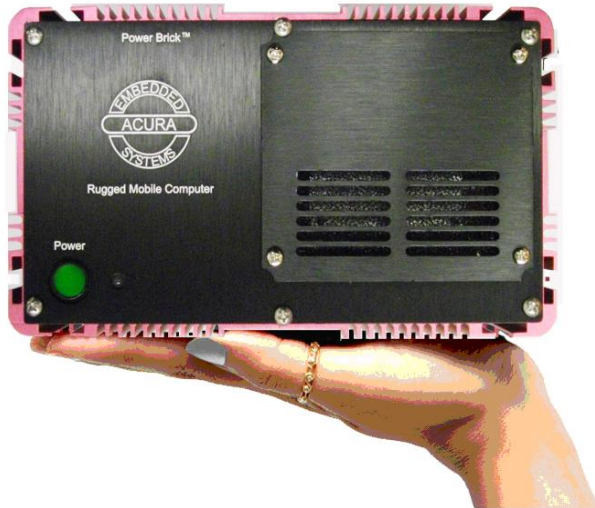


# PowerBrick™

## User's Manual Edition 4.0



*Small footprint rugged Intel® Core™ 2 Duo*

*Industrial Computer*



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Version 4.0

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## 1. Overview

The PowerBrick is a *Intel® Core™ 2 Duo* system with P8700 processor speed. This small, rugged and powerful computer is the premium choice when desktop computer performance is required in industrial computing applications. Small size does not necessarily mean limitations in computing power.

The state-of-the-art PowerBrick comes loaded with an impressive video card, fast hard drive (optionally flash drive) and memory, all at a competitive price. It is designed and built for great performance in a variety of applications and environments. The design focuses on elements essential for industrial use while excluding unnecessary hardware. The architecture is modular which allows for easy upgrading and expansions.

Areas of applications include:

- Fire engines and rescue vehicles
- Security and patrol vehicles
- Other emergency or public safety vehicles
- Cash carriers
- Seaport terminal container yard management
- Fleet management

The main features are:

- Intel® Core™2 Duo P8600 processor(2.4 GHz)
- Dual Standard 2.5" hard disks, 320GB , upgradeable to 2 TB
- 4GB DDR3 RAM, upgradeable to 8GB
- 4 x RS232 Port
- 4 x USB 2.0 Port
- 2 x On-board 10/100/1000 MB LAN Port
- Audio Jacks
- Built-in 8~30 VOLT DC
- Embedded OS (optional)
- Wireless 802.11g/n
- GSM/GPRS/WiFi/CDMA/CDPD options
- GPS/AVL options
- Dimensions: 7.6" x 5" x 4.13" (W x L x H)

For installation, mounting and cable connections please see Section 2. Technical information is available in Section 3.

## 2. Installation

### 2.1 Contents of the Computer Box



**Figure 2.1** Box major components

In the box you will find the following items: PowerBrick computer, power plug, mounting plate equipped with rubber suspension, 4 bolts

If you have purchased Windows or Linux operating system with your computer, these CD's should be included. Keep them in a safe place.

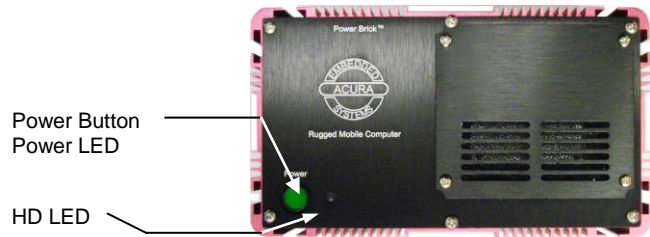
Please see your separate monitor packaging for installation and other information for the touch screen monitor.

**Do not turn power on until you have read the next section and all cables are connected.**

### 2.2 Connecting Cables and Getting Started

In order to get familiar with your system before mounting it at your vehicle (or final location), we suggest you look at the connections on both ends of the computer such as shown in Figs. 2.2 and 2.4, connect up the unit, and place it into operation.

Also, PowerBrick offers a hard disk changeable feature. It shows in Figs 2.3.



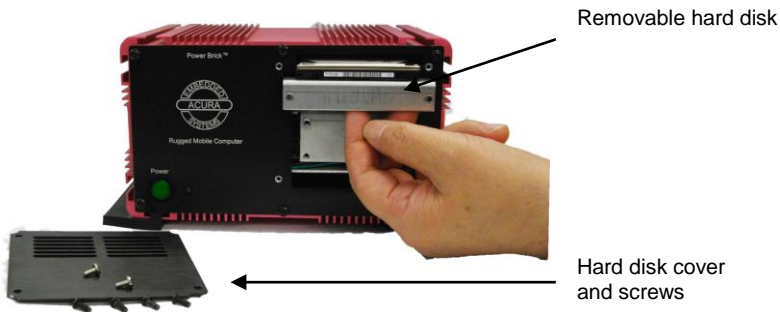
**Figure 2.2: Front side of PowerBrick**

Connect all applicable cables such as:

- Keyboard
- Mouse
- Monitor
- Power supply cable

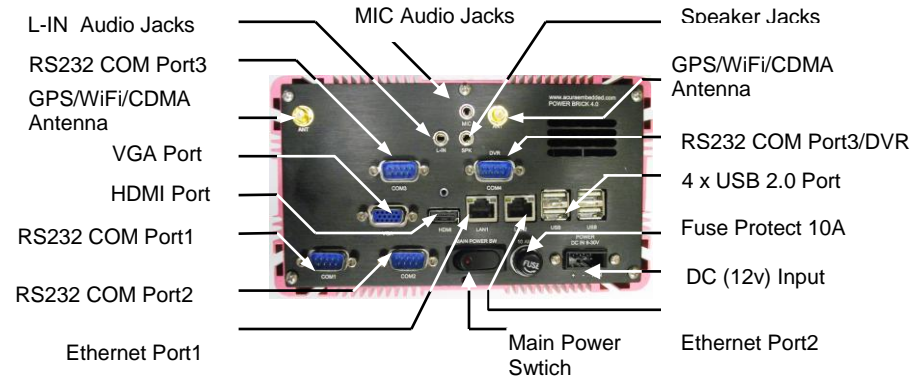
Optional device cables or units that you provide yourself could include the following:

- USB cable
- Speaker and microphone cables
- RJ45 Ethernet TP cable
- RS232 Serial port cable



**Figure 2.3: Changeable Hard Disk of PowerBrick**

Remove six screws (Four black color,two metal color) and open Hard Disk cover in the front side plate. Then pull out hard disk to change.



**Figure 2.4 : Back side of PowerBrick**

After connecting all applicable cables it is safe to power-on the system. (Warning: use only DC from the dedicated power supply)

**2.3 Mounting in your vehicle or final location**

This chapter provides you with the information of fixed system mounting. Prior to that, please prepare the installation tools and appropriate items. If you are not clear about the items, contact your dealer for information.

**2.4 Mounting tools**

For mounting your computer in a vehicle you need the following tools:

- Ranch
- Screw driver
- Drill
- Bolts and nuts appropriate to mount the plate in your vehicle

**2.5 Computer installation**

Mounting screws or bolts and nuts for mounting to your specific vehicle are not provided, as there are many variations of thickness that the unit might be mounted to. If mounting in a vehicle that is subject to vibration and shock, It is important to use the mounting plate with attached shock absorbers where vibration could occur. The mounting plate should be fastened tightly with bolts and nuts. Please ensure that if you mount any bolts/nuts under the computer, that they do not touch the computer itself. Otherwise, the shock absorbers will not protect the computer properly.



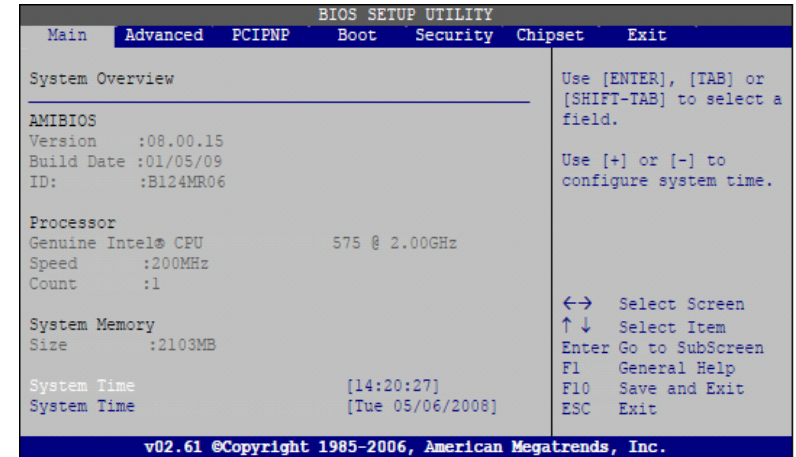
**Figure 2.5: Rubber-Mounting plate**

Connect all final wiring in a neat way, fastening it down with tie straps or other means to ensure that it does not get caught and broken accidentally. Your car electrician will know appropriate ways to do this.

### 3. Technical Information

#### 3.1 BIOS Setup

The single board computer uses the AMI BIOS (Basic Input/Output System) for the system configuration. The AMI BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems. The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting. The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen. To activate CMOS Setup program, press <DEL> key immediately after you turn on the system. The following message “Press DEL to enter SETUP” should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as in Table 3.2. You can use arrow keys to select your function, press <Enter> key to accept selection and enter the sub-menu.



**Table 3.1: AMI BIOS CMOS Setup Utility**

#### 3.2 Operating Systems

The PowerBrick will generally be provided with a preinstalled operating system such as Windows XP Professional, Embedded or Linux. To restore the operating system, follow the procedure outlined in 3.4. You can also use an external CD-ROM drive to change, reinstall or repair the operating system through a USB 2.0 port.

#### 3.3. Operating System Restore Process

1. Back up your existing drive C:\ files.
2. Restart the computer.
3. Hold down the F3 key to enter Windows Advanced Boot Menu options.
4. Select “Return to OS Choices” and press “Enter”.
5. Select “Quick Restore Option”, press “Enter” and follow the instructions.
6. After re-boot, Click on the “Touchware” Icon on desktop to Calibrate the touch screen by following the instructions.

### 3.4 Windows XP Embedded

If you want to reinstall Windows XP Embedded, boot the computer, place the CD-ROM labeled “Windows XP Embedded Recovery” into the external CD-ROM drive, presses RESET and follow the instructions on the screen. We recommend that this be done by experienced computer users only.

### 3.5 Linux Embedded

If you want to install Linux, boot the computer, place the CD-ROM labeled “Acura Embedded Linux” into the external CD-ROM drive, press RESET and follow the instructions on the screen. Note: this should only be done by an advanced user who has experience with Linux.

### 3.6 Application Software

You should be able to run all normal/generic application software such as Microsoft Word, Excel, PowerPoint, Adobe software etc. if you have Windows installed. See the relevant manual/help guides for the specific software. For Linux you will have to specifically select software designed for Linux. Acura is not responsible for failure of any software on your computer but if you have any particular software needs, please call Acura Technical Support or email [support@acuraembedded.com](mailto:support@acuraembedded.com).

### 3.7. Specifications for Power Brick

**Table 3.2: Input/Output**

15 Pin VGA	1
HDMI	1
RS232 Serial Port	4
USB 2.0	4
RJ45 Gigabit Ethernet Port	2
FUSE(10A)	1
Audio Jacks	1
GPS/WiFi/CDMA antenna	2
8 ~ 30V DC Power Jack	1

**Table 3.3: System Features**

Processor	Intel® Core™ 2 Duo P8600 processor (2.4GHz)
System FSB	1066 MHz
Memory	4GB DDR3 RAM ,upgradable to 8GB
Video	support VGA,HDTV, and HDMI interface
Audio	Audio Jacks
Hard Disk	Dual Standard 2.5” hard disk, 320GB, 2TB available
CD-ROM	None
LAN	Dual Realtek RTL8111CP PCIe GbE controllers
USB 2.0	Integrated 4 independent OHCI controller supporting USB 1.1 ports; Integrated 1 EHCI controller supporting USB 2.0 ports; Dynamic connection support to USB 2.0 or USB 1.1 devices
Hardware Monitor	System temperature, voltage and fan speed monitor. Auto Thermal fan speed control
Power Management	ACPI 1.0b compliance and OS direct power management, Wake-on event: RTC/USB Keyboard/Modem/LAN/Keyboard/Mouse
Dimensions	7.60”X 5” x4.13” (W x L x H)
Power	8 ~ 30V DC

### 3.8 Operation and maintenance

The green LED indicator when lit indicates proper operation and health.

The power supply must be protected by a 10A auto fuse on the input line from the vehicle battery.

**3.9 Warning**

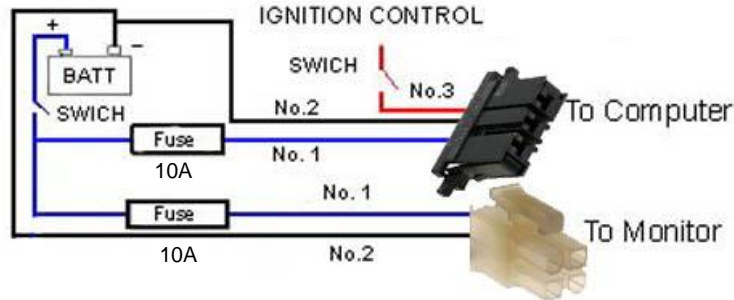
Before power up the computer, make sure all cables connected to the computer and the monitor.

**WARNING**

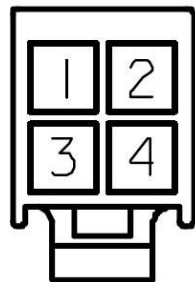
**First hookup all cables then turn on computer powerSwitch.**

**Make sure monitor power led on or blinking .**

**3.9A Power Brick Wiring Diagram**



**Computer connector**



**Monitor Power connector**

(Computer connector : pin1-brown, pin2-green/yellow, pin3-blue, for sure power make pin1 and pin3 together)

With the unique set of products, Acura Embedded Systems remains committed to its goal of providing trouble-free and customer-friendly service. A special customer service unit has been set up specifically to cater to our esteemed customers' needs.

Technical Support:

- Phone: 1-866-502-9666
- Email: [support@acuraembedded.com](mailto:support@acuraembedded.com)

Mail address:

**Acura Embedded Systems Inc.**

Unit #1, 7711-128th Street

Surrey, BC V3W 4E6

CANADA

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ACURA INSTALLATION INSTRUCTIONS

The following instruction is designed to assist the technician or customer in the basic steps of installing Acura products and makes the assumption that commonsense and previous experience will aid in the installation. Safety and caution must always take precedence in the installation of any electrical or mechanical system. The correct tools, parts, fasteners, safety equipment as well as any instructions, diagrams and schematics must be gathered, reviewed or made available prior to beginning the process of installation.

The installer is required to prepare in advance the work area and see that the electrical or mechanical needs of the project are in place before starting and that any other possible interference are addressed. A review of the Installation Check List is critical since this list needs to be checked off and a copy sent back to the supplier so it can be attached to the Customer file. All projects require the filling out of appropriate forms or else warranty may be limited.

The list and/or these Installation Instructions are not designed to be exhaustive or restrictive they are part of a process of total quality management and will help the installer to be in control of the project.

Please refer to caution and installation guides provided with each piece of equipment, component or accessory.

In order to receive the best performance out of a new Acura computer system all components should be installed in a way that allows for ease of operation by customer's trained personnel or trainer under regular operating conditions.

Please take a moment to check off the following boxes so the undersigned can verify that the installation is complete and operational. If something is not working as initially configured and tested please inform the installer immediately so that the problem can be fixed as promptly as possible. Follow up with a Corrective Action Report (CAR) where appropriate.

Below are some points or conditions to watch out for: (Please initial them off as you proceed)

- All parts, components and accessories are received and prepared for installation
- Areas to receive equipment are clear and free from obstruction
- The mounting system selected is appropriate for the apparatus.
- Before attaching brackets make sure there are no hidden fluid or wiring obstructions
- Use appropriate fasteners and backing as required.
- Ensure **Power Sources** are identified and adequate to operate system without over taxing available battery reserve. An Amp hour survey should be completed and additional battery capacity addressed. Power is direct from battery to a distribution fused block.

- Before attaching any wiring be sure that power leads are correctly fused and correctly identified (+ or -) as well as correct voltage and wire size (12 ga power supply minimum) **Caution:** Incorrect connection of wires will affect the electronics and will void warranty – (Burnt wiring and blown circuitry is evidence of improper installation)
- Fasteners will require lock washers, washers, isolation or proper grounding
- Computer is adequately hidden and out of the way yet readily accessible with good ventilation.
- Touch screen is mounted securely to the apparatus.
- Touch screen is in a location where desired user/s can comfortably operate the unit
- Unit is fully functional while the engine or radio of the apparatus is running and free of RF
- Connections, components or accessories are not impeding the duties of personnel
- Factory operating system (locked) and all factory applications are functional
- All service personnel and trainers understand the components and wiring for all applicable systems as well as In-line fuses are accessible and their locations are known
- Administrative controls for systems are in the hands of trained service personnel

**Note: Check twice install once.**

For Assistance call your sales and service representative first for guidance.

_____	_____	_____
Print Name	Signature of Chief or Representative	Date of signature
_____	_____	_____
Print Name	Signature of Authorized Installer	Date of signature

**Name:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Serial Number:** \_\_\_\_\_

**VIN Number:** \_\_\_\_\_

**Unit Number:** \_\_\_\_\_

**Date Installed:** \_\_\_\_\_

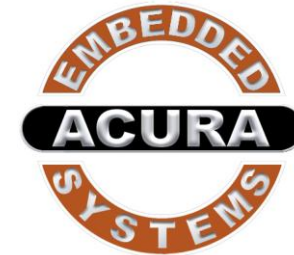
**Who Installed:** \_\_\_\_\_

**Contact Number:** \_\_\_\_\_

**Notes:**



**Toll Free 1-866-502-9666**  
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