Supelco®
Analytical Products

快速指南

Spectroquant® Prove

Spectroquant® Prove
分光光度 100 • 300 • 600

目录

如要详细了解Spectroquant® Prove，请浏览：
www.sigmaaldrich.com/spectroquant

有关我们的操作手册，请浏览：
www.sigmaaldrich.com/spectroquant

如想详细了解技术视频，请浏览：
www.sigmaaldrich.com/photometry

1 安全

本快速指南给出了在调试、操作和维护分光光度计过程中，必须遵守的基本指示。因此，在操作本仪器之前，所有相关工作人员必须仔细阅读本操作手册。请将本操作手册存放于仪器附近以便查考。

安全注意事项
本操作手册的安全注意事项由左边的警告符号（三角形）表示。一些词语（例如“注意”）表明危险程度。本手册使用了如下警告符号：

符号	名称
	**警告** 危险区域（一般性）。氙气灯（UV / VIS）会发出紫外光域的辐射，可能会损伤眼睛。在未佩戴合适的护目镜的情况下，切勿直视光源。保护皮肤，不要使您的皮肤直接暴露于紫外光中。
	**警告** 危险电压。
⚠ 警告	**警告** 表示必须严格遵守的注意事项，以防造成人员重伤。
注意	**注意** 表示必须严格遵守的注意事项，以防造成人员轻伤或损坏仪器或破坏环境。
⚠ 注意	**注意** 警告符号加上警告性词语是为了引起您的注意，表明有可能对人员存在（有限的）伤害。
说明	**说明** 表明您需要注意某些特征。
	**参考** 用来给出其他参考文件。

请注意单独提供的安全事项小册子（随产品提供），并仔细阅读。

1.1 主要用途

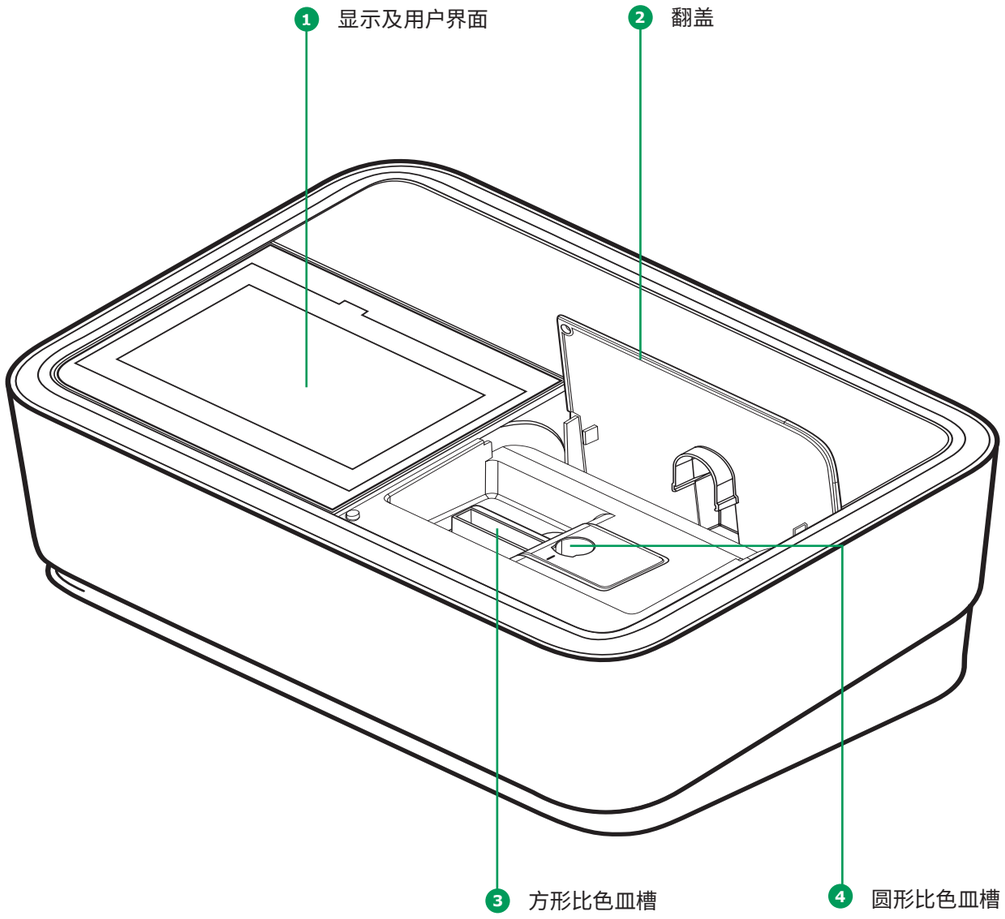
分光光度计的预期用途只包括根据本操作手册进行光度测量。请遵守本操作手册中比色皿的技术规范。将本仪器用于任何其他用途均视为不当操作。分光光度计设计用于在实验室环境下进行水质分析。

2 概述

2.1 产品内容

- 分光光度计
- 电源适配器
- 电源接头 (3件)
- 防尘罩
- 调零管
- 快速指南 (A4格式)
- 安全注意事项
- 出厂检测证书

仪器前视图



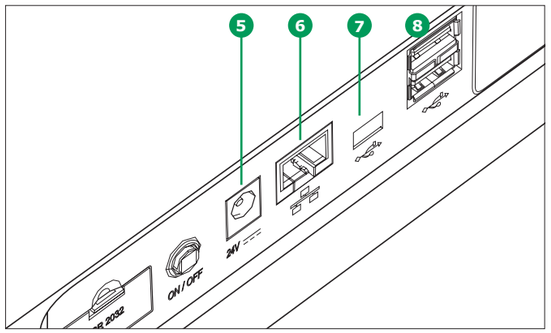
2.2 仪器简介

包装

分光光度计包装在保护性运输包装中。

注意

请保留原始包装 (包括内衬)，以便将来需要运输时保护仪器不受撞击。请注意，由于不当运输所造成的损坏不在保修之列。



仪器背后的端口

5 电源线端口
6 LAN端口
7 USB Mini B端口
8 USB-A端口

说明

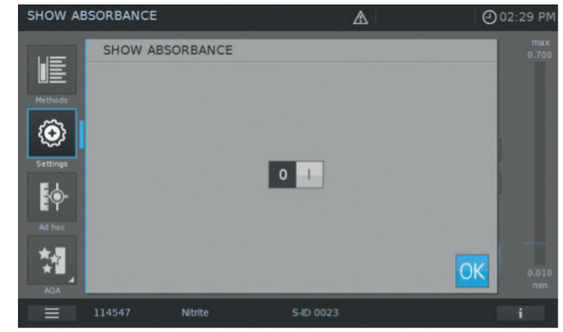
所有连接均符合SELV。

2.3 显示及用户界面

说明

整个显示屏是触摸屏。可用指尖或专用触控笔进行选择。请勿用尖锐物品 (例如圆珠笔的尖) 触按显示屏。

- 请勿在显示器上放置物品，否则可能会刮花显示屏
- 触按按钮、文字或符号即可选择它们
- 滚动条用来帮助快速滚动长的列表
- 触按滚动条上的箭头可以向上或下向滚动列表
- 选择之后，该项目会被立即激活
- 触按主按钮即可突出显示主按钮
- 选中某一文本后，即会反相显示该文本 (浅色背景上显示深色文字)
- 选中某一项目后，即会反相显示该项目 (浅色背景上显示深色文字) 例如 浓度模式中的特定设定 “显示吸光度”
- “0” 是关，“I” 是开 – 活动的选择显示为灰色背景深



主菜单浏览

主菜单总是显示在左边：它由两个页面组成，每页上有4个智能图标。触按左下角的☰可以在两个页面间切换。

方法列表

方法设置

特设按钮

分析质量保证

结果列表

系统设置

登录 / 注销

定时器

说明

被选中的菜单总是加蓝边显示。

说明

按 “开始”、“保存”、“打印” 等动作按钮会有如下反应：

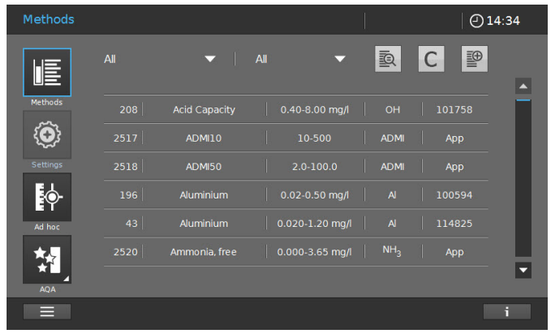
正常
保持静态

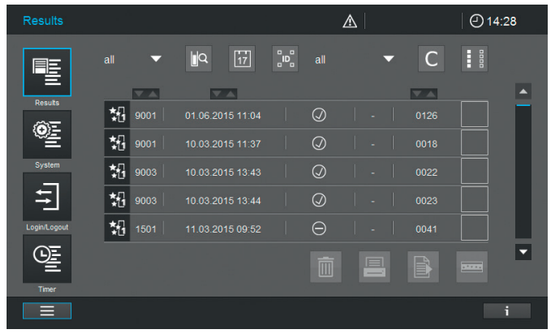
活动的字段总显示为浅色。
触按字段会反相显示，直到所选的动作执行为止。

禁用
消耗正常状态的30%

不活动、已被禁用的字段总以淡色显示。

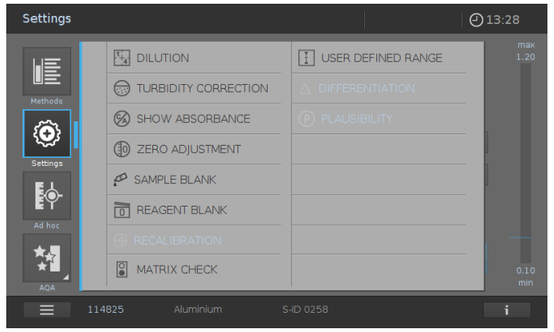
“方法” 和 “结果” 是最常用的两种模式，因此它们在主菜单浏览画面的顶端。





说明

主菜单中的 “设置（方法设置）”、“特设按钮”、“AQA”、“系统（仪器设置）”、“登录 / 注销”、“定时器” 可以打开子菜单。例如 “设置”：



在这个举例中，要想离开子菜单，必须再按一次主菜单按钮关闭子菜单：

“方法” 主菜单由两个主浏览面板组成，其布局如下图所示，它们分别是浓度测量和方法列表。

画面布局 - 浓度测量概述

画面布局 方法列表概览

主按钮简介

按钮	名称
	方法列表 所有方法的列表，未按模式分类
	设置 此按钮用来激活特定方法的设置（例如样品稀释、浊度校正、调零、样品空白、试剂空白）
	特设按钮 用于执行测量（吸光度 / 透光率、光谱、动力学） 允许在不需要创建方法的情况下进行测量
	吸光度 / 透光率模式 特设按钮子菜单：执行吸光度或透光率测量
	光谱模式 特设按钮子菜单：记录光谱 方法列表：创建方法 -> 光谱模式
	吸光度 / 透光率模式 特设按钮：执行动力学测量 方法列表：创建方法 -> 动力学模式
	分析质量保证 用来查看和列出所有分析质量保证（AQA）模式
	AQA状态1和2 AQA子菜单：状态显示画面，给出有效期和结果（通过 / 未通过）信息
	AQA 1 AQA子菜单：AQA 1方法的列表
	AQA 2 AQA子菜单：AQA 2方法的列表
	移液管检查 AQA子菜单：移液管检查方法的列表
	结果列表 所有储存结果的列表
	仪器设置 此按钮用于可选设置（例如日期、时间、方法更新等）
	登录 / 注销 用户登录和注销
	定时器列表 秒表功能的列表

动作和选择按钮简介

动作和选择按钮	名称
	开始按钮 开始一项操作 (例如测量)
	开始调零 开始一个方法的调零程序
	应用
	保存
	停止
	关闭
	注销 用户注销
	搜索方法
	搜索 / 结果列表 搜索功能、搜索条件: 方法名称、方法编号或项目编号
	取消按钮 取消所有已设置的选项
	编辑 用来编辑参数
	创建方法
	打印 打印到.pdf (USB设备) 或打印机
	导出按钮 将所有选定的方法以.csv文件格式导出到外部存储设备
	导入按钮 从外部存储设备将更新 / 方法导入到仪器中
	删除 删除选定的项目

3 开始

3.1 一般使用注意事项

Spectroquant® Prove分光光度计是一种光学精密仪器。在挪动、操作时必须特别小心，尤其是在移动使用过程中。请务必保护仪器远离可能损坏机械、光学和电气部件的环境条件。请特别注意下列几点:

- 操作和储藏温度及湿度必须在“技术数据”一节所指定的范围内 (请参见操作手册)

切勿将本仪器暴露于下列环境条件下:

- 多尘及潮湿环境
- 强光及高温环境
- 具有腐蚀性或含有高浓度溶剂的烟气中

除此之外，还应注意下列事项:

- 测量时，必须将仪器置于平整的平面上
- 必须立即清除泼洒的液体或其他材料 (请参见操作手册)
- 如果有比色皿在比色皿槽中破裂，必须立即清理比色皿槽 (请参见操作手册)
- 未使用分光光度计时，应始终盖好盖子
- 运输分光光度计时，比色皿槽必须是空的

3.2 初始设置

Proceed as follows:

按下列步骤进行:

- 连接电源适配器 (请参见第3.2.1节)
- 打开分光光度计电源 (请参见第3.2.2节)
- 设置语言 (请参见第3.2.3节)
- 设置日期和时间 (请参见第3.2.4节)
- 运行自测程序 (请参见第3.2.5节)

说明

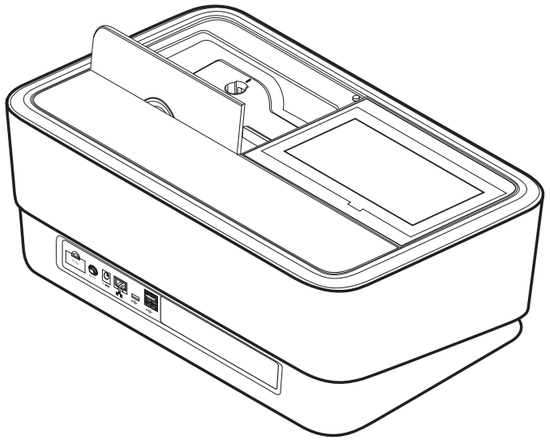
操作手册请见:
www.sigmaaldrich.com/spectroquant
如想详细了解技术视频，请浏览:
www.sigmaaldrich.com/photometry

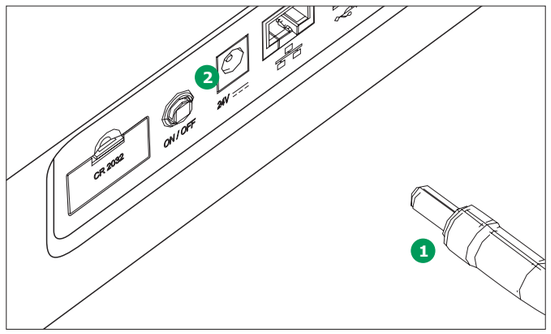
3.2.1 连接电源

电源通过所提供的电源适配器提供。电源适配器向分光光度计提供所要求的电压和电流类型 (直流24 V) 。

⚠ 注意

用户所在地的线电压必须符合电源适配器上指定的规格 (这些规格也列在了操作手册中) 。请只使用所提供的24 V电源适配器。请注意，如不使用所提供的电源适配器，因此而造成的损坏不在保修之列。



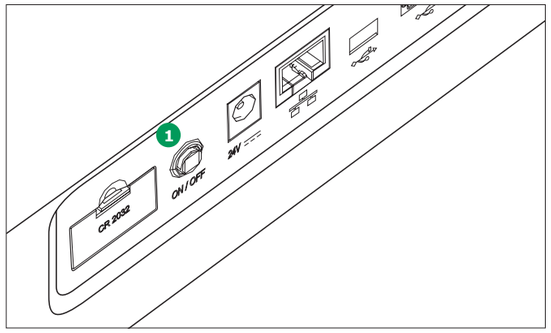


连接电源适配器:

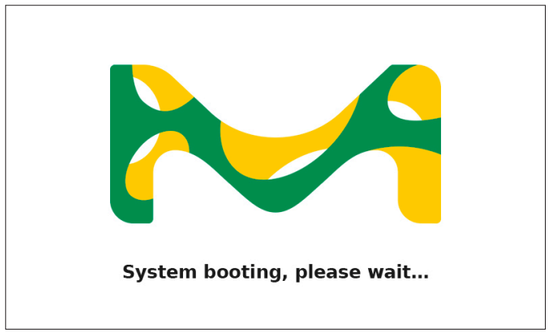
1. 将电源适配器的小插头 1 插到分光光度计上的插口 2 中。
2. 将电源适配器连接到电源插座上。

3.2.2 初次开机

初次打开分光光度计的电源之后，您会被自动引导到语言、日期和时间设置程序。



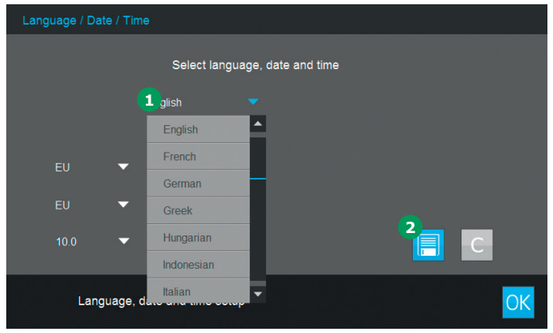
1. 触按电源开关 (ON / OFF) 1。这时分光光度计发出滴滴声，开始引导过程，约需2分钟。您会看到如下显示:



2. 显示屏切换到语言设置画面 (请参见第3.2.3节) 。

3.2.3 语言设置

软件支持多种语言。当您初次打开分光光度计电源时，会在引导程序完成之后，自动显示可选语言的列表。



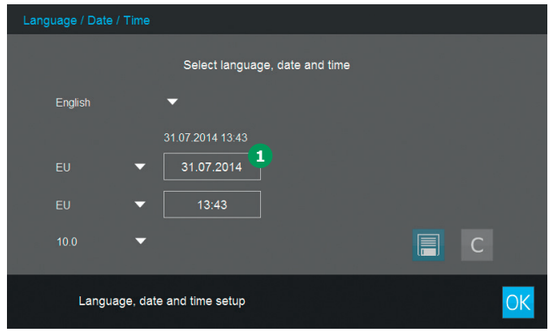
1. 选择想要的语言 1。
2. 触按 “保存” 按钮 2 确认.

说明

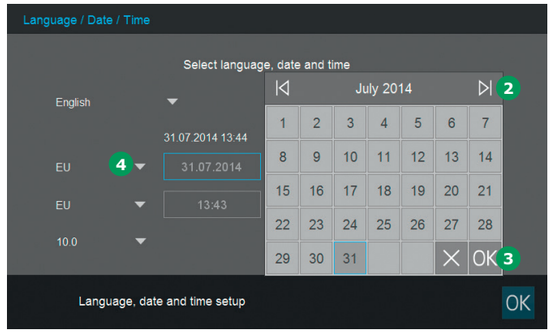
保存语言更改信息约需几秒钟。

3.2.4 日期、时间及与特定国家相关的设置

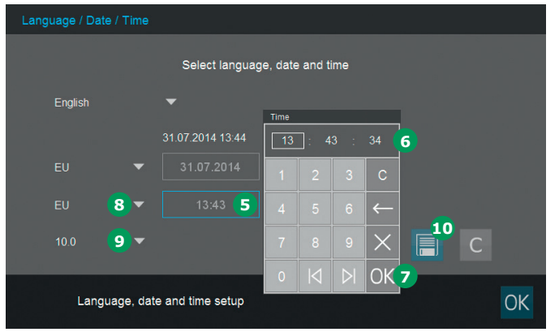
在初始设置过程中，在设置完语言之后，您会被自动引导到日期和时间设置程序。



1. 触按日期格式按钮 1。
2. 这时将弹出日历 2。现在您可以输入日期。



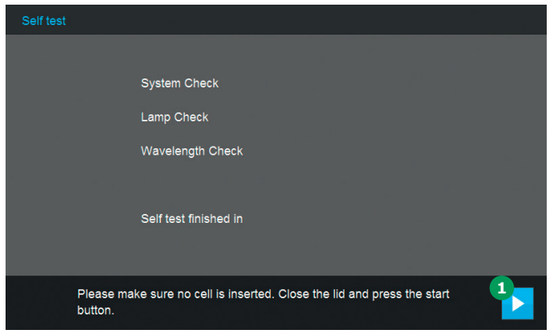
3. 触按确定按钮 3 确认。
4. 您可以触按箭头按钮 4 选择特定国家的日期设置。日期的格式可以设置和显示为欧式或美式。



5. 触按时间格式按钮 5。这时将弹出数字键盘 6。现在您可以输入时间。
6. 触按确定按钮 7 确认。
7. 您可以触按箭头按钮 8 选择特定国家的时间设置。时间的格式可以设置和显示为欧式或美式。
8. 您可以触按箭头按钮 9 选择您的国家所使用的小数点"." / ","格式。
9. 触按“保存”按钮 10 确认。

3.2.5 自测

在语言、日期和时间设置之后，分光光度计执行自测程序。



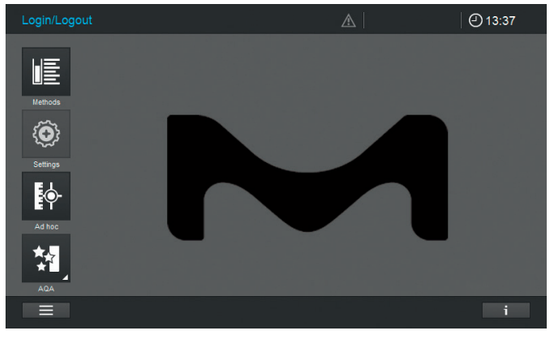
1. 取下所有比色皿，并关闭比色皿槽的盖子。
2. 触按“开始”按钮 1 开始自测程序。
3. 这时分光光度计执行自测程序。

自测

自测程序包括：

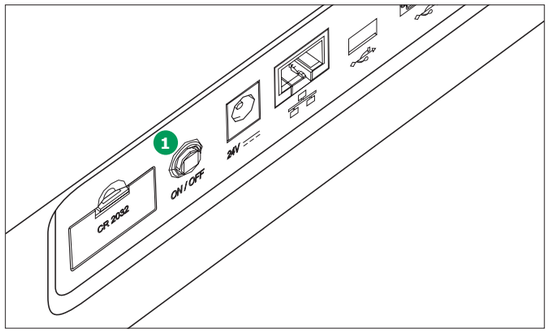
- 检查内存、处理器、内部接口、滤光器和光源
- 校准波长

当自测完成后，显示器显示主菜单。



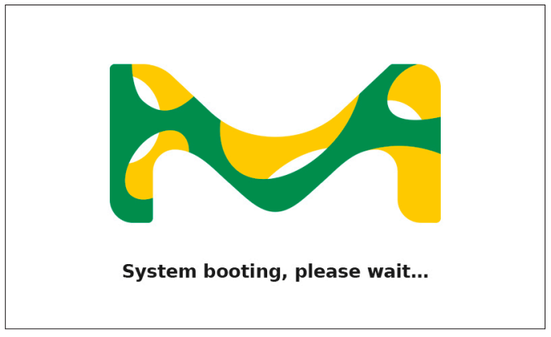
4 操作

4.1 打开或关闭分光光度计电源



打开电源

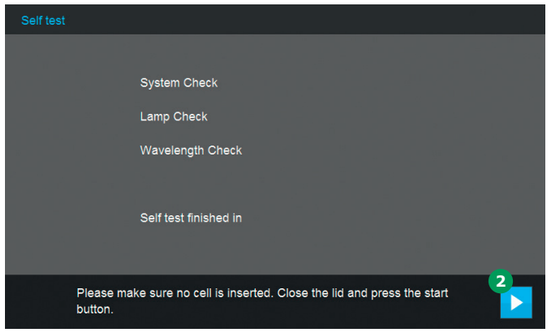
1. 触按电源开关按钮（ON / OFF）1。这时分光光度计发出滴滴声，开始引导过程，约需2分钟。您会看到如下显示：



2. 引导过程结束后，屏幕显示自测对话框。

开始自测

3. 取下所有比色皿，并关闭比色皿槽的盖子。



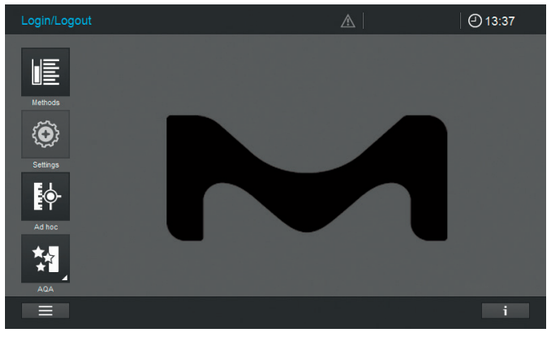
4. 触按“开始”按钮 2 开始自测程序。
5. 这时分光光度计执行自测程序。

自测

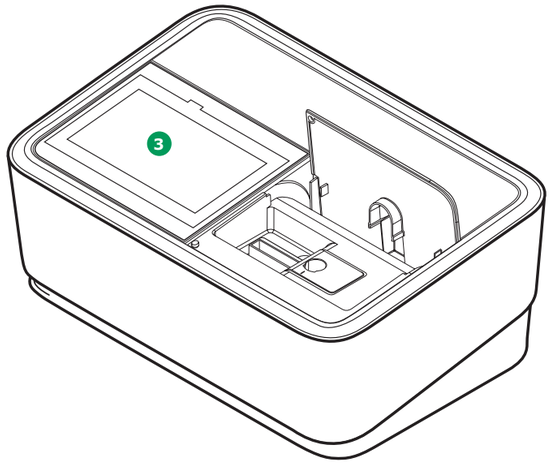
自测程序包括：

- 检查内存、处理器、内部接口、滤光器和光源
- 校准波长

当自测完成后，显示器显示主菜单。



节能模式 显示



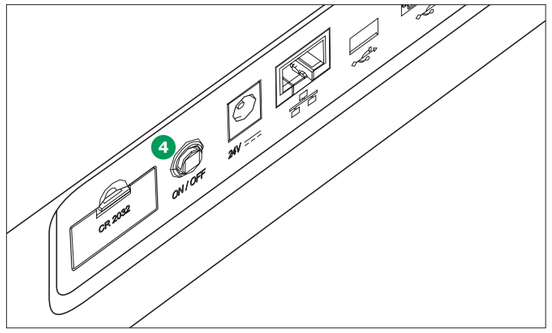
如果10分钟之内没有按动任何按钮，分光光度计将自动关闭显示器的背光 3。当有按钮被按动时，背光自动打开。再按一次按钮，按钮功能才被启动。.

说明

您可以为这一功能设置用户自定义的时间 (有关的详细说明，请参见操作手册) 。

关闭电源

触按电源开关按钮 (ON / OFF) 4 关闭分光光度计电源。

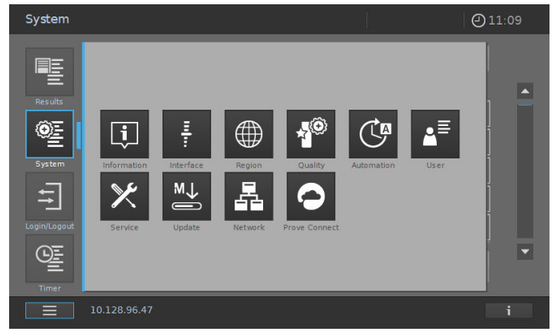


说明

该仪器具有自动关机功能，在用 户自定义的时间之后，仪器会自动关机。该功能出厂时并未预设，您可以在 “系统 (信器设置）” 里开启这一功能。

4.2 系统设置

在 “系统” 菜单中进行仪器的一般设置。



按钮	名称
	信息 该子菜单显示了仪器的下列信息： 软件 / 方法版本、仪器类型、光源计数和序列号
	界面 该子菜单显示了下列设置选项 - 以及标准设置： 声音信号 - 开，背光 - 100 %，打印到pdf - 开
	地区 该子菜单显示了下列设置选项 - 以及标准设置： 语言、日期、时间和国家所属区域欧盟 / 美国、小数点 - “.” （点）
	质量 该子菜单显示了下列设置选项 - 以及标准设置： 快速调零 – 关，AQA 1和AQA 2锁定 – 关，调零过期 – 开 (间隔: 7天) ，使用过期试剂 – 关，维护提醒 – 开
	自动 该子菜单显示了下列设置选项 - 以及标准设置： 节能模式 – 开 (10分钟) ，自动关机 – 关，自动注销 – 关，自动存储 – 开，自动打印 – 关，样本识别号显示 – 关闭
	用户管理 该子菜单显示了下列设置选项 - 以及标准设置： 用户管理的激活以及管理员设置、所需的用户登录 – 关
	服务 该子菜单显示了下列设置选项： 各种维护功能，例如日志或系统数据的备份、修复、导出，以及方法的导入
	更新 该子菜单显示执行软件的选项以及方法更新

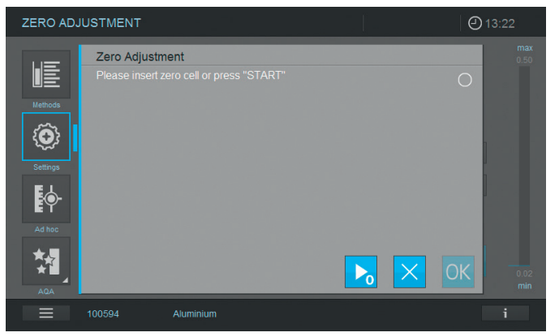
按钮	名称
	**联网** 该子菜单显示了将Prove联网的设置选项。
	**Prove Connect** 该子菜单显示了将Prove与Prove Connect软件联接的设置选项 (Prove Connect软件为可选配件，订购号为Prove Connect to LIMS Y110860001以及Prove Connect to Dashboard Y110850001)

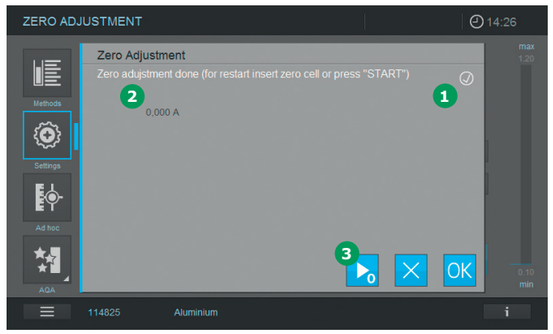
关于按钮及其功能的详细说明，请参见操作手册。

4.3 为内置方法调零

必须对每种比色皿调零。量浓度时，每种比色皿的调零数据分别单独存储在分光光度计中。可以在设备设置中更改用于浓度测量的调零数据的有效期。在为所插入的比色皿的类型以及所选定的方法进行了调零之后，最近调零的日期和时间就会显示在信息行中。

当需要调零时，屏幕上会弹出如下信息：





1. 根据比色皿类型插入调零管。调零自动开始，这时调零的状态显示域出现一个勾号 1。在只以单波长测试样品的方法中，还会显示零值吸光度 2。
2. 在比色皿插在槽中时，触按“开始调零”按钮 3 可以手动反复调零。
3. 触按确定按钮接受这种方法的调零值。
4. 屏幕显示切换到浓度测量画面 (请参见第7页)。
5. 这时仪器已准备好开始测量。

说明

本仪器具有快速调零功能。使用这一功能，可以对与所有Spectroquant®测试试剂盒配用的波长进行调零。这一功能可以通过“系统 (仪器设置)” - “质量 (设置3)” 激活。

4.3.1 关于调零的说明

用圆形比色皿调零

- 请只使用清洁、无划痕圆形比色皿和蒸馏水。最低灌充液位为20 mm。分光光度计随附一个即用的调零管
- 原则上说，即用的调零管的使用期限无限期。但是我们建议您定期检查调零管，看有无可见的污染和划痕，必要时重新灌充或更换 (至少每24个月进行一次)
- 插入圆形比色皿，直到其接触到圆形比色皿槽的底部

用方形比色皿调零

- 在使用方形比色皿时，必须用与测量用的比色皿同类 (相同生产厂家和比色皿材料 [例如光学玻璃、石英玻璃、塑料]) 的调零管调零。这点很重要，因为不同厂家生产的比色皿具有不同的吸光特性。当改变比色皿类型时，需用新的类型再次进行调零
- 在调零之前，清洁方形比色皿，并灌充蒸馏水。最低灌充液位为20 mm
- 方形比色皿在插入比色皿槽中时，其方向必须与测量和调零时的方向一致 (例如比色皿刻有字的一面必须始终在左侧)
- 插入方形比色皿到底，并接触到比色皿槽的左侧。方形比色皿不透明的两而必须一面朝前，一面朝后

4.3.2 何时再次调零?

我们建议在下列情况下再次调零:

- 分光光度计受到机械力，例如强力撞击或运输之后
- 自从上次调零之后，环境温度变化超过5 °C
- 每周至少一次。仪器中再次调零的时间间隔设为7天。您可以在“系统 (仪器设置)”中更改这一设置
- 用了另一种比色皿 (不同的生产厂家、不同的玻璃类型)
- 一般而言，每次您想以最高精度测量时

说明

如果设置了再次调零的时间间隔，当到期时仪器会发出提醒。再次进行调零的步骤是，选择一个方法，然后触按“设置”图标。选择调零，然后插入调零管开始测量。

4.4 测量

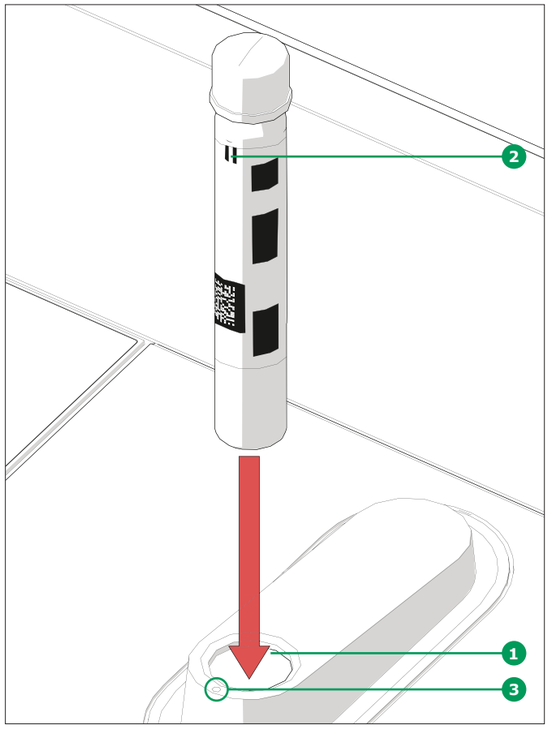
分光光度计可以用来进行下列测量。

测量类型	名称
浓度	• 内置方法，可用Spectroquant®试剂盒或自配试剂进行 • 用户编程的方法
吸光度 / 透光率	• 单波长测量，测量溶液的吸光度或透光率 • 多波长测量，测量溶液的吸光度或透光率
光谱	• 内置方法，测量溶液在预定的波长范围内的吸光度或透光率
动力学	• 内置方法，测量溶液在预定期间内的吸光度或透光率
质量检查	仪器支持的分析质量保证： • 验证主机系统（AQA1） • 验证整个测试系统（AQA2） • 移液管容积控制（移液管检查） • 检查不确定度（MatrixCheck）

4.4.1 进行测量

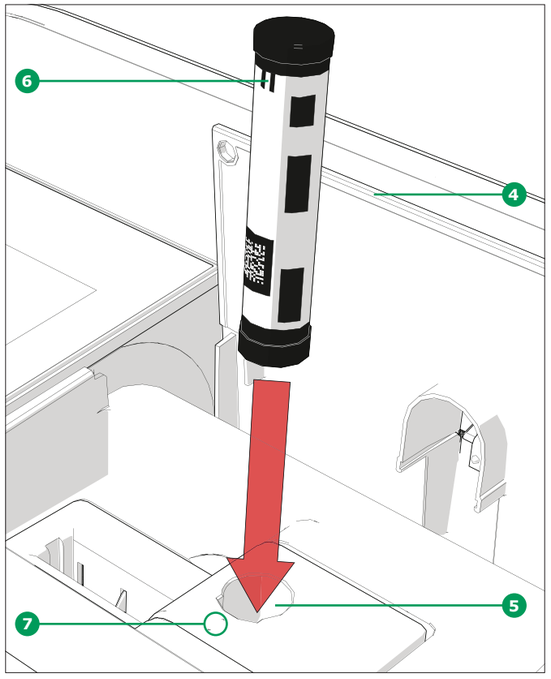
可以用具有不同路径长度（10、20、50 mm / 100 mm Prove 600）的方形比色皿以及Spectroquant®圆形比色皿进行测量。按下图插入比色皿开始测量：

用盖着盖子的圆形比色皿测量



- 从开口 1 插入带有条形码的Spectroquant®圆形比色皿，确保比色皿上的白色定位标记 2 与光度计上的定位标记 3 对准。
- 测量自动开始，且测量结果显示在浓度测量画面中（请参见第7页）。

用打开盖子的方形比色皿测量

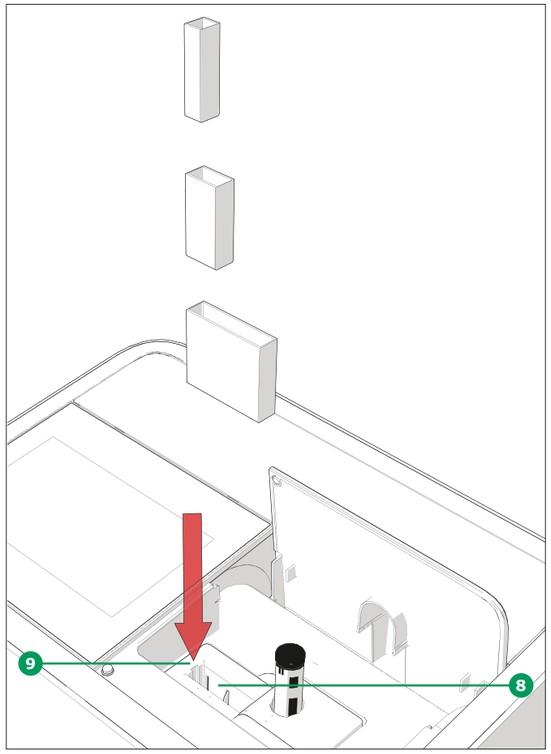


- 用手指向后推打开翻盖 4。
- 将AutoSelector竖直插入到比色皿槽 5 中，确保AutoSelector上的白色定位标记 6 与光度计上的定位标记 7 对准。
- 现在光度计已准备好可以开始测量了。

说明

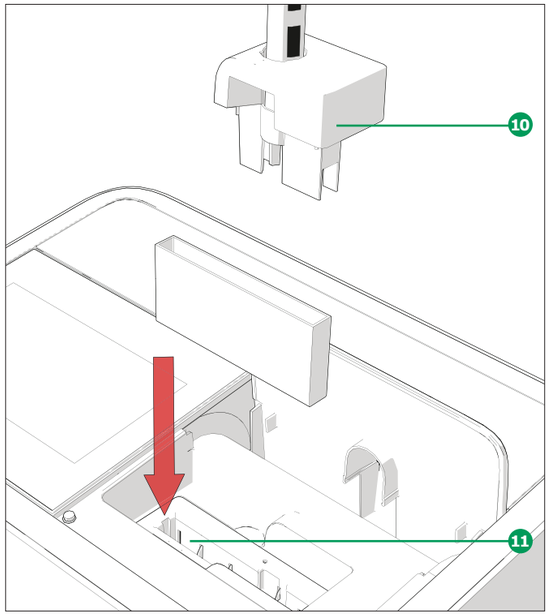
如果条形码无法读取，请参阅操作手册。

插入方形比色皿（10、20、50 mm）：



- 将方形比色皿竖直插入到比色皿槽 8 中，确保比色皿侧面始终紧密地抵在比色皿槽 9 的左侧。
- 测量自动开始，且测量结果显示在浓度测量画面中（请参见第7页）。

插入100 mm方形比色皿（Prove 600）：



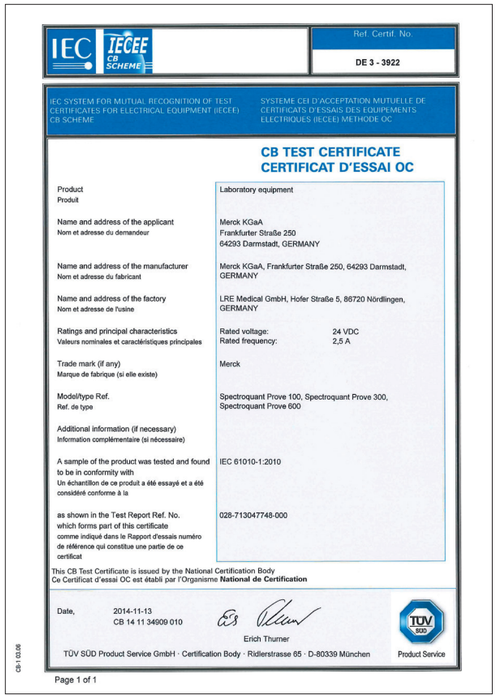
- 取下圆形比色皿槽的顶部，包括AutoSelector 10。
- 将100 mm方形比色皿竖直插入到比色皿槽 11。在小心插入时，确保用双手抓住比色皿的边缘。
- 测量自动开始，且测量结果显示在浓度测量画面中（请参见第7页）。

NOTE

分析过程和附件中显示了测量过程的详细描述。

5 术语

5.1 证书



IEC IECEE CB SCHEME — Ref. Certif. No. DE 3 - 3922

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME
SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product / Produit	Laboratory equipment
Name and address of the applicant / Nom et adresse du demandeur	Merck KGaA Frankfurter Straße 250 64293 Darmstadt, GERMANY
Name and address of the manufacturer / Nom et adresse du fabricant	Merck KGaA, Frankfurter Straße 250, 64293 Darmstadt, GERMANY
Name and address of the factory / Nom et adresse de l'usine	LRE Medical GmbH, Hofer Straße 5, 86720 Nördlingen, GERMANY
Ratings and principal characteristics / Valeurs nominales et caractéristiques principales	Rated voltage: 24 VDC Rated frequency: 2,5 A
Trade mark (if any) / Marque de fabrique (si elle existe)	Merck
Model/type Ref. / Ref. de type	Spectroquant Prove 100, Spectroquant Prove 300, Spectroquant Prove 600
Additional information (if necessary) / Information complémentaire (si nécessaire)	
A sample of the product was tested and found to be in conformity with / Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 61010-1:2010
as shown in the Test Report Ref. No. which forms part of this certificate / comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce certificat	028-713047748-000

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**

Date, 2014-11-13
CB 14 11 34909 010
Erich Thurner
TÜV SÜD Product Service GmbH · Certification Body · Ridlerstrasse 65 · D-80339 München
Product Service

CB-1 03.06

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ZERTIFIKAT • CERTIFICATE • 認証書 • СЕРТИФИКАТ • CERTIFICADO • CERTIFICAT

TÜV SÜD Product Service

Attestation of Conformity
No. N8 14 11 34909 012

Holder of Certificate:	**Merck KGaA** Frankfurter Straße 250 64293 Darmstadt GERMANY
Product:	**Laboratory Equipment**
Model(s):	**Spectroquant Prove 100, Spectroquant Prove 300, Spectroquant Prove 600**
Parameters:	Rated voltage: 24 VDC Rated frequency: 2,5 A Power supply: 100-240 V, 50/60 Hz, max. 2 A
Tested according to:	EN 61010-1:2010

This Attestation of Conformity is issued on a voluntary basis according to the Low Voltage Directive 2006/95/EC relating to electrical equipment designed for use within certain voltage limits. It confirms that the listed equipment complies with the principal protection requirements of the directive. It refers only to the particular sample submitted for testing and certification. See also notes overleaf.

Test report no.: 028-713047748-000

Date, 2014-11-13 (Erich Thurner)

After preparation of the necessary technical documentation as well as the EC conformity declaration the required CE marking can be affixed on the product. Other relevant directives have to be observed.

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TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany TÜV®

A1 / 04.11

ZERTIFIKAT • CERTIFICATE • 認証書 • СЕРТИФИКАТ • CERTIFICADO • CERTIFICAT

TÜV SÜD America

CERTIFICATE
No. U8 14 11 34909 011

Holder of Certificate:	**Merck KGaA** Frankfurter Straße 250 64293 Darmstadt GERMANY
Production Facility(ies):	55525
Certification Mark:	TÜV SÜD NRTL C US
Product:	**Laboratory Equipment**
Model(s):	**Spectroquant Prove 100, Spectroquant Prove 300, Spectroquant Prove 600**
Parameters:	Rated voltage: 24 VDC Rated frequency: 2,5 A
Tested according to:	UL 61010-1:2012-05 CAN/CSA-C22.2 No. 61010-1:2012

The product was voluntarily tested according to the relevant safety requirements noted above. It can be marked with the certification mark above. The mark must not be altered in anyway. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC Guide 67. Certification is based on the TÜV SÜD "Testing and Certification Regulations". TÜV SÜD America Inc. is an OSHA recognized NRTL and a Standards Council of Canada accredited certification body.

Test report no.: 028-713047748-000

Date, 2014-11-13
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028 / 10.13

5.2 保修

除了此处不得限制的地方法律所规定的任何其他权利之外，制造商另外提供全球范围有效的有限保修责任，保修期为自发货之日起12个月。制造商保证，除非产品手册中另有指明，否则，本分光光度计不存在由于劣质材料或工艺而导致的任何缺陷。本保修条例不适用于耗材，例如卤素钨灯。

分光光度计必须只由制造商授权的专业人员打开、调节或修理。如不遵守这一点，将使保修失效。

请保留原始包装（包括内衬），以便将来需要运输时保护仪器不受撞击。请注意，由于不当运输所造成的损坏不在保修之列。

在申请保修索赔时，请与您当地供应商的客户技术服务部联系，以查询需要什么文件以及在保修索赔申请未得到批准的情况下可能得到什么保修服务（例如更换、修理）。

5.3 配套产品

订购	名称
Spectroquant® Prove 100的卤素灯模块	1.74010.0001
分光光度计Prove 100 | 300 和 600 的包装箱	1.73020.0001
方形比色皿10 mm（每包2件）	1.14946.0001
方形比色皿20 mm（每包2件）	1.14947.0001
方形比色皿50 mm（每包2件）	1.14944.0001
半微量比色皿50 mm（每包2件）	1.73502.0001
石英方形比色皿10 mm（每包2件）	1.00784.0001
带螺纹盖的空比色管16 mm ∅（每包25支）	1.14724.0001
调零管（每包1件）	1.73503.0001
Rectangular cell 100 mm	1.74011.0001
Prove Connect to LIMS Unlimited License	Y110860001

5.4 有害物质名称及浓度表

Spectroquant® Prove 100 | 300 | 600系统

部件名称	有害物质的名称					
	(Pb)	(Hg)	(Cd)	(Cr^{6+})	(PBB)	(PBDE)
外壳	O	O	O	O	O	O
光学	O	O	O	O	O	O
电子	O	O	O	O	O	O

O: 表示此部件所使用的所有均质材料中的这种有毒或有害物质的含量低于SJ / T11363-2006的限值要求。
X: 表示此部件所使用的至少一种均质材料中的这种有毒或有害物质的含量高于SJ / T11363-2006的限值要求。

- 该表中所列的数据代表发布之时所掌握的最佳信息
- 表示这种产品需要在产品手册所规定的环境条件下工作，这样才能保持所公布的EFUP
- 有些耗材或部件可能有其自己的标签，标签上的EFUP值低于系统要求。请按照产品维护程序，定期更换这类耗材或部件，以保持 所公布的EFUP

Supelco®
Analytical Products

我们会尽我们所知和所能，为客户提供关于应用技术及相关法规方面的信息和建议，但是我们不承担任何相关的责任和义务。
任何时候，客户均须遵守现行法律和法规。
这也同样适用任何第三方的权利。
我们的信息和咨询意见并不能减少我们客户对于检查我们的商品是否符合他们自己需求的责任。

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Sigma-Aldrich Canada Co. or Millipore (Canada) Ltd., 2149 Winston Park, Dr. Oakville, Ontario, L6H 6J8

Supelco®
Analytical Products

Quick Guide
Spectroquant® Prove

Spectroquant® Prove
Spectrophotometer 100 • 300 • 600

Contents

For more information about the Spectroquant® Prove please visit:
www.sigmaaldrich.com/spectroquant

For our Operating Manual please visit:
www.sigmaaldrich.com/spectroquant

For more information about the technical videos please visit:
www.sigmaaldrich.com/photometry

1 Safety

This Quick Guide contains basic instructions that you must follow during the commissioning, operation and maintenance of the spectrophotometer. Consequently, all responsible personnel must read this Quick Guide carefully before working with the meter. Keep this Quick Guide in the vicinity of the meter.

This is a class A device. This equipment may cause interference in a residential installation. In this case the user is encouraged to perform appropriate measures to correct the interference.

Safety instructions
Safety instructions in this operating manual are indicated by the warning symbol (triangle) in the left margin. The signal word (such as "CAUTION") indicates the danger level.
The following warning symbols are used:

Symbols	Description
	**WARNING** Hazardous area (general). The xenon lamp (UV/VIS) emits radiation in the ultraviolet region, which may cause damage to the eyes. Never look directly in the radiation of this light source without wearing proper eye protection. Protect your skin from the direct exposure to UV light.
	**WARNING** Dangerous electrical voltage.
⚠ WARNING	**WARNING** Signifies instructions that must be followed precisely in order to prevent serious dangers to personnel.
CAUTION	**CAUTION** Signifies instructions that must be followed precisely in order to avoid minor injuries to personnel or damage to the instrument or the environment.
⚠ CAUTION	**CAUTION** This is a cautionary notice with a warning symbol drawing your attention to the risk of (limited) harm to personnel.
NOTE	**NOTE** Signifies a notice drawing your attention to special characteristics.
	**REFERENCE** Used to indicate references to other documents.

Please pay attention to the separate safety instructions leaflet (part of delivery scope) and read it carefully.

1.1 Intended Use

The intended use of the spectrophotometer consists exclusively of the carrying out of photometric measurements according to this operating manual. Observe the technical specifications of the cells in the operating manual.

Any other use is considered to be unauthorized. The spectrophotometer was developed for performing water analyses in the laboratory.

2 Overview

2.1 Scope of Delivery

- Spectrophotometer
- Power adapter
- Power connectors (3 pieces)
- Dust cover
- Zero cell
- Quick Guide (A4 format)
- Safety instructions
- Certificate of final inspection

2.2 Overview of the Instrument

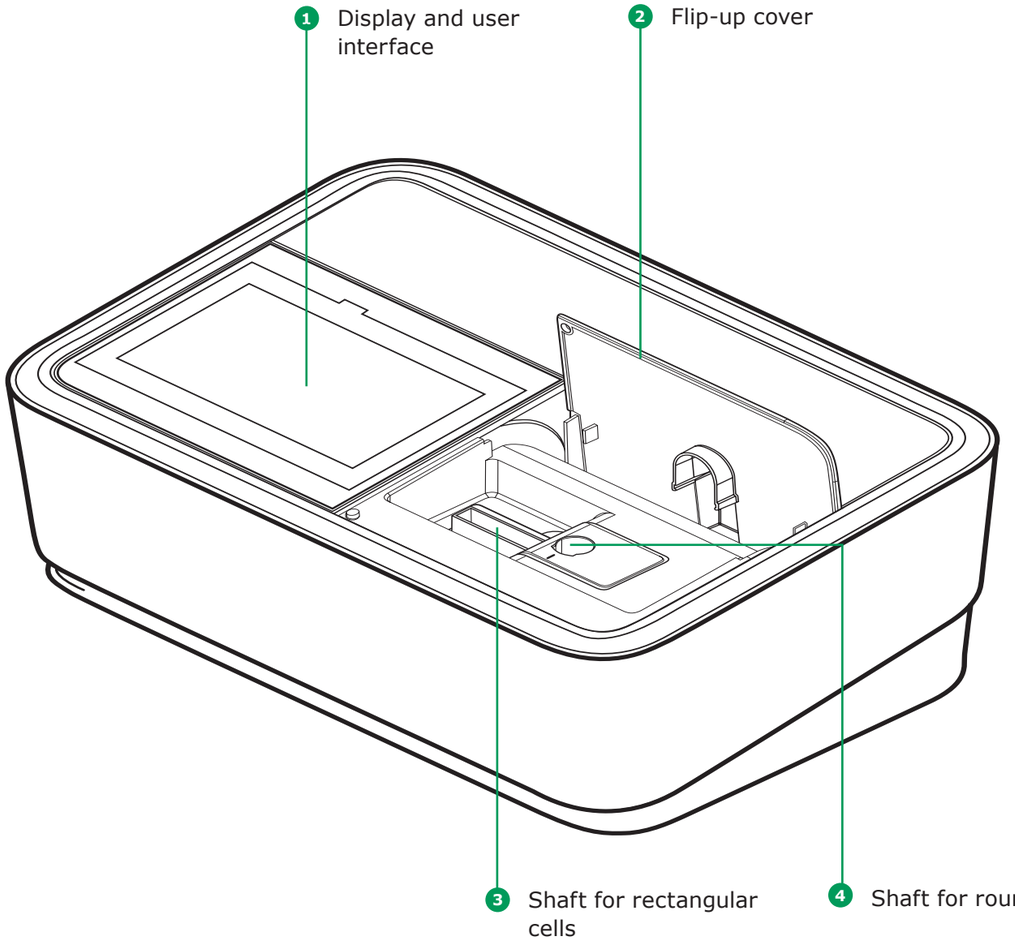
Packaging

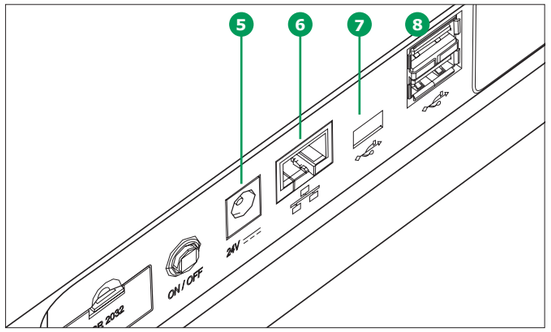
The spectrophotometer is shipped in protective transport packaging.

CAUTION

Retain the original packaging including the inner packaging to protect the instrument against hard knocks if it has to be transported. Please note that damage caused by improper transport voids all warranty claims.

Front of the instrument





Ports at the rear of the instrument

5 Socket for plug-in power supply unit
6 LAN port
7 USB Mini B port
8 USB-A ports

NOTE

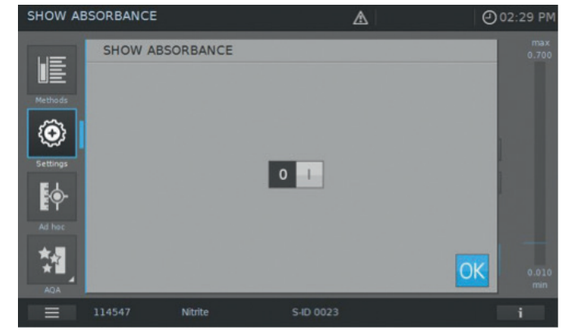
All connections comply with SELV.

2.3 Display and User Interface

NOTE

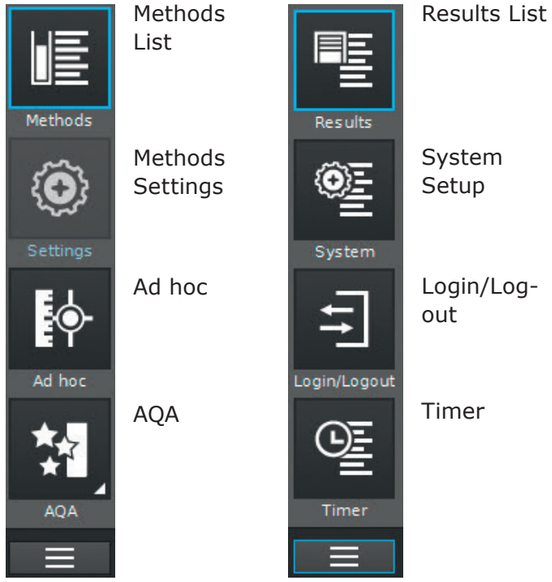
The entire display is touch-sensitive. Make selections using a fingertip or special touch pen. Do not touch the display with sharp objects (e.g. the tip of a ballpoint pen).

- Do not place objects on the display, as doing so may scratch it
- Touch buttons, words or symbols to select them
- Scrollbars are provided to assist quick movement through long lists
- Touch the arrow in the scrollbar to scroll upwards or downwards through the list
- Following selection, the item is activated immediately
- Touching a main button outlines it in blue
- Selecting an item inverts it (with dark text being shown on a light background)
- Selecting a text inverts it (with dark text being shown on a light background), e.g. method-specific settings for concentration mode "Show Absorbance"
- "0" is OFF, "I" is ON – the active selection is displayed light grey with dark figure, in this case the Show Absorbance is ON



Main menu navigation

The main menu is always visible on the left: It consist of two pages with four smart icons each. To switch between the two pages push ☰ at the bottom on the left.



Methods List

Methods Settings

Ad hoc

AQA

Results List

System Setup

Login/Log-out

Timer

NOTE

The menu selected is always outlined in blue.

NOTE

Action buttons like "Start", "Save", "Print" give the following touch feedback:

Normal
Remains static

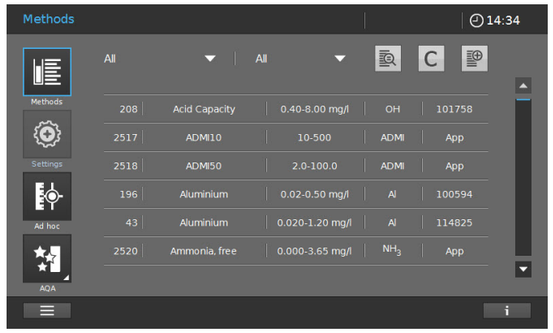
Active fields are always shown in bright color.

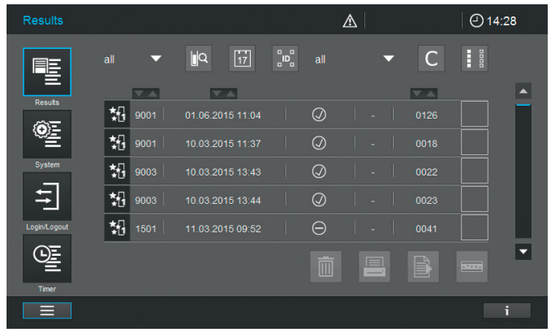
Pressed fields invert the color as long as the chosen action is performed.

Disabled
Draws 30 % of the normal state

Inactive, disabled fields show faint color.

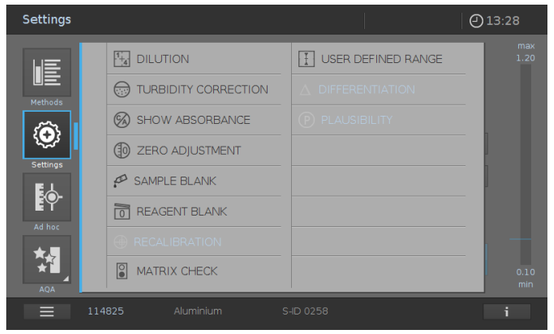
"Methods" and "Results" are the most often used modes and they are at the top of the main menu navigation.





NOTE

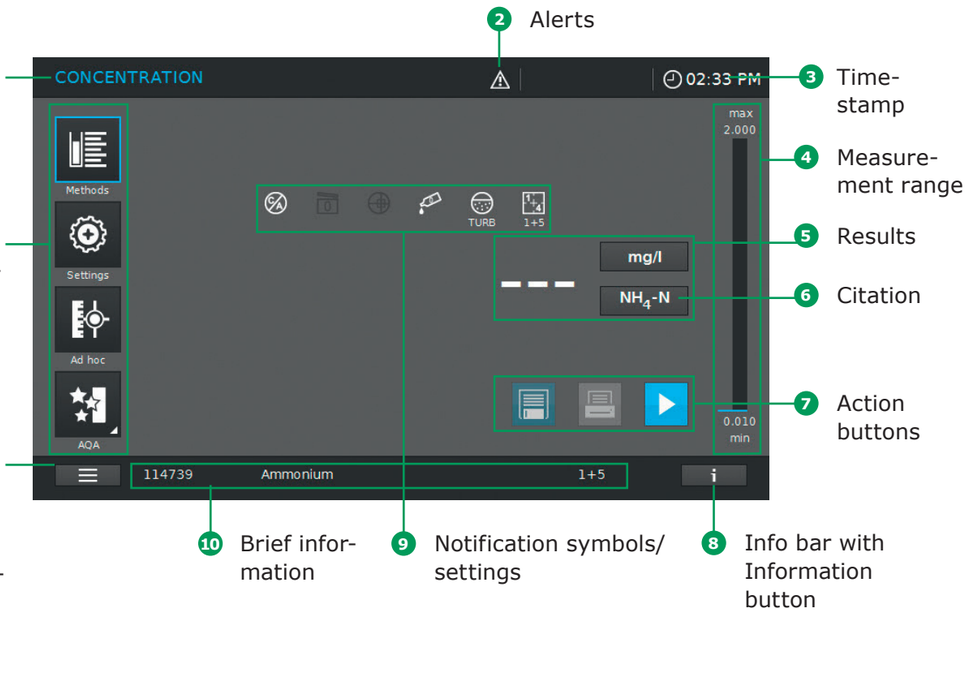
The main menus "Settings (Method Settings)", "Ad hoc", "AQA", "System (Instrument Settings)", "Login/Logout", "Timer" open up a submenu. Example "Settings":



To leave these, the submenu has to be closed by touching the main menu button again, in this case: 

The main menu "Methods" comprises two main overview panels arranged as shown below: the Concentration Measurement Overview and the Method List Overview.

Screen layout concentration measurement overview



1 Menu title

2 Alerts

3 Time-stamp

4 Measure-ment range

5 Results

6 Citation

7 Action buttons

8 Info bar with Information button

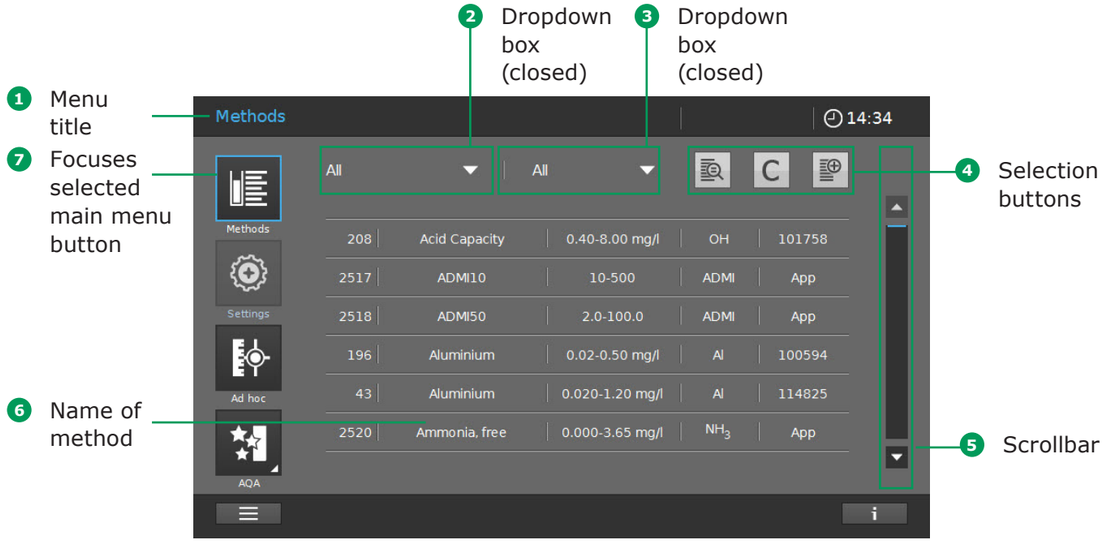
9 Notification symbols/ settings

10 Brief infor-mation

11 Main menu selection button: Switch be-tween the two main menu overviews

12 Main menu but-tons

Screen layout method list overview



Overview of main buttons

Buttons	Description
	Method list List of all methods, irrespective of mode
	Settings This button is used to activate method-specific settings (e.g. sample dilution, turbidity correction, zero adjustment, sample blank, reagent blank)
	Ad hoc For performing measurements (absorbance/transmission, spectrum, kinetics) Allows measurements to be performed without the need to create methods
	Absorbance/Transmission Mode Ad hoc submenu: perform absorbance or transmission measurements
	Spectrum Mode Ad hoc submenu: record spectrum Method list: create methods -> Spectrum Mode
	Kinetic Mode Ad hoc submenu: perform kinetic measurement Method list: create methods -> Kinetic Mode
	AQA Overview and list of all Analytical Quality Assurance (AQA) modes
	AQA Status 1&2 AQA submenus: Status display of the period of validity and the outcome (passed/failed)
	AQA1 AQA submenu: List of AQA1 methods
	AQA2 AQA submenu: List of AQA2 methods
	Pipette check AQA submenu: List of pipette-checking methods
	Result list List of all stored results
	System setup This button is for optional instrument settings (e.g. date, time, updates etc.)
	Login/logout Log users in and out
	Timer list List of stopwatch functions

Overview of action & selection buttons

Action & Selection Buttons	Description
	**Start button** Start an action (e.g. measurement)
	**Start zero** Start zero adjustment for a method
	**Apply**
	**Save**
	**Stop**
	**Close**
	**Logout** User logout
	**Search method**
	**Search/results list** Search function, search criterion: method name, method number or item number
	**Filter cancellation button** Cancel all set filter options
	**Edit** For editing parameters
	**Create method**
	**Print** Print to pdf (USB device) or printer
	**Export button** All selected results are exported to an external memory device as .csv file
	**Import button** Updates/Methods are imported from an external memory device into the instrument
	**Delete** The selected items are deleted

3 Getting Started

3.1 General Notes on Handling

The Spectroquant® Prove spectrophotometer is an optical precision instrument. It should always be handled with care, especially when in mobile use. Always protect the instrument from conditions that could damage the mechanical, optical and electrical components. Please note the following in particular:

- The temperature and humidity during operation and storage must be within the limits specified in the "Technical Data" section (see the operating oanual)

The instrument must never be exposed to the following:

- Extreme dust, humidity and moisture
- Intense light and heat
- Fumes that are corrosive or contain high concentrations of solvents

In addition take care of the following:

- For measuring, the instrument must be placed on a flat surface
- Spilled liquid or other material should be removed immediately (see the Operating Manual)
- If a cell has broken in the cell holder, the cell holder should be cleaned immediately (see the Operating Manual)
- The cover should always be closed when the spectrophotometer is not in use
- When the spectrophotometer is being transported, the cell compartment must be empty

3.2 Initial Setup

Proceed as follows:

- Connect the power adapter (see section 3.2.1)
- Switch on the spectrophotometer (see section 3.2.2)
- Set the language (see section 3.2.3)
- Set the date and time (see section 3.2.4)
- Run the self-test (see section 3.2.5)

NOTE

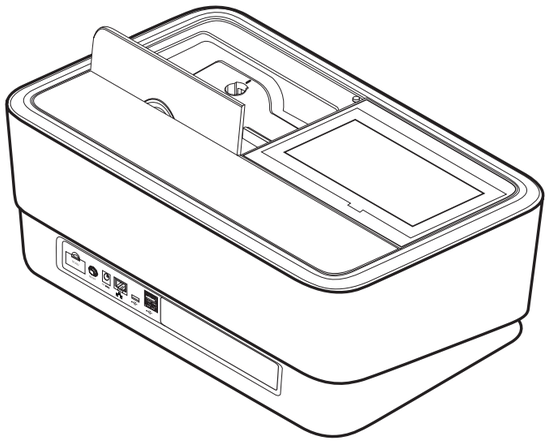
For our Operating Manual please visit:
www.sigmaaldrich.com/spectroquant
For more information about the technical videos please visit:
www.sigmaaldrich.com/photometry

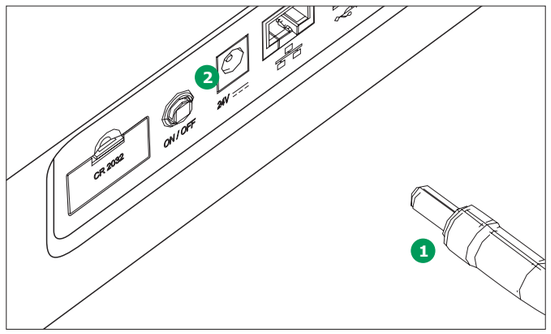
3.2.1 Connecting the Power Supply

Power is supplied through the power adapter provided. The power adapter supplies the spectrophotometer with the required voltage and type of current (24 V DC).

⚠ CAUTION

The line voltage at the user location must fulfil the specifications stated on the power adapter (the specifications are also indicated in the Operating Manual). Only ever use the 24 V power adapter provided. Please note that damage caused by using a different power adapter than the one supplied voids all warranty claims.



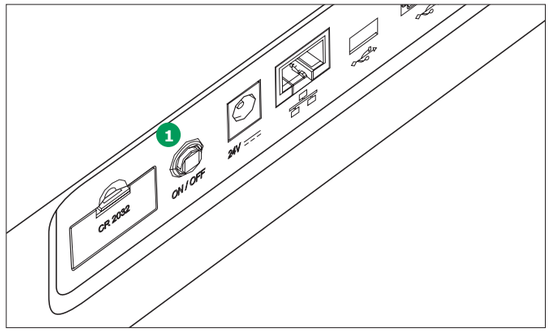


Connecting the power adapter:

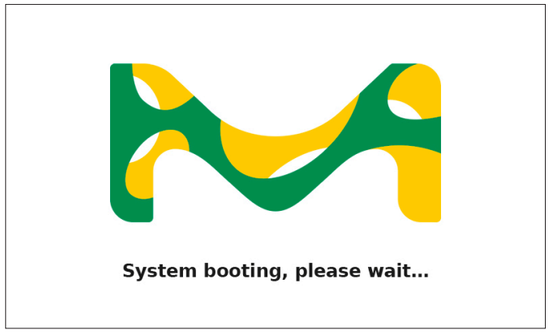
1. Connect the miniplug 1 of the power adapter to the socket 2 of the spectrophotometer.
2. Connect the power adapter to a wall socket.

3.2.2 First Power-on

After switching on the spectrophotometer for the first time you are automatically guided through the language, date and time setup procedures.



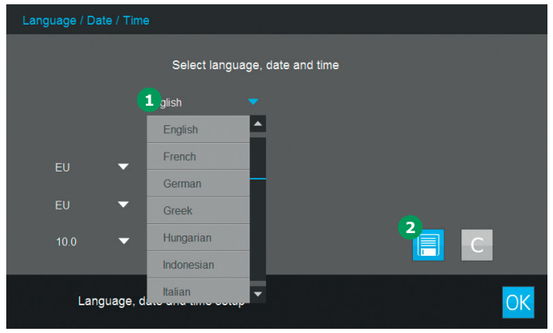
1. Press the ON/OFF button 1. The spectrophotometer gives an audible signal (beep) and starts booting for approximately 2 minutes. You will see the following display:



2. The display switches to language setup (see section 3.2.3).

3.2.3 Language Setup

The software supports several languages. When you switch on the spectrophotometer for the first time, a list of language options is automatically displayed after the boot procedure.



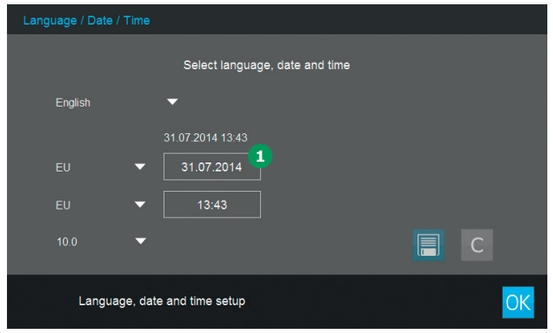
1. Select the desired language 1.
2. Tap on the Save button 2 to confirm.

NOTE

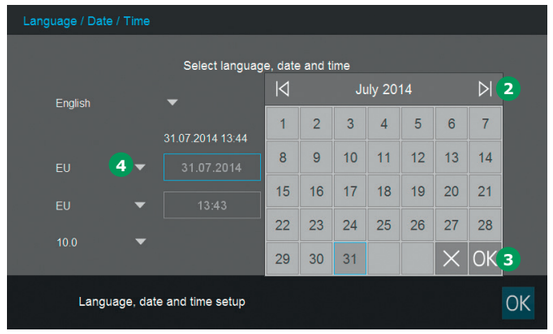
The saving process of changing the language requires some seconds.

3.2.4 Date, Time and Country-specific Settings

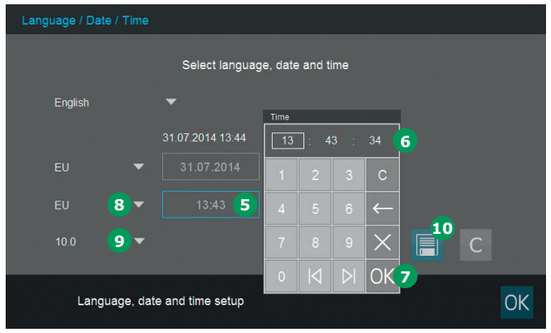
During initial setup, having set the language option you are automatically guided through the date and time setup procedure.



1. Tap on the Date format button 1.
2. The calendar view pops up 2. You can now enter the date.



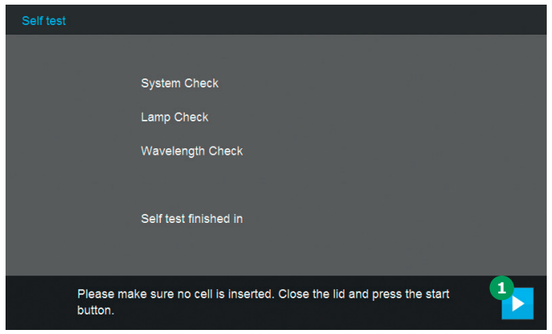
3. Tap on OK 3 to confirm.
4. Tap on the Arrow button 4 to choose the country-specific basic date setting. The date format can be set and displayed for EU and US.



5. Tap on the Time format button 5. The numeric key panel 6 pops up. Now you can enter the time.
6. Tap on OK 7 to confirm.
7. Tap on the Arrow button 8 to choose the country-specific basic time setting. The time format can be set and displayed for EU and US.
8. Tap on the Arrow button 9 to choose the decimal separator "."/"," used in your country.
9. Tap on the Save button 10 to confirm.

3.2.5 Self-test

Following language, date and time setup the spectrophotometer performs a self-test.



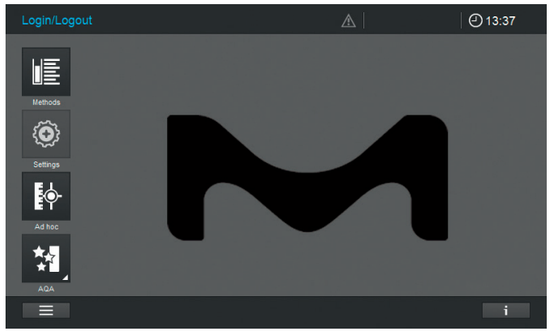
1. Remove all cells and close the cell compartment cover.
2. Start the self-test with the Start button 1.
3. The spectrophotometer performs the self-test.

Self-test

The self-test covers:

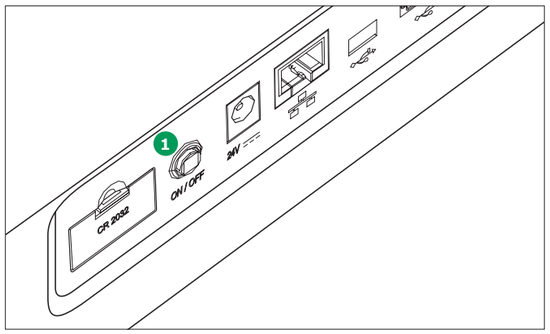
- Checks on memory, processor, internal interfaces, filter and lamp
- A calibration of the wavelength

When the self-test has ended, the display shows the main menu.



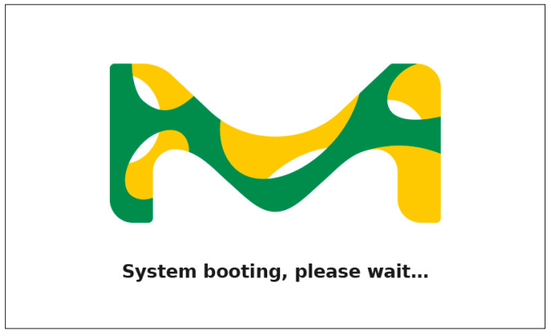
4 Operation

4.1 Switching the Spectrophotometer On or Off



Switching on

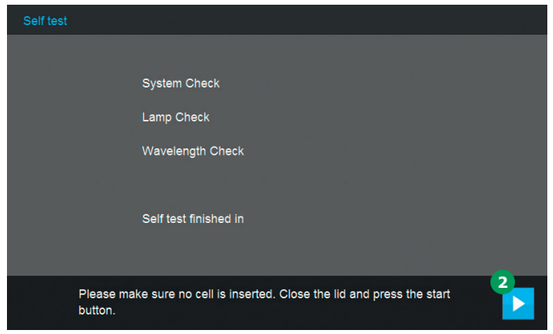
1. Press the ON/OFF button 1. The spectrophotometer gives an audible signal (beep) and starts booting for approximately 2 minutes. You will see the following display:



2. After the booting process the screen shows the self-test dialog.

Starting the self-test

3. Remove all cells and close the cell compartment cover.



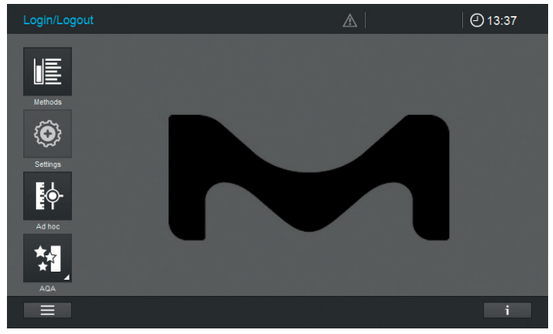
4. Start the self-test with the Start button 2.
5. The spectrophotometer performs the self-test.

Self-test

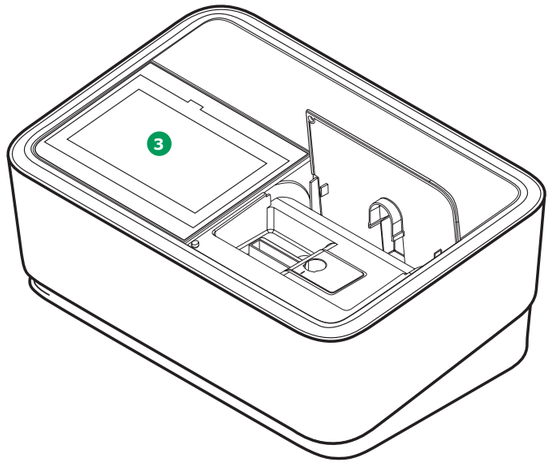
The self-test covers:

- Checks on memory, processor, internal interfaces, filter and lamp
- A calibration of the wavelength

When the self-test has ended, the display shows the main menu.



Energy-saving mode – display



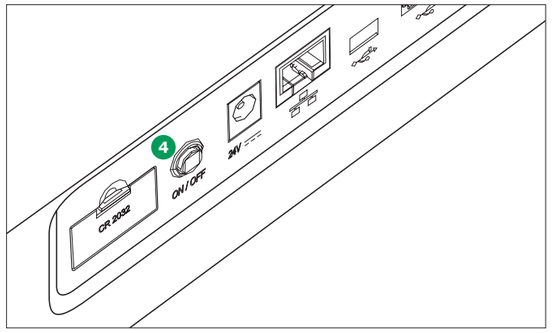
The spectrophotometer automatically switches off the backlight of the display 3 when no button has been tapped within a period of 10 minutes. The backlight is switched on again with the next tap.
The button functions are activated only following a further tap.

NOTE

You can set a user-defined time for this function (please see the Operating Manual for detailed instructions).

Switching off

Press the ON/OFF button 4 to switch the spectrophotometer off.

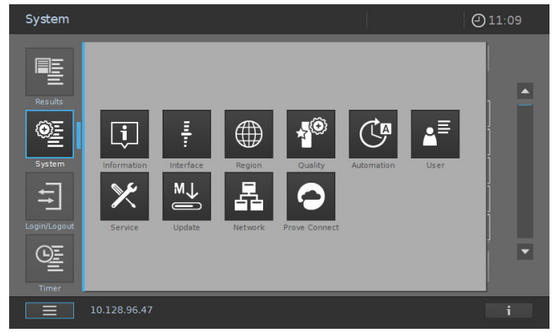


NOTE

The instrument has an Auto-Power-Off function, which switches it automatically off after a user-defined time. This function is not active out of the box, but you can turn it on in "System (Instrument settings)".

4.2 System Setup

General instrument setup is carried out in the "System" menu.



Buttons	Description
	Information This submenu displays the following information about the device: Software/method versions, device class, lamp counter and serial number
	Interface This submenu displays the following settings options and standard settings: Audible signals – ON, Backlight – 100 %, Print to pdf – ON
	Region This submenu displays the following settings options and standard settings: Language, date, time and country zone EU/US, decimal separator – "."/"," (dot or comma)
	Quality This submenu displays the following settings options and standard settings: Quick zero – OFF, AQA1 and AQA2 lock – OFF, Zero Adjustment expiry – ON (interval: 7 days), Use expired reagents – OFF, Service reminder – ON
	Automation (Setup 4) This submenu displays the following settings options and standard settings: Energy saving mode – ON (10 minutes), Auto Power off – OFF, Auto log off – OFF, Auto store – ON, Auto print – OFF, Sample ID popup – OFF
	User management This submenu displays the following settings options and standard settings: Activation of user management and administrator settings, User login required – OFF
	Service This submenu displays the following settings options: Various service functions such as backup, restore, export of log or system data and import of methods
	Update This submenu displays the option for performing software and method updates

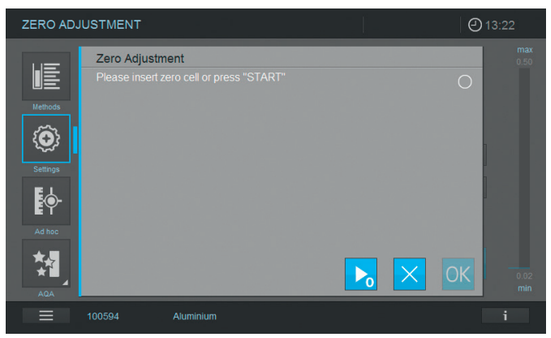
Buttons	Description
	**Network** This submenu displays the setting options for connecting the Prove device with a network
	**Prove Connect** This submenu displays the settings options for connecting the Prove device with the Prove Connect software (the Prove Connect software is optionally available, order Nos. Prove Connect to LIMS Y110860001 and Prove Connect to Dashboard Y110850001)

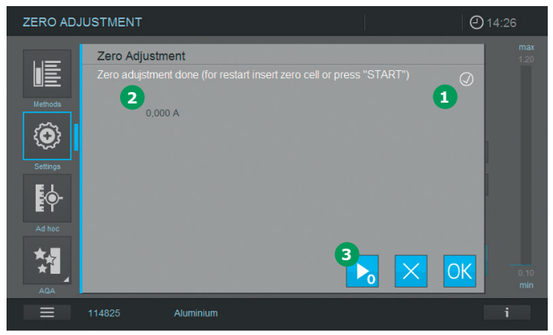
Please see the Operating Manual for detailed information on the buttons and their functions.

4.3 Zero adjustment for preprogrammed methods

A zero adjustment must be performed for each cell type. The zero adjustment for concentration methods is stored within the spectrophotometer separately for each cell type. The period of validity of the zero adjustment for concentration methods can be edited in the System settings. When a zero adjustment has already been performed for the inserted cell type and the selected method, the date of the most recent zero adjustment is displayed in the info line.

When a zero adjustment is required, following screen will pop up:





1. Insert the zero cell according to cell type. Zero adjustment starts automatically and, if the zero adjustment is passed, a tick (1) appears in the status display field for the Zero adjustment.
   In the case of a method which only measures the sample at a single wavelength the absorbance of the Zero value (2) is also displayed.
2. With a cell inserted, the zero adjustment can be repeated manually by tapping on the Start zero button (3).
3. Tapping on the OK button accepts the zero adjustment value for the method.
4. The screen changes to show the concentration measurement screen (see page 7).
5. The instrument is ready to start measuring the sample.

NOTE

The instrument provides a Quick Zero function. With this the zero adjustment is performed for all wavelengths which are used with all Spectroquant® test kits. This function can be activated via "System (Instrument settings)" – "Quality".

4.3.1 Notes on Zero Adjustment

Zero adjustment with round cells

- Only use clean, scratch-free round cells and distilled water.
  The minimum filling level is 20 mm. A ready zero cell is contained within the scope of delivery of the spectrophotometer
- A ready zero cell can, in principle, be used for an indefinite period of time. We recommend, however, that you regularly check the zero cell for visible contamination and scratches and refill or exchange it if necessary (at least every 24 months)
- Insert the round cell until it touches the bottom of the round cell compartment

Zero adjustment with rectangular cells

- With rectangular cells, zero adjustment must be carried out using the same cell type (manufacturer and cell material [e.g. optical glass, quartz glass, plastic]) as the one that will be used for measurement. This is important because cells of different manufacturers have different absorption characteristics. When changing the cell type, repeat the zero adjustment with the new type
- Prior to zero adjustment, clean the rectangular cell and fill it with distilled water. The minimum filling level is 20 mm
- Rectangular cells always have to be inserted in the cell compartment with the same orientation for measurement and zero adjustment (e.g. cell inscription always on the left side)
- Insert the rectangular cell until it touches the bottom and left edge of the holder. The opaque sides of the rectangular cell must point to the front and rear

4.3.2 When to Repeat the Zero Adjustment?

We recommend that you repeat the zero adjustment in the following cases:

- If the spectrophotometer was subject to mechanical stress such as strong shock or transport
- If the ambient temperature has changed by more than 5 °C since the last zero adjustment
- At least once a week. The interval to repeat a zero adjustment is set in the instrument to 7 days. You can change this under "System (Instrument Settings)"
- If a new cell type (different manufacturer, different glass type) is used
- Basically, each time you want to measure with the highest possible accuracy

NOTE

If an interval to repeat a zero adjustment is set you will be prompted to repeat it after the interval has passed. You can also repeat a zero adjustment by selecting a method, then touching the "Settings" icon. Choose "Zero adjustment" and insert a zero cell to start the measurement.

4.4 Measurements

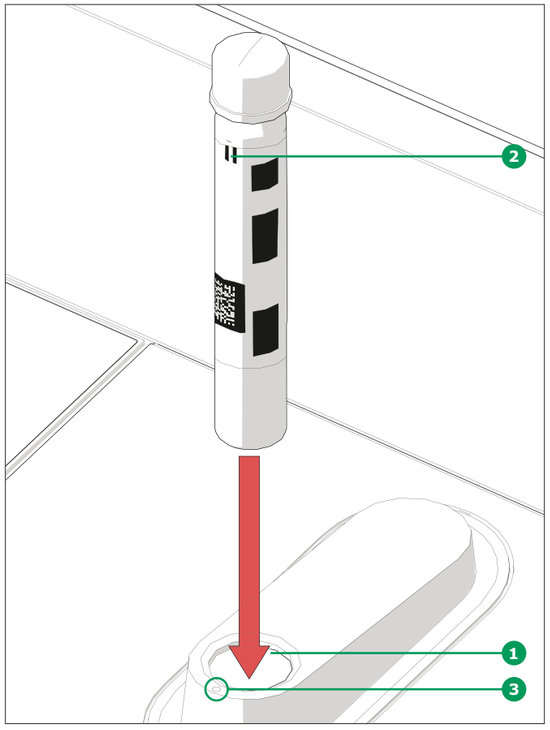
The spectrophotometer can be used to perform the measurements listed below.

Type of Measurement	Description
Concentration	• Preprogrammed methods that can be executed using Spectroquant® test kits or self-prepared reagents • User-programmed methods
Absorption / transmission	• Single-wavelength measurements for establishing the absorbance or transmission of solutions • Multiple-wavelength measurements for establishing the absorbance or transmission of solutions
Spectrum	• Programmed methods for establishing the absorbance or transmission of solutions over a defined wavelength range
Kinetics	• Programmed methods for establishing the absorbance or transmission of solutions over a defined period
Quality checks	Instrument supported analytical quality assurance: • Instrument check (AQA 1) • Method-specific system check – preprogrammed for all Spectroquant® standards (AQA 2) • Pipette volume control (PipeCheck) • Check interferences from foreign substances (MatrixCheck)

4.4.1 Performing a Measurement

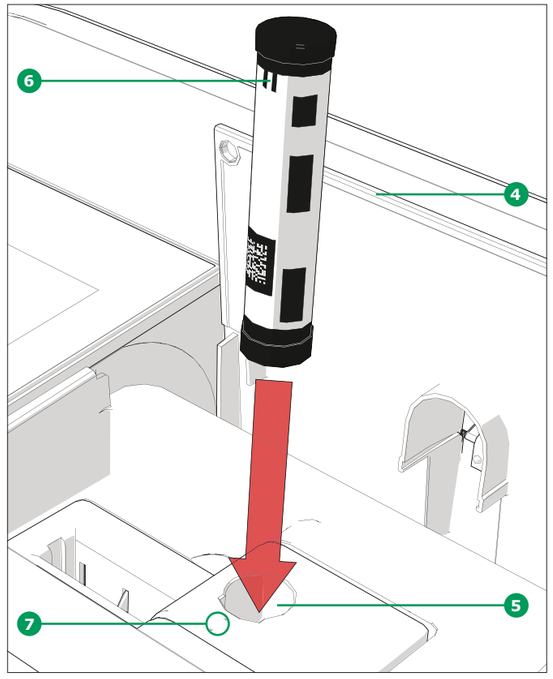
Measurements can be performed using rectangular cells of various path lengths (10, 20, 50 mm/100 mm Prove 600) and Spectroquant® round cells. Insert cells as follows to start the measurement:

Measuring with a round cell with closed lid



- Insert the barcoded Spectroquant® round cell through the opening 1, ensuring that the white position mark 2 on the cell is aligned with the positioning mark on the spectrophotometer 3
- Measurement starts automatically, and the measurement result is displayed in the concentration measurement overview (see page 7)

Measuring with rectangular cells with open lid:
insert AutoSelector

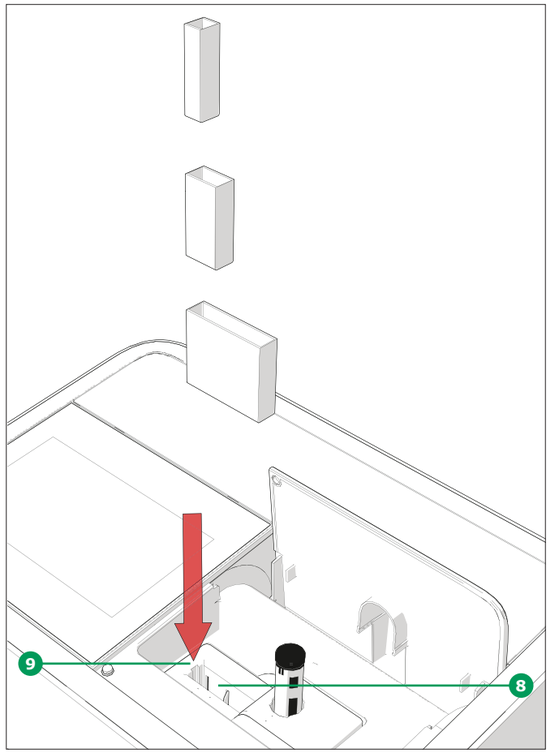


- Open the flip-up cover 4 by pushing it back with your fingers
- Insert the AutoSelector vertically into the cell compartment 5, ensuring that the white position mark 6 on the AutoSelector is aligned with the positioning mark on the spectrophotometer 7
- The photometer is ready to measure

NOTE

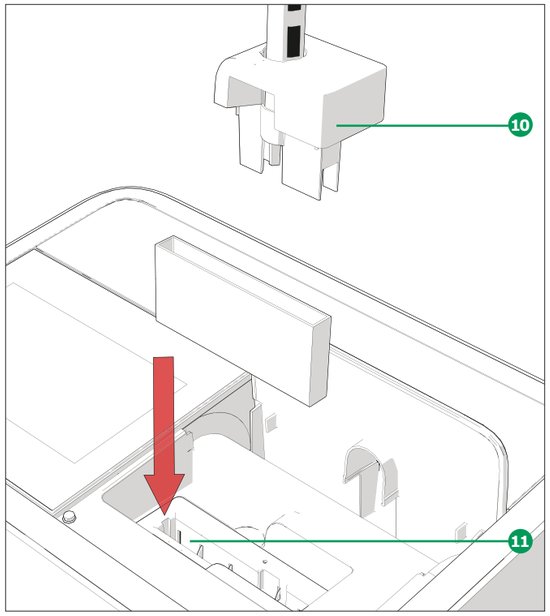
If the barcode cannot be read, please see the Operating Manual.

Measuring with rectangular cells with open lid: Insert rectangular cells (10, 20, 50 mm)



- Insert the rectangular cell vertically into the cell compartment 8, ensuring that the cell is flush against the left side of the cell holder 9 at all times
- Measurement starts automatically, and the measurement result is displayed in the concentration measurement overview (see page 7)

Measuring with rectangular cells with open lid: Insert 100 mm rectangular cells (Prove 600)



- Remove the top of the round cell compartment including the AutoSelector 10
- Insert the 100 mm rectangular cell vertically into the cell holder 11. Make sure that you hold it with both hands on the small edges while inserting it carefully
- Measurement starts automatically, and the measurement result is displayed in the concentration measurement overview (see page 7)

NOTE

Please see Analytical Procedures and Appendices for detailed measurement procedures.

5 Appendix

5.1 Certificates

IEC IECEE CB SCHEME — Ref. Certif. No. DE 3 - 3922

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D'ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE
CERTIFICAT D'ESSAI OC

Product Produit	Laboratory equipment
Name and address of the applicant Nom et adresse du demandeur	Merck KGaA Frankfurter Straße 250 64293 Darmstadt, GERMANY
Name and address of the manufacturer Nom et adresse du fabricant	Merck KGaA, Frankfurter Straße 250, 64293 Darmstadt, GERMANY
Name and address of the factory Nom et adresse de l'usine	LRE Medical GmbH, Hofer Straße 5, 86720 Nördlingen, GERMANY
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	Rated voltage: 24 VDC Rated frequency: 2,5 A
Trade mark (if any) Marque de fabrique (si elle existe)	Merck
Model/type Ref. Ref. de type	Spectroquant Prove 100, Spectroquant Prove 300, Spectroquant Prove 600
Additional information (if necessary) Information complémentaire (si nécessaire)	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 61010-1:2010
as shown in the Test Report Ref. No. which forms part of this certificate comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce certificat	028-713047748-000

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**

Date, 2014-11-13
CB 14 11 34909 010
Erich Thurner
TÜV SÜD Product Service GmbH · Certification Body · Ridlerstrasse 65 · D-80339 München
Product Service

CB(-10).03.06

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ZERTIFIKAT ◆ CERTIFICATE ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

Attestation of Conformity
No. N8 14 11 34909 012

Holder of Certificate:	**Merck KGaA** Frankfurter Straße 250 64293 Darmstadt GERMANY
Product:	**Laboratory Equipment**
Model(s):	**Spectroquant Prove 100, Spectroquant Prove 300, Spectroquant Prove 600**
Parameters:	Rated voltage: 24 VDC Rated frequency: 2,5 A Power supply: 100-240 V, 50/60 Hz, max. 2 A
Tested according to:	EN 61010-1:2010

This Attestation of Conformity is issued on a voluntary basis according to the Low Voltage Directive 2006/95/EC relating to electrical equipment designed for use within certain voltage limits. It confirms that the listed equipment complies with the principal protection requirements of the directive. It refers only to the particular sample submitted for testing and certification. See also notes overleaf.

Test report no.: 028-713047748-000

Date, 2014-11-13 (Erich Thurner)

After preparation of the necessary technical documentation as well as the EC conformity declaration the required CE marking can be affixed on the product. Other relevant directives have to be observed.

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TÜV SÜD Product Service GmbH · Zertifizierstelle · Ridlerstraße 65 · 80339 München · Germany

A1 / 04.11

ZERTIFIKAT ◆ CERTIFICATE ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

America

CERTIFICATE
No. U8 14 11 34909 011

Holder of Certificate:	**Merck KGaA** Frankfurter Straße 250 64293 Darmstadt GERMANY
Production Facility(ies):	55525
Certification Mark:	C US
Product:	**Laboratory Equipment**
Model(s):	**Spectroquant Prove 100, Spectroquant Prove 300, Spectroquant Prove 600**
Parameters:	Rated voltage: 24 VDC Rated frequency: 2,5 A
Tested according to:	UL 61010-1:2012-05 CAN/CSA-C22.2 No. 61010-1:2012

The product was voluntarily tested according to the relevant safety requirements noted above. It can be marked with the certification mark above. The mark must not be altered in anyway. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC Guide 67. Certification is based on the TÜV SÜD "Testing and Certification Regulations". TÜV SÜD America Inc. is an OSHA recognized NRTL and a Standards Council of Canada accredited certification body.

Test report no.: 028-713047748-000

Date, 2014-11-13

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5.2 Warranty

In addition to any other rights provided by local law which shall not be limited herewith, the manufacturer provides an additional limited worldwide warranty for a period of 12 months from the date of shipment, that the spectrophotometer is free from any defects that are due to faulty material or workmanship unless otherwise noted in the product manual. This warranty does not apply to consumable products such as the halogen lamp.

The spectrophotometer must only be opened, adjusted or repaired by specialist personnel authorized by the manufacturer. Noncompliance invalidates any warranty claims.

Keep the original packing including the inner packing to protect the instrument against hard shocks if it has to be shipped. Note that damage caused by improper transport voids all warranty claims.

In case of a warranty claim please contact the technical customer service of your local supplier to get further information about the required documents and possibilities of warranty service (e.g. replacement, repair) if a warranty claim is approved.

5.3 Accessories

Description	Order No.
Halogen lamp module for Spectroquant® Prove 100	1.74010.0001
Case for Spectroquant® spectrophotometer Prove 100 | 300 and 600	1.73020.0001
Rectangular cells 10 mm (1 pack = 2 pcs)	1.14946.0001
Rectangular cells 20 mm (1 pack = 2 pcs)	1.14947.0001
Rectangular cells 50 mm (1 pack = 2 pcs)	1.14944.0001
Semi-microcells 50 mm (1 pack = 2 pcs)	1.73502.0001
Rectangular cells quartz 10 mm (1 pack = 2 pcs)	1.00784.0001
Empty cells 16 mm ∅ (1 pack = 25 pcs) with screw cap	1.14724.0001
Zero Cell (1 pack = 1 pc)	1.73503.0001
Rectangular cell 100 mm	1.74011.0001
Prove Connect to LIMS Unlimited License	Y110860001

5.4 Table of hazardous substances' name and concentration

Spectroquant® Prove 100 | 300 | 600 systems

Component Name	Hazardous substances' name					
	(Pb)	(Hg)	(Cd)	(Cr^{6+})	(PBB)	(PBDE)
Housing	O	O	O	O	O	O
Optics	O	O	O	O	O	O
Electronics	O	O	O	O	O	O

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ / T11363-2006.
X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ / T11363-2006.

- Data listed in the table represents best information available at the time of publication
- Product to be operated under Environmental Conditions as defined in the Product Manual to maintain the declared EFUP
- Consumables or parts may have their own label with an EFUP value less than the system. Periodic replacement of those consumables or parts to maintain the declared EFUP is done in accordance with the declared EFUP is done in accordance with the Product Maintenance Procedures

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Analytical Products

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The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the U.S. and Canada.

Manufactured by Merck KGaA, Frankfurter Straße 250, 64293 Darmstadt, Germany

Distributed by EMD Millipore Corporation, 400 Summit Drive, Burlington MA 01803, USA
Sigma-Aldrich Canada Co. or Millipore (Canada) Ltd., 2149 Winston Park, Dr. Oakville, Ontario, L6H 6J8

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