

APC
Technology

ET4550 User Guide
AFD 10380 Rev. 1.0

Important Safety Information

Read and understand all safety information before using the ET4550. Follow all instructions marked on the product and described in this document.

Intended use

The ET4550 is intended to provide computer functions for industrial applications. This equipment is a component. After the computer is installed, the whole system of which it is a part must be inspected to confirm seal ratings and compliance with all local electrical codes.

Safety notices

DANGER

To reduce the risks associated with fire and/or explosion which, if not avoided, will cause death or serious injury and/or property damage:

Do not install or use the unit in a hazardous location.

WARNING

To reduce the risks associated with electric shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

Do not modify the unit except as described in this manual or accessory documents.

After making a cutout opening in the panel, make sure that there are no metal shavings in the enclosed cabinet.

Engineer the installation of the unit to take into account the operating environment (e.g., thermal, shock/vibration factors).

If the unit will be used in corrosive environments, it is the responsibility of the user to test and evaluate the unit in those environments. The unit, as shipped, has not been evaluated for use in corrosive environments and using it in such environments, without evaluation and testing, may lead to unsafe conditions.

To ensure compliance with electrical codes and safe operation of the unit, have a licensed electrician perform all wiring tasks.

Install the unit close to the power source so the unit can be easily and quickly disconnected. For permanently connected equipment, a readily accessible disconnect device must be incorporated in the fixed wiring.

Follow all product and accessory installation instructions.

Any servicing or other procedures not described in this manual are to be performed only by APC Technology service personnel.

When connecting power with fixed field wiring, the power cable must be double insulated. A bracket must cover the portion of the cable that is not double insulated when connecting to a terminal strip connector.

Use only installation materials supplied. Use of materials other than those supplied may result in uneven mechanical loading and will invalidate the warranty.

If you are mounting the unit in an enclosed cabinet, provide a minimum of 50 mm space around the unit for proper air circulation. In warm working environments, this depth should be increased to provide better air circulation.

The procedures described in this document should be performed only by trained personnel. Failure to perform all operations correctly could damage the unit and invalidate the warranty.

When replacing a battery in the unit, use a battery of the correct type and dispose of the battery according to the motherboard manufacturer's instructions.

Provide a clean, reliable grounding.

When installing the unit, ensure that specifications for supply circuit over current protection and wiring are not exceeded.

Properly install the unit with a panel gasket that is undamaged and effective.

When replacing a part, use a part of the type and rating specified by APC Technology.

Service personnel should avoid exposed electrical contacts inside the unit.

It is the responsibility of the user to thoroughly test and evaluate any software that was shipped with the unit or any software that the user has installed on the unit to ensure that software is suitable to control functions that may affect safety.

WARNING

To reduce the risks associated with electric shock which, if not avoided, could result in death or serious injury and/or property damage:

Do not open the power supply in the unit. It contains hazardous voltages. The power supply has no user-serviceable parts or adjustments inside.

Before removing the unit from its mounting or performing any other service to the unit, disconnect power to the unit. Provide adequate strain relief for all communications and power cables.

CAUTION

To reduce the risks associated with muscle strain which, if not avoided, may result in minor or moderate injury:

Avoid using the unit for long periods of time without breaks.

CAUTION

To reduce the risks associated with eye strain which, if not avoided, may result in minor or moderate injury: Use the unit where there is neither too much ambient light nor glare on the screen.

CAUTION

To reduce the risks associated with environmental contamination which, if not avoided, may result in minor or moderate injury and/or cause property damage:

Dispose of the unit according to applicable government regulations.

Disclaimer

Specifications are subject to change without notice. These APC Technology products and software are warranted to meet their published specifications from the date of shipment and for the period stated in the specification. **APC Technology makes no additional warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose.**

User is responsible for determining whether the APC Technology product and software are fit for User's particular purpose and suitable for its method of production, including intellectual property liability for User's application. If the Product, software or software media is proven not to have met APC Technology's warranty, then APC Technology's sole obligation and User's and Purchaser's **exclusive remedy**, will be, at APC Technology's option, to repair or replace that Product quantity or software media or to refund its purchase price.

APC Technology has no obligation under APC Technology's warranty for any Product, software or software media that has been modified or damaged through misuse, accident, neglect, or subsequent manufacturing operations or assemblies by anyone other than APC Technology. **APC Technology shall not be liable in any action against it in any way related to the Products or software for any loss or damages, whether non-specified direct, indirect, special, incidental or consequential (including downtime, loss of profits or goodwill) regardless of the legal theory asserted.**

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1. Product Features

1.1. Standard

- Sealed front face plate to IP65 rating.
- Front face plate gasket to provide IP65 sealing when properly mounted.
- Aluminium powder coated face plate. All internal metalwork is powder coated or zinc plated to protect against corrosion.
- Auto ranging power supply. Power supply will automatically detect input voltage between 110 – 240 VAC, 47 – 63Hz.
- 15 Inch Thin Film Transistor display. Native resolution 1024 x 768.
- Shock mounted 20GB 2.5” hard disk drive.
- Intel® Pentium® III / 4 Processor.
- 128MB SDRAM (Intel® Pentium® III based system).
- 256MB DDR RAM (Intel® Pentium® 4 based system).
- PS/2 Keyboard and Mouse Ports.
- 10/100 LAN.
- 1 x 9 pin external serial port.
- 1 x 25 pin parallel port.
- 4 x external USB.
- Audio.
- Three ¾ length PCI slots.
- AGP Video slot.

1.2. Options

- Infra T touch screen
- Internal floppy disk drive.
- Internal slim CDROM.
- Up to 512MB SDRAM (Intel® Pentium® III based system).
- Up to 3GB DDR RAM (Intel® Pentium® 4 based system).
- DC power supply. 19 – 32VDC Input via screw terminals.
- Windows NT 4.0, 2000, XP.
- Various PCI expansion cards.
- Front mounted display controls.
- Stainless steel front face plate.
- Pan / tilt bracket.
- Sealed enclosures.
- Enclosure stand.

2. Installation

2.1. What you should have

- ET4550 Industrial Computer
- 4 x M6 button head set screws
- 4 x M6 spring washers
- 4 x M6 hex nuts
- 1 x Manual
- 1 x Power cord (AC power version)
- 1 x Motherboard driver and documentation CDROM
- 1 x Quality Documentation
- 1 x Operating System CDROM and documentation (if supplied by APC Technology)
 - Note: Product key and COA sticker will be fixed to rear of unit near CDROM / FDD recess

2.2. Tools required

To access user serviceable parts and mount the ET4550 the following tools are required

- 1 point Phillips screwdriver
- 2 point Phillips screwdriver
- 3mm flat blade screwdriver
- 3mm Allen key
- 16mm open ended spanner

2.3. Removing and re-attaching the rear enclosure

Removing the enclosure

1. Power off the unit and remove all external connections and cables.
2. Remove the unit from its mounting and place face down on an ESD dissipative surface.
3. Detach the video cable using a 3mm flat blade screwdriver.
4. Using a 2 point Phillips screwdriver remove the 10 retaining screws and spring washers which hold the enclosure in place. See Figure 1 for location of these screws.

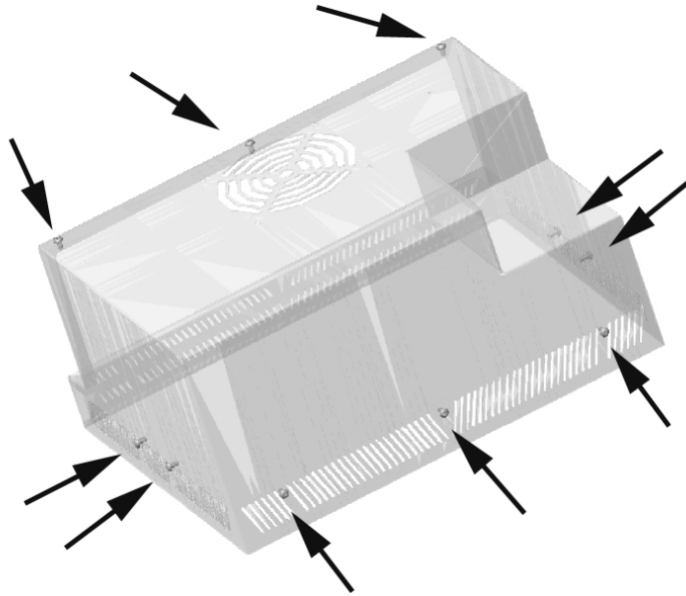


Figure 1 Screw Locations

5. Lift the enclosure clear of and place it on the work surface close to the rest of the unit making sure not to strain the grounding wire.

Re-attaching the rear enclosure

1. Taking care not to pinch the ground wire place the rear enclosure on the unit.
2. Using a 2 point Phillips screwdriver, re-attach the 10 screws and washers previously removed. Tighten the screws until the washers are fully compressed.
Note: Be sure to use the spring washers previously removed in order to maintain shock and vibration resistance.
3. Re-connect the video cable and tighten the screws using a 3mm flat blade screwdriver.
4. Follow instructions in Section 2.5 to mount the unit.

2.4. RAM, PCI and AGP installation

Caution: This equipment contains static sensitive devices. Please ensure personnel performing any activity that requires the handling of components practise anti-static precautions.

A sticker outlining the location of various slots, connectors and jumpers referred to in this section is located on the inside of the rear enclosure.

RAM

1. Remove the rear enclosure as previously detailed in Section 2.3.
2. To access the RAM slots the “drive bridge” must be flexed slightly upwards. Using a 1 point Phillips screwdriver remove the screws identified in Figure 2. Flex the bridge assembly upwards until there is enough clearance to allow access to the RAM slots.

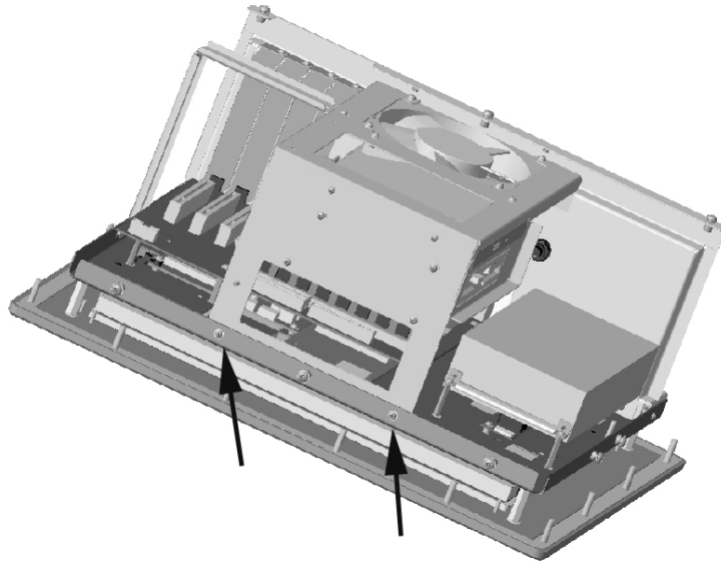


Figure 2 Drive Bridge Screw Locations

3. Follow the motherboard manual (included on the enclosed CDROM) for instructions on how to fit RAM and the type of RAM required.
4. When the RAM is inserted apply a small amount of RTV adhesive to each retaining clip to help prevent the cards coming loose in high shock / vibration environments.
5. Re-attach the fan bridge being sure to apply a small amount of locking adhesive to each screw.
6. Re-attach the rear enclosure following the steps outlined in Section 2.3.

Expansion cards

1. Remove the rear enclosure as previously detailed in Section 2.3.
2. Using a 1 point Phillips screwdriver, remove the screws illustrated in Figure 3 which hold the card guide in place.

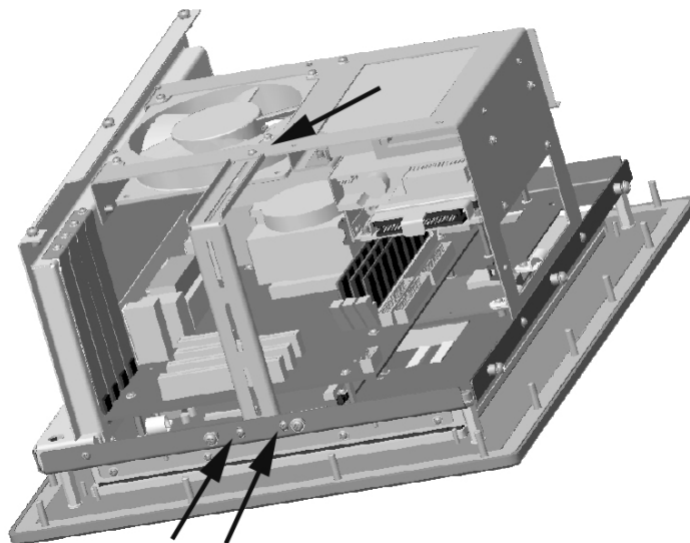


Figure 3 Card Clamp Screw Locations

3. Again, using the 1 point Phillips screwdriver remove the screw fixing the AGP / PCI slot cover in place.
4. Insert the AGP / PCI card into the slot and re-attach the cover screw after applying locking adhesive to the thread.
5. Re-attach the card guide being sure to apply locking adhesive to the screws.
6. Re-attach the rear enclosure following the steps outlined in Section 2.3.

2.5. Panel mounting

1. Cut out a hole in the mounting panel using the template in Section ? for dimensions.
2. Taking care not to damage the rear gasket, place the unit into the cut out.
Note: A damaged gasket will adversely affect the IP rating of this unit.
3. Using the supplied socket head screws, nuts and washers fix the unit into place. Tighten the mounting fasteners until the gasket is compressed enough to form a continuous seal around the unit.

2.6. Pan / tilt bracket mounting (Optional)

Under development.

2.7. Connections

Using the following diagram as a guide, connect all the necessary cables to the unit. Cables which do not already have some form of fixing device may require external fixing or strain relief to avoid accidental removal during operation.

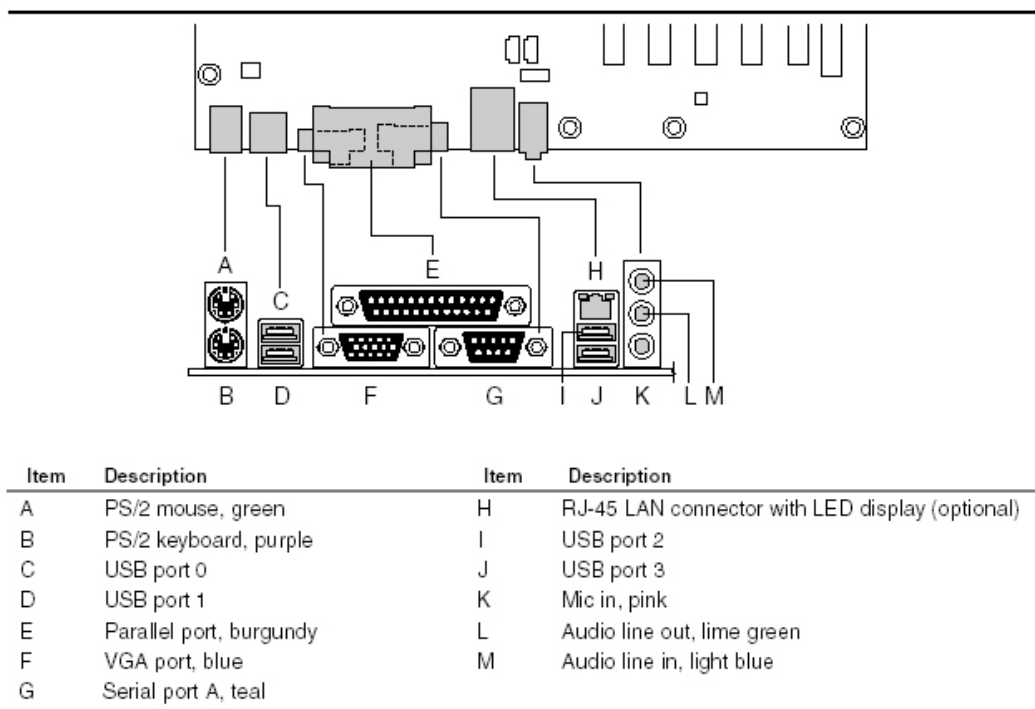
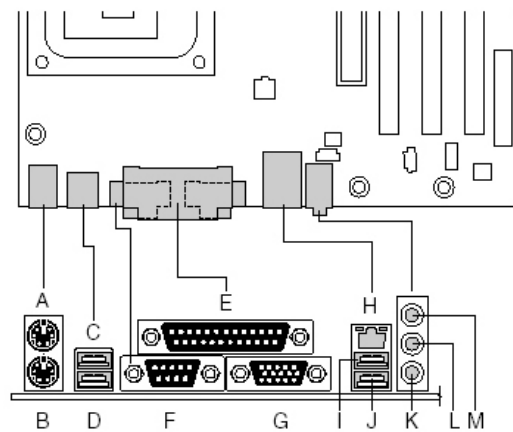


Figure 4 Intel® Pentium® III Based System Connectors



Item	Description	Color
A	PS/2 mouse port	Green
B	PS/2 keyboard port	Purple
C	USB 2.0 port	Black
D	USB 2.0 port	Black
E	Parallel port	Burgundy
F	Serial port	Teal
G	VGA port	Blue
H	RJ-45 (optional)	Black
I	USB 2.0 port	Black
J	USB 2.0 port	Black
K	Mic in	Pink
L	Audio line out	Lime green
M	Audio line in	Light blue

Figure 5 Intel® Pentium® 4 Based System Connectors

2.8. Turning the unit on

Before powering the unit up for the first time ensure all cables are connected and / or terminated correctly. Switch the power supply switch to the on position and press the soft power button. For more information on the operation of the soft power button refer to Section 3.1

2.9. BIOS options

Detailed instructions on BIOS settings can be found on the enclosed motherboard driver and documentation CDROM.

Note: APC Technology sets the “After Power Failure” option in the “Power” menu to “Power On”. This is to ensure the unit will immediately power on upon the resumption of power. If BIOS options are reset to defaults this option will need to be reviewed. The BIOS can be accessed by pressing the F2 key during POST.

3. Controls and Operation

3.1. Soft power operation

The soft power button will perform various functions depending on the state of the system and how long the button is pressed. The following table lists these functions.

If the system is in this state...	...and the power button is pressed for...	...the system enters this state
(Soft) Off / Standby	Less than seven seconds	Power on
On	Less than seven seconds	Soft off / Standby
On	More than seven seconds	Fail safe power off
Sleep	Less than seven seconds	Wake up
Sleep	More than seven seconds	Power off

Note: The operation of the power switch is the same for both Pentium III and Pentium 4 based systems however Pentium III based systems are based on a four second timer.

3.2. NFI touch screen

Touch screen driver and linearization files can be obtained from the following website:

<http://www.3m.com/3MTouchSystems/downloads/>

The serial number (found on a sticker on the back of the unit) will be required to obtain the linearization files.











3.3. Display controls and adjustments

Functions of on screen display buttons

Symbol	Name	Function of the control	Hot key function
M	Menu	<ul style="list-style-type: none"> To start the on screen display and open one of the menus 	Menu
?	Down	<ul style="list-style-type: none"> To move through main menus anti clockwise (e.g., brightness, exit, auto adjust). To move through sub-menus (e.g., clock and phase in the clock menu). To decrease value settings for some controls (e.g., 0 to 100 for brightness). 	Brightness
?	Up	<ul style="list-style-type: none"> To move through main menus clockwise. To move through sub-menus. To increase value settings for some controls 	Contrast
S	Select	<ul style="list-style-type: none"> To exit the on screen display menus. Changes are saved 	Auto Adjust

automatically.

On screen display menu and available options

Icon	Control Name	Function(s)
	Brightness	Adjust intensity of display
	Contrast	Adjust contrast of display
	Position	<ul style="list-style-type: none">• Horizontal position• Vertical position
	Clock	<ul style="list-style-type: none">• Clock: Adjust the width of the display's image• Phase: Adjust the noise of the display's image
	Colour Control	Select the colour temperature of the display's image <ul style="list-style-type: none">• 9300 K• 6500 K• User (Control red, green, blue colour intensity of display's image)
	Language	<ul style="list-style-type: none">• English• German• French• Italian• Spanish
	Information	<ul style="list-style-type: none">• BIOS version• Show all supported display modes
	Miscellaneous	<ul style="list-style-type: none">• SHP: Adjust sharpness of display's image• OSD Timer: On screen display timer (seconds)• OSD Position : 5 options for position of OSD menu on the screen
	Auto Adjust	Automatically adjust the contrast
	Exit	Exit OSD menu

3.4. FDD

1. A 3.5" 1.44MB floppy disk drive is mounted internally as standard.
2. To insert a disk simply align the disk with the slot and push it in.
Note: If the disk is not inserted in the correct orientation resistance will be felt. Remove the disk and check for the correct orientation before reinserting.
3. The disk can be ejected by pushing the button on the front of the drive.

3.5. CDROM (Optional)

1. If fitted, the CDROM can be found at the rear of the unit.
2. To open the CDROM push the button located centrally on the tray of the drive. After it releases it can be fully extended manually.
3. When the tray is fully open a CD can be “clicked” onto the spindle by aligning this with the centre of the disc and applying light pressure.
4. The draw may then be closed by sliding the tray into the unit until a click is heard.

Note: In the event of a CDROM failure the unit may be opened manually by inserting a straightened paper clip into the hole located next to the indicator light on the tray.

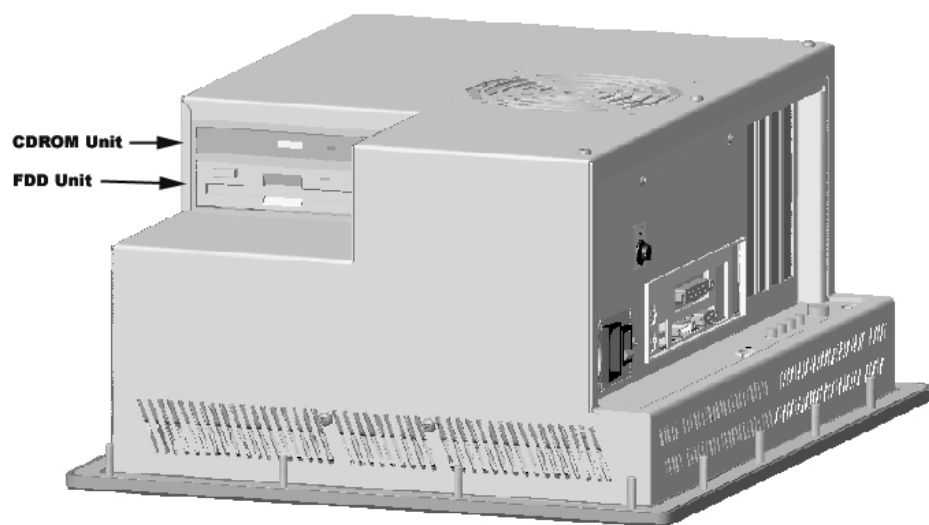


Figure 6 CDROM and FDD Locations

3.6. Solid State Storage (Optional)

Solid state storage can be included as an option either as a permanent fixed drive or removable media.

When used as a permanent fixed drive it may be mounted as a replacement for the internal hard disk drive. As a removable media device it will be mounted in place of the floppy drive.

3.7. Custom (Optional)

If fitted, custom features will be detailed here.

4. Maintenance

4.1. Cleaning

To clean the unit apply a solution of warm water and mild detergent using a soft cloth or sponge. Methylated spirits may be used to remove stubborn stains. Do not use any corrosive chemicals on any part of the unit.

THE UNIT MUST **NOT** BE IMMERSSED IN WATER UNDER ANY CIRCUMSTANCES.

4.2. Replacing the battery

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTION.

1. Remove the rear enclosure as previously detailed in Section 2.3.
2. Replace the battery as per instructions in the motherboard manual (included on the enclosed CDROM).
3. Re-attach the rear enclosure following the steps outlined in Section 2.3.

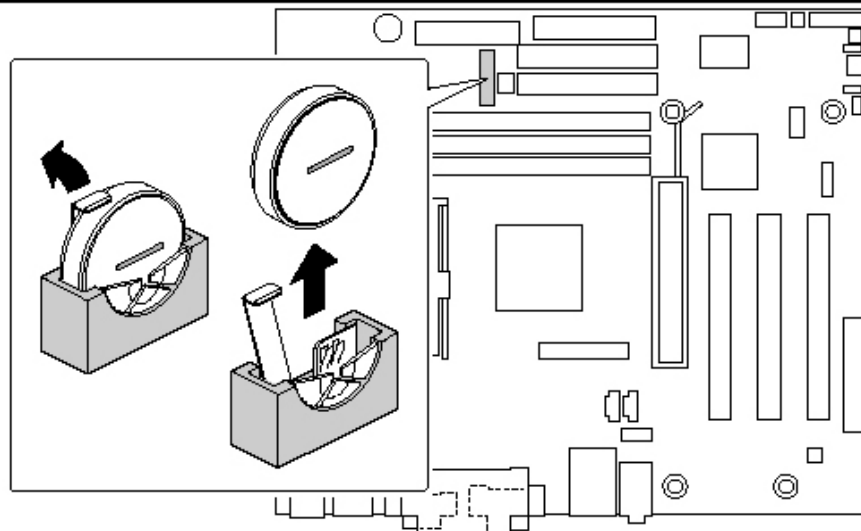


Figure 7 Intel® Pentium® III Based System Battery Removal

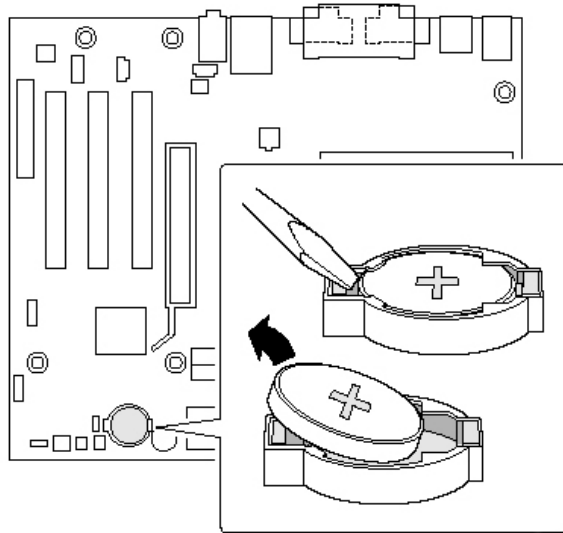


Figure 8 Intel® Pentium® 4 Based System Battery Removal

5. Troubleshooting

5.1. Support Options

Please contact the support office located nearest to you. Before contacting support services please have the following information available:

- Serial number of the unit
- Operating system and application software installed
- Any error messages or log files
- Information on peripherals and installed cards

All returned products must be accompanied by a Return Authorisation (RA) number. Any product without an RA number will not be accepted for service / repair by APC Technology. For details please contact the Service Department at APC Technology, Adelaide.

5.2. Contacting APC Technology

Address:

Attn: Service Department,
40 Stepney St,
Stepney, South Australia, 5069.

Web: www.apctechnology.com.au
Email: service@apctechnology.com.au
Phone: +61 (8) 83630400
Fax: +61 (8) 83631736

Phone support is available Monday to Friday 7:30am to 5:00pm (Aust. Central Time). This service may attract charges which will be detailed to you if applicable.

5.3. United States Support

Address:

MGR Industries,
3013 E Mulberry St,
Fort Collins
CO 80524 USA

Email: mgrind@apctechnology.com.au
Phone: +1 970 221 2201
Fax: +1 970 484 4078

Phone support is available Monday to Friday 8:00am to 6:00pm (MST). This service may attract charges which will be detailed to you if applicable.

6. Specifications

6.1. Display

Operating values given are at room temperature (25°C ± 5°C).

Display size and viewing area (diagonal)	15 inches
Maximum resolution	1024 x 768 XGA
Type	Colour Active Matrix
Colour depth	6-bit, 262,144 colours
Contrast ratio (typical)	300:1
Contrast angle (typical)	H ± 60°, V ± 45°
Response time	50ms maximum
Backlights	Two cartridges
Backlight life expectancy (typical)	30,000 hours
Brightness (typical)	200cd/m ²

6.2. Motherboard and Processor

For detailed specifications on the motherboard and supported processors, refer to the manual on the mother driver and documentation CDROM included with the unit.

6.3. AC Power supply

AC Power	IEC connector
Input range	110 – 240 VAC 47 – 63Hz auto ranging
Input current	0.77A @ 110VAC, 0.36A @ 240VAC
Output power	200 W

6.4. DC Power supply (Optional)

DC Power	Terminal strip
Input range	19 - 32 VDC
Input current	3.4A @ 24VDC
Output power	200W

6.5. Touch Screen

Refer to the manual accompanying your hardware for detailed information about the touch screen on your unit.

6.6. FDD

Storage capacity	1.0/1.6/2.0 MB	
Track density (TPI)	135	
Access time	Track – track	3ms
	Average	94ms
Media type (ISO type)	2DD / 2HD (301/302)	

6.7. CDROM (Optional)

Applicable Disc Format	CD-DA CD-ROM(MODE-1,MODE-2) CD-ROM XA MODE-2(FORM-1,FORM-2) Multi-session PhotoCD™ CD-I,Video-CD,Enhanced & CD PLUS Compatible CD-R, CD-RW, CD-TEXT addressing Method 2
Disc Diameter	12cm,8cm
Data Transfer Rate	Sustained : 2,070KB/sec.(13.8x) - 4,800KB/sec.(32x) (FULL-CAV) Burst : 33.3 MB/sec.Max (Ultra DMA mode 2) 16.7MB/sec.Max (PIO MODE 4,MW DMA MODE2)
Random Access Time	110msec.average
Data Buffer	128KB
Loading Mechanism	Drawer

6.8. Solid State Storage (Optional)

Start Up Time

Sleep to write	2.5ms max
Sleep to read	50ms max
Reset to ready	50ms typical 400ms max
Data transfer rate to / from flash	20MB / sec burst
Data transfer rate to / from host	16MB / sec burst
Active to sleep delay	Programmable
Controller overhead command to DRQ	50ms max

Reliability and maintenance

Vibration	15G max
Shock	2000G max
MTBF	> 1,000,000 hours

6.9. Operating conditions

Temperature	0°C to 50°C (32°F to 122°F)
Humidity	50°C, 85% non-condensing
Vibration	5 to 2000Hz @ 1G
Shock	15G, 11ms (Half Sine)

6.10. Non-operating conditions

Storage temperature	-20°C to 60°C (-4°F to 140°F)
Vibration	5 to 57Hz @ 1G, 58 to 2000Hz @ 2.5G
Shock	20G, 11ms (Half Sine)

7. Standards and certifications

- UL Approval



8. Installation drawings

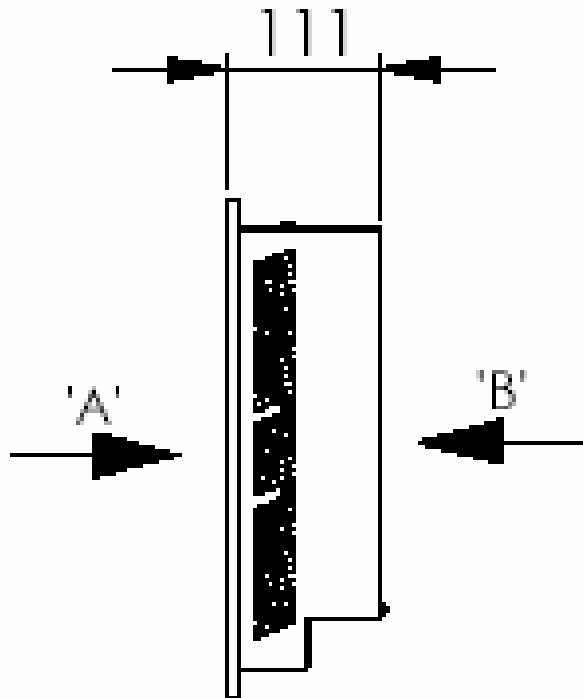


Figure 9 Side View

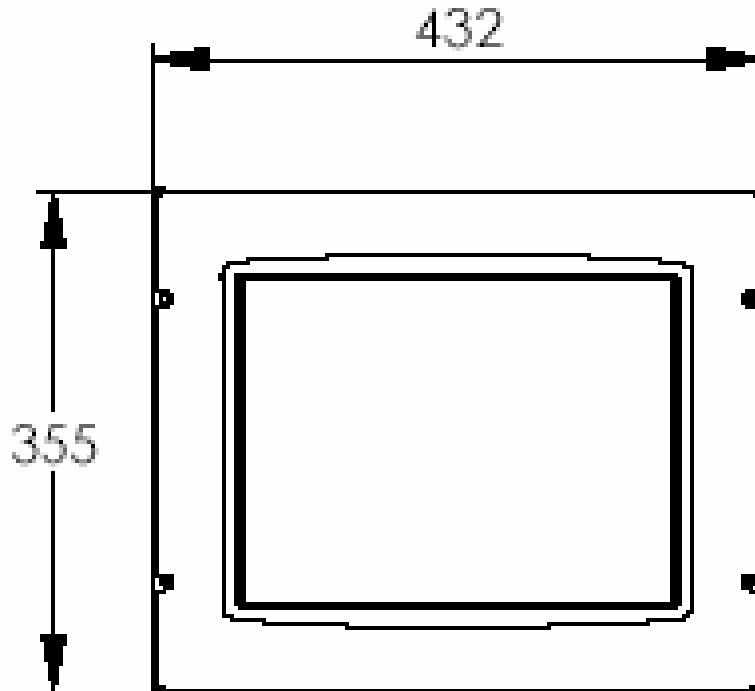


Figure 10 Front View 'A'

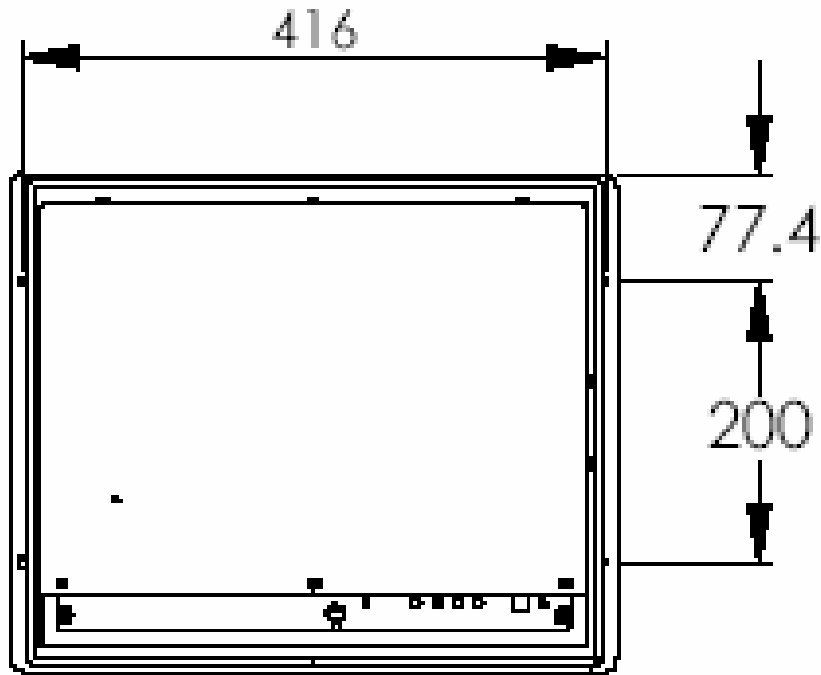


Figure 11 Rear View 'B'

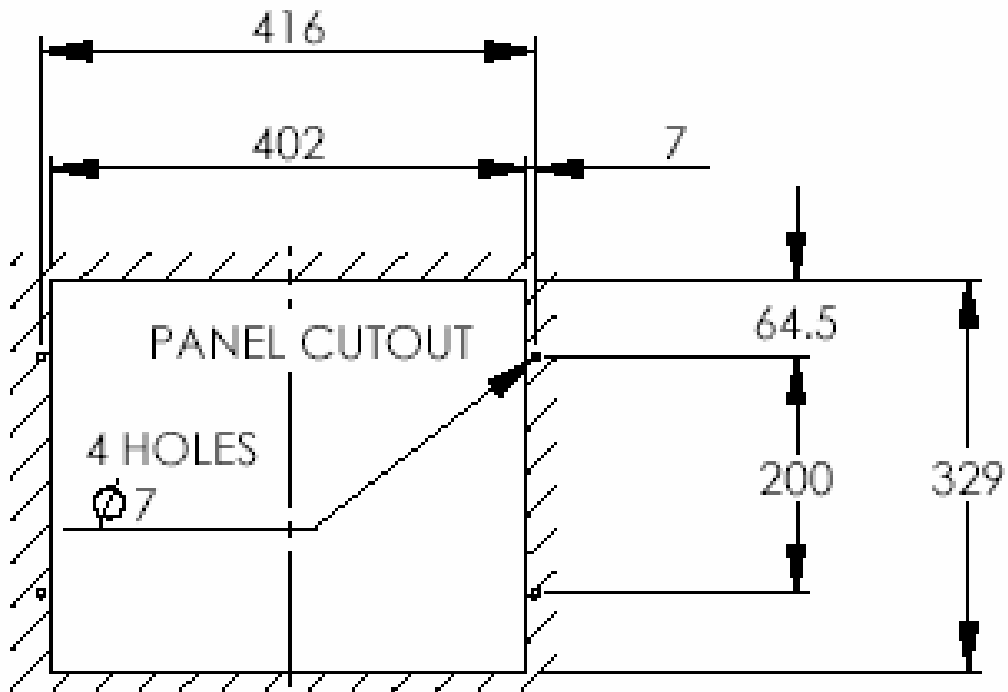


Figure 12 Panel Cut-out

Note: All dimensions are in millimetres unless otherwise specified.