

Power and Energy Laboratory

**Calibration and Measurement Capability (CMC)**

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent		Expanded Uncertainty					Reference Standard used in calibration	
Quantity/ Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	Standard	Source of traceability
AC power and energy: single phase (f<=400 Hz), active power	Power meter, power comparator	Direct comparison	0.3	57 600	W	Voltage	60 to 480	180 to 850	μW / VA	2	95%	yes	COM3003 No. 018832	PTB
						Current	0.005 A to 120 A							
						Frequency	60 Hz							
						phase shift	-60° to +60°							
						Temperature	23 °C ± 2 °C							
AC power and energy: single phase (f<=400 Hz), reactive power	Power meter, power comparator	Direct comparison	0.3	57 600	var	Voltage	60 to 480	180 to 850	μvar / VA	2	95%	yes	COM3003 No. 018832	PTB
						Current	0.005 A to 120 A							
						Frequency	60 Hz							
						phase shift	-60° to +60°							
						Temperature	23 °C ± 2 °C							
AC power and energy: single phase (f<=400 Hz), apparent power	Power meter, power comparator	Direct comparison	0.3	57 600	VA	Voltage	60 to 480	180 to 850	μVA / VA	2	95%	yes	COM3003 No. 018832	PTB
						Current	0.005 A to 120 A							
						Frequency	60 Hz							
						phase shift	-60° to +60°							
						Temperature	23 °C ± 2 °C							
AC power and energy: three phase (f<=400 Hz), active power	Power meter, power comparator	Direct comparison	0.0009	172.8	kW	Voltage	60 to 480	180 to 400	μW / VA	2	95%	yes	COM3003 No. 018832	PTB

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						Current	0.005 A to 120 A							
						Frequency	60 Hz							
						phase shift	-60° to +60°							
						Temperature	23 °C ± 2 °C							
AC power and energy: single phase (f<=400 Hz), active power	Power meter, power comparator	Direct comparison	0.3	57 600	W	Voltage	60 to 480	360 to 1440	µW / VA	2	95%	yes	COM 303-3 No. 98-373-1	PTB
						Current	0.005 A to 120 A							
						Frequency	60 Hz							
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						Temperature	23 °C ± 2 °C							

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AC power and energy: single phase (f<=400 Hz), reactive power	Power meter, power comparator	Direct comparison	0.3	57 600	var	Voltage	60 to 480	360 to 1440	μvar / VA	2	95%	yes	COM 303-3 No. 98-373-1	PTB
						Current	0.005 A to 120 A							
						Frequency	60 Hz							
						phase shift	-60° to +60°							
					Temperature	23 °C ± 2 °C								
AC power and energy: single phase (f<=400 Hz), apparent power	Power meter, power comparator	Direct comparison	0.3	57 600	VA	Voltage	60 to 480	360 to 1440	μVA / VA	2	95%	yes	COM 303-3 No. 98-373-1	PTB
						Current	0.005 A to 120 A							
						Frequency	60 Hz							
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					Temperature	23 °C ± 2 °C								
AC power and energy: three phase (f<=400 Hz), active power	Power meter, power comparator	Direct comparison	0.0009	172.8	kW	Voltage	60 to 480	360 to 1440	μW / VA	2	95%	yes	COM 303-3 No. 98-373-1	PTB
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						Current	0.005 A to 120 A							
						Frequency	60 Hz							
						phase shift	-60° to +60°							
						Temperature	23 °C ± 2 °C							
High voltage and current, AC high voltage and voltage transformers, voltage transformers: ratio error and phase displacement (real component) :	Voltage transformers	Comparison with Standard transformer	20	192	V/V	Voltage	8.05 /√3 kV to 40/√3 kV	1.5E-04 To 1.9E-04		2	95%	No	SVT40/120 No. 2/12/4011	PTB
						Frequency	60 Hz							

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High voltage and current, AC high voltage and voltage transformers, voltage transformers: ratio error and phase displacement (imaginary component)	Voltage transformers	Comparison with Standard transformer	20	192	V/V	Voltage	8.05 / $\sqrt{3}$ kV to 40/ $\sqrt{3}$ kV	350	$\mu$ rad	2	95%	No	SVT40/120 No. 2/12/4011	PTB
						Frequency	60 Hz							

Last updated: August 30, 2017