SP52

SPHERE SPECTROPHOTOMETER

Getting Started

X·rite

The Manufacturer:	X-Rite, Incorporated	
Der Hersteller:	4300 44th Street, S.E.	
El fabricante:	Grand Rapids, Michigan 49512	
Le fabricant:		
Il fabbricante:		
Declares that:	Spectrophotometer	
gibt bekannt daß:	SP52	
advierte que:		
avertit que:		
avverte che:		

is not intended to be connected to a public telecommunications network.
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ne doit pas être relié à un réseau de télécommunications publique.
non deve essere connettuto a reti di telecomunicazioni pubblici.

CE DECLARATION

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Model Name:	Spectrophotometer
Model No.:	SP52
Directive(s) Conformance:	EMC 89/336/EEC LVD 73/23/EEC

RoHS/WEEE

X-Rite products meet the **R**estriction **o**f **H**azardous **S**ubstances (RoHS) Directive 2002/95/EC and European Union – **W**aste **E**lectrical and **E**lectronic **E**quipment (WEEE) Directive 2002/96/EC. Please refer to www.xrite.com for more information on X-Rite's compliance with the RoHS/WEEE directives.

Warning:
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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

NOTE: Shielded interface cables must be used in order to maintain compliance with the desired FCC and European emission requirements.

Industry Canada Compliance Statement

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

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

AVERTISSEMENT : Des câbles d'interface blindés doivent être utilisés afin de se conformer aux règlements européens et FCC (USA)sur l'émission**.**

WARNING: This instrument is not for use in explosive environment.

CAUTION: Operational hazard exists if battery charger other than X-Rite SE30-77 (100-240V) is used. Use only X-Rite battery pack SP62-79-23, other types may burst causing personal injury.

Getting Started

This document is designed to get you familiarized with your SP52 Spectrophotometer. If you need any further instructions or information, you can find a complete Operator's Manual in a Portable Document Format (PDF) file on the CD that is shipped with your instrument.

Table of Contents

What to do first...

Unpack and Inspect

· Remove the instrument from the shipping carton. Be sure to keep the original carton. If shipment is necessary, the instrument should be packaged in the original carton. Contact X-Rite if you need a new shipping carton.

· Inspect the instrument for any damage. If any damage occurred during shipment, immediately contact the transportation company. Do not proceed with installation until the carrier's agent has inspected the damage.

· Check your packaging contents against your packing list and original order. A detailed packaging drawing and a parts list can be found in the instrument's Operator's Manual.

Install the Battery Pack

The instrument is shipped from the factory with the battery pack removed. The battery pack is located in a carrying case compartment and must be installed before the instrument is used.

1. Hold the shoe next to the instrument housing and lift upward on the spring-loaded latch *(refer to Unlatching the Instrument Shoe)*. Open the shoe perpendicular to the instrument housing.

2. Carefully rotate the instrument over and rest it on its top.

3. Slide the battery pack into the compartment with the battery connector facing down and to the back of the instrument.

4. Press down on the pack until the connector is properly seated and the tabs click into position.

Battery Pack

Battery Connector
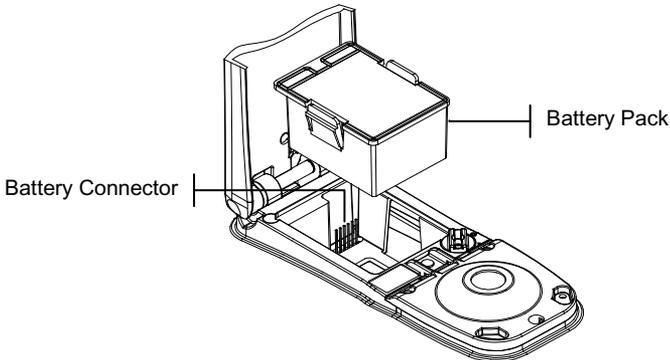
Charge the Battery Pack

> **NOTE:** The battery pack must be installed before plugging in the AC Adapter.

Only use the AC Adapter supplied or the optional battery charger (X-Rite P/N SPCHG). The battery pack must remain in the instrument at all times to operate.

Before initial "remote" use of the instrument, charge the battery pack for approximately four hours. However, if immediate use is required, the instrument can be operated "tethered" to the AC adapter during battery charging.

To attach the AC adapter:
1. Verify that the voltage indicated on the adapter complies with the AC line voltage in your area. If not, contact X-Rite or an authorized representative.

2. Insert the small plug from the adapter into the power-input connector on the instrument. (If you are using serial cable SE108-92, you may insert the small plug into the power connector at the end of the cable.)

3. Plug the adapter into an AC wall receptacle.

Apply Power

The Battery switch—located on the back of the instrument—turns the instrument off and on during battery operation. When the AC adapter is attached, the instrument remains on and the battery switch has no effect.

Battery Switch

AC Adapter Input
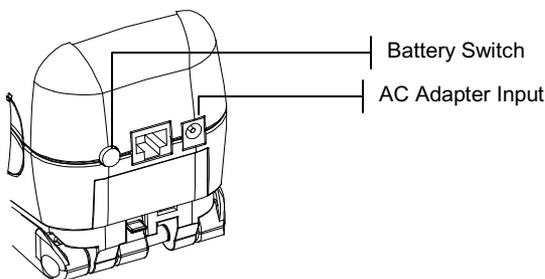
Unlatching the Instrument Shoe

The shoe can be pivoted open 180° from its closed position. This feature is useful when taking measurements on a surface

that does not allow room for the shoe. Measurements are then activated using the Read key.

The shoe must also be open to gain access to the battery compartment when the battery requires replacement.

To Unlatch the Instrument Shoe:

1. Hold the shoe next to the instrument housing and lift upward on the spring-loaded latch.

2. Slowly allow the shoe to pivot toward the back of the instrument and release the latch.

Shoe Latch ⊢   Lift Upwards ⊢
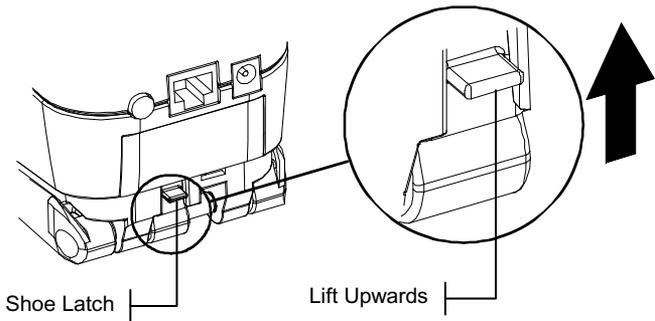
To latch the Instrument Shoe:

1. Simply close the shoe to the instrument. The latch is spring-loaded and automatically latches to the shoe catch.

Attaching the Wrist Strap

A security wrist strap is included to safeguard against accidentally dropping of the instrument. The strap is attached to the instrument by simply securing the clasp to the designated location on the back of the housing. Adjust the strap by sliding the sleeve to tighten around your wrist.

Connection Location ⊢   Strap Clasp

Adjustable Sleeve
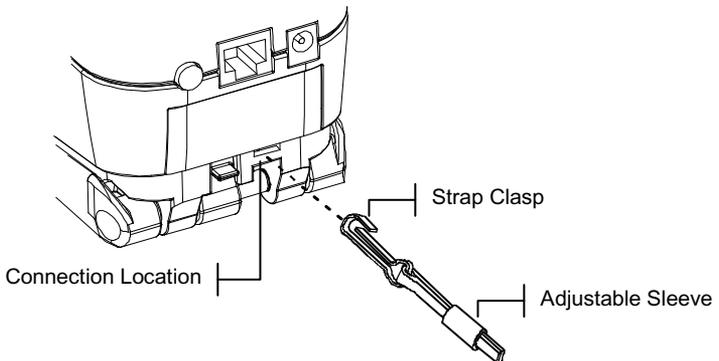
Instrument Description & Features

The SP52 Sphere Spectrophotometer is used to measure and store sample color readings. When samples are stored, the instrument is used in conjunction with a ColorDesigner software package.
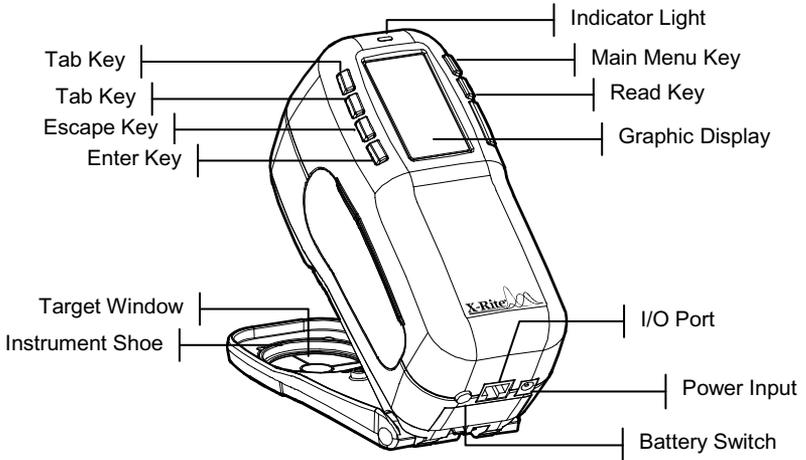
The Main Menu

When the instrument is powered-up, the Measure Mode screen appears. Measure Mode operation is covered later in this section. The screen shown below is the main (top level) screen. The left side of the main menu screen lists all available modes. The right side of the screen lists instrument model and firmware version information.
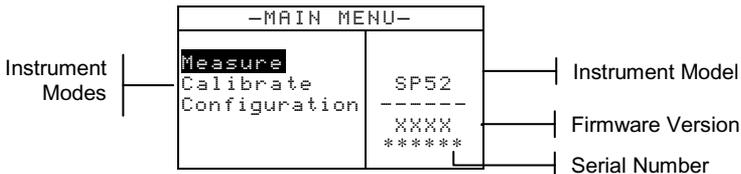

The Keys

Perform reading and menu/option navigation with the six keys arranged around the display screen. Each key has a unique symbol for performing a specific operation.

⬇ **Tab Down key** – advances the highlighted bar (reverse image) to the next available "tab stop." A "tab stop" indicates an item that can be acted on further, such as a measurement or a setting option. Tab stops generally follow a left-to-right or top-to-bottom sequence.

⬆ **Tab Up key** – performs the same function as the Tab Down key except in reverse order. Tab stops follow a right-to-left or bottom-to-top sequence.

↵ **Enter key** – activates the highlighted item. When entering an active mode from the main menu, the active mode is displayed with the highlight on the first required operation in the mode.

↖ **Escape key** – backs up the instrument screen one menu level.

x **Main Menu key** – returns the instrument screen to the main menu. This is a quick exit out of any mode. If any option is being modified at the time the key is pressed, the edits are aborted and the previous setting reinstated.

Read key – initiates a reading when pressed. Note, this function is only activated through an RCI command. Not all applications utilize this functionality.

Measure Mode Screen

The measure mode provides a method for storing sample measurements in the instrument's database. A sample is assigned to a specific location. Location names and sample names are created using the alphanumeric editor or an optional barcode reader. Each location can store a maximum of 50 sample measurements.

The Measure Mode screen consists of four main areas: Sample information, Controls, User dialog, and Measurement information.
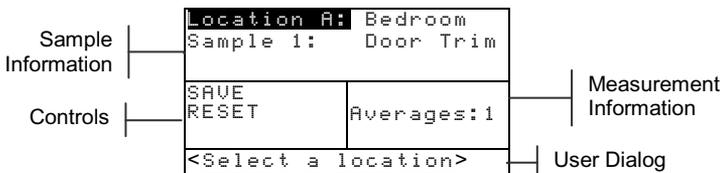
§ **Sample Information** - This area displays the location name, sample name and samples stored in the selected location. Pressing the Enter ↵ key when `Location` is highlighted provides access to the selection editor. Pressing the Enter ↵ key when `Bedroom` (user defined location name) or `Door Trim` (user defined sample name) is highlighted provides access to the location names or sample names stored in the instrument.

§ **Controls** - This portion of the screen is used to save or reset the current sample measurement. Pressing the Enter ↵ key when `SAVE` is highlighted stores the current measurement in the instrument. Pressing the Enter ↵ key when `RESET` is highlighted reset the average counter to zero for the current sample.

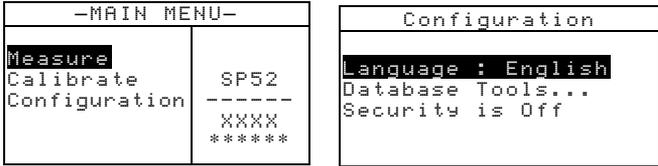§ **User Dialog** - This portion of the screen indicates the current mode or condition of the instrument. For example, if the highlighted tab stop focus is on `Location A`, the user dialog would display <Select a location>. Measurement and error conditions are also displayed in this location.

· **Measurement Information** - This portion of the screen displays how many measurements have been completed on the current sample..

Using the Instrument

Opening a Mode or Menu

Opening a mode or menu gives you access to additional items related to the menu or specific information for a mode.

```
     -MAIN MENU-

 Measure
 Calibrate        SP52
 Configuration   ------
                  XXXX
                 ******
```

```
      Configuration

 Language : English
 Database Tools...
 Security is Off
```

To open a mode or menu:
1. Use the Tab Up key ↑ or Tab Down key ↓ to highlight the desired mode or menu item.
2. Press the Enter ↵ key.

Opening a Pop-Up List Box

Opening a pop-up list box allows you to select items and/or change settings for a selection or function. Below is an example of a list box.

```
     Configuration
      Set Language

 Lan English
 Dat Deutsch
 Sec Français
            -
```
Pop-Up List Box
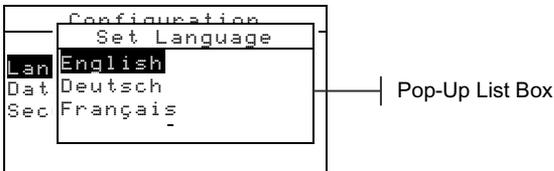
To open an pop-up list box:
1. Use the Tab keys ↑↓ to highlight the desired selection or function.
2. Press the Enter ↵ key to access the pop-up list box.

Using the Alphanumeric Editor

Location and sample names can be edited using the alphanumeric editor if you do not have an optional barcode reader. Selecting Clear in the editor provides a quick method of removing all characters in the string. Pressing the Tab keys ↑↓ simultaneously clears the selected character. Below is an example of the editor.

```
 N A-H cation Name
   -      Clear
 -      B
        C
        D
 -      -
      Save & Exit
```
Editor
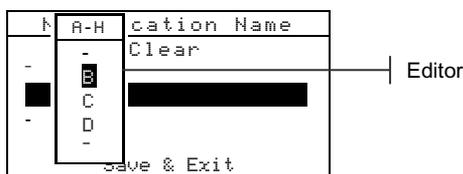
To open the editor:

1. Use the Tab ↑↓ keys to choose the desired digit or number location (arrows above and below designate selection).

2. Press the Enter ↵ key to access the editor.

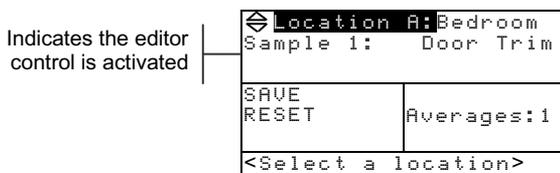> **NOTE:** You can press the Enter ↵ key again to quickly page through groups of letters, symbols, and numbers. Use the Escape ↖ key to move from a character back to the group selection.

3. Use the Tab ↑↓ keys to highlight the desired character.

4. Press the Enter ↵ key to select the highlighted character and exit the editor.

Using the Location/Sample Editor

The measure mode has a special control that is used to select storage locations, location names, and sample names. The list can be paged through either forward or backward to reduce time.

Indicates the editor control is activated

```
⇕Location A:Bedroom
 Sample 1:   Door Trim

 SAVE
 RESET       Averages:1

<Select a location>
```

To open the editor:

1. Use the Tab ↑↓ keys to highlight the location, location name, or sample name.

2. Press the Enter ↵ key to activate the editor.

3. Press the Down Tab ↓ key to page forward through the list, or press the Up Tab ↑ key to page backward through the list.

4. After the desired item is displayed, you can press the Enter ↵ key to select the item, or press the Escape ↖ key to go back to the original setting.

Instrument Indicator Light

The LED located next to the instrument display illuminates various color conditions during measurements.

·   Flashing Amber – instrument calibration is required or measurement aborted.

·   Solid Amber – measurement is taking place.

Important Measurement Techniques

The variety of items that the instrument can measure is almost endless. However, to obtain accurate and repeatable measurements, the bottom of the shoe must be on the surface to be measured. The reason for this is that any movement during a reading can cause the data to vary. To obtain the most accurate and repeatable measurements, there are a few guidelines you must follow:

·   The sample to read must be larger than the target window opening.

·   If the sample to be read is smaller than the shoe, you may want to make a platform—the same height of the sample—for the instrument to sit on.

·   The sample color should be uniform and consistent across the measurement area, with no fading or blemishes.

·   The sample should be solid—not clear or translucent.

Taking a Measurement

> NOTE: The procedure below provides the basic. steps required to measure a sample. Refer to the Operator's Manual PDF file located on the CD supplied with your instrument for more detailed information on all the functions.

When taking a measurement, be sure to use the previously discussed proper measurement techniques.

To take a measurement:

1.   Select appropriate location and sample names.

2.   Position the instrument's target window on the sample and take a measurement by lowering the instrument to the shoe and holding. Release the instrument when `Measurement Complete` is displayed.

> NOTE: Your measurement procedure may also require you to press the Read key when the instrument is lowered.

3.   To store the sample, highlight `SAVE` and press the Enter ↵ key, or highlight `RESET` to clear measured sample.

Calibrating the Instrument

Under normal circumstances, the instrument should be calibrated at least once a day. The calibration procedure consists of a white cal reading and a black trap reading.

Make sure the calibration reference is clean before use. Carefully clean the ceramic disk with a dry, lint-free cloth. Do not use solvents or cleaners of any kind. The black trap portion may also be cleaned with a dry, lint-free cloth or clean, dry compressed air.

> **NOTE:** The instrument must be calibrated with the target window removed when using the instrument with the shoe extended.

Calibration Procedure

1. Press Tab Up ↑ or Tab Down ↓ to highlight `Calibrate`. Press Enter key ↵ to access the calibration mode.

2. Position the target window on the white reference.

3. Press the instrument firmly to the shoe. Hold steady until the screen indicates the white calibration is completed. Release the instrument when <Success!> is displayed.

4. Center the target window over the black trap portion of the reference.

5. Press the instrument firmly to the shoe. Hold it steady until the screen indicates the black calibration is completed.

6. Store the calibration reference in a dry, dust free area, away from direct exposure to light.

Configuring the Instrument

You may set up your instrument according to your specific needs. This is done through the Configuration menu. The top level configuration menu has three main option categories that access several sub menus.

```
        Configuration
Language    :English
Database Tools...
Security is Off...
```
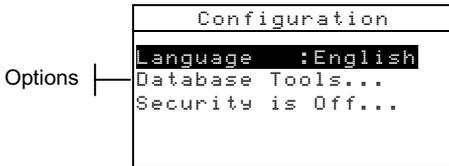
Options ⎯

Configuration Settings

Use the Operational Steps described in *Using the Instrument* to access and set your configuration options.

Language

The Language configuration allows you to select the language you want to display on your instrument: English, Deutsch, Español, Français, Italiano, or Português.

NOTE: The instrument resets whenever the current language is changed.

Database Tools

The Database Tools allow you to configure the following settings:

·   **Add Location Name** – Used to manually enter location names using the editor.
·   **Add Sample Name** – Used to manually enter sample names using the editor.
·   **Factory Presets** – Allows you to reload the factory default settings whenever required. Databases are not affected.
·   **Clear all Databases** – Allows you to clear all stored samples from all locations. Fandecks and Configuration settings are not affected.
·   **Clear all Samples** – Allows you to clear all stored samples (sample names are NOT deleted from the list).
·   **Clear all Locations** – Allows you to clear all stored samples from all locations (location names are NOT deleted from the list).

Security

Enables (on) or disables (off) the entire Configuration options menu. *See following steps to access the Configuration menu when Security is enabled.*

To gain access to the Configuration menu if Security is enabled:

1. Remove the AC adapter and turn off the instrument with the battery switch.

2. Press the Read key as you turn the instrument on with the battery switch.

3. When the main menu appears, release the Read key. The Configuration item appears in the main menu.

NOTE: You must set the Security to **Off** if you want the Configuration item to automatically appear the next time you turn the instrument on.

Error Messages

Errors encountered during a measurement are displayed on the instrument screen. All errors are accompanied by a long beep and flashing yellow light. The error message is cleared from the instrument screen by pressing the Enter key ↵ .

Displayed Errors:	Reason
Measurement was aborted by user	Displays with an incomplete measurement or calibration. Instrument was released too soon.
Calibration has timed out	The calibration interval time set in the configuration has been reached. Calibration is now required.
Calibration required	Displays anytime the instrument requires a calibration.
Calibration has failed	Calibration failed. Make sure the instrument is properly positioned on the reference.
The battery is getting low	This warning appears when the battery falls below approximately 25% of full charge. Measurements are still possible, but the battery should be charged soon.
Batteries are dead	Displays when not enough battery power remains to take measurement. The current measurement is aborted.
Batteries are missing	The battery pack is not installed. Instrument will not allow any measurements.
Incorrect Charger Voltage	Wrong charger is connected or charger is bad.
The battery is over-charged	The battery pack is too hot. Remove battery pack and let it cool off.
Lamp is getting weak, replace soon	Reading lamp is at 50% strength or less from its original intensity. Measurements are still possible but the lamp should be replaced soon.

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