OMICRON

CPX 200

Compact multifunctional test set for commissioning, maintenance, and condition assessment of medium and high-voltage assets

Unleash the expert with CPX 200

We are excited to introduce a ground-breaking innovation - an ecosystem which redefines multifunctional testing. We've pushed the boundaries of technology to bring you the most advanced measuring instrument the industry has ever seen. A seamless interaction of all elements enables test engineers to unleash their full potential, dedicating their time and expertise to core tasks, without any distraction. We are proud to introduce CPX 200 and its unique ecosystem."

Your OMICRON Development Team

POWERFUL

Enhance efficiency and precision with our pioneering test system and take your test processes to a whole new level:

- 1 000 A AC/DC with High Current Module
- 10 kV AC/DC with the HVX10 system component
- Test frequency range from 1 to 600 Hz and DC
- Unsurpassed precision

DEVELOPED WITH SAFETY IN MIND

Reduce the risk of electrical hazards with safe test setups in accordance with EN 50191:

- Red and green signal lights on the test set
- Emergency switching off button
- INTERLOCK key
- Operational mode button
- External warning lamps with emergency switching off button (optional)

FUTURE-PROOF

Meet the demands of today and tomorrow's energy systems.

- Designed and tested to internationally recognized industry and cybersecurity standards
- Long support cycles with comprehensive product maintenance and support
- Highest development and production standards for hardware, software, and accessories

MODULAR AND VERSATILE

Configure the hardware and software for your individual test solution:

- Test power transformers, instrument transformers, and circuit breakers
- Extended range of applications with integrated High Current Module and compact high-voltage source HVX10
- Accessories with "Click&Play" system
- Guided test sequences with the customized PC software CPXpert, efficient analyses with our futureproofed cloud system CORTEX Grid, or fast operation via CPX TouchControl
- Versatile, convenient transport options with backpack or transport case

COMPACT

Avoid heavy lifting and cargo limitations via a lightweight system solution

- CPX 200 main unit: 10.6 kg (23.3 lbs)
- Integration-capable High Current Module: 3.3 kg (7.4 lbs)
- HVX10 system component: 14.8 kg (32.7 lbs)
- All tests can be performed with a total system weight of less than 30 kg (66 lbs)

EASY TO OPERATE

Benefit from efficient and standardized workflows:

- Intuitive testing with simple input of nameplate parameters
- Very little wiring effort thanks to combined measuring channels
- True three-phase test system
- Color touchscreen with automatic brightness adjustment
- Multi-asset testing in a single user interface
- Automatic personalized documentation and report generation of all test results

Revolutionarily universal

Decades of experience in the field of primary testing assets, a whole host of practical ideas and customer requests, as well as a technical passion for exploring the limits of what is possible—these were the driving forces behind the development of the CPX 200 and HVX10 hardware, software, and all associated accessories.

The impressive result: A powerful, safe, and compact multifunctional test set that heralds the standards of the next generation. With the CPX 200, you have a safe and reliable expert at hand for commissioning, maintenance, or regular condition assessments of medium and high-voltage assets.

Capacitance and dissipation factor testing

CURRENT AND VOLTAGE TRANSFORMERS

Ratio

Ratio V

Low Power Instrument Transformer Ratio

Knee point

Winding resistance

Burden

Polarity

Polarization Index (PI)
Dielectric Absorption Ratio (DAR)

Your benefits

- Safe and efficient three-phase testing
- Frequency range from 1 to 600 Hz and DC
- Test voltages up to 10 kV AC/DC
- Test currents up to 1 000 A AC/DC

**Curious?
Find out more!**

POWER TRANSFORMERS

Transformer turns ratio

Winding resistance

Demagnetization

Short-circuit impedance / leakage reactance

Magnetizing current (available soon)

Quick Test
Individual signal generation, measurement, and comprehensive parameter selection

Switchgear

Timing

Coil and motor current

Static contact resistance

The all-rounder when it comes to power transformer diagnostics

TRUE THREE-PHASE VOLTAGE SOURCE

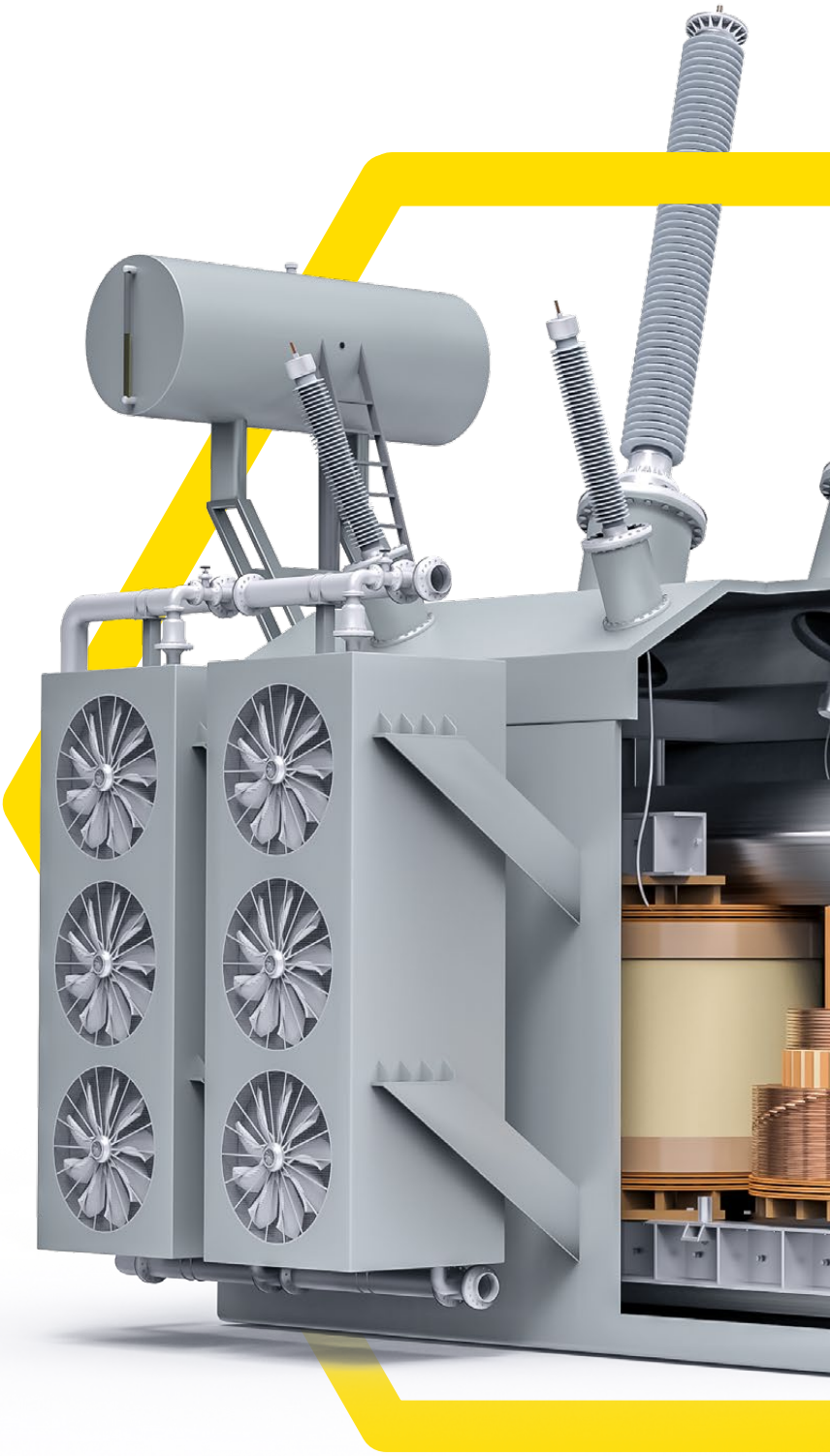
The CPX 200 enables three-phase and single-phase ratio testing:

- Optimized testing with three-phase infeed
- Further diagnostic information can be derived based on single-phase testing

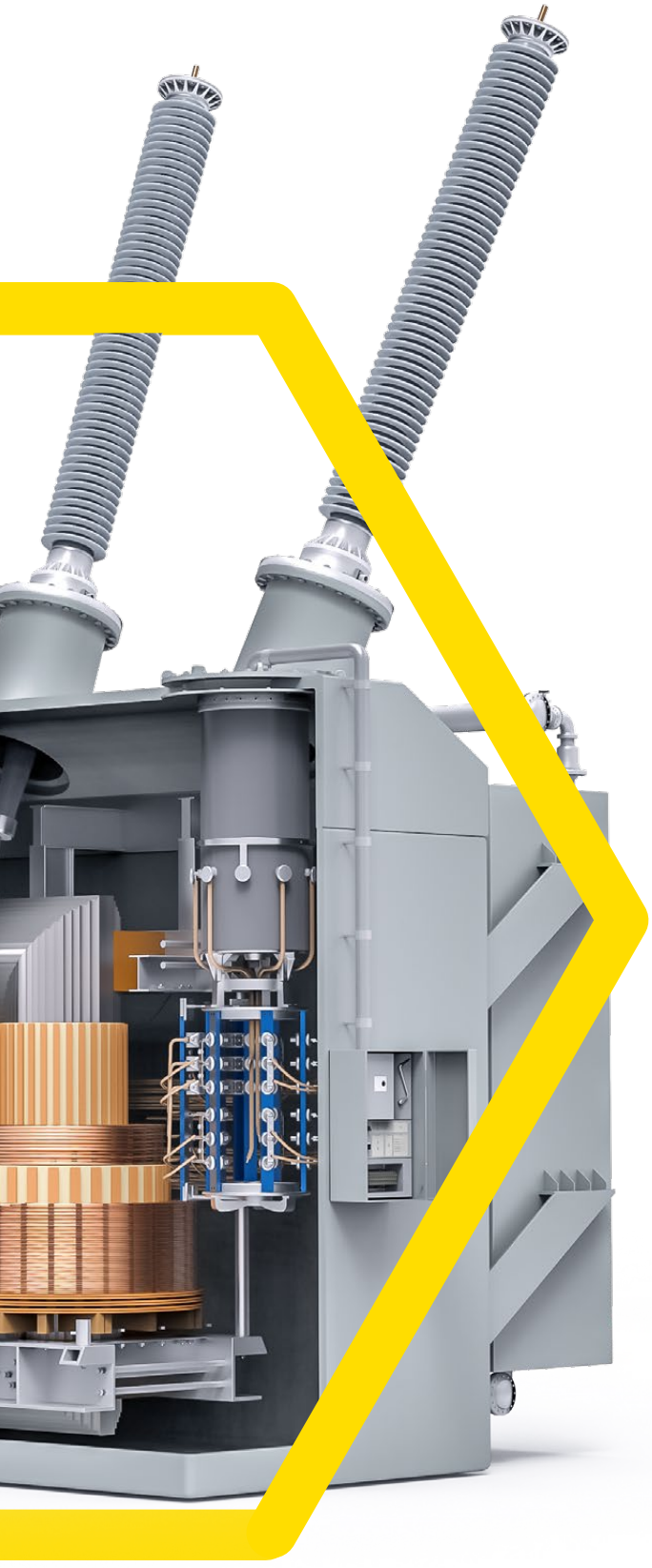
INTEGRATED TAP CHANGER CONTROL

The tap changer of the transformer is controlled automatically.

- No separate switchbox required
- Control via the binary outputs of the CPX 200



Curious? Video tip!
Diagnostics for power transformers with CPX 200.



TESTING MULTIPLE BUSHINGS

The HVX10 enables sequential testing by connecting up to four bushings at the same time.

- Reduced need for ladder climbs
- Increased test speed

TWO MEASUREMENTS WITH ONE SETUP

The HVX10's integrated 10 kV AC/DC voltage source allows two measurement procedures to be performed in one test setup.

- Capacitance and dissipation/power factor
- Insulation resistance

WIDE FREQUENCY RANGE (1–600 Hz)

More precise insulation diagnostics than ever before with our extended frequency range from 1 to 600 Hz:

- Deeper insights
- More accurate diagnoses
- Reliable results

TEST A WIDE RANGE OF POWER TRANSFORMERS

With the CPX 200 you can test a wide range of transformer configurations:

- Up to three-winding transformers
- Single-phase transformers & autotransformers
- Full support of conventional vector groups

Full flexibility for instrument transformer testing

TRANSFORMER TURNS RATIO

The powerful CPX 200 makes it quick and easy to compare nameplate data and results from previous measurements during commissioning:

- Primary injection testing with up to 1 kA AC
- The CPX 200 with integrated High Current Module weighs just 14.8 kg (32.7 lbs)
- Cable configurations with 2 x 9 m (29.5 feet) length of the high-current cables
- DC-free test signal to prevent saturation of the current transformer core

EXCITATION GRAPH

To accurately determine the current transformer's knee point, the CPX 200 uses the same innovative, proven, and standard-established method as the CT Analyzer.

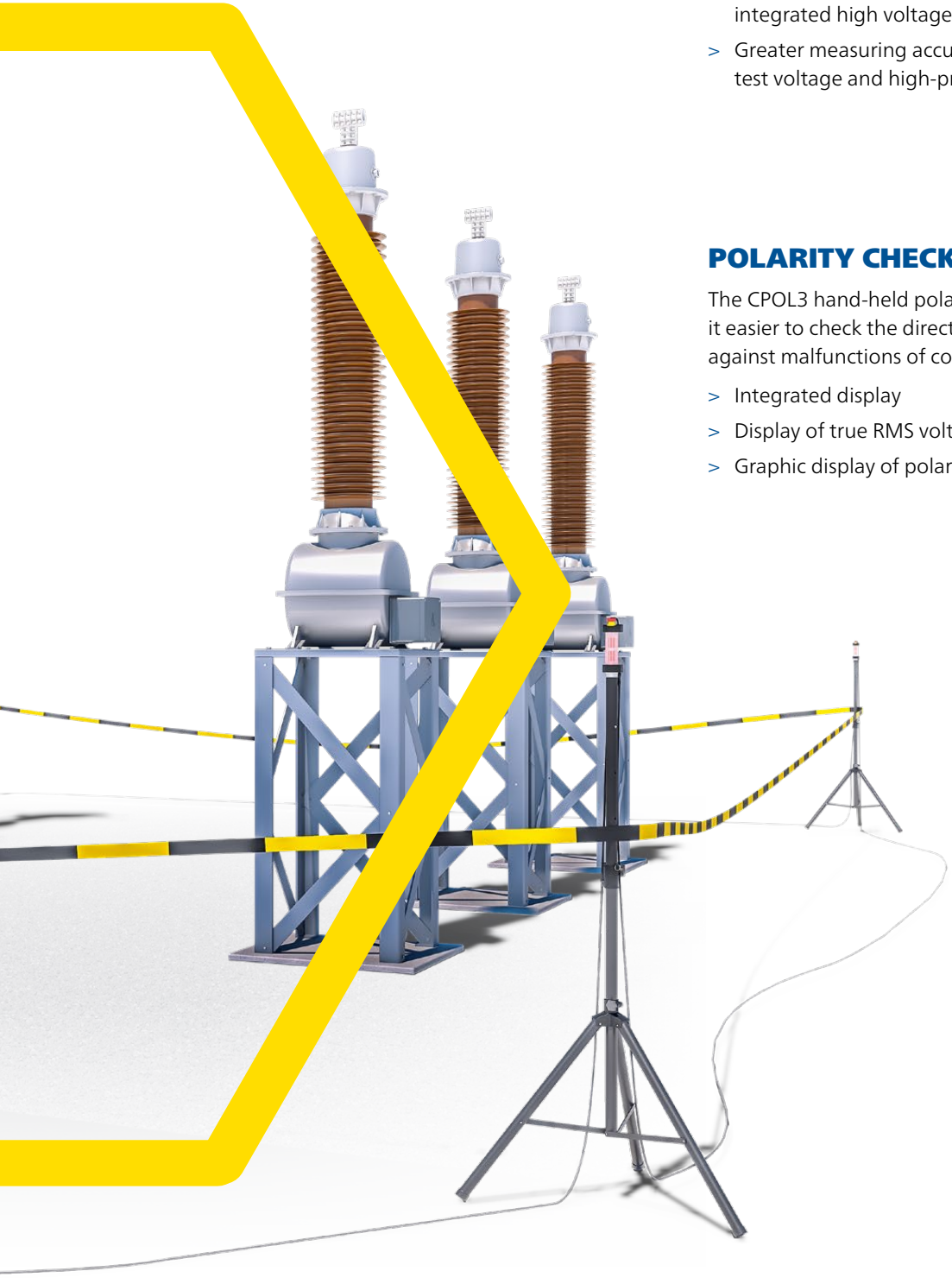
- Precise determination of the knee points
- Enhanced test reliability
- Greatly extended range of measurable knee points (current transformers of types TPS, TPX, TPY, and TPZ)

Curious? Video tip!
Instrument transformer testing with CPX 200.

RATIO V

In combination with the HVX10, the CPX 200 enables precise measurement of the transformation ratio using high voltage:

- Up to 10 kV AC through the HVX10's integrated high voltage source
- Greater measuring accuracy thanks to the higher test voltage and high-precision measuring inputs



POLARITY CHECK

The CPOL3 hand-held polarity and wiring checker makes it easier to check the direction of energy flow and protects against malfunctions of connected relay systems:

- Integrated display
- Display of true RMS voltage values
- Graphic display of polarity

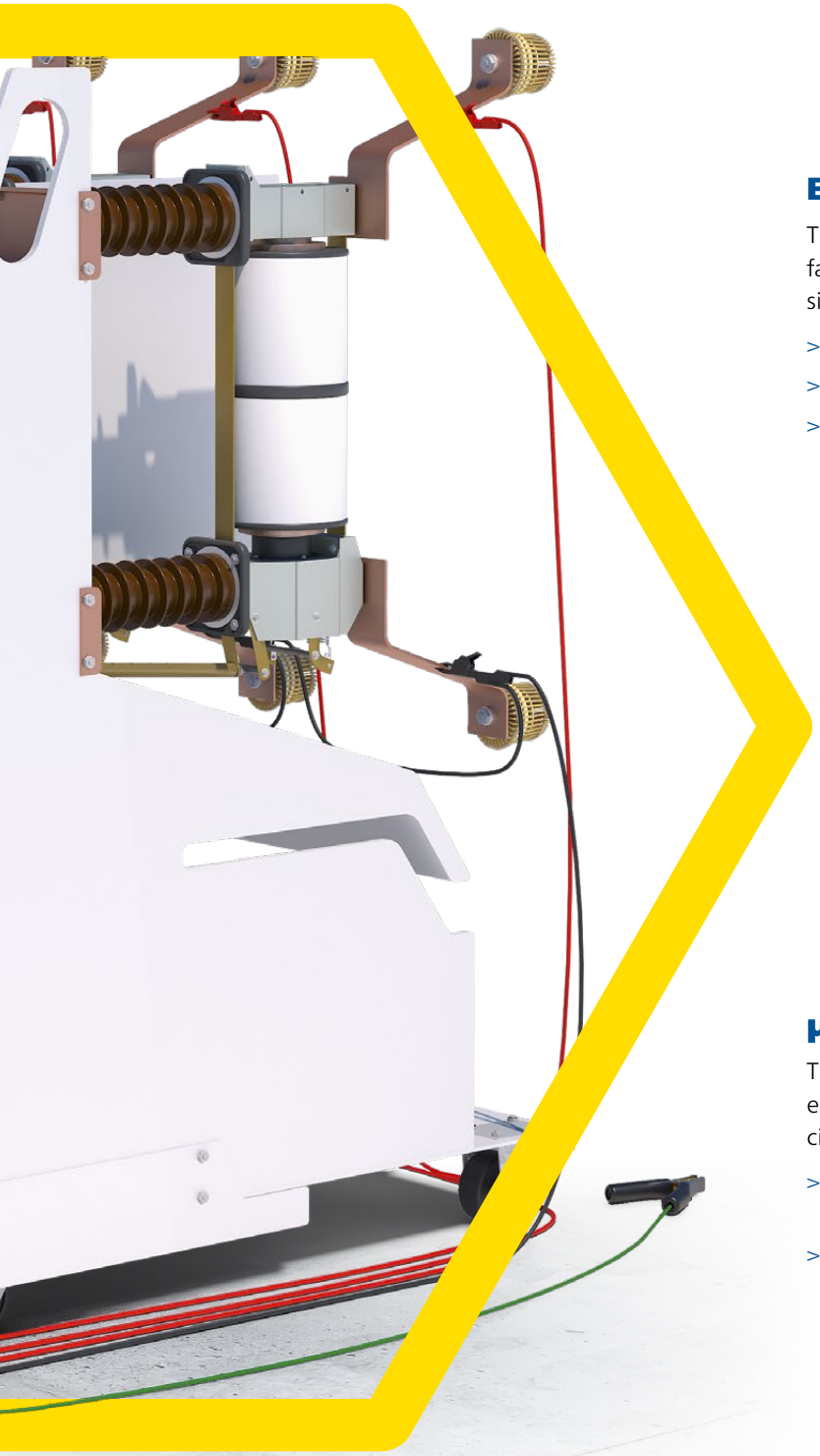
Circuit breaker testing with integrated voltage source

EFFORTLESS TIMING MEASUREMENT

Time measurement with the CPX 200 does not require a station battery, which is especially advantageous for medium-voltage breakers that need to be fully separated and isolated from the station battery:

- Integrated power supply with up to 125 V DC to supply the switch
- Fast wiring with increased safety

Curious? Video tip!
Circuit breaker testing with CPX 200.



EXTENDED TIMING MEASUREMENTS

The newly integrated CPX 200 timing measurement facilitates a check of the different switching times with a single setup:

- Synchronous assessment of all main contacts
- Timing measurement of the auxiliary contacts
- Recording and analysis of coil current and motor current

µΩ MEASUREMENT WITH 1 kA DC

Thanks to the High Current Module, the CPX 200 offers extensive possibilities for performing µΩ measurements on circuit breakers and all types of switchgear:

- Cleaning of air-oxidized contacts with high DC test currents
- High-precision measurement values

CPX 200: A revolution in excellence

CPX 200 FRONT PANEL

1	OUT A convertible AC/DC current and voltage output
2	OUT B true 3-phase AC/DC voltage output
3	V IN 2 x 300 V AC/DC voltage input
4	I IN 2 x 10 A AC/DC current input
5	BIN OUT 2 x binary outputs with integrated current measurement
6	BIN IN 3 x multi-purpose binary inputs with integrated 300 V AC/DC voltage input
7	INTERLOCK key
8	Operational mode button
9	Red and green signal lights
10	Grounding socket
11	Emergency switching off button
12	Ambient light sensor
13	On/off button
14	Jog-dial handwheel
15	Multi-touch LED color display

CPX 200 SIDE PANEL

1	3 × EtherCAT communication ports for connecting additional system components (e.g., HVX10)
2	2 × IEC 61850 SFP cages to support cable and optical fiber network interfaces
3	Ethernet port with RJ-45 socket for connecting the CPX 200 to an external computer
4	USB-B port
5	2 × USB-A 3.0 port
6	SAFETY LINK port for connecting external safety accessories
7	Power supply socket
8	External booster output as a power supply for external devices (e.g., HVX10)

HIGH CURRENT MODULE

9	Warning lights (discharge)
10	1.000 A AC/DC output
11	100 A DC output with active DC discharge circuit


EXT
OUT A
OUT B
1
2
V IN
I IN
3
4
BIN OUT
BIN IN
5
6
CPX 200
7
INTERLOCK
8
9
ACTIVE
SAFE
10
11
12
13
14
15
OMICRON


NETWORK
PC
SAFETY
1
2
3
4
5
6
EXTERNAL BOOSTER
8
POWER
7


10
1000A
100A
11
100A DC
9
CPX
High Current Module

Electrifying: HVX10

The optional HVX10 system component combines capacitance, dissipation/power factor, and insulation resistance testing in a compact, lightweight device. Thanks to the integrated generic high-voltage source, you can diagnose the insulation quality with minimal cabling efforts and in the shortest possible time. HVX10 uses an optimized test procedure that combines a voltage and frequency sweep, while the extremely wide frequency range of 1 to 600 Hz allows you to easily assess the insulation not only at mains frequency. The test procedure also helps to detect particular problems such as moisture ingress, premature aging, and voltage-dependent behavior of the insulation.

HVX10 CONNECTIONS

1	EtherCAT for connection to the CPX 200
2	BOOSTER IN for supply from the CPX 200
3	M GND measured value ground connection
4	Red and green signal lights
5	Measuring inputs: 4 × I IN current inputs and 1 × V IN voltage input
6	HV OUT high-voltage output

"CLICK&PLAY"

With its quick-release mechanism, you can connect the HVX10 to the CPX 200 effortlessly and securely—and disconnect it just as easily. Thanks to its low weight, you can easily transport the two devices together within the substation, which is particularly useful when testing complete testing fields and feeders. Our innovative, lightweight, and compact high-voltage cable and the four measuring inputs of the HVX10 ensure a quick test setup, while the latter facilitate measurement of the transformer bushings without rewiring.


EtherCAT
1
RUN
L/A
BOOSTER IN
2


M GND
3
ACTIVE
4
SAFE
I IN
V IN
5
HV OUT
6
PUSH


CPX
OMICRON
CPX 200
OMICRON
HVX10

Your requirements are important —modular design, expandable at a

The CPX 200 can be precisely adapted to your requirements, thanks to its modular hardware, software, accessories, and services. For example, you can start with a flexible multifunctional test solution and easily expand it later on to create a specialized test system for specific applications.

OPTIMIZED CABLE HANDLING

Tailor your perfect test setup with a wide choice of cable lengths and connector options.

HVX10: GREATER POWER WITH CLICK-SNAP-LOCK

This versatile system component allows you to measure capacitance, dissipation/power factor, and insulation resistance. The compact and lightweight unit can be easily connected to the CPX 200 using the innovative "click-snap-lock" system.

ny time

EASY TRANSPORTATION

CPX 200 and HVX10 can be transported individually or together: The robust transport case is the perfect solution for safe transportation, as a practical trolley, and for convenient tabletop operation in the field. The new, lightweight carry cases can be used independently or combined to form a convenient backpack.

EXTERNAL WARNING LAMP WITH EMERGENCY SWITCHING OFF BUTTON

(available soon)

To enhance operational safety, you can connect up to four external warning lamps to each CPX 200. The external warning lamp integrates effortlessly through plug and play via the new innovative SAFETY LINK interface, which also provides the power supply as a digital interface.

POWERFUL HIGH CURRENT MODULE

With the optional High Current Module, you can extend the test current range to up to 1 000 A AC/DC. A later integration of the High Current Module into the CPX is quick and easy at your OMICRON Service Center.

Your benefits

- Future-proof investment planning thanks to our scalable modular concept
- Better accessibility to confined areas with lightweight backpack
- Protected transport and convenient workflow with robust trolley
- Enhanced application safety due to warning lamps with emergency switching off button in the danger zone
- Safe and tidy test setup thanks to optimized cable arrangements

An ecosystem that redefines multifunctional testing

HARDWARE

Robust and compact. The basis for reliable operation in the field.

SOFTWARE

Precisely aligned with hardware and application requirements. Enabling the full potential of your testing capabilities.

CORTEX GRID

Seamlessly integrated and delivering maximum cybersecurity. For optimized testing workflows and insightful analyses.

ACCESSORIES

Sophisticated and uncompromising functionality. For a perfectly tailored system.

APPLICATIONS

Future-proof, designed in partnership with our customers: For versatile testing in a short time.

SECURITY

Developed in line with the highest safety standards. For the most comprehensive safety functions on the market.

Safety re-imagined

MULTI-LEVEL SAFETY CONCEPT

We don't consider safety to be a special feature: it serves as the foundation for what we do. For decades, we've been challenging outdated and unsafe methods and replacing them with smarter, safer, and more advanced methods for testing electrical systems. We not only comply with current industry standards, but also set new benchmarks—always with your safety as our top priority.

FROM DEVICE ...

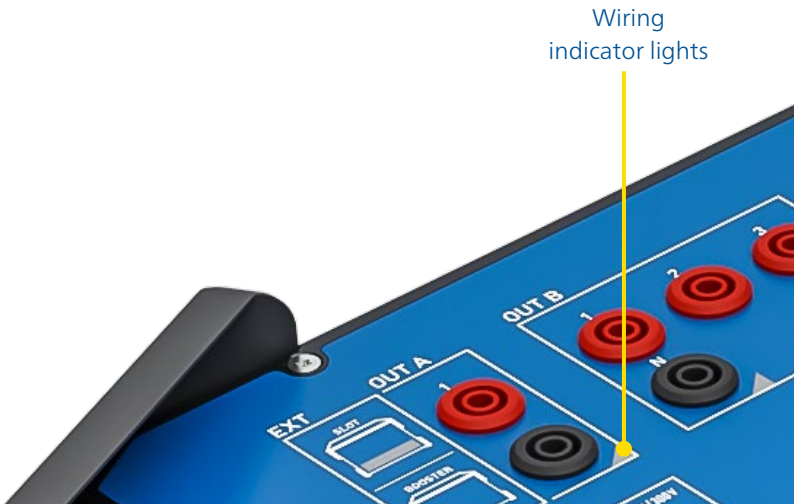
Comprehensively certified hardware safety features deliver greater protection for test engineers in the field. These include the red ACTIVE and green SAFE signal lights, the emergency switching off button, and an optional acoustic signal.

The CPX 200 only outputs test signals when the INTERLOCK key is plugged in and after pressing the operational mode button, reliably protecting users from dangerous voltages. Removing the INTERLOCK key provides additional safety when rewiring, for example.

The state of individual outputs and measurement channels are clearly indicated by multi-colored indicator lights on the device, while they also serve to quickly visualize overloads during measurement and the presence of potentially hazardous external currents or voltages, thereby warning users of the danger immediately.

Optional external warning lamp (available soon)

The optional external warning lamp safety accessory is used to identify your danger zone. The external warning lamp is equipped with an emergency switching off button, red/ green signal lamps, and an optional acoustic signal. Up to four devices can be connected in series.



... TO SOFTWARE

Helpful software functions also reduce potential hazards and errors in the field. Alongside the high degree of automation in the testing process, wiring tests upstream of the infeed and a wiring aid, for example, increase safety during work.
With the latter, the CPX 200 displays the outputs and inputs to be used directly on the device. This not only minimizes wiring errors, but also significantly reduces the time required for the test setup.

Curious?
Find out more!

Optimum support in every situation with CPXpert and CORTEX Grid

The powerful hardware of the CPX 200 deserves perfectly tailored software. Thanks to its clear design and comprehensive test automation, the CPXpert PC software guides you effortlessly through every test. A report is generated at the push of a button. With CORTEX Grid—our future-proof cloud solution—you can always keep an eye on the status of your assets over their entire life cycle.

The sustainable "single source of truth" (which is scalable at any time) is based on the most stringent cybersecurity standards. With the integrated CPX TouchControl user interface, users can test various high- and medium-voltage assets directly on the device, easily and precisely.

CORTEX Grid

The future of test data management

Consolidate and combine your test data, optimize your processes, and make informed decisions—all on one powerful, cloud-based platform.

- Data unification: all test data in one place, in a clear and structured form
- Straightforward integration: automatic test data synchronization
- Integrated project management: manage projects and approvals directly on the platform
- Advanced analysis functions: quick, well-informed decisions thanks to powerful analyses and visualizations
- Future-proof: cloud-based, scalable solution for efficient data management

CPXpert

Your partner for precise and efficient testing

CPXpert allows you to perform measurements efficiently and free of errors, and flexible test procedures help you to save time and obtain high-quality, reliable test results.

- Standardized and streamlined workflows: intuitive generation of asset-specific test plans, including wiring diagrams
- Wide range of test options: supports both routine and diagnostic tests to cover every requirement
- Three-phase current transformers: test all three phases in a single, seamless sequence
- Multi-window views: manage different test windows to test different assets in parallel
- Automatic evaluation of results: automated assessments in accordance with industry standards
- Straightforward report generation: create comprehensive reports with a single click
- Connection to CORTEX Grid: synchronize test results directly with CORTEX Grid and manage all data on one platform

CPX TouchControl

Intuitive testing in the field

With CPX TouchControl, you experience efficient, user-friendly control directly on the device, without the need for a laptop.

- Optimized for use in the field: multi-touch display with automatic brightness adjustment for unmatched readability under different lighting conditions
- Intuitive, user-friendly user interface: specifically optimized for touchscreen use
- Security through isolation: closed system environment means no external access points and no cybersecurity risks
- Seamless integration: data compatibility with CORTEX Grid via CPXpert

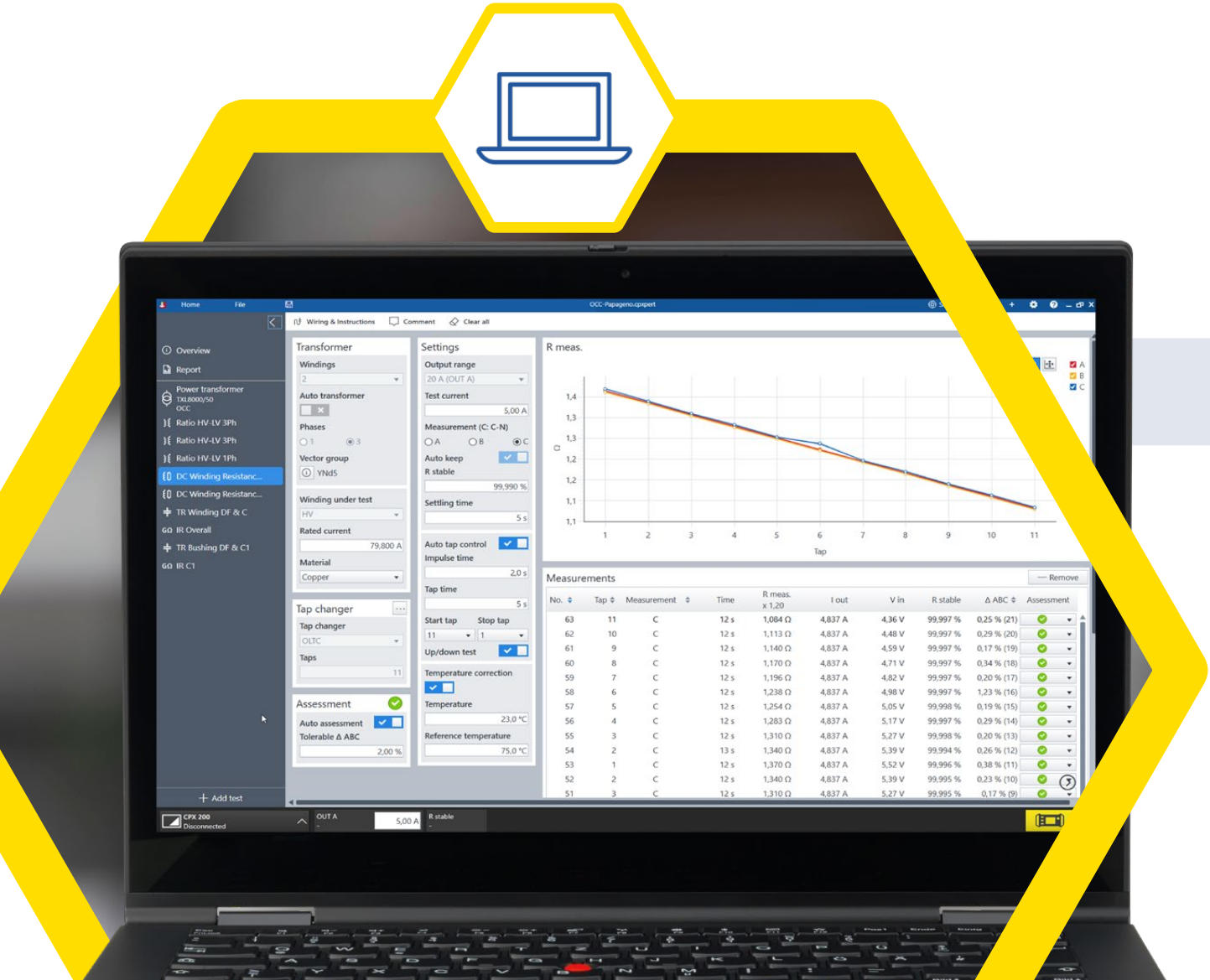
CPXpert: Save time by becoming an expert

Efficiency is indispensable when testing assets in substations and performing comprehensive condition assessments. CPXpert helps you to extend the service life of your assets. With its guided and flexible test procedures, the PC software saves test engineers in the field a great amount of time, while also helping to avoid errors during test preparation, execution, and evaluation.

OVERCOME CHALLENGES

The CPXpert test procedures have been developed specifically for practical use. The key focus is on delivering high-quality data records that can be used for the reliable and precise analysis of asset conditions as well as unambiguous reporting:

- Easy input of nameplate data of assets
- Integrated adaptive wiring diagrams
- Flexible adaptation of test procedures to your requirements—from routine testing to special tests
- Accurate, reliable, and consistent data records with the Common Data Model for CPXpert and CORTEX Grid
- Standardized test views that present all the information at a glance



PREPARATION WITH AUTOMATION

CPXpert significantly speeds up the creation of test plans—in the substation and in the office. By entering equipment parameters directly into the test views, the software facilitates quick configuration. The need for data entry on site is kept to a minimum and the total time required for testing is significantly reduced. CPXpert automatically synchronizes the input asset parameters with the nameplate view and all tests to be performed, thereby guaranteeing straightforward data management.

GUIDED TEST EXECUTION

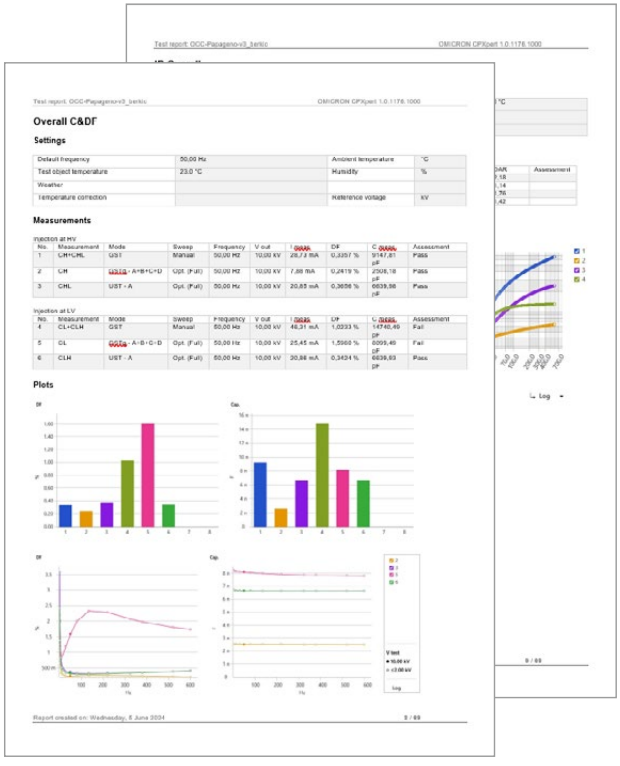
CPXpert provides you with detailed insights into the condition of your assets—effortlessly and reliably. The software delivers detailed tips and supports you with wiring diagrams and integrated wiring tests. Detailed step-by-step instructions guide you through the entire testing process. In conjunction with the pre-configured measurement settings, CPXpert ensures that tests are performed in accordance with the industry's recommended guidelines.

Test results are clearly displayed in tables and charts. Historical comparisons are simple and efficient, thanks to multi-window views. Finally, CPXpert automatically assesses results in line with industry standards or individually defined limit value profiles.

FLEXIBLE REPORTING

After performing the test, you can output comprehensive test reports with a single click: these are clearly structured from the overview to the detailed level, and contain summaries and important test comments. You can easily adjust the reports at any time using Microsoft Word. If asset parameters are subsequently corrected, CPXpert automatically recalculates the assessment results.

The test data from CPXpert can be integrated into the higher-level CORTEX Grid cloud system where they can be safely archived. This allows you to benefit from the system's sophisticated comparison and analysis functions and generate a comprehensive asset test history covering the entire life cycle.



Flexible reporting

KEEP AN EYE ON EVERYTHING

1	Reporting
2	Nameplates
3	Test checklist
4	Wiring diagrams
5	Asset data
6	Evaluations (automatic and individual)
7	Live status bar for checking the progress of the test procedure
8	Test Settings
9	Charts
10	Tables
11	Context-specific help (F1)

TouchControl: One touch is all it needs.

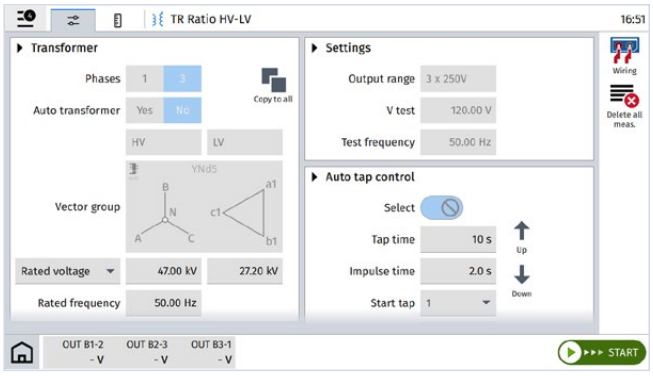
With the integrated TouchControl software, test technicians can easily perform diagnostic tests directly via the CPX 200 display. Based on the asset parameters entered, TouchControl enables automated test configuration including wiring diagrams. When used in combination with the CPXpert PC software, you benefit from convenient standard report generation.

A CLEAR VIEW AT ALL TIMES

The robust, multicolored 8" touch display of the CPX 200 automatically adjusts its brightness to the environmental conditions, making it suitable for indoor and outdoor use in equal measure.

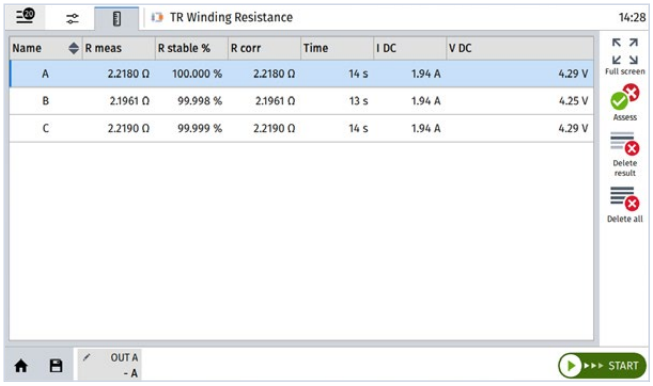
SIMPLE TEST PREPARATION

Testing with TouchControl is straightforward and efficient. Depending on the respective test requirements, users enter basic nameplate information and test settings, and can rely on a well-organized test process.



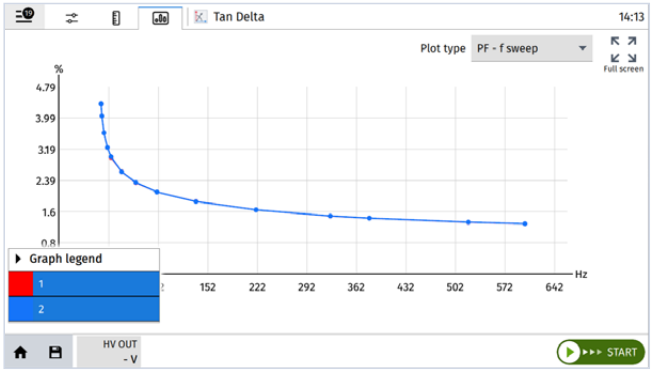
SAFE TEST PROCEDURE

Once the test parameters have been defined in the settings, the test is executed by swiping the start slider. Pre-configured wiring diagrams help you to set up the test correctly, accelerating the test process and reducing the risk of measurement errors.



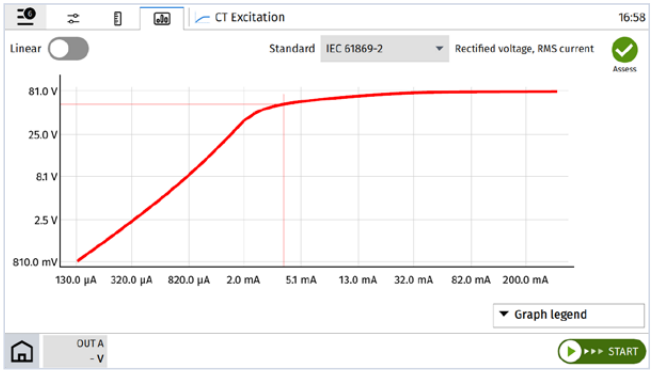
PRACTICAL PRESENTATION OF RESULTS

The live status bar provides information on the current test status. The test parameters can be quickly adjusted if necessary. The test view presents the test results in tables and charts, and key results of each test are highlighted in the detailed summary.



COMPREHENSIVE REPORTS

To create reports, the test results can be transferred to CPXpert and CORTEX Grid via an Ethernet connection or USB stick; if required, the data can be supplemented with additional information on the location and nameplate of the asset.



CORTEX Grid: All assets at a glance

Our centralized cloud platform CORTEX Grid greatly simplifies and accelerates your commissioning and maintenance projects. Seamless integration, efficient preparation, and comprehensive analysis functions for test data reduce your workload and facilitate a future-proof data management strategy, while your easset expertise remains anchored in your company.

ORGANIZED ASSET DATA

CORTEX Grid manages asset and test data from our CPXpert, Primary Test Manager (PTM), and CT Analyzer Suite software applications.

Thanks to the integrated "Common Data Model" (CDM), the cloud platform offers a consistent, uniform view of your asset, regardless of the data source, while also maintaining an overview of the various asset hierarchies.

KEEP AN EYE ON EVERYTHING

1	Dashboard: overview of active projects, available reports, and the system inventory
2	Projects: list of all your projects
3	Assets: overview of all your applications
4	Functions and events: importing data, configuring system settings, and logging system events
5	Projects: precise overview dashboard of all active projects
6	Reports: list of all available reports
7	Assets: overview of applications with project assignment and installation management

AUTOMATED DATA EXCHANGE

Asset data can be transferred from the test files of OMICRON applications and devices to CORTEX Grid with very little effort. Uploading takes place automatically via a local synchronization folder: manual data entry is not necessary. CORTEX Grid is scalable and grows with your company. It enables individual uploads as well as the mass migration of data from existing databases. If no internet access is available, the test files remain locally accessible and are automatically synchronized with CORTEX Grid at a later time.

RELIABLE DATA INTEGRITY

With its standardized data model, the cloud solution intelligently manages conflicts between equipment data, thereby ensuring consistency and logical application structures. In the event of duplicate or incorrect entries, the assets can be merged to maintain data integrity.

CORTEX Grid: All assets at a glance

ON-SITE SEARCHES AT FULL POWER

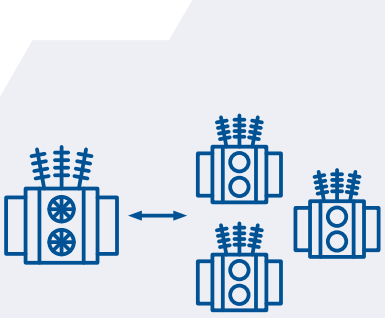
"OMICRON Continuity" takes care of the seamless exchange of data between CORTEX Grid and the test software, which improves the search options and in doing so reduces the time required on site. It also ensures that test data is recorded accurately. In addition to CPXpert, "OMICRON Continuity" is also integrated into PTM (from version 5.20).

SIMPLIFIED COLLABORATION AND PROJECT MONITORING

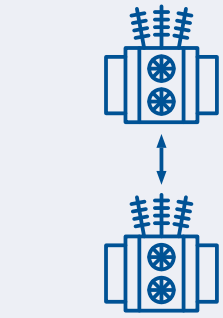
The CORTEX Grid cloud-based data management tools guarantee that your team has reliable and secure access to all relevant asset data, even if it comes from different test sets. This simplifies collaboration between your teams. Powerful dashboards provide a real-time overview of ongoing activities and ensure that every task, every test, and every approval is accounted for.

Workflows are also accelerated when creating reports. With role-based user management, one team member can generate reports while another reviews and approves them – ensuring a seamless workflow. The central filing system avoids version conflicts.

BACCELERATED TEST PROCESS AND IN-DEPTH DATA ANALYSIS

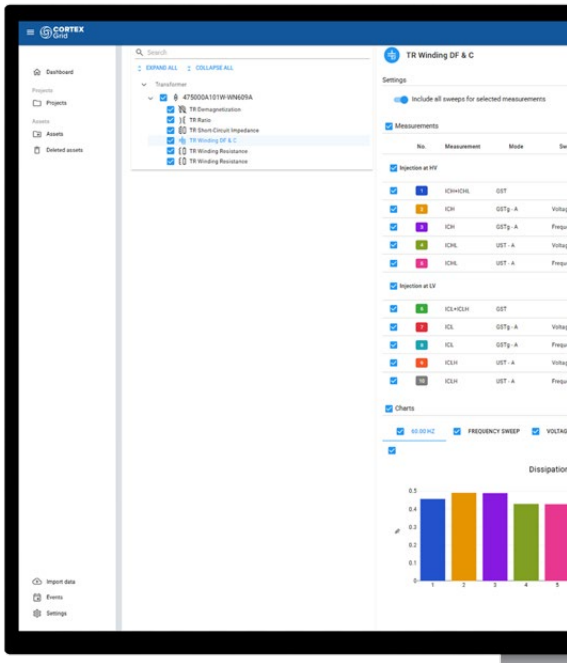


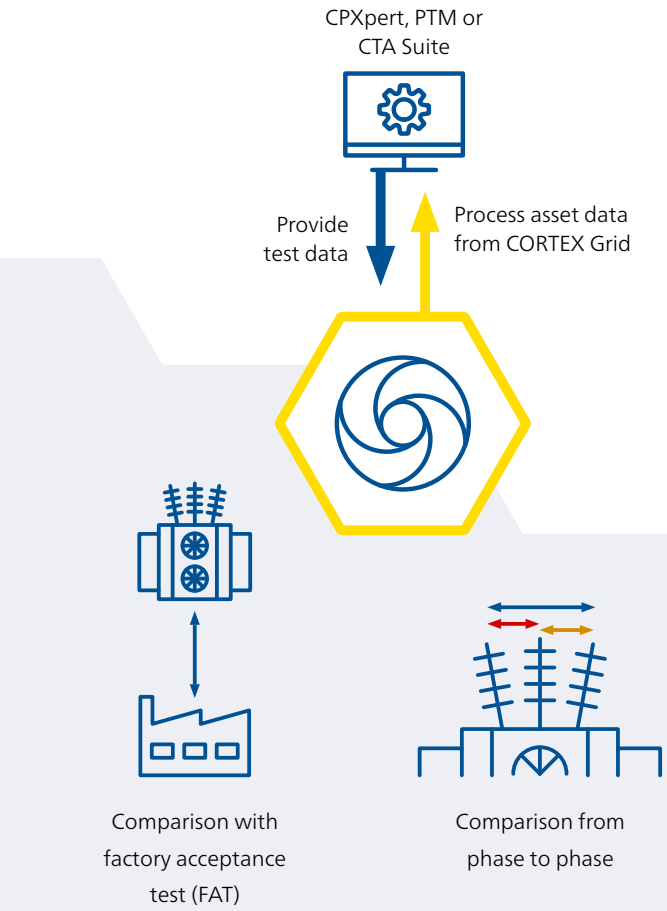
Comparison with fleet



Comparison with sister units

Curious? Video tip!
How CORTEX Grid makes your day-to-day testing easier.

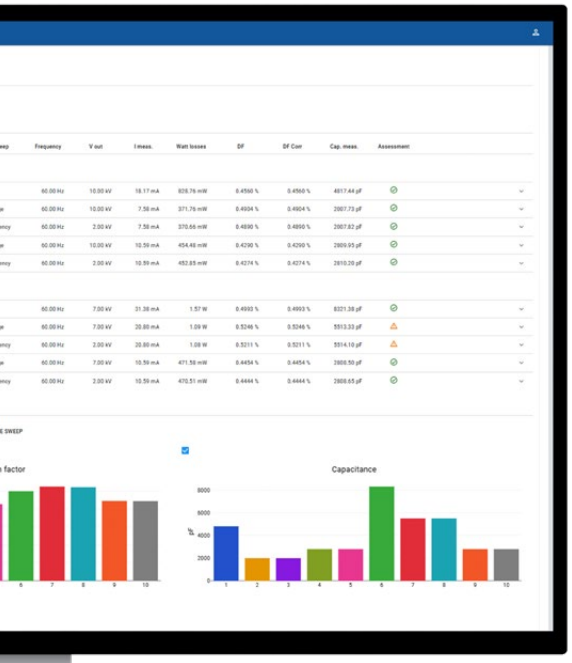




SUBSTANTIATED CONDITION ASSESSMENTS WITH COMPARISONS

In order to make sustainable and efficient decisions about your assets, you need precise knowledge of the relevant performance indicators. Comparing measurement data with trusted reference sources, such as factory acceptance test results or historical tests on sister units, is extremely helpful here. CORTEX Grid offers precise comparisons and holistic insights with very little effort:

- Graphical comparisons so you can easily interpret test data
- The report generation function allows comparisons to be integrated into reports, improving the overview obtained
- A cross-device comparison, for example between TESTRANO 600 and CPX 200 measurement results, delivers a more precise condition assessment
- Filtering by attribute speeds up the retrieval of reference data and the data analysis process



CUSTOM ASSET REPORTS AT THE TOUCH OF A BUTTON

The CORTEX Grid reports combine nameplate and test data from different equipment, software applications, and test sets in a single, coherent report. They can be easily adapted to your specific requirements, allowing overviews of individual equipment with historical data and photos to be integrated just as easily as complex overall evaluations.

Technical data: CPX 200

CPX 200

Current outputs

Output	Output Range	U_{max} [1]	Frequency
OUT A	0 – 70 A	42 V	0.1 – 599 Hz
OUT A	0 – 35 A	85 V	0.1 – 599 Hz
OUT A	0 – 8 A	85 V	0.1 – 599 Hz
OUT A	0 – 100 A	60 V	DC
OUT A	0 – 50 A	120 V	DC
OUT A	0 – 12 A	120 V	DC
HC Module 1 000 A	0 – 1 000 A	5 V	0.1 – 599 Hz, DC
HC Module 100 A	0 – 100 A	5 V	DC

Internal measurement of current outputs

Output	Output Range	Frequency	Accuracy [2, 3] ± (% of the measured value + offset)
OUT A	0 – 1 A	0.1 – 599 Hz, DC	0.02% + 0.05 mA
OUT A	1 – 50 A	0.1 – 599 Hz, DC	0.05% + 2 mA
OUT A	50 – 100 A	0.1 – 599 Hz, DC	0.1% + 5 mA
HC Module 1 000 A	0 – 1 000 A	0.1 – 599 Hz, DC	0.04% + 400 mA
HC module 100 A	0 – 100 A	DC	0.02% + 60 mA

Voltage outputs

Output	Output Range	I_{max} [1]	Frequency
OUT A	0 – 85 V	16 A	0.1 – 599 Hz
OUT A	0 – 42 V	32 A	0.1 – 599 Hz
OUT A	0 – 120 V	20 A	DC
OUT A	0 – 60 V	32 A	DC
OUT B	0 – 300 V (1x) L-N	0.3 A (1x)	0.1 – 599 Hz
OUT B	0 – 150 V (3x) L-N	0.3 A (3x)	0.1 – 599 Hz

Internal measurement of voltage outputs

Output	Output Range	Frequency	Accuracy [2, 3] ± (% of the measured value + offset)	Condition
OUT A	0 – 100 V	0.1 – 599 Hz DC	0.07% + 10 mV	
OUT B	0 – 300 V	0.1 – 599 Hz DC	0.07% + 150 mV	3-phase operation: Symmetric load > 5 kΩ 1-phase operation: Load > 10 kΩ
OUT B	0 – 300 mA	0.1 – 599 Hz DC	0.05% + 20 µA	Load < 100 Ω

Current inputs

Input	Input range	Input impedance	Frequency	Accuracy [2, 3] ± (% of the measured value + offset)
I IN 1 & I IN 2	0 – 10 A	<0.1 Ω	0.1 – 599 Hz, DC	0.04% + 200 mA
BIN OUT 1, BIN OUT 2	0 – 15 A		0.1 – 599 Hz, DC	0.25% + 3 mA

[1] Above 60 Hz and below 50 Hz, the power and maximum voltage may be reduced.
[2] Means "typical accuracy"; at a typical temperature of 23 °C ± 5 K, 98% of all devices have a higher accuracy than specified.
[3] The typical accuracy values apply to the frequency range from 10 to 100 Hz; deviations may occur outside this range. Detailed specifications can be found in the User Manual.
[4] Symmetric load >10kΩ

Voltage inputs

Input	Input range	Input impedance	Frequency	Accuracy[2, 3] ± (% of the measured value + offset)
V IN 1 & V IN 2	0 – 300 V	1 MΩ || 100 pF	0.1 – 599 Hz, DC	0.03% + 0.02 mV
BIN IN 1 & BIN IN 2 & BIN IN 3	0 – 300 V	1.1 MΩ || < 1nF	0.1 – 599 Hz, DC	0.05% + 2 mV
BIN OUT 1 & BIN OUT 2	0 – 300 V		0.1 – 599 Hz, DC	0.5% + 1 000 mV

Measurement of the current transformer ratio

				Accuracy[4]	
Output	Input	Nominal ratio	Test current (typical)	Ratio	Phase
OUT A	I IN 1	3:1 – 10:1	50 A	0.09%	0.05°
OUT A	I IN 1	10:1 – 100:1	50 A	0.09%	0.05°
OUT A	I IN 1	100:1 – 1 000:1	50 A	0.06%	0.05°
OUT A	I IN 1	1 000:1 – 3 000:1	50 A	0.07%	0.08°
HC Module 1 000 A	I IN 1	100:1 – 1 000:1	1 000 A	0.08%	0.7°
HC Module 1 000 A	I IN 1	1 000:1 –10 000:1	1 000 A	0.08%	0.2°
HC Module 1 000 A	I IN 1	10 000:1 –30 000:1	1 000 A	0.09%	0.45°

Measurement of the power transformer and voltage transformer ratio V IN 1 (OUT B) and V IN (HV OUT)

				Accuracy[4]	
Output	Input	Nominal ratio	Test voltage (typical)	Ratio	Phase
OUT B	V IN 1	1:1 – 10:1	300 V	0.05%	0.05°
OUT B	V IN 1	10:1 – 100:1	300 V	0.05%	0.05°
OUT B	V IN 1	100:1 – 1 000:1	300 V	0.05%	0.05°
OUT B	V IN 1	1 000:1 –10 000:1	300 V	0.08%	0.1°
HVX10 HV output	V IN HVX10	3:1 – 10:1	900 V	0.09%	0.05°
HVX10 HV output	V IN HVX10	10:1 – 100:1	30 000 V	0.09%	0.05°
HVX10 HV output	V IN HVX10	100:1 – 1 000:1	10 000 V	0.09%	0.05°
HVX10 HV output	V IN HVX10	1 000:1 – 10. 000:1	10 000 V	0.09%	0.1°

Measurement of the power transformer ratio

				Accuracy[4]	
Output	Input	Nominal ratio	Test voltage (typical)	Ratio	Phase
OUT B	BIN IN	1:1 – 10:1	3 x 150 V	0.09%	0.05°
OUT B	BIN IN	10:1 – 100:1	3 x 150 V	0.09%	0.1°

Resistance measurement with V IN 1

Output	Resistance	Test current (typical)	Accuracy
OUT A DC	1 000 – 10 000 Ω	0.005 A	0.05%
OUT A DC	100 – 1 000 Ω	0.02 A	0.05%
OUT A DC	10 – 100 Ω	0.1 A	0.05%
OUT A DC	1 – 10 Ω	0.3 A	0.05%
OUT A DC	0.1 – 1 Ω	2 A	0.08%
OUT A DC	0.01 – 0.1 Ω	5 A	0.08%
OUT A DC	0.001 – 0.01 Ω	32 A	0.08%
HC Module 100 A DC	20 µΩ – 20 mΩ	50 A	0.05%
HC Module 100 A DC	100 µΩ – 20 mΩ	100 A	0.04%
HC Module 100 A DC	10 µΩ – 1 000 mΩ	1 000 A	0.07%
HC Module 100 A DC	1 µΩ – 100 mΩ	1 000 A	0.07%

Technical data: HVX10

High volt. output

Characteristic	Specification	Condition
U_{Max}	10 kV	DC
	10 kV	45 – 120 Hz
	4 kV	20 – 600 Hz
	2 kV	10 – 600 Hz
	200 V	1 – 600 Hz
I_{Max}	200 mA	t ≤ 30 s, 45 – 65 Hz
	150 mA	t ≤15 min, 45 – 65 Hz
	100 mA	Continuous (t > 15 min), 45 – 65 Hz

Internal back measurement of the high-voltage output

Output	Output Range	Frequency	Accuracy[2,3] ± (% of the measured value + offset)	Condition
HV OUT	0 – 10kV	0.1 – 599 Hz, DC	0.15% + 0.25 V	Amplitude ≥ 500 V DC / 200 V AC

Measurement of the dissipation/power factor DF/PF (tan δ)

range	Mode	Frequency	Accuracy[2] ± (% of the measured value + offset)	Condition
0 – 10%	UST	50 / 60 Hz	0.1%	I > 10 µA
	GST	50 / 60 Hz	0.2%	I > 50 µA

Measurement of the capacitance Cp (equivalent circuit in parallel configuration)

Range	Mode	Frequency	Accuracy[2] ± (% of the measured value + offset)	Condition
1 pF – 5 µF	UST	1 Hz – 600 Hz	0.15% + 0.1 pF	I > 3 µA
	GST	1 Hz – 600 Hz	0.2% + 10 pF	I > 10 µA

Voltage input

Input	Input range	Input impedance	Frequency	Accuracy[2,3] ± (% of the measured value + offset)
V IN	0 – 300 V	1 MΩ || 100 pF	0.1 – 599 Hz, DC	0.03% + 0.02 mV

Current input

Input	Input range	Input impedance	Frequency	Accuracy[2,3] ± (% of the measured value + offset)
I IN 1 – I IN 4	0 – 225 mA	< 1.5 Ω	0.1 – 599 Hz, DC	0.08 & + 0.01 µA

CPX 200 specification of performance parameters

Voltage	Nominal Range: Permissible:	100 V AC – 240 V AC 85 V AC – 264 V AC
Nominal frequency	Nominal value: Permissible:	50 Hz / 60 Hz 45 Hz – 65 Hz
Power consumption	Continuous: Peak:	< 3.5 kVA (< 7.0 kVA for a duration of < 10 s)
Power fuse	16 A	

CPX 200 and HVX10 environmental conditions

Temperature	Operation: Storage:	-10 °C – +55 °C (14 °F –131 °F) -30 °C – +70 °C (-22 °F –158 °F)
Air humidity	5% – 95% relative humidity; non-condensing	
Protection class	CPX 200: HVX10:	IP21 IP21
EMC	IEC/EN 61326-1, FCC subpart B of part 15, class A	
Maximum altitude	Operation: Up to 5 000 m (limited specifications[5]) Storage:	2 000 m 12 000 m

CPX 200 and HVX10 mechanical data

CPX 200 dimensions[6] HVX10 dimensions	465 x 228 x 175 mm (18.31 x 8.98 x 6.89 inch) 455 x 229 x 170 mm (17.91 x 9.02 x 6.69 inch)	
Weight	CPX 200: CPX 200 + HCM[7]: HVX10:	10.6 kg (23.37 lbs) 13.9 kg (30.63 lbs) 14.8 kg (32.61 lbs)

CPXpert system requirements[8]

Operating System	Windows 10, 64-bit Windows 11, 64-bit
CPU	Multi-core system with 2 GHz or faster
RAM	8 GB
Storage	20 GB
Resolution	Graphics card and monitor with Super VGA resolution (1280 x 768) or higher
Interface	RJ45 Ethernet interface
Installed software [9]	Microsoft Office® 365 or Office 2021 and more recent

CPOL3 polarity checker

The CPOL3 can be used to check the correct polarity at the various terminals in the secondary wiring of a metering current transformer.

Measurement range	1 mV_{eff}/mV_{DC} … 1 000 V_{eff}/V_{DC}
Evaluated signal form	Polarity test signal with gradient ratio ≥ 3 : 1
Nominal frequency	52.6 Hz
Length of operation	< 10 h
Input impedance	3 kΩ and 1.8 MΩ, convertible
Batteries	Type and quantity: 2 × 1.5 V Mignon LR6 AA AM4 MN1500
Dimensions (W × H × D)	68 × 33 × 206 mm (2.68 × 1.30 × 8.11 inch)
Weight	245 g

[5] At power supply voltages below 190 V AC, the power is limited.
[6] The dimensions include the handles.
[7] High Current Module.
[8] Means "Minimum system requirements".
[9] Installed software required for the optional Microsoft Office® interface functions.

We create customer value through ...

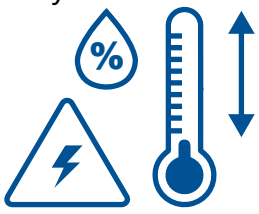
Quality

We always want you to be able to rely on our testing solutions. This is why our products have been developed with experience, passion, and care, and are continually setting groundbreaking standards in our industry sector.

Highest safety and security standards

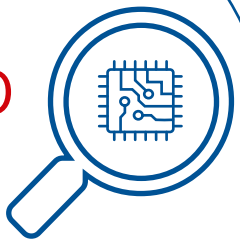
Superior reliability with up to

72



hours burn-in tests before delivery

100%



routine testing for all test set components

ISO 9001
ISO 27001
TÜV & EMAS
ISO 14001
OHSAS 18001

Compliance with international standards

Innovation

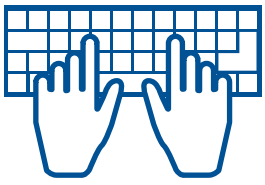
Thinking and acting innovatively is something that's deeply rooted in our genes. Our comprehensive product care concept also guarantees that your investment will pay off in the long run – for example, through regular software updates.

I need...

... 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

80%

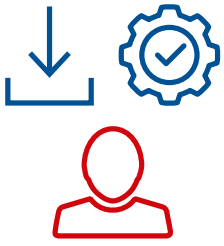
testing time through templates, and automation

We create customer value through ...

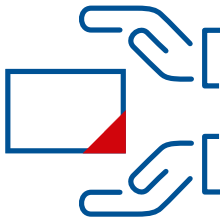
Support

When urgent assistance is required, our highly qualified technicians are always available to provide a rapid response. In addition, our calibration and repair services are designed to extend the life of your devices and ensure uninterrupted operation.

Professional technical support at any time



Easy access to software downloads, services, and certificates via the Customer Portal



Comprehensive repair and calibration services for reliable measurements

offices worldwide for local contact and support

Knowledge

We maintain an ongoing dialogue with users and experts. Customers benefit from our expertise through free access to application notes and professional articles. Additionally, the OMICRON Academy offers a wide range of training courses and webinars.

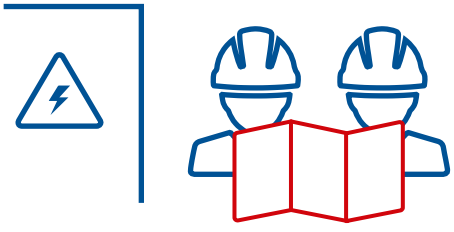
More than

300

Academy courses and hands-on trainings per year

Frequent 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, secure, 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. Customers worldwide rely on the accuracy, speed, and quality of our reliable, user-friendly solutions for electrical testing of medium- and high-voltage equipment, protection systems, digital substations, and cybersecurity.

Founded in 1984, OMICRON draws on their decades of profound expertise in the field of electric power engineering. A dedicated team of more than 1,300 employees provides solutions with 24/7 support at 23 locations worldwide and serves customers in more than 170 countries.

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