



# Invitium™ Medical Workstation Tk7 and Tn4

## OPERATIONS MANUAL

[www.planar.com](http://www.planar.com)

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## U.S. Federal Communications Commission (FCC) Requirements

This device was tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



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



To comply with the limits for an FCC Class B computing device, always use the shielded signal cord supplied with this unit. The FCC warns that changes or modification of the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Canadian Documentation Notice - Class B Computing Devices

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulation of the Canadian Department of Communications.

*"Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada."*

## Regulatory Compliance

This system was tested and complies with IEC/EN 60601-1, UL 2601-1, and CAN/CSA C22.2 No. 601.1 medical safety standards. It is the system integrator or configurer's responsibility to test and ensure that the entire system complies with applicable electromagnetic compatibility (EMC) laws.

## European Union Declaration of Conformity for Medical Applications

A Declaration of Conformity exists for these products. To obtain a copy, contact Planar and request the "Declaration of Conformity" document number below.

- Tk7 – 001-0014-04
- Tn4 – 001-0014-09

### Certifications

- IEC/EN 60601-1:1990 + A1 + A2 for sale to the medical market
- IEC 60601-1-2:2001 as it applies to this system (informative data)
- Underwriters Laboratory to medical standards UL 2601-1 and CAN/CSA C22.2 No. 601.1 M1990 for sale in the United States and Canada
- Carries the CE mark for sale in the European Community

### Symbol Explanations

This information identifies and describes the symbols found on the Invitium.



Proof of conformity to applicable European Economic Community Council directives and harmonized standards published in the official journal of the European Communities.



E 226863

UL 2601-1

CAN/CSA C22.2

NO.601.1

IEC 60601-1

Product is certified with respect to electric shock, fire, mechanical and other hazards only in accordance with US 2601-1 and CAN/CSA C22.2 No. 601.1 and IEC 60601-1 for medical equipment. If this mark appears with the indicators *C* and *US*, the product is certified for the United States and Canadian markets, meeting the applicable United States and Canadian standards.



Tested to comply with FCC Class B standards.



Consult accompanying documents.



Indoor use only.

## **Warranty Information**

Planar Systems, Inc. warrants that the goods sold hereunder are free of defects in materials and workmanship, and such goods substantially conform to the specifications furnished by Planar and to any drawings or specifications furnished to Planar by the Buyer if approved by Planar. This warranty is effective only if Planar receives notice of such defect or nonconformance during the period of the warranty. Planar's sole and exclusive liability for breach of warranty shall be, at Planar's option, to repair or replace the Planar product(s) with refurbished units or provide a credit to buyer in the amount of the purchase price.

### **Commencement of warranty**

The warranty period begins on the date of shipment.

### **Duration of warranty**

The goods sold hereunder are warranted for a period of one year from the date of shipment unless otherwise agreed to by Buyer and Planar. No extension of the warranty will be given during the time the goods are in Planar's possession.

### **Place of repair or replacement**

To obtain warranty service, Buyer must notify Planar of the defect before expiration of the warranty period and request a *Return Material Authorization* number. Return the product in its original configuration to obtain warranty service from Planar. Do not return goods to Planar without prior authorization. Buyer is responsible for packaging and shipping the defective goods to the Planar Service Facility located at Beaverton, Oregon, with shipping charges prepaid.

### **Limitation of warranty**

The foregoing warranty shall not apply to defects resulting from (a) improper or inadequate maintenance by Buyer; (b) unauthorized modification of the goods; (c) operation of the goods outside of the environmental specifications of the goods; (d) neglect, misuse, or abuse of the goods; or (e) modifications or integration with other goods not covered by Planar's warranty when such modifications or integration increases the likelihood of damage to the goods.

The warranty is given by Planar in lieu of any other warranties, express or implied. Planar disclaims any implied warranties of merchantability or fitness for a particular purpose. Planar's responsibility to repair or replace defective products is the sole and exclusive remedy provided to the buyer for breach of this warranty. Planar is not liable for any indirect, special, incidental, or consequential damages irrespective of whether Planar has advance notice of the possibility of such damages.

### **Technical assistance**

The warranty set forth above shall not be enlarged, diminished, or affected by, and no obligation or liability shall arise from Planar, any authorized dealer, or any other person's rendering of technical advice, assistance, or services in connection with the buyer's order of the goods furnished hereunder. The Buyer is not relying on Planar's skill or judgment to select or furnish suitable goods.

### **Installation**

Planar makes no warranty with respect to any installation of Planar's product(s) by Planar, any authorized dealer, or any other person.

# About This Manual

Read this manual before you unpack your Planar® Invitium™ medical workstation.

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Chapter 1, Overview	Intended use, components, options, and mounting solutions
Chapter 2, Installing the Invitium	Setting up and connecting
Chapter 3, Troubleshooting	Problem solving

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## Audience

This manual assumes you have experience installing and using computers. Refer technical issues to your Invitium vendor or system administrator.

## Conventions

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Symbol	Description
	A caution that can prevent potential damage to hardware or software.
	A warning that can prevent personal injury.

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## Related documentation

- *Invitium Quick Setup Guide*
- *Invitium Battery Pack Manual*
- *Invitium Specification Sheet*

## Clean the Display

Drip protection is in accordance with the IPX1 rating defined in the IEC/EN60529 standard.

- 1 Dampen a soft cloth with an approved cleaning solution.
- 2 Wipe the screen lightly until no residue remains.

**Note** Do not spray cleaners directly on the screen.

### Approved cleaning solutions

- WexCide<sup>®</sup>
- Ovation<sup>®</sup>
- Fantastic<sup>®</sup>
- Formula 409<sup>®</sup>
- 1.6% aqueous ammonia
- 70% isopropyl alcohol
- “Green soap” USP (United States Pharmacopoeia)
- Cidex<sup>®</sup> (2.4% glutaraldehyde solution)
- 0.5% Chlorhexidine in 70% isopropyl alcohol
- Sodium Hypochlorite (bleach) 10%

## Service and Support

There are no internal user-serviceable components. Return the system to your Invitium vendor to maintain product warranty.



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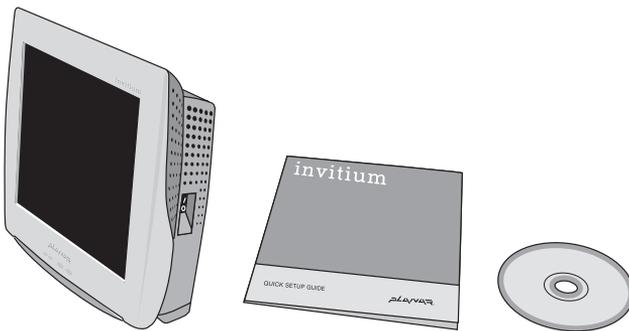
## Overview

Your Planar® Invitium™ medical workstation is designed for point-of-care use in the medical environment. With appropriate cables and AC power adapter or battery pack, the Invitium complies with applicable safety and regulatory EMC standards worldwide.

The Invitium meets these requirements:

- Class I system under the MDD, intended for patient proximity use
- Medically certified for patient safety and proximity (UL 2601 and IEC 60601)
- Withstands high-impact jarring, ingress of liquids, and hospital-grade disinfectants

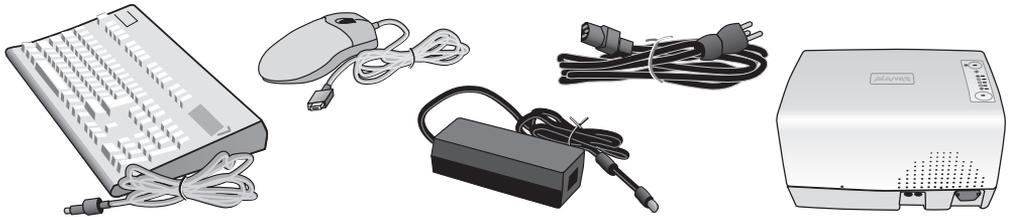
### Standard Equipment



▲ Tk7 only

**Note** For specifications, refer to the *Invitium Specification Sheet* in the documentation kit or posted on [www.planar.com/medical/medical\\_workstation.asp](http://www.planar.com/medical/medical_workstation.asp).

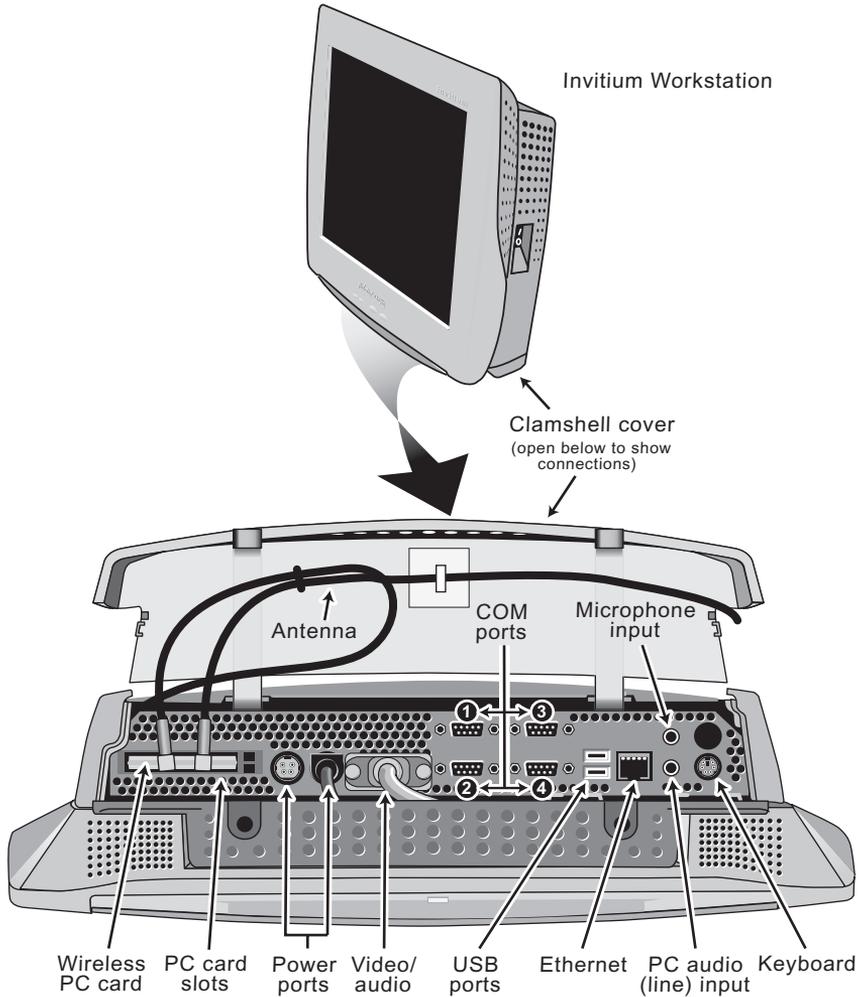
## Optional Equipment



Equipment	Description
Keyboard	PS/2 or USB-compliant keyboard.
Mouse	PS/2 or USB-compliant mouse.
Power Adapter	External, 12-volt, double-insulated power adapter works from 90 to 240 Vac at 50 to 60 Hz. Equipped with an IEC320 appliance coupler, attached power cable, and U.S. or European medical-grade 3 m power cable. Light-emitting diode (LED) indicates power. Input voltage range meets U.S. and European standards.
Battery Pack	Provides 8 hours of system operation at a nominal load of 48 watts. Refer to the <i>Invitium Battery Pack Manual</i> .
Touch Screen	8-wire resistive touch screen (not shown).
Mounting Fixture	Erogotron® mounting fixtures comply with the Video Electronics Standards Association (VESA) Flat Panel Monitor Physical Mounting Interface (FPMPMI™) standard. (See page 5.)
Medical Cart	Available individually, or as part of a packaged solution that includes the Invitium, battery, cart, and cables. (See page 5.)

# System Configuration

The configuration for some models may differ slightly.



## Central processing unit (CPU)

The Invitium uses convection cooling, in which internal thermal management directs heat to an array of cooling vents. Convection cooling eliminates noise and improves reliability.

There is no fan inside the CPU. CPUs with internal fans are unsuitable for the hospital environment because airborne contaminants can build up inside the fan and reduce cooling efficiency.

## Supported Mounting Solutions

The VESA mounting plate on the Invitium allows the use of standard mounting hardware. VESA FPMPMI-compliant mounting solutions are available through Planar Systems, Inc. Contact your Invitium vendor or visit the Planar web site.

[www.planar.com/medical/medicalworkstation.asp](http://www.planar.com/medical/medicalworkstation.asp)



▲ Desktop stand



▲ Vertical lift



▲ Wall mount



▲ Sample of medical carts

## Installing the Invitium

### Guidelines

#### Operating

- Operate within 32° to 104° Fahrenheit (0° (zero) to 40° Celsius)
- Store within -4° to 149° Fahrenheit (-20° to 65° Celsius)
- Allow proper ventilation for sufficient airflow and heat dissipation

#### Mounting

- Supports 23 lb
- VESA-compatible, 75 mm or 100 mm pattern
- Mounting hardware meets the Occupational Health and Safety Administration (OSHA), National Fire Protection Association (NFPA)

## Precautions

- Secure all electrical cables. Replacement cables are available from Planar.
- Firmly grasp the Invitium with two hands and place it in its original packaging when moving it to a different location.



### **Caution – Electrical and fire hazards**

- Install where the temperature range is 32° to 104° Fahrenheit (0° (zero) to 40° Celsius). Usage outside that range can damage the system.
- Plug the Invitium into a grounded power outlet to safeguard the system from power surges.
- Use only the supplied power adapter or battery pack. Other units may damage the Invitium.
- Disconnect the Invitium from its power source if it gets wet, cables are damaged, or if it falls. Contact your Invitium vendor.
- Do not block the vents on the back of the Invitium or install it in a built-in enclosure. Blocked vents cause excessive heat to build up inside the system.



### **Warning – Personal injury**

Do not open the computer casing. There is dangerous voltage inside and risk of electrical shock. Contact your Invitium vendor for assistance.



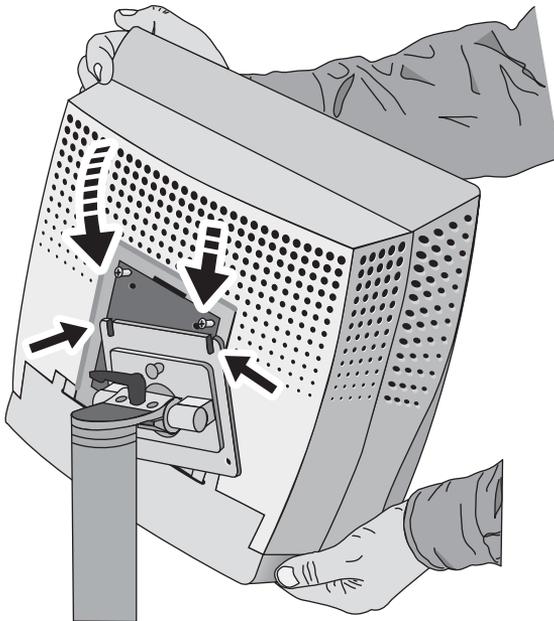
### **Warning – Personal injury**

While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm<sup>2</sup> may be exceeded at distance close to the antennas installed. Therefore, the user must maintain a minimum distance of 20cm from the antenna at all times.

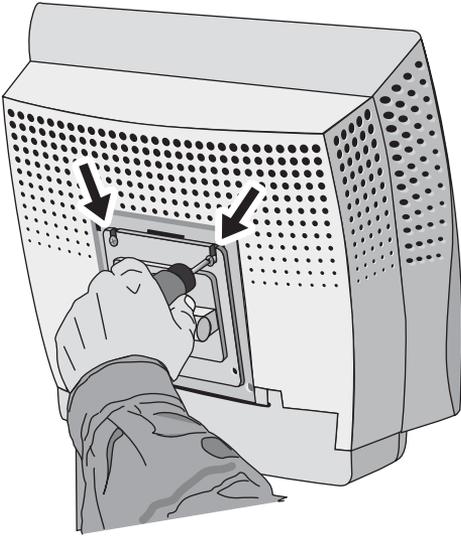
## Attach the Mounting Fixture

Use four 4 mm 0.7 pitch stainless steel screws of the appropriate length for a tight fit. You need 4 mm of the screw's threads engaged in the Invitium's VESA plate for proper support.

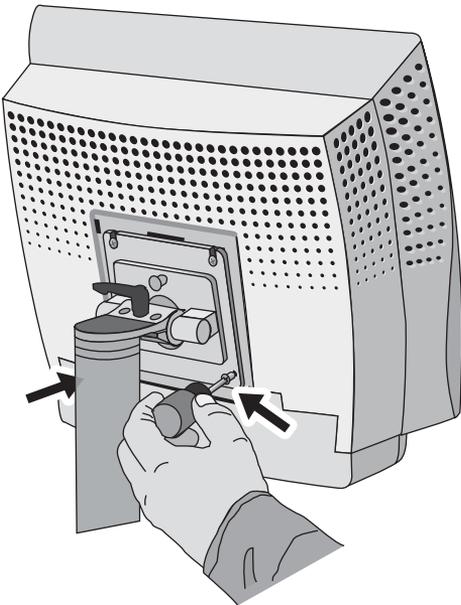
- 1 Install the mounting fixture. (Refer to the vendor documentation.)
- 2 Attach the Invitium to the fixture using the VESA panel on the back of the Invitium.
  - If the VESA panel on the fixture has slotted upper screw holes, secure the top two screws to the Invitium's VESA panel, and then slide the Invitium onto the fixture.
  - If the holes are not slotted, have another person support the Invitium against the fixture while you secure the screws.



- 3** Tighten the top two screws through the fixture's mounting plate.



- 4** Insert and tighten the bottom two screws through the mounting plate.

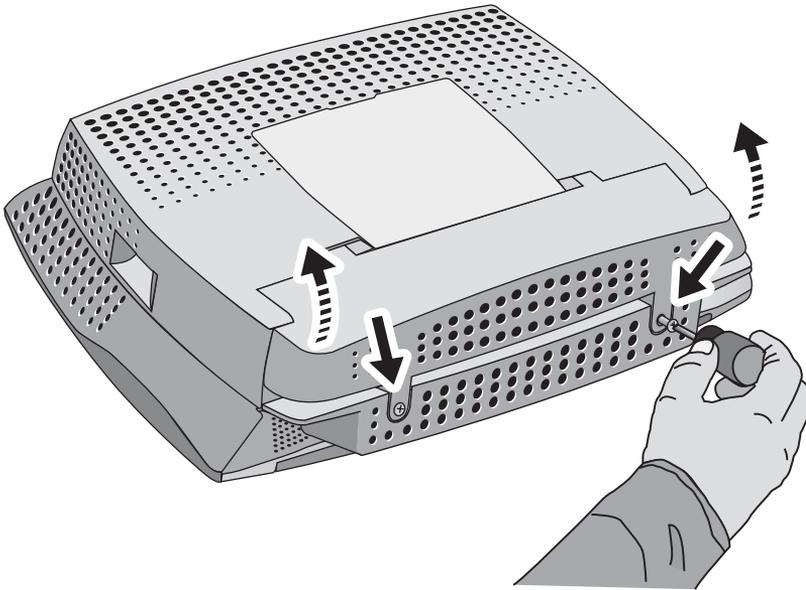


## Open the Clamshell

- 1 Tilt or rotate the Invitium away from the mounting fixture to allow the clamshell to open fully.

**Note** Accessing the connector bay differs depending on the mounting fixture.

- 2 Loosen the screws on the portion of the clamshell located below the VESA mounting plate on the Invitium.



- 3 Open the clamshell.

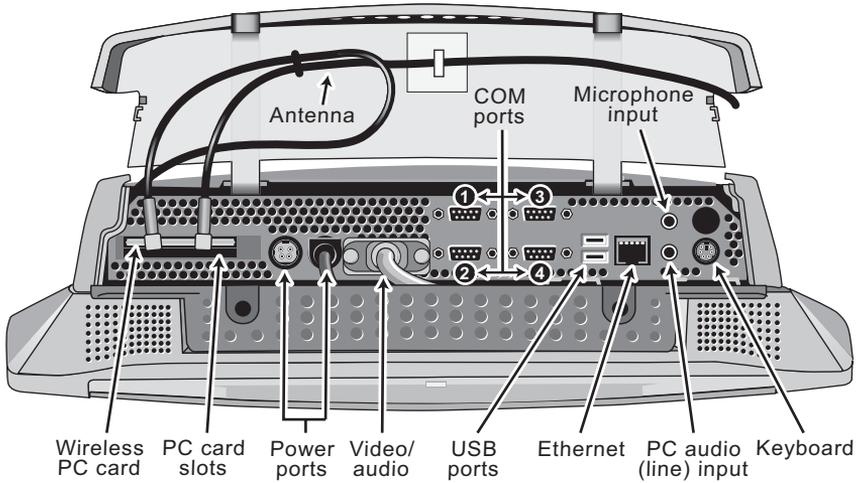
# Connect the Cables

1 Connect the keyboard, mouse, and other peripherals.



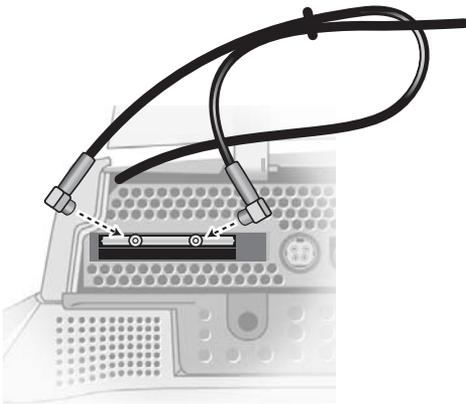
### Caution – Electrical hazard

PC audio is connected through the video/audio cable. Do not disconnect the video/audio cable or connect another display to this port.



2 Install the PCMCIA wireless network card, if appropriate.

- Slide the network card into the PC card slot until it locks into place.
- Attach the gold connectors on the antenna to the two pinholes on the protruding side of the card.



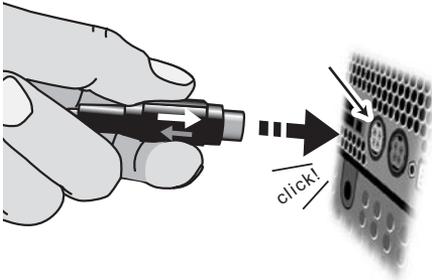
### 3 Connect the power adapter.

Align the pins on the DC connector with the holes in the power port and push the connector until it locks into place.



#### Caution - Hardware damage

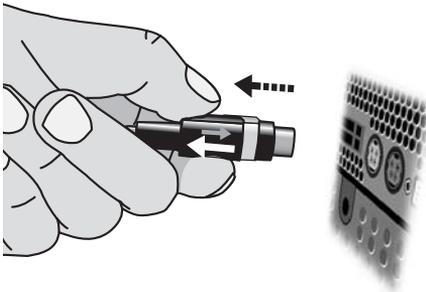
Do not force the connector into the power port. The pins may bend if they do not align with the holes.



### 4 Close the clamshell and fasten the screws.

#### To disconnect the power adapter

- 1 Grasp the base of the DC connector and pull it back gently.
- 2 Keeping the base pulled back, tug the power adapter out.



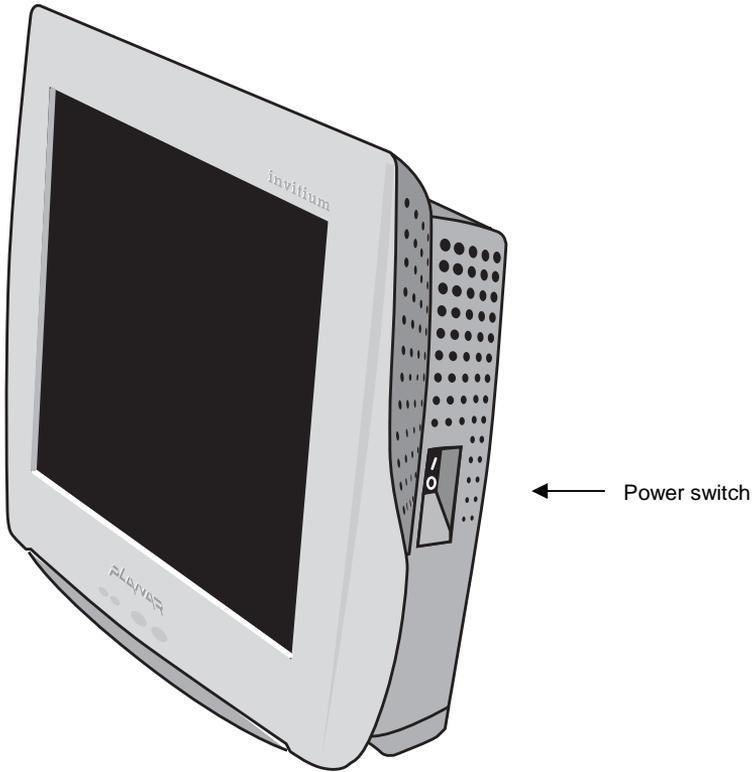
#### Caution - Hardware damage

Do not pull the power adapter by the cable. Damage to the cable may occur.

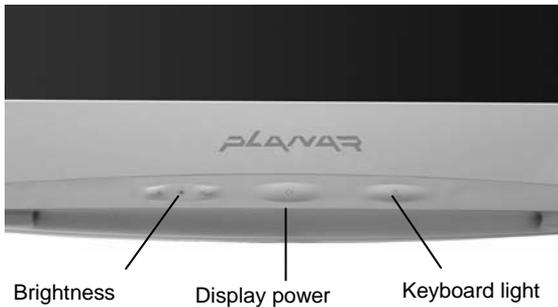


## Start the Invitium

Press the power switch to the on (I) position.



## Adjust the Display



### Brightness

Press the + or - control to adjust display brightness.

### Display power

Press the display power button to toggle power on or off.

### Keyboard light

Place the keyboard directly under the light. Press the keyboard light to brighten the keyboard during night use. The light turns off after 30 minutes.

## Install Additional Software

The Invitium comes with the Windows operating system and drivers installed. You can customize the system configuration by installing additional software.

### Tn4

Changes to the configuration are preserved on the flash disk. To assure compatibility, the software image can only be updated in its entirety.

Certified combinations of drivers and applications are available. Contact your Invitium vendor or visit [www.planar.com](http://www.planar.com).

### Tk7

- 1 Attach an external drive to a USB port (no driver is required).
- 2 Install the software.

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