



Innovator In Spectroscopy Equipment

SPECT2113 ANAYSIS



Radionuclide library:

NORM: ^{40}K , ^{232}Th , $^{\text{nat}}\text{U}$

SNM: ^{233}U , ^{235}U , ^{27}Np , Pu

INDS: ^{57}Co , ^{60}Co , ^{133}Ba , ^{137}Cs , ^{192}Ir , ^{204}Tl , ^{226}Ra , ^{241}Am

MED: ^{67}Ga , ^{51}Cr , ^{75}Se , $^{99\text{m}}\text{Tc}$, ^{103}Pd , ^{111}In , ^{123}I , ^{125}I , ^{131}I , ^{201}Tl , ^{133}Xe

Specification

DRR: 0 to $500\mu\text{Sv/h}$

E. Range: 20-3000 keV

RES: 6.9% @ ^{137}Cs

CV%: Meet ANSI N42.33-2006, CEI/IEC 1239



DIGITAL PORTABLE SPECTROMETER MODEL SPECT2113

www.cfp.co.ir



CATALOG



SPECTROMETER



FREE

DIGITAL PORTABLE SPECTROMETER

MODEL SPECT2113

Features

- High efficiency in
- One-hand operation
- KML output for GIS software
- Large full color 4.3inch display
- 2D and 3D radioactive mapping
- NaI(Tl) detector, 103cm³ (6.3in³)
- Extreme sensitivity to gamma-rays
- On-line and expert mode operation
- Unique Full Spectra Analysis method
- Audio output with the adjustable threshold
- Analysis mode many identifiers
- GPS data for absolute timing and location data
- Continuous operation under severe environmental conditions
- Automatic logging of scan data with GPS-referencing for further analysis
- Digital measurement path temperature compensation
- Internal GPS integrated
- Auto-stabilizing on naturally occurring radio elements
- Ready for field operation Configuration menu Date and time menu
- Typical 5 hours' battery life at 20°C with external battery pack life 10 hours
- Recording and storing measurement result and spectra in memory
- Capability of connecting to PC over USB or Bluetooth interface for data transfer
- Special rugged design to withstand typical field usage,
- Waterproof against streaming water and fully dust protected
- Light Weight 4.5lb. (2.04kg) including batteries
- No radioactive sources required for proper operation
- Low power (31W Li-ion battery)

FAST AND ACCURATE RESULTS VIA FULL SPECTRA ANALYSIS METHOD



Description

The SPECT2113 Scintillometer from Control Farayand Pasargad (CFP) is the state-of-the art portable hand-held radiation survey meter device for using in the geophysical industry, health physics, homeland security industries, etc. It offers an integrated design with a NaI(Tl) detector for high sensitivity, direct survey readout, audio output, full weather protection, ease of use and highest sensitivity in the market segment. In addition, it has optional Bluetooth (BT) connectivity providing for wireless connection to a Bluetooth equipped external earphone or computer.

The spectrometer is auto-stabilized on the naturally occurring radioactive materials (K, U, & Th) and does not require any test sources. This convenient handheld instrument offers the equivalent performance of much larger, and costlier, portable units. Because of utilizing full spectra analysis method SPECT2113 presents half relative uncertainty in analysis results in comparison to the other devices with the same crystal size.

Survey and Scan Modes

Total Count Readout is 1x/sec rate in the Survey Mode or can be adjusted (1 - 20 sec) in the Scan Mode. The unit has an integrated mapping capability using an internal GPS that is integrated via Bluetooth. This scan capability enables the users to move through a large area with the unit recording data at typically a one reading per second rate with GPS location. Companion software then permits a map to be made with high precision in the positioning of data points. When used with a GPS receiver, data can be stored and profiles are produced which is ideal for both area surveying and drilled core.

Assay Mode

The Assay and analysis mode provides the concentrations of many radionuclides as shown in the display below. The sample time is selected by the user from 30 seconds and up; in most cases 120 seconds 1s sufficient. In Assay mode the complete 1024 channel sample spectra and the results of the calculation of concentrations (plus position data if available) are stored for later retrieval. The user can select the desired sampling time.

On-fly-assays

In Scan mode, the user can select the scan data rate for recording assays together with total counts. These on-fly assays do not store complete spectra but only the average assays over the scan period.

Specifications

Input(s)
Power Jack
19V (2A) DC adaptor
USB

5V DC for PC communication	
Output(s)	
No output signal	
Control(s)	
Power	
Power push button to turn PC on or off	
Function Key	
Four push button function key (thumb activated)	
Indicator(s)	
power	
Power on indicator	
Battery status in 3 color (red, orange, green)	
Ring	
Green ring	
Alarm	
Audio via miniature speaker, Variable audio threshold set point and Audio voice proportional to the count rate	
Logo	
CFP logo indicator (full color)	
Display	
Large Full Color Graphic LCD	
4.3", 800 x 480 pixels	
Full color touch LCD display	
Easily view log files with no need to connect to a computer	
Performance	
Resolution	
<7.5% FWHM @ 662 KeV	
Count Rate	
Maximum 500,000 CPS	
Readout	
Search Mode	Counts in CPS from 0 to 500k and Hist 32bit x 4096
Assay mode	Display in radionuclides Id (ROIs according to IAEA)
Gamma Sensitivity	
1CPS equal 0.5 nSv/h	
Energy Response	
20 - 3000 KeV	
Internal Sampling	
20 /second	
Coefficient of Variation (CV)	
3.80% @ 150 CPS	
1.94% @ 500 CPS	
1.23% @ 1500 CPS	
0.50% @ 5000 CPS	
0.49% @ 15000 CPS	
Detector	
gamma	
NaI(Tl), 2" x 2" (\emptyset x H) cylindrical	

PMT
14-pin 10-stage PMTs
Data Acquisition and Analysis
OS
Built in Windows 7 or higher versions
Software
SPECT2113 (SOFTWARE)
Measurement/Spectrum
High Voltage
0-2000V, Positive, 12 Bit resolution
Energy Calibration
Linear calibration
Auto-calibration
Auto-stabilization
ROI Selection
4 ROIs to select on store
Spectrum Type
cumulative spectrums
ADC
Channels
12bit in 4096Ch @80Mhz FRQ
Conversion time
250nsec with 12.5nsec time interval
Digital Signal Processing
12-bit and 80 MHz ADC
Charge sensitive preamplifier gain:10 – 150mv/pc (selectable)
Amplifier coarse gain: (x1 to 150x) in 15 step
Amplifier fine gain: (0 - 2x) in 65536 step
Integration time filter for the energy calculation with software adjustable rise time in the range 0 to 0.819ms @80Mhz in 0-65536 step
Trigger threshold software adjustment (0 to 100% scale) in 1024 step
Software fine tuning of the Pole-Zero cancellation
Software gain stabilization
Pile-up rejection and Live Time correction
Baseline restorer with programmable averaging
Battery
Standard
Internal battery pack module (3 cell Li-ion)
Rechargeable Life: over 5 hours at 20°C in full performance
Backup
Backup battery pack kit (4 cell Li-ion)
Life: over 5-6 hours at 20°C in full performance
Device
10 hour Standard and backup battery life
Memory
Huge 40GB SSD

Storage unlimited Total Count, Scan, Assay, plus full spectrum in 32bit × 4096

Certificate

CE

Compliant to IEC 61010-1:2010

This Certificate of Compliance can be checked for validity at <https://cfp.co.ir/download.ashx?file=Digital-Portable-Spectrometer-SPECT2113-CE.pdf>

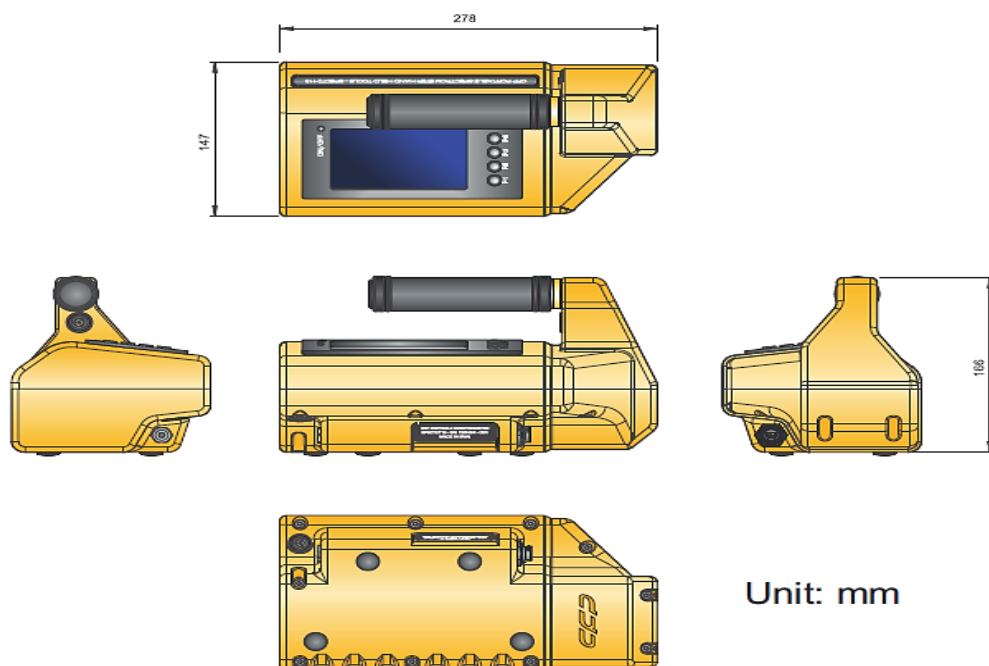
Application

- Core scanning
- Laboratory assays
- Baseline surveying
- Emergency situations
- Dose rate measurement
- Radioactive waste control
- Customs and border control
- Accurate inspection of lading
- Nuclear medicine and industry
- Safe disposal of nuclear waste
- Unattended/Remote Monitoring
- Environmental waste monitoring
- Healthcare (thyroid scan and ...)
- Port and Border Law Enforcement
- Radiation monitoring and mapping
- Exploration for Uranium and Thorium
- Artificial radiation sources identification
- Radiation monitoring in building industry
- Scientific Research and Research activities
- Radioactive sources and materials traffic control
- Geological and raw material survey (uranium ore)
- Determination of concentrations of natural radioactive elements (K %, U and Th ppm)
- Construction material and products radiation monitoring Absorbance, Reflectance & Transmission



Electrical, Mechanical and Environmental

Power required	
Standard version +19V (2A) DC adaptor	
Physical	
Dimensions	package style: 45 x 35 x 20 cm (L x W x H) spectrometer: 27 x 15 x 10 cm (L x W x H)
Weight	without batteries: 1.8kg with batteries: 2.04kg Shipping: 5kg
Storage temperature	-20°C to 50°C
Operating temperature	-10°C to 45°C.
Relative Humidity	10 to 80%



SPECT2113-Mechanical

Software and user interface

Device GUI

SPECT2113 can be used standalone using the companion 4.3inch display. In the following we see the most important window in the device GUI.

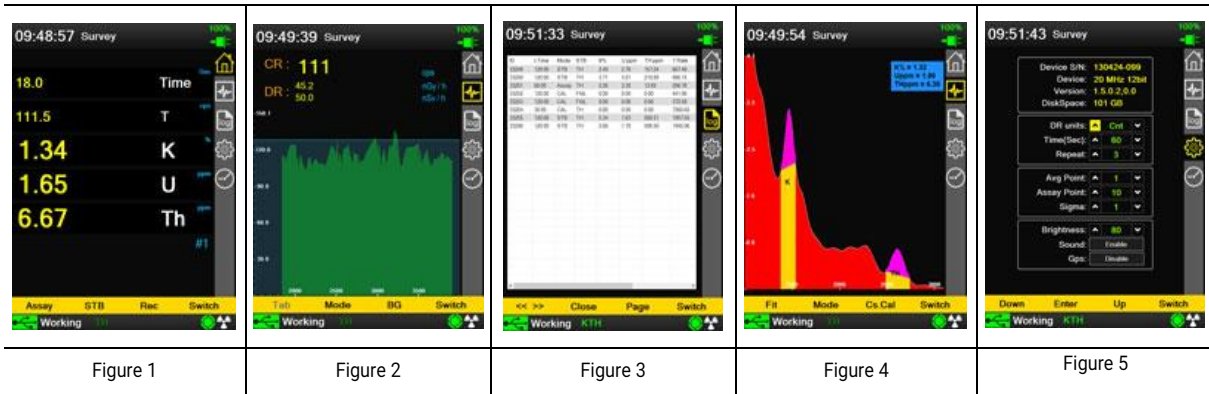
Figure 1: MAIN panel (توضیح نوشته شود)

Figure 2: SPECT panel (توضیح نوشته شود)

Figure 3: LOG panel (توضیح نوشته شود)

Figure 4: GPS panel (توضیح نوشته شود)

Figure 5: DATE & TIME panel (توضیح نوشته شود)



SPECT2113 GUI

PC software

SPECT2113 (SOFTWARE)

The SPECT2113 is provided with utility software to download the data that is stored in memory. All data in the memory can be handled via USB to the SPECT – Analysis program on a PC in the form of 4096 channel spectra, data or Scan data +GPS. The program also gives graphical and numerical views of the data. The data can also be re-exported as a text file for further processing.

Input /Output (Using supplied CFP-Analysis software)

USB

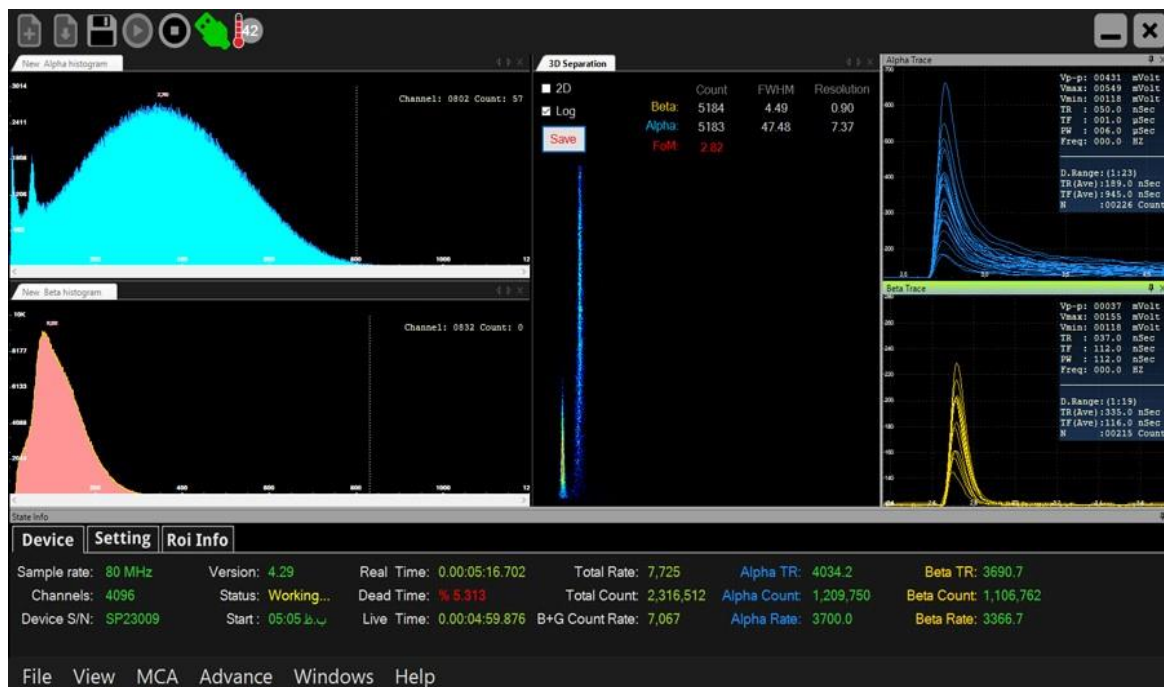
Internal GPS

External Bluetooth GPS receiver (OPT)

Wi-Fi (OPT)

Data Output formats








CSV, TXT, MCA, KML, XLS, LOG



Software main window

Ordering info

Standard package includes

Part #	Image	Description
SPECT2113		Portable digital spectrometer NaI(Tl) crystal 2"x2" Includes the main body of device (detection system, linear stage, integrated display)
ACCE2113001		CD user guide (1 Pack)
ACCE2113003*		Guaranty (one year)
ACCE2113007		Hard case with foam insert
ACCE2113010		Car kit battery charger (1 Pack)
ACCE2113011		One battery charger (1 Pack)
ACCE2113013		Cable USB 2.0 (A) to Mini USB (B) Cable (1 Pack)

* =we stand behind our products. We guarantee your satisfaction in the quality of our instruments by providing a complete one-year warranty covering any defect of workmanship, material, and/or design. If our products do not perform, we will provide complete repair and/or replacement. for guaranty conditions, please refer to manual device (SPECT2113- Manual)

Optional accessories and services

Part #	Image	Description
ACCE2113004		Installation
ACCE2113005		Training
ACCE2113006**		Re-Calibration (Interval) services. 1year factory maintenance suggested, not required.
ACCE2113007		Hard case with foam insert
ACCE2113014		Backup battery with charger
ACCE2113015		Screw type waterproof USB 2.0 connector IP67 (1 pack)

** = The proper maintenance & calibration of your instruments is critical to ensure proper performance & accuracy. for Re-calibration (Interval) services, please call with CFP company (021- 46045383)



Innovator in Spectroscopy Equipment



Unit 10, No 64, Vahedi
(7) St, After Punak Sq,
Ashrafi Esfahani Expy,
Tehran, Iran



+98 (21) 46045383

w w w . c f p . c o . i r