ST-150B

User guide

BARCO

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TABLE OF CONTENTS

K5903075 ST-150B 16/01/2014

1. WELCOME!

1.1 About the product

Smart Terminal

The ST-150B is a multimedia Intel® Atom processor-based computer that is designed to serve as a Point of Care (POC) and Point of Information terminal (POI) within healthcare applications. It is a PC based system with 15" color TFT LCD display, Gigabit Ethernet, multi-COM port and USB 2.0 interfaces and High Definition Audio codec.

The ST-150B Smart Terminal™ is as compact and user-friendly as a notebook computer. This simple, complete and highly integrated multimedia system lets system integrators easily build the ST-150B Smart Terminal™ into their applications.

> **The device is not intended to be used in patient monitoring, diagnosis, treatment, alleviation or prevention of diseases, injuries and handicaps.**

> **CAUTION: Read all the important safety information before installing and operating your ST-150B. Please refer to the dedicated chapter in this user guide.**

1.2 What's in the box

Overview

Your ST-150B comes with:

- PSU & Power cord — USA, European, UK types (where applicable)
- Handset & Coiled Cable (where applicable)
- Accessories for the ST-150B (where applicable)

Keep your original packaging. It is designed for this terminal and is the ideal protection during transport and storage.

> **WARNING: To prevent electric shock, DO NOT remove covers. No user serviceable parts inside, refer servicing to qualified personnel.**

2. PARTS, CONTROLS AND CONNECTORS

2.1 System setup

Become familiar

Before you set up the ST-150B, take a moment to become familiar with the locations and purposes of the controls, drives, connections and ports, which are illustrated in the figures below.

Front

When you place the ST-150B upright on the desktop, its front panel appears as shown in the figure below.

Image 2-1
Front view of the ST-150B

1. Membrane which contains functions: Power, Volume Up/Down, Backward/Forward, Stop, Play/Pause and Channel Up/Down
2. Webcam

Left, Right

When you look at the left side of the ST-150B, you will see a handset, fitted to the left docking port. At the right side of the terminal, you will see an MSR reader, fitted to the right docking port.
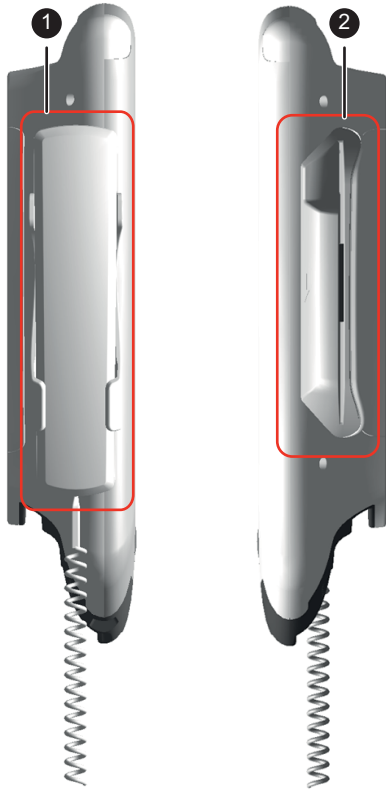

Image 2-2
Side views of the ST-150B

1 Handset (optional)

2 MSR Reader (Mag Stripe Reader) (optional)

Bottom

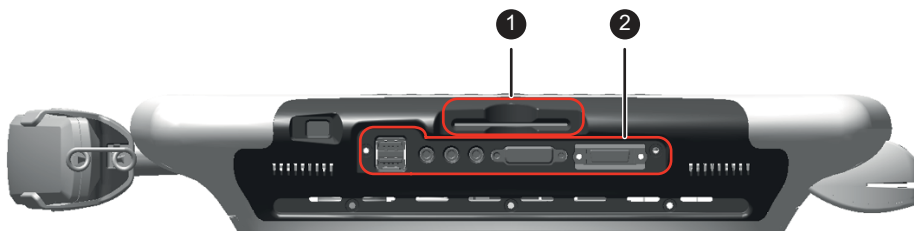On the bottom side of the ST-150B you will find a Smart Card Reader and an I/O area, as shown in the figure below.

Image 2-3
Bottom view of the ST-150B

1 SCR (Smart Card Reader)

2 I/O area bottom

Rear

On the rear of the ST-150B you will find the two removable access doors located left and right of the terminal. The right-hand cover provides access to the system DDR memory and a mini PCIe slot, and the left-hand cover provides access to the HDD, as shown in the figure below.

Image 2-4
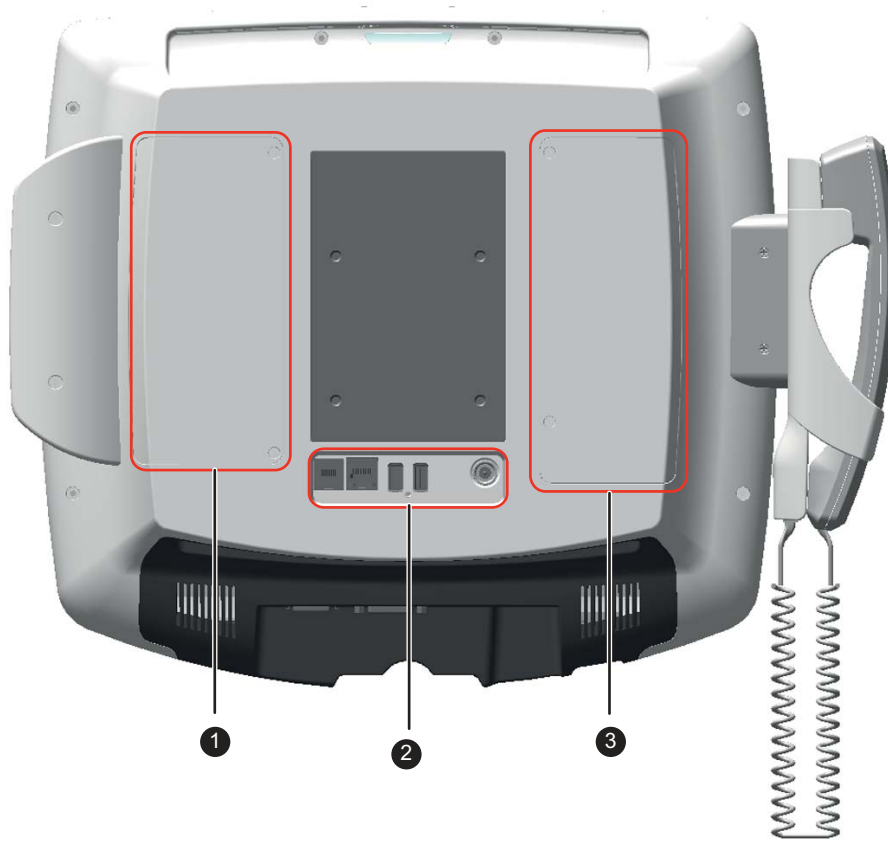Rear view of the ST-150B

❶ Access door to HDD*

❷ I/O area rear

❸ Access door to System DDR memory and mini PCIe slot*

⚠ **CAUTION: * The access doors may only be opened by qualified service personal, no user serviceable parts inside.**

IO areas

There are two I/O areas in the ST-150B; one is at the back and the other one is at the bottom. The figures below indicate the various ports of these two areas.
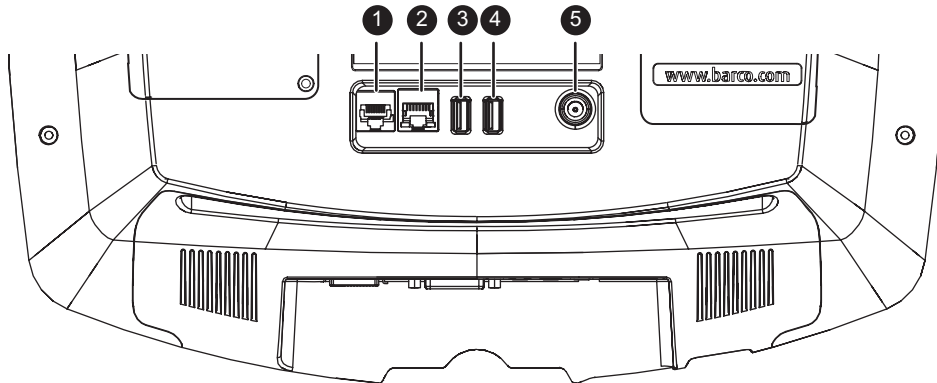
Image 2-5
I/O ports at the back of the ST-150B

1 8P8C handset connector +Fin Service Call Connector

2 RJ 45 Shielded Gigabit Ethernet Connector

3 USB Connector

4 USB Connector

5 Power Connector

Image 2-6
I/O ports at the bottom of the ST-150B

1 USB Connector (2x)

2 Microphone Jack

3 Headset Jack (2x)

4 DVI-I Connector

5 26-Way MDR Connector (for optional remote control or a Service Call device)

The RJ9 socket is for handset connection only.

Label location

Image 2-7
Label location

1 Intel® label
2 FCC label WiFi module
3 FCC label Bluetooth
4 Rating label

3. SYSTEM INSTALLATION

3.1 Mounting

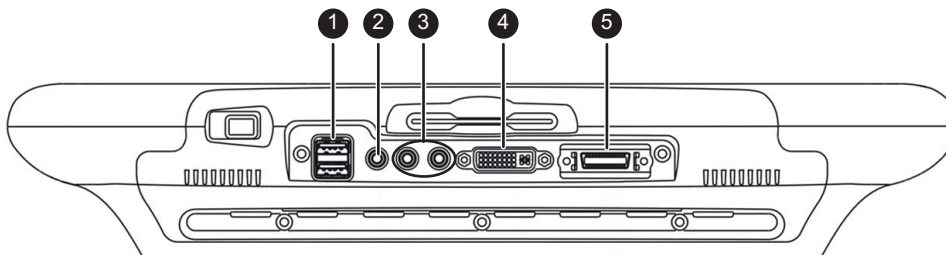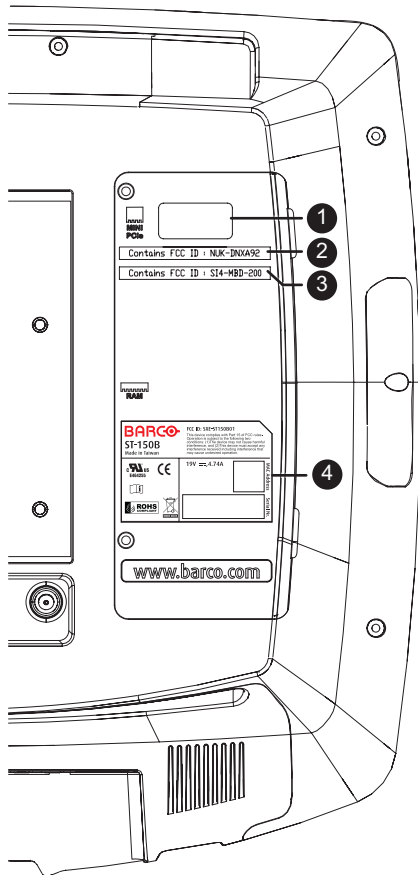### Fixing the terminal to a mounting solution

The terminal is foreseen from a mounting anchor that can be used for different mounting solutions (arms, desk stands, ...).

To install the terminal, please follow the detailed mounting instructions in the user guide, which is delivered with the mounting solution you have chosen for your terminal.

3.2 Installation

Connecting the power cable

Always handle the power cable by holding the plug end only. Follow these steps:

1. Connect the male end of the power supply DIN cable to the DC inlet of the ST-150B, see figure below.

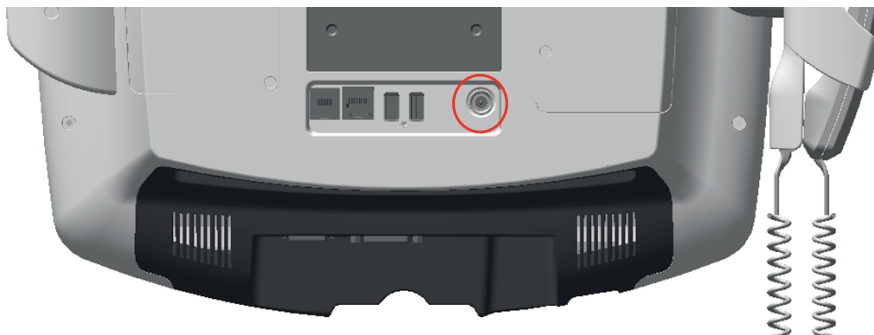2. Connect the male plug of the power supply to an electrical outlet.

Image 3-1
Connecting the power cable

Connecting USB keyboard and mouse

1. Connect the keyboard and mouse to the USB ports located on the bottom cover of the ST-150B, see figure below.

Image 3-2
Connecting the keyboard and mouse

Switching on the power

1. Switch on the ST-150B via the power switch on the front cover, see figure below.

Image 3-3
Switching on the power

3.3 Installation of HDD, SSD (optional)

> ⚠️ **CAUTION: The installation of the optional HDD and/or SSD drive should be carried out by a professional technician. Only UL-certified hard disks may be installed!**
>
> **Please contact a service technician or your reseller if you need this service.**

3.4 Running the BIOS setup program

BIOS setup

Your ST-150B is likely to have been properly set up and configured by your dealer prior to delivery. If you still find it necessary to use the BIOS (Basic Input-Output System) setup program to change system configuration information please contact Barco for support.

The settings you specify with the setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, 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 screen, and you will be prompted to run the setup program.

3.5 Installing system software

Setup and installation instructions

Recent releases of operating systems from major vendors include setup programs which load automatically and guide you through hard disk preparation and operating system installation. The guidelines below will help you determine the steps necessary to install your operating system on the ST-150B. If required, insert your operating system's installation or setup disc into a portable optical drive and plug into one of the ST-150B USB ports.

> 📄 **Some distributors and system integrators may have already pre-installed system software prior to shipment of your ST-150B.**

If you are presented with a setup/installation screen then carefully follow the instructions. The setup program will guide you through preparation of your hard drive, and installation of the operating system.

3.6   Installing the drivers

Drivers

After installing the system software, you will be able to install the necessary drivers. All the ST-150B drivers and updates can be obtained from Barco.

> **The drivers and utilities used for the ST-150B are subject to change without notice. If in doubt, check with your local Barco office or contact our application engineers for the latest information regarding drivers and utilities.**

4. SYSTEM OPERATION

4.1 Frequently used functions

Using the Smart Card Reader (SCR)

1. Insert the card firmly into the allocated slot with the chip facing towards the front of the terminal. (See figure below). The Smart Card will be recognized by the terminal.

Image 4-1
Using the Smart Card Reader (SCR)

Using the RFID Reader

1. Present the card to the reader by tapping and holding it briefly onto the clearly reader-marked area until the card is read.

Image 4-2
Using the RFID reader

Using the MagStripe Reader (MSR)

1. Insert the card firmly into the allocated slot with the chip facing towards the side of the terminal. (See figure below). The Magnetic Stripe Card will be recognized by the terminal.

Image 4-3
Using the Magnetic Stripe Reader (MSR)

5. MAINTENANCE

> **This device does not require any scheduled maintenance activities. In case of a defect, return the device to a Barco approved maintenance organization. In any case of doubts, contact the Barco Healthcare Division**

5.1   Cleaning instructions

> **Cleaning is no mandatory maintenance activity for the ST-150B.**
>
> **During normal use, the ST-150B surfaces may become soiled. If you should like to clean them, follow the detailed cleaning instructions in the below paragraph.**

To clean the terminal

Examples of approved cleaning agents:

- Green tinctured soap and Enzymatic detergents
- Mediwipes
- Vernacare wipes

1. Prepare agent per manufacturer's instructions or hospital protocol.
2. Wipe the ST-150B with a clean cloth that has been moistened in the cleaning solution.
3. Wipe thoroughly with a clean cloth.

The ST-150B's surfaces are resistant to the following cleaning materials:

- Isopropyl alcohol

- Ammonia-based glass cleaners

- Turpentine

- Mineral spirits

> **CAUTION: Do not immerse or rinse the ST-150B and its peripherals. If you accidentally spill liquid on the device, disconnect the unit from the power source. Contact your Biomed regarding the continued safety of the unit before placing it back in operation. Do not spray cleaning agent on the chassis.**
>
> **Do not use disinfectants that contain phenol. Do not autoclave or clean the ST-150B or its peripherals with strong aromatic, chlorinated, ketone, ether, or ester solvents, sharp tools or abrasives. Never immerse electrical connectors in water or other liquids.**
>
> **In environments where specific chemicals or cleaning agents are required to be used, please contact Barco.**

6. IMPORTANT INFORMATION

6.1   Safety information

General recommendations

Read the safety and operating instructions before operating the device.

Retain safety and operating instructions for future reference.

Adhere to all warnings on the device and in the operating instructions manual.

Follow all instructions for operation and use.

Electrical Shock or Fire Hazard

To prevent electric shock or fire hazard, do not remove cover.

No serviceable parts inside. Refer servicing to qualified personnel.

Do not expose this apparatus to rain or moisture.

Safety instructions

*   Do not modify this equipment without authorization of the manufacturer.
*   The equipment must be powered using the delivered medical approved DC power supply only.
*   The medical approved DC power supply must be powered by the AC mains voltage (protective earth terminal).

> **To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.**

*   Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
*   Position the power cord so that it is not a hazard. Do not place anything over the power cord.
*   If the equipment is out of use for an extended period, make sure to disconnect it from the power source to avoid damage in the event of a power surge.
*   Earth the ST-150B by connecting the protective earth pin to a grounded outlet by means of the supplied wire.
*   If one of the following situations arises, ensure you get the equipment checked by service personnel:

    a) The power cord or plug is damaged.

    b) The equipment has been exposed to moisture.

    c) The equipment is not functioning properly, or you cannot get it to work according to the user manual.

    d) The equipment has been dropped and damaged.

    e) The equipment has obvious signs of breakage.

*   To disconnect the device: Remove the rear power supply power connection.
*   If your computer is losing time or the BIOS configuration resets to default settings, the battery most likely has no power.
*   Do not replace the battery yourself. Please contact a qualified technician or your supplier of the ST-150B. The ST-150B is provided with a battery-powered real-time clock circuit. There is a danger of leakage or explosion if the battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

- **Warning:** if the equipment is not used for a long time, please make sure that the battery is removed from the equipment.
- Place the terminal on a stable surface that can support the weight of at least 4 terminals or hang from a reliable structure during installation. Dropping the equipment is likely to cause serious injury to a child or adult, and serious damage to the equipment.
- Improper installation of VESA mounting can result in serious personal injury! Use a VESA mounting solution that can support a weight of at least 10kg. VESA mount installation should be carried out by a professional technician. Please contact the service technician or your reseller if you need this service.
- Keep this equipment away from excessive humidity.
- Do not pour any liquid into the vents on the terminal. This may cause fire or electrical shock.
- The vents on the enclosure are for air convection and protect the equipment from overheating. Do not cover the vents.
  When installing the terminal in a cupboard or another closed location, heed the necessary space between the set and the sides of the cupboard.
- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20 °C or above 60°C. This may damage the equipment.
- Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- For more information about recycling of this product, please contact your local city office, your municipal waste disposal service or the shop where you purchased the product.
- This equipment is not intended to be used in life support systems, operating rooms or for diagnostic purposes.
- External connections to model ST-150B (I/O, LAN, etc) shall be in compliance with the requirements for medical electrical systems as stated in chapter 16 of the standard for medical electrical equipment IEC 60601-1: 2005.
- Accessory equipment connected to the analog and digital interfaces must be in compliance with the respective nationally harmonized IEC standards (i.e. IEC 60601 for data processing equipment). If in doubt, consult the technical services department or your local representative.

Type of protection (electrical):

Display with external power supply: Class I equipment.

Degree of safety (flammable anesthetic mixture):

Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Non-patient care equipment

- Equipment primarily for use in a health care facility that is intended for use where contact with a patient is unlikely (no applied part).
- The equipment may not be used with life support equipment.
- The user is not supposed to touch SIP/SOPs and the patient at the same time.

Power connection – Equipment with external 19 VDC power supply

- Power requirements: The equipment must be powered using the delivered medical approved 19 VDC (⎓) power supply.
- The medical approved DC (⎓) power supply must be powered by the AC mains voltage.
- The power supply is specified as a part of the ME equipment or combination is specified as a ME system.
- To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- The equipment should be installed near an easily accessible outlet.
- The equipment is intended for continuous operation.

Transient over-voltage

If the device is not used for a long time, disconnect it from the AC inlet to avoid damage by transient over-voltage.

To fully disengage the power to the device, please disconnect the power cord from the AC inlet.

Power cords:

- Utilize a UL-listed detachable power cord, 3-wire, type SJ or equivalent, 18 AWG min., rated 250 V min., provided with a hospital-grade type plug 5-15P configuration for 120V application, or 6-15P for 240V application.
- Do not overload wall outlets and extension cords as this may result in fire or electric shock.
- Mains lead protection (U.S.: Power cord): Power cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or against them, paying particular attention to cords at plugs and receptacles.
- The power supply cord should be replaced by the designated operator only at all time.
- Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.

Ventilation

Do not cover or block any ventilation openings in the cover of the set. When installing the device in a cupboard or another closed location, heed the necessary space between the set and the sides of the cupboard.

This apparatus conforms to:

ANSI/AAMI ES 60601-1:2005; CAN/CSA-C22.2 No.60601-1:08; FCC-Class A; CE

6.2   Environmental information

Disposal Information

Waste Electrical and Electronic Equipment

This symbol on the product indicates that, under the European Directive 2012/19/EU governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal waste. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

For more information about recycling of this product, please contact your local city office or your municipal waste disposal service.

For details, please visit the Barco website at: http://www.barco.com/en/AboutBarco/weee

Disposal of batteries in the product

This product contains batteries covered by the Directive 2006/66/EC which must be collected and disposed of separately from municipal waste.

If the battery contains more than the specified values of lead (Pb), mercury (Hg) or cadmium (Cd), these chemical symbols will appear below the crossed-out wheeled bin symbol.

By participating in separate collection of batteries, you will help to ensure proper disposal and to prevent potential negative effects on the environment and human health.

Turkey RoHS compliance

▬▬ Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur.

[Republic of Turkey: In conformity with the WEEE Regulation]

中国大陆 RoHS

Chinese Mainland RoHS

根据中国大陆《电子信息产品污染控制管理办法》(也称为中国大陆RoHS)，以下部分列出了Barco产品中可能包含的有毒和/或有害物质的名称和含量。中国大陆RoHS指令包含在中国信息产业部MCV标准："电子信息产品中有毒物质的限量要求"中。

According to the "China Administration on Control of Pollution Caused by Electronic Information Products" (Also called RoHS of Chinese Mainland), the table below lists the names and contents of toxic and/or hazardous substances that Barco's product may contain. The RoHS of Chinese Mainland is included in the MCV standard of the Ministry of Information Industry of China, in the section "Limit Requirements of toxic substances in Electronic Information Products".

零件项目(名称) Component name	有毒有害物质或元素 Hazardous substances and elements					
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
印制电路配件 Printed Circuit Assemblies	x	o	o	o	o	o
外接电(线)缆 External Cables	x	o	o	o	o	o
內部线路 Internal wiring	o	o	o	o	o	o
塑胶外壳 Plastic enclosure	o	o	o	o	o	o
电源供应器 Power Supply Unit	x	o	o	o	o	o
风扇 Fan	o	o	o	o	o	o
文件说明书 Paper Manuals	o	o	o	o	o	o
光盘说明书 CD manual	o	o	o	o	o	o
O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下.						
O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求.						
X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006						

在中国大陆销售的相应电子信息产品（EIP）都必须遵照中国大陆《电子信息产品污染控制标识要求》标准贴上环保使用期限（EFUP）标签。Barco产品所采用的EFUP标签（请参阅实例，徽标内部的编号使用于制定产品）基于中国大陆的《电子信息产品环保使用期限通则》标准。

All Electronic Information Products (EIP) that are sold within Chinese Mainland must comply with the "Electronic Information Products Pollution Control Labeling Standard" of Chinese Mainland, marked with the Environmental Friendly Use Period (EFUP) logo. The number inside the EFUP logo that Barco uses (please refer to the photo) is based on the "Standard of Electronic Information Products Environmental Friendly Use Period" of Chinese Mainland.

6.3 Regulatory compliance information

Indications for use

The ST-150B is not intended to be used in patient monitoring, diagnosis, treatment, alleviation or prevention of diseases, injuries and handicaps.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

FCC class A

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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

6.4 EMC notice

General information

No specific requirement on the use of external cables or other accessories except power supply.

With the installation of the device, use only the delivered power supply or a spare part provided by the legal manufacturer. Using another can result in a decrease of the immunity level of the device.

Electromagnetic emissions

The ST-150B is intended for use in the electromagnetic environment specified below. The customer or the user of the ST-150B should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – Guidance
RF emissions CISPR 11	Group 1	The ST-150B uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The ST-150B is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class D	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

This ST-150B complies with appropriate medical EMC standards on emissions to, and interference from surrounding equipment. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Interference can be determined by turning the equipment off and on.

If this equipment does cause harmful interference to, or suffer from harmful interference of, surrounding equipment, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna or equipment.
- 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 technician for help.

Electromagnetic immunity

The ST-150B is intended for use in the electromagnetic environment specified below. The customer or the user of the ST-150B should assure that it is used in such an environment.

Immunity test	IEC 60601 Test levels	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6kV contact ± 8kV air	± 6kV contact ± 8kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	± 2kV for power supply lines ± 1kV for input/ output lines	± 2kV for power supply lines ± 1kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment

Immunity test	IEC 60601 Test levels	Compliance level	Electromagnetic environment – guidance
Surge IEC61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5% U_T [1] (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5s	< 5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5s	Mains power quality should by that of a typical commercial or hospital environment. If the user of the ST-150B requires continued operation during power mains interruptions, it is recommended that the ST-150B be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	Not applicable	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V 3 V/ m	Portable and mobile RF communications equipment should be used no closer to any part of the ST-150B, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance **d = 1.2√P** **d = 1.2√P** 80 MHz to 800 MHz **d = 2.3√P** 800 MHz to 2.5 Ghz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an

1. is the a.c. mains voltage prior to application of the test level.

Immunity test	IEC 60601 Test levels	Compliance level	Electromagnetic environment – guidance
			electromagnetic site survey,[2] should be less than the compliance level in each frequency range.[3] Interference may occur in the vicinity of equipment marked with symbol:

At 80 MHz and 800 MHz, the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
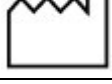
Recommended separation distance

The ST-150B is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer of the user of the ST-150B can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the ST-150B as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter [4] W	Separation distance according to frequency of transmitter		
	150kHz to 80MHz $d=1.2\sqrt{P}$	80MHz to 800MHz $d=1.2\sqrt{P}$	800MHz to 2.5GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

2. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the ST-150B is used exceeds the applicable RF compliance level above, the ST-150B should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the ST-150B.
3. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.
4. For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter. Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

> These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection form structures, object and people.
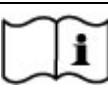
6.5 Explanation of symbols

Symbols on the device

On the device or power supply, you may find the following symbols (nonrestrictive list):

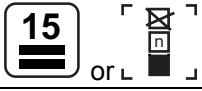|	
CE	Indicates the device meets the requirements of the applicable EC directives.
FC	Indicates compliance with Part 15 of the FCC rules (Class A or Class B)
cULus	Indicates the device is approved according to the UL Recognition regulations
D	Indicates the device is approved according to the UL Demko regulations
CCC	Indicates the device is approved according to the CCC regulations
VCI	Indicates the device is approved according to the VCCI regulations
KC	Indicates the device is approved according to the KC regulations
	Indicates the device is approved according to the BSMI regulations
USB	Indicates the USB connectors on the device
D	Indicates the DisplayPort connectors on the device
	Indicates the manufacturing date
xx yy	Indicates the temperature limitations[5] for the device to safely operate within specs.
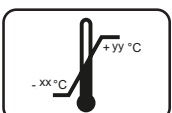
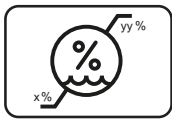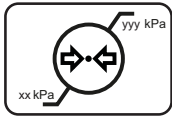5. Values for xx and yy can be found in the technical specifications paragraph.

SN	Indicates the device serial no
	Warning: dangerous voltage
	Caution
	Consult the operating instructions
	Indicates this device must not be thrown in the trash but must be recycled, according to the European WEEE (Waste Electrical and Electronic Equipment) directive
	Indicates Direct Current (DC)
	Indicates Alternating Current (AC)
	Stand-by

Symbols on the box

On the box of the device, you may find the following symbols (nonrestrictive list):

	Indicates a device that can be broken or damaged if not handled carefully when being stored.
	Indicates a device that needs to be protected from moisture when being stored.
	Indicates the storage direction of the box. The box must be transported, handled and stored in such a way that the arrows always point upwards.
15 or	Indicates the maximum number of identical boxes which may be stacked on each other, where "n" is the limiting number.
20 - 30 Kg	Indicates that the box should be carried with two persons.
	Indicates that the box should not be cut with a knife, a cutter or any other sharp object.
+ yy °C / - xx °C	Indicates the temperature limits[6] to which the device can be safely exposed when being stored.

![humidity range symbol]	Indicates the range[6] of humidity to which the device can be safely exposed when being stored.
![atmospheric pressure range symbol]	Indicates the range[6]of atmospheric pressure to which the device can be safely exposed when being stored.

6.6 Legal disclaimer

Disclaimer notice

Although every attempt has been made to achieve technical accuracy in this document, we assume no responsibility for errors that may be found. Our goal is to provide you with the most accurate and usable documentation possible; if you discover errors, please let us know.

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6.7 Technical specifications

Technical specifications for the ST-150B

Display	LED, 15" SXGA (1024 x 768)
Processor	Intel Atom Cedar Trail D2550 – 1.86 Ghz
System chip set	Intel NM10
BIOS	AMI 16M-bit SPI UFEI BIOS
RTC battery	CR2032
Storage	Optional 2.5" HDD or SSD (Standard - no storage installed)
	Required rating: 5Vdc, max 2A
HDD drive	320 GB (optional)
SSD drive	8, 16, or 32 GB (optional)

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6. Values for xx and yy can be found in the technical specifications paragraph.

System memory	DDR3 1066
	2 or 4 GB
Operating system	Linux
	Windows® XP Embedded
	Windows® XP Professional for Embedded Systems
	Windows® 7 Embedded
Connectivity	LAN (x1)
	USB 2.0 (x4)
	Headphone jack (x2)
	Microphone jack (x1)
	Handset connector
	DVI out
	Programmable GPIO
	Service Call (optional)
User interface	5-wire resistive touch-screen
	On screen keyboard
	Membrane keypad
	On/Off switch
	LED call warning lights
Webcam	Integrated, with privacy shutter
	HD720P
Audio	2 off 2 Watt integral speakers
	Internal microphone
	Warning / ring tones
Medical Environment Considerations	Antibacterial coating
	Fanless cooling
Certifications	EN/UL60601, FCC-Class A, CE?????????????????
Power requirements	19V DC, 4.74A
	Device is intended to be supplied with a PSU with rated output of 19V, 4.74A,
Dimensions (mm)	384 x 354 x 70 (without handset, MSR)
Weight	4.0 kg
Internal options	
Smart Card Reader (SCR)	√
Combined SCR and RFID reader	√
WiFi	Mini PCe 802.11b/g/n Wireless LAN Module
Bluetooth	USB Bluetooth Module
External options	
Analogue handset	√

MagStripe Reader (MSR)	√ (right side only)
Wired remote (RIMO)	√
Headphone hanger	√
Operating temperature	0°C to 40°C
Storage & transport temperature	-20°C to 60°C
Operating humidity	20% - 90% (non-condensing)
Storage & transport humidity	10% - 80% (non-condensing)
Operating atmospheric pressure	50 - 106 kPa
Storage and transport atmospheric pressure	50 - 106 kPa