PB - 2200 Pro Series

User's Manual

Rev. Original

FCC Notes:

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with limits for a Class A digital device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures to correct the interference.

Warranty Limits:

Warranty terminates automatically when any person other than the authorized technicians opens the machine. The user should consult his/her dealer for the problem happened. Warranty voids if the user does not follow the instructions in application of this merchandise. The manufacturer is by no means responsible for any damage or hazard caused by improper application.

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P/N: 14430900010 Part 1

ALERT TO OUR HONORABLE CUSTOMERS:

- Please always read thoroughly all the instructions and documents delivered with the product before you do anything about it. Don't take any premature action before you have a full understanding of the consequences.
- This product contains inside a Lithium battery and maybe also a sealed type Lead acid battery if the UPS battery option is ordered. Please always follow local environmental protection laws / regulations for disposal of used batteries and always replace only with battery of same type.
- If you have an UPS battery installed in the product:
 - Temperature above 40°C must be strictly avoided as it could cause termination of battery life and unexpected result even if the battery is not in work.
 - ❖ Do not power off the system just by shutting off the AC power leaving the battery supporting the whole system till completely exhausted. Repeatedly using it up or improper maintenance reduces the battery life dramatically.
 - Always fully recharge the battery at least once every 3 months if the battery is not connected.
 - ♦ Always disconnect the UPS battery from the system if the system is to be left OFF for more than 72 hours to prevent possible damage. Only connect the UPS battery back right before you are going to re-power on the system.
 - ♦ Replace the battery as soon as the monitoring software indicates the battery is out of service. Attempt to recharge a dead battery is dangerous!
 - ♦ A separate battery monitor is not required for this series.

DAILY MAINTENANCE GUIDE

For regular cleaning of the PB systems, please use only soft haired brush or dry soft cloth. You may use moist soft cloth to remove stains when necessary. Apply only proper amount of mild neutral detergent for obstinate stains. Please note that never use Acryl dissolving solvent or Polycarbonate dissolving solvent.

BRIEF INTRODUCTION

THE USER'S MANUAL

The purpose of this manual is to guide the user in the initial installation and general use of the Posiflex PB-2200 Pro series of POS terminals. It does not explain any application software that may be supplied with it.

We intend to provide our customers with all technology advantages available by evolving the product design to incorporate appropriate changes and improvements. So some detail differences may exist between this manual and the equipment supplied.

For more detailed or technical information please refer to the CD-ROM disc associated or consult our authorized dealers or visit our web site: http://www.posiflex.com/

THE PRODUCT

The Posiflex range of PB-2200 Pro terminals have been designed and manufactured to meet the high end demand on POS systems. It incorporates all the advances of PC technology within a rugged housing designed for use in a hostile retail environment. By providing an integrated design, it has retained many of the secure features of a traditional ECR and has avoided the wiring "spaghetti" associated with more traditional PC solutions. This Open Standard Architecture ensures that this terminal can use the PC application software and development tools that are now inexpensively available and abundant.

The terminal may be used as a self-content unit or as one of several terminals in a network system controlled by a "back office" computer through the integrated network interface. Versatile options besides the basic model selection can apply to it too.

There are various options applicable internally including an UPS battery and Pole mount VFD customer display through powered COM port or CF memory card reader. The external options cover even much wider range including: Monitor, Wireless LAN, Cash drawer, POS printer, Bar code scanner, Programmable keyboard etc.

THE STANDARD FEATURES

CPU: VIA C7 1 GHz; **HDD:** 40 GB or above; **RAM:** 256 MB DDR2 upgradeable to 2 GB max.

Ethernet Networking: The standard network port works with both 10 Base T and 100 Base T.

Serial Ports: There are 4 serial ports in a PB-2200 Pro system. COM1 is shared by the direct driven cash drawer port and the UPS function. Each COM port is capable of providing independently a +5 V DC or a +12 V DC supply. All these DC supplies are achieved through internal jumper setting and they are all defaulted to give **no** DC supply at delivery.

Parallel Port: Each PB system is equipped with a parallel port that supports SPP/EPP/ECP.

VGA Port: There is a VGA connector for connection of external monitor with + 12 V DC power supply potential through jumper setting change included.

CR Port: Capable of controlling 2 cash drawers through use of optional cable. **USB Ports:** The PB-2200 Pro series is equipped with 6 USB type A connectors for connection of USB (Universal Serial Bus) devices.

Modem Ring-Up, LAN Or Alarm Wake-Up: The PB series can be turned on automatically upon an incoming COM port Modem call or LAN status or data packet received on LAN or a preset time/day/week/month.

UPS function: to support the system from intermittent power failure (battery itself is an option)

Accidental power off protection – The power switch is safely located at one side, and this power switch can be defined as a "ON" switch only through software command.

THE OPTIONAL ITEMS

Note: Underlined items below must be installed prior to delivery from factory. Attempt to apply them by end users is either too difficult or is likely to cause damages. Italic items below are stand alone peripheral devices.

- **a)** DRAM Memory Expansion: Upgrade up to 2GB max. in 2 DDR2 modules.
- b) 2nd HDD: 2.5" IDE interface
- c) Compact Flash Memory Card Slot: Type I
- **Audio Amplifier and Internal Speaker:** This option can be available only in systems equipped with PCI riser card of revision C or later.
- e) Customer display: Pole mount 2 x 20 VFD display
- f) Wireless LAN Adaptor: inside back cable cover, IEEE 802.11b/g
- g) Preload OS: Win 2000, Win XP pro or WEPOS.
- h) *LCD monitor*: 12.1" LM-7112 without touch panel or TM-7112 with touch panel. Both support further options of BC-300, SD-300 or KP-210.

- i) UPS Battery: 2.3 AH 12V lead acid maintenance free battery
- **2-in-1 Cash Drawer Control Cable:** Cable CCBLA-238, when added to the CR port of the PB series, can be used to control two Posiflex printer drive type cash drawers.
- **k)** *Cash drawer:* Printer (Direct) drive type Posiflex cash drawers. Model numbers coded as CR-3100, CR-3200, CR-4000, CR-4210 or CR-6210
- Programmable Keyboard: Various types of Posiflex programmable keyboards. Most recommended: KB-6000, KB-6200 series or KB-6600.
- m) *Bar Code Scanner:* Short range type (near contact) or long range type (250 mm for CD-3830) CCD scanners.
- **n)** *POS printer:* Posiflex 9 pin dot matrix impact printer or Posiflex thermal printer of RS232 serial interface, parallel interface, USB interface, LAN interface or even wireless interface.

SYSTEM BOX CONTENTS

When you receive the system box you will find it contains several items:

- PB-2200 Pro system unit
- This user's manual
- Recovery CD for preloaded OS or Posiflex Product Information CD for driver utilities without OS
- Optional components installed to system unit as ordered
- Power adaptor with power cord (1 set)

INSTALLATION GUIDES

IMPORTANT

Please do not connect the power cord or turn on the main unit until you have fully read the installation guides and followed the instructions!!!

TECHNICAL ENHANCEMENTS

Applicable technical enhancements in PB-2200 Pro series include serial COM port power supply settings, RTC battery replacement, VGA port power supply setting, DRAM upgrades and adding a half-length PCI adapter card. All these technical enhancement operations require purchase of applicable Technical Manual from Posiflex or consultation from Posiflex authorized dealers and should be handled only by a **qualified technician**.

NON-USER-INSTALLABLE OPTIONS

When the PB system is ordered with options like expanded system memory, 2^{nd} HDD or CF memory card reader slot, the option(s) is (are) already installed in the system delivered. Therefore, no more installation is required.

HALF LENGTH PCI EXTENSION CARD

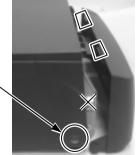
The whole installation operation of a half-length PCI extension card involves cautiously accessing the interior of the system, replacing the slot window metal plate, applying the card and installing its driver. Therefore, only a **computer expert** can perform this operation **on his own risk**.

MAIN CONNECTION AREA

The PB series is constructed for very easy maintenance. Press inward

both plastic buttons at lower rear corners on both sides of the system unit (circled in right picture) to release the lower part of back cable cover. Please note that there are 2 plastic hooks on top cover holding the back cable cover as marked on upper part of the picture. Carefully release the back cable cover from the hooks to show the main connection area.

Push this button and also the one on the other side to open Cable Cover



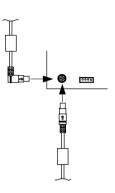
Note: Never press the 2 springs on the metal walls as cross marked in the picture. Carelessly pressing on these 2 springs could cause damages. The user shall be responsible for such kind of damage. Even the maintenance technician must always pay attention to always disconnecting all power and cable connections before pressing the 2 springs and not to cause any damage

Part 6

either in the top cover opening operation after pressing the 2 springs or by leaving or spilling any improper materials inside after the opening operation.

POWER ADAPTOR

The power connector resides in the lower left corner of main connector area. Please make sure that the cable from the power adaptor is inserted into the power connector of PB system in the correct orientation as illustrated in right drawing. The manufacturer is not responsible for any damage caused by improper orientation of this connection. Please check that for straight type power plug the arrow mark on the plug is at top side of the plug. For right angled power plug, if the arrow mark is on its end, it should be pointing up. If the arrow mark is on one side of the right angled power plug, it should be on the right as in the drawing. Please

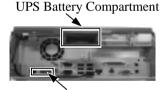


also check that the city power supply specification from the wall socket is within the operation range of the power adaptor.

UPS BATTERY (OPTION)

When the PB system is installed with the UPS battery, the UPS battery is in the carton at delivery. Please take it out and place it in the battery compartment at center upper part of the connection area indicated as upper

rectangle in picture at right. Connect the cable to its connector in the main connection area beside the power connector only when the system is about to power up for operation. Always disconnect the UPS battery when the system is to be left powered off for more than few days. Please pay particular attention to the environment requirement for UPS battery in next chapter "USING THE PB SYSTEM".



UPS Battery Connector

SIDE MOUNT UPGRADE KIT (OPTION TO TM/LM-7112)

When a side-mount upgrade kit option SD-300 or BC-300 is ordered with the optional TM/LM-7112 LCD panel, this option is already installed in the delivery. If they were to be later installed or if the side mount upgrade kit is KP-210, they have to be mounted to the right edge of LCD display at the 2 screws. Then connect the USB cable (If KP-210 is without the smart card reader, there could be no USB cable.) to the USB port of the PB system and connect the PS/2 cable of KP-210 to PS/2 KB port of the PB system.

WIRELESS LAN (OPTION)

When the wireless LAN option is ordered with the PB system, this option is already installed in the delivery inside the back cable cover with its cable connected to one of the USB port. This cable **must be disconnected first** if installed whenever the back cable cover is opened for any operation.

CUSTOMER DISPLAY (OPTION)

When the PB series is ordered with the customer display option, the customer display together with the pole for installing them to corner of back cable cover will be delivered in separate package from the system unit. Please follow the Installation Guide in package of the option. The customer display will occupy one COM port or one USB port. However, before installing an integrated customer display option on a PB system, please have a qualified electronics technician to set up power supply to the customer display in the COM port used if the pole display is of RS232 interface and to neutralize the power supply once the customer display is to be removed from that port.

AUDIO PORT

The audio output port must be connected to either the earphone or a pair of speakers with booster or amplifier if used. When the audio amplifier option is installed, there will be an internal speaker inside the main unit with amplifier constructed on the internal PCI riser card.

PROGRAMMABLE KEYBOARD (OPTION)

All types of Posiflex programmable keyboards can be applied in PB system. Most recommended models are: KB-6000, KB-6200 series and KB-6600. Just connect it to the PS/2 KB port in the main connection area. The application of the keyboard requires no software driver and is free from any software compatibility issue. The system integrator can program the content of the keyboard for the application software following the technical guidance of Posiflex keyboard programming utilities.

BARCODE SCANNER (OPTION)

Modern barcode scanners applied in POS business are usually of KB interface type. Most of them provide both a male and a female PS/2 KB connector. Therefore it can be connected either to the bottom of the Posiflex programmable keyboard with the cable fit into the strain relief groove or in between the PS/2 KB port of the system unit and the Posiflex programmable keyboard. The only consideration is that in programming stage of the programmable keyboard, nothing (including the barcode scanner) should come in between the system and the programmable keyboard. However, this should be no problem in application phase.

When a KB interface barcode scanner is installed in PB series, a

connection of a normal PS/2 keyboard or the Posiflex programmable keyboard could become obligatory by some OS. Therefore, if there will be no keyboard installed for such OS, it is advisory to use an USB interface type barcode scanner instead of the PS/2 KB interface type.

PRINTER (OPTION)

There are many models of Posiflex POS printers that can be applied in PB system. These printers cover several interface technologies. Please connect the printer to a COM port, the LPT port or an USB port in the main connection area depending on the printer model and then connect its power adaptor. It is also possible to control a Posiflex wireless POS printer by connecting a separately purchased wireless Dongle to one of the COM ports in PB system.

CASH DRAWER (OPTION)

The RJ11 connector in main connection area of a PB system can be used for controlling most of the common cash drawers available on the market. However, it is recommended that the Posiflex CR-2000 (flip-top type) or (sliding drawer type) CR-3100 / CR-3200 / CR-4000 / CR-4100 / CR-4210 / CR-6210 be used for best compliance.

The PB system will directly control the cash drawer using the cash drawer port (CR) both to operate the opening mechanism and to monitor the drawer open status. Both functions may be accomplished under software control of the COM1 serial port.

Use the cable supplied with the Posiflex cash drawer (Part No. 21863018010) for connection to the CR port in PB system. This cable has a 6-pole RJ11 plug at one end and an 8-pole RJ45 plug at the other. The 8-pole plug should be inserted into the connector marked: "signal cable from POS Printer" at the rear of the cash drawer. The 6-pole plug should be inserted in the connector marked "CR" found in the main connection area in the system.

The user may also use the optional 2-in-1 cash drawer control cable 21863023800 to control 2 cash drawers in 1 port. It has a 6-pole plug at one end and two 8-pole plugs at the other. The 6-pole plug should be inserted in the connector marked "CR" found in the main connection area in the system. Each 8-pole plug should be inserted into the connector marked "signal cable from POS Printer" at the rear of one of the cash drawers. The cable lengths for the two 8-pole plugs are different. Use the shorter one for the original cash drawer "CR1" and use the longer one for the extended cash drawer "CR2" that will be distinguished by the software command.

OPERATING SYSTEM RECOVERY

The operating system exists in the HDD in top of the system unit. Once the software system on HDD collapses, it is possible to restore the operating system onto a physically intact HDD with use of the Recovery CD

that comes with the preloaded operating system. Please follow the instruction from your system integrator for system / software restoration. Follow the instructions below for operating system recovery only if your system integrator does not advise otherwise.

For the PB system preloaded with Windows system on HDD, Posiflex provides recovery CD delivered with the terminal for the preloaded operating system. The System Integrator shall take care of software restoration after OS recovered. Use a Posiflex supplied USB interface external CDROM drive for such action. Other brand CDROM drive may require its specific driver different from what supported in the recovery CD.

Please use the recovery CD in rescue operation only. Using it otherwise may wipe out whatever stored in the HDD! All upgrade devices drivers needed for manual installation in usual way are available in the subfolder "\drivers" in OS recovered HDD and the latest versions of these required drivers will be available on our web: http://www.posiflex.com or http://www.posiflex.com.

Now please follow instructions from your system integrator for software recovery after OS recovery and driver installation.

OPERATING SYSTEM INSTALLATION

This product is a highly professionalized equipment. The installation of an OS into a machine without any preloaded OS could constitute major difficulty for average user who either has barely limited technical knowledge of this professionalized equipment or is insufficiently equipped with necessary facilities to accomplish such a task. Therefore, installation of an OS into a system without preloaded OS is highly discouraged. Posiflex shall not be responsible for any technical support to questions arisen due to non-preloaded OS.

USING THE PB SYSTEM

BEFORE POWER ON – A Check List

It is *very* important that you check the following operational points:

Ventilation

This terminal must **NOT** be operated in an environment with restricted ventilation. There must be at least 25 mm air clearance around any top or side ventilation holes with a free flow of air around the unit at **ALL** times for the installation.

Operating Environment

The equipment must not site in direct sunshine, near a heater or in a damp area and must be free from contaminants like dust, smoke or fume.

The equipment must not be operated or stored in extremes of both temperature and humidity/moisture.

(Operating range 0° C to + 35 $^{\circ}$ C and up to 80% relative humidity – non condensing max. wet bulb 26 $^{\circ}$ C)

Power Supply

The operating voltage of the power supply should be checked to confirm that it is set within the range of the local power supply. The power cable, the power outlet and any power fusing arrangements must conform to local safety regulations.

UPS Battery (option)

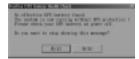
General care:

The UPS battery is consumable beyond product warranty. Please definitely observe the alerts in beginning of this manual. If the equipment is to be powered off for more than few days, please always **disconnect** the battery from the system. Reconnect it and turn on the system to recharge the battery for $1 \sim 2$ hours every 3 months for temperature lower than 30°C. Recharge for $1 \sim 2$ hours every month for temperature over 30°C. Temperature above **40°C must be strictly avoided** as it could cause termination of battery life and unexpected result even if the battery is not in work. The UPS battery can support basically the data preservation and smooth running of the system during intermittent or few minutes (3 \sim 20 min. depending on loading and battery condition) power failure.

Battery replacement:

In the preloaded OS for a PB-2200 Pro series, there is a built in

utility Posiflex Power Switch Manager that will indicate the UPS battery status of the battery. When an installed UPS battery is found to be disabled or when pop up warning message like this picture



appears, please replace the used up UPS battery at power off as soon as possible.

Emergency treatment:

The battery is constructed maintenance free and leakproof. Its storage space in PB system also provides very good protection as long as the ambient temperature remains below 30°C and the ventilation of the PB system remains free. However, should any accident happen and the sulfuric acid from the battery spills on skin or clothing, wash immediately with water. If the acid comes in contact with eyes, rinse eyes with large amount of clean water and see a doctor immediately. A larger external battery may be connected to give an extended operation. Please check your dealer about this capability when required.

WARNING:

If there are any signs of over charging or leakage of electrolyte please contact your dealer immediately

VGA Display Port

The VGA port in the PB terminal can support a 12 volt DC power to the external monitor through the VGA signal cable. This may cause permanent damage to any other monitor not designed to use this facility. Please use only a Posiflex monitor designed for the PB system when the 12 volt DC power is supported. Consult your dealer if you have any doubt.

(*Note*: 12 volt DC power is available on pin 9 of the VGA connector and is supported by the UPS function if the UPS function module option with UPS battery is installed.)

The video memory of this port shares from the system memory. The video memory size can be set in the BIOS CMOS setting to match the user's application.

Serial Port - COM1

For the PB system with the UPS function, a COM1 terminator will also be supplied. Please always occupy COM1 serial port by a suitable serial device or this terminator. If this port is left vacant or connected with something like a mouse, the power switch management and the cash drawer control may fail to work correctly. An RS232 MODEM is not applicable to this port. It is recommended to use COM2.

POWER ON/OFF CONTROL

The PB terminal implements electronic power control, such that the main power to the system may be controlled by many methods as below:

- 1. Hardware power switch
- 2. Software OFF command
- 3. Automatic power ON control
- 4. Emergency power OFF

Switching from OFF to ON requires a normal supply of the AC power.

Hardware Power Switch

This button is located at bottom front corner of right side as in right picture and can be used to turn the system on and off alternatively. This hardware switch can also be programmed to be an ON only switch through software command so that



when this switch is accidentally pressed during system turned on, the system just remains on and unaffected.

Software Off Command

The system may also be shut down under software control. Please just follow the arrangement by your system integrator for this capability.

Automatic Power On Control

The system may also turn on according to some preset conditions such as Modem Ring Up and Alarm Clock Wake Up or LAN Wake Up.

To utilize Modem Ring Up or Alarm Clock Wake Up function, the user should enter the CMOS setup by pressing "Del" key at system boot up, choose for "PM Wake Up Events" in "Power Management Setup" and make the "Ring Power Up Control" enabled for Modem Ring Up or select the "Power Up by Alarm" for Alarm Clock Wake Up. Save the configuration and exit the CMOS setup program. The Preset Power On Control will then be ready after a normal power off. For LAN wakeup, an operating caller system connected through LAN to the system is required. It also requires a qualified networking technician to check the LAN chip ID of the PB system for the caller system to wake it up.

When the PB system is turned off after a successful boot up, the preset automatic power on functions will keep monitoring for the preset conditions and turn on the system when the preset conditions are met.

Please note that if the PB system is improperly turned off before a complete boot up procedure, the above preset power on control functions will be disabled until next turning off after a complete boot up.

Emergency Power Off

In case of serious system halt due to any reason, the system could fail to be powered off through normal means. Press and hold the Power ON/OFF Switch for Emergency Power Off. Release the switch after the system powered off. It will take about 10 seconds. If there appears to give a special coded beep tone in the pattern "short, long, short, long, short" prior to the system power off in this process, please remove the AC power and wait for few minutes to allow the hardware registers to reset (If there is no such beep, AC removal is not required). Then you may restart the system and take remedial action against the precious failure.

UPS Function

When the UPS battery is installed, this function can be automatically enabled if the machine is operating on the preloaded OS from the manufacturer. When the external power is interrupted during system operation with the UPS function enabled, the system will give periodical beep to indicate the status of system working on battery power. The beep will go rather fast when the UPS battery approaches a fully discharged condition to remind the operator that power will soon finish. In few seconds, the whole system will soon be automatically turned off. In case the AC power resumes during the usage of the battery power, the battery operation will keep on for few seconds before the AC supply is confirmed stable.

CUSTOMER DISPLAY

The optional customer display PD-2601 or PD-7321 mounted on a pole at rear corner of PB system can be turned horizontally for best viewing effect in application.

FAN CONTROL

In the preloaded OS for this PB system, there is an embedded function that can keep on monitoring the interior temperature and the fan revolution rate

and regulating each required fan power to gain maximum ventilation effect with lowest possible noise. This function is disabled by default at delivery. The user can decide to engage this function by clicking "Start" --> "Programs" --> "Posiflex Tools" --> "Posiflex Fan Control" to pop up a window like the right picture. Click "Enable" then "Apply" to engage this function in background. This function will remain



operating even after system restart. To disable this function, you have to pop up this window again and click "Disable" then "Apply" and restart the system. If system hang due to CPU overheat occurs, please **review the ventilation**

condition and environment temperature, check if the fan is stuck by contaminants such as dry grease or threads and try to correct the situation when the system is off and cooled down. You may power up the system again after the system cooled down and trouble cause removed. However, if the trouble remains, please consult your dealer for possibly fan replacement on worn out.

USB

There are in total six standard USB female connectors in the rear room. All support the Universal Serial Bus Specification standard 2.0 and also 1.1. If for any reason (though very unlikely in ordinary practice) these ports has to be limited as USB 1.1 only, please enter BIOS setup and go to "Integrated Peripherals" then "SiS OnChip PCI Device" and disable the item "USB 2.0 Supports".

One among the six USB ports can be extended to top edge of system unit for the side-mount upgrade kit by a cable.

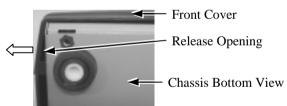
VENTILATION MAINTENANCE

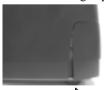
To keep this equipment in orderly service, following maintenance should be performed on a regular basis.

Removing Front Cover

Please first remove any power and signal connection to this equipment. Please then check at the bottom side of the chassis that there is a gap between the bottom side of front cover and the chassis at the left corner of

front cover. Pull the front cover out from this opening to release the left side hook of front cover from the chassis as indicated by the hollow arrow in the right picture.





Please then pull the bottom side of front cover forward to release the bottom hooks of front cover from the chassis as indicated by hollow arrow in left picture.

Now pull the left side of front cover down a little to free it from the main cover as in the right picture.



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It may be required to push the power switch down to completely remove the front cover.

Power Switch

Cleaning for Front Ventilation

Use vacuum cleaner to remove any dust or threads accumulation away from both the ventilation holes on front cover and ventilation grids on chassis exposed after removal of the front cover.

Front Ventilation Grids on Chassis — Ventilation Holes on Front Cover —

Replacing Front Cover

Follow the opposite procedure as removing the front cover to replace the front cover in position. Please make sure the all hooks on front cover is well positioned into chassis. Please remember to check that the power switch is at "Off" position before power and signal connection.

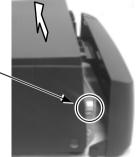
Accessing Side Ventilation Grids

The operation to further clean the side ventilation grids requires much more highly technical maneuver. Therefore careful attentions must be taken throughout the further cleaning operations below. When the main unit is

opened, there must be no liquid spill, no electro-conductive material, no electric charged device come into the area of the main unit. Please also note that not to touch any component or cable inside.

Please first disconnect every cable from the main unit and prepare enough space in front of the PB system and lay a piece of clean soft clothe of appropriate size there to

Push the spring buttons on both sides and raise the rear part of Top Cover



prevent damage. With the back cable cover opened, push in the circled spring button in the above picture on both sides of chassis and raise the rear edge of the top cover. Apply some mild maneuver if there is already a pole display mounted.

Cleaning for Side Ventilation

Use vacuum cleaner to remove any dust or threads accumulation away from outsides of both ventilation grids on chassis exposed after removal of the front cover as in pictures below and close back the top cover when done.



Side Ventilation Grids on Chassis



