, 800 x480 resolution)
	VGA	1 x via DB15
	Video in for Surveillance	4/8/12 Video inputs, with 12V/2A power supply for camera Dedicate H/W video encoding engine
	Video Compression	MJPEG, H.264, MPEG4, by D1 resolution 30 frames per channel per second
	Video/Audio Input Connector and Format	DVI-I connector, (NTSC, PAL), with 12V/2A power supply
	Audio in	Up to 8 mono audio inputs
	Audio Compression	Audio format G.711
	Mic in	1x via extended I/O port
	Line out	1x via extended I/O port
Storage	Storage	2 x optional SSD/ SATA 2.5" MHDDs, external accessible with key protection 1 x Type I/II CompactFlash card
	RS-232	2 x RS-232 full function; one via extended I/O port; one with 12V / 0.5A via DB9 2 x 2-wire RS-232 (via smart display port)
I/O	RS-485	2 x RS-485 (one with auto flow control via extended I/O port, one via DVI-I port for PTZ camera)
	CAN/ J1708	1x CAN Bus (J1939 protocol is ready) via DB15 female connector, integrated with CN bus in single one connector
	USB	4 x USB (2 on rear I/O panel, 1 on front panel, one for TREK-303)
	DI/DO	8 in, 4 out 4 x isolated DI and 4 x relay DO via extended I/O ports 4 x isolated DI via DB15 connectors
	LAN (PSE)	1 x Giga LAN 10/100/1000 Mbps Ethernet controller, supports POE IP camera, IEEE 802.3af compliant, and provides up to 15.4 watts power output
	LED	1. Power (red) 2. CF (green) 3. WiFi (Green) 4. WWAN (Green) 5. GPS (blue) 6. HDD/SSD (amber)
	RF	WWAN
WLAN		802.11a/b/g/n (by MiniPCle)
Bluetooth		Bluetooth Class II, version 2.0 + EDR, antenna built in

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AMC – Analytik & Messtechnik GmbH Chemnitz
Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
09120 Chemnitz Fax: +49/371/38388-99
E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

TREK-668

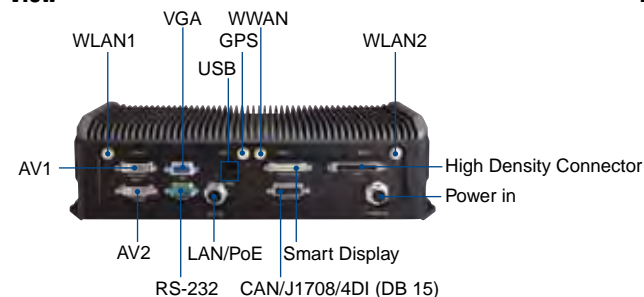
GPS	GPS	Default LEA-6S, option ublox LEA-6R (Gyro on board) for dead reckoning (Note: Must connect with direction and speed line)
	Channels	50 channels (Supports GPS and Galileo system)
	Cold/ Warm Start	29 s
GPS	Hot Start	< 1 s
	Aided Start	< 5 s
Security	Reacquisition	-160 dBm
	G-sensor	For auto SOS
Power	Reset Button	Supported
	Power Out	+12 V / 2 A via DVI-I per port; +12V / 1.5A and 5V/1.1A via extended I/O port; DB9 9-Pin (optional with 5 V / 0.5 A jumper selected); +12 V / 1.5 A via smart display port (Default for TREK-303)
	DC Input	9-32 V _{DC} (12/24V) car power compliant with SAE J1113, ISO7637-2 level IV
Environment	Dimensions (W/D/H)	346 x 97 x 196.2 mm
	Weight	5.7 kg (including 2 HDD)
	Operating Temp.	-30°C to 60°C
	Storage Temp.	-40°C to 85°C
	Humidity	95% ±5%
Certifications	Vibration	Compliant with SAE J1455, MIL-STD-810G, Method 516.5, EN50155
	RF Certifications	Part 22/24E certified, whole system PTCRB.
	Safety	CE/FCC, E-Mark

Dimensions

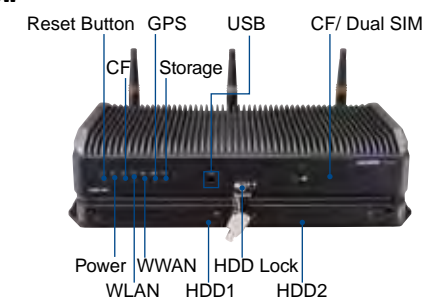


I/O Connectors

Rear View



Front View



Remark: RS-485 x1 (Either AV1 or AV2)

Ordering Information

Part Number	Description
TREK-668-00A0E	TREK-668 barebone
TREK-668-GHB7A0E	System,W/2G, GPS, 3.5G,16G CF,BT,Win7
TREK-668-GWB7A0E	System,W/2G, GPS,GPRS,16G CF,WLAN,BT,Win7
9668TREK58E	WLAN Kit w/antenna for TREK-668
9668TREK59E	GPRS Kit w/antenna for TREK-668
9668TREK60E	HSXPA Kit w/antenna for TREK-668
9668TREK61E	GPS (LEA-6S) Kit w/antenna for TREK-668
9668TREK62E	GPS (LEA-6R) Kit w/antenna for TREK-668



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AMC – Analytik & Messtechnik GmbH Chemnitz
Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
09120 Chemnitz Fax: +49/371/38388-99
E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

Accessories for TREK Series

Accessories for TREK Series



Features

Advantech mounting kits and ingress protection covers are the best companions for TREK series products. They feature:

- Shock and vibration absorption
- Fully adjustable positioning
- Simple and quick attachment
- IP54 I/O cover for TREK-753

Introduction

Advantech mounting kits are the perfect choice for securing MDTs (Mobile Data Terminal) to vehicles on the move. The mounting kits come with two plates and double socket arms which can absorb harmful shocks and vibrations. They are designed to absorb a shock of up to 40G, 11ms (MIL-STD-810G) or 100 G, 6ms (EN60721-3-5) and will hold MDTs solidly in place even in the harshest of conditions. View angle and position of MDTs is fully adjustable by the double socket design.

All RAM components are interchangeable, so if you decide to switch items from one vehicle to another, simply swap them out with a turn of the knob. There are many different, non-destructive RAM mounting bases that will quickly attach and fit different vehicle cabins. They have been tested on vehicles from Toyota, CAT, Daewoo, Komatsu, Yale, Hyster, Clark, Mitsubishi, Nissan, and many others.

RAM-MOUNT-01



Features

- 5.625" double socket arm for 1.5" ball base
- 2.5" width square rail clamp base
- 4.75" VESA base
- Suitable products: TREK-743/753

RAM-MOUNT-02



Features

- 5.625" double socket arm for 1.5" ball base
- Flat 2.5" diameter base with AMPS hole pattern
- 4.75" VESA base
- Suitable products: TREK-743

RAM-MOUNT-03



Features

- 8.375" double socket arm for 2.25" ball base
- Flat 3.68" diameter base
- 4.75" VESA base
- Suitable products: TREK-743

RAM-MOUNT-06E



Features

- 5.625" double socket arm for 1.5" ball base
- 3.625" VESA base at both sockets
- Suitable products: TREK-743/753

RAM-MOUNT-07E



Features

- 5.625" double socket arm for 1.5" ball base
- Flat 2.5" diameter base with AMPS hole pattern
- 3.625" VESA base
- Suitable products: TREK-303/722/723

9668TREK37E



Features

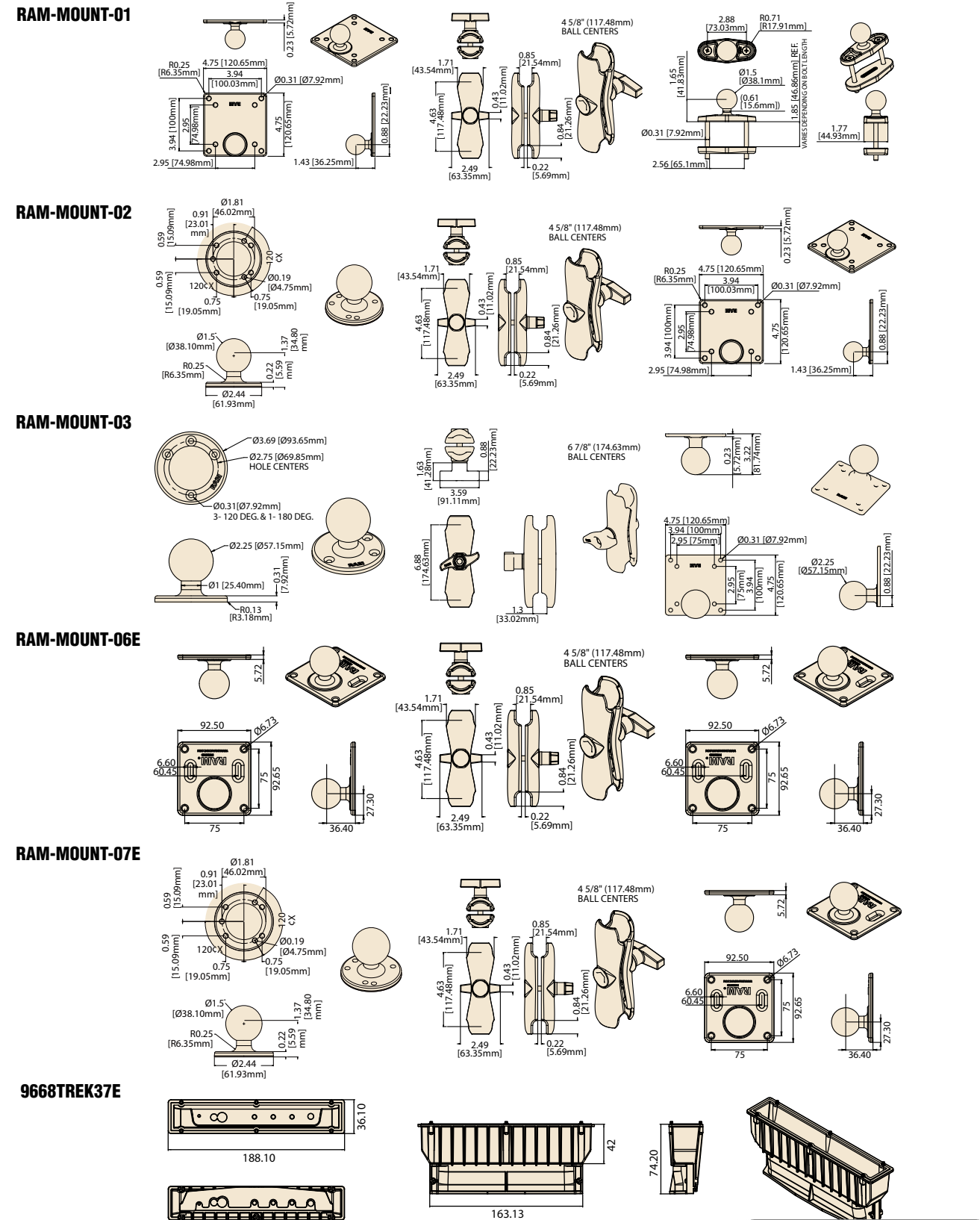
- Plastic I/O cover with rubber seal
- IP54 compliant
- Suitable products: TREK-753

Vertrieb durch **AMC**
AMC – Analytik & Messtechnik GmbH Chemnitz
Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
09120 Chemnitz Fax: +49/371/38388-99
E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

Accessories for TREK Series

Dimensions

Unit: inches [mm]



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PWS-770

NEW



10.4" Rugged Tablet PC with Intel Atom N2600 Processor

Features

- 10.4" XGA LED panel, WAV transfective-LCD, high brightness 300 cd/m²
- Hot swap, high capacity Li-ion battery provides 8 hours of operation⁽¹⁾
- Rich array of I/O ports supports a variety of applications
- IP54-certified, 4ft drop rating from 120 cm
- Complete communication: Wi-Fi/Bluetooth/GPS/WWAN (3.75G)
- Optional data capture modules: 1D/ 2D barcode scanner / MSR / RFID
- Lightweight, 1.2 kg



Introduction

The PWS-770 is a Rugged mobile tablet PC featuring a 10.4" XGA resolution TFT LCD panel and an Intel Atom N2600 1.6 GHz processor. It comes with 802.11 b/g/n WiFi, Bluetooth 4.0, a 2M pixel camera. It also has built-in optional GPS and WWAN 3.75G antenna. PWS-770 optional devices include an RFID module with antenna, a 1D/2D barcode scanner and an MSR card reader. PWS-770 is a fully functional communication device suitable for any outdoor application. It carries an IP54 rating for protection against dirt, dust and water. PWS-770 can also survive a 4-foot drop. Advantech's PWS-770 is a strong tablet PC for industrial and commercial use in any environment.

Specifications

Motherboard	CPU	Intel Atom N2600/1.6 GHz	
	Chipssets	Intel NM10	
	Memory	SODIMM DDRIII to 2 GB	
	Storage	Supports mSATA SSD 32 GB ~ 128 GB	
Display & Touchscreen	Display	10.4" XGA (1024 x 768) (Transflective) LCD 300 cd/m ² LED back light	
	Touch Panel	4-wire resistive touch panel	
Wireless Communication	802.11b/g/n WLAN built-in with integrated antenna Bluetooth class 2, 4.0 built-in with integrated antenna GPS (u-blox 6; 50-channel; support GALILEO); WWAN (Cinterion PH8)		
	Camera	CMOS 2.0M pixel Camera module	
Security	1. Password security 2. TTPM 1.2 (Optional)		
	Application Buttons	Power button x 1 Function keys x 3 (F1-F3) Tablet PC keyboard x 1 Mode key x 1	Enter key x 1 Activate key x 2 (S1 & S2): Activate barcode reader, camera & dimming adjustment required to control the brightness
System	LED Status Indicator	Power LED (Green/Yellow) x1 Storage LED (Green) x1	WLAN LED (Green) x1
	I/O Interfaces	USB 2.0 x 2 Serial port RS-232 x 1 VGA port x 1 Audio in jack x 1 Audio out jack x 1	Internal mono microphone x 1 DC-in x 1 Docking port (32-pin; USB/PCIE/DC) SIM slot (with WWAN option)
Audio Output	1 Watt speaker x 2		
	Expansion Port	SD memory card x 1 (SD 2.0/SDHC)	
Battery	Internal battery: 3S1P 11.1V 1900 mAh Hot-Swap External Battery: 11.1V 3760/5000mAh (Optional)		
	Power Adapter	AC Adapter: AC 100V-240V 50/60Hz, 19V/3.42A/65W, Auto Sensing/Switching worldwide power supply Car Adapter: AC120V-320V (Optional)	
OS Support	Windows 7 Professional /Embedded		
Optional Devices	Data Collection	CMOS 2.0M pixel Camera module 1D/2D Barcode MSR, HF RFID	

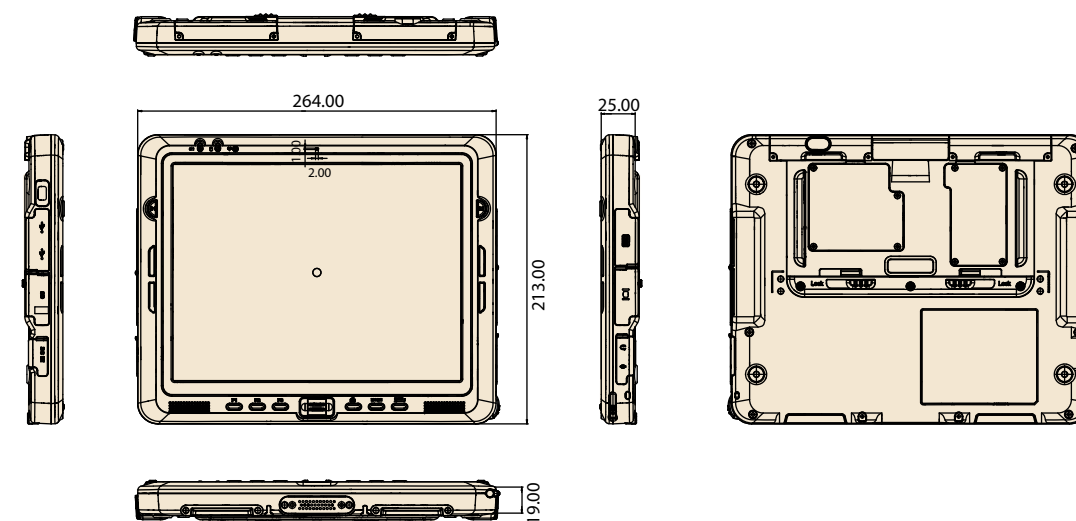
(1) - Internal battery + external 2nd battery 5000mAh in Battery Mark with maximum peripherals connected (Wi-Fi & BT enabled) the battery life up to 7.5hrs
- Internal battery + external 2nd battery 5000mAh idle with minimum peripherals connected in OS (Wi-Fi & BT disabled) the battery life up to 8.5 hrs

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Heinrich-Lorenz-Str. 55 Tel.: +49/371/38388-0
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E-Mail: info@amc-systeme.de Web: www.amc-systeme.de

PWS-770

Environmental Specifications	Temperature & Humidity	Operating Temperature: -10° C ~ +50° C (Charge: 0° C ~ +40° C for the battery protection) Storage Temperature -20 to +60° C Operating Humidity 5% ~ 95% @ 40° C	
	IP Rating	IP54	
Certifications	Drop	4-foot drop onto Plywood, MIL-STD-810G 516.5 Procedure VI	
	EMC	CE/FCC/CCC/BSMI/C-Tick/PTCRB	
Accessories	Safety	UL/CE/CB/CCC	
	Accessories	AC adaptor (19V, 65W) Stylus (default) VESA Mounting Bracket Carrying Bag Car adapter DC10-32V 90W 18.5V 4.9A	Hand strap Desktop stand Desk Docking Vehicle cradle (Q3, 2013) 2nd battery
Dimensions & Weight	Dimensions	264 (L) x 213 (W) x 18 (H) mm	
	Weight	Under 1.2 kg without rubber bumper & optional devices	

Dimensions



Unit: mm

I/O



- Power LED
- Storage LED
- WLAN LED
- Microphone
- Brightness button (Decrease brightness)
- Brightness button (Increase brightness)
- Rubber bumper
- Touch-sensitive display
- Speakers
- Function keys
- Keyboard button
- Mode button
- Enter button

Ordering Information

Part Number	Description
PWS-770-N3A0EC001E	10.4 Normal N2600 RAM2G SSD32 WL BT Win7 EM
PWS-770-N3AWEC001E	10.4 Normal N2600 RAM2G SSD32 WL BT GPS 3G Win7 EM
PWS-770-S3A0PC001E	10.4 Sunlight N2600 RAM2G SSD32 WL BT Win7 PRO EN
PWS-770-S3AWPC001E	10.4 Sunlight N2600 RAM2G SSD32 WL BT GPS 3G Win7 PRO EN

Accessories

Part Number	Description
S10A-93-S10A6-011	VESA MOUNT M6 with packing
S10A-93-S10A6-021	VESA MOUNT M4 with packing
S10A-93-S10A1-001	Carrying bag
S10A-93-S10AA-002	Handstrap with packing Ver 2.0
S10A-93-S10A6-001	Stand with packing
1757002943	ADAPTER 100-240V 65W 19V 3.42A
9680014043	Car ADAPTER DC 10-32V 90W 18.5V 4.9A W/O PFC
PWS-770-BAT100E	PWS-770 2nd Battery (3760mAh)
PWS-770-BAT200E	PWS-770 2nd Battery (5000mAh)
PWS-770-Cradle00E	PWS-770 Desk Cradle
PWS-770-VCradle00E	PWS-770 Vehicle Docking (Q3, 2013)

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PWS-440

NEW



3.7" Ultra Rugged PDA with Marvell PXA 310 Processor

Features

- Marvell PXA310 806MHz core
- 3.7" VGA TFT LCD transfective technology
- IP67 rating guarantees total protection against dirt, dust and water
- Certified by MIL-STD-810G and MIL-STD-461E
- Standard 5-way controller and 4 function keys for one-hand operation
- High capacity Li-ion battery provides 6 hours of continuous operation
- Field navigation application with HSDPA (3.5 G), 802.11b/g, Bluetooth and GPS
- Supports Windows® CE6.0 and Windows® Embedded Handheld 6.5



CE FCC

Introduction

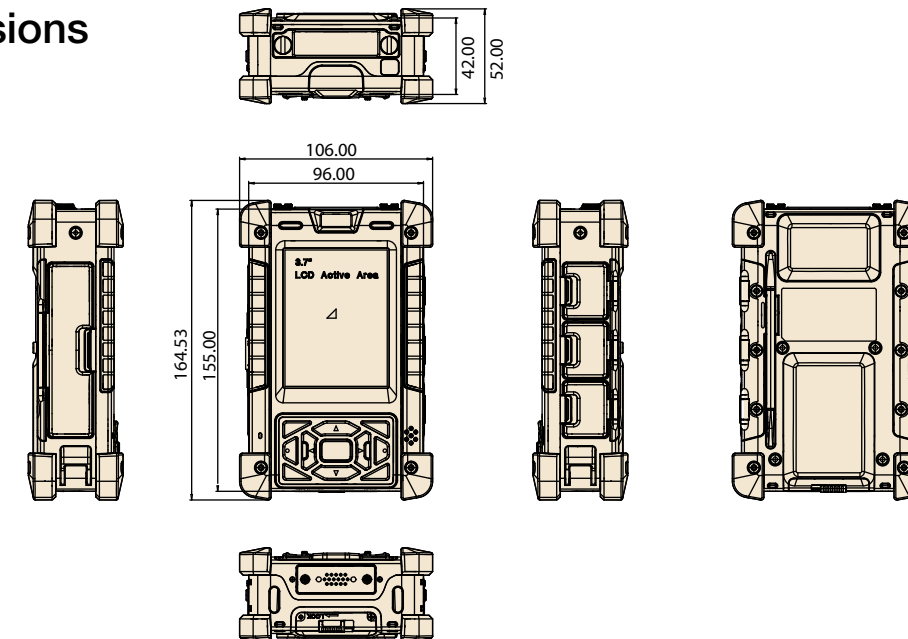
The PWS-440 is an ultra rugged portable computer featuring a 3.7" transfective VGA TFT LCD display and Marvell PXA310 806MHz processor. With GPS, HSDPA (3.5G), Wi-Fi and built-in Bluetooth, PWS-440 provides a fully-functional communication device for any outdoor application. Certified to meet standard military grade MIL-STD-810G and MIL-STD-461E, PWS-440 is constructed with an IP67 rating guaranteeing total protection against dirt, dust and water. Driven by a high capacity battery, PWS-440 handles a 5-foot drop, and operates in an extreme range of operating temperatures, providing mobility in any harsh environment. Advantech's PWS-440 is a strong device for reliable mobile communications in any environment.

Specifications

Processor	CPU	Intel PXA310 806MHz
OS		Windows CE 6.0 and Windows Embedded Handheld 6.5
Memory		256 MB DDR Mobile RAM on board
Storage		1 GB Flash ROM on board
Audio System		AC-97, built-in Internal microphone and one speaker
Display	Size/ Type	3.7" transfective TFT LCD,
	Max. Resolution	VGA 480 x 640
	Brightness (cd/m ²)	100 cd/m ² LED back light
Touch Panel		4-wire resistive touch panel
Application Buttons		1 x power on/suspend button
		Navigation key and four function keys
I/O Port		1 x HW reset key located right side door
		1 x button for backlight on/off (using power on/ suspend button)
		2 x USB type A connectors, USB1.1 host
		1 x USB mini type B connector, USB1.1 slave
		1 x RS-232 (full), 1 x RS-232/422/485 (optional)
Communication	Standard	802.11b/g WLAN module build in
	Factory Options (Optional)	Bluetooth class 2, v2.1 built-in with integral antenna
		SIRF Star IV high performance GPS chipset
		Cinterion PH8 HSPA+ WWAN module
Dimensions & Weight		155 x 96 x 42 mm, 650 g
Power	Battery	Rechargeable Li-ion smart battery, 7.4 V, 1880 mAh, 2S1P, 59 x 38 x 25 mm
	Power Adapter	Universal AC 100 V ~ 240 V, 47 ~ 63 Hz input, 12 V, 3.5 A output
Environment	Operating Temperature	-20° C ~ +60° C
	Storage Temperature	-40° C ~ +70° C
	Operating Humidity	5% ~ 95%
Rugged Certification		IP67 MIL-STD-461E 5 Feet drop to concrete MIL-STD-810G
Certifications		CE, FCC, CCC
Accessories		Hand Strap
		4-in-1 battery charger (Option) Cradle (Option)

PWS-440

Dimensions



Unit: mm

I/O



1. Function buttons
2. Suspend button
3. Navigation keys
4. FN button
5. Enter keys
6. Docking/cradle connector
7. Battery pack latch
9. RS 232
10. USB type A (USB 1.1 Host)
11. RS 232 (RS422/RS485)
12. RJ-45 Port
13. Handphone, microphone & micro SD slot
14. DC in & min USB type (USB 1.1 slave)

Ordering Information

Part Number	Description
PWS-440-6E000E	PWS-440 with WLAN/BT/GPS/WIN CE6.0
PWS-440-6E003E	PWS-440 with WLAN/BT/GPS/3.5G/WIN CE6.0
PWS-440-6M000E	PWS-440 with WLAN/BT/GPS/WIN Embedded Handheld 6.5
PWS-440-6M003E	PWS-440 with WLAN/BT/GPS/3.5G/WIN Embedded Handheld 6.5

Accessories

Part Number	Description
P37B-91-P37BB-C01	ACCESSORY P37B 4IN1 BATTERY CHARGER
P37B-91-P37BC-R02	ACCESSORY P37B CRADLE
P37B-93-P37B4-001	ACCESSORY P37B BATTERY PACK 2S1P 1880MAH
P37B-93-P37B5-0012	POWER ADAPTER, ACCESSORY P37B ADAPTOR PLUG SET USA