OMICRON

COMPANO 100

Primary injection, secondary injection and basic protection test set





Multifunctional device for basic testi

Challenging commissioning and re-commissioning tasks

During commissioning of protection systems there are literally hundreds of connections that have to be verified. Whether 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 and basic protection testing.

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)

* optional, coming in 2018



Graphical color user interface

Jog dial wheel

ng in electrical energy systems

Electronic sources

Controlled electronic outputs allow you to obtain exactly the desired value. Even for small values the accuracy is very high. In addition, the electronic sources can output signals with variable frequencies and other signal forms, automated ramps, even 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 any useful manner, e.g. to calculate a real power from the output current and a voltage input, making COMPANO 100 an incredibly flexible tool even for future applications.

DESIGN AWARD 2017

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

Large variety of applications in differentiated areas

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
- Ground system tests of small installations
- Micro-ohm measurements

Railways

Remote test objects need mains independent test sets with features such as those offered by COMPANO 100:

- Variable frequencies and DC
- Internal power source by battery
- Basic protection testing
- Ground system testing of small systems
- Micro-ohm measurements

Service providers

A maximum of testing capabilities should be provided by a single piece of equipment. COMPANO 100 offers:

- Many test functions in one device
- A small, lightweight, easy to transport device
- Applications such as: Primary or secondary injection, basic relay tests, continuity checks with high currents



Testing applications

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.

Burden measurements

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



Industries

These environments require easy to use test sets with outstanding capabilities. COMPANO 100 provides:

- High current and variable voltage generation
- Easy protection relay tests
- Ducter testing
- AC or DC voltages and currents for various uses
- A small, lightweight, easy to transport device

Rental

Ease of use and versatility is a must when users are changing frequently. COMPANO 100 offers:

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

Equipment manufacturers

Manufacturing processes often require devices for fast, individual and frequently changing tests. COMPANO 100 offers:

- 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

Single-phase protection relay testing

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

CT / VT ratio checks

COMPANO 100 generates a frequency variable sine wave signal for the frequency-selective measurement of CT and VT ratios.

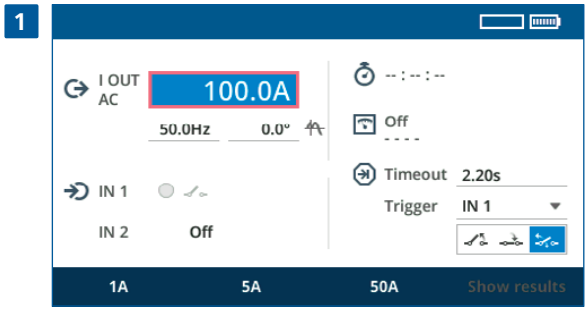
Micro-ohm resistance testing

COMPANO 100 is also a portable and battery operated high precision micro-ohmmeter which actually measures down to micro-ohms.

Efficient and ergonomic operation

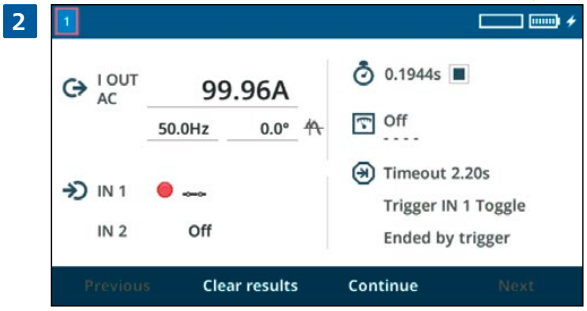
COMPANO 100's ease of use is based on its very intuitive software. Functionality and operation structure are developed in close co-operation with our customers.

Example: QUICK test of overcurrent protection



QUICK test setup

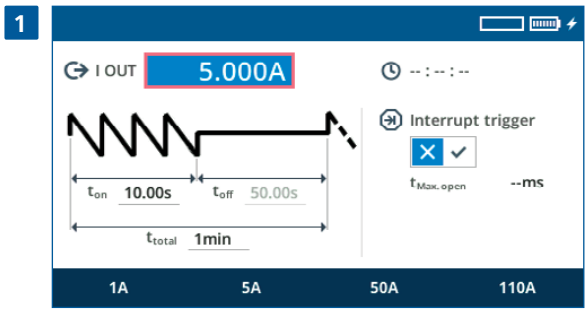
Set test current up to 110 A and choose between various different trigger criteria such as binary inputs or overload to automatically end the test.



QUICK results

Perform test shots at different output values and easily assess the result and compare it 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 onto a USB memory stick.

Your benefits

- Test easily and quickly
- 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. Most commonly used modules can be reached by a single key press.



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 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 programming of sequences consisting of states, ramps, pulse ramps or combinations of them in advance and then running them 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, in particular to create endless loops.
(Order No. VESM6120)



Polarity check

Allows asymmetric signal generation free from any DC component. By using a hand held polarity checker (CPOL) 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 using the COMPANO 100 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)

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 15). 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).

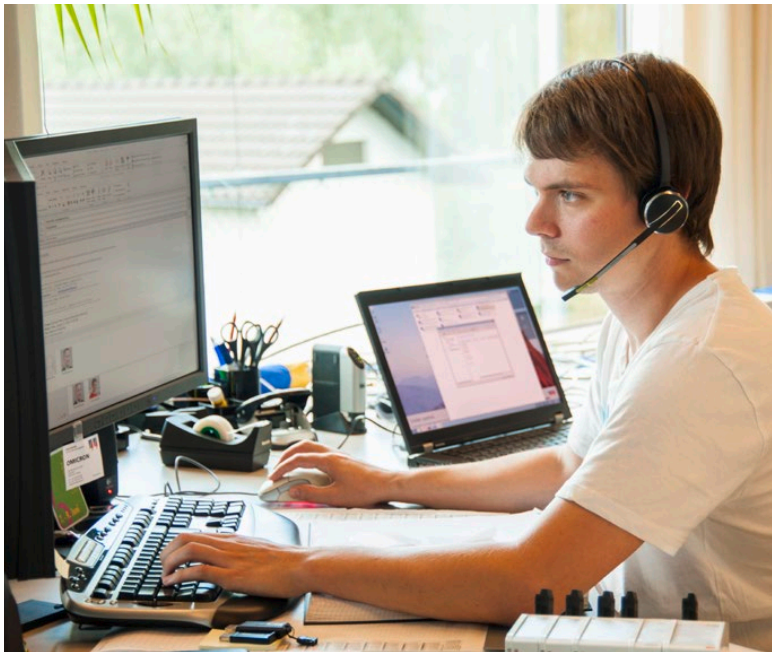
This support, for example, helps to interpret results or how to handle a specific application. Users without an optional service contract can make use of the premium application support by paying on a case by case basis.

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)

- 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 [1]



[1] sold with new devices only

Ordering options

	Description	Order No.	Standard VE006102 [1]	Advanced VE006103
	COMPANO 100 test set Including standard accessories such as 3 m / 10 ft cable set, power supply, C-Shunt 10, delivered in a carton box Included application module: QUICK Included service: Standard service	–	■	■
	FLEX Application module More information on page page 8	VESM6120	■	■
	Polarity check Application module More information on page page 8	VESM6140	□	■
	Micro-ohm Application module More information on page page 8	VESM6130	■	■
	Wiring check add-on CPOL, C-Probe 1 and clamp-on ammeter	VEHZ6103	□	■
	Device bag Protective soft bag for the COMPANO 100 Combined shoulder strap and handle (works with or without soft bag) Accessory bag with shoulder strap	VEHP0106 VEHP0109 VEHP0105	□	■
Upgrade	Upgrade V OUT Independent voltage output Available 2018	VEHO6100	□	□
Premium Service	Premium application service contract [2] More information on page page 9	VESC6110	□	□

□ = Optional
■ = Standard

[1] Upgrade Standard to Advanced: Order No. VE006113
(protective carry bag, shoulder strap and accessory bag are not included)
[2] May not be available in all countries

Accessories

	Accessory	Order No.
	Transport trolley Robust transport case for shipping, with wheels and extendable handle for easy manoeuvring.	VEHP0107
	CPOL Accessory Battery operated polarity checker that shows right or wrong polarity without connection back to COMPANO 100. To function, the COMPANO 100 needs a working polartiy check app.	VEHZ0650
	Clamp-on ammeter Check current flows when performing wiring checks.	VEHZ6190
	C-Probe 1 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.	VEHZ4000
	C-Shunt 1 – 1 mOhm (32 A) C-Shunt 10 – 10 mOhm (12.5 A) Precision shunts for current measurements. It can be directly inserted into the inputs of COMPANO 100 making the respective input a current input.	VEHZ0080 VEHZ0081
	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.	VEHK6107
	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.	VEHZ0933
	Step and touch voltage set Package to measure step and touch voltages within HV stations and surrounding areas. Including handheld grounding tester HGT1 and accessories.	VEHZ0625

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

Technical data COMPANO 100

COMPANO 100

Outputs – I OUT 110 A AC[1]

Current	t_{max}[2]	V_{max}	$Power_{max}$
0 ... 110 A	2.2 s	9.0 V	600 W
0 ... 80 A	4.2 s	12.5 V	600 W[3]
0 ... 40 A	20 s	15.0 V	600 W
0 ... 15 A	20 min	20.0 V	300 W[4]
0 ... 15 A	> 2 h	4.0 V	50 W[4,5]

Outputs – I OUT 100 A DC

Current	t_{max}[2]	V_{max}	$Power_{max}$
0 ... 100 A	2.2 s	9.0 V	600 W
0 ... 80 A	4.2 s	12.5 V	600 W
0 ... 40 A	20 s	15.0 V	600 W
0 ... 15 A	20 min	20.0 V	300 W[4]
0 ... 15 A	> 2 h	4.0 V	50 W[4,5]

Outputs – V OUT 150 V AC

Voltage	t_{max}[2]	I_{max}	$Power_{max}$
0 ... 150 V	1 min	200 mA	30 W
0 ... 75 V	1 min	200 mA	15 W

Outputs – V OUT 220 V DC

Voltage	t_{max}[2]	I_{max}	$Power_{max}$
0 ... 220 V	1 min	200 mA	30 W
0 ... 110 V	1 min	200 mA	22 W

Output measurements – Accuracy

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

Phase error[8]	Error guar.	Error typ.
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.
100 A range	< 1.20 % of rd. + 0.80 % of rg.	< 0.60 % of rd. + 0.40 % of rg.
20 A range	< 1.20 % of rd. + 0.80 % of rg.	< 0.60 % of rd. + 0.40 % of rg.

Inputs IN1 & IN2[9] – Accuracy

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

Phase error[8]	Error guar.	Error typ.
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.
300 V range	< 0.20 % of rd. + 0.10 % of rg.	< 0.10 % of rd. + 0.05 % of rg.
30 V range	< 0.30 % of rd. + 0.10 % of rg.	< 0.15 % of rd. + 0.05 % of rg.
1 V range	< 0.40 % of rd. + 0.20 % of rg.	< 0.20 % of rd. + 0.10 % of rg.
100 mV range	< 0.40 % of rd. + 0.40 % of rg.	< 0.20 % of rd. + 0.20 % of rg.

Binary inputs	Timing accuracy
Binary wet > 500 kΩ	0.2 ms
Binary dry > 500 kΩ	0.2 ms

Micro-ohm (IN1 only)

Voltage DC	Error guar.	Error typ.[6]
100 mV	< 0.20 % of rd.[7] + 0.10 % of rg.[7]	< 0.10 % of rd. + 0.05 % of rg.



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 "

Environmental conditions

Operating temperature	-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 [10]
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] AC means 15 ... 500 Hz
[2] Applies when using a 2 x 3 m / 10 ft high-current cable at an ambient temperature of 23 °C ± 5 °C / 73 °F ± 9 °F
[3] Up to 1000 W for e.g. 50 A at 400 mΩ
[4] Output range setting 20 A
[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] CAT III / 300 V; CAT IV / 150 V
[10] 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.

Don, 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.





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 150 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.

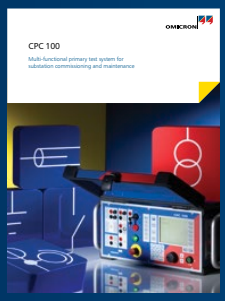
The following publications provide further information on the solutions described in this brochure:



CMC 310



ARCO 400



CPC 100

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

www.omicronenergy.com

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