

NUTRONIC NT980 8 Position Gassless Alpha/Beta Counter

Introduction

The Nutronic NT980 is the first choice for counting large number of smear wipe samples or other low-level samples. With a 8-position high efficiency sealed gas proportional detector the NT980 can measure large amounts of samples in short times. The NT980 includes a panel PC with touch screen. User friendly software controls the measurement and displays the result. A detailed report of each measurement can be printed on a standard printer connected to the NT980.

Features

- Gasless alpha/beta counting system
- Detector efficiency and background count rate gives short measuring times
- 8 sealed proportional detectors
- Software for smear wipe samples with display in contamination units, activity or counts.
- Standard sample holder for 50 mm samples or direct insertion of smear wipes.
- 50 mm lead shield
- Detector can be accessed without removing the lead and is easy to clean
- Touch screen user interface



Application

Today's increasing need for contamination control means that more samples must be counted in less time. The NT980 8 position counter will increase sample throughput and make accurate measurement in less time. By measuring 8 samples at the same time in both beta and alpha mode the NT980 is a real time saver. The user friendly software includes measuring, report printing, a database and calibration routines.



Detector

The NT980 uses 8 permanently sealed proportional detectors. A guard detector that covers the entire area of the measuring detectors is positioned directly above the measuring detectors. By using anti-coincidence technology the background count rate is lowered considerably.

The foil is 2g/cm² mica. It can be cleaned with gentle wiping with a soft cloth

The detector package can be pulled out without removing lead bricks.

Operation

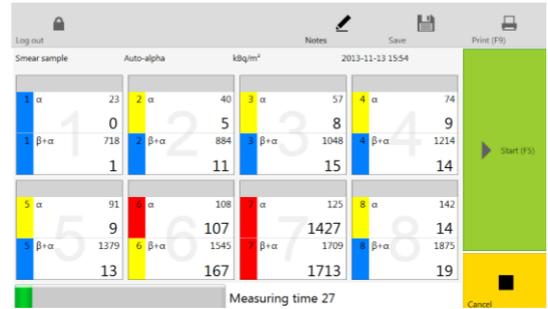
The NT980 is fast and easy to operate. Insert up to 8 samples, close the sample holder, press start in the Windows software and the measuring will start. The result is displayed directly in contamination units (Bq/cm²). The result can also be printed a printer connected to the computer.

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Measuring modes

The NT980 can be set to measure beta only, alpha and beta or beta with auto-alpha detection. This makes the instrument flexible and easy to adapt for different tasks.

In beta mode the measurement is performed on the beta plateau only. In alpha and beta mode the instrument will first measure on the beta plateau, then when the beta measurement is complete the detector bias voltage is lowered to the alpha plateau voltage and a new measurement is started. The alpha and beta results are presented separately on the display.



The NT980 touch screen user interface

In auto-alpha mode the instrument will always start to measure in beta mode. During the beta measurement the instrument monitors for pulses with high amplitude that are suspected alpha pulses. After the beta measurement, if high-amplitude pulses were found, the NT900 will lower the detector bias voltage to the alpha plateau level and make an alpha measurement.

Calibration and maintenance

Calibration is computer assisted and it is easy to set all parameters. An efficiency check can easily be done so the performance can be regularly checked.

Reports

The software allows user defined reports to be printed. The user can type a comment for each sample. All measurements are stored in a database that can later be searched.

Custom reports can also be made from scanned documents or created in office programs like Word/ Excel.

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Series name: 2014-11-25 11:19

User: Administrator

Measure type: Auto-alpha measurement

Sample type: Smear sample

Measuring time α :	2s	Alpha classification	Beta classification
Measuring time β :	2s	1 Blå 0 - 4	1 Blå 0 - 40
Removal factor:	10%	2 Gul 4 - 40	2 Gul 40 - 1000
Wipe surface:	0,01m ²	3 Röd 40 -	3 Röd 1000 -
Source efficiency alpha:	50%		
Source efficiency beta:	50%		

Serie no.	Alpha [kBq/m ²]	Alpha class	Beta + alpha [kBq/m ²]	Beta class	Note	Room no.	Sys. no.
1	284,90	3	320,58	2	Pump 123 under		
2	284,09	3	319,49	2	Pump 123 above		
3	283,29	3	318,40	2	Pump 123 right side		
4	284,90	3	320,58	2	Pump 123 left side		
5	284,09	3	319,49	2	Valve 124 under		
6	283,29	3	318,40	2	Valve 124 above		
7	284,90	3	320,58	2	Valve 124 left		
8	284,09	3	319,49	2	Valve 124 right		

Measured with Nutronic NT980 s/n 980
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Technical data NT980

Type of instrument

Counter for smear wipes or air filters.

Sample holder

Material: Aluminium
Standard sample size 50mm or direct insertion of smear wipes

Lead shield

Geometry: 4π
Thickness: 50 mm

Weight

Weight: 300kg

Environmental

Operating temperature: 10-40°C (50-104°F).
Operating humidity: 0-90% relative, non-condensing.

Power supply

Input voltage: 230 VAC
Input frequency: 50Hz

Background compensation

Anti-coincidence background compensation. Also for each cup the background is measured and stored. The stored background count rate is subtracted from the sample count rate and the net count rate is used to compute the measuring value.

Detector

Permanently sealed proportional detector.
Active window size: 43 mm
Window material: Mica
Window density: 2 mg/cm²
Background count rate: Beta mode <0,2 CPS
Alpha mode <0,003 CPS

Typical efficiency

Measuring geometry 2p according to ISO 7503-1.
Counting gas: Ar-CO₂ (80/20). Active diameter of reference source: 45 mm. The reference activity is the surface emission rate as specified by the source manufacturer. Measured efficiencies may vary because of source and geometry differences depending on the source manufacturer, cover material, backing material and source calibration method.

Beta emitters	Eff. [%]	Ebmax [keV]
Co-60	35	318

Alpha emitters	
Am-241	30

Applicable standards

The NT900 adhere to the following international standards: IEC 325 Alpha, beta and alpha-beta contamination meters and monitors. ISO 7503-1 Evaluation of surface contamination. ISO 8769 Reference sources for the calibration of surface contamination monitors. ISO/FDIS 11929-1 Determination of the detection limit threshold for ionising radiation measurements.

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