



# Pre-installation Manual

**For the Cary 50 series instruments**

Installation category II  
Pollution degree 2  
Safety class 3 (EN 61010-1)



**VARIAN**

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# 1. Introduction

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The Varian Cary 50 series of Spectrophotometers are complete analysis systems that have been fully tested and proven to specification before despatch from the manufacturing plant.



*Cary 50 series instrument*

This publication contains;

- General information about preparing the installation site
- Details of the facilities that must be provided for the installation

The Cary 50 has been designed to be installed by the customer. You may be charged if installation is performed by Varian Service personnel.

## 1.1 Pre installation checklist

Use the following checklist to make sure you have the work area ready to install the Cary 50.

Check that you have:		Refer to section:
<input type="radio"/>	Confirmed that the work area meets the environmental requirements	2.1
<input type="radio"/>	Provided suitable electrical power supplies	2.3
<input type="radio"/>	Provided a suitable work bench	2.2
<input type="radio"/>	Provided a telephone line (optional, refer below)	
<input type="radio"/>	A PC that meets the requirements (unless it is being supplied by Varian)	1.2
<input type="radio"/>	A working Windows® operating system on the PC.	1.5
<input type="radio"/>	All equipment on site and has been checked for damage.	2.5
<input type="radio"/>	Unpacked and Cary 50.	2.6

### Telephone outlet

A telephone outlet near the instrument is recommended. This will allow you to seek assistance when developing methods, or for use by Varian authorized staff to remotely certify your instrument via modem using Telediagnosics.

## 1.2 Recommended computer system

The computer must be certified to at least one of the following standards to ensure that the integrity of the electrical safety of the Cary 50 is not compromised;

UL 1950

CSA C22.2 No 950-95

IEC 950 or IEC 60950

EN 60950

The minimum configuration represents the absolute minimum you can run the software on. This PC configuration may be out of manufacture, but you may want use a PC you already have. The recommended configuration is that which you would buy new.

Minimum	Recommended
IBM compatible	IBM compatible
Intel Pentium processor	Intel Pentium II processor
16 M RAM	64 M RAM
150 MB free space on hard disk	500 MB free space on hard disk
Video card supporting 800 x 600 resolution, high color (16 bit) mode	Video card supporting 800 x 600 resolution, high color (16 bit) mode
Super VGA screen	Super VGA screen
4 x CDROM drive	10 x CDROM drive
16 bit sound card	16 bit sound card
Windows 95 101 key keyboard	Windows 95 101 key keyboard
Microsoft or compatible mouse	Microsoft or compatible mouse
One spare AT bus 16 bit ISA expansion slot	One spare AT bus 16 bit ISA expansion slot
Microsoft Windows 95®, Windows 98® or Windows NT® (including service pack 4 or later)	Microsoft Windows 95®, Windows 98® or Windows NT® (including service pack 4 or later)
Microsoft Internet Explorer*4 or later if using Windows 95 or NT	Microsoft Internet Explorer *4 or later if using Windows 95 or NT
1 Spare PC power supply connector	1 Spare PC power supply connector
Power Supply rating 220 Watts.	Power Supply rating 220 Watts.
1 Spare Slot for the accessory cable connector	1 Spare Slot for the accessory cable connector



### Warning

To ensure safe operation of the instrument, the switching power supply in the PC must comply with standard IEC 60950.

## 1.3 Varian supplied PC

Varian can supply a PC for the Cary 50 instrument in the recommended configuration - as part number 79 100263 00. The

operating system software will be pre-loaded. All software disks and manuals are to be supplied to the customer.



Note PCs supplied with Letter of Credit orders will be an international brand and will be the "Recommended" configuration or better.

Better PC components can be substituted for those listed above e.g. processor type, amount of memory, screen size and resolution.

## 1.4 PC requirements

The Cary 50 PC card requires reserved access to:

Address space 210-21F

Interrupt requests IRQ 3,5,7,10,11,12 (one off)

This PC card plugs into a PC I/O connector and it controls the instrument functions. It drives the two motors, lamp module and two detectors. Signals are converted into digital form to be processed by the PC. Connection of the Cary 50 to the PC card to the Cary 50 instrument is by a 37 way 'D' range connector.

This connector carries motor drive supplies for the Cary 50 instrument and motor driven accessories, detector analogue signals and digital inputs and outputs. The following supplies are used by the Cary 50. They are taken directly from the I/O Bus connector.

-12 V DC <0.25A (max) from the I/O BUS

+5 V DC <1A (max) from the I/O BUS

The following power is supplied directly from the PC power supply (standard HDD connector +12 V DC Only);

+12 V DC <1.5A (max) From the PC Power Supply

### Typical Power consumption (measured)

When Idle (with motors powered)	400 mA
Operating (motors and Lamp module powered)	1.125 A
Power dissipation (typical) instrument only	26 Watts

Operation of motor driven accessories may increase the +12 Volt current by a further 2 A (24 W max). Note that these requirements are in addition to that required by the PC itself.

## 1.5 Setting up your PC

The Cary WinUV software requires Microsoft Windows® 95, Windows 98® or Windows NT® to be installed on your PC. For instructions on installing this, please refer to the documentation supplied with Windows®.

Ensure that you have your Display Desktop area set to 800 by 600 pixels and that the Color palette is set to High color (16 bit).

Check that your sound card and CDROM drive are working.

You also need to install Microsoft's Internet Explorer version 4 (IE4) or later. This does NOT mean that you need to use IE4 as your web browser. You can continue to use what ever browser you like, the Cary WinUV just uses some of the components that are supplied as part of IE4.

You will probably need to purchase IE4 or download it for free from Microsoft's website ([www.microsoft.com](http://www.microsoft.com)) as typically only earlier versions of IE are shipped with Windows.

If Varian is installing the Cary 50 for you please note that installation of a Windows® operating system or IE4 is not included as part of the standard instrument installation.

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## 2. Work area

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Sample preparation areas and materials storage facilities should be located in separate rooms.

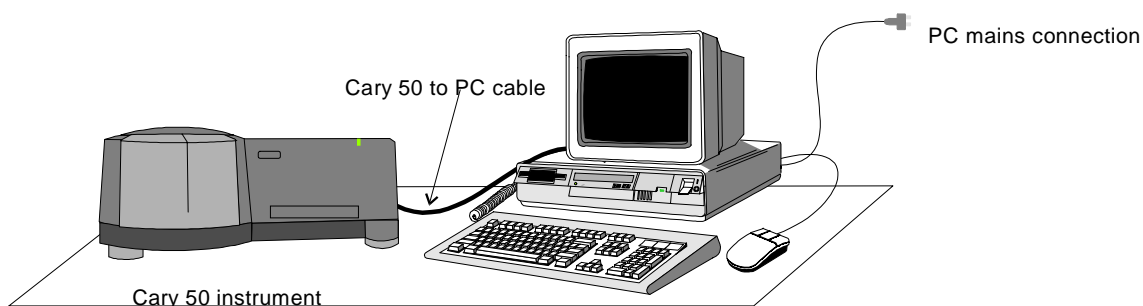
For optimum performance the area should have a dust-free, low humidity atmosphere. Air conditioning is recommended. The room should be temperature controlled if your analyses are particularly sensitive.

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**Caution**

Operating specifications for the PC, Monitor and Printer/Plotters may differ from those for the Varian Cary Spectrophotometer. You must check in the literature provided with these units and arrange the operating environment to suit the complete system.

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*Cary 50 system interconnection*

## 2.1 Environmental conditions

Your Cary instrument is designed for indoor use. It is suitable for the following categories:

- Installation category I
- Pollution degree 2
- Safety Class 3 (EN 61010-1)

### Environmental

Condition	Altitude	Temp t (°C)	Humidity (%RH) non-condensing
Non-operating (transport)	0-2133 m (0-7000')	5-45	20-80
Operating but not necessarily meeting performance spec's	0-2000 m (0-6562')	5-31 31-40	≤80 ≤{80-3.33(t-31)}
Operating within performance specifications	0-853 m (0-2800')	10-35	8-80
	853-2133 m (2800-7000')	10-25	8-80

For optimum analytical performance it is recommended that the ambient temperature of the laboratory be between 20-25 °C and be held constant to within ±2 °C throughout the entire working day.

### Connections

3.5 mm phono jack socket in the sample compartment (left hand wall) for accessories.

8-pin DIN connector in the left hand side of the sample compartment for the diode detector.

25-pin D-range connector in the right hand side of the sample compartment for accessories (optional).

## Weights and dimensions

### Weight

Packed 23 kg (50.7 lb)

Unpacked 21 kg (46 lb)

### Dimensions (W x D x H)

Packed 615 x 710 x 360 mm (24 x 28 x 14 in)

Unpacked 590 x 500 x 200 mm (23 x 20 x 8 in)

## 2.2 Work bench

The workbench must be stable and strong enough to support the total weight of equipment to be used. The work tops should be large enough to permit a free circulation of air around each unit in the system. Remember to provide space for the computer, monitor and printer. The Cary 50 has been designed to withstand the weight of a standard 15" monitor.

The recommended workbench height should be approximately 90 cm (36 in).

To avoid damage through spillage of the samples being analyzed, the work tops should be covered with a material which is corrosion resistant and impervious to liquids.

## 2.3 Electrical specifications

The Cary 50 uses the power supply in the PC to derive the necessary voltages required to operate the instrument. It is therefore necessary to ensure that electrical power supplies for the PC comply with the rules and/or regulations imposed by local authorities responsible for the supply of electrical energy to the workplace.



### Warning

Good electrical grounding is essential to avoid potentially serious shock hazards. Make certain that power outlets are earth grounded at the grounding pin.


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All power supplies must be single phase AC voltage, three wire system (active, neutral, earth) and should be terminated at an appropriate power outlet receptacle that is within reach of the PC power cord assembly.

For safety reasons, a separate power outlet receptacle should be provided for each unit in the system. Do not plan to use extension cords or outlet adapters.

Avoid using power supplies from a source that may be subject to electrical or RF interference from other services (for example, large electric motors, elevators or welders).

System Unit	Required Supply Voltage	Power Rating (typical)
Cary 50 Spectrophotometer	Power supplied directly from the PC	+5 V DC <1A +12 V DC <1.5A -12 V DC <0.25A
Computer	100, 120, 220, 240 VAC 50/60 Hz	300 VA
Printer	100, 120, 220, 240 VAC 50/60 Hz	100 VA

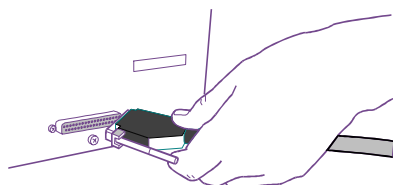
 Note The table above is indicative only. Refer to the literature provided with the computer, printer etc. for details of individual power requirements.

## 2.4 External Interconnecting cables

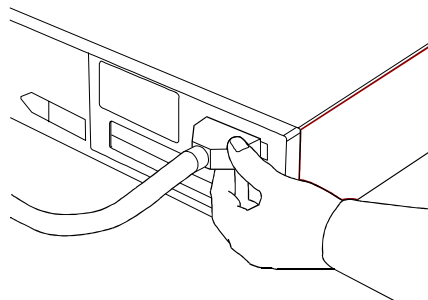
The monitor, keyboard, mouse and printer/plotter are connected to the PC via cables which plug into the back of the PC.

Please consult your monitor and printer manuals for details of their individual cabling requirements.

The Spectrophotometer is connected via a shielded interconnection cable provided with the instrument (see the diagram below).



Connection to the Cary 50



Connection to the PC

## 2.5 Equipment on-site

### Insurance

As the carrier's liability ceases when the equipment is delivered, Varian recommends that the instrument owner arranges a separate insurance to cover transportation from the delivery point to the installation site. The delivery point will vary according to the carrier, the shipping method and in some cases the terms of sale. Some carriers will deliver only to their own distribution center while others may deliver to your off-loading bay. Very few carriers will deliver to the actual installation site.

### **Inspection for transit damage**

Transit damage can be obvious or concealed and in either case will be admitted by the carrier only if it is reported within the terms of the carrier's agreement. For any claims against damage in transit, the following general rules apply:

1. Before accepting delivery, you must inspect the packages for signs of obvious damage. The nature of any obvious damage must be noted on the carrier's waybill, which then must be countersigned by a representative of the carrier.
2. Within the time limit stated in the terms and conditions of carriage, a further inspection must be made for concealed damage. If any damage is found at this stage, the carrier must be notified in writing and all packaging material must be retained for subsequent inspection by a representative of the carrier.
3. A copy of any damage report must be forwarded to the Varian Sales Office dealing with the supply of your equipment.

After accepting delivery, take the equipment to the installation site, then unpack and check the contents. Varian instruments are inherently robust, and the packaging is designed to prevent internal damage. However, the contents form part of a precision measuring system and all packages should be handled with care. In transit, sharp jolts must be avoided and the packages should not be inverted or tilted unnecessarily.

Markings on the shipping cartons generally indicate which side of the package should be kept on top. In-house transit routes must be carefully considered. Vertical, horizontal and turning clearances should be calculated from the shipping carton dimensions of the Spectrophotometer.

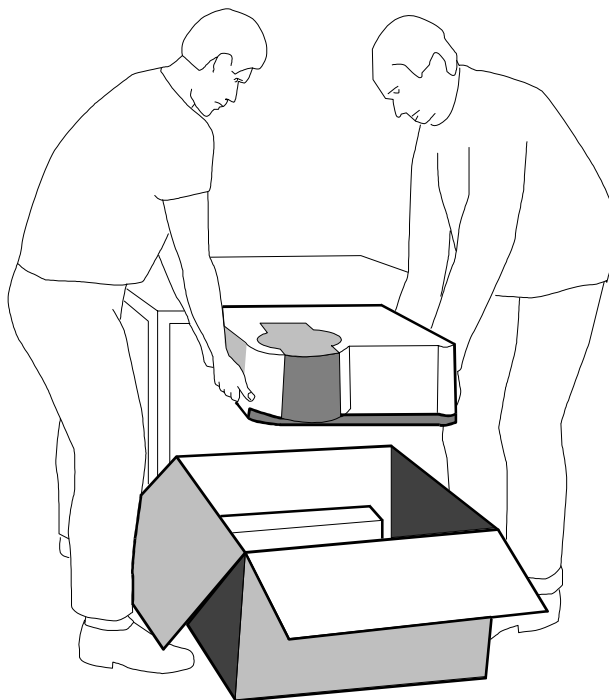
Unpacking of the equipment is your responsibility and instructions are provided with the Spectrophotometer. As the packages are opened, the contents should be checked against the enclosed packing lists and any differences from the original order should be referred immediately to your Varian Sales Office. All contents of the shipping packages should be assembled together when installation is to be carried out by Varian Service personnel. Do not discard any packaging components or filler materials.

**Warning**

Many of the packages are large and heavy. To avoid the chance of injury to personnel or accidental damage to the equipment, always use two or more people when handling the packages or lifting equipment into position. NEVER attempt to lift the packages alone.

## 2.6 Unpacking the Cary 50

Consult the manuals supplied with your PC, monitor and printer/plotter for their unpacking instructions. Unpack the Cary Spectrophotometer as follows:



*Lifting the Cary 50 from the packaging*

1. Open the packing box.
2. To continue with the installation consult the Installation guide supplied with the Cary 50.

Before starting the installation of the Cary 50 ensure that you received everything that you ordered and all the components listed on the various packing lists are present.

If there are any discrepancies please notify the supplier. If any items are found to be damaged, notify the carrier and supplier immediately:



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**Warning**

The instrument weighs about 21 kg. To avoid injury to personnel, damage to the instrument, or damage to other equipment, ALWAYS use at least two people to lift it into position.

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