

# ICMmonitor Portable

## Portable PD monitoring instrument



- Portable monitoring solution for detecting partial discharge (PD) in medium and high voltage assets
- Partial discharge measurements according to IEC 60270
- Spectrum analyser, acoustic PD detector, and a conventional PD monitor in one instrument
- Trending information for a reliable forecast and prevention of costly failures
- Excellent measurement results even under difficult environmental conditions thanks to effective noise cancelling techniques
- Cordless spot testing for up to three hours thanks to battery operation

### DESCRIPTION

Partial discharge measurements are a proven method for effective, non-destructive evaluation of electrical insulation, preventing expensive unplanned outages by detecting insulation problems before they can cause breakdowns.

Power Diagnostix's ICMmonitor Portable is a compact non-invasive PD monitor for continuous on-line evaluation of the insulation condition of medium and high voltage assets. The instrument is used principally for temporary on-line monitoring and spot testing of:

- Power transformers
- Motors
- Generators
- Cable systems

The ICMmonitor Portable is comprised of a spectrum analyser, an acoustic detector, and a conventional PD monitor in one instrument. This combination enables you to perform PD measurements even with high levels of background noise, e.g., on power transformers within substations or power plants. A built-in multiplexer enables you to scan three-phase systems or multiple sensors.

### YOUR BENEFITS

- Flexibly monitors your asset for a required period without interrupting your daily business
- Always keeps you informed and updated about your asset's condition with the monitoring web server option
- Versatile feature and accessory options enable you to perform various measurements with one instrument
- By analysing the collected trending data you can detect defects at an early state and prevent costly outages
- Easy transport (also as flight luggage)

### STANDARD FEATURES

- PD spectrum analysis for the selection of frequency bands with less disturbances, resulting in an improved signal-to-noise ratio
- A built-in four-channel multiplexer offers scanning of three-phase systems or multiple sensors, with each measurement channel separately configurable.
- Built-in speaker for the audible indication of detected PD signals
- Effective noise gating for blocking phase-stable or phase-independent noises
- Automatic data acquisition and storing for trend analysis, alarming, and reporting
- UHF measurements

## OPTIONAL FEATURES

The ICMmonitor Portable is available with a wide range of optional features that allow it to be tailored to your specific requirements, enabling it to work seamlessly into your measurement environment.



### Available options are:

- Specialised control software for remote access and download of stored trending data
- Eight-channel multiplexer
- Monitoring web server for web browser based remote access and control from everywhere in your network
- Mobile communication interface for remote access via UMTS
- Up to four auxiliary 4–20 mA output signals for external monitoring purposes
- Up to four auxiliary inputs for 4–20 mA or 0–10 V signals
- IEC 61850 interface
- Portable protective housing ICMoutlander for the use of the instrument under harsh environmental or weather conditions
- Pre-installed control PCs or notebooks
- Expert software for PD pattern classification according to their PD faults

## MONITORING SOFTWARE

Power Diagnostix's ICMmonitor Portable is an autonomous instrument, which can be used as standalone monitoring device. However, it is equipped with a serial computer interface for the download of trending data and remote access, e.g., by LAN network (TCP/IP) or USB. Special software allows you to the remotely control of the instrument and the download its stored data.

### Main features

- Remote access to multiple monitoring instruments
- Automated data acquisition
- Long term trending, history structure
- Alarm handling
- Coloured PD pattern acquisition
- Connects via USB or TCP/IP

### Trending information

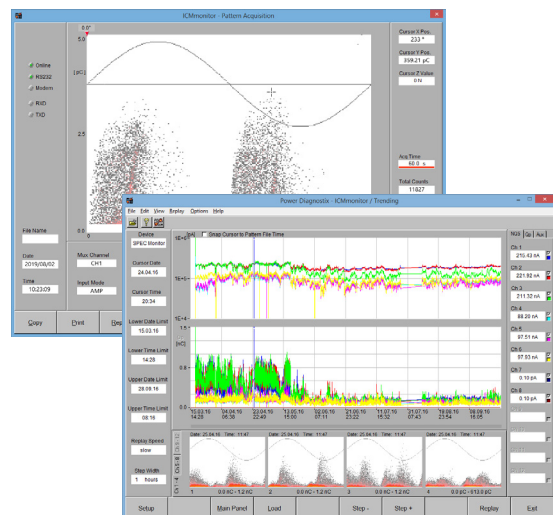
- By clicking on the data points in the PD trend chart, the related phase-resolved PD patterns can be opened
- Axis parameters and time spans are user-configurable

### Warnings and alarms

- Easy set-up of alarm levels and threshold parameters
- Real-time display of current alarms
- View of the PD patterns of corresponding alarm events

### Recording and storage

- Real-time recording of PD data on request or when triggered by threshold violations
- Automated storage of PD data for in-depth post analysis



## MONITORING WEB SERVER

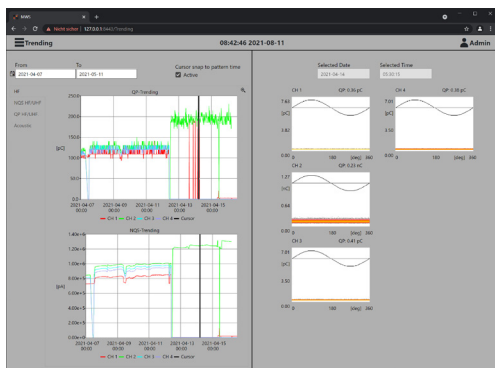
Power Diagnostix's monitoring web server (MWS) provides an Ethernet gateway for a platform-independent remote access to monitoring data recorded with the ICMmonitor. Alarms triggered by the instrument can be reported by automated email to the responsible person.

Combined with an LTE mobile router, a secure remote access via the internet can be provided.



## Key features

- Key information at a glance via remote access
- Instant visualisation of event log and corresponding PD data
- Alarm notification via email
- Database export
- Built-in report generator
- Easy integration into your network

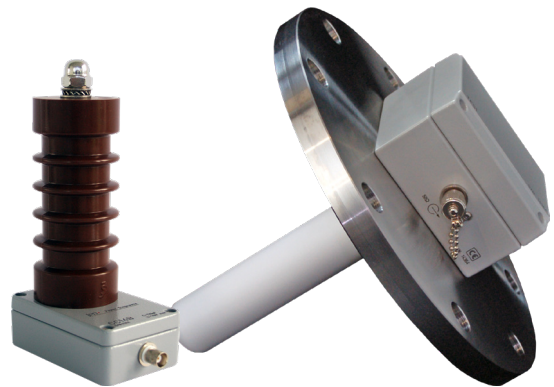


## ACCESSORIES

A wide range of standard accessories are available to help you adapt the ICMmonitor to your specific monitoring situation and setup environment.

The following accessories are recommended:

- Bushing adapters
- Bushing coupling units
- UHF sensors
- Preamplifiers
- Frequency converter units
- Current transformers
- Disturbance antennas
- Coupling capacitors
- DAkkS certified calibration impulse generators



For more details, as well as ordering information on our accessories, please refer to our accessories catalogue.

## TECHNICAL DATA

### Acquisition unit

Mains supply	90 to 264 V AC, 47 to 440 Hz (automatic)
Line fuse	1.6 A (time lag)
Power requirements	Approx. 40 VA
Display type	Backlit LCD
Display size	120 mm x 64 mm
Display resolution	128 x 240 pixels b/w
Operation	10 buttons, 1 power button
Operation temperature	10 to 40 °C (non-condensing)
Input impedance (AMP IN)	50 Ω    50 pF
A/D converter (PD)	8 bits (unipolar)
Size (W x H x D)	Explorer case version: 360 x 305 x 220 mm <sup>3</sup> (closed)
Weight	Approx. 4.5 to 5.5 kg (depending on installed options)

### Spectrum function

Input sensitivity	< 5 μV RMS/0.5 pC (270 kHz bandwidth); < 1 μV RMS/2 pC (9 kHz bandwidth)
Maximum input voltage	120 mV RMS (270 kHz bandwidth); 5 mV RMS (9 kHz bandwidth)
Frequency range	100 kHz to 10 MHz (in steps of 10 kHz)
Bandwidth	9 kHz or 270 kHz
Measuring inaccuracy	Typ. < 5 %

### Standard PD mode

Lower cut-off (-6 dB)	40, 80, or 100 kHz (software controlled)
Upper cut-off (-6 dB)	250, 600, or 800 kHz (software controlled)
Input sensitivity	< 500 μV RMS/5 pC (without preamplifiers)
Gain range	1, 2, 4, 8, 10, 20 ..., 200, 400, 800

### Preamplifiers

Input impedance

RPA1/RPA1D/RPA1G/RPA4	10 kΩ    50 pF
RPA1L/RPA1H	1 kΩ    50 pF
FCU2/RPA2	50 Ω    50 pF

Input sensitivity

RPA1/RPA1D/RPA1G/RPA4	< 50 μV RMS/0.03 pC
RPA1L	< 15 μV RMS/0.02 pC
RPA1H	< 40 μV RMS/0.05 pC
RPA2	< 800 μV RMS
RPA3	< 2 mV RMS
FCU2	< 200 μV RMS (46 dBμV)

Bandwidth

RPA1/RPA1D/RPA1G/RPA4	40 to 800 kHz
RPA1L/RPA1H	40 kHz to 20 MHz
RPA2	2 to 20 MHz
RPA3	200 MHz to 1 GHz
FCU2	100 MHz to 1800 MHz

### Synchronisation / HVM

Synchronisation frequency	
Standard	5 to 320 Hz (automatic)
UHF mode	5 to 250 Hz (automatic)
Maximum voltage	200 V <sub>peak</sub> (140 V RMS), 100 V RMS nominal
Input impedance	10 MΩ

### Available communication interfaces

USB 2.0

LAN



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### ORDERING INFORMATION

Product	Order no.	Options	Order no.
4-channel ICMmonitor, portable Explorer case	PX10308	Built-in monitoring web server MWS	PX90048
8-channel ICMmonitor, portable Explorer case	PX10377	Mobile communication interface MCI2	PX90058
Cable set for portable ICMmonitor with 4-channel multiplexer	PX17048	2-years VPN license for mobile communication interface	PX90059
Cable set for portable ICMmonitor with 8-channel multiplexer	PX17117	10-years VPN license for mobile communication interface	PX90063
		IEC 61850 interface	PX10420
		Four auxiliary outputs	PX10356
		Four auxiliary inputs	PX10352
		Remote control computer system with pre-installed software	PX90000
		IP65 protective housing ICMoutlander	PX10381

**Set of measuring cables is NOT included with the instrument and must be ordered separately.**



#### SALES OFFICE

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#### ICMMONITOR\_PORTABLE\_DS\_E1.03

[www.pdix.com](http://www.pdix.com)

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 ISO 9001, ISO 14001  
 ISO 17025, ISO 45001

