

DDX 9121b

Partial Discharge (PD) &
Radio Interference Voltage
(RIV) detector

Datasheet



HAEFELY

Current and voltage – our passion

Designed by



General Description

The DDX 9121b is a fully digital state-of-the-art high-performance PD (partial discharge) and RIV (radio interference/influence voltage) detector.

The DDX 9121b is modular and fits a wide range of PD detection applications. 1~ 9 simultaneous and 4 ~36 non-simultaneous measuring inputs are possible. Conventional partial discharge measurements according to the latest IEC 60270 or RIV measurement, PD under DC and PD cable site location (SL) are covered. Pass/Fail test or Phase Resolved PD (PRPD) analysis are possible as well.

1 to 9 stackable unit(s) communicate with a remote software, which handles data acquisition and display of PD information, test results and generates reports.

The DDX 9121b increases the laboratory sensitivity as it is equipped with digital filters allowing the measurement frequency band to be shifted into a less noisy range and suppressing frequency dependent noise. In addition, there are gating (windowing) possibilities to blank out static interferences.

The reports can be printed out or displayed as a web page (XML format). Users can also export results to a CSV file. Software also provides screenshots function for inclusion in other reports.

Features	Advantages
<ul style="list-style-type: none"> ▪ User defined measuring band ▪ Unique combination of analog and high order digital filters ▪ High resolution spectrum analyzer with oscilloscope 	<ul style="list-style-type: none"> ☑ Reduced ground noise – The built-in frequency spectrum analysis and selectable frequency band let the user optimize the setup quick and easy.
<ul style="list-style-type: none"> ▪ Modular design, 1 to 9 detectors ▪ Easily upgradable ▪ Embedded switch with four PD inputs per detector (optional) 	<ul style="list-style-type: none"> ☑ Optimized investment - Unit can be easily upgraded (RIV, 4 inputs switch, simultaneous PD readings, PD on DC, etc.).
<ul style="list-style-type: none"> ▪ PRPD (Phase Resolved Partial Discharge) pattern (fingerprinting) ▪ Derived IEC quantities (average discharge current, repetition rate) ▪ Data acquisition and test report generation 	<ul style="list-style-type: none"> ☑ PD interpretation – The phase resolved analysis and recording capabilities allow future data analysis. ☑ Reduced training time – The Windows based software makes the use of the device easier than ever. Operators can start using the device in minutes.
<ul style="list-style-type: none"> ▪ PD Site Location (SL) on power cables ▪ Market unique “trigger on charge Q” feature 	<ul style="list-style-type: none"> ☑ Fast PD site location (SL) in power cables – SL function enables users to locate the site of failure in power cables in seconds.
<ul style="list-style-type: none"> ▪ AC and DC measuring modes ▪ Simultaneous RIV (NEMA or CISPR) and PD reading 	<ul style="list-style-type: none"> ☑ Applications versatility – DDX 9121b enables user to measure PD under AC or DC voltage stress, provides simultaneous RIV (NEMA or CISPR) and PD measurement as an option and can perform fast PD Site Location on cables.

Applications

- Power and distribution transformers
- Instrument transformers
- Rotating machines
- Switchgears (MV/HV/GIS)
- Surge arresters
- Bushings
- Cables
- Power capacitors
- Components testing
- Research and development

Scope of Supply

- PD detector DDX 9121b
- Software on USB stick
- USB to ethernet adapter + Ethernet cable
- Grounding cable 10 m
- Test certificate
- Operating manual

Technical Data

PD Measurement				
Input impedance	50 Ω			
PD system bandwidth (-6 dB)	30 kHz ... 1.5 MHz (with internal analog filter) 10 kHz ... 1.5 MHz (without internal analog filter)			
Filter center frequency	Freely selectable (32 kHz ... 1.498 MHz)			
Filter bandwidth	4; 4.5 kHz; 9 kHz	10 ... 100 kHz, any center freq. in 10 kHz steps	100 ... 500 kHz, in 50 kHz steps	600 kHz ... 1 MHz, in 100 kHz steps
Sensitivity	< 0.1 pC (directly at AKV 9310 quadripole input)			
Input attenuation range	0 dB / 20 dB / 40 dB			
Linearity error	< ± 5 % (1 % ... 100 % FSR)			
Pulse phase resolution	0.35°			

Voltage Measurement	
Input voltage range	0.14 ... 140 VAC (RMS) -200 ... -0.2 / +0.2 ... +200 VDC
Frequency range	15 ... 400 Hz
Input impedance	1.7 MΩ / 11 pF
Linearity error	< ± 1 % (0.1 ... 100 % FSR)
Synchronization	Voltage or Mains input
Synchronization accuracy	< 5°

RIV Measurement System	
Filter center frequency	Freely selectable (33 kHz ... 1.497 MHz)
Filter bandwidth	4.5 kHz (NEMA) and 9 kHz (CISPR)
Sensitivity	< 1 μV (directly at AKV 9310RIV quadripole input for NEMA/CISPR)
Quasi-peak detector response	NEMA according to NEMA 107:1987, ANSI C63.2:1996 CISPR according to CISPR 16-1-1:2019, CISPR 18-2:2017, NEMA 107:2016, ANSI C63.2:2016

Environmental Mechanical and Power Supply	
Operating temperature	0 °C ... +45 °C
Storage temperature	-20 °C ... +60 °C
Humidity	5 ... 80% r.h., non-condensing
Dimensions (W x D x H)	483 x 306 x 89 mm (19.0 x 12.0 x 3.5 in)
Weight	6.2 kg (14.3 lb) + accessories 5 kg (11.0 lb)
Power supply Spec.	90 ... 264 VAC, 50/60 Hz

PC, Screen Resolution and Operation System Requirements			
PC min. configuration	Intel Core i3® / AMD Athlon II X2® or better, 1 GB RAM, Ethernet / USB 2.0		
Screen resolution	1 detector	3 detectors	4 detectors
	1280 x 800 (WXGA)	1920 x 1080 (FHD)	2560 x 1440 (WQHD)
Operation system	Windows 7™, Windows 10™ or Windows 11™		

Applicable Standards	
General	IEC 60270:2000+AMD1:2015, IEC-60060 Parts 1&2, IEC-885-2 and 885-3, IEEE Std. 4, 1995, ICEA T-24-380, ASTM D1868-93, ANSI C57.113, ANSI C57.124-91
CE conformity	EMC Directive 2014/30/EU and RoHS Directive 2011/65/EU

Global Presence

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HIGH VOLTAGE



INSTRUMENTS



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