



- **Simplification of challenging measurement tasks**
- **Can perform three different kind of measurements simultaneously with just one instrument: Partial Discharge (PD) detection, loss factor measurement, and PD fault location**
- **Minimisation of testing and operation time**
- **High level of operator's safety**
- **Highest sensitivity and precision**

DESCRIPTION

The ICMflex is a versatile instrument for distribution-class cable testing and rotating machine testing as well as other field tasks involving partial discharge detection, loss factor (tan delta) measurements, and PD fault location. It has been designed to simplify testing and allows you to perform a range of different measurement tasks with one instrument. The ICMflex can be used with any fixed or portable high voltage power supply, such as transformers, high-pots, resonant test systems, motor/generator sets, and VLF systems.

General applications include testing rotating machines (as well as stator bars and single bars) and medium/high voltage cables. The system is mainly used for on-site testing, but can also be used in laboratories and workshops for factory acceptance tests. As such, the ICMflex is a good choice for:

- Service groups that are testing motors, generators, and accessories
- Service groups testing high voltage cables, terminations, and joints
- Factories and manufacturers of cables and generators
- Maintenance and repair shops
- High voltage laboratories
- Research and development departments in the industry, e.g., special designs for university projects

YOUR BENEFITS

- The entire acquisition hardware is placed on high voltage potential, right at the position where the PD signals occur, hence, no signal cables are needed
- Only one instrument for different high voltage assets and different measurement tasks
- The operation principle minimises testing as well as operation time and increases the operator's safety
- Quick operational readiness thanks to an easy, user-friendly setup

KEY FEATURES

- Modular design that allows combining PD detection, PD fault locating, and tan delta measurements according to specific customer needs
- Remote controlled with the ICMflex software via Bluetooth or fibre optic cable
- Effective noise suppression methods
- Available for many different voltage levels
- The all-in-one software panel provides a comprehensive overview of all relevant measurement data
- Software-supported step-by-step guide

OPTIONAL FEATURES

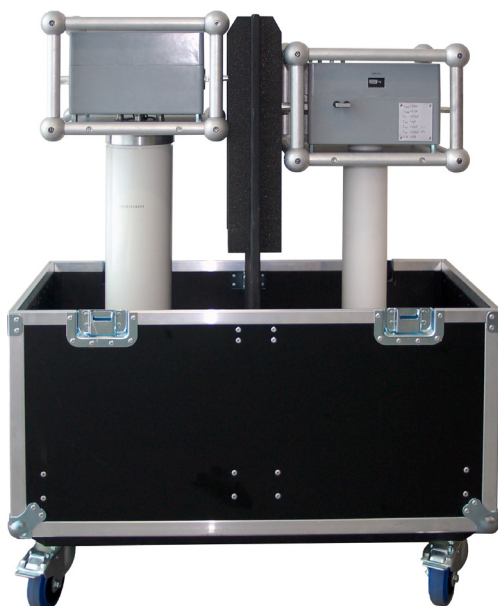
- Partial discharge measurement according to IEC 60270
- Tan delta and power factor measurement
- Partial discharge fault location for power cables
- Fibre optic gating input for noise reduction

ACCESSORIES

To perform a measurement, the ICMflex might require accessories, depending on your testing purpose and environment. The following accessories are recommended:

- High voltage T-filters to reduce high frequency disturbance signals from a high voltage supply
- High frequency current transformers
- Gate signal transmitter GST1
- DAkkS certified calibration impulse generators
- Remote control computer system with pre-installed ICMflex software
- Robust transportation cases

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



ICMflex with T-filter in a transport box

ALL-IN-ONE SOFTWARE PANEL

- Three main display modes:

PD

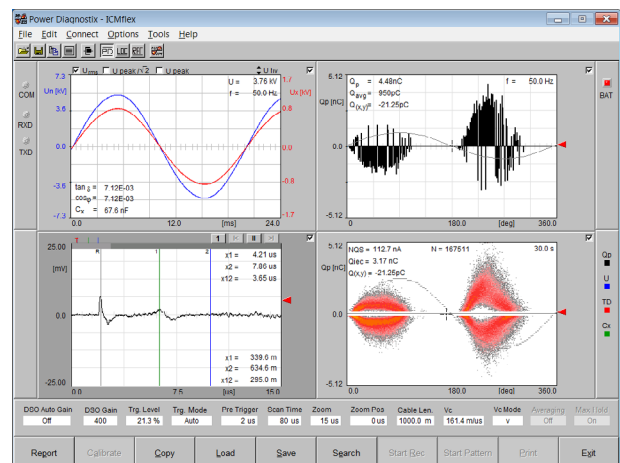
The PD display mode is the preferred display for partial discharge measurements showing the recorded phase-resolved partial discharge pattern together with a comprehensive overview of all measured signals.

LOC

The LOC display mode is used to perform PD fault location on cables giving the currently measured time-domain signal, together with the location result in the top left corner.

REC

The REC display mode is typically for standardised factory acceptance and on-site test procedures, giving a comprehensive overview about the complete measured value set of the required voltage steps.



- Voltage measurement:
 - Power factor
 - Tan delta
 - Capacitance
 - Voltage
 - Frequency
- PD scope
- Time domain reflectometry (for cable fault location)
- Phase-resolved partial discharge pattern

ICMflex

PD detector, PD fault locator, and loss factor measurement system

SPECIFICATIONS

Mains supply:	Battery operated (up to 6 hours)
Power requirements:	Approx. 20 VA
Operation:	Remote controlled via ICMflex software
PD input impedance:	1 k Ω 50 pF
PD input sensitivity (without test object):	< 150 μ V, corresponds to 0.2 pC
PD lower cut-off (-6 dB):	40, 80, or 100 kHz (software-controlled)
PD upper cut-off (-6 dB):	250, 600, or 800 kHz (software-controlled)
PD A/D converter:	8 bits ($\pm$ 7 bits)
Voltage measurement:	16 bits, 100 kSamples
Voltage values displayed:	U RMS, $\hat{U}/\sqrt{2}$, crest factor
Synchronisation:	External on reference voltage
Synchronisation range:	20 Hz–510 Hz (normal mode) 0.1 Hz, 0.05 Hz, 0.02 Hz (VLF)
Operation temperature:	0–55 °C (non-condensing)
Interfaces:	Bluetooth (921 kBit/s) Fibre optic serial link (921 kBit/s)

Dimensions and weight:

Model for	Max. weight	Dimensions (L x W x H)
30 kV	22 kg	350 x 350 x 600 mm ³
50 kV	23 kg	350 x 350x 800 mm ³
100 kV	24 kg	350 x 350x 800 mm ³
150 kV	60 kg	450 x 450x 1600 mm ³

Cable fault location

A/D converter:	8 bits
Samples	100 MSamples
Specimen cable length:	Min. 10 m Max. 25 000 m (in theory), for a sample rate of 320 μ s and $v_c = 160$ m/ μ s (Note: Localisation on cables longer than 3000 m is not possible because of pulse attenuation)
Localisation precision:	1 m + 0.1 % of the cable length

Loss factor measurement

Tan delta resolution:	5×10^{-5}
Tan delta precision:	1×10^{-4}

ORDERING INFORMATION

Description	Part number	Accessories	Part number
ICMflex basic measurement system incl. one battery pack BAT2A, a battery charger, and control software	PX10600	Gate signal transmitter GST1	PX12078
Cable set for ICMflex	PX17041	Fibre optic cable for GST1	PX20316
Fibre optic communication cable	PX17000	Spare battery BAT2A	PX10604
		Spare battery charger	PX16046
		Transportation case for ICMflex 30 kV	PX18113
		Transportation case for ICMflex 50 kV	PX18112
		Transportation case for ICMflex 100 kV	PX18109
		Remote control computer system	PX90000
		Measuring and communication cables are NOT included with the instrument and must be ordered separately.	
Options	Part number		
Partial discharge measurement	PX10601		
Tan delta measurement	PX10602		
PD fault location for cables	PX10603		
Shunt capacitor for 30 kV RMS	PX20208		
Shunt capacitor for 50 kV RMS	PX10609		
Shunt capacitor for 100 kV RMS	PX10612		
Shunt capacitor for 150 kV RMS	PX10616		
Noise gating via fibre optic cable (consisting of gate signal transmitter GST1 and fibre optic cable)	PX12078 and PX20316		

SALES OFFICE

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ICMflex_DS_e1.05

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ISO 9001, ISO 14001,
ISO 17025, ISO 45001

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