

COMPANO 100

Primary injection, secondary injection and basic protection test set



Multifunctional device for basic testing

Challenging commissioning and re-commissioning tasks

During the commissioning of protection systems there are literally hundreds of connections that have to be verified. Whether it's for primary or secondary injection, having the right equipment and the right procedures can speed up those tests drastically. Including the relays in some of the wiring checks can be a very smart approach.

Maintain your mobility

COMPANO 100 is the universal and easy to use solution for all types of basic and quick wiring and polarity checks, burden measurements, basic protection testing and ground system checks.

Due to its light weight (only 10 kg / 22 lbs), small size and rugged design it's predestined for use in substations, railway systems, industry or renewable energy generation facilities.



150 V* AC / 220 V DC
output (30 VA)

110 A AC / 100 A DC
output (600 VA)

Graphical color
user interface

Jog dial wheel



* Up to 750 V AC with optional booster VBO4

ng in electrical energy systems

Electronic sources

Controlled electronic outputs allow you to obtain the exact value you desire. The accuracy is even very high for small values. In addition, the electronic sources can output signals with variable frequencies and other signal forms, automated ramps, pulse ramps and of course pure DC.

Battery operated

COMPANO 100 is mains independent due to its unique battery operation. This enables the user to perform tests at remote locations for several hours without the need of a mains supply.

Polarity check signal generation

COMPANO 100 enables quick setup for wiring checks. A special electronically generated DC free test signal allows easy polarity checks throughout the station within minutes.

Comprehensive testing functionality

Whether the sources are AC or DC, COMPANO 100 can run various output signal forms. The highly flexible inputs are configurable, for example as

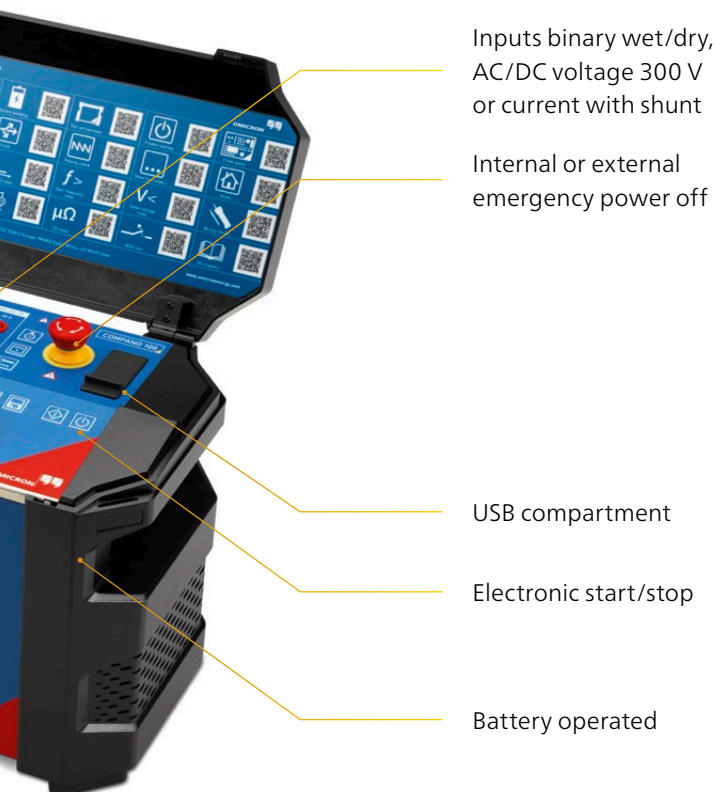
- > wet or dry binary inputs,
- > AC or DC voltage inputs with different filters (fast, accurate or frequency selective) and
- > current inputs using external shunts or clamps depending on the user's needs.

A high precision timer can be configured to start or stop the measurement process based on various events.

Each function can be combined with one of the others in a useful manner, e.g. to calculate real power from the output current and a voltage input, making COMPANO 100 an incredibly flexible tool for today's tasks and future applications.



Winner in the discipline „Products“, category „Industry & Skilled Trades“



Your benefits

- > Accurate output of desired value
- > Run complex predefined sequences and ramps
- > Polarity check signal generation for quick setup of wiring tests
- > Runs without mains power supply for several hours
- > High versatility
- > Portable due to light weight

www.omicronenergy.com/COMPANO100

Industries and testing applications



Railways

Remote test objects need mains independent test sets.

- > Variable frequencies and DC
- > Internal power source by battery
- > Basic protection testing
- > Micro-ohm measurements



Utilities

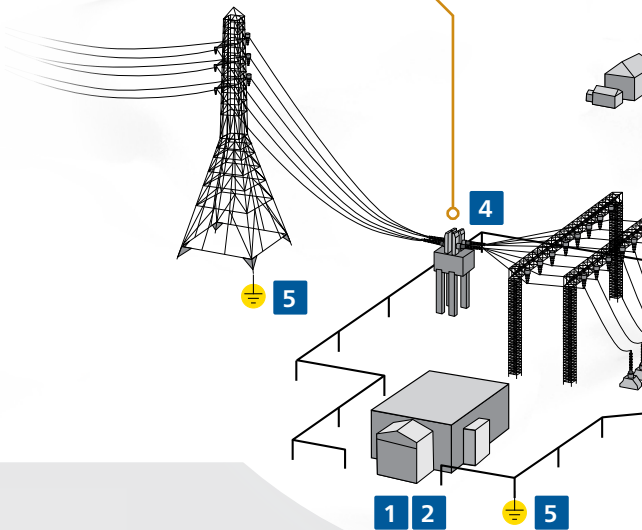
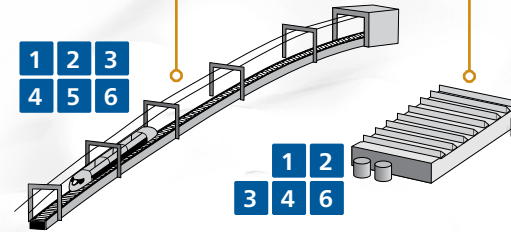
Utility applications need high flexibility for various applications. COMPANO 100 offers:

- > Wiring checks and burden measurements with primary and secondary injection
- > Polarity checks
- > Basic relay and fault detector tests

Equipment manufacturers

Manufacturing processes often require devices for fast, individual and frequently changing tests.

- > An ideal solution for small lot sizes for example, Ring Main Units (RMU)
- > Large number of functions within one device
- > Protection tests and micro-ohm measurements



Testing applications with COMPANO 100

1 Single-phase protection relay testing

COMPANO 100 is the ideal solution for a wide range of one-phase current or one-phase voltage testing for protection devices.

2 Burden measurements

COMPANO 100 checks and verifies the burden of instrument transformers to avoid serious problems of over- or underburdened instrument transformers.

3 Wiring checks and polarity checks

COMPANO 100 provides the fastest and easiest way to verify the wiring in substations and to check the polarity, even without mains supply.



Industries

These environments require easy to use test sets with outstanding capabilities.

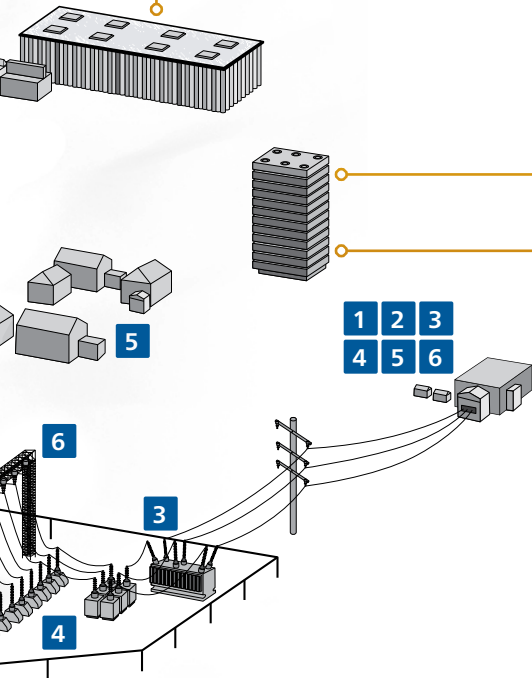
- > High current and variable voltage generation
- > Easy protection relay tests
- > Ductor testing



Service providers

A maximum of testing capabilities should be provided by a single piece of equipment.

- > Most versatile basic test set on the market
- > A small, lightweight, easy to transport device
- > Applications such as:
Primary or secondary injection, continuity checks with high currents and grounding system checks



Rental

Ease of use and versatility is a must when there are multiple users.

- > Startup without specific training
- > Various different applications such as:
Primary or secondary injection, basic relay tests, continuity checks with high currents, grounding system checks

4 CT / VT ratio checks

COMPANO 100 generates a frequency-variable sine wave signal to check CT and VT ratios and takes frequency selective measurements.

5 Grounding measurements

COMPANO 100 allows a fast and reliable check of ground impedance, step- and touch voltages and soil resistivity.

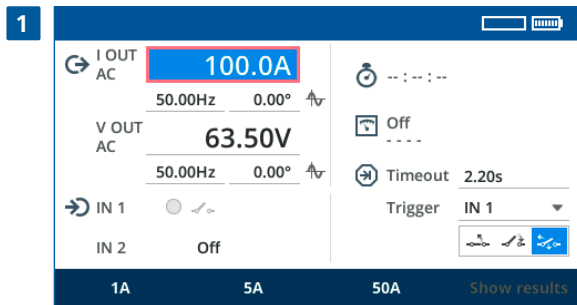
6 Micro-ohm resistance testing

COMPANO 100 is also a portable and battery operated high precision ohmmeter which can measure all the way down to micro-ohms.

Efficient and ergonomic operation

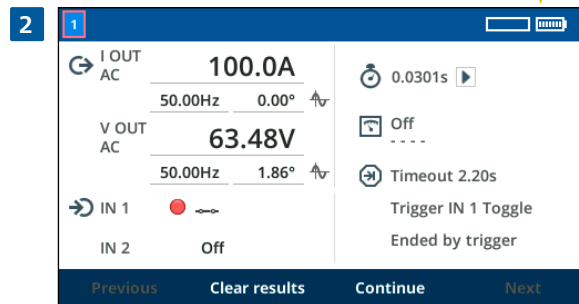
COMPANO 100's ease of use is based on its very intuitive software. It's functionality and operation structure are developed in close co-operation with our customers.

Example: QUICK test of overcurrent protection



QUICK test setup

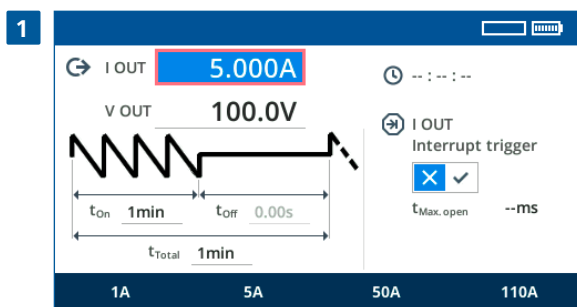
Set output quantities up to 110 A or 150 V AC and choose between various different trigger criteria such as binary inputs or overload to automatically end the test.



QUICK results

Perform test shots at different output values and easily assess the results and compare them with the relay's nominal characteristic.

Example: Setup polarity check signals



Polarity check

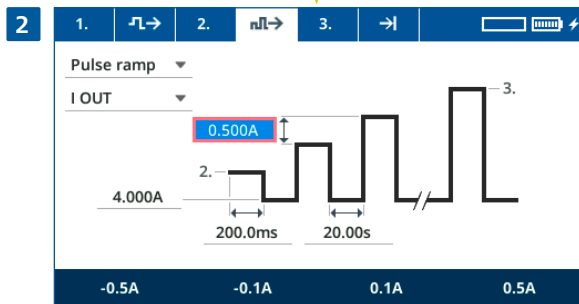
Simply setup polarity check signals to evaluate wiring tests within minutes. Define active- and pause times to save power. Polarity checks are possible for voltage and current paths.

Example: Testing automated pickup value of an overcurrent protection



Define states

Define your first state in a very easy and logical way. Use timeout to define the pre-fault duration.

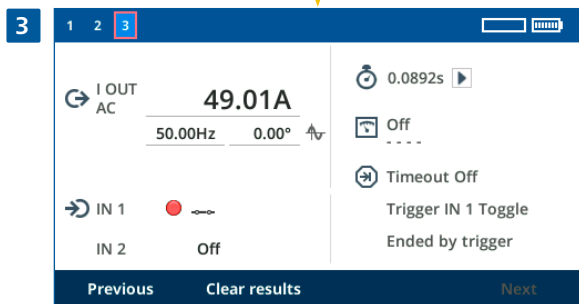


Pulse ramp definitions

Choose between intuitive transitions for the changeover of the states:

- > Step change
- > Ramp
- > Pulse ramp

Define ramp's end value on a third page.



Results view

After running the test the results of all states can be viewed and stored on a flash drive.

Your benefits

- > Test quickly and easily
- > Easily define sequences and ramps
- > Obtain the output magnitudes as they were set in the user interface
- > Generate polarity check signals

Application modules for COMPANO 100

Modules for different applications guarantee ease of use. The modules used most frequently can be reached by pressing a single key.



QUICK

General purpose module for various applications. It can output magnitudes and measure back at the same time. It is possible to modify the quantities and phases generated while the outputs are active. Functions like switching off/on triggers, switching off/on time-out or calculating results such as real power or impedances from other measured quantities are possible.

(Included in all packages)



FLEX

Allows you to program sequences in advance that consist of states, ramps, pulse ramps or combinations of them that you can then run as programmed. Changes between the individual sequence steps can be triggered from internal timers, external events such as binary inputs or output overloads. The ability to repeat the sequence at the end of the sequence makes it flexible, especially when it comes to creating endless loops.



Polarity check

Allows asymmetric signal generation that is free from any DC component. By using a hand-held polarity checker (CPOL2) it is possible to distinguish whether the polarity is correct or not – even without a connection back to the COMPANO 100. The signal is DC free which for instance, avoids any DC magnetization and remanence in the core of CTs in the path.



Micro-ohm

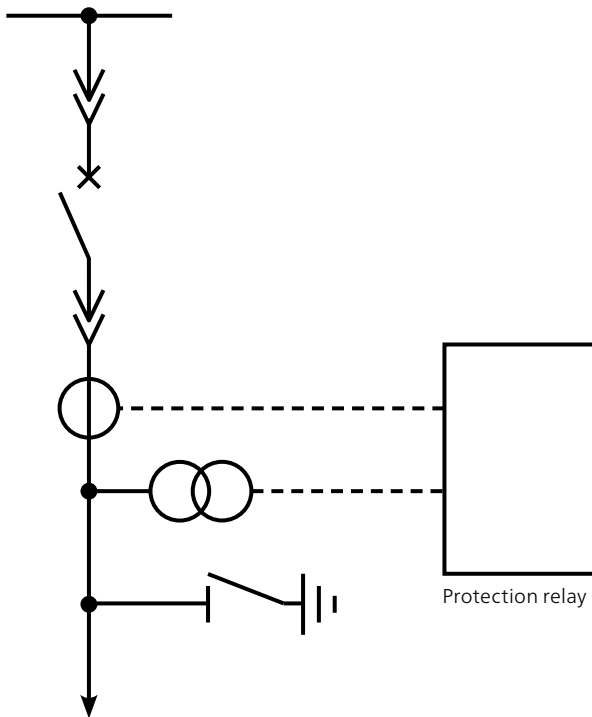
This module allows the COMPANO 100 to be used as a micro-ohmmeter for applications where there are no inductances such as CTs in the measurement path. In this mode, special hardware is activated to filter out system frequency noise.



Testing distribution grids is made easy with COMPANO 100.

Application example*

COMPANO 100 is designed to be easy to use and versatile. Here is just one example that shows how it is used in distribution grids:



For tripping currents lower than 110 A, it is possible to test the complete chain from the primary site of the current transformer to the contacts of the circuit breakers.

1. Instrument transformer testing

Check polarity and ratio of current transformers and voltage transformers with ease.



2. Wiring checks

Check the secondary wiring. Either by measuring with COMPANO 100 or use the CPOL2 hand held polarity checker for more comfort and efficiency (see page 13).



3. Protection testing

Perform single phase protection tests on over-current relays. An independent current and voltage source with a freely adjustable phase angle even allows you to test directional and distance protection. Voltage and frequency protection can also be tested.



4. Circuit breaker testing

Use the integrated timer to measure the open and closing times of circuit breakers. Additionally, the resistance of the breaker contacts can be tested with the Micro-ohm function.



* Example taken from OMICRON Academy.
More information on our training courses on page 19.

Grounding system testing

COMPANO 100 grounding measurements follow a guided workflow. The clear instructions and the graphical representation are unique in this field, making these measurements easier than ever before.

Guided workflow

1 Ground impedance

Distance Reduction factor

Impedance

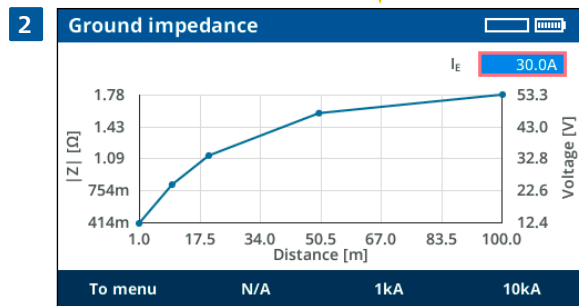
| Dist. | V OUT (Corr.) | IN 1 | Z (Corr.) |
|-------|---------------|----------------|---------------|
| 1.0m | 169.0mA 0.00° | 70.00mV 0.00° | 414.2mΩ 0.00° |
| 10.0m | 170.0mA 0.00° | 140.0mV 0.57° | 823.5mΩ 0.57° |
| 20.0m | 168.0mA 0.00° | 190.0mV -0.57° | 1.131Ω -0.57° |
| 50.0m | 171.0mA 0.00° | 270.0mV -2.29° | 1.579Ω -2.29° |

To menu Exit table Delete all Delete selected

Ground impedance

The guided workflow shows all the steps required for performing the measurement. All the parameters are set automatically, but may also be configured manually.

The results are shown as a table with all the relevant information. It is also possible to apply the current reduction factor directly.



Results can be checked on the display immediately. It is also possible to specify a current to earth to visualize the related ground potential rise directly.

If necessary, single measurements can be repeated or deleted individually.

Clear visualization of results

Testing the grounding system with COMPANO 100 is as easy as it gets. The guided workflow leads to clearly depicted final results – without the need for a calculator.

Reduction factor

Measured Reduction factor

Current direction

IN 1 Input ratio

| ID | V OUT | IN 1 |
|----|---------------|---------------|
| 1 | 169.0mA 0.00° | 160.0μA 0.57° |
| 3 | 170.0mA 0.00° | 200.0μA 1.15° |

To menu Exit table Delete all Delete selected

Live screenshots from real measurements.

Soil resistivity

| ID | a c | V OUT | IN 1 | p |
|----|-----------|---------|--------|---------|
| 1 | 4.0m 4.0m | 120.0mA | 1.230V | 257.6Ωm |
| 2 | 6.0m 3.0m | 107.0mA | 1.943V | 256.7Ωm |

To menu Wenner simpl. Wenner Schlumberger

Integrated measurement and calculation of the current reduction factor.

Direct calculation of the soil resistivity using the Wenner or Schlumberger method.

Grounding system application modules

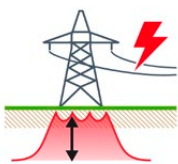
GROUNDING SYSTEM

COMPANO 100 offers four specific modules for testing grounding systems¹. They allow you to measure the soil resistivity as well as ground impedance, continuity and step and touch voltages.

These measurements are required for planning a station, confirming the design calculations of a new station or for reconfirming the condition of existing stations. In areas where people are often barefoot, such as next to playgrounds, schools and recreational areas, it's especially important to check the conditions of the grounding system of medium and high voltage stations and transmission towers periodically.

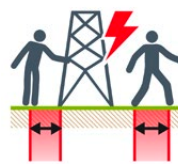


Ground impedance



This application module allows you to measure the impedance between the grounding system and reference earth. This type of measurement is also referred to as Ground Potential Rise (GPR), Fall-of-Potential (FoP) or 3-probe-method.

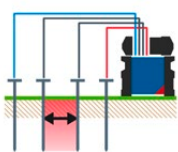
Step- and touch voltage



This application module allows you to use COMPANO 100 as a source for the hand held FFT voltmeter HGT1.

It also allows you to perform step- and touch voltage measurements comfortably without connecting a cable to COMPANO 100.

Soil resistivity



The Soil Resistivity Test (SRT) is performed prior to the construction of a grounding system. Based on these test results, the grounding system is designed to meet all the required criteria. It is also referred to as 4-probe-method.

Continuity (micro-ohm)













Improper construction work and deterioration can be detected with micro-ohm measurements. This test ensures that all components of the grounding system are properly connected.

Your benefits

- > Guided workflow
- > Calculation of results at mains frequency (e.g. 50 or 60 Hz)
- > Performs calculations for current reduction factor and Wenner/Schlumberger method
- > Highly selective digital filtering
- > Store results on flash drive

¹ COMPANO 100 is best suited for small and isolated grounding systems of an extent up to 30 m / 100 ft. For larger grounding systems, OMICRON CPC 100 + CU1 is the recommended solution.








Ordering options

| | Description | Item no. | Standard Package P0005923 ¹ | Advanced Package P0005924 | Grounding System Standard Package P0005925 | Grounding System Advanced Package P0005926 | Complete Package P0005927 |
|---|--|----------------------------------|---|------------------------------|--|--|------------------------------|
|  | <p>COMPANO 100 test set Including standard accessories such as 3 m / 10 ft cable set, power supply, C-Shunt 10</p> <p>Included application module: QUICK Included service: Standard service</p> | - | ■ | ■ | ■ | ■ | ■ |
|  | <p>FLEX Application module More information on page 8</p> | P0006857 | ■ | ■ | □ | □ | ■ |
|  | <p>Micro-ohm Application module More information on page 8</p> | P0006858 | ■ | ■ | ■ | ■ | ■ |
|  | <p>Polarity check Application module More information on page 8</p> | P0006859 | □ | ■ | □ | □ | ■ |
|  | <p>Grounding system Package of application modules for grounding systems. More information on page 10</p> | P0000410 | □ | □ | ■ | ■ | ■ |
|  | <p>Wiring check add-on CPOL2, current clamp and clamp-on ammeter</p> | P0006486 | □ | ■ | □ | □ | ■ |
|  | <p>Ground system accessories Accessories for measuring ground impedance, soil resistivity and reduction factor with the included Rogowski coil. Also used to inject current for measurements with HGT1.</p> | P0006490 | □ | □ | ■ | ■ | ■ |
|  | <p>Step and touch voltage accessories Package for measuring step and touch voltages within HV stations and surrounding areas. Including handheld grounding tester HGT1 and accessories.</p> | P0006491 | □ | □ | □ | ■ | ■ |
|  | <p>Device bag Protective soft bag for the COMPANO 100</p> <p>Combined shoulder strap and handle (works with or without soft bag)</p> <p>Accessory bag with shoulder strap</p> | E1557600 E1557500 E1557700 | □ | ■ | □ | ■ | ■ |
|  | <p>VOUT Independent voltage output</p> | P0006855 | □ | □ | ■ | ■ | ■ |









¹ Upgrade Standard Package to Advanced Package: Item no. P0005928 (protective carry bag, shoulder strap and accessory bag are not included)

□ = Optional ■ = Standard

Accessories

| | Accessory | Item no. |
|---|--|----------------------|
|  | <p>Transport trolley</p> <p>Robust transport case for shipping, with wheels and extendable handle for easy manoeuvring.</p> | B1560902 |
|  | <p>CPOL2 Polarity checker</p> <p>For checking a series of terminals for correct wiring. The signal can be injected into the primary side of a CT. Thus, the correct polarity of CT wiring can be included in the test.</p> | P0006331 |
|  | <p>Clamp-on ammeter</p> <p>Check current flows when performing wiring checks.</p> | E1556600 |
|  | <p>C-Shunt 1: 1 mΩ (32 A) C-Shunt 10: 10 mΩ (12.5 A)</p> <p>Precision shunts for current measurements. It can be directly inserted into the inputs of COMPANO 100 making the respective input a current input.</p> | B0620201 B0620301 |
|  | <p>BNO1 Binary output relay</p> <p>This add-on relay converts the V OUT voltage output to a solid-state relay output for up to 10 A AC/DC (2 A continuous). For example, it can be used to trip a circuit breaker and measure the timing or to test logic functions.</p> | P0006487 |
|  | <p>CBF1 Accessory for self-powered relays</p> <p>Some self-powered relays are causing heavy interferences on the current path due to their integrated switch-mode power supply. CBF1 reduces this effect when testing such relays with COMPANO 100. It allows to test self-powered relays with currents up to 10 A.</p> | P0006488 |
|  | <p>VBO4 Voltage booster for 300 V and 750 V</p> <p>This accessory is a voltage transformer which can be used to generate 300 V or 750 V from the 150 V voltage output (V OUT) of COMPANO 100. This allows to test relays and voltage sensors which require a higher voltage.</p> | P0006489 |

Accessories

| | Accessory | Item no. |
|---|--|----------------------------------|
|  | <p>Terminal adapter box Set of various adapters for connecting test leads to cabinet terminals. The set comprises ISO and ANSI adapters including M2.5, M3 and M4 male, M4 and M5 female as well as ANSI UNC #8 and UNF #10 threads.</p> | P0006366 |
|  | <p>Rogowski coil 1.9 m / 6 ft flexible rogowski coil for the measurement of current reduction factor, e.g. on power transmission towers.</p> | E0532502 |
|  | <p>Foot electrode 20 x 20 cm / 7.9 x 7.9 in For measurements according to EN50522.</p> | B1245201 |
|  | <p>COMPANO 6 m / 19.5 ft cable The 6 m / 19.5 ft cable set comprises two high current cables and four measurement cables plus connection adapters and wide opening Kelvin clamps.</p> | P0006213 |
|  | <p>Kelvin screw M12 Kelvin screw M14 Kelvin screw M16 with 1 x 4 mm connector and 1 x 6 mm connector As a connection alternative to circuit breakers for high-precision contact resistance measurements. Requires P0006213.</p> | B1225600 B1334400 B1259800 |
|  | <p>Measurement cable set 6 x 6 m / 19.5 ft Measurement cable set 6 x 10 m / 32 ft with 4 mm connectors / 2.5 mm²</p> | P0006191 P0006194 |
|  | <p>Kelvin clamp Kelvin clamp with 2 x 4 mm connector</p> | B0508900 |
|  | <p>Y clamp with 4 mm connector for banana plugs Y clamp with integrated spike. Can be used for micro-ohm measurements or as connection point for grounding system measurements. Connector for 4 mm banana plugs.</p> | B1009401 |

Please find more accessories on our website: www.omicronenergy.com/COMPANO100

Advanced technical support

Premium application service

The optional premium application service contract is an annual fee-based extension to the free 24/7 COMPANO 100 device support (see page 19).

It offers maximum security for the users and includes complimentary annual calibration, a yellow transport case for shipment and the exchange of worn out accessories on request.

This extended support also includes the automatic exchange of the battery during the annual calibration if the battery state of health (SOH) falls below 75 % after a full charge-discharge cycle, also free of charge.

Also included is the premium application support 24/5 (whenever possible also on weekends).

This support, for example, helps to interpret results or how to handle a specific application. Users without an optional service contract can make use of the premium application support by paying on a case by case basis.

The warranty extension is a central feature of the optional service contract. During the term of the contract the device is under full warranty and will be repaired free of charge. Not included are self-inflicted damages.

If the device should be traded for a new one of the same device class within the first eight years, a discount of 25 % is provided on the price of the new device.

Premium application service contract (optional, renewed annually)

- > Annual free calibration and software update
- > Premium application support 24/5
- > Extended warranty for the time of the contract
- > Exchange of battery if SOH is below 75 %
- > Transport case (included in the first year)
- > Exchange of worn out (but not lost) accessories in the package
- > 25 % discount for a device trade in within the first eight years
- > 10 % discount for a device trade in after the first eight years
- > Item no. P0006526 (sold with new devices only)



To learn more about COMPANO 100 and its applications please scan the QR code or follow the link to the video channel:

www.omicronenergy.com/COMPANO100-Videos



Premium Service

Premium application service contract¹

P0006526

¹ May not be available in all countries

Technical data COMPANO 100

COMPANO 100

Output – IOUT¹

| Range | Current | t _{max} ^{2,3} | V _{max} | Power _{max} |
|-----------------------------|--------------|---------------------------------|------------------|----------------------|
| 110 A AC (15 ... 500 Hz) | 80 ... 110 A | 2.2 s | 9.0 V | 600 W |
| | 40 ... 80 A | 4.2 s | 12.5 V | 600 W ⁴ |
| | 0 ... 40 A | 20 s | 15.0 V | 600 W |
| 20 A AC (15 ... 500 Hz) | 15 ... 20 A | 10 min | 20.0 V | 400 W |
| | 0 ... 15 A | 20 min | 20.0 V | 300 W |
| | 0 ... 12 A | > 2 h | 4.0 V | 50 W ⁵ |
| 100 A DC | 80 ... 100 A | 2.2 s | 9.0 V | 600 W |
| | 40 ... 80 A | 4.2 s | 12.5 V | 600 W |
| | 0 ... 40 A | 20 s | 15.0 V | 600 W |
| 20 A DC | 15 ... 20 A | 10 min | 20.0 V | 400 W |
| | 0 ... 15 A | 20 min | 20.0 V | 300 W |
| | 0 ... 12 A | > 2 h | 4.0 V | 50 W ⁵ |

Output – VOUT (optional)

| Range | Voltage | t _{max} ³ | I _{max} | Power _{max} |
|-----------------------------|------------------|-------------------------------|------------------|----------------------|
| 150 V AC (15 ... 500 Hz) | 75 ... 150 V AC | 1 min | 200 mA | 30 W |
| | 0 ... 75 V AC | 1 min | 200 mA | 15 W |
| 220 V DC | 110 ... 220 V DC | 1 min | 200 mA | 30 W |
| | 0 ... 110 V DC | 1 min | 200 mA | 22 W |
| AUX DC Mode | 48 ... 220 V DC | 1 s | 900 mA | 60 W |
| | | > 2 h | 500 mA | 45 W |

Output measurements – Accuracy

| AC | Error guar. | Error typ. ⁶ |
|-------------|------------------------------|-------------------------|
| 110 A range | < 1.00 % of rd. ⁷ | < 0.50 % of rd. |
| | + 0.40 % of rg. ⁷ | + 0.20 % of rg. |
| 20 A range | < 1.60 % of rd. | < 0.80 % of rd. |
| | + 0.40 % of rg. | + 0.20 % of rg. |
| 150 V range | < 0.30 % of rd. | < 0.15 % of rd. |
| | + 0.30 % of rg. | + 0.15 % of rg. |

| Phase error ^{7,8} | Error guar. | Error typ. ⁶ |
|----------------------------|-------------|-------------------------|
| 110 A range | < 0.3° | < 0.1° |
| 20 A range | < 0.3° | < 0.1° |
| 150 V range | < 0.3° | < 0.1° |

| DC | Error guar. | Error typ. ⁶ |
|--------------------------|------------------------------|-------------------------|
| 100 A range | < 1.20 % of rd. ⁷ | < 0.60 % of rd. |
| | + 0.80 % of rg. ⁷ | + 0.40 % of rg. |
| 20 A range | < 1.20 % of rd. | < 0.60 % of rd. |
| | + 0.80 % of rg. | + 0.40 % of rg. |
| 220 V range ⁹ | < 0.30 % of rd. | < 0.15 % of rd. |
| | + 0.30 % of rg. | + 0.15 % of rg. |

Inputs IN1 & IN2¹⁰ – Accuracy

| Voltage AC 500 kΩ | Error guar. | Error typ. ⁶ |
|-------------------|------------------------------|-------------------------|
| 300 V range | < 0.30 % of rd. ⁷ | < 0.15 % of rd. |
| | + 0.10 % of rg. ⁷ | + 0.05 % of rg. |
| 30 V range | < 0.30 % of rd. | < 0.15 % of rd. |
| | + 0.10 % of rg. | + 0.05 % of rg. |
| 1 V range | < 0.40 % of rd. | < 0.20 % of rd. |
| | + 0.20 % of rg. | + 0.10 % of rg. |
| 100 mV range | < 0.40 % of rd. | < 0.20 % of rd. |
| | + 0.20 % of rg. | + 0.10 % of rg. |

| Phase error ^{7,8} | Error guar. | Error typ. ⁶ |
|----------------------------|-------------|-------------------------|
| 300 V range | < 0.3° | < 0.1° |
| 30 V range | < 0.3° | < 0.1° |
| 1 V range | < 0.3° | < 0.1° |
| 100 mV range | < 0.3° | < 0.1° |

| Voltage DC 500 kΩ | Error guar. | Error typ. ⁶ |
|-------------------|------------------------------|-------------------------|
| 300 V range | < 0.20 % of rd. ⁷ | < 0.10 % of rd. |
| | + 0.10 % of rg. ⁷ | + 0.05 % of rg. |
| 30 V range | < 0.30 % of rd. | < 0.15 % of rd. |
| | + 0.10 % of rg. | + 0.05 % of rg. |
| 1 V range | < 0.40 % of rd. | < 0.20 % of rd. |
| | + 0.20 % of rg. | + 0.10 % of rg. |
| 100 mV range | < 0.40 % of rd. | < 0.20 % of rd. |
| | + 0.40 % of rg. | + 0.20 % of rg. |

| Binary inputs | Timing accuracy |
|---------------------|-----------------|
| Binary wet > 500 kΩ | 0.2 ms |
| Binary dry > 90 kΩ | 0.2 ms |

Micro-ohm application module (IN1 only)

| Range | Voltage range | Injected current | Error typ. ⁶ |
|------------------|---------------|------------------|--|
| 0.5 uΩ ... 1 mΩ | 100 mV | 100 A | < 0.50 % of rd. ⁷ + 0.5 uΩ |
| 5 uΩ ... 10 mΩ | 1 V | 100 A | < 0.50 % of rd. + 5 uΩ |
| 50 uΩ ... 100 mΩ | 1 V | 10 A | < 0.50 % of rd. + 50 uΩ |
| 1.5 mΩ ... 3 Ω | 30 V | 10 A | < 0.50 % of rd. + 1.5 mΩ |



Power specifications of charger

| | |
|------------------------------|-------------------------------------|
| Voltage nominal | 115 V / 230 V AC |
| Permitted | 95 V ... 132 V / 198 V ... 264 V AC |
| Frequency nominal | 50 Hz / 60 Hz |
| Max. input power of charger | 180 W |
| Max. output power of charger | 100 W |
| Connection | AC socket IEC 60320/C14 |

Weight and dimensions

| | |
|------------------------|--|
| Weight | 10 kg / 22 lbs device without cover |
| Dimensions (w x h x d) | 360 x 312 x 210 mm / 14.2 x 12.3 x 8.3 in |

Environmental conditions

| | |
|--|---|
| Operating temperature ¹¹ | -10 °C ... + 50 °C / 14 °F ... 122 °F |
| Storage and transportation temperature | -20 °C ... + 50 °C / -4 °F ... 122 °F |
| Humidity | 5 % ... 95 % relative humidity, no condensation |
| Max. altitude for operation | 4000 m / 13000 ft |
| Max. altitude for storage | 15000 m / 50000 ft |

Equipment reliability

| | |
|---------------------|--|
| EMC Emission | |
| International | IEC 61326-1 |
| North America | FCC Subpart B of Part 15 Class A, CISPR 22 |
| Europe | EN 61326-1, EN 55022, EN 61000-3-2/3 |

| | |
|---------------------|---|
| EMC Immunity | |
| International | IEC 61326-1, IEC 61000-6-5, IEC 61000-4-2/3/4/5/6/8/11/16/18 |
| Europe | EN 61326-1, EN 61000-6-5, EN 61000-4-2/3/4/5/6/8/11/16/18 |

| | |
|---------------|--|
| Safety | |
| International | IEC 61010-1, IEC 61010-2-030 |
| North America | UL 61010-1, UL 61010-2-030, CAN/CSA-C22.2 No. 61010-1, CAN/CSA-C22.2 No. 61010-2-030 |
| Europe | EN 61010-1, EN 61010-2-030 |

| | |
|--------------|---|
| Shock | 30 g (11 ms half sine), 3 shocks in each axis; tested according to IEC 60068-2-27 |
|--------------|---|

| | |
|------------------|---|
| Vibration | 5 g RMS, frequency range 10 ... 2 kHz; 30 min in each axis; tested according to IEC 60068-2-64 |
|------------------|---|

Battery

| | |
|--------------------------------|------------------------------------|
| Type | Li-Ion, rechargeable ¹² |
| Nominal voltage | 50.4 V |
| Nominal capacity | 151 Wh |
| Charging | with supplied charger only |
| Temperature range for charging | 5 °C ... 45 °C / 41 °F ... 113 °F |
| Safety certification | UN 38.3, IEC 62133 |

¹ Some self-supplied relays might not work properly

² Applies when using a 2 x 3 m (2 x 10 feet) high-current cable

³ Applies at an ambient temperature of 23 °C ± 5 °C (73 °F ± 9 °F)

⁴ Up to 1000 W with, for example, 50 A at 400 mΩ

⁵ Limited by battery capacitance and charger

⁶ 98 % of all units possess an accuracy greater than specified as typical

⁷ rd = reading, rg = range; Accuracy values indicate that the error is smaller than ± [(read value x reading error) + (range setting x range error)]; Specifications valid for 50 Hz and 60 Hz after a warm-up time of > 10 minutes

⁸ At full range magnitude

⁹ Applies for currents up to 200 mA

¹⁰ CAT III / 300 V; CAT IV / 150 V

¹¹ Output power degrading below 0 °C due to battery

¹² The COMPANO 100 battery is specified as "Dangerous Goods Class 9 – UN3481". Special rules for shipment apply. Transportation on aircraft needs approval of the airline.

We create customer value through ...

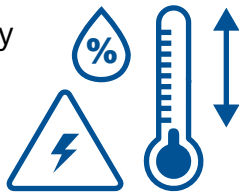
Quality

You can rely on the highest safety and security standards



Superior reliability with up to

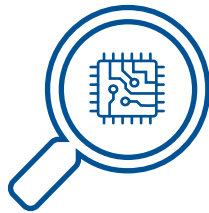
72



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



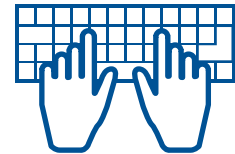
... a product portfolio tailored to my needs

More than

200

developers

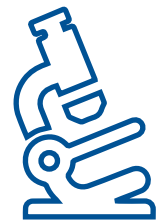
keep our solutions up-to-date



More than

15%

of our annual sales is reinvested in research and development



Save up to

70%

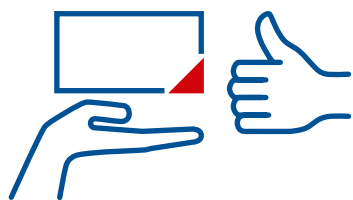
testing time through templates, and automation



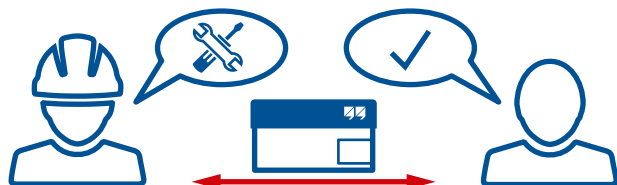
— Support —

24/7

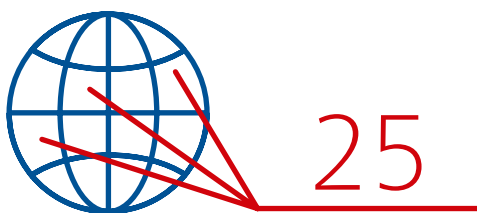
Professional technical support at any time



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

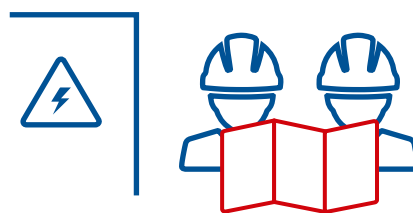


Academy and numerous hands-on trainings per year

Frequently OMICRON hosted user meetings, seminars and conferences



to thousands of technical papers and application notes



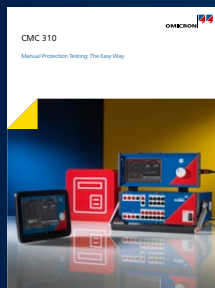
Extensive expertise in consulting, testing and diagnostics

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:



CMC 310



ARCO 400



CPC 100

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

