



## ARTES 460 II



### The compact, multi-functional relay test system

ARTES 460 is the compact and universal solution for testing protection relays. Its built-in control panel, light weight and low noise level make this robust test system equally suitable for use on site and in the lab.

ARTES 460 makes light work of highly complex test tasks. 4 voltage and 6 current outputs allow 3-phase tests on static and digital relays. Even 3-phase tests on differential protection relays can be carried out without additional equipment.

### COMPACT, PRECISE AND VERSATILE

#### High-accuracy amplifier and measuring units

With high-accuracy amplifiers, a wide range of measurement inputs and, last but not least, simple handling and operation, ARTES 460 is the ideal solution for professional 3-phase relay testing.

All amplifier outputs can be set separately and independently of one another as regards phase, amplitude and frequency and are equipped with overload and short-circuit protection. The range of the 4 voltage amplifiers can be switched from 300 V to 150 V for low-voltage, high-power applications.

The current amplifiers provide a maximum test current of 6 x 16 A. Parallel operation of the current outputs allows output of up to 3 x 32 A for 3-phase applications.

#### Operation in an upright position

All connections and interfaces are located on the front panel. This means that ARTES 460 can be operated in an upright position if there is not enough space or if no table is available.

#### LEDs for status indication

LEDs on the front panel indicate the states and operating modes of the inputs and outputs. The user can tell at a glance which outputs are active and can easily identify the states of the binary inputs and outputs.

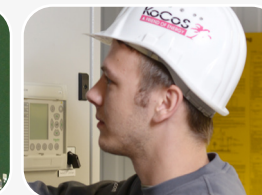
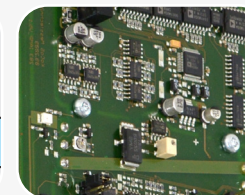
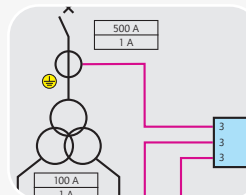
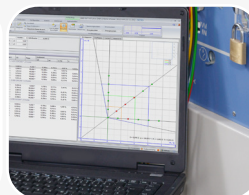
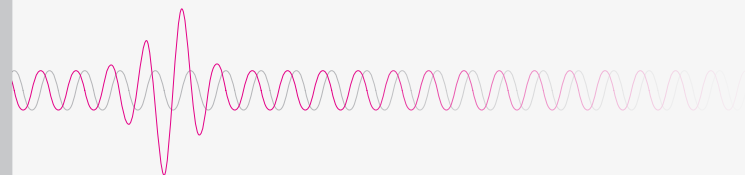


### ERGONOMIC, SIMPLE AND FAST

#### Integrated TJCP operator interface

The internal TJCP operator interface is a special feature. Its high-resolution 3.5" touch screen with smart touch technology enables many tests to be carried out quickly and easily without having to connect an external PC. The clear user interface guides the user intuitively through to complete the task in hand.

User actions carried out with the ergonomic jog wheel, such as amplitude, phase angle or frequency adjustments, are processed in real time and executed without delay. An illuminated ring integrated in the jog wheel and additional acoustic signals indicate system status during settings and tests.



## Applications

- Automatic testing for all types of protection relays
- Checking measuring transducers
- Testing IEC 61850-compliant protection equipment
- "Playing back" fault records

## Sources

- 4 voltage channels up to 300 V
- 6 current channel up to 6 x 16 A or 3 x 32 A
- 10 high-accuracy low-level signal outputs
- Separate DC output

## Ergonomic & compact design

- Lightweight and quiet
- Sophisticated connection system
- All connections and controls are located on the front panel
- Can be operated in an upright position

## Wide range of interfaces

- Internal GPS receiver unit
- USB
- 3 x Ethernet
- Wi-Fi

## Flexible powering

- Operation with AC or DC power supply
- Can be used in any country
- Immune to disturbances in the power supply

## ARTES testing software

As a rule, all test tasks can be carried out using the integrated control panel. For complex protection functions, the ARTES PC software is a tool which can significantly simplify, automate and therefore speed up tests. For this purpose, the ARTES testing software provides a wide range of practical test monitors which are all included in the scope of delivery, in addition to the basic software:

### ■ VD-Monitor

Test any protection function by setting the test quantities manually. In addition, the output signals can also be run as linear or staircase ramps within the configured range.

### ■ IT-Monitor

Check the operating times and directional sensitivity of overcurrent relays

### ■ IMP-Monitor

Check the operating times and impedance zones of distance protection devices

### ■ DIFF-Monitor

Check the tripping characteristic and operating times of differential protection relays

### ■ QU-Monitor

Check the QU protection function

### ■ SYNC-Monitor

Test paralleling devices and synchronizers

### ■ PIC-Monitor

Check the pick-up and drop-off values of protection relays

### ■ TD-Monitor

Determine measuring transducer error

### ■ SmartSequencer

Event-controlled output of test sequences

### ■ TRANSIG-Monitor

Display and output COMTRADE records and generate any signal characteristic

## TECHNICAL DATA

<b>Sources</b>	4 voltage and 6 current outputs
Frequency range	DC...3 kHz
Transient signals	DC...4 kHz
Phase angle	0...360°
<b>Voltage outputs</b>	
4-phase (L-N)	4 x 0...300 V / 75 VA
1-phase (L-L)	1 x 0...600 V / 150 VA
<b>Current outputs</b>	
6-phase	6 x 0...16 A / 40 VA
3-phase	3 x 0...32 A / 80 VA
<b>Low-level signal outputs</b>	10 separately and independently adjustable outputs, output range 0...10 V <sub>pk</sub>
<b>DC output</b>	12...260 VDC, 50 W, max. 2 A
<b>Analog inputs</b>	4 x 0...±10 V / 600 V <sub>rms</sub> , switchable 4 x 0...±20 mA / 0...±10 V, switchable
<b>Binary inputs</b>	
Quantity	8 inputs
Groups	2 galvanically isolated groups with 4 inputs each Each group is configurable for measuring dry / wet contacts
<b>Binary outputs</b>	2 potential-free, galvanically isolated relays
<b>Operation</b>	
PC	ARTES testing software for Windows® 7 / 8 / 10 / 11
Stand-alone	3,5" touch screen, 2 function keys, jog wheel
<b>Measurement connections</b>	All the connections are located on the front panel. This means that ARTES 460 can also be operated in an upright position.
<b>Interfaces</b>	USB, 3 x Ethernet, Wi-Fi
<b>Time synchronization</b>	Internal GPS receiver
<b>Status LEDs</b>	Indication of active current and voltage outputs and of the status of the binary inputs and outputs by LEDs
<b>Supply voltage</b>	100...265 VAC, 47...63 Hz / 120...265 VDC
<b>Housing</b>	
Dimensions (mm)	470 x 162 x 326 (W x H x D)
Weight	11.7 kg

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