

RAD - CHEM - BIO - UNITECT

辐射-化学-生物-统一统一探测器

A STATE OF THE ART INTEGRATED CHEMICAL BIOLOGICAL & RADIATION WATER MONITORING SYSTEM

集化学生物和辐射一体的水监测系统



APPLICATIONS

应用

- **Military and Civilian** 军用和民用
- **Ground And Surface Drinking And Wastewater** 地下和地表的饮用水和废水
- **Reservoirs** 水库
- **High Profile Buildings:**
Convention Centers, ports
Arenas, Government
Establishments
高楼, 会议中心, 运动场, 政府机构
- **Industrial Contaminates:**
Laboratory, Power Plant,
Agricultural
工业污染, 实验室, 电站和农业污染
- **Residual Treatment Additives**
残留添加剂

FEATURES

特点

Combines Several Detection Goals
Into One Monitor
7 Major Chemical Tests Provided
pH, ORP, and Lead
Detects Alpha, Beta, Gamma,
Tritium, Radon, Radium and
Detects More Than 12 Different
Microbes

BENEFITS

优点

All-in-One Continuous, Real-Time, On-Line
Monitor
No Reagents Required
Measurements Logged 24 Hr/Day 7 Day /Week
Customer Controlled Alarm Threshold
SCADA compatible
Easy Installation
Calibration Can be Customized for
Specific Contaminants
Remote Control & Communications

TA

TECHNICAL ASSOCIATES

7051 ETON AVENUE * CANOGA PARK, CA 91303 TELEPHONE (818) 883-7043 * FAX(818) 883-6103

tagold@nwc.net www.tech-associates.com

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一个监测器完成几个测量目标。

集多功能为一体的，连续、实时、在线监测器

提供7个主要化学检测pH, ORP, 铅

无需试剂

检测 α - β - γ 氡, 氦、镭、和超过

测量一周七天二十四小时记录

12种不同的微生物

用户控制报警触发点

与SCADA系统兼容

容易安装

对于具体污染物校准可用户自定义

遥控&通信

PHYSICAL PARAMETERS

物理参数

| MEASUREMENT | RANGE | SENSOR | MAINTENANCE | COMMENTS |
|-------------|--------------------|-------------|----------------------|-------------------|
| FLOW | 0.06 gpm – 2.0 gpm | Volumetric | None | 10 – 36 VDC Input |
| TEMPERATURE | 32 -100 °F | RTD Ceramic | Periodic Calibration | 10 – 36 VDC Input |
| PRESSURE | 0 – 60 psi | Diaphragm | None | 10 – 36 VDC Input |
| 测量 | 范围 | 传感器 | 维护 | 注释 |
| 流量 | 0.06 gpm – 2.0 gpm | 容积相关 | 无 | 10 – 36 VDC 输入 |
| 温度 | 32 -100 °F | RTD陶瓷 | 定期校准 | 10 – 36 VDC 输入 |
| 压力 | 0 – 60 psi | 隔板 | 无 | 10 – 36 VDC 输入 |

FLOW RATE

流量

| | | | |
|----------|------------------------|----------|------------------------------------|
| STANDARD | 100 to 1,000 ml/minute | OPTIONAL | Wide range of flow rates available |
| 标准 | 100 - 1,000 ml/分钟, | 选购, | 供应宽量程率表 |

| | |
|-------------|--|
| SAMPLE TEMP | Up to 80 °F liquid. (Option: Up to 115 °F) |
| 样品温度 | 可达80 °F液体 (可达115°F选购) |

| | |
|-------------|-------------|
| AMBIENT EMP | 65 - 100 °F |
| 环境温度 | 65-100 °F |

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OPTIONS

Cooler model: **Cool-33** for detector and samples is used in case of higher sample or ambient temperatures.

选购

冷却器: **Cool-33**应用于较高温度样品或环境温度下探头和样品

SIZE AND WEIGHT

尺寸与重量

DIMENSIONS

CABINET: 29" W x 31" D x 59" H (including wheels)
机柜尺寸 29" W x 31" D x 59" H (包括轮子)

CHEM PANELS: 36" W x 28" H (2 each)
化学物控制板: 36" W x 28" H (2个)

BIO PANELS: 28" W x 50" H
生物控制板 28" W x 50" H

WHEELS 5" diameter, high capacity, rugged wheels with lock and rubber tires
轮子 直径5"高负荷耐用轮, 带锁和橡胶轮胎

WEIGHT Standard unit 300kg
重量 标准**300kg**



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CHEMICAL SENSORS

| MEASUREMENT 测量 | SENSITIVITY 灵敏度 | RANGE 量程 | SENSOR METHOD 测量方法 | EPA BASIC STANDARDS 环保标准 | MAINTENANCE TIME – ACTION 维护 | POTENTIAL COST MAINTENANCE / COMMENTS 潜在维护费用注释 |
|----------------------|--------------------|-------------------|--|--|---|--|
| TOTAL CHLORINE 总氯 | 0.01mg/liter | 0.1 - 10mg/liter | Amperometric Electrode 安培测量电极 | 1.0mg/liter | Replace sensor every 12 Months. Replace gel caps & add electrolyte every 2 years. 每 12 月更换传感器，每 2 年更换橡胶帽和添加电解液 | Sensor \$ 1630 Gel Cap Cartridges \$90 Electrolyte Gel \$45 2year Costs \$1900 探头\$ 1630 Gel帽滤芯\$90 电解液帽\$45 2年\$1900 |
| PH | 0.2 | 0 - 14 | Amperometric Electrode Sterilizable 安培测量电极 可去污 | 6.5 to 8.5 | Replace Sensor every 2 years 每两年更换传感器 | 2 year costs -\$530 2年花费-\$530 |
| CONDUCTIVITY 传导性 | 10uS/cm2 | 20mS/cm3 | Amperometric Electrode 安培测量电极 | 4.7 to 5.8uS/cm Depending on PH Level | Replace Sensor every 2 years. Calibrate monthly. Easy to Calibrate could be Calibrated with the chlorine Schedule 每两年更换传感器，每月校准，容易校准，可氯校准 | 2 year Costs \$630 两年花费-\$630 |
| TURBIDITY 浑浊度 | 0.001 | 0.00 - 10,000FN U | UV Spectrometer UV分光仪 | 0.05 to 1.0NTU | Periodic calibration & cleaning 定期校准清洁 | |

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| | | | | | | |
|--|-----------------------|-------------------------------------|---|-------------------------|---|---|
| <p>OXIDATION REDUCTION POTENTIAL (ORP) 氧化还原电位</p> | <p>1mV Resolution</p> | <p>-1.500mV to +1.500mV</p> | <p>Amperometric Electrode Sterilizable 安培测量电极 可去污</p> | <p>650mV</p> | <p>Replace Sensor every 2 Years. Should Calibrate monthly. Replace Reference KCl Cartridge 每两年更换传感器，应每月校准，更换KCl滤芯</p> | <p>2 year costs -\$480 两年花费-\$480</p> |
| <p>TOTAL ORGANIC CARBON (TOC) 总有机碳</p> | <p>0.1mg/liter</p> | <p>10mg/liter to 10,000mg/liter</p> | <p>UV Spectrometer UV分光仪</p> | <p>0.05mg/liter</p> | <p>Replace UV lamp when needed. Spare lamps are supplied in spare parts package 需要时更换UV灯 备用灯在备用件箱里</p> | |
| <p>LEAD CONTENT 铅含量</p> | <p>200 ppb</p> | <p>200 - 20,700 ppb(mg/liter)</p> | <p>Solid State Detector 固态探头</p> | <p>Max Limit 15 ppb</p> | <p>Replace Sensor annually. Calibrate weekly for Best Results 最好每年更换传感器每周校准</p> | <p>2 year costs Sensor -\$1634 Other Dissolved Metals Interfere with Lead measurement 2年传感器--\$1634 溶解金属干扰铅测量</p> |

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RADIATION SENSORS 辐射传感器

| DETECT 检测 | PAG LEV EL PAG | LOWER LIMIT of SENSITIVITY 灵敏度低限 | TOP OF RANGE 高限 | SENSOR / METHOD USED 传感器/使用方法 | | MAINTENANCE for finished wáter 维护 |
|---------------------------------|-------------------------------------|---|-----------------------|--|------------|--|
| | | | | | TIME | ACTION |
| Alpha α | U-238 3,000 pCi/l | | | 5" dia. Dual PM Tube crushed scintillation bed of crystals 直径5", 双PM管 粉碎的闪烁晶体床 | 3 mo | Replace particulate filter cartridge 更换滤尘器滤芯 |
| 30 min 30分钟 24 hr 24小时 | | 25,000 pCi/l 3,000 pCi/l | 2×10^7 pCi/l | | | |
| Beta β | K-40 30,0 00 pCi/l | | | 5" dia. Dual PM Tube 1000ml chamber 直径5", 双PM管, 1000ml电离室 | 3--6 mo | Replace particulate filter cartridge 更换滤尘器滤芯 |
| 30 min 24 hr | | 30,000 pCi/l 10,000 pCi/l | 2×10^7 pCi/l | 1100cm ² Beta Scintillator 1100cm ² Beta 闪烁体 | | |
| Gamma γ | Co-58 30,0 00 pCi/l | | | MultiChannelAnalyzer Smart peak detection software 多道分析仪, 智能峰 检测软件 | 3--6 mo | Simple MCA check 简单MCA检测 |
| 30 min 24 hr | | 20,000 pCi/l 5,000 pCi/l | 2×10^7 pCi/l | 75x75mm NaI(Tl) Crystal | | |

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| OPTIONS: 选择 | | LOWER LIMIT 低限 | TOP OF RANGE 高限 | | | |
|---------------------------|--|----------------------|---------------------------|--|-----------|--|
| DETECT 检测 | | | | | | |
| Tritium 氚 | | 20,000pCi/l | 1 x 10 ⁶ pCi/l | crushed scintillation bed of crystals 粉碎的闪烁晶体床 | | Replace ion exchange cartridge 更换滤芯 |
| Radon 氡 | | 100pCi/liter | 2000pCi/liter | | 1-3 mo | Clean or replace vapor trap 清理或更换蒸气收集器 |
| PRE- CONDITION 前置条件 | | | | | | |
| Expel Radon 驱氡 | | | | | | Clean or replace vapor trap 清理或更换蒸气收集器 |

For Full Listing of EPA DHS 2009 PAG Levels
See [Protective Action Guides Chart](#)

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BIOLOGICAL SENSOR

生物传感器

| MEASUREMENT | SENSITIVITY | RANGE | SENSOR METHOD | MAINTENANCE TIME - ACTION | COMMENTS |
|--|--|--|--|--|--|
| 测量 Real-time, Continuous 实时连续 | 灵敏度 1,000 liter to 150/mL for Proto-zoa 500/mL to 3,000/ mL for Bacteria | 量程 Performance improves significantly as particulates in the range of 500 nm range decreases. | 传感器方法 Multi-angle light scattering with 2D high frequency cameral yielding real- time and continuous results. | 维护 Flow Cell Cleaning up to a maximum of weekly to every 8 weeks. Takes 30 minutes to perform this task with unskilled labor. | 测评 R&D Programs in progress to systematically improve the sensitivity to the 100/L level in most potable waters. |

原生生物
1000L-150/ml
细菌
500/mL-3,000/ mL

当尘粒在500nm
范围内时, 性能
显著提高, 量程
降低

多角度光散
射, 使用2D
高频相机,
产生实时连
续效果

每周-每8周冲洗
普通工人花30
分钟

研发部门正在努力系统地
改进饮用水中灵敏度
测量到100/L

BIOLOGICAL DETECTION LIBRARY

生物检测资料

| MICROBIAL TYPES | DETECTION LIBRARY MICROORGANISM | CURRENTLY CLASSIFIED AS ... |
|--------------------------------------|---|-----------------------------|
| 微生物类型 BACTERIA ROD SHAPED 棒形细菌 | Pseudomonas Legionella, E.coli Salmonella, Shigella | BACTERIA |
| BACTERIA COCCI | Bacillus - vegetative | BACTERIA |
| BACTERIA ENDOSPORES | Bacillus Subtilis Bacillus Globigii Bacillus Cereus | SPORES |
| PROTOZOA | Cryptosporidium Oocysts Giardia Cysts | PROTOZOA |
| FUTURE ADDITIONS TO LIBRARY | Algae (various) Yeast & Molds "Others as Requested | "UNKNOWN" |

ALARM SET SCREEN



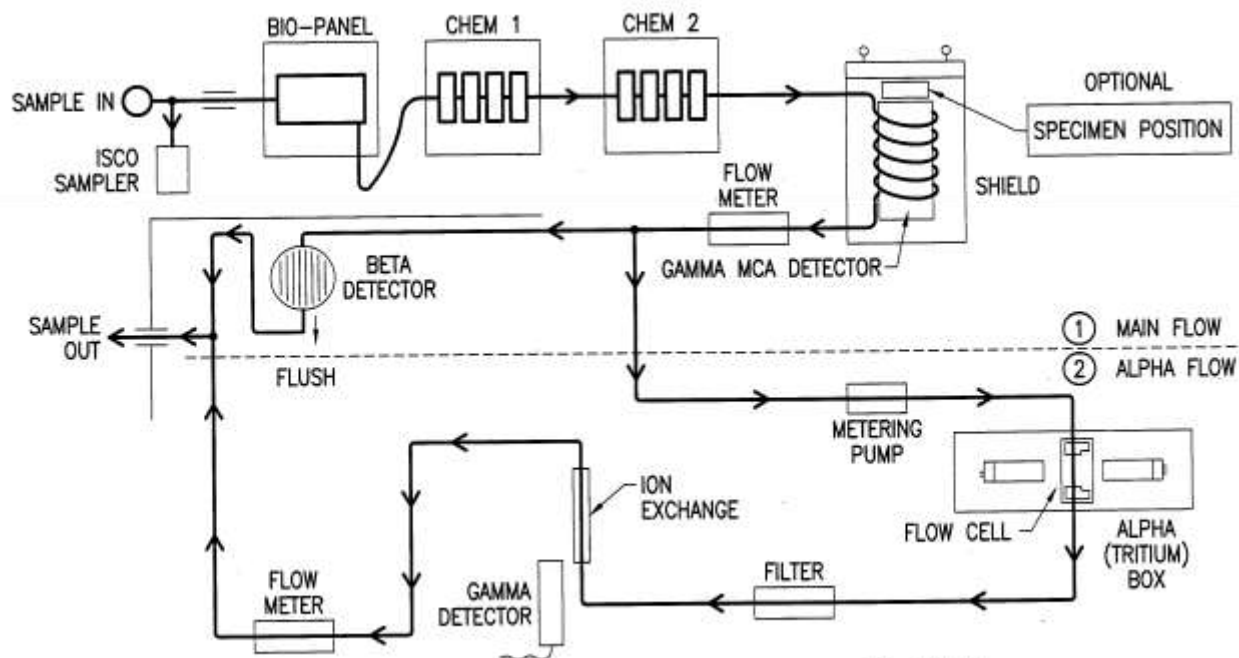
This screenshot allows the user to set all "Alarm Set Points" for all Detector Chambers.

CALIBRATION SET SCREEN



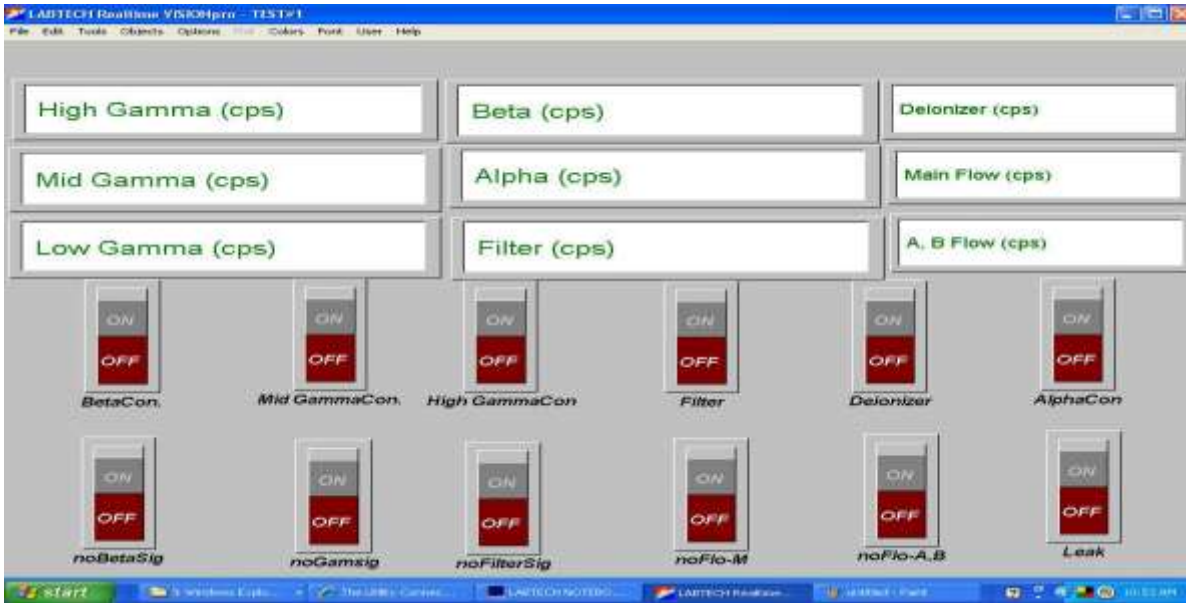
This screenshot displays & finds both Background & Source Counts, and sets Parameters.

UNITECT FLOW CHART For Radiation-Chemical-Biological Detection



B-13444

TEST SCREEN



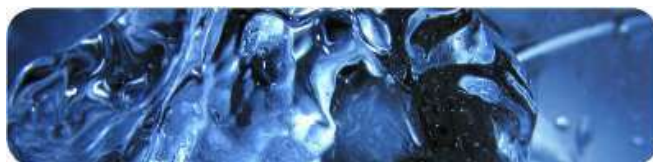
This is "Test Screen" which allows the user to test Primary Detectors and Functions

OPERATE SCREEN



This screenshot displays & finds both Background & Source Counts, and sets Parameters

**STATE OF THE ART INTEGRATED CHEMICAL
BIOLOGICAL & RADIATION WATER MONITORING SYSTEM**



UNITECT combines several detection goals into a single monitor. The UNITECT-CBRN continuously monitors radio nuclides using both ion exchange resin beads and charcoal filter. Chlorine, TOC, and Nitrogen are monitored with detectors integrated within the UNITECT system. Additional monitoring is available and will be tailored to specific needs upon request. Measurements are logged 24 hr/day - 7 day/week, with alarm capability and a universal read out adaptable to mainframe infrastructure computers.

UNITECT把几个探测任务集中在一个监测器来完成。UNITECT-CBRN通过使用离子交换树脂球和碳滤网连续检测辐射核素。系统探头监测氯，TOC和氮。额外监测任务也可实现，可应具体要求量身制作。测量二十四小时每周七天录入，带报警功能通用读数兼容

All Chemical and Biological Technology is provided by Data Rangers LLC.
所有化学和生物技术由Data Rangers LLC.提供

Model: UNITECT-CBRN (SECURITY)

Model: UNITECT-LLD (PURITY)

TECHNICAL ASSOCIATES

NUCLEAR INSTRUMENTS AND SYSTEMS

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Real-Time Water Monitors
TECHNICAL ASSOCIATES