

METRISI 1.0

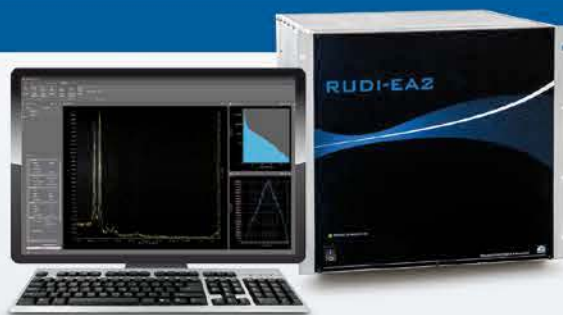
XPS/UPS/ARPES/AES/ISS CONTROL SYSTEM PACKAGE

PRECISION AND VACUUM TECHNOLOGY

THE METRISI CONTROL SYSTEM

The Photoelectron Spectroscopy (PES) Package of the **Metrisi Control System** comprises high quality electronics with a user-friendly software interface for photoemission applications.

SPECTRIUM Software
RUDI- EA2 Electronics



The **Metrisi Control system** provides all the functions for fundamental photoemission spectroscopy applications, in particular X-ray Photoemission Spectroscopy (XPS), Ultraviolet Photoemission Spectroscopy (UPS), Angle-resolved Photoemission Spectroscopy (ARPES), Ion Scattering Spectroscopy (ISS), Auger Electron Spectroscopy (AES).

State of the art hardware performance and interactive scan control with **intuitive navigation** of the **multitasking process**, configurable graphs, data logger, scan grid etc. of the graphical user interface.

The control system package with a faster control system offers superior performance due to **a smarter electronics**, and a powerful and **customisable user interface** for the most sophisticated scientific research today.

Metrisi package is compatible with TANGO.

For more information see www.tango-controls.org

The Metrisi control system package consists of the electronics and software to operate the PREVAC-EA15 analyser and others analysers with detector.

SPECTRIUM SOFTWARE

INNOVATIVE USER INTERFACE FOR PES

The SPECTRIUM is based on the novel developments in techniques and signal processing.

The user can define the range of voltage (low and high pass) without any manual changes from the level software. The **PES** and **ISS** mode can be set from the SPECTRIUM software. The SPECTRIUM consists of a spectrometer control panel for lens mode, energy settings, step time etc.

Moreover data acquisition in the 1D, 2D and 3D is included. The SPECTRIUM file format for sequence and region scans can be exported to many formats and the most of the processing software as **CASA XPS**, **IGOR**, **ORIGIN** opens SPECTRIUM files.

Interactive scan control

The SPECTRIUM software design has been optimised for more efficient workflow, resulting in a streamlined and simpler design. The control module is interactive and dynamic allowing adaptation of parameters to customer's needs.

All scan parameters can be adjusted on-the-fly without delay during scanning, and it is possible to zoom, navigate and paste scanned spectra to the background for reference. Any of the parameters can be displayed in multiple windows.

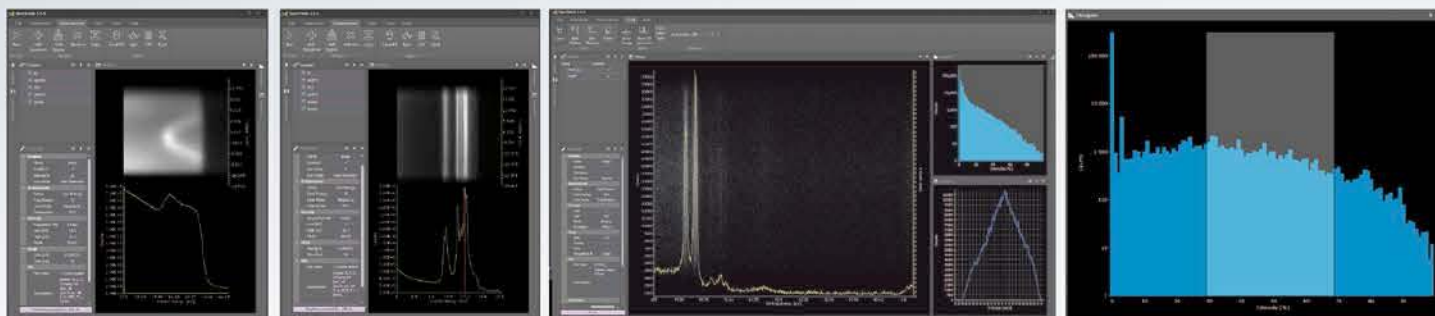
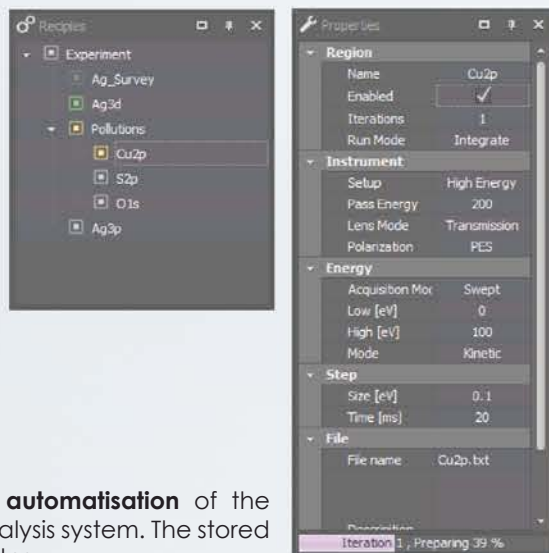
The user has online access to the CCD detector to configurate channels.

Experimental Automation Modules

In most complex measurement Spectrium with RAPID SE offers a **fully automatization** of the measurement processes. User can define any configuration for the entire analysis system. The stored data includes all experimental parameters and devices with all logs and notes.

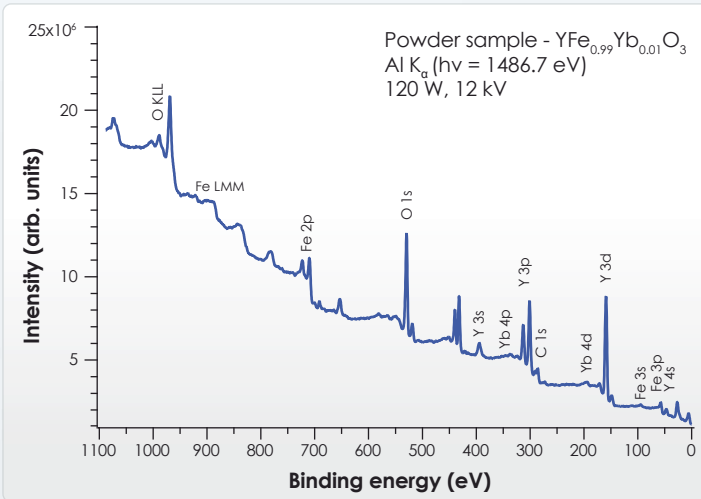
Advanced 2D and 3D spectroscopy

Advanced spectroscopy module allows for experiments at a point, along a one of direction, or a maps mode.

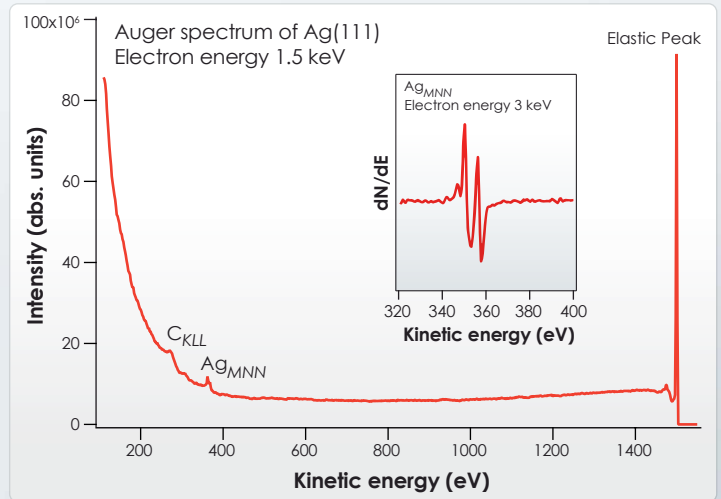


High quality spectra

User can use the SPECTRIUM software for many experimental techniques for any research. It can measure high quality spectra.



XPS survey spectrum of photovoltaic material



AES spectrum of Ag(111)

Spectrum - Software	
Operating system	Windows 7/8/10, 64 bits recommended
Recommended configuration	Intel i5 2.6 Hz or equiv., 8 GB RAM, 500 GB HD, one 21" screen with at least 1280 x 1024 pixels, Windows 7 64 bit
Documentation	Online help, F1 for context sensitive help, printed hardware user manuals with operation instructions for related software modules

RUDI-EA2 ELECTRONICS

HIGH CLASS COMPONENTS IN-USE

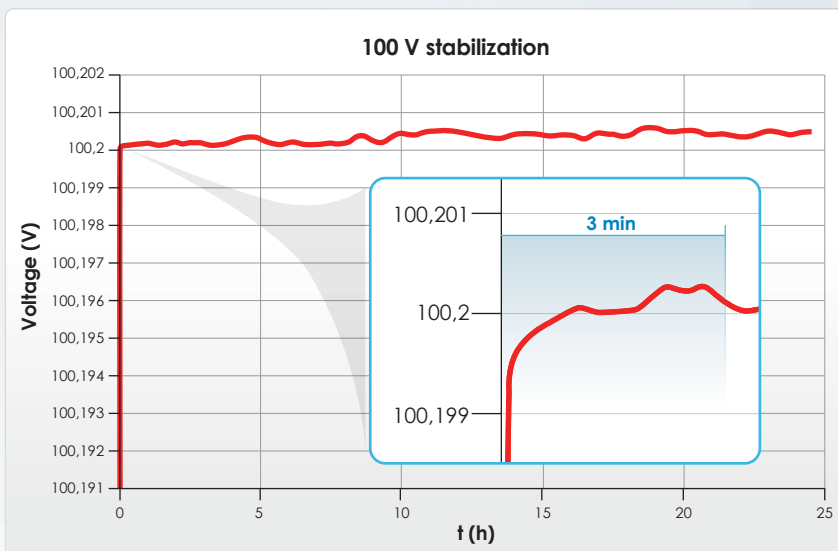
As the demand for smarter technologies, PREVAC provides **the best** in class electronic solution. Mainboard of the RUDI-EA2 is a showcase for the best active digital and analog electronic components on the market.

Flexibility for the user

RUDI-EA2 Research Unit Digital Instrument presents a novel high a supply for the photoemission and other different applications. The electronic has independent calibrated modules. The voltage is controlled by high precision 16-bit digital-to-analog converters with the **high** linearity, and

extremely high temperature stability. Electronic is equipped with an automatic settings range from the low up to high voltages controlled by the software. **The voltage output polarity can be changed via software control only - no extra hardware operation is needed.**

Special techniques have been used to achieve **rapid** temperature stabilisation. After 3 minutes from turning the units on, RUDI-EA2 achieves full stability and is ready to work with.



- Measurement noise < 200 μ V
- Each independent voltage module achieves temperature stability below 0.5 ppm of the voltage span per degree Celsius.
- Using 16 bit AD converters 6 kV power supplies can be set with resolution of 1,6 mV within noises on maximum level of 200 μ Vp-p.
- All of the modules of the unit can be controlled separately by EIA 485 2 wire interface.
- Each of the integrated HV modules have floating output. Such a solutions **extremely** extend configuration possibilities and leads to a very universal unit - serial configuration is unlimited.

The combined high specification and system flexibility makes RUDI-EA2 the obvious choice for many analysis applications, where stable, high voltage supplies are required and can also be readily configured by the end user. Each RUDI-EA2 unit is supplied with a comprehensive serial communication protocol description which can be easily implemented for individual control needs, thus removing the reliance on specific, often prohibitive supplier software.

RUDI-EA2 Specification	
Maximum number of modules in 9U rack	28 of all modules chosen from DAC and HV
High voltage modules	Different version up to 6 kV, bipolar, floating output
DAC modules	High Precision 16 bit +/-12,5 V
Insulation	All HV and DAC modules have full insulation 6 kV to power and ground
Temperature stability	<0,5 ppm/°C for all modules
Module dimensions	3U (128 mm) x 12HP (40 mm)
Hardware interface	EIA 485 2 wire 460 Kbit/s
Communication protocol	PREVAC protocol with checksum control. Protocol specification is included
External Interlock	Active when the contact is closed
Power supply	110-260 V 50/60 Hz, max. 200 VA, depends on modules number
Operating temperature	+5 °C to +35 °C
Rack dimensions	Rack 9U height, 84HP width, W x H x D (483 x 395 x 360) mm
Weight	Approx. 18 kg (for ~20 modules)

High Voltage modules		
Modules	Output voltage	Maximum output current
HV 100V	~0 – 100 V, 16 bit, step size ~1,6 mV	~600 µA
HV 600V	~0 – 600 V, 16 bit, step size ~9,2 mV	~300 µA
HV 600/100V	Low range ~0 – 100 V, 16 bit, step size ~1,6 mV High range ~0 – 600 V, 16 bit, step size ~9,2 mV	~300 µA
HV 1900/100V	Low range ~0 – 100 V, 16 bit, step size ~1,6 mV High range ~0 – 1900 V, 16 bit, step size ~23 mV	~200 µA
HV 2200V	~0 – 2200 V, 16 bit, step size ~34 mV	~150 µA
HV 4000V	~0 – 4000 V, 16 bit, step size ~61 mV	~100 µA
HV 6000/600V	Low range ~0 – 600 V, 16 bit, step size ~9,2 mV High range ~0 – 6000 V, 16 bit, step size ~92 mV	~100 µA

- Any other voltages up to 6000 V available on request
- **High linearity** controlled with an accuracy of 16 bits
- **Up to 28 modules** fit into 9U rack
- Voltage deviation calculated with two-point calibration at min and max voltage
- Maximum non-linearity over the range of 100 V is **~0,2 mV**

DAC modules	
Output voltage	0... +/- 12.5V
Precision	16 bits
Step size	200 µV
Protection	Surge protection 23 kV



Metrisi 1.0 Control System Package

Content of delivery: Electronics RUDI-EA2, Software SPECTRIUM and licence, unlimited updates and support for one year

Operating temperature: +5 °C to +35 °C

Warranty: 12 months



If you need any further information, please do not hesitate to contact our sales department



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