

Testing and management software for medium- and high-voltage assets

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One solution for comprehensive diagnostic testing, condition assessment

The Primary Test Manager™ (PTM) is the ideal software tool for diagnostic testing and condition assessment of medium- and high-voltage assets.

Combined with numerous OMICRON test systems, you can test circuit breakers, rotating machines, grounding systems, instrument and power transformers as well as associated equipment such as bushings and on-load tap changers (OLTC).

PTM assists test engineers, as well as maintenance and asset managers, in testing and assessing your equipment in accordance with applicable international IEEE and IEC standards and guidelines, while keeping testing time to a minimum.

All test and assessment results are automatically stored in a structured and easily accessible database. PTM also provides you with powerful reporting functionalities.



TESTRANO 600



CIBANO 500



CPC 100

TEST SETS

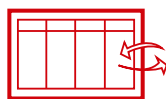
FEATURES



EXECUTION OF
DIAGNOSTIC TESTS



RESULT ANALYSIS
AND REPORTING



DATA MANAGEMENT
AND SYNCHRONIZATION



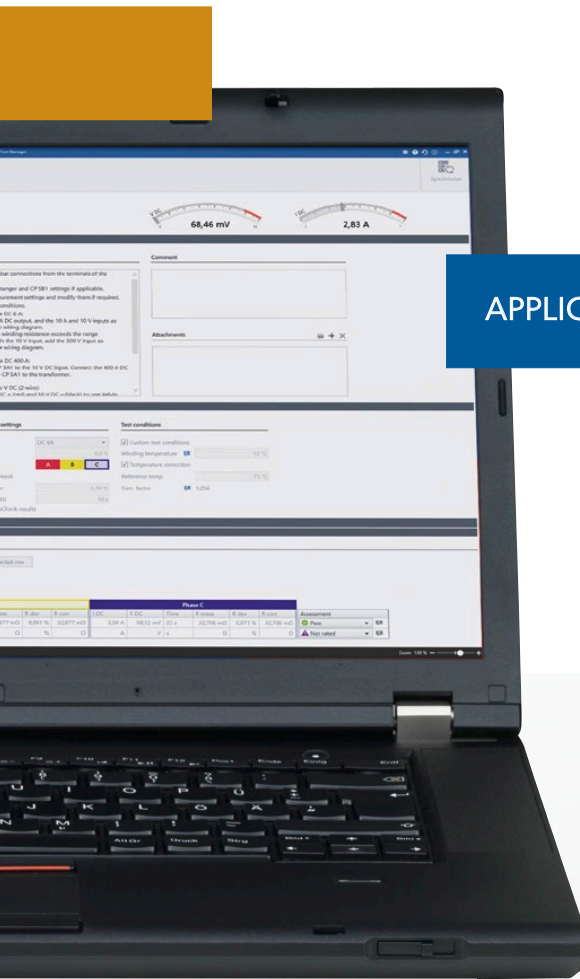
Assessment and easy data management



FRANEO 800



DIRANA



APPLICATIONS



GROUNDING SYSTEMS



ROTATING MACHINES



CIRCUIT BREAKER



VOLTAGE/POTENTIAL
TRANSFORMER



CURRENT
TRANSFORMER



POWER
TRANSFORMER

Your benefits

- > Asset specific test plan generation including wiring diagram
- > Automatic assessment according to industry standards
- > Comprehensive reporting, including templates for all standard and advanced tests
- > Import and export interfaces for data exchange
- > Integrated asset data management in a local and client/server database

www.omicronenergy.com/PTM

Guided and manual testing depending on your needs and application

Depending on the connected test system and the asset under test, you can choose between various guided and manual tests:

- > Manual testing for full flexibility, for example, define test procedures and test settings according to your specific needs.
- > Guided testing, the software guides you step by step through the entire test procedure and provides test settings data.

CPC 100

TESTRANO 600

DIRANA

FRANEO 800

CIBANO 500



Power transformer testing

Power factor/dissipation factor and capacitance	■ ¹	■ ¹	■	–	–
Exciting current	■	■	–	–	–
Short-circuit and zero sequence impedance	■	■	–	–	–
Transformer turns ratio	■	■	–	–	–
DC winding resistance	■	■	–	–	–
Dynamic OLTC Scan (DRM)	■	■	–	–	–
Demagnetization	■	■	–	–	–
Leakage reactance	■	■	–	–	–
Power loss at low voltage	–	■	–	–	–
Dielectric (frequency) response analysis	–	–	■ ²	–	–
Insulation resistance	–	–	■	–	–
Polarisation index and dielectric absorption ratio	–	–	■	–	–
Sweep frequency response analysis (SFRA)	–	–	–	■	–



Circuit breaker testing

Power factor/dissipation factor and capacitance	■ ¹	–	■	–	–
Contact resistance	■	–	–	–	■
Motor current	–	–	–	–	■
Timing	–	–	–	–	■
Dynamic contact resistance	–	–	–	–	■
Minimum pickup	–	–	–	–	■



Grounding system testing

Step and touch voltage	■ ³	–	–	–	–
Ground impedance	■ ³	–	–	–	–

■ included for guided and manual testing – not included

	CPC 100	TESTRANO 600	DIRANA	FRANEO 800	CIBANO 500
 Current transformer testing					
Power factor/dissipation factor and capacitance	■ ¹	–	■	–	–
Ratio	■	–	–	–	–
Winding resistance	■	–	–	–	–
Excitation characteristics	■	–	–	–	–
Burden	■	–	–	–	–
Composite error	■	–	–	–	–
Dielectric (frequency) response analysis	–	–	■ ²	–	–
Insulation resistance	–	–	■	–	–
Polarisation index and dielectric absorption ratio	–	–	■	–	–
 Voltage/Potential transformer testing					
Power factor/dissipation factor and capacitance	■ ¹	–	■	–	–
Ratio	■	–	–	–	–
Burden	■	–	–	–	–
Dielectric (frequency) response analysis	–	–	■ ²	–	–
Insulation resistance	–	–	■	–	–
Polarisation index and dielectric absorption ratio	–	–	■	–	–
 Rotating machine testing					
Power factor/dissipation factor and capacitance	■ ¹	–	■	–	–
Dielectric (frequency) response analysis	–	–	■	–	–
Insulation resistance	–	–	■	–	–
Polarisation index and dielectric absorption ratio	–	–	■	–	–

¹ Additional accessory CP TD12/15 required

² Including moisture analysis for oil-paper-insulated assets

³ Additional accessories CP CU1 and HGT1 required

Execution of diagnostic tests

Define your asset

In order to assist you during testing, PTM helps you in defining your asset with specific nameplate views. It indicates mandatory and recommended parameters, making data entry fast and easy.

You can enter information about the location as well as nameplate parameters, such as serial number, vector group, or voltage and current ratings.

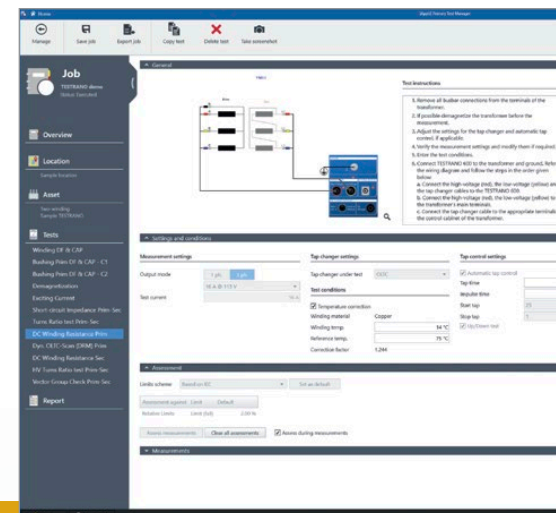
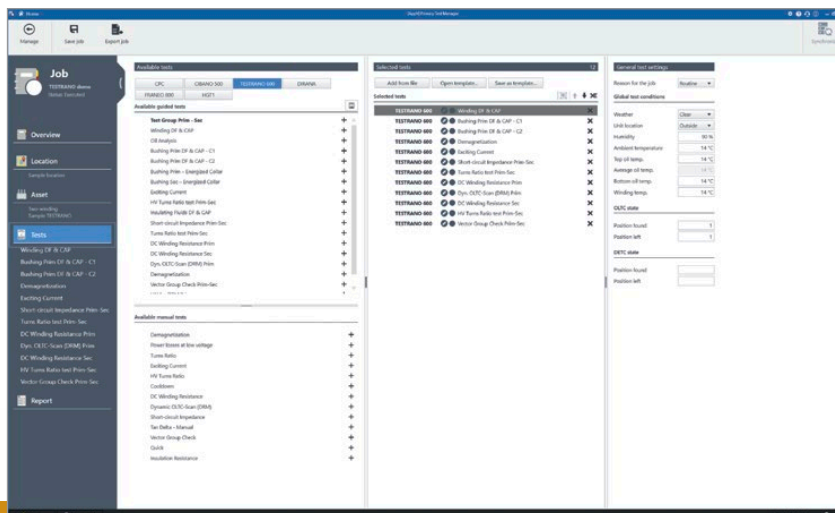
Alternatively, you can import data about location or asset from other systems, for example ERP, maintenance or asset management systems.

Once the data is entered, it can be re-used for all future tests.

Create your test plans

PTM offers you different ways to receive your ideal test plan.

- > Automatic generation
Based on the nameplate values of the tested asset, PTM automatically generates a comprehensive test plan according to current standards and guidelines.
- > PTM test plan templates
You can also use one of the provided PTM test plan templates in order to thoroughly assess the condition of your asset.
- > Processing test plan templates
You can adapt jobs to your needs and save them as your own templates. This is particularly useful for repeated routine tests as you only need to define the performed tests once.



Get the PTMate app free of charge in the App Store and Google Play Store!

Connect your test set

In order to set up the test set in the correct way, PTM assists you with pre-configured wiring diagrams, depending on the selected asset and test set.

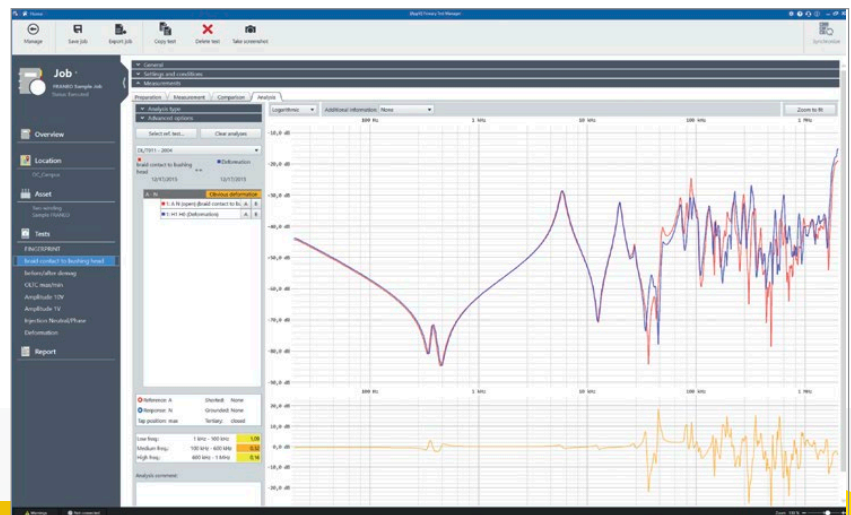
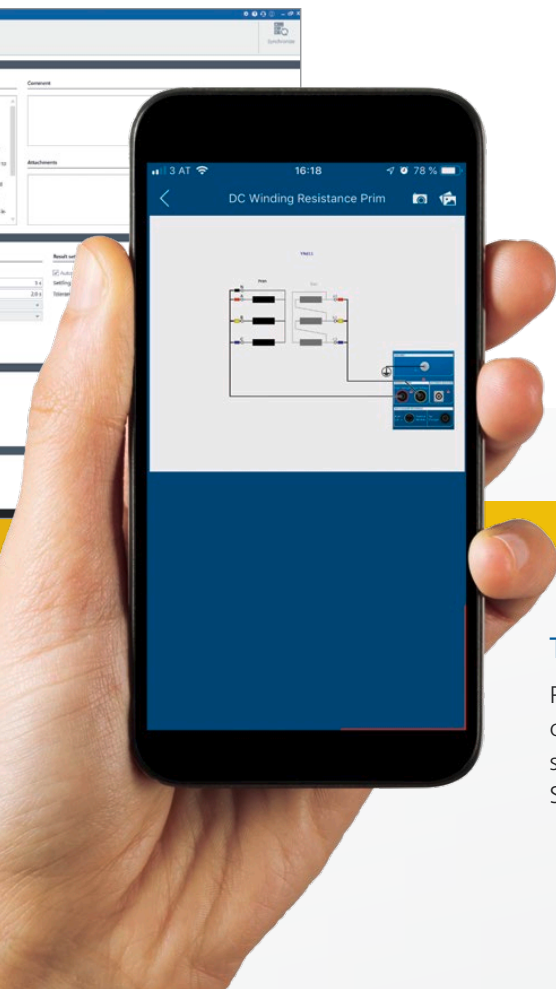
This minimizes the likelihood of measurement errors, speeds up your testing process and obtains accurate test results even faster.

Execute your test plans

PTM enables you to control the connected test set and to execute the defined test directly from a computer.

You are prompted wherever a user interaction is needed, otherwise the execution of the tests is fully automatic.

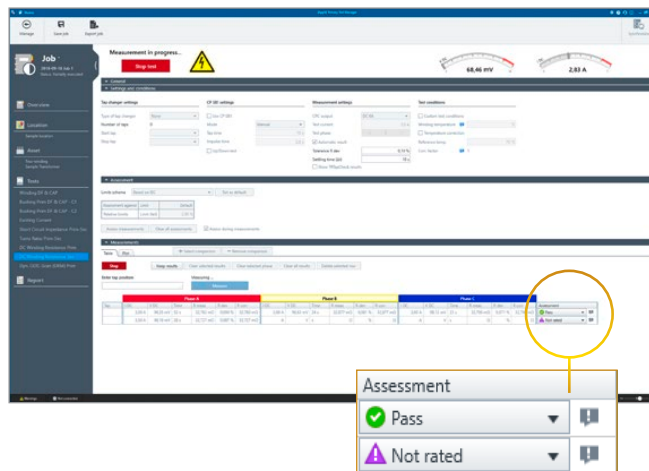
A real-time overview of the test results is given during the measurement, including a progress update with an indication of any open tasks.



The new PTMate app – Your mobile companion for PTM

PTMate is your mobile companion for PTM. The app supports you on site and extends the PTM feature set to your smartphone, such as sending images directly, fast and safe wiring for tests as well as a STOP button for ongoing measurements.

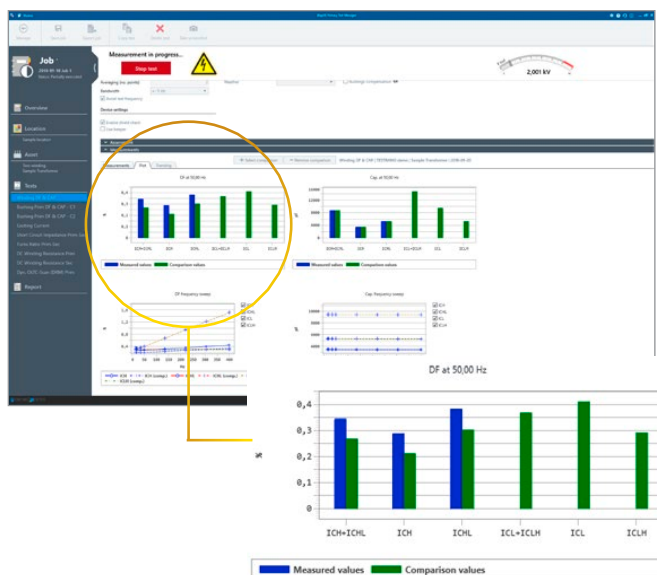
Result analysis and reporting



Automatic assessment

You can select limit values according to applicable IEEE and IEC standards and guidelines. Alternatively, you can adapt them based on manufacturer specifications or your individual limit profiles.

An instant “pass/fail” assessment of the test results is displayed based on specified limit values. In addition, a tooltip informs you which test parameters should be further investigated.



Visualization and comparison of test results

The measurement result can be visualized in tables and plots for easy review and assessment.

Additionally, they can be compared side-by-side in one diagram, for example with reference values of the nameplate, or previous results of the same or similar asset.

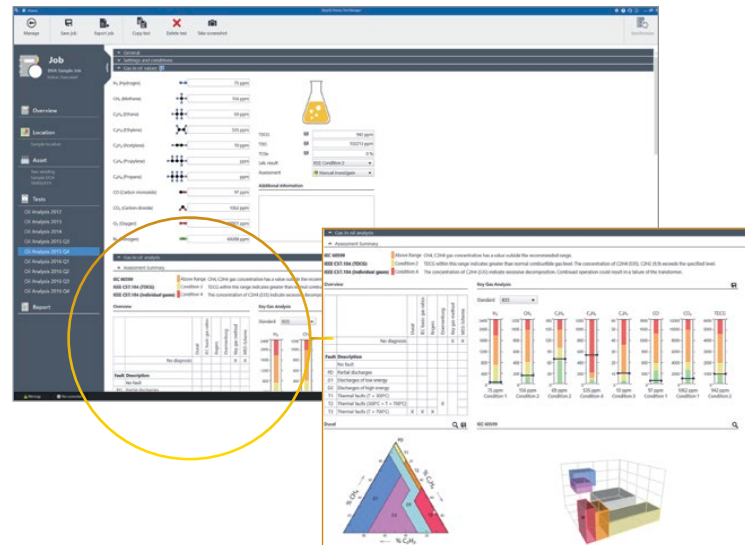
This allows further in-depth analysis.

Compatible with third party test data

PTM also supports you in importing test results which were generated by various third party test sets, for example, for sweep frequency response analysis, power factor/dissipation factor, dielectric (frequency) response analysis, insulation resistance and dissolved gas-in-oil analysis (DGA).

This allows you to build a comprehensive test result database for your assets including all diagnostic results and their history.

For DGA, PTM additionally provides a comprehensive assessment and visualization according to IEEE C57.104 and IEC 60599 standards.



Customized reports

PTM automatically generates reports including all asset-related information and performed tests. This gives you an comprehensive overview of the test object, test results and assessment.

You can easily adapt test reports, for example, by choosing from different types of result tables and diagrams and by providing comments on every test.

Furthermore, you can incorporate your company logo, photos and other test results. The reports can be exported in Microsoft Word™, Microsoft Excel™ and PDF format.



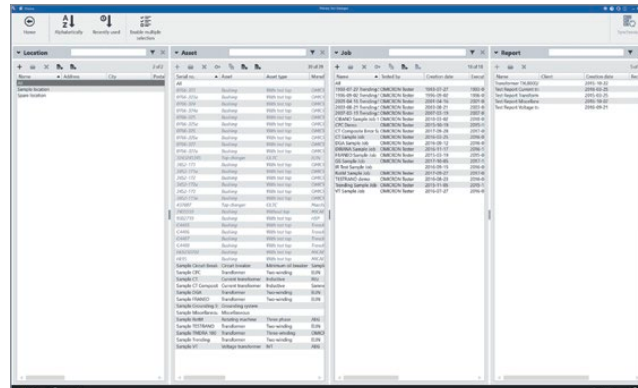
Data management and synchronization

Well-structured data management

The well-structured PTM database allows you to define and manage locations, assets, jobs and reports in an easy and fast way.

Once your asset data is entered, you can re-use it to generate new jobs or to add similar assets.

The comprehensive database helps you to find all asset-related data needed for the execution and assessment of tests. Additionally, you can also attach all kinds of files to the performed tests.



Location	Asset	Job	Report
Location 1	Asset 1	Job 1	Report 1
Location 1	Asset 2	Job 2	Report 2
Location 1	Asset 3	Job 3	Report 3
Location 1	Asset 4	Job 4	Report 4
Location 1	Asset 5	Job 5	Report 5
Location 1	Asset 6	Job 6	Report 6
Location 1	Asset 7	Job 7	Report 7
Location 1	Asset 8	Job 8	Report 8
Location 1	Asset 9	Job 9	Report 9
Location 1	Asset 10	Job 10	Report 10
Location 1	Asset 11	Job 11	Report 11
Location 1	Asset 12	Job 12	Report 12
Location 1	Asset 13	Job 13	Report 13
Location 1	Asset 14	Job 14	Report 14
Location 1	Asset 15	Job 15	Report 15
Location 1	Asset 16	Job 16	Report 16
Location 1	Asset 17	Job 17	Report 17
Location 1	Asset 18	Job 18	Report 18
Location 1	Asset 19	Job 19	Report 19
Location 1	Asset 20	Job 20	Report 20
Location 1	Asset 21	Job 21	Report 21
Location 1	Asset 22	Job 22	Report 22
Location 1	Asset 23	Job 23	Report 23
Location 1	Asset 24	Job 24	Report 24
Location 1	Asset 25	Job 25	Report 25
Location 1	Asset 26	Job 26	Report 26
Location 1	Asset 27	Job 27	Report 27
Location 1	Asset 28	Job 28	Report 28
Location 1	Asset 29	Job 29	Report 29
Location 1	Asset 30	Job 30	Report 30
Location 1	Asset 31	Job 31	Report 31
Location 1	Asset 32	Job 32	Report 32
Location 1	Asset 33	Job 33	Report 33
Location 1	Asset 34	Job 34	Report 34
Location 1	Asset 35	Job 35	Report 35
Location 1	Asset 36	Job 36	Report 36
Location 1	Asset 37	Job 37	Report 37
Location 1	Asset 38	Job 38	Report 38
Location 1	Asset 39	Job 39	Report 39
Location 1	Asset 40	Job 40	Report 40
Location 1	Asset 41	Job 41	Report 41
Location 1	Asset 42	Job 42	Report 42
Location 1	Asset 43	Job 43	Report 43
Location 1	Asset 44	Job 44	Report 44
Location 1	Asset 45	Job 45	Report 45
Location 1	Asset 46	Job 46	Report 46
Location 1	Asset 47	Job 47	Report 47
Location 1	Asset 48	Job 48	Report 48
Location 1	Asset 49	Job 49	Report 49
Location 1	Asset 50	Job 50	Report 50
Location 1	Asset 51	Job 51	Report 51
Location 1	Asset 52	Job 52	Report 52
Location 1	Asset 53	Job 53	Report 53
Location 1	Asset 54	Job 54	Report 54
Location 1	Asset 55	Job 55	Report 55
Location 1	Asset 56	Job 56	Report 56
Location 1	Asset 57	Job 57	Report 57
Location 1	Asset 58	Job 58	Report 58
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Location 1	Asset 90	Job 90	Report 90
Location 1	Asset 91	Job 91	Report 91
Location 1	Asset 92	Job 92	Report 92
Location 1	Asset 93	Job 93	Report 93
Location 1	Asset 94	Job 94	Report 94
Location 1	Asset 95	Job 95	Report 95
Location 1	Asset 96	Job 96	Report 96
Location 1	Asset 97	Job 97	Report 97
Location 1	Asset 98	Job 98	Report 98
Location 1	Asset 99	Job 99	Report 99
Location 1	Asset 100	Job 100	Report 100

Open data exchange

You can easily exchange data between PTM and other software systems such as ERP, maintenance or asset management systems, or import data generated by various third party test systems:

- > Import and export of location and asset data in .csv format
- > Import of test data in .csv, .xml and formats of various common test sets
- > Export of test data in .csv, Microsoft Excel™ and .xml format

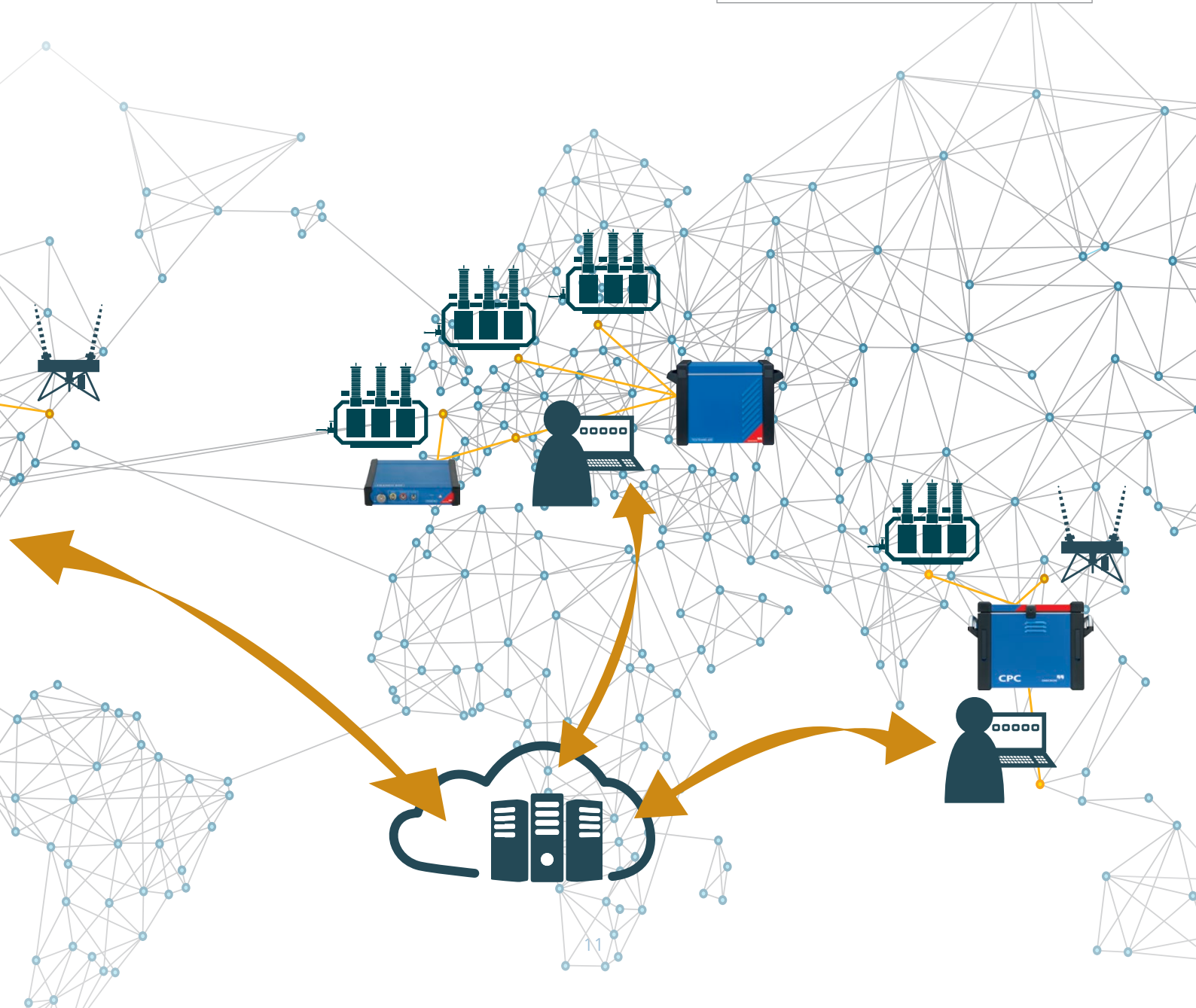
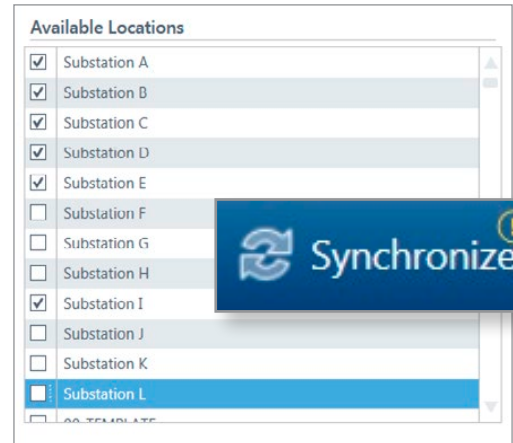


Data synchronization and back-up

Often multiple testing teams generate new test data simultaneously working offline in remote substations.

The 'PTM DataSync' module allows easy and comfortable data synchronization and back-up. Based on your preferences, a central database can be hosted on premises or in the cloud.

With just one single click, you can download all required and actual data on your PC. In order to keep the local database small, you can also restrict synchronization and just select the relevant locations. After testing it is equally easy: You just have to click 'Synchronize' to upload all newly generated local data to the central server.



Technical Data and Ordering Information

Licensing of PTM Standard and Advanced

	Guided workflow	Customized test plans	Automatic assessment	Graphical comparison	Manual control mode	Attachments	Reporting	PTM database	Ordering No.
PTM Standard									
For CPC 100/80 and TESTRANO 600	–	–	–	–	■	■	■	■	included
PTM Advanced									
For CPC 100	■	■	■	■	■	■	■	■	P0006792
For CPC 80	■	■	■	■	■	■	■	■	P0001259
For TESTRANO 600	■	■	■	■	■	■	■	■	P0006797
For CIBANO 500, FRANEO 800 and DIRANA	■	■	■	■	■	■	■	■	included

■ included – not included

Additional PTM Licenses

	Description	Ordering No.
PTM Inspection Test License	Visual on-site checks with PTM & PTMate	P0000953
PTM Insulation Resistance Test License	Adding insulation resistance test results including PI, DAR calculation and assessment	P0000954
PTM DGA Trending License	Trending of dissolved gas values over time	P0000955
PTM DataSync "WEB" License*		
	Easy data synchronization with your personal PTM cloud, hosting partner Microsoft Azure, free choice of the Azure region	
	> For up to 3 users	P0006572
	> For one additional user	P0006794
PTM Data Analytics License for PTM DataSync Web users *	OData interface for connecting BI-tools or third party systems, Corporate license	P0006573
PTM DataSync "On Premises" License		
	Easy data synchronization with a PTM-server database, hosting by own IT-department	
	> For up to 3 users	P0006571
	> For one additional user	P0006793

* annual license fee, subscription valid for one year

Characteristic Requirement (*recommended)

Operating system	Windows 10 64-bit	¹ We recommend graphics adapter supporting Microsoft DirectX 9.0 or later.
CPU	Multicore system with 2 GHz or faster*, single-core system with 2 GHz or faster	² For testing with TESTRANO 600, CPC 100 and CIBANO 500. NIC = Network Interface Card. TESTRANO 600, CPC 100 and CIBANO 500 can be connected with RJ-45 connectors either directly to the computer or to the local network, for example, by using an Ethernet hub.
RAM	minimum 4 GB (8 GB)	³ For testing with FRANEQ 800
Hard disk	minimum 5 GB of available space	
Storage device	DVD-ROM drive	
Graphics adapter	Super VGA (1280×768) or higher-resolution video adapter and monitor ¹	
Interface	Ethernet NIC ² , USB 2.0 ³	
Installed software	required for the optional Microsoft Office interface functions Microsoft 365*, Office 2019, Office 2016, Office 2013	



We create customer value through ...

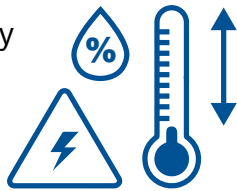
— Quality —

You can rely on the highest safety and security standards



Superior reliability with up to

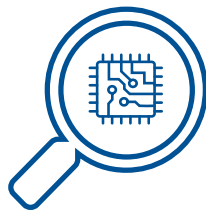
72



hours burn-in tests before delivery

100%

routine testing for all test set components



ISO 9001
TÜV & EMAS
ISO 14001
OHSAS 18001



Compliance with international standards

— Innovation —



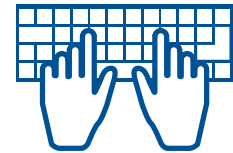
... a product portfolio tailored to my needs

More than

200

developers

keep our solutions up-to-date



More than

15%

of our annual sales is reinvested in research and development



Save up to

70%

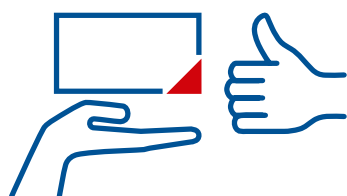
testing time through templates, and automation



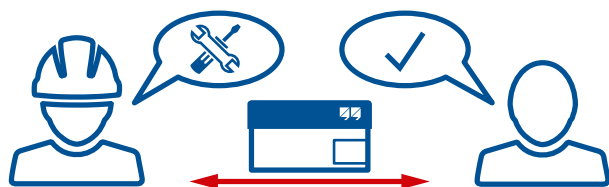
— Support —



Professional technical support at any time



Loaner devices
help to reduce
downtime



Cost-effective and straight-forward repair
and calibration



offices worldwide for local contact and
support

— Knowledge —

More than

300

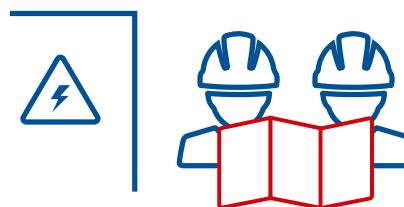


Academy and numerous hands-on
trainings per year

Frequently OMICRON
hosted user meetings,
seminars and
conferences



to thousands of technical papers and
application notes



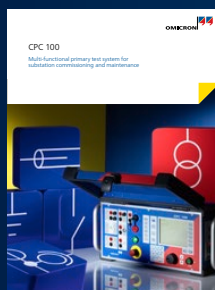
Extensive expertise in consulting, testing
and diagnostics

OMICRON is an international company that works passionately on ideas for making electric power systems safe and reliable. Our pioneering solutions are designed to meet our industry's current and future challenges. We always go the extra mile to empower our customers: we react to their needs, provide extraordinary local support, and share our expertise.

Within the OMICRON group, we research and develop innovative technologies for all fields in electric power systems. When it comes to electrical testing for medium- and high-voltage equipment, protection testing, digital substation testing solutions, and cybersecurity solutions, customers all over the world trust in the accuracy, speed, and quality of our user-friendly solutions.

Founded in 1984, OMICRON draws on their decades of profound expertise in the field of electric power engineering. A dedicated team of more than 900 employees provides solutions with 24/7 support at 25 locations worldwide and serves customers in more than 160 countries.

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



CPC 100
Brochure



TESTRANO 600
Brochure



CIBANO 500
Brochure



FRANEO 800
Brochure



DIRANA
Brochure

For more information, additional literature, and detailed contact information of our worldwide offices please visit our website.