DGRS2010

Windows

DESKTOP GAMMA RAY SPECTROMETER MODEL DGRS2010

Innovator In Spectroscopy Equipment

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CATALOG   α β γ χ SPECT SPECTROMETER   FREE DOWNLOAD

DESKTOP GAMMA RAY SPECTROMETER
MODEL DGRS2010

Features

- High efficiency
- Single-block design
- High spectral resolution
- Ideal for embedded systems
- Very linear photomultiplier(PMT)
- Extreme sensitivity to gamma-rays
- Unique Full Spectra Analysis method
- 6.5% FWHM (typical) at 662keV (NaI-crystal)
- NaI(Tl) or CsI(Na), BGO detector in 4 crystal size (OPT)
- Laboratory spectrometer with special detectors and features
- Compact version of the handheld gamma-ray spectrometer
- Portable gamma-ray spectrometer for surface and borehole measurements
- 2″ x 2″ (STD version) or 40mm x 40mm, 63mm x 63mm, 3″ x 3″ crystal size (OPT)

- Easy to use
- Digital Stabilizer
- Digital gain Adjustment
- Ready for field operation
- Digital temperature sensor
- On-line and expert mode operation
- Full computer control of every function
- Excellent electrical shielding and robustness
- Low-power embedded high voltage supply and MCA
- Special rugged design to withstand typical field usage
- Waterproof against streaming water and fully dust protected
- Continuous operation under severe environmental conditions
- Convenient, single-cable connection for most applications
- Capability of connecting to PC over USB and Ethernet for data transfer

FAST AND ACCURATE RESAULTS VIA

FULL SPECRA ANALYSIS METHOD

Description

The DGRS2010 from Control Farayand Pasargad (CFP) is a compact and portable system for gamma ray spectroscopy with analytical functionality. The DGRS2010 consists of detection system, a CFP multichannel analyzer, an integrated high voltage generator and divider to power the photomultiplier (PMT). It plugs directly onto the PMT and can be powered and controlled via an Ethernet or USB connections. The system includes an ARM-9 processor for Ethernet communication, autonomous data acquisition, and local data analysis

The high voltage divider can deliver 50μA DC current and 10mA pulse current to the PMT anode while maintaining excellent gain stability.

DGRS2010 makes easy the measurements with scintillation detectors, such as NaI(Tl), CsI(Tl), LaBr3(Ce) and CeBr3, with no need of additional cables and has been designed to work stand-alone, with no need of additional devices, nor human assistance. Its socket and voltage divider can supply standard 14-pin and 10-9-8 stage PMTs.

Specifications

Input(s)
USB port
DC +5V USB (200mA) type mini B
LAN port (optional)
Power over Ethernet (PoE)
Output(s)
No output signal
Control(s)
USB port
Setting configure via USB cable
LAN port (optional)
Setting configure via LAN cable
Indicator(s)
No indicator
Performance
Resolution
< 6.5% FWHM @ 662 keV (NaI, 40mm x 40mm)
< 6.5% FWHM @ 662 keV (NaI, STD version)
< 7-8% FWHM @ 662 keV (NaI, 63mm x 63mm)
< 7-8% FWHM @ 662 keV (NaI, 3" x 3")
< 6-7% FWHM @ 662 keV (CsI, 40mm x 40mm)
< 6-7% FWHM @ 662 keV (CsI, 2" x 2")
< 7-8% FWHM @ 662 keV (CsI, 63mm x 63mm)
< 7-8% FWHM @ 662 keV (CsI, 3" x 3")
< 8-9% FWHM @ 662 keV (BGO, 40mm x 40mm)
< 9-10% FWHM @ 662 keV (BGO, 2" x 2")
< 9-10% FWHM @ 662 keV (BGO, 63mm x 63mm)
< 10-12% FWHM @ 662 keV (BGO, 3" x 3")
Count Rate
Maximum 250,000 CPS
Energy Response
20 - 3000 keV
Internal Sampling
100 /second
Detector
gamma
Standard detector: NaI (Tl), 2"x2"
Custom detectors available, including:
NaI (Tl): 40mm x 40mm, 63mm x 63mm, 3"x3" (OPT)
CsI(Na): 40mm x 40mm, 2"x2", 63mm x 63mm, 3"x3" (OPT)
BGO: 40mm x 40mm, 2"x2", 63mm x 63mm, 3"x3" (OPT)
PMT
14-pin 8-stage PMTs
14-pin 9-stage PMTs (OPT)
14-pin 10-stage PMTs (OPT)
Data Acquisition and Analysis
OS
Built in Windows 7 or higher versions
Software
DGRS2010 (software)
Measurement/Spectrum
High Voltage
0-2000V, Positive, 14 Bit resolution
Energy Calibration
Linear calibration
Auto-calibration
Auto-stabilization
ROI Selection
4 ROIs to select on store
Spectrum Type
ADC
Channels
12bit in 4096CH @80Mhz FRQ
Conversion time
250nsec with 12.5nsec time interval
Digital Signal Processing
12-bit and 80MHz 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

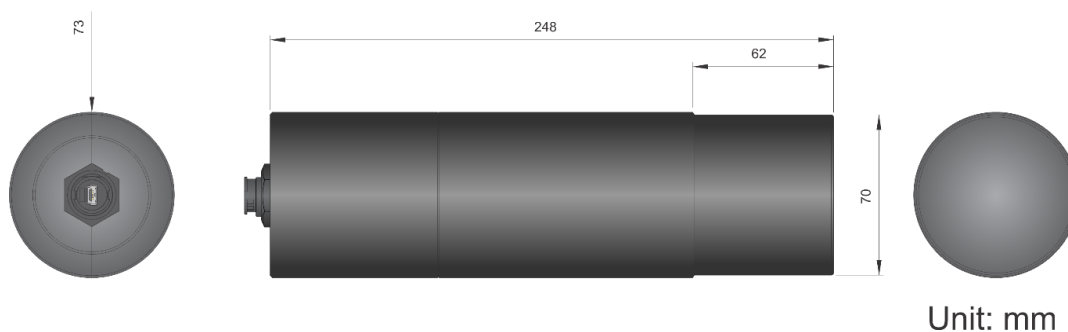Baseline restorer with programmable averaging

Applications

- Natural radiation measurement
- Artificial radiation sources identification
- Identify radioactive materials
- Laboratory measurements for spectroscopy systems
- Detection of radioactive materials in the environment and Laboratory

- Teaching and research
- Accurate inspection of lading
- Surveying the radiation level in radioisotope
- Research in materials
- Health Physics

This device converts easily into a portable spectrometer by connecting to a Laptop

Electrical, Mechanical and Environmental

Power required	
5V (150 mA) DC USB port	
Power consumption	
200mA to 400mA at 1000V depending on ADC and speed	
Physical	
Dimensions	package style: 70mm x 248mm (Ø x H) STD version
Weight	662 to 3156 gr STD version, depending on size and type of crystal
Storage temperature	-20°C to 60°C
Operating temperature	-15°C to +50°C
Relative Humidity	10 to 80%

Unit: mm

DGRS2010-Mechanical

Software and user interface

PC software
DGRS2010 (software)
Input /Output (Using supplied Analysis software)
USB
LAN (OPT)
Data Output formats
CSV, TXT, MCA, KML, XLS, LOG

Software main window

Ordering info

Standard package includes

Part #	Image	Description
DGRS2010-NaI(Tl) 2" x 2"		Desktop gamma - ray spectrometer Includes the main body of device (NaI(Tl) crystal 2" x 2" , HV, MCA, ...)
ACCE2010001		CD user guide (1 Pack)
ACCE2010003*		Guaranty (one-year)
ACCE2010010		Cable USB 2.0 (A) to mini USB (B) Cable

* = 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 (DGRS2010- Manual).

Optional accessories and services

Part #	Image	Description
ACCE2010004		Installation
ACCE2010005		Training
ACCE2010006**		Re-Calibration (Interval) services. 1year factory maintenance suggested, not required.
ACCE2010007		Hard case with foam insert

ACCE2010011		2m cable USB 2.0 (A) to mini USB (B) cable IP68 (1 pack)
ACCE2010012		LAN cable
ACCE2010013		USB to USB extenuation Cable 10,15, 20, 30 meters
DGRS2010-NaI(TI) 40mm x 40mm		NaI(TI) detector, 40mm x 40mm
DGRS2010-NaI(TI) 63mm x 63mm		NaI(TI) detector, 63mm x 63mm
DGRS2010-NaI(TI) 3″ x 3″		NaI(TI) detector, 3″ x 3″
DGRS2010-CsI(Na) 40mm x 40mm		CsI(Na) detector, 40mm x 40mm
DGRS2010-CsI(Na) 2″ x 2″		CsI(Na) detector, 2″ x 2″
DGRS2010-CsI(Na) 63mm x 63mm		CsI(Na) detector, 63mm x 63mm

DGRS2010-CsI(Na) 3″ x 3″		CsI(Na) detector, 3″ x 3″
DGRS2010-BGO 40mm x 40mm		BGO detector, 40mm x 40mm
DGRS2010-BGO 2″ x 2″		BGO detector, 2″ x 2″
DGRS2010-BGO 63mm x 63mm		BGO detector, 63mm x 63mm
DGRS2010 BGO-3″ x 3″		BGO detector, 3″ x 3″

** = 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)

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