



NEX-BETA-ABG and LAM-10  
Electronics Assembly



NEX-BETA-ABG 9 and NEX-BETA-ABG-9TT  
Electronics

## Features

- Detects Alpha, Beta and Gamma Radiation
- **Nex-Beta-ABG-9TT – Test and Treat**
- Biological Sensors
- Oxidation Reduction Potential (ORP)
- Total Organic Carbon (TOC)
- Treatment of Isotopes and Biological Contamination
- On-board Computer - **Nex-Beta-ABG-9 and Nex-Beta-ABG-9TT**
- **Nex-Beta-ABG Series**
- Portable or Installed
- Real Time Continuous Water Monitor
- High Sensitivity
- No Reagent Tanks to Fill; No Waste Stream
- Easy Calibration

# Facility Drinking Water Safety Monitor

Model Series - NEX-BETA-ABG Series  
NEX-BETA-ABG - NEX-BETA-ABG-9 - NEX-BETA-ABG-9TT

Protect Vulnerable:  
Hospitals - Schools - Government Facilities

- Prevent Acute Health Effects; Reduce Risk of Chronic Exposure
- Measures at or Below EPA/DHS **PAG Levels**  
*Protective Action Guideline Levels and Military Drinking Water Limits*

### Note:

- TA Makes the World's Only PAG-Level Water Monitors
- Also Detects Some Isotopes Down to Lowest EPA Levels

## Application

Install **Nex-Beta-ABG** series monitors on your water inlet pipe to automatically and continuously monitor drinking water 24/7 for any radioactive contamination. The **NEX-BETA-ABG-9TT** monitors and treats radionuclide and biological contamination.

Facilities with multiple water inlets may wish to install multiple **Nex-Beta-ABG**


Specifically designed to protect populations vulnerable to contaminants, such as in hospitals, schools, and government facilities. Very few cities or water wholesalers monitor water continuously for radiation.

### Alternative Uses:

- **Monitor Liquid-Waste-Stream** from plant or laboratory to **maintain regulatory compliance.**
- **If water source is river or reservoir** the particulate pre-filter with its own RAD Detector is recommended.



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### NEX-BETA-ABG - NEX-BETA-ABG-9 - NEX-BETA-ABG-9TT

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## Problem

Drinking water sources are vulnerable to accidental or knowing contamination by individuals, groups, industry, medical labs, terrorists, and from naturally occurring radioactive materials (NORM). As yet very few water districts have real-time radiation monitors in place to protect the water and the public.

## Solution

- For the first time in a **Continuous Real Time** monitor the **Nex-Beta-ABG series** solves this problem by continuously monitoring water using ultra-sensitive, radiation detectors.
- The information from these detectors is analyzed and displayed in units of picoCuries per liter.
- Monitors drinking water against most radioactive contaminants except H-3, C-14, S-35, Fe-55.

### Nex-Beta-ABG-9 and Nex-Beta-ABG-9TT:

- The count times are user settable. Calculations are automatically updated every 2 minutes, every hour and every day. Measurements of radiation concentration are logged 24 hours/day, 7 days/week in. The longer update times correspond with greater precision and increased sensitivity.
- Sensitivities in the daily updates meet or exceed the DHS **PAG** (Protective Action Guideline Levels) for drinking water.
- The **Nex-Beta-ABG-9TT system is a Test and Treat system removing biological contaminations and reducing radioisotopes.**

## Description

Model **NEX-BETA-ABG Series** monitors are radiation detecting water monitor /controllers for measuring of Alpha, Beta and Gamma emitting radio nuclides. The electronics are microprocessor with LED/LCD display. The system is covered by TA's full one year warranty. On-site service contracts available in many areas.

The Alpha, Beta flow cell and Gamma detector are easily changed via disconnect fittings. All connections are sealed against leaks. The standard water moving system is based on a high precision pump. It has a 10 liter per minute capacity. System can also be operated using city water pressure in which case no pump is required.

A wide range of pump capacities are available to meet users' specific needs. The system detectors and electronics are ruggedly built. It comes complete with all cabling tubing and connectors in place and is ready to operate. 115 Volt 60Hz is standard; 220 Volt 50/60 Hz or battery operations are optional.


## Detectors In This System

1. **Alpha-Beta Detector** consists of a light-tight detector assembly which interfaces with the sample via quick disconnect coax cables and medical grade hoses. The sample is viewed by a matched pair of 5" diameter photo- multiplier tubes.
2. **Gamma Scintillation detector** has a sensitive 2" diameter crystal.
3. **BioSensor for the Nex-Beta-ABG-9TT**

The **Alpha-Beta pulse analysis portion** of this system conditions and analyzes the output from the photo-multiplier tubes by pulse height, duration and coincidence; thereby permitting the system to exclude most background and noise counts. Sensitivity is enhanced by the use of stochastic resonance plus high gain, low noise PM tubes and pre-amps.



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## Model Series - NEX-BETA-ABG Series

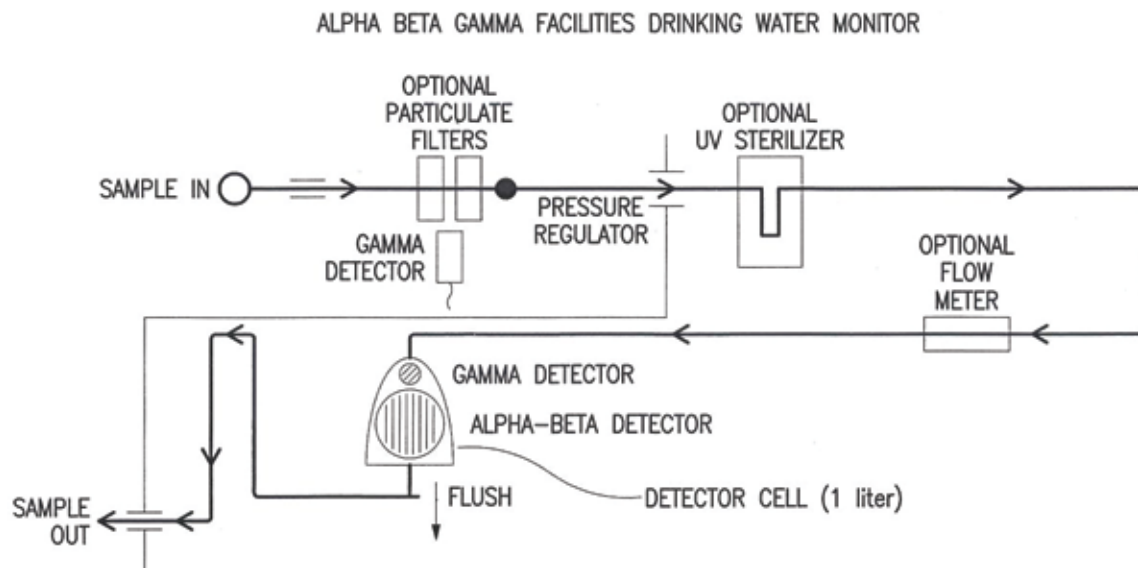
NEX-BETA-ABG - NEX-BETA-ABG-9 - NEX-BETA-ABG-9TT

### FLOW PATH: NEX-BETA-ABG and NEX-BETA-ABG-9


- Water Inlet port
- Pressure Regulator
- Particulate Pre-Filter (with Optional additional Gamma Detector)
- Ultra Violet Sterilizer (Optional)

- Mass Flow Meter (Optional)
- Flow chamber with alpha-beta and gamma detectors
- Tested water is clean and returns to the drinking water line
- No liquid scintillate or reagents are added
- No toxic or radioactive waste of any kind

## FLOW PATH



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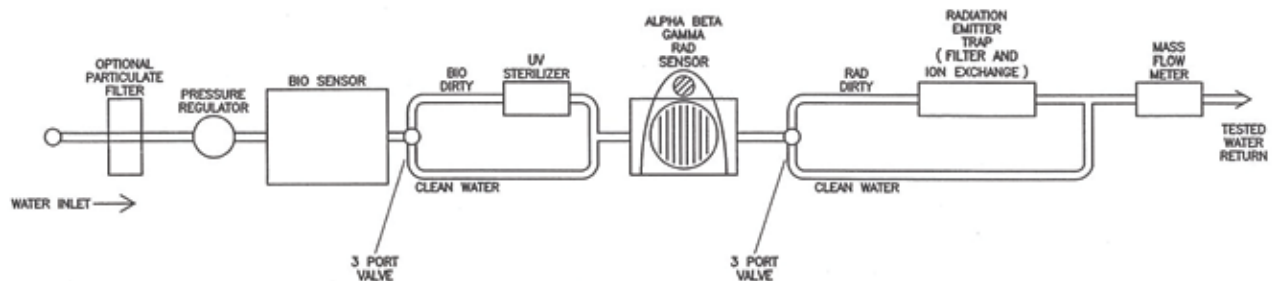
NEX-BETA-ABG - NEX-BETA-ABG-9 - NEX-BETA-ABG-9TT

### FLOW PATH: NEX-BETA-ABG 9TT


#### (Test and Treatment System)

- Water Inlet port
- Optional Particulate Pre-Filter
- Pressure Regulator
- Bio Sensor
- Valve to Direct Clean or Dirty Water
- Ultra Violet Sterilizer for Dirty Water
- Valve to Direct Clean or Dirty Water
- Flow chamber with Alpha Beta and Gamma Detectors
- Valve to Direct Clean or Dirty Water
- Filter and Ion Exchange for Dirty Water
- Mass Flow Meter
- Tested and Treated Water is Clean and Returns to the Water Line
- No liquid scintillate or reagents are added
- No toxic or radioactive waste of any kind

## FLOW PATH



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Electronics



NEX-BETA-ABG LAM-10  
Electronics

## Data: Analysis-Display-Data Stored Flash Drive Archive

### *NexBeta-ABG-9 and NexBeta-ABG-9TT*

- The concentration and total activity released and MDA levels are continuously calculated and recorded.
- On Board Data Storage
- USB / Ethernet Ports
- Data can be saved to the optional flash drive in spreadsheet format.

## Specifications

- **Alarms:** Each alarm activates a relay. Relay alarms are available to the user
- **Sample temperature:** measurements are most accurate in range 40° to 85° F. Instrument is still operational up to higher temperatures
- **Optional:** Cooler model Cool-33 for detector and sample is used in case of higher sample or ambient temperatures

## Dimensions, Weight, Shipping Information

**NEX-BETA-ABG LAM-10 Electronics:** 7" W x 10" H

**Weight:** 8 lbs

*(Electronics may be positioned separate from detector)*

**Dimensions NEX-BETA-ABG Assembly:**

10" H x 10" D x 29" W - **Weight:** 37 lbs

*(excluding optional shielding)*

**NEX-BETA-ABG-9 and NEX-BETA-ABG-9TT Electronics:**

11" W x 11" W x 14" H - **Weight:** 12 lbs

**Dimensions NEX-BETA-ABG-9 or NEX-BETA-ABG-9TT**

**Assembly:**

10" H x 10" D x 29" - **Weight:** 45 lbs

*(excluding optional shielding)*

**Note:** Optional thin Lead Sheet for shielding can be shipped with or shipped separately. Overseas customers may wish to buy the lead sheet locally.



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DETECT	PAG LEVEL	LOWER LIMIT of SENSITIVITY	TOP OF RANGE	SENSOR / METHOD USED	TIME	MAINTENANCE for finished water ACTION
<b>Alpha</b>	<b>U-238</b> 3,000 pCi/l			5" dia. Dual PM Tube crushed scintillation bed of crystals	3--6 mo	Replace particulate filter cartridge
30 min 24 hr		25,000 pCi/l 3,000 pCi/l	$2 \times 10^7$ pCi/l			
<b>Beta</b>	<b>K-40</b> 30,000 pCi/l			5" dia. Dual PM Tube 1000 ml chamber	3--6 mo	Replace particulate filter cartridge
30 min 24 hr		30,000 pCi/l 10,000 pCi/l	$2 \times 10^7$ pCi/l	1100 cm <sup>2</sup> Beta Scintillator		
<b>Gamma</b>	<b>Co-58</b> 30,000 pCi/l			Standard: Single Channel Energy Analyzer Optional: Multi-Channel Analyzer	3--6 mo	Simple MCA check
30 min 24 hr		20,000 pCi/l 5,000 pCi/l	$2 \times 10^7$ pCi/l	75x75mm NaI(Tl) Crystal		
<b>OPTIONS</b>		<b>LOWER LIMIT</b>	<b>TOP OF RANGE</b>			
<b>DETECT</b>						
<b>Tritium</b>		20,000 pCi/l	$1 \times 10^6$ pCi/l	Crushed scintillation bed of crystals		Replace ion exchange cartridge
<b>Radon</b>		100 pCi/liter	2000 pCi/liter		1-3 mo	Clean or replace vapor trap
<b>PRE-CONDITION</b>						
<b>Expel Radon</b>						Clean or replace vapor trap



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## Features

FEATURES	NEX-BETA-ABG	NEX-BETA-ABG User's PC	NEX-BETA-ABG-9 All-in-One	NEX-BETA-ABG-9TT All-in-One
<b>Read-Out Units (Typical)</b>	Bq/m <sup>3</sup> pCi/l User Selectable	Bq/m <sup>3</sup> pCi/l User Selectable	Bq/m <sup>3</sup> pCi/l User Selectable	BIO – ppm RAD - Bq/m <sup>3</sup> or pCi/l User Selectable
<b>Measures</b>	Waterborne Concentration	Waterborne Concentration	Waterborne Concentration	Waterborne Concentration
<b>Electronics</b>	LAM-10 Ratemeter	User PC switches units, subtracts background data logging, electronic data transmissions	Calculations by embedded processor	Calculations by embedded processor
<b>Software Functions Data Logger</b>	N/A	Optional WIN-W Data Logger Software for PC users	On board data logger	On board data logger
<b>Assisted Calibration</b>	N/A	Optional	Included	Included
<b>Report Generator</b>	N/A	Optional	Included	Included
<b>Advanced Data Analysis (for low radiation levels and long measurements)</b>	N/A	Optional	Included	Included
<b>Available Options</b>		Optional WIN-W Data Logger Software for PC users	Optional Overhoff Networking Overview (ORO)	Optional Overhoff Networking Overview (ORO)
<b>Portable Version</b>	NEX-BETA-ABG-P		NEX-BETA-ABG-9P	
<b>Installed Version</b>	NEX-BETA-ABG		NEX-BETA-ABG-9	Inline/Installed only NEX-BETA-ABG-9TT



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