

# PDL 650

Acoustic PD Fault Localization in High-Voltage Equipment



# Identifying Problems within Steel Walls

As a result of increased demand for power, high voltage equipment is being subjected to ever greater stress. Careful inspections are therefore essential, both for the initial on-site acceptance test and throughout the many years during which the equipment is used. Any faults present can be localized using acoustic partial discharge measurement.

## Electrical equipment must meet tough requirements

With only 1 % to 2 % failures per year, transformers are generally classed as extremely reliable. However, just like other electrical components, the risk of a failure is far greater at the start and the end of their useful life cycle. The most common reason for this is a reduction in insulating capability at specific points.

## Reacting before something happens

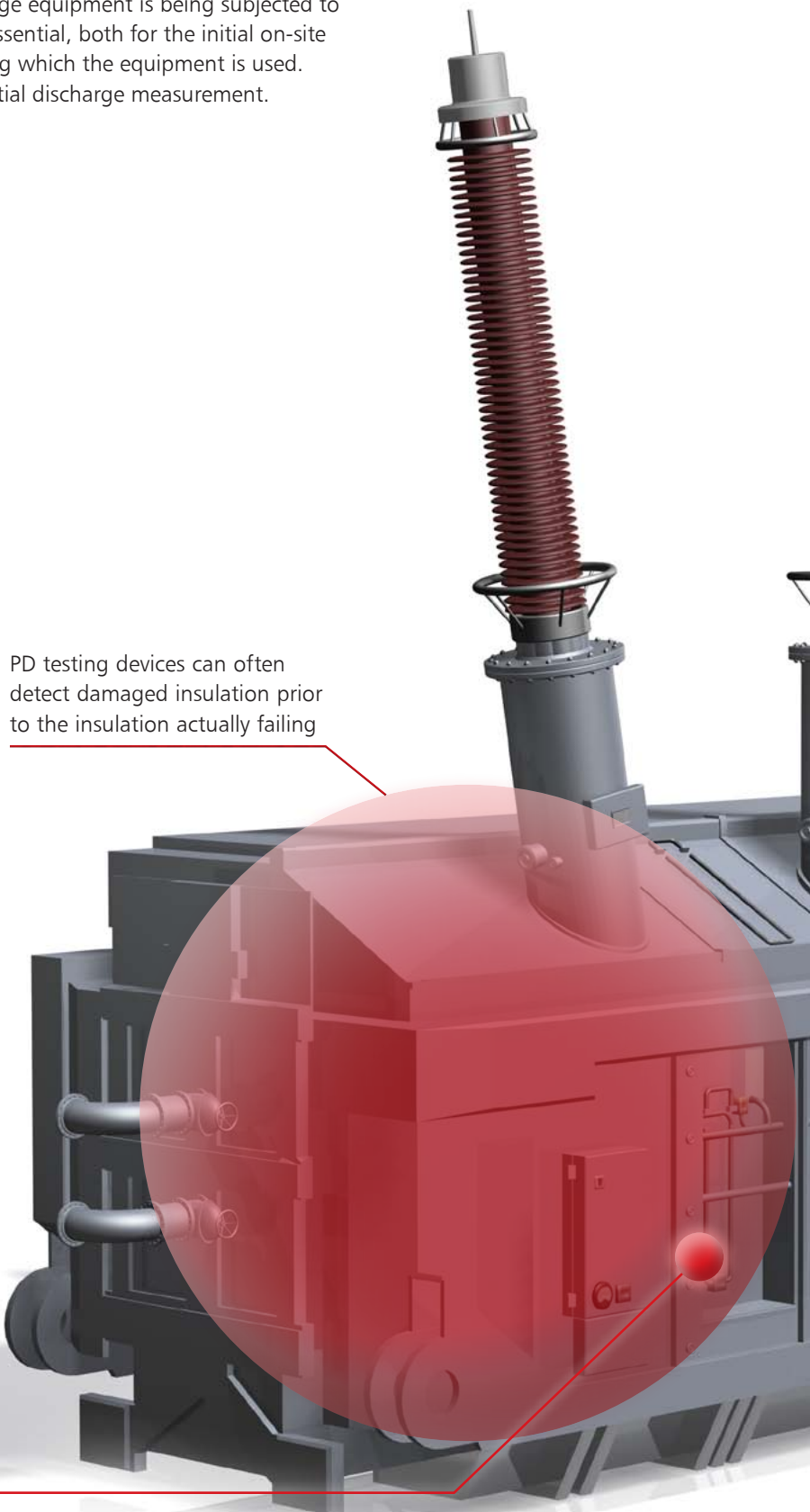
Partial discharges (PD) often occur before the insulation actually fails. These electrical signals can be detected and analyzed early on using modern testing equipment.

## Finding the source of the partial discharge

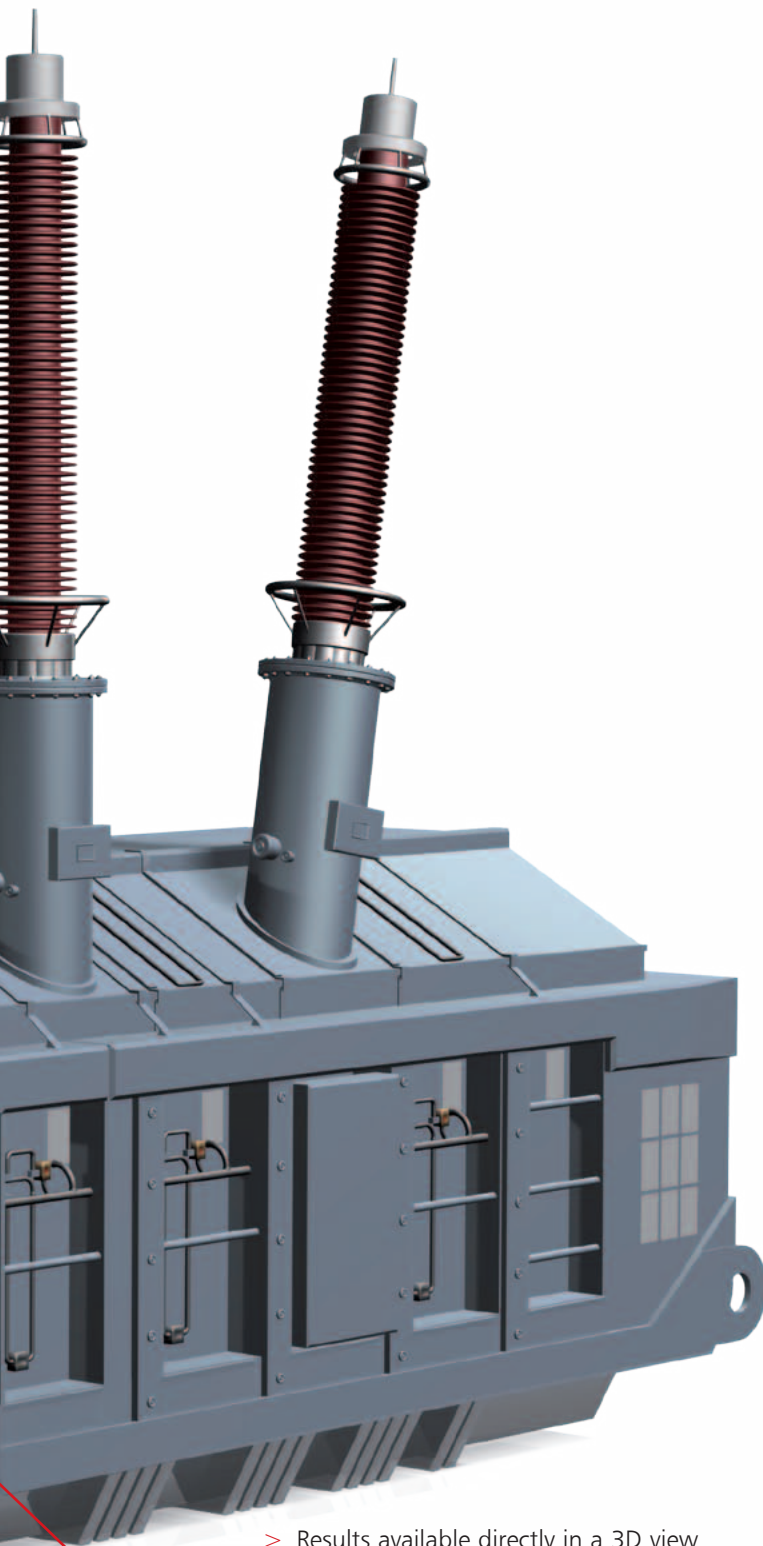
If the precise fault location is known, the next steps to be taken can be planned far more effectively. It may be that a quick and easy on-site repair is all that is needed.

The PDL 650 locates acoustic PD signals. The data of multiple sensors are compared and entered by the software into a geometric model. This allows the fault location to be reliably identified.

Acoustic PD signals give a precise indication of the fault location



PD testing devices can often detect damaged insulation prior to the insulation actually failing



- > Results available directly in a 3D view
- > Sensors magnetically mounted

### Technical data

Measurement bandwidth	10 to 400 kHz
Amplification	0, 20, 36 dB
Sensors	Active, supplied via PDL 650
Battery life	> 4 h
Mains supply	110 to 240 V, 50 to 60 Hz

### Mechanical data

Dimensions (W x H x D)	170 x 61 x 300 mm 6.7 x 2.4 x 11.8 in
Weight	2.0 kg / 4.5 lbs
Ambient temperature	Operation: 0 °C to 45 °C 32 °F to 113 °F Storage: -10 °C to 70 °C 14 °F to 158 °F
Weight of complete system	< 20 kg / 45 lbs (including carry case, cables, etc.)

### Ordering number

VEHZ4127	Set consisting of: <ul style="list-style-type: none"> <li>• PDL 650, PDL 550</li> <li>• MPP 600 battery and charger</li> <li>• Four sensors with bracket</li> <li>• Connection cables</li> <li>• Stable carry case</li> </ul>
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### Your benefits

- > Significant time saving through fast localization of the fault
- > Can be combined with MPD 600 and UHF 608
- > Quick and easy to set up and transport from one location to another
- > Easy to understand 3D view of the fault position
- > Greatest protection due to electrically isolated measurement unit

# Replacing Intuition with Empirical Evidence

Network operators and manufacturers often wish to have necessary repairs performed directly on site. However, this requires knowing the precise location of the fault.

## Tracking down the fault

Making precise partial discharge measurements is one step closer to determining fault locations. Depending on the test object and environment, OMICRON offers the MPD 500 and MPD 600 for these electrical measurements.

MPD systems measure and analyze partial discharges both precisely and reliably. They can be combined with various advanced methods, such as UHF and acoustic partial discharge measurements.

## Getting to the heart of the matter

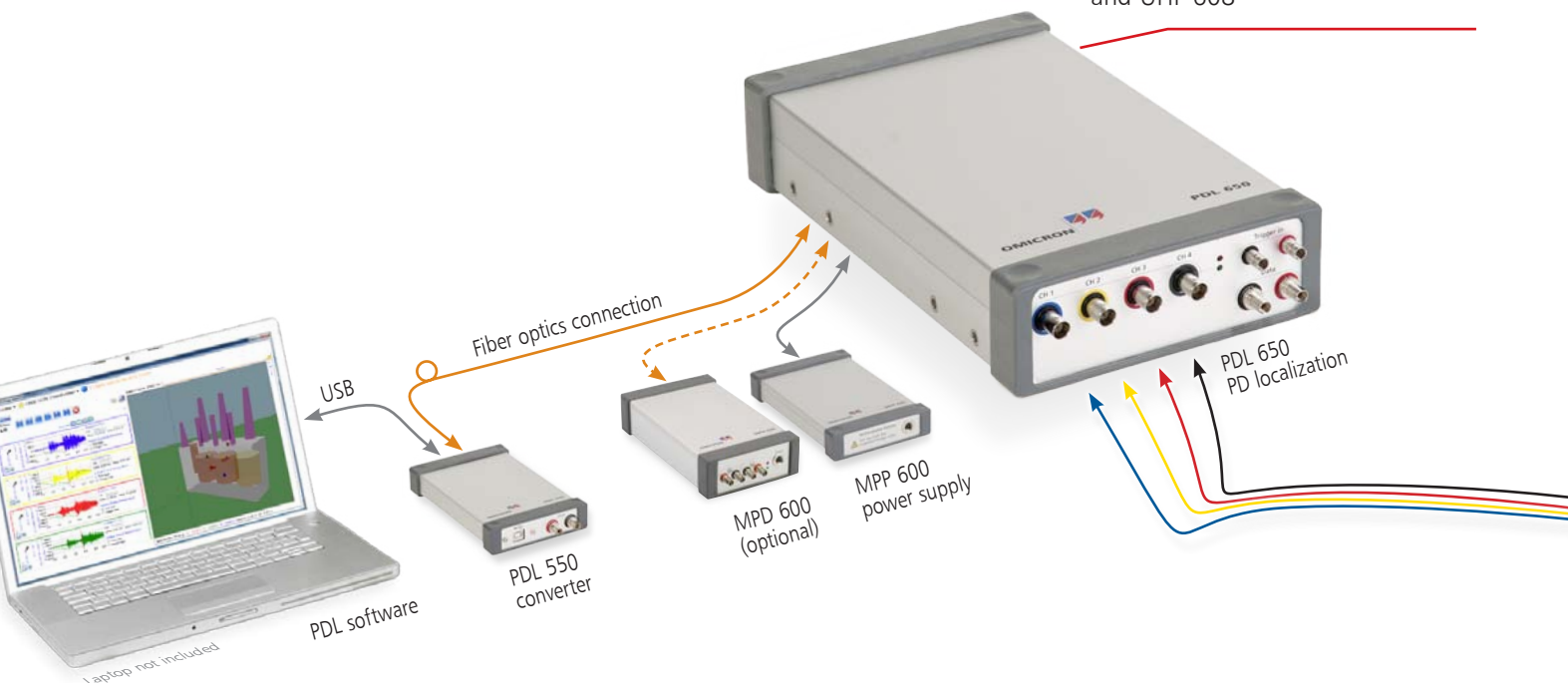
Acoustic partial discharge measurements are performed with the PDL 650. The PDL 650 records the measured values of multiple acoustic sensors simultaneously. The software then calculates the fault location based on the time difference between the incoming signals.

For even more accurate results the acoustic PD-measurement can be combined with the MPD 600 and even with UHF measurements. This way the electrical partial discharge signals trigger the acoustic evaluation, making it more easy to locate the PD failure.

## Safe operation

The PDL 650 transfers all data to the PC using fiber optics. This means that the operator is electrically isolated from the high voltage. Magnetic and electric fields are also incapable of interfering with this connection.

- > Easy to use, lightweight and battery operated
- > Up to 16 measurement channels
- > Test reports at the click of a mouse
- > Can be combined with MPD 600 and UHF 608

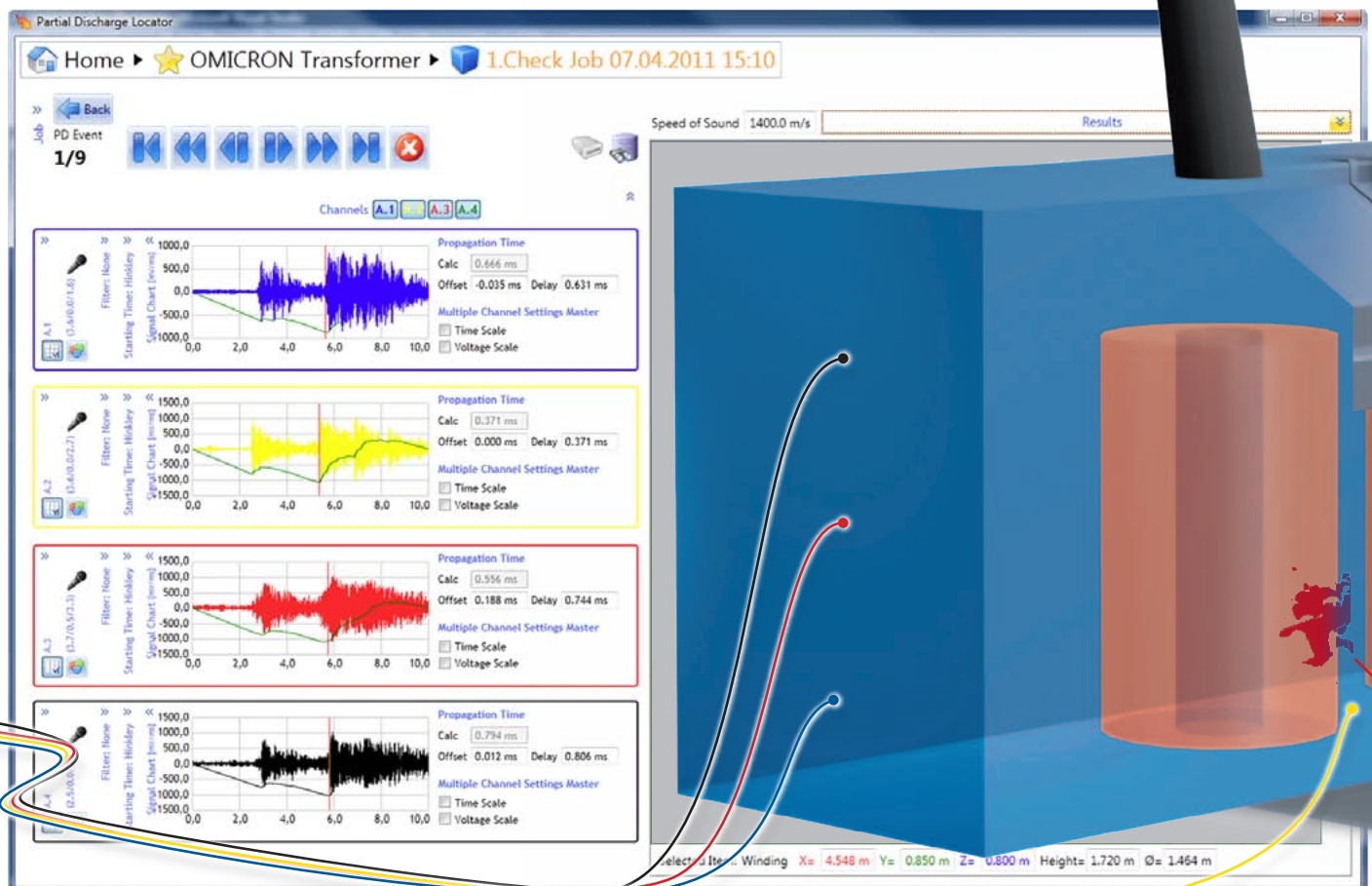


## Repeat playback of measurements at any time

Every measurement can be recorded. These recordings can be retrieved at a later date with all associated data for further analysis, as if the measurement is currently being performed.

Additionally, printable test reports can be created at one click of a mouse.

- > 3D transformer models can be freely created
- > 3D model of the test object can be rotated in all directions



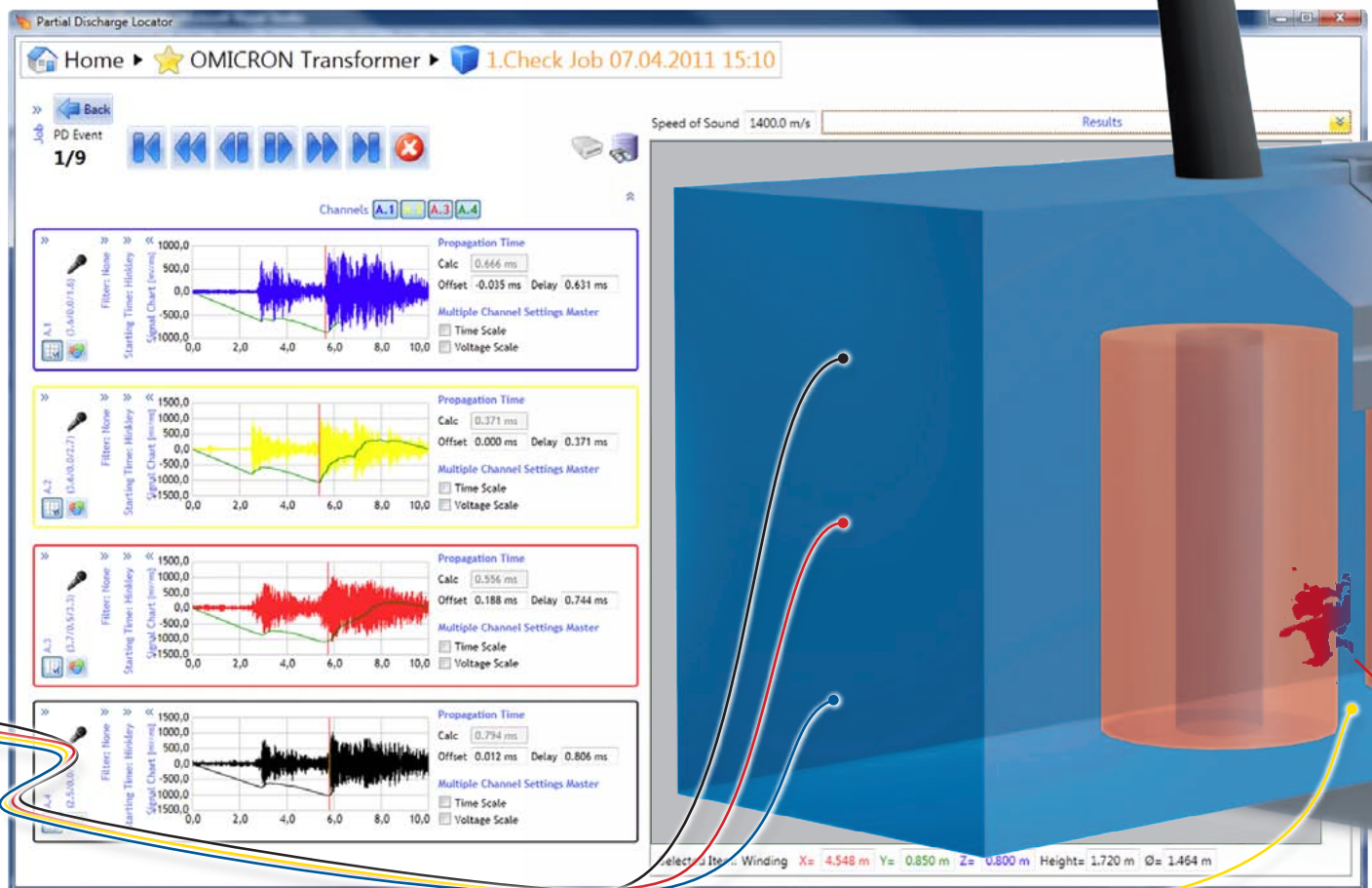


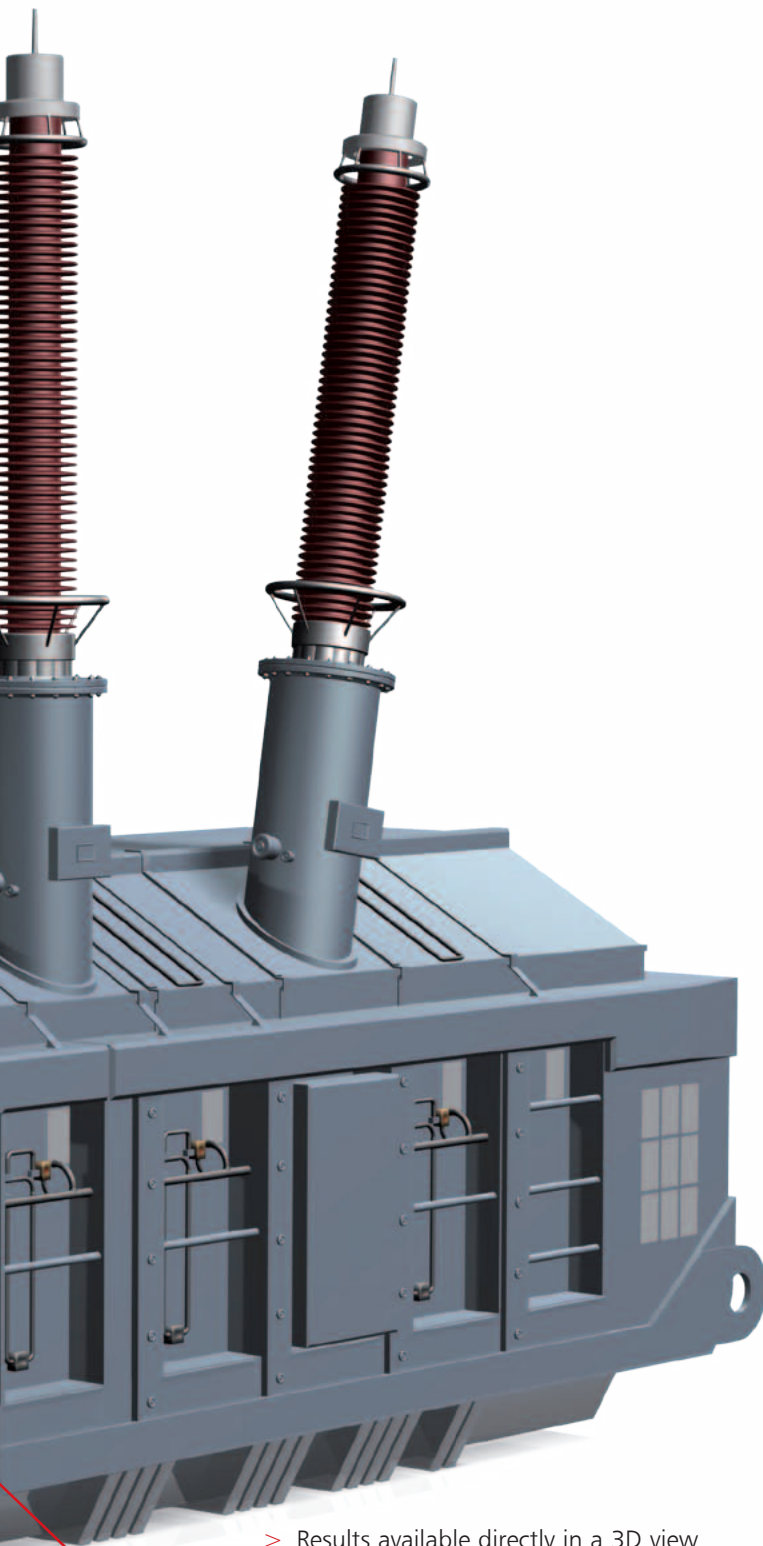
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**OMICRON** is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the areas of consulting, commissioning, testing, diagnosis, and training make the product range complete.

Customers in more than 140 countries rely on the company's ability to supply leading edge technology of excellent quality. Broad application knowledge and extraordinary customer support provided by offices in North America, Europe, South and East Asia, Australia, and the Middle East, together with a worldwide network of distributors and representatives, make the company a market leader in its sector.

The following publications provide further information on the solutions described in this brochure:



*MPD 500  
Brochure*



*MPD 600  
Brochure*



*UHF 608 and UPG 620  
Datasheet*

For a complete list of available literature, please visit our website.

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