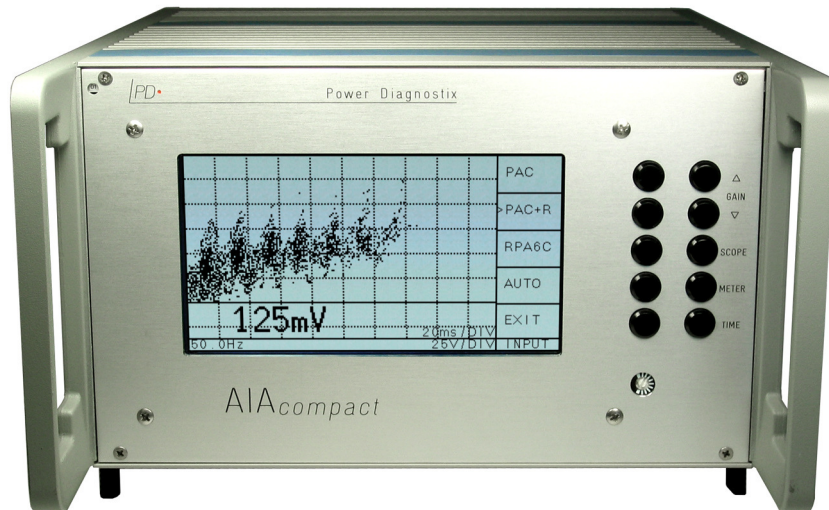


AIAcompact



AIAcompact - Acoustic Insulation Analyzer

Instruments

The *AIAcompact* is a portable unit for in-service acoustic partial discharge measurements on gas-insulated switchgear (GIS), transformers, and cable accessories. The instrument adapts to a variety of piezo-electric acoustic sensors and is supplied with a versatile sensor fixture. Additionally, the *AIAcompact* allows partial discharge measurements on embedded or external UHF sensors.

Acoustic partial discharge measurements can be easily applied on gas-insulated switchgear and other high voltage equipment without the need of interrupting the operation. Such in-service measurements help to identify internal imperfections of the insulation system, which may lead to breakdown and system failure in the future.

Easy-to-apply substation condition assessment

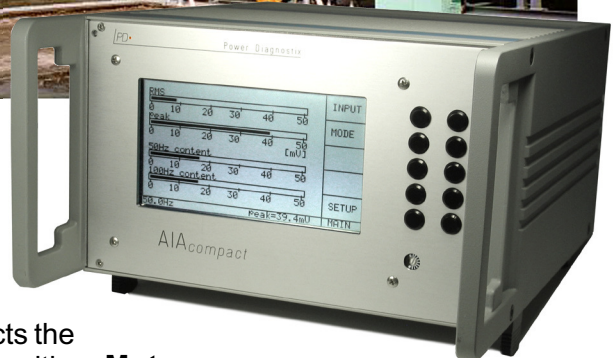
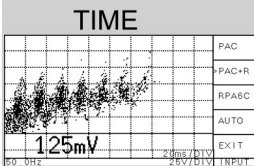
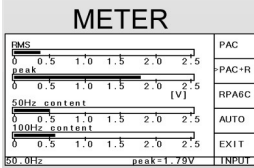
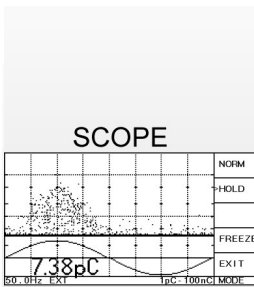
Acoustic partial discharge measurements rely on the close acoustic contact of the area producing the discharge to the point of access, where the sensor is placed. Most of the partial discharge activity in GIS offer such a good contact and, hence, can be detected at a good sensitivity.

Therefore, discharges from sharp points or cones as well as discharge activity

from delaminations can be identified at a sensitivity, which is mostly comparable to the conventional electrical detection according to the IEC60270.

For some defect types, such as the so-called hopping or bouncing particles, the acoustic detection is by far superior to the electrical detection. Such free particles can cause flashover and severe breakdown especially in the initial phase after erection or maintenance of gas-insulated switchgear.

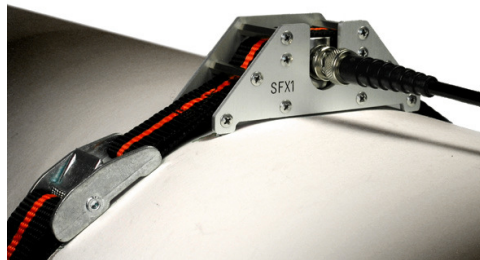
Based on the proven hardware core of the *ICMcompact*, the *AIAcompact* offers automatic detection of the sensor or preamplifier used. Normally, the instrument is operated with acoustic sensors with remote supplied embedded preamplifiers directly connected to the signal input. Alternatively, the *RPA1D*, known from the *ICMsystem*, can be inserted close to the sensor to boost the signal, which can be mandatory, in case longer signal cables are used or in case of low-level measurements.



UHF measurements on embedded or external sensors are possible with the use of the RPA6C, a logarithmic preamplifier, which covers 300MHz-2GHz. As with the other preamplifiers, the AIAcompact automatically detects the RPA6C and changes into the logarithmic display for the UHF detection. Generally, the instrument offers three main display modes, which are selected using dedicated control buttons: Scope, Meter, and Time.

Scope

In Scope mode, the AIAcompact shows the phase-resolved partial discharge signal or pattern as the standard ICMcompact. Here, the 'Freeze' function allows keeping a captured phase-resolved partial discharge pattern for further evaluation or for taking screenshots.



Meter

The Meter mode offers four bar graph displays showing derived quantities of the captured activity. The graphs display the RMS and the peak PD level, as well as their 50Hz (60Hz) and 100Hz (120Hz) content. The instrument automatically synchronizes to the line frequency.

Time

Within the time mode, the AIAcompact displays five or ten AC cycles triggered by a partial discharge event. Thus, this display shows the pattern of consecutive partial discharge events and, hence, offers a clear identification of bouncing particles and the severity of their activity.

All captured pattern and displays can be transferred to a notebook via an RS232 interface using the optional AIAcompact software.

Offering easy-to-use acoustic partial discharge analysis of gas-insulated switchgear (GIS) and other high voltage equipment plus the optional analysis on embedded or external UHF sensors makes the AIAcompact the ideal solution for convenient in-service substation condition assessment.