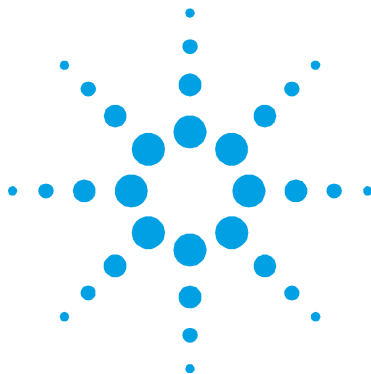




Cary 50

Pre-Installation Manual



Agilent Technologies

Notices

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

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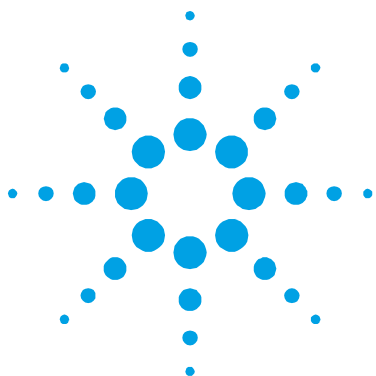
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1. Introduction

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The Agilent Cary 50 Series spectrophotometers are complete analysis systems that have been fully tested and proven to specification before dispatch from the manufacturing plant.

This manual contains general information about preparing the installation site and details of the facilities that must be provided for the installation.

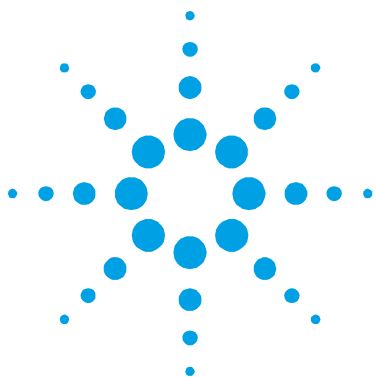
The Cary 50 has been designed to be installed by the customer. You may be charged if installation is performed by Agilent service personnel.

Pre-installation checklist

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

Preparation requirement	Complete
The work area meets the environmental requirements (see Page 7).	☐
A suitable workbench is available (see Page 8).	☐
Suitable electrical power supplies are available (see Page 9).	☐
A telephone line is available.*	☐
All equipment is on site and has been checked for damage (see Page 11).	☐
The Cary 50 has been unpacked (see Page 12).	☐
A computer that meets requirements is available (see Page 15).	☐
A working Microsoft® Windows® operating system is installed on the computer (see Page 19).	☐

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



2. Work Area

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Suitability

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

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

Environmental conditions

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

For optimum analytical performance it is recommended that the ambient temperature of the work area be between 20 and 25 °C and be held constant to within ± 2 °C throughout the entire working day. Air conditioning is recommended. The room should be temperature-controlled if your analyses are particularly sensitive.

The work area should have a dust-free, low humidity atmosphere.

Table 1 Suitable conditions during instrument transportation, non-operation and operation

Condition	Altitude (m, ft)	Temperature (°C, °F)	Relative humidity, non-condensing (%)
Non-operating (transport)	0–2133, 0–7000	5–45, 41–113	20–80
Operating but not necessarily meeting performance specifications	0–2000, 0–6562	5–31, 41–88 31–40, 88–104	≤80 ≤[80-3.33(t-31)]
Operating within performance specifications	0–853, 0–2800 853–2133, 2800–7000	10–35, 50–95 10–25, 50–77	8–80

CAUTION

Operating specifications for the computer, monitor and printer/plotter may differ from those for the Cary spectrophotometer. You must check in the literature provided with these units and arrange the operating environment to suit the complete system.

Workbench

The workbench must be stable and strong enough to support the total weight of equipment to be used.

Table 2 Cary 50 weights and dimensions

Weight (kg, lb)	Width (mm, in.)	Depth (mm, in.)	Height (mm, in.)
21, 46	590, 23	500, 20	200, 8

The bench 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/plotter. The Cary 50 has been designed to withstand the weight of a standard 15 inch monitor.

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

To avoid damage from spillage of the samples being analyzed, the bench tops should be covered with a material that is corrosion-resistant and impervious to liquids.

Electrical specifications

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



Electrical Shock Hazard

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

All power supplies must be single phase AC (alternating current) voltage, three wire system (active, neutral, earth) and should be terminated at an appropriate power outlet receptacle that is within reach of the computer 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 (radio frequency) interference from other services; for example, large electric motors, elevators or welders.

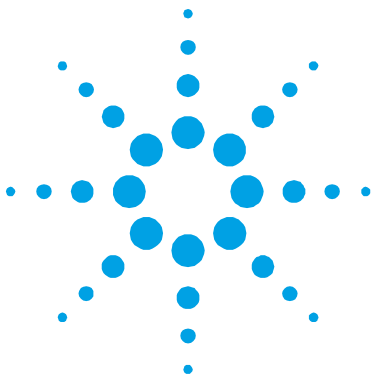
Table 3. Mains voltage requirements

System unit	Required supply voltage	Power rating (typical)
Cary 50	Power supplied directly from the computer	+5 V DC <1 A
		+12 V DC <1.5 A
		-12 V DC <0.25 A
Computer	100, 120, 220, 240 VAC, 50/60 Hz	300 VA
Printer	100, 120, 220, 240 VAC, 50/60 ±1 Hz	100 VA

Work Area

NOTE

This table is indicative only. Refer to the literature provided with the computer and printer for details of individual power requirements.



3. Equipment On Site

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Insurance

As the carrier’s liability ceases when the equipment is delivered, Agilent recommends that the instrument owner arranges 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.

In-house transit routes

In-house transit routes must be carefully considered. Vertical, horizontal and turning clearances should be calculated from the shipping carton dimensions of the spectrophotometer.

Table 4 Shipping weights and dimensions

Weight (kg, lb)	Width (mm, in)	Depth (mm, in)	Height (mm, in)
23, 50.7	615, 24	710, 28	360, 14

Inspecting 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:

- 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.
- 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.
- A copy of any damage report must be forwarded to the Agilent sales office dealing with the supply of your equipment.

WARNING



Heavy Weight Hazard

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.

Unpacking

After accepting delivery, take the equipment to the installation site. Agilent 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.

Unpacking the equipment is your responsibility. As the packages are opened, ensure you received everything you ordered. If there are any discrepancies, notify the supplier. If any items are found to be damaged, immediately notify the carrier and supplier.

Check the contents against the enclosed packing lists. Any differences from the original order should be referred immediately to your Agilent sales office. All contents of the shipping packages should be assembled together when installation is to be carried out by Agilent service personnel. Do not discard any packaging components or filler materials

To unpack the Cary 50 spectrophotometer:

- 1** Open the packing box.
- 2** Lift the Cary 50 from the packaging as depicted in Figure 1.

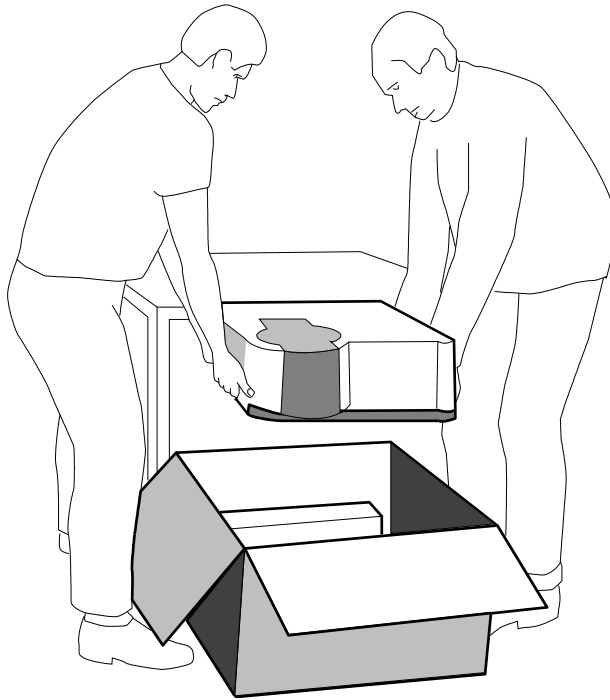


Figure 1. Lifting the Cary 50 from the packaging

WARNING



Heavy Weight Hazard

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.

Consult the manuals supplied with your computer, monitor and printer/plotter for their unpacking instructions.

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- UL 1950 CSA C22.2 No 950-95
- IEC 950 or IEC 60950 EN 60950



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

The minimum configuration (see Table 5) represents the absolute minimum on which you can run the software. This computer configuration may be out of manufacture, but you may want to use a computer you already have. The recommended configuration is that which you would buy new.

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NOTE

Computers supplied with Letter of Credit orders will be an international brand and will be the recommended configuration or better.

Better computer components can be substituted for those listed. For example, processor type, amount of memory, screen size and resolution.

Table 5. Minimum and recommended computer requirements

Minimum	Recommended
IBM compatible	IBM compatible
Intel® Pentium® II processor	Intel Pentium II processor
16 MB RAM	64 MB 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 CD-ROM drive	10 x CD-ROM 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, 98 or Windows NT® (including Service Pack 4 or later)	Microsoft Windows 95, 98 or Windows NT (including Service Pack 4 or later)
Microsoft Internet Explorer 4 or later if using Windows 95 or Windows NT	Microsoft Internet Explorer 4 or later if using Windows 95 or Windows NT
1 spare computer power supply connector	1 spare computer power supply connector
Power supply rating 220 W	Power supply rating 220 W
1 spare slot for the accessory cable connector	1 spare slot for the accessory cable connector

Setting up your computer

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

NOTE

If Agilent is installing the Cary 50 for you, installation of a Windows operating system or Internet Explorer 4 is not included as part of the standard instrument installation.

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

Check that your sound card and CD-ROM drive are working.

You also need to install Microsoft Internet Explorer 4 or later. This does NOT mean that you need to use Internet Explorer 4 as your Web browser — the Cary WinUV software uses some of the components that are supplied as part of Internet Explorer 4, but you can continue to use whichever browser you like.

You will probably need to purchase Internet Explorer 4 or download it for free from the Microsoft Web site (www.microsoft.com), as typically only earlier versions of Internet Explorer are shipped with Windows.

Instrument connection

The spectrophotometer is connected to the computer via a shielded interconnection cable provided with the instrument.

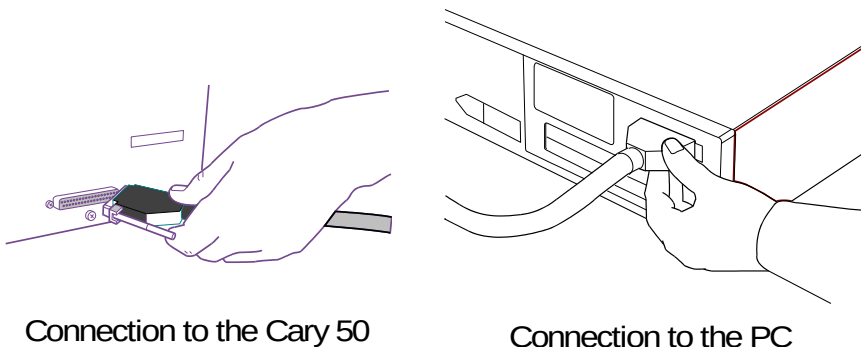


Figure 2. Spectrophotometer to computer connections

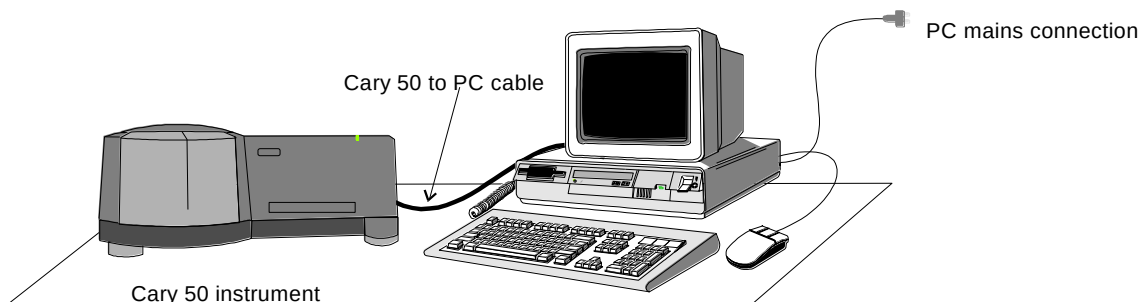


Figure 3. Cary 50 system interconnection

The Cary 50 computer card requires reserved access to:

- Address space 210-21F
- Interrupt requests IRQ 3,5,7,10,11,12 (one off)

This computer card plugs into a computer 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 computer.

Connection of the Cary 50 to the computer card is by a 37-way D-range connector. This connector carries motor drive supplies for the Cary 50 instrument and motor-driven accessories, detector analog 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 <0.25 A (maximum)
- +5 V DC <1 A (maximum)

The following power is supplied directly from the computer power supply (standard HDD connector +12 V DC only):

+12 V DC <1.5 A (maximum)

Typical power consumption (measured) is as follows:

- | | |
|---|---------|
| ▪ When idle (with motors powered) | 400 mA |
| ▪ Operating (motors and lamp module powered) | 1.125 A |
| ▪ Power dissipation (typical) instrument only | 26 W |

Operation of motor-driven accessories may increase the +12 volt current by a further 2 amperes (24 watts maximum). Note that these requirements are in addition to that required by the computer itself.

Other connections

The monitor, keyboard, mouse and printer/plotter are connected to the computer via cables that plug into the back of the computer. Consult your monitor and printer manuals for details of their individual cabling requirements.

The sample compartment contains these connections:

- 3.5 mm phono jack socket in the left wall for accessories.
- 8-pin DIN connector on the left side for the diode detector.
- 25-pin D-range connector on the right side for accessories (optional).

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