



PHOTRON-X GmbH, Laboratory Instruments & X-Ray Analytical Services

Short Product Information: Phoenix



Phoenix is worldwide the first data acquisition for x-ray detection systems with real **USB 2.0** High-Speed Interface. It can be directly connected to any digital interface from ADCs (Analog-to Digital Converter) or TDCs (Time-to Digital Converter), as well as to 1D-detectors like the 'PSD 50M' from MBraun/Hecus, or the improved successor '**MioStar I**', Photron-X, Germany. Phoenix includes easy-to-use, graphic oriented software, combined with the power of a modern, high-speed data acquisition system. The hardware is available in a standard 19" system case or a NIM plug-in module. For installation there is no need to uncover the computer!

USB 2.0 guarantees high data throughput (480MBaud) as well as the automatic detection of attached devices (Hot Plug and Play). Moreover USB has developed as worldwide standard in computer industry, which is **independent of the operating system**. Drivers for Windows (Win98/Me and higher, NT, XP, 2000), Linux, Solaris are available.

Phoenix, however, is not only a data acquisition system, as it comprises the complete supply (**Power-, Gas- and HV-Supply**) for operating the detector. The **external rate meter** with LED bar-like display provides easy reading even during daylight.

The software has been carefully designed to match the hardware properties and quickly allows all kinds of adjustments. An on-line display of acquired data enables fast identification of specific experimental situations. For deeper analysis of acquired data, numerous mathematical tools are available.

The entire control of measurements can be managed from outside (e.g. from a time-frame generator). The end of an acquisition is indicated with an output trigger or by a relay switch. Therefore it is quite simple to integrate Phoenix as stand-alone device even in sophisticated environments.

Despite the low price, technical data of Phoenix are excellent. State-of-the art components in their latest production technologies enable fast and precise detection, e.g. with the 'Mio-Star I' X-ray detector.



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SUMMARY OF FEATURES AT A GLANCE

Real USB 2.0 High-Speed compliant plug and play, stand-alone device

- Device can be connected and disconnected to/from any computer during operation, even during active data transfer
- Measurements can be controlled also via USB 1.1 Full-Speed interface; data transfer will be disabled
- Low utilization of computer resources: device drivers are only loaded when a device is attached and unloaded again as soon as it is disconnected
- Stand-alone device: no download of firmware after power-on necessary as it is permanently stored in the internal flash memory of the μ Controller

Computer independent operation

- PC-free operation: all necessary parameters and settings are stored in EEPROM; it is possible to start a measurement with one computer and continue with another PC
- No licensing of software: installation on several computers (e.g. Notebooks, Laptops,...) possible

Pre-programmed automated series of measurements

- Up to 255 multiple subsequent acquisitions without computer; data are stored on 512kByte or 1MByte SRAM in the Phoenix-board
- Controlled by a 'Protocol'-file (text-file for easy editing) and/or input trigger signal
- Easy synchronization with peripheral devices with programmable output trigger signal (transition at the start and the end of a single acquisition) and relay switch (active open and/or active closed)

High Precision Analog-to-Digital Converter

- 14-bit ADC with 'no missing codes guaranteed' and 78dB signal-to-noise ratio
- ± 1.5 LSB max. Nonlinearity (INL); ± 1 LSB max. Differential Nonlinearity (DNL)

External Rate-Meter

- Displays actual rate in bar-like display in log-scale from 100Hz to 100 kHz or 1MHz
- Adjustable gating times: from 10ms to 100ms

High-Voltage Control and/or Supply for X-Ray Detectors (option)

- High-Voltage Control: in combination with an external HV-module (from 0V to 3V DC)
- High-Voltage Supply: software adjustable HV-supply from 0V to 5000V DC with direct reading on the front-side of the module

Smart Gas Supply (SGS) for X-Ray Detectors (option)

- Easy-to-go: gas flow-rate is factory adjusted to save installation time and costs