FORCE ONE mdt

Mobile Data Terminal

- · **The power of the main 400 Mhz CPU and the flexibility of Windows CE .NET**

- · **The advantage of the secondary Risc CPU for Automotive Intensive Tasks**

- · **WQVGA 4.3" TFT TouchScreen display for a friendly and powerful graphical interface**

- · **High memory capacity for user applications & data storage**

- · **Useful help of the integrated navigation assistance**

- · **Build-in GPS-GPRS for job dispatching and navigation make the state-of-the-art and the most powerful data terminal specially designed for future oriented fleet management companies.**

FORCEONE

v.5

Display Unit and Docking

DUAL CPU

Samsung Primary CPU is 400MHz and the ARM architecture allows this Device to supply a remarkable flexibility and efficiency in computing power, together with reduced power consumption.

Secondary CPU AITP (Automotive Intensive Task Processor) supplies the necessary functionalities in the automotive field, like power management, Safe Shutdown, Wheel Pulses Odometer, Distance and Speed calculation, Wake-Up on Ring, Over-the-Air services for software and firmware updates.

The AITP is OTA programmable for remote automatic firmware upgrade, and is always powered ON; it can turn-ON and OFF the Device and all its peripherals.

IDEAL FOR FLEET MANAGEMENT AND JOB DISPATCHING

The Device represents the state-of-the-art device for job dispatching and fleets management, an ALL-IN-ONE powerful and compact solution.

Its modem GPRS allows very reliable communication with operating headquarters. The vehicle is located by the high performance GPS U-Blox 6 receiver with 50 channels, and compatible with the new European positioning system GALILEO.

Both GPS and GPRS modules can be powered ON and OFF regardless of Windows CE status.

An Hardware MUX Port is available which allows to send AT commands to the modem while the device is connected in GPRS, for example to request connection status, signal diagnostic and modem statistics.

REMOVABLE DEVICE WITH ALIVE DOCKING STATION

The Docking Station is connected directly to the vehicle with all necessary cables: the display unit can be easily removed and saved to avoid eventual thefts or damages while the driver is out of the car: of course it is possible to lock and seal the display unit to the docking, making it unmovable.

CUSTOMIZABLE USER INTERFACE

The 4.3 inches 16:9 clear readable TFT Displays with 480x272 resolution allow to develop versatile and high accessible applications, thanks also to the integrated TouchScreen controller, and to the 9 keys with LEDs available.

Hardware Keys avoid consumption and damage of Touch Screen for heavily used operations.

The ambient light sensor allows to choose an optimal brightness of the display in any environmental light.

The power key is a Smart Power Button, completely programmable and used to perform several important tasks such as:
- normal press to start from System Disk
- long press to start from microSD Card
- long press to Shutdown CE safely

Can be also disabled or programmed to trigger Ghost Mode (fake shutdown).

DOUBLE BOOT FEATURE

Through this powerful functionality is possible to restore and to update the entire system anytime, starting from user application up to the complete operating system and all the CPU firmwares.

The system is able to boot from two different disks:
- Flash Disk, used for applications and data;
- microSD for large data storage (large maps, images, movies, logs) and for service (system initialization or restore).

STEALTH MODE

Stealth mode is a special operating mode in which the system is working but the display is OFF. This feature can be useful in several situations:
- Driver Control: System has also the wake up on ring feature, so at the central it is possible to remotely turn-ON the device (also in stealth mode so nobody can see that it is starting) in order to check vehicle position, internal audio listening and other data.
- Ghost Mode: It is possible to set the device so that after pressing the shut down button the system goes on stealth mode instead of turning OFF. This feature is useful if you want the device to remain always ON (it turns OFF only the display, reducing power consumption) or in an alarm situation.
- Alarm managing: If system is OFF and alarm button is pressed the system can be started in stealth mode, so nobody can see that the system starts. On this special start the system can be programmed for example to send an alarm message to the central, GPS position or also screenshots or audio.

HIGH AVAILABILITY

The Device can withstand glitches at car start, or power loss problems thanks to the external UPS Battery system (option), that is automatically recharged.

The AITP processor gives time to user applications and Windows to close gracefully and safely in case of sudden disconnection of the Main Power.

INPUTS AND OUTPUTS

The Device supplies a wide range of communication channels with the external environment: two USB Host, one USB Device and up to 2 Serial Ports (232 o 485).

The special programmable digital inputs and outputs allow to control devices and read signals coming from generic external equipments.

Technical Specifications

Display

Viewing area 4.3" diagonal

WQVGA 480x272 Resolution

Colour TFT LED Display with 256,000 Colours

Display clearly viewable with 400 cd/m2

Ambient Light Sensor with 32 Steps Automatic Regolation

Touchscreen

Automotive Full Rugged Pen/Finger Touchscreen.

Extended Temperature Range

CPUs

Primary CPU Samsung ARM 400MHz

Secondary CPU M16 for Automotive Intensive Tasks

Ram Memory

128MB RAM Memory

Storage Memory

128MB capacity of Internal Flash Memory

microSD HC (High Capacity compatible) socket

GPRS Modem

GSM / GPRS Class 10

Modem can be powered on when the terminal is off.

Wake-up on ring programmable features

Warm reset and cold reset (dedicated electronic circuit) available through API calls

2 Hardware RS232 Serial Ports available on the modem (Hardware MUX) allow both RAS and AT command from user applications

2 Sim Card slots with Software switcher available through API calls

Support international standard protocol (ETSI AT command set)

Supports RAS (Remote Access Service) dialup function

GPS / GPRS Rugged Combo antenna (option)

GPS Receiver

Ublox 6 SuperSense Technology and Indoor Navigation, new generation GPS chipsets with improved precision and fast acquisition of position fix on start up and sleep mode

50 Channels, over 2 Million correlators, GALILEO Compatible

Antenna Monitor (Disconnection and Short Circuit Detection / Protection)

- Hot starts: < 1 s

- Warm starts: 29 s

- Cold starts: 29 s

Supports international NMEA standard format and proprietary UBX Binary protocol

Messages interval up to 5 Hz Frequency

Warm reset and cold reset (dedicated electronic circuit) available through API calls

Assisted GPS (A-GPS) available

GPS / GPRS Rugged Combo antenna (option)

USB Ports

2 USB Host (with USB Support for Mouse and Keyboard)

1 USB Device

Hardware Keys

9 Lighted and Software programmable Hardware Buttons

Power on key

1 Power On/Off button

Serial Ports

2 External RS232 Serial Ports (o 485)

2 RS232 Serial Ports available on embedded meter to connect 2G IU, Printer and Smart Roof sign (Option)

I/O ports connection

3 Digital Inputs

8 Power Output Ports

Dedicated Ignition input

Dedicated Emergency Switch input

Alarm and Security

Panic Button input

Stealth Mode Controller (system ON display, audio and lightings off)

Stealth Display Feature

Fully Programmable Stealth display mode, Screen saver mode and sleeping mode by:

 - Power Button

 - Hardware Key

 - API

Enable Switching Off LCD without powering down MDT unit.

Multimedia

Speaker and Microphone

Supports wave speaker volume control

API to be provided

Playback wave and speech files

Boot

Dual Boot available from Flash Disk and microSDHC Card

Boot Time < 10 sec

Customizable Boot Up Splash Screen with End-User Logo

Soft/Hard Reset

Soft Reset available trought HW switch

Soft Reset available by API calls

Hard Reset available by microSDHC Card (Factory default)

Safe Windows shutdown procedure.

Preshutdown notification

Disk Activity Signal Control

External UPS (option)

Operating System

Windows CE .NET 6.0 with ATL, MFC, .NET Compact Framework 3.5 and Digitax Framework 4.1

Development Tools

ActiveSync 4.5 (last version available) and USB debugging with ActiveSync support

SDK for Embedded Visual C++ 4.0 (EVC4)

Sample code for SDK in C++

Compact Framework 3.5 supported

Digitax Framework 4.1 (Digitax Libraries): GPS, GPRS, VoiceCall, I/O, Odometer, Taximeter, Hardware Keys, WatchDog, OTA, Windows Status, Stealth Mode Controller, Logs, Backup And Restore, Light Dimmer, Hardware Identification, Splash Screen, Alarm, Card Reader and Windows Status

Serial port driver and test tools

Digital I/O driver, API (DLL) and test tool

Read/Write Windows CE registry application and API to Supports permanent saving of system settings into registry

Software controllable Warm Restart and test tool

GPRS modem driver and test tool

GPS driver and test tool

Speaker and MIC test tool, wave playback and voice recorder

Contactless / NFC reader driver and test tool

Backlight control API and test tools

Ping tool

Dialup network

GSM phone dialer

Support network protocol TCP/UDP, IP, PPP

Virtual keypad

Text file editor

Explorer

Text-To-Speech

Support 3rd party Native Text-To-Speech

Software Navigation

Support 3rd party map application and navigation software with SDK

System diagnostic tools

On Field Test (OFT) OnBoard Diagnostic Utilities included, with Customizable CheckList to make tests of GPS Fix, GPS Antenna, GPRS Connectivity and Base Station Signal Quality, Odometer, Ignition, Panic Button, TouchScreen calibration, Hardware Keys, Ambient Light Sensor, Device version, OS Version, AITP Version, Taximeter, UPS and Battery Status, Roof Light, Navigation Software

All On Field Tests and enrolling features can be used during first installation and swap of devices.

OS Image Loader

Over The Air (OTA) OS image loader or microSDHC Card Image Loader

System Update Fleet Management

Professional OTA (Over The Air) CLIENT allows the update of the whole Operating System and all the CPUs Firmware (option).

Professional OTA (Over The Air) SERVER with vehicles enrolling, group management and selective update, remote debugging and logging. Web based user interface (option)

Taximeter

Embedded Hardware Taximeter (Option)
Full Firmware and TARIF OTA Programmable

Power Supply

8 - 32 V with Surge Protector

Battery

External UPS Battery Package, Standard Battery Pack 1 hour (option)

Mounting

Removable Display with Docking Station

Professional Docking Station with align and locking guides provided

Docking Station may be permanent locked/sealed with the terminal

All the External Connectors, Accessible slots (such as SIM Card, microSDHC, USB, etc.) and Screws are Sealed

Operating Temperature

-20°C to 70°C

Humidity

Humidity up to 95% non-condensing.

Vibration

Vibration Sine wave, 10 ~ 500 ~ 10Hz, 1.5G, 0.37oct/min 3 axis, 1hour/axis.

Dust Ingress Protection

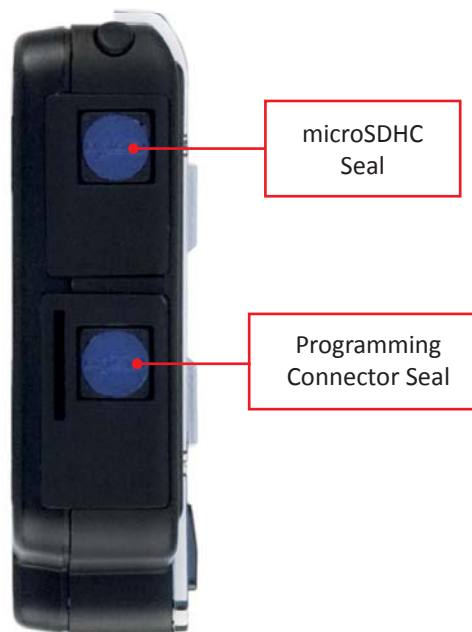All connectors covers sealed, no open holes
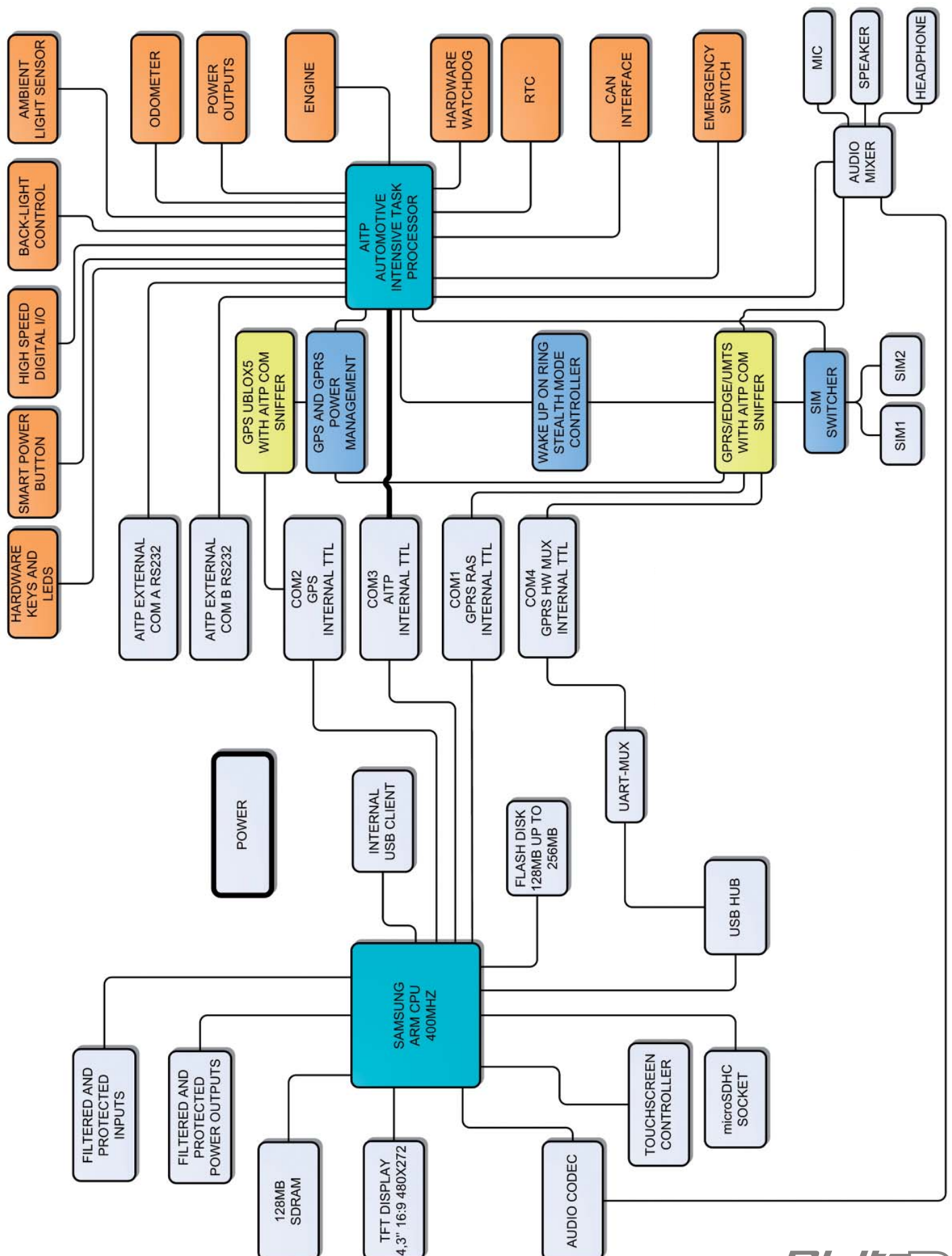
Dimension

185 mm x 93 mm x 25 mm (W x H x D)

Weight

260 g

FORCEONE

Docking Station Housing Seal

Usb Host and Sim Card Sealing

Wiring Connectors Seal

Docking to Display Looking and Sealing

microSDHC Seal

Programming Connector Seal

Display Housing Seal

OPERATIVE SYSTEM AND DEVELOPMENT TOOLS

Microsoft Windows CE .NET Operative System and Compact Framework 3.5 combined with the complete Digitax Framework 4.1 allow the developers to create their applications and their services with the maximum simplicity and in very reduced time.

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