

Applications

Highly precise, portable measuring system for functional tests on various types of protection equipment. Four voltage and six current outputs allow three-phase tests on static and digital relays and on differential protection relays. Analog measurement inputs also make it possible to test and calibrate transducers

The device can be operated and controlled either with a PC and the ARTES testing software or alternatively by means of the built-in control panel equipped with a high-resolution, resistive 3.5" touch screen, function keys and a jog wheel.

Sources

All signals can be set separately and independently of one another as regards phase, amplitude and frequency. The output values of the current and voltage amplifiers are monitored by means of internal feedback measurements. If the output values do not agree with the setpoint values, a warning is issued to this effect. All outputs also have overload and short-circuit protection.

General	Frequency range Transient signals	DC3 kHz DC4 kHz
	Frequency resolution Frequency accuracy	0.001 Hz Error < 0.01%
	Phase angle Phase resolution Phase accuracy	0360° 0.001° Error < 0.05° 1)
Voltage outputs	4-phase (L-N) 3-phase (L-N) 1-phase (L-L)	4 x 0300 V / 75 VA ³⁾ 3 x 0300 V / 100 VA ³⁾ 1 x 0600 V / 150 VA ³⁾
	Resolution Accuracy THD	13 mV Error < 0.05% ^{1),2)} < 0.05% ¹⁾
Current outputs	6-phase 3-phase Resolution Accuracy THD	6 x 016 A / 40 VA ³⁾ 3 x 032 A / 80 VA ³⁾ 1 mA Error < 0.05% ^{1),2)} < 0.05% ¹⁾

Low-level signal outputs

Special low-level outputs with very high accuracy make it possible to test protection devices with low-level signal inputs. All signals can be set separately and independently of one another as regards phase, amplitude and frequency. All outputs also have overload and short-circuit protection.

Number 10 outputs in 3 groups

 $\begin{array}{ccc} & & & & \\ & & & \\ \text{Max. output current} & & & 20 \text{ mA} \end{array}$

Resolution 300 μV

Accuracy Error < 0.05%

Frequency range DC...3 kHz Transient signals DC...4 kHz

THD < 0.05%

Frequency resolution 0.001 Hz Frequency accuracy Error < 0.01%

Phase angle 0...360°
Phase resolution 0.001°
Phase accuracy Error < 0.05°



 $^{^{1)}}$ For the frequency range of 10...100 Hz

²⁾ Of range

³⁾ For symmetrical output quantities, supply voltage 230 VAC, 50 Hz

DC output		Output range	12260 VDC
		Output power	50 W, max. 2 A
		Accuracy	Error < 5%
		Protection	Overload and short-circuit protection
Analog inputs		Number	8
		Frequency range	DC4 kHz, linear frequency response
		Voltage range	4 x 0±10 V / 600 V _{rms}
		Current range	4 x 0±20 mA / 0±10 V
		Accuracy	Error < 0.1% ²⁾
		Protection	Galvanic isolation via digital high-speed isolators
	-		
Binary inputs	The binary inputs a		roups can be configured for wet or dry contacts.
		Number	8
		Groups	2 with 4 measurement inputs each
		Response threshold Max. measurement	24300 VDC, or potential-free contact unlimited
		Max. Measurement duration	ummicu
		Sampling rate	8 kHz
		Protection	Transient protection, polarity protection and galvanic
			isolation via opto-couplers
Binary outputs	Relay	Number	2
		A C 't .l. ' 't	0250 VAC, 8 A, resistive load
		AC switching capacity	
		DC switching capacity	0300 VDC , $I_{\text{max}} = 8 \text{ A}$, 50 W
Complete system	device. The power	DC switching capacity Protection ns required for linking up to tl	$0300~\text{VDC},~I_{\text{max}} = 8~\text{A},~50~\text{W}$ Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel.
	device. The power	DC switching capacity Protection ns required for linking up to tler supply, an Ethernet interface	$0300~\text{VDC}$, $I_{\text{max}} = 8~\text{A}$, $50~\text{W}$ Potential-free and galvanically isolated output relays the device under test can be found on the front panel of the seand a USB interface are also integrated in the front panel and upright position.
	device. The power	DC switching capacity Protection ns required for linking up to tler supply, an Ethernet interfactor ARTES 460 can also be operations.	$0300~\text{VDC},~I_{\text{max}} = 8~\text{A},~50~\text{W}$ Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front pane
	device. The power	DC switching capacity Protection ns required for linking up to tler supply, an Ethernet interfactor ARTES 460 can also be operated.	$0300~\text{VDC},~I_{\text{max}}=8~\text{A},~50~\text{W}$ Potential-free and galvanically isolated output relays the device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10
	device. The pow This means that Operation	DC switching capacity Protection ns required for linking up to tler supply, an Ethernet interfactor ARTES 460 can also be operated.	0300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel
	device. The power	DC switching capacity Protection ns required for linking up to tler supply, an Ethernet interfactor ARTES 460 can also be operated. PC Stand-alone	0300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the eand a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets
	device. The pow This means that Operation Connections/	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interfactor ARTES 460 can also be operated PC Stand-alone Measurement connections Low-level signal outputs	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810}
	device. The pow This means that Operation Connections/	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interfact ARTES 460 can also be operated as the supply of the supply	0300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi
	device. The pow This means that Operation Connections/	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interfactor and the supply and Ethernet interfaces. PC Stand-alone Measurement connections Low-level signal outputs Interfaces Time synchronisation	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi Internal GPS receiver with SMA antenna connection
	device. The pow This means that Operation Connections/	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interfact ARTES 460 can also be operated as the supply of the supply	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi Internal GPS receiver with SMA antenna connection
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	device. The pow This means that Operation Connections/ interfaces	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interfact ARTES 460 can also be operated as the supply of the supply	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the eard a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi Internal GPS receiver with SMA antenna connection Indication of active current and voltage outputs and of the status of the binary inputs and outputs by LEDs
	device. The powr This means that Operation Connections/interfaces Supply	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interface ARTES 460 can also be operated as the supply of the supply	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays ne device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi Internal GPS receiver with SMA antenna connection Indication of active current and voltage outputs and of the status of the binary inputs and outputs by LEDs 100265 VAC, 4763 Hz / 120265 VDC 1000 W Portable 19" housing, 3 U, the carrying handle can also be
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	Connections/interfaces Supply voltage Construction	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interface ARTES 460 can also be operated. PC Stand-alone Measurement connections Low-level signal outputs Interfaces Time synchronisation Status LEDs Rated voltage Wattage Housing Protection Dimensions (W x H x D) Weight Operating temperature Storage temperature Relative humidity	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays the device under test can be found on the front panel of the earnd a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi Internal GPS receiver with SMA antenna connection Indication of active current and voltage outputs and of the status of the binary inputs and outputs by LEDs 100265 VAC, 4763 Hz / 120265 VDC 1000 W Portable 19" housing, 3 U, the carrying handle can also be used as a stand IP20 470 x 162 x 326 mm, without handle 11.7 kg 050°C -2060°C 590%, non-condensing
	device. The power This means that Operation Connections/interfaces Supply voltage Construction Environment Generic	DC switching capacity Protection ns required for linking up to the supply, an Ethernet interface ARTES 460 can also be operated. PC Stand-alone Measurement connections Low-level signal outputs Interfaces Time synchronisation Status LEDs Rated voltage Wattage Housing Protection Dimensions (W x H x D) Weight Operating temperature Storage temperature Relative humidity Safety	O300 VDC, I _{max} = 8 A, 50 W Potential-free and galvanically isolated output relays the device under test can be found on the front panel of the se and a USB interface are also integrated in the front panel ted in an upright position. ARTES testing software for Windows® XP/7/8/10 3.5" touch screen, high-resolution, resistive 2 function keys and a jog wheel 4 mm safety sockets 3 push-pull output sockets, U _{LS 14} , U _{LS 57} , U _{LS 810} USB, 3 x Ethernet, Wi-Fi Internal GPS receiver with SMA antenna connection Indication of active current and voltage outputs and of the status of the binary inputs and outputs by LEDs 100265 VAC, 4763 Hz / 120265 VDC 1000 W Portable 19" housing, 3 U, the carrying handle can also be used as a stand IP20 470 x 162 x 326 mm, without handle 11.7 kg 050°C -2060°C 590%, non-condensing EN 61010-1, 150 V CAT IV; 300 V CAT III; 600 V CAT II



 $^{^{1)}}$ For the frequency range of 10...100 Hz $^{2)}$ Of range