

## OMICRON POWER TRANSFORMERS TEST PACKAGES

| Measurements  | Test Packages  | Details   | Test Device     |
|---|--|---|-----------------|
| <b>Capacitance and dissipation factor (Tan delta)</b> | 1- Voltage Tip-up test                                   | Transformers and Bushings   | CPC 100+ CP TD1 |
|   | 2- Variable Frequency                                    | Transformers and Bushings   |                 |
|   | 3- Complete (Voltage Tip-up test and Variable Frequency) | Transformers and Bushings   |                 |
| <b>Routine Electrical tests</b>                       | 1- Normal Routine Tests                                  | a) Transformer Ratio<br>b) DC winding Resistance<br>c) Exciting Current   | CPC 100+ CP TD1 |
|   | 2- Complete Routine Tests                                | a) Transformer Ratio<br>b) DC winding Resistance<br>c) Exciting Current<br>d) Short Circuit Impedance/<br>Leakage Reactance |                 |
| <b>Frequency Response Analysis</b>                    | 1- IEC 60076-18  | a) Open Circuit End-to-End<br>b) Short Circuit End-to-End   | FRANEO 800      |
|   | 2- IEEE C57.149 (Extended)                               | 3- Open Circuit End-to-End<br>4- Short Circuit End-to-End<br>5- Capacitive Interwinding<br>6- Inductive Interwinding        |                 |
| <b>Dielectric Response Analysis</b>                   | 1- FDS on transformers                                   | <ul style="list-style-type: none"> <li>• Transformers water content measurement</li> </ul>                                  | DIRANA          |
|   | 2- FDS on Transformers and Bushings                      | <ul style="list-style-type: none"> <li>• Transformers water content measurement and bushings DRA</li> </ul>                 |                 |

**OMICRON POWER TRANSFORMERS TEST PACKAGES**

|  |   |   |                            |
|--|---|---|----------------------------|
| <b>Partial Discharge (PD) Online Monitoring and Locating</b> | 1- Online 3-phase PD monitoring         | <ul style="list-style-type: none"> <li>• Need for planned switching (very limited time for installation)</li> <li>• Various frequency measurements</li> <li>• Standard reports with various diagrams</li> <li>• 3PARD and 3FREQ features</li> <li>• Advanced, fully digital filtering</li> <li>• Fully recorded streams for further analysis</li> </ul>   | 3 channel-MPD 600          |
|  | 2- Online 3-phase PD monitoring and UHF | <ul style="list-style-type: none"> <li>• Need for planned switching (very limited time for installation)</li> <li>• Measurement in UHF range for reducing the noises</li> <li>• Various frequency measurements</li> <li>• Standard reports with various diagrams</li> <li>• 3PARD and 3FREQ features</li> <li>• Advanced, fully digital filtering</li> <li>• Fully recorded streams for further analysis</li> </ul> | 3 channel-MPD 600+ UHF 620 |
|  | 3- Online UHF monitoring                | <ul style="list-style-type: none"> <li>• <b>NO need</b> for Planned Outage</li> <li>• To assure the existence of PD inside transformer</li> </ul>   | 1 channel-MPD 600+ UHF 620 |

**OMICRON CURRENT TRANSFORMERS (CTs) TEST PACKAGES**

|                                     |  |  |             |
|-------------------------------------|--|--|-------------|
| <b>Current transformer analysis</b> | Testing the bushing and internal CTs the of transformers | <ul style="list-style-type: none"> <li>• Ratio and Phase accuracy</li> <li>• Winding resistance</li> <li>• Excitation characteristics (knee points)</li> <li>• Composite error (ALF, ALFi, FS, FSi, Vb)</li> <li>• Burden impedance</li> <li>• Transient CT classes and parameters (TPS,TPX,TPY &amp; TPZ)</li> <li>• Remanence and residual magnetism</li> <li>• Immediate good/bad evaluation</li> </ul> | CT ANALYZER |
|-------------------------------------|--|--|-------------|

**OMICRON GENERATOR AND MOTORS TEST PACKAGES**

| Measurements  | Test Packages                       | Details  | Test Device                        |
|---|-------------------------------------|--|------------------------------------|
| <b>Online PD Monitoring</b>                           | 3-phase Online PD Monitoring        | <ul style="list-style-type: none"> <li>• Need for planned switching (very limited time for installation)</li> <li>• Need for installing the coupling capacitors</li> <li>• Various frequency measurements</li> <li>• Standard reports with various diagrams</li> <li>• 3PARD and 3FREQ features</li> <li>• Need for external Voltage source</li> </ul> | 3 channel-MPD 600                  |
| <b>Offline PD Measurement</b>                         | Single Phase Offline PD Measurement | <ul style="list-style-type: none"> <li>• Need for planned Outage</li> <li>• Various frequency measurements</li> <li>• Standard reports with various diagrams</li> <li>• Need for external Voltage source</li> </ul>  | CPC 100+ CP TD1+ 3 Channel-MPD 600 |
| <b>Capacitance and dissipation factor (Tan delta)</b> | Voltage Tip-up test                 |  | CPC 100+ CP TD1                    |
| <b>DC winding and Contact Resistance</b>              |                                     |  | CPC 100+ CP TD1                    |
| <b>Dielectric Response Analysis</b>                   |                                     |  | DIRANA                             |

**HIGH VOLTAGE CABLES TEST PACKAGES**

| Measurements                | Test Packages                | Details   | Test Device       |
|-----------------------------|------------------------------|---|-------------------|
| <b>Online PD Monitoring</b> | 3-phase Online PD Monitoring | <ul style="list-style-type: none"> <li>• <b>NO Need</b> for planned Outage</li> <li>• Various frequency measurements</li> <li>• Standard reports with various diagrams</li> <li>• 3PARD and 3FREQ features</li> <li>• <b>NO Need</b> for external Voltage source</li> </ul> | 3 channel-MPD 600 |

