

"The Clinical Advantage"™

ATOMLAB™

THYROID UPTAKE SYSTEM



A COMPLETE, MOBILE,
SELF-CONTAINED
MEDICAL
SPECTROMETER

ATOMLAB 960 Thyroid Uptake System

Designed for diverse nuclear medicine applications

FEATURES

- *Unique Positioning LED for accurate thyroid centering – A first in Thyroid Uptake System design*
- *Distance measurement rod with incremental markings (detector-to-patient)*
- *All-in-one flat panel PC with solid state hard drive featuring Windows® Operating System*
- *Count rate: 150,000 cps*
- *Color touch-screen adjustable height monitor - medical grade tactile touch*
- *Extremely intuitive menus follow conventionally established nuclear medicine procedures*
- *Compact mobile platform requires little floor space - easy to move*
- *Innovative multi-axis and height adjustable arm for easy patient positioning of seated or supine patients*
- *Calibration/Constancy fixture for simple and automated calibration*
- *Convenient storage positions for Neck Phantom and Calibration/Constancy Fixture*
- *1024-channel multi-channel analyzer*
- *Software programs for Thyroid Uptake, Wipe Test, Quality Assurance, Manual MCA and Bioassay*
- *Controlled and monitored via Ethernet or Serial Port*
- *DICOM Compliant (optional) – Government approved to interface with VistA Imaging*
- *2" x 2" NaI(Tl) detector with collimated shield (meets IAEA specifications)*
- *Heavy duty locking casters*
- *Smart cable management*
- *Industry exclusive two-year warranty*



▲ Innovative multi-axis and height adjustable arm makes patient positioning easier than ever before. Combined with unique Positioning LED and Distance Measurement Rod, the Atomlab 960 allows for repeatability in uptake measurements.

The Atomlab 960 Thyroid Uptake System is an advanced multi-purpose spectrum analysis instrument designed for diverse nuclear medicine applications. Uptake studies, wipe tests, and other user-defined tasks are accomplished with speed and precision using this fully integrated computer-controlled instrument and its comprehensive selection of application software.

The system's multi-channel analyzer has 1024 channels, with individual MCAs for the probe and optional well counter. Engineered for mobility, durability and operational efficiency, the Atomlab 960 handles clinical tests, safety compliance tasks, and system administration procedures quickly and accurately. Intuitive

menus follow conventionally established nuclear medicine procedures, providing step-by-step guidance throughout all defined procedures. The system automatically performs calculations, stores patient information and test results, and outputs clear, concise reports. User-defined uptake protocols can be initiated.

The self-contained Atomlab 960 system is configured on a compact mobile platform with locking casters and a base that measures only 26" w by 34" l (66 x 86.4 cm). An upper shelf supports the flat panel PC with touch-screen display and keyboard. The stand provides convenient storage positions for Neck Phantom, Calibration/Constancy Fixture, and optional well counter. A 2" x 2" NaI(Tl) detector with



◀ Unique Positioning LED for accurate thyroid centering – A first in Thyroid Uptake System design.

collimator shield articulates on a multi-axis and height adjustable counterbalanced arm. The 24.5" (62.2 cm) of vertical travel allows the probe to be positioned from 30.5 to 55" (77.5 to 139.7 cm) in the horizontal position from the floor to accommodate seated or supine patients. The probe swings more than 180° on the horizontal plane, and extends outward, up to approximately 31" (78.7cm) horizontally from the support column. This design makes positioning for uptake studies simple and comfortable for both patient and technologist. The combination of positioning LED and distance measurement rod assures accurate, repeatable patient positioning and uptake measurements.



▲ Probe can be positioned to accommodate seated or supine patients.

Comprehensive Clinical Software

Extremely intuitive menus follow conventionally established nuclear medicine procedures. All programs provide clear, concise reports for referring physicians, insurance providers, patient records and a database for physician and technologist identification. PDF reports allow for easy electronic distribution.

Thyroid Uptake Program



▲ Thyroid Uptake Program Screen

- Supports multiple time-stamped uptake measurements
- Auto decay correction
- User-defined uptake protocols
- On-screen spectrum acquisition and analysis
- Reports include normal ranges, notes/comments, facility/physician/technologist

East End Health
20 Ramsey Rd.
Orlando, FL 32807
407-255-1000

Uptake Report
Printed on 7/2/2012 12:04 PM

Patient Information
Name: JONES, KARA
Date of Birth: 01/01/1977
Technician: J. Smith
Referring Physician: Dr. Smith

Acquisition Information
Detector Model: 101
Isotope: I-131
Dose Activity: 200 (uCi)
Count Time: 10
Admin Date/Time: 07/02/2012 08:00 AM

Area / Standard Results
Standard Count Time: 90 (seconds) 0.244 MBq
Standard Count CPM: 2,280 CPM
Lab Background CPM: 50
Admin Date/Time: 07/02/2012 08:00 AM

Time	Counts	CPM	Standard Count	Time Delay	Decay Factor	Uptake %	Notes
0	2971	22263	2280	0	1.000	97.2%	Counts both
1	29	218	2280	10	0.988	9.7%	Counts both
2	853	6398	2280	20	0.976	28.1%	Counts both

Normal Ranges
6 Hours 0.4 to 1.0%
24 Hours 0.4 to 1.0%

Comments:
Staff Signature: _____ Date Signed: _____
Physician Signature: _____

The Atomlab 960 provides intuitive menus with provision to modify any procedure to suit specific requirements. Atomlab software guides the user through each step of any defined procedure. Automatic decay correction calculates elapsed time between dose count and actual patient thyroid count, and then automatically computes uptake percentage.

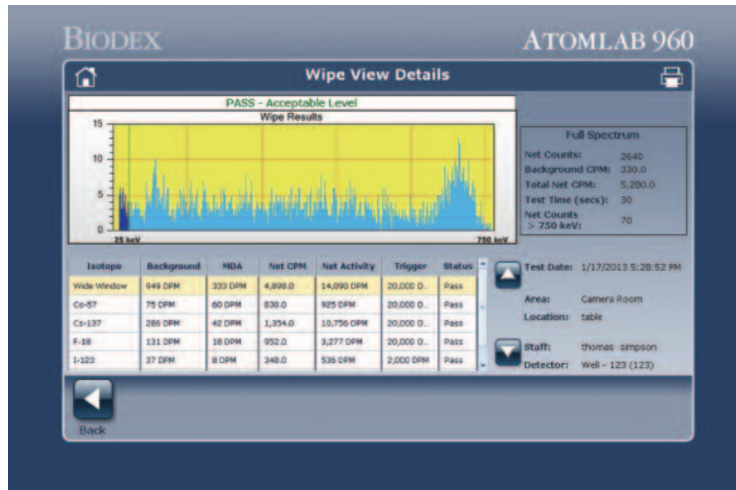
▲ Thyroid Uptake Report

Full-size sample reports can be viewed at www.biodex.com/thyroiduptake/reports.

ATOMLAB™ 960 THYROID UPTAKE SYSTEM

Wipe Test Program

Automatically calculates net contamination levels and reports results in dpm, uCi and Bq.



▲ Wipe Test Program Screen

- Meets NRC/State regulations
- Energy spectrums with individual ROIs
- Ability to identify isotopes causing contamination
- User-specific wipe locations and trigger levels
- Wipes that exceed trigger levels are immediately recognized

Designed for use with the optional well counter, the Wipe Test Program makes it easy to comply with regulations for counting and reporting results of wipes taken for contamination surveys.

The user may define an unlimited number of "Area" names and wipe "Locations" entered within these areas for testing and documentation. Each area may be designated as "restricted", "unrestricted", "package" or "sealed source". The user may specify count times, activity units, wide window, and individual isotopes and geometric efficiencies or simply utilize the wide range of factory default options.

The program displays and stores the full spectrum with each wipe, automatically calculates net contamination levels and reports results in dpm, uCi or Bq. Wipes above the user defined trigger levels are easily identified. A detailed spectrum analysis may also be performed for any wipe to help identify isotopes causing contamination. Customized reports can be printed or saved in PDF format.

Administration/Quality Assurance Program

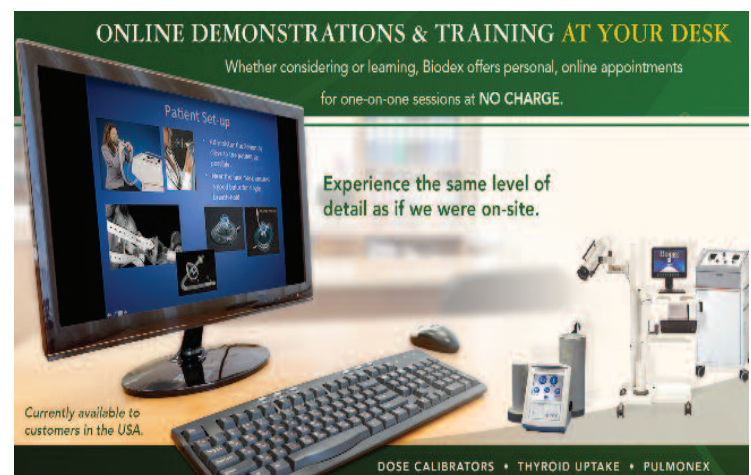
Designed to minimize time spent maintaining accurate system records.



▲ Administration/Quality Assurance Program Screen

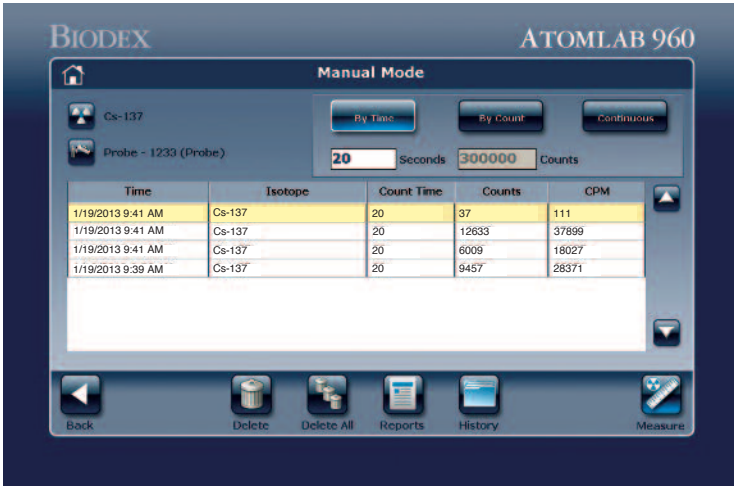
- Automatic daily calibration using Cs-137 source
- Automatic high voltage adjustment
- Automatic Chi-Square test, with report
- Automatic MDA calculation

There are a multitude of administration functions, each designed to minimize the time normally spent maintaining accurate use of the system. There is an automated high voltage setting for each detector, and also an automatic calibration program using a Cs-137 source. The system will advise the user when a daily calibration has not been performed. The Chi-Square test program automatically performs the Chi-Square calculations and generates a printed report. Site information is entered in the administration program containing the facility name, address, and a list of the technologists and physicians in the department. Customized administrative and clinical reports can be printed or saved in PDF format.



Manual MCA Program

For performing sample counts and analysis beyond the scope of the standardized programs.



▲ Manual Mode Screen

- Expandable library of 28 commonly used isotopes
- Unlimited user-defined isotopes
- Three counting methods: Preset Time, Preset ROI, and Continuous Counting

In addition to providing “standardized” programs for routine test and survey procedures, the 960 has a “manual” program to accommodate other counting and spectrum analysis tasks. The user can select from three counting methods: Preset Time, Preset ROI Counts, and Continuous Counting. After any count, the Spectrum Analysis option can be used to produce a Spectrum Analysis Report. The monitor shows when a test is in progress, and graphically displays the spectrum, time, counts and cpm.

PEER PERSPECTIVE



“We had done our homework before purchasing our Atomlab 960 Thyroid Uptake System with optional DICOM software, so we already knew it was going to do what we needed,” says Chris Tollefson, Nuclear Medicine Supervisor at the Mayo Clinic Foundation in Scottsdale, AZ.

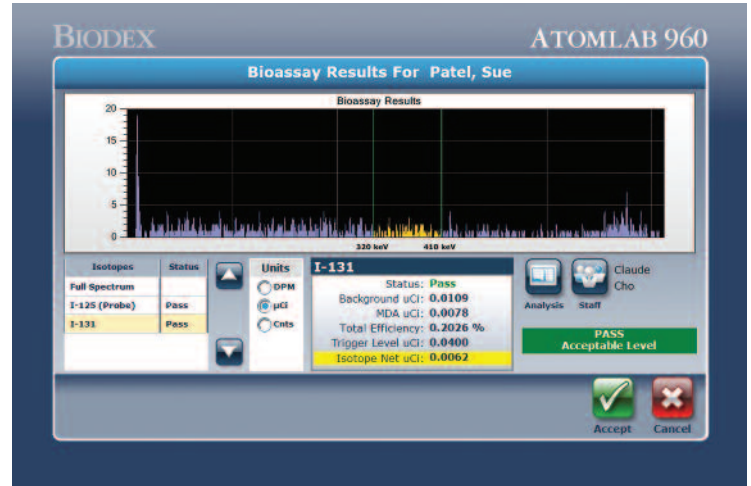
“We didn’t fully realize until hooking it up and enabling the DICOM functionality, however, that it would save our staff so much time while doing even more than we expected.”

Read more www.biodex.com/thyroiduptake

Chris Tollefson B.S., CNMT, NCT
Mayo Clinic, Nuclear Medical Supervisor
Scottsdale, AZ

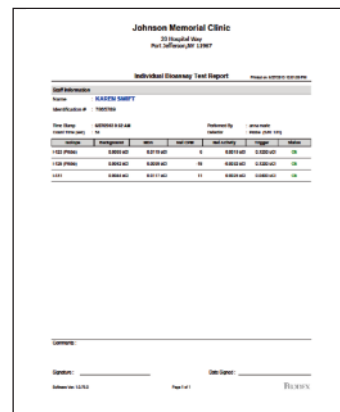
Bioassay Program

For individual patients or employee groups.



▲ Bioassay Test Results Screen

- Reports can be printed or saved as PDF files.



▲ Single Bioassay Test Report

Full-size sample reports can be viewed at www.biodex.com/thyroiduptake/reports.

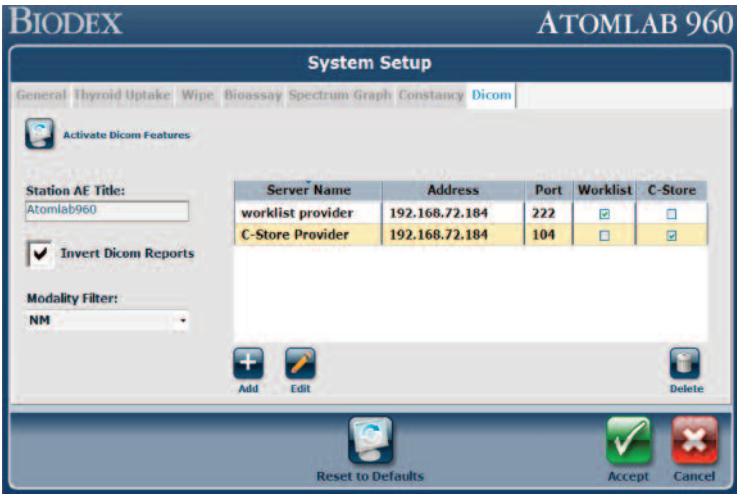
The Bioassay program for the Atomlab 960 allows for quick and efficient measurement of the staff thyroid burden for I-123, I-125 and I-131. Measurement results can be reported in cpm, dpm, uCi, or Bq. Action levels may be set by the user for each isotope. Report choices include single bioassay report, summary of multiple bioassays on an individual staff member, and summary report on multiple staff members. Reports can easily be printed or saved as PDF files.

BIODEX
www.biodex.com
1-800-224-6339
Int'l 631-924-9000

ATOMLAB™ 960 THYROID UPTAKE SYSTEM

DICOM Program

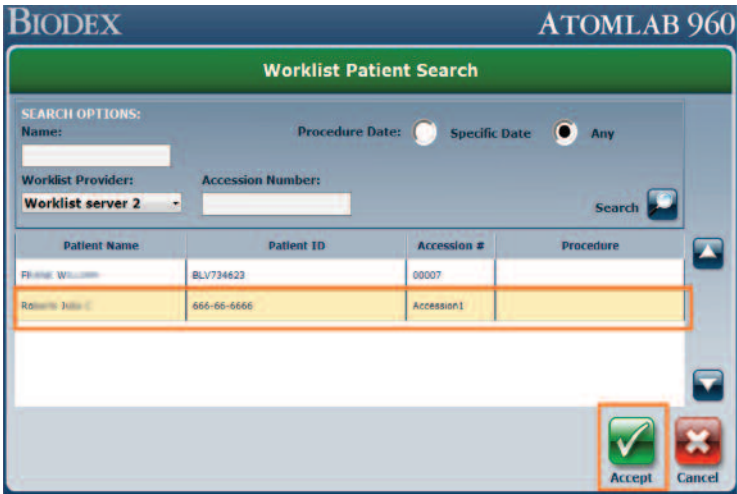
Optional - compliant to DICOM requirements.



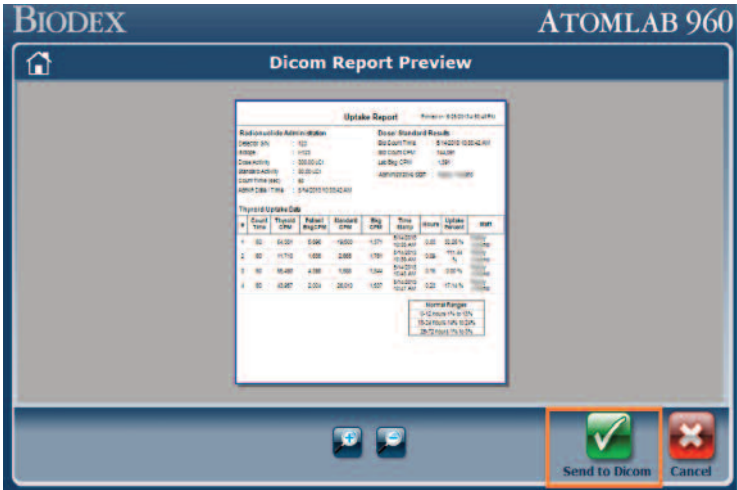
▲ DICOM System Setup Screen

- Streamlines workflow and improves staff productivity
- Thyroid scans and uptake reports may be displayed simultaneously
- Completely integrated for seamless operation

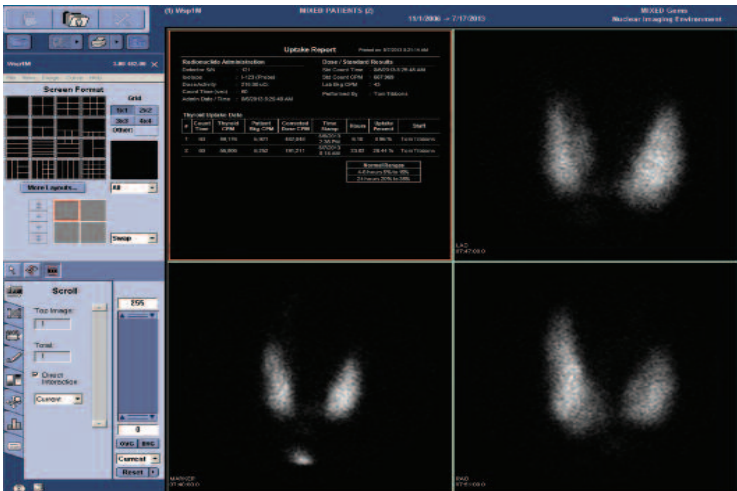
The optional DICOM Program integrates the Atomlab 960 Thyroid Uptake System with your hospital management system, streamlining workflows and improving communication. The program allows you to retrieve patient information from the worklist and upload patient results, without exiting the clinical software, increasing staff productivity and efficiency. DICOM allows the uptake reports to be transferred, stored and queried/retrieved throughout a facility. Physicians can view both thyroid scans and uptake reports simultaneously.



▲ DICOM Worklist Patient Search Screen



▲ DICOM - Report Preview Screen



▲ DICOM viewer report displayed with images

PRINTED REPORTS

East End Health
20 Ramsey rd.
Shirley, NY 11967
631-924-9000

Uptake Report Printed on: 9/12/2012 12:13:46 PM

Patient Information
Name: JAMES, WMA
Date of Birth: 07/19/1977
Identification #: 68776666
Referring Physician:

Radionuclide Administration
Detector Serial ID: 131
Isotope: I-131
Dose Activity: 202.00 uCi
Count Time (sec): 15
Admin Date / Time: 9/17/2012 9:24:44 AM

Dose / Standard Results
Standard Count Time: 9/17/2012 9:24:44 AM
Standard Count CPM: 2,000,512
Lab Background CPM: 52
Administrative Staff: Claude Smith

Count Rate	Count Rate	Count Rate	Count Rate	Count Rate	Count Rate	Count Rate	Count Rate
1	15	11,654	268	1,505,162	9/17/2012 9:18:02 PM	5.83	0.77 %
2	15	50,504	264	583,444	9/18/2012 9:01:26 AM	23.01	8.47 %

Thyroid Uptake Data

Count Rate	Count Rate	Count Rate	Count Rate	Count Rate	Count Rate	Count Rate	Count Rate
1	15	11,654	268	1,505,162	9/17/2012 9:18:02 PM	5.83	0.77 %
2	15	50,504	264	583,444	9/18/2012 9:01:26 AM	23.01	8.47 %

Normal Ranges:
6 hours 5% to 20%
24 hours 8% to 15%

Comments:

Staff Signature: _____ Date Signed: _____
Physician Signature: _____ Date Signed: _____

▲ Uptake Report

Full-size sample reports can be viewed at
www.biodex.com/thyroiduptake/reports.

South End Medical
20 Ramsey Rd
Shirley, NY
11911111

Daily Calibration Details Report Printed on: 10/15/2012 12:24:14 PM

Counting Parameters
Isotope: Cs-137
Gain: 9-1500
Count Time (sec): 18
Detector Name: Probe - 131
Detector Serial: 131
Calibration Date: 10/15/2012 2:09:55 PM

Spectrum Statistics
Range (keV): 5 - 1516
Peak Energy (keV): 21
Peak Counts: 3,705
Total Counts: 302,859
Outside Range (CPM): 0
Peak Count Rate (CPM): 12,302
Total Count Rate (CPM): 1,038,526

ROI Statistics
Energy Window (keV): 561 - 761
Peak (keV): 661
Peak Counts: 2,700
Calibration Channel: 456
ROI Counts: 99,182
Peak CPM: 9,000
ROI Rate (CPM): 330,807
FWHM: 7.24 %

Comments:

Staff Signature: _____ Date Signed: _____
Physician Signature: _____ Date Signed: _____

Software Ver: 1.0.31 Page: 1 of 1 BIODEX

▲ Daily Calibration Details Report

Full-size sample reports can be viewed at
www.biodex.com/thyroiduptake/reports.

ACCESSORIES

WELL COUNTER



An optional 2" x 2" NAI(Tl) well detector is available. The detector is housed with 1" of lead and includes a cover. The well has a 1024 channel multi-channel analyzer built into the base of the detector with a count rate of 150,000 cps. We offer an optional 1" Lead Shield that can be placed onto the well.

SPECIFICATIONS:

Detector: 2" x 2" NaI (Tl) integral line scintillation detector with a .75" diameter x 1.44" deep well (1.9 x 3.7 cm)
Lead Shielding: 1" thick (2.5 cm)
Cover: .125" thick (.32 cm)
Weight: 50 lb (22.7 kg)

187-602 Well Counter, 1" Lead (2.5 cm)
Includes cover and calibration fixture.

LEAD SHIELD



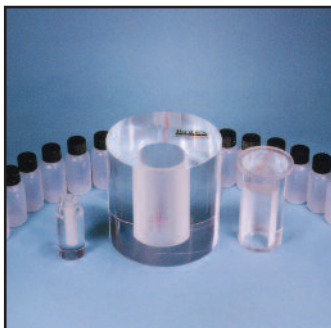
The optional lead shield slides over integral shield providing an additional 1" of lead for a total of 2" of shielding.

SPECIFICATIONS:

Lead Shielding: 1" thick (5 cm)
Weight: 69 lb (31.4 kg)

187-603 Lead Shield, Well Counter, 1" Lead (2.5 cm)

NECK PHANTOM



The Neck Phantom is designed to simulate a patient's neck. The phantom is constructed of lucite. It has a two part insert that allows counting from a bottle, vial or capsule. A capsule holder is supplied to enable the user to count capsules directly, without having to dissolve them. The phantom's cylinder and carrier have scribelines for accurate alignment. A flat surface on the cylinder allows either vertical or horizontal positioning. Twelve 30 ml bottles are included with the phantom.

Proposed by the International Atomic Energy Agency (I.A.E.A.) and the American National Standards Institute

043-365 Thyroid Uptake Neck Phantom
(Complete with bottle carrier, capsule holder and 12 polyethylene bottles)

www.biodex.com/uptakeaccessories

BIODEX
www.biodex.com
1-800-224-6339
Int'l 631-924-9000

Atomlab™ 960

SPECIFICATIONS:

MEDICAL SPECTROMETER HARDWARE

Computer:

15.6" Color, Touch-Screen Flat Panel PC, Windows® 7, 1.66 GHz Atom Processor, 1 GB RAM, 32 GB SSD, HP Printer, Wifi, Ethernet and Speakers.

Multi-Channel Analyzer:

Channels: 1024

Spectral Resolution: FWHM 8%

Count Rate: (Maximum) 150,000 cps for Tc-99m

Count Rate Stability: 99%

Gross Count Rate Linearity: Within 5% up to 150,000 cps

Pulse Height Linearity: Within 2% (independent of detector)

Detector High Voltage Adjustment: Automatic adjustment for both probe and well; uses 10 µCi Cs-137 as the calibration source.

Power: Low voltage transformer with hospital grade power cord and plug.

Line Voltage:

120 VAC, 60 Hz, 2 AMP circuit breaker

230 VAC, 50 Hz, 1 AMP circuit breaker

MEDICAL SPECTROMETER SOFTWARE

Radionuclides:

Factory Programmed: Au-198, Ba-133, Ba-133 (well), Co-57, Co-57 (w), Co-58 (w), Co-60, Cr-51, Cs-137, Fe-59, F-18, Ga-67, Hg 197, I-123, I-125, I-131, In-111, Ir-192, K-42, Lu-177, Na-24, Pd-103, Ra-223, Se-75, Sr-85, Tc-99m, Tc-99m (w), Tc-99m/Tl-201, Tl-201, Yb-169, wide window.

User Set: Unlimited user defined isotopes, setting ROI, half life, name, efficiency and range.

OTHER HARDWARE:

Probe: 2" x 2" NaI (Tl) integral line scintillation detector

Uptake Stand:

Dimensions:

Arm down and retracted: 34" l x 26" w x 55" h (86.4 x 66 x 139.7 cm)

Maximum Height: 60" (152.4 cm)

Maximum Length: Arm Extended: 61" (154.9 cm)

Collimated Shield: Flat field collimator meeting IAEA specifications

Positioning: Distance bar and positioning light

Arm: Counterbalanced, two section arm, moves 24.5" (62.2 cm) vertically and extends 31" (78.7 cm) horizontally from stand's vertical column.

Casters: 4" Total locking

Weight: 280 lb (127 kg)

Combined weight with Well Counter: 330 lb (150 kg)

Power: Low voltage transformer with hospital grade power cord and plug.

Line Voltage:

120 VAC, 60 Hz, 2 AMP circuit breaker

230 VAC, 50 Hz, 1 AMP circuit breaker

OPTIONAL:

187-602 Well Counter:

Detector: 2" x 2" NaI (Tl) integral line scintillation detector with a .75" diameter x 1.44" deep well (1.9 x 3.7 cm)

Lead Shielding: 1" thick (2.5 cm)

Cover: .125" thick (.32 cm)

Weight: 50 lb (22.7 kg)

187-603 Lead Shield, Well Counter:

Detector: 2" x 2" NaI (Tl)

Lead Shielding: 1" thick (5 cm)

Weight: 69 lb (31.4 kg)

Certification: ETL Listed to UL 60601-1 Std. and CAN CSA C22.2

No. 601.1-M90, 2nd and 3rd editions, and CE marked.

Warranty: Two-years parts and labor



187-600 Thyroid Uptake System, Atomlab 960,
120 VAC, Mobile, PC

Mobile System includes:

- All-in-one flat panel PC with solid state hard drive running Windows® embedded standard 7, Atomlab 960 PC software, printer and 1024 channel multi-channel analyzer
- 2" x 2" tube assembly and base
- Mobile support stand with collimator

187-601 Thyroid Uptake System, Atomlab 960,
230 VAC, Mobile, PC

Mobile System includes:

- All-in-one flat panel PC with solid state hard drive running Windows® embedded standard 7, Atomlab 960 PC software, printer and 1024 channel multi-channel analyzer
- 2" x 2" tube assembly and base
- Mobile support stand with collimator

Optional:

187-146 Software, Atomlab 960, DICOM

187-602 Well Counter, 1" Lead (2.5 cm)

Includes cover and calibration fixture.

187-603 Lead Shield, Well Counter, 1" Lead (2.5 cm)

Related:

063-139 Rod Source, Cs-137, Calibrated, 0.1 µCi

101-103 Check Source, Cs-137, 10 µCi *

Uncalibrated, 1" dia x .25" thick (2.5 x .64 cm)

043-365 Thyroid Uptake Neck Phantom

(Complete with bottle carrier, capsule holder and 12 polyethylene bottles)

**Recommended Check Source for calibration of probe and well.*



BIODEX

Biodex Medical Systems, Inc.

20 Ramsey Road, Shirley, New York, 11967-4704, Tel: 800-224-6339 (Int'l 631-924-9000), Fax: 631-924-9241, Email: info@biodex.com, www.biodex.com

