

# 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

# ing 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

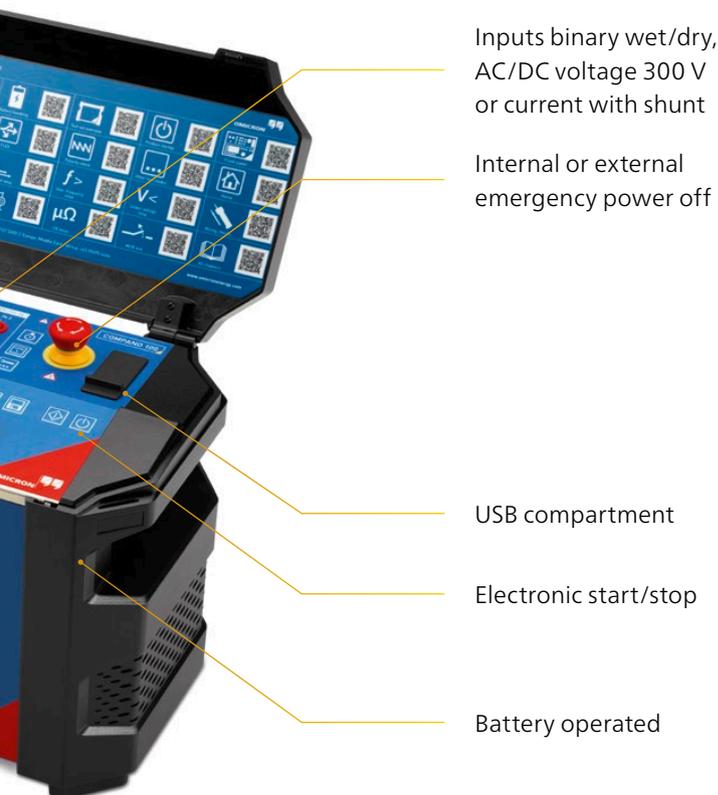
- > wet or dry binary inputs,
- > AC or DC voltage inputs with different filters (fast, accurate or frequency selective) and
- > current inputs using external shunts or clamps depending on the user's needs.

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“



Inputs binary wet/dry, AC/DC voltage 300 V or current with shunt

Internal or external emergency power off

USB compartment

Electronic start/stop

Battery operated

## 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](http://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

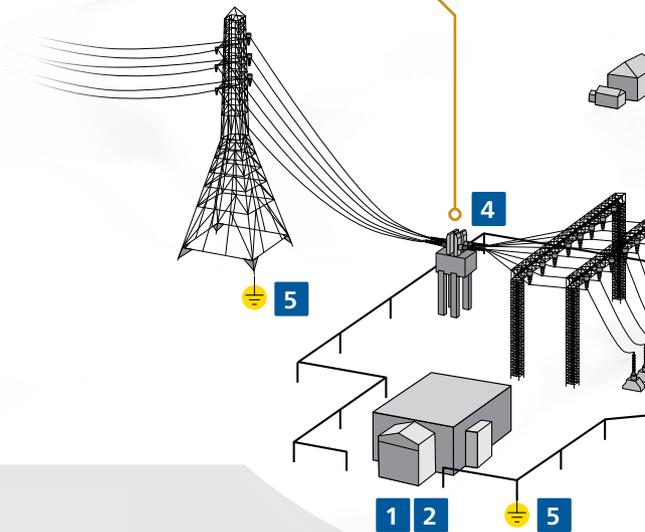
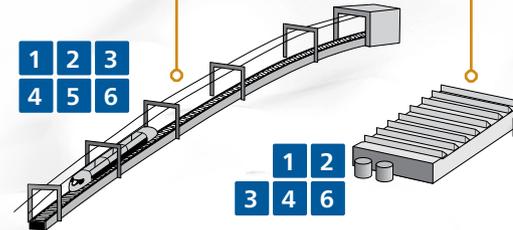
Utility applications need high flexibility for various applications. COMPANO 100 offers:

- > 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.

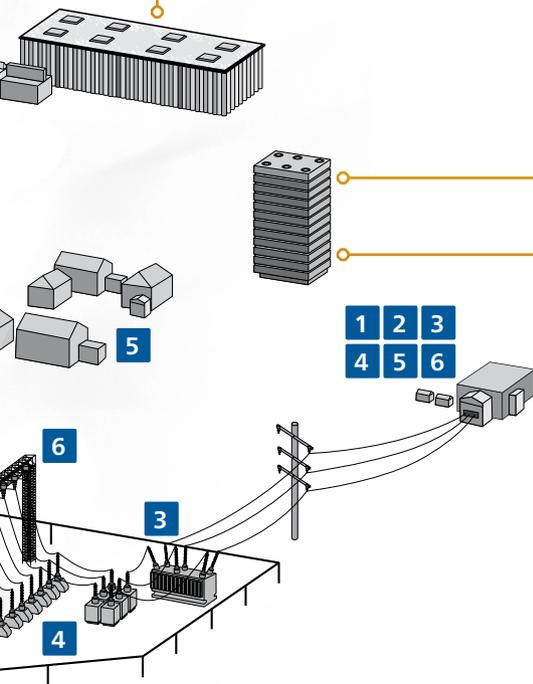
- > High current and variable voltage generation
- > Easy protection relay tests
- > Ductor testing



### 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.

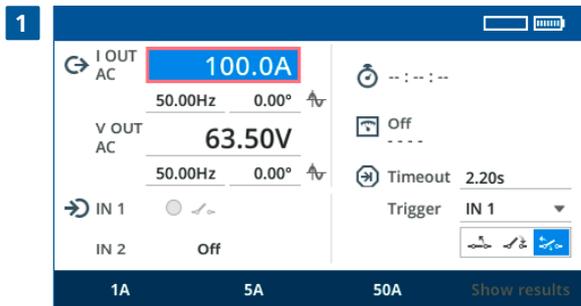
#### 6 Micro-ohm resistance testing

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

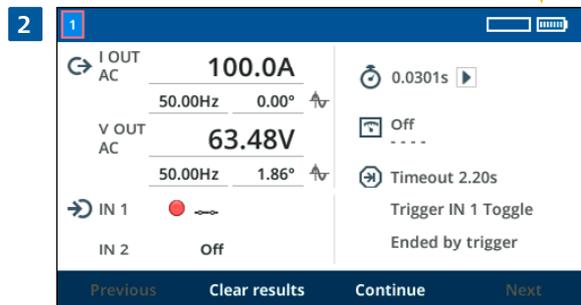
COMPANO 100's ease of use is based on its very intuitive software. It's functionality and operation structure are developed in close co-operation with our customers.

## Example: QUICK test of overcurrent protection



### QUICK test setup

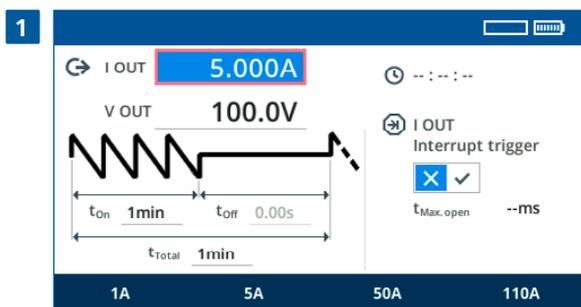
Set output quantities up to 110 A or 150 V AC and choose between various different trigger criteria such as binary inputs or overload to automatically end the test.



### 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

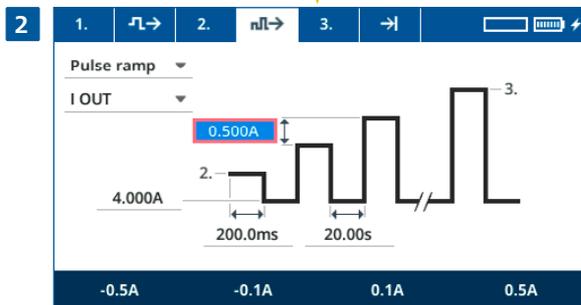
Simply setup polarity check signals to evaluate wiring tests within minutes. Define active- and pause times to save power. Polarity checks are possible for voltage and current paths.

## 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.

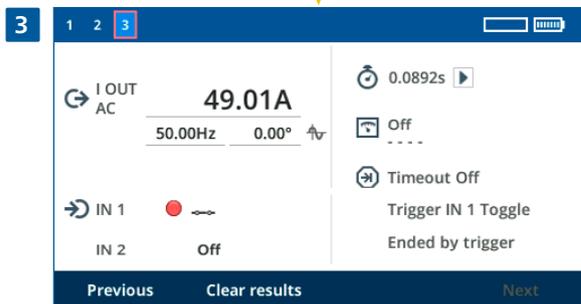


### Pulse ramp definitions

Choose between three intuitive transition states 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 with delivery)



## 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.

(Order No. VESM6120)



## 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.

(Order No. VESM6140)



## 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.

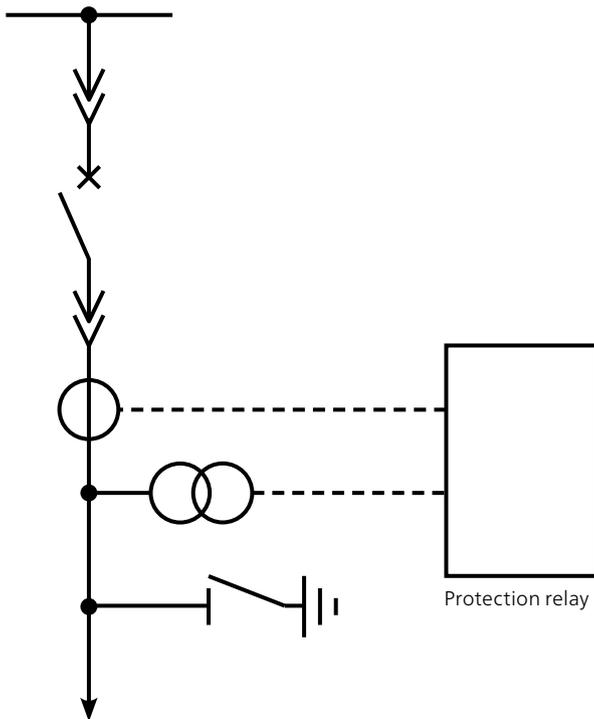
(Order No. VESM6130)



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

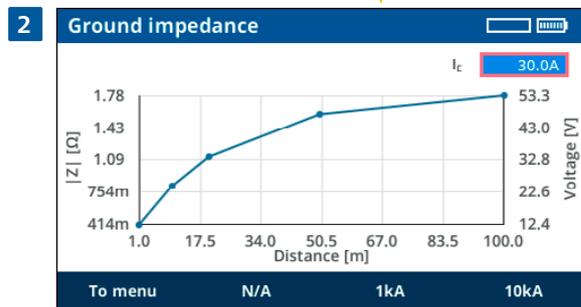
Dist.	V OUT (Corr.)	IN 1	Z (Corr.)
1.0m	169.0mA 0.00°	70.00mV 0.00°	414.2mΩ 0.00°
10.0m	170.0mA 0.00°	140.0mV 0.57°	823.5mΩ 0.57°
20.0m	168.0mA 0.00°	190.0mV -0.57°	1.131Ω -0.57°
50.0m	171.0mA 0.00°	270.0mV -2.29°	1.579Ω -2.29°

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

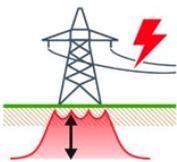
### GROUNDING SYSTEM

COMPANO 100 offers four specific modules for testing grounding systems<sup>1</sup>. They allow you to measure the soil resistivity as well as ground impedance, continuity and step and touch voltages. (Order No. VESM6160)

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.

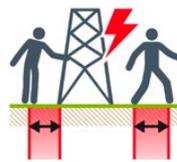


### Ground impedance



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.

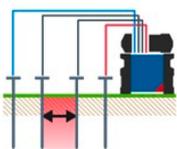
### Step- and touch voltage



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

<sup>1</sup> 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	Order No.	Standard Package VE006102 <sup>1</sup>	Advanced Package VE006103	Grounding System Standard Package VE006104	Grounding System Advanced Package VE006105	Complete Package VE006110
	<p><b>COMPANO 100 test set</b> 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><b>FLEX</b> Application module More information on page 8</p>	VESM6120	■	■	□	□	■
	<p><b>Micro-ohm</b> Application module More information on page 8</p>	VESM6130	■	■	■	■	■
	<p><b>Polarity check</b> Application module More information on page 8</p>	VESM6140	□	■	□	□	■
	<p><b>Grounding system</b> Package of application modules for grounding systems. More information on page 10</p>	VESM6160	□	□	■	■	■
	<p><b>Wiring check add-on</b> CPOL2, C-Probe 1 and clamp-on ammeter</p>	VEHZ6103	□	■	□	□	■
	<p><b>Ground system accessories</b> 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>	VEHZ6160	□	□	■	■	■
	<p><b>Step and touch voltage accessories</b> Package for measuring step and touch voltages within HV stations and surrounding areas. Including handheld grounding tester HGT1 and accessories.</p>	VEHZ6161	□	□	□	■	■
	<p><b>Device bag</b> 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>	VEHP0106 VEHP0109 VEHP0105	□ □ □	■ ■ ■	□ □ □	■ ■ ■	■ ■ ■
	<p><b>VOUT</b> Independent voltage output</p>	VESM6105	□	□	■	■	■

<sup>1</sup> Upgrade Standard Package to Advanced Package: Order No. VE006113 (protective carry bag, shoulder strap and accessory bag are not included)

□ = Optional ■ = Standard

# Accessories

	Accessory	Order No.
	<p><b>Transport trolley</b></p> <p>Robust transport case for shipping, with wheels and extendable handle for easy manoeuvring.</p>	VEHP0107
	<p><b>CPOL2 Polarity checker</b></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>	VEHZ0702
	<p><b>Clamp-on ammeter</b></p> <p>Check current flows when performing wiring checks.</p>	VEHZ6190
	<p><b>C-Probe 1</b></p> <p>This current clamp is a battery operated active AC and DC current probe with a 10 A and an 80 A range. It is used for wiring checks and burden measurements with COMPANO 100.</p>	VEHZ4000
	<p><b>C-Shunt 1 – 1 mOhm (32 A)</b>  <b>C-Shunt 10 – 10 mOhm (12.5 A)</b></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>	VEHZ0080 VEHZ0081
	<p><b>BNO1 Binary output relay</b></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>	VEHZ6120
	<p><b>CBF1 Accessory for self-powered relays</b></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>	VEHZ6121
	<p><b>VBO4 Voltage booster for 300 V and 750 V</b></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>	VEHZ6122

# Accessories

	Accessory	Order No.
	<p><b>Terminal adapter box</b> 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>	VEHZ0933
	<p><b>Rogowski coil</b> 1.9 m / 6 ft flexible rogowski coil for the measurement of current reduction factor, e.g. on power transmission towers.</p>	VEHZ0623
	<p><b>Foot electrode 20 x 20 cm / 7.9 x 7.9 in</b> For measurements according to EN50522.</p>	VEHZ0639
	<p><b>COMPANO 6 m / 19.5 ft cable</b> 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>	VEHK6107
	<p><b>Kelvin screw M12</b> <b>Kelvin screw M14</b> <b>Kelvin screw M16</b> 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 VEHK6107.</p>	VEHZ0944 VEHZ0951 VEHZ0950
	<p><b>Measurement cable set 6 x 6 m / 19.5 ft</b> <b>Measurement cable set 6 x 10 m / 32 ft</b> with 4 mm connectors / 2.5 mm<sup>2</sup></p>	VEHK0614 VEHK0619
	<p><b>Kelvin clamps</b> Set of 2 Kelvin clamps with 2 x 4 mm connector</p>	VEHZ0691
	<p><b>Y clamp with 4 mm connector for banana plugs</b> 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>	VEHZ0917

Please find more accessories on our website: [www.omicronenergy.com/COMPANO100](http://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
- > Order No. VESC6110 (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](http://www.omicronenergy.com/COMPANO100-Videos)



Premium  
Service

Premium application service contract<sup>1</sup>

VESC6110

<sup>1</sup> May not be available in all countries

# Technical data COMPANO 100

## COMPANO 100

### Output – IOUT<sup>1</sup>

Range	Current	t <sub>max</sub> <sup>2,3</sup>	V <sub>max</sub>	Power <sub>max</sub>
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 <sup>4</sup>
	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 <sup>5</sup>
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 <sup>5</sup>

### Output – VOUT (optional)

Range	Voltage	t <sub>max</sub> <sup>3</sup>	I <sub>max</sub>	Power <sub>max</sub>
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. <sup>6</sup>
110 A range	< 1.00 % of rd. <sup>7</sup>	< 0.50 % of rd.
	+ 0.40 % of rg. <sup>7</sup>	+ 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 <sup>7,8</sup>	Error guar.	Error typ. <sup>6</sup>
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. <sup>6</sup>
100 A range	< 1.20 % of rd. <sup>7</sup>	< 0.60 % of rd.
	+ 0.80 % of rg. <sup>7</sup>	+ 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 <sup>9</sup>	< 0.30 % of rd.	< 0.15 % of rd.
	+ 0.30 % of rg.	+ 0.15 % of rg.

### Inputs IN1 & IN2<sup>10</sup> – Accuracy

Voltage AC 500 kΩ	Error guar.	Error typ. <sup>6</sup>
300 V range	< 0.30 % of rd. <sup>7</sup>	< 0.15 % of rd.
	+ 0.10 % of rg. <sup>7</sup>	+ 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 <sup>7,8</sup>	Error guar.	Error typ. <sup>6</sup>
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. <sup>6</sup>
300 V range	< 0.20 % of rd. <sup>7</sup>	< 0.10 % of rd.
	+ 0.10 % of rg. <sup>7</sup>	+ 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. <sup>6</sup>
0.5 uΩ ... 1 mΩ	100 mV	100 A	< 0.50 % of rd. <sup>7</sup> + 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 <sup>11</sup>	-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 <sup>12</sup>
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

<sup>1</sup> Some self-supplied relays might not work properly

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

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

<sup>4</sup> Up to 1000 W with, for example, 50 A at 400 mΩ

<sup>5</sup> Limited by battery capacitance and charger

<sup>6</sup> 98 % of all units possess an accuracy greater than specified as typical

<sup>7</sup> 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

<sup>8</sup> At full range magnitude

<sup>9</sup> Applies for currents up to 200 mA

<sup>10</sup> CAT III / 300 V; CAT IV / 150 V

<sup>11</sup> Output power degrading below 0 °C due to battery

<sup>12</sup> 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.

# 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.

Aditya, David and Fabian are able to tell you about the services we have available for you and why it pays to be part of the team.



Aditya Taneja  
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.





David Negron  
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.



Fabian Kolb  
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. 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 is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

Customers in more than 160 countries rely on the company's ability to supply leading-edge technology of excellent quality. Service centers on all continents provide a broad base of knowledge and extraordinary customer support. All of this together with our strong network of sales partners is what has made our company a market leader in the electrical power industry.

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.