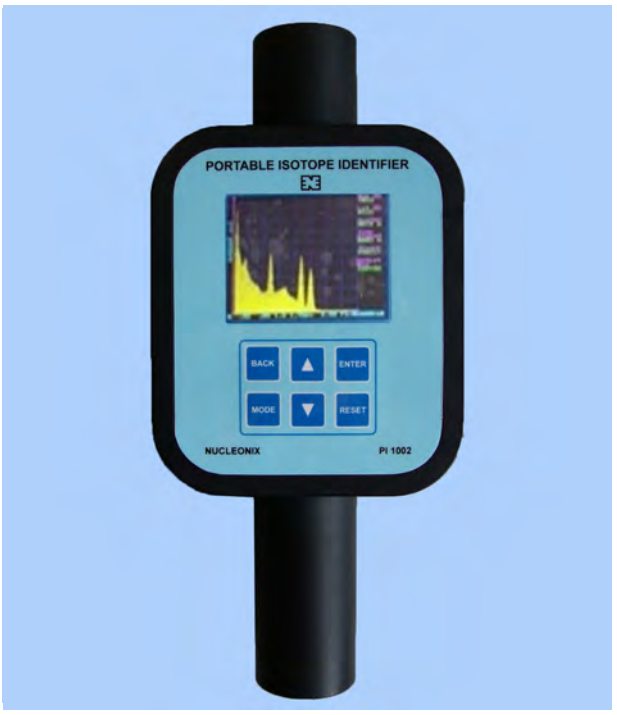
PORTABLE ISOTOPE IDENTIFIER

TYPE: PI 1002

Technical Data

PI 1002 with External Detector



PI 1002 with Internal Detector

FEATURES:

- Choice of built -in detector option with (1 1/2 " X 1 1/2 ") NaI crystal or external detector option with
- (2 " X 2 ") or(3" X 3")NaI crystal
- Meets IEEE N42.34 performance Criteria for the detection and identification of Radio nuclides.
- **Operational modes:** Identifier mode, MCA mode, Transfer stored spectrum mode, administration mode, dosimeter mode.
- **Zoom in, Zoom out** functions facilitate the user to focus on the region of interest.
- Powered by Internal 2X 5200 mAh Li-ion batteries, facilitates 15 hrs continuous operation.
- Built in 1k MCA, uses 18 bit SAR ADC, speed 400kSPS, Data length 32bit.
- Built in alarms facility :both visual and aural indication
- Doserate measurement in the range of 1µR/h to 1R/h or equivalent µSv/h
- Data storage :internal memory to store & upto 30 spectra.

Portable Isotope Identifier PI 1002 is primarily designed to detect and identify multiple nuclides. It provides quantified results using field strength analysis and stores the results and spectrum for future reference. The instrument can be operated in the **Identifier**, **MCA**, and **Dosimeter** modes of operation for data acquisition. This instrument performs all the tasks needed in the field survey for the detection & quantification of radioisotopes.

Administrative mode allows a person to see the internal configuration and settings of the instrument that are used for identification of radio isotopes.

This instrument has a simple user interface and a wide range of setup functions and utilities. It can be connected to a remote computer using a USB Serial cable, and can be accessed with any RS-232/USB program that allows the user to capture the file in *.txt format. It is then accessed with PHAST (quantitative analysis) software which provides full functionality of MCA (**M**ulti **C**hannel **A**nalyzer) analysis with all necessary options to do advanced offline analysis possible using MCA.

Isotope identifier facilitates connection to (2" x 2") / (3"x 3")NaI integral assembly external or built in to the unit for less than (1½" X 1½ ")detector size.

Built in electronics, consists of (0-1200V)@ 0.5A HV module, PMT bleeder circuit , Pre Amp, ADC, controller based data acquisition hardware with 3½ " color TFT- LCD display etc. It is powered by 7.4V, 5200mAh x 2, Li-ion battery pack. Additionally AC power adapter of 9V, 1500 ma, for battery charger is included.

Optional devices include: A personal computer / laptop and PHAST software.

SPECIFICATIONS

Detector Options

NaI (Options) : a) Built-in internal detector option with (1 1/2 " X 1 1/2 ") NaI Integral assembly
b) External detector option for (2 " X 2 ") / (3 " X 3 ")NaI Integral assembly

Bias : Integral HV supply from (0-1200V @ 0.5A) set to actual operating voltage. Calibrated for each detector module.

FWHM : 7.5% at 662 Kev for Cs-137 with NaI detector

Type : Active shaper
Gain : Adjusted internally
LLD : Through trim pot (internal)
ULD : Through trim pot (internal)

ADC

Type : 18-bit SAR
Speed : 400KSPS

Spectrum Conversion

Conversion : 10-bit
Data space : 32-bit/channel

System Controller

Processor : MSP430 CPU

Display : 320x240 high contrast 32000 color display.

I/O : USB /RS-232 port for computer connections with 9600-8 N-1configuration.

Clock : 8 MHz

Minimum detection time : 1 sec

Effective Operating range

Energy : 60 Kev to 3 Mev

Dose range : 10μR/hr to 1R/hr or equivalent μSv/h

GM tube Sensitivity : 1.5cps/mR/h

Operating Time

Normal operation : 15 hrs continuous operation with fully charged batteries

Charging time : 5 hours for full discharged battery

Modes of operation : (I) Identifier mode
(II) MCA mode
(III) Transfer data PC
(IV) Administrator mode
(V) Dosimeter mode

Library of isotopes : On board library is provided with 20 radio isotopes easily expandable

Minimum Alarm level Tested : 2.5μ Ci of Cs137 at a distance of 50cm with (2"X2") NaI detector in 20sec

Minimum Detection : 1 sec

Time Provided Display : 3.5" color TFT transflective LCD

Alarm indication Data : Both visual & aural

storage : Internal memory to store unto 30 spectra.

Use Interface : Thru five tactile function keys MODE, INC, DEC, ENTER & RESET

Power (Batteries) : Internal 2X 5200mAh Li-ion Batteries

External : 12V DC from external connector

Consumption : 3.7W

Charger

Type : External to instrument, 9.5V@ 1500 mA

NOTE: Manufactured by Nucleonix systems, based on B.A.R.C Technology