

# **TREK-775/TREK-776**

**Vehicle Mounted Computer  
with 10.4"/12.1" TFT LCD**

**User Manual**

## Copyright

---

The documentation and the software included with this product are copyrighted 2007 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

## Acknowledgements

---

Award is a trademark of Award Software International, Inc.

IBM, PC/AT, PS/2 and VGA are trademarks of International Business Machines Corporation.

Intel and Pentium are trademarks of Intel Corporation.

Microsoft Windows® is a registered trademark of Microsoft Corp.

RTL is a trademark of Realtek Semi-Conductor Co., Ltd.

All other product names or trademarks are properties of their respective owners.

All other product names or trademarks are properties of their respective owners.

For more information on this and other Advantech products, please visit our websites at: <http://www.advantech.com>

<http://www.advantech.com.tw>

For technical support and service, please visit our support website at:

<http://service.advantech.com.tw/eservice>

This manual is for the TREK-775/TREK-776 series.

Part No. 2006001401

Edition 2

Printed in Taiwan

October 2007

## Warnings and Cautions

---

**Warning!** *Warnings indicate conditions, which if not observed, can cause personal injury!*



**Caution!** *Cautions are included to help you avoid damaging hardware or losing data.*



*e.g.:*

*There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*

# Declaration of Conformity

---

## CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

## FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

**Warning!** *Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.*



## Technical Support and Assistance

---

1. Visit the Advantech web site at **www.advantech.com** or **www.advantech.com.tw** where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
  - Product name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

### **Warning!**



1. *Input voltage rated: 9-58 Vdc*
2. *Packing: please carry the unit with both hands and handle with care*
3. *Maintenance: to properly maintain and clean the surfaces, use only approved products or clean with a dry applicator*
4. *CompactFlash: Turn off power before inserting or removing CompactFlash storage card.*

### **Contact information:**

Our European representative:  
Advantech Europe GmbH  
Kolberger Straße 7  
D-40599 Düsseldorf, Germany  
Tel: 49-211-97477350  
Fax: 49-211-97477300

## Document Feedback

---

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to: [support@advantech.com](mailto:support@advantech.com)

## Packing List

---

Before you begin installing your card, please make sure that the following materials have been shipped:

- TREK-775 or TREK-776 series Vehicle Mounted Computer
- Accessories for TREK-775 or TREK-776
  - Warranty card
  - Power cord: DC power inlet cable (180 cm)
  - "Drivers, Utilities and User Manual" CD-ROM
  - Packet of screws

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

## Safety Instructions

---

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well, or you cannot get it to work according to the user's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAM-**

AGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

## **Wichtige Sicherheitshinweise**

---

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlußsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. Anschluß an das Stromnetz die AnschluBwerte.
9. Verlegen Sie die NetzanschluBleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.



12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
  - Netzkabel oder Netzstecker sind beschädigt.
  - Flüssigkeit ist in das Gerät eingedrungen.
  - Das Gerät war Feuchtigkeit ausgesetzt.
  - Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
  - Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
  - Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
15. **VORSICHT:** Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlene-mähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.
16. **ACHTUNG:** Es besteht die Explosionsgefahr, falls die Batterie auf nicht fach-männische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weniger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.



# Contents

<b>Chapter 1</b>	<b>General Information .....</b>	<b>2</b>
<b>1.1</b>	<b>Introduction .....</b>	<b>2</b>
<b>1.2</b>	<b>General Specifications .....</b>	<b>2</b>
<b>1.3</b>	<b>LCD Specifications.....</b>	<b>6</b>
	Table 1.1 LCD Specifications.....	6
<b>1.4</b>	<b>Dimensions .....</b>	<b>7</b>
	Figure 1.1 TREK-775 .....	7
	Figure 1.2 TREK-776 .....	7
	Figure 2.1 Front View of the TREK-775.....	10
	Figure 2.2 Front View of the TREK-776.....	10
	Figure 2.3 Right Side of the TREK-775 .....	10
	Figure 2.4 Right Side of the TREK-776 .....	10
<b>Chapter 2</b>	<b>System Setup.....</b>	<b>10</b>
<b>2.1</b>	<b>A Quick Tour of the Vehicle Mounted Computer .....</b>	<b>10</b>
	Figure 2.5 Rear View of the TREK-775/TREK-776 11	
	Figure 2.6 Vehicle Mounted Computer I/O (DC model) 11	
	Figure 2.7 Brightness control keys on TREK-775 and TREK-776.....	12
<b>2.2</b>	<b>Installation Procedures .....</b>	<b>12</b>
	2.2.1 Connecting the Power Cord.....	12
	Table 2.1 Pin definition of the power cord.....	12
	2.2.2 Connecting the Keyboard or Mouse .....	13
	2.2.3 Switching On the Power .....	13
<b>2.3</b>	<b>Running the BIOS Setup Program .....</b>	<b>13</b>
<b>2.4</b>	<b>Installing System Software .....</b>	<b>14</b>
<b>2.5</b>	<b>Installing the Drivers .....</b>	<b>15</b>
<b>Chapter 3</b>	<b>Hardware and Peripheral Installation .....</b>	<b>18</b>
<b>3.1</b>	<b>Overview of Hardware Installation and Upgrading .....</b>	<b>18</b>
<b>3.2</b>	<b>Installing the Storage Device.....</b>	<b>18</b>
	3.2.1 Installing the 2.5" hard disk drive (HDD) .....	18
	Figure 3.1 Detaching the HDD bracket .....	19
	Figure 3.2 Placing the HDD inside the bracket .....	19

3.2.2	Installing the Compact Flash Card (CFC) .....	20
Figure 3.3	Installing the CFC adapter board.....	20
Figure 3.4	Inserting the CFC into the slot.....	20
<b>3.3</b>	<b>Placing the Rubber Seal.....</b>	<b>21</b>
Figure 3.5	Placing the rubber seal.....	21
<b>3.4</b>	<b>Installing the Optional Accessories.....</b>	<b>22</b>
3.4.1	Installing the “Universal Arm” .....	22
Figure 3.6	Universal Arm .....	22
3.4.2	Installing RAM-MOUNT “kits” .....	23
Figure 3.7	Installing RAM-MOUNT kits .....	23
3.4.3	Installing the MiniPCI WLAN module .....	24
Figure 3.8	Installing the MiniPCI WLAN module ..	24
3.4.4	Installing GPS and GSM/GPRS modules .....	25
Figure 3.9	Installing GPS and GSM/GPRS modules ..	25
Figure 3.10	Connector on module and adapter board	25
Figure 3.11	Complete GSM/GPRS - GPS Installation..	26
<b>Chapter 4</b>	<b>Jumper Settings and Connectors .....</b>	<b>28</b>
<b>4.1</b>	<b>Setting Jumpers .....</b>	<b>28</b>
4.1.1	Jumpers and switches.....	29
Table 4.1	Jumpers and their functions .....	29
4.1.2	Locating jumpers and switches.....	29
	Locating jumpers on the TREK-775/TREK-776 .....	29
4.1.3	Connectors on the motherboard.....	30
Table 4.2	Connectors .....	30
4.1.4	Locating connectors on the motherboard.....	31
Figure 4.2	Connector locations on TREK-775/TREK-776.....	31
4.1.5	Jumpers and switches on power board .....	32
Table 4.3	Connectors on Power board.....	32
4.1.6	Locating jumpers, connectors and LEDs on power board	33
Figure 4.3	Power board connectors TREK-775/ TREK-776.....	33
<b>4.2</b>	<b>CPU Installation .....</b>	<b>34</b>
<b>4.3</b>	<b>Jumper Settings on Mother-Board .....</b>	<b>34</b>
4.3.1	LCD panel power setting (JP1).....	34
Table 4.4	LCD panel power setting (JP1) .....	34
4.3.2	Panel Type Setting (JP5).....	34
Table 4.5	LCD panel type setting (JP5).....	34
4.3.3	CMOS clear for external RTC (JP2).....	35
Table 4.6	Clear CMOS / external RTC (JP2).....	35
<b>4.4</b>	<b>COM-port Interface .....</b>	<b>36</b>
Table 4.7	Serial port default settings .....	36

4.4.1	COM port Pin 9 power output setting (JP3) .....	37
Table 4.8	COM port Pin 9 power output setting (JP3) ..	37
4.4.2	COM port Pin 9 power output value setting (JP4).....	37
Table 4.9	COM port Pin 9 power output value setting (JP4) .....	37
<b>4.5</b>	<b>Jumper Setting on Power-Board .....</b>	<b>38</b>
4.5.1	Low battery monitor and shut down (CN2).....	38
Table 4.10	Low battery monitor (CN2).....	38
4.5.2	Power off delay setting connector (CN7) .....	38
Table 4.11	Power off delay setting connector (CN7)38	
4.5.3	Ignition input switch jumper (CN8).....	39
Table 4.12	Ignition input switch jumper (CN8) .....	39
<b>Chapter 5</b>	<b>Intel Chipset.....</b>	<b>42</b>
<b>5.1</b>	<b>Introduction .....</b>	<b>42</b>
5.1.1	Installation for Windows 98 .....	42
5.1.2	Installation for Windows 2000 / XP .....	43
<b>5.2</b>	<b>Further Information .....</b>	<b>43</b>
<b>Chapter 6</b>	<b>Graphic Chipset .....</b>	<b>46</b>
<b>6.1</b>	<b>Introduction .....</b>	<b>46</b>
6.1.1	Installation for Windows 2000 / XP .....	46
<b>6.2</b>	<b>Further Information .....</b>	<b>46</b>
<b>Chapter 7</b>	<b>Audio .....</b>	<b>48</b>
<b>7.1</b>	<b>Introduction .....</b>	<b>48</b>
<b>7.2</b>	<b>Installation of Audio Driver .....</b>	<b>48</b>
<b>Chapter 8</b>	<b>USB 2.0 .....</b>	<b>50</b>
<b>8.1</b>	<b>Introduction .....</b>	<b>50</b>
<b>8.2</b>	<b>Installation of USB Driver.....</b>	<b>50</b>
<b>Chapter 9</b>	<b>Touchscreen .....</b>	<b>52</b>
<b>9.1</b>	<b>Introduction .....</b>	<b>52</b>
9.1.1	General information.....	52
9.1.2	General specifications.....	52
<b>9.2</b>	<b>Installation of Touchscreen Driver.....</b>	<b>52</b>
9.2.1	Windows 98-Me-2000-2003 driver .....	53

9.2.2	Windows XP driver .....	53
<b>9.3</b>	<b>Further Information .....</b>	<b>54</b>
<b>Appendix A</b>	<b>Pin Assignments .....</b>	<b>56</b>
<b>A.1</b>	<b>Inverter power connector (CN2).....</b>	<b>56</b>
	Table A.1 Inverter power connector (CN2).....	56
<b>A.2</b>	<b>Internal speaker connector (CN21) .....</b>	<b>56</b>
	Table A.2 Internal speaker connector (CN21).....	56
<b>A.3</b>	<b>IDE hard disk drive connector (CN5) .....</b>	<b>57</b>
	Table A.3 IDE hard disk drive connector (CN5).....	57
<b>A.4</b>	<b>LVDS connector (CN1).....</b>	<b>58</b>
	Table A.4 LVDS connector (CN1).....	58
<b>A.5</b>	<b>COM 1, 2 .....</b>	<b>59</b>
	Table A.5 COM 1, 2 .....	59
<b>A.6</b>	<b>COM 3, 4 .....</b>	<b>60</b>
	Table A.6 COM 3, 4 .....	60
<b>A.7</b>	<b>COM 3, 4 internal connector (CN18, 16) .....</b>	<b>61</b>
	Table A.7 COM 3, 4 internal connector (CN18, 16)61	
<b>A.8</b>	<b>Internal USB port.....</b>	<b>61</b>
	Table A.8 Internal USB port.....	61
<b>A.9</b>	<b>Reserved Parallel port connector (CN11) .....</b>	<b>62</b>
	Table A.9 Parallel port connector (CN11).....	62
<b>A.10</b>	<b>Power Inlet.....</b>	<b>63</b>
	Table A.10 Power inlet.....	63
<b>Appendix B</b>	<b>Key Features Setting in BIOS .....</b>	<b>66</b>
<b>B.1</b>	<b>Panel Type Setting in BIOS.....</b>	<b>66</b>
	Figure B.1 Main Menu: Advanced Chipset Features	66
	Figure B.2 Panel Type .....	66
	Figure B.3 Panel Type Setting Options .....	67
<b>B.2</b>	<b>Power Fail Function Setting in BIOS .....</b>	<b>67</b>
	Figure B.4 Main Menu: Power Management Setup .	67
	Figure B.5 Power Fail Function.....	68
<b>Appendix C</b>	<b>Win XP Embedded Features Setting.....</b>	<b>70</b>
<b>C.1</b>	<b>Enhanced Write Filter (EWF) .....</b>	<b>70</b>
	C.1.1 Introduction.....	70
	C.1.2 Setting up the Advantech EWF Manager .....	70
	Figure C.1 Advance Enhanced Write Filter Manager..	70

<b>C.2</b>	<b>Page Files.....</b>	<b>71</b>
C.2.1	Introduction.....	71
C.2.2	Page Files Setting.....	72
Figure C.2	Control Panel: Performance and Maintenance .....	72
Figure C.3	See Basic Information .....	72
Figure C.4	System Properties .....	73
Figure C.5	Advanced Performance Options.....	73
Figure C.6	Virtual Memory: Page File Size .....	74





## **General Information**

This chapter gives background information on the TREK-775/TREK-776 Vehicle Mounted Computer.

Sections include:

- Introduction
- General Specifications
- LCD Specifications
- Dimensions

# Chapter 1 General Information

## 1.1 Introduction

---

TREK-775/TREK-776 is fanless and is supplied with either Intel ULV Celeron® M or LV Pentium® M CPU for higher reliability and performance. The ruggedized aluminum enclosure is built without ventilation holes and makes TREK-775/TREK-776 waterproof and dust proof.

A power source with wide input range suits vehicles such as forklifts and trucks, which typically operate with 12 V, 24 V, or 48 V DC power.

When equipped with an adapter, it can operate with AC power. TREK-775/TREK-776 provides 10/100Base-T Ethernet, and expansion options for wireless transmissions such as 802.11b/g, GPS, GSM and GPRS, etc.

Embedded OS support (WinCE.NET, WinXP Embedded), using OS images can greatly shorten system development and trouble-shooting.

## 1.2 General Specifications

---

### General

- **Dimensions (W x H x D):** 310 x 255 x 80 mm (TREK-775);  
310 x 255 x 90 mm (TREK-776)
  - **Weight:** 3.8 kg (TREK-775); 4.8 kg (TREK-776)
  - **Power supply:**
    - Minimum Input voltage:** 6 Vdc. (Supports cold crank Ignition)
    - Maximum Input voltage:** 58 Vdc.
    - Minimum Startup voltage:** 9 Vdc.
    - Low battery shut-down protection threshold (option):** 11 Vdc.  
(When the battery voltage level drops below 11V in the vehicle for more than 30 seconds, the system will start to shut down in order to prevent battery being drained and will automatically re-activate only when the voltage is greater than 11V.)
    - Power Off delay (option):**30 seconds. (When system power is controlled by ignition key, then whenever the key is turned off, the computer system will power-off completely after 30 seconds while the OS terminates.)
- \* For more detail of optional function please refer to *Chapter 4, Section 4.5* of this manual.
- **Disk drive housing:** Space for one 2.5" HDD or Compact Flash Card

- **Front panel and back cover:** IP65 Sealed; NEMA4 compliant (not including I/O)
- **Enclosure:** Ruggedized aluminum without ventilation holes

### Standard PC functions

- **CPU:** Intel ULV Celeron M 600MHz with 512 KB L2 cache / LV Pentium M 1.1GHz with 1MB L2 cache
- **BIOS:** Award 4 MB Flash BIOS, ACPI 2.0 Compliant
- **System chipset:** Intel 855GME and ICH4-M
- **Front side bus:** 400 MHz
- **System memory:** Two 184-pin DIMM sockets, accepting up to 2 GB DDR 333 SDRAM
- **IDE interface:** Supports one connector. One channel supports two IDE devices. Each IDE supports PIO modes 0 ~ 4, DMA mode 0 ~ 2, and Ultra DMA 33/66/ 100 simultaneously
- **Keyboard/mouse connector:** Supports 1 standard PS/2 Keyboard and a PS/2 Mouse
- **Serial ports:** Four serial ports with two RS-232/422/485 ports (COM 1, COM 2; adjust by BIOS), and two RS-232 port (COM3, COM 4). All ports are compatible with 16C550. UARTs and +5V/+12V power supply are selectable
- **Universal serial bus (USB) port:** Supports up to two EHCI USB2.0
- **Mini PCI bus expansion slot:** Accepts one type III A/B mini PCI bus card
- **Solid state disk (Optional):** Supports one 50-pin socket for Compact-Flash type I/II (True IDE mode)
- **Watchdog timer:** 256-level interval from 1 to 255 seconds. Jumperless selection and software can be enabled/disabled.
- **Battery:** 3.0 V @ 195 mA lithium battery
- **Power management:** Supports power saving modes including Normal/Standby/Suspend modes. APM 1.2 compliant

### **VGA/Flat panel interface**

- **Chipset:** Integrated in the Intel 855GME
- **Frame buffer:** Supports variable 8 / 16 / 32 / 64MB frame buffer using system memory
- **Display type:** Supports flat panel displays (EL, LCD and gas plasma)

### **Audio function**

- **Chipset:** Integrated in in ICH4-M South Bridge
- **Audio controller:** ALC650 AC97 Ver. 2.0 compliant interface, Multi stream Direct sound and Direct Sound 3D acceleration
- **Stereo sound:** 18-bit full-duplex codec
- **Audio interface:** None, reserve connectors for Line-out / Line-in / Mic-in

### **PCI bus Ethernet interface**

- **Chipset:** Realtek RTL8100CL PCI local bus Ethernet controller
- **Ethernet interface:** Full compliance with IEEE 802.3u 100Base-T and 10 Base-T specifications. Includes software drivers and boot ROM that supports both RPL and PXE
- **100/10Base-T auto-sensing capability**

### **PCMCIA interface**

- **Chipset:** R5C486
- **Cardbus Controller:** A PC card controller offers a single chip solution as a bridge between the PCI bus and the Cardbus
- **PCI bus interface:** Complies with PCI Local Bus Specification 2.1, and supports 32-bit Cardbus (Card-32) and 16-bit PC cards (Card-16) without external buffers
- **Hot insertion and removal**
- **Limitation:** Under WinCE, only one PCMCIA slot functions (slot B)

## Touchscreen

- **Type:** Analog resistive
- **Light Transmission:** 80%
- **Controller:** USB interface
- **Power Consumption:** <5.5 V@ 20 mA
- **Durability:** > 10 million depressions
- **Software Driver:** Supports Windows 98/2000/XP , WinCE and WinXP Embedded

## Environment

- **Operating Temperature:**
  - TREK-775: 0 ~ 40° C (32 ~ 104° F) for HDD;  
-20 ~ 60° C (-4 ~ 140° F) for CFC \*
  - TREK-776: 0 ~ 40° C (32 ~ 104° F) for HDD;  
-30 ~ 60° C (-22~ 140° F) for CFC \*
- \* It is also suitable for industrial grade, wide-temperature range HDDs
- **Relative Humidity:** 10 ~ 95% @ 40° C (non-condensing)
- **Shock:** 30 G peak acceleration (11 msec duration)
- **Certifications:**
  - EMC:** CE, FCC, CCC
  - Safety:** UL, CUL, CE; CCC, CB
- **Vibration:** 5 ~ 500 Hz 1 G RMS Random vibration (operating with HDD); 5 ~ 500 Hz 3G RMS random vibration (operating with CF card)

## 1.3 LCD Specifications

---

**Table 1.1: LCD Specifications**

Model	TREK-775	TREK-776
Display type	10.4" TFT LCD	12.1" TFT LCD
Max. resolution	800 x 600	1024 x 768
Colors	256 K	262 K
Dot size (mm)	0.264 x 0.264	0.264 x 0.264
Luminance	400 cd/m <sup>2</sup>	450 cd/m <sup>2</sup>
Viewing Angle (H/V)	140 / 110	160 / 160
LCD MTBF	50,000 hours	50,000 hours
Backlight lifetime	50,000 hours	50,000 hours

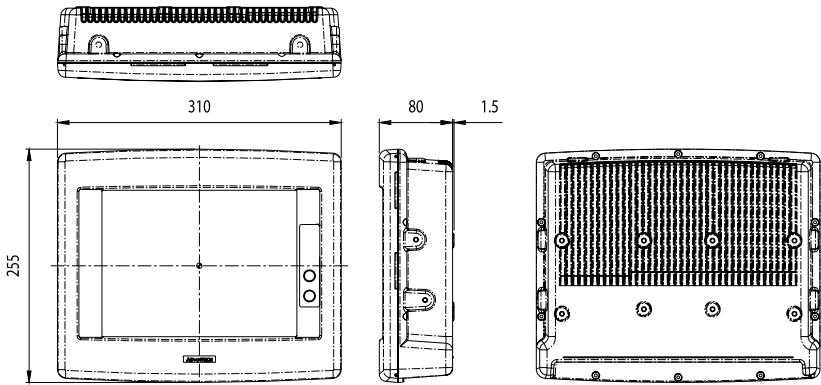
*Note: Brightness is controlled by the Function key on the front panel.*

*Note: The color LCD display installed in the Vehicle Mounted Computer is high-quality and reliable. However, it may contain a few defective pixels which do not always illuminate. With current technology, it is impossible to completely eliminate defective pixels. Advantech is actively working to improve this technology.*

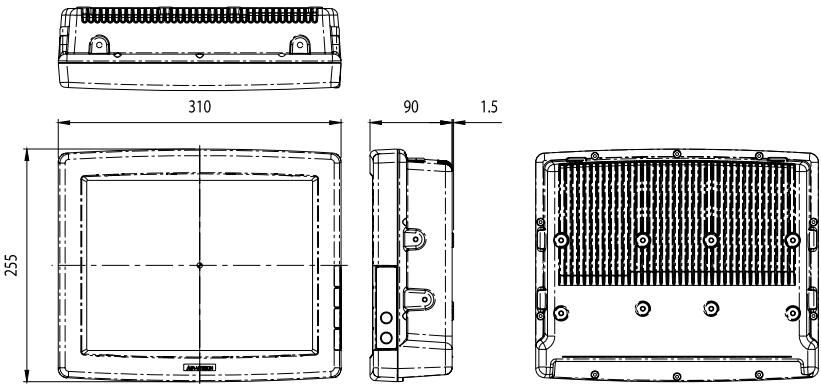
## 1.4 Dimensions

---

All dimensions are in millimeters.



*Figure 1.1: TREK-775*



*Figure 1.2: TREK-776*





## System Setup

This chapter details system setup on the TREK-775/TREK-776 Vehicle Mounted Computer.

Sections include:

- A Quick Tour of the Vehicle Mounted Computer
- Installation procedures
- Running the BIOS Setup Program

# Chapter 2 System Setup

## 2.1 A Quick Tour of the Vehicle Mounted Computer

Before starting to set up the Vehicle Mounted Computer, take a moment to become familiar with the locations and purposes of the controls, drives, connectors and ports, which are illustrated in the figures below.

When you place the Vehicle Mounted Computer upright on the desktop, its front panel appears as shown in *Figure 2.1* and *Figure 2.2*.

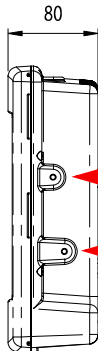


**Figure 2.1: Front View of the TREK-775**

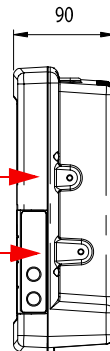


**Figure 2.2: Front View of the TREK-776**

Mounting holes are located on the right side of the Vehicle Mounted Computer, as shown in *Figure 2.3* and *Figure 2.4* below.

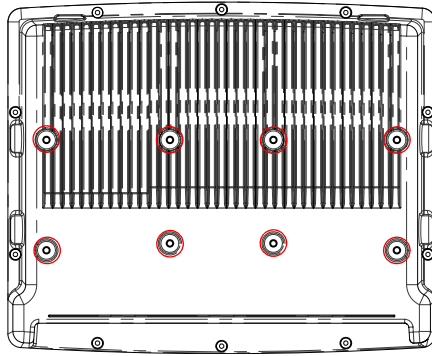


**Figure 2.3: Right Side of the TREK-775**



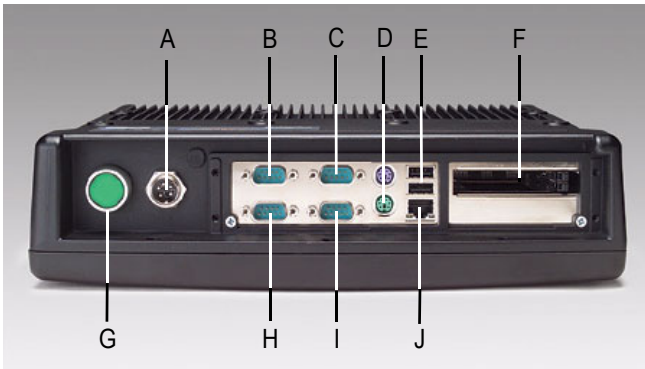
**Figure 2.4: Right Side of the TREK-776**

Turn the Vehicle Mounted Computer around to look at its rear cover. There are VESA standard holes and others for mounting. There are no ventilation holes; see *Figure 2.5*.



**Figure 2.5: Rear View of the TREK-775/TREK-776**

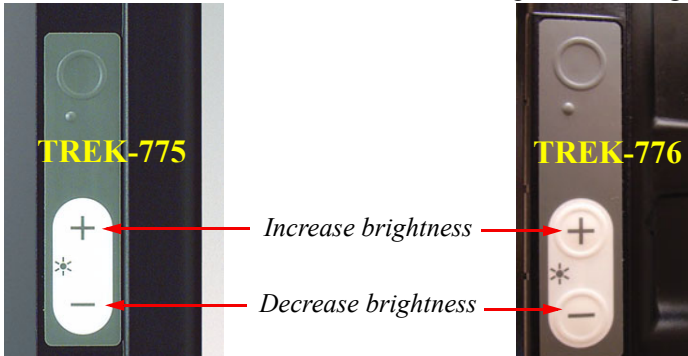
The I/O section is located on the bottom of the Vehicle Mounted Computer, as shown in *Figure 2.6*.



- |                                 |                                      |
|---------------------------------|--------------------------------------|
| A: DC Power Inlet               | F: PCMCIA Type II x 2 / Type III x 1 |
| B: COM4 (RS-232/422/485)        | G: Power Switch                      |
| C: COM2 (RS-232)                | H: COM3 (RS-232/422/485)             |
| D: PS/2 Keyboard and Mouse Port | I: COM1 (RS-232)                     |
| E: 2 x USB 2.0                  | J: 10/100 Base-T Ethernet            |

**Figure 2.6: Vehicle Mounted Computer I/O (DC model)**

The Vehicle Mounted Computer provides brightness keys on the front panel of TREK-775, or on the left side of TREK-776, beside the front bezel. Press "+" or "-" to increase or decrease brightness; see *Figure 2.7*.



**Figure 2.7: Brightness control keys on TREK-775 and TREK-776**

## 2.2 Installation Procedures

### 2.2.1 Connecting the Power Cord

Connect the 5-pin power cord into the DC inlet of the Vehicle Mounted Computer.

On the other end of the cable, 6 pins are available to make connections to positive and negative power voltages, as well as the ground and ignition signals. The pin definition is illustrated in *Table 2.1*.

**Table 2.1: Pin definition of the power cord**

Pin	Definition	Color
1	+	Red
2	-	Brown
3	-	Gray
4	+	Pink
5	Ignition	Orange
6	GND	Black

*Note: The power supply of TREK-775/776 supports the ignition-on/off function, which can be activated by connecting the ignition signal pin to the engine ignition circuit. (See Chapter 4, Section 4.5.3 for more information.)*

## **2.2.2 Connecting the Keyboard or Mouse**

Before starting the computer, connect the necessary mouse or keyboard to the PS/2 mouse, keyboard port or serial ports.

## **2.2.3 Switching On the Power**

The power switch is located on the bottom of the computer.

## **2.3 Running the BIOS Setup Program**

---

The Vehicle Mounted Computer is likely to have been properly set up and configured by your dealer prior to delivery. You may still find it necessary to use the computer's BIOS (Basic Input-Output System) setup program to change system configuration information, such as the current date and time, or the type of hard drive. The setup program is stored in read-only memory (ROM). It can be accessed either when turning on, or when resetting the computer, by pressing the "Del" key on the keyboard immediately after powering on.

The settings specified with the setup program are recorded in a special area of the memory called CMOS RAM. This memory is backed up by a battery, and it will not be erased when turning off or resetting the system. Whenever the power is turned on, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the power on self-test (POST). If an error occurs, an error message will be displayed on the screen, and a prompt to run the setup program appears.

## 2.4 Installing System Software

---

Recent releases of operating systems from major vendors include setup programs which load automatically and guide the user through hard disk preparations and installation of the operating system. The guidelines below will help determine the steps necessary to install the operating system on the computer hard drive.

*Note: Some distributors and system integrators may have already pre-installed system software prior to shipment of the Vehicle Mounted Computer.*

If required, insert the operating system's installation or setup diskette into the diskette drive until the release button pops out.

The BIOS of the computer supports system boot-ups directly from the CD-ROM drive. It is also possible to insert the system installation CD-ROM into the CD-ROM drive.

Power on your computer, or reset the system by pressing the "Ctrl"+"Alt"+"Del" keys simultaneously. The computer will automatically load the operating system from the diskette or CD-ROM.

If presented with the opening screen of a setup or installation program, follow the instructions on screen. The setup program will guide the user through preparation of the hard drive and installation of the operating system.

If presented with an operating system command prompt, such as A:\>, then it is necessary to partition and format the hard drive, and manually copy the operating system files to it. Refer to the operating system user's manual for instructions on partitioning and formatting a hard drive.

## 2.5 Installing the Drivers

---

After installing system software, it is possible to set up multimedia programs found in the utility directory on the CD-ROM. Some drivers and utilities in the CD-ROM disc have their own text files which help users install the drivers and understand their functions.

These files are a very useful supplement to the information in this manual. For more details about driver installation, refer to Chapter 4 to 9 of this manual.

*Note: The drivers and utilities used for the TREK-775/ TREK-776 are subject to change without notice. If in doubt, check Advantech's website or contact our application engineers for the latest information regarding drivers and utilities.*





## Hardware and Peripheral Installation

This chapter details the installation of the TREK-775/TREK-776 hardware.

Sections include:

- Overview of Hardware Installation and Upgrading
- Installing the Storage Device
- Placing the Rubber Seal
- Installing the Optional Accessories

# Chapter 3 Hardware and Peripheral Installation

## 3.1 Overview of Hardware Installation and Upgrading

---

The Vehicle Mounted Computer consists of a PC-based computer that is housed in a ruggedized aluminum enclosure. Any maintenance or hardware upgrades can be completed after removing both panels.

**Warning!** *Do not remove the ruggedized aluminum covers until verifying that no power is flowing within the computer. Power must be switched off and the power cord must be unplugged. Every time the Vehicle Mounted Computer is serviced, take care to be aware of these facts.*



## 3.2 Installing the Storage Device

---

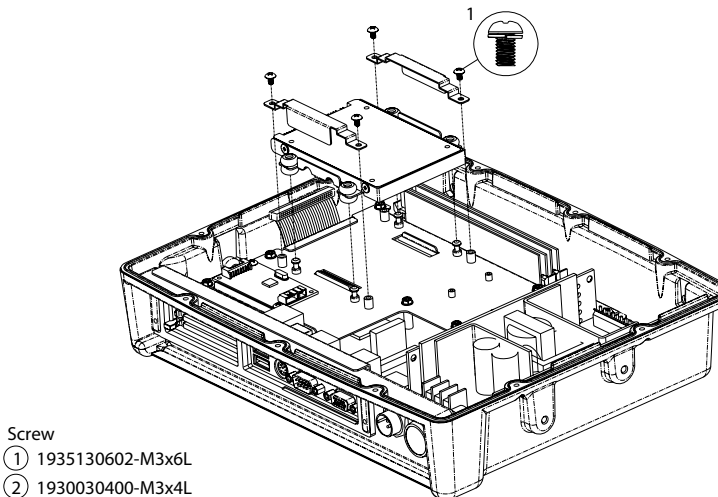
The Vehicle Mounted Computer can apply either a 2.5" Hard Disk Drive (HDD), or a Compact Flash Card (CFC) as storage devices, depending on system requirements. Below, installation instructions for both kinds of devices are shown.

### 3.2.1 Installing the 2.5" hard disk drive (HDD)

It is possible to attach one enhanced Integrated Device Electronics (IDE) hard disk drive to the computer's internal controller, which uses a PCI local-bus interface. The advanced IDE controller supports faster data transfers and allows the IDE hard drive to exceed 528 MB.

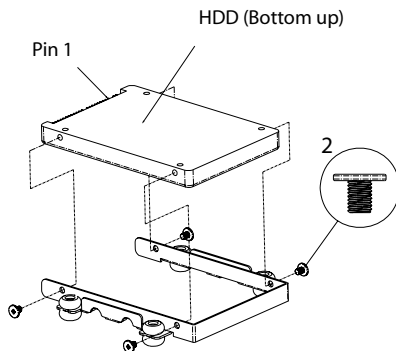
Follow the instructions below for installation:

1. Detach the HDD bracket by unscrewing the four screws (#1) on the top of the HDD bracket.



**Figure 3.1: Detaching the HDD bracket**

2. Place the HDD inside the HDD bracket and tighten the four screws (#2) from both sides of the HDD bracket.

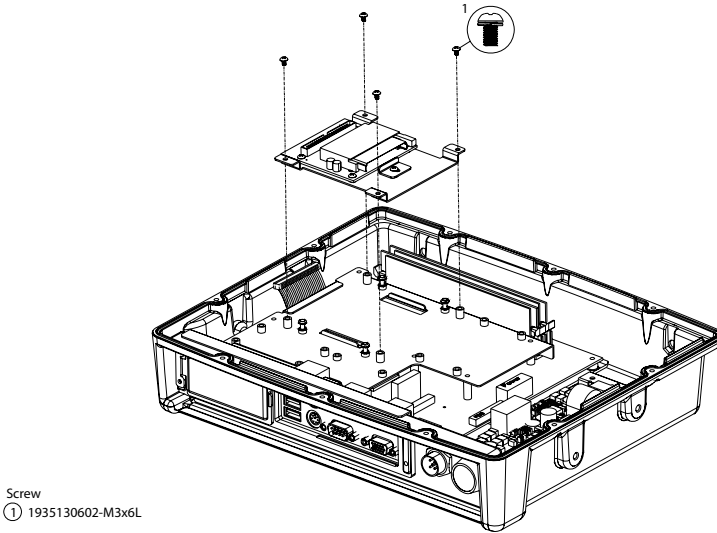


**Figure 3.2: Placing the HDD inside the bracket**

3. The HDD cable (1 x 44-pin to 1 x 44-pin) is located next to the HDD bracket. Connect the HDD cable to the HDD. Make sure that the red wire corresponds to Pin 1 on the connector, which is labelled on the board. Plug the other end of the cable into the HDD, with Pin 1 on the cable corresponding to Pin 1 on the HDD.

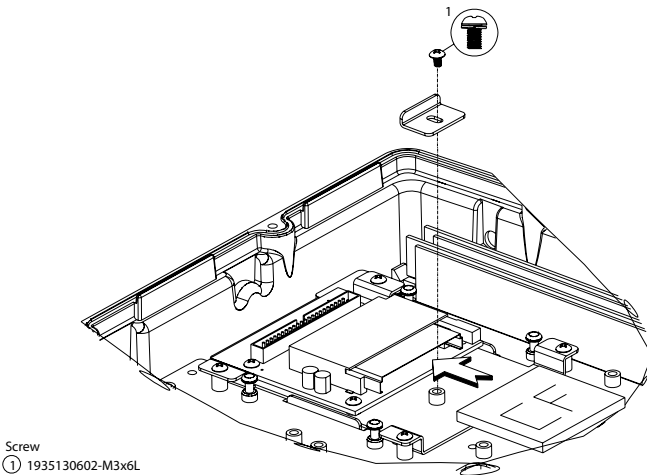
### 3.2.2 Installing the Compact Flash Card (CFC)

1. Install the CFC adapter board by screwing the four screws (#1) on the top of the main frame.



*Figure 3.3: Installing the CFC adapter board*

2. Insert CFC into the slot on the adapter board and fix the CFC blocker by tightening the screw (#1) on the adapter board.



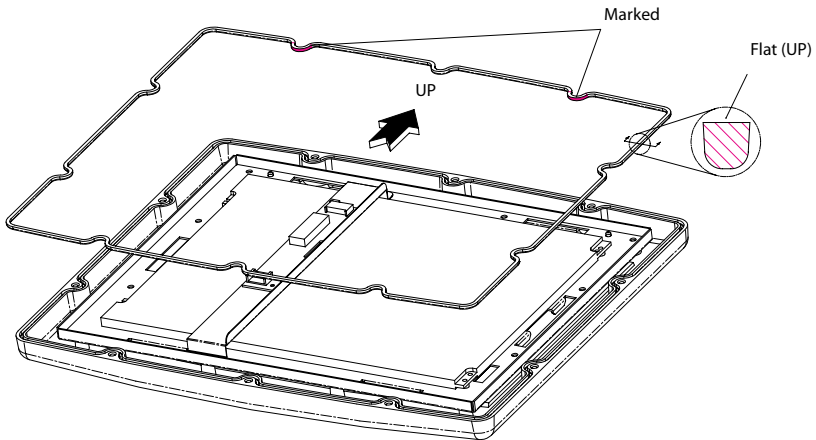
*Figure 3.4: Inserting the CFC into the slot*

3. The IDE cable (1 x 44-pin to 1 x 44-pin) is located next to the CFC adapter board. Connect the IDE cable to the CFC. Make sure that the red wire corresponds to Pin 1 on the connector, which is labeled on the board. Plug the other end of the cable into the CFC, with Pin 1 on the cable corresponding to Pin 1 on the CFC.

### 3.3 Placing the Rubber Seal

---

To ensure that the TREK-775/TREK-776 stays dry, the supplied rubber seal must be placed correctly between the front bezel and the back cover. Please note the direction of the seal: the flat, marked side should face up.



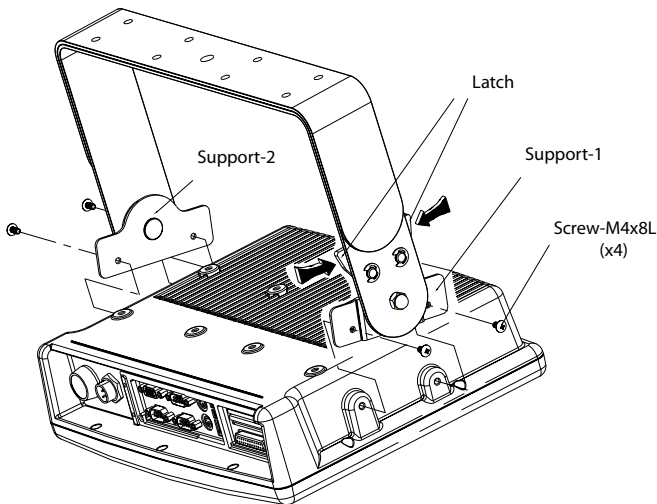
*Figure 3.5: Placing the rubber seal*

## 3.4 Installing the Optional Accessories

Optional accessories are available for purchase for the TREK-775/776. They include mounting kits and functional modules. The following instructions detail accessories installation.

### 3.4.1 Installing the “Universal Arm”

1. Press the latches at the same time and then rotate Support-1 until both screw holes are visible.
2. Rotate Support-2 until the angle is the same as Support-1.
3. Use four M4 x 8L screws and attach the U-Arm with the TREK-775/TREK-776. The 4 stainless screws are supplied with the universal arm, inside the box.
4. Use the latches to adjust the angle of TREK-775/TREK-776 through 360° in 14.4° steps.



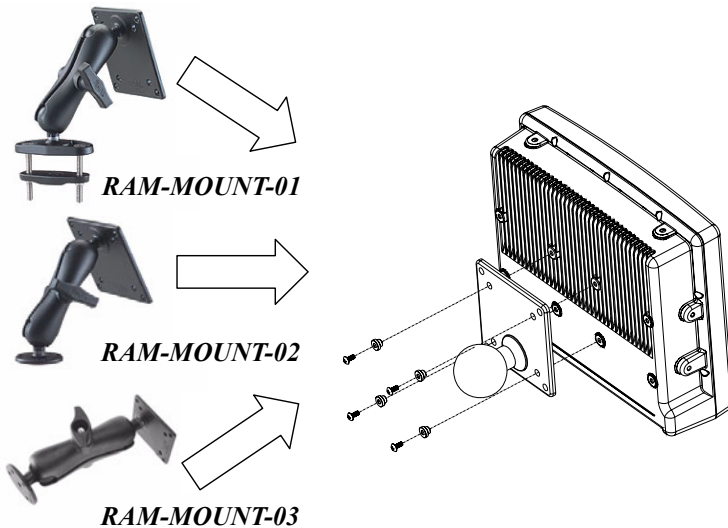
**Figure 3.6: Universal Arm**

**Note:** Supports 1 and 2 are interchangeable on both the right or left.

### 3.4.2 Installing RAM-MOUNT “kits”

Three different types of RAM-MOUNT kits are available to fit various applications; RAM-MOUNT-01 and RAM-MOUNT-02 support units weighing up to 4.5kg (approximate 10 lbs). RAM-MOUNT-03 mount supports units weighing up to 6.75kg (approximate 15 lbs). However, each kit uses the same mounting bracket plate for both the TREK-775 and the TREK-776.

Four M4 x 15L screws are required to affix the RAM-MOUNT bracket plate to the rear cover of TREK-775/TREK-776 through the centrally located VESA holes. It is also possible to install other parts of the RAM-mount kits, as pictured further below.

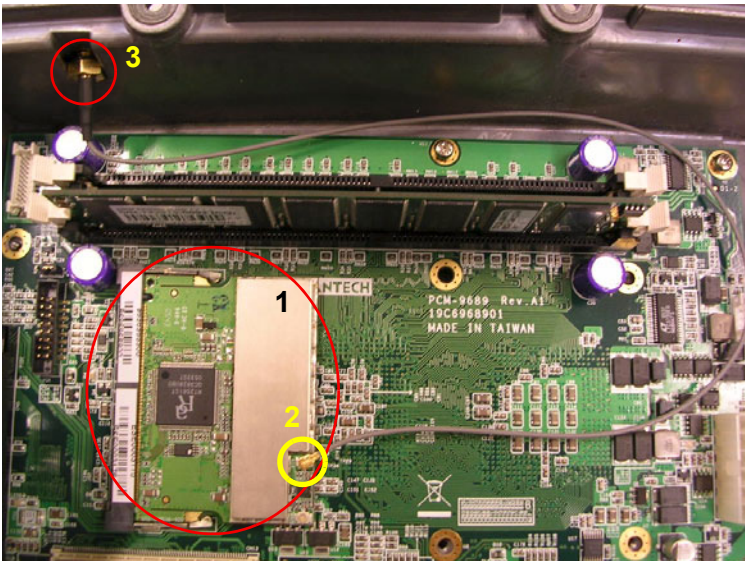


*Figure 3.7: Installing RAM-MOUNT kits*

### 3.4.3 Installing the MiniPCI WLAN module

1. Insert the WLAN module into the MiniPCI slot on the motherboard, (*circle 1*).
2. Attach the antenna cable to the main connector located on the WLAN module, (*circle 2*). If adopting the dual antenna, attach the other antenna cable to the AUX connector located on the WLAN module.
3. Attach the cable from the WLAN module to the internal antenna receptacle, located on the top left side of the rear cover, (*circle 3*).
4. Screw the antenna into the external receptacle, located on top of the outside rear cover.

**Note:** *The default setting for MiniPCI LAN uses the antenna receptacle on the left-hand side; if, for some reason, it is being used by another connection, an extra cable of a different length is available on request for connection to the extra receptacle on the right-hand side of the cover.*



**Figure 3.8: Installing the MiniPCI WLAN module**

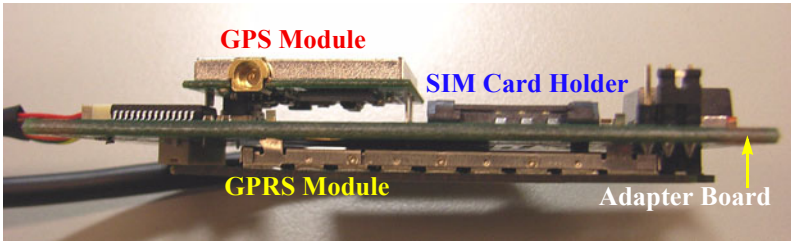


### 3.4.4 Installing GPS and GSM/GPRS modules

One module adapter board is designed to mount both the GPS and GSM/GPRS modules, as pictured below. Follow the instructions:

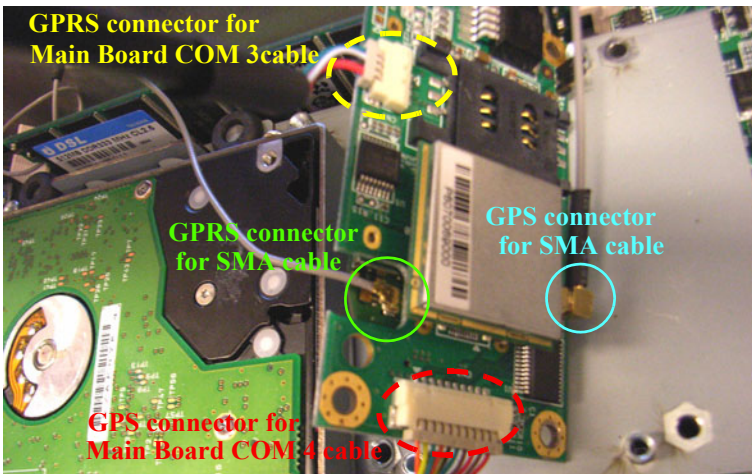
#### A. Installing the GPS module:

1. Check that the GPS module is mounted onto the upper side of adapter board.



*Figure 3.9: Installing GPS and GSM/GPRS modules*

2. Attach and tighten the antenna wire between the GPS module connector and the antenna hole on rear cover. Then, connect the serial cable on the adapter board to the COM3 port on the motherboard. See *Figure 3.10 and 3.11* below.
3. Screw the antenna into the external antenna receptacle on the rear cover.

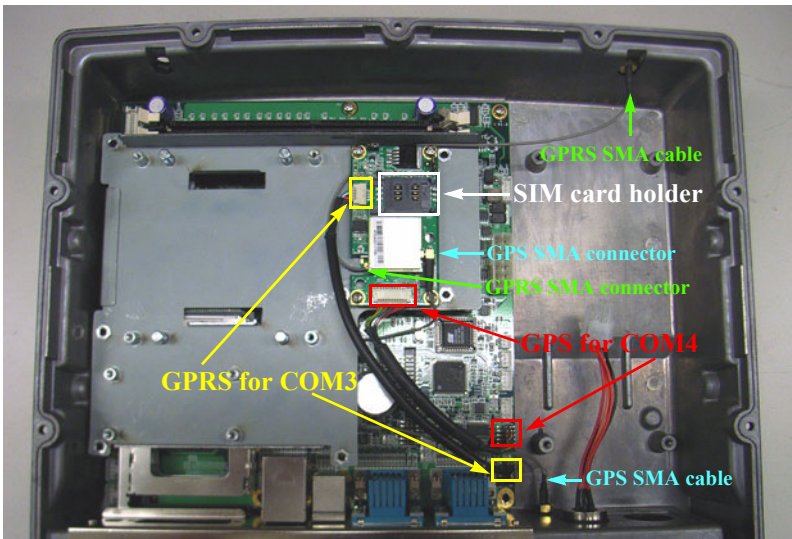


*Figure 3.10: Connector on module and adapter board*

## B. Installing the GSM/GPRS module:

1. Check that the GSM/GPRS module is mounted onto the back side of the adapter board.
2. Place the SIM card into the SIM card holder.
3. Tighten the wire between the GSM/GPRS module connector and the antenna hole on the rear cover. Connect the cable on the adapter board with the COM4 port on motherboard. (See *Figure 3.10* above for close location of the connectors.)
4. Screw the antenna into the antenna receptacle on the outside of the rear cover.

After installation is complete, the finished system resembles *Figure 3.11*:



**Figure 3.11: Complete GSM/GPRS - GPS Installation**

## Jumper Settings and Connectors

This chapter tells how to set up the Vehicle Mounted Computer hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators

Be sure to read all the safety precautions before beginning installation procedures

Sections include:

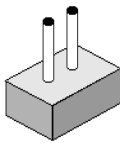
- Setting Jumpers
- CPU Installation
- Jumper setting on Mother-Board
- COM-port Interface
- Jumper setting on Power-Board

# Chapter 4 Jumper Settings and Connectors

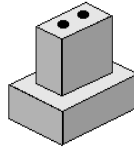
## 4.1 Setting Jumpers

---

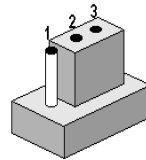
The Vehicle Mounted Computer can be configured to match the needs of each application by setting the jumpers. A jumper is the simplest kind of electrical switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover), which slides over the pins to close the circuit and connect them. To “close” a jumper, connect the pins with the clip. To “open” a jumper, remove the clip. Sometimes a jumper has three pins, labeled 1, 2, and 3. In this case, it is possible to connect either pins 1 and 2 or pins 2 and 3 to each other.



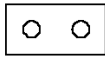
Open



Closed



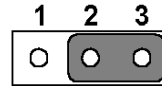
Closed 2 - 3



Open



Closed



Closed 2 - 3

A pair of needle-nose pliers may be helpful when working with jumpers. If there are any doubts about the best hardware configuration for a particular application, contact the local distributor or sales representative before making any changes.

An arrow is printed on the motherboard to indicate the first pin of each jumper.

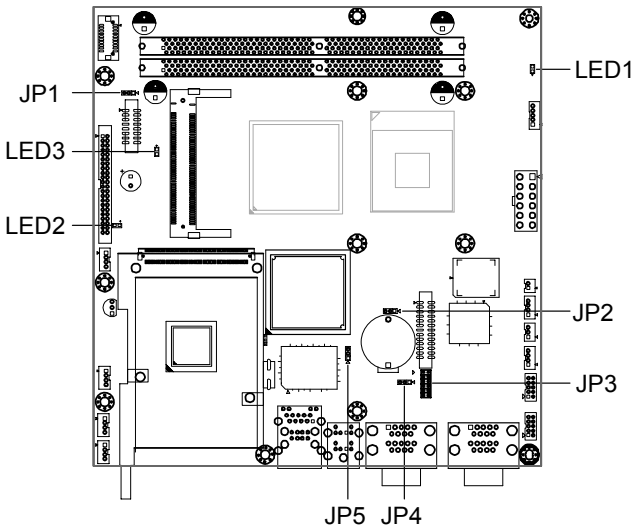
### 4.1.1 Jumpers and switches

The motherboard of the Vehicle Mounted Computer has a number of jumpers that help configure the system. It also has LED indicator lamps that display the system operation status. The table below lists the function of each jumper and LED.

**Table 4.1: Jumpers and their functions**

Label	Function
JP1	LCD power connector
JP2	CMOS clear for external RTC
JP3	COM1/COM2/COM3/COM4 Pin 9 Ring & power output type setting
JP4	COM1/COM2/COM3/COM4 Pin 9 power output value setting
JP5	Panel type setting
LED 1	Power indicator
LED 2	HDD operation indicator
LED 3	Wireless Radio operation indicator

### 4.1.2 Locating jumpers and switches



**Figure 4.1: Locating jumpers on the TREK-775/TREK-776**

### 4.1.3 Connectors on the motherboard

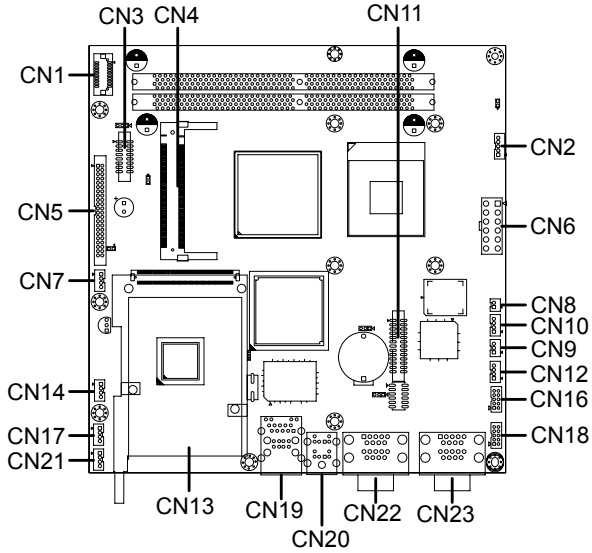
On-board connectors link the Vehicle Mounted Computer to external devices such as hard disk drives. The table below lists the function of each connector.

**Table 4.2: Connectors**

<b>Label</b>	<b>Function</b>
CN1	LVDS connector
CN2	Inverter power connector
CN3	VGA Socket (RD debug use only)
CN4	Mini PCI socket
CN5	2.5" IDE connector
CN6	Power input connector
CN7	USB4
CN8	RESET
CN9	Power Button
CN10	USB3
CN11	Parallel port connector (Reserved)
CN12	Brightness Control connector
CN13	PCMCIA connector
CN14	Line out connector (Reserved)
CN16	Internal COM4 connector
CN17	Line/Mic in connector (Reserved)
CN18	Internal COM3 connector
CN19	LAN+USB1+USB2
CN20	PS2 connector
CN21	Internal speaker connector (Reserved)
CN22	External COM1/COM2 Connector
CN23	External COM3/COM4 Connector *

\* When internal COM3, COM4 connectors (CN16, CN18) are occupied, CN23 becomes invalid.

### 4.1.4 Locating connectors on the motherboard



*Figure 4.2: Connector locations on TREK-775/TREK-776*

## 4.1.5 Jumpers and switches on power board

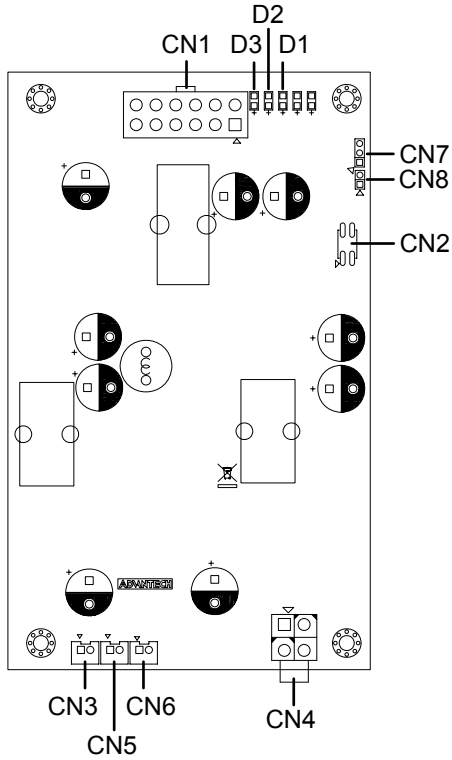
The power board of the Vehicle Mounted Computer has a number of jumpers that help configure the system. It also has LED indicator lamps that display the system operation status. The table below lists the function of each connector and LED.

**Table 4.3: Connectors on Power board**

<b>Connector</b>	<b>Function</b>
CN1	Power Output connector
CN2	LOW BATTERY MONITOR
CN3	Remote on/off switch (Reserved)
CN4	Power input connector
CN5	Positive VBIAS connector (Reserved)
CN6	Ignition input connector
CN7	Power off delay setting connector
CN8	Ignition input switch connector
D1	Power indicator (12V)
D2	Power indicator (5V)
D3	Power indicator (3.3V)



### 4.1.6 Locating jumpers, connectors and LEDs on power board



*Figure 4.3: Power board connectors TREK-775/TREK-776*

## 4.2 CPU Installation

---

The CPU is embedded on the motherboard, so there are no settings for frequency ratio or voltage.

## 4.3 Jumper Settings on Mother-Board

---

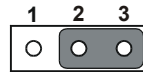
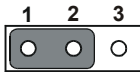
### 4.3.1 LCD panel power setting (JP1)

The Vehicle Mounted Computer's AGP interface supports 5 V and 3.3 V LCD displays. The default setting is 3.3 V (closed pins 1 and 2), but JP1 can be used to change this to 5 V by closing pins 2 and 3.

**Table 4.4: LCD panel power setting (JP1)**

Default (3.3V)

Option (5V)



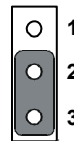
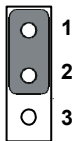
### 4.3.2 Panel Type Setting (JP5)

When the “panel type” value is set to “HW default” in BIOS, the JP5 can be used to set the panel type to support either 800 x 600 or 1024 x 768 LCD resolution. The default jumper setting for 800 x 600 in the TREK-775 closes pins 1 and 2; and the default jumper setting for 1024 x 768 in the TREK-776 closes pins 2 and 3.

**Table 4.5: LCD panel type setting (JP5)**

TREK-775 Default (800 x 600)

TREK-776 Default (1024 x 768)



Please reference *Appendix B* for more detail.

### 4.3.3 CMOS clear for external RTC (JP2)

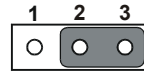
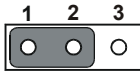
**Warning!** To avoid damaging the computer, always turn off the power supply before closing pins 2 and 3 to “Clear CMOS”. Reset the jumper to “Normal operation” before turning on the power supply.



**Table 4.6: Clear CMOS / external RTC (JP2)**

Normal operation (default)

Clear CMOS



## 4.4 COM-port Interface

The computer provides four serial ports: COM1, COM 2: RS-232/422/485 (selectable via BIOS setting) and COM3, COM 4: RS-232.

The IRQ and the address ranges for COM1, COM2, COM3 and COM4 are fixed.

However, if it becomes necessary to disable the port or change these parameters later, it is possible to do so through the system BIOS setup. The table overleaf shows the default settings for the computer's serial ports.

COM1 and COM2 are linked as one set. It is possible to exchange the address range and interrupt IRQ of COM1 for the address range and interrupt IRQ of COM2. After exchanging:

COM1's address range is 2F8 ~ 2FF and its IRQ is IRQ3.

COM2's address range is 3F8 ~ 3FF and its IRQ is IRQ4.

COM3 and COM4 are linked as another set. It is possible to exchange the address range and interrupt IRQ of COM3 for the address range and interrupt IRQ of COM4. After exchanging:

COM3's address range is 3E8 ~ 3EF and its IRQ is IRQ10.

COM4's address range is 2E8 ~ 2EF and its IRQ is IRQ5.

**Table 4.7: Serial port default settings**

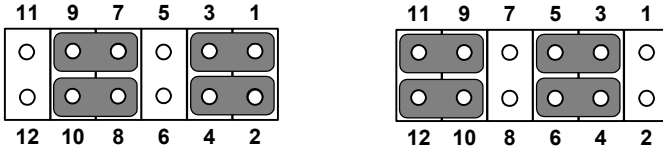
Port	Address Range	Interrupt
COM1	3F8 ~ 3FF	IRQ4
COM2	2F8 ~ 2FF	IRQ3
COM3	3E8 ~ 3EF	IRQ10
COM4	2E8 ~ 2EF	IRQ 5

### 4.4.1 COM port Pin 9 power output setting (JP3)

Pin 9 on COM port can act as power output, and the settings available are shown as below:

**Table 4.8: COM port Pin 9 power output setting (JP3)**

<b>External power output disable (Default)</b>	<b>External power output enable</b>
--	-------------------------------------



- Note:*
1. Pins 1, 3, 5 are for COM1
  2. Pins 2, 4, 6 are for COM2
  3. Pins 7, 9, 11 are for COM3
  4. Pins 8, 10, 12 for COM4
  5. The external power output value is determined by JP4, as described in the next section.

### 4.4.2 COM port Pin 9 power output value setting (JP4)

**Table 4.9: COM port Pin 9 power output value setting (JP4)**

<b>Default (5V)</b>	<b>Option (12V)</b>
---------------------	---------------------



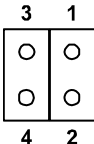
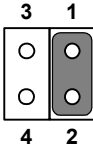
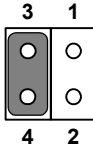
## 4.5 Jumper Setting on Power-Board

### 4.5.1 Low battery monitor and shut down (CN2)

The low battery monitor is an optional shut down function designed to prevent the DC vehicle battery power from running out. When the battery voltage drops below a certain level (11V for DC12V battery, and 22V for DC24V battery) the OS will be terminated after 30 seconds and the system power will shut down after one minute.

The default setting reserves all pins open to disable the shut down function. However, DC24V battery protection can be activated by closing pins 3 - 4, or changed to DC12V battery protection by closing pins 1 - 2.

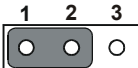
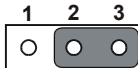
**Table 4.10: Low battery monitor (CN2)**

No battery protection (default)	DC12V battery protection	DC24V battery protection
		

### 4.5.2 Power off delay setting connector (CN7)

This connector determines the delay time when the power turns off and provides two kinds of settings; shut down at 0 seconds, or 30 seconds after the power turns off. To change the delay time, Advantech accepts OEM design requests. The standard setting is shown below:

**Table 4.11: Power off delay setting connector (CN7)**

Default (0 second)	Option (30 seconds)
	

The power off delay function should be available when power support ignition input control, described as below section.

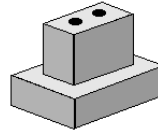
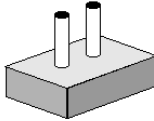
### 4.5.3 Ignition input switch jumper (CN8)

This jumper determines if the Vehicle Mounted Computer can be activated by linkage to a vehicle ignition switch.

The default setting reserves the jumper open. To enable the power-on function via the vehicle ignition switch, it is necessary to change the power fail function setting from BIOS (See Appendix B.2) and connect the signal pin of the power cord supplied with the TREK (See Section 2.2.1) to the car engine circuit. This function can be disabled by either closing the jumper or connecting the signal pin of the power cord with the anode of car battery. The setting is shown below:

**Table 4.12: Ignition input switch jumper (CN8)**

Ignition turn-on enable (Default)	Ignition turn-on disable
-----------------------------------	--------------------------



*Note:* See Chapter 2, Section 2.2.1 for a diagram of the ignition signal wire on the power cord.





# CHAPTER 5

## Intel Chipset

This chapter provides information on Intel chipset configuration

- Introduction
- Further information

# Chapter 5 Intel Chipset

## 5.1 Introduction

---

The TREK-775/TREK-776 combines Intel® 855GME GMCH North Bridge with Intel® 82801DB I/O Controller Hub 4 (ICH-4) south bridge.

The Intel® 855GME chipset is an innovative integrated graphics chipset developed with DDR333 memory. It is optimized to support the Intel Pentium® M / Celeron® M processor, adding intelligence to help manage and prioritize multiple threads received from the microprocessor. The Intel 855GME chipset also includes extremely stable and innovative Intel Extreme Graphics technology, running at 266 MHz core speed.

The Intel 82801DB I/O Controller Hub 4 (ICH4) is a highly integrated multifunctional I/O Controller Hub that provides an interface to the PCI Bus and integrates many of the functions needed in today's PC platforms.

*Important:*     *The following are examples only. Follow the instructions and pay attention to the onscreen prompts as they appear.*

*Note:*           *The CD-ROM drive is designated as "D" throughout this chapter.*

### 5.1.1 Installation for Windows 98

1. Execute D:\CHIPSET\Win9x\infinst\_enu.exe
2. Press "Next" to proceed, then follow the on-screen instructions.
3. Choose "Yes, I want to restart my computer," and press "Finish." The system reboots automatically.

### 5.1.2 Installation for Windows 2000 / XP

1. Execute D:\CHIPSET\Win2K\_XP\infinst\_autol.exe
2. Press “Next” to proceed, and “Software License Agreement” dialog box appears. Click “Yes.”
3. Press “Next” to proceed.
4. Choose “Yes, I want to restart my computer,” and press “Finish.” The system reboots automatically.

## 5.2 Further Information

---

For further information about the Intel chipset installation in TREK-775/ TREK-776, including driver updates, troubleshooting guides and FAQ lists, visit the following web sites:

**Intel website:** [www.Intel.com](http://www.Intel.com)

**Advantech websites:** [www.advantech.com](http://www.advantech.com)



## Graphic Chipset

This chapter provides information on Graphic chipset configuration

- Introduction
- Further Information

# Chapter 6 Graphic Chipset

## 6.1 Introduction

---

The TREK-775/TREK-776 has an on-board integrated VGA chipset. The specifications and features are described as follows.

*Important:*     *The following are examples only. Follow the instructions and pay attention to the onscreen prompts as they appear.*

*Note:*            *The CD-ROM drive is designated as "D" throughout this chapter.*

### 6.1.1 Installation for Windows 2000 / XP

1. Execute D:\Graphic\win2k\_xp141950.exe
2. Press "Next" to proceed, then follow the on-screen instructions.
3. When "Software License Agreement" dialog box appears. Click "Yes."
4. Choose "Yes, I want to restart my computer," and press "Finish." The system reboots automatically.

## 6.2 Further Information

---

For further information about the Intel chipset installation in TREK-775/TREK-776, including driver updates, troubleshooting guides and FAQ lists, visit the following web sites:

**Intel website:** [www.intel.com](http://www.intel.com)

**Advantech website:** [www.advantech.com](http://www.advantech.com)

## Audio

This chapter provides information on Audio configuration

- Introduction
- Installation of Audio Driver

# Chapter 7 Audio

## 7.1 Introduction

---

The ALC650 is an 18-bit, full duplex AC'97 2.2 compatible stereo audio CODEC designed for PC multimedia systems, including host/soft audio and AMR/CNR based designs. The ALC650 AC'97 CODEC supports multiple CODEC extensions with independent variable sampling rates and built-in 3D effects.

## 7.2 Installation of Audio Driver

---

Before installing the audio driver, please take note of the procedures detailed below. It is essential to know which operating system being applied to the TREK-775/TREK-776, and then refer to the corresponding installation procedures.

*Important:*     *The following are examples only. Follow the instructions and pay attention to the onscreen prompts as they appear.*

*Note:*            *The CD-ROM drive is designated as "D" throughout this chapter.*

1.     Execute D:\Audio\ALC650\WDM\_A386.exe
2.     Follow the on-screen instructions.
3.     Choose "Yes, I want to restart my computer," and press "Finish."  
       The system will reboot automatically.



## USB 2.0

This chapter provides information on USB 2.0 Driver configuration

- Introduction
- Installation of USB 2.0 Driver

# Chapter 8 USB 2.0

## 8.1 Introduction

---

Before installing the USB driver, please take note of the procedures detailed below. It is important to know which operating system being applied to the TREK-775/TREK-776, and then refer to the corresponding installation procedure. This USB driver only needs to be installed under Window 98 / 2000 and is not necessary for WinXP.

## 8.2 Installation of USB Driver

---

*Important:*     *The following are examples only. Follow the instructions and pay attention to the onscreen prompts as they appear.*

*Note:*           *The CD-ROM drive is designated as "D" throughout this chapter.*

1.    Execute D:\USB\usb2k51.exe
2.    Decide the path you want to install and press "Next" to proceed.
3.    Follow the on-screen instructions.
4.    Choose "Yes, I want to restart my computer," and press "Finish."  
      The system reboots automatically.

## Touchscreen

This chapter provides information on Touchscreen use and configuration

- Introduction
- Installation of Touchscreen Driver

# Chapter 9 Touchscreen

## 9.1 Introduction

---

### 9.1.1 General information

The touch screen for the TREK-775/TREK-776 series is a resistive touch screen.

The resistive touch screen incorporates advanced second-generation resistive, impact-resistant technology, which creates 80% light transmission. There is also an antiglare surface for greatly enhanced visual resolutions. It also has a new and improved scratch-resistant feature.

For more detailed information, please visit the following websites:

**[www.dynapro.com](http://www.dynapro.com)**

**[www.amtouch.com.tw](http://www.amtouch.com.tw)**

Advantech Co., Ltd. reserves the right to alter the touchscreen at any time without notice.

### 9.1.2 General specifications

Please refer to Chapter 1, Section 1.2 of this manual.

## 9.2 Installation of Touchscreen Driver

---

The touchscreen driver for Windows contains a native, 32-bit driver and a 32-bit control panel program for the TREK-775/TREK-776 system.

To facilitate installation of the touchscreen driver, you should read the instructions in this section carefully before you attempt installation.

*Important:*     *The following are examples only. Follow the instructions and pay attention to the onscreen prompts as they appear.*

*Note:*           *The CD-ROM drive is designated as "D" throughout this chapter.*

## 9.2.1 Windows 98-Me-2000-2003 driver

To install the software to the computer, the TREK-775/TREK-776 must have both a Windows 98/Me/2000/2003 system running and PenMount control board already installed. If an older version of the PenMount Windows 98/Me/2000/2003 driver is installed in the TREK-775/TREK-776, remove it first.

Follow the steps below to install the PenMount Windows 98/Me/2000/2003 driver:

1. Click “Cancel” when the “Unknown Device” dialog box appears after starting the system.
2. Execute “D:\ TouchScreen\Penmount USB\Driver\PenMount USB Windows 98-Me-2000-2003 Driver\setup.exe” to install the PenMount Windows 98/Me/2000/2003 driver.
3. When PenMount logo, copying “PenMount USB- installation wizard” and “welcome” message appears. Click “Next.”
4. The “Software License Agreement” dialog box appears. Click “Yes.”
5. The “Information” dialog box appears. Click “Next.”
6. The “Choose Destination Location” dialog box appears. Type a PenMount Utilities installation folder, or accept the default. Click “Next.”
7. The "Select Program Folder" dialog box appears. Type a PenMount Utilities program folder, or accept the default. Click “Next.”
8. The “Start Copying Files” dialog box appears. Click "Next" to start copying files to the system.
9. The “Setup Complete” dialog box appears. Click “Finish.”
10. The “Restarting Windows” dialog box appears. Click “Yes I want to restart my computer now;” then click “OK” to restart your computer.

## 9.2.2 Windows XP driver

To install the software to the computer, the TREK-775/TREK-776 must have a Windows XP system running and PenMount control board already installed. If an older version of the PenMount Windows 98/Me/2000/2003 driver is installed in the TREK-775/TREK-776, remove it first.

Follow the steps below to install the PenMount Windows XP driver:

1. Execute “D:\TouchScreen\Penmount USB\Driver\PenMount USB Windows XP WHQL Driver\setup.exe” to install the PenMount Windows XP driver and press “Next” to proceed.
2. Press “Next” and follow the on-screen instructions; then press "install" to start
3. The “Restarting Windows” dialog box appears. Click “Yes I want to restart my computer now,” then click “OK” to restart your computer.

### 9.3 Further Information

---

**Advantech:** [www.advantech.com](http://www.advantech.com)

**Salt:** [www.salt.com.tw](http://www.salt.com.tw)

**AMT:** [www.amtouch.com.tw](http://www.amtouch.com.tw)

# Appendix **A**

## **Pin Assignments**

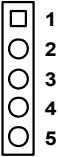
This appendix contains information on TREK-775/TREK-776's pin assignments

# Appendix A Pin Assignments

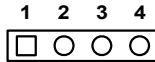
## A.1 Inverter power connector (CN2)

**Table A.1: Inverter power connector (CN2)**

Pin	Signal
1	+12V
2	GND
3	ENAVEE
4	VBR
5	+5 V



## A.2 Internal speaker connector (CN21)

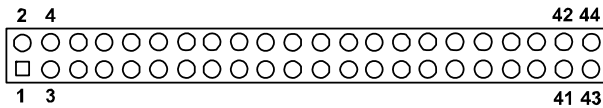


**Table A.2: Internal speaker connector (CN21)**

Pin	Signal
1	Speaker out_L -
2	Speaker out_L +
3	Speaker out_R -
4	Speaker out_R +



### A.3 IDE hard disk drive connector (CN5)



**Table A.3: IDE hard disk drive connector (CN5)**

Pin	Signal	Pin	Signal
1	IDE RESET #	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	SIGNAL GND	20	N/C
21	HDD DREQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	HD READY	28	CABLE SELECT
29	HDACK 0 #	30	GND
31	IRQ14	32	N/C
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HDD SELECT 0 #	38	HDD SELECT 1 #
39	IDE ACTIVE 0 #	40	GND
41	Vcc	42	VCC
43	GND	44	N/C

# low active

## A.4 LVDS connector (CN1)

**Table A.4: LVDS connector (CN1)**

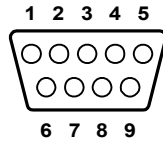
Pin	Signal	Pin	Signal
1	GND	2	GND
3	LVDS_NO	4	N/A
5	LVDS_P0	6	N/A
7	LVDS_N1	8	GND
9	LVDS_P1	10	N/A
11	LVDS_N2	12	GND
13	LVDS_P2	14	N/A
15	LVDS_CN1	16	GND
17	LVDS_CP1	18	N/A
19	VDDSAFE *	20	VDDSAFE *

\* VDDSAFE can be +5V or +12V depending on JP2

## A.5 COM 1, 2

---

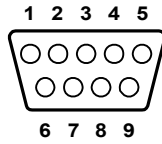


**Table A.5: COM 1, 2**

Pin	Signal	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-	
2	RX	TX+	DATA+	
3	TX	RX+	---	
4	DTR	RX-	---	
5	GND	GND	---	
6	DSR	---	---	
7	RTS	---	---	
8	CTS	---	---	
9	RI	---	---	

## A.6 COM 3, 4

---

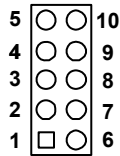


**Table A.6: COM 3, 4**

Pin	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

## A.7 COM 3, 4 internal connector (CN18, 16)

---

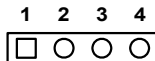


**Table A.7: COM 3, 4 internal connector (CN18, 16)**

Pin	Signal
1	DCD
2	DSR
3	RxD
4	RTS
5	TxD
6	CTS
7	DTR
8	RI
9	GND
10	5V

## A.8 Internal USB port

---



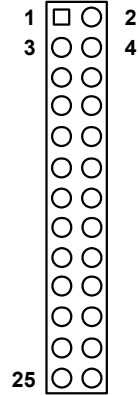
**Table A.8: Internal USB port**

Pin	Signal
1	VCC
2	DATA-
3	DATA+
4	GND

## A.9 Reserved Parallel port connector (CN11)

**Table A.9: Parallel port connector (CN11)**

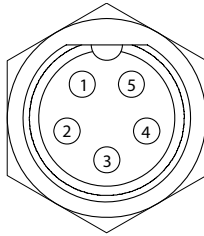
Pin	Signal	Pin	Signal
1	STROBE*	2	D0
3	D1	4	D2
5	D3	6	D4
7	D5	8	D6
9	D7	10	ACK*
11	BUSY	12	PE
13	SLCT	14	AUTOFD*
15	ERR*	16	INIT*
17	SLCTINI*	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND		



\* low active

## A.10 Power Inlet

---



**Table A.10: Power inlet**

<b>Pin</b>	<b>Signal</b>
1	+ (Power)
2	- (GND)
3	- (GND)
4	+ (Power)
5	Ignition





# Appendix **B**

## **Key Features Setting in BIOS**

This appendix contains information on TREK-775/TREK-776's Panel Type settings and Power Fail settings in BIOS

# Appendix B Key Features Setting in BIOS

## B.1 Panel Type Setting in BIOS

For setting the panel type in BIOS, follow these instructions:

1. Choose “Advanced Chipset Feature” in the main menu of BIOS.

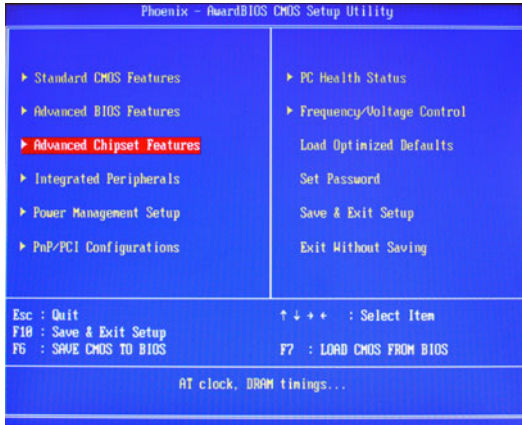


Figure B.1: Main Menu: Advanced Chipset Features

2. Choose “Panel Type;” the default is to set on “HW Default” and the panel setting is determined by jumper. (Refer to 4.3.2)

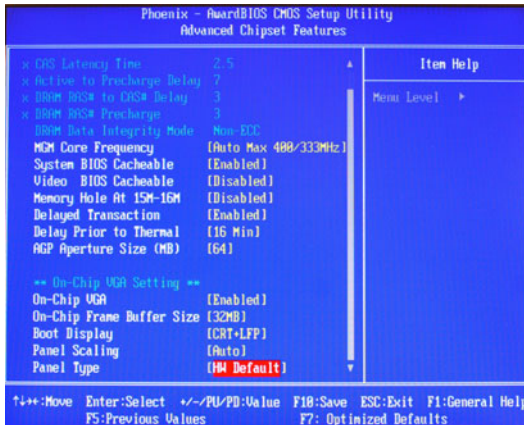
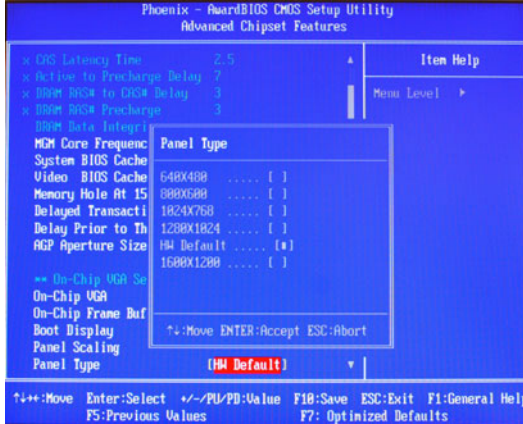


Figure B.2: Panel Type

- The Panel Type Setting in BIOS has 6 options available. Besides “HW Default” you can choose the setting that corresponds to the specifications of your panel. Selecting a specific value overrides the automatic HW Default setting. Options are: 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024, HW Default, 1600 x 1200.

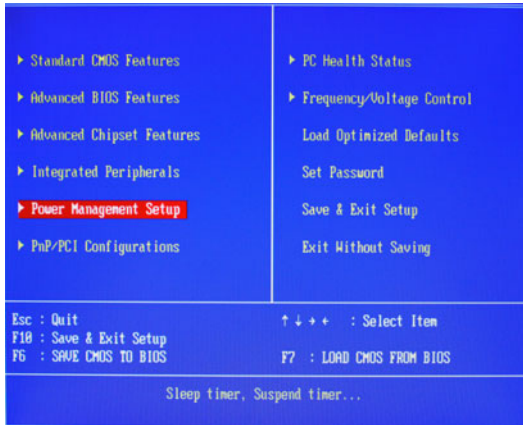


**Figure B.3: Panel Type Setting Options**

## B.2 Power Fail Function Setting in BIOS

To set the “power fail” function in BIOS and to activate the “power on function via ignition switch,” follow these instructions:

- Choose “Power Management Setup” in the main menu of BIOS.



**Figure B.4: Main Menu: Power Management Setup**

2. Choose “Power Fail Function” and then select “Always On.”



**Figure B.5: Power Fail Function**

3. To disable the Power-On function by using the ignition switch, select “Always Off,” so the Power-On/Off function can be controlled by the power button.

# Appendix C

## **Win XP Embedded Features Setting**

This appendix contains information for setting some features for Win XP Embedded on TREK-775/TREK-776

# Appendix C Win XP Embedded Features Setting

## C.1 Enhanced Write Filter (EWF)

---

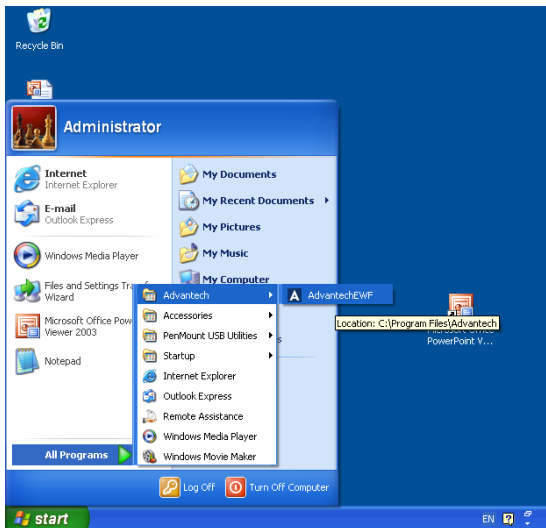
### C.1.1 Introduction

Enhanced Writer Filter (EWF) is a feature supported by Windows XP Embedded and it provides the ability to write-protect a run-time image. By redirecting all write requests to RAM, the EWF allows the run-time image to maintain the appearance of a writeable run-time image, preventing any damage that might be caused by unexpected power failure, vibration or virus attack.

Advantech provides a utility called “Advantech EWF Manager” to help adjust the EWF setting. The instructions follow below.

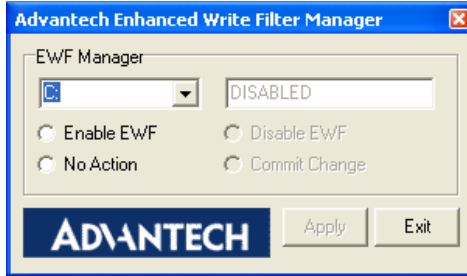
### C.1.2 Setting up the Advantech EWF Manager

1. Start the “Advantech Enhanced Write Filter Manager” from the “Start menu.”



*Figure C.1: Advance Enhanced Write Filter Manager*

2. Select one drive, for example: C:. The manager shows the current state of the drive, including:
  - a No EWF Support.
  - b Enabled
  - c Disabled



3. If the current state is ENABLED, you can choose “Disable EWF” or “Commit Change” to the system; If the current state is DISABLED, you can enable EWF. Any change must restart the system to work

## C.2 Page Files

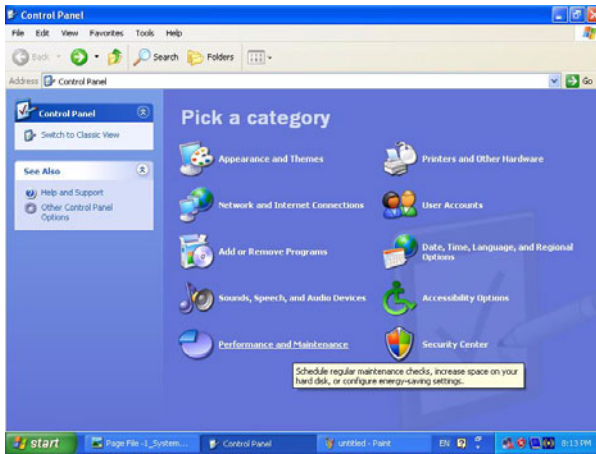
---

### C.2.1 Introduction

There are two types of memory; random access memory (RAM) and virtual memory, or the page file. The page file is created during the Windows XP installation and resides on the storage device such as hard drive or compact flash to improve system performance. Page files are measured in megabytes. The size of the page file is based on how much RAM is installed in the computer. By default, XP creates a page file which is 1.5 times the amount of installed RAM and places it on the storage device where XP is installed. Below section shows the setting of page file for Advantech Win XP embedded.

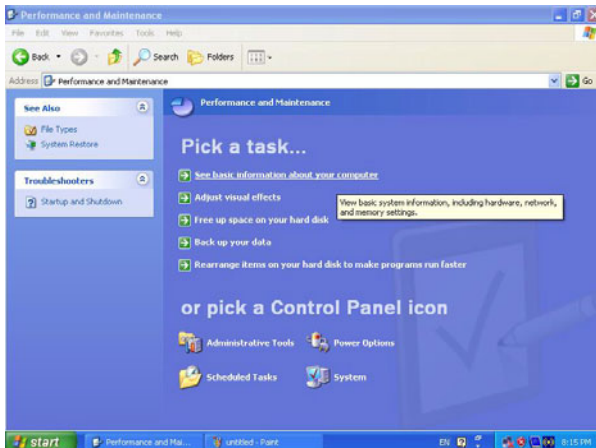
## C.2.2 Page Files Setting

1. Enter the control panel from main menu and choose “Performance and Maintenance.”



*Figure C.2: Control Panel: Performance and Maintenance*

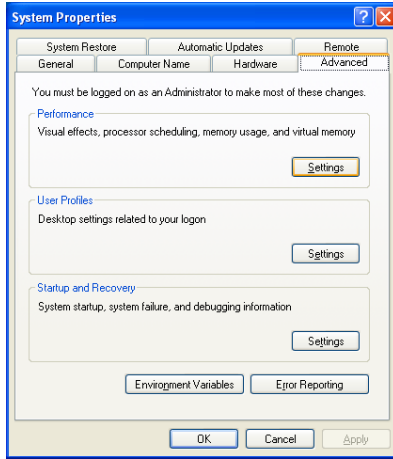
2. Choose “See basic information about your computer.”



*Figure C.3: See Basic Information*

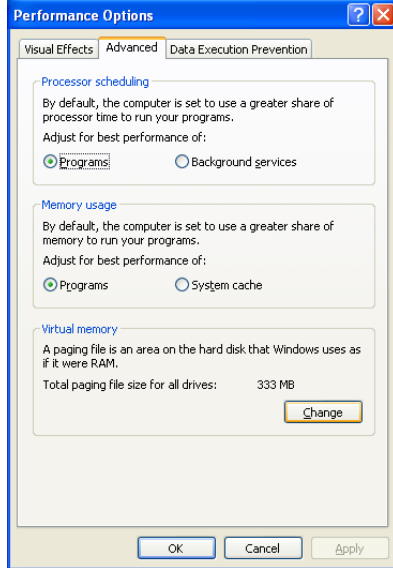


2. Find the “System Properties,” and select the “Performance Settings” button in the “Advanced” menu.



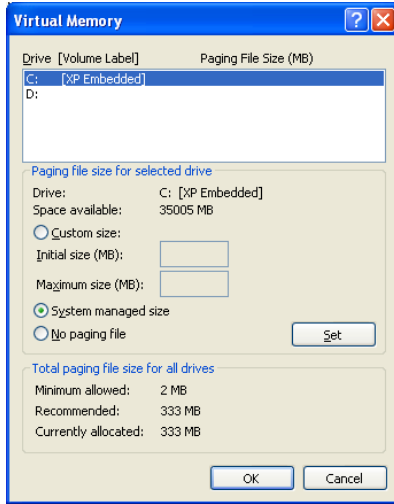
**Figure C.4: System Properties**

3. Choose the “Advanced” page and select the “Virtual Memory Change” button to enter the “Virtual Memory Setting” window.



**Figure C.5: Advanced Performance Options**

4. The “Virtual Memory” menu shows all the options for setting page file sizes. To disable a page file, choose “No paging file.” To return to the page file setting, select “System Managed Size.”



**Figure C.6: Virtual Memory: Page File Size**