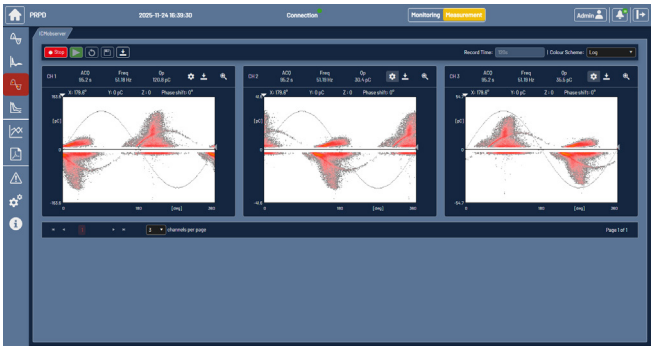
ICM*observer*
PD on-line monitoring system

- **Versatile partial discharge (PD) monitoring system for medium and high voltage assets**
- **Fully parallel voltage and PD measurement on all channels**
- **Remote access and analysis options**
- **State-of-the-art digital signal processing for an immediate data display and in-depth analysis without the need for further equipment**
- **Partial discharge measurements according to IEC 60270**

DESCRIPTION

The ICM*observer* combines the unmatched quality of the analogue front end of the ICM*monitor* with the additional features and benefits of the developments in digital signal processing during the last 20 years.

The ICM*observer* is a versatile state-of-the-art monitoring system, which combines four devices in one instrument. A spectrum analyser, a high voltage scope, a time-domain oscilloscope, and a PD monitor. With the digital signal processing, the spectrum analyser offers a vast range of possible bandwidths. This greatly improves capabilities to deal with an elevated noise-floor that is inevitable in on-site monitoring conditions.



The built-in time domain oscilloscope together with fully parallel phase-resolved partial discharge patterns (PRPD) on all channels significantly expands the analysis options, so that you will be able to give an in-depth analysis of the condition of the monitored asset.

The modular concept of the hardware and software ensures expandability of the device for future applications, e.g., dissolved gas analysis (DGA) monitoring and temperature and load surveillance providing one data aggregation point.

The ICM*observer* can be used for monitoring the following assets:

- Power transformers
- Motors
- Generators

YOUR BENEFITS

- Monitoring of your asset without interrupting your daily business
- All information instantly and at a glance via remote access
- Remote condition assessment thanks to optional UMTS modem
- Parallel pattern acquisition and multi-channel oscilloscope for in-depth asset analysis without the need for additional equipment on-site

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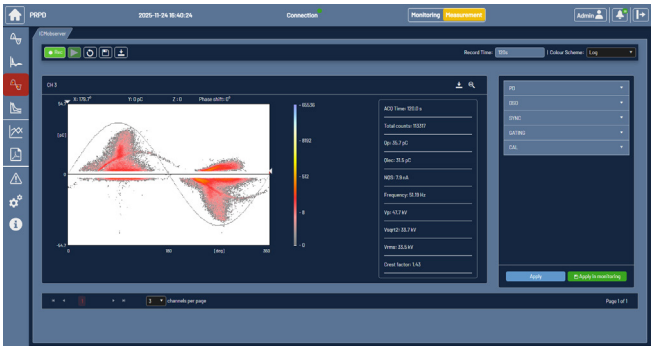
STANDARD FEATURES

- PD spectrum analysis for the selection of frequency bands with less disturbances
- Adjustable bandwidth from a few kHz to 1 MHz
- Parallel phase-resolved partial discharge measurement for all channels
- Parallel digital oscilloscope for in-depth PD pulse shape analysis on power transformers
- Effective noise gating for blocking phase-stable or phase-independent noises
- Analogue inputs for monitoring additional environmental conditions, such as temperature and drive
- Analogue outputs for external monitoring purposes
- Web server for automatic data acquisition and storing for trend analysis, PRPDs, alarming, and reporting
- Built-in web-interface for access via PC or tablet without additional software



AVAILABLE OPTIONS

Megger's ICM*observer* is available with the following options:

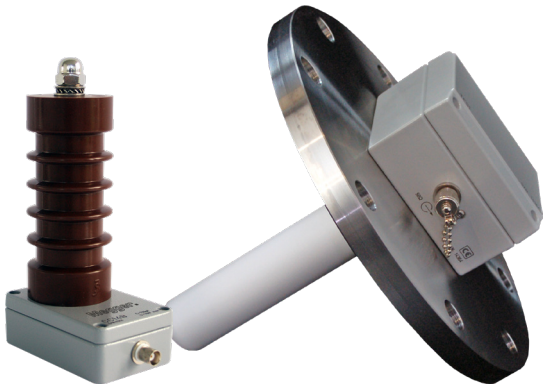
- Industrial monitoring cabinet with necessary supply and safety components pre-installed, suitable for outdoor installation
- Additional combined RS232/RS485 interface and separate Ethernet interface for industrial protocols, such as IEC 61850, Modbus, or DNP3
- Rack-mountable version with eight or twelve input channels
- Mobile communication interface for remote access via UMTS
- Portable IP65 protective case for demanding installation environments

ACCESSORIES

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

The following accessories are recommended:

- Bushing adapters
- Bushing coupling units
- UHF sensors
- Pre-amplifiers
- 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.

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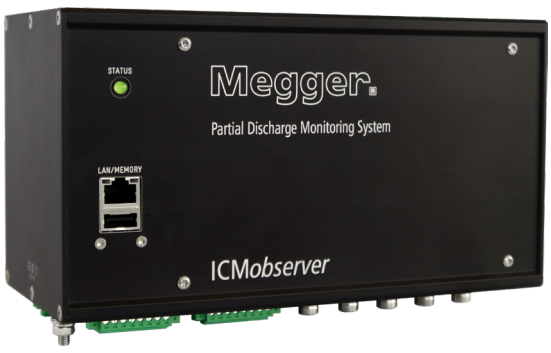
SPECIFICATIONS

ACQUISITION UNIT

Power supply	12 to 26 V DC (external)
Power requirements	4-channel version: max. 35 W 8-channel version max. 70 W 12-channel version: max. 100 W
Operation	Controlled via web interface
Operation temperature	-20 to 70 °C (non-condensing)
No. of channels	4-channel version: 4 (PD), 4 (Sync) 8-channel version: 8 (PD), 8 (Sync) 12-channel version: 12 (PD), 12 (Sync)
Input impedance	50 Ω or 1 kΩ (software-selectable)
Input sensitivity	< 100 µV RMS/0.1 pC (without pre-amplifiers)
Lower analogue frequency limit, -6 dB	30 kHz
Analogue lowpass filter, -6dB	1, 2, 3, 4, 5, 10, 30 MHz (software-selectable)
Gain range	1 to 20000
A/D converter	14 bits (bipolar), 250 MS/s
Gating modes	Analogue or digital window gating with up to three windows
Calibration modes	Normal and adaptive
Size (W x H x D, incl. connectors)	4-channel version: 225(±1) x 109 x 137 mm³ 8-channel version: 376 x 133 x 250 mm³ 12-channel version: 482,5 x 133 x 250 mm³
Weight	4-channel version: approx. 1.6 kg 8-channel version: approx. 4 kg 12-channel version: approx. 6 kg

ALARM RELAY

Contact rating	5 A/160 V AC, 5 A/30 V DC
Minimum contact load	100 mA/5 V DC



STANDARD PD MODE (IEC 60270)

Lower cut-off (-6 dB)	30 kHz to 900 kHz
Upper cut-off (-6 dB)	130 kHz to 1 MHz

FULL RANGE MODE

Centre frequency	30 kHz to 30 MHz
Bandwidth	9 kHz to 900 kHz

PRE-AMPLIFIERS (OPTIONAL)

Input impedance

RPA1/RPA1D/RPA1G/RPA4	10 kΩ ‖ 50 pF
RPA1L/RPA1H	1 kΩ ‖ 50 pF
FCU2/RPA2/RPA3	50 Ω ‖ 50 pF

Input sensitivity

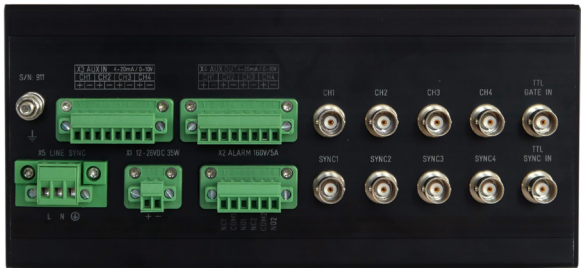
RPA1/RPA1D/RPA1G/RPA4	< 50 µV RMS/0.03 pC
RPA1L	< 15 µV RMS/0.02 pC
RPA1H	< 40 µV RMS/0.05 pC
RPA2	< 800 µV RMS
RPA3	< 2 mV RMS
FCU2	< 200 µV RMS (46 dBµV)

Bandwidth

RPA1/RPA1D/RPA1G/RPA4	40 kHz to 1 MHz
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 modes	External, line, internal, TTL
Synchronisation frequency	5 to 320 Hz
Maximum voltage	200 V_{peak} (140 V RMS), 100 V RMS nominal
A/D converter	12 bits (bipolar), up to 400 kS/s (variable)
Input impedance	10 MΩ



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ORDERING INFORMATION

Description	Order no.
ICM*observer* with 4 channels	PX10900
ICM*observer* with 8 channels	PX10903
ICM*observer* with 12 channels	PX10902
ICM*observer* with 4 channels and extended industrial interfaces	PX10900-01
ICM*observer* with 8 channels and extended industrial interfaces	PX10903-01
ICM*observer* with 12 channels and extended industrial interfaces	PX10902-01
4-channel cable set for permanent outdoor installation (e.g., transformers and switchgear)	PX17023
4-channel cable set for permanent indoor installation (e.g., rotating machines)	PX17199

Options	Order no.
Mobile communication interface MCI2	PX90058
2-years VPN license for mobile communication interface	PX90059
10-years VPN license for mobile communication interface	PX90063
Industrial monitoring cabinet PDMAR500	PX90044
Temperature control system for industrial monitoring cabinet	PX90056
IP65 protective case for ICM*observer*	PX10381-01
IP65 protective case for ICM*observer* with MCI2	PX10381-02

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

SALES OFFICE
Megger ▪ Power Diagnostix Systems GmbH
Vaalser Strasse 250
52074 Aachen, Germany
T. +49 (0) 241 74927
E. supportpdix@megger.com

ICMobserver_DS_e1.12
www.megger.com

ISO 9001, ISO 14001,
ISO 17025, ISO 27001, ISO 45001

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