SUNBELT RENTALS

Datasheet

0370 330 6021
www.sunbeltrentals.co.uk

CIBANO 500

3-in-1 test system for medium- and high-voltage circuit breakers

Medium- and high-voltage circuit breaker testing

CIBANO 500, the 3-in-1 solution: One device – three functions

OMICRON's CIBANO 500 is the world's first circuit breaker test system to combine

- a multi-channel timing and travel analyzer
- a high-accuracy digital micro-ohm (μΩ) meter, and
- a powerful and adjustable coil and motor supply with 2.4 kW.

The lightweight test system can perform all common electrical tests on

- medium-voltage circuit breakers and
- high-voltage circuit breakers

CIBANO 500: One device – multiple tests

TIMING TESTS

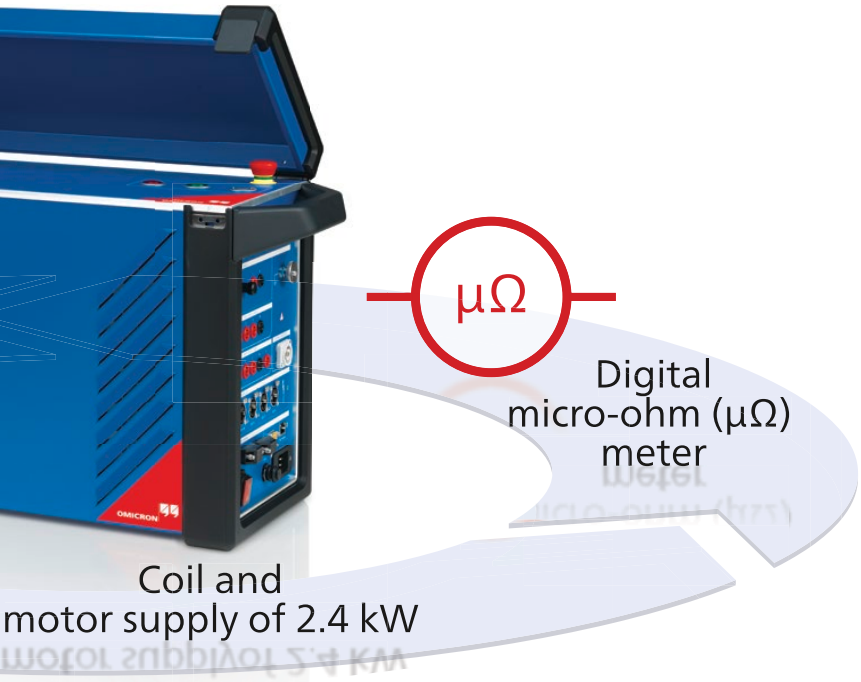
The main contact timing is assessed by measuring the time from test initiation to the change of main contact state. The test can detect incorrect mechanical adjustments or wear phenomena of a circuit breaker.

STATIC CONTACT RESISTANCE TEST

This micro-ohm (μΩ) test validates that the breaker's main contacts have a very low resistance path to ensure that the load current flows with low losses.

DYNAMIC CONTACT RESISTANCE TEST

This test records the contact resistance value during circuit breaker operation and delivers information about wear-related problems with main and arcing contacts.



Your benefits

- Easy-to-use 3-in-1 system: digital micro-ohm (μΩ) meter, AC/DC supply, and timing and travel analyzer
- Versatile system for medium- and high-voltage circuit breakers (including GIS)
- Lightweight test system (20 kg / 44 lbs) for easy transportation to test site

www.omicronenergy.com/cibano500

COIL/MOTOR CURRENT ANALYSIS

This analysis records the current signature curve of the command coils during circuit breaker operation. Deviations show possible electrical or mechanical defects of the trip or close control components.

The motor current analysis records the inrush and steady-state currents as well as the spring charging time.

MOTION/CONTACT TRAVEL TEST

With a motion transducer, this test checks the circuit breaker's complete operating mechanism and mechanical linkage.

The results may indicate potential mechanical wear of the breaker.

UNDERVOLTAGE CONDITION TEST

With CIBANO 500's adjustable power supply it is very easy to test the overall behavior of the circuit breaker during undervoltage conditions. The supply delivers an exact undervoltage of the nominal value and CIBANO 500 measures the breaker's performance during this condition.

MINIMUM PICK-UP TEST

This test determines the minimum voltage necessary to trip and close a circuit breaker. It makes sure that a circuit breaker can also be reliably operated in the event of a low DC supply.

Medium-voltage circuit breaker testing

Faster and easier testing

With CIBANO 500's 3-in-1 approach you only need to set up the wiring connections once. You can then perform all tests in one turn.

The results of timing, contact resistance, coil currents, and motion tests are then immediately available as one combined test report.

You only need to transport one device to the test site.

Integrated power supply: Safe and independent operation

CIBANO 500's integrated AC/DC power supply enables faster and safer wiring set up. You don't need to perform any connections to live DC circuits of the substation battery. This is especially beneficial when testing medium-voltage breakers which must be completely disconnected and isolated from the substation.

The constant output power during all tests guarantees reproducible test results.

Common tests

- Timing
- Static contact resistance
- Coil current analysis
- Undervoltage condition
- Motion/contact travel

Your benefits

- Fast testing with 3-in-1 approach
- Greatly reduced wiring effort as all tests can be performed in one turn
- One combined test report for all tests
- Integrated power supply (2.4 kW) for safe and independent testing
- Lightweight test system (20 kg / 44 lbs) for easy transportation to test site

www.omicronenergy.com/cibano500

High-voltage live-tank circuit breaker testing

One test setup for all tests - up to 50 % faster

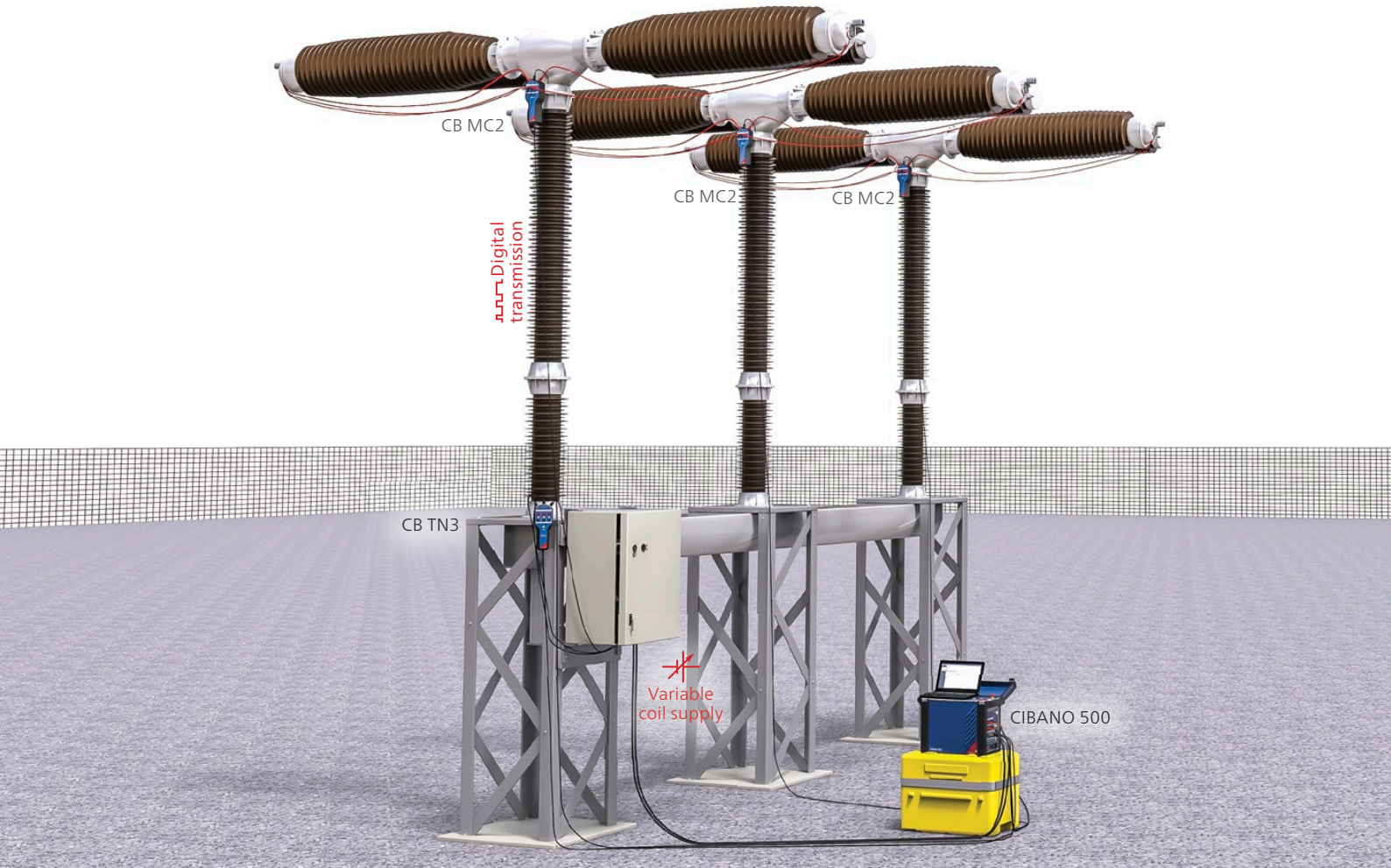
CIBANO 500 can test all performance-, motion-, as well as coil and motor-related parameters of high-voltage live-tank circuit breakers with the same test setup. The connection to the circuit breaker only needs to be done once. With the optional CB MC2 modules, this can save up to 50 % of testing time as conventional measuring devices require that wiring is done at least twice.

Synchronous timing measurement

During timing tests on high-voltage live-tank circuit breakers, CIBANO 500 synchronously assesses the timing of all main contacts, auxiliary contacts, and pre-insertion resistors. It measures the differences between the fastest and slowest phase and can detect incorrect mechanical adjustments or wear phenomena of the circuit breakers.

Both sides grounded

All of the tests on high-voltage live-tank circuit breakers can be performed while the circuit breaker is grounded on both sides. This results in increased safety levels for operating personnel.



Integrated power supply: Safe and independent operation

CIBANO 500's integrated AC/DC power supply lets you directly operate the circuit breaker (for example, during commissioning tests). You don't need to perform any connections to live DC circuits of the substation battery which makes wiring safer and faster.

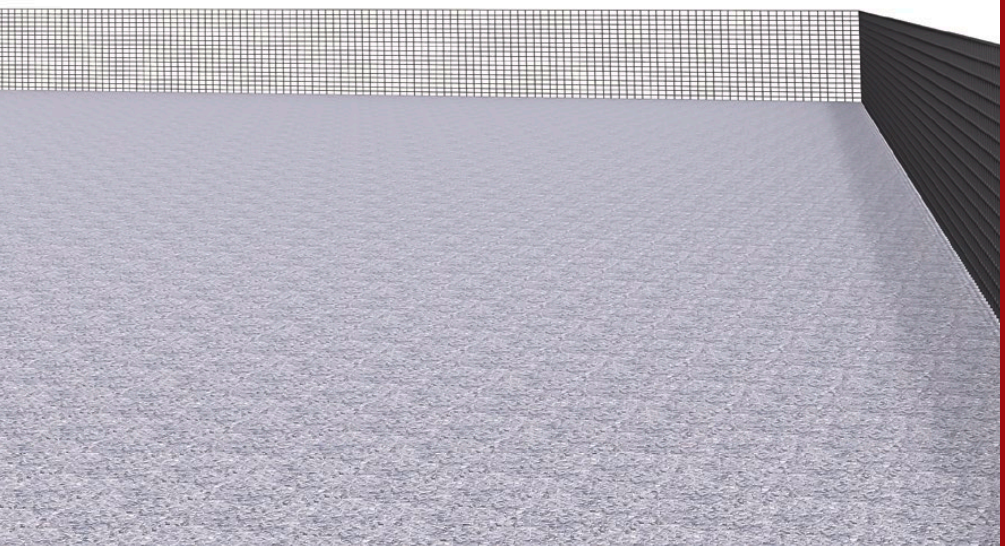
The constant output power during all tests guarantees reproducible test results.

EtherCAT®-communication: Fast and future-proof testing

By using EtherCAT®-communication, the number of measuring channels can be extended to any number needed by very large or specially designed circuit breakers (for example, large breakers with independent pole operation).

Common tests

- Timing
- Static contact resistance
- Dynamic contact resistance test
- Motion/contact travel
- Coil/motor current analysis
- Undervoltage condition
- Minimum pick-up



Your benefits

- One setup for all tests
- Up to 50 % shorter testing times
- Futureproof and expandable with EtherCAT®
- Synchronous timing measurements
- Both sides grounded
- Integrated power supply (2.4 kW) for safe and independent testing

www.omicronenergy.com/cibano500

High-voltage dead-tank circuit breaker testing

One device for all required electrical tests

CIBANO 500's 3-in-1 approach combines a timing and travel analyzer, a micro-ohm (µΩ) meter, and a coil and motor supply within one device. As a result you can perform timing, contact resistance, coil/motor current, and motion tests without any additional accessories.

The contact resistance tests can be performed with an injection of up to 100 A.

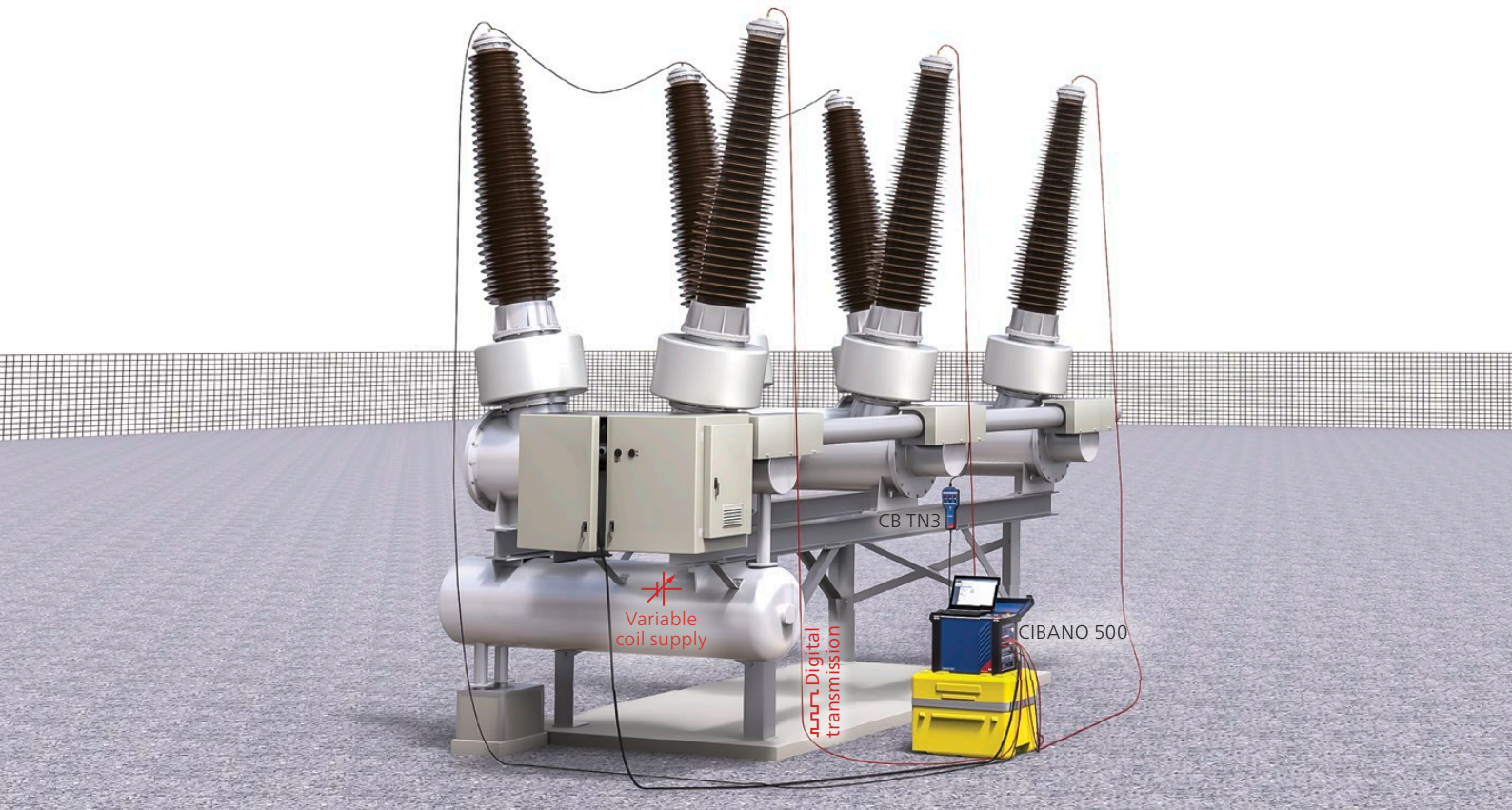
The results of all tests are available as one combined test report.

You only need to transport one device to the test site.

Integrated power supply: Safe and independent operation

CIBANO 500's integrated AC/DC power supply lets you directly operate the circuit breaker (for example, during commissioning tests). You don't need to perform any connections to live DC circuits of the substation battery which makes wiring safer and faster.

The constant output power during all tests guarantees reproducible test results.



CT demagnetization

The optional CT demagnetization function demagnetizes the integrated current transformers of the circuit breaker via the primary side. This makes sure that no residual magnetism affects the correct function of the CTs.

Dynamic contact resistance test

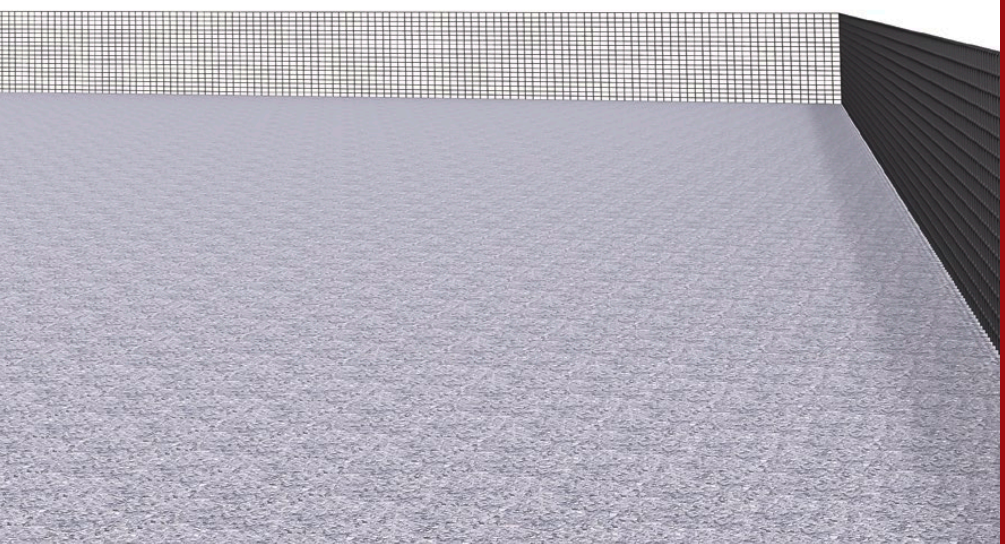
During this test, CIBANO 500 and the optional CB MC2 modules, record the contact resistance value during circuit breaker operation and deliver information about wear-related problems with main and arcing contacts.

Both sides grounded timing tests

Timing tests on high-voltage dead-tank circuit breakers can be performed with both sides grounded. This results in increased safety levels for operating personnel.

Common tests

- Timing
- Static contact resistance
- Motion/contact travel
- Dynamic contact resistance test
- Coil/motor current analysis
- Undervoltage condition
- Minimum pick-up



Your benefits

- 3-in-1 approach: One device for all required electrical tests
- Contact resistance tests with up to 100 A
- Integrated power supply (2.4 kW) for safe and independent testing
- CT demagnetization
- Both sides grounded timing test

www.omicronenergy.com/cibano500

Circuit breaker testing on gas-insulated switchgear (GIS)

One test setup for all tests

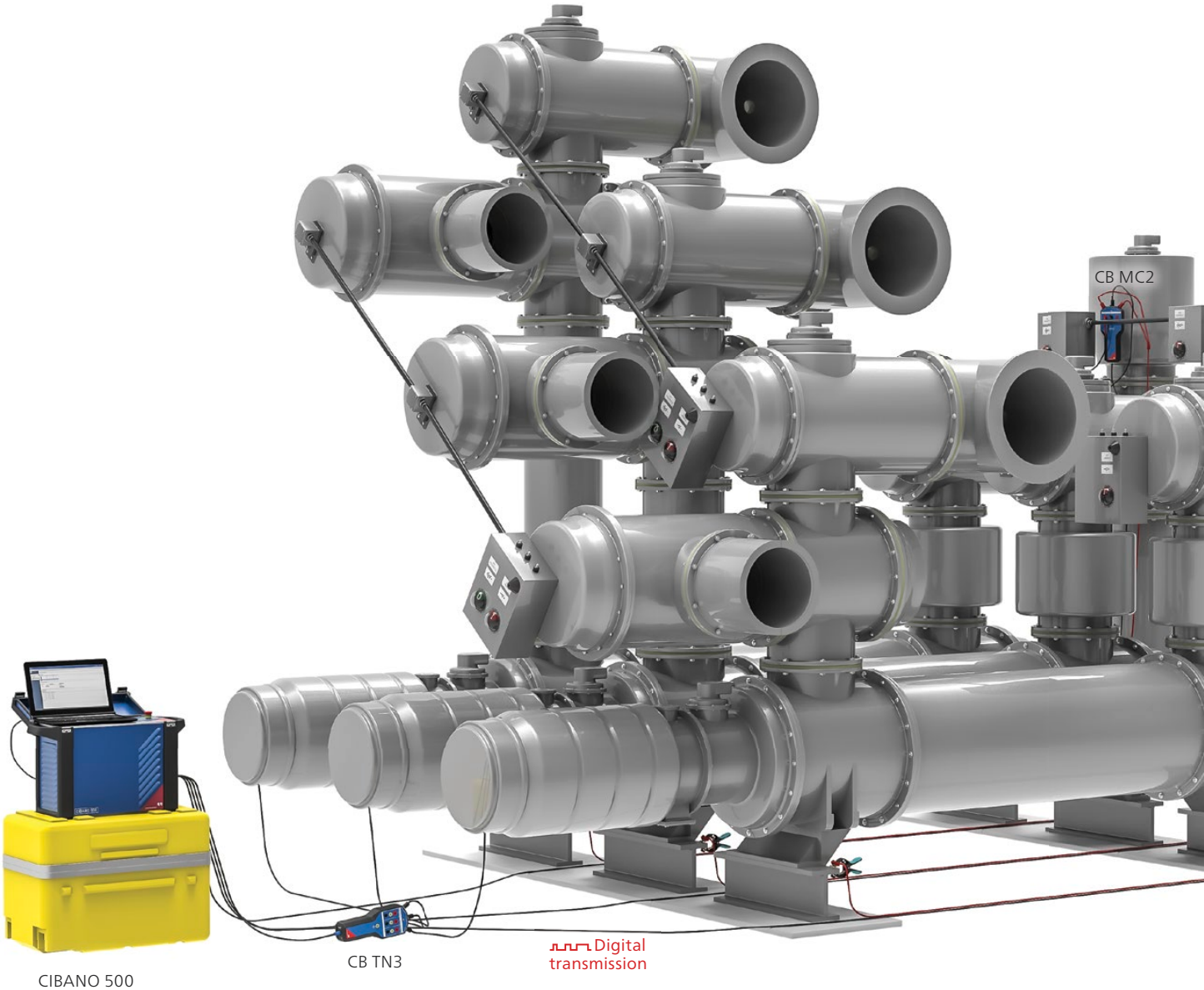
CIBANO 500 can test all performance-, motion-, as well as coil and motor-related parameters of GIS circuit breakers with the same test setup. The connection to the circuit breaker only needs to be done once. With the optional CB MC2 modules, this can save a lot of testing time, as conventional measuring devices require this wiring to be done at least twice.

Timing tests with Current Sensor Measurement and both sides grounded

When a timing measurement on a GIS breaker must be performed with both sides grounded, CIBANO 500 offers the possibility to use the new current sensor measurement method (CSM).

The CSM easily measures the operating times of the circuit breaker with an inductive sensor laid round the ground connection of the grounding switch. Nothing else needs to be modified.

It is a highly flexible measuring method, because the adjustable measuring sensor can be easily installed on a multitude of different grounding switches and performs precise timing measurements.

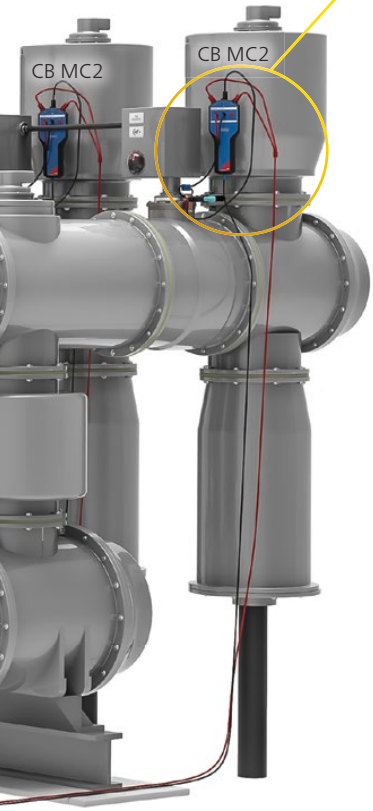


CT demagnetization

The CT demagnetization function demagnetizes the integrated current transformers of the circuit breaker via the primary side. This makes sure that no residual magnetism affects the correct function of the CTs.

Common tests

- Timing
- Static contact resistance
- Motion/contact travel
- Dynamic contact resistance test
- Coil/motor current analysis
- Undervoltage condition
- Minimum pick-up



Rogowski coil mounted to the GIS

Your benefits

- One test setup for all tests
- Considerably shorter testing times
- Timing test with current sensor measurement and both sides grounded
- CT demagnetization

www.omicronenergy.com/cibano500

CIBANO 500 measuring accessories

Main Contact Module CB MC2

The CB MC2 is both a measuring signal converter and current source. It is digitally controlled by CIBANO 500 via * EtherCAT®-communication.

What does it do?

It sends current signals to the main contacts of a circuit breaker and transmits the received measuring signals back to CIBANO 500 via EtherCAT®.

One CB MC2 can test up to two main contacts.

What is it needed for?

The CB MC2 modules are situated close to the breaker's main contacts. Thus, short and lightweight high-current cables can be used. EtherCAT®-communication eliminates capacitive interference.

The CB MC2 is necessary for dynamic contact resistance tests.

Using CB MC2, the same wiring setup can be used for all circuit breaker tests which considerably shortens testing time.

Transducer Node CB TN3

The CB TN3 is an acquisition unit for motion data. It consists of three analog and three digital channels for acquiring data from linear or rotary motion transducers.

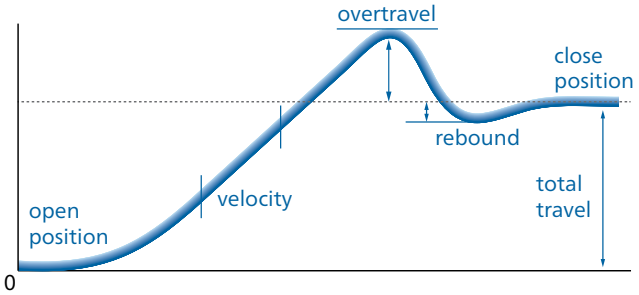
What does it do?

It receives the motion signals of up to three motion sensors and sends them to CIBANO 500 via interference-free EtherCAT®-communication.

What is it needed for?

The data transmitted by the CB TN3 module represents the motion of the circuit breaker's main contacts during the switching process. As a result, important motion-related parameters are determined (see figure).

It can be connected to most linear or rotary transducers.



Performance values tested with CIBANO 500 and CB TN3

Input / output module IOB1

The IOB1 is an EtherCAT®-compliant device and offers six additional input and six additional output channels for CIBANO 500.

What does it do?

IOB1 is digitally controlled by CIBANO 500 via EtherCAT®-communication. With its six input channels it can synchronously read the data of auxiliary contacts and send them to CIBANO 500. With its six output channels it can synchronously control the trip or close coils or the motors of a circuit breaker.

When is it needed?

For an analysis of circuit breakers where the timing of more than six auxiliary contacts must be measured simultaneously.

For timing measurements of larger circuit breakers when more than one opening and closing coil or breaker motor must be controlled simultaneously.

EtherCAT® Hub EHB1

The EHB1 allows the connection of more than four EtherCAT®-compliant devices with CIBANO 500. Depending on the necessary number of EtherCAT® connections any number of hubs can be connected in series. The EHB1 consists of one input and four outputs.

What does it do?

It enables the connection of up to 4 additional EtherCAT®-compliant devices with CIBANO 500.

When is it needed?

When testing large circuit breakers where additional EtherCAT®-sockets are needed.

* EtherCAT® (Ethernet for Control Automation Technology) is an Ethernet-based real-time fieldbus system. EtherCAT® communication is fast (cycle times ≤ 100 µs) and ideal for synchronized transmission of digital data.

Primary Test Manager™ – Guided testing with easy data management

The Primary Test Manager™ (PTM) is the ideal software tool for the diagnostic testing and condition assessment of your circuit breakers.

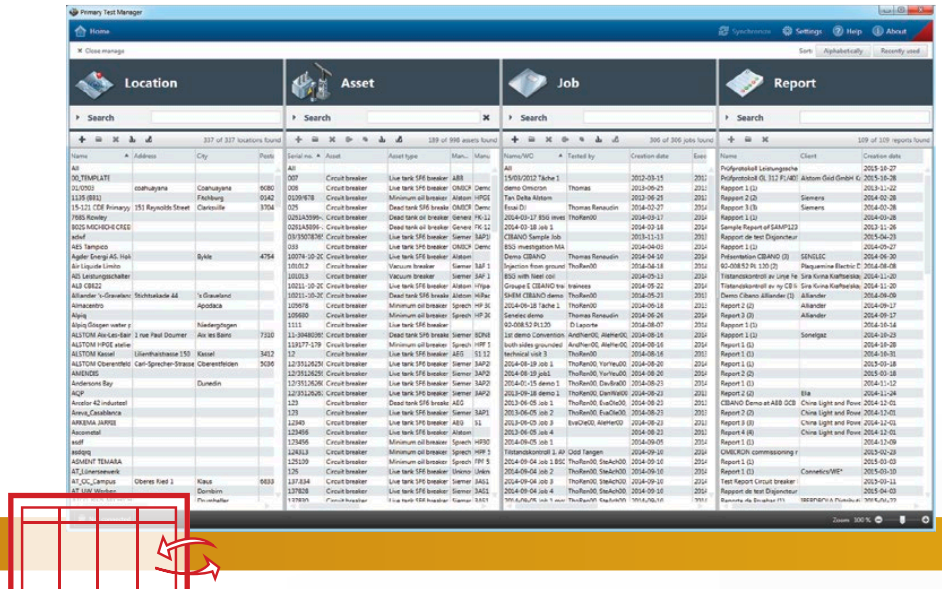
It supports you in performing measurements and guides you step by step through the entire test procedure, in order to make testing faster, easier, and safer.

Management of location, asset and test data

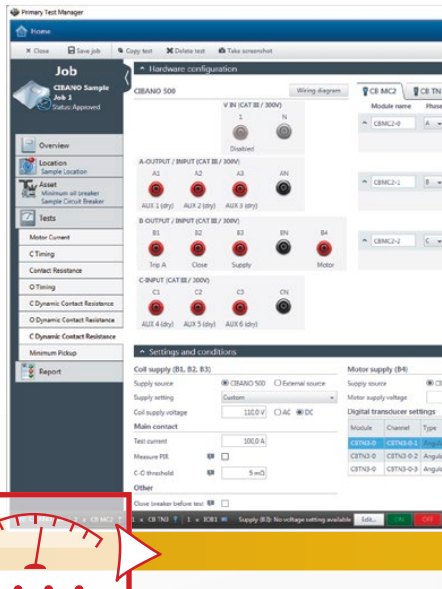
PTM provides a well-structured database for managing all circuit breaker-related data to obtain a comprehensive overview of your asset's condition. You can define and manage locations, assets, jobs and reports in a fast and easy way.

Data synchronization and back-up

During on-site testing, data is often generated by multiple testing teams. With the 'PTM DataSync' module, you can synchronize all data to a central database hosted on premises or in the cloud. In doing so, data synchronization and storage becomes safer and more convenient. You can select the relevant locations in order to keep the local database small.



Easy management of location, asset and test data due to a structured database, implemented search and filter functions and automatic data synchronization.



With its flexible and transparent
PTM supports you in the best pos

and automatic result assessment

Execution of diagnostic tests

PTM enables you to control and operate the connected test set directly from a computer. During testing, PTM helps you define your circuit breaker by entering type-specific parameters.

Customized test templates

By selecting or de-selecting individual tests, you can tailor the test procedure to your specific needs with minimum effort. The resulting test plans can be saved as templates and reused for matching circuit breaker types. This makes circuit breaker testing with PTM fast and effective.

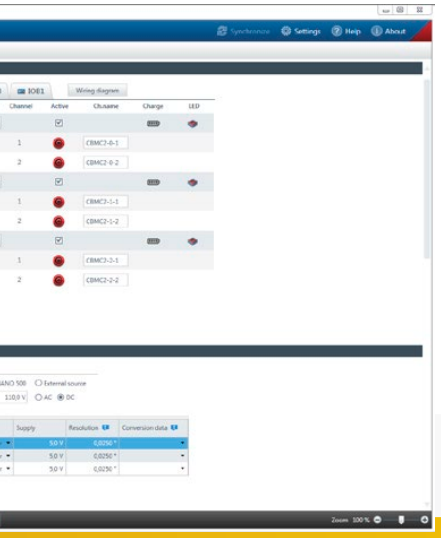
Result analysis and reporting

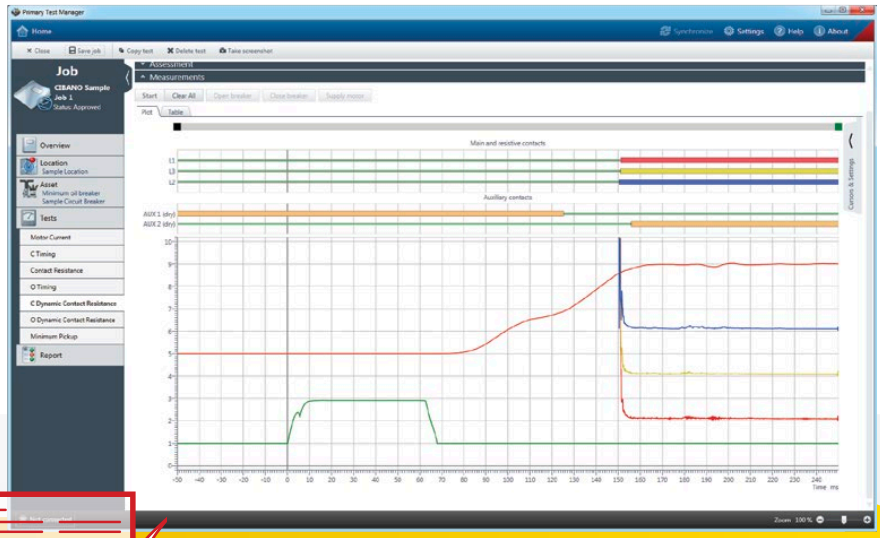
Results are automatically stored and organized in the database on your PC and are available for analysis and reporting. Each test can be automatically assessed according to manufacturer specifications or based on your individual limit values.

Customized, individual reports

PTM automatically generates reports including all asset-related information and performed tests. This gives you a 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.





configuration (hardware and test parameters),
ssible way during the execution of diagnostic tests.

For a comprehensive analysis, PTM offers automatic result assessment as well as customized reporting.

Technical specifications

CIBANO 500

Power output of integrated power supply

Frequency	DC / 15 Hz ... 400 Hz		
Power	V_{mains}	P_{30s}	P_{2h}
	> 100 V	1500 W	1000 W
	> 190 V	3200 W	2400 W

Current / voltage output[1] of integrated power supply

Source	Range	$I_{max, 30 s}$[1]	$I_{max, 2 h}$[1]
DC	0 ... ±300 V	27.5 A	12 A
DC	0 ... ±150 V	55 A	24 A
AC	0 ... 240 V	20 A	12 A
AC	0 ... 120 V	40 A	24 A

Commands for control of trip or close coils

Current per channel[5]	Duty cycle
6 A_{eff} AC or DC	continuous
15 A_{eff} AC or DC	20 s on 80 s off
30 A_{eff} AC or DC	10 s on 190 s off
40 A_{eff} AC or 55 A DC	200 ms

Commands for motor supply

Current per channel[5]	Duty cycle
24 A_{eff} AC or DC	continuous
40 A_{eff} AC or DC	20 s on 80 s off
55 A DC	10 s on 190 s off

Voltage input from station battery (CAT III[2])

Source	Range	Accuracy[3]
DC	0 ... 420 V	0.5 % rd + 0.5 % fs
AC	0 ... 300 V	0.5 % rd + 0.5 % fs

Voltage measurements (CAT III[4])

Source	Range	Accuracy[3]
DC	0 ... 300 V	0.1 % rd + 0.05 % fs
AC	0 ... 300 V	0.03 % rd + 0.01 % fs
DC	0 ... 3 V	0.1 % rd + 0.05 % fs
DC	0 ... 300 mV	0.1 % rd + 0.1 % fs
DC	0 ... 30 mV	0.1 % rd + 0.1 % fs

Current measurements

Source	Range	Accuracy[3]
DC	0 ... 55 A	0.1 % rd + 0.2 % fs
AC	0 ... 40 A	0.1 % rd + 0.1 % fs

Resistance measurements

Range	Voltage range	Injected current	Accuracy[3]
0.1 µΩ ... 300 mΩ	30 mV	100 A	0.2 % rd + 0.1 µΩ
0.5 µΩ ... 300 mΩ	300 mV	100 A	0.2 % rd + 0.5 µΩ
5 µΩ ... 30 mΩ	3 V	100 A	0.2 % rd + 5 µΩ
50 µΩ ... 300 mΩ	3 V	10 A	0.2 % rd + 50 µΩ

Inputs for auxiliary contacts (CAT III[4])

Auxiliary input type	Toggling with potential-free (dry) contacts or voltages (wet) up to 300 V DC
Maximum sample rate	40 kHz
Minimum resolution	25 µs

Mains supply

Voltage	Nominal: Permitted:	100 V ... 240 V AC 85 V ... 264 V AC
Current	Nominal: 16 A	
Frequency	Nominal: Permitted:	50 Hz / 60 Hz 45 Hz ... 65 Hz
Power fuse	Automatic circuit breaker with magnetic overcurrent tripping at I > 16 A	
Power consumption	Continuous: Peak:	< 3.5 kW < 5.0 kW

Interfaces

Digital	1 × Ethernet, 1 × Serial, 2 × Safety Optional EtherCAT® module: 4 × EtherCAT® Optional auxiliary module: 1 × EtherCAT®
Analog	1 × analog input (V IN) 3 × analog input/ analog output/ binary input (A) 4 × analog input / analog output (B) Optional auxiliary module: 3 × binary input (C)

Environmental conditions

Temperature	Operating: -10 °C ... +55 °C / +14 °F ... +131 °F Storage: -30 °C ... +70 °C / -22 °F ... +158 °F
Relative humidity	5 % ... 95 %, non-condensing
Maximum altitude	Operating: 2000 m / 6550 ft, up to 5000 m / 16400 ft (with limited specifications, according to footnotes [2] and [4]) Storage: 12000 m / 40000 ft

Mechanical data

Dimensions (W × H × D)	580 × 386 × 229 mm / 22.9 × 15.2 × 9.0 inch (W = 464 mm / 18.3 inch without handles)
Weight	20 kg / 44.1 lbs

Equipment reliability

Shock	IEC / EN 60068-2-27, 15 g / 11 ms, half-sinusoid, 3 shocks in each axis
Vibration	IEC / EN 60068-2-6, frequency range from 10 Hz to 150 Hz, continuous acceleration 2 g (20 m/s2 / 65 ft/s2), 20 cycles per axis

PC Requirements (* recommended)

Operating system	Windows 10™ 64-bit* Windows 8.1™ 64-bit* Windows 8™ 64-bit* Windows 7™ SP1 64-bit* and 32-bit
CPU	Multicore system with 2 GHz or faster* Single-core system with 2 GHz or faster
RAM	minimum 2 GB (4 GB*)
Hard disk	minimum 4 GB of available space
Storage device	DVD-ROM drive
Graphics adapter	Super VGA (1280 × 768) or higher-resolution video adapter and monitor
Interface	Ethernet NIC
Microsoft® software	Microsoft Office® 2016*, Office® 2013*, Office® 2010*, or Office® 2007*

[1] Maximum power rating cannot be exceeded. Maximum voltage and current cannot be supplied at the same time
[2] From 2000 m to 5000 m altitude CAT III compliance only with half voltage
[3] Means “typical accuracy”; at typical temperatures of 23 °C, 98 % of all units have an accuracy which is greater than specified
[4] From 2000 m to 5000 m altitude only CAT II compliance or CAT III compliance with half voltage
[5] Valid while using one channel. Thermal derating when 2 or 3 channels are used in parallel

Technical specifications

CB MC2

Current output

Channels	2
Current	0 ... 100 A DC

Static contact resistance measurement

Range	0.1 µΩ ... 1 000 µΩ
Accuracy[2]	0.2 % rd + 0.1 µΩ
Measuring current	100 A

Dynamic contact resistance measurement[1]

Range	10 µΩ ... 200 mΩ
Accuracy[2]	0.2 % rd + 10 µΩ
Maximum sample rate	40 kHz

Pre-insertion resistance (PIR) measurement

Range	0 ... 10 kΩ
Accuracy[2] (< 500 Ω)	0.5 % rd + 10 mΩ
Accuracy[2] (500 Ω ... 10 kΩ)	3 % rd

Timing measurement

Maximum sample rate	40 kHz
Minimum resolution	25 µs

Interface

EtherCAT® interface to CIBANO 500

Environmental conditions

Temperature	Operating: -30 °C ... +70 °C / -22 °F ... +158 °F Storage: -30 °C ... +70 °C / -22 °F ... +158 °F
Relative humidity	5 % ... 95 %, non-condensing
Maximum altitude	Operating: 5 000 m / 16 400 ft Storage: 12 000 m / 40 000 ft

Mechanical data

Dimensions (W × H × D)	109 × 272 × 63 mm / 4.3 × 10.7 × 2.5 inch
Weight	1.2 kg / 2.6 lbs

Equipment reliability

Please see CIBANO 500 parameters.

CB TN3

Analog interface

Output	
Channels[3]	3
Voltage	5 ... 30 V DC
Current	10 ... 50 mA

Voltage Input

Channels	3
Range	30 V
Accuracy[2]	0.1 % rd + 20 mV
Maximum sample rate	40 kHz

Current input

Channels	3
Range	50 mA
Accuracy[2]	0.1 % rd + 20 µA
Maximum sample rate	40 kHz

Digital interface

Output	
Channels[3]	3
Voltage	5 ... 30 V DC
Current	10 ... 200 mA
Maximum power	5 W per channel
Input	
Signal type	2 square-wave signals according to EIA-422/485 standard
Maximum input frequency	10 MHz

Interface

EtherCAT® interface to CIBANO 500

Environmental conditions

Please see CB MC2 parameters

Mechanical data

Dimensions (W × H × D)	109 × 272 × 63 mm / 4.3 × 10.7 × 2.5 inch
Weight	0.76 kg / 1.7 lbs

Equipment reliability

Please see CIBANO 500 parameters.

[1] Valid for test currents ≥10 A
[2] Means “typical accuracy”; at typical temperatures of 23 °C, 98 % of all units have an accuracy which is greater than specified
[3] 3 channels of CB TN3 can be used at a time. They can be freely configured as digital or analog channels
[4] Valid while using one channel. Thermal derating when 2 or 3 channels are used in parallel

IOB1

Voltage measurements

Source	Range	Accuracy[2]
DC	0 ... 300 V	0.05 % rd + 0.05 % fs
AC	0 ... 300 V	0.05 % rd + 0.02 % fs

Current measurements

Source	Range	Accuracy[2]
DC	0 ... 40 A	0.1 % rd + 0.2 % fs
AC	0 ... 40 A	0.1 % rd + 0.05 % fs

Commands for control of trip/close coils or motors

Channels	6 (can alternatively be configured for measuring wet auxiliary contacts)
Voltage per channel[4]	Duty cycle
± 300 V DC or AC	continuous
± 500 V	transient peak
Current per channel[4]	Duty cycle
24 A_{RMS} AC or DC	continuous
40 A_{RMS} AC or 55 A DC	200 ms on 5s off
± 85 A	transient peak

Timing accuracy

Timing accuracy[2]	± 1 sample interval ± 0.01 % rd

Inputs for auxiliary contacts

Channels	6
Auxiliary input type	Toggling with potential-free (dry) contacts or voltages (wet) up to 300 V DC
Maximum sample rate	40 kHz
Minimum resolution	25 µs

Mechanical data

Dimensions (W × H × D)	381 × 190 × 90 mm / 15 × 7.5 × 3.5 inch
Weight	3.0 kg / 6.6 lbs

Environmental conditions and equipment reliability

Please see CIBANO 500 parameters.

EHB1

Output

Channels	4
Devices per channel	optionally 1 × CB MC2, 1 × CB TN3 or 1 × IOB1
Maximum cable length	100 m / 328 ft

Input

Channels	1

Interface

EtherCAT® interface to CIBANO 500 or to additional EHB1 modules

Mains supply

Voltage	Nominal: 100 V ... 240 V AC Permitted: 85 V ... 264 V AC
Maximum current	2.5 A
Frequency	Nominal: 50 Hz / 60 Hz Permitted: 45 Hz ... 65 Hz

Mechanical data

Dimensions (W × H × D)	265 × 80 × 180 mm / 10.4 × 3.1 × 7.1 inch
Weight	1.8 kg / 4.0 lbs

Environmental conditions and equipment reliability

Please see CIBANO 500 parameters.

Ordering information

CIBANO 500 Packages

	Description	Order No.
CIBANO 500 Standard Package including cables and accessories	Package for standard tests on MV and HV CBs. No additional measuring accessories. Rewiring between tests is necessary.	VE000900
CIBANO 500 Advanced Package including cables and accessories	Package for enhanced testing of MV and HV CBs. Comes with three additional CB MC2 modules. No rewiring necessary between the tests.	VE000901
CIBANO 500 Dead Tank Package including cables and accessories	Specially adapted package for testing of MV and HV dead-tank design CBs. It comes with an additional CB TN3 module and one digital rotary sensor.	VE000902

CIBANO 500 Advanced Package

CIBANO 500 Hardware Upgrade Options

	Description	Order No.
EtherCAT® Hardware Upgrade Option including mounting accessories	Hardware module with 4 EtherCAT® lead outs which can additionally be mounted into the external module slot of CIBANO 500	VEHO0900
Auxiliary Module Hardware Upgrade Option including mounting accessories	Hardware module with 1 EtherCAT® lead out and 3 measuring inputs for auxiliary contacts. It can additionally be mounted into the external module slot of CIBANO 500.	VEHO0903

Find detailed ordering information and package descriptions on www.omicronenergy.com.

CIBANO 500 Upgrade Options

	Description	Order No.
EHB1 Upgrade Option including cables and accessories	External module offering 4 additional EtherCAT® output connections for tests of large circuit breakers where several EtherCAT® accessories (CB MC2, CB TN3, IOB1) are needed	VEHZ0932
IOB1 Upgrade Option including cables and accessories	External module offering > 6 additional input channels for timing measurements of more than six auxiliary contacts simultaneously and > 6 additional output channels for controlling up to six trip or close coils or motors simultaneously	VEHZ0949
CIBANO 500 Standard to Advanced Package Upgrade Option	Upgrade option for the Standard Package to the Advanced Package	VEHZ0904
CIBANO 500 Dead-Tank to Advanced Package Upgrade Option	Upgrade option for the Dead-Tank Package to the Advanced Package.	VEHO0909
CB MC2 Upgrade Option including cables and accessories	Upgrade option for all CIBANO 500 Packages. It comes with one CB MC2 module and facilitates measurements of large HV breakers	VEHZ0900
Motion Linear Basic Upgrade Option including CB TN3, cables and accessories	Upgrade option for all CIBANO 500 Packages. It comes with one digital linear transducer allowing linear motion measurements to be performed on CBs with ganged pole operation.	VEHZ0902
Motion Rotary Basic Upgrade Option including CB TN3, cables and accessories	Upgrade option for all CIBANO 500 Packages. It comes with one digital rotary transducer allowing rotary motion measurements to be performed on CBs with ganged pole operation.	VEHZ0901
Motion Linear Standard Upgrade Option including CB TN3, cables and accessories	Upgrade option for all CIBANO 500 Packages. It comes with 3 digital linear transducers allowing linear motion measurements to be performed on CBs with independent pole operation.	VEHZ0905
Motion Rotary Standard Upgrade Option including CB TN3, cables and accessories	Upgrade option for all CIBANO 500 Packages. It comes with 3 digital rotary transducers allowing rotary motion measurements to be performed on CBs with independent pole operation.	VEHZ0906
CSM Upgrade Option including current sensors and cables	Upgrade option for CIBANO 500 Advanced Package. It comes with three current sensors (Rogowski coil) and allows both-sides grounded timing measurements on GIS CBs.	VEHZ0970

Motion Rotary Standard Upgrade Option

CIBANO 500 Main Use Cases

Medium-voltage circuit breakers	Standard Package	Auxiliary Module Hardware	EHB1	IOB1	CB MC2	Motion Linear Basic	Motion Rotary Basic
		Upgrade Options					
Timing tests							
> Three main contacts	■						
> Three additional auxiliary contacts	■	■					
> More than three additional auxiliary contacts	■	■	□	■			
Static contact resistance test							
> Single main contact	■						
> Additional main contacts	■	■	□		■		
Coil current analysis	■						
Undervoltage condition test	■						
Motion analysis							
> Linear motion test	■	■	□			■	
> Rotary motion test	■	■	□				■

High-voltage live-tank circuit breakers	Advanced Package	EHB1	IOB1	CB MC2	Motion Linear Basic	Motion Rotary Basic	Motion Linear Standard	Motion Rotary Standard
		Upgrade Options						
Timing tests								
> Six main contacts, ganged pole operation	■							
> Three auxiliary contacts, ganged pole operation	■							
> Overlapping trip/close commands	■	□	■					
> Three auxiliary contacts, independent pole operation	■	□	■					
> More than three auxiliary contacts	■	□	■					
> Additional main contacts	■	□		■				
Static contact resistance test								
> Six main contacts	■							
> Additional main contacts	■	□		■				
Dynamic contact resistance test								
> Six main contacts	■							
> Additional main contacts	■	□		■				
Motion analysis								
> Linear motion test, ganged pole operation	■	□			■			
> Linear motion test, independent pole operation	■	□					■	
> Rotary motion test, ganged pole operation	■	□				■		
> Rotary motion test, independent pole operation	■	□						■
Coil/motor current analysis	■							
Undervoltage condition test	■							
Minimum pick-up test	■							

High-voltage dead-tank circuit breakers	Dead-Tank Package	EHB1	IOB1	Dead-Tank to Advanced	Motion Linear Basic
		Upgrade Options			
Timing tests					
> Three main contacts	■				
> Three auxiliary contacts	■				
> More than three auxiliary contacts	■	□	■		
Static contact resistance test					
> Single main contact	■				
> Additional main contacts	■			■	
Motion analysis					
> Rotary motion test	■				
> Linear motion test	■	□			■
Dynamic contact resistance test				■	
Coil/motor current analysis	■				
Undervoltage condition test	■				
Minimum pick-up test	■				

Gas-insulated switchgear (GIS)	Advanced Package	CSM	EHB1	IOB1	Motion Linear Basic	Motion Rotary Basic
		Upgrade Options				
Timing tests						
> Three main contacts, single-side grounded	■					
> Three main contacts, both-sides grounded	■	■				
> Three auxiliary contacts	■					
> More than three auxiliary contacts	■		□	■		
Static contact resistance test						
> Three main contacts	■					
Dynamic contact resistance test						
> Three main contacts	■					
Motion analysis						
> Linear motion test	■		□		■	
> Rotary motion test	■		□			■
Coil/motor current analysis	■					
Undervoltage condition test	■					
Minimum pick-up test	■					

■ necessary □ optional (number depending on necessary EtherCAT® -ports)

A strong and safe connection

Welcome to the team

At OMICRON you can always depend on an experienced team that actively supports you and an infrastructure that you can rely on. We always listen attentively in order to understand your needs so that we can offer you the best possible solutions. We strive for lasting partnerships and ensure that you can continue to rely on your product long after you've purchased it. In order to do this, we focus on quality, the transfer of knowledge and unique customer support.

Thomas, Wenyu and Christoph are able to tell you about the services we have available for you and why it pays to be part of the team.

Thomas Renaudin
Application Specialist

Solutions you can rely on...

... developed with experience, passion and an innovative approach that we use to continually set groundbreaking standards in our industry sector.

We invest more than 15 % of the total turnover in research and development so that we can even guarantee the reliable use of the latest technology and methods in the future.

Our comprehensive product care concept also guarantees that your investment in our solutions – like free software updates – pays off in the long term.

Wenyu Guo
OMICRON Academy

We share our knowledge...

… by maintaining a constant dialogue with users and experts. Some examples of this are our customer events and conferences that take place all over the world and our collaboration with numerous standardization committees.

We also make our knowledge available to you in the customer section of our website in the form of application reports, specialized articles and articles in the discussion forum. With the OMICRON Academy, we also provide a wide spectrum of training possibilities and assist you with Start-up training and free webinars.

Christoph Engelen
Technical Support

24/7 support

When rapid assistance is required...

… our excellent level of support is always appreciated. You can reach the highly-qualified and committed technicians in our customer support department 24 hours a day, seven days a week – and it's completely free. We deal with repair services and service features in a fair and non-bureaucratic manner.

We can help minimize your downtime by lending you equipment from a readily available plant at one of our service centers in your area. A comprehensive offer of services for consulting, testing and diagnostics completes our range of services.

OMICRON – Who we are

Reliable. Passionate. Different.

For over 30 years we have been developing innovative, top-quality testing and monitoring solutions for electrical power systems.

Customers in more than 150 countries rely on OMICRON's testing technology. In addition, we offer a wide array of services in the fields of consulting, testing and training.

We aim to inspire our customers with exceptional products, an interactive exchange of knowledge and extraordinary customer support. Our curiosity and passion give us the courage to approach things from different angles.

Together with our partners and customers, we are striving towards a safe and reliable energy supply.

„Create an environment with no artificial limits where a team of excellent members can reach an excellent performance and enjoy working together at the same time."

(Rainer Aberer, company founder)

Our values

We acknowledge our social, ecological and corporate responsibility, and are committed to ensuring sustainable development and business practices. The majority of development and production work takes place at our premises in Austria. Highly specialized suppliers from the region and first-class components guarantee the reliability and durability of every OMICRON device.

Over 750 employees from 45 different countries shape our extremely diverse corporate culture today. Flat hierarchies and a high degree of individual responsibility create a motivational work environment in which our employees can realize their full potential. Actively practiced corporate values such as respect and trust lead to our unique company spirit.

Founding of OMICRON in Austria — 1984

Entering the fields of protection and measurement technology — 1990

First major OMICRON protection testing conference — 1993

OMICRON has over 100 employees — 2000

Entering the field of primary equipment testing — 2001

2003

Customers in over 100 countries worldwide

2009

Entering the field of online monitoring

2015

Over 700 employees across 22 offices worldwide

OMICRON

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

www.omicronenergy.com

We are supporting you to deliver a world class service, every day, in every sector...

LOCATIONS

LONDON, HEATHROW
Sunbelt Rentals UK Test & Monitoring
242-252 London Road, Staines, London TW18 4JQ
0333 122 3126
www.sunbeltrentals.co.uk/find-a-depot/london-heathrow

REDCAR
Sunbelt Rentals UK Test & Monitoring
Unit 5 Kirkleatham Business Park, Redcar TS10 5SQ
0370 330 6021
www.sunbeltrentals.co.uk/find-a-depot/teesside

STOKESLEY
Sunbelt Rentals UK Test & Monitoring
2 Ellerbeck Way, Stokesley Business Park, Stokesley, North Yorkshire TS9 5JZ
01642 718 900
www.sunbeltrentals.co.uk/find-a-depot/stokesley

www.inlec.com

Order Online with Next Day Delivery, Online Chat & Online Account Management

Trustpilot

View our trustpilot score

★★★★★

0370 330 6021
instrumentation@sunbeltrentals.co.uk
testequipment@sunbeltrentals.co.uk
www.sunbeltrentals.co.uk

SUNBELT® RENTALS