

# LABORATORY LIQUID SCINTILLATION COUNTING SYSTEM

## 实验室液闪计数系统

Model Series - SSS-22-LAB

### FEATURES: 特点

- MEASURES ALL ALPHA - BETA EMITTERS AND LOW ENERGY GAMMA EMITTERS – INCLUDING  
测量所有  $\alpha$  -  $\beta$  发射物和低能  $\gamma$  -包括氚, C-14, 硫-35  
➤ TRITIUM, CARBON-14, & SULPHUR-35
- ALPHA / BETA SEPARATION  
 $\alpha$  /  $\beta$  分别测量
- DUAL PM TUBE DESIGN FOR COINCIDENCE VERIFICATION  
双光电倍增管设计用于符合验证
- SSS-22-LAB – THREE SAMPLE HOLDER  
本系统带3个样品托
- SETTABLE WINDOW CAN BE SET FOR ANY ISOTOPE  
预设窗可设定任何核素
- SAMPLE TYPE: WATER, FOOD, SOIL, FABRIC, ETC.  
样品类别: 水, 食物, 土壤, 纤维等
- **R-232** FOR INTERFACE – EASY CONVERSION TO USB FOR USER'S PC  
**R-232**接口-易于通过USB接到用户电脑中



LAM-10DSC  
ELECTRONICS SSS-22-LAB-



SSS-22-LAB  
INSIDE OF CASE

### APPLICATION: 应用

A Liquid Scintillation Counting System is useful for measurement of radionuclides in many materials including food, soil, water, blood, etc.

此液闪计数系统用于包括食物, 土壤, 血液等许多物质中的核素测量。

The **SSS-22-LAB** Manual Liquid Scintillation Counting System accurately quantitatively measures Carbon-14 and most other radioactive materials.

此手动液闪计数系统精确定量测量C-14和大多数其它辐射物。

The **SSS-22-LAB** also measures Tritium & Exceptional for measuring low levels of Tritium, C-14, & S-35.

此计数系统也测量氚, 尤其低浓度氚和C-14, & S-35.



SSS-22-LAB  
STAINLESS STEEL  
CASE



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### SYSTEM DESCRIPTION: 系统描述

**Measuring Principal:** The most sensitive method of detecting and quantitating Beta emitting isotopes is to intimately mix the sample with liquid scintillation fluor and count each individual scintillation event with a photomultiplier counter.

**测量原理:** 最灵敏的测量 $\beta$ 方法是将样品和液闪充分混合然后通过光电倍增管计数每个闪烁事件。

Alpha / Beta Separation.  $\alpha$  /  $\beta$  识别功能

**Count Verification** for Tritium.

氚计数验证

**An Energy Analyzer** further selects the pulses and delivers the true signal.

能量分析仪进一步选择脉冲并传递真实信号

**A Detection cell** is optically coupled to selected photomultiplier tubes.

样品盒光学耦合到优质光电倍增管

**SSS-22-LAB** has a **3 Vial Capacity** providing faster thru-put and easy comparison of sample to calibration standard vial or to background vial – **2 PM Tubes**

此系统配备3个容量，提供更高通量，容易与标定标准或本底比较-2个光电倍增管。

**A User Manual is provided.** 提供用户手册

### GAMMA BACKGROUND RADIATION REJECTION FEATURES: $\gamma$ 本底抑制功能

- Energy analyzer window rejects pulses with energies outside the window setting  
能量分析窗抑制设定值以外的能量脉冲
- Optional Lead Shielding around detector.  
可选择探头周围带铅屏蔽

### COUNTING ASSEMBLY FEATURES: 计数组件特点

- Excellent repeatability  
出色的重复性
- Fully light tight system  
整体轻量
- Fail safe interlock to protect PM tubes  
故障安全联锁装置以保护PM管
- High transmission optical coupling to PM tube  
高透光性PM管

### PM TUBE & PRE-AMP NOISE ELIMINATION FEATURES:

- Coincidence Verification with High quality Dual PM tubes and preamps.  
高质量双PM管和前置放大器进行符合测试
- Fully adjustable energy analyzer window rejects low energy pulses.  
完全可调整能量窗排除低能脉冲



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### Model Series - SSS-22-LAB

- **SSS-22-LAB:** 3 Vial capacity for faster thru-put and easy comparison of sample to calibration standard or to the background – 2 PM Tubes  
3瓶容量，高通量容易与标定标准或本底比较-2个光电倍增管
  - 3 Vial capacity provides less wait time for dark adaption of phosphor.  
3瓶容量减少磷暗适应等待时间

### DATA ANALYSIS & PRESENTATION: 数据分析与显示

- Scintillation counts detected by PM tubes are processed by a fully adjustable single channel analyzer which is centered on the energy peak of the isotope being measured. This deletes both higher energy pulses from background radiation and lower energy counts from the PM tube or circuit noise. The pulses feed to a digital scaler and optional digital printer and/or user's PC..
- PM管探测到的闪烁计数经过置于被测核素能量峰值中心的可调整单道分析仪处理，这样本底辐射产生的较高能量脉冲和PM管或电路噪音产生的低能脉冲均被清除，脉冲传送到数字显示器和选购的数字打印机或用户电脑上。
- This process allows long count times for measurement of very minute samples.
- 此处理允许对每一份样品测量长时间计数。
- R232 Interface with easy conversion to USB interface to computers or data stations.  
R232接口容易通过USB连接到电脑或数据站

### SPECIFICATIONS:

<b>H-3 Gross Efficiency:</b>	>50% Gross, Coincidence efficiency >10% Verified.
H-3总效率	>50%，符合效率>10%
<b>Count Times:</b>	1 sec. thru 99 sec. (1 sec. increments), and 1 min. thru 99 min. (in 1 min. increments).
计数时间:	1-99秒（1秒递增），1-99分钟（1分钟递增）
<b>Voltage:</b>	0-1500 Volts - fully user settable.
电压:	0-1500 V-完全用户设定
<b>Readout:</b>	Digital - 6 digit LCD, (LED optional).
读数:	6位数LCD（可选LED）
<b>Outputs:</b>	Standard: Serial pulse output and R-232.
输出:	标准：串口脉冲输出，R-232
<b>Power:</b>	Rechargeable Lithium batteries and AC adapter
电源	可充电锂电池和AC适配器
<b>Sample Size:</b>	Accepts standard Liquid Scintillation vials 20-25 ml.
样品尺寸:	可接受标准20-25 ml标准液闪瓶
<b>SSS-22-LAB Case:</b>	<b>Stainless Steel</b> Weather-tight easy to clean.
外箱:	不锈钢防潮外箱容易清洗
<b>OPTIONAL:</b>	<b>SSS-22-LAB:</b> : Accepts 6-7 ml vials with <b>Optional</b> adapter.
选购:	可选带适配器的6-7ml小瓶
<b>Scintillation Fluors:</b>	Accepts most scintillation fluors. Perkin-Elmer Ultima Gold-LLT is recommended for H-3 counting
闪烁氟	接受几乎任何闪烁氟，监测H-3推荐“Perkin-Elmer Ultima Gold-LLT”。



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### Model Series - SSS-22-LAB

MODEL SUBASSEMBLY	SSS-22-LAB ELECTRONICS	SSS-22-LAB DETECTORS
<b>MODEL</b>	<b>LAM-10DSC</b>	<b>DT-S-22P</b>
<b>Dimensions</b>	<b>10" L x 7" W x 7"H</b>	<b>20" L x 16" W x 9"H</b>
<b>Weight</b>	<b>7 lbs</b>	<b>55lbs</b>
<b># PM Tubes</b>		<b>2</b>
<b># Amplifiers</b>	<b>2</b>	
<b>Coincidence Counting</b>	<b>Yes</b>	
<b>Detected Emitters</b>	<b>Alpha-Beta PLUS H-3, C-14, S-35</b>	<b>Alpha-Beta PLUS H-3, C-14, S-35</b>
<b>Capacity</b>		<b>3 Vials</b>

#### OPTIONS: 选项

- Digital Printer Model MPM 40DT 数字打印机
- Set of 3 calibrated liquid standards, H-3, C-14 and S-35. User must mix TA solutions with liquid scintillant.
- 3个液体标准刻度源, H-3, C-14 和S-35, 用户必须将液体闪烁剂混合TA公司溶液配置刻度源。
- Optional Interfaces and Outputs: Clear instructions with all interfaces.
- 接口和输出: 所有接口并明确标注
- Data logging software, Model # ORO-22P
- 数据收录软件, Model # ORO-22P
- Data acquisition interface and cable with driver, Model # DAQ-3
- 数据采集口和数据线, 驱动Model # DAQ-3
- Increase from 3 to 6 sample capacity
- 将样品从3瓶增加到6瓶

TA LIQUID SCINTILLATION COUNT RANGE 量程			
	COUNT TIME	SSS-22-LAB pCi/L	MAX KEV BETA
<b>TRITIUM</b>	2 min	10,000	18.6
	10 min	5,0000	
	60 min	2,000	
<b>C-14</b>	2 min	1,250	156
	10 min	625	
	60 min	250	
<b>S-35</b>	2 min	1,250	167
	10 min	625	
	60 min	250	



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