# Installation guide for

# DiagnosticPRO™ Edge

■ Multi-film feeder

Serial numbers 380,000 to 389,999

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Terms denoted by the trademark symbol ( $^{TM}$  or  $^{\circledR}$ ) used in this publication are trademarks or service marks registered in the United States or other countries.

#### **NOTE**

The digitizers do not include application specific software (Picture Archiving and Communications [PAC] system, Teleradiology, Oncology Systems, or Computer Aided Detection [CAD] software). The manufacturer of the application software will determine specific indications for use. These third-party software packages or complete systems are approved separately from a regulatory perspective.

The digitizers are marketed as a component to application software development companies, who will incorporate the digitizer into their respective PACS or Teleradiology, CAD system(s). The software developer is ultimately responsible for detailing the Contraindications for the PACS System (or Teleradiology software package) or Oncology Systems as a whole, including the digitizer.





365 Herndon Parkway Herndon, VA 20170 U.S.A.

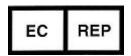
Phone: 1-703-471-7070
Fax: 1-703-471-7665
Internet: www.filmdigitizer.com

**Sales:** 1-800-471-SCAN or 1-800-471-7226

Email: sales@VIDAR.com

**Technical Support:** 

1-800-471-SCAN or 1-703-471-7070 E-mail: medtech@VIDAR.com



Emergo Europe Molenstraat15 2513 BH, The Hague The Netherlands

Phone: +31 (0) 70.345.8570 Fax: +31 (0) 70.346.7299 E-mail: service@emergogroup.com **Caution:** No operator-serviceable parts inside. Refer servicing to qualified personnel. **Achtung:** Gehäuse nicht öffnen. Wartung uno reparatur nur durch eletrofachkräfte. **Attention:** Aucune piece ne peut etre remplacee par l'utilisateur. Toute operation de

maintenance doit etre effectuee par une personne qualiee.

Atencion: Acceso interno solo autorizado a personal tecnico cualificado.

Attenzione: Non appire. Rivolgersi a personale qualificado.

#### **Radio Frequency Emissions**

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 can cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Product compliance testing was conducted using VIDAR shielded cables. Modifications to the digitizer or the VIDAR shielded cables or the use of cables other than those available from VIDAR could void the user's authority to operate the equipment.

#### Acceptable shipping conditions

■ Temperature:  $-18^{\circ}$  to  $+60^{\circ}$ C ( $0^{\circ}$  to  $+140^{\circ}$ F)

■ Relative humidity: 20% to 85%, non-condensing

■ Atmospheric pressure: 500 to 1060hPa (+18,000 to -1,200ft)

#### **Operating conditions**

■ Temperature: 10°C to 35°C (60°F to 95°F)

■ Relative humidity: 20% to 85%, non-condensing

■ Atmospheric pressure: 696 to 1013hPa (10,000 to 0 ft)

#### **Electrical supply**

Voltage: 100 to 240 VAC
 Current: 0.75 to 1.5 A
 Frequency: 47 to 63 Hz

#### Safety and compliance information





MEDICAL –GENERAL MEDICAL EQUIPMENT AS TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH: CAN/CSA C22.2 No.601.1-M90, IEC 60601-1, UL 60601-1, ANSI/AAMI ES60601-1(2005, 3<sup>RD</sup> Ed.), CAN/CSA-C22.2 No.60601-1(2008). IEC 60601-1:2005(3<sup>RD</sup> Ed.).

Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards (i.e. IEC 60950 for data processing equipment and IEC 60601-1 for medical equipment). Furthermore all configurations shall comply with the system standard IEC 60601-1-1 or IEC 60601-1 3<sup>rd</sup> edition.

Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of IEC 60606-1-1 or IEC 60601-1 3<sup>rd</sup> edition. If in doubt, consult the technical services department or your local representative.

This product is rated for continuous use.

This product is in the Ordinary Equipment Class. It provides no protection against the ingress of water.

This product is not suitable for use in the presence of flammable anesthetic mixtures with air or with oxygen or with nitrous oxide.

Class I Medical Device; No Applied Parts. This product provides Class I medical device protection against electrical shock.

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

Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked "HOSPITAL ONLY" or "HOSPITAL GRADE".

**WARNING:** Do not modify this equipment without authorization of the manufacturer.

Do not position the product so that it is difficult to disconnect the product from the mains power supply.

Mains power may be removed from the product by disconnecting the power cable at the rear of the product. The Mains power may also be disconnected by unplugging the power cord from the external power supply adapter or unplugging the power cord from the wall outlet.

Power cords used with this device in North America must be rated by Underwriters Laboratories for hospital use.

Power cords used with this device in Europe must meet the requirements of IEC 227 Designation 53 or IEC 245 Designation 53.

Correct and safe operation of the digitizer requires familiarity with information that is not marked on the product. The following symbols indicate that the operator should consult the manual for additional information:





This Class 1 LED device is safe under reasonably foreseeable conditions of operation.

The LED illumination system consists of 20 Class 1 LEDs, a mirror system to spread the light, and a diffuser to distribute the light approximately uniformly across an area of 2.4 sq in (15.5 sq cm). Light from the LED illuminator may be indirectly observed in the digitizer's film entry and exit areas.

CLASS 1 LED PRODUCT

IEC 60825-1:1993+A1:1997+A2:2001

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## **Intended Use**

The DiagnosticPRO *Edge* digitizer is used for making digital copies of medical x-ray film, including printed and radiographic film. The target users of these devices are medical professionals or trained staff for use as secondary capture images for consultation, review and final interpretation.

The devices are indicated for the digitization of mammography images for review and analysis, but not as the sole basis for screening or diagnosis.

#### Note:

The DiagnosticPRO *Edge* with ClinicalExpress or other DICOM standard software meets or exceeds ACR and DICOM standards for use of secondary capture images for consultation, review and final interpretation. Images captured as DICOM MG are to be used as reference or comparison only, and not for primary diagnosis.

# Unpack the digitizer

In this chapter, you will:

- Unpack and inspect the digitizer's parts.
- Identify the digitizer's parts.

## 1. Look for damage.

Before unpacking the DiagnosticPRO *Edge* film digitizer, examine the shipping carton for damage.

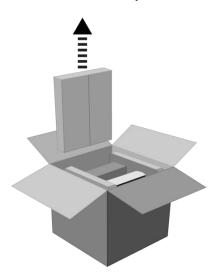
If the carton is damaged:

- Notify the shipper immediately.
- Take photographs of the damage.
- Send pictures and description of damage to medtech@VIDAR.com.
- Notify VIDAR Medical Support at 1-703-471-7070.

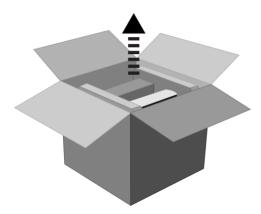
## 2. Unpack the shipping carton.

**IMPORTANT:** Save all packing materials. If you need to ship the digitizer later, you should repack the digitizer in the original materials by reversing the procedure described here. Failure to properly pack, or failure to use VIDAR authorized shipping materials, will void the product's warranty, and will likely result in costly repairs.

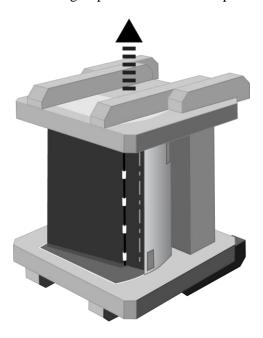
a. Remove the accessory box.



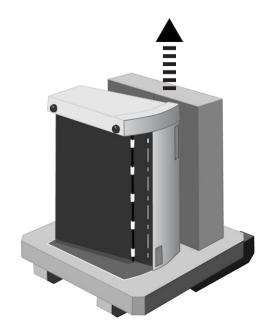
b. Lift the digitizer, feeder box and foam end caps—together—out of the shipping container.



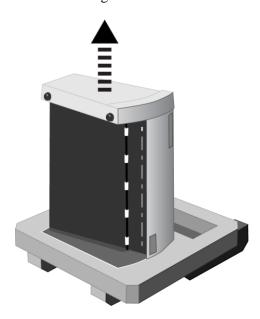
c. Place the group on one foam end cap. Lift off the upper foam end cap.



d. Remove the feeder box from the lower end cap.



e. Remove the digitizer from the lower end cap.

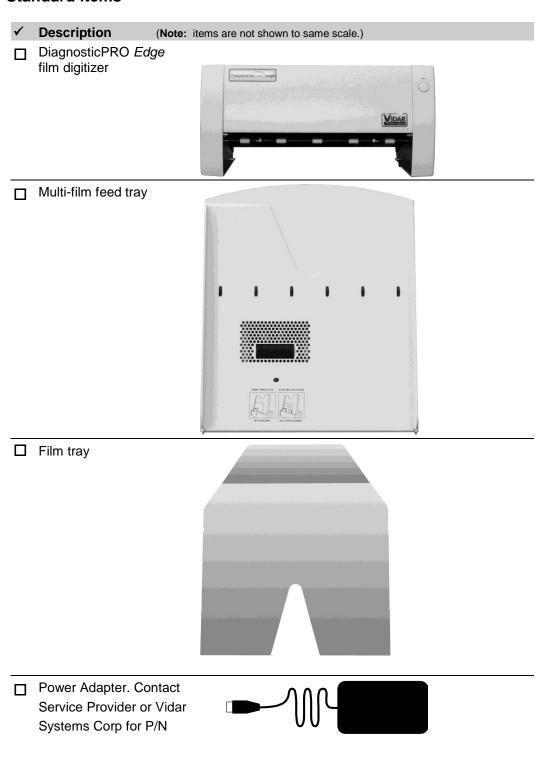


**IMPORTANT:** Save all packing materials. If you need to ship the digitizer later, you should repack the digitizer in the original materials by reversing the procedure described here. Failure to properly pack, or failure to use VIDAR authorized shipping materials, will void the product's warranty, and will likely result in costly repairs.

## 3. Identify the parts.

Check carefully to ensure you received the items listed below.

#### Standard items



			Juliunca
✓	Description	(Note: items are not shown to same scale.)	
	Electrical power cor	rd	
	China Power Cord,	P/N 4635	
	Multi-film feed tray cable, VIDAR part number 4200-001 (if unit has multi-film feed tray)		
	Quick start guide ca	ard	
	VIDAR DiagnosticP	PRO Edge Installation CD	
	USB Cable, VIDAR	part number 4618-002	
		<u> </u>	

## Optional items

✓	Description
	Third-party software instructions (not supplied for the market in China)
	Lint-free wipes, VIDAR part number 15194 (package of 10)

## 4. Identify important features

Look over the digitizer and locate the features shown in this section. You will need to know where these features are when you assemble and operate the digitizer in later chapters.

#### Power switch

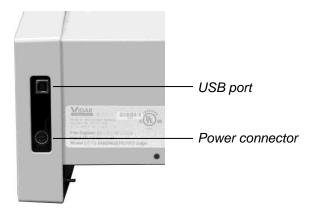
The power switch is located on the front of the digitizer.



**CAUTION:** The digitizer power switch is used to disconnect the 24 volts from the external power adapter to the digitizer, and therefore applies power to and removes power from the digitizer only. The external power adapter is still a source of electrical current as long as it is plugged into an electrical outlet.

#### Rear panel

View the digitizer from the rear to identify the USB port and power connector.



## 5. If anything is missing...

Immediately contact your VIDAR supplier or send e-mail to medtech@VIDAR.com.

# 6. Record important information and activate your product warranty.

- a. Locate the "Warranty information and customer survey" form on the DiagnosticPRO Edge CD.
- b. Print the "Warranty information and customer survey."
- c. In the "Product information" section, record this information:
  - Product you are registering: DiagnosticPRO Edge.
  - Digitizer serial number.
- d. Complete the form.
- e. Mail or fax the form to VIDAR Systems Corp.

If your digitizer needs service, this information should be on file at VIDAR.

**Contact VIDAR Technical Support** if you have any questions about installing or using your VIDAR film digitizer:

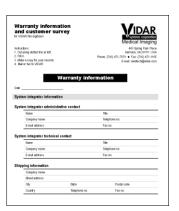
Phone: 1-800-471-SCAN (1-800-471-7226)

1-703-471-7070 outside the U.S.

E-mail: medtech@VIDAR.com

When you contact VIDAR, you will need to provide:

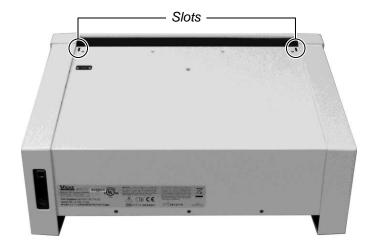
- The unit's serial number.
- Your name, company and contact information.
- Where you purchased the digitizer.



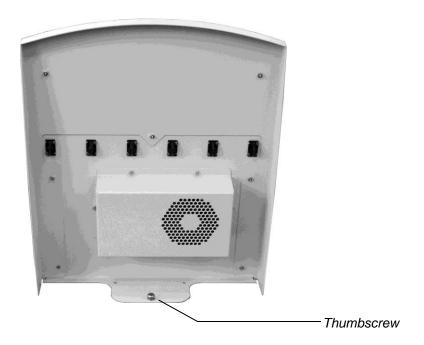
# **Assemble the digitizer**

1. Place the digitizer base on a table. Orient the digitizer base with the back toward you.

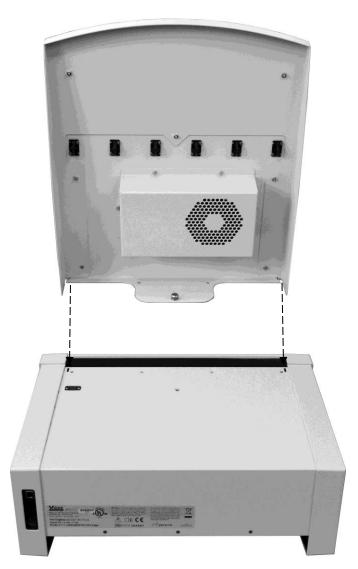
Notice the two slots on top of the digitizer base.



2. Orient the film feeder with the back toward you (multi-film feeder is shown; single-film feeder is similar). You should be able to see the thumbscrew at the bottom rear of the feeder.



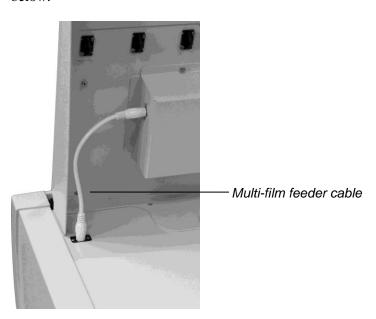
3. Insert the tabs on the bottom of the feeder into the slots on the digitizer base.



4. Tighten the thumbscrew to secure the feeder to the base.



5. Connect the multi-film feeder cable between the feeder and digitizer base as shown below.



6. Go to "Placing the digitizer on a table," the next chapter in this manual.

# Place the digitizer on a table

- 1. Select a working location for the film digitizer. Consider the following points when selecting a suitable location:
  - The digitizer can only be used on a desk, countertop, table or other physically stable surface not more than 36" (91cm) high.

#### **SAFETY WARNING**

The digitizer **must** be placed on mechanically secure horizontal surface, such as a desk or countertop not more than 36" (91cm) high and with no more than a 5° tilt.

The digitizer must not be placed on the floor.

VIDAR Systems Corp. is not liable for any damages or injuries to persons or property associated with improper placement or use of the digitizer.

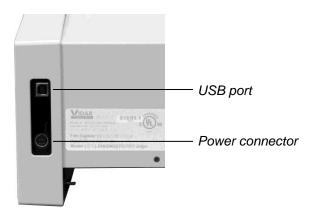
- The digitizer must be within 6 feet (1.8m) of an electrical outlet.
- The USB cable must be able to connect to both computer and digitizer.
- The digitizer must be away from high traffic areas.
- 2. Place the digitizer in the location you have selected. Ensure the digitizer is stable (for example, it should not rock when touched).
- 3. Go to "Final assembly," the next chapter in this manual.

# Final assembly

## Connect the USB cable and power supply

**CAUTION:** Power the digitizer **only** with the power supply adapter provided by your Service Provider or Vidar Systems Corp.

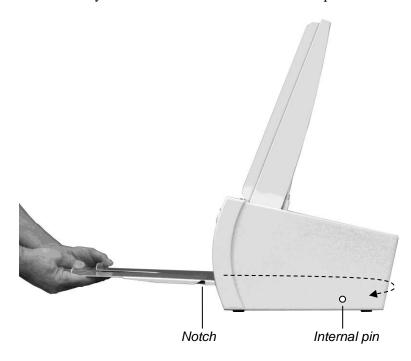
1. Connect the USB cable to the USB port on the back of the digitizer. Do not connect the USB cable to the PC until instructed later.



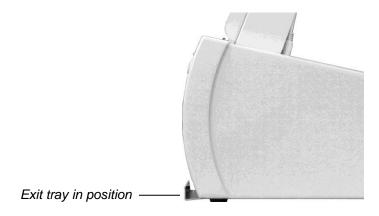
- 2. Connect the power adapter's cable to the power connector on the back of the digitizer.
- 3. Connect the electrical cord to the power adapter.
- 4. Place the power adapter, power cable and electrical cord where they will not be a hazard.

## Install the exit tray

1. Slide the exit tray into the digitizer, keeping it high, then drop it down and slide it back toward you so the notches fit over the internal pins.



2. When properly positioned, the exit tray will protrude a small distance from the digitizer, and it can't be pulled out without lifting it off the internal pins.



# Install Device Drivers for Windows 7

The USB driver is required for all installations to assure that the computer communicates with the film digitizer.

**Note:** Installation instructions for Windows XP are provided in the next chapter.

### 1. Apply Power to the Digitizer and the PC

a. Ensure the PC is turned off.

**Note:** Always apply power to the digitizer before turning on the computer. This enables the computer to recognize the digitizer.

b. Turn on the digitizer. The on/off switch is located on the front of the digitizer.



**Note:** The digitizer power switch is used to disconnect the 24 volts from the external power adapter to the digitizer, and therefore applies power to and removes power *from the digitizer only*. The external power adapter is still a source of electrical current as long as it is plugged into an electrical outlet.

- c. Observe the LED on the front of the digitizer: the LED should flash light blue for a little over 5 minutes. This indicates the digitizer is performing internal tests.
- d. When the LED stops flashing and remains solid green, proceed to step 2.

#### **About the VIDAR Drivers**

The VIDAR driver was designed to provide compatibility between VIDAR DiagnosticPRO *Edge* Digitizers and Windows 7 (both 32-bit and 64-bit). Features of this driver include:

- Installation/setup wizard for easy and consistent installation.
- Scanners and Cameras Control Panel (32-bit only), which provides a common interface for still image devices.

#### 2. Install the VIDAR Drivers

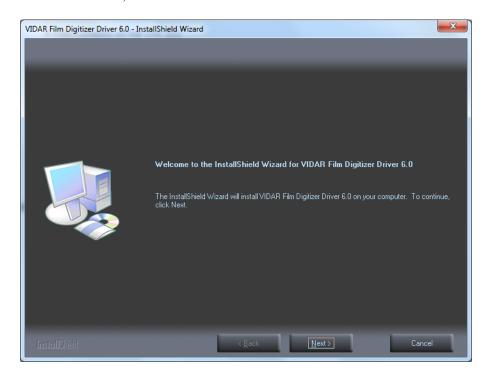
**Note:** The computer must be running Windows 7 Professional 32-bit or 64-bit.

**Note:** These instructions have been successfully tested on a wide range of Windows 7 systems. In rare instances, you may have difficulty installing the VIDAR driver. If that happens, try again after logging on as Administrator, or as a user with Administrator rights.

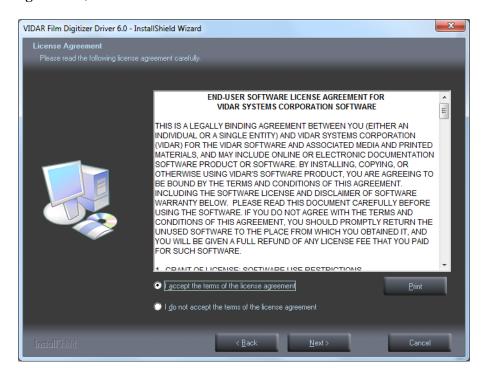
You will need the VIDAR DiagnosticPRO *Edge* Digitizer Installation CD.

- a. Be sure the digitizer is turned ON and has a stable green light but that it is NOT connected to the PC. Wait until you are prompted to connect the digitizer to the PC.
- b. Turn on the PC.
- c. Insert the **VIDAR DiagnosticPRO** *Edge* **Installation CD** into the CD-ROM drive. Browse to the CD and double-click on *19090-002 VIDAR\_Driver\_6.0 Online Install Package.exe* on the CD to install the driver.

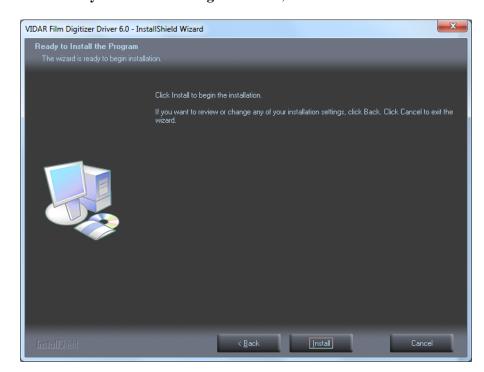
d. In the first screen, click **Next** >.



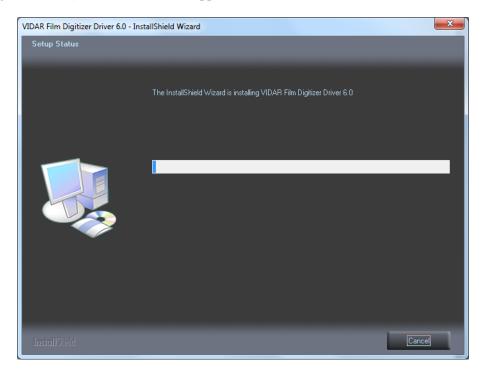
e. In the License Agreement screen, activate I accept the terms of the license agreement, then click Next >.



f. In the Ready to Install the Program screen, click Install.



g. The Setup Status screen will appear. Wait while the files are installed.



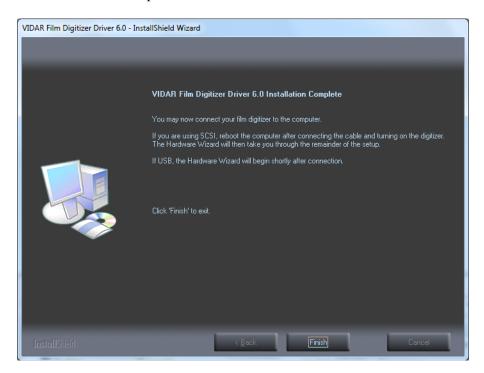
h. The **Windows Security** window will appear Click **Install this driver software anyway** each time it appears.



i. On a 64-bit system only: When prompted Would you like to install this device software?, click Install.



j. InstallShield will indicate that installation is complete. However, the driver installation is not complete.



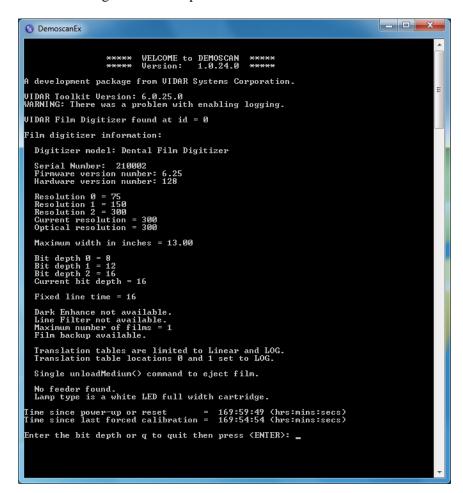
k. Earlier, you connected a USB cable to the digitizer. Now, attach the connector on the other end of that cable to a USB 2.0 port on the computer.

**Note:** Wait 30 seconds after you connect the digitizer before you launch the Demoscan program. This ensures the computer has recognized the new hardware and has installed the driver properly.

- 1. On a 64-bit system:
  - 1. On the desktop, double-click the **DemoscanEx** icon.

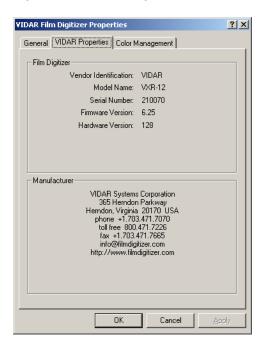


2. The window shown below will appear. This indicates that the digitizer is communicating with the computer.



3. Press Q on the keyboard, then press ENTER.

- 1. Start > Control Panel > Scanners and Cameras.
- 2. In the device window, <u>right</u>-click **VIDAR Film Digitizer**, then click **Properties** in the pop-up menu.
- 3. In the VIDAR Film Digitizer Properties window, click the VIDAR Properties tab. If the driver is properly installed, the properties will appear and if the digitizer is ready to digitize its serial number will appear. If Not Ready appears the digitizer is normalizing.



#### Note that:

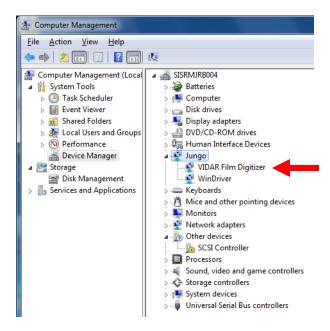
- The digitizer will report as "VXR-12" for backward compatibility.
- You may not see the same firmware and hardware version as shown in the window above.
- The serial number will not report if the digitizer was just powered on.
- 4. Click **OK** to close the properties screen.

The digitizer is now ready to operate. Please refer to the "User's Guide for DiagnosticPRO *Edge*" for operating instructions.

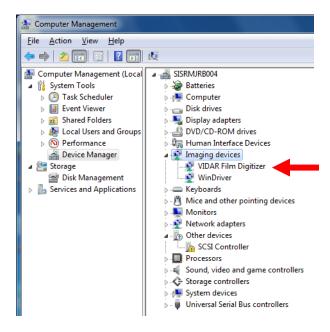
You may need to install other application software to run the digitizer.

**Note:** While the digitizer works with both 32-bit and 64-bit versions of Windows 7, it only works with 32-bit image processing applications.

*64-bit system only:* In the Windows 7 **Computer Management** window, the digitizer is listed under **Jungo**.



*32-bit system only:* In the Windows 7 **Computer Management** window, the digitizer is listed under **Imaging devices**.



# Install Device Drivers for Windows XP

The USB driver is required for all installations to assure that the computer communicates with the film digitizer.

**Note:** Installation instructions for Windows 7 are provided in the previous chapter.

### 1. Apply Power to the Digitizer and the PC

a. Ensure the PC is turned off.

**Note:** Always apply power to the digitizer before turning on the computer. This enables the computer to recognize the digitizer.

b. Turn on the digitizer. The on/off switch is located behind the upper right corner.



**Note:** The digitizer power switch is used to disconnect the 24 volts from the external power adapter to the digitizer, and therefore applies power to and removes power *from the digitizer only*. The external power adapter is still a source of electrical current as long as it is plugged into an electrical outlet.

- c. Observe the LED on the front of the digitizer: the LED should flash light blue for a little over 5 minutes. This indicates the digitizer is performing internal tests.
- d. When the LED stops flashing and remains solid green, proceed to step 2.

### **About the VIDAR Drivers**

The VIDAR driver was designed to provide compatibility between VIDAR DiagnosticPRO *Edge* Digitizers and Windows XP SP3. Features of this driver include:

- Installation/setup wizard for easy and consistent installation.
- Scanners and Cameras Control Panel, which provides a common interface for still image devices.

#### 2. Install the VIDAR Drivers

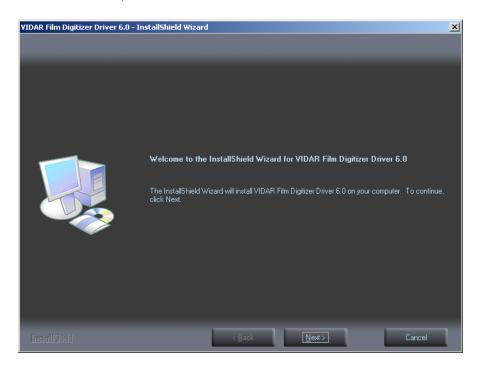
Note: The computer must be running Windows XP SP3.

**Note:** These instructions have been successfully tested on a wide range of Windows XP systems. In rare instances, you may have difficulty installing the VIDAR driver. If that happens, try again after logging on as Administrator, or as a user with Administrator rights.

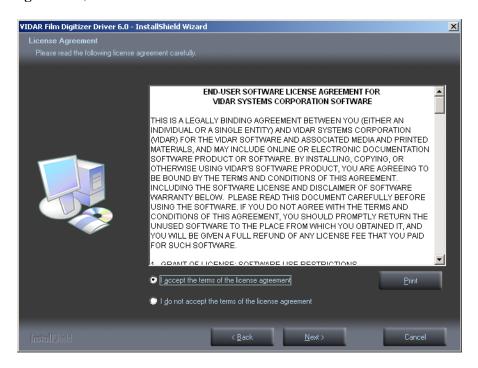
You will need the VIDAR DiagnosticPRO Edge Digitizer Installation CD.

- a. Be sure the digitizer is turned ON and has a stable green light but that it is NOT connected to the PC. Wait until you are prompted to connect the digitizer to the PC.
- b. Turn on the PC.
- c. Insert the **VIDAR DiagnosticPRO** *Edge* **Digitizer Installation CD** into the CD-ROM drive. Browse to the CD and double-click on *19090-002 VIDAR\_Driver\_6.0 Online Install Package.exe* on the CD to install the driver.

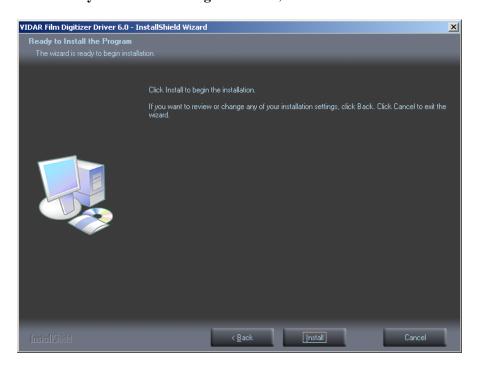
d. In the first screen, click **Next** >.



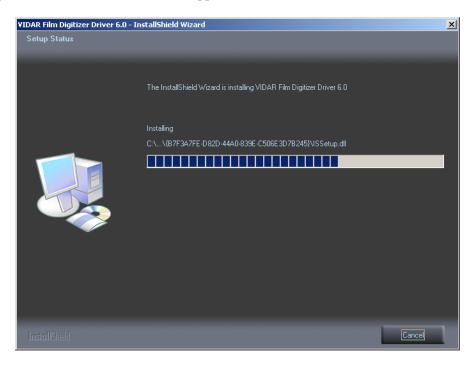
e. In the License Agreement screen, activate I accept the terms of the license agreement, then click Next >.

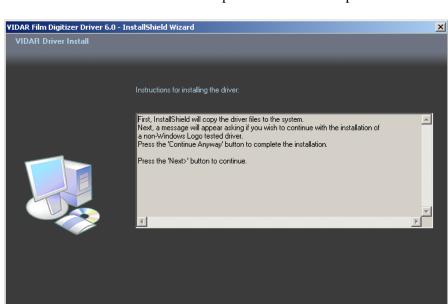


f. In the Ready to Install the Program screen, click Install.



g. The Setup Status screen will appear. Wait while the files are installed.



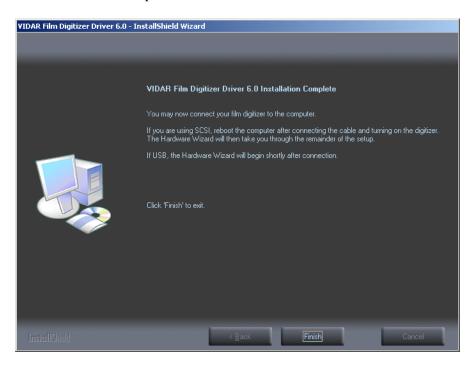


h. The VIDAR Driver Install window previews the next steps. Click Next >.

- i. The **Digital Signature Not Found** window will may appear Each time it appears, click **Yes**. (Note the screen may look a bit different in Windows VISTA.)
- j. The **Software Installation** window will appear. Click **Continue Anyway** each time it appears.



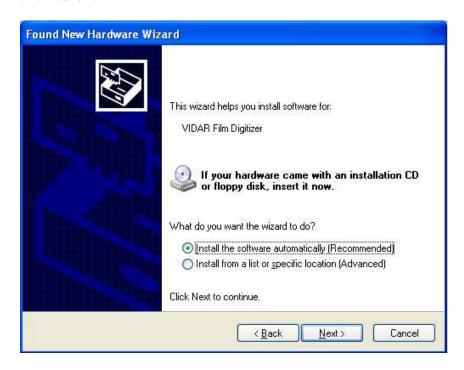
k. InstallShield will indicate that installation is complete. However, the driver installation is not complete.



- 1. Earlier, you connected a USB cable to the digitizer. Now, attach the connector on the other end of that cable to a USB 2.0 port on the computer.
- m. The **Found New Hardware** window will appear, indicating that the digitizer is connected to the computer.
- n. Select **Yes, this time only**, then click **Next** >.



o. On the next screen click **Install the software automatically (Recommended)**, then click **Next** >.



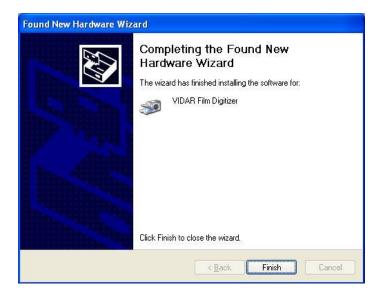
p. Wait while the wizard searches for the driver.



q. The **Digital Signature Not Found** window may appear, click **Yes** each time it appears.



r. After the driver has been installed, click **Finish**.



- s. Verify that the digitizer drivers are fully installed by checking the device properties at **Start > Control Panel > Scanners and Cameras**.
- t. In the device window, <u>right</u>-click **VIDAR Film Digitizer**, then click **Properties** in the pop-up menu.

u. In the VIDAR Film Digitizer Properties window, click the VIDAR Properties tab. If the driver is properly installed, the properties will appear and if the digitizer is ready to digitize its serial number will appear. If Not Ready appears the digitizer is normalizing.



#### Note that:

- The digitizer will report as "VXR-12" for backward compatibility.
- You may not see the same firmware and hardware version as shown in the window above.
- The serial number will not report if the digitizer was just powered on.
- v. Click **OK** to close the properties screen.

The digitizer is now ready to operate. Please refer to the "User's guide for DiagnosticPRO *Edge*" for operating instructions.

You may need to install other application software to run the digitizer.

# **Appendix:**Electromagnetic guidance

Caution: Medical electrical equipment.

EMC (Electro Magnetic Compatibility) must be considered before any medical electrical equipment is installed or put into service. Follow the information in the accompanying documentation when installing and operating the DiagnosticPRO *Edge* Digitizer.

Caution: Portable or mobile RF communication equipment can effect Medical Electrical equipment.

Caution: Using the Digitizer adjacent to or stacked with other equipment may cause interference between the equipment. Before utilizing stacked or adjacent equipment, verify proper functionality of all equipment in the actual configuration in which it will operate.

Caution: Connecting the Digitizer to equipment that is not rated CISPR 11 class A or class B may alter the electromagnetic characteristics.

Caution: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Guidance and manufacturer's declaration – electromagnetic equipment

Table 201

The DiagnosticPRO *Edge* Digitizer is intended for use in the electromagnetic environment specified below. The customer or end user of the DiagnosticPRO *Edge* Digitizer should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment - guidance	
RF Emissions	Group 1	The DiagnosticPRO <i>Edge</i> Digitizer uses RF energy only for its internal function. Therefore, its RF emissions are very low and are	
CISPR11		not likely to cause any interference in nearby electronic equipment.	
RF Emissions, CISPR11	Class A		
Harmonic Emissions IEC 61000-3-2	Class A	The DiagnosticPRO <i>Edge</i> Digitizer is suitable for use in all establishments other than domestic and those directly connected	
Voltage Fluctuations/ flicker emissions IEC 61000-3-3	Complies	the public low voltage power supply network that supplies buildings used for domestic purposes.	

### Guidance and manufacturer's declaration – electromagnetic immunity

Table 202

The DiagnosticPRO *Edge* Digitizer is intended for use in the electromagnetic environment specified below. The customer or end user of the DiagnosticPRO *Edge* Digitizer should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
ElectroStatic Discharge (ESD) IEC 61000-4-2	+ 6 kV contact + 8 kV air	+ 6 kV contact + 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
IEC 01000-4-2	-		relative flufflidity should be at least 30 %
Electrical fast transient/ burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
	<5 % UT (>95 % dip in $U_T$ ) for 0,5 cycle	<5 % UT (>95 % dip in $U_T$ ) for 0,5 cycle	
Voltage dips, short interruptions and voltage variations on power supply input lines	$40~\%~U_T$ (60 % dip in $U_T$ ) for 5 cycles	$40~\%~U_T$ (60 % dip in $U_T$ ) for 5 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the DiagnosticPRO <i>Edge</i> Digitizer requires continued operation during power mains
IEC 61000-4-11	70 % $U_T$ (30 % dip in $U_T$ ) for 25 cycles	$70 \% U_T$ (30 % dip in $U_T$ ) for 25 cycles	interruptions, it is recommended that the DiagnosticPRO <i>Edge</i> Digitizer be powered from an uninterruptible power supply or a battery
	$<5~\%~U_T$ (>95 % dip in $U_T$ ) for 5 sec	$<5$ % $U_T$ (>95 % dip in $U_T$ ) for 5 sec	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U <sub>T</sub> is the A.C. ma	ins voltage prior to a	pplication of the test	level

#### **Guidance and manufacturer's declaration – electromagnetic immunity**

Table 204

The DiagnosticPRO Edge Digitizer is intended for use in the electromagnetic environment specified below. The customer or end user of the DiagnosticPRO Edge Digitizer should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communication equipment should be used no closer to any part of the DiagnosticPRO <i>Edge</i> Digitizer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.  Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	$d = 1.2\sqrt{P}$
Radiated RF	3 V/m	3 V/m	$d=1.2\sqrt{P}$ 80 MHz to 800 MHz
IEC 61000-4-3	80 MHz to 2,5 GHz		$d=2.3\sqrt{P}$ 800 MHz to 2.5 GHz
			Where <i>P</i> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <i>d</i> is the recommended separation distance in meters (m).  Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol:

Note 1: At 80MHz and 800MHz, the higher frequency range applies.

Note 2: These guidelines may not be applicable in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

<sup>&</sup>lt;sup>a</sup> 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 DiagnosticPRO *Edge* Digitizer is used exceeds the applicable RF compliance level above, the DiagnosticPRO *Edge* Digitizer should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Digitizer.

<sup>&</sup>lt;sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

## Recommended separation distances between portable and mobile RF communications equipment and the DiagnosticPRO *Edge* Digitizer

Table 206

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

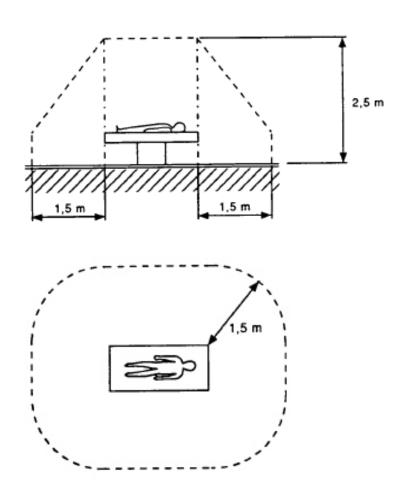
Rated maximum output power of transmitter	Separation distance according to frequency of transmitter, m		
W	150 kHz to 80 MHz $d=1.2\sqrt{P}$	80 MHz to 800 MHz $d=1.2\sqrt{P}$	$d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.2	1.2	2.3
10	3.7	3.7	7.4
100	12	12	23

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.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

# Appendix: Patient Vicinity



Note: Dimensions shown are not prescriptive.

# Appendix: Symbols

Symbol	Description
<u>Ф</u>	Indicates a sleep mode or low power state. The switch does not fully disconnect the device from its power supply.
$\triangle$	Indicates the need for the user to consult the instructions for use for important cautionary information such as warnings and precautions that cannot, for a variety of reasons, be presented on the medical device itself.
i	Indicates the need for the user to consult the instructions for use.
C UL US 5RA	Underwriters Laboratories classification symbol
EC REP	Authorized Representative in the European Community
CE	Compliance to EU Directives
	Indicates the Medical Device Manufacturer
	This symbol on the product indicates that this product must not be disposed of as unsorted municipal waste. Instead it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for recycling of waste electrical and electronic equipment. For more information about where you can dispose of your waste equipment for recycling please contact your local city office, your household waste disposal service or the shop where you purchased the product.



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