

CE-500

Mobile Data Terminal



Platform Data Sheet

February 2012

Introduction

CE-500 Platform Overview

The CE-500 provides OEMs (Original Equipment Manufacturers) and Telematics ASPs (Application Service Providers) with a rugged, versatile, vehicle-centric, and fixed-mount or portable mobile-computing platform for a variety of MRM (Mobile Resource Management) applications.

The platform features Microsoft Windows Embedded CE 6.0 operating system, supporting Compact Framework 3.5, and offers a comprehensive development environment for independent application programming and system integration.

Its unique layered architecture makes the CE-500 highly modular and scalable, allowing for variable factory-set configurations by using plug-in modules.

This future proof and cost effective design: simplifies maintenance tasks, significantly extends product life expectancy, and lowers TCO (total cost of ownership).

The CE-504 [Base configuration](#) and the CE507 [Base configuration](#) are the standard set of features and functions of the MDT. There is a range of optional [Extensions](#), add-ons and [Accessories](#) to further enhance the CE-500 capabilities to serve advanced fleet management solutions.

The CE-500 is built to withstand a wide temperature range, vibrations, shock, and endure the rough working conditions in the commercial vehicle environment.

CE-504 and CE-507 Models

Ergonomically designed for use in different sizes of commercial vehicles, two distinct product models are available, each featuring an optimized user interface.

A single core processing unit supports two exchangeable display sizes: 4.3" WQVGA (CE-504 model) and 7" WVGA (CE-507 model), each combining a touch color screen with large and programmable function and control keys.

Both models feature multiple, integrated wireless options: Quad band GPRS modem, GPS, Wi-Fi, and Bluetooth. All wireless options come with internal antennas.

Physical interface options on these models include: USB, Serial RS-232 ports, dedicated interface for Dallas ID button reader, analog inputs, multiple digital inputs and outputs, and control signals for vehicle connectivity.

Future additional options include a bar-code scanner and magnetic card-reader.

Each model can be ordered in fixed-mount or portable configurations. The portable configuration includes cradle, and a battery, for up to two hours of operation. The cradle is used for recharging and for additional interface and connectivity options.

Developers Package and Application Development Tools

Micronet's CE-500 Developers Package provides all the tools required for: application development quick-start, product testing, and product evaluation. The Developers Package contains all essential hardware and software components:

Hardware

- CE-504 or CE-507 device (base configuration)
- Wall power supply
- USB and serial communication cables
- Mounting accessories
- Optional - Additional devices, accessories or add-on modules can be ordered separately.

Software

- SDK (Software Development Kit) provides: a set of software tools, API, and documentation for programming in Visual Studio .NET for: C++, C#, and VB development environments.
- C# Demo samples of the specific device features, including their source code
- Various tools are provided to support the CE-500's numerous interfaces (communication, peripheral, and control options), such as: memory ID buttons reader
- An optional enhancement to the SDK is an advanced development platform – Micronet Mobile Framework (MMF), enables easier development, GUI controls, and 3rd party integration, as well as other benefits. An MMF Demo is included in the DTK package CD.
- An optional Navigation integration tool – NavBlade, can be provided to enable rapid integration with Sygic (available) and ALK (future option) navigation solutions.

Documentation

- Hardware and Developers guides
- Getting Started guide
- Certification approvals and declarations

Usefull links

Micronet web site: <http://www.micronet.co.il/>

Additional CE-500 information: <http://www.micronet.co.il/Ce500main.html>

Contact us: http://www.micronet.co.il/Contact_Micronet.html

CE-500 Platform Key Feature Specifications

CE-504	CE-507
	
<p align="center">WQVGA (480 X 272)</p>	<p align="center">WVGA (800 X 480)</p>

Base configuration

Base configuration features	Details
Platform Core	
Operating system	<ul style="list-style-type: none"> - Microsoft Windows Embedded CE 6 Core License - Professional license available (optional)
Application development environment	Microsoft Visual Studio 2005 / 2008
Processor	<ul style="list-style-type: none"> - TI Omap 3503 - ARM Cortex™ - A8 Core
RAM	256MB
Flash	512MB
Memory card support	<ul style="list-style-type: none"> - SD / MMC (SDHC support) card slot x133 up to 32GB - SDIO interface
Audio CODEC	<ul style="list-style-type: none"> - Multi-channel - System audio support - Optional GSM Voice and Bluetooth audio support
Real Time Clock	<ul style="list-style-type: none"> - HW based - Device Wakeup alarm configuration capability
Watchdog	<ul style="list-style-type: none"> - SW based for application recovery - HW based for system recovery

Base configuration features	Details
User Interface	
Display	Color TFT LCD
Display Backlight	Multi-level backlight (white LED)
Touch screen	Analog Resistive, 4 wire
Keypad	Rubber tactile, multi-level backlight
Internal speakers	<ul style="list-style-type: none"> - Stereo, 2 X 1W, 90 dB nominal @ 0.1m - Multi-level volume control
Internal microphone	<ul style="list-style-type: none"> - High sensitivity - Noise filtered
Light sensor	Configurable for device backlight adjustment
Communication Interfaces	
Rs232 ports	<ul style="list-style-type: none"> - 1 X 4 Wire (TX, RX, RTS, CTS) - 1 X 2 Wire (TX, RX) - 300 - 115200 bps
USB OTG port	USB 2.0 - low, full and high speeds
USB Host port	USB 2.0 - low, full and high speeds
Peripherals Control	
Digital I/O	<ul style="list-style-type: none"> - 2 X automotive inputs - 1 X open collector output
Analog Input	0V – 30V
1-Wire Interface	Dallas ID memory button support
Power	
Input power	<ul style="list-style-type: none"> - 5V DC power input by device side panel connector - Direct vehicle battery connection (12V / 24V) by cradle or accessory cable - SAE J1455 compliant
Mechanical	
Vibration	10 - 500 Hz, ~1g, 3 axis
Mechanical Shock	<ul style="list-style-type: none"> - Operational (40g, 11ms, 3 axes) - Crush safety (75g, 6ms, 3 axes)
Drop	According to MIL-STD-810F standard
Device Mounting	<ul style="list-style-type: none"> - Optional RAM® Mounts mounting arm - Optional Device cradle available
Environmental	
Temperature range	<ul style="list-style-type: none"> - Operating: -4 °F to +158 °F (-20 °C to +70 °C) - Storage: -22 °F to +176 °F (-30 °C to +80 °C) - Operating with internal battery option: 14 °F to 140 °F (-10 °C to +60 °C)
Humidity	95% ±5%RH, +40°C, non-condensing
IP	IP54
RoHS	Compliant

Base configuration features	Details
Certifications	
Standards compliance	FCC, CE

CE-500 Platform Optional Modules

Features	Details
Wireless Communication	
GSM / GPRS	<ul style="list-style-type: none"> - Quad Band, GPRS Class10 - GSM voice support
GPS	<ul style="list-style-type: none"> - High sensitivity, 50 channel, -160 dBm
Wireless LAN	<ul style="list-style-type: none"> - 802.11 b/g - Including internal on-board antenna
Bluetooth (combined with Wireless LAN option above)	<ul style="list-style-type: none"> - Class 2 - Data and voice support - Including internal on-board antenna
Interface Connections	
Ethernet LAN port (requires Enhanced accessory cable or Enhanced Device cradle option)	LAN 10/100 Mbit/sec
J1939 port (requires CANBus accessory Cable or Enhanced Device Cradle option)	<ul style="list-style-type: none"> - CANBus V2.0B - E-Mark certification pending
RS422 port (replacing RS232 Com Port 1)	EIA RS422
External Audio (requires Audio accessory Cable or Enhanced Device Cradle option)	<ul style="list-style-type: none"> - External microphone input (Mono) - External audio device output (Mono)
Portable Model	
Internal battery	<ul style="list-style-type: none"> - Li-Polymer 3AH - Providing ~2 hours of the operation (device configuration depended)
Device cradle	<ul style="list-style-type: none"> - Supporting all the platform device models - Cables connection infrastructure with mechanical cover option - Device mounting with quick release mechanism - Optional RAM® Mount compatible mounting arm

CE-500 Platform Accessories

Features	Details
Power Supply	
Wall power adaptor for cradle	110V / 220V AC to 12V DC
Peripheral Cables	
Main interface cable	Device "Con1" to power, USB, serial, and I/O connectors
Enhanced interface cable	Device "Con2" to serial, I/O, and LAN connectors
J1939 (CANBus) interface cable	Device "Con3" to CAN connector
Audio interface cable	Device "Con4" to External Audio connectors
Interface Connections	
J1708 Adaptor (requires Enhanced accessory cable, uses Serial port 2 of CE-500 device)	RS-232 to J1708 (RS-485) convertor box
RS422 Adaptor (requires Enhanced accessory cable, uses Serial port 2 of CE-500 device)	RS-232 to RS-422 convertor box
Mechanical Accessories	
Mounting arm	<ul style="list-style-type: none"> - Optional RAM® mount, flexible, multi-directional mounting - Compatible with cradle or direct device mounting
SD card protective cover	SD card removal protection
SIM card protective cover	SIM card removal protection
Front panel label	Customizable "logo" printout

CE-500 Physical Characteristics

Features		Details	
<i>CE-504 Dimensions & Weight</i>			
Width	6.30 inch		160 mm
Height	3.40 inch		87 mm
Depth	1.50 inch		38 mm
Weight (w Battery)	14.70 oz.		410 Gram
Weight (w/o Battery)	13.50 oz.		380 Gram
<i>CE-507 Dimensions & Weight</i>			
Width	8.80 inch		225 mm
Height	6.40 inch		162 mm
Depth	2.10 inch		53 mm
Weight (w Battery)	25.80 oz.		730 Gram
Weight (w/o Battery)	24.70 oz.		700 Gram
<i>Cradle Dimensions</i>			
Width	7.10 inch		180 mm
Height	3.50 inch		90 mm
	4.30 inch with release knob		110 mm with release knob
Depth	2 inch		50 mm
	3.30 inch with protective cover		85 mm with protective cover
Weight	7.80 oz.		225 Gram
	9.50 oz. with protective cover		270 Gram with protective cover