Get the Whole Picture!

How the Primary Test Manager™ software can improve your power transformer testing

Do you know what it's like when you have to do a maintenance job on your power transformer including chemical, electrical and dielectric tests, using several test devices? And then you have to put all the puzzle pieces together in order to see the complete picture of your transformer's condition?

The transformer puzzle

With proper testing and maintenance, the lifetime of a power transformer can be extended by identifying and fixing defects before they can cause severe failures.

Therefore various tests are done during a maintenance job in order to determine the condition of the power transformer and detect any damage or potential problems early on. Each type of test gives you another piece of information about the status of your transformer. These tests include chemical ones, such as the dissolved gas analysis, or electrical tests, such as winding resistance measurements or dielectric ones, such as power/dissipation factor measurements or dielectric frequency response analysis. Comparisons with fingerprints and previous measurement data provide additional information.

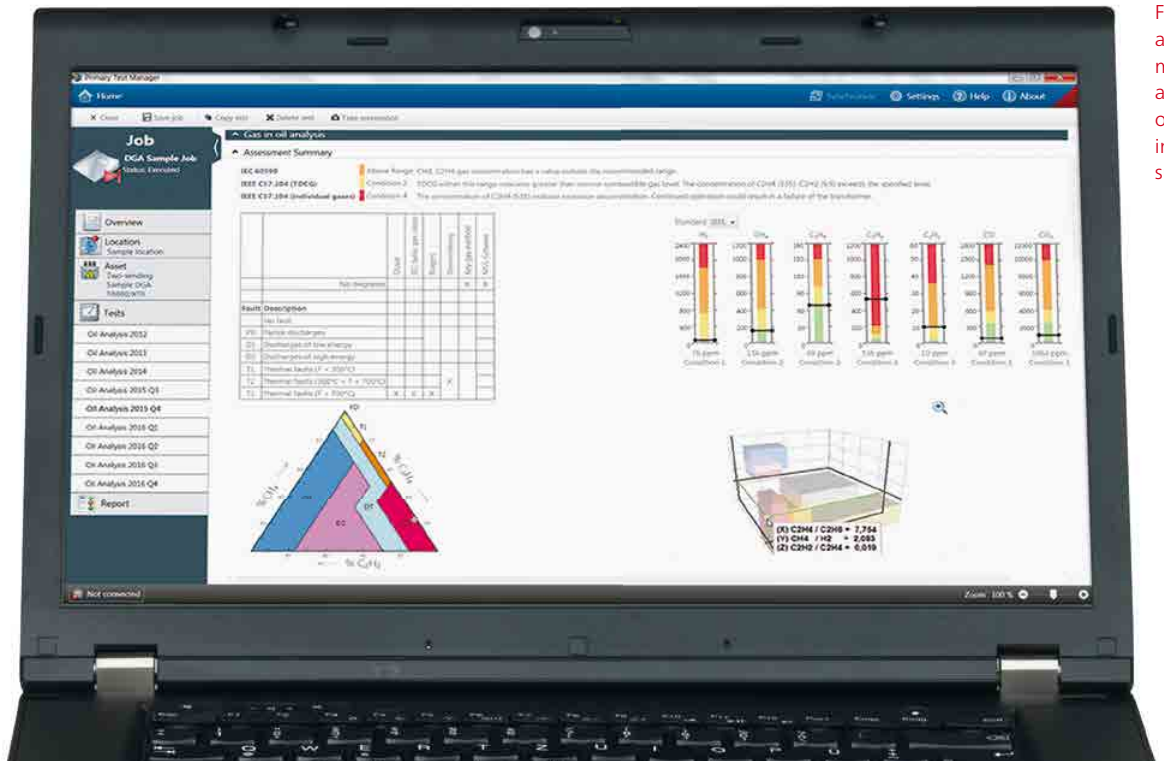
Like a jigsaw puzzle, each piece is essential in order to gain a complete understanding of your power transformer's condition. So in order to have a picture that's as complete as possible, you need to find a way to make these puzzle pieces fit together. In the past this was oftentimes only possible by transferring data manually from the individual test devices to one common file. Comparisons and reports also had to be prepared manually.

Primary Test Manager™ – the puzzle solving software

Our Primary Test Manager™ (PTM) software is optimized for the diagnostic testing of power transformers. Therefore it is the ideal software tool for supporting your efforts to complete your jigsaw puzzle automatically with much greater speed.

Dissolved gas analysis (DGA) – the first piece of information

People always say that it's best to start a jigsaw puzzle from the corners. For a power transformer maintenance job, one of the corner stones of the jigsaw puzzle is the DGA. The PTM software allows you to enter the results of the DGA via a specially prepared entry form. This also helps you by keeping all of your data in one place. Afterwards, PTM also supports you by assessing DGA results according to IEC 60599 and IEEE C57.104 standards. ▸



For a comprehensive analysis, PTM offers automatic result assessment and comparison, e.g., of DGA results using interpretation methods such as Duval's traingles.

One software for electrical and dielectric tests – find the missing pieces easily

In addition to the DGA, several electrical and dielectric tests are performed during a diagnostics job. Meanwhile, the comprehensive PTM software operates with most OMICRON devices that are used for transformer testing: CPC 100, TESTRANO 600, FRANEO 800 and DIRANA.

So you only have to get used to one testing software and you only have to enter your asset data once. PTM even supports you in that area by offering specific nameplate views, which indicate mandatory and recommended parameters.

Comparison and trending – complete the picture

Oftentimes, it's not the absolute value that's been measured once that's of importance, but the change of the value over time – the trend. With PTM you can do trend analysis for e.g., power/dissipation factor or DGA values. Additionally, you can do side-by-side comparisons with reference values or test results of a similar asset.

Reporting – multiple puzzle pieces, one report

Once the tests are done, PTM automatically generates a report including all asset related information and test results. This gives you a comprehensive overview of the transformer that's been tested, the test results and the assessment.

PTM DataSync – share your results

During on-site testing, data is often generated by multiple testing teams. With the 'PTM DataSync' module, every user can synchronize his data to a central database. This ensures that you'll always get the latest test data update related to your power transformer out to the field.

Getting the jigsaw puzzle pieces sorted out is a major challenge if you have to do it manually, therefore let PTM help you solve the puzzle and get the complete picture.

OMICRON devices / test sets operated with PTM

TESTRANO 600 is our new portable, three-phase power transformer test system. You can perform various tests on power transformers without re-connecting, which cuts down testing times significantly.

The CPC 100 is our multi-functional primary injection test system, which can be used for various electrical tests on power transformers, instrument transformers, rotating machines, grounding systems, power lines, cables and circuit breakers.

FRANEO 800 performs reliable core and winding diagnosis on power transformers using Sweep Frequency Response Analysis (SFRA).

Power transformer testing with PTM

1. Capacitance and power / dissipation factor
2. DC winding resistance and OLTC verification (DRM)
3. Transformer turns ratio (TTR)
4. Exciting current
5. Short-circuit impedance / leakage reactance
6. Frequency response of stray losses (FRSL)
7. Demagnetization
8. Dielectric (frequency) response analysis (DFR)
9. Sweep frequency response analysis (SFRA)
10. Dissolved gas analysis (DGA)
11. Insulation resistance

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DIRANA is the ideal tool for moisture determination of power and instrument transformers and condition assessment of rotating machines.