

# UPA series

## CIRCUIT BREAKER TEST SYSTEMS



UPA-6 / UPA-10

UPA-1 / UPA-3

UPA-16 / UPA-20

- **Output current up to 20 kA**
- **Time-current characteristics testing according to IEC 60898-1:2019 or IEC 60934:2019**
- **Continuous and time-limited current generation**
- **Fast switch-off time for time-limited testing as short as 50 ms**
- **Versatile loop-through current source**
- **Safe two-module composition**
- **Mobile form factor and compact trolley-mounted design**

The UPA-series systems are designed for testing the trip functionality of AC circuit breakers with thermal and electromagnetic tripping units. UPA model range includes systems with output current between 1 kA and 20 kA, making it possible to test circuit breakers for various applications and of different current ratings.

The systems can operate in a continuous or time-limited current generation cycles with a possibility of selecting the exact test duration as short as 50 ms. When used with an external voltage regulator, UPA-series systems can output a sine wave test current, allowing to fully test time-current characteristic of circuit breakers according to IEC 60898-1:2019 or IEC 60934:2019.

All UPA systems comprise of two separate main units – a control unit and a current source, complete with the necessary set of connection cables. The control unit, composed in a rugged plastic case, is used for controlling the current source from a safe distance as well as for configuring and monitoring the test progress. The current source contains a toroidal transformer featuring optimal thermal performance and a relatively low energy consumption. The system connects to a circuit breaker to be tested with flexible current conductors which are looped through the current source. Such design makes it possible to reduce the size of the current source by allowing to adjust the output current value by varying the number of current conductors' loops.

All components of the UPA-series systems are individually portable, yet are supplied mounted on a trolley as standard for an even simpler transportation and handling. The narrow wheelbase of the trolley is ideal for deploying the system to tight switchgear rooms.

UPA-series systems are intended for short duty operating cycle and are equipped with an overheating protection. Along with the safe two-module design, the operator safety is ensured by the overcurrent tripping and robust grounding.



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ISO 9001  
Certificate № 28 110 804001



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		UPA-1	UPA-3	UPA-6	UPA-10	UPA-16	UPA-20	
<b>Output current</b>	Maximum value	1 kA	3 kA	6 kA	10 kA	16 kA	20 kA	
	Current measurement ranges in amperes	one turn	10 ... 100 A	100 ... 1000 A			200 ... 4000 A	
		two turns	5 ... 50 A	50 ... 500 A			100 ... 2000 A	
		three turns	3.3 ... 33 A	33 ... 330 A			66.7 ... 1333 A	
		four turns	2.5 ... 25 A	25 ... 250 A			50 ... 1000 A	
		five turns	2 ... 20 A	20 ... 200 A			40 ... 800 A	
	Current measurement ranges in kiloamperes	one turn	0.1 ... 1 kA	1 ... 3 kA	1 ... 6 kA	1 ... 10 kA	3 ... 16 kA	3 ... 20 kA
		two turns	0.05 ... 0.5 kA	0.5 ... 1.5 kA	0.5 ... 3 kA	0.5 ... 5 kA	1.5 ... 8 kA	1.5 ... 10 kA
		three turns	0.03 ... 0.33 kA	0.33 ... 1 kA	0.33 ... 2 kA	0.33 ... 3.3 kA	1 ... 5.33 kA	1 ... 6.67 kA
		four turns	0.025 ... 0.25 kA	0.25 ... 0.75 kA	0.25 ... 1.5 kA	0.25 ... 2.5 kA	0.75 ... 4 kA	0.75 ... 5 kA
five turns		0.02 ... 0.2 kA	0.2 ... 0.6 kA	0.2 ... 1.2 kA	0.2 ... 2 kA	0.6 ... 3.2 kA	0.6 ... 4 kA	
Measurement error *		± 3 % of maximum value in a given range						
<b>System parameters</b>	Current generation cycles	<ul style="list-style-type: none"> <li>▪ Continuous (up to 7200 s)</li> <li>▪ Time-limited (50 / 100 / 200 / 400 / 600 / 800 / 990 ms, 10 s) **</li> </ul>						
	Ranges of test duration measurement *	<ul style="list-style-type: none"> <li>▪ 50 ... 990 ms</li> <li>▪ 1 ... 7200 s</li> </ul>						
	Absolute test duration measurement error in 50 ... 990 ms range *	± 20 ms						
	Relative test duration measurement error in 1 ... 7200 s range *	± 3 %						
	Open-circuit voltage (with one current conductor turn and 220 V voltage supply to the current source)	0.9 V		1.2 V		0.9 V		
	Maximum load cycle at maximum output current ***	10 s						
<b>Power adjustment</b>	Range of adjustment of the voltage supply to the current source when powered from 230 V mains	5 ... 250 V						
	Range of adjustment of the voltage supply to the current source when powered from 400 V mains	–	230 ... 450 V					
<b>Interfaces</b>	Display	Monochrome, 2 lines, 20 characters each						

<b>Safety</b>	Grounding	<ul style="list-style-type: none"> <li>Protective earthing</li> </ul>				
	Protection	<ul style="list-style-type: none"> <li>Overcurrent</li> <li>Overheating</li> </ul>				
<b>Power supply and consumption</b>	Mains supply voltage	230 VAC, $\pm$ 10%				
	Mains supply frequency	50 Hz (60 Hz option)				
	Power consumption	up to 3.6 kV·A	up to 7.5 kV·A	up to 20 kV·A	up to 37 kV·A	up to 50 kV·A
<b>Physical</b>	Control unit dimensions, H x W x D	180 x 366 x 270 mm			180 x 374 x 270 mm	
	Current source dimensions with (without) handle, H x W x D	223 x 110 x 253 mm (340 x 215 x 253 mm)	(378 x 340 x 366 mm)		(378 x 340 x 375 mm)	
	Overall system dimensions (when mounted on the handling trolley), H x W x D	1117 x 451 x 500 mm	1117 x 470 x 495 mm			
	Control unit weight	4.9 kg	5.5 kg		6.4 kg	
	Current source weight with (without) handle	17 kg (19 kg)	(40 kg)		(60 kg)	
	Total system weight (including handling trolley and accessories)	41 kg	80 kg		108 kg	

\* The specified metrological characteristics are only valid when the system is used with an external voltage regulator.

\*\* Pre-set time limits for current generation may be changed on the customer's request.

\*\*\* If the output current exceeds 1000 A, the test duration should not exceed 10 s.

Specifications are subject to change without notice. Pictures are for illustration purposes only.



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